THE STATE OF SOUTH CAROLINA
In the Supreme Court

RECEIVED
MAY 22 2019
S.C. SUPREME COURT

APPEAL FROM THE PUBLIC SERVICE COMMISSION

Appellate Case No. 2018-001165 and 2018-002117

Commission Docket No. 2018-2-E

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy, Appellants,

v.

South Carolina Electric & Gas, CMC Steel South Carolina, South Carolina Energy Users Committee, South Carolina Solar Business Alliance, LLC, Southern Current, LLC and South Carolina Office of Regulatory Staff, Respondents;

and

South Carolina Solar Business Alliance, LLC, Appellant,

v.

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy, South Carolina Electric and Gas, CMC Steel South Carolina, South Carolina Energy Users Committee, Southern Current, LLC, and South Carolina Office of Regulatory Staff,

Of whom South Carolina Electric & Gas and South Carolina Office of Regulatory Staff, are Respondents.

RECORD ON APPEAL
Volume II of IV

[Attorney appearances follow]

J. Blanding Holman, IV
Southern Environmental Law Center
463 King Street, Suite B
Charleston, SC 29403
(843) 720-5270

Alexander G. Shissias, Esq.
The Shissias Law Firm, LLC
1727 Hampton Street
Columbia, SC 29201
(803) 540-3090

Benjamin P. Mustian, Esq.
Willoughby & Hoefer, P.A.
Post Office Box 8416
Columbia, SC 29202
(803) 252-3300

John Marion S. Hoefer, Esq.
South Carolina Electric & Gas Company
220 Operation Way - MC C222
Cayce, SC 29033-3701
(803) 217-8141

Andrew M. Bateman, Esq.
Office of Regulatory Staff
1401 Main Street, Suite 900
Columbia, SC 29201
(803) 737-8440

Timothy F. Rogers, Esq.
Austin and Rogers, P.A.
Post Office Box 11716
Columbia, SC 29201
(803) 712-9900

K. Chad Burgess, Esq.
South Carolina Electric & Gas Company
220 Operation Way - MC C222
Cayce, SC 29033-3701
(803) 217-8141

Matthew Gissendanner, Esq.
South Carolina Electric & Gas Company
220 Operation Way - MC C222
Cayce, SC 29033-3701
(803) 217-8141

Mitchell Willoughby, Esq.
South Carolina Electric & Gas Company
220 Operation Way - MC C222
Cayce, SC 29033-3701
(803) 217-8141

Scott Elliott, Esq.
Elliott & Elliott, P.A.
1508 Lady Street
Columbia, SC 29201
(803) 771-0555

Jenny R. Pittman , Counsel
Office of Regulatory Staff
1401 Main Street, Suite 900
Columbia, SC 29201
(803) 737-0889

Richard L. Whitt, Esq.
Austin & Rogers, P.A.
508 Hampton Street, Suite 300
Columbia, SC 29201
(803) 251-7442

INDEX TO VOLUMES OF RECORD ON APPEAL

VOLUME I	(R. pp. 1 to 473)
VOLUME II	(R. pp. 474 to 903)
VOLUME III	(R. pp. 904 to 1278)
VOLUME IV	(R. pp. 1279 to 1674)

INDEX

Volume I **(R. pp. 1-473)**

Orders

Order No 2017-246 Approving Fuel Costs and Adopting Settlement Agreement, April 27, 2017 1

Order No. 2018-92 Granting Petition to Intervene of South Carolina Solar Business Alliance, Inc., February 7, 2018 85

Order No. 2018-129 Granting Petition to Intervene of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy, February 21, 2018 86

Order No. 2018-322 Approving Fuel Costs, April 30, 2018 87

Amended Order No. 2018-322(A) Approving Fuel Costs, May 2, 2018 138

Order No. 2018-708 Denying Rehearing or Reconsideration of Amended Order No. 2018-322(A), October 30, 2018 189

Directives

Hearing Officer Directive Order No. 2018-36-H Granting Request for Expedited Treatment of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition for an Order Requiring South Carolina Electric & Gas Company to Comply with Order No. 2018-55, March 28, 2018 195

Directive Order No. 2018-267 Denying Motion to Bifurcate Issues Filed on Behalf of South Carolina Solar Business Alliance, Inc., April 4, 2018 196

Hearing Officer Directive Order No. 2018-42H Dismissing South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition for an Order Requiring South Carolina Electric & Gas Company to Comply with Order No. 2018-55, April 5, 2018 198

Hearing Officer Directive Order No. 2018-44H Denying South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition to Reconsider Directive Order No. 2018-42H, April 9, 2018 202

Directive Approving Fuel Costs, April 25, 2018 204

Directives Denying Petitions for Rehearing or Reconsideration of Amended Order No. 2018-322(A) May 23, 2018 207

Pleadings

Notice of Hearing and Prefile Testimony Deadlines - Annual Review of Base Rates for Fuel Costs for South Carolina Electric & Gas Company, October 4, 2017 219

Prefile Testimony Letter from Clerk's Office, October 4, 2017 220

Notice of Appearance of Counsel for the Office of Regulatory Staff, October 5, 2017 221

South Carolina Solar Business Alliance, Inc.'s Petition to Intervene, January 22, 2018 222

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition to Intervene, January 25, 2018 227

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition in Docket No. 2017-2-E for an Order Requiring South Carolina Electric & Gas Company to Comply with Order No. 2018-55, March 21, 2018 231

South Carolina Solar Business Alliance, Inc.'s Motion to Bifurcate Issues, March 26, 2018 236

South Carolina Solar Business Alliance's Letter in Support of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition in Docket No. 2017-2-E for an Order Requiring South Carolina Electric & Gas Company to Comply with Order No. 2018-55, March 27, 2018 239

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Response to South Carolina Solar Business Alliance's Motion to Bifurcate, March 28, 2018 240

Office of Regulatory Staff's Answer in Support of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition in Docket No. 2017-2-E for an Order Requiring South Carolina Electric & Gas Company to Comply with Order No. 2018-55, April 2, 2018 244

Office of Regulatory Staff's Answer to South Carolina Solar Business Alliance's Motion To Bifurcate Issues, April 2, 2018 245

South Carolina Electric & Gas Company's Motion to Dismiss South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition in Docket No. 2017-2-E for an Order Requiring South Carolina Electric & Gas Company to Comply with Order No. 2018-55, April 2, 2018 247

South Carolina Electric & Gas Company's Response in Opposition to South Carolina Solar Business Alliance, Inc.'s Motion to Bifurcate Issues, April 2, 2018 255

South Carolina Solar Business Alliance, Inc.'s Petition for Reconsideration of Order No. 2018-267, April 6, 2018 279

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Letter in Support of South Carolina Solar Business Alliance, Inc.'s Petition for Reconsideration of Order No. 2018-267, April 6, 2018 282

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition for Reconsideration of Directive Order No. 2018-42H, April 6, 2018 283

South Carolina Electric & Gas Company's Response to South Carolina Solar Business Alliance, Inc.'s Petition for Reconsideration of Order No. 2018-267, April 9, 2018 287

South Carolina Electric & Gas Company's Response to South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition for Reconsideration of Order No. 2018-42H, April 9, 2018 289

Office of Regulatory Staff's Proposed Order, April 19, 2018 290

South Carolina Coastal Conservation League & Southern Alliance for Clean Energy's Proposed Order, April 19, 2018 325

South Carolina Coastal Conservation League & Southern Alliance for Clean Energy's Post-Hearing Brief, April 19, 2018 364

South Carolina Electric & Gas Company's Proposed Order, April 19, 2018 401

South Carolina Solar Business Alliance, Inc.'s Proposed Order, April 19, 2018 449

South Carolina Solar Business Alliance, Inc.'s Petition for Rehearing and/or Reconsideration of Amended Order No. 2018-322(A), May 10, 2018 467

Volume II **(R. pp. 474-903)**

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Petition for Rehearing and/or Reconsideration of Amended Order No. 2018-322(A), May 10, 2018 474

South Carolina Energy Users Committee's Petition for Rehearing or Reconsideration, May 10, 2018 524

Office of Regulatory Staff's Petition for Rehearing and/or Reconsideration of Amended Order No. 2018-322(A), May 11, 2018 540

South Carolina Energy User's Committee Petition for Rehearing or Reconsideration, May 10, 2018 552

South Carolina Solar Business Alliance's Notice of Appeal, November 29, 2018 568

Transcripts

Transcript of Proceedings, Vol. 1, Hearing #18-11716, Held April 10, 2018 631

- Motion by Commissioner Bockman, Discussion, and Vote (pp. 9-17) 639
- Panel Testimony by of George A. Lippard, III and Henry Delk, Jr. 651
  - George A. Lippard, III
    - Direct Examination by Mr. Burgess (p. 22) 652
    - Summary of prefiled direct testimony (p. 23) 653
    - Prefiled direct testimony (pp. 27-35) 657
  - Henry E. Delk, Jr.
    - Direct Examination by Mr. Burgess (p. 36) 666
    - Summary of prefiled direct testimony (p. 38) 668
    - Prefiled direct testimony (pp. 40-50) 670
  - Examination by Commissioners (pp. 51-67) 681
- Panel Testimony of Michael D. Shinn and J. Darrin Kahl 698
  - Michael D. Shinn
    - Direct Examination by Mr. Gissendanner (p. 68) 698
    - Summary of prefiled direct testimony (p. 70) 700
    - Prefiled direct testimony (pp. 74-95) 704
    - Cross Examination by Mr. Elliott (pp. 109-112) 739

- J. Darrin Kahl
  - Direct Examination by Mr. Gissendanner (p. 96) 726
  - Summary of prefiled direct testimony (p. 98) 728
  - Prefiled direct testimony (pp. 101-108) 731
  - Cross Examination by Mr. Elliott (pp. 112-121). 742

- Examination by Commissioners (pp. 121-135) 761

- Panel Testimony of Allen W. Rooks, John F. Raftery, and Joseph M. Lynch, Ph. D (p. 139). 769

  - Allen W. Rooks
    - Direct Examination by Mr. Mustian (pp. 139-141) 769
    - Summary of prefiled direct testimony (p. 141) 771
    - Prefiled direct testimony (pp. 145-161) 775
    - Summary of prefiled rebuttal testimony (p. 163) 793
    - Prefiled rebuttal testimony (pp. 165-167) 795
    - Cross Examination by Mr. Elliott (p. 367) 997

  - John H. Raftery
    - Direct Examination by Mr. Mustian (p. 168) 798
    - Summary of prefiled direct testimony (p. 169) 799
    - Prefiled direct testimony (pp. 173-187) 803

  - Joseph M. Lynch, Ph. D.
    - Direct Examination by Mr. Mustian (p. 188) 818
    - Summary of prefiled direct testimony (p. 191) 821
    - Prefiled direct testimony (pp. 195-226) 825
    - Summary of prefiled rebuttal testimony (p. 228) 858
    - Prefiled rebuttal testimony (pp. 230-272) 860

Volume III **(R. pp. 904-1278)**

  - Joseph M. Lynch, Ph. D. (continued from Volume II)
    - Cross Examination by Mr. Snowden (pp. 274-367) 904
    - Cross Examination by Ms. Ottenweller (p. 446) 1076

- Testimony of Devi C. Glick
  - Direct Examination by Ms. Ottenweller (p. 375) 1005
  - Prefiled unredacted direct testimony (pp. 379-412) 1009
  - Prefiled surrebuttal testimony (pp. 414-429) 1044
  - Examination by Commissioners (p. 430) 1060

Transcript of Proceedings, Vol. 2, Hearing #18-11716, Held April 11, 2018 1093

- Continuing Panel Testimony of Allen W. Rooks, John H. Raftery, and Joseph M. Lynch, Ph. D. 1097
    - Joseph M. Lynch, Ph. D. - Further Cross Examination by Ms. Ottenweller (p. 467) 1097
    - Examination by Commissioners (p. 520) 1150

- Panel Testimony of Sarah Johnson and Brian K. Horii 1181

    - Sarah W. Johnson
        - Direct Examination by Mr. Bateman (p. 551) 1181
        - Summary of prefiled direct testimony (p. 553) 1183
        - Prefiled direct testimony (pp. 555-561) 1185
        - Examination by Commissioners (p. 638) 1268

    - Brian K. Horii
        - Direct Examination by Mr. Bateman (p. 562) 1192
        - Brian K. Horii – Summary of prefiled testimony (p. 565) 1195
        - Brian K. Horii – Prefiled direct testimony (pp. 570-595) 1200
        - Brian K. Horii – Prefiled surrebuttal testimony (pp. 597-613) 1227
        - Cross Examination by Mr. Snowden (p. 614-632) 1244
        - Cross Examination by Ms. Ottenweller (p. 632-637) 1262
        - Examination by Commissioners (p. 639-642) 1269

- Testimony of Ben Johnson, Ph. D. 1272
    - Direct Examination by Mr. Whitt (p. 642) 1272
    - Summary of prefiled direct testimony (p. 644) 1274

Volume IV **(R. pp. 1279-1674)**

- Testimony of Ben Johnson, Ph. D (continued from Volume III)
    - Prefiled direct testimony (pp. 649-789) 1279
    - Summary of prefiled surrebuttal testimony (p. 790) 1420
    - Prefiled surrebuttal testimony (pp. 799-838) 1429
    - Examination by Commissioners (p. 839) 1469

- Panel Testimony of Gaby Smith and Michael L. Seaman-Huynh

    - Gaby Smith
        - Direct Examination by Ms. Pittman (p. 855) 1485
        - Summary of prefiled direct testimony (p. 857) 1487
        - Prefiled direct testimony (pp. 859-874) 1489

- Michael L. Seaman-Huynh
  - Direct Examination by Ms. Pittman (p. 875) 1505
  - Summary of prefiled direct testimony (p. 876) 1506
  - Prefiled direct testimony (pp. 879-888) 1509
  - Examination by Commissioners (p. 889) 1519

Exhibits

Hearing Exhibit 4 –Direct Testimony Exhibits of Allen W. Rooks on behalf of South Carolina South Carolina Electric & Gas Company 1533

Hearing Exhibit 5 – Direct Testimony Exhibits of Joseph M. Lynch on behalf of South Carolina South Carolina Electric & Gas Company 1556

Hearing Exhibit 6 – Rebuttal Testimony Exhibits of Joseph M. Lynch on behalf of South Carolina South Carolina Electric & Gas Company 1588

Hearing Exhibit 8 – Direct and Rebuttal Testimony Exhibits of Devi Glick on behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy 1591

Hearing Exhibit 9 – South Carolina South Carolina Electric & Gas Company's 2018 Integrated Resource Plan (dated 2018-02-28) 1597

Hearing Exhibit 10 - South Carolina South Carolina Electric & Gas Company's Response to First Data Request Question 2 1661

Hearing Exhibit 12 – Direct Testimony Exhibit of Brian Horii on behalf of Office of Regulatory Staff 1662

Hearing Exhibit 13 – Rebuttal Testimony Exhibit of Brian Horii on behalf of Office of Regulatory Staff 1669

Other Materials or Documents

South Carolina Electric & Gas Company's Email Letter Regarding Timing for Filing of Responses to Petition for an Order Requiring South Carolina Electric & Gas Company to Comply with Order No. 2018-55, March 28, 2018 1671

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy's Email Letter Regarding Timing for Filing of Responses to Petition for an Order Requiring South Carolina Electric & Gas Company to Comply with Order No. 2018-55, March 28, 2018 1672

Certificate of Counsel 1674

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 1 of 52

STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2018-2-E

In the Matter of: Annual Review of Base Rates for Fuel Costs for South Carolina Electric & Gas Company	)	**PETITION FOR REHEARING OR RECONSIDERATION**

INTRODUCTION

The South Carolina Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE") (collectively, the "Conservation Groups") respectfully petition the Public Service Commission of South Carolina ("Commission") for rehearing or reconsideration of its May 2, 2018 Order Approving Fuel Costs (the "Order"). More specifically, the Conservation Groups request a rehearing or reconsideration of the Commission's determinations regarding South Carolina Electric and Gas Company's ("SCE&G" or the "Company") proposal to completely eliminate avoided capacity payments to qualifying facilities.

The Conservation Groups respectfully submit that the Commission's elimination of avoided capacity payments fails to comply with S.C. Code Ann. § 58-27-810, which states that every rate "made, demanded or received by any electrical utility ... shall be just and reasonable." S.C. Code Ann. § 58-27-810. Conservation Groups further submit that the Company's avoided cost calculations and resulting PR-1 and PR-2 rates fail to

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 2 of 52

comply with regulations implementing the Public Utility and Regulatory Policies Act ("PURPA") requiring rates that are "just and reasonable," "in the public interest," and do "[n]ot discriminate against qualifying cogeneration and small power production facilities." 18 C.F.R. § 292.304(a). Lastly, the Conservation Groups respectfully request that the Commission reconsider its finding with respect to which party carries the burden of demonstrating reasonableness. Under South Carolina law, utilities have the burden to prove that they made decisions that result in reasonable fuel costs, including avoided costs under PURPA. *Hamm v. S.C. Pub. Serv. Comm'n,* 309 S.C. 282, 422 S.E.2d 110 (1992). The Commission's Order appears to place this burden on the intervenors rather than the utility, which is inconsistent with South Carolina law.

The Conservation Groups' interest in this proceeding and petition for rehearing or reconsideration is to ensure accurate and fair valuation of avoided costs and the related tariffs proposed by the Company. CCL is a nonprofit organization whose mission is to protect the natural environment of the South Carolina coastal plain and to enhance the quality of life in their communities by working with individuals, businesses and government to ensure balanced solutions. CCL supports the development of energy policy that is in the public interest of South Carolinians. SACE is a nonprofit organization whose mission is to promote responsible energy choices that create global warming solutions and ensure clean, safe and healthy communities throughout the Southeast. SACE and its members are interested in promoting greater reliance on clean energy resources to meet the South's energy needs. CCL and SACE have members from across the State, including members who receive electric service from the Company and are impacted by the decisions made by the Commission regarding renewable energy and

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 3 of 52

avoided cost determinations that influence the future of renewable energy investment in South Carolina.

PROCEDURAL BACKGROUND

This annual fuel cost proceeding began with the Notice and Filing and Hearing Prefile dates and with a letter dated October 4, 2017 from the Commission Clerk's Office instructing the Company to notify affected customers and to publish a Notice of Hearing and Prefile Testimony Deadlines ("Notice") in newspapers of general circulation in the area affected by the Commission's annual review of the Company's fuel purchasing practices and policies on or before January 5, 2018. On December 5 and December 15, 2017, the Company filed affidavits demonstrating compliance with these requirements.

Petitions to Intervene were received from the South Carolina Energy Users Committee ("SCEUC"), the South Carolina Coastal Conservation League ("CCL"), the Southern Alliance for Clean Energy ("SACE"), the South Carolina Solar Business Alliance, LLC ("SBA"), Southern Current, LLC ("Southern Current"), and CMC Steel South Carolina ("CMC Steel"). The Petitions to Intervene of SCEUC, CCL, SACE, SBA, Southern Current, and CMC Steel were not opposed by SCE&G and no other parties sought to intervene in this proceeding. The South Carolina Office of Regulatory Staff ("ORS") is automatically a party pursuant to S.C. Code Ann. § 58-4-10(B) (2015).

The Commission convened a hearing on this matter on April 10 through 11, 2018, with the Honorable Swain E. Whitfield, Chairman, presiding. SCE&G was represented by K. Chad Burgess, Esquire, Matthew W. Gissendanner, Esquire, and Benjamin P. Mustian, Esquire. SCEUC was represented by Scott Elliott, Esquire. SBA was represented by Richard L. Whitt, Esquire, and Benjamin L. Snowden, Esquire. Southern

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 4 of 52

Current, LLC was represented by Richard L. Whitt, Esquire. CCL and SACE were represented by Katie C. Ottenweller, Esquire. CMC Steel and its counsel of record did not appear at the hearing. Andrew Bateman, Esquire and Jenny R. Pittman, Esquire represented ORS. In this Order, ORS, SCEUC, SBA, Southern Current, LLC, CCL, SACE, CMC Steel, and SCE&G are collectively referred to as the "Parties" or sometimes individually as a "Party."

Through their personal appearances, SCE&G presented the direct testimonies and exhibits of George Lippard III, Henry E. Delk, Jr., Michael D. Shinn, J. Darrin Kahl, John H. Raftery, Joseph M. Lynch, Ph.D., and Allen W. Rooks, and ORS presented the direct testimonies and exhibits of Michael Seaman-Huynh, Gaby Smith, Sarah Johnson, and Brian Horii.[1] Through their personal appearances, SBA presented the direct testimony and exhibits of Ben Johnson, Ph.D, and CCL and SACE presented the direct testimony and exhibits of Devi Glick.[2] Southern Current, SCEUC, and CMC Steel did not present witnesses at the hearing.

In response to the direct testimony of ORS Witness Seaman-Huynh, SCE&G presented the rebuttal testimony and exhibits of Witness Rooks. In response to the direct testimony of ORS Witness Horii, SBA Witness Johnson, and CCL and SACE Witness Glick, SCE&G presented the rebuttal testimony and exhibits of Witness Lynch. ORS filed surrebuttal testimony and an exhibit of Witness Horii, SBA filed surrebuttal

[1] Prior to the hearing and without objection from the remaining parties, the Commission granted SCE&G and ORS permission to utilize panels for the presentation of witnesses. SCE&G Witnesses Lippard and Delk were presented in the first panel for the Company; Witnesses Shinn and Kahl were presented in the second panel; and Witnesses Raftery, Lynch, and Rooks were presented in the third panel. ORS Witnesses Seaman-Huynh and Smith were presented in the first panel; Witnesses Johnson and Horii were presented in the second panel.

[2] The Parties stipulated into the record the testimony and exhibits of CCL and SACE Witness Glick.

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 5 of 52

testimony of Witness Johnson, and CCL and SACE filed surrebuttal testimony and exhibits of Witness Glick.

The Commission issued Order 2018-322 on April 30, 2018, and issued revised Order 2018-322(A) ("the Order") on May 2, 2018. The Order approved the Company's proposed fuel cost factors, avoided cost calculations, PR-1 and PR-2 tariffs, and 2018 net energy metering solar valuation update. The Order, specifically as it relates to approval of the Company's avoided cost calculations, rates in the PR-1 and PR-2 tariff, and 2018 NEM update is the subject of this petition for rehearing or reconsideration.

APPLICABLE LAW

South Carolina Fuel Clause Provisions

S.C. Code Ann. § 58-3-140(A) vests the Commission with the "power and jurisdiction to supervise and regulate the rates and service of every public utility in this State..." "*Every* rate made, demanded or received by any electrical utility ... shall be *just and reasonable.*" S.C. Code Ann. § 58-27-810 (emphasis added).

S.C. Code Ann. § 58-27-865 sets out the procedure for review and recovery of the Company's annual fuel costs. This section further provides for review and recovery of "incremental and avoided costs of distributed energy resource programs and net metering as authorized and approved under Chapters 39 and 40, Title 58, [which] shall be allocated and recovered from customers under a separate distributed energy component of the overall fuel factor that shall be allocated and recovered based on the same method that is used by the utility to allocate and recover variable environmental costs." S.C. Code Ann. § 58-27-865(A)(1). Incremental DER program costs are "all reasonable and prudent

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 6 of 52

costs incurred by an electrical utility to implement a distributed energy resource program pursuant to Section 58-39-130 of Chapter 39, the S.C. Distributed Energy Resource Act." S.C. Code Ann. § 58-39-140. Recoverable incremental costs are capped "[f]or the protection of consumers and to ensure that the cost of DER programs do not exceed a reasonable threshold." S.C. Code Ann. § 58-39-150.

S.C. Code Ann. § 58-27-865 was amended by Act 236 in 2014 to clarify that "'fuel costs related to purchased power', as used in subsection (A)(1) shall include ... avoided costs under the Public Utility Regulatory Policy Act of 1978, also known as PURPA." S.C. Code Ann. § 58-27-865(A)(2). Historically, SCE&G's PURPA avoided cost rates have been filed in Commission Docket No. 1995-1192-E; however, subsequent to Act 236 and the fuel clause revisions, SCE&G has sought approval in the fuel cost proceeding for its avoided cost rates, calculations, and methodology under Section 210 of the Public Utility Regulatory Policies Act of 1978, 16 U.S.C.A. § 824a-3. Section 210 of PURPA and relevant regulations promulgated by Federal Energy Regulatory Commission ("FERC") prescribe the responsibilities of the FERC and of state regulatory authorities, such as this Commission, relating to the development of cogeneration and small power production. *See* FERC Stats. & Regs. 30,128 (1980) in Docket No. RM79-55 (Order No. 69); 45 Fed. Reg. 12,214 (1980).

Pursuant to the Net Energy Metering ("NEM") Settlement Agreement approved previously by this Commission in Order No. 2015-194, Docket No. 2014-246-E, the Commission also approves each year the Company's calculation of the "costs and benefits of net metering and the required amount of the DER NEM Incentive" coincident in time with the Utility's filing under the fuel clause. Order No. 2015-194 at p. 22, para.

(g). The DER NEM incentive is computed based on an eleven-component NEM Methodology that includes "all categories of potential costs or benefits to the Utility system that are capable of quantification or possible quantification in the future." Order 2015-194 at p. 20, para. (e).

PURPA and FERC Regulations

Section 210 of PURPA requires the FERC to prescribe such rules as it determines necessary to encourage cogeneration and small power production, including rules requiring electric utilities to purchase electric power from, and to sell electric power to, cogeneration and small power production facilities. Under Section 210 of PURPA, cogeneration facilities and small power production facilities that meet certain standards can become "qualifying facilities" ("QFs"), and thus become eligible for the rates and exemptions established in accordance with Section 210 of PURPA.

Each electric utility is required under Section 210 of PURPA to offer to purchase available electric energy from cogeneration and small power production facilities that obtain QF status under Section 210 of PURPA. For such purchases, electric utilities are required to pay rates that are "just and reasonable," "in the public interest," and do "[n]ot discriminate against qualifying cogeneration and small power production facilities." 18 C.F.R. § 292.304(a).

The FERC regulations require that the rates electric utilities pay to purchase electric energy and capacity from qualifying cogenerators and small power producers reflect the cost that the purchasing utility can avoid as a result of obtaining energy and capacity from these sources, rather than generating an equivalent amount of energy itself

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 7 of 52

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 8 of 52

or purchasing the energy or capacity from other suppliers. 18 C.F.R. § 292.101(b)(6). FERC delegated the implementation of these rules to the State regulatory authorities. State commissions may implement these rules by the issuance of regulations, on a case-by-case basis, or by any other means reasonably designed to give effect to the FERC's rules. FERC Stats. & Regs. 30,128 (1980) in Docket No. RM79-55 (Order No. 69).

South Carolina Law Governing Commission Decisions, Petitions for Reconsideration, and Burden of Proof

S.C. Code Ann. § 58-27-2100 provides that "[a]fter the conclusion of a hearing, the Commission shall make and file its findings and order with its opinion, if any. Its findings shall be in sufficient detail to enable the court on review to determine the controverted questions presented by the proceeding and whether proper weight was given to the evidence." S.C. Code Ann. § 58-27-2100.

Pursuant to S.C. Code Ann. § 58-27-2150, a party may apply to the Commission for a rehearing in respect to any matter determined in the proceeding. "The purpose of a petition for rehearing and/or reconsideration is to allow the Commission the discretion to rehear and/or reexamine the merits of issued orders pursuant to legal or factual questions raised about those orders by parties in interest, prior to a possible appeal." *In re: South Carolina Electric & Gas Company*, Order No. 2013-5 (Feb. 14, 2013). S.C. Code Ann. Regs. § 103-825(A)(4) prescribes the content of a petition for rehearing, which must include: "(a) The factual and legal issues forming the basis for the petition; (b) The alleged error or errors in the Commission order; [and] (c) The statutory provision or other authority upon which the petition is based."

The South Carolina Supreme Court employs a deferential standard of review when reviewing a Commission decision and will affirm that decision when substantial

evidence supports it. *Porter v. S.C. Public Service Comm'n*, 333 S.C. 12, 20 (1998). Because Commission findings are presumptively correct, the party challenging a Commission order bears the burden of convincingly proving that the decision is clearly erroneous, or arbitrary or capricious, or an abuse of discretion, in view of the substantial evidence on the whole record. *Id.* Substantial evidence is relevant evidence that, considering the record as a whole, a reasonable mind would accept to support an administrative agency's action. *Id.*

This deferential standard of review does not mean, however, that the Court will accept an administrative agency's decision at face value without requiring the agency to explain its reasoning. *Id.* at 21.

The Commission must fully document its findings of fact and base its decision on reliable, probative, and substantial evidence on the whole record. *Id.* It must make findings which are sufficiently detailed to enable the Court to determine whether the findings are supported by the evidence and whether the law has been applied properly to those findings. *Id.*

Regarding factual findings, the Commission must make "explicit findings of fact which allow meaningful appellate review." *Seabrook v S.C. Public Service Comm'n*, 401 S.E.2d 672, at 674; 383 S.C. 493, at 497. Where material facts are in dispute, however, the administrative body must make specific, express findings of fact. *Porter v. SC Public Service Comm'n*, 507 S.E.2d 328, at 332, 333 S.C. 12, at 21.

An administrative agency is not required to present its findings of fact and reasoning in any particular format, although the better practice is to present them in an organized and regimented manner. *Porter*, 507 S.E.2d at 332, 333 S.C. at 21. However,

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 9 of 52

a recital of conflicting testimony followed by a general conclusion is patently insufficient to enable a reviewing court to address the issues. *Id.*

Further, "previously adopted policy may not furnish the sole basis for the Commission's action." *Hamm v. S.C. Public Service Comm'n*, 422 S.E. 2d 110, at 114; 309 S.C. 282, at 289. Rather the policy must be applied to the substantial factual evidence of record. *Id.* The "expert" status of the Commission does not "diminish [the Commission's] duty to support its conclusions with factual findings..." *Seabrook v S.C. Public Service Comm'n*, 401 S.E.2d 672, at 674, 303 S.C. 493, at 497. Rather, it "*heightens* the duty" to ensure that the evidence presented is substantial. *Id.* (Emphasis added.)

Decisions of the Commission can be ruled arbitrary when it simply adheres to its past practice without attempting to explain that decision, and it cannot rely on factual findings that are simply incorrect. *Porter v S.C. Public Service Comm'n*, 333 S.C. at 26-27. For instance, the Commission has been reversed for finding that there is no such thing as a negative cash working capital requirement when other regulatory agencies and courts have discussed and applied the concept. *Id.* at 27.

Also, while South Carolina law does not require the Commission to use any particular price-setting methodology and the Commission has wide latitude to determine an appropriate rate-setting methodology, this does not mean that a particular methodology may not be more appropriate than another under a specific set of circumstances. *Heater of Seabrook v. S.C. Public Serv. Comm'n*, 478 S.E.2d 826, at 830, 324 S.C 56, at 64 (1996) (*citing Hamm v. S.C. Public Serv. Comm'n*, 309 S.C. 295 (1992)). The courts will not analyze in isolation whether the decision to use a particular

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 10 of 52

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 11 of 52

methodology is supported by substantial evidence, and the Commission should employ a methodology tailored to the facts and circumstances of the case before it. *Id.*

In fuel cost cases, utilities have the burden to prove that they have made reasonable efforts to minimize fuel costs and that their decisions result in reasonable fuel costs. "The commission shall disallow recovery of any fuel costs that it finds without just cause to be the result of failure of the utility to make every reasonable effort to minimize fuel costs or *any decision of the utility resulting in unreasonable fuel costs ... .*" S.C. Code Ann. § 58-27-865(F) (emphasis added). In making its decision, the Commission must give "due regard to reliability of service, economical generation mix, generating experience of comparable facilities, and minimization of the total cost of providing service." *Id.* Avoided costs are included in the definition of fuel costs. S.C. Code Ann. § 58-27-865(A)(1), (A)(2)(c); *see also Hamm v. S.C. Pub. Serv. Comm'n*, 291 S.C. 119, 122, 352 S.E.2d 476, 478 (1987). "Section 58-27-865(E)[3] requires the PSC to evaluate the conduct of the utility in making the decisions which resulted in the higher fuel costs. If the utility has acted unreasonably, and higher fuel costs are incurred as a result, the utility should not be permitted to pass along the higher fuel costs to its customers. *See Public Service Comm'n of Maryland v. Baltimore Gas & Electric Company,* 60 Md.App. 495, 483 A.2d 796 (1984), *aff'd,* *123 305 Md. 145, 501 A.2d 1307 (1986); *Boston Edison Company v. Department of Public Utilities,* 393 Mass. 244, 471 N.E.2d 54 (1984); *Florida Power Corp. v. Cresse,* 413 So.2d 1187 (Fla.1982). The rule does not require the utility to show that its conduct was free from human error; rather, it must show it took reasonable steps to safeguard against error. *Virginia Electric and Power Company v. Division of Consumer Counsel,* 220 Va. 930, 265 S.E.2d 697 (1980).").

[3] What was Section 58-27-865(E) in 1987 is now Section 58-27-865(F).

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 12 of 52

The South Carolina Supreme Court explained in *Hamm v. S.C. Pub. Serv. Comm'n* how burden shifting works in rate cases. 309 S.C. 282, 422 S.E.2d 110 (1992). In rate cases—where the burden of proof of the reasonableness of costs that enter into a rate increase also rests with the utility—there is a presumption that a utility's expenses are "reasonable and incurred in good faith." *Id.* at 286 (citing *Missouri ex rel. Southwestern Bell Co. v. Public Service Comm'n of Missouri,* 262 U.S. 276, 43 S.Ct. 544, 67 L.Ed. 981 (1923) (Brandis, Jr., J., concurring); *West Ohio Co. v. Pub. Util. Comm'n,* 294 U.S. 63, 55 S.Ct. 316, 79 L.Ed. 761 (1935); *Boise Water Corp. v. Idaho Pub. Util. Comm'n,* 97 Idaho 832, 555 P.2d 163 (1976); *City of Chicago v. Illinois Commerce Comm'n,* 133 Ill.App.3d 435, 88 Ill.Dec. 643, 478 N.E.2d 1369 (1985) (modified by statute as noted in *People ex rel. Hartigan v. Illinois,* 117 Ill.2d 120, 109 Ill.Dec. 797, 510 N.E.2d 865 (1987); *Long Island Lighting Co. v. Pub. Serv. Comm'n,* 134 A.D.2d 135, 523 N.Y.S.2d 615 (1987); *City of Norfolk v. Chesapeake & Potomac Tel. Co.,* 192 Va. 292, 64 S.E.2d 772 (1951)). This presumption does not shift the ultimate burden of persuasion, but "shifts the burden of production on to the Commission or other contesting party to demonstrate a tenable basis for raising the specter of imprudence." *Hamm*, 309 S.C. at 286, 422 S.E.2d at 112. This burden of production can be met by evidence presented by intervening parties. *Id.* (citing *Long Island,* 523 N.Y.S.2d 615) (specifically discussing evidence obtained through discovery and presented by the Consumer Advocate as intervenor and by the Commission after its own investigation). Subsequent cases have noted that when an investigation by ORS "yields evidence that overcomes the presumption of reasonableness, a utility must further substantiate its claimed expenditures." *Utilities Servs. of S.C., Inc. v. S.C. Office of Regulatory Staff*, 392 S.C. 96,

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 13 of 52

110, 708 S.E.2d 755, 763 (2011). Intervenors and even non-party members of the public can also introduce evidence that "rais[es] the specter of imprudence" as to utility expenditures. *Id.* at 392 S.C. 96, 110-11, 708 S.E.2d 755, 763. The Commission is required to consider the evidence presented to it on the formal record, and can rely on this evidence to overcome the presumption of reasonableness. *Id.* at 392 S.C. 96, 111, 708 S.E.2d 755, 763.

The South Carolina Supreme Court in *Hamm* went on to note that "[t]he ultimate burden of showing every reasonable effort to minimize fuel costs remains on the utility," indicating that the same burden shifting scheme should be applied in fuel cost and rate cases alike. *Hamm*, 309 S.C. at 286-87, 422 S.E.2d at 112-13 (citing *Hamm v. South Carolina Pub. Serv. Comm'n and Carolina Power and Light Co.,* 291 S.C. 119, 352 S.E.2d 476 (1987)).

FACTS

At issue in this petition for reconsideration is the Company's decision to eliminate avoided capacity payments for solar power qualifying facilities. As in prior years, the Company used a Difference in Revenue Requirements ("DRR") method to determine its long-run avoided costs of over a 15-year planning horizon. Lynch Direct Testimony at p. 4. But in a significant departure from prior years, the Company proposed a new approach to valuing the utility costs avoided by purchasing power from solar power qualifying facilities. Every testifying intervenor critiqued the Company's new approach, particularly its decision to assign a zero value for avoided capacity.

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 14 of 52

The DRR method involves comparing the Company's revenue requirements between a base case and a change case. The base case is defined by SCE&G's "existing fleet of generators and the hourly load profile to be supplied by these generators," and it is based on the Company's latest Integrated Resource Plan ("IRP"). Lynch Direct Testimony at p. 4. "The change case is the same as the base case except that the hourly loads are reduced by a 100 MW profile. . . ." Lynch Direct Testimony at p. 4. Historically, the change case was a 100 MW reduction applied to all hours of the year. This year, SCE&G used a 100 MW reduction based on a solar profile to determine avoided cost rates for its PR-2 tariff. *Id.* at 14.

For its calculations and resource planning this year, the Company performed a new Reserve Margin Study, using the "component" method. Lynch Exhibit JML-2. Based on the results in that Study, SCE&G set a 14% summer peak reserve margin and a 21% winter peak reserve margin. Lynch Direct Testimony at p. 6. This is the first time that the Company has asserted a winter reserve margin. Hearing Tr. at E-89. The Company also performed a study "On Calculating the Capacity Benefit of Solar QFs," finding that "on more than 80% of the days during the winter months of October through March, solar has no effect on SCE&G's daily peak demand." *Id.* at 14-15. As described below, the intervening parties that submitted testimony found numerous problems with these studies and the 2018 IRP.

In a departure from its avoided cost calculations in prior years, the Company asserted that resources have capacity value only if they are available in both the summer and winter. *Id.* at 15. The Company further asserted that because solar does not provide capacity during the winter period and because it has only a "small impact in summer," the

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 15 of 52

Company is "unable to avoid any of its projected future capacity needs." *Id.* at 15-18. SCE&G therefore proposed to set the avoided capacity costs of solar for the PR-2 and PR-1 rates, and in its 2018 NEM update, to zero. Despite this assertion, the Company's 2018 IRP reports a firm capacity value of solar power at 35% for summer peaks. Hearing Tr. at E-186–189. As described by Witness Lynch, the Company's long-run avoided capacity cost rates dropped from $21.34 per kW-year in 2016, to $6.35 per kW-year in 2017, to $0 per kW-year this year. The Company asserted that it "does not believe there will ever be enough capacity from [] small non-solar QFs to affect its resource plan and, therefore, the avoided capacity costs for PR-1 are zero." Lynch Direct Testimony at p. 22. SCE&G also eliminated credits to non-solar QFs for their contribution to "critical peak hours." *Id.*

All testifying parties took issue with SCE&G's new approach to calculating avoided capacity value and its zeroing out of avoided capacity. Witness Horii testified that the Company has made a "dramatic change" in its approach by not providing any calculations of avoided capacity costs. Horii Direct Testimony at p. 8; *see also id.* at 10 ("Rather than simply updating inputs used to estimate the avoided capacity cost, SCE&G introduced a new concept of 100% winter capacity constraints as the basis for not calculating any avoided capacity cost."); *id.* ("SCE&G bases its assertion of zero avoided capacity cost for solar projects on SCE&G being constrained by winter capacity needs, and unaided by summer capacity reductions. This is a substantial change from the methodology and inputs used by SCE&G to calculate prior PR-1 and PR-2 rates[.]"). Witness Horii testified that the Company asserts that new solar projects will not provide any capacity reductions so the Company does not provide any calculations for such

projects, and he further testified that the Company failed to provide any calculation of avoided capacity costs for non-solar projects despite a request from ORS. Horii Direct Testimony at p. 9. Witness Horii recommended that SCE&G's position of zero avoided capacity costs be rejected at this time because SCE&G has "not adequately demonstrated that winter capacity needs are the same or greater than summer capacity needs." *Id.* at 9. Witness Glick similarly testified that SCE&G is using a "proposed new methodology." In contrast to the three-step methodology SCE&G employed in the past, in this year's docket, the Company assigns zero capacity value to solar, asserting that a resource must provide capacity in the winter and summer in order to provide any capacity value. Glick Direct Testimony at p. 6. Other problems pointed out by Witness Glick included: the Company artificially limited the future generation capacity projects or contracts that could be deferred or avoided by QFs; failed to include opportunity costs in its revenue requirements calculations, and failed to include a performance adjustment factor. *See, e.g.*, Glick Direct Testimony at pp. 12, 14, 16-21.

Intervening parties also specifically criticized: SCE&G's reliance on an unreviewed and unapproved IRP that utilizes an unoptimized Excel spreadsheet to determine the Company's capacity plan; SCE&G's flawed load and peak demand forecast; and SCE&G's inflated reserve margin, all of which compound the unreasonableness of the Company's zero capacity payments.

Multiple witnesses critiqued SCE&G's reliance on the generation additions in the IRP as the foundation for cost inputs that determine the actual costs a QF will avoid: "[SCE&G] relies upon assumptions and studies conducted in the 2018 IRP that have not been fully reviewed, vetted and/or approved by the Commission." Horii Direct

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 16 of 52

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 17 of 52

Testimony at p. 21. SBA Witness Johnson recommended rejecting the Company's proposal to base rates on a sub-optimal "Base" expansion plan that does not minimize revenue requirements. Johnson Direct Testimony at pp.40, 69-70; Surrebuttal Testimony at p. 8. In particular, he pointed out that SCE&G has not included additional Demand Side Management or power purchases that are specifically targeted at unusually cold winter mornings and therefore underestimates avoided costs. Johnson Surrebuttal Testimony at p. 12. Similar to Witness Johnson, Witness Glick criticized the Company's incorporation of a proposed 540 MW combined cycle plant in 2023 into its avoided cost calculations without accounting for possible energy efficiency and demand side management opportunities. She testified that this is particularly inappropriate because the Company has not tested a range of scenarios; has not modeled the cost of its resource plan; and has not allowed DERs to compete with or displace the CC or other higher cost resources. Glick Direct Testimony at p.13. At the hearing, Company Witness Lynch also admitted that the Company's plan does not reflect optimized or least-cost resource planning. Hearing Tr. at pp. E-202-204, 209. The Company did not present any results demonstrating that its proposed resource additions would be the least-cost additions, and the Company did not use any optimization or simulation software to make its long-term capacity plan. *Id.*

Witnesses Horii and Glick pointed to problems with the peak demand variability SCE&G forecasted in its 2018 IRP. Witness Horii testified that the regression equations SCE&G used to estimate peak demand today given historical peak days are incorrect and produce results that are contrary to engineering-based expectations. Horii Direct

Testimony at pp. 12-18.[4] Witness Horii testified that this and additional reserve margin errors call SCE&G's claim that it is now winter-peaking into question: "there will be some number of years over the next fifteen years where summer will be the driver of capacity need." Horii Surrebuttal Testimony at pp. 5-7; *see also* Glick Direct Testimony at p. 13 ("SCE&G's near term energy forecasts have a significant impact on avoided energy and capacity costs by driving the need for generation capacity in its resource plans.") Witness Glick testified that "SCE&G's year-on-year increase in the near term forecasted peak load [in the 2018 IRP] reflects a dramatic increase in demand, as compared to prior years' forecast . . . driving long-term planning decisions at a significant cost to ratepayers without justification." *Id.*

Witness Horii also noted that SCE&G's winter load forecast and peak values appear inconsistent and inexplicably high. Witness Horii stated that SCE&G's gross peak demand forecasts "are higher than what normal loads should be given typical 1% per year growth rates since 2016." Horii Direct Testimony at p. 10; *see also id.* at 10-11 ("I also believe the Company is forecasting summer and winter peak demands for future years in an inconsistent manner that creates a potentially false indication of higher capacity need for the winter season.") He noted that the Company's estimated gross territorial peak of 5,024 MW for winter 2018 is 388 MW higher than the winter 2017

[4] "SCE&G uses regression equations to estimate what peak demand would be on SCE&G's system today given the weather that occurred on historical peak days since 1991. . . . The winter shape [from this regression equation] has an upward curve, which is counter to engineering-based expectations. This upward curve also exacerbates the variation in peak demand, compared to the downward curve of summer predictions." Horii Direct at p. 14. The Company's approach goes against engineering-based expectations because the load cannot increase indefinitely with no leveling off. Eventually, "as weather becomes more extreme, "cooling [or heating, depending on the season,] equipment because more heavily used, but eventually [will] top out and cannot increase electricity usage any further." Horii Direct at p. 14. "As individual units top out, one sees diminishing increases in load as temperatures worsen." *Id.* The Company has not accounted for this leveling off of equipment usage and load in its winter season load variation analysis. The result is "an overly large estimate of winter variability for the winter season compared to the summer season." *Id.*

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 18 of 52

forecast and 256 MW higher than the actual 2017 winter peak, despite the fact that average growth over last four years has been 36.25 MW per year and the highest growth between years was 106 MW between 2014 and 2015. Horii Surrebuttal Testimony at p.8.

Witnesses Horii and Glick also criticized SCE&G's reserve margin study. Witness Glick noted that an unjustifiably high reserve margin increases costs for customers. She testified that if SCE&G's reserve margin were 17%—which is still a conservatively high margin compared to that of peer utilities—new large capacity additions could be delayed at least a year and a half. Overall costs to ratepayers would be lower. Glick Surrebuttal Testimony at p. 9. SCE&G's reserve margin was calculated using the component method, which is not the industry standard. *See* Horii Direct Testimony at p. 12. Witness Horii testified that, while the component method has been used by the Company historically and may have produced consistent results when the reserve margin methodology was not used to determine the difference in reserve margin requirements between the summer and winter season, "it is unclear if the component methodology is appropriate" for this purpose. Horii Surrebuttal Testimony at p. 9. He stated that the Loss of Load Expectation, Loss of Load Probability, and Expected Unserved Energy methods are commonly accepted in the industry. *Id.* at 10. Witness Horii pointed out that the reserve margin threshold should be applied to forecasts of average annual peaks rather than maximum annual peaks because the risk of higher peaks is already embedded in the threshold percentage (since it is the difference between the average annual peak and the maximum annual peak). Horii Direct Testimony at p. 19-21; Horii Surrebuttal Testimony at p. 15. Finally, Witness Glick stated that SCE&G's proposed winter reserve margin is substantially higher then peers Duke Energy Carolinas,

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 19 of 52

Duke Progress, Southern Company, and Santee Cooper, each of which use a winter reserve margin between 12 and 17 percent. Glick Direct Testimony at p. 9. The Company looked solely at the relationship between load and weather to calculate the winter reserve margin. *Id.* at 10. By contrast, peer utilities utilize a more comprehensive methodology that balances reliability and customer costs. *Id.* at 11.

SCE&G's decision to eliminate PURPA avoided capacity value also eliminated the Net Energy Metering ("NEM") Distributed Energy Resource ("DER") avoided capacity value. Lynch Direct Testimony at p. 27. For the same reasons that the testifying witnesses opposed SCE&G's zero avoided capacity value, they opposed this change to the NEM DER values. Horii Direct Testimony at 23-24; Glick Direct

Testimony at p. 21.

Intervenors put forward several alternative proposals that the Commission could adopt rather than accept SCE&G's zero avoided capacity value. Witness Horii recommended that Commission either order: "the PR-2 capacity value be set at 19.5% of the avoided cost of per kW from a 100 MW change to SCE&G's base resource plan that excludes any non-committed future resources and reflects any planned plant retirements of firm capacity; or that SCE&G be ordered to provide an estimate of the long-run avoided capacity cost and the calculation for the long-run avoided capacity costs . . . ; or that the current capacity value be maintained for both PR-1 and PR-2 until a justified capacity value can be provided in the next rate update." ORS Proposed Order at 12; *see also* CCL and SACE Proposed Order at 14, 23, 36; Horii Direct at pp. 21-22. Witness Johnson recommended that the Commission require the Company to re-calculate capacity

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 20 of 52

payments using the 80% / 20% summer/winter capacity weighting approved in previous dockets, using a year-round 14% reserve margin policy; and assigning a 50% capacity factor to solar resources. SBA Proposed Order at pp. 17-18.

ARGUMENT

I. Intervenors have raised the specter of imprudence, and SCE&G has not met its burden to prove its rates are reasonable.

Under South Carolina law, utilities have the burden to prove that they made decisions that result in reasonable fuel costs, including avoided costs under PURPA. The Order appears to place this burden on the intervenors rather than the utility. This approach is inconsistent with existing South Carolina law, and Conservation Groups respectfully request that the Commission reconsider this position set forth in the Order.

S.C. Code Ann. § 58-27-865(F) directs the Commission to "disallow recovery of any fuel costs that it finds without just cause to be the result of ... *any decision of the utility resulting in unreasonable fuel costs*." (Emphasis added.) *See also* S.C. Code Ann. §§ 58-27-865(A)(1), (A)(2)(c)) (identifying PURPA avoided costs as fuel costs). In rate cases, the utility is afforded an initial presumption of reasonableness, but once that is challenged, the utility again bears the burden of demonstrating that its proposals are reasonable. This burden shifting was described by the South Carolina Supreme Court in *Hamm v. S.C. Pub. Serv. Comm'n*, 309 S.C. 282, 422 S.E.2d 110 (1992). The initial presumption is that the utility's expenses are "reasonable and incurred in good faith." *Id.*, 309 S.C. at 286, 422 S.E.2d at 122. However, once an intervening party or the Commission demonstrates a "tenable basis for raising the specter of imprudence," there is no longer a presumption of reasonableness and the burden shifts to the utility to "further

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 21 of 52

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 22 of 52

substantiate its claim[s]." *Id.*; *Utilities Servs. of S.C., Inc. v. S.C. Office of Regulatory Staff*, 392 S.C. 96, 110, 708 S.E.2d 755, 763 (2011). The Commission is required to consider the evidence presented to it on the formal record, and can rely on this evidence to overcome the utility's initial presumption of reasonableness. *Utilities Servs. of S.C., Inc. v. S.C. Office of Regulatory Staff*, 392 S.C. at 111, 708 S.E.2d at 763. According to the S.C. Supreme Court in *Hamm*, the "[t]he ultimate burden of showing every reasonable effort to minimize fuel costs remains on the utility," indicating that the same burden shifting scheme should be applied in fuel cost and rate cases alike. *Hamm*, 309 S.C. at 286-87, 422 S.E.2d at 112-13.

The Order in this proceeding wrongly places the burden of proving reasonableness on the intervenors. According to the Order, "SCE&G's proposal to set avoided capacity costs for its PR-1 and PR-2 rates at zero is reasonable at this time, in the absence of a viable alternative proposal being presented by any other party." Order at p. 15.

As an initial matter, alternative proposals *were* provided by intervening parties. In particular, Office of Regulatory Staff Witness Horii gave a very specific alternative recommendation regarding the most contested issue in this proceeding, the Company's zeroing out of avoided capacity for PURPA QFs:

> Q: Given the problems with SCE&G's analysis, what do you recommend the Commission adopt for PR-2 Capacity Value?
>
> A: I recommend that the PR-2 capacity value be set at 19.5% of the avoided cost of per kW from a 100 MW change to SCE&G's base resource plan that excludes any non-committed future resources and reflects any planned plant retirements of firm capacity.

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 23 of 52

Horii Direct Testimony at p. 21, Surrebuttal Testimony at p. 15. Witness Horii then provided a second option, that "SCE&G be required to provide an estimate of long-run avoided capacity cost and the calculation for the long-run avoided capacity costs," and that the other parties be provided an opportunity to evaluate those estimates. Horii Direct Testimony at p. 22. Witness Horii even provided a third alternative, "that the current capacity value be maintained for both PR-1 and PR-2 until a better capacity value can be provided in the next rate update." Horii Direct Testimony at p. 22, Surrebuttal Testimony at p. 16.

If by a "viable alternative proposal" the Commission intended that intervening parties should be required to put forth a fully quantified capacity value as an alternative to the Company's, the Commission is raising an impossible bar for intervenors to meet. First, intervenors have for years raised the concern to this Commission that the Company's use of the DRR method lacks transparency, which blocks intervenors from being able to model and present any alternative methods. *See, e.g.,* Conservation Groups' Petition for Rehearing or Reconsideration, Docket No. 2017-2-E, at p. 18 (May 5, 2017) (pointing out that "SCE&G has relied on the overly complex and opaque DRR method of calculating the capacity component of avoided cost rates") As a result, intervenors' only recourse is to request that the Company "re-run" its DRR model using inputs or methodological changes that the other parties recommend. As evidenced throughout this proceeding, the Company outright refuses to do so. Numerous parties requested that SCE&G quantify what capacity payments would be using previously-approved DRR methods at several points throughout the proceeding. Counsel for ORS confirmed at the hearing that ORS requested revised capacity cost data from the Company in discovery,

which the Company refused to produce. Hearing Tr. at E-234. Conservation Groups filed a petition for an order in Docket 2017-2-E, requesting that the Commission require the Company to provide updated capacity rates under PR-2 based on prior approved methodology; this request was denied.[5] During the hearing itself, Conservation Groups again requested that this information be provided to the parties, in the form of a supplemental late filed exhibit. Hearing Tr. at p. E-230. This request was also denied. *Id.* at E-235. In summary, despite several opportunities, the Company has not yet been required to comply with parties' requests for this critical information. The fact that the Order approving SCE&G's zero capacity payment rested on intervenors' failure to produce alternative quantified capacity values is the very definition of unfairness, and rewards the Company for consistently stonewalling other parties in this proceeding. Placing such a burden on intervening parties fails to comply with S.C. law.

Notwithstanding these specific alternative proposals, the onus or burden is not on the intervening parties to provide alternative rates. Rather, the burden remains with the utility proposing rates to justify their reasonableness, based on substantial evidence. It is the utility, and not the intervenors, whose monopoly franchise is regulated by the Commission and that directly benefits from cost recovery gained by Commission approval of proposed rates. Particularly when intervenors raise a reasonable specter of imprudence, the burden is on the utility to demonstrate that its rates and resulting cost recovery are reasonable. There was ample testimony in this proceeding raising the specter of imprudence.

[5] *See* SCCCL and SACE Petition for an Order Requiring South Carolina Electric & Gas Company to Comply with Commission Order No. 2018-55 (March 21, 2018), filed in Docket No. 2017-2-E. The parties also filed a request for reconsideration of its petition, which was also denied.

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 24 of 52

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 25 of 52

Every testifying party, other than the utility, raised concerns about the utility's proposal to completely eliminate avoided capacity payments. The laundry list of problems with the Company's calculation include the following:

- Solar QFs can and do reduce the Company's capacity costs;
- The Company has not adequately demonstrated that its winter capacity need exceeds its summer capacity need;
- The Company's change from an 80/20 summer/winter capacity payment allocations to a 0/100 summer/winter capacity payment allocation has not been justified;
- The Company's proposal is contradicted by its own witness Lynch, who concedes that solar QFs have capacity value and can be used to meet the Company's summer capacity need over the planning period;
- The Company's proposal is contradicted by its own Integrated Resource Plan, which applies a capacity value to solar resources; and
- The Company's reliance on the Integrated Resource Plan is fundamentally flawed, due to the following:
    - The IRP is still being reviewed;
    - The Company has not optimized its plan;
    - The winter peak load forecast is overstated; and
    - The winter reserve margin is likewise too high.

The overwhelming pushback and expert testimony pointing to problems with the Company zeroing out capacity value is analogous to the rate of return issue decided in *Hamm v. S.C. Pub. Serv. Comm'n,* 309 S.C. 282, 422 S.E.2d 110 (1992). In *Hamm*, the

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 26 of 52

South Carolina Supreme Court ruled that SCE&G's proposal to earn a 13.25% rate of return on common equity was too high based on testimony from multiple experts' testimony in the proceeding. *Id.* 309 S.C. at 287-88, 422 S.E.2d at 113-14. Experts in *Hamm* testifying on behalf of the Consumer Advocate,[6] Department of the Navy, Commission Staff, and SCE&G all gave ranges of appropriate rates of return. *Id.* The Company sought a rate of return at the high end of these ranges, and the Supreme Court rejected that high rate based on the expert testimonies and the lack of substantial evidence to justify a rate at the top of the range. *Id.* Similarly in this proceeding, there is abundant testimony that the Company's approach to providing a zero capacity payment is unreasonable. All of the alternatives proposed would result in an avoided capacity value higher than zero, and SCE&G has not provided the evidence needed to overcome the problems with their approach raised by the intervenors through expert testimony.

Witnesses for the Conservation Groups, Office of Regulatory Staff, and the Solar Business Alliance all testified to the significant problems with the Company's zero-capacity value proposal, clearly raising the specter of imprudence and thus shifting the burden onto the Company to demonstrate that its proposal is in fact reasonable. As described below, the Company has failed to meet this burden.

II. SCE&G's elimination of avoided capacity payments is not reasonable and violates state and federal law.

Once the specter of imprudence is raised, the utility has the burden to prove that its rates, fuel costs, and expenditures are reasonable. SCE&G has failed to meet that burden, and the Conservation Groups respectfully request that the Commission issue a

[6] *Hamm* was decided prior to the creation of the Office of Regulatory Staff.

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 27 of 52

revised order finding that the Company has failed to meet its burden and requiring the Company to file revised PR-1 and PR-2 rates, and a revised 2018 NEM update.[7]

S.C. Code Ann. § 58-27-810 requires that every rate "made, demanded or received by any electrical utility ... shall be just and reasonable." FERC regulations similarly require rates to be just and reasonable, in the public interest, and non-discriminatory against qualifying cogeneration and small power production facilities." 18 CFR § 292.304(a). The Company's PR-1 and PR-2 rates, by completely eliminating avoided capacity payments, fail to meet these state and federal requirements. The legal and practical problems were described in detail in Conservation Group's post-hearing brief, and are summarized below for the Commission's reconsideration.

A. The Company's proposal to eliminate capacity payments for QFs is unsupported, unjust, unreasonable, discriminatory, and not in the public interest.

The Company's proposal to completely eliminate avoided capacity payments for solar QFs violates state and federal law. Both South Carolina law and federal law require avoided cost rates to be just and reasonable. Avoided cost rates must also be non-discriminatory and in the public interest. Moreover, this Commission's decisions to approve rates must be based on substantial evidence. The Company has failed to provide the Commission with substantial evidence on this issue, and its proposal to eliminate avoided capacity payments should be rejected as unjust, unreasonable, discriminatory, and not in the public interest.

[7] The Company should also revise its 2018 NEM update to reflect the change to avoided capacity value.

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 28 of 52

1. **The Company's refusal to compensate for capacity discriminates against QFs.**

As a preliminary matter, while the Commission approved SCE&G's rates, it does not appear to address a significant disagreement between the parties with regard to the facts in evidence: whether the Company's zero capacity payments reflect a change in methodology, or just changed circumstances. Disregarding the facts laid out by intervenors, the Company claimed throughout the proceeding that it is not proposing a change in methodology at all in this proceeding, contending that it continues to use the same exact methodology that was approved by this Commission in past orders. Lynch Rebuttal at p. 18, lns. 16-17 ("SCE&G is using the same methodology as in previous years and as approved by the Commission."); Hearing Tr. at E-9-11, E-95, E-176-178; see also Lynch Rebuttal at p. 2, lns. 14-15 (the zero capacity cost "is a change in result, not a change in methodology."); *id.* at p. 2, lns. 9-10 ("SCE&G is using the same difference in revenue requirements ("DRR") methodology previously approved by the Commission.").

The Company's claim relies on the factually incorrect assertion that the Commission approves the Company's use of the DRR method *carte blanche*, without concerning itself with the myriad decisions that the Company makes about *how* to implement DRR. On the contrary, the Commission's determination of appropriate methodology extends far beyond the Company's over-arching method, be it peaker, proxy or DRR. In past orders, the Commission has addressed individually litigated issues concerning **specific elements** of the DRR method, such as the calculation of the appropriate generation capacity payment split between summer and winter seasons, Order No. 2017-246 at p. 23, the use of the number of critical peak hours in 2015 to calculate

avoided capacity costs, Order No. 2016-297 at p. 20, and the reasonableness of assuming that certain future capacity can be included when calculating avoided capacity costs, Order No. 2016-297 at p. 17.

Contradicting itself, the Company concedes that Commission-approved "methodology" extends to the very changes it proposes to make in this proceeding. Under cross-examination, Witness Lynch admitted that SCE&G's decision to discontinue the 80/20 summer/winter capacity split is in fact a "pricing methodology." Hearing Tr. at p. E-183, ln. 14. This is consistent with his past testimony, which unequivocally states the Company's position that past practices, such as the 80/20 capacity split, constitute methodology that was previously approved by the Commission. *See, e.g.*, Docket No. 2017-2-E Hearing Tr. at p. E-181, Lynch Direct (stating that "consistent with the methodology approved by Commission Order No. 2016-297, SCE&G divides this avoided capacity cost between summer and winter with 80% being associated with the summer season and 20% being associated with the winter season."); Docket No. 2017-2-E Hearing Tr. at p. E-205 (referring to the 80/20 split: "this methodology was approved by the Commission in Order No. 2016-297"). The Company's lawyers also noted that SCE&G's filing in this year's docket constituted a change in methodology: ". . . the Company believed the Rate PR-2 based upon the previously approved methodology did not properly reflect SCE&G's avoided costs and therefore did not propose that rate in Docket No. 2018-2-E." Company's motion to dismiss and response in opposition to CCL and SACE's petition for an order to compel compliance, Docket No. 2017-2-E at p. 5.

Ignoring these facts, the Company claims that the extreme change in result to a zero capacity payment is simply due to changed circumstances. Lynch Rebuttal at p. 20,

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 29 of 52

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 30 of 52

lns. 8-12. But the record—including admissions from the Company's own witnesses and lawyers—overwhelmingly repudiates that assertion. The Company is in fact proposing a dramatic shift in its methodology for compensating solar QFs: the complete elimination of capacity payments. Every other party that submitted testimony in this docket strongly objected to this change as unsound, unfounded, and counterfactual, and asked that it be rejected.

Not only did every other testifying party agree that this is a significant change in methodology, they also unequivocally found it to be one that the Company failed to support. *See* Horii Direct Testimony at p. 8, ln. 6-7 (emphasis added); *see also* Horii Direct Testimony at pp. 10, 21; ORS Witness Johnson Direct Testimony at p. 5; Glick Direct Testimony at p. 6; SBA Witness Johnson Surrebuttal Testimony at pp. 2-3.

Comparison of the actual methodologies used in this and past proceedings makes this change in approach plain. In prior years the Company has used a three step methodology where it: 1) calculated the avoided capacity value over a 15-year planning horizon comparing the difference in revenue requirements between the base case and the change case; 2) identified the set of critical peak hours where energy would have a capacity value on the system and spread the avoided capacity cost across those hours, assigning 80% of the annual capacity cost to the summer; and 3) calculated a single avoided cost value based on the production of a typical solar PV system. Glick Direct Testimony at p. 6. In contrast, in this year's docket, the Company simply assigns zero capacity value to solar, asserting that a resource must provide capacity in the winter and summer in order to provide **any** capacity value. Company Witness Lynch admits that in a departure from last year, the Company is no longer dividing avoided capacity costs

between summer and winter. Instead, solar QFs receive zero payments for capacity, regardless of their capacity contribution during times of summer capacity need. Hearing Tr. at p. E-183, lns. 6-8.

In its Order, the Commission does not appear to address this significant question of fact, or weigh in on the appropriateness of the proposed change from an 80/20 seasonal allocation between summer and winter seasons to a 0/100 summer/winter allocation, despite the fact that this is a core underpinning of the Company's assertion of zero capacity value, and one that the Company never justified. Conservation Groups note that this change in allocation is different from simply accepting the Company's assertion that it is now winter-peaking, which at best would justify a reversal of seasonal allocation to 20/80 summer/winter.

The Company's refusal to compensate solar QFs for the capacity value they provide to the system is at odds with the record, and is contradicted by the Company's own IRP and by other experts' testimony in this docket. Simply, SCE&G has not met its burden to demonstrate that a payment of zero for capacity is justified or reasonable.

a. <u>The record demonstrates that solar QFs can and do reduce the Company's capacity costs.</u>

The Commission, in its Order, found that "[a] generating resource has to provide capacity in the winter as well as in the summer in order to avoid the need for capacity and thereby have capacity value . . . because additional solar does not provide capacity during the winter period, the Company is unable to avoid any of its projected future capacity needs from additional solar." Order at 15. Respectfully, Conservation Groups point out that this finding is not grounded in fact. It is undisputed that solar QFs can and do reduce the system's summer peaks. *See, e.g.*, Lynch Direct Testimony at pp. 17-18. For five

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 31 of 52

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 32 of 52

entire months of the year, solar QFs impact peak demands on most days of the month and in all days during the months of June and July. Lynch Direct Exh. JML-4 ("On Calculating the Capacity Benefit of Solar QFs") at p. 5. Additionally, the Company has both a summer and winter capacity need over the 15-year planning period. *See* Lynch Direct Testimony at p. 23, lns. 9-10 (SCE&G's "need for capacity spans the entire year"); Hearing Tr. at p. E-189, ln. 6. It is uncontested that solar QFs will contribute to the Company's summer capacity need. In order to arrive at its conclusion that capacity payments to solar QFs are no longer appropriate, the Company asserts the illogical position that a single capacity resource must meet **both** winter and summer capacity in order to receive any capacity value at all. Under cross examination, however, Company Witness Lynch admits that this is a false choice: the Company **could** choose separate capacity resources to meet these seasonal capacity needs (for example, a winter peaking energy efficiency resource and a solar QF), and both capacity resources would in fact avoid costs. Hearing Tr. at p. E-189-190. On cross examination, in response to the question: "What would prohibit the company from choosing one capacity resource, such as a winter [demand side management] program, to meet its winter capacity need, and another capacity resource, like a solar qualifying facility, to meet its summer capacity needs?" Witness Lynch responded: **"Well, I would suppose, nothing."** *Id.* (Emphasis added.) The Company failed to present a rationale for moving away from its past allocation of capacity payments in both summer and winter periods – which in the past would compensate QFs for meeting capacity needs in winter months, even though it was summer peaking. The Commission, in its Order, does not justify its departure from past methodology, which historically provided payments for QFs that avoided capacity in

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 33 of 52

either winter or summer seasons, regardless of the fact that the utility was summer-peaking, or explain why a change to winter-peaking would justify such a drastic change. Conservation Groups respectfully request that the Commission revisit this finding, and determine that the Company has not justified a 0/100 seasonal allocation; rather, the 80/20 allocation should continue in effect until further justification is provided.

b. The Company's proposal is contradicted by its own IRP.

The Company's 2018 IRP found that solar resources have a 35% capacity factor. Hearing Exh. 9, 2018 IRP at p. 40. This means, in SCE&G's analysis, 35% of solar's nameplate capacity is deemed by the Company to be firm capacity that can serve the system summer peak. And yet, in this proceeding, the Company is requesting that solar QFs receive no compensation for capacity contributions that they make—contributions that SCE&G's own IRP acknowledges. The Commission noted in its Order that "the Commission expects that the Company's Integrated Resource Plan will be consistent with all assertions and assumptions made in the calculation of avoided costs." Order at 16. However, in finding that reliance on the 2018 IRP is appropriate, the Order failed to address this blatant inconsistency.

c. All other testifying parties agree that SCE&G's capacity methodology is flawed and should be rejected.

