

Schacht & McElroy

Michael R. McElroy
Leah J. Donaldson

Attorneys at Law

Michael@McElroyLawOffice.com
Leah@McElroyLawOffice.com

Members of the Rhode Island
and Massachusetts Bars

21 Dryden Lane
Post Office Box 6721
Providence, RI 02940-6721

(401) 351-4100
fax (401) 421-5696

January 6, 2016

Luly E. Massaro
Clerk
Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

In Re: Review of Electric Distribution Design Pursuant to R.I.G.L. § 39-26.6-24
Docket No. 4568

Dear Luly:

Enclosed for filing are an original and 9 copies of the surrebuttal testimony of Caroline Golin on behalf of The Alliance for Solar Choice in this matter.

If you have any questions, please feel free to call.

Very truly yours,


Leah J. Donaldson

MRMc:tmg
cc: Service List

Alliance Motion to Intervene5

**Docket No. 4568 National Grid's Rate Design Pursuant to R.I. Gen. Laws Sec 39-26.6-24
Service List updated 11/23/15**

| Parties' Name/Address | E-mail | Phone |
|--|--|---------------------------|
| National Grid Celia B. O'Brien, Esq. National Grid 280 Melrose Street Providence, RI 02907 | Celia.obrien@nationalgrid.com ; | 781-907-2153 |
| | Joanne.scanlon@nationalgrid.com ; | |
| | Theresa.burns@nationalgrid.com ; | |
| | Jeanne.lloyd@nationalgrid.com ; | |
| | Ian.springsteel@nationalgrid.com ; | |
| | Timothy.roughan@nationalgrid.com ; | |
| Nick Horan, Esq. Jack Habib, Esq. Keegan Werlin LLP | NHoran@keeganwerlin.com ; | |
| | JHabib@keeganwerlin.com ; | |
| Division of Public Utilities & Carriers (Division) Leo Wold, Esq. Karen Lyons, Esq. Dept. of Attorney General 150 South Main St. Providence, RI 02903 | Lwold@riag.ri.gov ; | 401-222-2424 Ext. 2218 |
| | Klyons@riag.ri.gov ; | |
| | Jmunoz@riag.ri.gov ; | |
| | Dmacrae@riag.ri.gov ; | |
| | Steve.scialabba@dpuc.ri.gov ; | |
| | Al.contente@dpuc.ri.gov ; | |
| Richard Hahn Daymark Energy Associates 1 Washington Mall, 9th floor Boston, MA 02108 | rhahn@daymarkea.com ; | |
| | apereira@daymarkea.com ; | |
| Office of Energy Resources (OER) Daniel W. Majcher, Esq. Dept. of Administration Division of Legal Services One Capitol Hill, 4 th Floor Providence, RI 02908 | Daniel.majcher@doa.ri.gov ; | 401-222-8880 |
| Marion Gold, Commissioner Office of Energy Resources One Capitol Hill, 4 th Floor Providence, RI 02908 | Marion.gold@energy.ri.gov ; | 401-574-9113 |
| | Nicholas.Ucci@energy.ri.gov ; | |
| | Danny.musher@energy.ri.gov ; | |
| | Christopher.kearns@energy.ri.gov ; | |
| Conservation Law Foundation (CLF) Jerry Elmer, Esq. Conservation Law Foundation 55 Dorrance Street Providence, RI 02903 | jelmer@clf.org ; | 401-351-1102 Ext. 2012 |
| Acadia Center Mark E. LeBel Acadia Center 31 Milk Street Suite 501 Boston, MA 02108 | mlebel@acadiacenter.org ; | 617-742-0054 Ext. 104 |
| | aanthony@acadiacenter.org ; | |
| | imalone@acadiacenter.org ; | |
| Quentin Anthony, Attorney at Law 41 Long Wharf Mall Newport, RI 02840 | qanthony@verizon.net ; | 401-847-1008 |

| | | |
|---|--|--------------|
| Energy Efficiency Resources Mgmt. Council (EERMC) Marisa Desautel, Esq. Law Office of Marisa Desautel, LLC 55 Pine St. Providence, RI 02903 | marisa@desautelesq.com ; | 401-477-0023 |
| Scudder Parker 128 Lakeside Avenue Suite 401 Burlington, VT 05401 | sparker@veic.org ; | |
| Walmart Melissa M. Horne, Esq. Higgings, Cavanagh & Cooney, LLP 123 Dyer St. Providence, RI 02903 | mhorne@hcc-law.com ; | 401-272-3500 |
| Stephen W. Chriss, Sr. Mgr. Regulatory Analysis Walmart 2001 Southeast 10 th St. Bentonville, AR 72716-5530 | Stephen.chriss@walmart.com ; | 479-204-1594 |
| New England Clean Energy Council (NECEC) Narragansett Bay Commission (NBC) Joseph A. Keough, Jr., Esq. Keough & Sweeney 41 Mendon Ave. Pawtucket, RI 02861 | jkeoughjr@keoughsweeney.com ; | 401-724-3600 |
| Sue AnderBois Janet Besser New England Clean Energy Council | sanderbois@necec.org ; | |
| | jbesser@necec.org ; | |
| Karen Giebink Jim McCaughey Narragansett Bay Commission | KGiebink@narrabay.com ; | |
| | jmccaughey@narrabay.com ; | |
| Wind Energy Development (WED) Seth H. Handy Handy Law, LLC 42 Weybosset Street Providence, RI 02903 | seth@handylawllc.com ; | 401-626-4839 |
| Michelle Carpenter Wind Energy Development, LLC 3760 Quaker Lane North Kingstown, RI 02852 | md@wedenergy.com ; | |
| The Alliance for Solar Choice (TASC) Michael McElroy, Esq. Leah J. Donaldson, Esq. Schacht & McElroy PO Box 6721 Providence, RI 02940-6721 | Michael@McElroyLawOffice.com ; | 401-351-4100 |
| | Leah@McElroyLawOffice.com ; | |
| Thadeus B. Culley, Esq. Keyes, FOX & Weidman LLP 401 Harrison Oaks Blvd., Suite 100 Cary, NC 27517 | tculley@kfwlaw.com ; | 510-314-8205 |
| Gracie Walovich Carine Dumit | gracie@allianceforsolarchoice.com ; | |
| | cdumit@solarcity.com ; | |

| | | |
|--|--|---------------|
| Katie Sheldon Evan Dube | ksheldon@solarcity.com ; evand@sunrunhome.com ; | |
| Dept. of the Navy (Navy) Allison Genco, Esq. NAVFAC HQ- Building 33 Dept. of the Navy 1322 Patterson Ave SE, Suite 1000 Washington Navy Yard, D.C. 20374-5065 | allison.genco@navy.mil ; | |
| Dr. Kay Davoodi, P.E., Director Utility Rates and Studies Office NAVFAC HQ- Building 33 Dept. of the Navy 1322 Patterson Ave SE, Suite 1000 Washington Navy Yard, D.C. 20374-5065 | Khojasteh.davoodi@navy.mil ; | |
| Larry R. Allen, Public Utilities Specialist Dept. of the Navy | Larry.r.allen@navy.mil ; | |