ORS Witness Horii, CCL and SACE Witness Glick, and SBA Witness Johnson universally recommend that the Commission reject SCE&G's capacity methodology. *See, e.g.,* Witness Horii Direct Testimony at 9 (recommending that SCE&G's position of zero avoided capacity costs be rejected because SCE&G has "not adequately demonstrated that winter capacity needs are the same or greater than summer capacity needs"), *id.* at 22 (finding that the Company is relying on questionable "assumptions and

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 34 of 52

studies conducted in the 2018 IRP."); Johnson Direct Testimony at pp. 40, 69-70; Surrebuttal Testimony at p. 8.

2. **The Avoided Cost rates are flawed because they are based on a flawed Integrated Resource Plan.**

The errors noted above are linked to the Company's 2018 Integrated Resource Plan, which the Company uses as the foundation for its avoided cost rates. At the hearing in this proceeding, the Conservation Groups raised their continuing objection to the Company's reliance on its 2018 IRP to determine avoided cost rates. State law requires substantial evidence for the Commission's decisions and requires that rates be just and reasonable. The 2018 IRP cannot be relied on as substantial evidence due the significant flaws contained in that document, including that it has not been reviewed; it fails to constitute "least cost," optimized planning; and it relies on the flawed winter peak load forecast and on a winter reserve margin that is too high. These errors in the IRP directly relate to the Company's justification for zeroing out capacity payments to QFs. In its Order, the Commission finds that "it is appropriate to use the most recently filed Integrated Resource Plan for purposes of avoided cost calculations in fuel proceedings," but does not explicitly address the myriad shortcomings with such reliance, including:

- The IRP is still being reviewed, and has not been subject to any independent review or oversight, *see* Horii Direct Testimony at p. 21;
- The IRP is non-binding on the Company, and is therefore open to unilateral changes by the Company, which materially impact avoided cost calculations in ways that impact rates for QFs, *see* Hearing Tr. at pp. E-199, lns. 14-17, E-200; and
- The IRP does not reflect optimized or least-cost resource planning, *see* Hearing Tr. at pp. E-202-204.

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 35 of 52

Company Witness Lynch's rebuttal testimony best illustrates the flaws with the Company's approach. He states that "[i]f SCE&G **has to** build a combined-cycle unit to meet its winter peak, but which also satisfies the need for summer capacity, **then the fixed costs are incurred**. In contrast, adding solar capacity, which only has an impact on capacity in the summer, does not avoid any of those **fixed costs**." Lynch Rebuttal at p. 41, lns. 19-21, p. 42, lns. 1-2 (emphases added). The Company has not in any way demonstrated that it has to, or is **even planning to,** build a 540 MW combined cycle unit in 2023. In fact, Lynch concedes that there are many ways to address winter and summer capacity needs independently. For example, demand side management resources could be used to meet rare winter peaking events while solar power is used to meet summer peak loads. Any "fixed" costs associated with the Company's hypothetical combined cycle are thus speculative and because they are clearly avoidable, some or all of them could be avoided by QFs that provide capacity to meet summer peak capacity needs. Assuming this combined cycle in the Company's "base case" is unavoidable thus arbitrarily minimizes QFs' ability to receive payment for capacity needs. The delay or avoidance of unapproved natural gas plants are the very definition of "avoidable" costs.

The Company cannot have it both ways: it cannot "bake in" capacity additions that it has not committed to, as a way to devalue energy and capacity from QFs, unless those additions are actual commitments that QFs can no longer avoid. The Company's claim that solar QFs will have no impact on its preferred-but-speculative resource plan answers the wrong question. The proper question is how QF power can avoid costs related to the Company's current and future capacity needs.

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 36 of 52

The Order appears to adopt the Company's position that solar QFs do not avoid specific future capacity additions as a rationale for zeroing out capacity payments, without addressing this significant flaw in the Company's position: that such a position hinges on an acceptance of certain capacity additions that have in no way been deemed prudent or committed to by the Company. Conservation Groups respectfully ask the Commission to find that these speculative "plans" for future capacity do not form a reasonable basis for setting avoided capacity costs; rather, the Company should be required to continue allocating capacity based on its historic seasonal capacity allocation, which acknowledges the clear evidence in the record that future capacity needs exist in both summer and winter seasons over the planning period.

b. The Company has not optimized its plan

Acknowledging the importance of these issues, FERC has addressed this very question of how utilities using the DRR method should incorporate their future capacity plans. FERC Order 69 clearly states that the evaluation of the difference between a plan with and without the QF must be done based on "the utility's optimal capacity expansion plan," and "[a]n optimal capacity expansion plan is the schedule for the addition of new generating and transmission facilities which, based on an examination of capital, fuel, operating, and maintenance costs, will meet a utility's projected load requirements at the lowest total cost." Federal Register, Vol. 45 No. 38, p. 12,216 n.6; *see also* Hearing Transcript at pp. E-211-212, p. E-212 at ln. 24-25 (Witness Lynch conceding that the Company did not use optimization software).

Company Witness Lynch agrees that the IRP should consider a range of resources. Hearing Transcript at p. E-213. He also notes that the Company makes additional showings of cost-effectiveness when it requests a certificate of convenience

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 37 of 52

and public need (CPCN) from the Commission. Hearing Tr. at p. E- 199, lns. 20-24. However, as the IRP stands today, the Company concedes that it uses a simple spreadsheet model to compare generation resources – one that cannot be described as demonstrating an optimal, least cost generation plan. *Id.* at p. E-212. The Company does not use any optimization software or sophisticated modeling that could integrate various resources and select the optimal, least cost generation resources to meet future needs. *Id.* Lynch also concedes that he is not familiar with any other utility that uses an excel spreadsheet to determine its IRP capacity plan, as opposed to an optimization model such as Strategist, PROMOD, Midas, System Optimizer or AURURA. Multiple witnesses testify that SCE&G's aberrant approach is at odds with accepted industry practice, including the practice of other South Carolina utilities. *Id.* at p. E-209.

The Company admits that its spreadsheet actually analyzes only two resource options for meeting capacity needs in 2023: a peaking turbine and a combined cycle plant. Hearing Tr. at pp. E- 215-216. In response to a cross examination question about the Company's spreadsheet model, Witness Lynch states that "I think the heart of your point is, are you really moving around just combustion turbines and combined-cycles, and I'd say yes." *Id.* at pp. E-215 ln. 24 – E-216 ln. 1. The Company did not compare the cost effectiveness of these gas resources to market purchases of power, solar, energy efficiency, or battery storage. For some of these resources, the Company "baked in" a certain, pre-set amount (such as for winter demand-side management ("DSM")), but does not actually allow these resources to compete on cost against its selected 540 MW combined cycle. *Id.* The Company would also likely seek recovery of not only capacity costs related to these self-built generation additions, but also a guaranteed return on

equity. *Id.* at p. E-217, ln. 8._Simply put, the Company has not demonstrated its resource plan to be "least cost," so under FERC Order 69, the resource additions in the 2018 IRP are not appropriate for the base case scenario that the Company uses to implement the DRR method. The Order does not appear to address this flaw, or to discuss how the Company's DRR method complies with FERC Order 69. Conservation Groups ask that the Commission disallow the Company from including speculative resource additions that have not been deemed least cost from SCE&G's avoided cost calculations.

c. Winter peak load forecast

The Company uses the DRR method to calculate avoided costs. This method compares results from a base case and a change case. The "base case" depends significantly on the Company's peak load forecasts and generation resources that will meet those peak load needs, both of which are taken from the 2018 IRP. As described by the Conservation Groups' Witness Glick, "SCE&G's near term energy forecasts have a significant impact on avoided energy and capacity costs by driving the need for generation capacity in its resource plans." Glick Direct Testimony at p. 13. Witness Glick testifies that "SCE&G's year-on-year increase in the near term forecasted peak load [in the 2018 IRP] reflects a dramatic increase in demand, as compared to prior years' forecasts. I am concerned that this near-term jump is driving long-term planning decisions at a significant cost to ratepayers without justification." Glick Direct Testimony at p. 13. The Company further points to its winter load forecast in an effort to justify its proposal to completely eliminate avoided capacity payments for solar power. This reliance is misplaced because the Company's winter peak load forecast is flawed.

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 38 of 52

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 39 of 52

ORS Witness Horii testifies to the flaws in the Company's winter peak load forecast, specifically regarding its overstated winter season peak demand variation. "[T]he implementation of [the Company's] method is flawed because SCE&G's determination of the winter season peak demand variation is overstated." Horii Direct Testimony at p. 11. Horii goes on to explain that "SCE&G uses regression equations to estimate what peak demand would be on SCE&G's system today given the weather that occurred on historical peak days since 1991. ... The winter shape [from this regression equation] has an upward curve, which is counter to engineering-based expectations. This upward curve also exacerbates the variation in peak demand, compared to the downward curve of summer predictions." Horii Direct Testimony at p. 14. As described by Witness Horii, the Company's approach goes against engineering-based expectations because the load cannot increase indefinitely with no leveling off. Eventually, "as weather becomes more extreme, "cooling [or heating, depending on the season,] equipment because more heavily used, but eventually [will] top out and cannot increase electricity usage any further." Horii Direct Testimony at p. 14. "As individual units top out, one sees diminishing increases in load as temperatures worsen." *Id.* The Company has not accounted for this leveling off of equipment usage and load in its winter season load variation analysis. The result is "an overly large estimate of winter variability for the winter season compared to the summer season." *Id.* As a result of these flaws, we ask the Commission to reconsider its decision to allow the Company to rely on these unsubstantiated findings from the 2018 IRP in setting avoided cost rates.

d. Winter reserve margin

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 40 of 52

The Company's errors in its peak load variability calculations are compounded by the extremely high reserve margin of 21% that it now proposes to use for its winter season. The Company's flawed overestimate in winter peak load forecast and variability results in the Company seeking an overly aggressive winter reserve margin, to minimize the overstated risk of being unable to meet future winter peak loads. The reserve margin is much higher than comparable utilities in the Southeast, and it was calculated using the questionable component method that is not the industry standard. *See* ORS Witness Horii Direct Testimony at p. 11. The Company has the capability of using a more sophisticated, industry standard approach, but it declined to do so. In so doing, the Company has not only artificially limited avoided cost payments for QFs, but also seeks to add unneeded winter capacity generation that will increase costs for customers. Hearing Tr. at p. E-241.

A comparison of other winter reserve margins in the Southeast demonstrates that the Company's proposed reserve margin is unreasonable. Witness Glick testifies that "[r]egional peer utilities such as Duke and Southern Company use a different, more comprehensive methodology that balances physical reliability and customer costs." Glick Direct Testimony at p. 10. In contrast to the Company's proposed 21% reserve margin, Southern Company and Duke have 17% reserve margins, with the aim of "balanc[ing] reliability and cost minimization." Glick Direct Testimony at p. 11. Company Witness Lynch attempts to point to other regional examples of high winter reserve margins from PJM and a Florida utility. But ORS Witness Horii rebuts Lynch's efforts in surrebuttal, in particular pointing out that Lynch's statement is "misleading"

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 41 of 52

and that the PJM figure cited by Lynch is not at all analogous to a reserve margin. Horii Surrebuttal Testimony at pp. 8-9.

SCE&G is capable of using a more sophisticated approach to determining its winter reserve margin. Indeed, the Company used a Loss of Load Probability Method in 2012. The Company even described the LOLP method as the "traditional and industry standard technique" in its 2013 IRP. Hearing Tr. at pp. E-240-241. Yet the Company unreasonably declined to use the LOLP method to inform its new reserve margin study.

Given the flaws in this winter reserve margin study, the Company has not met its burden of demonstrating that a 21% winter reserve margin is appropriate, and this study should not be allowed to inform avoided cost rates. While the Order acknowledges that the Company is using "a novel approach" to reserve margins that is "of significant importance in future fuel proceedings," it ultimately finds a 21% winter reserve margin to be reasonable. Order at 16. Conservation Groups respectfully take issue with the Commission's finding that this 21% winter reserve margin "has potentially adverse implications for certain types of generators going forward." *Id.* Rather, the facts in this proceeding are clear that this change adversely impacts solar QFs both now and in the future, because it forms the basis for the Company to shift to winter-peaking, zeroing out capacity payments for QFs in both the current year and for the entire 15-year contract period. Conservation Groups also point out that the Commission's finding that disagreements between Witness Horii and Witness Lynch on this issue "are not significantly different" is contradicted by the record. Order at 16. Rather, Company Witness Lynch admits that its proposed winter reserve margin is largely responsible for

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 42 of 52

the Company's proposal to completely eliminate avoided capacity payments to QFs. Hearing Tr. at p. E- 201.

e. Inconsistency with avoided cost allocation and recovery paradigm

In addition to all of the problems underlying the Company's decision to zero out avoided capacity payments for QFs, the Order's acceptance of the Company's new winter peaking assertion is inconsistent and arbitrary when examined alongside its avoided cost allocation and recovery paradigm.

S.C. Code Ann. § 58-27-865(A)(1) provides that

> incremental and **avoided costs of** distributed energy resource programs and net metering as authorized and approved under Chapters 39 and 40, Title 58, [which] shall be allocated and recovered from customers under a separate distributed energy component of the overall fuel factor that **shall be allocated and recovered based on the same method that is used by the utility to allocate and recover variable environmental costs.**

As Company Witness Rooks testified for allocation and recovery of variable environmental costs and avoided cost allocation and recovery in this docket, "the Company uses the same four-hour-band Coincident Peak methodology that has been approved by this commission for over 30 years." Rooks Direct testimony at p. 6. He details that the summer 2016 peak was used to allocated DER costs during 2017, and summer 2017 peak was used to allocate DER costs during 2018-2019." *Id* at pp. 6-7.

The statute requires the "same method" to be used to recover both DER Avoided Costs and variable environmental costs, and the Commission has approved DER Avoided Cost recovery based this summer peaking paradigm. The Company seeks to allocate and

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 43 of 52

recover costs based upon the assumption that the system peaks in the afternoon during the summer, but the Company's decision to zero out avoided capacity for QFs is

based on the assumption that the operative utility system peak (according to the Company) is on winter mornings.

Intervenors note that the Commission is the finder of fact, and must apply the law to those facts in a manner that is not arbitrary or capricious. Currently, SCE&G's variable environmental costs, avoided costs, and production costs recovered through the Company's base rates are all calculated based upon a 4-hour average summer peak. This appears completely at odds with the Company's assertion that its resource decisions and avoided cost payments for QFs must now be driven by winter peaks. If, as a matter of fact determined by the Commission, the Company is shifting to winter peaking (or some combination of summer and winter peaking), then the implications of the factual finding in this case may go well beyond avoided cost rates.

3. SCE&G's zero capacity payment violates PURPA.

FERC's regulations implementing PURPA are very clear: they state that "[e]ach electric utility **shall purchase**, in accordance with §292.304 . . . **any** energy and **capacity** which is made available from a qualifying facility." 18 C.F.R. § 292.303(a) (emphasis added). These rates must reflect the cost that the purchasing utility **can avoid** as a result of obtaining energy and capacity from these sources. 18 C.F.R. § 292.101(b)(6).

Order 69 acknowledges that different types of QFs may provide different capacity values, and it describes aggregating capacity for certain renewable QFs. While FERC

indicated that a single intermittent QF might not permit the purchasing utility to avoid constructing or reserving capacity, "the aggregate capacity value of such facilities must be considered in the calculation of rates for purchases, and the payment distributed to the class providing the capacity." Order No. 69, *Small Power Production and Cogeneration Facilities; Regulations Implementing Section 210 of the Public Utility Regulatory Policies Act of 1978*, 45 FR 12214, 12225 (1980). FERC continued,

> Some technologies, such as photovoltaic cells, although subject to some uncertainty in power output, have the general advantage of providing their maximum power coincident with the system peak when used on a summer peaking system. The value of such power is greater to the utility than power delivered during off-peak periods. Since the need for capacity is based, in part, on system peaks, the qualifying facility's coincidence with the system peak should be reflected in the allowance of some capacity value and an energy component that reflects the avoided energy costs at the time of the peak.
> *Id.*

FERC has stated in past orders that an avoided cost rate need not include capacity costs where a QF does not "permit the purchasing utility to avoid the need to construct a generating unit, to build a smaller, less expensive plant, or to reduce firm power purchases from another utility." *City of Ketchikan, Alaska Copper Valley Elec. Ass'n, Inc.; City of Petersburg, Alaska; & City of Wrangell, Alaska*, 94 FERC ¶ 61293 (Mar. 15, 2001), *quoting* Order No. 69, FERC Stats. & Regs., Regs. Preambles 1977-1981 ¶ 30,128 at 30,865.

The Company has not demonstrated that it has met any of these preconditions for waiving its obligation to pay QFs for capacity. In fact, based on the record, the opposite is true: the Company concedes that it may **not** in fact build a combined cycle plant in 2023; that it **could** opt to invest in winter-peaking demand response programs that would alleviate winter peaks, allowing it to meet remaining summer capacity needs with solar

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 44 of 52

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 45 of 52

QFs. Hearing Tr. at pp. E-189-190. The Company appears to be attempting to rig its avoided cost methodology to reach its intended result: zeroing out capacity payments to its competitors, and justifying additional, and unnecessary, self-built capacity in future years. *See* Lynch Rebuttal p. 41, lns 19-21, p. 42, lns 1-2. Its changes to its winter reserve margin, winter peak load, capacity methodology, and QF pricing methodology all appear intended to meet this self-serving result. Clearly, SCE&G has not met its burden to demonstrate that solar QFs' capacity **cannot** be used to meet its "total system load." Order No. 69, FERC Stats. & Regs., Regs. Preambles 1977-1981 ¶ 30,128 at 30,870. Since a summer capacity need exists over the next 15 years, and because SCE&G has not **actually demonstrated** that QFs will not permit the utility to avoid building or buying future capacity, it has an obligation under PURPA to pay QFs fairly for the capacity that they provide. See also *Hydrodynamics Inc.*, 146 FERC ¶ 61193 (2014) (rejecting a utility's attempt to eliminate capacity payments for certain QFs where the utility failed to establish "any clear relationship to . . . actual demand for capacity").

Based on this clear statutory obligation under PURPA, we ask the Commission to reconsider its finding with respect to zero capacity payments, and find that the Company has not met its obligation to demonstrate that solar QFs cannot be used to meet future capacity needs.

4. SCE&G's zero capacity payment violates the 2014 NEM Settlement Agreement.

The Order's approval of the Company's zero value for avoided capacity violates the 2014 settlement agreement approved by this Commission. The NEM Settlement approved previously by this Commission in Order No. 2015-194, Docket No. 2014-246-E, requires an annual update to the calculation of "costs and benefits of net metering."

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 46 of 52

Order 2015-194 at p. 22, para. (g). The NEM Methodology includes eleven components and the settlement directs that the values for such components will be filled in as capabilities to reasonably quantify those components become available. Order 2015-194 at p. 20, para. (e). Regarding avoided capacity specifically, the settlement defines avoided capacity as the increase or reduction in fixed costs to the utility "of building and maintaining new conventional generation resources associated with the adoption of NEM." Order 2015-194 at p. 8. The Company's error of assigning net-metered DERs a zero capacity value is inconsistent with a plain reading of the settlement because it means that these NEM resources have no ability to avoid new capacity.

III. The Commission should find SCE&G has not met its burden, and adopt one of intervenors' alternative proposals.

For all of the reasons stated above, SCE&G has not met its burden to demonstrate that its avoided cost rates are reasonable. **Any of the alternative proposals put forward by intervening parties would be more appropriate than the Company's proposal, because they would better reflect the full capacity costs that QFs will allow the Company to avoid over the planning period.** These proposals, described below, are grounded in the record and the Commission is well within its authority to require the Company to implement them. Several of the proposals require the Company to recalculate its avoided capacity rates, which would provide a non-zero value for the PR-1 and PR-2 tariffs.[8]

- Maintain 2017 avoided capacity costs

[8] It is well within the Company's ability to do these recalculations and to update its PR tariffs. The Company has in the past requested to update its PR rates more frequently than annually, so there should be no hurdle to the Company updating its tariffs at the Commission's direction and pursuant to this petition for reconsideration.

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 47 of 52

ORS Witness Horii gave several recommendations in his direct testimony to address SCE&G's failure to provide an avoided capacity value. His primary recommendation is described in greater detail below, but he also testified that another option would be to retain the 2017 avoided capacity cost values for the PR-1 and PR-2 rates until the Company proposed reasonable avoided capacity rates. Witness Horii recommended "that the current capacity value be maintained for both PR-1 and PR-2 until a better capacity value can be provided in the next rate update." Horii Direct Testimony at p. 22. Given the myriad flaws in the Company's proposal in this year's fuel docket, Conservation Groups respectfully disagree with the finding in the Order that "[t]here is no evidence to demonstrate that maintaining such rates would be appropriate or that it would not result in SCE&G's customers having to pay for excessive avoided capacity costs." Order at 16. On the contrary, since the Company has failed to meet its burden to demonstrate the reasonableness of a change from last year's methodology, the more reasonable approach is to maintain last year's rate until such a change is deemed justified.

- Maintain 2017 avoided capacity cost method

This proposed alternative would require the Company to continue using its 2017 avoided capacity cost method, but update several of the inputs. This is the relief recommended in ORS and SBA's proposed orders. Under this option, SCE&G must provide an estimate of long-run avoided capacity costs and a calculation of long-run avoided capacity costs that reflects the methodology approved in prior proceedings, and then use these re-calculations to update the PR-1 and PR-2 rates. *See* ORS Proposed Order at 21, 32. SBA's Proposed Order provides additional detail on this alternative:

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 48 of 52

that, in its re-calculation of capacity payments, the Commission should require the Company to continue to use the 80% / 20% summer/winter capacity weighting approved in previous dockets; continue to follow an across-the-board 14% reserve margin policy; and continue to assign a 50% capacity factor to solar resources in its re-calculated rate. SBA Proposed Order at 17-18. Each of these elements of capacity costs have been approved by the Commission in prior orders, and the Company has not demonstrated that its proposed changes to any of these elements is justified.

The justification for this proposal is self-evident – since the Company has not met its burden to justify its proposed methodology changes in this docket, the Commission has the authority to rely on prior approved methodology, which it has already deemed reasonable, ensuring that QFs receive fair compensation between now and the Company's next fuel cost proceeding. SCE&G may propose additional changes at that time.

- Recalculate capacity payments using a 19.5% value

This proposed alternative, ORS Witness Horii's primary recommendation, would require the Company to recalculate capacity costs using 19.5% of the avoided cost of per kW from a 100 MW change to SCE&G's base resource plan that excludes any non-committed future resources and reflects any planned plant retirements of firm capacity. As described by Witness Horii, "[i]ncluding 19.5% of the avoided capacity value is based on SCE&G's solar analysis that found that a 100 MW increment of new solar would reduce summer peak demand by about 19.5 MW (Exhibit JML-4, p. 6)." Horii Direct Testimony at p. 21. This approach would provide credit to solar QFs for the value that

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 49 of 52

they provide in avoiding summer capacity needs, rather than turning a blind eye to this capacity value as proposed by the Company. Witness Horii even provided an example of how this calculation would result in a tangible value to input into the PR tariffs: "For example, in Docket No. 2016-2-E, SCE&G estimated that the long run avoided capacity cost for a 100 MW change to be $21.34/kW-yr (Lynch direct testimony, p. 15). Applying the 19.5% factor would have resulted in an avoided capacity cost for solar of $4.16/kW-yr." *Id.*

Regardless of which alternative the Commission selects, there is no prejudice or harm to the Company in requiring it to re-calculate capacity costs now using a more appropriate method. SCE&G Witness Lynch admitted that the Company can perform revised avoided energy and capacity calculations "pretty quickly," and that it is "[n]ot too labor intensive." Hearing Tr. at E-33. In the same way that the Company proposed in the past to update its PR-2 rate in between fuel dockets to reflect changed circumstances, the Commission can and should require the Company to amend PR-2 now to better reflect full capacity costs avoided by QFs, and this updated rate should go into effect immediately following its review and approval by the Commission.

CONCLUSION

The Conservation Groups respectfully request that the Commission rehear or reconsider its Order as it relates to the issue of the Company's avoided capacity cost calculations and resulting rates in the PR-1 and PR-2 tariffs and 2018 NEM update. We would ask the Commission to clarify that the burden of proof is on the utility to prove that its proposed rates are reasonable, once the specter of imprudence is raised. In light

ELECTRONICALLY FILED - 2018 May 10 5:03 PM - SCPSC - Docket # 2018-2-E - Page 50 of 52

of the Company's failure to meet this burden of proof and the significant problems with its proposals, we ask the Commission to disapprove the Company's Avoided Cost Tariffs PR-1 and PR-2 and the Company's 2018 NEM Rider to Retail Rates, and request that the Commission require the Company to make revisions that shall be filed within 30 days. Conservation Groups specifically request that the Commission issue an order requiring the Company to recalculate capacity costs consistent with the recommendation of ORS Witness Horii, using 19.5% of the avoided cost of per kW from a 100 MW change to SCE&G's base resource plan that excludes any non-committed future resources and reflects any planned plant retirements of firm capacity. As an alternative, Conservation Groups request that the Commission adopt one of ORS Witness Horii's alternative proposals to either maintain the avoided capacity rates approved in 2017 or to require the Company to use the Commission-approved 2017 avoided capacity cost method in its recalculation of capacity costs.

Respectfully submitted this 10th day of May, 2018.

s/ J. Blanding Holman, IV
J. Blanding Holman, IV
S.C. Bar No. 72260
Southern Environmental Law Center
463 King St. – Suite B
Charleston, SC 29403
Telephone: (843) 720-5270
Fax: (843) 720-5240
bholman@selcsc.org

Katie C. Ottenweller
Admitted *pro hac vice*
Southern Environmental Law Center
Ten 10th Street NW, Ste. 1050
Atlanta, GA 30309
Telephone: (404) 521-9900
Fax: (404) 521-9909
kottenweller@selcga.org

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 1 of 18

ELLIOTT & ELLIOTT, P.A.

ATTORNEYS AT LAW
1508 LADY STREET
COLUMBIA, SOUTH CAROLINA 29201
selliott@elliottlaw.us

SCOTT ELLIOTT

TELEPHONE (803) 771-0555
FACSIMILE (803) 771-8010

May 10, 2018

VIA E-FILING
Ms. Jocelyn D. Boyd
Chief Clerk of the Commission
SC Public Service Commission
P. O. Drawer 11649
Columbia, SC 29211

RE: Annual Review of Base Rates for Fuel Costs for South Carolina Electric & Gas Company
Docket No. 2018-2-E

Dear Ms. Boyd:

Enclosed please find for filing the Petition for Rehearing or Reconsideration on behalf of the South Carolina Energy Users Committee ("SCEUC") in the above-captioned matter. By copy of this letter, I am serving all parties of record.

If you have questions, please do not hesitate to contact me.

Sincerely,

ELLIOTT & ELLIOTT, P.A.

Scott Elliott

SE/lbk
Enclosures

cc: All parties of record (w/encl.)

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 2 of 18

BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2018-2-E

IN RE:	)	
Annual Review of Base Rates for Fuel Costs	)	**PETITION FOR REHEARING**
For South Carolina Electric & Gas Company	)	**OR RECONSIDERATION**

The South Carolina Energy Users Committee ("SCEUC"), Intervenor in the above referenced proceeding, hereby petitions the South Carolina Public Service Commission ("Commission") for rehearing or reconsideration of Order No. 2018-322, dated April 30, 2018, and Order No. 2018-322(A) dated May 2, 2018, approving fuel costs for South Carolina Electric & Gas Company ("SCE&G"). Specifically, SCEUC petitions the Commission pursuant to S.C. Code Ann. §58-27-2150 (1976) and S.C. Code Ann. Reg. 103-854 to reconsider certain of its findings and conclusions with respect to the Commission's decision to relieve SCE&G from the requirement that it provide its customers with certain monthly fuel recovery reports and quarterly fuel forecasts. For the reasons hereinafter set out, SCEUC would respectfully submit that the Commission overlooked and misapprehended the uncontested evidence of record.

SCEUC's members purchase and consume substantial amounts of electricity from SCE&G. Relatively small shifts in fuel costs may have a substantial impact on industrial customers. SCE&G has been required to provide the monthly fuel recovery reports and quarterly forecasts to SCEUC since 2006. The monthly fuel reports and quarterly forecasts provide

SCE&G's customers with valuable information needed to anticipate their cost of fuel and to budget accordingly

SCE&G has agreed to provide SCEUC with the monthly fuel recovery reports and quarterly fuel forecasts. At the hearing on the merits, Mr. Allen Rooks agreed on behalf of SCE&G to provide the parties with copies of the monthly fuel recovery reports and the quarterly fuel forecasts. (Tr. p. E 100, l. 25 – p. E 101, l. 18, attached hereto as Exhibit 1)

The provisions agreed to by Mr. Rooks are consistent with the provisions of the previous Public Service Commission orders approving settlement agreements in fuel dockets. For instance, the settlement agreement approved in Docket No. 2017-2-E provides in pertinent part,

> B.11. Upon written request, SCE&G will provide the following to the Settling Parties:
>
> a. Copies of the monthly fuel recovery reports currently filed with the Commission and ORS; and,
>
> b. Quarterly forecasts beginning with the quarter ending June 30, 2017, of the expected fuel factors to be set at SCE&G's next annual fuel proceeding and SCE&G's historical over (under)-collected balance to date. SCE&G agrees it will put forth reasonable efforts to forecast the expected fuel factors to be set at its next annual fuel proceeding; however, the Settling Parties agree that these quarterly forecasts will not be admitted into evidence in any future SCE&G proceeding.

The Commission found the provisions of the settlement agreement in the public interest. Order No. 2017-246 at pages 8 – 9, 55.

Indeed, the Commission has historically found the terms of the parties' settlement agreements and the requirement that SCE&G provide the monthly and quarterly reports to be in the public interest. A study of Commission dockets reflect that SCE&G submitted to the requirement that it provide its customers with the monthly fuel recovery reports and quarterly forecasts since May of 2006. See Commission Order No. 2006-235(A), Order No. 2007-257, Order No. 2008-323, Order No. 2009-289, Order No. 2010-336, Order No. 2011-319, Order No.

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 3 of 18

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 4 of 18

2012-295, Order No. 2013-244, Order No. 2014-380, Order No. 2015-306, Order No. 2016-299. In each instance, the Commission found the provisions of settlement including the requirement that SCE&G provide monthly fuel recovery reports and quarterly fuel forecasts to be in the public interest. Moreover, requiring SCE&G to furnish both reports is a just and reasonable exercise of the Commission's authority. S.C. Code Ann. Sections 58-3-140 and 58-27-140.

The provision requiring SCE&G to provide monthly fuel recovery reports and quarterly forecasts is not unique to SCE&G. Historically, Duke Energy Carolinas, LLC has been required by the terms of the settlement agreement in its annual fuel proceeding to provide monthly fuel recovery reports and quarterly fuel forecasts. See Order No. 2017-597. Duke Energy Progress, LLC has likewise been required to provide these monthly fuel reports and quarterly forecasts. See Order No. 2017-405.

Accordingly, SCEUC respectfully requests that the Commission rehear or reconsider the matter and issue its order requiring SCE&G to provide the parties to this docket with the following:

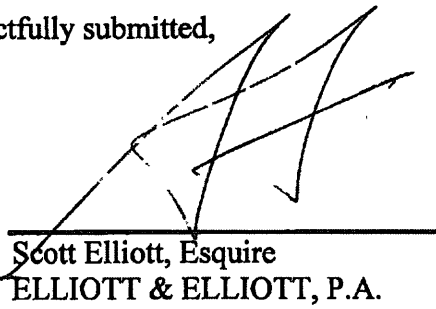
a. Copies of the monthly fuel recovery reports currently filed with the Commission and ORS; and,
b. Quarterly forecasts beginning with the quarter ending June 30, 2017, of the expected fuel factors to be set at SCE&G's next annual fuel proceeding and SCE&G's historical over (under)-collected balance to date. SCE&G agrees it will put forth reasonable efforts to forecast the expected fuel factors to be set at its next annual fuel proceeding; however, the Settling Parties agree that these quarterly forecasts will not be admitted into evidence in any future SCE&G proceeding.

The Office of Regulatory Staff concurs in SCEUC's petition.

For the foregoing reasons, as well as those set out at trial and in its correspondence to the Commission submitted April 20, 2018, the South Carolina Energy Users Committee respectfully

requests that the Commission rehear those issues set out above, reconsider its orders respecting those issues and issue its order consistent with the arguments set out above.

Respectfully submitted,



Scott Elliott, Esquire
ELLIOTT & ELLIOTT, P.A.
1508 Lady Street
Columbia, SC 29201
(803) 771-0555

Attorney for the South Carolina Energy Users Committee

Columbia, South Carolina
May 10, 2018

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 5 of 18

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 6 of 18

BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

COLUMBIA, SOUTH CAROLINA

HEARING #18-11716 APRIL 10, 2017 10:35 A.M.

DOCKET NO. 2018-2-E:
SOUTH CAROLINA ELECTRIC & GAS COMPANY – *Annual Review of Base Rates for Fuel Costs*

TRANSCRIPT OF TESTIMONY AND PROCEEDINGS

EXCERPT [PART 1]

PAGES 97 ~ 103

COMMISSION MEMBERS PRESENT: Swain E. WHITFIELD, CHAIRMAN; Comer H. 'Randy' RANDALL, VICE CHAIRMAN; and COMMISSIONERS John E. 'Butch' HOWARD, Elliott F. ELAM, Jr., Elizabeth B. 'Lib' FLEMING, Robert T. 'Bob' BOCKMAN, and G. O'Neal HAMILTON

ADVISOR TO COMMISSION: F. David Butler, Esq.
Senior Counsel

STAFF: Jocelyn G. Boyd, Chief Clerk/Administrator; Joseph Melchers, General Counsel; F. David Butler, Esq., Senior Counsel; James Spearman, Ph.D., Executive Assistant to Commissioners; Douglas K. Pratt, Thomas Ellison, and John Powers, Technical Advisory Staff; Jo Elizabeth M. Wheat, CVR-CM/M-GNSC, Court Reporter; and Hope Adams and Calvin Woods, Hearing Room Assistants

APPEARANCES:

K. CHAD BURGESS, ESQUIRE, MATTHEW W. GISSENDANNER, ESQUIRE, and BENJAMIN P. MUSTIAN, ESQUIRE, representing SOUTH CAROLINA ELECTRIC & GAS COMPANY, **PETITIONER**

APPEARANCES (Cont'g):

SCOTT ELLIOTT, ESQUIRE, representing SOUTH CAROLINA ENERGY USERS COMMITTEE, **INTERVENOR**

RICHARD L. WHITT, ESQUIRE, and ***BENJAMIN L. SNOWDEN, ESQUIRE,*** representing SOUTH CAROLINA SOLAR BUSINESS ALLIANCE, **INTERVENOR**

RICHARD L. WHITT, ESQUIRE, representing SOUTHERN CURRENT, **INTERVENOR**

KATIE C. OTTENWELLER, ESQUIRE, representing SOUTH CAROLINA COASTAL CONSERVATION LEAGUE and SOUTHERN ALLIANCE FOR CLEAN ENERGY, **INTERVENORS**

ANDREW M. BATEMAN, ESQUIRE, and ***JENNY R. PITTMAN, ESQUIRE,*** representing the **SOUTH CAROLINA OFFICE OF REGULATORY STAFF**

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 7 of 18

I N D E X

PAGE

EXCERPT:
CONTINUING PANEL TESTIMONY OF ALLEN W. ROOKS, JOHN H. RAFTERY, and JOSEPH M. LYNCH, Ph.D.
Cross Examination by Mr. Snowden..... E-4
Hearing Exhibit 7 marked/received
[2017-2-E Lynch prefiled rebuttal testimony]..... E-61
Cross Examination by Mr. Elliott..... E-97
Witnesses stand aside..... E-104

TESTIMONY OF DEVI C. GLICK
Direct Examination by Ms. Ottenweller..... E-105
Hearing Exhibit 8 marked/received
[Prefiled (direct) DCG-1 ~ -2 and prefiled (surrebuttal) DCG-3 ~ -4]..... E-108
Prefiled unredacted direct testimony {w/corrn's}. E-109-142
Prefiled surrebuttal testimony..... E-144-159
Examination by Commissioner Elam..... E-160
Examination by Commissioner Fleming..... E-165
Examination by Commissioner Bockman..... E-169
Examination by Vice Chairman Randall..... E-172
Examination by Chairman Whitfield..... E-173
Witnesses excused..... E-175

CONTINUING PANEL TESTIMONY OF ALLEN W. ROOKS, JOHN H. RAFTERY, and JOSEPH M. LYNCH, Ph.D.
Cross Examination by Ms. Ottenweller..... E-176
Hearing Exhibit 9 marked/received
[SCE&G 2018 Integrated Resource Plan]..... E-185
Witnesses stand aside..... E-190

REPORTER'S CERTIFICATE..... E-192

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 8 of 18

year.

A [LYNCH] That's what I mean, yes. And I see that as the methodology.

Q Okay, Dr. Lynch, I do not have any further questions for you. Thank you very much.

A Thank you.

CHAIRMAN WHITFIELD: Thank you, Mr. Snowden. Mr. Elliott.

MR. ELLIOTT: Yes, sir. Just a few.

CROSS EXAMINATION

BY MR. ELLIOTT:

Q Nothing for you, Dr. Lynch.

A [LYNCH] Oh. Glad to see you, Mr. Elliott.

[Laughter]

Q Yes, sir, pleasure's mine.

But I do have just a few for you, Mr. Rooks, please.

A [ROOKS] Okay.

Q In – could you get Exhibit 1 to your testimony out, please?

A [ROOKS] [Indicating.]

Q I'll draw your attention to page 1-of-2.

A [ROOKS] Okay.

Q And, in particular, I want to draw your attention, if I may, what, under your exhibit as filed, is January '18

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 9 of 18

forecasted costs. Do you see that column?
A [ROOKS] I do.
Q And in that column, you are showing a forecast cost of purchased power and interchange received of about $45 million? Am I reading that correctly?
A [ROOKS] Yes.
Q All right. I have not seen, I think, your January fuel report, but have y'all issued that?
A [ROOKS] Yes.
Q So do you know what your purchased power and interchange figure was for January?
A [ROOKS] The actual – if you'll bear with me one moment, I think I have that.
Q Okay.
A [ROOKS] Yes. Our actual purchased power for January was about $46.4 million.
Q All right. And then, just generally speaking – it is January – is the month and the temperature, is that the driver of that high cost?
A [ROOKS] Yes, it sure is. I was doing some research today and looking at National Weather Service weather readings. The highest temperature in Columbia or Charleston for the first seven days of the year was 42 degrees. Heating degree days were 97 percent above normal, for that heating day period. So it was an

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 10 of 18

extreme weather event. We hadn't seen eight days of heating degree days of that magnitude since going back to '91, from some of the records I saw.

Q Yeah. And I'm intrigued that you're able to forecast it?

A [ROOKS] No, sir. We used, in this case – we did not have complete forecast information available, as of the time of the filing of this testimony, and so we used some numbers that were available to us at that time, that weren't complete, that weren't to the point of final scrutiny.

Q But you're real close, is my point.

A [ROOKS] Yes.

Q I'm complimenting you. I wanted to ask, your table is very similar to that of Ms. Smith's, but she has a slight difference in the way she lays out her costs. Are you familiar with her table?

A [ROOKS] I have reviewed it briefly, not in great detail. But I'd be happy to.

Q Well, do you have it handy?

A [ROOKS] Sure [indicating].

Q I just have one short series of questions about it. And I'm looking at Ms. Smith's Exhibit -5, and I'm on page 2-of-2, and I'm staying in the same context of that January '18, just for my sake of ease.

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 11 of 18

A [ROOKS] Okay.
Q Ms. Smith sets out the public service authority credits. Do you see that fourth line from the top?
A [ROOKS] I do.
Q All right. Tell me what those credits are.
A [ROOKS] That's actually for their portion of site usage, at the site.
Q At the nuclear site?
A [ROOKS] Correct.
Q Yes. And you combine that credit in your fossil-fuel total?
A [ROOKS] Correct.
Q I'm just curious why?
A [ROOKS] Because we credit that to the fossil line, essentially. That's site power for any electrical requirements there; it's split based on the ownership percentages for that project. And so we assess – or, we give customers credit back, because some of that power flowed through, so we give the customers credit back for that amount that Santee reimburses us for.
Q All right. And do you have any dispute or issue with Ms. Smith's valuations of those public service authority credits?
A [ROOKS] No, I do not.
Q Now, in the good old days – say, last year – when we had

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 12 of 18

settlement agreements in these fuel cases, the company always agreed to provide to ORS and the parties to the docket the monthly fuel recovery reports. Do you recall that?

A [ROOKS] Yes.

Q Is the company prepared to continue that practice of providing the ORS and the parties to this docket the monthly fuel recovery reports?

A [ROOKS] Sure. Yeah, I don't see why we wouldn't.

Q All right. Thank you. And then, at the same time, in those previous documents, the company always agreed to provide the ORS and the parties quarterly forecasts, fuel forecasts. Do you recall that?

A [ROOKS] I do.

Q Is the company prepared to continue that practice of providing the ORS and the parties quarterly fuel forecasts?

A [ROOKS] Yes.

Q Good. Thank you for that. And, last, I just want to draw your attention to these, you call them, interest credit swaps? Am I calling them by the right name?

A [ROOKS] Yeah, that's fair enough.

Q I'm close? I might have them in the wrong order. Do you recall writing a letter to the Commission – I believe it was yours – no, do you recall SCE&G writing a

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 13 of 18

letter, Mr. Gissendanner, a letter to the Commission back on February 22, 2018, explaining how y'all intended to proceed with those credit swaps?

A [ROOKS] I do.

Q Okay. And I think, as I understand it from Mr. Gissendanner's letter, y'all applied about $115 million in these swaps to fuel?

A [ROOKS] Correct. It was about $113.7 million.

Q And so, thus, we can see – coming back to your Exhibit -1 – we can see where, very quickly, you anticipated going, in January, from about a $55 million undercollection to about a $52 million overcollection, correct?

A [ROOKS] Correct.

Q That accounts for that. Now, apparently, you did even better than the $115 million in swaps. I think you got another $39 million, roughly, about the same time?

A [ROOKS] Not –

Q Did you settle –

A [ROOKS] Not sure on that. Just – was that in the letter?

Q It is. And if you don't know, that's fine, but let me try a little farther. Mr. Gissendanner writes that, in December of '17, E&G settled eight interest-rate swaps at an aggregate cost of $39 million. Does that sound

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 14 of 18

familiar to you?

A [ROOKS] Yes. That would be positions that were not at a gain, but at a loss.

Q All right. And so what I – in Mr. Gissendanner's letter, and this is my point, he goes on to say that it would be treated, I think, as a regulatory asset, as set out in the joint Petition filed on January 12, 2018, and he refers the reader to paragraph 57(C)(1) of the joint Petition? Do you know exactly how the joint Petition proposed to do that, in this paragraph 57(C)(1)?

A [ROOKS] I don't have that right in front of me, but my understanding is that those are supposed to be amortized over the life of the debt issuance that they were tied to.

Q Okay.

A [ROOKS] So, over time, that can gradually be amortized away.

MR. ELLIOTT: Very fine. All right, good. That's all I have. Thank you.

Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Mr. Elliott.

Ms. Ottenweller, questions for this panel?

MS. OTTENWELLER: I do have some questions. Should I proceed at this time? I would say I have maybe 30 minutes, or so.

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 15 of 18

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 16 of 18

C E R T I F I C A T E

I, Jo Elizabeth M. Wheat, CVR-CM-GNSC, Notary Public in and for the State of South Carolina, do hereby certify that the foregoing is, to the best of my skill and ability, a true and correct transcript of EXCERPT(S) from proceedings had and testimony adduced in a hearing held in the above-captioned matter before the PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA;

That the witnesses appearing during said hearing were affirmed by me to state the truth, the whole truth, and nothing but the truth;

IN WITNESS WHEREOF, I have hereunto set my hand and seal, on this the 15th day of April, 2018.

Jo Elizabeth M. Wheat, CVR-CM/M-GNSC
Hearings Reporter, PSC/SC
My Commission Expires: January 27, 2021.

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 1 of 12

BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

Docket No. 2018-2-E

IN RE:	)	
	)	
ANNUAL REVIEW OF BASE RATES	)	
FOR FUEL COSTS FOR SOUTH	)	**PETITION FOR**
CAROLINA ELECTRIC & GAS	)	**REHEARING AND/OR**
COMPANY	)	**RECONSIDERATION**

Introduction

Pursuant to S.C. Code § 58-27-2150 and 10 S.C. Code Ann. Regs. 103-825, and applicable South Carolina law, the South Carolina Office of Regulatory Staff ("ORS") hereby respectfully petitions the Public Service Commission of South Carolina ("Commission") to rehear or reconsider its findings and conclusions in Order No. 2018-322(A) ("Order"). The Order was served on ORS on May 2, 2018.[1]

Specifically, ORS petitions the Commission for a rehearing or reconsideration of the Commission's determination regarding South Carolina Electric & Gas Company's ("SCE&G") avoided capacity cost calculation and rates and the obligation of SCE&G to provide copies of its monthly fuel recovery reports currently filed with the Commission and ORS and Quarterly Forecasts.[2]

---

[1] The Commission issued an Order on April 30, 2018; however, the Commission amended that order and issued its final Order on May 2, 2018.

[2] ORS does not Petition the Commission for rehearing or reconsideration on any issue other than those that relate to the Commission's Order regarding the value of avoided capacity cost and fuel recovery reports and only discusses the brevity of time in annual fuel proceedings to bring the matter before the Commission's attention for subsequent proceedings.

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 2 of 12

ORS respectfully submits the Commission's Order erred by not considering a proposal set forth by ORS witness Horii, by placing the burden on ORS and intervenors to determine an alternative avoided capacity cost rate, and by omitting certain uncontested matters. For these reasons, ORS requests the Commission reconsider its Order regarding avoided capacity costs, utilize the recommendation made by ORS witness Horii, and require SCE&G to file certain monthly and quarterly reports.

Applicable Law

Pursuant to S.C. Code Ann. § 58-27-2150, a party may apply to the Commission for a rehearing in respect to any matter determined in the proceeding. "The purpose of a petition for rehearing and/or reconsideration is to allow the Commission the discretion to rehear and/or reexamine the merits of issued orders pursuant to legal or factual questions raised about those orders by parties in interest, prior to a possible appeal." In re: South Carolina Electric & Gas Company, Order No. 2013-05 (Feb. 14, 2013). S.C. Code Ann. Regs. § 103-825(A)(4) prescribes the content of a petition for rehearing, which must include: "(a) The factual and legal issues forming the basis for the petition; (b) The alleged error or errors in the Commission order; [and] (c) The statutory provision or other authority upon which the petition is based."

The South Carolina Supreme Court employs a deferential standard of review when reviewing a Commission decision and will affirm that decision when substantial evidence supports it.[3] Because Commission findings are presumptively correct, the party challenging a Commission order bears the burden of convincingly proving that the decision is clearly erroneous, or arbitrary or capricious, or an abuse of discretion, in view of the substantial evidence on the whole record.[4] Substantial evidence is relevant evidence that, considering the record as a whole, a reasonable

[3] *See Porter v. SC Public Service Com'n*, 333 S.C. 12, 20 (1998).
[4] *Id.*

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 3 of 12

mind would accept to support an administrative agency's action.[5] This deferential standard of review does not mean, however, that the Court will accept an administrative agency's decision at face value without requiring the agency to explain its reasoning.[6] The Commission must fully document its findings of fact and base its decision on reliable, probative, and substantial evidence on the whole record.[7] It must make findings which are sufficiently detailed to enable the Court to determine whether the findings are supported by the evidence and whether the law has been applied properly to those findings.[8] Regarding factual findings, the Supreme Court recognizes that the Commission is designated an expert to regulate the rates and services of public utilities in South Carolina, and as a result, the Commission has a heightened duty to make "explicit findings of fact which allow meaningful appellate review of these complex issues."[9]

Pursuant to the *Utils. Servs. Of S.C. v. S.C. Office of Regulatory Staff,* a Utility is

> ...entitled to a presumption that its expenditures were reasonable and incurred in good faith, and therefore, a showing that its expenses had increased since its last rate case *could* satisfy its burden of proof. Nevertheless, the presumption in a utility's favor clearly does not foreclose scrutiny and a challenge. In those circumstances, the burden remains on the utility to demonstrate the reasonableness of its costs. ... if an investigation initiated by ORS...yields evidence that overcomes the presumption of reasonableness, a utility must further substantiate its claimed expenditures.[10]

Additionally, Commission Order No. 2018-68 states, "[the Commission] cannot presume that the expenses a utility proposes to recover in its rates and charges are legitimate if they cannot be subjected to the scrutiny of an audit or examination."[11]

---

[5] *Id.*
[6] *Id.* at 21.
[7] *Id.*
[8] *Id.*
[9] *Seabrook Island Property Owners Ass'n v. South Carolina Public Service Com'n*, 401 S.E.2d 672, at 674; 303 S.C. 493, at 497.
[10] *Utils. Servs. Of S.C. v. S.C. Office of Regulatory Staff,* 708 S.E.2d 755, at 762-763, 392 S.C. 96 at 109-110.
[11] Commission Order No. 2018-68, citing *Porter v. SCPSC,* 333 S.C. 12, 507 S.E. 2d 328 (1998).

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 4 of 12

According to S.C. Code Ann. § 58-27-865 (B),

> [t]he commission shall direct each electrical utility which incurs fuel cost for the sale of electricity to submit to the commission and to the Office of Regulatory Staff, within such time and in such form as the commission may designate, its estimates of fuel costs for the next twelve months. The commission may hold a public hearing at any time between the twelve-month reviews to determine whether an increase or decrease in the base rate amount designed to recover fuel cost should be granted. Upon conducting public hearings in accordance with law, the commission shall direct each company to place in effect in its base rate an amount designed to recover, during the succeeding twelve months, the fuel costs determined by the commission to be appropriate for that period, adjusted for the over-recovery or under-recovery from the preceding twelve-month period.

Finally, when discussing the S.C. Code Ann. § 58-27-865, the General Assembly made the following findings, S.C. Code Ann. § 58-27-865 provides "a means for electric utilities to make routine, annual adjustments in the amount of fuel cost recovered from customers," and "58-27-865 has furthered the public interest by allowing the recovery of variable and incremental power supply costs on an accurate, timely, and efficient basis."[12]

Arguments

1. Annual Fuel Proceedings are not the Appropriate Forum for Contesting Perceived Methodological Changes to Calculating Avoided Capacity Cost

The parties in this proceeding held differing opinions regarding whether the Company had proposed a methodological change to its avoided capacity cost calculation. For instance, while Dr. Lynch states SCE&G is using the Difference in Revenue Requirement ("DRR") methodology, which has been previously approved and used, SCE&G filed a Motion to Dismiss in which it states, "...the Company believes that the previously approved methodology is no longer appropriate and that changes to the methodology are warranted and needed."[13] Furthermore, the Southern Alliance for Clean Energy/South Carolina Coastal Conservation League ("SACE/CCL") witness Glick

[12] *See* Editor's Notes (1) and (2) to S.C. Code Ann. §58-27-865.
[13] *See* footnote p. 6, SCE&G Motion to Dismissed, filed on April 2, 2018, in Docket No. 2017-2-E, regarding the Petition for an Order Requiring SCE&G to Comply with Commission Order No. 2018-55, filed by SACE/CCL.

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 5 of 12

stated that the Company did not use the methodology approved by the Commission in Docket No. 2017-2-E.[14] Specifically, witness Glick stated that SCE&G's new methodology consisted of the Company simply asserting that because solar photovoltaic doesn't typically generate during winter peaking hours, it has no capacity value.[15] Witness Horii testified that SCE&G's new manner of calculating avoided capacity costs represented a "substantial change from the methodology and inputs used by SCE&G to calculate prior PR-1 and PR-2 rates...."[16]

Solar Business Alliance ("SBA") Witness Johnson testified regarding the brevity of this proceeding when he stated, "[t]his fuel proceeding is being conducted on a highly expedited schedule which does not provide enough time to investigate or even discuss all of these issues raised by SCE&G's filings in complete detail. And in light of this schedule it would be highly inappropriate to give the Company the benefit of the doubt concerning these issues."[17]

The dispute over SCE&G's methodology and the drastic change from the past year's fueled a contentious hearing that took nearly two full days to complete.[18] Witnesses from all over country testified to address a dispute that did not revolve around the recovery of fuel costs, but revolved around the methodology used to determine avoided costs.[19] SCE&G's dramatic change only served to complicate a relatively brief statutory fuel proceeding created by the General Assembly in order to provide an efficient avenue by which utilities could recover fuel expenses. The annual fuel proceeding has strict time limits and multiple witnesses testified as to the disadvantage and

[14] Tr. P. _, l._, Glick Direct p. 7, l. 14, Tr. P. _, l._, Horii Direct p. 21, ll. 7-8.
[15] Tr. P. _, l._, Glick Direct p. 7, ll. 17-26.
[16] Tr. P. _, l._, Horii Direct p. 21, ll. 7-8.
[17] Tr. P. _, l._, Johnson Direct p. 88, ll. 10-13.
[18] Both Duke Energy Carolinas, LLC and Duke Energy Progress, LLC update the avoided cost methodology outside of the annual fuel proceeding.
[19] ORS recognizes that avoided costs under PURPA are fuel costs and must be recovered annually; however, while S.C. Code Ann. § 58-27-865 requires fuel costs be recovered annually, it does not require the methodology used to determine avoided costs to be altered annually.

problems that these parameters created when combined with SCE&G's proposed avoided capacity cost change.[20]

Furthermore, SCE&G should not have the latitude to dictate the parameters of the fuel proceedings in a manner not contemplated by the fuel recovery statute. SCE&G failed to cooperate by providing complete and reliable data in a timely manner, and therefore, had the ability to dictate the extent to which other parties could present their cases. Because SCE&G was permitted to introduce whole-sale changes to the way in which it calculated the avoided capacity cost value, SCE&G was essentially given free rein to dictate much of the proceeding.

The General Assembly intended for the annual fuel proceedings to be utilized to allow an efficient flow through and recovery of fuel expenses and not to handle methodological changes to contentious issues. The fuel recovery statue is not designed for, and does not contemplate, lengthy and litigious issues such as those that occurred in this proceeding. For these reasons, it is inappropriate to proceed with the evaluation of the avoided cost methodology in annual fuel recovery proceedings. Therefore, on a prospective basis, ORS would request that any proposed change to calculation of avoided costs be litigated in a separate docket and not the annual fuel proceeding.

2. SCE&G Failed to Prove its Avoided Capacity Costs are Zero and the ORS and Intervenors Proposed Alternatives to the Company's Avoided Capacity Cost

The Commission's Order erred when it accepted SCE&G's proposed avoided capacity cost of zero and cited that no party provided a viable alternative proposal or an alternative estimate of SCE&G's avoided capacity cost. At the hearing, ORS witness Horii recommended that the PR-2 capacity value be set at 19.5% of the avoided cost per kW from a 100 MW change to SCE&G's base resource plan that excludes any non-committed future resources and reflects any planned

[20] *See* Horii Direct, p. 22, ll. 2-6.

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 6 of 12

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 7 of 12

plant retirements of firm capacity.[21] Because of the lack of an avoided capacity cost calculation and data provided by SCE&G in this Docket, Mr. Horii was unable to produce an independent estimate of avoided capacity costs for a 100 MW change in supply.[22] Therefore, he recommended that SCE&G be required to provide an estimate of long-run avoided capacity cost and the calculation for the long-run avoided capacity costs.[23] According to witness Horii, SCE&G bases its assertion of zero avoided capacity cost for solar projects on the premise that SCE&G is constrained by winter capacity needs, and unaided by summer capacity reductions.[24] This is a substantial change from the methodology and inputs used by SCE&G to calculate prior PR-1 and PR-2 rates, and relies upon assumptions and studies conducted in the 2018 Integrated Resource Plan that have not been fully reviewed, vetted and/or approved by the Commission.[25] Additionally, SBA witness Johnson developed estimates of the Company's avoided capacity costs.[26]

Witness Johnson, concurred with witnesses Horii and Glick in stating that the Company's proposed avoided capacity cost of zero was inappropriate.[27]

Company witness Lynch took two seemingly contradictory positions regarding the Company's avoided capacity cost. According to his pre-filed testimony, witness Lynch testified that he used the DRR method to calculate the avoided capacity cost.[28] According to Dr. Lynch, the DRR method requires calculating the revenue requirements between a base case and a change case.[29] Dr. Lynch further testified that the DRR method is the only way he knows how to calculate

[21] Tr. P. _, l._, Horii Direct, p. 22, ll. 15-23.
[22] Tr. P. _, l._, Horii Direct, p. 22, ll. 2-6, Horii Surrebuttal, p. 2, ll. 6-7.
[23] Tr. P. _, l._, Horii Direct, p. 22, ll. 6-8.
[24] Tr. P. _, l._, Horii Direct p. 21, ll. 5-10.
[25] Tr. P. _, l._, Horii Direct p. 21, ll. 7-10.
[26] Tr. P. _, l._, Johnson Direct p. 120, l. 13.
[27] Tr. P. _, l._, Johnson Direct p. 121, ll. 6-8.
[28] Tr. P. _, l._, Lynch Direct, p. 13, ll. 16-19.
[29] Tr. P. _, l._, Lynch Direct, p. 4, ll. 17-19.

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 8 of 12

avoided costs.[30] However, at the hearing Dr. Lynch testified that he did not perform an avoided capacity cost calculation using a "around-the-clock" resource or using a 24-hour 100-megawatt profile,[31] which in year's past were used to determine the avoided cost. Rather, Dr. Lynch made the conclusory statement that because 100 MWs of solar has no effect on the resource plan, adding additional blocks of 100 MW of solar does not affect the Company's future capacity and, therefore, the avoided capacity costs are zero.[32] According to Dr. Lynch, SCE&G "normally" would calculate its avoided capacity costs by taking the difference in avoidable costs between a base resource plan and a change case; however, SCE&G does not believe there will be enough capacity to affect its resource plan, and therefore, avoided capacity costs for PR-1 are zero.[33] SCE&G did not perform a calculation. Dr. Lynch also testified that pursuant to a study performed by the Company, "on more than 80% of the days during the winter months...solar has no effect on SCE&G's daily peak demand."[34] Furthermore, witness Lynch testified that running a new calculation for avoided capacity cost calculation is not labor-intensive.[35]

The Commission's Order erred by not demonstrating that it gave consideration to Mr. Horii's primary position regarding avoided capacity costs.[36] ORS did not recommend as first course of action that the Commission require SCE&G utilize the Commission's previously approved avoided capacity cost rate going forward. Due to the Company's lack of cooperation, ORS was unable to independently produce its own recommended avoided capacity cost. However, ORS witness Horii took an objectively fair approach and outlined a methodology by which,

---

[30] Tr. P. _, l._, E-19, ll. 1-3.
[31] Tr. P. _, l._,E-10, beginning l. 18.
[32] Tr. P. _, l._, Lynch Direct p. 14, l. 1.
[33] Tr. P. _, l._, Lynch Direct p. 22, l. 3-8.
[34] Tr. P. _, l._, Lynch Direct p. 14, l. 19-22.
[35] Tr. P. _, l._, E-33 ll. 18-21.
[36] The Commission found SCE&G's proposal reasonable at this time, "in the absence of a viable alternative proposal being presented by any other party." Order p. 15.

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 9 of 12

pursuant to Commission order, SCE&G could be required to calculate a more accurate avoided capacity cost. Furthermore, witness Lynch testified that, in perhaps nearly as much as one out of every five days during the winter, solar impacts the Company's winter daily peak demand. SCE&G's valuation of avoided capacity cost at zero appears to be based on supposition rather than calculations and data. Rather than perform calculations and prove that the avoided capacity cost is in fact zero, SCE&G states that solar has no impact on the Company's future capacity and asks ORS, the intervenors, and the Commission to trust it. ORS scrutinized SCE&G's avoided capacity cost and SCE&G did not prove that its avoided capacity cost was zero. ORS' middle ground approach recommends a reasonable alternative to SCE&G's extreme position, which substantially differs from the positions taken by it in previous years. Using ORS' recommendation, SCE&G could produce an accurate reflection of the avoided capacity cost, an expense for which ratepayers will pay, in relatively short order. In view of the substantial evidence on the whole record it is clear that the weight of evidence indicates that SCE&G did not prove that its avoided capacity cost is zero and both ORS and intervenors challenged SCE&G's assertion. A finding that the avoided capacity cost is zero, despite the substantial weight of evidence stating otherwise, is arbitrary and capricious. Therefore, ORS respectfully requests that the Commission adopt the approach put forth by ORS witness Horii.

3. The Commission's Order Erred when it Shifted the Burden to provide Alternative Avoided Capacity Cost Values onto ORS and the Intervenors

The Commission erred when it placed the burden on ORS and the intervenors to provide an alternative to SCE&G's proposed avoided capacity cost. The Commission's Order states that because there is no "viable alternative proposal presented by any other party," SCE&G's avoided

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 10 of 12

capacity cost proposal is reasonable.[37] Additionally, "[t]he Commission further reiterates that no other party presented an alternative estimate of SCE&G's avoided capacity cost." While SCE&G's proposals are entitled to a presumption of reasonableness, ORS challenged the value of SCE&G's avoided capacity cost. Therefore, SCE&G had the burden to prove why zero is appropriate. SCE&G's proposed change to avoided capacity cost is dramatic. As such, it should be reviewed carefully and scrutinized for accuracy. Once SCE&G was challenged regarding its avoided capacity cost rate, rather than present its calculations proving why the avoided capacity cost was zero, it simply made conclusory statements. Dr. Lynch acknowledged that he did not calculate the avoided capacity cost value.[38] SCE&G either could not, or would not, provide calculations supporting its proposal that its avoided capacity costs were zero. Therefore, the Commission's Order erred[39] when it shifted the burden onto ORS and required ORS to provide an alternative to SCE&G's supposition.[40]

Notwithstanding the above, as mentioned in testimony[41] and earlier in this Petition, ORS did provide a viable alternative method to determining an appropriate avoided capacity cost. The record gives the Commission a viable alternative such that SCE&G could have provided the calculations and resulting accurate avoided capacity cost. Therefore, ORS requests that the Commission adopt ORS' recommendation.

4. The Company Agreed to Provide the Parties with Monthly *and* Quarterly Reports

At the hearing, SCE&G witness Rooks agreed on behalf of SCE&G to provide the parties with copies of the monthly fuel recovery reports currently filed with the Commission and ORS

---

[37] "The Commission finds that SCE&G's proposal to set avoided capacity costs for its PR-1 and PR-2 rates at zero is reasonable at this time, in the absence of a viable alternative proposal being presented by any other party."
[38] Tr. P. _, l._,E-10, beginning l. 18.
[39] *Utils. Servs. Of S.C. v. S.C. Office of Regulatory Staff,* 708 S.E.2d 755, at 762-763, 392 S.C. 96 at 109-110.
[40] While ORS argues that the shifting of burden is an error of law, it also acknowledges that it *did* provide an alternative to SCE&G's proposal.
[41] Tr. P. _, l._, Horii Direct p. 22, ll. 15-23.

along with its Quarterly Forecasts. Subsequent to the hearing, the South Carolina Energy Users Committee ("SCEUC") requested that the Commission's final order contain a provision requiring that SCE&G provide these reports. Specifically, SCEUC requested that the Commission's Order state,

> SCE&G shall continue to provide parties with quarterly forecasts beginning with the quarter ending June 30, 2018 of the expected fuel factors to be set at SCE&G's next annual fuel proceeding and SCE&G's historical over (under)-collected balance to date. SCE&G will put forth reasonable efforts to forecast the expected fuel factors to be set at it next annual fuel proceeding, provided however, the quarterly forecasts will not be admitted into evidence in any future SCE&G proceeding.

ORS did not object to SCEUC's request. Because SCE&G specifically acquiesced to SCEUC's request and no party objects, the Commission should include that language in its final order.

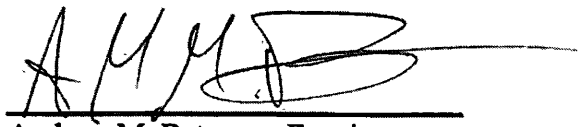
Conclusion

Commission Order No. 2018-322(A) erred when it approved the Company's avoided capacity cost and inappropriately shifted the burden away from the Company when the utility's proposition was challenged and required ORS to provide an alternative. The evidence presented during the hearing and through pre-filed testimony does not support the Commission's Order with regards to the Company's avoided capacity cost. For the reasons state herein, ORS respectfully requests that the Commission reconsider its ruling in Order No. 2018-322 and find Mr. Horii's

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 11 of 12

recommendation to be the prudent manner in determining SCE&G's avoided capacity cost and require SCE&G to file abovementioned monthly and quarterly reports.

Dated this 11th day of May, 2018.



Andrew M. Bateman, Esquire
Jenny R. Pittman, Esquire
South Carolina Office of Regulatory Staff
1401 Main Street, Suite 900
Columbia, SC 29201
(803) 737-0800
abateman@regstaff.sc.gov
jpittman@regstaff.sc.gov

Attorneys for the South Carolina Office of Regulatory Staff

ELECTRONICALLY FILED - 2018 May 11 4:43 PM - SCPSC - Docket # 2018-2-E - Page 12 of 12

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 1 of 18

ELLIOTT & ELLIOTT, P.A.

ATTORNEYS AT LAW
1508 LADY STREET
COLUMBIA, SOUTH CAROLINA 29201
selliott@elliottlaw.us

SCOTT ELLIOTT

TELEPHONE (803) 771-0555
FACSIMILE (803) 771-8010

May 10, 2018

VIA E-FILING
Ms. Jocelyn D. Boyd
Chief Clerk of the Commission
SC Public Service Commission
P. O. Drawer 11649
Columbia, SC 29211

RE: Annual Review of Base Rates for Fuel Costs for South Carolina Electric & Gas Company
Docket No. 2018-2-E

Dear Ms. Boyd:

Enclosed please find for filing the Petition for Rehearing or Reconsideration on behalf of the South Carolina Energy Users Committee ("SCEUC") in the above-captioned matter. By copy of this letter, I am serving all parties of record.

If you have questions, please do not hesitate to contact me.

Sincerely,

ELLIOTT & ELLIOTT, P.A.

Scott Elliott

SE/lbk
Enclosures

cc: All parties of record (w/encl.)

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 2 of 18

BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2018-2-E

IN RE:)	
Annual Review of Base Rates for Fuel Costs)	**PETITION FOR REHEARING**
For South Carolina Electric & Gas Company)	**OR RECONSIDERATION**

The South Carolina Energy Users Committee ("SCEUC"), Intervenor in the above referenced proceeding, hereby petitions the South Carolina Public Service Commission ("Commission") for rehearing or reconsideration of Order No. 2018-322, dated April 30, 2018, and Order No. 2018-322(A) dated May 2, 2018, approving fuel costs for South Carolina Electric & Gas Company ("SCE&G"). Specifically, SCEUC petitions the Commission pursuant to S.C. Code Ann. §58-27-2150 (1976) and S.C. Code Ann. Reg. 103-854 to reconsider certain of its findings and conclusions with respect to the Commission's decision to relieve SCE&G from the requirement that it provide its customers with certain monthly fuel recovery reports and quarterly fuel forecasts. For the reasons hereinafter set out, SCEUC would respectfully submit that the Commission overlooked and misapprehended the uncontested evidence of record.

SCEUC's members purchase and consume substantial amounts of electricity from SCE&G. Relatively small shifts in fuel costs may have a substantial impact on industrial customers. SCE&G has been required to provide the monthly fuel recovery reports and quarterly forecasts to SCEUC since 2006. The monthly fuel reports and quarterly forecasts provide

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 3 of 18

SCE&G's customers with valuable information needed to anticipate their cost of fuel and to budget accordingly

SCE&G has agreed to provide SCEUC with the monthly fuel recovery reports and quarterly fuel forecasts. At the hearing on the merits, Mr. Allen Rooks agreed on behalf of SCE&G to provide the parties with copies of the monthly fuel recovery reports and the quarterly fuel forecasts. (Tr. p. E 100, l. 25 – p. E 101, l. 18, attached hereto as Exhibit 1)

The provisions agreed to by Mr. Rooks are consistent with the provisions of the previous Public Service Commission orders approving settlement agreements in fuel dockets. For instance, the settlement agreement approved in Docket No. 2017-2-E provides in pertinent part,

> B.11. Upon written request, SCE&G will provide the following to the Settling Parties:
>
> a. Copies of the monthly fuel recovery reports currently filed with the Commission and ORS; and,
>
> b. Quarterly forecasts beginning with the quarter ending June 30, 2017, of the expected fuel factors to be set at SCE&G's next annual fuel proceeding and SCE&G's historical over (under)-collected balance to date. SCE&G agrees it will put forth reasonable efforts to forecast the expected fuel factors to be set at its next annual fuel proceeding; however, the Settling Parties agree that these quarterly forecasts will not be admitted into evidence in any future SCE&G proceeding.

The Commission found the provisions of the settlement agreement in the public interest. Order No. 2017-246 at pages 8 – 9, 55.

Indeed, the Commission has historically found the terms of the parties' settlement agreements and the requirement that SCE&G provide the monthly and quarterly reports to be in the public interest. A study of Commission dockets reflect that SCE&G submitted to the requirement that it provide its customers with the monthly fuel recovery reports and quarterly forecasts since May of 2006. See Commission Order No. 2006-235(A), Order No. 2007-257, Order No. 2008-323, Order No. 2009-289, Order No. 2010-336, Order No. 2011-319, Order No.

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 4 of 18

2012-295, Order No. 2013-244, Order No. 2014-380, Order No. 2015-306, Order No. 2016-299. In each instance, the Commission found the provisions of settlement including the requirement that SCE&G provide monthly fuel recovery reports and quarterly fuel forecasts to be in the public interest. Moreover, requiring SCE&G to furnish both reports is a just and reasonable exercise of the Commission's authority. S.C. Code Ann. Sections 58-3-140 and 58-27-140.

The provision requiring SCE&G to provide monthly fuel recovery reports and quarterly forecasts is not unique to SCE&G. Historically, Duke Energy Carolinas, LLC has been required by the terms of the settlement agreement in its annual fuel proceeding to provide monthly fuel recovery reports and quarterly fuel forecasts. See Order No. 2017-597. Duke Energy Progress, LLC has likewise been required to provide these monthly fuel reports and quarterly forecasts. See Order No. 2017-405.

Accordingly, SCEUC respectfully requests that the Commission rehear or reconsider the matter and issue its order requiring SCE&G to provide the parties to this docket with the following:

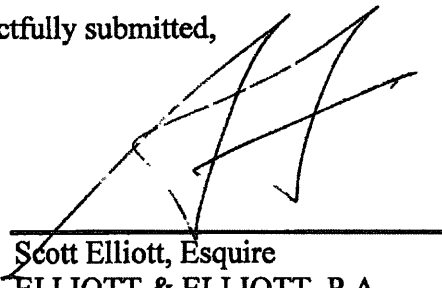
a. Copies of the monthly fuel recovery reports currently filed with the Commission and ORS; and,
b. Quarterly forecasts beginning with the quarter ending June 30, 2017, of the expected fuel factors to be set at SCE&G's next annual fuel proceeding and SCE&G's historical over (under)-collected balance to date. SCE&G agrees it will put forth reasonable efforts to forecast the expected fuel factors to be set at its next annual fuel proceeding; however, the Settling Parties agree that these quarterly forecasts will not be admitted into evidence in any future SCE&G proceeding.

The Office of Regulatory Staff concurs in SCEUC's petition.

For the foregoing reasons, as well as those set out at trial and in its correspondence to the Commission submitted April 20, 2018, the South Carolina Energy Users Committee respectfully

requests that the Commission rehear those issues set out above, reconsider its orders respecting those issues and issue its order consistent with the arguments set out above.

Respectfully submitted,



Scott Elliott, Esquire
ELLIOTT & ELLIOTT, P.A.
1508 Lady Street
Columbia, SC 29201
(803) 771-0555

Attorney for the South Carolina Energy Users Committee

Columbia, South Carolina
May 10, 2018

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 5 of 18

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 6 of 18

BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

COLUMBIA, SOUTH CAROLINA

HEARING #18-11716 APRIL 10, 2017 10:35 A.M.

DOCKET NO. 2018-2-E:
SOUTH CAROLINA ELECTRIC & GAS COMPANY – *Annual Review of Base Rates for Fuel Costs*

TRANSCRIPT OF TESTIMONY AND PROCEEDINGS

EXCERPT [PART 1]

PAGES 97 ~ 103

COMMISSION MEMBERS PRESENT: Swain E. WHITFIELD, CHAIRMAN; Comer H. 'Randy' RANDALL, VICE CHAIRMAN; and COMMISSIONERS John E. 'Butch' HOWARD, Elliott F. ELAM, Jr., Elizabeth B. 'Lib' FLEMING, Robert T. 'Bob' BOCKMAN, and G. O'Neal HAMILTON

ADVISOR TO COMMISSION: F. David Butler, Esq.
Senior Counsel

STAFF: Jocelyn G. Boyd, Chief Clerk/Administrator; Joseph Melchers, General Counsel; F. David Butler, Esq., Senior Counsel; James Spearman, Ph.D., Executive Assistant to Commissioners; Douglas K. Pratt, Thomas Ellison, and John Powers, Technical Advisory Staff; Jo Elizabeth M. Wheat, CVR-CM/M-GNSC, Court Reporter; and Hope Adams and Calvin Woods, Hearing Room Assistants

APPEARANCES:

K. CHAD BURGESS, ESQUIRE, MATTHEW W. GISSENDANNER, ESQUIRE, and BENJAMIN P. MUSTIAN, ESQUIRE, representing SOUTH CAROLINA ELECTRIC & GAS COMPANY, **PETITIONER**

PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

101 EXECUTIVE CENTER DRIVE
COLUMBIA, SC 29210

POST OFFICE BOX 11649
COLUMBIA, SC 29211

WWW.PSC.SC.GOV

APPEARANCES (Cont'g):

SCOTT ELLIOTT, ESQUIRE, representing SOUTH CAROLINA ENERGY USERS COMMITTEE, **INTERVENOR**

RICHARD L. WHITT, ESQUIRE, and ***BENJAMIN L. SNOWDEN, ESQUIRE,*** representing SOUTH CAROLINA SOLAR BUSINESS ALLIANCE, **INTERVENOR**

RICHARD L. WHITT, ESQUIRE, representing SOUTHERN CURRENT, **INTERVENOR**

KATIE C. OTTENWELLER, ESQUIRE, representing SOUTH CAROLINA COASTAL CONSERVATION LEAGUE and SOUTHERN ALLIANCE FOR CLEAN ENERGY, **INTERVENORS**

ANDREW M. BATEMAN, ESQUIRE, and ***JENNY R. PITTMAN, ESQUIRE,*** representing the **SOUTH CAROLINA OFFICE OF REGULATORY STAFF**

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 7 of 18

I N D E X

PAGE

EXCERPT:
CONTINUING PANEL TESTIMONY OF ALLEN W. ROOKS, JOHN H. RAFTERY, and JOSEPH M. LYNCH, Ph.D.
Cross Examination by Mr. Snowden..... E-4
Hearing Exhibit 7 marked/received
[2017-2-E Lynch prefiled rebuttal testimony]..... E-61
Cross Examination by Mr. Elliott..... E-97
Witnesses stand aside..... E-104

TESTIMONY OF DEVI C. GLICK
Direct Examination by Ms. Ottenweller..... E-105
Hearing Exhibit 8 marked/received
[Prefiled (direct) DCG-1 ~ -2 and prefiled (surrebuttal) DCG-3 ~ -4]..... E-108
Prefiled unredacted direct testimony {w/corrn's}. E-109-142
Prefiled surrebuttal testimony..... E-144-159
Examination by Commissioner Elam..... E-160
Examination by Commissioner Fleming..... E-165
Examination by Commissioner Bockman..... E-169
Examination by Vice Chairman Randall..... E-172
Examination by Chairman Whitfield..... E-173
Witnesses excused..... E-175

CONTINUING PANEL TESTIMONY OF ALLEN W. ROOKS, JOHN H. RAFTERY, and JOSEPH M. LYNCH, Ph.D.
Cross Examination by Ms. Ottenweller..... E-176
Hearing Exhibit 9 marked/received
[SCE&G 2018 Integrated Resource Plan]..... E-185
Witnesses stand aside..... E-190

REPORTER'S CERTIFICATE..... E-192

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 8 of 18

year.

A [LYNCH] That's what I mean, yes. And I see that as the methodology.

Q Okay, Dr. Lynch, I do not have any further questions for you. Thank you very much.

A Thank you.

CHAIRMAN WHITFIELD: Thank you, Mr. Snowden. Mr. Elliott.

MR. ELLIOTT: Yes, sir. Just a few.

CROSS EXAMINATION

BY MR. ELLIOTT:

Q Nothing for you, Dr. Lynch.

A [LYNCH] Oh. Glad to see you, Mr. Elliott.

[Laughter]

Q Yes, sir, pleasure's mine.

But I do have just a few for you, Mr. Rooks, please.

A [ROOKS] Okay.

Q In – could you get Exhibit 1 to your testimony out, please?

A [ROOKS] [Indicating.]

Q I'll draw your attention to page 1-of-2.

A [ROOKS] Okay.

Q And, in particular, I want to draw your attention, if I may, what, under your exhibit as filed, is January '18

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 9 of 18

forecasted costs. Do you see that column?
A [ROOKS] I do.
Q And in that column, you are showing a forecast cost of purchased power and interchange received of about $45 million? Am I reading that correctly?
A [ROOKS] Yes.
Q All right. I have not seen, I think, your January fuel report, but have y'all issued that?
A [ROOKS] Yes.
Q So do you know what your purchased power and interchange figure was for January?
A [ROOKS] The actual – if you'll bear with me one moment, I think I have that.
Q Okay.
A [ROOKS] Yes. Our actual purchased power for January was about $46.4 million.
Q All right. And then, just generally speaking – it is January – is the month and the temperature, is that the driver of that high cost?
A [ROOKS] Yes, it sure is. I was doing some research today and looking at National Weather Service weather readings. The highest temperature in Columbia or Charleston for the first seven days of the year was 42 degrees. Heating degree days were 97 percent above normal, for that heating day period. So it was an

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 10 of 18

extreme weather event. We hadn't seen eight days of heating degree days of that magnitude since going back to '91, from some of the records I saw.

Q Yeah. And I'm intrigued that you're able to forecast it?

A [ROOKS] No, sir. We used, in this case – we did not have complete forecast information available, as of the time of the filing of this testimony, and so we used some numbers that were available to us at that time, that weren't complete, that weren't to the point of final scrutiny.

Q But you're real close, is my point.

A [ROOKS] Yes.

Q I'm complimenting you. I wanted to ask, your table is very similar to that of Ms. Smith's, but she has a slight difference in the way she lays out her costs. Are you familiar with her table?

A [ROOKS] I have reviewed it briefly, not in great detail. But I'd be happy to.

Q Well, do you have it handy?

A [ROOKS] Sure [indicating].

Q I just have one short series of questions about it. And I'm looking at Ms. Smith's Exhibit -5, and I'm on page 2-of-2, and I'm staying in the same context of that January '18, just for my sake of ease.

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 11 of 18

A [ROOKS] Okay.
Q Ms. Smith sets out the public service authority credits. Do you see that fourth line from the top?
A [ROOKS] I do.
Q All right. Tell me what those credits are.
A [ROOKS] That's actually for their portion of site usage, at the site.
Q At the nuclear site?
A [ROOKS] Correct.
Q Yes. And you combine that credit in your fossil-fuel total?
A [ROOKS] Correct.
Q I'm just curious why?
A [ROOKS] Because we credit that to the fossil line, essentially. That's site power for any electrical requirements there; it's split based on the ownership percentages for that project. And so we assess – or, we give customers credit back, because some of that power flowed through, so we give the customers credit back for that amount that Santee reimburses us for.
Q All right. And do you have any dispute or issue with Ms. Smith's valuations of those public service authority credits?
A [ROOKS] No, I do not.
Q Now, in the good old days – say, last year – when we had

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 12 of 18

settlement agreements in these fuel cases, the company always agreed to provide to ORS and the parties to the docket the monthly fuel recovery reports. Do you recall that?

A [ROOKS] Yes.

Q Is the company prepared to continue that practice of providing the ORS and the parties to this docket the monthly fuel recovery reports?

A [ROOKS] Sure. Yeah, I don't see why we wouldn't.

Q All right. Thank you. And then, at the same time, in those previous documents, the company always agreed to provide the ORS and the parties quarterly forecasts, fuel forecasts. Do you recall that?

A [ROOKS] I do.

Q Is the company prepared to continue that practice of providing the ORS and the parties quarterly fuel forecasts?

A [ROOKS] Yes.

Q Good. Thank you for that. And, last, I just want to draw your attention to these, you call them, interest credit swaps? Am I calling them by the right name?

A [ROOKS] Yeah, that's fair enough.

Q I'm close? I might have them in the wrong order. Do you recall writing a letter to the Commission – I believe it was yours – no, do you recall SCE&G writing a

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 13 of 18

letter, Mr. Gissendanner, a letter to the Commission back on February 22, 2018, explaining how y'all intended to proceed with those credit swaps?

A [ROOKS] I do.

Q Okay. And I think, as I understand it from Mr. Gissendanner's letter, y'all applied about $115 million in these swaps to fuel?

A [ROOKS] Correct. It was about $113.7 million.

Q And so, thus, we can see – coming back to your Exhibit -1 – we can see where, very quickly, you anticipated going, in January, from about a $55 million undercollection to about a $52 million overcollection, correct?

A [ROOKS] Correct.

Q That accounts for that. Now, apparently, you did even better than the $115 million in swaps. I think you got another $39 million, roughly, about the same time?

A [ROOKS] Not –

Q Did you settle –

A [ROOKS] Not sure on that. Just – was that in the letter?

Q It is. And if you don't know, that's fine, but let me try a little farther. Mr. Gissendanner writes that, in December of '17, E&G settled eight interest-rate swaps at an aggregate cost of $39 million. Does that sound

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 14 of 18

familiar to you?

A [ROOKS] Yes. That would be positions that were not at a gain, but at a loss.

Q All right. And so what I – in Mr. Gissendanner's letter, and this is my point, he goes on to say that it would be treated, I think, as a regulatory asset, as set out in the joint Petition filed on January 12, 2018, and he refers the reader to paragraph 57(C)(1) of the joint Petition? Do you know exactly how the joint Petition proposed to do that, in this paragraph 57(C)(1)?

A [ROOKS] I don't have that right in front of me, but my understanding is that those are supposed to be amortized over the life of the debt issuance that they were tied to.

Q Okay.

A [ROOKS] So, over time, that can gradually be amortized away.

MR. ELLIOTT: Very fine. All right, good. That's all I have. Thank you.

Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Mr. Elliott.

Ms. Ottenweller, questions for this panel?

MS. OTTENWELLER: I do have some questions. Should I proceed at this time? I would say I have maybe 30 minutes, or so.

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 15 of 18

ELECTRONICALLY FILED - 2018 May 10 11:35 AM - SCPSC - Docket # 2018-2-E - Page 16 of 18

C E R T I F I C A T E

I, Jo Elizabeth M. Wheat, CVR-CM-GNSC, Notary Public in and for the State of South Carolina, do hereby certify that the foregoing is, to the best of my skill and ability, a true and correct transcript of EXCERPT(S) from proceedings had and testimony adduced in a hearing held in the above-captioned matter before the PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA;

That the witnesses appearing during said hearing were affirmed by me to state the truth, the whole truth, and nothing but the truth;

IN WITNESS WHEREOF, I have hereunto set my hand and seal, on this the 15th day of April, 2018.

Jo Elizabeth M. Wheat, CVR-CM/M-GNSC
Hearings Reporter, PSC/SC
My Commission Expires: January 27, 2021.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 1 of 63

THE STATE OF SOUTH CAROLINA
In The Supreme Court

APPEAL FROM THE PUBLIC SERVICE COMMISSION

Docket No. 2018-2-E

South Carolina Solar Business Alliance, LLC.....Appellant,
v.

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy, South Carolina Public Service Commission, South Carolina Electric & Gas, CMC Steel South Carolina, South Carolina Energy Users Committee, Southern Current, LLC, and South Carolina Office of Regulatory Staff,

Of whom, South Carolina Electric & Gas, and South Carolina Office of Regulatory Staff, are.....Respondents.

NOTICE OF APPEAL

The South Carolina Solar Business Alliance, LLC ("SCSBA") appeals the following Orders of the Public Service Commission of South Carolina, "Amended Order Approving Fuel Costs", filed May 2, 2018, (see, Exhibit "A", attached hereto); "Directive Order" filed May 23, 2018, (see, Exhibit "B", attached hereto), denying Petitions for Rehearing and/or Reconsideration; and "Order Denying Rehearing or Reconsideration", filed October 30, 2018, (see, Exhibit "C", attached hereto). The SCSBA received copies of each Order and Directive Order, via electronic filing on the date that each was filed.

Other Counsel of Record:

Representing South Carolina Coastal Conservation League and Southern Alliance for Clean Energy:
J. Blanding Holman IV, Esq.
Southern Environmental Law Center
463 King Street, Suite B
Charleston, SC 29403
(843) 720-5270
bholman@selcsc.org

Representing Office of Regulatory Staff:
Andrew M. Bateman, Esq.
Jenny R. Pittman, Esq.
Office of Regulatory Staff
1401 Main Street, Suite 900
Columbia, SC 29201
abateman@regstaff.sc.gov
jpittman@regstaff.sc.gov

Representing CMC Steel South Carolina:
Alexander G. Shissias, Esq.
The Shissias Law Firm, LLC
1727 Hampton Street
Columbia, SC 29201
alex@shissiaslawfirm.com

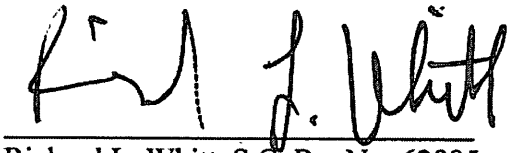
Representing South Carolina Electric & Gas Company:
Benjamin P. Mustian, Esq.
Willoughby & Hoefer, P.A.
Post Office Box 8416
Columbia, SC 29202
bmustian@willoughbyhoefer.com

K. Chad Burgess, Esq.
South Carolina Electric & Gas Company
220 Operation Way - MC C222
Cayce, SC 29033
chad.burgess@scana.com

Matthew Gissendanner, Esq.
South Carolina Electric & Gas Company
220 Operation Way - MC C222
Cayce, SC 29033
matthew.gissendanner@scana.com

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 2 of 63

Representing South Carolina Energy Users Committee:
Scott Elliott, Esq.
Elliott & Elliot, P.A.
1508 Lady Street
Columbia, SC 29201
selliott@elliottlaw.us



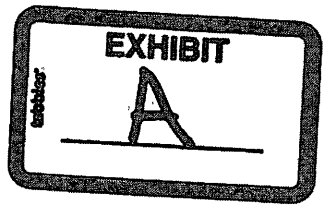
Richard L. Whitt, S.C. Bar No. 62895
Timothy F. Rogers, S.C. Bar No. 4894
AUSTIN & ROGERS, P.A.
508 Hampton Street, Suite 203
Columbia, South Carolina 29201
rlwhitt@austinrogerspa.com
tfrogers@austinrogerspa.com

Benjamin L. Snowden
Kilpatrick Townsend & Stockton LLP
4208 Six Forks Road, Suite 1400
Raleigh, North Carolina 27609
bsnowden@kilpatricktownsend.com
Admitted Pro Hac Vice, before the Public Service Commission of South Carolina

Attorneys for South Carolina Solar Business Alliance, LLC and Southern Current, LLC.

November 29, 2018
Columbia, South Carolina

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 3 of 63



ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 4 of 63

BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2018-2-E – ORDER NO. 2018-322(A)

May 2, 2018

IN RE:	Annual Review of Base Rates for Fuel Costs for South Carolina Electric & Gas Company	))	AMENDED ORDER APPROVING FUEL COSTS

I. INTRODUCTION

This Order amends Commission Order No. 2018-322 to correct two typographical errors. The first error is to correct a sentence on page 23 of the original Order that reads, "The Commission finds that SCE&G's methodology to estimate future natural gas prices is." This sentence should be: "The Commission finds that SCE&G's methodology to estimate future natural gas prices is reasonable." The second error is on page 48 of the original Order, in the first line of Ordering Paragraph 11, "monthly per account DER Avoided Cost Components" should be "monthly per kWh DER Avoided Cost Components." Neither of these errors affects the substance of the Order, and the Order is otherwise as it was originally issued.

This matter comes before the Public Service Commission of South Carolina ("Commission") on the annual review of the fuel purchasing practices and policies of South Carolina Electric & Gas Company ("SCE&G" or "Company") and for a determination as to whether any adjustment in the fuel cost recovery factors is necessary and reasonable. The procedure followed by the Commission in this proceeding is set forth in S.C. Code Ann. § 58-27-865 (2015). Additionally, and pursuant to S.C. Code Ann. § 58-39-140 (2015), the Commission

must determine in this proceeding whether an increase or decrease should be granted in the fuel cost component designed to recover the incremental and avoided costs incurred by the Company to implement the Distributed Energy Resource ("DER") program previously approved by the Commission. The period under review in this Docket is January 1, 2017, through December 31, 2017 ("Review Period").

A. Notice and Interventions

By letter dated October 4, 2017, the Clerk's Office of the Commission instructed the Company to publish, by January 5, 2018, a Notice of Hearing and Prefile Testimony Deadlines ("Notice") in newspapers of general circulation in the area affected by the Commission's annual review of the Company's fuel purchasing practices and policies. The letter also instructed the Company to furnish the Notice to its customers by U.S. Mail, or by electronic mail to customers who have agreed to receive notice by electronic mail, by January 5, 2018. The Notice indicated the nature of the proceeding and advised all interested parties desiring participation in the scheduled proceeding of the manner and time in which to file appropriate pleadings. On December 5, 2017, the Company filed with the Commission affidavits demonstrating that the Notice was duly published in accordance with the instructions set forth in the Clerk's Office October 4, 2017, letter. On December 15, 2017, the Company filed with the Commission an affidavit demonstrating that the Notice was appropriately furnished to each affected customer.

Petitions to intervene were received from the South Carolina Energy Users Committee ("SCEUC"), the South Carolina Coastal Conservation League ("SCCCL"), the Southern Alliance for Clean Energy ("SACE"), the South Carolina Solar Business Alliance, LLC ("SCSBA"), Southern Current, LLC ("Southern Current"), CMC Steel South Carolina ("CMC Steel"), Wal-

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 5 of 63

Mart Stores, East, LP ("Wal-Mart"), Sam's East, Inc. ("Sam's"), and Solbright Energy Solutions, LLC ("Solbright"). SCE&G did not oppose the petitions to intervene and no other parties sought to intervene in this proceeding. By letters dated March 2, 2018, and March 5, 2018, Solbright, Wal-Mart, and Sam's requested to withdraw their petitions to intervene, which requests were granted by Order Nos. 2018-175 and 2018-176, both dated March 14, 2018. The South Carolina Office of Regulatory Staff ("ORS") is automatically a party to this proceeding pursuant to S.C. Code Ann. § 58-4-10(B) (2015).

II. STATUTORY STANDARDS AND REQUIRED FINDINGS

S.C. Code Ann. § 58-27-865(B) (2015) states in pertinent part that, "[u]pon conducting public hearings in accordance with law, the [C]ommission shall direct each company to place in effect in its base rate an amount designed to recover, during the succeeding twelve months, the fuel costs determined by the [C]ommission to be appropriate for that period, adjusted for the over-recovery or under-recovery from the preceding twelve-month period."

III. HEARING

In order to consider the merits of this case, the Commission convened a hearing on this matter on April 10-11, 2018, with the Honorable Swain E. Whitfield presiding. SCE&G was represented by K. Chad Burgess, Esquire; Matthew W. Gissendanner, Esquire; and Benjamin P. Mustian, Esquire. SCEUC was represented by Scott Elliott, Esquire. SCCCL and SACE were represented by Katherine C. Ottenweller, Esquire. SCSBA was represented by Richard L. Whitt, Esquire, and Benjamin L. Snowden, Esquire. Southern Current was represented by Richard L. Whitt, Esquire. CMC Steel and its counsel of record were excused from attending and did not appear at the hearing. Andrew M. Bateman, Esquire, and Jenny R. Pittman, Esquire, represented

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 6 of 63

ORS. In this Order, ORS, SCEUC, SCCCL, SACE, SCSBA, Southern Current, CMC Steel, and SCE&G are collectively referred to as the "Parties" or sometimes individually as a "Party."

SCE&G presented the direct testimonies and exhibits of George A. Lippard, III; Henry E. Delk, Jr.; J. Darrin Kahl; Michael D. Shinn; Allen W. Rooks; John H. Raftery; and Dr. Joseph M. Lynch. ORS presented the direct testimonies and exhibits of Gaby Smith, Michael Seaman-Huynh, Sarah W. Johnson, and Brian Horii.[1] SCCCL and SACE presented the direct testimony and exhibits of Devi Glick. SCSBA presented the direct testimony of Dr. Ben Johnson. Southern Current, SCEUC, and CMC Steel did not present witnesses at the hearing.

In response to the direct testimony of SCCCL and SACE Witness Glick, SCSBA Witness Ben Johnson, and ORS witnesses Seaman-Huynh and Horii, SCE&G presented the rebuttal testimony of Witnesses Rooks and Lynch. SCCCL and SACE filed surrebuttal testimony of Witness Glick, SCSBA filed surrebuttal testimony of Witness Ben Johnson, and ORS filed surrebuttal testimony of Witness Horii in response to SCE&G's rebuttal testimony.

IV. REVIEW OF THE EVIDENCE AND EVIDENTIARY CONCLUSIONS

After hearing the evidence and testimony of the witnesses discussed below, the Commission reaches factual and legal conclusions, also discussed below.

A. Avoided Costs, PR-1, and PR-2

1. SCE&G Testimony

[1] Prior to the hearing and without objection from the remaining parties, the Commission granted SCE&G and ORS permission to utilize panels for the presentation of witnesses. SCE&G Witnesses Lippard and Delk were presented in the first panel for the Company; Witnesses Kahl and Shinn were presented in the second panel; and Witnesses Rooks, Raftery and Lynch were presented in the third panel. ORS Witnesses Seaman-Huynh and Smith were presented in the first panel for ORS, and Witnesses Sarah Johnson and Horii were presented in the second panel.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 7 of 63

SCE&G Witness Lynch explained the Company's calculations of avoided costs for power purchases under the Public Utilities Regulatory Policies Act of 1978 ("PURPA"). SCE&G uses a difference in revenue requirements ("DRR") methodology to calculate its avoided energy and capacity costs. This approach involves calculating the revenue requirements between a base case and a change case. The base case is defined by SCE&G's existing fleet of generators and the hourly load profile to be supplied by these generators. The change case is the same as the base case except that the hourly loads are reduced by a 100-megawatt ("MW") profile which is the maximum reduction required by regulation under PURPA. The avoided costs are then calculated by taking the difference in revenue requirements between the two cases.

For avoided energy costs, Witness Lynch testified that the Company calculates the change in production costs between a base case and a change case using a computer program called PROSYM. To determine long-run avoided energy costs, this program models the commitment of generating units to serve load hour-by-hour over the course of the 15-year Integrated Resource Plan ("IRP") planning horizon. Short-run avoided energy costs are calculated for the period May 2018 through April 2019. Using PROSYM to simulate the dispatch of its generation fleet over these time periods, SCE&G estimates the production costs that result from serving the base case load and the change case load.

Witness Lynch explained that SCE&G traditionally derived the change case from the base case by subtracting 100 MWs from every hour of the base case load profile. The Company then collected avoided energy costs into four time periods composed of two seasons—peak season and off-peak season—and two daily periods—peak hours and off-peak hours. Using these four time-of-use periods results in four avoided energy costs, one for each time period. Witness Lynch

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 8 of 63

testified that, in this proceeding, the Company proposed to calculate its PR-2 rate for solar QFs by deriving the change case from the base case by subtracting a 100 MW solar profile only from the base case. Because the solar distribution of energy is captured in the solar profile, avoided energy costs are not collected into separate time periods but simply added over all hours.

Witness Lynch testified that, in this proceeding, SCE&G is proposing to limit its PR-2 Rate to solar qualifying facilities ("QFs") and that the Company must separate solar QFs from non-solar QFs in order to pay each type of QF the correct avoided costs. Witness Lynch explained that, as more and more solar generation facilities interconnect with SCE&G's system, the benefit of each additional solar generation facility to the Company's system is diminished. Witness Lynch further testified that, in order to measure this effect, the Company performed a study titled "Avoided Energy Cost Methods Study for Solar QFs" ("Methods Study"), which he sponsored as Hearing Exhibit No. 5 (JML-3).

Witness Lynch also testified that SCE&G has determined that during the months of May through October, or "Summer," the Company needs resource reserves of at least 14% of the projected summer peak demand to serve reliably during peak times and at least 12% during the remaining periods. Witness Lynch also testified for the months of November through April, or "Winter," SCE&G needs a minimum of 21% of its projected winter peak demand to serve reliably during winter peak periods and at least 14% during the remaining periods. In support of this determination, Witness Lynch sponsored the Company's Reserve Margin Study, identified as Hearing Exhibit No. 5 (JML-2).

Witness Lynch further testified that the Methods Study compared the difference in revenue requirements between the base case and three different change cases using a traditional 100 MW

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 9 of 63

round-the-clock profile, a 100 MW South Carolina solar profile, and a 100 MW North Carolina solar profile. After levelizing the avoided energy costs and averaging them over 10 random seed runs, Witness Lynch testified that the results show that using the round-the-clock profile to develop the change case results in over-estimating the avoided energy costs by $4.85 per MWH. Witness Lynch explained that, as more and more solar is added to the system, the value of each additional increment of solar is reduced. Specifically, Witness Lynch stated that SCE&G's system first experiences a morning peak demand with little contribution from solar facilities. As the day progresses and solar facilities begin generating energy, SCE&G's residual system load profile experiences a steep ramping down of load to a bottom level of load followed by a steep ramping up in load to an afternoon or evening peak demand. In sum, Witness Lynch testified that the additional energy from solar generation causes the system to experience decreasing minimum loads between the morning and evening peak. Witness Lynch also testified that, while solar energy coming onto the system certainly has value, it also causes operational issues that result in positive variable integration costs that lower the avoided cost. Based on this analysis, Witness Lynch testified that the Company's Avoided Energy Costs for the PR-2 rate are as follows:

Solar QF Avoided Energy Costs ($/kWh)

Time Period	Annual
2018-2022	$0.02853
2023-2027	$0.02994
2028-2032	$0.03414

To develop avoided capacity costs, Witness Lynch testified that the Company takes a similar approach. Using the difference in revenue requirements methodology, SCE&G calculates the difference in the revenue requirements between the base case and the change case. Using the

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 10 of 63

resource plan in its latest IRP or an updated resource plan if appropriate, SCE&G calculates the incremental capital investment related revenue required to support the existing resource plan. As with its calculation of avoided energy costs for solar, SCE&G derives a change case in its resource plan by considering the impact of a QF purchase from a 100 MW solar facility.

Witness Lynch further testified that SCE&G currently has 865 MWs of solar capacity under Power Purchase Agreements ("PPAs") and the addition of another 100 MWs of solar has no effect on the resource plan. Witness Lynch further explained that, given the amount of solar generation that is currently projected to be interconnected to SCE&G's system, adding additional blocks of 100 MW of solar generation does not affect the Company's future capacity needs.

In order to study this issue, Witness Lynch testified that the Company performed a study titled "On Calculating the Capacity Benefit of Solar QFs ("Solar Capacity Benefit Study")" to analyze the impact of solar on its daily peak demands. This study shows that, on more than 80% of the days during the winter months of October through March, solar has no effect on SCE&G's daily peak demand because the winter peak occurs either early in the morning before solar begins to generate energy or in the evening after solar is no longer generating. Since SCE&G's Reserve Margin Study shows that SCE&G needs as much capacity in the winter as it does in the summer, Witness Lynch testified that a generating resource has to provide capacity in the winter as well as the summer in order to avoid the need for capacity and thereby have capacity value. Because solar does not provide capacity during the winter period, Witness Lynch testified that the Company is unable to avoid any of its projected future capacity needs and, therefore, the avoided capacity cost of solar for these winter months is zero.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 11 of 63

SCE&G also analyzed the impact of solar on summer days and determined that, 800 MWs of solar can be expected to reduce the daily peak demand on average over non-peak days approximately 21% with only 9.6% for the last 100 MWs. Witness Lynch testified that, because only the incremental values are relevant for avoided cost calculations, the last 100 MWs of solar will reduce the summer peak by about 19.5 MWs on peak days and 9.6 MWs on the rest of the days, which translates into a peak effect of approximately 9.9 MWs and a base effect of approximately 9.6 MWs. Witness Lynch stated that, considering this small impact in summer and no impact in winter from additional solar generation, SCE&G is not able to reduce capacity additions in its resource plan and therefore there are no avoided capacity costs.

Witness Lynch also testified that the Company plans to negotiate contracts with any non-solar QF for which the PR-1 rate is not appropriate. He explained that, in the past and prior to the development of the PR-2 rate, SCE&G for many years offered a PR-1 rate as well as an offer to negotiate a contract with any QF that did not qualify for the PR-1 rate. This response to PURPA worked satisfactorily for many years and SCE&G proposes to return to that arrangement for non-solar QFs of greater than 100 kilowatts ("kW") and up to 80 MW.

Regarding the Company's PR-1 Rate, Witness Lynch explained that, for the same reasons discussed regarding the PR-2 Rate, SCE&G must separate solar QFs from non-solar QFs in order to pay each type of QF the correct avoided costs. He testified that, if SCE&G does not distinguish its pricing between solar and non-solar QFs, then the amount SCE&G and its customers would be paying for solar energy would be more than the Company's actual avoided costs, which is contrary to the explicit intent of PURPA.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 12 of 63

For solar QFs on PR-1, SCE&G used the same methodology to estimate avoided energy costs as it did for solar QFs on PR-2. The only difference is the time period over which the avoided energy costs are estimated. The short-run avoided energy costs in the PR-1 rate are calculated for the period May 2018 through April 2019. Witness Lynch also testified that the avoided capacity cost for solar QFs subject to the PR-1 rate is zero because, as with the PR-2 rate, incremental solar QFs do not affect the resource plan and therefore avoid no future resources or their cost.

For non-solar QFs on PR-1, Witness Lynch testified that SCE&G used PROSYM to estimate the change in production costs that result from serving the base case load and the change case by subtracting a 100 MW round-the-clock power purchase profile. He stated that the avoided costs are accumulated into the four time-of-use periods described previously and a non-solar QF would be paid based on how much energy it produces in each of these four time-of-use periods. For avoided capacity, Witness Lynch explained that, because the PR-1 rate is designed for small QFs with a capacity rating of up to 100 kWs, SCE&G does not believe there will ever be enough capacity from these small non-solar QFs to affect its resource plan and, therefore, the avoided capacity costs for PR-1 are zero. Witness Lynch also stated that SCE&G proposes to change the PR-1 Rate for non-solar QFs by eliminating the critical peak hours as a way to credit QFs for their capacity value. He stated that it is more appropriate to simply add an avoided capacity credit to the avoided energy cost to deliver the capacity value to a solar QF. He also stated that the addition of so much solar on SCE&G's system shifts the Company's previously experienced effective peak hour and that it is inappropriate to look only to certain hours selected from past experience in which to pay out a capacity credit. Finally, he stated that since SCE&G's need for capacity spans

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 13 of 63

the entire year, it is necessary to spread avoided capacity costs throughout the year to reflect the Company's reliability risk as explained in the Reserve Margin Study.

Based on these recommendations, Witness Lynch testified that the PR-1 Rates are as follows:

PR-1 RATE: AVOIDED ENERGY COST
Non-Solar QFs ($/kWh)

Time Period	Peak Season Peak Hours	Peak Season Off-Peak Hours	Off-Peak Season Peak Hours	Off-Peak Season Off-Peak Hours
May-April	$0.03233	$0.02886	$0.03445	$0.03298

Solar QFs ($/kWh)

Time Period	Year Round
May-April	$0.03256

He stated that the avoided capacity costs for solar and non-solar QFs are zero.

2. ORS, SCCCL, SACE, and SCSBA Testimony

Regarding the Company's methodology used to calculate its avoided energy and capacity costs, ORS, SCCCL, SACE, and SCSBA made a number of recommendations. Each of these recommendations, SCE&G's response, and the Commission's conclusions regarding each recommendation are addressed as follows:

a. ORS witness Horii testified that ORS reviewed SCE&G's avoided cost calculations in order to verify the Company is using the avoided cost methodology approved by the Commission, to confirm the methodology meets PURPA requirements, and to verify the avoided cost rates requested by SCE&G in this docket are a reasonable result of the approved avoided cost methodology. Witness Horii stated that the method used by SCE&G to calculate

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 14 of 63

avoided energy costs is consistent with SCE&G'sprior practice. He further testified that, the use of a 100 MW solar profile is a valid application of the DRR methodology for the specific case of a solar generator and that, given SCE&G's assertion that the vast majority of recent and future QF resources are solar, it is an improvement to use an avoided energy cost which more closely tracks the avoided energy for solar generation. He also testified that SCE&G's fuel price forecasts which SCE&G used in calculating the avoided energy cost for both the 2017 and 2018 fuel adjustment proceedings are consistent and similar and that there appear to be no major changes in network configurations or import/export assumptions used by SCE&G. In sum, Witness Horii testified that the updates in SCE&G's avoided energy costs are a reasonable and consistent result of the methodology used by SCE&G and that the method used by SCE&G to calculate avoided energy costs for solar generators is appropriate.

The Commission finds that SCE&G's avoided energy costs are reasonable and that the use of a 100 MW solar profile to calculate avoided energy costs is appropriate. As discussed by Witness Lynch, as more and more solar is added to SCE&G's system, the value of each additional increment of solar is reduced. Therefore, it is appropriate for the Company to use an avoided energy cost which more closely track the avoided energy for solar generation.

b. Regarding avoided capacity costs, Witness Horii disagreed with the Company's position that new solar projects will have no value and noted that SCE&G has not adequately demonstrated that winter capacity needs are the same or greater than summer capacity needs. Although Witness Horii stated SCE&G may be correct that there are no winter capacity reductions from additional solar, he expressed concern that parties have not had adequate opportunity to evaluate the accuracy of the winter capacity constraint. Witness Horii further

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 15 of 63

testified as to his belief that SCE&G is overestimating the amount of reserve capacity the utility needs in the winter because of purported flaws in the Reserve Margin Study and that the Company's forecast of future summer and winter peak demands is inconsistent. As a result of these concerns and the uncertainty of this new position, Witness Horii recommended that SCE&G's position of zero avoided capacity costs be rejected at this time. He further recommended that, because he was unable to produce an independent estimate of avoided capacity costs for a 100 MW change in supply, the current capacity value should be maintained for both PR-1 and PR-2 until a better capacity value can be provided in the next rate update.

SCCCL-SACE witness Glick also testified that SCE&G has historically used a 14% winter reserve margin and that it has increased its winter reserve margin to 21%, reflecting a 50% increase over the winter reserve margin used by the Company last year. She also stated that the Company's proposed winter reserve margin is substantially higher than that of Duke Energy Carolinas, LLC, Duke Energy Progress, LLC, Southern Company, and Santee Cooper. Witness Glick testified that, while a robust reserve margin is necessary to protect system reliability, this increase in SCE&G's winter reserve margin has a profound impact on system costs for ratepayers by requiring substantially more winter capacity than last year's plan.

In response, Witness Lynch testified that the Company has experienced a significant increase in new solar capacity with signed PPAs, reflecting 865 MW of capacity currently under contract and 17% of SCE&G's 2018 forecasted system peak demand of 5,077 MW. Witness Lynch explained that, as more and more solar is added, the usefulness or value of each successive addition decreases and that solar has reached the zero point for capacity because of the amount of solar under contract. He also disagreed that SCE&G's capacity needs are greater in the summer than in

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 16 of 63

the winter, explaining that the seasonal peak demand forecasts and the seasonal reserve margins show that SCE&G's incremental capacity need is 112 MWs in the summer and 449 MWs in the winter.

Witness Lynch also testified that Witness Horii's suggested winter reserve margin results from an error in Witness Horii's calculations but, even so, the Company's 2019 winter need for capacity is 185 MW greater than the summer need. Witness Lynch also testified that SCE&G's estimate of the peak demand falls within the 95% confidence interval derived from Witness Horii's calculations. As a result, Witness Lynch testified that SCE&G's calculations are not statistically different from Witness Horii's and therefore should be considered a reasonable estimate of its forecasted winter capacity needs. Witness Lynch also disagreed with Witness Horii's recommendation to maintain the current avoided capacity costs values for both PR-1 and PR-2, explaining that, while these payments represent a pass through of costs and would be recoverable through SCE&G's fuel clause, SCE&G's customers ultimately would pay more for this purchased power than PURPA intends.

Witness Lynch also testified that, previously, SCE&G has not had a winter reserve margin, but only a summer reserve margin. He further disagreed with Witness Glick's suggestion that SCE&G's winter reserve margin was unreasonable when compared to those of other utilities. Specifically, Witness Lynch stated that PJM has a 16% summer reserve margin and a 27% winter reserve margin, both of which are greater than SCE&G's current summer and proposed winter reserve margin. He also testified that Florida electric utilities plan to a 20% reserve margin, which likely refers to a summer reserve margin, but that SCE&G's demand side risk is greater in winter than in summer. He also testified that, as his methodology and that of Witness Horii reflect,

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 17 of 63

SCE&G's winter peak can increase approximately 500 MW due to abnormal winter weather, reflecting the need for at least a 6% increase in reserve margin, winter over summer. Accordingly, Witness Lynch testified that SCE&G's 21% reserve margin is reasonable.

The Commission finds that SCE&G's proposal to set avoided capacity costs for its PR-1 and PR-2 rates at zero is reasonable at this time, in the absence of a viable alternative proposal being presented by any other party. Since last year's fuel proceeding, SCE&G has had a dramatic change in circumstances with 865 MW of solar capacity now under contract.[2] The Company's analysis shows that the addition of another 100 MW of solar has no effect on its resource plan and, therefore, does not affect SCE&G's future capacity needs. The Commission also finds that SCE&G's determination that it needs as much capacity in the winter as it does in the summer is appropriate. The calculation of generation required in the winter as presented by SCE&G, including a significant reserve margin, is accepted by the Commission at this time, but remains a subject upon which alternative calculation would be entertained in future fuel proceedings. Moreover, while the Commission accepts that there is significant winter need at this time, it is imperative that the Company take all appropriate measures to aggressively pursue economic demand side management and energy efficiency programs, targeted at reducing the winter peak and repositioning the Company to once again recognize an avoided capacity factor for solar generators. A generating resource has to provide capacity in the winter as well as in the summer in order to avoid the need for capacity and thereby have capacity value. The Commission therefore concludes that, because additional solar does not provide capacity during the winter period, the

[2] The Commission recognizes that this 865 MW of solar capacity under contract falls under the PR-2 rates established in Order Nos. 2016-297 and 2017-246, which provides a capacity payment for solar generation.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 18 of 63

Company is unable to avoid any of its projected future capacity needs from additional solar. The Commission further reiterates that no other party presented an alternative estimate of SCE&G's avoided capacity costs. The Commission also disagrees with Witness Horii's suggestion that the Company's current avoided capacity costs be maintained until the next rate update. There is no evidence to demonstrate that maintaining such rates would be appropriate or that it would not result in SCE&G's customers having to pay for excessive avoided capacity costs. In fuel proceedings before this Commission, mere assertions that fail to offer and justify an alternative just and reasonable rate are of limited value in the final determination of a final just, reasonable, and appropriate rate. During the hearing, the Commission heard several complaints that SCE&G was not forthcoming with discovery production. However, the Commission did not receive any Motion to Compel nor any other indication of disputes in the discovery process, prior to the hearing. Accordingly, the Commission finds that SCE&G's proposed avoided capacity cost for solar of zero is reasonable and appropriate.

The Commission also finds that SCE&G's winter reserve margin of 21% is reasonable. While the reserve margins calculated by Witness Horii and Witness Lynch differ to a degree, the differences are not significantly different. Furthermore, both witnesses recognize that SCE&G has a higher demand-side risk in the winter than in the summer. Accordingly, the Commission finds that it is appropriate for SCE&G to use a 14% reserve margin for the summer and a 21% reserve margin in the winter, based on the evidence presented in this case. The increased reserves represent a novel approach to becoming a winter-peaking utility in this fuel case. This change has potentially adverse implications for certain types of generators going forward, and the Commission considers this issue to be of significant importance in future fuel proceedings. It is appropriate to use the

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 19 of 63

most recently filed Integrated Resource Plan for purposes of avoided cost calculations in fuel proceedings, and the Commission expects that the Company's Integrated Resource Plan will be consistent with all assertions and assumptions made in the calculation of avoided costs.

c. Witness Horii also disagreed with SCE&G's proposal to no longer provide a standard rate offer for non-solar resources. He testified that the lack of a published rate would increase the uncertainty and engagement costs for new resources.

In response, Witness Lynch testified that since there are no non-solar QFs currently seeking a PPA, there is no need for such a published tariff. Should a non-solar QF desire to enter into a PPA, Witness Lynch testified that SCE&G will negotiate a contract with that party. Witness Lynch stated that this approach has worked satisfactorily for SCE&G since PURPA was passed and only when the number of solar PPA applications significantly increased did the Company believe it would be more efficient to have a separate published rate for these QFs.

The Commission agrees with SCE&G. The record contains no evidence that a non-solar QF has recently sought to enter into a PPA agreement with the Company and, therefore, there is no need for a published non-solar QF tariff. Accordingly, the Commission finds that the Company should negotiate contracts with any non-solar QFs that are not eligible for the Company's non-solar PR-1 Rate as it did historically, prior to the establishment of the PR-2 Rate. If, in the future, non-solar QFs become more prevalent, a standard offer tariff may be appropriate.

d. Witness Glick testified that, in this proceeding, SCE&G has proposed a substantial change to the avoided cost methodology approved by the Commission in prior dockets and that solar QFs are denied the benefits of deferring the addition of any new capacity that the

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 20 of 63

Company proposes building. She also testifies that the Company did not use the methodology approved in Docket 2017-2-E to calculate the avoided generation capacity value.

In response and as discussed previously, Witness Lynch explained that SCE&G has not changed the methodology; rather there has been a change in the result caused by the significant increase in new solar capacity with PPAs since the Company's last fuel proceeding. Witness Lynch also testified that as more and more solar is added, the usefulness or value of each successive addition decreases and that solar has reached the zero point for capacity because of the amount of solar under contract.

For the same reasons stated previously, the Commission agrees with the Company. The difference in revenue approach involves calculating the revenue requirements between a base case and a change case. In this proceeding, the Company proposes to calculate the change case using a 100 MW solar profile instead of a 100 MW round-the-clock profile as it has done in the past. The Commission finds that this does not reflect a change in methodology; rather, this is a change in the analysis that is warranted by the substantial amount of solar currently under contract with the Company. Even so, because the vast majority of recent and future QF resources are solar, it is appropriate for SCE&G to use an avoided cost which more closely tracks the avoided costs for solar generation. The Commission expects SCE&G to continue to refine the solar profile as more installations come online and update the profile accordingly, such that solar continues to be given all due credit for the benefits of its generation. The Commission further notes that, in the Company's last two fuel proceedings, SCCCL, SACE, and SCSBA all requested that the Company be required to use a solar profile so that it could more accurately estimate the avoided costs to be paid to solar QFs.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 21 of 63

e. Witness Glick testified that the Company erred by failing to include in its revenue requirement calculations opportunity costs, which are the loss of potential gain from other alternatives when one alternative is chosen. Specifically, Witness Glick argued that additional solar would allow SCE&G to sell capacity in the market thereby increasing the value of additional solar.

In response, Witness Lynch testified that in order to sell capacity to a neighboring utility, it must be firm and dependable capacity. However, Witness Lynch noted that a solar QF does not have firm capacity as it is an intermittent resource and, therefore SCE&G could not sell solar capacity. He further testified that when SCE&G purchases firm capacity to serve its customers, it passes those costs onto its customers. Similarly, when SCE&G sells firm capacity, he testified that the benefits of such a sale should accrue to SCE&G's customers, not to the QF as proposed by Witness Glick. Finally, he testified that if there were a lucrative market for solar capacity, the solar facility would not be selling its energy to SCE&G at the Company's avoided cost rates but instead would sell its capacity directly to interested purchasers at higher prices.

It is reasonable and appropriate for the Company not to consider opportunity costs in its revenue requirements calculation, because a solar QF does not have firm capacity as it is an intermittent resource and does not add to the Company's opportunity to sell firm capacityThe Commission therefore declines to adopt the position recommended by SCCCL and SACE.

f. Witness Glick also recommended that SCE&G should pay QFs a performance adjustment factor in order to treat the QF capacity equally with a utility's generating unit.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 22 of 63

Witness Lynch disagreed with this suggestion, stating that it is not reasonable or meaningful to compare the intermittent capacity of a solar QF, which only provides energy as weather permits, with the firm capacity of a more dependable generating unit such as a combustion turbine. Based on data reflecting the maximum hourly output of a large solar generator on SCE&G's system, Witness Lynch testified that solar facilities provide little, if any, firm dependable capacity to SCE&G's system that the Company can reliably call upon to serve its customers.

The Commission agrees with the Company. The Commission concludes that it is unreasonable to employ a performance adjustment factor to the capacity payment because there is no guarantee of performance with regard to capacity from solar facilities.

g. SCSBA Witness Ben Johnson testified that QF rates should be set equal to the cost of having the utility build and operate its own generating units. Witness Johnson also testified that the public interest is best achieved by establishing rates that leave ratepayers indifferent as to whether energy and capacity is obtained from QFs or from the utility itself under traditional rate base regulation. Witness Johnson stated that retail customers are better served by regulatory decisions that set avoided cost rates at a point that is closer to the long-run incremental costs that are incurred by utilities when they build and operate their own generating plants.

Witness Lynch testified that avoided cost rates should not be set to the utility's cost to build but, instead, should be set equal to the utility's actual avoided cost. Under any other circumstances, Witness Lynch testified that ratepayers would not be indifferent to purchases from a QF. He also noted that the rates in the Company's PR-2 tariff reflect SCE&G's long-term avoided costs.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 23 of 63

The Commission agrees with SCE&G. The methodology used appropriately by the Company in this proceeding sets forth a proper manner in which to determine the Company's actual avoided cost. As SCE&G has properly employed this method, the Commission concludes that SCSBA's recommendation to calculate avoided costs based on the utility's cost to build its own generating facilities is unreasonable and inappropriate.

h. Witness Ben Johnson next testified that SCE&G analyzed different generation expansion plans and the associated energy costs, but did not develop a comprehensive, detailed analysis of its revenue requirement and does not show the corresponding revenue requirement for these expansion plans or that this approach is consistent with minimizing revenue requirements. Witness Johnson also testified that the PROSYM model used by SCE&G to calculate its avoided costs has certain disadvantages.

In response, Witness Lynch testified that, for the PR-2 Rate, incremental solar beyond 865 MWs of solar capacity already under contract does not alter its resource plan and, therefore, the difference in capital-related revenue requirement is zero. He further testified that a comprehensive, detailed revenue requirement is not needed for the calculation of avoided costs which are based on incremental effects.

The Commission agrees with the Company. The Commission also finds that it is appropriate for SCE&G to use PROSYM, which is a standard production costing model used in the industry. Accordingly, the Commission finds that Witness Johnson's recommendations are unnecessary in this proceeding, as discussed below.

i. Witness Ben Johnson testified that he developed estimates of the Company's avoided capacity costs using the Proxy Unit method based on a hypothetical nuclear

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 24 of 63

plant, combined-cycle plant, and combustion turbine. He stated that these calculations suggest SCE&G's proposed rates are below the capacity-related cost of building and operating these three types of generating units over their entire economic life. For this reason, Witness Johnson stated that it is appropriate for the Commission to increase the avoided cost rates to be closer to those of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC. He also testified that higher avoided cost rates would be more consistent with the long-run incremental cost of new capacity and would better encourage QF development within SCE&G's service area.

Witness Lynch disagreed, stating that Witness Johnson failed to explain how the cost to construct these proxy plants relate to the costs SCE&G would avoid through a QF purchase, *i.e.*, the avoided cost rates that leave ratepayers indifferent. He further noted that ratepayers would not be indifferent to the choice of paying the different capacity costs of a nuclear plant, a combined-cycle plant, or a combustion turbine. Rather, given the choice, Witness Lynch testified that ratepayers would choose to pay the capacity cost of the least expensive generating facility—a combustion turbine.

The Commission finds that Witness Johnson's recommendation is unreasonable. SCE&G properly calculated its avoided costs using a reasonable methodology. As stated previously, SCSBA's recommendation to calculate avoided costs based on the utility's cost to build its own generating facilities, without regard to cost, is unreasonable and inappropriate. The Commission further finds that using the proxy method as recommended by Witness Johnson would not add further accuracy to the estimate of SCE&G's avoided costs and, therefore, declines to modify the methodology in the manner suggested by Witness Johnson.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 25 of 63

j. Witness Ben Johnson next addressed the Company's variable energy costs, noting that natural gas prices have fluctuated over both short and medium time frames, although stating that they have exhibited a tendency to trend higher over the long term. Witness Johnson testified that the instability of natural gas prices and difficulties associated with predicting these prices is one of the principal disadvantages or risks associated with using this fuel source. Witness Johnson further testified that, in developing his long-run avoided cost estimates, he evaluated multiple scenarios using a number of different assumptions based upon historical natural gas prices.

In response, Witness Lynch agreed that future natural gas prices are uncertain but stated that a simple trend line based on historical natural gas prices cannot be used with confidence to project future prices as a result of the recent advancements in fracking technology. Instead, Witness Lynch testified that SCE&G uses the price of futures contracts traded on the NYMEX over the next three years and then applies a growth rate to project prices over the longer term. Witness Lynch stated that NYMEX prices have been used in SCE&G's fuel hearings for many years because they represent publicly available information and also are good indicators of gas prices in the short term, and that they are equally useful in the present proceeding

The Commission finds that SCE&G's methodology to estimate future natural gas prices is reasonable. The Company has used this methodology for a number of years to estimate future natural gas prices. The Commission therefore concludes that Witness Johnson's recommended changes to this methodology in this proceeding is unnecessary and would not result in more accurate estimates of future natural gas prices.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 26 of 63

k. Witness Ben Johnson further addressed the Company's decision to abandon the new nuclear units and suggests that the Company did not consider the benefits of a balanced generating portfolio in developing its proposed QF rates.

Witness Lynch disagreed with Witness Johnson and testified that SCE&G is aware of the resource mix. He further testified that the Company believes that the addition of 865 MW of solar capacity helps to have a more balanced generating portfolio. However, Witness Lynch stated that SCE&G, like most utilities, believes that gas-fired generation is the most economical choice of dispatchable generation for the next few years.

The Commission finds that the Company has experienced a substantial growth in solar generation on its system which undoubtedly will provide a more balanced generation portfolio. The Commission therefore disagrees with Witness Johnson's suggestion.

l. Regarding the Company's proposed changes to the avoided capacity rates for solar and to Rate PR-1 and PR-2, Witness Ben Johnson testified that not compensating QFs for their reliability benefits is intensely and unlawfully discriminatory. He also objected to limiting Rate PR-2 to solar projects and asserts that this would establish an arbitrary distinction between solar and non-solar technologies. Witness Johnson also objected to SCE&G's proposal to update Rate PR-2 on an as-needed basis. Finally, Witness Johnson testified that solar and non-solar generators should not be paid different prices.

In response, Witness Lynch testified that, in the context of avoided costs, the issue is not what benefits or value QFs will receive. Rather, Witness Lynch stated that the issue is what capacity costs are being avoided and, simply put, if no capacity costs are avoided, then the avoided cost is zero. Witness Lynch also testified that the Company's proposal to distinguish between solar

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 27 of 63

and non-solar projects is not arbitrary since SCE&G only has solar projects requesting avoided cost rates and the determination of avoided cost depends strongly on the type of project under consideration. When a non-solar project seeks to enter into a PPA with SCE&G and requests its avoided costs, Witness Lynch stated that some specification has to be made as to what the project's power producing characteristics will be.

Regarding battery storage projects, Witness Raftery testified that SCE&G will issue an RFP to collect information on solar plus battery projects with the intention of having a project or two placed online and that SCE&G then will be better able to analyze the impacts of these types of projects on its system. Finally, Witness Lynch testified that SCE&G believes it is sufficient to have a scheduled update of the PR-2 rate once a year at the fuel hearing with the option, but not the requirement, to update it more frequently on an as needed basis. Witness Lynch also testified that QFs should be paid their avoided cost. He stated that solar QFs all have similar characteristics and avoid costs at approximately the same rate and that, for this reason, providing a standard rate for solar QFs, such as PR-2 and PR-1, is efficient and reasonable. Witness Lynch also testified that because non-solar QFs may have significantly different characteristics; these projects should be considered on an individual basis and separate, specific PPAs should be negotiated for each such project. And, even though it is not possible to accurately estimate the impact small non-solar QFs (under 100 kW) have on the system individually, Witness Lynch stated that the impact they do have is so small that establishing a separate rate for these facilities would be meaningless.

The Commission finds that the Company's proposed changes to Rate PR-1 and PR-2 are reasonable. Avoided capacity costs should be calculated based on how much future capacity can be avoided and, if no such capacity can be avoided, the avoided capacity cost should be zero. In

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 28 of 63

order for SCE&G to pay the appropriate amount of avoided costs and therefore prevent customers from having to pay for avoided costs that are too high, it also is appropriate for SCE&G to distinguish between solar and non-solar QFs in its Rate PR-1 and PR-2 and to pay different avoided costs based on their different characteristics. The Commission also agrees with SCE&G's proposal to update Rate PR-2 once a year, but disagrees with its proposal to be permitted to update Rate PR-2 more frequently than annually. If the Company were permitted to update this rate more than annually, it would result in near-continuous litigation.. Allowing updates to the PR-2 Rate only during the annual fuel proceeding recognizes the importance of stability and certainty for both the generating facilities developers and the Company. The Commission also recognizes that, in previous proceedings, SCCCL, SACE, and SCSBA recommended that Rate PR-2 be updated on an annual or biennial basis and that semiannual updates create uncertainty for QF developers.

m. Witness Ben Johnson also testified that the Commission should be moving in the direction of requiring stronger, more precise price signals to help guide competitive investment decisions and that the elimination of the capacity rate makes the solar rate structure even less granular than it is now.

Witness Lynch responded by stating that PURPA requires SCE&G to purchase the power produced by any and all QFs that desire to sell power at the Company's avoided cost. He further testified that SCE&G is prohibited by law from turning away less efficient QFs, so the use of avoided costs is not a good vehicle to enhance competitive markets.

The Commission agrees with the Company. Given the requirements of PURPA, it is not appropriate to use avoided costs to encourage competitive investment decisions. To the extent that

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 29 of 63

avoided capacity costs are achieved by PURPA generators, those costs must be included in the rate paid for such power acquisition.

n. Witness Ben Johnson further testified that electrical energy is a joint product when viewed across time and that capacity used to generate electricity during the peak daytime hours is also available for use during other hours. He further testified that a reasonable share of the annual fixed costs of capacity should also be recovered during many other hours of the year, including the early morning hours of December through February, when extreme peaks also sometimes occur. Witness Johnson therefore suggested that avoided costs should include a markup to provide a mechanism for joint and common costs.

Witness Lynch disagreed and testified that a markup suggests that SCE&G should pay more than its avoided cost which is contrary to the intent of PURPA. If SCE&G avoids any joint and common costs through the purchase of power from a QF, Witness Lynch testified that those costs should be reflected in its avoided cost rate but without a markup. In response to Witness Johnson's suggestion that a combined-cycle generating facility that provides capacity in the winter will also provide capacity in the summer, Witness Lynch stated that if SCE&G has to build a combined-cycle unit to meet its winter peak, but which also satisfies the need for summer capacity, then the fixed costs are incurred. In contrast, Witness Lynch noted that adding solar capacity, which only has an impact on capacity in the summer, does not avoid any of those fixed costs.

The Commission agrees with SCE&G. The Company properly calculated its avoided costs using the a reasonable methodology, and the Commission finds it would be inappropriate to markup avoided costs to provide a mechanism for joint and common costs.

3. The Commission's Overall Conclusions Regarding Avoided Costs, PR-1, and PR-2

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 30 of 63

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 31 of 63

Based upon the evidence of record, and after reviewing the testimony of the parties of record, the Commission finds and concludes that SCE&G properly calculated its avoided energy and capacity costs under PURPA using the difference in revenue requirements methodology. The Commission further concludes that the difference in revenue requirements methodology remains reasonable, prudent, and appropriate, and that SCE&G's proposal to use a 100 MW solar profile to calculate avoided costs is warranted and appropriate. The Commission also finds and concludes that SCE&G's proposed PR-1 and PR-2 Rate Schedules set forth rates, credits, and charges, that are lawful, just, and reasonable and are based on reasonable methodologies.

B. NEM Distributed Energy Resources Methodology

1. SCE&G Testimony

Company Witness Lynch testified that, by way of its Order No. 2015-194 issued in Docket No. 2014-246-E, the Commission approved the following 11 components of value for NEM Distributed Energy Resources:

Net Energy Metering Methodology
1. +/- Avoided Energy
2. +/-Energy Losses/Line Losses
3. +/- Avoided Capacity
4. +/- Ancillary Services
5. +/- T&D Capacity
6. +/- Avoided Criteria Pollutants
7. +/- Avoided CO_2 Emission Cost
8. +/- Fuel Hedge
9. +/-Utility Integration & Interconnection Costs
10. +/- Utility Administration Costs
11. +/- Environmental Costs

= Total Value of NEM Distributed Energy Resources

He also testified that, in Docket No. 2017-2-E, the Company calculated the value for these components and, in Order No. 2017-246, the Commission determined that those values complied

with the NEM Methodology approved by the Commission in Order No. 2015-194. As set forth in Table 10 to his direct testimony, Witness Lynch stated that the Company updated these components of value by calculating the current value and one for the value over the IRP planning horizon. Witness Lynch further provided information on SCE&G's evaluation of each component and its estimate of the associated value. Witness Rooks also sponsored the Company's proposed "Rider to Retail Rates – Net Energy Metering for Renewable Energy Facilities" tariff sheet which updates the total value of NEM Distributed Energy Resource to reflect the components of value for NEM Distributed Energy Resources enumerated by Witness Lynch.

2. ORS Testimony

ORS Witness Sarah Johnson testified that the Company's calculation of the NEM Incentive is consistent with the methodology approved in Commission Order No. 2015-194 and that the value of the customers' distributed generation was calculated using the amount from the NEM tariff approved in Commission Order No. 2017-246. Witness Horii similarly testified that SCE&G is following the methodology approved by the Commission in Order No. 2015-194 in evaluating the value of each component of the NEM DERs Total Value stack. Witness Horii testified that SCE&G bases its NEM DERs avoided energy and capacity costs on the PURPA avoided cost values and that the PURPA avoided energy cost decreased from last year, leading to a reduction in the NEM DERs avoided energy cost. With respect to the component of value for avoided capacity, Witness Horii stated that this value is based on the PURPA avoided capacity cost values and that, should the Commission reject the Company's proposed avoided capacity cost value, the Total Value of NEM Distributed Energy Resources would be impacted. Regarding the value for T&D Capacity, Witness Horii noted that SCE&G's practice of designing transmission and

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 32 of 63

distribution circuits to assume DER is not generating due to weather factors or because DER resources are off line follows the Commission-approved methodology but it is a conservative approach.

3. SCCCL and SACE Testimony, Responsive Testimony, and the Commission Conclusions

Regarding the Company's updated components of value for the NEM Distributed Energy Resources methodology, Witness Glick made a number of recommendations. Each of these recommendations, SCE&G's response, and the Commission's conclusions regarding each recommendation are addressed as follows:

a. Witness Glick testified that SCE&G's description of avoided line losses associated with DERs is inadequate and that the Company erred in calculating line losses. Specifically, Witness Glick stated that the Company used annual average system losses as the basis for calculating marginal losses rather than losses associated with the temporal solar profile and failed to calculate transmission losses as marginal. She also testified that avoided marginal transmission and distribution line losses have capacity implications. Witness Glick further stated that QFs connected at the distribution level should be reimbursed for transmission level savings and that small QFs and NEM DERs should be reimbursed for both transmission level and distribution-level savings.

In response, Witness Lynch first noted that the recommendations advanced by Witness Glick had been previously raised in Docket No. 2017-2-E and that the Commission had found in Order No. 2017-246 that "the Company's calculation of line losses is appropriate and that average transmission losses are the best estimate to use for marginal losses." Nevertheless, Witness Lynch also testified that the PR-1 and PR-2 rates and the 11-point NEM methodology all involve the

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 33 of 63

adjustment of QF energy supplied over many hours of the year. Therefore, Witness Lynch testified that the use of an annual average system loss factor is appropriate. He also stated that SCE&G has calculated system line losses for many years and believes that the estimation of losses for each hour of the year or for many incremental levels would be a burdensome enterprise that would yield little or no value. Witness Lynch further testified that to estimate marginal line losses on the distribution system, SCE&G doubled the average line losses as agreed to by Witness Glick. On the transmission system, however, Witness Lynch stated the Company believes that marginal losses should be approximated by average losses and that marginal line losses in a network will be less than those on the distribution system.

He further testified that to estimate marginal losses, SCE&G's analysis considered lowering the loads at each substation to effect a 100 MW decrease across the system, and then eliminating a source of energy from the Company's Hagood Unit to balance the system. Under these circumstances, the analysis showed that power had to flow a greater distance to serve the load and losses increased, meaning that average losses were greater than marginal losses. After performing several similar analyses, the Company concluded that average transmission losses are the best estimate to use for marginal losses.

Regarding the capacity implications associated with avoided marginal transmission and distribution line losses, Witness Lynch testified that SCE&G applies line losses for both energy and capacity as appropriate. Responding to Witness Glick's testimony regarding the reimbursement of transmission and distribution level savings, Witness Lynch testified payments or credits to small QFs and NEMs are subsidized by SCE&G's DER program and that, therefore, reimbursement is not at issue. He further stated that the PR-1 rate for small QFs and the NEM

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 34 of 63

avoided cost methodology have loss factor adjustments and that larger QFs likely will flow power back onto the transmission system and will incur, not avoid, transmission level losses.

The Commission finds that the Company's calculation of line losses is appropriate, that average transmission losses are the best estimate to use for marginal losses, and that the Company properly applied line losses for both energy and capacity in a manner consistent with the methodology approved in Order No. 2015-194.

b. Regarding transmission and distribution ("T&D") capacity, Witness Glick stated DERs, in aggregate and on average over time, reduces the need for T&D capacity investments. She testified that if the DER alleviates some of the strain on the system during transmission or distribution system peaks, then that resource reduces pressure on that system and helps to defer or avoid future upgrades to that system. She also stated that energy efficiency resources are regularly credited with avoided or deferring T&D investments.

Witness Lynch responded by stating that, with the NEM solar capacity distributed throughout the system, the current impact on any single transmission line is less than 1,500 kW. SCE&G's transmission planning engineers consider this level of load, which is 0.1% of the total load, to be no more than noise on the system and it does not have any expected impact on the need for future transmission lines. Witness Lynch further testified that it is not clear whether the solar generators increase the strain on distribution lines or decrease it. However, he noted that Company data shows that solar output is likely to increase the strain on the distribution system. Regardless, he testified that SCE&G's distribution engineers must plan the distribution line assuming the solar output is zero because solar is an intermittent resource. Witness Lynch also testified that other energy resources, such as energy efficiency, may be credited with avoiding transmission and

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 35 of 63

distribution costs. However, he opined that in considering a program such as energy efficiency, the effects of which are dispersed around a system, an analysis of the localized impact will demonstrate the impact to be too small to affect the transmission system. He also stated that with respect to the distribution system, energy efficiency is not an intermittent resource like a solar generator so there may be justification for an avoided cost credit.

The Commission agrees with the position of SCE&G. The Company must design its transmission and distribution system so as to provide safe and reliable electric service, even when intermittent generation sources such as solar facilities and other small QFs are not producing power.

c. Witness Glick also recommended that an adjustment should be made to reflect an impact on SCE&G's reserve margin, stating that DER resources have capacity value, and that capacity value also translates into a reduced reserve margin requirement. She further stated that the avoided T&D line losses of 8% to 9% are reliable and this portion of avoided generation capacity should be counted towards reducing the level of peak load for which SCE&G should plan.

In response, Witness Lynch testified that the Commission previously found it is appropriate for SCE&G to maintain a reserve margin to back up DERs which are intermittent supply resources and that, accordingly, DER resources do not result in a reserve margin benefit for the Company.

The Commission agrees with SCE&G. The Commission finds that it is appropriate for the Company to maintain a reserve margin to back up DERs, which are intermittent supply sources. Accordingly, DER resources do not result in a reserve margin benefit for the Company.

d. Witness Glick next testified that to the extent distributed energy generators help to alleviate costs associated with environmental compliance at SCE&G's other facilities,

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 36 of 63

those savings should be reflected in the NEM calculation. She stated that avoided environmental costs, such as costs associated with coal combustion residuals, are financial, quantifiable, and a direct result of DER generation.

Witness Lynch again noted that the Commission previously found that the Company's methodology properly accounts for avoided environmental costs and that there are no other environmental costs that are not already included in the other specific components of this methodology. Witness Lynch also noted that the Settlement Agreement entered into by the parties of record to Docket No. 2014-246-E, including SCCCL and SACE, affirmatively states that "[t]he environmental compliance and/or Utility system costs might be accounted for in the Avoided Energy component, but, if not, should be accounted for separately. The Avoided Energy component must specify if these are included." Witness Lynch testified that there are no environmental costs that are not already included in the other specific components of the methodology and, for this reason, SCE&G appropriately assigned a zero avoided cost value to this component.

The Commission finds that the Company properly accounted for avoided environmental costs and that there are no other environmental costs that are not already included in the other specific components of the methodology. The Commission also finds that, while it may be possible to separately account for environmental costs, there is no net change to the Total Value of NEM Distributed Energy Resources. Thus, requiring the Company to undertake this exercise would require it to devote additional time and energy and incur additional costs related to the fuel proceeding with no corresponding or substantial benefit.

4. SCSBA Testimony

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 37 of 63

SCSBA did not present any testimony regarding the Company's updated components of value for the NEM Distributed Energy Resources methodology.

5. The Commission's Overall Conclusions Regarding NEM Distributed Energy Resources Methodology

Based upon the evidence of record, and after reviewing the testimony of the parties of record and the Settlement Agreement entered into by the parties of record to Docket No. 2014-246-E, the Commission finds that SCE&G properly evaluated the components of value for NEM Distributed Energy Resources as shown in Table 10 of Witness Lynch's testimony, as corrected, in accordance with the NEM methodology approved by the Commission in Order No. 2015-194.

C. DER Programs and Costs

1. SCE&G Testimony

Company Witness Raftery discussed the performance of the Company's DER programs during the Review Period, and the costs associated with offering these DER programs during the Review Period. These programs include offering utility-scale DER programs and customer-scale NEM incentives, Performance Based Incentives, Bill Credit Agreements ("BCA") programs, and developing the Company's Community Solar program. Witness Raftery also discussed the Company's DER cost projections for the forecast period January 1, 2018, through April 30, 2019. As a result of these efforts, the balance of DER program costs at the end of the Review Period totaled ($1,504,690) in avoided costs and $798,039 in incremental costs. For the period January 1, 2018, through April 30, 2019, the Company projects that DER program costs will include $9,304,269 in avoided costs and $25,313,951 in incremental costs.

Witness Rooks provided actual data on the Company's DER avoided and incremental costs for the historical Review Period and the projected DER costs for the period January 1, 2018,

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 38 of 63

through April 30, 2019. As reflected in Hearing Exhibit No. 4 (AWR-7), Witness Rooks testified that the Company's forecasted DERP Avoided Cost Components for the period May 2018 through April 2019 should be as follows: 0.042 cents per kWh for the Residential rate class; 0.038 cents per kWh for the Small General Service rate class; 0.032 cents per kWh for the Medium General Service rate class; and 0.019 cents per kWh for the Large General Service rate class. He also testified that, as reflected in Hearing Exhibit No. 4 (AWR-9), the Company's DERP Incremental Costs by class should be: $1.00 per account per month for the Residential rate class; $5.37 per account per month for the Small/Medium General Service rate class; and $100.00 per account per month for the Large General Service rate class. Witness Rooks also sponsored the Company's proposed "Adjustment for Fuel, Variable Environmental & Avoided Capacity, and Distributed Energy Resource Program Costs" tariff.

Witness Raftery further testified that, as of December 31, 2017, nine solar farms totaling 48.16 MW have been constructed and interconnected to SCE&G's distribution system. As such, Witness Raftery testified SCE&G has achieved the 1% goal for Utility-scale facilities set forth in Act 236. Witness Raftery also stated that, as of December 31, 2017, SCE&G had 6,161 customers participating in its customer-scale DER programs representing approximately 56.81 MW of solar generating capacity on SCE&G's system and, therefore, has achieved the 1% goal for Customer-scale facilities set forth in Act 236.

Witness Raftery also testified that, based on overall NEM adoption levels experienced since July 1, 2016, SCE&G forecasts that it will approachAct 236's net metering limit or cap of 2% in April or May 2019. Regarding the Company's Community Solar program, Witness Raftery stated that, pursuant to the Credit Rate Agreement between SCE&G and the Clean Energy

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 39 of 63

Collective, LLC ("CEC") which was approved by the Commission in Order No. 2016-707, CEC is actively constructing three community solar facilities totaling 16 MW. Witness Raftery also testified that, as of February 15, 2018, 95 Low-Income customers have purchased or subscribed to a total of 0.526 MW of community solar, 903 residential customers have purchased or subscribed to a total of 5.55 MW of community solar, and 22 churches, schools, and municipalities have purchased or subscribed to a total of 9.45 MW of community solar. Witness Raftery testified that the remaining 0.474 MW of capacity is reserved for Low-Income customers and continues to be marketed through SCE&G, CEC, and 8 customer assistance agencies. Witness Raftery also advised the Commission that SCE&G is exploring moving forward with the additional 1% Utility-scale investment contemplated in S.C. Code Ann. § 58-39-130(D) and that, if SCE&G identifies competitive projects that provide system benefits, the Company anticipates applying to the Commission for approval to move forward with the contracts and deployment.

2. ORS Testimony

Witness Sarah Johnson testified that the Company's calculations are in compliance with Act No. 236 of 2014 and Commission Orders, and that the Company's calculations support the following annual proposed DERP Charges: Residential $12.00, Small and Medium General Service $64.39, and Large General Service $1,200.00.

3. SCCCL, SACE, and SCSBA Testimony

SCCCL, SACE, and SCSBA did not present any testimony regarding the DER programs offered by the Company during the Review Period or the associated costs.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 40 of 63

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 41 of 63

4. The Commission's Overall Conclusions Regarding DER Programs and Cost

The Commission finds that the evidence presented by SCE&G establishes that, during the Review Period, SCE&G offered DER programs and took appropriate steps to fulfill its DER goals approved by the Commission in Order No. 2015-194. The Commission further finds that the Company's DER programs and the associated costs are reasonable and prudent and are designed to meet SCE&G's statutorily designated goals as set by S.C. Code Ann. § 58-39-130.

D. Fuel Purchasing Practices, Environmental Costs, Plant Operations, and Fuel Inventory Management

1. SCE&G Testimony

SCE&G witnesses testified on issues related to the prudency of SCE&G's fuel purchasing practices, plant operations, and fuel inventory management, and explained the regulatory atmosphere governing environmental compliance for SCE&G. SCE&G Witness Lippard discussed the operating performance of the V.C. Summer Nuclear Station. SCE&G Witness Delk reviewed the operating performance of the Company's fossil/hydro units and of South Carolina Generating Company's Williams Electric Generating Station. Company Witness Shinn discussed the Company's procurement and delivery activities for coal and No. 2 fuel oil for electric generation, the changes that have occurred in coal markets since the last annual fuel adjustment hearing, and how these changes affected coal procurement during the Review Period and are anticipated to affect future procurement. Witness Shinn also discussed the procurement and delivery of limestone for the wet scrubbers at Wateree and Williams Stations, the nuclear fuel purchasing processes for SCE&G generation, uranium prices, and the near-term outlook of coal

and uranium prices. SCE&G Witness Kahl provided testimony about the natural gas purchasing processes for SCE&G generation and discussed natural gas prices as well as the near-term outlook.

SCE&G Witness Rooks provided actual fuel cost data for the historical Review Period, and projected fuel costs for the period January 1, 2017, through April 30, 2018; and recommended fuel rates for the period of May 2018 through April 2019. Hearing Exhibit No. 4 (AWR-5) shows the Company's forecasted variable environmental & avoided capacity costs and the allocation of those costs to retail customer classes for the period of May 2018 through April 2019. This exhibit also details forecasted sales data by class, over/under recovery computations, and calculates the projected Variable Environmental & Avoided Capacity Cost Components per kWh for the same period. The Variable Environmental & Avoided Capacity Components produced by these calculations are projected to recover all costs and are as follows: 0.083 cents per kWh for the Residential rate class; 0.075 cents per kWh for the Small General Service rate class; 0.063 cents per kWh for the Medium General Service rate class; and 0.039 cents per kWh for the Large General Service rate class.

2. ORS Testimony

ORS Witness Smith testified and presented the results of the ORS Audit Department's examination of the Company's books and records pertaining to the Fuel Adjustment Clause operation for the Actual Period, and the Company's estimated calculations for the months of January 2018 through April 2018. Based on the ORS Audit Department's examination of the Company's books and records, and the Company's operation of the fuel cost recovery mechanism, Witness Smith testified that the Company's books and records accurately reflect the fuel costs incurred by the Company in accordance with previous Commission orders and with S.C. Code

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 42 of 63

Ann. § 58-27-865 (2015). Witness Seaman-Huynh testified to the ORS's findings resulting from its review of the Company's fuel expenses and power plant operations used in the generation of electricity during the Review Period. Based on ORS's review of the Company's operation of its generating facilities during the Review Period, Witness Seaman-Huynh testified that the Company made reasonable efforts to maximize unit availability and minimize fuel costs during the Review Period. Witness Seaman-Huynh also testified that, in Order No. 2017-246, the Commission approved SCE&G's proposal to use the Internal Revenue Service ("IRS") Section 174 deduction claims to lower its Environmental Components based on its Accumulated Deferred Income Taxes ("ADIT") liability balances as of September 30, 2017. In reviewing the Company's books and records, Witness Seaman-Huynh testified that ORS did not find the Company made any adjustments to its Environmental Capacity Components during the Actual Period attributed to the IRS Section 174 deduction claims.

In response, Witness Rooks testified that, in Order No. 2017-246 the Commission approved SCE&G's proposal to use Section 174 research and experimentation tax benefits related to the construction of V.C. Summer Units 2 and 3 to reduce the Environmental Component of its total fuel cost factor in an amount based on its ADIT liability balances as of September 30, 2017, and "to make the reduction concurrent with the implementation of the Company's 2017 BLRA revised rates request." *See* Commission Order No. 2017-246 at p. 54. However, Witness Rooks testified that SCE&G did not seek a 2017 BLRA revised rates update and, instead, filed and later withdrew an abandonment petition. Witness Rooks testified that, among other things, the abandonment petition sought recovery of the costs of the abandoned plant without an increase in rates and proposed using Section 174 tax benefits, as well as additional tax benefits arising from

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 43 of 63

abandonment, as a means to reduce capital cost recovery. Witness Rooks further testified that, on January 12, 2018, SCE&G along with Dominion Energy, Inc. filed a joint petition ("Joint Petition") which reflected a proposed rate decrease and also provided for the use of all tax benefits related to the abandoned nuclear construction project, both Section 174 and the tax abandonment deduction, for the benefit of customers. Witness Rooks testified that, for these reasons, SCE&G did not make an adjustment to its Environmental Component in 2017 attributed to the IRS Section 174 deduction claims, and that the deduction will be considered in the Joint Petition.

3. SCCCL, SACE, and SCSBA Testimony

SCCCL, SACE, and SCSBA did not present any testimony regarding the Company's fuel purchasing practices, environmental costs, plant operations, fuel inventory management, or the operations of the power plants during the Review Period.

4. Commission Conclusions Regarding Fuel Purchasing Practices, Environmental Costs, Plant Operations, and Fuel Inventory Management

As reflected in the evidence of record, no party challenged the reasonableness or prudency of SCE&G's fuel purchasing practices and policies, environmental costs, plant operations, and fuel inventory management during the Review Period. With respect to the Section 174 deductions approved by the Commission in Order No. 2017-246, the Commission finds that SCE&G's proposal to consider these deductions in the Joint Petition docket is reasonable. Based upon the evidence and testimony of the witnesses, the Commission therefore finds and concludes that SCE&G's fuel purchasing practices and policies, environmental costs, plant operations, and fuel inventory management during the Review Period are reasonable and prudent.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 44 of 63

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 45 of 63

E. Proposed Base Fuel Component

1. SCE&G Testimony

Witness Rooks testified that the actual base fuel under-collected balance was $2,355,695 at December 31, 2017, and the projected over-collected balance to be $50,536,981 at the end of April 2018. Witness Rooks also testified that a Base Fuel Component of 2.457 cents per kWh is projected to recover all base fuel costs in the forecast period in addition to eliminating the projected over-collected balance by the end of April 2019. Witness Rooks further testified that, in compliance with Commission Order No. 2013-776 and pursuant to the Company's February 22, 2018, letter in Docket No. 2013-382-E, the Company plans to apply gains from recently settled interest rate swaps in the amount of $113,739,272 to reduce its base fuel cost under-collection balance. Witness Rooks also testified that, although the fuel cost statute permits utilities to recover their prudently incurred fuel costs as precisely and promptly as possible, for this proceeding and to mitigate rate impacts to its retail electric customers, the Company is proposing to maintain its Base Fuel component at 2.451 cents per kWh. Witness Rooks further testified that the Company is proposing that the Variable Environmental & Avoided Capacity Cost components be increased for the May 2018-April 2019 time period and to increase its DER Incremental Cost Components per account per month to $1.00 for Residential customers and $5.37 for Small/Medium General Service customers. The per account per month fee for Large General Service customers will remain unchanged at $100.00 to comply with the DERP Act caps. When combining the Company's 2018 proposals for Fuel and DSM cost recovery, Witness Rooks testified that the average monthly bill for residential customers using 1,000 kWh per month would increase from $147.53 to $147.70. This $0.17 per month impact would become effective with the first billing cycle of May 2018.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 46 of 63

2. ORS Testimony

Witness Seaman-Huynh testified that as of December 2017, the Company had a base fuel cumulative under-recovery balance of $2,355,695, a variable environmental and avoided capacity over-recovery balance of ($2,272,425), and DERP avoided costs over-recovery balance of ($1,504,687). As shown on Hearing Exhibit No. 14 (GS-5), page 2 of 2, ORS projects the Company to have a base fuel cumulative over-recovery balance of ($50,536,981), a variable environmental and avoided capacity over-recovery balance of ($1,051,097), and DERP avoided costs over recovery balance of ($479,920) as of April 30, 2018. Witness Seaman-Huynh also testified that ORS recommends the Commission approve the Company's current Base Fuel Component remain in effect for bills rendered on and after the first billing cycle for May 2018 and continue through the last billing cycle for April 2019. He also testified that ORS recommends that the Commission approve the Company's proposed Environmental and Avoided Capacity Components and DERP Avoided Cost Components for the period of May 2018 through April 2019. Witness Seaman-Huynh further testified that ORS reviewed the Company's proposal to apply gains from recently settled interest rate swaps to reduce its Base Fuel Component. The Company's proposal is in compliance with Commission Order No. 2013-776 and ORS supports the Company's proposal.

3. SCCCL, SACE, and SCSBA Testimony

SCCCL, SACE, and SCSBA did not present any testimony regarding the Company's proposed base fuel component.

4. Commission Conclusions Regarding the Proposed Base Fuel Cost Component

As reflected in the evidence of record, no party challenged SCE&G's proposed Base Fuel Cost Component. Based upon the evidence and testimony of the witnesses, the Commission

therefore finds and concludes that SCE&G's proposed Base Fuel Component is reasonable and prudent and is consistent with S.C. Code Ann. § 58-27-865 (2015).

V. FINDINGS OF FACT AND CONCLUSIONS OF LAW

The methodologies used by SCE&G to calculate its avoided energy and capacity costs under PURPA as described in the testimony of SCE&G Witness Lynch are reasonable and prudent.

SCE&G's proposed Rate Schedules PR-1 and PR-2, including the rates, credits, charges, and underlying methodologies, and the terms and conditions of service, are lawful, just, and reasonable.

SCE&G's calculation and method of accounting for avoided and incremental costs for NEM during the Review Period were reasonable and prudent, were consistent with the methodology approved in Commission in Order No. 2015-194, and complied with S.C. Code Ann. § 58-40-10, *et seq.* (2015).

The updated components of value for NEM Distributed Energy Resources as shown in Table 10 on page 27 of the direct testimony of SCE&G Witness Lynch are reasonable and prudent, comply with the NEM methodology approved by the Commission in Order No. 2015-194, properly evaluate and/or quantify all categories of potential costs or benefits to SCE&G's system, and satisfy the requirements of S.C. Code Ann. § 58-40-10, *et seq.* (2015).

SCE&G's proposed revisions to its "Rider to Retail Rates – Net Energy Metering for Renewable Energy Facilities" tariff sheet, including the rates, terms, and conditions, are lawful, just, and reasonable.

SCE&G's calculation of and method of accounting for avoided costs and incremental costs for NEM during the Review Period were reasonable and prudent, were consistent with

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 47 of 63

methodology approved in Commission Order No. 2015-194, and complied with S.C. Code Ann. § 58-40-10, *et seq.* (2015).

During the Review Period, SCE&G offered DER programs and took steps to fulfill its DER goals approved by the Commission in Order No. 2015-194, which programs and steps were reasonable and prudent, complied with Commission Order Nos. 2015-194 and 2015-512, and were designed to meet SCE&G's statutorily designated goals as set by S.C. Code Ann. § 58-39-130 (2015).

As a result of SCE&G's efforts to provide the DER programs, the balance of the DER program costs as of December 31, 2017, totaled ($1,504,690) in avoided costs and $798,039 in incremental costs, which costs are reasonable and prudent.

SCE&G's proposed DER Avoided Cost Components by class are reasonable and prudent. SCE&G's proposed monthly per account DER Incremental Cost Components by class properly allocates SCE&G's DER program incremental costs and are reasonable and prudent.

SCE&G's proposed "Adjustment for Fuel, Variable Environmental, & Avoided Capacity, and Distributed Energy Resource Program Costs" tariff sheet, including the rates, terms, and conditions, is lawful, just, and reasonable.

SCE&G's fuel purchasing practices and policies, plant operations, fuel inventory management, and all other matters associated with S.C. Code Ann. § 58-27-865 (2015) are reasonable and prudent.

IT IS THEREFORE ORDERED THAT:

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 48 of 63

1. The fuel purchasing practices and policies, plant operations, fuel inventory management, and all other matters associated with S.C. Code Ann. § 58-27-865 (2015) of SCE&G are reasonable and prudent for the period January 1, 2017, through December 31, 2017.

2. The methodologies used by SCE&G to calculate its avoided energy and avoided capacity costs under PURPA are reasonable and prudent.

3. Rate Schedules PR-1 and PR-2, including the rates, credits, charges, and underlying methodologies, and the terms and conditions of services, are lawful, just, and reasonable and are hereby approved for use on, during, and after the first billing cycle in May 2018.

4. SCE&G must update its Rate Schedules PR-1 and PR-2 during each annual fuel proceeding and is specifically denied its request for leave to update the Rates on an interim or "as-needed" basis.

5. SCE&G shall continue to develop and refine its solar profile as more data becomes available. The Company shall detail further refinements to this profile to the Commission in the next annual fuel proceeding.

6. SCE&G shall investigate and implement economic demand side management and energy efficiency programs with an emphasis on decreasing the newly developed winter peak.

7. SCE&G's calculation and method of accounting for avoided and incremental costs for NEM during the Review Period were reasonable and prudent, were consistent with the methodology approved in Commission in Order No. 2015-194, and complied with S.C. Code Ann. § 58-40-10, *et seq.* (2015).

8. The updated components of value for NEM Distributed Energy Resources listed in the table below comply with the NEM methodology approved by the Commission in Order No.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 49 of 63

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 50 of 63

2015-194, properly evaluate and/or quantify all categories of potential costs or benefits to SCE&G's system and satisfy the requirements of S.C. Code Ann. § 58-40-10, *et seq.* (2015).

	Current Period ($/kWh)	IRP Planning Horizon (15-Year Levelized) ($/kWh)	Components
1	$0.03070	$0.03010	Avoided Energy Costs
2	$0	$0	Avoided Capacity Costs
3	$0	$0	Ancillary Services
4	$0	$0	T & D Capacity
5	$0.00008	$0.00008	Avoided Criteria Pollutants
6	$0	$0	Avoided CO_2 Emission Cost
7	$0	$0	Fuel Hedge
8	$0	$0	Utility Integration & Interconnection Costs
9	$0	$0	Utility Administration Costs
10	$0	$0	Environmental Costs
11	$0.03078	$0.03018	Subtotal
12	$0.00251	$0.00246	Line Losses @ 0.9245
13	$0.03329	$0.03264	**Total Value of NEM Distributed Energy Resources**

9. SCE&G's proposed revisions to its "Rider to Retail Rates – Net Energy Metering for Renewable Energy Facilities" and "Adjustment for Fuel, Variable Environmental, & Avoided Capacity, and Distributed Energy Resource Program Costs" tariff sheets are lawful, just and reasonable and are hereby approved for use on, during, and after the first billing cycle in May 2018.

10. SCE&G's DER programs offered during the Review Period were reasonable and prudent, complied with Commission Order Nos. 2015-194 and 2015-512, and were designed to meet SCE&G's statutorily designated goals as set by S.C. Code Ann. § 58-39-130 (2015).

11. SCE&G's proposed monthly per kWh DER Avoided Cost Components by class, as set forth below, properly allocate SCE&G's DER program avoided costs, are reasonable and prudent, and are hereby approved for use on, during, and after the first billing cycle in May 2018.

Class	DER Avoided Cost Component (cents/kWh)
Residential	0.042
Small General Svc.	0.038
Medium General Svc.	0.032
Large General Svc.	0.019

12. SCE&G's proposed monthly per account DER Incremental Cost Components by class, as set forth below, properly allocate SCE&G's DER program incremental costs and are reasonable and prudent, and are hereby approved for use on, during, and after the first billing cycle in May 2018.

Class	Monthly Per Account DER Incremental Cost Component
Residential	$ 1.00
Small & Medium Gen. Svc.	$ 5.37
Large General Service	$ 100.00

13. SCE&G shall set its Base Fuel Cost Component, Variable Environmental & Avoided Capacity Cost Components and Total Fuel Cost Factors consistent with the amounts set forth in the table below effective for bills rendered on and after the first billing cycle of May 2018.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 51 of 63

Class	Base Fuel Cost Component (cents/kWh)	DERP Avoided Cost Component	Variable Environmental & Avoided Capacity Cost Component (cents/kWh)	Total Fuel Costs Factor (cents/kWh)
Residential	2.451	0.042	0.083	2.576
Small General Service	2. 451	0.038	0.075	2.564
Medium General Service	2. 451	0.032	0.063	2.546
Large General Service	2. 451	0.019	0.039	2.509
Lighting	2. 451	0.000	0.000	2.451

14. SCE&G shall file with the Commission the tariff sheets and rate schedules approved by this Order and all other retail tariff sheets within ten (10) days of receipt of this Order, and also serve copies on the Parties. The fuel rates reflected in any such tariff sheets shall be consistent with the components and factors set forth herein. The revised tariffs should be electronically filed in a text searchable PDF format using the Commission's DMS System (https://dms.psc.sc.gov/). An additional copy should be sent via e-mail to etariff@psc.sc.gov to be included in the Commission's ETariff system (https://etariff.psc.sc.gov). SCE&G shall provide a reconciliation of each tariff rate change approved as a result of this order to each tariff rate revision filed in the ETariff system. Such reconciliation shall include an explanation of any differences and be submitted separately from the Company's ETariff filing. Each tariff sheet shall contain a reference to this Order and its effective date at the bottom of each page.

15. SCE&G shall comply with the notice requirements set forth in S.C. Code Ann. § 58-27-865(B) (2015).

16. SCE&G shall continue to file the monthly reports as previously required.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 52 of 63

17. SCE&G shall account monthly to the Commission and ORS for the differences between the recovery of fuel costs through base rates and the actual fuel costs experienced by booking the difference to unbilled revenues with a corresponding deferred debit or credit. ORS shall monitor the cumulative recovery amount.

18. SCE&G shall submit monthly reports of fuel costs and scheduled and unscheduled outages of generating units with a capacity of 100 megawatts or greater to the Commission and ORS.

19. This Order shall remain in full force and effect until further Order of the Commission.

BY ORDER OF THE COMMISSION:

Swain E. Whitfield, Chairman

ATTEST:

Comer H. Randall, Vice Chairman

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 53 of 63

Commissioner Fleming, Dissenting

While I agree with the uncontested matters of the fuel docket, with all due respect and appreciation for my fellow commissioners, I am unable to support this Order for the SCE&G fuel case and respectfully dissent regarding the PR1 and PR2 rates.

I would like to reiterate the positions made by ORS in their closing arguments that I found troubling.

- There was not enough time for the parties to engage in discovery in this docket and SCE&G either did not respond to discovery requests, responded late, or only responded partially. In my opinion, the condensed time period of this docket and these allegations of how SCE&G conducted discovery did not allow the other parties enough time to properly litigate this matter.

Based on the evidence of record, I concur with ORS and find that:

- SCE&G failed to establish its avoided capacity costs using the methodology approved by the Commission in Order No. 2016-297;
- The PR-1 Rate is not reasonable regarding avoided capacity costs;
- The PR-2 Rate is not reasonable regarding avoided capacity costs.
- There are errors in SCE&G's Reserve Margin calculations, as outlined in ORS Witness Horii's Direct and Surrebuttal Testimonies.

Other aspects that I disagree with include setting the winter reserve margin at 21%, which seems excessive, and whether SCE&G is in fact a winter peaking utility, which seems inconsistent with their historic load profile. Further, I feel that gains in energy efficiency and demand side management can play an important role in this regard.

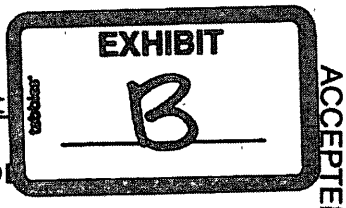
I found that ORS's arguments in this docket to be persuasive. As such, I believe the Commission should reject SCE&G's position that avoided capacity cost should be set at $0.00 and find that SCE&G should maintain the previously set 2017 avoided capacity cost.

Last, I am concerned that the $0.00 avoided capacity cost could prove to be disruptive to the dynamic solar development that has occurred in S.C. since the passage of Act 236. Therefore, I am not supporting this Order.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 54 of 63

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 55 of 63

ACCEPTED FOR PROCESSING - 2018 May 23 6:04 PM - SCPSC - 2018-2-E - Page 1 of 3



Act

PUBLIC SERVICE COMMISSION OF SOUTH CAROL
COMMISSION DIRECTIVE

ADMINISTRATIVE MATTER	☐	DATE	**May 23, 2018**
MOTOR CARRIER MATTER	☐	DOCKET NO.	**2018-2-E**
UTILITIES MATTER	☑	ORDER NO.	

SUBJECT:

DOCKET NO. 2018-2-E - Annual Review of Base Rates for Fuel Costs for South Carolina Electric & Gas Company - Staff Presents for Commission Consideration the Petition for Rehearing and/or Reconsideration Filed on Behalf of the South Carolina Solar Business Alliance, Incorporated.

COMMISSION ACTION:

Mr. Chairman, we've received four Petitions - one from each party of record other than the company to reconsider or rehear our Order No. 2018-322(A) in Docket No. 2018-2-E. The parties raise numerous issues which they ask the Commission to reconsider or rehear and to reach different findings and conclusions. In my view, our Order was comprehensive, supported by the evidence of record, and consistent with the statutes which govern fuel proceedings. I would like to address all the concerns raised by the Petitions in my single motion, since many of the concerns raised are similar or identical.

First, as to the principal concern raised by the South Carolina Energy Users Committee, I move that we clarify now that it was our intention that, having received no objection and with mutual agreement, to order SCE&G to, upon written request by any party of record, provide to that party (1) copies of the monthly fuel recovery reports currently filed with the Commission and ORS and (2) quarterly forecasts beginning with the quarter ending June 30, 2018, of the expected fuel factors to be set at SCE&G's next annual fuel proceeding and SCE&G's historical over/under-collected balance to date. In previous fuel proceedings, SCE&G and the other parties then parties to settlement agreements would mutually consent that SCE&G would put forth reasonable efforts to forecast its expected fuel factors to be set at the next annual fuel proceeding and that these quarterly good-faith forecasts would not be admitted into evidence in any future SCE&G proceeding. I understand that the parties wish to be similarly bound by all aspects of those legacy agreements and so, Mr. Chairman, I move we impose the duties and limitations historically included in the parties' settlements in previous fuel proceedings into our decision and order in this docket. In effect, Mr. Chairman, I move that we grant the Energy Users' Petition and, to the extent that other parties have sought the same relief in their respective Petitions, that relief should be granted.

Mr. Chairman, several of the Petitions have raised the issue that our Order improperly shifted the burden of proof from SCE&G to the Intervenors or ORS. That contention is a mischaracterization of our Order. We did not shift the burden from SCE&G to the other parties, and the burden of proof always resides, as it must, with SCE&G. However, the other parties do have a burden of persuasion that their proposed alternatives are reasonable and viable if they seek adoption of those alternatives, as they did here. In fact, the Petitioners assert that they presented alternatives to SCE&G's proposed avoided capacity cost factor, but

none of those parties offered probative evidence of a computed factor as opposed to a mere concept for deriving a factor, as ORS Witness Horii proposed for our consideration. None of the proposals of those parties represent fully viable alternatives. Consequently, the parties failed to meet their burden of persuasion to prove to this Commission the reasonableness and viability of any alternatives to SCE&G's proposal.

Several of the parties assert that SCE&G's responses to their discovery requests were insufficient to allow them to prepare evidence by which they might have proposed alternatives to SCE&G's proposed avoided-cost factor. For example, the ORS complains that, "SCE&G failed to cooperate by providing complete and reliable data in a timely manner and, therefore, had the ability to dictate the extent to which other parties could present their cases." Various discovery devices are available to enable a party to gather information to prepare and present evidence in our proceedings. If there were a discovery dispute, the proper mechanism to require a party to provide properly discoverable information is a motion to compel. No party moved to compel discovery in this proceeding. Moreover, this Commission understood that all discovery issues were actually resolved prior to the hearing. For example, by its March 7th filing, the Solar Business Alliance stated that, as a result of the PR-1 and PR-2 and avoided-cost issues being considered as a part of the fuel case, it needed an additional 90 days to prepare its case, or, in the alternative, it requested that the case be continued until the parties had, "ample time to complete discovery requests and report back to the Commission." SBA considered that the issues were too complicated for adequate preparation in the existing timeframe.

In resolution of the Petitioners' shared concerns about adequacy of time for discovery, the parties advised the Commission of an agreement among the parties subsequently approved by the Commission by Directive Order No. 2018-178, issued March 14, 2018 that the company and the parties had resolved their differences as to the procedural schedule in this case. Specifically, they informed the Commission that these issues had been resolved through a commitment from SCE&G to provide discovery responses prior to their due date and to agree to extensions of SBA's prefiled testimony deadlines. Therefore, this Commission issued an order on March 14th approving the parties' settlement resolving SBA's initial request for a 90-day delay.

The parties availed themselves of the concession by SCE&G with the filing of their direct and surrebuttal testimony. Having received the benefit of accelerated discovery production and additional time to file testimony, and this Commission's approval of such a settlement, the parties' position describing a lack of cooperation and time for preparation seems inconsistent with the prehearing representations.

There is a contention by the Solar Business Alliance that using the approved factor from the most recent fuel case should enjoy a presumption of reasonableness and could be adopted as an alternative to SCE&G's proposal. Unlike a mere concept, a previously approved factor has already been litigated. In this case, those Petitioners would have us extract a single element out of a historical fuel factor and ignore the effects of the passage of time and all attendant changing circumstances. Pursuant to South Carolina Code Section 58-27-865(B), the fuel statute's recognition of changing environments and the appropriate and commensurate regulatory response compels us to revisit, reset, and redefine the fuel factors during these annual proceedings. The use of a previously approved factor might be appropriate in the circumstance in which no party had satisfactorily proven its case. That is not the circumstance here.

In Order No. 2018-322(A), this Commission made specific individual findings as to each element of SCE&G's proposed rates and we implicitly or explicitly found the underlying methodology for deriving them to be reasonable. Regarding this subject, SCE&G, upon whom the burden of proof resides, has met its burden.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 56 of 63
ACCEPTED FOR PROCESSING - 2018 May 23 6:04 PM - SCPSC - 2018-2-E - Page 2 of 3

The Solar Business Alliance would have us use post-hearing compliance filings to fill in evidentiary gaps after the hearing. While such a filing may be used to address a recalculation of narrow and specific adjustments to a proposed rate, it is inappropriate and improper for a party to attempt to use post-hearing compliance filings as a method to force an adverse party to generate the moving party's own proposals. Even if that were done, the proposal of such a factor would be effectively unavailable for cross-examination by the parties or exploration by this Commission.

I would note, finally, that nothing in this motion or in our Order No. 2018-322(A) would preclude any party to this proceeding from preparing and presenting evidence of alternatives to any proposal or concerning any issue in future fuel proceedings.

For these reasons, Mr. Chairman, I move that we grant reconsideration to the South Carolina Energy Users' Petition, which would also include granting reconsideration to the other Petitioners to the extent that they sought the same relief regarding the quarterly and monthly reports. Mr. Chairman, I move that we deny reconsideration and/or rehearing on all other matters brought before us and all other petitions for reconsideration and/or rehearing.

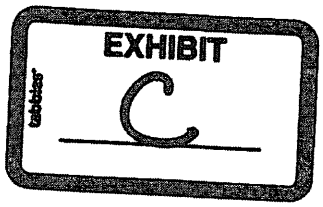
PRESIDING: Whitfield SESSION: Regular TIME: 2:00 p.m.

	MOTION	YES	NO	OTHER
BOCKMAN	☑	☑	☐	
ELAM	☐	☑	☐	
FLEMING	☐	☐	☑	
HAMILTON	☐	☑	☐	
HOWARD	☐	☑	☐	
RANDALL	☐	☑	☐	
WHITFIELD	☐	☑	☐	

(SEAL)

RECORDED BY: J. Schmieding

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 57 of 63
ACCEPTED FOR PROCESSING - 2018 May 23 6:04 PM - SCPSC - 2018-2-E - Page 3 of 3



ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 58 of 63

BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2018-2-E - ORDER NO. 2018-708

OCTOBER 30, 2018

IN RE:	Annual Review of Base Rates for Fuel Costs for South Carolina Electric & Gas Company	) ORDER DENYING) REHEARING OR) RECONSIDERATION

This matter comes before the Public Service Commission of South Carolina ("Commission") upon the Petitions for Rehearing or Reconsideration ("Petition") pursuant to S.C. Code § 58-27-2150 and 10 S.C. Code Ann. Regs. 103-825. Four parties, including the Office of Regulatory Staff ("ORS"), the South Carolina Coastal Conservation League, ("SCCCL"), the South Carolina Energy Users Committee ("Energy Users"), and the South Carolina Solar Business Alliance ("SBA"), have filed petitions requesting that the Commission rehear or reconsider its findings and conclusions in Order No. 2018-322(A) ("Order") in Docket No. 2018-2-E. South Carolina Electric & Gas Company ("SCE&G") did not file a petition.

The parties raise numerous issues which they ask the Commission to reconsider or rehear and to reach different findings and conclusions. The Order was comprehensive, supported by the evidence of record, and consistent with the statutes which govern fuel proceedings. All the concerns raised by the petitions are properly handled in a single Commission order, since many of the concerns raised are similar or identical.

First, as to the principal concern raised by the South Carolina Energy Users Committee, we clarify now that it was the Commission's intention, having received no objection and with mutual agreement, to order SCE&G to, upon written request by any party of record, provide to that party (1) copies of the monthly fuel recovery reports currently filed with the Commission and ORS and (2) quarterly forecasts beginning with the quarter ending June 30, 2018, of the expected fuel factors to be set at SCE&G's next annual fuel proceeding and SCE&G's historical over/under-collected balance to date.

In previous fuel proceedings, SCE&G and the other parties - then parties to settlement agreements - would mutually consent that SCE&G would put forth reasonable efforts to forecast its expected fuel factors to be set at the next annual fuel proceeding and that these quarterly good-faith forecasts would not be admitted into evidence in any future SCE&G proceeding. In this proceeding the parties wish to be similarly bound by all aspects of those legacy agreements and so we impose the duties and limitations historically included in the parties' settlements in previous fuel proceedings into our decision and Order in this Docket. In effect, we grant the Energy Users' Petition and, to the extent that other parties have sought the same relief in their respective petitions, that relief is also granted.

Several of the petitions have raised the issue that our Order improperly shifted the burden of proof from SCE&G to the Intervenors or ORS. That contention is a mischaracterization of Order No. 2018-322(A). The Commission did not shift the burden from SCE&G to the other parties, and the burden of proof always resides, as it must, with SCE&G. However, the other parties do have a burden of persuasion that their proposed

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 59 of 63

alternatives are reasonable and viable if they seek adoption of those alternatives, as they did in this proceeding.

The Petitioners assert that they presented alternatives to SCE&G's proposed avoided capacity cost factor, but none of those parties offered probative evidence of a computed factor as opposed to a mere concept for deriving a factor, such as ORS Witness Horii proposed for Commission consideration. None of the proposals of those parties represent fully viable alternatives. Consequently, the parties failed to meet their burden of persuasion to prove to this Commission the reasonableness and viability of any alternatives to SCE&G's proposal.

Several of the parties assert that SCE&G's responses to their discovery requests were insufficient to allow them to prepare evidence by which they might have proposed alternatives to SCE&G's proposed avoided-cost factor. For example, the ORS complains that, "SCE&G failed to cooperate by providing complete and reliable data in a timely manner and, therefore, had the ability to dictate the extent to which other parties could present their cases."[1] Various discovery devices are available to enable a party to gather information to prepare and present evidence in our proceedings. If there were a discovery dispute, the proper mechanism to require a party to provide properly discoverable information is a motion to compel. No party moved to compel discovery in this proceeding.

Moreover, this Commission understood that all discovery issues were actually resolved prior to the hearing. For example, by its March 7th filing, the South Carolina Solar Business Alliance stated that, as a result of avoided cost issues being considered as a

[1] ORS Petition at pg. 6

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 60 of 63

part of the fuel case, it needed an additional 90 days to prepare its case, or, in the alternative, it requested that the case be continued until the parties had "ample time to complete discovery requests and report back to the Commission." SBA argued that the issues were too complicated for adequate preparation in the existing timeframe. However, in resolution of the Petitioners' shared concerns about adequacy of time for discovery, the parties later advised the Commission of an agreement among the parties, subsequently approved by the Commission by Directive Order No. 2018-178, that the company and the parties had resolved their differences. Specifically, they informed the Commission that these issues had been resolved through a commitment from SCE&G to provide discovery responses prior to their due date and to agree to extensions of SBA's prefiled testimony deadlines. Therefore, this Commission issued an Order on March 14th approving the parties' settlement resolving SBA's initial request for a 90-day delay. The parties availed themselves of the concession by SCE&G with the filing of their direct and surrebuttal testimony. Having received the benefit of accelerated discovery production and additional time to file testimony, and this Commission's approval of such a settlement, the parties' position describing a lack of cooperation and time for preparation seems inconsistent with the prehearing representations and agreements.

There is a contention by the South Carolina Solar Business Alliance that using the approved avoided capacity factor from the most recent fuel case should enjoy a presumption of reasonableness and could be adopted as an alternative to SCE&G's proposal. In this case, those Petitioners would have the Commission extract a single element (the avoided capacity factor) out of a historical fuel factor and ignore the effects

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 61 of 63

of the passage of time and all attendant changing circumstances. Pursuant to South Carolina Code Section 58-27-865(B), the fuel statute's recognition of changing environments and the appropriate and commensurate regulatory response compels us to revisit, reset, and redefine the fuel factors during these annual proceedings.

The use of a previously approved factor might be appropriate in the circumstance in which no party had satisfactorily proven its case. That is not the circumstance here. In Order No. 2018-322(A), this Commission made specific individual findings as to each element of SCE&G's proposed rates and we implicitly or explicitly found the underlying methodology for deriving them to be reasonable. Regarding this subject, SCE&G, upon whom the burden of proof resides, has met its burden.

The SBA would have the Commission use post-hearing compliance filings to fill in evidentiary gaps after the hearing. While such a filing may be used to address a recalculation of narrow and specific adjustments to a proposed rate, it is inappropriate and improper for a party to attempt to use post-hearing compliance filings as a method to force an adverse party to generate the moving party's own proposals. Even if that were done, the proposal of such a factor would be effectively unavailable for cross-examination by the parties or exploration by this Commission.

Of course, nothing in this Order or in Order No. 2018-322(A) would preclude any party in future fuel proceedings from preparing and presenting evidence of alternatives to any proposal or concerning any presented issue.

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 62 of 63

IT IS THEREFORE ORDERED:

1. SCE&G shall, upon written request by any party of record, provide to that party (1) copies of the monthly fuel recovery reports currently filed with the Commission and ORS and (2) quarterly forecasts beginning with the quarter ending June 30, 2018, of the expected fuel factors to be set at SCE&G's next annual fuel proceeding and SCE&G's historical over/under-collected balance to date. SCE&G shall put forth reasonable efforts to forecast its expected fuel factors to be set at the next annual fuel proceeding, and these quarterly good-faith forecasts shall not be admitted into evidence in any future SCE&G proceeding.

2. All other relief requested in the Petitions for Rehearing or Reconsideration are denied.

Comer H. "Randy" Randall, Chairman

ATTEST:

Jocelyn Boyd, Chief Clerk/Administrator

ELECTRONICALLY FILED - 2018 November 29 2:19 PM - SCPSC - Docket # 2018-2-E - Page 63 of 63

BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

COLUMBIA, SOUTH CAROLINA

HEARING #18-11716 APRIL 10, 2017 10:35 A.M.

DOCKET NO. 2018-2-E:
SOUTH CAROLINA ELECTRIC & GAS COMPANY – *Annual Review of Base Rates for Fuel Costs*

TRANSCRIPT OF TESTIMONY AND PROCEEDINGS *VOLUME 1 OF 2*

COMMISSION MEMBERS PRESENT: Swain E. WHITFIELD, CHAIRMAN; Comer H. 'Randy' RANDALL, VICE CHAIRMAN; and COMMISSIONERS John E. 'Butch' HOWARD, Elliott F. ELAM, Jr., Elizabeth B. 'Lib' FLEMING, Robert T. 'Bob' BOCKMAN, and G. O'Neal HAMILTON

ADVISOR TO COMMISSION: F. David Butler, Esq.
Senior Counsel

STAFF: Jocelyn G. Boyd, Chief Clerk/Administrator; Joseph Melchers, General Counsel; F. David Butler, Esq., Senior Counsel; James Spearman, Ph.D., Executive Assistant to Commissioners; Douglas K. Pratt, Thomas Ellison, and John Powers, Technical Advisory Staff; Jo Elizabeth M. Wheat, CVR-CM/M-GNSC, Court Reporter; and Hope Adams and Calvin Woods, Hearing Room Assistants

APPEARANCES:

K. CHAD BURGESS, ESQUIRE, MATTHEW W. GISSENDANNER, ESQUIRE, and BENJAMIN P. MUSTIAN, ESQUIRE, representing SOUTH CAROLINA ELECTRIC & GAS COMPANY, **PETITIONER**

APPEARANCES (Cont'g):

SCOTT ELLIOTT, ESQUIRE, representing SOUTH CAROLINA ENERGY USERS COMMITTEE, **INTERVENOR**

RICHARD L. WHITT, ESQUIRE, and ***BENJAMIN L. SNOWDEN, ESQUIRE,*** representing SOUTH CAROLINA SOLAR BUSINESS ALLIANCE, **INTERVENOR**

RICHARD L. WHITT, ESQUIRE, representing SOUTHERN CURRENT, **INTERVENOR**

KATIE C. OTTENWELLER, ESQUIRE, representing SOUTH CAROLINA COASTAL CONSERVATION LEAGUE and SOUTHERN ALLIANCE FOR CLEAN ENERGY, **INTERVENORS**

ANDREW M. BATEMAN, ESQUIRE, and ***JENNY R. PITTMAN, ESQUIRE,*** representing the **SOUTH CAROLINA OFFICE OF REGULATORY STAFF**

I N D E X

	PAGE Excerpt	Final
OPENING/PRELIMINARY MATTERS		6-21
Motion (Bockman) / Discussion / Vote		9-17
Mr. Bateman		17
Ms. Ottenweller		19
PANEL TESTIMONY OF GEORGE A. LIPPARD, III and HENRY E. DELK, JR.		
Direct Examination by Mr. Burgess		
George A. Lippard, III		22
Summary of prefiled direct testimony		23
Prefiled direct testimony		27-35
Henry E. Delk, Jr.		36
Hearing Exhibit 1 marked/received [Prefiled Exh. HED-1]		37
Summary of prefiled direct testimony		38
Prefiled direct testimony		40-50
Examination by Commissioner Howard		51
Examination by Commissioner Hamilton		53
Examination by Vice Chairman Randall		55
Examination by Commissioner Fleming		57
Examination by Chairman Whitfield		63
Witnesses stood aside		68
Witness Lippard excused	E-191	461
Witness Delk excused		901
PANEL TESTIMONY OF MICHAEL D. SHINN and J. DARRIN KAHL		
Direct Examination by Mr. Gissendanner		
Michael D. Shinn		68
Hearing Exhibit 2 marked/received [Prefiled Exh. MDS-1]		70
Summary of prefiled direct testimony		70
Prefiled direct testimony		74-95
J. Darrin Kahl		96
Hearing Exhibit 3 marked/received [Prefiled Exh. JDK-1]		97
Summary of prefiled direct testimony		98
Prefiled direct testimony		101-108

	PAGE Excerpt	Final
Cross Examination by Mr. Elliott		109
Examination by Commissioner Elam		121
Examination by Commissioner Bockman		126
Examination by Commissioner Fleming		129
Examination by Commissioner Howard		131
Examination by Chairman Whitfield		133
Witnesses stood aside		135
Witnesses excused		901
PANEL TESTIMONY OF ALLEN W. ROOKS, JOHN H. RAFTERY, and JOSEPH M. LYNCH, Ph.D.		
Direct Examination by Mr. Mustian		
Allen W. Rooks		139
Hearing Exhibit 4 marked/received		
[Prefiled Exhs. AWR-1 ~ -17]		141
Summary of prefiled direct testimony		141
Prefiled direct testimony		145-161
Summary of prefiled rebuttal testimony		163
Prefiled rebuttal testimony		165-167
John H. Raftery		168
Summary of prefiled direct testimony		169
Prefiled direct testimony		173-187
Joseph M. Lynch, Ph.D.		188
Hearing Exhibit 5 marked/received		
[Prefiled (Direct) Exhs. JML-1 ~ -4]		190
Summary of prefiled direct testimony		191
Prefiled direct testimony {w/corns)		195-226
Hearing Exhibit 6 marked/received		
[Prefiled (Rebuttal) Exhs. JML-5 ~ -7]		228
Summary of prefiled rebuttal testimony		228
Prefiled rebuttal testimony		230-272
Cross Examination by Mr. Snowden	E-4	274
Hearing Exhibit 7 marked/received		
[2017-2-E Lynch prefiled rebuttal testimony]	E-61	331
Cross Examination by Mr. Elliott	E-97	367
Witnesses stand aside	E-104	374

	PAGE Excerpt	Final
TESTIMONY OF DEVI C. GLICK		
Direct Examination by Ms. Ottenweller	E-105	375
Hearing Exhibit 8 marked/received [Prefiled (Direct) Exhs. DCG-1 ~ -2 and prefiled (Surrebuttal) Exhs DCG-3 ~ -4]	E-108	378
Prefiled unredacted direct testimony {w/corrn's}	E-109-142	379-412
Prefiled surrebuttal testimony	E-144-159	414-429
Examination by Commissioner Elam	E-160	430
Examination by Commissioner Fleming	E-165	435
Examination by Commissioner Bockman	E-169	439
Examination by Vice Chairman Randall	E-172	441
Examination by Chairman Whitfield	E-173	443
Witnesses excused	E-175	445
Witnesses excused		901
CONTINUING PANEL TESTIMONY OF ALLEN W. ROOKS, JOHN H. RAFTERY, and JOSEPH M. LYNCH, Ph.D.		
Cross Examination by Ms. Ottenweller	E-176	446
Hearing Exhibit 9 marked/received [SCE&G 2018 Integrated Resource Plan]	E-185	455
Witnesses stand aside	E-190	460
Witnesses excused		901
REPORTER'S CERTIFICATE	E-192	462

P R O C E E D I N G S

CHAIRMAN WHITFIELD: Please be seated. I'll call this hearing to order and welcome everyone, and ask our attorney, Mr. Stark, to read the docket.

MR. STARK: Thank you, Mr. Chairman.

Mr. Chairman and other Commissioners, this proceeding before the Public Service Commission of South Carolina in Docket No. 2018-2-E concerns the annual review of base rates for fuel costs, for South Carolina Electric & Gas Company.

This matter has been scheduled for a hearing on April 10, 2018, in the Commission's hearing room at 101 Executive Center Drive, Columbia, South Carolina 29210.

Mr. Chairman, the Docket is in order.

CHAIRMAN WHITFIELD: Thank you, Mr. Stark.

At this time, I will now take appearances from all the parties.

MR. BURGESS: Good morning, Mr. Chairman, Mr. Vice Chairman, members of the Commission. My name is Chad Burgess, and with me today is Matthew Gissendanner. He and I are corporate counsel for SCE&G, and also with us is Benjamin Mustian of the law firm of Willoughby & Hoefer. Mr. Mustian is

the company's outside legal counsel.

It's a pleasure to appear before you today, and we appreciate this opportunity to present the company's case.

CHAIRMAN WHITFIELD: Thank you. Mr. Burgess, Mr. Gissendanner, Mr. Mustian, welcome.

MR. WHITT: Mr. Chairman and other Commissioners, I'm Richard Whitt from Austin & Rogers, and with me is Ben Snowden, who was admitted *pro hac vice* outside counsel. And Tim Rogers is also counsel of record for the South Carolina Solar Business Alliance. We spoke with Attorney Stark, who I believe spoke with you, Mr. Chairman. Mr. Rogers has conflicts with the same client, so he will not appear today.

CHAIRMAN WHITFIELD: Yes, sir, Mr. Whitt. I've been made aware of that, and Mr. Rogers is excused. And welcome, Mr. Whitt and Mr. Snowden. Welcome.

MR. WHITT: Thank you.

MR. ELLIOTT: Mr. Chairman, I'm Scott Elliott. I represent South Carolina Energy Users Committee in this Docket.

CHAIRMAN WHITFIELD: Welcome, Mr. Elliott.

MR. ELLIOTT: And I'll remain standing, if I

may, to introduce Ms. Ottenweller.

CHAIRMAN WHITFIELD: Please.

MS. OTTENWELLER: Good morning. My name is Katie Ottenweller. I'm with the Southern Environmental Law Center, and we represent the Coastal Conservation League and the Southern Alliance for Clean Energy.

CHAIRMAN WHITFIELD: Nice to have you with us.

MR. ELLIOTT: Ms. Ottenweller, I think, has been admitted. She's a Columbia Law graduate. She's licensed to practice in the States of Georgia and Pennsylvania, and has worked with Mr. Holman for a number of years, and Mr. Holman recommends her highly and as do I. I move her admission.

CHAIRMAN WHITFIELD: Well, thank you. I don't see Mr. Holman, so thank you for doing so, Mr. Elliott.

MS. OTTENWELLER: Thank you.

CHAIRMAN WHITFIELD: Thank you, and welcome. ORS.

MR. BATEMAN: Good morning, Mr. Chairman. Representing ORS is myself, Andrew Bateman, and along with –

MS. PITTMAN: Jenny Pittman.

MR. BATEMAN: – Jenny Pittman.

CHAIRMAN WHITFIELD: Thank you, Mr. Bateman and Ms. Pittman.

I believe that all of our parties have been recognized. I think our attorney, Mr. Stark, will clarify one that's been excused.

MR. STARK: That's correct, Mr. Chairman. CMC Steel has asked for permission to be excused and has been excused.

CHAIRMAN WHITFIELD: So ordered.

Any preliminary matters at this time?

Mr. Bateman, I recognize you, but we're going to take up a matter first, and then I'll come back to you under preliminary matters, still.

I understand from our attorney that there's an outstanding Motion for Rehearing and/or Reconsideration in regards to bifurcation in this proceeding. At this time, I'll entertain a motion on that.

COMMISSIONER BOCKMAN: Mr. Chairman, I do –

CHAIRMAN WHITFIELD: Commissioner Bockman.

COMMISSIONER BOCKMAN: – have a motion with respect to that matter I'd like to offer, please.

CHAIRMAN WHITFIELD: Yes, sir, Commissioner Bockman.

COMMISSIONER BOCKMAN: Thank you, Mr.

Chairman.

On April 6th, we received a Petition for Rehearing and/or Reconsideration from the South Carolina Solar Business Alliance – SBA, to which I'll refer – in regard to a Motion to Bifurcate, which we initially denied on April 4th. That original Motion to Bifurcate was based on SBA's argument that it needed more time to evaluate – excuse me, Mr. Chairman – to evaluate what it characterized as SCE&G's change in avoided cost methodology. SCE&G has responded to the SBA's motion with several arguments, including the position that it is, in fact, not seeking to change the methodology.

SBA argues that our April 4th denial of the Motion to Bifurcate contains several errors, but I believe that the Motion for Reconsideration, itself, is based upon some slight or subtle misapprehensions of the ruling. For instance, SBA appears to read our Order No. 2018-55, the Commission's ruling on SCE&G's PR-2 waiver request in Docket No. 2017-2-E as granting some special dispensation to the utility to address issues outside of the normal ones traditionally considered in electric utility fuel cases. That's not the

situation here. SBA's bifurcation motion characterized the nature of the December 2017 SCE&G waiver motion as Commission ruling thusly. Now, I'm quoting here from the Motion for Rehearing or Reconsideration: "SCE&G filed a request for a waiver of this Commission's requirement that (i) SCE&G update its PR-2 rate schedule in December 2017, (ii) SCE&G also indicated that SCE&G would change its avoided cost methodology, and (iii) SCE&G also requested that both of these issues be incorporated into SCE&G's annual fuel case docket. This Commission issued its Directive Order allowing the relief sought in SCE&G's waiver request. The Commission's decision allowed SCE&G to combine the two important issues listed above, along with the issues in a regular fuel case here," and that concludes my quote from the SBA's motion.

In contrast to SBA's characterization that the Order somehow allowed consideration of issues outside of the normal ones of the fuel case, the Commission's actual ruling stated, and here I quote from the Commission's ruling, "We have this request from SCE&G to waive updating its PR-2 rate for the second time this year." And the following sentence, I would emphasize: "Current uncertainties

with SCE&G make it appropriate to address this in the context of the fuel case in April. Since its last update, the company has added or contracted to add additional solar facilities to its resource plan, announced the abandonment of two units at V.C. Summer, and announced its intent to purchase the Columbia Energy Center. As a result, the company is still evaluating its resource plan, going forward, and it does not believe it would be prudent to update its PR-2 rate, given the uncertainty driven by the events just listed. The company indicates that it is planning to implement changes to certain aspects of its avoided cost calculation. For example, the company intends to use an intermittent, non-dispatchable source of capacity to perform its difference-in-revenue-requirements analysis," and I emphasize the following clause, "which seems more appropriate considered in the annual fuel proceeding." That concludes my quote from the Commission's Order.

Consistent with that ruling, I believe that this fuel case is an entirely appropriate context for such determinations and is consistent with the normal course of such cases.

SBA then argues that, quote, "This Commission

is not required" – I emphasize that – "to consider a change in avoided cost methodology in SCE&G's fuel case," unquote. And that is in SBA's Motion for Reconsideration at paragraph six. So, at best, SBA's argument is that it is within the Commission's discretion as to whether such changes should be considered in the context of the fuel case. If so, then in exercising such discretion, I move that we hold this proceeding to be the current and appropriate venue for such determinations. Further, SBA seeks to clarify that it is actually – I'm sorry – that it actually received notice that SCE&G was requesting to change its avoided cost methodology on December 22, 2017, rather than December 17, 2017, as we originally stated. However, this is a minor error and without prejudice to any party.

Lastly, SBA takes issue with the language of this Commission's original ruling on the bifurcation issue when the Order states that SBA, quote, was "barred," unquote, from seeking the same relief which was previously rejected. I move that we explain our intent more precisely in this motion.

On March 7th, SBA filed a motion stating that,

as a result of the PR-2 and avoided cost issues we were to consider as part of the fuel case, it needed an additional 90 days to prepare its case, or, in the alternative, that the case be held in abeyance until the parties had, quote, "ample time to complete discovery requests and report back to the Commission," unquote. As here, in their bifurcation motion, SBA opined that the issues were too complicated for adequate preparation in the existing timeframe. However, on March 12th, the Commission was informed that these issues had been resolved through a commitment from SCE&G to provide discovery prior to its due date and to agree to extensions of SBA's prefiled testimony deadlines. Therefore, this Commission issued an order on March 14th, approving the parties' settlement of SBA's initial request for a 90-day delay. The SBA availed itself of the concession by SCE&G with its filing of both its direct and surrebuttal testimony on the dates of March 23rd and April 4th, respectively. It would seem that, having received the benefit of accelerated discovery production and additional time to file testimony, that this Commission's approval of such a settlement – I'm sorry – and this Commission's approval of such a

settlement, the SBA should have resolved its reservations as to the procedure of schedule and should not be entitled to raise it again in another manner. It is in that sense that I believe the issue is foreclosed from being raised again.

In summary, Mr. Chairman, because I continue to believe that a fuel case is an entirely appropriate context for determinations of this issue, I move that we deny the motion, and I so move.

CHAIRMAN WHITFIELD: Thank you, Commissioner Bockman. At this time, I'm going to ask that the Commission vote on this as a group at this time. You've heard Commissioner Bockman's motion. Are there any questions or comments or any discussion related to Commissioner Bockman's motion?

COMMISSIONER ELAM: Yes, Mr. Chairman.

CHAIRMAN WHITFIELD: Commissioner Elam.

COMMISSIONER ELAM: Commissioner Bockman, just because SCE&G hasn't or isn't going to put the 2017 rate calculation in the record doesn't mean that SBA or other parties can't put it into the record themselves; is that right?

COMMISSIONER BOCKMAN: That's correct, Commissioner Elam. Yes.

COMMISSIONER ELAM: And I understand that they have received those calculations from SCE&G in response to discovery. Is that correct?

COMMISSIONER BOCKMAN: That's my understanding, as well, yes.

COMMISSIONER ELAM: And, certainly, they are free to put discovery responses in the record and question witnesses about it, themselves, correct?

COMMISSIONER BOCKMAN: That would be correct, too, yes.

COMMISSIONER ELAM: Thank you.

CHAIRMAN WHITFIELD: Thank you, Commissioner Elam.

You've heard Commissioner Elam's questions and comments regarding Commissioner Bockman's motion. Commissioners, any other questions regarding Commissioner Bockman's motion?

[No response]

Well, hearing none, I'm going to call for the question. You've heard Commissioner Bockman's motion. All those in favor of Commissioner Bockman's motion, at this time, please say "aye."

COMMISSIONERS: Aye.

CHAIRMAN WHITFIELD: Any opposed?

[No response]

Motion carries.

We'll now move on to other preliminary matters. Mr. Bateman, I think you had risen?

MR. BATEMAN: Good morning, Mr. Chairman, and members of the Commission. I have a brief opening, if now is the appropriate time to go through with that?

CHAIRMAN WHITFIELD: I think so.

MR. BATEMAN: Okay, thank you. As the Commission knows, ORS will present four witnesses this morning: Ms. Gaby Smith, of the ORS Audit Department; Mr. Michael Seaman-Huynh and Ms. Sarah Johnson of the ORS Utility Rates and Services Division; and Mr. Brian Horii, senior partner with E3. We appreciate the Commission's consent to present these four witnesses in two panels. Thank you.

And if it pleases the Commission, I'd like to go a bit further; however, I'd like to reserve ORS's ability to give closing, if that is okay with the Commission.

CHAIRMAN WHITFIELD: You may, and you can have a closing statement, as well, Mr. Bateman. I don't see anybody raising any objections, so you continue on.

MR. BATEMAN: Thank you, Mr. Chairman.

Additionally, ORS recommends that the Commission approve the company's current base fuel component remain in effect for the forecast period, and the company's proposed environmental and avoided capacity components and DERP avoided cost components for the forecast period. If approved by the Commission, the rates proposed would increase the average monthly bill for a residential customer on Rate 8, using 1000 kilowatt-hours, by approximately 72 cents.

This concludes ORS's brief opening. Thank you, so much.

CHAIRMAN WHITFIELD: Thank you, Mr. Bateman.

Do any of the other parties have any preliminary matters that need to be brought up at this time? If not, I'm going to turn to the company to present its case. Yes, Ms. Ottenweller.

MS. OTTENWELLER: Mr. Chairman, I'd ask to make an opening statement, too.

CHAIRMAN WHITFIELD: Please, come forward.

MS. OTTENWELLER: I'd like to make a brief introductory statement to provide some context for this –

CHAIRMAN WHITFIELD: Could you get just a

little closer to that mic, Ms. Ottenweller?

MS. OTTENWELLER: [Indicating.] I would like to make a brief introductory statement to provide some context for this proceeding, which is no longer limited to a standard fuel cost recovery docket. Over the past few years, this docket has expanded to include a calculation of avoided cost payments under PURPA and evaluation of the company's solar value updates.

The testimony CCL and SACE have submitted goes to whether SCE&G is fully compensating solar facilities and letting solar fairly compete against SCE&G-owned resources. If solar power is assigned an arbitrarily low value, much less solar generation will emerge to compete in SCE&G's territory. That might be acceptable for shareholders who would benefit from new generation assets, but for customers the result is bad, because it blocks the use of a cost-competitive resource that drives down costs. This is why accurate and full pricing of solar power is essential.

Solar is still a very small part of South Carolina's energy mix, but the State has tremendous solar potential. Yet, this year, the company

proposes a dramatic shift in how it compensates solar QFs: the completed elimination of capacity payments. Every other party that submitted testimony in this docket strongly objects to this change as unsound, unfounded, and counterfactual. We urge the Commission to reject the company's clear attempt to undermine independent solar providers' abilities to compete with the company's plans for future generations.

For rooftop solar net metering, this Commission approved a settlement that laid out ten different components for the value of solar, ranging from energy to capacity to environmental costs. SCE&G continues to slow-walk filling out this methodology, using zero values for many categories. This, too, means SCE&G is undervaluing solar resources which, in turn, means it overrecovers purported costs associated with solar programs from its customers. At base, the company's making customers pay more than they should for solar.

This Commission should see the company's proposals for what they are: an attempt to undermine competition that can lower customers' bills. We ask that the Commission reject SCE&G's

proposed methodological changes and require changes that ensure full avoided cost rates in compliance with the law.

Thank you for your time.

CHAIRMAN WHITFIELD: Thank you, Ms. Ottenweller.

Anyone else, anything else – anything else from the parties? Any preliminary matters or anything else that needs to be brought up? Mr. Whitt?

MR. WHITT: No, Your Honor.

CHAIRMAN WHITFIELD: Well, if not, Mr. Burgess, I'm going to turn to you and your attorneys for the company to present its case.

MR. BURGESS: Thank you, Mr. Chairman. SCE&G called George Lippard and Henry Delk to the stand.

CHAIRMAN WHITFIELD: Come forward, Mr. Lippard and Mr. Delk.

[Witnesses affirmed]

THEREUPON came,

G E O R G E A . L I P P A R D , I I I ,

H E N R Y E . D E L K , J R . ,

called as witnesses on behalf of South Carolina Electric & Gas Company, who, having been first duly affirmed, were examined and testified as follows:

MR. BURGESS: Mr. Chairman, I'll begin with Mr. Lippard, whenever you're ready.

CHAIRMAN WHITFIELD: [Indicating.]

WITNESS LIPPARD: Good morning.

MR. BURGESS: Hold on one second. We've got to get a question asked, here.

DIRECT EXAMINATION

BY MR. BURGESS:

Q Would you please state your full name for the record?

A [LIPPARD] My name is George Albert Lippard, III.

Q And by whom are you employed and in what capacity?

A [LIPPARD] I'm employed by South Carolina Electric & Gas Company as the vice president of Nuclear Operations at V.C. Summer Unit 1.

Q Have you prepared or caused to be prepared under your direct supervision and prefiled in this docket direct testimony consisting of nine pages?

A [LIPPARD] Yes, I have.

Q And are there any changes or corrections to your testimony?

A [LIPPARD] No, sir, there are no corrections.

Q If I asked you all the questions that are contained in your prefiled direct testimony, would your answers be the same?

A [LIPPARD] Yes, they would.

MR. BURGESS: Mr. Chairman, at this time, we would move into the evidence the prefiled direct testimony of George Lippard as if given orally from the stand.

CHAIRMAN WHITFIELD: Mr. Lippard's prefiled direct testimony will be entered into the record as if given orally from the stand.

MR. BURGESS: Thank you, Mr. Chairman.

BY MR. BURGESS:

Q Mr. Lippard, have you prepared a summary of your direct testimony?

A [LIPPARD] Yes, sir, I have.

Q Would you please deliver that at this time?

A [LIPPARD] Yes, sir.

Now, good morning, Chairman Whitfield, and other members of the Commission.

The purpose of my testimony today is to review with you the operating performance of the Virgil C. Summer Nuclear Station Unit 1 during the period from January 1, 2017, through December 31, 2017.

SCE&G's primary objective at Summer Station is always safe operation, and the company strives for excellence in all phases of operation of the facility. Furthermore, our business objectives are focused on maintaining a competitive production cost for the

generation of electricity using nuclear fuel. I am pleased to report to you that Summer Station performed well during the review period, with a net capacity factor – based on reasonable, excludable nuclear system reductions – of 101.29 percent, and a gross generation output of 7,190,239 megawatt-hours.

During the review period, Summer Station experienced one planned outage and three midcycle outages. With regard to the planned outage, Summer Station was shut down on April 8, 2017, to conduct the unit's 23rd refueling outage, which lasted 54½ days and was completed with no nuclear safety events. During the scheduled outage SCE&G met all technical objectives and completed scheduled maintenance activities. Specifically, approximately one-third of Summer Station's 157 fuel assemblies were replaced and scheduled maintenance, including over 13,000 tasks, was completed successfully. SCE&G also completed the major task of replacement of the reactor vessel closure head. The unit returned to service on June 1, 2017.

As for the midcycle outages, the first occurred on June 29, 2017, due to low feedwater flow on the B Steam Generator. SCE&G replaced the failed solenoid and the unit returned to service on July 1, 2017. The second outage occurred on August 28, 2017, and was caused by

the main generator differential lockout due to a fault on the center phase 230 kV, or kilovolt, lightning arrester on the main transformer. After replacing the failed arrester, the unit returned to service on September 8, 2017. The final outage occurred on November 7, 2017, and was caused by the loss of digital control system power to all three main feedwater pumps, which resulted from the failure of a non-safety-related inverter. Upon investigation, it was determined that the newly installed gate card driver caused the inverter to produce an asymmetric sine wave, which prevented the inverter from functioning properly. After reinstalling the prior gate card and replacing – and placing the inverter in the bypass position, the unit returned to service on November 10, 2017.

SCE&G continuously meets or exceeds all Nuclear Regulatory Commission requirements and Institute of Nuclear Power Operations, or INPO, standards. During the reporting period, INPO – which is a nonprofit corporation which promotes excellence in the nuclear generation industry – rated Summer Station's overall performance as Excellent. The NRC, which is responsible for the licensing and oversight of the civilian use of nuclear materials in the United States, reported that Summer Station operated in a manner that preserved

public health and safety, and fully met all cornerstone objectives.

This concludes my summary.

MR. BURGESS: Thank you, Mr. Lippard.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY OF GEORGE A. LIPPARD, III, FOLLOWS AT PGS 27-35]

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 1 of 9

DIRECT TESTIMONY OF

GEORGE A. LIPPARD, III

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2018-2-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION WITHIN SOUTH CAROLINA ELECTRIC & GAS COMPANY ("SCE&G" OR "COMPANY").

A. My name is George A. Lippard, III. My business address is Post Office Box 88, Jenkinsville, South Carolina 29065. I am the Vice President of Nuclear Operations for South Carolina Electric & Gas Company ("SCE&G" or the "Company") at the Virgil C. Summer Nuclear Station ("VCSNS" or "V.C. Summer").

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND YOUR BUSINESS EXPERIENCE.

A. I earned a Bachelor of Science degree in Mechanical Engineering from Clemson University in 1979 and a Master of Business Administration degree from the University of South Carolina in 1982. I joined SCE&G in 1983 as a Nuclear Training Instructor at VCSNS. I received a Senior Reactor Operator Certification in 1986 and a Senior Reactor Operator License in 1992 from the United States

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 2 of 9

Nuclear Regulatory Commission ("NRC"). Since joining the Company, I have held positions in the Operations, Outage Management, Licensing, and Training organizations at V.C. Summer. I have also served in the leadership roles of Operations Manager and General Manager at VCSNS. On January 30, 2016, I was promoted to Vice-President of Nuclear Operations for Unit 1.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to review the operating performance of VCSNS during the period from January 1, 2017, through December 31, 2017 ("Review Period").

Q. WHAT ARE SCE&G'S OBJECTIVES IN THE OPERATION OF VCSNS?

A. SCE&G's primary objective at VCSNS is safe and efficient operation. The Company also strives for excellence in all phases of operation of the facility. The station's key focus areas of safety, reliability, outage and work management, work force development, and organizational effectiveness constitute the Company's core business plan elements. SCE&G's constant improvement in these areas over the years has facilitated VCSNS's outstanding service record. Furthermore, SCE&G's business objectives are focused on maintaining a competitive production cost for the generation of electricity using nuclear fuel.

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 3 of 9

Q. WHAT HAS BEEN THE COMPANY'S EXPERIENCE WITH THE PERFORMANCE OF THE VCSNS?

A. VCSNS has performed well during the Review Period. SCE&G continuously meets or exceeds all NRC requirements and Institute of Nuclear Power Operations ("INPO") standards. Consistent with the provisions of Section 58-27-865 of the South Carolina Code of Laws Annotated, as amended, V.C. Summer's net capacity factor based on reasonable excludable nuclear system reductions during the Review Period was 101.29%, and the gross generation output was 7,190,539 megawatt hours.

Q. PLEASE EXPLAIN THE ROLES OF INPO AND THE NRC WITHIN THE NUCLEAR INDUSTRY AND DESCRIBE ANY RANKINGS RECEIVED BY VCSNS FROM THOSE AGENCIES.

A. INPO is a nonprofit corporation established by the nuclear industry to promote the highest levels of nuclear safety and plant reliability. INPO promotes excellence in the industry in the operation of nuclear electric generating plants. For the applicable reporting period, INPO rated VCSNS's overall performance as excellent.

The NRC is responsible for the licensing and oversight of the civilian use of nuclear materials in the United States. During the Review Period, the NRC reported that VCSNS operated in a manner that preserved public health and safety and fully met all cornerstone objectives.

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 4 of 9

Q. DID VCSNS EXPERIENCE ANY PLANNED OUTAGES DURING THE REVIEW PERIOD?

A. Yes. During the Review Period, VCSNS experienced one planned outage. On April 7, 2017, the unit began to reduce its generation output in a controlled manner, and the generator output breaker was opened at 1:20 a.m. on April 8, 2017, to conduct V.C. Summer's 23rd scheduled refueling outage ("RF23").

Q. HOW MANY DAYS DID VCSNS OPERATE PRIOR TO RF23?

A. With the opening of the generator output breaker on April 8, 2017, SCE&G completed its second "breaker to breaker" cycle in the history of VCSNS. A "breaker to breaker" cycle is an industry term recognizing a plant that operates continuously between refueling outages and only occurs when plant reliability is very high. Prior to opening the generator output breaker on April 8, 2017, VCSNS had been connected to the electric grid without interruption for 493 days. For comparison purposes, the longest uninterrupted run record for VCSNS is 501 days and was set on October 13, 2012.

Q. HOW LONG DID RF23 LAST?

A. RF23 lasted fifty-four and one-half (54½) days during which time the Company met all technical objectives and completed scheduled maintenance activities. The reactor returned to criticality at 4:32 p.m. on May 31, 2017, and the outage ended with the closure of the generator output breaker at 11:59 a.m. on June

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 5 of 9

1, 2017. I am pleased to report to the Commission that the planned outage, which was scheduled for fifty-eight (58) days, was accomplished three and one-half (3½) days ahead of schedule. The outage was completed with no nuclear safety significant events.

Q. PLEASE EXPLAIN THE KEY MAINTENANCE AND MODIFICATION TASKS SCE&G ACCOMPLISHED DURING RF23.

A. During the refueling outage, approximately one-third of V.C. Summer's 157 fuel assemblies were replaced, and scheduled maintenance work that cannot be performed when the plant is in operation was conducted. During this time, over 13,000 tasks including preventative maintenance, corrective maintenance, plant modification, and surveillance testing tasks were completed successfully. SCE&G completed a number of key maintenance and modification tasks during RF23, a few of which are described below.

- **Replacement of Reactor Vessel Head.** During RF23, SCE&G replaced the reactor vessel head at VCSNS, which was the original reactor vessel head installed during the construction of the plant and was approaching the end of its planned useful life. By installing a new reactor vessel head at V.C. Summer, SCE&G now has the ability to take advantage of the new reactor vessel head's more efficient design. For example, this new integrated design eliminates the additional shielding and ventilation duct work that had to be removed

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 6 of 9

with the reactor vessel head each outage, provides safety railings in common work areas, and adds a platform to the top of the reactor vessel head to allow for an improved connection to the lifting rig. Overall, this new design will allow for easy access for inspections and work activities, which will decrease worker exposure and increase personnel safety. Additionally, the installation of a new reactor vessel head allows SCE&G to return to its normal NRC-approved inspection schedule.

- **Replacement of Cable.** This scope of work consisted of replacing over 5,000 feet of cable which carries 7,200 volts from transformers external to the plant to key safety related components. SCE&G anticipates that this cable will last the life of the plant.
- **Upgrades to Switchyard Breakers.** VCSNS completed a multi-year initiative to convert all breakers in the V.C. Summer switchyard from the existing, older oil-cooled breakers to new sulfur hexafluoride (SF_6) breakers. The new breakers are more reliable, easier to maintain, and have a smaller footprint.
- **Improvements to Emergency Feedwater System.** This scope of work consisted of installing new automatic recirculation control valves and flow limiting devices. These components will improve safety margin and will enhance the overall risk mitigation profile of the plant. Additionally, a cured-in-place pipe liner was installed in a

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 7 of 9

stagnant leg of the system which enhances the system's ability to perform with improved safety margin during adverse conditions.

Q. WHEN WILL THE NEXT REFUELING OUTAGE OCCUR?

A. SCE&G's next refueling outage, Refueling Outage No. 24 ("RF24"), is scheduled for October 5, 2018. Refueling outages are scheduled every 18 months to replace depleted fuel assemblies. Maintenance and testing that cannot be done with the plant on-line are also conducted during the refueling outage.

Q. DID VCSNS EXPERIENCE ANY ADDITIONAL OUTAGES DURING THE REVIEW PERIOD?

A. Yes. During the Review Period, VCSNS experienced three mid-cycle maintenance outages, which I explain in further detail below.

Mid-Cycle Outage No. 1. At 8:57 a.m. on June 29, 2017, VCSNS automatically tripped due to low feedwater flow to the "B" steam generator. The plant trip response was normal and resulted from the closure of the main feedwater flow control valve to the "B" steam generator due to loss of air. The cause of the outage was traced to the failure of a solenoid valve which was replaced. The unit remained off-line for approximately two (2) days, returning to full service on July 1, 2017.

Mid-Cycle Outage No. 2. At 8:37 a.m. on August 28, 2017, VCSNS automatically tripped due to a turbine trip. The plant trip response was normal and

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 8 of 9

was caused by the main generator differential lockout due to a fault on the center phase 230 kilovolt lightning arrester on the main transformer. The failed arrester, along with the other two lightning arresters that were in service on the main transformer, were replaced. The failed lightning arrestors were sent to an off-site lab for testing and evaluation which revealed that moisture had penetrated the upper housing. The unit returned to full service on September 8, 2017.

Mid-Cycle Outage No. 3. At 7:57 p.m. on November 7, 2017, VCSNS automatically tripped due to a loss of digital control system power to all three main feedwater pumps, which was caused by the failure of a non-safety related inverter. Prior to trip, maintenance had been performed on the inverter resulting in the replacement of the microprocessor stack on the control board and the inverter gate card driver. Upon investigation of the plant trip, it was determined that the newly installed inverter gate card driver caused the inverter to produce an asymmetric sine wave which prevented the inverter from functioning properly. The prior gate card driver was re-installed, and the inverter has been placed in the bypass position until further corrective maintenance can be performed during RF24. The unit returned to full service on November 10, 2017.

Q. WHAT IS THE USED FUEL STORAGE CAPABILITY FOR VCSNS?

A. V.C. Summer's used fuel storage capability consists of a spent fuel pool, which is equipped with storage racks designed to hold fuel assemblies removed from the reactor, and a dry cask storage facility, which was placed in service in

January 2016. Together, SCE&G's fuel storage capability has been designed to accommodate storage of all fuel used for the life of the plant. The next transfer of used fuel from the spent fuel pool to the dry cask storage facility is scheduled to occur in 2019.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 9 of 9

MR. BURGESS: Mr. Chairman, I'll now turn to Mr. Delk.

BY MR. BURGESS:

Q But before I do, Mr. Delk, would you mind just turning on your microphone?

A [DELK] [Indicating.]

Q Thank you. Would you please state your full name for the record?

A [DELK] My name is Henry E. Delk, Jr.

Q And by whom are you employed and in what capacity?

A [DELK] I'm employed by South Carolina Electric & Gas Company as general manager of Operations in the fossil/hydro area.

Q And have you prepared or caused to be prepared under your direct supervision and prefiled in this docket 11 pages of direct testimony?

A [DELK] Yes, I have.

Q Do you have any changes or corrections to your direct testimony?

A [DELK] I do not.

Q If I asked you all the questions contained in your direct testimony, would your answers be the same?

A [DELK] Yes, they would.

MR. BURGESS: Mr. Chairman, we would move into the record the prefiled direct testimony of Henry

Delk, Jr., as if given orally from the stand.

CHAIRMAN WHITFIELD: Mr. Delk's prefiled direct testimony will be entered into the record as if given orally from the stand.

MR. BURGESS: Thank you, Mr. Chairman.

BY MR. BURGESS:

Q Mr. Delk, have you also attached any exhibits to your prefiled direct testimony?

A [DELK] Yes.

Q Do you have any changes or corrections required to your exhibit?

A [DELK] I do not.

MR. BURGESS: Mr. Chairman, at this time, we would move into the record the exhibit identified as HED-1, which is attached to Mr. Delk's prefiled direct testimony, and ask that be identified as Hearing Exhibit No. 1.

CHAIRMAN WHITFIELD: Mr. Delk's Exhibit HED-1, attached to his testimony, will be entered in as Hearing Exhibit No. 1.

[WHEREUPON, Hearing Exhibit No. 1 was marked and received in evidence.]

MR. BURGESS: Thank you, Mr. Chairman.

BY MR. BURGESS:

Q Mr. Delk, have you prepared a summary of your direct

testimony?

A [DELK] I have.

Q Would you please deliver that at this time?

A [DELK] Sure.

Good morning, Mr. Commissioner, and members of the Commission.

The purpose of my testimony today is to review the operating performance of our fossil/hydro units from January 1, 2017, through December 31, 2017. The fossil/hydro fleet of 4586 megawatts consists of coal- and gas-fired steam units, combined-cycle units, peaking turbines, hydroelectric facilities, a pumped storage facility, and a biomass cogeneration facility.

Planned changes to the makeup of the fossil/hydro fleet include an agreement to purchase the Columbia Energy Center, a 540-megawatt combined-cycle gas-turbine steam generator, and the sale of the biomass generator by the end of this year.

The fossil/hydro units have operated efficiently and dependably. During the review period, SCE&G's fossil units had an availability factor of 83.41 percent and a forced-outage factor of 0.65 percent. With respect to heat rate performance of our coal-fired units, our average of 10,016 Btu per kilowatt-hour compares favorably with the national five-year average,

from 2011 through 2015, heat rate of all coal-fired units of 10,450 Btu per kilowatt-hour, with Cope Station having the best heat rate on our system at 9607 Btu per kilowatt-hour, followed by Williams Station at 9847 Btu per kilowatt-hour.

We define "significant forced outages" as those lasting more than seven days, and I'm very pleased to report that during the review period our fossil/hydro units did not experience a significant forced outage. During the review period, and as detailed in my prefiled testimony, successful planned outages were completed at Fairfield Units 5, 6, 7, and 8, Jasper Units 2 and 3, Urquhart Unit 3, Wateree Unit 1, McMeekin Unit 1, and Williams Station.

In summary, during this review period, our fossil/hydro fleet has operated reliably and efficiently.

Thank you for your time. This completes the summary of my testimony.

MR. BURGESS: Thank you, Mr. Delk.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY OF HENRY E. DELK, JR., FOLLOWS AT PGS 40-50]

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 1 of 12

DIRECT TESTIMONY OF

HENRY E. DELK, JR.

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2018-2-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION WITH SOUTH CAROLINA ELECTRIC & GAS COMPANY ("SCE&G" OR "COMPANY").

A. My name is Henry E. Delk, Jr., and my business address is 220 Operation Way, Cayce, South Carolina 29033. I am employed by SCE&G as General Manager, Fossil Hydro Operations.

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND YOUR BUSINESS EXPERIENCE.

A. I graduated from Clemson University in 1993 with a Bachelor of Science degree in Mechanical Engineering and earned a Master of Business Administration from the University of South Carolina in 2000. I began my career with Milliken & Company in 1993 working as a Process Improvement Engineer. After three years, I accepted a position with Clariant Corporation as a Project Engineer. I began my career with SCE&G in 1997 in the Rate Department as a Rate & Regulatory

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 2 of 12

Specialist. In 2000, I transferred to Electric Transmission and assumed a position within the System Control department as a System Controller. Within Electric Transmission, I served as Supervisor/Manager of Operations Planning from 2001 to 2007 and Manager of System Control from 2007 to 2012. I transferred to the Electric Operations division in 2012 to 2013 working as Manager of Northern Division Transmission Operations and Local Manager of the Lexington and Chapin Crew Quarters. From 2013 to 2014, I served as Director of Power Marketing. I assumed the role of General Manager, Fossil Hydro Technical Services in June 2014. In September 2017, I assumed my current position as General Manager, Fossil Hydro Operations.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to review the operating performance of SCE&G's Fossil Hydro units and South Carolina Generating Company's ("GENCO") Williams Electric Generating Station ("Williams Station") during the period January 1, 2017, through December 31, 2017 ("Review Period").

Q. PLEASE GIVE A SHORT DESCRIPTION OF SCE&G'S FOSSIL AND HYDROELECTRIC FACILITIES.

A. SCE&G currently operates four (4) coal-fired steam units (1,704 megawatts ("MW")), three (3) gas-fired steam units (345 MW), eight (8) combined-cycle gas

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 3 of 12

turbine/steam generator units (gas/oil fired, 1,310 MW), sixteen (16) peaking turbines (348 MW), four (4) hydroelectric generating facilities (218 MW), and one (1) pumped storage facility (576 MW). From a renewable energy standpoint, SCE&G owns an electric generator at a biomass cogeneration facility which produces an output of 85 MW using a mixture of wood products and coal as its fuel source. The total net non-nuclear summer generating capability rating of these facilities is 4,586 MW. The ratings stated in this testimony are updated on an annual basis.

Q. DOES SCE&G OPERATE ADDITIONAL RENEWABLE GENERATORS?

A. Yes. In addition to the biomass cogeneration facility described previously, SCE&G also owns and operates a thin laminate solar generation system on ten acres of rooftop at Boeing's North Charleston production facility. At peak capacity, this system generates 2.6 MW (DC nameplate).

Q. ARE THERE ANY PLANNED CHANGES TO THE MAKEUP OF SCE&G'S FOSSIL HYDRO GENERATION FLEET?

A. Yes. On December 20, 2017, SCE&G and Columbia Energy, LLC ("Columbia Energy") entered into an Asset Purchase Agreement whereby Columbia Energy agreed to sell, and SCE&G agreed to purchase, the approximately 540 MW rated combined cycle gas-fired generation facility and equipment located near

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 4 of 12

Gaston, South Carolina. On January 16, 2018, SCE&G and Columbia Energy jointly petitioned the Commission to transfer the Certificate of Environmental Compatibility and Public Convenience and Necessity from Columbia Energy to SCE&G.

Also, SCE&G presently purchases shaft horsepower from KapStone Charleston Kraft LLC ("KapStone") to operate SCE&G's biomass generator (85 MW) located at the KapStone facility in North Charleston, South Carolina. However, both the agreement by which SCE&G purchases shaft horsepower from Kapstone and the electric service agreement by which SCE&G provides electric service to KapStone expire on December 31, 2018; and KapStone intends to be its own primary supplier of electric energy at its North Charleston facility and have SCE&G serve as a secondary backup supplier of such energy. SCE&G therefore currently plans to sell its biomass generator to KapStone, effective January 1, 2019.

Q. PLEASE DESCRIBE GENCO AND ITS RELATIONSHIP TO SCE&G.

A. GENCO owns Williams Station and was incorporated on October 1, 1984, as a SCANA subsidiary. GENCO sells to SCE&G the total capacity and entire output from the Williams Station under a Unit Power Sales Agreement approved by the Federal Energy Regulatory Commission. For purposes of this testimony, I include Williams Station when I refer to SCE&G's coal-fired steam plants.

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 5 of 12

Q. HOW MUCH ELECTRICITY WAS GENERATED BY SCE&G IN THE REVIEW PERIOD?

A. In the Review Period, SCE&G generated 22,404,624 megawatt hours ("MWH") of energy. Of this energy, the coal-fired steam units generated approximately 38%, the combined-cycle units generated approximately 34%, the nuclear plant generated approximately 21%, the gas-fired steam units (Urquhart Unit No. 3 and McMeekin Unit Nos. 1 & 2) generated approximately 3%, the peaking gas turbines and hydro units generated approximately 3%, and the biomass cogeneration facility and the solar generation facility together generated approximately 1%. Exhibit No. ___ (HED-1) provides a graphic display of how the Company's generation met our customers' demand for energy during this Review Period.

Q. PLEASE SUMMARIZE THE PERFORMANCE OF THE FOSSIL HYDRO UNITS.

A. SCE&G's Fossil Hydro units operated efficiently and dependably during the Review Period. SCE&G's fossil units (including combined-cycle units) had an availability factor of 83.41%.

During the Review Period, SCE&G's fossil units (including combined-cycle units) had a forced outage factor of 0.65%. The "forced outage factor" is the

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 6 of 12

percentage of the total hours that generating units are forced out of service (for various reasons) compared with the number of hours in the period.

Q. PLEASE DISCUSS THE SIGNIFICANT PROJECTS UNDERTAKEN DURING SCE&G'S MAINTENANCE OUTAGES FOR THE REVIEW PERIOD.

A. As part of the Company's ongoing maintenance program, SCE&G undertook a number of significant projects during its maintenance outages in this Review Period. A brief description of major work is as follows:

- **Jasper Combined Cycle Gas Turbine No. 3** completed a planned outage during Spring 2017. The primary work completed during this outage included: a turbine hot gas path inspection, generator electrical inspection/testing, heat recovery steam generator repairs including penetration seal and expansion joint replacements, re-tubing of the fuel gas preheater, and refurbishment of boiler feed pump motors.
- **McMeekin No. 1** also conducted a planned outage during Spring 2017. The primary work completed during this outage included: a major inspection of the turbine/generator, replacement of the voltage regulator and flow accelerated corrosion and high energy pipe inspections. The outage was extended after inspection of the low pressure rotor required by a General Electric Technical Information Letter (TIL 1904) showed measurable

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 7 of 12

indications of cracking. As a result of these findings, the rotor, which is the original rotor installed when the unit was constructed in 1958, had to be repaired before the unit could be returned to service, thereby extending the planned outage by approximately eight (8) months.

- **Urquhart No. 3** completed a planned outage during Fall 2017. The primary work included upgrading the turbine governor controls, replacement of generator protective relays and 4160 volt breakers, and a comprehensive boiler inspection.
- **Wateree No. 1** completed a planned outage during Fall 2017. The primary work completed during this outage included: turbine and valve motor control center replacement, boiler inspection with replacement of nose arch tubes, replacement of bags in the baghouse and cleaning of the condenser.
- **Fairfield Pumped Storage No. 5, 6, 7 and 8** completed a planned outage during Fall 2017. The primary work consisted of replacing motor control centers for each unit and replacement of the emergency motor control center.
- **Jasper Combined Cycle Gas Turbine No. 2** completed a planned outage during Fall 2017. The primary work completed during this outage included: a turbine hot gas path inspection, generator electrical inspection/testing, heat recovery steam generator repairs including penetration seal and expansion joint replacements, re-tubing of the fuel gas preheater, and refurbishment of boiler feed pump motors.

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 8 of 12

- **Williams Station** conducted a planned outage during Fall 2017. The primary work completed during this outage included: replacement of the main cooling tower, replacement of the rotary car dumper, installation of a redundant limestone ball mill, replacement of reheat pendant tubes in the boiler, replacement of burner tube panels in the boiler, inspection of the turbine, and major repairs to the high pressure/intermediate pressure turbine shell. This outage started on September 3, 2017, and the unit returned to service on January 19, 2018, approximately seven (7) weeks later than planned due to site evacuations during Hurricane Irma and a winter ice storm, additional work identified during the repairs to the high pressure/intermediate pressure turbine shell, certain work requiring schedule updates to reflect more time to complete than originally estimated by the vendor, and certain issues during start-ups of the unit in early January requiring further repairs.

Q. PLEASE DISCUSS ANY SIGNIFICANT FORCED OUTAGES FOR THE PERIOD UNDER REVIEW.

A. SCE&G's Fossil Hydro Operations defines a significant forced outage as any forced outage in excess of seven (7) days. Fossil Hydro had no significant forced outages during the Review Period.

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 9 of 12

Q. WHAT WAS SCE&G'S FOSSIL SYSTEM FORCED OUTAGE FACTOR FOR THE PERIOD UNDER REVIEW?

A. For the Review Period, SCE&G's fossil units (including coal-fired and natural gas-fired steam units and combined-cycle units) experienced a system forced outage factor of 0.65%. SCE&G's forced outage factor of 1.84% for coal-fired units compared favorably to the North American Electric Reliability Council ("NERC") national five-year (2012-2016) average of 4.67% for forced outage factors on all coal-fired units. SCE&G's forced outage factor of 0.08% for its combined-cycle units was much lower than the NERC national five-year (2012-2016) average for combined-cycle units of 2.62%. SCE&G's gas-fired steam units forced outage factor of 0.60% for the Review Period was much better than the NERC national five-year (2012-2016) average of 5.32% for gas-fired steam units.

Q. PLEASE DISCUSS THE AVAILABILITY OF SCE&G'S FOSSIL PLANTS DURING THE REVIEW PERIOD.

A. Availability factor is a measure of the actual hours that the generation units are available (overall readiness to provide electricity) divided by the total hours in the Review Period. Availability is not affected by how the unit is dispatched or by the demand from the system when connected to the grid. However, it is impacted by the planned and unplanned shutdown hours. SCE&G's fossil plants (including coal-fired and gas-fired steam units as well as combined-cycle units) had an

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 10 of 12

availability factor of 83.41% during the Review Period. For comparison purposes, the NERC national five-year (2012-2016) average for availability from all coal-fired units was 84.76%, and SCE&G's availability for its coal-fired units for 2017 was 79.95% primarily due to the planned Fall outage at Williams Station. SCE&G's combined-cycle availability factor of 92.23% was much higher than the NERC national five-year (2012-2016) average for combined-cycle units of 87.68%. SCE&G's gas-fired steam units' availability factor was 64.52% for the Review Period which was lower than the NERC national five-year (2012-2016) average of 82.66% for gas-fired steam units due to the extended planned outage at McMeekin No. 1.

Q. PLEASE EXPLAIN "HEAT RATE" AND DESCRIBE THE HEAT RATE OF THE FOSSIL UNITS DURING THE REVIEW PERIOD.

A. Heat rate is a way to measure the thermal efficiency of a power plant. It is the number of British Thermal Units ("Btu") of fuel required to generate one (1) kilowatt-hour ("kWh") of electricity. Simply put, the lower the heat rate, the more efficient the plant.

The coal-fired steam unit average system heat rate for the Review Period was 10,016 Btu/kWh. Cope Station had the best heat rate on our system at 9,607 Btu/kWh followed by Williams Station at 9,847 Btu/kWh. For comparison purposes, the most recent data published by Power Engineering magazine in

December 2016 indicates that the national five-year (2011-2015) average for heat rate for all coal-fired units is 10,450 Btu/kWh.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 11 of 12

MR. BURGESS: Mr. Chairman, Mr. Lippard and Mr. Delk are available for cross-examination by the other parties of record, as well as examination by the Commission. Thank you.

CHAIRMAN WHITFIELD: Thank you, Mr. Burgess.

At this time, I'll go to cross from the parties. Mr. Whitt, questions for this panel?

MR. WHITT: Mr. Chairman, SBA does not have any questions for these two witnesses.

CHAIRMAN WHITFIELD: Thank you, Mr. Whitt.

Ms. Ottenweller, questions for this panel.

MS. OTTENWELLER: No questions. Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you.

Mr. Elliott, questions for this panel.

MR. ELLIOTT: No, thank you.

CHAIRMAN WHITFIELD: Mr. Bateman, questions from the Office of Regulatory Staff.

MR. BATEMAN: No questions for this panel.

CHAIRMAN WHITFIELD: Okay. We're down to Commissioners. Questions for this panel? Commissioner Howard.

EXAMINATION

BY COMMISSIONER HOWARD:

Q Mr. Lippard, in your testimony, you stated that SCE&G

completed its second breaker-to-breaker cycle in its history. What is the significance of a breaker-to-breaker cycle?

A [LIPPARD] A breaker-to-breaker cycle, which we completed in Calendar Year 2016, represents that, once the plant comes on-line following a scheduled outage, it stays on-line continuously for approximately 18 months until the next such scheduled outage. So the outage that began last year in April – I believe the correct date was April 8th – was the culmination of a breaker-to-breaker run, which is our hope and desire, that we can run the plant safely for the entire fuel cycle.

As I mentioned earlier, we did have three midcycle outages, so we will not have a breaker-to-breaker run this time, Commissioner Howard.

Q You – I guess the word I want to say – you kept records of outages longer than seven days. What about outages less than seven days, do you have many of those, or –

A [LIPPARD] We had – the scheduled refueling outage was a 58-day outage, which we completed in 54½ days. Two of the three midcycle outages were less than seven days. Those were problems that the reactor plant shut itself down safely, as it's designed to do. We were able to diagnose the cause of the issue, replace it, properly retest and return the unit to service within two or

three days. The lightning arrester outage, had the only damage been to the lightning arrester, that would've been, likewise, a two-to-three-day outage, but there was some collateral damage when that lightning arrester failed which impacted a center phase bushing, which extended that repair out until about – or, to about ten days.

Q Is seven days a national standard? Does everybody use that as a standard for an outage?

A [LIPPARD] I believe so, sir.

COMMISSIONER HOWARD: Thank you, very much. Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Commissioner Howard.

Commissioner Hamilton.

COMMISSIONER HAMILTON: Thank you, Mr. Chairman.

EXAMINATION

BY COMMISSIONER HAMILTON:

Q Mr. Lippard, let's discuss the reactor vessel that you had a problem with. I believe it's in your testimony on page five through six. What is the estimated useful life of a reactor vessel head?

A [LIPPARD] Commissioner Hamilton, the original license duration for all United States nuclear power plants was

40 years. We have received a license extension. Our original license was due to expire in 2022. We've already received a 20-year extension to that license, to 2042. However, most of these nuclear plants – ours included – were constructed back in the '70s and early '80s, and we have found through operating experience as a nuclear fleet in this country that some of the materials used in the original design for reactor vessels are not as robust as we had hoped.

So most nuclear stations of the vintage of V.C. Summer Unit 1 have undergone reactor vessel head replacements. Ours lasted in the neighborhood of about 30 years. We started seeing some indications that it was prudent for us to actually escalate or pull forward our reactor vessel head replacement. That was actually due to take place this fall, fall of 2018, but we went ahead and had a reactor vessel head fabricated and we installed it last outage.

But it is a normal replacement activity for U.S. nuclear plants. We are like the rest of the nuclear fleet; we've replaced steam generators and now we've replaced the reactor vessel head with a more robust design and better materials.

Q These reactor heads are not – you have to have it specifically made to fit your unit; is that correct?

A [LIPPARD] Yes, sir. The actual reactor vessel head was made in South Korea. There's only two places in the world that do these large forgings.

Q Can the company make any use, during your outages, of the materials left from the abandonment of the two units?

A [LIPPARD] No, sir. The abandonment required that we basically walk away from the Unit 2-3 site. As you would imagine, the Unit 2-3 site used some different technologies, some different designs. But once we invoke abandonment, we have to walk away from those things.

Q Thank you, sir.

A [LIPPARD] Yes, sir.

COMMISSIONER HAMILTON: Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Commissioner Hamilton.

Commissioner Randall.

VICE CHAIRMAN RANDALL: Thank you, Mr. Chairman.

EXAMINATION

BY VICE CHAIRMAN RANDALL:

Q Mr. Delk, in your prefiled direct testimony on pages six and seven, you're talking about the planned outage at

McMeekin No. 1. This outage was extended after an inspection of the low-pressure rotor, when it showed indications of cracking. How often do you inspect the low-pressure rotor during outages, or do you do it every outage?

A [DELK] We go in and inspect those every six years.

Q Every six years, okay.

A [DELK] During every outage, that's correct.

Q During every outage. All right. So, on this one, why was it necessary to extend the outage out for eight months? You had to replace something, I think.

A [DELK] Correct. During the inspection of the rotor, we brought in a third party and they found stress corrosion cracking in the unit. They did an engineering assessment of the lifetime left on that rotor and it came up with zero. So we were faced with replacing the rotor with a new rotor or repairing the existing rotor, and we looked at those two options and chose to have the existing rotor removed, taken out, and shipped to the shop up in Virginia, where repairs were made within about a six-month period.

Q Zero is a pretty short timeframe, right?

A [DELK] Yes. Yes, sir.

VICE CHAIRMAN RANDALL: Thank you, Mr. Chairman.

Thank you, sir.

CHAIRMAN WHITFIELD: Thank you, Commissioner Randall.

Commissioner Fleming.

EXAMINATION

BY COMMISSIONER FLEMING:

Q Good morning. Mr. Lippard, you mentioned earlier about the three midcycle outages that occurred?

A [LIPPARD] Yes, ma'am.

Q Were those considered to be forced outages?

A [LIPPARD] They were outages that were caused by equipment that instantly shut down the reactor, so they were failures that were undetectable, unpredictable, and when they occurred, within a very short order – in a matter of seconds – the plant automatically shut itself down, as it's designed to do for safe and reliable operation. So they would be considered forced outages, because they were definitely not planned.

Q Okay. Do you have a schedule of periodically inspecting and testing the type of items that failed?

A [LIPPARD] Yes, ma'am, absolutely. Absolutely. In fact –

Q So they had been tested and not found to be faulty previously?

A [LIPPARD] Well, just to give you an example, the

solenoid that caused the first outage was only four weeks after we had completed our scheduled outage. Those solenoids are rotated or replaced, I believe it's every fourth outage. They were not due to be replaced. They had only been in the plant for about 18 months. The lightning arrester that failed in August had only been in place for about eight and a half or nine years. Those components have a useful life of 25 to 30 years.

So anytime the plant automatically shuts itself down, we ask ourselves were we in any way negligent in testing, inspecting, and replacing those components on the vendor's scheduled replacement schedule. And we were not. Those were premature failures in both cases, as was a brand-new gate driver card which failed in November. So while those things are learning opportunities for us, they had not been left in the plant for an inordinate period of time and they had not – we had not failed to test the operation of those components. In fact, the one that occurred on June 29th, we are required to test the proper operation of that valve before we come out of a refueling outage, and it worked perfectly. It worked perfectly for four months.

Q Do you know what caused them to fail?

A [LIPPARD] Yes, ma'am, absolutely we do. For us to start

the plant back up after a plant trip or an instantaneous shutdown of the plant, it is required within our procedures that we understand the failure. To fully understand – we understood why the June outage occurred, but to fully understand exactly why that component failed, we had to ship it off to a lab that did destructive examination of it, and we found that there was a defect in it, as was with the lightning arrester, also, that caused the August outage. So, absolutely, we want to understand exactly why these components fail, so that we can be better stewards of the equipment, so we can interface with the vendors and let them know what we're seeing, so that we don't expect these type of failures in the future.

Q So the defect was there when you first installed it, when –

A [LIPPARD] Yes, ma'am.

Q – it first came?

A [LIPPARD] It just took about 19 months to avail itself. And it wasn't of an intermittent nature.

Q And when you say the response of the trip is normal, you're meaning that it's doing what it's supposed to do to stop it.

A [LIPPARD] Yes, ma'am. While the nuclear plant is there to generate electricity, our first and foremost

objective is to protect the health and safety of the public. So if there's equipment out there that is malfunctioning, the reactor plant has a number of automatic signals that will cause it to shut down instantaneously, if detected. So while we want to generate electricity, our first and foremost mission is to protect the health and safety of the public, and shutting the plant down and ensuring it can safely be shut down and cooled down is what's really important.

Q And for the inverter gate card driver, you took out the new one, if – help me to understand.

A [LIPPARD] Okay.

Q You took out the new one and put in the one that you had to take now to replace it?

A [LIPPARD] Well, the inverter driver card – I think you're referring to – we had a vendor come in and replace a number of components on the inverter, and the brand-new gate driver card failed after about 45 minutes. We put it in, everything looked fine. We retested it properly. Everything went like – just like it was supposed to; and about 45 minutes later, it failed. So what we did is we took that new card out and put the old card back in, just so we could see if the problem was, in fact, with the card. But we actually have that inverter unit bypassed right now. It's in a

bypass position, so it's really not relying on that card at all. But to ensure that the new card was, in fact, the source of the failure, within the troubleshooting we put the old card back to verify that.

Q So is there a problem bypassing that card?

A [LIPPARD] No, ma'am. The plant will continue to operate just fine with the card bypassed. I don't have as much defense and depth with it bypassed, so when I enter my fall outage or if I have a midcycle outage prior to my fall outage, we will do a complete overhaul on that inverter and make sure that everything in it is working properly, and we'll give it some time to avail any kind of premature failure, any kind of infant mortality failure like this one, while the plant is off-line where we can spot a problem before it becomes significant for us.

Q So you would still have a response trip without the card?

A [LIPPARD] If I lose power –

Q With it being bypassed?

A [LIPPARD] I can still have a failure if, for some reason, I lose power to the bypass path.

Q So you don't feel that it lessens the safety?

A [LIPPARD] It doesn't lessen the safety; it just doesn't give me as many sources of power. If the inverter is

not bypassed, I basically have an AC source and a DC source and a bypass source that can power the feedwater pumps. Right now, I only have the bypass source.

Q Because of the age of Unit 1, do you need an accelerated maintenance schedule?

A [LIPPARD] Commissioner Fleming, through the course of operating V.C. Summer for 35 years, we have invested much capital in maintaining the plant. I would tell you that I have been there for 35 years, and many of the systems that I learned when I was licensing as a senior reactor operator, we have replaced those things with new technologies, upgrades. The type of activity that Mr. Delk talked about with replacing turbine rotors, we've done that. Commissioner Hamilton asked me about the reactor vessel head; we've replaced that. So we continue to look for those items that make V.C. Summer safe and reliable, and we absolutely adhere to the manufacturer's recommendations on, you know, if you're going to put this component in the plant, you need to test it or you need to replace it within X number of months, X number of years. We are very committed to that schedule. So we have continued to make capital investments in the plant and make sure that it is reliable.

Q Thank you.

And, Mr. Delk, I wanted to – a time back, SCE&G, as I recall, had listed a number of coal plants that would be decommissioned? What is the status of that now?

A [DELK] Are you talking about the coal plants that have been converted, like the Canadys units, the three Canadys units that were retired?

Q Well, and some that were going to be closed, too.

A [DELK] Okay. Well, we closed the units at Canadys. The three units down there have been – demolition has been completed at that site. And then the unit at Urquhart, Unit 3, was converted over to natural gas, as well as the two units at McMeekin. Those were coal units. Those were converted, and we now operate those units on natural gas.

Q Thank you.

A [DELK] Yes, ma'am.

CHAIRMAN WHITFIELD: Thank you, Commissioner Fleming.

Any other Commissioner questions for this panel?

[No response]

EXAMINATION

BY CHAIRMAN WHITFIELD:

Q If not, I've got a couple for you, myself. Mr. Lippard, you've kind of been worked over. I'm not going to hit

you any further except to acknowledge that your generation output of 21 percent during the review period, from nuclear. And going down that path, Mr. Delk, I'm going to hit you with a question or two. I guess you'll have to bear with me as I wade in the weeds like I used to do with Mr. Todd, so now you're here to field some of this. I just want to kind of go a little bit along those percentages I just mentioned to Mr. Lippard. I noticed your – in your review period, you're 38 percent coal, 34 percent combined-cycle gas, and 21 nuclear; 3, hydro and peaker; 3, gas-fired or CT, I guess; and then 1 percent co-gen and solar. Is it not – would it be fair to say that, if you take the 3 percent of gas-fired steam units and whatever percentage the peaker turbines are that's combined with the hydro numbers, is it fair to say that the total gas would be a little bit higher than the 34 percent, obviously, a few percentage points higher?

A [DELK] Yeah, and I think one of the things I would clarify on the gas-fired turbine or the peaker units, sometimes those peaker units are operated on fuel oil –

Q No. 2 oil?

A [DELK] – such as a cool or cold winter day.

Q Right.

A [DELK] So we put the percentage generation here based

upon what the unit was, produced, not necessarily which fuel was burned.

Q Okay. So you don't – it's hard to put a number on that for natural gas?

A [DELK] That's correct. I think even the combined-cycle units periodically will burn fuel oil, as well, when the gas system is constrained and we have trouble getting it.

Q And at 3 percent – so the 3 percent in the gas-fired steam, could that number all be rolled into there? Or no? And I appreciate your pie chart. I'm a visual person and I like that. I'm looking at your testimony and your pie chart, as well. But could any of that be counted? I notice –

A [DELK] Well, the gas-fired steam units would be natural gas.

Q Well, I'm talking – okay, but I was talking about the – you just mentioned the peaker or a certain percentage of that, of course, would burn fuel oil at times, but the – so you could certainly add the 3 percent you're talking about in the gas-fired steam units, run those numbers up a little bit higher. Maybe 37 – I mean – yeah, 37 percent, plus a fraction?

A [DELK] Yes.

Q Along those lines, I want to ask you about something

just above that, I guess, in your testimony. You mentioned the Kapstone facility – formerly MeadWestvaco – and, again, just to kind of get technical with you, like I did with Mr. Todd on some of these things, you all never – it was always Kapstone or Westvaco, of course, who purchased the actual raw materials; all you've ever really done is purchase the shaft horsepower. Is that correct?

A [DELK] That's correct.

Q So, that being said, going forward, you're going to sell that 85-megawatt electric generator to the company – I'm talking about to Kapstone, going forward?

A [DELK] That's correct.

Q Who – it looks like from your testimony, and I don't want to assume anything, the way you worded it, that they intend, so I can assume that Kapstone initiated that and not SCE&G. Is that correct?

A [DELK] My understanding is this was a 20-year agreement started back in, I think, 1998. And I believe the agreement itself allowed for the sale to one party or the other at the end of the term.

Q So it's just coming to the end of its term, end of its life, that agreement?

A [DELK] At the end of this year, correct.

Q And I think you said that, once they take over, they're

going to be its own primary supplier of its own energy at the North Charleston facility, and E&G would serve as a backup. Do you know – do you have any idea how often the company might be called on to be a backup? Or have you – I'm sure those kind of things are probably in the IRP, but could you talk about that a little bit?

A [DELK] It's my understanding our Large Industrial Customer group works very closely with Kapstone, as well as other industrial customers who have similar behind-the-meter type generation, and they do, from time to time, call upon us for maintenance power when – you know, just like our units, they have to take this unit down for maintenance from time to time. But that's usually worked out at a mutually agreed-upon time.

Q So you'll still have this – you'll still have benefits from this generator through this next review period. In other words, the purchase doesn't take place until January 1, so there will probably be one more fuel case where we'll hear or see this reported; is that correct?

A [DELK] Yes, sir.

CHAIRMAN WHITFIELD: Okay. Well, thank you. That's all I have.

If there are no other questions, Mr. Burgess, is there any redirect?

MR. BURGESS: No redirect, Mr. Chairman.

CHAIRMAN WHITFIELD: You may step down.

[WHEREUPON, the witnesses stood aside.]

Mr. Gissendanner?

MR. GISSENDANNER: Mr. Chairman, SCE&G calls Michael Shinn and Darrin Kahl to the stand, and ask that they be seated at the middle table.

[Witnesses affirmed]

THEREUPON came,

M I C H A E L D . S H I N N ,

J . D A R R I N K A H L ,

called as witnesses on behalf of South Carolina Electric & Gas Company, who, having been first duly affirmed, were examined and testified as follows:

DIRECT EXAMINATION

BY MR. GISSENDANNER:

Q Mr. Shinn, would you please state your name for the record?

A [SHINN] Michael David Shinn.

Q And by whom are you employed and in what capacity?

A [SHINN] I'm employed by South Carolina Electric & Gas as the general manager of Fuel Procurement and Asset Management.

Q And, Mr. Shinn, have you prepared or caused to be prepared under your supervision direct testimony of 22 pages that was previously filed with the Commission in

this docket?

A [SHINN] I have.

Q And do you have any changes or additions to your prefiled direct testimony?

A [SHINN] I do not.

Q If I asked you the same questions here today, would your answers be the same?

A [SHINN] Yes, sir.

MR. GISSENDANNER: Mr. Chairman, at this time, I'll move that the prefiled direct testimony of Michael Shinn be read into the record as if given orally from the stand.

CHAIRMAN WHITFIELD: Mr. Shinn's prefiled direct testimony will be entered into the record as if given orally from the stand.

BY MR. GISSENDANNER:

Q Mr. Shinn, have you also prepared or caused to be prepared under your supervision an exhibit labeled as Exhibit MDS-1 that was previously filed with the Commission as an attachment to your prefiled direct testimony in this docket?

A [SHINN] I have.

Q And do you have any changes or additions to your exhibit?

A [SHINN] I do not.

MR. GISSENDANNER: Mr. Chairman, I would also move into the record, as the next hearing exhibit, the exhibit attached to Mr. Shinn's direct testimony and labeled as Exhibit MDS-1.

CHAIRMAN WHITFIELD: Mr. Shinn's Exhibit MDS-1 will be entered in as Hearing Exhibit No. 2.

[WHEREUPON, Hearing Exhibit No. 2 was marked and received in evidence.]

MR. GISSENDANNER: Thank you, Mr. Chairman.

BY MR. GISSENDANNER:

Q Mr. Shinn, have you prepared a summary of your direct testimony?

A [SHINN] I have.

Q Would you please share that with us at this time?

A [SHINN] Sure.

Good morning, Chairman Whitfield, and members of the Commission.

In my testimony, I describe the procurement and delivery activities for fossil fuel used in electric generation for SCE&G and GENCO's Williams Station for the period January 1, 2017, through December 31, 2017.

The Fuel Procurement Department purchases all necessary coal, fuel oil, limestone, and associated transportation for SCE&G's fossil plants, focusing on reliability of supply, operational and environmental

requirements, and securing reasonable prices. Coal is procured with long-term and spot-purchase agreements to achieve a balance of reliable supplies and flexibility to react to market changes or short-term system needs. Fuel oil inventories are purchased to ensure adequate backup to natural gas for SCE&G's intermediate and peaking generators, and for startup of fossil-fuel generation.

In 2017, SCE&G consumed 3,345,388 tons of coal in the production of electricity for its customers, which was within 0.3 percent of the coal consumed in 2016, and SCE&G projects that the burn rate for coal in 2018 will not change significantly.

In addition to utilizing competing rail companies to take advantage of transportation savings when available, SCE&G diversifies its coal supply and transportation with import coal purchases when prices are competitive and by purchasing lower quality coal where practical and acceptable. Also, SCE&G's contract with CSX expired at the end of 2017 and, at the time I filed my direct testimony, the company was in ongoing negotiations with CSX for a new rail transportation contract. I am pleased to report that, as a result of those negotiations, SCE&G successfully negotiated lower rail transportation rates, which became effective March

1, 2018.

During the review period, 63.29 percent of the company's coal purchases were taken through long-term agreements and 36.71 percent were taken through spot purchases. For 2018, the company anticipates soliciting suppliers of coal for additional long-term contracts and currently has long-term agreements with five suppliers for 79.1 percent of the forecasted total receipts. The company also has spot contracts with seven suppliers for the delivery of 8.2 percent of its expected coal receipts. The remaining 12.7 percent will be heavily dependent on weather and generation produced by the company's other generation assets.

Delivered fuel oil prices during the review period range from a low of $11.35 per million Btu in June of 2017 to a high of $16.25 per million Btu in September of 2017.

SCE&G currently is emitting less than its EPA-provided SO_2 and NO_x emission allowances, and was able to sell some allowances during the review period. The company also secured adequate and reliable supplies of limestone for SO_2 reduction.

With regard to nuclear fuel, short-term and long-term prices for uranium, conversion, and enrichment services have remained stable and are anticipated to

continue to remain stable for both short-term and long-term pricing.

In summary, during the review period the Fuel Procurement Department's efforts were reasonable and prudent as it obtained reliable, high-quality supplies of fuel and transportation for SCE&G's customers of its electric system at reasonable prices. Therefore, on behalf of SCE&G, I respectfully request the Commission find that the company's fuel purchasing practices were reasonable and prudent for this review period.

This concludes my summary.

MR. GISSENDANNER: Thank you, Mr. Shinn.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY OF MICHAEL D. SHINN FOLLOWS AT PGS 74-95]

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 1 of 23

DIRECT TESTIMONY OF

MICHAEL D. SHINN

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2018-2-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND CURRENT POSITION.

A. My name is Michael D. Shinn, and my business address is 220 Operation Way, Cayce, South Carolina 29033. I am currently employed by SCANA Services, Inc. as General Manager of the Fuel Procurement and Asset Management Department ("Fuel Department").

Q. PLEASE BRIEFLY SUMMARIZE YOUR DUTIES WITH SOUTH CAROLINA ELECTRIC & GAS COMPANY ("SCE&G" OR "COMPANY").

A. My responsibilities include managing the purchase and delivery of coal, No. 2 fuel oil, and limestone on behalf of the Company and as an agent for South Carolina Generating Company ("GENCO"). Also, I am responsible for uranium procurement functions for the nuclear generating facilities operated by SCE&G. These responsibilities include the contracting for natural uranium and conversion services.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 2 of 23

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND YOUR BUSINESS EXPERIENCE.

A. I earned a Bachelor of Science Degree in Mechanical Engineering from the University of South Carolina in Columbia, South Carolina, in 1995. While in college, I was a student intern in the Fossil Hydro Power Plant Performance Group for five years. Since graduation, I have held various positions within the Fuel Department to include managing rail transportation and delivery, spot coal purchasing, coal quality management, synthetic fuel optimization, and state and federal regulatory reporting. While Manager of Fuel Technical Services, Industrial Coal and Synfuel, I worked with coal suppliers and SCE&G's power plants to increase fuel and transportation flexibility as well as to maximize the utilization of the Company's assets. In December 2009, I was promoted to General Manager of the Coal and Oil Procurement Department, and in January 2016, I assumed my current position.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to describe the procurement and delivery activities for coal and No. 2 fuel oil used in electric generation for SCE&G as well as GENCO's Williams Station for the period January 1, 2017, through December 31, 2017 (the "Review Period"). I also discuss changes that have occurred in coal markets since the last annual fuel adjustment hearing and how these changes affected coal procurement during the Review Period. My testimony also describes

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 3 of 23

the procurement and delivery of limestone for our wet scrubbers located at the Wateree and Williams steam plants. Finally, my testimony explains the nuclear fuel purchasing process for SCE&G generation and discusses uranium prices for the Review Period and the near-term outlook.

Q. PLEASE DESCRIBE GENCO AND ITS RELATIONSHIP TO SCE&G.

A. GENCO was incorporated on October 1, 1984, and owns Williams Electric Generating Station. GENCO sells to SCE&G the entire capacity and output from Williams Station under a Unit Power Sales Agreement approved by the Federal Energy Regulatory Commission. Hereafter, when I refer to SCE&G's fossil steam plants, I include GENCO.

COAL, NO. 2 FUEL OIL, AND LIMESTONE PURCHASING

Q. PLEASE SUMMARIZE SCE&G'S FUEL PROCUREMENT NEEDS AND PURCHASING PRACTICES FOR SCE&G'S FOSSIL PLANTS.

A. The Fuel Department purchases all coal, No. 2 fuel oil, limestone, and associated transportation for SCE&G's fossil plants focusing on reliability of supply, conformity with operational and environmental requirements, and reasonable prices. Given its mix of generation assets, SCE&G has significant need for coal in any given year to provide reliable energy service to our customers. In 2017, for example, SCE&G consumed 3,345,388 tons of coal in the production of

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 4 of 23

electricity for its customers. This amount was within 0.3% of the coal consumed in 2016.

Q. WHAT DO YOU EXPECT THE BURN RATE FOR COAL WILL BE IN 2018?

A. The Company projects that its burn rate for coal in 2018 will be approximately 3,322,317 tons. This projected burn rate is based on normal weather, a scheduled refueling outage at V.C. Summer Nuclear Station, the Company's projections of coal and natural gas prices, and the economic dispatch of units.

Q. HOW DOES THE COMPANY SECURE NECESSARY QUANTITIES OF COAL AND NO. 2 FUEL OIL AT COMPETITIVE PRICES?

A. SCE&G maintains an active list of qualified suppliers of coal and No. 2 fuel oil. Typically, as contracts expire or needs are identified, solicitations are issued for competitive sealed bids. Responses to these solicitations inform our knowledge of market demand and prices. Moreover, because the responses to these solicitations often include proposals for coal supplies with specifications different than the requested specifications, these responses also aid our ongoing efforts to ascertain price differences for varying qualities of fuels.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 5 of 23

Q. HOW DOES SCE&G APPROACH THE MARKETPLACE FOR COAL AND NO. 2 FUEL OIL?

A. Coal is procured under long-term (more than one year) and spot purchase (up to one year) agreements to achieve a balance of reliable supplies while maintaining flexibility to react to market changes or short-term system needs. Under historic market conditions, SCE&G seeks to have long-term purchases represent approximately 75% to 80% of projected system demand. Spot purchases provide a mechanism to manage inventories and react to short-term changes in the marketplace, and generally represent 20% to 25% of projected system demand.

In contrast to the complexities of coal purchasing contracts, contracts for No. 2 fuel oil are requirements contracts that are competitively solicited every two years. Generally, pricing for these contracts is based upon market indices that are adjusted daily.

Q. PLEASE SUMMARIZE THE COMPANY'S COAL PURCHASES DURING THE REVIEW PERIOD.

A. The Company took delivery of 2,158,563 tons of coal under long-term agreements and 1,252,246 tons of coal through spot purchases during the Review Period. As a whole, long-term agreements provided 63.29% of the requirement for the Company's coal-fired stations, while spot purchases accounted for the remaining 36.71% of SCE&G's coal requirements during 2017. In summary, operational considerations, weather, fuel market conditions, and economic dispatch of the

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 6 of 23

Company's generating assets combined to impact SCE&G's balance of coal purchases in the Review Period, driving the Company to rely more heavily on short-term agreements to meet its requirements for coal.

Q. FOR 2018, PLEASE EXPLAIN THE COMPANY'S PLANS FOR ADDRESSING ITS NEEDS FOR COAL SUPPLIES UNDER LONG-TERM CONTRACTS AND SPOT PURCHASES.

A. While SCE&G's goal has been and remains one of balancing its purchases of coal between long-term and short-term contracts, market conditions, weather, and operational demands may alter this balance in any given year. The present state of the coal market is such that many domestic coal producers have been forced to lay off employees, retire assets, file for bankruptcy, and close (both short- and long-term) mines that either supply the Company or have supplied the Company with coal in the recent past. And, although coal production is projected to increase in 2018, much of this increase is driven by demand in international markets for export coal. With the expansion of eastern utilities into non-traditional coal basins and the proliferation of combined-cycle gas generation, the economic outlook for domestic Central Appalachian ("CAPP") suppliers remains difficult and uncertain.

SCE&G anticipates soliciting suppliers of coal for additional long-term contracts in 2018. The Company currently has contracts in place that will meet its traditional balance of 75% of coal supplies through long-term contracts and 25% through short-term contracts in 2018. However, this balance may not be achieved

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 7 of 23

because of market conditions, weather, and operational considerations. The Company plans to maintain the flexibility to manage its coal inventories and purchase the most competitively priced fuel being ever mindful that its burn rate has the potential to fluctuate widely due to market conditions and changes in the price of coal or natural gas which may result in imbalances of fuel supply and demand. In sum, the Company will continue to evaluate market conditions carefully, always seeking to purchase coal supplies for our customers at economically reasonable prices while ensuring that the Company's service commitments are reliably and prudently met.

Q. WITH THE BACKGROUND SET FORTH ABOVE, HOW MUCH COAL DOES SCE&G PLAN TO PURCHASE IN 2018 UNDER LONG-TERM CONTRACTS?

A. The Company is committed to maintaining reliable supply sources of coal and, therefore, it must continue to enter into long-term agreements for a portion of its coal requirements. SCE&G currently has long-term contracts with five suppliers for the delivery of 2.7 million tons of coal. This quantity represents 79.1% of SCE&G's expected total coal receipts for 2018. The coal purchased under these contracts ranges in quality from 12,500 to 12,700 British Thermal Units ("BTU") per pound and from 1.00% to 1.63% sulfur content. These contracts are for an initial period of three years, and some of the contracts have options to renew. The amount of coal under contract will vary from year to year, and the contract terms will vary

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 8 of 23

from contract to contract. For example, in some of SCE&G's coal contracts, we have been successful in negotiating fixed pricing for the term of the contract, while other coal contracts contain predetermined price adjustments.

During 2018, the Company will continue to carefully evaluate its need for coal in future periods. We anticipate that SCE&G will negotiate additional commitments for coal supply for 2019 and beyond seeking to maintain a reasonable balance between coal supplied under long-term contracts and spot purchases while obtaining coal at reasonable prices and ensuring that the Company's supply requirements are reliably and prudently met. To fulfill its future requirements, the Company may choose to negotiate with existing coal suppliers to extend or renew existing long-term contracts, may choose to negotiate directly with other suppliers seeking new contracts, or may decide to issue a general solicitation for some or all of its needed long-term supply. The Company's goal is always to provide our customers with reliable coal-fired generation at reasonable fuel prices. We have worked diligently in the past to achieve this goal and will continue to do so in 2018 and beyond.

Q. FOR 2018, PLEASE EXPLAIN THE COMPANY'S CURRENT PLANS FOR ADDRESSING ITS NEEDS FOR COAL SUPPLIES UNDER SHORT-TERM CONTRACTS.

A. The Company currently has spot contracts with seven suppliers for the delivery of 284,352 tons of coal. This quantity represents 8.2% of SCE&G's

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 9 of 23

expected total coal receipts for 2018. The purchase of the remainder of the Company's expected coal purchases in 2018 of 12.7% (100% - (79.1% long-term + 8.2% short-term) = 12.7%) will be heavily dependent on weather and the generation produced at the other generation assets employed by SCE&G. The Company will make additional spot or long-term purchases as needed to ensure that sufficient supply is available for its electricity generation needs at a reasonable price. Acquiring coal supplies in this manner will provide SCE&G with the flexibility to manage its generation assets in the most cost-effective way, which can vary from month to month.

Q. GIVEN THE STATE OF THE DOMESTIC COAL MARKET, WILL SUFFICIENT SUPPLIES OF COAL BE AVAILABLE ON THE SPOT MARKET TO MEET THE COMPANY'S GENERATION NEEDS?

A. With utilities across the country relying more heavily on natural gas generation facilities, the demand for coal in the domestic market has continued to fluctuate. Nevertheless, coal suppliers are continuing to produce. Some of this continued production is the result of federal regulations, which require coal suppliers to follow certain procedures when closing a mine. Because compliance with these regulations can be costly, certain coal suppliers elect to continue operating the mines at a loss instead of closing a mine and discontinuing coal production so that they do not have to incur these regulatory expenses. Notwithstanding this downward pressure in the domestic market, the coal market

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 10 of 23

recently has strengthened due to increasing demand for coal exports for both steam coal and metallurgical coal. While the Company does not anticipate that these market conditions will change in the short-term, current supply forecasts indicate that ample coal supplies will be available in the foreseeable future.

Q. HOW DOES SCE&G ENSURE THAT THE RIGHT QUANTITY OF FUEL SUPPLIES IS AVAILABLE TO MEET GENERATION DEMANDS AT ITS FOSSIL FUEL FACILITIES?

A. SCE&G uses several steps to bring the fuel supply and demand factors together. Fuel usage levels are calculated and forecasted for each of the generating plants. Coal and No. 2 fuel oil inventories are then validated and contract quantities are summed and compared against system usage to determine needs going forward. With this information, the Fuel Department carefully evaluates the Company's coal requirements and determines whether transportation options under current contracts, spot purchases, or additional long-term agreements are appropriate. Through this process, SCE&G has been successful in leveraging long-term and short-term coal purchases to achieve reasonable purchase prices while ensuring the reliability of coal supplies necessary to support system needs.

No. 2 fuel oil is purchased to ensure adequate back up to natural gas for SCE&G's intermediate and peaking generators. Typically, fuel storage tanks are filled going into peak usage periods.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 11 of 23

Q. HOW DOES THE COMPANY DETERMINE A "REASONABLE PRICE" FOR COAL AND NO. 2 FUEL OIL PURCHASES?

A. The Fuel Department works diligently to achieve an optimization between adequate fuel supplies of acceptable quality at reasonable purchase prices. The ultimate value of the delivered fuel (coal or No. 2 fuel oil) is determined by the actual delivered cost per Million British Thermal Units ("MMBTU"), accounting for any fuel impacts in the operation of our generating plants. Market prices fluctuate due to such things as seasonality, political turmoil, national weather trends, and domestic/international supply/demand imbalances. SCE&G continuously evaluates factors that impact prices, while employing contract strategies such as predetermined price adjustments, price collars, and quarterly adjustments to mitigate the effect market conditions have on coal contracts. Market publications, indices, industry solicitations, trade associations, and interacting with market participants are some of the sources and methods that we use to stay abreast of market trends and conditions.

Q. HOW DOES THE COMPANY MANAGE COAL INVENTORIES TO ENSURE RELIABILITY AND AVAILABILITY?

A. To maintain adequate supply at its coal-fired generating facilities, the Company continuously manages inventories using long-term contracts, spot market purchases, and transportation options. The Company used these tools in support of its efforts to maintain an inventory of approximately 680,000 tons of coal during the

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 12 of 23

Review Period based on the average of each of 12 months' ending inventories to support anticipated consumption during the Review Period and to maintain enough coal to run each coal unit at full capacity for approximately 45 days. This methodology allows for an inventory of more than 680,000 tons at the beginning of high demand periods and less than 680,000 tons entering the milder months. This targeted inventory level aids in protecting SCE&G and its customers against lack of coal availability as well as against production and delivery problems that may arise from time to time. The coal inventory is also an immediately available resource to meet our supply needs when short-term market prices are unfavorable. A crucial aspect of the Company's inventory management is balancing its short-term needs against long-term requirements and expected future operating conditions.

Q. PLEASE PROVIDE AN OVERVIEW OF TRANSPORTATION SERVICES DURING THE REVIEW PERIOD.

A. In 2017, CSX Transportation, Inc. ("CSX") remained the primary rail transporter of coal for SCE&G. While the CSX contract rates remained relatively stable during 2017, the rates were subject to quarterly adjustments according to indices published by the American Association of Railroads. SCE&G's contract with CSX expired at the end of 2017 and, due to significant management changes at CSX, negotiations for a new rail transportation contract are still ongoing. However, CSX is continuing to provide rail transportation services under an agreed upon extension of the prior contract that locks in through February 2018 the contract

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 13 of 23

rates effective in December 2017 while the parties are finalizing these negotiations. If the new contract is finalized prior to the hearing in this matter, the Company will update the Commission on the progress of our negotiations at that time.

The Company also was under contract with Norfolk Southern Railway Company during the Review Period.

Q. DOES SCE&G HAVE ACCESS TO INTERNATIONAL COAL SUPPLIES?

A. Yes. Although the Company did not receive any deliveries of international coal during the Review Period, SCE&G has the capability of obtaining and transporting to its coal generation facilities imported coal on a spot or as-needed basis when prices for international coal are competitive with domestically produced coal. SCE&G will continue to explore opportunities to utilize different transportation options to reduce costs to our customers while reliably and prudently maintaining access to adequate supplies for its electric generation needs.

Q. PLEASE DESCRIBE THE STATE OF THE INTERNATIONAL COAL MARKET IN WHICH SCE&G PARTICIPATES AND ITS CURRENT PLANS REGARDING IMPORT COAL.

A. International coal prices have risen over the Review Period, with the Company continuing to monitor the market for use of international coal in SCE&G's system. Demand for international coal demand has recently started to increase with India consuming a third of the United States' coal exports. During the

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 14 of 23

Review Period, export coal shipments from United States ports increased because the coal prices were competitive in the global market and those coal exports are expected to remain strong into 2018.

SCE&G will continue to monitor and remain informed of opportunities to purchase international coal as part of its ongoing effort to reduce fuel costs for both SCE&G and its customers and to ensure that an adequate supply of coal is available to meet its generation needs.

Q. WHAT WERE SCE&G'S DELIVERED COAL COSTS FOR THE REVIEW PERIOD?

A. SCE&G's average delivered cost in dollars per MMBTU by month for coal purchased for steam plants during the Review Period is set forth in Table 1.

Table 1

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
$3.26	$3.46	$3.23	$3.21	$3.24	$3.14	$3.18	$3.18	$3.35	$3.29	$3.34	$3.32

Q. WHAT CHANGES DOES THE COMPANY ANTICIPATE IN THE COAL MARKET FOR THE 2018 FORECASTED PERIOD?

A. SCE&G's coal prices for the forecasted period are expected to remain stable at current levels. Over the past 12 months, the price per ton of CAPP coal increased from $60.50 per ton on January 23, 2017, to $64.50 per ton on December 30, 2017, representing an approximately 8% price increase. Spot coal prices have been stable

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 15 of 23

in 2018 at approximately $64.25 per ton on January 29, 2018. Although the increased consumption of coal in India and the unpredictability of Chinese demand make it difficult to predict future coal prices, SCE&G does not presently expect any further substantial price increases in 2018. However, any major market disruptions such as adverse weather and increased international demand could cause pricing to increase.

CAPP coal prices will continue to be affected by a dwindling active coal reserve base, a lower amount of coal suppliers operating in the current market, Environmental Protection Agency ("EPA") and Mine Safety and Health Administration regulations, and the redeployment of capital dollars away from coal mining. These mounting issues have led to a more limited ability to borrow money for recapitalization of mines in general, and the inability of mining companies to acquire new mining permits. These factors will continue to put upward pressure on coal production costs during 2018 and beyond. Notwithstanding these upward pressures, the Company expects coal prices will increase as spot coal is purchased in an elevated market and as long-term solicitations are received and concluded in 2018. Supply is expected to be stable and obtainable based primarily on the continued supply of low cost natural gas, new combined-cycle gas generation capacity being added inside and outside of SCE&G's service area, and continued decommissioning of coal consuming power plants, all of which reduces the demand for coal.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 16 of 23

Q. WHAT ADDITIONAL STEPS IS THE COMPANY TAKING TO MITIGATE FUEL-RELATED EXPENSES?

A. SCE&G continuously tries to reduce costs by purchasing coal of lower quality where practicable and acceptable to a coal-burning plant. During 2017, SCE&G elected to take delivery of coals purchased mainly on the OTC "Over the Counter" trading market as well as purchasing coal from Northern Appalachia. Generally, these coals could be purchased at a lower delivered cost than lower quality coals purchased directly from a Central Appalachian coal supplier. These coals were consumed at SCE&G's Cope, Williams, and Wateree Stations. SCE&G will continue with this practice until it is no longer beneficial or different coals need to be purchased for testing.

SCE&G also continues to evaluate the fuel flexibility for all of its coal-fired plants. This evaluation considers fuels from different regions of the United States and South America with multiple sulfur, ash, and BTU levels. Currently, transportation rates, and in some cases original plant design, lead to a situation in which coal from other basins is non-competitive with CAPP coal due in large part to significant differences in coal qualities that could negatively impact plant operations.

As discussed above, the Company in recent periods has increased the balance of its coal purchases away from long-term agreements in favor of spot purchases to provide more flexibility in managing the Company's inventory, to adjust for market conditions, and to capitalize upon the price competitiveness of spot coal, when

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 17 of 23

appropriate. And, with respect to all of its fuel purchases, the Company continuously evaluates opportunities for leveraging transportation options to obtain lower delivered rates.

Q. WHAT HAS BEEN THE RECENT PRICING TREND IN THE NO. 2 FUEL OIL INDUSTRY?

A. Delivered No. 2 fuel oil average monthly prices during the Review Period ranged from a low of $11.35/MMBTU in June 2017 to a high of $16.25/MMBTU in September 2017.

Set forth below is Table 2 that shows the average system delivered No. 2 fuel oil prices in dollars/MMBTU for the Review Period for No. 2 fuel oil purchased for steam plants, gas turbines, and combined cycle units.

Table 2

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
$13.50	$13.12	$12.48	$12.97	$11.53	$11.35	$11.53	$12.69	$16.25	$13.76	$15.20	$14.77

Q. WHAT RESPONSIBILITIES DOES THE FUEL DEPARTMENT HAVE WITH RESPECT TO SO_2 AND NO_X ALLOWANCES?

A. The Fuel Department purchases or trades EPA sulfur dioxide ("SO_2") and nitrogen oxides ("NO_x") emission allowances as needed by SCE&G to compensate for its SO_2 emissions. However, SCE&G currently is emitting less than its SO_2 and NO_x emission allowances allocated to it by the EPA. For this reason, the Company was not required to purchase SO_2 and NO_x emission allowances and was able to

sell 5,189 Vintage: 2015/2016 – CSAPR Ozone Season NO_x Allowances during the Review Period. The Company also does not anticipate having to buy any SO_2 or NO_x emission allowances in 2018.

Q. PLEASE EXPLAIN THE FUEL DEPARTMENT'S ACTIVITIES RELATED TO THE PROCUREMENT OF LIMESTONE FOR SCE&G'S POLLUTION CONTROL FACILITIES.

A. The Fuel Department is responsible for securing adequate and reliable supplies of limestone for the effective operation of wet limestone scrubbers at the Company's Wateree and Williams Stations. There continues to be limited suppliers for limestone for Williams and Wateree Stations. During the Review Period, the Company acquired all of its supplies of limestone from a single source, which has proven to be effective and market priced.

The limestone is delivered to Williams and Wateree Stations by truck since the current source of supply is located near the plants. In summary, the Company continues to evaluate supply and transportation options designed to ensure adequate and reliable supplies of limestone at reasonable prices at its Williams and Wateree Stations.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 18 of 23

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 19 of 23

NUCLEAR FUEL PURCHASING

Q. PLEASE DESCRIBE THE NUCLEAR FUEL CYCLE.

A. Uranium ore is the source of fuel used to generate electricity in nuclear reactors. Naturally occurring uranium primarily consists of two isotopes, 0.7% Uranium-235 and 99.3% Uranium-238. As depicted in Exhibit No. __ (MDS-1) attached hereto, uranium must undergo a series of processes to produce a useable fuel before it can be used in a reactor for electricity generation. These processes are mining and milling, conversion, enrichment, and fabrication. In the first stage, uranium is mined. Once the ore is mined it is sent to a mill where it is crushed into smaller pieces and then introduced to a slurry in which a strong mixed solution is used to dissolve the uranium. At this point in the mining and milling process, the uranium is then dried and commonly referred to as yellowcake, also known as uranium oxide ("U_3O_8") concentrate. In the next step of the process, known as conversion, the U_3O_8 goes through a chemical process in which it is converted into uranium hexafluoride ("UF_6"). The UF_6 then becomes the feedstock required in the isotopic separation process, known as enrichment. Once the UF_6 is enriched to the desired level, it is converted to uranium dioxide ("UO_2") powder and formed into pellets. This process, and the subsequent steps of inserting the fuel pellets into fuel rods and bundling the rods into fuel assemblies for use in nuclear reactors, is referred to as fabrication.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 20 of 23

Q. PLEASE DESCRIBE HOW YOUR DEPARTMENT MAKES PURCHASING DECISIONS FOR NUCLEAR FUEL.

A. During the Review Period, the responsibilities related to nuclear fuel procurement were shared between my Department and the Nuclear Design and Analysis department ("NDA"). NDA prepared a forecasted refueling schedule which is reviewed by my Department on an annual basis. This forecast formed the foundation for the nuclear fuel requirements forecast. Once the nuclear fuel requirements forecast was developed, the Fuel Department was primarily responsible for procuring U_3O_8 and conversion services and NDA was primarily responsible for procuring enrichment and fabrication services. Collectively, my Department and NDA form the Nuclear Fuel Procurement team ("Team"). The Team determined nuclear fuel requirements, shared market information and reviewed offers related to all segments of the nuclear fuel cycle.

Q. ARE SCE&G'S CONTRACTS TO PURCHASE NUCLEAR FUEL NORMALLY SHORT-TERM OR LONG-TERM?

A. Due to the long lead time required to process uranium prior to being loaded in SCE&G's reactor, the Company's contracts are normally long-term contracts, with a term in excess of one year. Currently the Company has long-term commitments for uranium and conversion services, enrichment and fabrication for V.C. Summer Unit One. During the Review Period, the Team monitored the nuclear fuel market on an ongoing basis and evaluated spot market opportunities from time

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 21 of 23

to time that may supplement long-term contract supplies as appropriate. Included in the procurement process is the Company's contingency reserve. The nuclear fuel contingency reserve targets are designed to provide security of supply for future requirements by mitigating potential market disruptions.

Q. PLEASE DESCRIBE THE MOVEMENT OF NUCLEAR FUEL PRICES DURING THE CURRENT REVIEW PERIOD.

A. The nuclear fuels market is comprised of two types of pricing scenarios: spot and long-term. Spot prices typically represent any transaction taking place within a year while long-term prices require a commitment for some period beyond one year. Each of the nuclear fuel processes can be purchased individually or bundled at any point in the fuel cycle, with the exception of fabrication. Fabrication is a complex process that has specific requirements for each individual reactor and therefore is typically sourced to a single supplier with long-term agreements. Over the past few years short-term and long-term prices for uranium, conversion, and enrichment have remained stable. In the near term, prices for uranium and the other processes in the nuclear fuel cycle are anticipated to continue to remain stable for both short-term and long-term pricing.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 22 of 23

CONCLUSION

Q. WHAT REQUEST DOES SCE&G MAKE OF THE COMMISSION IN THIS PROCEEDING?

A. The Fuel Department has made reasonable and prudent efforts to obtain reliable, high quality supplies of coal, No. 2 fuel oil, and limestone and associated transportation at the lowest possible cost to SCE&G's customers. Likewise, the Fuel Department made reasonable and prudent efforts to obtain market-based prices and reliable supply for its nuclear fuel needs for electric generation and procured at reasonable prices the necessary capacity for delivery of that supply. Therefore, on behalf of SCE&G, I respectfully request that the Commission find that the Company's fuel purchasing practices were reasonable and prudent for the Review Period.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

BY MR. GISSENDANNER:

Q Mr. Kahl, please state your name for the record.

A [KAHL] James Darrin Kahl.

Q By whom are you employed and in what capacity?

A [KAHL] By SCANA Services, Incorporated, as the manager of Gas Supply and Asset Management.

Q Mr. Kahl, have you prepared or caused to be prepared under your supervision direct testimony of eight pages that was previously filed with the Commission in this docket?

A [KAHL] Yes, I have.

Q And do you have any changes or additions to your prefiled direct testimony?

A [KAHL] No, I do not.

Q So if I asked you the same questions here today, would your answers be the same?

A [KAHL] Yes, they would.

MR. GISSENDANNER: Mr. Chairman, at this time, I move that the prefiled direct testimony of Darrin Kahl be read into the record as if given orally from the stand.

CHAIRMAN WHITFIELD: Mr. Kahl's prefiled direct testimony will be entered into the record as if given orally from the stand.

MR. GISSENDANNER: Thank you, Mr. Chairman.

BY MR. GISSENDANNER:

Q Mr. Kahl, have you also prepared or caused to be prepared under your supervision an exhibit labeled as Exhibit JDK-1 that was previously filed with the Commission as an attachment to your direct testimony in this docket?

A [KAHL] Yes, I have.

Q And do you have any changes or additions to your exhibit?

A [KAHL] No, I do not.

MR. GISSENDANNER: Mr. Chairman, I would also move into the record, as the next hearing exhibit, the exhibit attached to Mr. Kahl's direct testimony and labeled as Exhibit JDK-1.

CHAIRMAN WHITFIELD: Mr. Kahl's Exhibit JDK-1 will be entered in as Hearing Exhibit No. 3.

[WHEREUPON, Hearing Exhibit No. 3 was marked and received in evidence.]

MR. GISSENDANNER: Thank you, Mr. Chairman.

BY MR. GISSENDANNER:

Q Mr. Kahl, have you prepared a summary of your direct testimony?

A [KAHL] Yes, I have.

Q Would you please deliver that at this time?

A [KAHL] Sure.

Good morning, Chairman Whitfield, and members of the Commission.

On behalf of SCE&G, I'm appearing before you today to provide information about the natural gas purchasing process for SCE&G generation and to discuss natural gas prices for the review period of January 1, 2017, through December 31, 2017, and the outlook for natural gas prices in the near term.

The gas purchases made by the Gas Supply Department are driven by the needs of the Electric Generation group. Our department provides SCE&G's Economic Resource group, or ERC, with current market information that can be used in the electric generation dispatch modeling to determine the most economic means of reliably meeting the electric needs of our customers. Once ERC decides that natural gas is the economical choice for providing reliable power to our customers, our department is directed to purchase gas supplies for delivery with a stated term and volume at the best available current market prices.

Prices in the natural gas market began in our review period at approximately $3.57 per dekatherm, also the year's high. Mid-January saw an early end to extreme winter temperatures and the associated drop in demand resulted in prices falling to approximately $2.52

per dekatherm, or the low for the year, by late February. An uptick in demand in March, followed by spring demand for storage refill and power generation, steadied the market as prices moved back to the $3.40 per dekatherm area in May. Production increases in the latter half of the year helped keep prices in the range between $2.70 and $3.25 per dekatherm until mid-December, when late-arriving winter demand allowed prices to approach the low for the year, dipping to $2.56 per dekatherm before the winter cold blast led to an increase in demand and a rise in prices in the year's final days. This increase in demand resulted in the market finishing the year at approximately $2.95 per dekatherm.

The near-term forecast indicates natural gas prices are likely to average approximately $3 per dekatherm as the winter period comes to a close. However, short-term price volatility can result from dramatic changes in either supply or demand components. Energy analysts continue to forecast relatively stable natural gas prices in the $3-$4 per dekatherm range over the next three to five years.

In conclusion, I respectfully request that the Commission find that SCE&G's natural gas purchasing practices for electric generation were reasonable and

prudent.

This concludes my summary.

MR. GISSENDANNER: Thank you, Mr. Kahl.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY OF J. DARRIN KAHL FOLLOWS AT PGS 101-108]

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 1 of 9

DIRECT TESTIMONY OF

J. DARRIN KAHL

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2018-2-E

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is J. Darrin Kahl, and my business address is 1300 12th Street, Suite F, Cayce, South Carolina.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?

A. I am employed by SCANA Services, Inc. ("SCANA Services") as Manager of Supply and Asset Management.

Q. PLEASE DESCRIBE YOUR DUTIES RELATED TO NATURAL GAS PROCUREMENT FOR ELECTRIC GENERATION IN YOUR CURRENT POSITION.

A. During the review period of January 1, 2017, through December 31, 2017 ("Review Period"), I was responsible for natural gas procurement for the generating facilities operated by South Carolina Electric & Gas Company ("SCE&G"). These responsibilities included procurement of gas supply and capacity, nominations, and scheduling.

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 2 of 9

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. I graduated from the University of South Carolina in 1991 with a Bachelor of Science degree in Accounting. Following graduation, I held various roles within the accounting areas of audit, information technology, and financial reporting with an electronic security services company. In 1997, I joined SCANA Energy Marketing, Inc. ("SEMI") as an Energy Services Coordinator performing a variety of job functions, including tariff analysis, gas supply procurement and scheduling. In 1999, I assumed the role of Transportation Coordinator which included intrastate and interstate pipeline scheduling, producer services, and gas supply procurement. In 2002, I accepted the position of Supervisor of Scheduling with SCANA Services where my responsibilities included supervising a team of employees who conducted nominations, scheduling, and balancing on interstate pipelines for all of the SCANA gas subsidiaries. From 2003 through 2007, I assumed the position of Manager of Operations & Gas Accounting, where I was responsible for the day to day operations of gas scheduling on interstate pipelines and gas accounting. Currently, I am the Manager of Supply and Asset Management with SCANA Services, where I manage a team of employees responsible for natural gas procurement, transportation, scheduling and balancing.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. Yes, I have testified before this Commission on several occasions.

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 3 of 9

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my direct testimony is to provide information about the natural gas purchasing process for SCE&G generation and to discuss natural gas prices for the Review Period, and outlook for natural gas prices in the near term.

I. NATURAL GAS PURCHASING

Q. PLEASE DESCRIBE HOW YOUR DEPARTMENT MAKES NATURAL GAS PURCHASING DECISIONS.

A. Natural gas purchases made by the Gas Supply Department ("Department") are driven by the needs of the electric generation group. My Department provides SCE&G's Economic Resource Commitment Group ("ERC") with current market information that they use in resource commitment modeling for the Company's electric generation plants. ERC requests natural gas price quotes and market information from my Department on a continual basis. ERC uses current natural gas prices as one input into its dispatch modeling to determine the most economical means of reliably meeting the electricity needs of customers.

Actual natural gas purchasing decisions are driven by the unit commitment decisions made by ERC. After ERC determines that natural gas is the economical choice for providing reliable power to our customers, my Department is directed to purchase natural gas supplies for delivery with a stated term and volume at the best available current market prices at that time.

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 4 of 9

Q. PLEASE DESCRIBE YOUR NATURAL GAS CONTRACTS.

A. We have industry standard contracts with more than 60 suppliers that have proven to be creditworthy and reliable. These contracts set forth many of the terms and conditions of delivery. Price and quantity, however, are determined at the time of purchase.

The most common prices quoted for daily natural gas deliveries are the day-ahead gas price. The Gas Daily Average or GDA, for example, is an average of these day-ahead prices, reported on a historical basis the next business day.

The day-ahead natural gas market, however, closes at mid-day of the day before the natural gas is delivered. Because some unit commitment decisions may not be made until the following morning, GDA prices are not available for all supply purchases for electric generation. In these situations, the natural gas we purchase for electric generation is made in the intraday market. In summary, natural gas purchases are short-term in nature when compared to other fuel purchases due to the fungible nature of natural gas and the liquidity of the natural gas market.

Q. WHAT TOOLS DO YOU USE TO INFORM YOUR NATURAL GAS PURCHASING DECISIONS?

A. The most important tools used to inform our purchasing decisions are my Department's collective experience in national natural gas markets, careful observation and evaluation of movements in market-based prices, and continual surveys of our suppliers for pricing information. These tools are by far the most

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 5 of 9

important and most accurate in helping to determine market-based prices for natural gas supplies being purchased on the "spot market."

Another tool we use to inform our purchasing decisions is the Intercontinental Exchange ("ICE"), which is a real time electronic trading board. The shortcoming of the ICE service as with other pricing services is that not all trades are reflected in these services. Nevertheless, ICE is one of the most widely used sources of pricing information and provides a reliable indication of current market prices.

My Department also uses the New York Mercantile Exchange ("NYMEX") pricing data as a guide to determine whether to purchase natural gas on a monthly or seasonal basis. NYMEX is a financial market which captures real-time trading data and information about the projected price of natural gas and other commodities at various times in the future.

Q. WHAT NATURAL GAS TRANSPORTATION CAPACITY DOES SCE&G HAVE FOR THE GENERATING FACILITIES OPERATED BY SCE&G?

A. SCE&G has long-term capacity contracts with the following interstate pipelines for firm transportation service: 51,050 dekatherms ("Dt") per day on Southern Natural Gas Company ("SNG"), 138,498 Dt per day on Dominion Carolina Gas Transmission ("DCGT"), and 40,000 Dt per day on Transcontinental Gas Pipeline, LLC. SCE&G also has a Commission-approved contract with SEMI for firm natural gas supply up to 120,000 Dt per day.

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 6 of 9

Q. DOES THE COMPANY HAVE PLANS TO PURCHASE ANY ADDITIONAL INTERSTATE PIPELINE CAPACITY FOR NATURAL GAS FIRED GENERATION?

A. Yes. The Company entered into a Precedent Agreement with DCGT for an additional 25,000 Dt per day of firm transportation capacity with an anticipated in-service date of March 1, 2018.

The Company continues to review its generation needs on an annual basis to determine whether it requires additional natural gas transportation capacity to serve natural gas fired generation facilities.

Q. PLEASE DESCRIBE NATURAL GAS PRICES DURING THE CURRENT PERIOD UNDER REVIEW.

A. Prices in the natural gas market began the Review Period at approximately $3.57 per Dt, also the year's high. Mid-January saw an early end to extreme winter temperatures and the associated drop in demand resulted in prices falling to approximately $2.52 per Dt, the low for the year, by late February. An uptick in demand in March followed by spring demand for storage refill and power generation steadied the market as prices moved back to the $3.40 per Dt area in May. Production increases in the latter half of the year helped keep prices in a range between $2.70 per Dt and $3.25 per Dt until mid-December when late arriving winter demand allowed prices to approach the low for the year, dipping to $2.56 per Dt before the first winter cold blast led to an increase in demand and a rise in prices

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 7 of 9

in the year's final days. This increase in demand resulted in the market finishing the year at approximately $2.95 per Dt. Attached hereto as Exhibit No. __ (JDK-1) is a graph of the daily settle prices for 2017.

During the Review Period, SCE&G purchased 65,123,753 Dt of natural gas for electric generation at a total cost of $186,097,801 and at an average price of $2.86 per Dt.

The price forecast for the remainder of 2018 suggests natural gas prices are likely to average approximately $3.00 per Dt as the winter period comes to a close. However, short-term price volatility can result from changes in either supply or demand. The fundamental factors of such changes may include, but are not limited to, weather, increases in customer demand, changes in supplies from shale production, changes in storage inventory levels, and/or constraints in pipeline capacity. Energy analysts continue to forecast relatively stable gas prices in the $3.00 per Dt to $4.00 per Dt range over the next 3 to 5 years.

Q. WHAT REQUEST DOES SCE&G MAKE OF THE COMMISSION IN THIS PROCEEDING?

A. During the Review Period, the Department made diligent and prudent efforts to obtain reasonable market-based prices for the reliable supply of natural gas for electric generation and to procure the necessary capacity for the delivery of that supply. Therefore, on behalf of SCE&G, I respectfully request that the Commission

find that the Company's fuel purchasing practices were reasonable and prudent for the Review Period.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

ELECTRONICALLY FILED - 2018 February 23 5:01 PM - SCPSC - Docket # 2018-2-E - Page 8 of 9

MR. GISSENDANNER: Mr. Chairman, Mr. Shinn and Mr. Kahl are available to the parties for cross-examination and to the Commissioners for questioning.

CHAIRMAN WHITFIELD: Thank you, Mr. Gissendanner.

Mr. Whitt?

MR. WHITT: Mr. Chairman, SBA does not have any questions for these two witnesses.

CHAIRMAN WHITFIELD: Thank you, Mr. Whitt.

Mr. Elliott.

MR. ELLIOTT: Just a very few.

CHAIRMAN WHITFIELD: Yes, sir. Please come to the podium.

MR. ELLIOTT: If you'll indulge me a moment.

[Brief pause]

CROSS EXAMINATION

BY MR. ELLIOTT:

Q Mr. Shinn.

A [SHINN] Yes, sir.

Q In your testimony, you laid out that, typically, or historically, with respect to long-range coal, you like to have about 75 or 80 percent of your coal purchases long-term or long-range?

A [SHINN] Yes, sir.

Q And a long-term contract, as I recall, has been about three years or longer?

A [SHINN] We define it as a year or more, usually a maximum of three years.

Q All right. And I think you testified that, in 2017, you had about 63 percent, or so, long-term and about 37 percent short-term?

A [SHINN] Yes, sir.

Q All right. And, then, I think you testified that, for 2018, your long-term is about 79 percent, thereabouts, and that you purchased about 8 percent spot, to date.

A [SHINN] Correct.

Q Am I recalling correctly? And you weren't sure about the other 12 percent.

A [SHINN] [Shaking head.]

Q And my question simply is, is there something unusual about the coal prices in 2018 that has sort of prompted you to be as high as 79 percent and only have 8 percent in the spot price at this time?

A [SHINN] Yeah, what had happened is last year you saw a low in coal prices. They got as low as probably, I think, in the $30s, mid-$30 per ton. So we have forgone some of the contract purchases we would have normally made earlier in the year and just purchased spot. And as we came out of the summer and moved more into the

fall, the export market started to pick up and coal prices started to rise, so we went ahead and secured long-term coal at that point in time. Most of that coal, we purchased in the mid-$50s probably. The current market is $60 a ton. So we just went ahead and purchased more coal in advance, and plus our – and the reason it's a little bit higher, 79 percent, now is because our forecast had gone down some, due to the low natural gas prices, so you see it a little bit higher.

Q So it's a combination of needing less and the cost?

A [SHINN] And the economics, that's correct.

Q Would it have benefited you to buy some long coal at $34 a ton?

A [SHINN] They wouldn't sell long-term coal at $34.

Q So, part of the spot market is, if they've got some excess or inventory, they'll unload it at a lower price?

A [SHINN] Well, most of that spot coal that we purchased, you have the suppliers who actually have to produce the coal, and you have the traded market. Most of that lower- to mid-$30 coal is in the traded market. Those are basically financial houses that have to dump the product, no matter what the price. Suppliers merely just ramp back production. So those mid-$30 prices were just spot prices on the traded market.

Q Okay, sir. And, then, you answered part of my second

set of questions with respect to the CSX contract. As I recall from previous hearings, fuel hearings, those CSX prices are maintained confidentially?

A [SHINN] Correct.

Q All right. But I think you can describe the impact of the lower transportation costs on your overall cost of coal, going forward, can you not?

A [SHINN] Well, I'll certainly – negotiating with the railroads is never a pleasant experience. But, you know, with the advent of coal plants and coal, in general, they were more apt to lower their prices. I would say 10 to 15 percent, probably, lower.

Q Ten to fifteen percent?

A [SHINN] On just the transportation aspect.

Q And so what's the impact of the overall cost of coal, delivered, if transportation is 10 to 15 percent?

A [SHINN] It's going to vary on the cost of the coal. I really don't have that number, but as coal goes up, you know, the impact of the price of the transportation is less.

Q So if the coal prices continue to go up, thank goodness for the lower cost of the transportation?

A [SHINN] Yes, sir.

Q All right. Thank you.

Mr. – is it Mr. Kahl?

A [KAHL] That's correct.

Q Am I pronouncing that correctly? I just have a few, very few, questions for you, as well. And these questions, I probably should know the answer to, and I'm probably the only person in the room who doesn't know the answer. You testified that the average price of gas for the year was $2.86 per dekatherm? Do you recall that? And I'll draw your attention to page seven. I didn't write the line.

A [KAHL] Yes, sir, I see that.

Q Okay. That's what you testified?

A [KAHL] Yes, sir.

Q And in preparing for today's hearing, I would imagine you have examined the testimony and schedules of the ORS witnesses?

A [KAHL] Correct.

Q And you know Ms. Smith is one of the ORS witnesses?

A [KAHL] That's correct.

Q All right. And she will offer testimony on the cost of gas, you're aware of that?

A [KAHL] That's correct.

Q Now, she will testify, I believe, that the average weighted cost of gas is $3.57. Do you recall that from her prefiled?

A [KAHL] That's her Exhibit -2, I believe.

Q Yes, sir. And my question is, what's the difference between her number and your number?

A [KAHL] Sure. My number represents basically the commodity cost of the gas. I believe in her number she includes transportation costs, volumetric surcharges from the interstate pipelines. So there's additional costs that are included in hers that – where we're just focused on the commodity component.

Q All right, sir. But you would agree, would you not, that the average weighted cost of gas is $3.57, as she will testify?

A [KAHL] In her testimony, accepting that the rates that – the transportation rates in the volumetric surcharges, yes, sir.

Q Okay. Now, you testified a little bit, too, in your testimony, about capacity – gas capacity – and the company's purchase or acquisition of gas capacity?

A [KAHL] That's correct.

Q And I think you testified – the details are not so important, but you've got a contract I think with Southern, maybe, and you've got a contract with Dominion, but you're looking at additional capacity going forward? Do I recall that correctly, that you're looking at additional capacity going forward?

A [KAHL] In the testimony?

Q Yes, sir.

A [KAHL] We have 25,000 dekatherms of capacity. That started March 1 of this year, for the generation facilities.

Q Okay. So with the timing of your testimony, when you prefiled it, it was in the future, but now you've got that additional capacity?

A [KAHL] Right. That project was in the works. It just had not been completed yet.

Q I understand. Prefiled testimony is a wonderful thing, except when it's not. So, Mr. Shinn testified a moment ago about some constraints, gas constraints. Do you think, with this additional capacity that you've purchased, that you will meet and address all these constraints that you have historically had?

A [KAHL] Well, this capacity that we have and the capacity that's existing is designed to serve the electric generation fleet. Now, it may not necessarily be designed to fulfill 100 percent of their needs, but what we do look at is we have an MOU between the gas LDC and the Generation group. And to the extent we can use the assets and share to the greatest extent possible, we will do that, to make sure that we can run the generation when they need natural gas.

Q Well, I guess my question is – and I'm just asking – is

it more prudent, in your view, to purchase less capacity than you might need? Err in favor of less capacity and trust that you'll be able to buy the additional capacity you need on the open market?

A [KAHL] Part of our process is we work in concert with the Generation group and ERC, and they determine or they look at the assets across the board and make that determination of which – what are the best economics for the generation of the fleet.

Q So, somebody else makes that decision?

A [KAHL] We are an input into transportation costs and commodity costs, as far as that's concerned, yes, sir.

Q All right. I want to talk a little bit about just purchasing gas. You know, on the coal side, y'all have these long-term contracts so that you have some certainty and, perhaps, I would think for some pricing benefits. But y'all don't buy any natural gas in advance or over a long term, do you?

A [KAHL] We have in the past, and we do. Again, in connection with the ERC group, we work with that group and they'll look at – just for an example, a few months ago – they'll look at the price of the different resources that are out there and, based on those costs, they will come to us and they may look to lock in like a month time period. And they've done that recently where

they'll come to us and we've locked in a monthly index. So we've bought a base-load supply for a given month, over periods of time.

Q All right. And, good. I think that's a change. What month most recently did you lock down a month's worth in advance?

A [KAHL] I don't recall, but I know it was – we've done several months in the review period.

Q Well, because I guess my question really is, you really ought to know, at some minimum, how much natural gas you're going to need in the forecast period. Let's use this forecast period, for example. Don't you? Can't you calculate that?

A [KAHL] Again, we're not – our group doesn't necessarily make those calculations. We work in concert with that group and, should they make that decision to economically dispatch natural gas for our units, then we'll definitely work with them.

Q Well, you work in concert with them. So, you would really know the answer to the question, though, wouldn't you? And that is, would there not be some minimum amount of natural gas that you could anticipate or forecast that you would need during a period of time?

A [KAHL] Well, again, we don't see the whole arrangement of assets out there. We're only focused on the natural

gas portion of what the dispatch is. So we don't see all the different variables that go into the input of economic dispatch.

Q So do you – so, exactly what is your role?

A [KAHL] Again, like we say in the testimony, we work with the ERC group and, to the extent they want to run a generation unit on gas, then we'll, again, provide them the information of current market prices and provide that information back to them.

Q And in your department, do you keep a record of the amount of gas that you've recommended to be purchased over time?

A [KAHL] Again, we don't recommend. They provide us with the information.

Q Do you keep records in your department?

A [KAHL] Yes.

Q All right.

A [KAHL] We keep records.

Q And I'm sure it's me, but I'm – do you keep a record of how much gas has been purchased, in your department?

A [KAHL] Yes, we do.

Q All right. And if you were to look at your record showing the amount of gas that you have historically purchased, in your department records, could you ascertain some minimum amount of gas you have purchased

historically?

A [KAHL] We could. But, again, it varies plant to plant, and on the dispatch, on the weather. So there's a lot of variables that go into it.

Q But you could ascertain the minimum – if you looked back ten years, you could ascertain that you bought – the lowest amount of gas you bought over a one-year period was, some number, correct? Your records would show that.

A [KAHL] We could.

Q All right. And so it seems to me that somebody in your company might be able to forecast on a regular basis the minimum amount of gas that they might purchase in advance. Would you agree with that?

A [KAHL] Yeah, they're –

Q Not you necessarily, but there's got to be somebody, over here, that might be able to ascertain that number. You agree?

A [KAHL] Could you restate the question?

Q Yes. I'm sure it's me. There ought to be somebody at SCE&G who would be able to, using your records and whatever records that you keep as a company, determine that, over a period of time, a minimum amount of natural gas is purchased during a year's period. Correct?

A [KAHL] There could be. But unlike coal, natural gas –

we don't have storage for natural gas. So in the event that there is an issue at a natural gas facility, where it cannot run on gas, unlike coal where it can just sit on the ground as inventory, on the natural gas side we have to have a home for that. So we have to make sure we have a balance of being able to take that gas on any given day.

Q And you're anticipating my next question – one of my next questions, but not the very next one. You purchase capacity to transport the gas through the lines, right?

A [KAHL] That's correct.

Q And you do go out on a limb and purchase some amount of capacity in advance, not knowing how much gas you're going to need for the period, correct?

A [KAHL] We have contracts for capacity.

Q All right. And that's just capacity; that's without regard to how much gas you buy, correct?

A [KAHL] That's correct.

Q All right. So, if the company can – if the company can analyze its capacity needs and buy capacity in advance, why can't the company analyze its natural gas needs and buy some minimal amount of natural gas in advance?

A [KAHL] Well, like I mentioned earlier, we have done that. We've done that in the past.

Q And why can't – well, have you – why can't the company –

you know, this is Law School 101; I'm not supposed to be asking that question this way, but I'm really curious. Why can't the company do that on a more frequent basis?

A [KAHL] Our group is not involved in those decisions – in that decision process. I mean, we're just – we provide the information to the group to see, you know, let them make the choice of what is the most economical asset to dispatch.

Q And you'll buy it for them?

A [KAHL] That's correct.

MR. ELLIOTT: All right. That is all I have, gentlemen. Thank you, very much.

CHAIRMAN WHITFIELD: Thank you, Mr. Elliott. Mr. Ottenweller – I mean, Ms. Ottenweller. I'm sorry.

MS. OTTENWELLER: No questions, thank you.

CHAIRMAN WHITFIELD: Commissioners. Commissioner Elam.

EXAMINATION

BY COMMISSIONER ELAM:

Q Before I get to you, Mr. Shinn, at my own peril, I –

CHAIRMAN WHITFIELD: Commissioner Elam, I'm sorry. I did fail to recognize the Office of Regulatory Staff. I'm sorry. Any questions for this panel?

MR. BATEMAN: No cross. Thank you.

CHAIRMAN WHITFIELD: Okay, Commissioner Elam. Go ahead.

COMMISSIONER ELAM: Okay.

BY COMMISSIONER ELAM:

Q At my peril, I want to follow up on something Mr. Elliott asked you. You said you don't have storage for gas. You can purchase storage on the interstate pipeline, can't you?

A [KAHL] Storage is available on interstate pipelines, but you have to subscribe to that storage.

Q Does the electric side of the house subscribe to any storage on interstate pipelines?

A [KAHL] They do not.

Q Why not?

A [KAHL] It's not available at this time. I mean, the storage facilities on the natural gas side take a long time to be developed, and most of the storage facilities that are out there today have been around for a long time, and almost all those storages are fully subscribed.

Q Okay. And you can't use any of the storage that's on the gas side of the house that it may have?

A [KAHL] To the greatest extent possible, under that MOU of sharing, we do use that when we have to.

Q Okay.

A [KAHL] When it's available.

Q Okay. But it's not a normally available thing.

A [KAHL] That's correct.

Q Okay. Mr. Shinn, on page 16 of your prefiled direct, you discuss purchasing coal of a lower quality to reduce cost. Do you see that?

A [SHINN] Yes, sir.

Q Does burning lower-quality coal create any maintenance problems for your plants?

A [SHINN] Over time, it will. The coal that we have purchased – most of our plants – well, actually all of them remain designed for 12,500-Btu-plus type coal. Some of the lower quality, which I mentioned before, the cheaper coal, spot coal, that we purchased last year, you usually buy that on a 12,500 basis but they send you a 12,200 type coal. So we have one plant that can burn that well. Wateree Station can burn higher-sulfur coal because of the scrubbers. So we try and play all those different quality factors to try and reduce cost and minimize operational issues.

Q Do you perform any tests on the coal to see if it's suitable for burning?

A [SHINN] All of the coal that we load, we have a third party to actually attend the loading and watch the

sampling system, and collect a sample of the coal and go back and test it, so we can just ensure that what we have purchased is what we actually get.

Q Do you ever reject any? Have you had cause to reject any coal?

A [SHINN] Yes.

Q Okay. Does burning the lower-quality coal increase other costs related to fuel, like I believe you mentioned the lime in your summary. There's also emissions allowances. Does burning that lower-quality coal affect those costs?

A It does. The increased lime cost is minimal, compared to some of the discounts you're able to achieve. The — what was the other one? I'm sorry.

Q Emission allowances?

A [SHINN] Yeah, emission allowances. At this time, we're actually subscribed more allowances from the EPA than we actually consume.

Q Yeah, I think I heard you say that. But does that mean you are not able to sell some allowances that you may have otherwise been able to sell?

A [SHINN] Potentially, you could, but for that reason we're not the only ones who emit less than what we're subscribed. The emission markets for those allowances are minimal, as well. I think the last time I looked,

the SO_2 allowances were like $4 apiece, and I can't recall what NO_x is.

Q Okay.

A [SHINN] It might be a few more dollars.

Q Do you figure those costs into your calculation of whether – the economics of burning the lower-quality coal?

A On spot shipments, no, not normally. As to longer-term type contracts that we do, they're subscribed a certain specification, say two pounds of sulfur per million Btu, and if that is the guaranteed number then we set up in our contracts to whatever – let's say a supplier provides 2.2 pounds sulfur, over the life of the contract; they have to pay for those .2 pounds overance.

Q Okay. So is it fair to say that those additional costs are just minor enough to where it's not going to really change the equation as far as the decision to buy lower-quality coal?

A [SHINN] Yeah. Longer term, like I said, we look at it. Short term, we look at it, but typically in a shorter-term contract, depending on if it's an over-the-counter type trader type contract, their allowances are covered but it's more of a standard type thing, industry standard, where our longer-term contracts are customized for our individual units.

Q Okay. Thank you.

A [SHINN] Yes, sir.

CHAIRMAN WHITFIELD: Thank you, Commissioner Elam.

Commissioner Bockman.

COMMISSIONER BOCKMAN: Thank you, Mr. Chairman.

EXAMINATION

BY COMMISSIONER BOCKMAN:

Q Good morning, gentlemen.

A [PANEL] Good morning.

Q Mr. Shinn, I have some questions for you about the railroad –

A [SHINN] Sure.

Q – and your contract with CSX. You indicated in your summary of your direct testimony that you concluded these negotiations for CSX successfully, I think?

A [SHINN] Yes sir.

Q How would you define that? What is your meaning of "successfully"?

A [SHINN] My meaning of success for the railroad is to not increase your cost. Anything less than an increase in your cost from one contract to the next is successful negotiation.

Q All right. So, if you maintain the status quo, you

would call that successful?
A [SHINN] Actually, yes, sir, I would. I –
Q Okay.
A I'm sorry, go ahead.
Q Was the rate – I'm not going to ask you specifically what it was, but was the rate that you negotiated with CSX in this existing contract, new contract, was it lower or equal to the previously existing rate?
A [SHINN] Approximately 10 to 15 percent lower.
Q Ten or fifteen percent lower.
A [SHINN] [Nodding head.]
Q Is that on a – how is the rate charged, on what unit basis?
A [SHINN] Dollars per ton.
Q [SHINN] Dollars per ton, all right. Let's just say, over – well, let me ask you this. What is the term of this new contract?
A [SHINN] Three years.
Q Three years. So, over the term of this contract, we would expect – assuming that the railroad were to deliver the same volume that it did over the previous contract, would we expect, then, in terms of your delivery costs from CSX to be 10 to 15 percent lower than what you experienced over the previous term?
A [SHINN] Yes, sir, I would expect them to be. I mean,

there's always different factors that they're adjusted by. There's fuel surcharge, certain escalation factors, of course, that make a difference.

Q What are the typical escalation factors that you might see in a railroad contract?

A [SHINN] Typically, you're looking between 2 and 4 percent a year.

Q And what conditions or on what basis? What's the escalation based on? What's the reason for it?

A [SHINN] It's American Association railroads. They have base escalation factors that all railroads, pretty much, use in their contracts to escalate.

Q So the railroads agree that they will – what's the association?

A [SHINN] Most of it is based on certain economic factors. Oil is taken out of it, but productivity of the railroads, different borrowing costs of money, labor costs, those kind of things.

Q Is that what – the Association agrees on what those costs might be?

A [SHINN] Yeah. I think we can get you, certainly, a more detailed listing of what those are. We can print those off of their website. Most of them are government indices, and a combination of such.

Q And those escalation factors are, essentially, set by

the railroads themselves through this Association?

A [SHINN] No, I think they're government indices and they just pull them all together and represent those as the escalation.

COMMISSIONER BOCKMAN: Thank you, Mr. Shinn. I think that's all the questions I have, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Commissioner Bockman.

Commissioner Fleming.

COMMISSIONER FLEMING: Yes.

EXAMINATION

BY COMMISSIONER FLEMING:

Q Mr. Kahl, I wanted to – you talked about the precedent agreement with Dominion, Carolina Gas Transmission, for an additional 25,000 dekatherms?

A [KAHL] Yes, ma'am.

Q And you were supposed to anticipate an in-service date of March 1, 2018?

A [KAHL] That's correct.

Q And did that come to fruition?

A [KAHL] Yes, ma'am, it is in service and in operation as of that date.

Q Okay. Could you define what a precedent agreement is, in terms of the natural gas industry?

A [KAHL] Sure. A precedent agreement is just – essentially, brings the parties together to agree on the terms, the general terms, of building or the construction part of the pipeline process. So, kind of a start-to-finish as far as the cost of the project; the terms, and like normal terms and conditions of the contract, in that regard; the term of the contract, the length of the agreement, how long it's going to be in place; and it kind of defines where are the receipt locations of that contract, where the gas will enter into the pipeline and where it will exit out. So those kind of terms and conditions are in those, along with some normal legal and credit terminology, as well.

Q And is there any difference between a precedent agreement and a firm contract?

A [KAHL] The precedent agreement is just the agreement to move forward for the allowance of pipelines to – in some cases, they can file application at the FERC and they can show the FERC that they have this agreement in place to build or that they want to build the pipeline, so then the FERC will, say, grant that authorization for them to build at that point. Once the pipeline gets built and in service, then those firm agreements begin to take place at that point; they kind of replace the precedent agreement at that time.

Q Oh, okay. Thank you for that. Could you talk a little bit about what the terms of that agreement were, the precedent agreement?

A [KAHL] Sure. It's a 30-year term for the 25,000 a day, and the current rate on that price is about 55 cents per dekatherm per day. And it does have a true-up mechanism for six months later of up to about – it's capped at 5 percent, so up to about approximately 58½ cents per dekatherm per day.

Q And that's for 30 years?

A [KAHL] Yes, ma'am, that's correct.

COMMISSIONER FLEMING: Okay, thank you.

CHAIRMAN WHITFIELD: Thank you, Commissioner Fleming.

Commissioner Howard.

COMMISSIONER HOWARD: Thank you, Mr. Chairman.

EXAMINATION

BY COMMISSIONER HOWARD:

Q Mr. Shinn, I'm going back in my memory – which is dangerous. But do y'all own any coal cars?

A [SHINN] We lease all of our coal cars, about a thousand of them.

Q So the company itself does not have coal cars.

A [SHINN] No, sir.

Q So that's not part of a contract, furnishing coal cars.

A [SHINN] Well, we have a contract with the leasing company for the cars.

Q Okay. You stated the company has long-term commitments for uranium and conversion services, for enrichment, and fabrication. How many contracts does the company have for each of these services?

A [SHINN] At present, there is I think one contract for each. We have one contract for uranium, which also that same company has conversion services, which are in there. Then one for fabrication and one for enrichment.

Q Do you have more than one contract with this company?

A [SHINN] For the uranium and conversion?

Q Right.

A [SHINN] No, sir. It's all part of the same contract.

Q Again, what is your length of a typical contract?

A [SHINN] That particular contract is for ten years. With the market – when that particular contract was made, it was a different time. After Fukushima we saw the contraction of the uranium marketplace; a lot less uranium was being produced and with nuclear plants being shut down. So probably our typical contract in future will be a shorter term. The market's become a lot more available.

COMMISSIONER HOWARD: Thank you, very much. Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Commissioner Howard.

Any other Commissioner questions for this panel, at this time?

[No response]

EXAMINATION

BY CHAIRMAN WHITFIELD:

Q If not, I have just a quick one for you, Mr. Shinn. In your direct testimony on pages, I believe, 11 and 12 – I'll give you a second to get there. Let's talk about your inventory just a little bit. You state the company keeps its coal inventory levels at approximately 680,000 tons, which would be an approximate 45-day supply. How does that – the company's inventory level, that is – compare with industry averages?

A [SHINN] Mr. Commissioner, I really don't know. We took that – I can – there's comparisons to show industrywide how much inventory is on the ground. Typically that has been, in the past, a lot higher than what we have. But we try and just balance, obviously, reliability with cost of keeping that much inventory on the ground, overage. The 680,000 tons is a 12-month average. Sometimes we might have more than that, sometimes we'll have less than that, but, you know, that's just to cover any kind of issues that we might have, such as a spike

in burn or either any kind of issues you might have with the railroad delivery or what have you.

Q That being an average, did the company have any problems maintaining this inventory level during the review period?

A [SHINN] During the review period, we actually carried less than that. Other – just other than the fact that coal was very plentiful at the time, and we did have some issues with the railroad, but for the most part those had been cleared up by the end of the year.

Q Do you do – does the company do – periodically, does the company do assessments on the amount of coal it needs to keep on hand and, if so, when is the last time the company has done one of those assessments?

A [SHINN] Well, the 45 days and that 680,000 tons equates to a full-run burn for that 45 days for the remaining coal units. So, that's how we operate, just to have a reliable supply and make sure there's ample inventory in case of an emergency situation.

CHAIRMAN WHITFIELD: Thank you, Mr. Shinn. I don't have anything further for the panel.

Mr. Gissendanner, Mr. Burgess, any redirect?

MR. GISSENDANNER: No redirect.

CHAIRMAN WHITFIELD: Okay. If not, you may step down.

[WHEREUPON, the witnesses stood aside.]

And, at this time, I think we're going to recess for lunch, probably until about 1:30 – let's make it 1:35, another five minutes beyond that. We'll see you back at 1:35.

[WHEREUPON, a lunch recess was taken from 12:15 to 1:43 p.m.]

A F T E R N O O N S E S S I O N

CHAIRMAN WHITFIELD: Please be seated. I'll call this hearing back to order. And counsel has brought it to my attention that we have an administrative item that we need to address at this time, and I'm going to call on Ms. Ottenweller to please come forward.

MS. OTTENWELLER: Thank you.

CHAIRMAN WHITFIELD: Or just get to a mic. You can stay there or come to the podium, whichever suits you.

MS. OTTENWELLER: I think this will be quick. We had requested confidential treatment of our witness's prefiled direct testimony. We've just reached an agreement with the company that that information is actually not confidential, and so we would ask that that be allowed to be entered into the record. And the company's attorney can speak to that.

MR. BURGESS: And she's absolutely right, Mr. Chairman. We consent to – on page 15 of Ms. Glick's direct testimony, lines 9 through 22, those were filed with a redaction, in a redacted format. And the company consents to unredacting those, at this time.

CHAIRMAN WHITFIELD: Okay. Mr. Bateman?

MR. BATEMAN: Mr. Chairman, our expert witness has been privy to this testimony, but I have not been. May I ask a brief moment to speak with our expert witness on this matter? I don't know what the testimony says.

CHAIRMAN WHITFIELD: What do you need, just a minute or two?

MR. BATEMAN: That would be sufficient, I would think.

CHAIRMAN WHITFIELD: Okay. We're going to stand in recess for about two minutes.

MR. BATEMAN: Thank you so much.

MR. WHITT: Mr. Chairman, I guess we're in the same boat. I guess we haven't seen it, either, so –

CHAIRMAN WHITFIELD: Would a minute or two help you, as well?

MR. WHITT: Yeah.

CHAIRMAN WHITFIELD: Let's do that. We'll take a recess here for about 120 seconds.

[WHEREUPON, a recess was taken from 1:45 to 1:46 p.m.]

MR. BATEMAN: Mr. Chairman, with this new information, ORS has no objection.

CHAIRMAN WHITFIELD: Well, that was a quick 120 seconds. I appreciate that.

MR. BATEMAN: Yeah. Thank you, so much.

CHAIRMAN WHITFIELD: I appreciate it. With that no-objection from the company and no objection from the other parties – and, Mr. Elliott, I'm assuming you're okay, as well?

MR. ELLIOTT: Absolutely. Anything is fine.

CHAIRMAN WHITFIELD: Okay. With that, I'm going to come back to the company, Mr. Burgess, and let you all – or Mr. Mustian, I guess – let you all call your next panel.

MR. MUSTIAN: Thank you, Mr. Chairman. For its last panel of witnesses, SCE&G will call Mr. Allen Rooks, Mr. John Raftery, and Dr. Joseph Lynch, and we'll ask that they be seated at the witness table.

[Brief pause]

Mr. Rooks, we'll start with you, once you get comfortable.

CHAIRMAN WHITFIELD: Wait, we need to swear them.

MR. MUSTIAN: My apologies.

[Witnesses affirmed]

<

THEREUPON came,

A L L E N W . R O O K S ,

J O H N H . R A F T E R Y ,

J O S E P H M . L Y N C H , P h . D . ,

called as witnesses on behalf of South Carolina Electric & Gas Company, who, having been first duly affirmed, were examined and testified as follows:

MR. MUSTIAN: I apologize for that. I was so excited, I jumped the gun.

[Laughter]

DIRECT EXAMINATION

BY MR. MUSTIAN:

Q Mr. Rooks, is your microphone on? You have a red light on top?

A [ROOKS] [Indicating.]

Q Mr. Rooks, could you please state your name for the record, please.

A [ROOKS] Allen W. Rooks.

Q And by whom are you employed and in what capacity?

A [ROOKS] SCANA Services as Manager of Electric Pricing and Rate Administration.

Q And, Mr. Rooks, have you prepared or caused to be prepared under your supervision direct testimony consisting of 17 pages that was previously prefiled with the Commission in this matter?

A [ROOKS] I have.
Q Have you had an opportunity to review that testimony and do you have been changes, additions, or deletions to that testimony?
A [ROOKS] No changes at this time.
Q If I asked you those same questions here today, would your answers be the same?
A [ROOKS] They would.

MR. MUSTIAN: Mr. Chairman, at this time, I would move that the prefiled direct testimony of Mr. Rooks be read into the record as if given orally from the stand.

CHAIRMAN WHITFIELD: Mr. Rooks' prefiled direct testimony will be entered into the record as if given orally from the stand.

BY MR. MUSTIAN:
Q Mr. Rooks, did you also prepare or cause to be prepared under your direction 17 exhibits that have been listed as Exhibits AWR-1 through AWR-17, which were previously filed with the Commission as attachments to your direct testimony?
A [ROOKS] Yes.
Q Do you have any changes, additions, or deletions to those exhibits?
A [ROOKS] Not at this time.

MR. MUSTIAN: Mr. Chairman, I would move into the record as a composite exhibit the exhibits attached to Mr. Rooks' direct testimony and labeled as Exhibits AWR-1 through AWR-17.

CHAIRMAN WHITFIELD: Mr. Rooks' Exhibits AWR-1 through AWR-17 will be entered as Hearing Exhibit No. 4.

[WHEREUPON, Hearing Exhibit No. 4 was marked and received in evidence.]

BY MR. MUSTIAN:

Q Mr. Rooks, have you prepared a summary of your direct testimony?

A [ROOKS] I have.

Q Could you provide that to the Commission at this time?

A [ROOKS] Sure.

Good afternoon, Chairman Whitfield, members of the Commission.

The purpose of my testimony is to provide the company's currently approved electric fuel factors; actual and projected data on base fuel costs, variable environmental and avoided capacity costs, and Distributed Energy Resource avoided and DER incremental costs and collection, for the period January 1, 2017, through April 30, 2019; and proposed base fuel, variable environmental and avoided capacity, DER avoided, DER

incremental, and total fuel cost factors for retail customers for the period May 2018 through April 2019.

My Exhibits -1 and -2 present the detailed calculations of actual and projected base fuel costs and recovery for the period January 1, 2017, through April 30, 2019. Exhibit -3 presents the demand allocation factors for variable environmental, avoided capacity, and DER Program costs. Exhibits -4 and -5 present the detailed calculations of variable environmental and avoided capacity costs and recovery for the period January 1, 2017, through April 30, 2019. Exhibit -6 and -7 present the detailed calculations of actual and projected DER avoided costs and recovery for the period January 1, 2017, through April 30, 2019. And Exhibits -8 and -9 present the detailed calculations of actual and projected DER incremental costs and the calculation of the per-account monthly component for recovery, which will not exceed the annual maximum set forth by South Carolina Code Annotated Section 58-39-150.

Exhibit -10 presents the company's proposed base fuel component in this proceeding, and Exhibit -11 presents the company's proposed total fuel cost factors for the period May 2018 through April 2019. As proposed in my direct testimony, the total fuel cost factors per kilowatt-hour by retail class would be 2.576 cents per

kilowatt-hour for Residential, 2.564 cents per kilowatt-hour for Small General Service, 2.546 cents per kilowatt-hour for Medium General Service, 2.509 cents per kilowatt-hour for Large General Service, and 2.451 cents per kilowatt-hour for Lighting. The monthly per-account DER incremental charge by retail class would be $1 for Residential customers, $5.37 for Small and Medium General Service customers, and $100 for Large General Service customers.

The impact of the company's combined proposals for fuel and DSM cost recovery, if approved, would be an increase of 17 cents from current rates on an average monthly bill, for a residential customer using 1000 kilowatt-hours. The company requests that these factors and charges be effective for all customer classes, for bills rendered on and after the first billing cycle of May 2018 and continuing through the billing month of April 2019.

Additionally, the company respectfully requests that the Commission approve the fuel tariff sheet, the PR-1, PR-2, and NEM tariffs, as presented in my direct testimony. The company also respectfully requests that the Commission issue an order finding that SCE&G's fuel purchasing practices, plant operation, and fuel inventory management were reasonable and prudent.

This concludes my summary.

MR. MUSTIAN: Thank you, Mr. Rooks.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY OF ALLEN W. ROOKS FOLLOWS AT PGS 145-161]

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 1 of 40

DIRECT TESTIMONY OF

ALLEN W. ROOKS

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2018-2-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND CURRENT POSITION.

A. My name is Allen W. Rooks. My business address is 220 Operation Way, Cayce, South Carolina 29033. I am Manager of Electric Pricing and Rate Administration at SCANA Services, Inc.

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I graduated from the University of South Carolina ("USC") in May 1995 with a Bachelor of Science Degree in Business Administration with a major in Management Science. In May 2002, I earned a Master of Business Administration Degree at USC. Since joining SCANA Corporation on a full-time basis in July 1996, I have held analytical positions within the Rates & Regulatory and Financial Planning Departments. I have participated in cost of service studies, rate development and design, financial planning and budgeting, rate surveys, responses to regulatory information requests, and rate evaluation

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 2 of 40

programs primarily for the Company's electric operations. I assumed my present position in April 2014. I am a member of the Southeastern Electric Exchange Rates and Regulation Section and served as Chairman of the group during the 2013 calendar year.

Q. PLEASE BRIEFLY SUMMARIZE YOUR DUTIES WITH SOUTH CAROLINA ELECTRIC & GAS COMPANY ("SCE&G" OR "COMPANY").

A. I am responsible for designing and administering the Company's electric rates and tariffs to comply with regulatory orders and relevant state statutes. Supervising the calculation of the Electric Adjustment for Fuel, Variable Environmental & Avoided Capacity, and Distributed Energy Resource Costs is an essential part of my responsibilities.

Q. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA ("COMMISSION")?

A. Yes, I have testified in each of the Company's Fuel Cost Proceedings since 2008. I have also presented testimony on behalf of the Company in two proceedings related to implementing the requirements of the Distributed Energy Resource Program Act ("DERPA").

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 3 of 40

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to provide and discuss:

- The Company's currently approved electric fuel cost factors;
- Actual and Projected data on Base Fuel Costs and Collection for the period January 1, 2017, through April 30, 2019;
- Actual and Projected data on Variable Environmental & Avoided Capacity Costs and Collection for the period January 1, 2017, through April 30, 2019;
- Actual and Projected data on Distributed Energy Resource ("DER") Avoided and DER Incremental Costs and Collection for the period January 1, 2017, through April 30, 2019; and
- The Company's proposed Base Fuel, Variable Environmental & Avoided Capacity, DER Avoided, DER Incremental and Total Fuel Cost Factors for retail electric customers for the period May 2018 through April 2019.

Q. WHAT ARE THE COMPANY'S CURRENTLY APPROVED ELECTRIC FUEL COST FACTORS?

A. On April 27, 2017, Commission Order No. 2017-246 approved Base (F_C), Variable Environmental & Avoided Capacity (F_{EC}), DER Avoided (F_{AC}), and DER Incremental (F_{IC}) fuel components and Total Fuel Cost Factors by customer class, which are summarized in the tables below:

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 4 of 40

Class	Base Fuel Cost Component (cents/kWh)	Variable Environmental & Avoided Capacity Cost Component (cents/kWh)	DERP Avoided Cost Component (cents/kWh)	Total Fuel Cost Factor (cents/kWh)
Residential	2.451	0.047	0.015	2.513
Small General Service	2.451	0.039	0.013	2.503
Medium General Service	2.451	0.033	0.011	2.495
Large General Service	2.451	0.020	0.007	2.478
Lighting	2.451	--	--	2.451

Class	DERP Incremental Cost Component (per Account per Month)
Residential	$0.91
Small & Medium Gen. Svc.	$3.29
Large General Service	$100.00

BASE FUEL COST COMPONENT

Q. PLEASE BRIEFLY EXPLAIN THE TYPES OF COSTS THAT APPEAR IN THE BASE FUEL COST COMPONENT (F_C).

A. Base fuel costs include traditional fuel costs, such as the cost of coal, natural gas, oil, nuclear fuel, fuel transportation, and fuel costs related to purchased power that are used to supply electricity.

Q. PLEASE PROVIDE A SUMMARY OF THE COMPANY'S ACTUAL AND PROJECTED BASE FUEL COMPONENT COSTS.

A. Page 1 of Exhibit No. ___ (AWR-1) shows the actual totals for the Base Fuel Cost Component and over/under recovery of fuel revenue experienced by the Company for the months of January 2017 through December 2017, as well

as projections for January through April 2018. This exhibit shows the actual base fuel under-collected balance to be $2,355,695 at December 31, 2017, and the projected over-collected balance to be $50,536,981 at the end of April 2018.

Page 2 of Exhibit No. ___ (AWR-1) shows the Company's Base Fuel Component forecast and projected recovery calculations by month for the period May 2018 through April 2019. This page reflects the monthly and cumulative over and under projected fuel cost collection expected by the Company using the Base Fuel Component that is calculated in Exhibit No. ___ (AWR-2). This Base Fuel Component of 2.457 cents per kWh is projected to recover all base fuel costs in the forecast period in addition to eliminating the projected under-collected balance by the end of April 2019.

Q. HAVE ANY CARRYING COSTS BEEN APPLIED TO BASE FUEL COST BALANCES DURING THE ACTUAL PERIOD?

A. Yes. For the 2017 calendar year, $5,143 in carrying costs were applied to the Company's base fuel under-collected balance consistent with the provisions of Commission Order No. 2017-246. Specific amounts by month can be seen on Line 28 of Exhibit No. ___ (AWR-1), page 1.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 5 of 40

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 6 of 40

Q. WERE THERE ANY COMMISSION AUTHORIZED ADJUSTMENTS TO BASE FUEL COSTS DURING THE ACTUAL PERIOD?

A. No. However, pursuant to the Company's February 22, 2018 letter in Docket No. 2013-382-E, and in compliance with Commission Order No. 2013-776, the Company plans to apply gains from recently settled interest rate swaps in the amount of $113,739,272 to reduce its base fuel cost under-collection balance. This amount is reflected in Line 29 of Exhibit No. ___ (AWR-1), page 1 of 2, in the month of February 2018.

DEMAND ALLOCATIONS

Q. PLEASE DISCUSS THE DEMAND ALLOCATIONS USED TO ALLOCATE VARIABLE ENVIRONMENTAL, AVOIDED CAPACITY, AND DER COSTS PRESENTED ON EXHIBIT NOS. ___ (AWR-3-7, & 9).

A. To allocate Variable Environmental & Avoided Capacity, DER Avoided, and DER Incremental costs to customer classes, the Company uses the same four-hour-band Coincident Peak methodology that has been approved by this Commission for over 30 years. It is also the same methodology that the Commission has approved for the allocation of SCE&G's variable environmental costs in each of its fuel cost proceedings since 2008.

The Company's Summer 2016 peak, which was used to allocate Variable Environmental & Avoided Capacity, and DER costs during the actual period of January 2017 through December 2017, occurred on July 28, 2016. Also shown

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 7 of 40

on Exhibit No. ___ (AWR-3) is the Summer 2017 peak, which occurred on August 18, 2017, and was used to allocate Variable Environmental & Avoided Capacity, and DER costs during the 2018 - 2019 forecast months.

VARIABLE ENVIRONMENTAL & AVOIDED CAPACITY COST COMPONENT

Q. WHAT TYPES OF COSTS ARE INCLUDED IN THE VARIABLE ENVIRONMENTAL & AVOIDED CAPACITY COST COMPONENT (F_{EC})?

A. In 2007, the General Assembly approved certain amendments to the Fuel Cost Recovery Statute (codified at S.C. Code Ann. § 58-27-865) which allowed for the recovery of certain variable environmental costs, such as ammonia, lime, limestone, urea, dibasic acid, and catalysts consumed in reducing or treating emissions as well as the cost of emission allowances for SO_2, NO_x, mercury, and particulates.

Furthermore, the Commission approved the recovery of Avoided Capacity Costs in this Component in Order No. 2015-306. These avoided capacity costs are separate and independent from the Company's avoided costs related to DER programs, which are recovered through a separate component that is discussed later in this testimony.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 8 of 40

Q. PLEASE SUMMARIZE THE COMPANY'S ACTUAL AND PROJECTED VARIABLE ENVIRONMENTAL & AVOIDED CAPACITY COMPONENT COSTS.

A. Exhibit No. ___ (AWR-4) shows the Company's actual variable environmental & avoided capacity costs, the allocation of those costs to retail customer classes, the variable environmental cost-related revenue recovered by class, and the corresponding over/under recovery by month and on a cumulative basis for the months of January 2017 through December 2017. It also details projections for this same information during the months of January 2018 through April 2018. The cumulative over-collected balances projected at April 30, 2018, are $576,402 for the Residential rate class, $173,724 for the Small General Service rate class, $118,499 for the Medium General Service rate class, and $182,477 for the Large General Service rate class.

Exhibit No. ___ (AWR-5) shows the Company's forecasted variable environmental & avoided capacity costs and the allocation of those costs to retail customer classes for the period of May 2018 through April 2019. This exhibit also details forecasted sales data by class, over/under recovery computations, and calculates the projected Variable Environmental & Avoided Capacity Cost Components per kWh for the same period. The (F_{EC}) Components produced by these calculations are projected to recover all costs and are as follows: 0.083 cents per kWh for the Residential rate class; 0.075 cents per kWh for the Small General Service rate class; 0.063 cents per kWh for the Medium General Service

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 9 of 40

rate class; and 0.039 cents per kWh for the Large General Service rate class. Updating these components, as shown in Exhibit No. ___ (AWR-5), is projected to produce a cumulative over-collected balance of $3,930 at April 30, 2019.

DISTRIBUTED ENERGY RESOURCE PROGRAM ("DERP") COMPONENTS

Q. PLEASE BRIEFLY DISCUSS THE COSTS INCLUDED IN THESE COMPONENTS?

A. In Docket No. 2016-2-E, the Commission approved two separate components for the recovery of costs associated with SCE&G's approved DER programs.

The DERP Avoided Cost Component (F_{AC}) includes avoided costs related to the Company's approved Bill Credit Agreement ("BCA"), Utility Scale, and (in the forecast period) Community Solar programs. It also includes Excess Net Energy Metering ("NEM") Avoided Cost Payments, which are made each year during the November billing month. This Component is allocated 100% to retail customers based upon each class' pro-rata share of the prior year firm peak demand and is billed on a per kWh basis.

The DERP Incremental Cost Component (F_{IC}) includes incentives, labor, and other expenses associated with deploying the Company's DER programs. This Component is also allocated 100% to retail customers based upon each class' pro-rata share of the prior year firm peak demand and is billed on a per

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 10 of 40

account basis each month, to aid in demonstrating compliance with the caps set forth in S.C. Code Ann. § 58-39-150.

A more detailed discussion of the Company's DER programs and progress made towards implementing them is set forth in the Direct Testimony of Company witness John Raftery.

Q. PLEASE PROVIDE A SUMMARY OF THE COMPANY'S ACTUAL AND FORECASTED DER PROGRAM COSTS.

A. Exhibit No. ___ (AWR-6) details the Company's actual DER avoided costs, the allocation of those costs to retail customer classes, the DER avoided cost-related revenue recovered by class, and the corresponding over/under recovery by month and on a cumulative basis for the months of January 2017 through December 2017. It also details projections for this same information during the months of January 2018 through April 2018. The cumulative over-collected balances projected at April 30, 2018, are $241,271 for the Residential rate class, $59,218 for the Small General Service rate class, $46,713 for the Medium General Service rate class, and $132,722 for the Large General Service rate class.

Exhibit No. ___ (AWR-7) shows the Company's forecasted DER avoided costs and the allocation of those costs to retail customer classes for the period of May 2018 through April 2019. This exhibit also details forecasted sales data by class, over/under recovery computations, and calculates the projected DER

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 11 of 40

Avoided Cost Components per kWh for the same period. The (F_{AC}) Components produced by these calculations are projected to recover all costs and are as follows: 0.042 cents per kWh for the Residential rate class; 0.038 cents per kWh for the Small General Service rate class; 0.032 cents per kWh for the Medium General Service rate class; and 0.019 cents per kWh for the Large General Service rate class. Updating these components, as shown in Exhibit No. ___ (AWR-7), is projected to produce a cumulative over-collected balance of $36,633 at April 30, 2019.

Exhibit No. ___ (AWR-8) shows details of the actual and forecasted DER Incremental Costs by program and over/under revenue recovery calculations for the period of January 2017 through April 2018. Exhibit No. ___ (AWR-9) shows the costs allocated to classes based upon firm peak demand data and then divided by the number of accounts to arrive at the respective DER Incremental Cost Components (F_{IC}) by class, which are: $1.00 per account per month for the Residential rate class; $5.37 per account per month for the Small/Medium General Service rate class; and $100.00 per account per month for the Large General Service rate class.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 12 of 40

PROPOSED FUEL COST FACTORS

Q. DOES THE BASE FUEL COMPONENT PRESENTED ABOVE AND IN EXHIBIT NO. ___ (AWR-2) REPRESENT YOUR FINAL RECOMMENDATION TO THE COMMISSION?

A. No, it does not.

Q. PLEASE EXPLAIN THE COMPANY'S RECOMMENDED TREATMENT FOR THE BASE FUEL COMPONENT.

A. The Fuel Cost Statute permits utilities to recover their "prudently incurred fuel costs as precisely and promptly as possible." However, for this proceeding and to mitigate rate impacts to its retail electric customers, the Company is proposing to maintain its Base Fuel Component at 2.451 cents per kWh.

Exhibit No. ___ (AWR-10) shows the Company's Base Fuel Component forecast and projected recovery calculations by month for May 2018 through April 2019 that would result from the Company maintaining its Base Fuel Component at its current level.

Q. WHAT ARE THE COMPANY'S RECOMMENDATIONS FOR ITS OTHER FUEL COST COMPONENTS?

As shown in Exhibit No. ___ (AWR-5), the Company is proposing in this proceeding that the Variable Environmental & Avoided Capacity Cost

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 13 of 40

Components be increased for the May 2018 – April 2019 time period as previously discussed.

The derivation and presentation of the Company's proposed DER Avoided Costs Component (F_{AC}) increase is shown on Exhibit No. ___ (AWR-7).

The resulting Total Fuel Cost Factors per kWh from the Company's proposal, as shown on Exhibit No. ___ (AWR-11), are presented in the table below:

Class	Base Fuel Cost Component (cents/kWh)	Variable Environmental and Avoided Capacity Cost Component (cents/kWh)	DER Avoided Cost Component (cents/kWh)	Total Fuel Cost Factor (cents/kWh)
Residential	2.451	0.083	0.042	2.576
Small General Svc.	2.451	0.075	0.038	2.564
Medium General Svc.	2.451	0.063	0.032	2.546
Large General Svc.	2.451	0.039	0.019	2.509
Lighting	2.451	--	--	2.451

In addition to the per kWh factors shown above, the Company is also proposing to increase its DER Incremental Cost Components (F_{IC}) per account per month to the following: $1.00 for Residential customers and $5.37 for Small/Medium General Service customers; the per account per month fee for Large General Service customers will remain unchanged at $100.00 to comply with the DERP Act caps. The calculation of this component is shown on Exhibit

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 14 of 40

No. ___ (AWR-9) and all components are summarized on Exhibit No. ___ (AWR-11).

Q. WHAT IMPACT WILL THE COMPANY'S SPRING 2018 PROPOSALS HAVE ON A RESIDENTIAL ELECTRIC CUSTOMER'S BILL?

A. When combining the Company's 2018 proposals for Fuel and DSM cost recovery, the average monthly bill for residential customers using 1,000 kWh per month would increase from $147.53 to $147.70, principally driven by DER and variable environmental & avoided capacity costs. This $0.17 per month impact, or 0.12%, would become effective with the first billing cycle of May 2018. The impacts of each proposal on the average residential bill are as follows:

Fuel – The total fuel cost factor updates proposed herein would increase the average 1,000 kWh residential monthly bill by $0.72 per month.

DSM – The Company's proposed DSM Rate Rider Update filed on January 31, 2018 would decrease a residential customer's bill by $0.55 per month per 1,000 kWh of usage.

RATE SCHEDULES

Q. PLEASE EXPLAIN EXHIBIT NO. ___ (AWR-12).

A. The Company hereby submits for Commission approval an updated version of its fuel cost recovery tariff sheet, entitled "Adjustment for Fuel,

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 15 of 40

Variable Environmental & Avoided Capacity, and Distributed Energy Resource Program Costs" ("Fuel Tariff") as Exhibit No. ___ (AWR-12).

Q. PLEASE EXPLAIN EXHIBIT NOS. ___ (AWR-13 & 14).

A. Exhibit No. ___ (AWR-13) represents a redlined version of the Company's Commission-approved rate schedule for Small Power Producers and Cogenerators that are Qualifying Facilities ("QF") as defined by the Federal Energy Regulatory Commission ("Rate PR-1") and that have power production capacity less than or equal to 100 kW. As set forth in the direct testimony of Company witness Dr. Lynch, SCE&G is proposing to update Rate PR-1 to reflect the Company's current avoided costs. Exhibit No. ___ (AWR-14) is the version of Rate PR-1 which the Company hereby submits for approval in this Docket.

Q. PLEASE EXPLAIN EXHIBIT NOS. ___ (AWR-15 & 16).

A. As set forth in the direct testimony of Company witness Dr. Lynch, the Company is proposing to update its schedule entitled "Rate PR-2 Small Power Production, Cogeneration" ("Rate PR-2") that addresses avoided cost payments that SCE&G is required to make for power purchased from QFs greater than 100 kW and less than or equal to 80 MW. Exhibit No. ___ (AWR-15) is a redlined version of Rate PR-2 laying out the changes proposed by Dr. Lynch and Exhibit

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 16 of 40

No. ___ (AWR-16) is the proposed tariff sheet that the Company hereby submits for approval in this Docket.

Q. PLEASE EXPLAIN EXHIBIT NO. ___ (AWR-17).

A. The direct testimony of Company witness Dr. Lynch enumerates the current component values for the Net Energy Metering DER Methodology approved in Docket No. 2014-246-E. Exhibit No. ___ (AWR-17) shows that the Company's current "Rider to Retail Rates – Net Energy Metering for Renewable Energy Facilities" ("NEM Rider") "Total Value of NEM Distributed Energy Resource" as described in Commission Order No. 2015-194 has been updated on page 3, paragraph 3, under "General Provisions" of the Rider. Exhibit No. ___ (AWR-17) is the NEM Rider which the Company hereby submits for approval in this Docket.

CONCLUSION

Q. WHAT REQUESTS DOES THE COMPANY MAKE OF THE COMMISSION IN THIS PROCEEDING?

A. SCE&G respectfully requests that the Commission approve the tariff sheet entitled Adjustment for Fuel, Variable Environmental & Avoided Capacity, and Distributed Energy Resource Costs which is submitted as Exhibit No. ___ (AWR-12), as well as the Base Fuel Component (F_C), Variable Environmental & Avoided Capacity Cost Component (F_{EC}), DER Avoided Cost

Component (F_{AC}), DER Incremental Costs Component (F_{IC}), and Total Fuel Rates shown therein. The Company also requests that these factors be effective for all retail electric customer classes for bills rendered on and after the first billing cycle of May 2018 and continuing through the billing month of April 2019.

Further, the Company respectfully requests that the Commission approve the tariff sheets attached as Exhibit Nos. ___ (AWR-14, 16, and 17) for updates to its Rate PR-1, Rate PR-2, and NEM Rider respectively.

Finally, the Company respectfully requests that the Commission issue an order finding that during the review period SCE&G's fuel purchasing practices, plant operations, and fuel inventory management were reasonable and prudent.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 17 of 40

BY MR. MUSTIAN:

Q Did you also prepare or cause to be prepared under your supervision three pages of rebuttal testimony, with no exhibits?

A [ROOKS] I did.

Q And have you had the chance to review that testimony and, if so, do you have any changes, additions, or deletions to that testimony?

A [ROOKS] No, I do not.

Q If I were to ask you those same questions here today, would your answers be the same?

A [ROOKS] They would.

MR. MUSTIAN: Mr. Chairman, at this time, I would move that the prefiled rebuttal testimony of Mr. Rooks be read into the record as if given orally from the stand.

CHAIRMAN WHITFIELD: Mr. Rooks' prefiled rebuttal testimony will be entered into the record as if given orally from the stand.

MR. MUSTIAN: Thank you, Mr. Chairman.

BY MR. MUSTIAN:

Q Mr. Rooks, have you prepared a summary of that rebuttal testimony?

A [ROOKS] I have.

Q Please share that, at this time.

A [ROOKS] The purpose of my rebuttal testimony's to explain why South Carolina Electric & Gas Company did not make any adjustments to its environmental component in 2017 attributed to the IRS Section 174 deduction claims.

In Order No. 2017-246, the Commission approved SCE&G's proposal to make the adjustment to its environmental component concurrent with the implementation of the company's 2017 BLRA revised rates request. However, SCE&G did not seek a 2017 BLRA revised rates update and, instead, filed and later withdrew an abandonment petition which, among other things, sought recovery for the costs of the abandoned plant without an increase in rates. This Petition proposed using Section 174 tax benefits, as well as additional tax benefits arising from abandonment, as a means to reduce capital cost recovery.

Later, on January 12, 2018, SCE&G, along with Dominion Energy, Incorporated, filed a Joint Petition which reflected a proposed rate decrease and also provided for the use of all tax benefits related to the abandoned nuclear construction project – both Section 174 and the tax abandonment deduction – for the benefit of customers.

For these reasons, SCE&G did not adjust its

environmental component in 2017 attributed to the IRS Section 174 deduction claims, and the exhibits to my direct testimony do not reflect an adjustment for a Section 174 deduction. That deduction will be considered in the Joint Petition.

This concludes the summary of my rebuttal testimony.

MR. MUSTIAN: Thank you, Mr. Rooks.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED REBUTTAL TESTIMONY OF ALLEN W. ROOKS FOLLOWS AT PGS 165-167]

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 1 of 3

REBUTTAL TESTIMONY OF

ALLEN W. ROOKS

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2018-2-E

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS, AND CURRENT POSITION.

A. My name is Allen W. Rooks. My business address is 220 Operation Way, Cayce, South Carolina 29033.

Q. HAVE YOU PREVIOUSLY SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING?

A. I have.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. On pages 7-8 of his direct testimony, ORS Witness Seaman-Huynh states as follows:

> In Docket No. 2017-2-E, SCE&G proposed to use the Internal Revenue Service ("IRS") Section 174 deduction claims to lower its Environmental Components based on its Accumulated Deferred Income Taxes ("ADIT") liability balances as of September 30, 2017. The Commission approved the Company's proposal in Commission Order No. 2017-246. In reviewing the Company's books and records in this Docket, ORS did not find the Company made any adjustments to its Environmental Capacity Components during the Actual Period attributed to the IRS Section 174 deduction claims.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 2 of 3

The purpose of my rebuttal testimony is to explain why South Carolina Electric & Gas Company ("SCE&G" or "Company") did not make any adjustments to its Environmental Component in 2017 attributed to the IRS Section 174 deduction claims.

Q. WHY DID SCE&G NOT MAKE ANY ADJUSTMENTS TO ITS ENVIRONMENTAL COMPONENT IN 2017 ATTRIBUTED TO THE IRS SECTION 174 DEDUCTION CLAIMS?

A. In Order No. 2017-246, in Docket No. 2017-2-E, the Public Service Commission of South Carolina approved as reasonable and prudent SCE&G's proposal to use Section 174 research and experimentation tax benefits related to the construction of V.C. Summer Units 2 and 3 to reduce the Environmental Component of its total fuel cost factor in an amount based on its ADIT liability balances as of September 30, 2017, and "to make the reduction concurrent with the implementation of the Company's 2017 BLRA revised rates request." *See* Commission Order No. 2017-246 at p. 54. However, SCE&G did not seek a 2017 BLRA revised rates update.

Instead, SCE&G filed and later withdrew an abandonment petition which, among other things, sought recovery of the costs of the abandoned plant without an increase in rates. This petition proposed using Section 174 tax benefits, as well as additional tax benefits arising from abandonment, as a means to reduce capital cost recovery. Later, on January 12, 2018, SCE&G along with Dominion

Energy, Inc. filed a joint petition ("Joint Petition") which reflected a proposed rate decrease and also provided for the use of all tax benefits related to the abandoned nuclear construction project, both Section 174 and the tax abandonment deduction, for the benefit of customers.

For these reasons, SCE&G did not make an adjustment to its Environmental Component in 2017 attributed to the IRS Section 174 deduction claims, and the exhibits to my direct testimony do not reflect an adjustment for a Section 174 deduction. That deduction will be considered in the Joint Petition.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 3 of 3

BY MR. MUSTIAN:

Q Mr. Raftery, we'll move on to you next. If you could please state your full name, for the record, please.

A [RAFTERY] John Howard Raftery.

Q And, Mr. Raftery, by whom are you employed and in what capacity?

A [RAFTERY] I'm employed by South Carolina Electric & Gas, and I am the general manager of Renewable Products & Services and Energy Demand Management.

Q And in connection with this proceeding, did you prepare or cause to be prepared under your supervision direct testimony consisting of 15 pages, with no exhibits, previously filed with the Commission in this matter?

A [RAFTERY] Yes, I did.

Q And do you have any changes, additions, or deletions to that testimony?

A [RAFTERY] No, I do not.

Q If I were to ask you those some questions here today, would your answers be the same?

A [RAFTERY] Yes, they would.

MR. MUSTIAN: Mr. Chairman, at this time, I would ask that the prefiled direct testimony of Mr. Raftery be read into the record as if given orally from the stand.

CHAIRMAN WHITFIELD: Mr. Raftery's prefiled

direct testimony will be entered into the record as if given orally from the stand.

MR. MUSTIAN: Thank you, Mr. Chairman.

BY MR. MUSTIAN:

Q Mr. Raftery, have you prepared a summary of your testimony, and, if so, could you provide that?

A [RAFTERY] Yes, I have.

Good afternoon, Chairman Whitfield, and members of the Commission.

In my testimony, I discuss the performance of the Distributed Energy Resource, or DER, Programs during the review period of January 1, 2017, through December 31, 2017. I also provide the costs associated with offering these DER Programs during the review period, as well as DER Program cost projections for the forecast period of January 1, 2018, through April 30, 2019. Finally, I describe the company's plans to issue RFPs to invest in renewable energy facilities pursuant to South Carolina Code Annotated Section 58-39-130(D).

During the review period, SCE&G offered customers a variety of solar programs approved by the Commission in Order No. 2015-512 and has taken steps to develop its Community Solar DER Program, as well. As a result of these efforts, the balance of the DER Program costs at the end of the review period totaled an overrecovery of

$1,504,690 in avoided costs and an underrecovery of $798,039 in incremental costs.

For the period January 1, 2018, through April 30, 2019, the company projects that DER Program costs will include $9,304,269 in avoided costs and $25,313,951 in incremental costs. These costs include the avoided and incremental costs of general and administrative expenses associated with SCE&G's approved DER Programs.

As of December 31, 2017, nine solar farms, totaling 48.16 megawatts, have been constructed and interconnected to SCE&G's distribution system as part of the company's approved DER Program. As such, SCE&G has achieved the 1 percent goal for utility-scale facilities as set forth in Act 236.

As of December 31, 2017, SCE&G had 6161 customers participating in its customer-scale DER Programs. This customer participation represented approximately 56.81 megawatts of solar generating capacity on SCE&G's system. As such, SCE&G has achieved the 1 percent goal for customer-scale facilities as set forth in Act 236.

With respect to Community Solar, Clean Energy Collective, LLC, the company's authorized community solar developer, is actively constructing the following three community solar farms: Springfield Solar in Orangeburg County is a 6-megawatt facility with a

targeted operations date of the second quarter of 2018; Nimitz Solar, in Jasper County, is an 8-megawatt facility with a targeted operations date of the second quarter of 2018, as well; Curie Solar, in Hampton County, is a 2-megawatt facility with a targeted operations date of the first quarter of 2019. As of February 15, 2018, 1023 customers have either purchased or subscribed to 15.536 megawatts of the available 16 megawatts of community solar capacity. The remaining .474 megawatts of capacity is reserved for low-income customers and continues to be marketed through SCE&G Clean Energy Collective and eight customer-assistance agencies.

Having met both the 1 percent customer-scale goal and the 1 percent utility-scale goal under Act 236, SCE&G is exploring moving forward with the additional 1 percent utility-scale investment contemplated in South Carolina Code Annotated Section 58-39-130(D).

At present, the nameplate capacity of intermittent solar generation facilities with executed PPAs represents approximately 17 percent of the company's 2018 forecasted system peak demand, and SCE&G has determined the need to explore pricing and performance characteristics of solar photovoltaic systems coupled with battery energy storage on its system and presently

plans to issue two RFPs for solar photovoltaic systems coupled with battery energy storage – we plan to issue one RFP. My apologies. SCE&G also plans to issue a second RFP for the first stage of a solar farm, battery energy storage, microgrid, and emerging technology site prep at the site adjacent to its Lake Murray Training Center.

In summary SCE&G respectfully requests that the Commission approve the company's costs incurred in providing DER Programs during the review period as reasonable and prudent.

This concludes the summary of my direct testimony.

MR. MUSTIAN: Thank you.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY OF JOHN H. RAFTERY FOLLOWS AT PGS 173-187]

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 1 of 15

DIRECT TESTIMONY OF

JOHN H. RAFTERY

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2018-2-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND OCCUPATION.

A. My name is John Raftery. My business address is 220 Operation Way, Cayce, South Carolina. I am General Manager of Renewable Products/Services and Energy Demand Management for South Carolina Electric & Gas Company ("SCE&G" or the "Company").

Q. STATE BRIEFLY YOUR EDUCATION, BACKGROUND, AND EXPERIENCE.

A. I am a graduate of Northwestern University with a Bachelor of Science degree in Mechanical Engineering. I began my public utilities career in 1994 as an Information Technology Management Consultant with Price Waterhouse and continued with Oracle Corporation in 1998. I joined SCANA Corporation in 2003 as a Client Manager in the Customer Systems Support Organization and gained the responsibilities of the Customer Service Training Department several years later. In 2010, I assumed responsibility for the SCANA Contact Centers and Technology

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 2 of 15

Services, with the addition of SCE&G's Business Offices in 2013. In 2014, I assumed my current role as General Manager of Renewable Products/Services and Energy Demand Management.

Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA (THE "COMMISSION")?

A. Yes, I have testified before the Commission in support of SCE&G's Petition for Approval to Participate in a Distributed Energy Resource Program in Docket No. 2015-54-E and in the prior two fuel proceedings.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to discuss the performance and costs associated with SCE&G's Distributed Energy Resources ("DER") programs during the review period of January 1, 2017, through December 31, 2017 ("Review Period"). I also provide the DER program cost projections for the forecast period January 1, 2018, through April 30, 2019 ("Forecast Period"). Finally, I describe the Company's plans to issue Requests for Proposals ("RFPs") to invest in renewable energy facilities pursuant to S.C. Code Ann. § 58-39-130(D).

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 3 of 15

Q. UNDER WHAT AUTHORITY DID THE COMPANY IMPLEMENT DER PROGRAMS?

A. In Docket No. 2015-54-E, the Company sought authorization of the Commission to participate in a DER program under the South Carolina Distributed Energy Resource Act ("Act 236"). In Order No. 2015-512, the Commission granted the Company's petition and concluded that SCE&G's proposed DER Programs, as modified by the Settlement Agreement entered into by the parties of record to that proceeding, were reasonable and prudent. In approving the Settlement Agreement, the Commission also determined that these programs would result in the development of approximately 42 megawatts ("MW") of renewable energy facilities sized between one and ten MW ("Utility-scale") and approximately 42 MW of renewable energy facilities sized less than one MW ("Customer-scale"). The Company subsequently implemented its first DER programs on October 7, 2015, with retroactive sign-up availability to those customer installations after January 1, 2015, if they so chose.

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 4 of 15

DER PROGRAM COSTS

Q. PLEASE DESCRIBE THE DER PROGRAM COSTS THAT WERE INCURRED BY SCE&G DURING THE REVIEW PERIOD AND THAT THE COMPANY PROJECTS TO INCUR DURING THE FORECAST PERIOD.

A. During the Review Period, the Company offered customers a variety of solar programs approved by the Commission in Order No. 2015-512. In addition, SCE&G has taken steps to develop its Community Solar DER program. As a result of these efforts, the balance of DER program costs at the end of the Review Period totaled $(1,504,690) in avoided costs and $798,039 in incremental costs. For the period January 1, 2018, through April 30, 2019, the Company projects that DER Program costs will include $9,304,269 in avoided costs and $25,313,951 in incremental costs.

Q. WHAT ARE AVOIDED AND INCREMENTAL COSTS?

A. Section 58-39-120(B) defines "avoided costs" as meaning "payments for purchases of electricity made according to an electrical utility's most recently approved or established avoided cost rates in this State or rates negotiated pursuant to PURPA, in the year the costs are incurred, for purchases of electricity from qualifying facilities pursuant to Section 210 of [PURPA]...." "Incremental costs" are defined by S.C. Code Ann. § 58-39-140(A) as meaning "all reasonable and prudent costs incurred by an electrical utility to implement a distributed energy resource program ... including, but not limited to:

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 5 of 15

(1) The cost an electrical utility incurs in excess of the electrical utility's avoided cost rate …;

(2) The full cost of an electrical utility's investment in nongenerating distributed energy resources …;

(3) The electrical utility's weighted average cost of capital as applied to the electrical utility's investment in distributed energy resources …;

(4) Operating and maintenance expenses, taxes, insurance, depreciation, overheads, and all other expenses properly considered to be expenses associated with a project, asset, or program under generally accepted principles of regulatory, or utility accounting or accounting orders issued by the commission …; [and]

(5) The electrical utility's incremental labor cost associated with implementing a distributed energy resource program."

Q. WHAT DO THESE COSTS INCLUDE?

A. These costs include the avoided and incremental costs associated with SCE&G's approved DER programs, including 1) offering Utility-scale DER programs; 2) offering Customer-scale Net Energy Metering ("NEM") incentives, Performance Based Incentives ("PBIs") and Bill Credit Agreement ("BCA") programs; and 3) developing the Company's Community Solar program. These costs also include general and administrative expenses directly resulting from offering DER programs to the Company's customers, such as information

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 6 of 15

technology system enhancements, revenue-grade meters, marketing and education expenses, and the incremental labor required to support the programs and increased volume of customer inquiries. Company Witness Allen Rooks provides these cost components in his testimony.

Q. DURING THE REVIEW PERIOD, DID THE COMPANY OFFER ANY EDUCATIONAL PROGRAMS TO ITS CUSTOMERS AND SOLAR INSTALLERS ABOUT THE DER PROGRAMS?

A. Yes. SCE&G conducted well over thirty customer, community, municipal, and industry education events on the Company's DER program offerings and how they could benefit from renewable energy. These events included, among others, the following organizations:

- South Carolina Office of Regulatory Staff;
- South Carolina Energy Office State Energy Plan;
- South Carolina Office of Economic Opportunity;
- SCE&G's DER Collaborative Group;
- SCE&G's Nonprofit Solar Council;
- South Carolina Solar Council;
- South Carolina Chamber of Commerce for Economic Development;
- South Carolina Environmental Energy Forum;
- SC Clean Energy Business Alliance DER Panel;
- SC Clean Energy Business Alliance Energy Storage Roundtable;
- SC Clean Energy Business Alliance Clean Energy Summit;
- US Department of Energy SunShot for Reducing Soft Costs;
- Multiple K-12 Classrooms;
- Multiple Municipalities, Churches and Schools;
- Multiple Rotary Clubs;
- Clean Energy Collective Utility Advisory Council;
- City of Columbia Green Business Council;
- Community Solar Best Practices Summit;

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 7 of 15

- Smart Electric Power Association;
- Southeast Clean Power Summit;
- Southern States Energy Board;
- Southeastern Wind Coalition; and
- Clemson University Electric Power Research Association.

SCE&G also conducted numerous personal customer visits, attended several Home Owners' Association meetings, and made multiple county and civic presentations.

For its leadership and success in developing solar energy programs, SCE&G was recognized by the South Carolina Clean Energy Business Alliance in September 2017 with a statewide award for Outstanding Achievement and Leadership.

UTILITY-SCALE DER PROGRAMS

Q. PLEASE UPDATE THE COMMISSION ON THE COMPANY'S PROGRESS TOWARD MEETING ITS UTILITY-SCALE DER GOALS AS OF THE END OF THE REVIEW PERIOD.

A. As of December 31, 2017, nine solar farms totaling 48.16 MW have been constructed and interconnected to SCE&G's distribution system as part of the Company's approved DER program. As such, SCE&G has achieved the 1% goal for Utility-scale facilities set forth in Act 236.

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 8 of 15

CUSTOMER-SCALE DER PROGRAMS

Q. PLEASE UPDATE THE COMMISSION ON THE COMPANY'S PROGRESS TOWARD MEETING ITS CUSTOMER-SCALE DER GOALS AS OF THE END OF THE REVIEW PERIOD.

A. To accomplish its Customer-scale DER goals, SCE&G offers its residential and non-residential customers a new retail net energy metering program ("NEM 2.0"), through which customers receive bills that are equivalent to bills that the customers would have had if the customers received a credit for each kilowatt-hour ("kWh") generated by their renewable resources that is equal to the price that is charged per kWh for the energy consumed. The difference between the value of net metered customer generation, as determined using the methodology approved in Docket No. 2014-246-E, and the customer's retail rate is recoverable as a DER incentive.

As of December 31, 2017, 6,075 SCE&G customers (6,021 residential and 54 non-residential) were participating in the Company's NEM 2.0, as compared to 2,748 participating customers as of December 31, 2016. Participation in NEM 2.0 accounts for approximately 46.97 MW of solar generating capacity (approximately 43.27 MW from residential and approximately 3.70 MW from non-residential) on SCE&G's system.

For residential customers participating in NEM 2.0, the Company also offered the opportunity to reserve—on a first-come, first-serve basis for up to a cumulative total of 9 MW of reserved capacity—a Performance Based Incentive

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 9 of 15

("PBI"). The available PBIs were fully reserved, and as of December 31, 2017, 1,085 of the NEM 2.0 residential customers (included in the residential customer count above) with generating capacity totaling approximately 8.09 MW (included in the generating capacity total above) were receiving the PBI. The remaining reservations have expired.

As an alternative to NEM 2.0, SCE&G also offers its non-residential customers the opportunity to participate in its Bill Credit Agreement ("BCA") program in which all energy produced by the customer's generator is delivered to the SCE&G electrical system, and the customer is compensated at tiered, incentivized rates directly on the customer's SCE&G bill. As of December 31, 2017, SCE&G had 86 BCA customers totaling 9.84 MW in generating capacity. By Order No. 2017-246, the BCA program was indefinitely suspended to systems without approved applications and interconnection agreements by April 27, 2017. Those BCA systems holding approvals must be interconnected according to their approved BCA program application and interconnection agreement by April 27, 2018. This constitutes an additional 39 systems totaling approximately 13.56 MW of capacity.

In sum, as of December 31, 2017, SCE&G had 6,161 customers (6,021 residential and 140 non-residential) participating in its Customer-scale DER programs. This customer participation represented approximately 56.81 MW of solar generating capacity on SCE&G's system. As such, SCE&G has achieved the 1% goal for Customer-scale facilities set forth in Act 236.

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 10 of 15

Q. WHAT WAS THE TOTAL CUMULATIVE NEM GENERATING CAPACITY ON SCE&G'S SYSTEM AS OF DECEMBER 31, 2017?

A. As of December 31, 2017, the total cumulative NEM generating capacity provided by the 6,308 net metering customer-generator facilities on SCE&G's system was approximately 48.03 MW, or approximately 1.14% of the Company's previous five-year average peak demand of 4,225 MW. Of this total, approximately 1.06 MW of solar generating capacity comes from the 233 "NEM 1.0" participants, who have elected to remain on the net metering tariff in effect at the time NEM 2.0 was approved. Pursuant to S.C. Code Ann. § 58-40-20(A), these NEM 1.0 customers can remain on this rate schedule through December 31, 2020, after which time the NEM 1.0 rate will close and they will be required to move to any available rate schedule for which they qualify.

Q. WHEN DOES SCE&G ANTICIPATE MEETING ACT 236'S NET METERING LIMIT OR CAP OF 2%?

A. Based on NEM adoption levels and trends experienced since July 1, 2016, SCE&G presently forecasts that it will approach the 2% cap in April or May of 2019.

Pursuant to the Settlement Agreement in Docket No. 2016-246-E, SCE&G will file new net metering tariffs to replace the existing tariffs no later than January 31, 2020.

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 11 of 15

COMMUNITY SOLAR

Q. PLEASE UPDATE THE COMMISSION ON THE PROGRESS OF SCE&G'S COMMUNITY SOLAR PROGRAM.

A. By Order No. 2016-707, the Commission approved the Credit Rate Agreement between SCE&G and Clean Energy Collective, LLC ("CEC") whereby CEC is authorized to develop, build and market up to 16 MW of community solar renewable generating facilities. The individual solar panels in these facilities are available for SCE&G customers to either purchase or subscribe to their energy output as a credit on their SCE&G bills.

CEC is actively constructing the following three community solar facilities:

- Springfield Solar, in Orangeburg County, is a 6 MW facility with a targeted operations date of Q2 2018.
- Nimitz Solar, in Jasper County, is an 8 MW facility with a targeted operations date of Q2 2018.
- Curie Solar, in Hampton County, is a 2 MW facility with a targeted operations date of Q1 2019.

As of February 15, 2018, the following number of customers and associated MW of capacity have either been purchased or subscribed to in the three community solar facilities. The remaining 0.474 MW of capacity is reserved for Low-Income customers and continues to be marketed through SCE&G, CEC, and 8 Customer Assistance Agencies.

Segment	Customers	Capacity (MW)
Low-Income	95	0.526
Residential	903	5.550
Church, School, Municipal	22	9.450
Total	1,023	15.536

UTILITY INVESTMENT DER PROGRAMS

Q. CONSIDERING THAT BOTH THE 1% CUSTOMER-SCALE AND 1% UTILITY-SCALE GOALS HAVE BEEN MET, IS SCE&G EXPLORING MOVING FORWARD WITH THE ADDITIONAL 1% UTILITY-SCALE INVESTMENT CONTEMPLATED IN S.C. CODE ANN. § 58-39-130(D)?

A. Yes. With 718 MW in signed Power Purchase Agreements (PPAs) in Utility-scale DER and PURPA Qualifying Facilities as of February 23, 2018, and with two PPAs totaling approximately 147 MW expected to be executed prior to the hearing in this matter, SCE&G expects the nameplate capacity of the intermittent solar generating facilities with executed PPAs to represent approximately 17% of the Company's 2018 forecasted system peak demand of 5,077 MW. As a result of this high penetration, SCE&G has determined the need to explore pricing and performance characteristics of solar photovoltaic systems coupled with battery energy storage on its system and presently plans to issue RFPs for solar photovoltaic systems coupled with battery energy storage.

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 12 of 15

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 13 of 15

Q. WHAT ADVANTAGES MIGHT SOLAR PHOTOVOLTAIC SYSTEMS COUPLED WITH BATTERY ENERGY STORAGE PROVIDE TO SCE&G?

A. These battery energy storage systems could provide the ability to store the currently non-dispatchable, non-schedulable solar power production when the grid does not require the excess energy, and then re-dispatch that power from the batteries when needed most across the grid. Battery energy storage systems may also provide additional voltage and reactive power regulation options, frequency regulation, and the smoothing of intermittent solar generation.

By issuing an RFP for these combined systems, SCE&G expects to receive not only competitive pricing, but also industry insight into best practices for deployment and ancillary services they may provide. If SCE&G identifies competitive projects that provide system benefits, SCE&G anticipates applying to the Commission for approval to move forward with the contracts and deployment. The data gained from such systems will enable the Company to understand the best integration of clean, intermittent generators at the lowest cost possible.

Q. ARE THERE ANY OTHER PROGRAMS SCE&G IS EXPLORING WITH RESPECT TO THE ADDITIONAL 1% UTILITY-SCALE INVESTMENT?

A. Yes. Located at the Saluda Hydro Generating Station is the Lake Murray Training Center. This facility is used to train utility linemen and substation electricians. In 2015 a coal ash landfill was capped adjacent to this facility and the

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 14 of 15

topmost portion was prepped for a potential solar farm. This site is ideal because of its shared footprint with a local substation and training facilities for Company linemen, as well as its highly visible location for pedestrians and motorists crossing the Lake Murray Dam each day. This high visibility will help promote solar awareness among the general public. In conjunction with a possible solar farm, SCE&G envisions a microgrid integrating advanced technologies such as lithium ion battery energy storage, fuel cells and flow batteries. As defined by the U.S. Department of Energy Microgrid Exchange Group, "[a] microgrid is a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect or disconnect from the grid to enable it to operate in both grid-connected or island mode." Microgrid capabilities include circuit-level grid support, power quality, reliability and resiliency, and temporary back-up energy supply.

SCE&G envisions that a solar farm at the Lake Murray site would work in concert with SCE&G's distribution system to provide a replicable resilient electric power microgrid and give utility engineers and workers a system on which to study and train. Through an RFP for the first stage of a solar farm, battery energy storage, microgrid and emerging technologies site prep, SCE&G expects to receive not only competitive pricing, but also industry insight into best practices for microgrid deployment directly on its system. If SCE&G identifies competitive projects that

provide system benefits, SCE&G anticipates applying to the Commission for approval to move forward with the contracts and deployment.

CONCLUSION

Q. WHAT IS SCE&G REQUESTING OF THE COMMISSION IN THIS PROCEEDING?

A. SCE&G respectfully requests that the Commission approve the Company's costs incurred in providing DER programs during the Review Period as being reasonable and prudent and find that the Company's fuel purchasing practices were reasonable and prudent for the Review Period.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

ELECTRONICALLY FILED - 2018 February 23 5:07 PM - SCPSC - Docket # 2018-2-E - Page 15 of 15

BY MR. MUSTIAN:

Q Dr. Lynch, we'll finish up with you. If you'll turn your microphone on, and please state your name for the record, please.

A [LYNCH] Joseph Michael Lynch.

Q And, Dr. Lynch, by whom are you employed and in what capacity?

A [LYNCH] I'm employed by SCANA Services Company, and I'm the manager of Resource Planning.

Q And, Dr. Lynch, have you prepared or caused to be prepared under your supervision direct testimony consisting of 32 pages that was previously filed with this Commission?

A [LYNCH] I have.

Q Okay. And do you have any changes, additions, or deletions to that testimony?

A [LYNCH] Yes, I do.

Q Could you identify those changes for the Commission, at this time, please?

A [LYNCH] Yes. I have four corrections to Table 10 shown on page 27 of my direct testimony. On Row 1, avoided energy costs for the current period will change in the fifth decimal place – that's where all the changes are. So the new number is 0.03070, and that's replacing the number 0.03074. Also on Row 1, avoided energy costs, in

the next column, the IRP planning horizon – again, the fifth decimal place – the new number is 0.03010, and that replaces 0.03014.

Then on line five, again the fifth decimal place, the avoided criteria pollutants for the current period should be 0.00008 instead of 0.00004. And also on Row 5, the next column, the avoided criteria pollutants for the IRP planning horizon should have the same change, the new number being 0.00008 instead of 0.00004.

Q Thank you, Dr. Lynch. Just for clarity, does the net effect of those two changes – did they have any impact on the subtotal, the line losses, or the total value of NEM Distributed Energy Resource numbers?

A [LYNCH] No, there's no effect to the total.

Q Thank you, Dr. Lynch. Other than those changes that you have just identified, do you have any other changes to your direct testimony?

A [LYNCH] No, I don't.

Q And with those changes, if I were to ask you the same questions that are set forth in your direct testimony, would your answers be the same?

A [LYNCH] Yes, they would.

MR. MUSTIAN: Mr. Chairman, at this time, I would move that the prefiled direct testimony of Dr. Lynch, as corrected from the stand, be read

into the record at this time.

CHAIRMAN WHITFIELD: Dr. Lynch's prefiled direct testimony will be entered into the record as if given orally from the stand.

BY MR. MUSTIAN:

Q Dr. Lynch, did you also prepare or cause to be prepared under your supervision four exhibits labeled Exhibits JML-1 through JML-4, which were previously filed with the Commission as attachments to your direct testimony?

A [LYNCH] I did.

Q Do you have any changes, additions, or deletions to those exhibits?

A [LYNCH] I do not.

MR. MUSTIAN: Okay. Mr. Chairman, I would move into the record as the next hearing composite exhibit the exhibits attached to Dr. Lynch's direct testimony, identified as Exhibit JML-1 through JML-4.

CHAIRMAN WHITFIELD: Dr. Lynch's Exhibits JML-1 through JML-4 will be entered in as Hearing Exhibit No. 5.

[WHEREUPON, Hearing Exhibit No. 5 was marked and received in evidence.]

BY MR. MUSTIAN:

Q Dr. Lynch, have you prepared a summary of your testimony

and, if so, could you provide that to the Commission at this time?

A [LYNCH] I have, and I will.

Good afternoon, Chairman Whitfield, and members of the Commission.

In my direct testimony, I discuss SCE&G's methodology for calculating long-run avoided costs for power purchases under PURPA. The results of this methodology are set forth in the company's proposed PR-2 rate schedule. I also update SCE&G's short-run avoided costs, which are used to modify SCE&G's PR-1 rate schedule. Finally, I discuss SCE&G's evaluation and determination of the 11 components contained in the net energy metering methodology approved by the Commission.

PURPA requires electric utilities to purchase electric energy from qualifying facilities, or QFs, at the utility's avoided cost. As approved by the Commission in Order No. 2016-297, SCE&G uses a difference-in-revenue-requirements methodology, which involves calculating the revenue requirements associated with two resource plans, one with a QF purchase and one without. SCE&G has determined that during the summer it needs resource reserves of at least 14 percent of the projected summer peak demand and at least 12 percent during the remaining periods of the summer. Likewise,

SCE&G needs a minimum of 21 percent of its projected winter peak demand and at least 14 percent during the remaining periods to reliably serve during winter periods.

In this proceeding, SCE&G is proposing to limit its PR-2 rate to solar QFs. As more solar facilities interconnect with SCE&G's system, the benefit of each additional facility is diminished. Therefore, if SCE&G does not distinguish its pricing between solar and non-solar QFs, the amount SCE&G and its customers would pay for solar energy would be more than the company's actual avoided cost. SCE&G analyzed the traditional round-the-clock methodology, which subtracts 100 megawatts from every hour of the base-case load profile, and the solar methodology, which subtracts a 100-megawatt solar profile from the base case. The results show that using the round-the-clock profile results in overestimating the avoided energy costs by $4.85 per megawatt-hour, because as more and more solar is added to the system, the value of each additional increment of solar is reduced.

Solar energy also causes operational issues that result in positive variable integration costs that lower the avoided costs. SCE&G's avoided energy costs calculated with the solar methodology are set forth in

Table 4 of my direct testimony.

SCE&G takes a similar approach to estimating avoided capacity costs, using a difference in revenue requirements between a base case and a change case. SCE&G currently has over 700 megawatts of solar capacity under PPAs and the addition of another 100 megawatts of solar has no effect on the company's resource plan. For this reason, the avoided capacity cost of solar reflected in the PR-2 rate is zero. As it did for many years prior to the development of the PR-2 rate, SCE&G plans to negotiate contracts with any non-solar QFs of greater than 100 kW, up to 80 megawatts.

With respect to the PR-1 rate, the company proposes to have separate rates for solar QFs and non-solar QFs, both with capacities up to and including 100 kW. For solar QFs subject to the PR-1 rate, SCE&G uses the same methodology to estimate avoided energy costs as it did for solar QFs on PR-2. Because incremental solar QFs do not affect the resource plan, the avoided capacity cost for solar QFs on PR-1 is zero. For non-solar QFs on PR-1, SCE&G estimates avoided energy costs by subtracting a round-the-clock power-purchase profile. The company also does not believe there will ever be enough capacity from small non-solar QFs to affect its resource plan and, therefore, the avoided capacity costs

are zero.

For the reasons discussed in my direct testimony, SCE&G also proposes to eliminate the critical peak hours as a way to credit QFs for their capacity. As shown in Table 10 of my direct testimony, SCE&G also updated the 11 components of value for NEM Distributed Energy Resources. These updated components follow the methodology agreed upon by the parties to Docket No. 2014-246-E and approved by the Commission in Order No. 2015-194.

In summary, SCE&G respectfully requests that the Commission approve the company's PR-1 and PR-2 rates, approve the total value of NEM Distributed Energy Resources, approve the costs incurred by the company providing DER Programs during the review period as being reasonable and prudent, and find that the company's fuel purchasing practices were reasonable and prudent for the review period.

This concludes my direct testimony summary.

MR. MUSTIAN: Thank you, Dr. Lynch.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY {W/CORRECTIONS} OF JOSEPH M. LYNCH, Ph.D., FOLLOWS AT PGS 195-226]

The corrections identified herein reflect testimony given during the hearing held in this matter.

DIRECT TESTIMONY OF

JOSEPH M. LYNCH

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2018-2-E

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Joseph M. Lynch and my business address is 220 Operation Way, Cayce, South Carolina.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by SCANA Services, Inc. as Manager of Resource Planning.

Q. PLEASE DESCRIBE YOUR DUTIES RELATED TO RESOURCE PLANNING IN YOUR CURRENT POSITION.

A. I am responsible for managing the department that produces South Carolina Electric & Gas Company's ("SCE&G" or "Company") forecast of energy, peak demand, and revenue. I also am responsible for developing the Company's generation expansion plans and overseeing the Company's load research program.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 1 of 64

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 2 of 64

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I graduated from St. Francis College in Brooklyn, New York, with a Bachelor of Science degree in mathematics. From the University of South Carolina, I received a Master of Arts degree in mathematics, an MBA, and a Ph.D. in management science and finance. I was employed by SCE&G as Senior Budget Analyst in 1977 to develop econometric models to forecast sales and revenue. In 1980, I was promoted to Supervisor of the Load Research Department. In 1985, I became Supervisor of Regulatory Research where I was responsible for load research and electric rate design. In 1989, I became Supervisor of Forecasting and Regulatory Research, and in 1991, I was promoted to my current position of Manager of Resource Planning.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA ("COMMISSION")?

A. Yes. I have testified on a number of occasions before this Commission.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to discuss SCE&G's avoided costs for power purchases under the Public Utilities Regulatory Policies Act of 1978 ("PURPA"). The short-run avoided costs for qualifying facilities ("QFs") that have power production capacity less than or equal to 100 kilowatts ("kW") are set forth in Rate

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 3 of 64

Schedule PR-1 attached to Witness Rooks' testimony as Exhibit Nos. __ (AWR-13) and __ (AWR-14). The long-run avoided costs for solar QFs that have production capacity greater than 100 kW and less than or equal to 80 megawatts ("MW") are set forth in Rate Schedule PR-2 attached to the Direct Testimony of Company Witness Allen Rooks as Exhibit Nos. __ (AWR-15) and __ (AWR-16). I also discuss the 11 components contained in the net energy metering ("NEM") methodology approved by the Commission in Order No. 2015-194 issued in Docket No. 2014-246-E.

AVOIDED COSTS UNDER PURPA

Q. WHAT DOES PURPA REQUIRE?

A. PURPA and its implementing regulations require electric utilities, including SCE&G, to purchase electric energy from qualifying small power production facilities and QFs at the utilities' avoided costs. However, state public utility commissions, such as the Commission, determine the method for calculating avoided costs.

Q. WHAT ARE AVOIDED COSTS?

A. PURPA regulations define "avoided costs" as "the incremental costs to an electric utility of electric energy or capacity or both which, but for the purchase from the qualifying facility or qualifying facilities, such utility would generate itself or purchase from another source." 18 C.F.R. § 292.101(b)(6). The Federal Energy

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 4 of 64

Regulatory Commission ("FERC") further recognizes that avoided costs include two components: "energy" and "capacity." Specifically, "[e]nergy costs are the variable costs associated with the production of electric energy (kilowatt-hours). They represent the cost of fuel, and some operating and maintenance expenses. Capacity costs are the costs associated with providing the capability to deliver energy; they consist primarily of the capital costs of facilities." *Small Power Production and Cogeneration Facilities; Regulations Implementing Section 210 of the Public Utility Regulatory Policies Act of* 1978, Order No. 69, 45 Fed. Reg. 12,214, 12,216 (Feb. 25, 1980) ("Order No. 69"). In Order No. 81-214 and subsequent decisions, the Commission has recognized that utilities are entitled to recover their avoided costs under PURPA.

Q. WHAT APPROACH DOES SCE&G TAKE TO CALCULATE THE ENERGY AND CAPACITY COMPONENTS OF AVOIDED COSTS?

A. As approved by the Commission in Order No. 2016-297, SCE&G uses a difference in revenue requirements methodology to calculate both the energy component and the capacity component of its avoided costs. This approach follows directly from PURPA's definition of avoided costs in that it involves calculating the revenue requirements between a base case and a change case. The base case is defined by SCE&G's existing fleet of generators and the hourly load profile to be supplied by these generators. The change case is the same as the base case except that the hourly loads are reduced by a 100 MW profile, which is the maximum

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 5 of 64

reduction required by PURPA regulation 18 C.F.R. § 292.302(b)(1) for utilities with systems larger than 1,000 MW of generation such as SCE&G. Using a carefully constructed computer program called PROSYM, which models the commitment and dispatch of generating units to serve load hour-by-hour, SCE&G estimates the production costs that result from serving the base case load. A change case is derived from the base case by subtracting an appropriate 100 MW power purchase profile. Then, as with the base case, PROSYM is used to estimate the production costs that result from serving the change case. The avoided energy cost is simply the difference between the base case costs and the change case costs. The avoided capacity cost is the difference between the incremental capacity costs in both its base resource plan and the change plan.

Q. WHAT PERIOD OF TIME DOES THE COMPANY USE TO CALCULATE ITS AVOIDED COSTS?

A. The short-run avoided energy costs are calculated for the period May 2018 through April 2019. The long-run avoided costs are calculated for calendar years 2018 through 2032, which is the time period appropriate for SCE&G's 2018 15-year Integrated Resource Plan ("IRP") planning horizon pursuant to S.C. Code Ann. § 58-37-40. These 15-years are divided into three groups of five years each: 2018-2022, 2023-2027, and 2028-2032.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 6 of 64

Q. WHAT IS SCE&G'S CURRENT RESOURCE PLAN?

A. SCE&G's current resource plan is attached as Exhibit No. __ (JML-1).

Q. WHAT IS SCE&G'S CURRENT RESERVE MARGIN POLICY USED IN DEVELOPING THIS RESOURCE PLAN?

A. Table 1 below summarizes SCE&G's reserve margin policy.

Table 1
Minimum Reserve Margin as Percent of Seasonal Peak Demand

	SUMMER	WINTER
Base Level	12%	14%
Peaking Level	14%	21%
Increment for Peaking	2%	7%

SCE&G has determined that during the months of May through October, which are grouped as "SUMMER", it needs resource reserves of at least 14% of the projected summer peak demand to serve reliably during peak times and at least 12% during the remaining periods. Likewise, for the months of November through April grouped as "WINTER", SCE&G needs a minimum of 21% of its projected winter peak demand to serve reliably during winter peak periods and at least 14% during the remaining periods. More details can be found in SCE&G's Reserve Margin Study which is attached as Exhibit No. __(JML-2).

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 7 of 64

Q. WILL SCE&G FILE THIS RESOURCE PLAN WITH THE COMMISSION AS PART OF ITS 2018 IRP FILING?

A. That is SCE&G's present intention. However, it is worth mentioning that the resource plan is only a plan, and not necessarily a decision. SCE&G therefore reserves the right to make changes as may be warranted or required by new or changed circumstances.

Q. IS SCE&G PROPOSING CHANGES TO ITS PR-1 AND PR-2 RATES?

A. Yes. As I will further discuss in more detail below, SCE&G proposes to limit the availability of its PR-2 Rate to solar QFs only and to offer separate rates for solar and non-solar QFs in its PR-1 Rate. SCE&G also proposes to its update PR-2 Rate going forward only on an "as needed" basis instead of twice a year.

PR-2 RATE

Q. WHY IS SCE&G PROPOSING TO LIMIT THE PR-2 RATE TO SOLAR QFs?

A. SCE&G must separate solar QFs from non-solar QFs in order to pay each type of QF the correct avoided costs. As more and more solar generation facilities interconnect with SCE&G's system, the benefit of each additional solar generation facility to the Company's system is diminished. SCE&G performed a study titled "Avoided Energy Cost Methods Study for Solar QFs" ("Methods Study") to measure this effect and it is attached to this testimony as Exhibit No. __ (JML-3).

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 8 of 64

The Methods Study demonstrates that if SCE&G does not distinguish its pricing between solar and non-solar QFs, then the amount SCE&G and its customers would be paying for solar energy would be more than the Company's actual avoided costs, which is contrary to the explicit intent of PURPA.

Q. WHAT SPECIFICALLY IS THE DIFFERENCE BETWEEN SCE&G'S TRADITIONAL ROUND-THE-CLOCK METHODOLOGY AND ITS SOLAR METHODOLOGY?

A. The avoided costs in the PR-2 rate are calculated over the 15-year IRP planning horizon and the avoided energy costs are divided into 3 five-year periods with the energy costs levelized within each period. As mentioned previously, SCE&G's avoided costs are calculated based on the difference in revenue requirements between a base case and a change case over this 15-year period.

Under the traditional methodology, the change case is derived from the base case by subtracting a 100 MW round-the-clock profile from the base case, i.e., 100 MWs are subtracted from every hour of the base case load profile. Avoided energy costs are then collected into four time periods composed of two seasons—peak season and off-peak season—and two daily periods—peak hours and off-peak hours. The peak season includes the months of June, July, August, and September. The peak hours during the peak season are 10:00 a.m. through 10:00 p.m. The peak hours for the off-peak season are 6:00 a.m. through 10:00 a.m. and 5:00 p.m. through 10:00 p.m. except during the months of May and October when they revert to the

peak hours defined for the peak season. Using these four time-of-use periods results in four avoided energy costs, one for each time period.

Under the solar methodology, the change case is derived from the base case by subtracting a 100 MW solar profile from the base case. Because the solar distribution of energy is captured in the solar profile, avoided energy costs are not collected into separate time periods but simply added over all hours.

Q. HOW WAS THE METHODS STUDY STRUCTURED?

A. The Methods Study compared the traditional round-the-clock methodology and the solar methodology using the PROSYM model to estimate the difference in revenue requirements between the base case and three different change cases. The first change case used the round-the-clock 100 MW purchase. The second change case was derived using a power purchase from a 100 MW South Carolina solar profile. The third change case used a North Carolina solar profile to help determine the impact on avoided costs based on a different solar profile. Because PROSYM simulates random plant forced outages, the estimate of avoided energy costs could change simply by assuming a different set of forced outages. Therefore, for each case, the Company ran PROSYM 10 times, each time using a different random number seed to simulate a different set of plant forced outages, thus generating a slightly different avoided energy cost in each run. SCE&G then averaged the results of the 10 runs to determine the difference in revenue requirements.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 9 of 64

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 10 of 64

Q. WHAT WERE THE CONCLUSIONS OF THE METHODS STUDY?

A. For each PROSYM simulation and for each year in the IRP planning period, SCE&G calculated the avoided energy costs, which are documented in the appendix to the Methods Study. The avoided energy costs were then levelized using present worth arithmetic and averaged over the 10 random seed runs. Table 2 below summarizes the calculations of the avoided energy costs under the round-the-clock profile case, which are also reflected on page 3 of the Methods Study.

Table 2
Avoided Energy Costs for Round-the-Clock Methodology

	Peak Season Peak Hours	Peak Season Off-Peak Hours	Off-Peak Season Peak Hours	Off-Peak Season Off-Peak Hours
Avoided Costs ($/MWH)	$36.27	$32.57	$35.82	$34.44
SC Solar Weights (kWh/kW)	470	287	672	682
Resulting Weighted-Average Avoided Cost Using SC Solar Weights				$35.03

Avoided Costs ($/MWH)	$36.27	$32.57	$35.82	$34.44
NC Solar Weights (kWh/kW)	496	299	580	612
Resulting Weighted-Average Avoided Cost Using NC Solar Weights				$35.02

Table 3 below compares the avoided costs of a solar generator using the round-the-clock 100 MW purchase methodology shown in Table 2 above with the avoided costs of a solar generator using the solar profile 100 MW purchase methodology, as also reflected on page 3 of the Methods Study.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 11 of 64

Table 3
Avoided Cost Results Levelized

$/MWH	Round-the-Clock 100 MW Purchase	Solar Profile 100 MW Purchase	Difference
SC	$35.03	$30.18	$4.85
NC	$35.02	$30.86	$4.16

The results show that using the round-the-clock profile to develop the change case results in over-estimating the avoided energy costs by $4.85 per MWH. The avoided costs calculated based on the North Carolina profile are consistent with those of the South Carolina profile and therefore support these findings.

Q. WHY DOES ADDING SOLAR ENERGY TO THE SYSTEM RESULT IN REDUCING AVOIDED ENERGY COSTS BY $4.85 PER MWH?

A. As more and more solar is added to the system, the value of each additional increment of solar is reduced. One of the reasons for this diminishing value can be demonstrated by the so-called solar "Duck Curve." As shown in the graph on page 2 of the Methods Study, the Company's residual system load profile for many days of the year begins to reflect the silhouette of a duck as more solar is added to the system. Specifically, SCE&G's system first experiences a morning peak demand with little contribution from solar facilities. As the day progresses and solar facilities begin generating energy, SCE&G's residual system load profile experiences a steep ramping down of load to a bottom level of load followed by a steep ramping up in load to an afternoon or evening peak demand. In sum, the additional energy from

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 12 of 64

solar generation causes the system to experience decreasing minimum loads between the morning and evening peak.

This curve creates operational problems in running the system as system operators have to select resources that can follow the load both down the curve and up the curve. Operational problems also occur under low load conditions because each generating unit has a minimum operating level below which it cannot be operated. If a baseload unit is taken off-line to prevent the system from over-generating during the low load conditions, then its capacity must be replaced during the ramping up period in order to serve the afternoon/evening peak. Additionally, some of the units that continue to operate to serve the low load must operate at an output level that is less efficient, i.e., more costly, than the optimum output level for which they were designed. Thus, while solar energy coming onto the system certainly has value, it also causes operational issues that result in positive variable integration costs that lower the avoided cost.

Q. IS SCE&G ABLE TO CAPTURE ALL THE VARIABLE INTEGRATION COSTS ASSOCIATED WITH THE OPERATIONAL ISSUES CAUSED BY THE INCREASED SOLAR ON THE SYSTEM?

A. No. The $4.85 per MWH lower avoided energy cost is calculated based on the expected commitment and dispatch of generating units needed to serve forecasted load hour-by-hour. Although this reduction reflects part of the variable energy costs associated with the addition of large amounts of solar to the system, it

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 13 of 64

certainly does not capture all of these costs. Under real world conditions faced by system operators, the availability and operation of generators, the need to commit some units as standby extra capacity, the weather and load for the next day, the effect of clouds on solar facilities, and other similar constraints will always result in operational conditions that differ in some degree from the forecasts and estimates used in calculating the avoided energy costs. This uncertainty causes an increase in the Company's production costs.

Q. BASED ON THE COMPANY'S ANALYSIS, WHAT ARE SCE&G'S AVOIDED ENERGY COSTS FOR THE PR-2 RATE?

A. Table 4 below contains the avoided energy costs for the PR-2 rate.

Table 4
Solar QF Avoided Energy Costs ($/kWh)

Time Period	Annual
2018-2022	$0.02853
2023-2027	$0.02994
2028-2032	$0.03414

Q. HOW DOES SCE&G CALCULATE ITS AVOIDED CAPACITY COSTS RELATED TO SOLAR FACILITIES ON THE COMPANY'S PR-2 RATE?

A. SCE&G takes a similar approach to developing avoided capacity costs as it does with avoided energy costs. Using the difference in revenue requirements methodology approved by the Commission in Order No. 2016-297, SCE&G calculates the difference in the revenue requirement between the base case and the

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 14 of 64

change case. Using the resource plan in its latest IRP or an updated resource plan if appropriate, SCE&G calculates the incremental capital investment related revenue required to support the existing resource plan. As with its calculation of avoided energy costs for solar, SCE&G derives a change case in its resource plan by considering the impact of a QF purchase from a 100 MW solar facility.

Q. USING THIS METHODOLOGY, WHAT ARE THE AVOIDED CAPACITY COSTS FOR THE PR-2 RATE?

A. SCE&G currently has over 700 MWs of solar capacity under Power Purchase Agreements ("PPAs") and the addition of another 100 MWs of solar has no effect on the resource plan. Stated differently, given the amount of solar generation that is currently projected to be interconnected to SCE&G's system, adding additional blocks of 100 MW of solar generation does not affect the Company's future capacity needs. For this reason, the avoided capacity costs of solar reflected in the PR-2 rate is zero.

Q. WHY DOESN'T ADDITIONAL SOLAR CAPACITY AFFECT SCE&G'S FUTURE CAPACITY NEEDS?

A. SCE&G performed a study that analyzed the impact of solar on its daily peak demands. This study titled "On Calculating the Capacity Benefit of Solar QFs ("Solar Capacity Benefit Study"), a copy of which is attached as Exhibit No. __ (JML-4), shows that, on more than 80% of the days during the winter months of

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 15 of 64

October through March, solar has no effect on SCE&G's daily peak demand. This is because the winter peak occurs either early in the morning before solar begins to generate energy or in the evening after solar is no longer generating. Table 5 below is an excerpt from the Solar Capacity Benefit Study. It shows the number of days by month that solar has no effect on the daily peak demand.

Table 5
Number of Days By Month When
Solar Has No Effect on the Peak Demand

Amount of Solar Capacity Added to the System (MWs)				
Month	**200**	**500**	**800**	**1000**
1	27	27	27	28
2	19	23	24	25
3	23	26	27	29
4	8	13	20	22
5	3	6	7	7
6	0	0	0	0
7	0	0	0	0
8	0	0	2	3
9	2	2	5	6
10	15	20	25	26
11	21	22	23	24
12	21	23	23	24
Total	**139**	**162**	**183**	**194**

Since SCE&G's Reserve Margin Study shows that SCE&G needs as much capacity in the winter as it does in the summer, a resource has to provide capacity in the winter as well as the summer in order to avoid the need for capacity and thereby have capacity value. Because solar does not provide capacity during the winter

period, the Company is unable to avoid any of its projected future capacity needs and, therefore, the avoided capacity cost of solar for these winter months is zero.

Q. TABLE 5 ALSO SHOWS THAT SOLAR IMPACTS THE DAILY PEAK ON MOST DAYS IN THE SUMMER AND ON ALL OF THE DAYS IN JUNE AND JULY. DID SCE&G ANALYZE THE IMPACT OF SOLAR ON THESE SUMMER DAYS?

A. Yes. This issue is also discussed in the Solar Capacity Benefit Study. Table 6 below, which is included on page 6 of the Solar Capacity Benefit Study, shows the impact of seven different solar farms, scaled up to 800 MWs on the five days of highest peak demand in the summer season. The farms are scaled to 800 MWs so as to approximate the over 700 MWs of solar capacity currently under PPAs plus the addition of another increment of 100 MWs whose impact is being reflected in avoided costs.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 16 of 64

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 17 of 64

Table 6
5 Highest Summer Peak Days with 800 MWs of Solar

Solar Farm	No. of Days	Peak Reduction (MWs)	% Reduction	Last 100 MWs
Farm 1	5	313.8	39.2	24.5
Farm 2	5	273.8	34.2	24.7
Farm 3	5	223.4	27.9	15.6
Farm 4	5	340	42.5	21.4
Farm 5	5	262.5	32.8	11
Farm 6	5	204.1	25.5	17.7
Farm 7	5	310.2	38.8	21.9
Average	**5**	**275.4**	**34.4**	**19.5**

On average over the 5 peak days, an 800 MW solar facility can be expected to reduce the daily peak demand by approximately 34.4% in the summer season, which equates to approximately 275 MWs. The last 100 MWs of the 800 MWs has an incremental effect of about 19.5%, which is approximately 19.5 MWs.

The following table shows similar results for the remainder of the summer season.

Table 7
Remaining Days of the Summer Season with 800 MWs of Solar

Solar Farm	No. of Days	Peak Reduction (MWs)	% Reduction	Last 100 MWs
Farm 1	148	153.6	19.2	8.7
Farm 2	179	152.1	19	10.4
Farm 3	122	167.7	21	8.2
Farm 4	163	176.5	22.1	10.4
Farm 5	163	188.5	23.6	9.7
Farm 6	179	174.5	21.8	9.9
Farm 7	179	162.1	20.3	10.1
Average	**167.9**	**167.9**	**21.0**	**9.6**

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 18 of 64

Thus, 800 MWs of solar can be expected to reduce the daily peak demand on average over non-peak days approximately 21% with only 9.6% for the last 100 MWs. Because only the incremental values are relevant for avoided cost calculations, the last 100 MWs of solar will reduce the summer peak by about 19.5 MWs on peak days and 9.6 MWs on the rest of the days. This translates into a peak effect of approximately 9.9 MWs and a base effect of approximately 9.6 MWs. Considering this small impact in summer and no impact in winter, SCE&G is not able to reduce capacity additions in its resource plan and therefore there are no avoided capacity costs.

Q. WHY DOES SCE&G LIMIT ITS EVALUATION OF AVOIDED COSTS TO THE 15-YEAR PLANNING HORIZON OF ITS IRP?

A. It is important to recognize that future projections are uncertain. For avoided energy costs, it is not clear whether the projected costs over the last 5 years of the IRP planning horizon are too high or too low for those 5 years, let alone the 5 or 10 years beyond. Therefore, using projected costs beyond the 15-year planning horizon would be unreasonably speculative and would increase the costs borne by SCE&G's customers.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 19 of 64

Q. HOW WILL SCE&G ADDRESS AVOIDED COSTS FOR NON-SOLAR QFs OF GREATER THAN 100 KW AND UP TO 80 MW?

A. SCE&G plans to negotiate contracts with any non-solar QF for which the PR-1 rate is not appropriate. In the past and prior to the development of the PR-2 rate, SCE&G for many years offered a PR-1 rate as well as an offer to negotiate a contract with any QF that did not qualify for the PR-1 rate. This response to PURPA worked satisfactorily for many years and SCE&G proposes to return to that arrangement for non-solar QFs of greater than 100 kW and up to 80 MW.

Q. WHY IS SCE&G ALSO PROPOSING TO UPDATE THE PR-2 RATE ONLY ON AN "AS NEEDED" BASIS INSTEAD OF TWICE A YEAR?

A. Avoided costs are based on projections of load, resource needs, fossil fuel prices, etc., over the IRP planning horizon. If the avoided costs do not change significantly, then there is no need for an update. Instead, SCE&G believes it is more appropriate to update the PR-2 Rate only when there is a significant change in the avoided cost projections, or more specifically, when the Company's long run avoided costs change significantly.

PR-1 RATE

Q. WHAT MODIFICATIONS TO THE PR-1 RATE IS SCE&G PROPOSING?

A. As discussed previously, SCE&G proposes to have separate rates for solar QFs and non-solar QFs both with capacities up to and including 100 kW.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 20 of 64

Q. WHY IS SCE&G PROPOSING TO HAVE SEPARATE PR-1 RATES FOR SOLAR QFs AND NON-SOLAR QFs?

A. For the same reasons I discussed previously regarding the PR-2 rate, SCE&G must separate solar QFs from non-solar QFs in order to pay each type of QF the correct avoided costs. As reflected in the Methods Study, the benefit of each additional solar generation facility to the Company's system is diminished as more and more solar generation facilities interconnect with SCE&G's system. If SCE&G does not distinguish its pricing between solar and non-solar QFs, then the amount SCE&G and its customers would be paying for solar energy would be more than the Company's actual avoided costs, which is contrary to the explicit intent of PURPA.

Q. HOW DOES SCE&G COMPUTE THE AVOIDED ENERGY COMPONENT FOR SOLAR QFs SUBJECT TO THE PR-1 RATE?

A. SCE&G uses the same methodology to estimate avoided energy costs for solar QFs on PR-1 as it did for solar QFs on PR-2. The only difference is the time period over which the avoided energy costs are estimated. The short-run avoided energy costs in the PR-1 rate are calculated for the period May 2018 through April 2019.

Q. WHAT IS THE AVOIDED CAPACITY COST COMPONENT FOR SOLAR QFs IN THE PR-1 RATE?

A. The avoided capacity cost for solar QFs subject to the PR-1 rate is zero. As explained with respect to the PR-2 rate, incremental solar QFs do not affect the resource plan and therefore avoid no future resources or their cost.

Q. HOW DOES SCE&G COMPUTE THE AVOIDED ENERGY COMPONENT FOR NON-SOLAR QFs SUBJECT TO THE PR-1 RATE?

A. As discussed previously, SCE&G uses PROSYM to estimate the change in production costs that result from serving the base case load and the change case. The change case for non-solar QFs is derived from the base case by subtracting a 100 MW round-the-clock power purchase profile. The avoided costs are then accumulated into the four time-of-use periods described above. A non-solar QF would be paid based on how much energy it produces in each of these four time-of-use periods.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 21 of 64

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 22 of 64

Q. HOW DOES SCE&G COMPUTE THE AVOIDED CAPACITY COMPONENT FOR NON-SOLAR QFs SUBJECT TO THE PR-1 RATE?

A. Normally SCE&G would calculate its avoided capacity costs by taking the difference in avoidable costs between a base resource plan and a change case. However, because the PR-1 rate is designed for small QFs with a capacity rating of up to 100 kWs, SCE&G does not believe there will ever be enough capacity from these small non-solar QFs to affect its resource plan and, therefore, the avoided capacity costs for PR-1 are zero.

Q. IS SCE&G PROPOSING OTHER CHANGES TO THE PR-1 RATE FOR NON-SOLAR QFs?

A. Yes. Previously, SCE&G defined two "critical peak hour" periods and used the number of hours in these periods to convert the annual capacity cost from $ per kW-year into $ per kWh. SCE&G proposes to eliminate the critical peak hours as a way to credit QFs for their capacity value for several reasons. First, these critical peak hours were established to accommodate solar facilities. Since SCE&G must use a solar profile to calculate solar related avoided costs, it is more appropriate to simply add an avoided capacity credit to the avoided energy cost to deliver the capacity value to a solar QF. Second, the addition of so much solar on SCE&G's system shifts the Company's previously experienced effective peak hour—the hour that the residual load (system load minus solar generation) peaks. This can be readily seen in the graph on page 2 in Exhibit JML-4. Because of this solar effect,

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 23 of 64

it is inappropriate to look only to certain hours selected from past experience in which to pay out a capacity credit. Finally, as reflected in the Reserve Margin Study and in Table 1 above, SCE&G has determined that, during the months of May through October ("SUMMER"), the Company needs resource reserves of at least 14% of the projected summer peak demand during peak times, and at least 12% during the remaining periods to reliably serve its customers. For the months of November through April ("WINTER"), SCE&G needs a minimum of 21% of its projected winter peak demand during peak times and at least 14% to serve the load during the remaining periods. Since SCE&G's need for capacity spans the entire year, it is necessary to spread avoided capacity costs throughout the year to reflect the Company's reliability risk as explained in the Reserve Margin Study.

Q. WHAT ADJUSTMENTS ARE MADE TO THE AVOIDED COSTS IN THE PR-1 RATE?

A. The avoided energy cost results for both solar QFs and non-solar QFs are adjusted for line losses, working capital impacts, gross receipts taxes, and generation taxes. The Company made no adjustments to the avoided capacity costs for both solar and non-solar QFs under PR-1 because these costs are zero.

Q. WHAT IS THE RESULTING PR-1 RATE?

A. The avoided energy costs are shown in Table 8 below.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 24 of 64

Table 8

PR-1 RATE: AVOIDED ENERGY COST
Non-Solar QFs ($/kWh)

Time Period	Peak Season Peak Hours	Peak Season Off-Peak Hours	Off-Peak Season Peak Hours	Off-Peak Season Off-Peak Hours
May-April	$0.03233	$0.02886	$0.03445	$0.03298

Solar QFs ($/kWh)

Time Period	Year Round
May-April	$0.03256

The avoided capacity costs for solar and non-solar QFs are zero.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 25 of 64

COMPONENTS OF VALUE FOR NEM DISTRIBUTED ENERGY RESOURCES

Q. WHAT ARE THE COMPONENTS OF VALUE FOR NEM DISTRIBUTED ENERGY RESOURCES?

A. By way of its Order No. 2015-194 issued in Docket No. 2014-246-E, the Commission approved the following 11 components of value for NEM Distributed Energy Resources:

Net Energy Metering Methodology

1. +/- Avoided Energy
2. +/-Energy Losses/Line Losses
3. +/- Avoided Capacity
4. +/- Ancillary Services
5. +/- T&D Capacity
6. +/- Avoided Criteria Pollutants
7. +/- Avoided CO_2 Emission Cost
8. +/- Fuel Hedge
9. +/-Utility Integration & Interconnection Costs
10. +/- Utility Administration Costs
11. +/- Environmental Costs

= Total Value of NEM Distributed Energy Resources

In Docket No. 2017-2-E, the Company calculated the value for these components and, in Order No. 2017-246, the Commission determined that those values complied with the NEM Methodology approved by the Commission in Order No. 2015-194. Table 9 below shows the components of value of NEM Distributed Energy Resources approved by the Commission in Order No. 2017-246.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 26 of 64

Table 9
Total Value of NEM Distributed Energy Resources ($/kWh)
Approved in Order No. 2017-246

	Current Period	IRP Planning Horizon (15-Year Levelized)	Components
1	$0.03273	$0.03199	Avoided Energy Costs
2	$0	$0.00172	Avoided Capacity Costs
3	$0	$0	Ancillary Services
4	$0	$0	T & D Capacity
5	$0.00004	$0.00004	Avoided Criteria Pollutants
6	$0	$0	Avoided CO_2 Emission Cost
7	$0	$0	Fuel Hedge
8	$0	$0	Utility Integration & Interconnection Costs
9	$0	$0	Utility Administration Costs
10	$0	$0	Environmental Costs
11	$0.03277	$0.03375	Subtotal
12	$0.00268	$0.00276	Line Losses @ 0.9245
13	$0.03545	$0.03651	**Total Value of NEM Distributed Energy Resources**

Q. HAS SCE&G UPDATED THESE COMPONENTS OF VALUE?

A. Yes. Table 10 shows the updated components of value for NEM Distributed Energy Resources. Two columns of numbers are shown: one for the current value and one for the value over the IRP planning horizon. The difference between these two columns of numbers represents the future benefits of DER and are subject to recovery under S.C. Code Ann. § 58-40-20(F)(6).

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 27 of 64

Table 10
Total Value of NEM Distributed Energy Resources ($/kWh)

	Current Period	IRP Planning Horizon (15-Year Levelized)	Components
1	$0.03074	$0.03014	Avoided Energy Costs
2	$0	$0	Avoided Capacity Costs
3	$0	$0	Ancillary Services
4	$0	$0	T & D Capacity
5	0.00004	$0.00004	Avoided Criteria Pollutants
6	$0	$0	Avoided CO_2 Emission Cost
7	$0	$0	Fuel Hedge
8	$0	$0	Utility Integration & Interconnection Costs
9	$0	$0	Utility Administration Costs
10	$0	$0	Environmental Costs
11	$0.03078	$0.03018	Subtotal
12	$0.00251	$0.00246	Line Losses @ 0.9245
13	$0.03329	$0.03264	**Total Value of NEM Distributed Energy Resources**

Q. PLEASE EXPLAIN THE COMPONENTS OF VALUE FOR AVOIDED ENERGY COSTS AND AVOIDED CAPACITY COSTS SHOWN ON LINE NOS. 1 AND 2 OF TABLE 10.

A. The components of value for avoided energy costs and avoided capacity costs are based on the PURPA avoided cost values previously discussed with one adjustment. The avoided energy costs are adjusted to remove the cost of criteria pollutants, which is then reflected in the component shown on Line 5, Avoided Criteria Pollutants.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 28 of 64

Q. PLEASE EXPLAIN THE COMPONENT OF VALUE FOR ANCILLARY SERVICES SHOWN ON LINE NO. 3 OF TABLE 10.

A. Ancillary services refer to the need to balance the load and generation on the system and include operating reserves, both spinning and non-spinning; frequency regulation; and voltage control. SCE&G expects that the cost of providing these ancillary services will increase with the addition of large amounts of solar energy. Currently, however, at the relatively small amount of NEM Distributed Energy Resources generation, SCE&G has again assigned a value of zero to ancillary services as it did in Docket No. 2016-2-E.

Q. PLEASE EXPLAIN THE COMPONENT OF VALUE FOR TRANSMISSION AND DISTRIBUTION CAPACITY SHOWN ON LINE NO. 4 OF TABLE 10.

A. SCE&G's NEM distributed resources do not avoid transmission or distribution capacity and therefore the value of this component is zero. On SCE&G's transmission system, customer-scale NEM resources are distributed across SCE&G's transmission system and have too small of an impact on any transmission circuit to result in avoided transmission capacity. For example, the most impacted substation currently on SCE&G's system is connected to 1,368 kW of solar capacity owned by 178 customers. The impact of a 1,368 kW change in load is much too small to affect the planning of or need for a 115 kV or a 230 kV circuit, which carry loads between 237,000 and 948,000 kWs.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 29 of 64

On the distribution system, SCE&G's engineers must design a circuit for circumstances that will stress the circuit. In particular, since solar output is intermittent during the day and non-existent at night, they must also plan for when the DER is not supplying power. The distribution line must carry the load both when the DER is generating and when it is not because of weather related factors or because DER resources are off line.

Q. PLEASE EXPLAIN THE COMPONENT OF VALUE FOR AVOIDED CRITERIA POLLUTANTS SHOWN ON LINE NO. 5 OF TABLE 10.

A. SCE&G associates a positive avoided cost value to criteria pollutants such as NO_x and SO_2. The avoided cost of these pollutants typically is included in the Company's avoided energy costs but, as I mentioned previously, these costs have been separated out in this proceeding for reporting purposes.

Q. PLEASE EXPLAIN THE COMPONENT OF VALUE FOR AVOIDED CO_2 POLLUTANTS SHOWN ON LINE NO. 6 OF TABLE 10.

A. Pursuant to Commission Order No. 2015-194, the component of value for avoided CO_2 is set at zero until state or federal laws or regulations result in an avoidable cost on utility systems for these emissions. Currently, there are no state or federal laws or regulations restricting the emission of CO_2 pollutants and, therefore, the value for CO_2 pollutants is zero.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 30 of 64

Q. PLEASE EXPLAIN THE COMPONENT OF VALUE FOR FUEL HEDGE SHOWN ON LINE NO. 7 OF TABLE 10.

A. SCE&G does not hedge fuels for electric generation. Therefore, the value for fuel hedging is zero.

Q. PLEASE EXPLAIN THE COMPONENT OF VALUE FOR UTILITY INTEGRATION & INTERCONNECTION COSTS SHOWN ON LINE NO. 8 OF TABLE 10.

A. At present, the integration and interconnection costs of NEM Distributed Energy Resources are being collected through a DER rider added to the fuel clause. Therefore, the value of this component is zero.

Q. PLEASE EXPLAIN THE COMPONENT OF VALUE FOR UTILITY ADMINISTRATION COSTS SHOWN ON LINE NO. 9 OF TABLE 10.

A. At present, the administration costs of NEM Distributed Energy Resources are being collected through a DER rider being added to the fuel clause. Therefore, the value of this component is zero.

Q. PLEASE EXPLAIN THE COMPONENT OF VALUE FOR ENVIRONMENTAL COSTS SHOWN ON LINE NO. 10 OF TABLE 10.

A. The component of "Environmental Costs" refers to any appropriate environmentally related costs that were not already included in other net metering

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 31 of 64

methodology components. At present, there are no environmental costs that are not already included in the other specific components of the methodology. Therefore, the value of this component is zero.

Q. PLEASE EXPLAIN THE COMPONENT OF VALUE FOR ENERGY LOSSES/LINE LOSSES SHOWN ON LINE NO. 11 OF TABLE 10.

A. When a NEM Distributed Energy Resource serves a customer's load behind their meter or when it puts power onto the distribution system, SCE&G avoids having to generate that specific amount of energy. The Company also avoids the energy required to bring the power to the customer's meter or the distribution system, i.e. the line losses associated with delivering power across the system. The loss factor used for these NEM values represents the cumulative marginal line losses at a residential customer's meter.

CONCLUSION

Q. WHAT IS SCE&G REQUESTING OF THE COMMISSION IN THIS PROCEEDING?

A. SCE&G respectfully requests that the Commission 1) approve the Company's proposed PR-1 and PR-2 Rates; 2) approve the total value of NEM Distributed Energy Resources; 3) approve the costs incurred by the Company in providing DER programs during the Review Period as being reasonable and

prudent; and 4) find that the Company's fuel purchasing practices were reasonable and prudent for the Review Period.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

ELECTRONICALLY FILED - 2018 February 23 5:05 PM - SCPSC - Docket # 2018-2-E - Page 32 of 64

BY MR. MUSTIAN:

Q Did you also prepare or cause to be prepared under your supervision rebuttal testimony consisting of 43 pages that was previously filed in this matter?

A [LYNCH] Yes, I did.

Q Do you have any changes, additions, or deletions to that testimony?

A [LYNCH] I do not.

Q If I asked you those same questions here today, would your answers be the same?

A [LYNCH] They would.

MR. MUSTIAN: Mr. Chairman, at this time, I would ask that the prefiled rebuttal testimony of Dr. Lynch be read into the record as if given orally from the stand.

CHAIRMAN WHITFIELD: Dr. Lynch's prefiled rebuttal testimony will be entered into the record as if given orally from the stand.

BY MR. MUSTIAN:

Q And, Dr. Lynch, attached to your rebuttal testimony, did you also prepare or cause to be prepared under your supervision three exhibits labeled Exhibits JML-5 through JML-7?

A [LYNCH] I did.

Q Do you have any changes, additions, or deletions to

those exhibits?

A [LYNCH] I do not.

MR. MUSTIAN: Mr. Chairman, I would move into the record as a composite exhibit the exhibits attached to Dr. Lynch's rebuttal testimony and labeled JML-5 through JML-7.

CHAIRMAN WHITFIELD: The exhibits attached to Dr. Lynch's rebuttal testimony, JML-5 through JML-7, will be entered in as Hearing Exhibit No. 6.

[WHEREUPON, Hearing Exhibit No. 6 was marked and received in evidence.]

BY MR. MUSTIAN:

Q Dr. Lynch, have you prepared a summary of your rebuttal testimony and, if so, could you give it to the Commission at this time?

A [LYNCH] I have, and I will.

In my rebuttal testimony, I discuss SCE&G's response to the direct testimonies of Mr. Brian Horii, Ms. Devi Glick, and Dr. Ben Johnson. In the interest of time, I would refer the Commission to my prefiled rebuttal testimony for a complete discussion of SCE&G's position on the issues raised by Witnesses Horii, Glick, and Johnson. Generally, however, I would note that SCE&G has not proposed a significant or dramatic change in its approach to avoided capacity costs. The company

has experienced a significant increase in new solar capacity with PPAs since the last fuel proceeding, and the change in circumstances is the primary cause of the change in result. SCE&G has also shown that its capacity needs are greater in the winter than in the summer, and that the methodology used to calculate these needs are reasonable and appropriate.

With respect to Rate PR-2, the company does not believe that it's necessary to publish a separate tariff for non-solar QFs, since there are no such facilities currently seeking a PPA with SCE&G.

In addition, I would like to state that, notwithstanding Witness Horii's, Glick's, and Johnson's criticisms and recommendations, SCE&G properly determined its avoided costs and complied with the methodology for calculating components of value for NEM Distributed Energy Resources, as agreed to by the parties in Docket No. 2014-246-E and approved by the Commission.

This concludes my summary.

MR. MUSTIAN: Thank you, Dr. Lynch.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED REBUTTAL TESTIMONY OF JOSEPH M. LYNCH, Ph.D., FOLLOWS AT PGS 230-272]

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 1 of 46

REBUTTAL TESTIMONY

OF

JOSEPH M. LYNCH

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2018-2-E

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Joseph M. Lynch, and my business address is 220 Operation Way, Cayce, South Carolina.

Q. ARE YOU THE SAME JOSEPH LYNCH WHO HAS PREVIOUSLY FILED TESTIMONY IN THIS DOCKET?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to discuss South Carolina Electric & Gas Company's ("SCE&G" or the "Company") response to the direct testimony of 1) Mr. Brian Horii filed on behalf of the South Carolina Office of Regulatory Staff ("ORS"); 2) Ms. Devi Glick filed on behalf of the South Carolina Coastal Conservation League ("CCL") and the Southern Alliance for Clean Energy ("SACE"); and 3) Dr. Ben Johnson filed on behalf of the South Carolina Solar Business Alliance, LLC. ("SCSBA").

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 2 of 46

REBUTTAL TO TESTIMONY OF MR. BRIAN HORII

Q. WITH RESPECT TO MR. HORII'S TESTIMONY, PLEASE EXPLAIN HOW YOU ORGANIZE YOUR RESPONSES.

A. My rebuttal testimony sequentially addresses the issues raised by Mr. Horii as they appear in his direct testimony.

Q. ON PAGE 8, LINES 6 THROUGH 7, MR. HORII CLAIMS SCE&G IS IMPLEMENTING "A DRAMATIC CHANGE IN APPROACH." DO YOU AGREE?

A. No. SCE&G is using the same difference in revenue requirements ("DRR") methodology previously approved by the Commission.

Q. SCE&G IS PROPOSING A ZERO AVOIDED CAPACITY COST FOR ITS PR-2 RATE. WHY IS THAT NOT CONSIDERED A SIGNIFICANT CHANGE?

A. It is a change in result, not a change in methodology and this result should have been expected. The "dramatic" change this year actually is the significant increase in new solar capacity with signed Power Purchase Agreements ("PPAs") since the Company's last fuel proceeding and this "dramatic" change in circumstances is the primary cause of the change in result. There are 865 MWs of capacity currently under contract. As Company Witness John Raftery states in his direct testimony, this represents approximately 17% of SCE&G's 2018 forecasted system peak demand of 5,077 MW.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 3 of 46

Q. WHY DO YOU SAY THAT THIS RESULT OF A ZERO AVOIDED CAPACITY COST SHOULD BE EXPECTED?

A. The economic principle is known as the "Law of Diminishing Marginal Returns." As more and more of a product is added, the usefulness or value of each successive addition decreases. In addition to the 865 MW of solar currently under contract, there is approximately another 800 MWs in some stage of negotiations. The interconnection queue for SCE&G's system also currently consists of 183 active projects that would add a total of 5,285 MWs of additional solar capacity. Based on the Law of Diminishing Marginal Returns, it is logical that there is a zero point of value somewhere along this continuum to 5,285 MWs. The avoided energy costs are by far the larger component of avoided costs and, using last year's PR-2 rate and avoided cost, only about 5% of the avoided cost is related to capacity. As more and more solar comes onto the system, the avoided capacity value would reach zero well before the energy value diminishes to this point. With 865 MWs under contract, SCE&G therefore contends that solar has already reached this zero point for capacity.

Q. ON PAGE 9, LINE 2, MR. HORII CLAIMS THAT SCE&G "HAS NOT ADEQUATELY DEMONSTRATED THAT WINTER CAPACITY NEEDS ARE THE SAME OR GREATER THAN SUMMER CAPACITY NEEDS." DO YOU AGREE?

A. No. Exhibit No. ___ (JML-1) to my direct testimony contains all of the information necessary to demonstrate that SCE&G's capacity needs are greater in

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 4 of 46

the winter than in the summer. In addition, the following table highlights the Company's relative need for capacity in summer and winter. This calculation of the future need for capacity is based on the summer and winter peak demand forecast offset by existing demand side management ("DSM"), existing signed PPAs with solar qualifying facilities ("QFs"), and existing generating capacity. The other elements in the resource plan not reflected in this calculation represent a plan of how SCE&G might meet the future capacity need.

	2019	
	Summer	Winter
Peak Demand MWs	5,111	5,071
Reserve Margin	14%	21%
Total Capacity Need	5,827	6,136
Less DSM	-275	-223
Less Solar	-162	0
Less Existing Capacity 2018(S)	-5,278	-5,278
Less Extra Winter Capacity	0	-186
Net Incremental Need	112	449
Difference in Winter-Summer Need		337

Thus, the seasonal peak demand forecasts and the seasonal reserve margins show that SCE&G's incremental capacity need is 112 MWs in the summer and 449 MWs in the winter.

Q. MR. HORII ARGUES THAT THE WINTER RESERVE MARGIN SHOULD BE 18%. WOULD USING HIS ESTIMATE CHANGE THE CONCLUSION?

A. No. The same calculations are shown in the following table using a winter reserve margin of 18%.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 5 of 46

	2019	
	Summer	Winter
Peak Demand MWs	5,111	5,071
Reserve Margin	14%	18%
Total Capacity Need	5,827	5,984
Less DSM	-275	-223
Less Solar	-162	0
Less Existing Capacity 2018(S)	-5,278	-5,278
Less Extra Winter Capacity	0	-186
Net Incremental Need	112	297
Difference in Winter-Summer Need		185

Even assuming Mr. Horii's suggested 18% winter reserve margin, which, as I will discuss below, results from an error in his calculations, the 2019 winter need for capacity is 185 MW greater than the summer need.

Q. HAVE YOU MADE THIS CALCULATION FOR ALL THE YEARS IN THE IRP PLANNING HORIZON?

A. Yes. The following table compares the results using a winter reserve margin of 21% to that of 18%.

	21%			18%		
Year	Summer	Winter	Difference	Summer	Winter	Difference
2019	112	449	337	112	297	185
2020	48	504	455	48	350	302
2021	131	586	455	131	430	300
2022	250	636	385	250	479	229
2023	341	670	329	341	512	171
2024	409	720	310	409	561	151
2025	486	777	291	486	616	131
2026	561	829	268	561	667	106
2027	627	878	251	627	715	88
2028	688	926	238	688	762	74
2029	745	970	225	745	805	59
2030	797	1,021	224	797	854	58
2031	854	1,071	217	854	903	49
2032	909	1,122	213	909	953	44

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 6 of 46

Again, even assuming a winter reserve margin of 18%, there is a greater capacity need in winter than summer.

Q. ON PAGE 10, LINE 4, MR. HORII CLAIMS THAT THERE ARE "FLAWS AND INCONSISTENCIES" IN SCE&G'S 2017 RESERVE MARGIN STUDY AND, ON LINE 7, HE CLAIMS THAT SCE&G DID NOT PROVIDE DATA TO SUBSTANTIATE ITS CALCULATIONS IN RESPONSE TO A DATA REQUEST. DO YOU AGREE?

A. No. As I discuss below, there are no flaws or inconsistencies in the Reserve Margin Study. Furthermore, SCE&G appropriately responded to each data request submitted by ORS and provided an electronic version of all data necessary to reproduce the regression equations documented in the studies attached to my prefiled direct testimony. I am not aware that ORS requested or required any additional information from the Company, or that ORS notified SCE&G that the information provided was not adequate for its needs. In addition, I note that on page 10, lines 5 through 7, of Mr. Horii's prefiled direct testimony, he acknowledges that the Company informed him of the difference in the data used during a conversation he requested with SCE&G.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 7 of 46

Q. ON PAGE 10, LINE 22, THROUGH PAGE 11, LINE 2, MR. HORII SAYS "THE COMPANY IS FORECASTING SUMMER AND WINTER PEAK DEMANDS FOR FUTURE YEARS IN AN INCONSISTENT MANNER THAT CREATES A POTENTIALLY FALSE INDICATION OF HIGHER CAPACITY NEED FOR THE WINTER SEASON." IS HE CORRECT?

A. No. The easiest way to demonstrate that there is no bias towards a larger winter peak forecast is to compare the growth projections for each season. The growth rate for the summer peak projections for years 2018 through 2032 is 1.14% and for the winter, the growth rate is 0.83%. Since the growth in the number of customers and their kWh energy consumption are the primary drivers for the summer and winter peak demands, it is natural that they would grow at the same rate. However, the Company believes that residential and commercial customers have been changing their usage to conserve energy in years when economic conditions are challenging, but that, as the economy improves there will be less conservation. This would affect the summer peak demand but, because the winter peak is significantly affected by energy consumed by heating strips, the winter peak will be little affected by conservation.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 8 of 46

Q. ON PAGE 11, LINES 12 THROUGH 14, MR. HORII REPORTS THAT SCE&G'S METHODOLOGY IS NOT AN INDUSTRY STANDARD APPROACH "SUCH AS THE LOSS OF LOAD PROBABILITY METHOD PRESENTED BY SCE&G IN ITS PRIOR 2012 RESERVE MARGIN STUDY." DID SCE&G USE THE LOSS OF LOAD PROBABILITY METHOD IN 2012?

A. No. SCE&G has never used the Loss of Load Probability method, also referred to as Loss of Load Expectation ("LOLE") method, to determine an appropriate reserve margin. The Company believes that the LOLE method does not adequately address the summer and winter peak demand risk faced by SCE&G. Instead, for at least 20 years, SCE&G has used what it calls the component methodology in which the three components of reserves are addressed directly. Two of these components relate directly to risk, i.e., demand side risk and supply side risk. The third component of reserves represents SCE&G's obligation under the VACAR reserve sharing arrangement. However, in recent IRPs, SCE&G has reported the results of its LOLE calculation only for the purpose of providing another data point to support its 14% summer reserve margin. Importantly, using the standard industry target for having an LOLE of 1 day of outage in 10 years, the LOLE methodology would suggest the need for SCE&G's reserve margins to be 23.5%, 23.5%, 23.5%, 23.3%, and 24.1% as reported in the 2013 through 2017 IRPs respectively.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 9 of 46

Q. ON PAGE 14, LINES 4 THROUGH 11, MR. HORII ARGUES THAT THE WINTER REGRESSION EQUATION HAS AN UPWARD CURVE "WHICH IS COUNTER TO ENGINEERING-BASED EXPECTATIONS," THAT THIS "CAN RESULT IN AN OVERLY LARGE ESTIMATE OF WINTER VARIABILITY," AND THAT THE SUMMER SHAPE WHICH IS CURVED DOWN "IS WHAT I WOULD EXPECT." IS THIS A CONCERN?

A. No. In the summer, one would expect the shape of the regression line to curve down because during very hot hours in the summer, air conditioners and heat pumps (which in the summer are in cooling mode) in most homes stop cycling and instead run continually. As the hours become even hotter, the increase in load slows because many air conditioners cannot use more power regardless of further increases to the temperature, i.e., the units stop cycling. The winter, however, presents a different problem. Many SCE&G customers have heat pumps, which use heat strips as supplemental heating to warm residences and businesses in very cold weather. Most standard heat pumps have one bank of heat strips rated at 5 kW, but some have multiple banks of heat strips that can be rated from 5 kW to 15 kW. These heat strips, which use very inefficient resistant heating, do not experience a similar saturation point like the air conditioning cycle does in the summer. Additionally, some customers use space heaters to supplement the heating in their homes and businesses, which is an extremely inefficient heating source. All this suggests that an upward curving load curve in the winter is reasonable.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 10 of 46

Q. DO YOU TAKE INTO CONSIDERATION THE CURVATURE OF THE LINE WHEN ESTIMATING THESE REGRESSION EQUATIONS?

A. No. The data determines the shape. Even so, I considered the fact that the weather effect on load might not be linear and might change as the weather became more extreme and, therefore, I estimated a quadratic regression equation. The coefficient of the squared term determines whether the parabola will curve upward or downward. A positive coefficient for the squared term results in an upward curving parabola while a negative squared term results in a downward curving parabola. The least squares estimation process determines the result based on the data. For the summer model shown on page 12 of Exhibit No. ___ (JML-2) attached to my direct testimony, the coefficient of the squared term is -2.0614, a negative number, which means a downward sloping curve. The coefficient of the squared term in the winter model shown on page 13 of Exhibit No. ___ (JML-2) is 1.3999, a positive number, which means an upward sloping curve. Note also that both squared coefficients are statistically significant in their respective models.

Q. WOULD A LINEAR REGRESSION EQUATION TO MEASURE THE WEATHER EFFECT ON LOAD BE AS USEFUL AS THE NON-LINEAR QUADRATIC APPROACH THAT SCE&G USED?

A. No. As reflected on page 14, line 4, of his direct testimony, even Mr. Horii states that the downward sloping summer curve is to be expected. However, he does not accept the upward sloping winter shape, which I believe to be reasonable. While the winter shape is upward sloping, it is a very gradual incline over the values of

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 11 of 46

heating degree days experienced. Exhibit No. ___ (JML-5) attached to my rebuttal testimony contains a graph of the winter shape restricted to heating degree days greater than 200 where the vertical axis begins at zero. The curve over these values of heating degree days is very close to linear—so much so that a linear equation, such as the one used by Mr. Horii, should not produce significantly different results.

Q. DID YOU FIND ANY ERRORS IN MR. HORII'S WORK?

A. Yes, I did. Mr. Horii miscalculated the maximum possible winter peak demand.

Q. PLEASE EXPLAIN WHY THIS IS AN IMPORTANT ISSUE.

A. Mr. Horii asserts that SCE&G has overstated its demand side risk in winter thereby incorrectly creating a capacity need that is higher in the winter than in the summer. From this overstatement, Mr. Horii asserts that SCE&G then derived a zero capacity value for incremental solar because solar has no capacity value in serving winter peak demands.

Q. WHAT WAS THE ERROR THAT MR. HORII MADE?

A. On page 16, Table 3 of his direct testimony, Mr. Horii presents the results of his winter load analysis, which I have reprinted below:

Table 3: Winter Demand Side Risk

MW Peak Demand - Winter				
	Maximum	Normal	Deviation	%Deviation
SCE&G JML-2, Table 1	5172	4630	542	11.7%
E3	5087	4662	425	9.1%

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 12 of 46

Page 17, Table 4, of his direct testimony also reflects information from which I am able to determine the regression equation he used to develop his calculations. The left side of the following table shows the portion of Mr. Horii's Table 4 which contains his regression results. The right side of the following table is an algebraic formulation of those results that I will use to explain the error.

Image from Mr. Horii's Table 4		Algebraic Formulation of Regression Results
	Coefficients	**Maximum Load = 1747.3**
Intercept	1747.325757	**-647.15 * ihol** (=1 if holiday, =0 otherwise)
ihol	-647.1513228	**-436.11 * wkend** (=1 if weekend, =0 otherwise)
wkend	-436.1093908	**+ 9.391 * hdh**
		+ 109.05 * Jan (=1 if January, =0 otherwise)
hdh	9.390656604	**+ 154.38 * Feb** (=1 if February, =0 otherwise)
Jan	109.0530828	**- 141.89 * Nov** (=1 if November, =0 otherwise)
Feb	154.3791379	
Nov	-141.8875	

Using Mr. Horii's regression equation and the maximum heating degree days of 344, I am able to recreate his maximum demand calculations. For example, assuming the peak were to occur in January:

Maximum Load = 1,747.32 + 9.391 × hdh + Jan

Maximum Load = 1,747.32 + 9.391 × 344 + 109.05 = 5,086.9 = 5,087.

However, history shows that the maximum winter demand on SCE&G's system does not only occur in January, but also occurs in February. Using Mr. Horii's same regression equation, but assuming a February peak, produces a higher maximum load:

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 13 of 46

Maximum Load = 1,747.32 + 9.391 × hdh + Feb

Maximum Load = 1,747.32 + 9.391 × 344 + 154.38 = 5,132.2 = 5,132.

Because this maximum load is higher than the January load, it is more appropriate to use a February peak to calculate the maximum winter demand. Simply correcting for this error increases the deviation in Mr. Horii's table by 45 MW resulting in a total deviation of 470 MWs (5,132 MW – 4,662 MW) which is closer to my calculated deviation of 542 MWs.

Q. IF MR. HORII WERE TO USE THE FEBRUARY PEAK, WOULD IT NOT ALSO BE APPROPRIATE TO CHANGE THE MONTH TO CALCULATE NORMAL LOAD TO FEBRUARY AS WELL?

No. First, it is not correct to choose a particular month to calculate normal load. Instead, normal load should be calculated based on a historical average of system peaks, which would include peaks occurring in both January and February. By comparison, when calculating maximum peak, it is appropriate to use February since that month gives the largest estimate of load.

Q. DID YOU MAKE THE CORRECT CALCULATIONS USING MR. HORII'S LINEAR MODEL?

A. Yes. Exhibit No. ___ (JML-6) shows my estimate of the equations. Comparing these estimates to Mr. Horii's results on page 17 shows that both estimate the same equations, i.e., all corresponding statistical parameters are equal. Exhibit No. ___ (JML-7) shows the date of SCE&G's historical winter peak, the heating degree hours for that morning and the estimated peak demand based on Mr.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 14 of 46

Horii's linear model. For example, row 6 shows the maximum number of heating degree days of 344, which occurred on February 5, 1996. If that weather occurred today, Mr. Horii's linear regression equation would estimate the resulting winter peak demand to be 5,132 MWs, which is the same number I calculated above. Using the average of these 27 estimated peak values produces a peak load estimate under normal or average conditions. The table below updates Mr. Horii's Table 3 and demonstrates that the two estimates of winter variability are comparable.

E3 Table 3 Updated: Winter Demand Side Risk				
	Maximum	Normal	Deviation	%Deviation
SCE&G JML-2, Table 1	5172	4630	542	11.7%
E3 Updated	5132	4656	476	10.2%

Q. IF THE CHOICE IS BETWEEN SCE&G'S QUADRATIC ESTIMATE FOR WINTER DEMAND VARIABILITY OF 542 MWS AND E3'S LINEAR CORRECTED ESTIMATE OF 476 MWS, CAN YOU EXPLAIN WHY YOUR METHOD IS APPROPRIATE?

A. Yes. First, it is important to keep in mind that there are few absolutes in statistics. Since both models can be estimated, however, it is possible to generate confidence intervals for each model. The following table shows the point estimate for the winter peak demand calculated using both models as well as a 95% confidence interval around the regression mean implied by each of the models.

Maximum Peak Demand Estimates With 95% Confidence Interval (MWs)			
	Point Estimate	Lower Bound	Upper Bound
SCE&G's Quadratic Equation	5172	5043	5301
E3's Linear Equation	5132	4982	5282

Q. WHAT DO YOU CONCLUDE FROM THE ANALYSIS USING CONFIDENCE INTERVALS?

A. Since SCE&G's estimate of the peak demand falls within the 95% confidence interval derived from E3's linear equation model, SCE&G's estimate is not statistically different from E3's results and therefore should be considered a reasonable estimate.

Q. ON PAGE 19, LINE 10, MR. HORII CLAIMS THAT SCE&G'S GROSS PEAK DEMAND FORECASTS "ARE HIGHER THAN WHAT NORMAL LOADS SHOULD BE GIVEN TYPICAL 1% PER YEAR GROWTH RATES SINCE 2016." IS SCE&G'S PEAK DEMAND FORECAST TOO HIGH?

A. No. Recent experience shows that SCE&G's peak demand forecasting is reasonable. The following table compares the one year ahead peak demand forecast with the actual peaks experienced each year since the Great Recession of 2008-2009.

	Summer			Winter		
Year	Forecast	Actual	Diff.	Forecast	Actual	Diff.
2010	4752	4735	17	4119	4868	-749
2011	4726	4885	-159	4501	4397	104
2012	4750	4761	-11	4660	3984	676
2013	4778	4574	204	4491	4853	-362
2014	4786	4594	192	4496	4970	-474
2015	4747	4750	-3	4602	4409	193
2016	4766	4807	-41	4531	4457	74
2017	4805	4701	104	4636	4768	-132
	Average Over-forecast		38	Average Under-forecast		-84

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 15 of 46

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 16 of 46

This table shows that, on average, annual summer peak demand is over-forecasted by 38 MWs and annual winter peak demand is under-forecasted by -84 MWs. The table also shows that in half of the years the forecast was high and in half of the years the forecast was low in both the summer and winter seasons.

It also is important to remember that SCE&G has access to a significant amount of demand response. Exhibit No. ___ (JML-1) attached to my direct testimony shows that the demand response resource in the 2018 summer is 274 MWs and in winter 222 MWs. Therefore, the firm peak demand forecast is 4,803 MWs for 2018 summer and 4,802 MWs for 2018 winter. These firm peak forecasts are reasonable compared to the actual peak demands, especially considering that SCE&G would employ its demand response resources on many of these historical peak days.

Q. ON PAGE 22, LINES 1 THROUGH 2, MR. HORII CLAIMS THAT "SCE&G HAS NOT PROVIDED A LONG-RUN AVOIDED CAPACITY COST IN THIS DOCKET." DO YOU AGREE?

A. No. Using its DRR methodology, SCE&G provided a long-run avoided capacity cost for solar QFs, which is zero. As I stated in my direct testimony, if incremental solar QF purchases do not change the resource plan, then the capacity cost that would be avoided by that purchase is zero.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 17 of 46

Q. ON PAGE 22, LINES 10 THROUGH 11, MR. HORII RECOMMENDS THAT "THE CURRENT CAPACITY VALUE BE MAINTAINED FOR BOTH PR-1 AND PR-2." DO YOU AGREE?

A. No. Adding a capacity payment to PR-1 and PR-2 when there are no associated avoided capacity costs would contravene PURPA regulations, which provide that "[n]othing … requires any electric utility to pay more than the avoided costs for purchases" from QFs. 18 C.F.R. § 292.304(a)(2). While these payments represent a pass through of costs and would be recoverable through SCE&G's fuel clause, SCE&G's customers ultimately would pay more for this purchased power than PURPA intends.

Q. ON PAGE 22, LINES 14 THROUGH 19, MR. HORII RECOMMENDS THAT SCE&G PROVIDE A PR-2 RATE FOR NON-SOLAR RESOURCES. DO YOU AGREE?

A. No. Since there are no non-solar QFs currently seeking a PPA, SCE&G contends there is no need for such a published tariff. Should a non-solar QF desire to enter into a PPA, SCE&G will negotiate a contract with that party. If, in the future, a substantial number of non-solar QFs desire to interconnect with the Company's system, as has been the case with solar QFs, SCE&G then would consider developing a published tariff. This approach has worked satisfactorily for SCE&G since PURPA was passed and only when the number of solar PPA applications significantly increased did the Company believe it would be more efficient to have a separate published rate for these QFs.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 18 of 46

REBUTTAL TO TESTIMONY OF MS. DEVI GLICK

Q. WITH RESPECT TO MS. GLICK'S TESTIMONY, PLEASE EXPLAIN HOW YOU ORGANIZE YOUR RESPONSES.

A. In the same manner I responded to Mr. Horii's testimony, my rebuttal testimony sequentially addresses the issues raised by Ms. Glick as they appear in her direct testimony. I also would note that Ms. Glick's testimony appears to primarily restate suggestions and recommendations that CCL and SACE made in the 2015 Net Energy Metering Docket No. 2015-205-E and in the Company's 2016 and 2017 fuel proceedings, Docket Nos. 2016-2-E and 2017-2-E, and which were rejected by the Commission in Commission Order No. 2017-246.

Q. PAGE 3, LINES 13 THROUGH 17, MS. GLICK CLAIMS THAT "SCE&G NOW PROPOSES SUBSTANTIAL CHANGES TO THE AVOIDED COST METHODOLOGY" AND ON PAGE 7, LINE 12 THAT SCE&G DID NOT USE THE METHODOLOGY APPROVED BY THE COMMISSION. DO YOU AGREE?

A. No. For the same reasons set forth on pages 2-3 above, SCE&G is using the same methodology as in previous years and as approved by the Commission

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 19 of 46

Q. PAGE 9, LINES 6 THROUGH 10, MS. GLICK CLAIMS THAT SCE&G "HAS HISTORICALLY USED A 14 PERCENT WINTER RESERVE MARGIN" AND "HAS INCREASED ITS WINTER RESERVE MARGIN TO 21 PERCENT, A 50 PERCENT INCREASE." DO YOU AGREE?

A. No. Until this year, SCE&G has never had a winter reserve margin and instead only had a summer reserve margin.

Q. ON PAGE 9, LINE 11 AND ELSEWHERE, MS. GLICK DISCUSSES THE RESERVE MARGINS OF SCE&G'S PEERS. FOR EXAMPLE, SHE STATES THAT DUKE ENERGY AND SOUTHERN COMPANY BOTH HAVE A 17% RESERVE MARGIN. IS SCE&G'S 21% WINTER RESERVE MARGIN UNREASONABLE IN COMPARISON?

A. No. First, I would point out that PJM has a 16% summer reserve margin and a 27% winter reserve margin, both of which are greater than SCE&G's. Florida electric utilities also plan to a 20% reserve margin, which likely refers to a summer reserve margin. However, SCE&G's demand side risk is greater in winter than summer. As my methodology and that of Mr. Horii's reflects, SCE&G's winter peak can increase approximately 500 MWs due to abnormal winter weather. The summer peak weather risk of 200 MWs reflects a 300 MW difference between summer and winter, and a peak demand of approximately 5,000 MWs reflects the need for at least a 6% increase in reserve margin, winter over summer. If the summer reserve margin is 14%, the winter reserve margin therefore should be at least 6% higher or at least 20%. Accordingly, SCE&G's 21% winter reserve margin is very reasonable.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 20 of 46

Q. ON PAGE 10, LINES 9 THROUGH 15, MS. GLICK CLAIMS THAT SCE&G'S RESERVE MARGIN METHODOLOGY RELIES SOLELY ON THE RELATIONSHIP BETWEEN LOAD AND WEATHER. DO YOU AGREE?

A. No. As I previously discussed, for at least 20 years, SCE&G has used what it calls the component methodology in which the three components of reserves are addressed directly. In the past, this methodology has only been used to establish a summer reserve margin. But in recent years, the need to establish a winter reserve margin has become evident. This is because winter peaks have become as large as or larger than summer peaks and because a significant amount of solar capacity is coming onto the system, which alleviates some of the summer capacity needs but none of the winter capacity needs.

Q. ON PAGE 10, LINE 17, THROUGH PAGE 11, LINE 15, MS. GLICK REPORTS THAT "REGIONAL PEER UTILITIES LIKE DUKE AND SOUTHERN COMPANY USE A DIFFERENT, MORE COMPREHENSIVE METHODOLOGY THAT BALANCES PHYSICAL RELIABILITY AND CUSTOMER COSTS." DOES SCE&G CONSIDER THE COST TO CUSTOMERS OF SUPPLYING RESERVE CAPACITY?

A. Yes, but this consideration relies on judgment. For example, as documented in Exhibit No. ___ (JML-2) of my direct testimony, SCE&G sets its reserve margin such that when the system experiences extreme summer weather or extreme winter weather, there is a 30% probability that SCE&G's supply resources will not be able

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 21 of 46

to meet the resulting peak load. While at first glance this may appear high, SCE&G knows that its customers cannot afford to entirely eliminate all risk. Based on the data and its judgment, SCE&G therefore believes that setting the reserve margin at this 30% probability level strikes a reasonable and appropriate balance. I also would note the same logic that supports a 14% reserve margin for SCE&G in the summer supports a 21% reserve margin in the winter as reflected in Exhibit No. ___ (JML-2) attached to my direct testimony.

Q. WHY DOESN'T SCE&G FORMALIZE THIS BALANCE BETWEEN RELIABILITY AND COST BY EMPLOYING THE METHODOLOGY USED BY DUKE AND SOUTHERN COMPANY?

A. Duke and Southern Company use the Strategic Energy and Risk Valuation Model ("SERVM") developed by the ASTRAPE Consulting firm. Although the reserve margin studies of Duke and Southern are not publicly available and the method of estimating the customer outage cost appears to be confidential and proprietary because it has not been published to my knowledge, the SERVM methodology has been discussed publicly in other studies. Based on my review of this available information, I do not believe the SERVM model would adequately account for SCE&G's risks especially related to its summer and winter peak demands. I also question how meaningfully the model can measure the customer cost of a system outage. For example, the SERVM methodology of estimating customer outage costs appears to involve the consideration of multiple unknown variables, which would result in a wide range of outage cost values. In addition, I

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 22 of 46

am aware that the Brattle Group used the SERVM model at the behest of the Electric Reliability Council of Texas ("ERCOT"). The results derived from the SERVM model indicated that the balance point between customer cost and construction cost of new plants was a reserve margin of 10.8%; however, this reserve margin did not meet ERCOT's reliability criteria of an LOLE of 1 day in 10 years. It therefore appears that SERVM does not always give a reasonable answer.

Q. ON PAGE 14, LINES 22 THROUGH 23, MS. GLICK STATES THAT SCE&G "ASSERTS THAT RESOURCES ONLY HAVE CAPACITY VALUE IF THEY ARE AVAILABLE IN BOTH SUMMER AND WINTER." DO YOU AGREE?

A. No. Resources have value whenever they are available. However, in the context of avoided cost, it is not a question of "value." The issue is what costs can be avoided by the purchase of a QF resource. SCE&G has determined that solar power incremental to the 865 MWs already under signed PPAs does not avoid capacity in its resource plan and therefore has a zero avoided capacity cost.

Q. ON PAGE 16, LINE 1, THROUGH PAGE 18, LINE 13, MS. GLICK STATES THAT THE COMPANY SHOULD HAVE INCLUDED OPPORTUNITY COSTS IN ITS REVENUE REQUIREMENTS CALCULATION. WHAT IS THE COMPANY'S RESPONSE TO THIS STATEMENT?

A. I would first note that, as part of last year's fuel proceeding, the Commission specifically found that "it is reasonable and appropriate for the Company not to consider opportunity costs in its revenue requirements calculation in that a solar QF

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 23 of 46

does not have firm capacity as an intermittent resource and does not add to the Company's opportunity, if such opportunity exists, to sell firm capacity." Order No. 2017-246 at 22-23.

Regardless, the opportunity costs mentioned by Ms. Glick refer to the potential to sell available capacity in the power market and thereby increase the value of the QF capacity. In order to sell capacity to a neighboring utility, it must be firm and dependable capacity. A solar QF does not have firm capacity as it is an intermittent resource and, therefore, SCE&G could not sell solar capacity. In addition, because solar capacity is intermittent, it does not add to SCE&G's opportunity to sell firm capacity. When SCE&G purchases firm capacity to serve its customers, it passes those costs onto its customers. Similarly, when SCE&G sells firm capacity, the Company believes that the benefits of such a sale should accrue to SCE&G's customers, not to the QF. Finally, it is worth noting that if there were a lucrative market for solar capacity, the solar facility would not be selling its energy to SCE&G at SCE&G's avoided costs but instead would sell its capacity directly to interested purchasers at higher prices.

Q. ON PAGE 18, LINE 14, THROUGH PAGE 20, LINE 11, MS. GLICK SUGGESTS THAT THE COMPANY SHOULD PAY QFs A PERFORMANCE ADJUSTMENT FACTOR. DO YOU AGREE WITH HER SUGGESTION?

A. I do not agree for several reasons. First and foremost, the Commission found that "it is unreasonable to employ a PAF to the capacity payment because there is

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 24 of 46

no guarantee of performance with regard to capacity from solar facilities." Order No. 2017-246 at 23.

Furthermore, Ms. Glick argues that a PAF is necessary to treat the QF capacity equally with a utility's generating units. However, I do not believe that it is reasonable or meaningful to compare the intermittent capacity of a solar QF, which only provides energy as weather permits, with the firm capacity of a more dependable generating unit such as a combustion turbine.

By way of an example, the maximum hourly output of a large solar generator on SCE&G's system in 2016 was 2,042.4 kW. However, there was only one hour in the year that the solar generator generated 2,042.4 kWs, only 6 hours where its output was above 2,000 kWs, and only 35 hours when its output was within 100 kWs of its maximum. Accordingly, this facility only generated energy near its maximum output for 0.4% of the hours for the year. Moreover, its output was above 50% of its maximum for only 18% of the hours and for 51% of the hours its output was zero.

The data therefore demonstrates that this solar facility provides little, if any, firm dependable capacity to SCE&G's system which the Company can reliably call upon to serve its customers. For these reasons and those articulated in previous fuel hearings, I therefore believe it is inappropriate to apply a PAF to increase SCE&G's avoided cost rates.

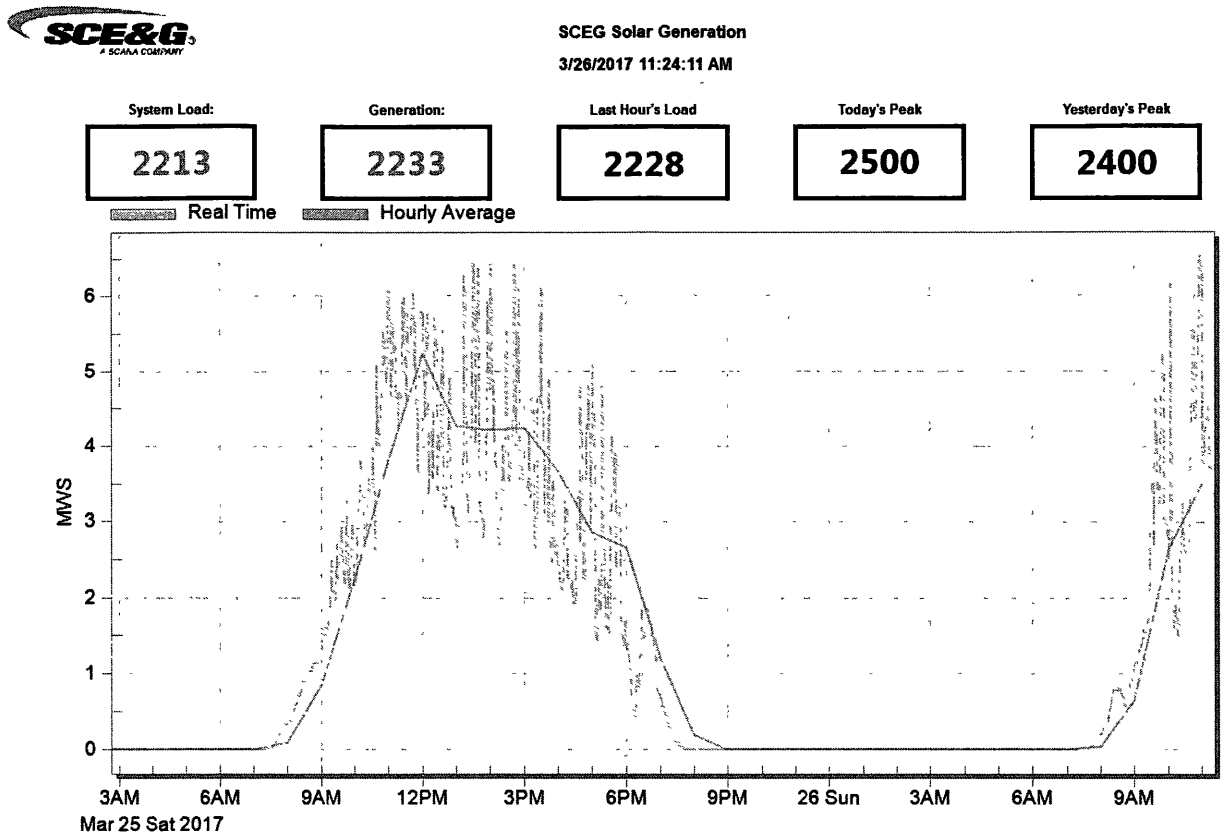
ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 25 of 46

Q. ON PAGE 22, LINE 11, THROUGH PAGE 23, LINE 8, MS. GLICK STATES THAT DISTRIBUTED ENERGY RESOURCES ("DERs") ALLEVIATE THE STRAIN ON THE SYSTEM DURING TRANSMISSION OR DISTRIBUTION SYSTEM PEAKS AND COULD THEREBY AVOID INVESTMENTS. DO YOU AGREE?

A. No. Again, the Commission has recognized that "[t]he Company must design its transmission and distribution system so as to provide safe and reliable electric service, even when intermittent generation sources such as solar facilities and other small QFs are not producing power." Order No. 2017-246 at 24. Ms. Glick has not identified any new evidence that would support a change from this established position.

Nevertheless, transmission lines on the SCE&G system are designed to carry up to 948,000 kW. With the NEM solar capacity distributed throughout the system, the current impact on any single transmission line is less than 1,500 kW. SCE&G's transmission planning engineers consider this level of load, which is about 0.1% of the total load, to be no more than noise on the system and it does not have any expected impact on the need for future transmission lines.

The case may be different for distribution lines which serve local loads; however, it is not clear whether the solar generators increase the strain on the line or decrease it. Although, as shown in the below graph of solar output from a recent day, the extreme fluctuation in the real-time solar output is likely to increase the strain on the distribution system.



Regardless, SCE&G's distribution engineers must plan the distribution line assuming the solar output is zero because solar is an intermittent resource. While this may change in the future as SCE&G has more experience with solar QFs on the system, SCE&G has set the avoided cost relative to transmission and distribution at zero at this time.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 26 of 46

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 27 of 46

Q. ON PAGE 23, LINE 9, THROUGH PAGE 26, LINE 7, MS. GLICK STATES THAT OTHER ENERGY RESOURCES, SUCH AS ENERGY EFFICIENCY, RECEIVE CREDIT FOR DEFERRING OR AVOIDING TRANSMISSION AND DISTRIBUTION RESOURCES, AND RECOMMENDS THE METHODOLOGY SCE&G SHOULD USE TO CALCULATE THE VALUE OF AVOIDED TRANSMISSION AND DISTRIBUTION CAPACITY FOR DER. DO YOU HAVE ANY COMMENTS ON THESE STATEMENTS AND RECOMMENDATIONS?

A. Yes. Other energy resources, such as energy efficiency, may be credited with avoiding transmission and distribution costs. With respect to the transmission system, however, I suspect that in considering a program such as energy efficiency, the effects of which are dispersed around a system, an analysis of the localized impact will demonstrate the impact to be too small to affect the transmission system for the same reasons mentioned previously. With respect to the distribution system, energy efficiency is not an intermittent resource like a solar generator so there may be justification for an avoided cost credit.

Q. ON PAGE 26, LINE 18, THROUGH PAGE 28, LINE 9, MS. GLICK SUGGESTS THAT SCE&G INCORRECTLY CALCULATED SYSTEM LINE LOSSES ASSOCIATED WITH DERS. DO YOU AGREE WITH HER SUGGESTION?

A. No, I do not. SCCCL and SACE previously raised this issue in Docket No. 2017-2-E, but the Commission found that "the Company's calculation of line losses

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 28 of 46

is appropriate and that average transmission losses are the best estimate to use for marginal losses." Order 2017-246 at 38. The Commission also found that "the Company properly applied line losses for both energy and capacity in a manner consistent with the methodology approved in Order No. 2015-194." *Id.* Therefore, I believe Ms. Glick's suggestion is unfounded and without any basis.

Even so, the PR-1 and PR-2 rates and the 11-point NEM methodology all involve the adjustment of QF energy supplied over many hours of the year. For this reason, the use of an average loss factor is appropriate. SCE&G also has calculated system line losses for many years and believes that the estimation of losses for each hour of the year or for many incremental levels would be a burdensome enterprise that would yield little or no value. Accordingly, the Company does not agree that it is necessary to calculate line losses for every hour of the year nor for the incremental steps suggested by Ms. Glick.

Q. ON PAGE 28, LINE 10, THROUGH PAGE 29, LINE 21, MS. GLICK SUGGESTS THAT SCE&G INCORRECTLY MODELED MARGINAL LINE LOSSES. DO YOU AGREE WITH HER SUGGESTION?

A. No. The distribution system essentially is a radial system with the power flowing only on a single line. For the most part, losses are equal to what are called I^2R losses and, for I^2R losses, marginal losses are approximately equal to twice the average losses. To estimate marginal line losses on the distribution system, SCE&G therefore doubled the average line losses with which Ms. Glick agrees.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 29 of 46

On the transmission system, however, the Company believes that marginal losses should be approximated by average losses. The transmission system is a network of sources and sinks with power lines connecting them. Power enters the network from its sources, i.e., generators, and leaves the network at sinks, i.e., substations feeding the distribution system, flowing along the path of least resistance. Thus, marginal line losses in a network will be less than those on the distribution system.

More importantly, the distance that power has to flow will depend on the loading at each source and sink and SCE&G's generation must equal its load. On the transmission network this means that power entering the network must equal the power leaving the network and each element is identified in SCE&G's transmission system computer model. To estimate marginal losses, SCE&G's analysis considered lowering the loads at each substation to effect a 100 MW decrease across the system, and then eliminating a source of energy from the Company's Hagood Unit to balance the system. Under these circumstances, the analysis showed that power had to flow a greater distance to serve the load and losses increased, meaning that average losses were greater than marginal losses. After performing several similar analyses, the Company concluded that average transmission losses are the best estimate to use for marginal losses.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 30 of 46

Q. ON PAGE 30, LINES 1, THROUGH 14, MS. GLICK SUGGESTS THAT AVOIDED MARGINAL TRANSMISSION AND DISTRIBUTION LINE LOSSES ALSO HAVE CAPACITY IMPLICATIONS. DO YOU AGREE WITH HER SUGGESTION?

A. I agree and would note that SCE&G applies line losses for both energy and capacity as appropriate.

Q. ON PAGE 30, LINES 15 THROUGH 22, MS. GLICK STATES THAT ANY QF CONNECTED AT THE DISTRIBUTION LEVEL SHOULD BE REIMBURSED FOR TRANSMISSION-LEVEL SAVINGS AND THAT SMALL QFs AND NEM DERs SHOULD BE REIMBURSED FOR BOTH TRANSMISSION-LEVEL AND DISTRIBUTION-LEVEL SAVINGS. WHAT IS THE COMPANY'S RESPONSE TO THIS STATEMENT?

A. Payments or credits to small QFs and NEMs are subsidized by SCE&G's DER program, so reimbursement in this case is not at issue. However, the PR-1 rate for small QFs and the NEM avoided cost methodology do have loss factor adjustments. Larger QFs likely will flow power back onto the transmission system and will incur, not avoid, transmission level losses.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 31 of 46

Q. ON PAGE 30, LINE 23, THROUGH PAGE 31, LINE 2, MS. GLICK RECOMMENDS THAT AN ADJUSTMENT SHOULD BE MADE TO THE AVOIDED COST RATES DUE TO A RESERVE MARGIN BENEFIT FROM DER RESOURCES. DO YOU AGREE WITH HER RECOMMENDATION?

A. SCE&G disagrees. The Commission previously found that "[i]t is appropriate for the Company to maintain a reserve margin to back up DERs, which are intermittent supply sources" and that "[a]ccordingly, DER resources do not result in a reserve margin benefit for the Company." Order No. 2017-246 at 38. Therefore, there is no reserve margin benefit from DER resources.

Q. ON PAGE 31, LINE 21, THROUGH PAGE 32, LINE 15, MS. GLICK STATES THAT AVOIDED ENVIRONMENTAL COSTS SHOULD BE INCLUDED IN THE NEM DISTRIBUTED ENERGY RESOURCE CALCULATION. WHAT IS THE COMPANY'S RESPONSE TO THIS STATEMENT?

A. I would again note that the Commission has found that the Company's methodology "properly account[s] for avoided environmental costs and that there are no other environmental costs that are not already included in the other specific components of the methodology." Order No. 2017-246 at 39.

In addition, Attachment A to the Settlement Agreement entered into by the parties of record to Docket No. 2014-246-E ("Settlement Agreement"), including CCL and SACE, affirmatively states that "[t]he environmental compliance and/or Utility system costs might be accounted for in the Avoided Energy component, but,

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 32 of 46

if not, should be accounted for separately. The Avoided Energy component must specify if these are included." There are no environmental costs that are not already included in the other specific components of the methodology and, for this reason, SCE&G appropriately assigned a zero avoided cost value to this component.

Q. NOTWITHSTANDING THE FACT THAT CCL AND SACE ENTERED INTO A SETTLEMENT WHEREBY THEY AGREED ENVIRONMENTAL COSTS COULD BE ACCOUNTED FOR IN THE AVOIDED ENERGY COMPONENT, HAS SCE&G ALSO ANALYZED WHETHER ENVIRONMENTAL COSTS SHOULD BE SEPARATELY ACCOUNTED FOR IN THE NEM METHODOLOGY?

A. Yes. In Order No. 2017-246, the Commission directed the Company to address the cost-effectiveness of separately accounting for environmental costs in this fuel proceeding. Order No. 2017-246 at 39. In compliance with this directive, SCE&G has evaluated this issue and concluded that the time and resources necessary to separately account for these environmental costs do not result in any additional benefit to the NEM methodology. This is because performing this analysis would result in simply moving the environmental costs from the avoided energy component to the environmental cost component, with no net effect on the Total Value of NEM Distributed Energy Resources.

To demonstrate this fact, SCE&G further analyzed the avoided energy cost component and separately identified certain environmental costs. As discussed in my direct testimony, SCE&G has previously adjusted avoided energy costs to

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 33 of 46

remove the cost of criteria pollutants, which is then reflected in the avoided criteria pollutants component. In addition, and for the purposes of this proceeding, SCE&G further adjusted avoided energy costs to remove other environmental costs for lime and ammonia, and to reflect the net profit resulting from SCE&G's sale of coal ash. This adjustment is reflected in the below table.

Total Value of NEM Distributed Energy Resources ($/kWh)

	Current Period	IRP Planning Horizon (15-Year Levelized)	Components
1	$0.03029	$0.02969	Avoided Energy Costs
2	$0	$0	Avoided Capacity Costs
3	$0	$0	Ancillary Services
4	$0	$0	T & D Capacity
5	0.00008	$0.00008	Avoided Criteria Pollutants
6	$0	$0	Avoided CO_2 Emission Cost
7	$0	$0	Fuel Hedge
8	$0	$0	Utility Integration & Interconnection Costs
9	$0	$0	Utility Administration Costs
10	$0.00041	$0.00041	Environmental Costs
11	$0.03078	$0.03018	Subtotal
12	$0.00251	$0.00246	Line Losses @ 0.9245
13	$0.03329	$0.03264	**Total Value of NEM Distributed Energy Resources**

As this table reflects, while it is possible to separately account for environmental costs, there is no net change to the Total Value of NEM Distributed Energy Resources reflected in my direct testimony. Accordingly, undertaking this exercise requires the Company to devote additional time and resources and incur additional costs related to the fuel proceeding with no corresponding or substantial

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 34 of 46

benefit. The Company therefore believes that separately accounting for these environmental costs is not cost effective.

Q. IN THE ABOVE TABLE, THE COST FOR AVOIDED CRITERIA POLLUTANTS APPEARS TO HAVE CHANGED FROM THAT PRESENTED IN YOUR DIRECT TESTIMONY. CAN YOU EXPLAIN THE REASON FOR THE CHANGE?

A. Yes. In analyzing the cost effectiveness of separately accounting for environmental costs, the Company determined that the value of avoided criteria pollutants cost component reflected in my direct testimony, which was $0.00004, was incorrect. Instead, the value of this component should be $0.00008, with a corresponding reduction in the avoided energy cost component. While the values for avoided energy costs and avoided criteria pollutants contained in the above table have been corrected and should be adopted by the Commission in this proceeding, this correction has no net effect on the Total Value of NEM Distributed Energy Resources.

REBUTTAL TO TESTIMONY OF DR. JOHNSON

Q. WITH RESPECT TO DR. JOHNSON'S TESTIMONY, PLEASE EXPLAIN HOW YOU ORGANIZE YOUR RESPONSES.

A. In the same manner I responded to Mr. Horii's and Ms. Glick's testimony, my rebuttal testimony sequentially addresses the issues raised by Dr. Johnson as they appear in his direct testimony. I also would note that Dr. Johnson's testimony appears to primarily restate the suggestions and recommendations set forth in his

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 35 of 46

testimony filed in the Company's 2017 fuel proceeding, Docket No. 2017-2-E, and which were rejected by the Commission in Commission Order No. 2017-246.

Q. ON PAGE 11, LINE 4, THROUGH PAGE 23, LINE 18, DR. JOHNSON DISCUSSES PURPA. DO YOU HAVE ANY COMMENTS ON THIS TESTIMONY?

A. I only would note that Dr. Johnson failed to cite an important provision of PURPA. Specifically, and as I mentioned previously, PURPA regulations provide that "[n]othing … requires any electric utility to pay more than the avoided costs for purchases" from QFs. 18 C.F.R. §292.304(a)(2).

Q. ON PAGE 31, LINE 4, THROUGH PAGE 33, LINE 19, DR. JOHNSON STATES THAT QF RATES SHOULD BE SET EQUAL TO THE COST OF HAVING THE UTILITY BUILD AND OPERATE ITS OWN GENERATING UNITS. DO YOU AGREE WITH HIS SUGGESTION?

A. I do not. First, the Commission rejected this recommendation in Order No. 2017-246 and found that "[t]he methodology approved by the Commission in Order No. 2016-297 sets forth the proper manner in which to determine the Company's actual avoided cost." Order No. 2017-246 at 28.

However, Dr. Johnson also states that "… the public interest is best achieved by establishing rates that leave ratepayers indifferent …" (page 33, lines 9-10). This implies that QF rates should not be set either too low or too high, and also should not be set to the utility's cost to build. Instead, QF rates should be set equal to the

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 36 of 46

utility's actual avoided cost. Under any other circumstances, ratepayers will not be indifferent as Dr. Johnson recommends.

Q. ON PAGE 34, LINE 1, THROUGH PAGE 35, LINE 15, DR. JOHNSON RECOMMENDS THAT AVOIDED COSTS SHOULD BE EVALUATED ON A LONG-TERM BASIS. WHAT COMMENTS DO YOU HAVE ON THIS RECOMMENDATION?

A. I simply would note that the rates in PR-2 reflect the Company's long-term avoided costs.

Q. ON PAGE 40, LINES 12 THROUGH 21, DR. JOHNSON STATES THAT SCE&G ANALYZED DIFFERENT GENERATION EXPANSION PLANS AND THE ASSOCIATED ENERGY COSTS BUT "DOES NOT DEVELOP A COMPREHENSIVE, DETAILED ANALYSIS OF ITS REVENUE REQUIREMENT" AND DOES NOT SHOW THE CORRESPONDING REVENUE REQUIREMENT FOR THESE EXPANSION PLANS OR THAT THIS APPROACH IS CONSISTENT WITH MINIMIZING REVENUE REQUIREMENTS. DO YOU AGREE?

A. No. SCE&G has explained that, for Rate PR-2, incremental solar beyond the 865 MWs of solar capacity already under contract does not alter its resource plan and, therefore, the difference in revenue requirement is zero. A comprehensive, detailed revenue requirement is not needed for the calculation of avoided costs which are based on incremental effects.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 37 of 46

Q. ON PAGE 46, LINE 7, THROUGH PAGE 48, LINE 1, DR. JOHNSON SUGGESTS THAT THERE ARE CERTAIN DISADVANTAGES TO USING PROSYM TO MODEL PRODUCTION COSTS. DO YOU AGREE WITH HIS SUGGESTION?

A. I disagree. As recognized by the Commission in Order No. 2017-246, it is appropriate for SCE&G to use PROSYM, which is a standard production costing model used at many utilities and used by SCE&G for many years. Order No. 2017-246 at 29.

Q. ON PAGE 48, LINE 2, THROUGH PAGE 51, LINE 5, AND PAGE 120, LINE 11, THROUGH PAGE 127, LINE 5, DR. JOHNSON STATES THAT HE DEVELOPED BENCHMARK AVOIDED ENERGY AND CAPACITY COST ESTIMATES USING THE PROXY UNIT METHOD BASED ON HYPOTHETICAL NUCLEAR, COMBINED-CYCLE, AND COMBUSTION TURBINE PLANTS. DO YOU HAVE ANY COMMENTS ON THESE ESTIMATES?

A. Yes. I would first note that the Commission has rejected this recommendation previously and found that Dr. Johnson's "recommendation to calculate avoided costs based on the utility's cost to build its own generating facilities is inappropriate" and that "using the Proxy method as recommended by Witness Johnson would not add further accuracy to the estimate of SCE&G's avoided costs." Order No. 2017-246 at 30.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 38 of 46

Furthermore, as Dr. Johnson points out, one advantage of the Proxy Method is that it is simple to calculate and easy for others to understand. In his discussion, however, Dr. Johnson leaves out the most important aspect of the method—how it is relevant. Specifically, he does not explain how the cost to construct these proxy plants relate to the costs SCE&G would avoid through a QF purchase, i.e., the avoided cost rates that leave ratepayers indifferent. Ratepayers would not be indifferent to the choice of paying the different capacity costs of a nuclear plant, a combined-cycle plant, or a combustion turbine. Rather, given the choice, ratepayers would choose to pay the capacity cost of the least expensive generating facility—a combustion turbine.

Q. ON PAGE 51, LINE 6, THROUGH PAGE 77, LINE 8, DR. JOHNSON ESTIMATES VARIABLE ENERGY COSTS AND MAKES CERTAIN ASSUMPTIONS REGARDING NATURAL GAS PRICES. DO YOU AGREE WITH THESE ESTIMATES AND ASSUMPTIONS?

A. I agree that future natural gas prices are uncertain. However, I also would point out that the Commission has previously found SCE&G's methodology to estimate future natural gas prices is reasonable and consistent with the methodology approved in Order No. 2016-297.

In addition, it is my opinion that a simple trend line using historical gas prices cannot be used with confidence to project future prices as a result of the recent advancements in fracking technology. To forecast natural gas prices, SCE&G uses the price of futures contracts traded on the NYMEX over the next three years and

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 39 of 46

then applies a growth rate to project prices over the longer term. The NYMEX prices have been used in SCE&G's fuel hearings for many years because they represent publicly available information and also are good indicators of gas prices in the short term.

Q. ON PAGE 59, LINE 6, THROUGH PAGE 73, LINE 9, DR. JOHNSON DISCUSSES SCE&G'S DECISION TO ABANDON THE NEW NUCLEAR UNITS AND SUGGESTS THAT THE COMPANY DID NOT CONSIDER THE BENEFITS OF A BALANCED GENERATING PORTFOLIO IN DEVELOPING ITS PROPOSED QF RATES. DO YOU AGREE?

A. No. SCE&G is aware of its resource mix and believes that the addition of 865 MWs of solar capacity helps to have a more balanced portfolio. However, SCE&G, like most utilities, believes that gas fired generation is the most economical choice of dispatchable generation for the next few years.

Q. ON PAGE 82, LINE 1, THROUGH PAGE 88, LINE 6, DR. JOHNSON ADDRESSES THE PROPOSED CHANGES TO THE AVOIDED CAPACITY RATES FOR SOLAR AND TO RATE PR-1 AND PR-2. WHAT IS YOUR RESPONSE?

A. Dr. Johnson appears to be making three primary points which I will address individually. First, he states that not compensating QFs for their reliability benefits is intensely and unlawfully discriminatory. As I explained before, in the context of avoided costs, the issue is not what benefits or value QFs will receive. Rather, the

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 40 of 46

issue is what capacity costs are being avoided. Simply put, if no capacity costs are avoided, then the avoided cost is zero.

Second, Dr. Johnson objects to limiting Rate PR-2 to solar projects and asserts that this would establish an arbitrary distinction between solar and non-solar technologies. However, this distinction is hardly arbitrary since SCE&G only has solar projects requesting avoided cost rates and the determination of avoided cost depends strongly on the type of project under consideration. When a non-solar project seeks to enter into a PPA with SCE&G and requests its avoided costs, some specification has to be made as to what the project's power producing characteristics will be. Dr. Johnson also specifically mentions solar combined with battery storage. As Witness Raftery states in his direct testimony, SCE&G will issue an RFP to collect information on solar plus battery projects with the intention of having a project or two placed online. SCE&G then will be better able to analyze the impacts of these types of projects on its system.

Finally, Dr. Johnson objects to SCE&G's proposal to update Rate PR-2 on an as-needed basis. SCE&G believes it is sufficient to have a scheduled update of the PR-2 rate once a year at the fuel hearing with the option, but not the requirement, to update it more frequently on an as needed basis.

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 41 of 46

Q. ON PAGE 88, LINE 7, THROUGH PAGE 95, LINE 18, DR. JOHNSON STATES THAT STRONGER, MORE PRECISE PRICE SIGNALS SHOULD BE REQUIRED FOR COMPETITIVE INVESTMENT DECISIONS. DO YOU AGREE?

A. No. PURPA requires SCE&G to purchase the power produced by any and all QFs that desire to sell power at the Company's avoided cost. SCE&G is prohibited by law from turning away less efficient QFs so the use of avoided costs is not a good vehicle to enhance competitive markets.

Q. ON PAGE 96, LINE 1, THROUGH PAGE 115, LINE 8, DR. JOHNSON DISCUSSES TYPES OF COSTS AND SUGGESTS THAT PRICES SHOULD INCLUDE A MARKUP TO PROVIDE A MECHANISM FOR JOINT AND COMMON COSTS. DO YOU AGREE?

A. No. A markup suggests that SCE&G should pay more than its avoided cost which is contrary to the intent of PURPA. If SCE&G avoids any joint and common costs through the purchase of power from a QF, then those costs should be reflected in its avoided cost rate but without a markup. Dr. Johnson also discusses fixed costs across time suggesting that a combined-cycle generating facility that provides capacity in the winter will also provide capacity in the summer. However, this scenario demonstrates why the avoided capacity cost for solar is zero. If SCE&G has to build a combined-cycle unit to meet its winter peak, but which also satisfies the need for summer capacity, then the fixed costs are incurred. In contrast, adding

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 42 of 46

solar capacity, which only has an impact on capacity in the summer, does not avoid any of those fixed costs.

Q. ON PAGE 115, LINE 9, THROUGH PAGE 120, LINE 10, DR. JOHNSON STATES THAT SOLAR AND NON-SOLAR GENERATORS SHOULD NOT BE PAID DIFFERENT PRICES. WHAT IS YOUR RESPONSE?

A. QFs should be paid their avoided cost. Solar QFs all have similar characteristics and avoid costs at approximately the same rate. For this reason, providing a standard rate for solar QFs, such as PR-2 and PR-1, is efficient and reasonable. On the other hand, non-solar QFs may have significantly different characteristics from other non-solar QFs; therefore, these projects should be considered on an individual basis and separate, specific PPAs should be negotiated for each such project. And, even though it is not possible to accurately estimate the impact small non-solar QFs (under 100 kW) have on the system, the impact they do have is so small that establishing a separate rate for these facilities would be meaningless. Rather, it is more appropriate to have a standard rate for these types of projects such as the Company's Rate PR-1.

CONCLUSION

Q. DO YOU HAVE ANY FINAL COMMENTS REGARDING THE ISSUES RAISED IN MR. HORII'S, MS. GLICK'S, AND DR. JOHNSON'S DIRECT TESTIMONIES?

A. Yes. Notwithstanding Mr. Horii's, Ms. Glick's, and Dr. Johnson's characterizations and recommendations, SCE&G has faithfully complied with its

prior practices and with the methodology approved by the Commission in Order No. 2016-297 in determining the Company's avoided costs. SCE&G also has fully complied with the methodology for calculating the components of value for NEM Distributed Energy Resources as agreed to by the parties of record in Docket No. 2014-246-E and approved by the Commission in Order Nos. 2015-194, 2016-297, and 2017-246. While Mr. Horii, Ms. Glick, and Dr. Johnson appear to recommend that SCE&G alter these methodologies, the Company believes it is reasonable and prudent to continue abiding by the terms of the Settlement Agreement and methodologies long-recognized and previously approved by the Commission. Therefore, I respectfully request on behalf of SCE&G that the Commission 1) approve the Company's proposed PR-1 and PR-2 Rates; 2) approve the total value of NEM Distributed Energy Resources; 3) approve the costs incurred by the Company in providing DER programs during the Review Period as being reasonable and prudent; and 4) find that the Company's fuel purchasing practices were reasonable and prudent for the Review Period.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

ROA 902

ELECTRONICALLY FILED - 2018 March 29 4:04 PM - SCPSC - Docket # 2018-2-E - Page 43 of 46

MR. MUSTIAN: Mr. Chairman, Mr. Rooks, Mr. Raftery, and Dr. Lynch are available for cross-examination by the other parties and questions by the Commission.

MR. ELLIOTT: Mr. Chairman?

CHAIRMAN WHITFIELD: Thank you, Mr. Mustian. Mr. Elliott.

MR. ELLIOTT: Just a brief request. I could not follow Dr. Lynch's corrections. And they're not necessary for my few questions I have, but could we get counsel just to supplement the record with the correct chart at some point?

MR. MUSTIAN: No objection to that, Mr. Chairman.

CHAIRMAN WHITFIELD: Certainly. Certainly, we can get counsel for the company to do that for you.

MR. ELLIOTT: Wonderful. Thanks.

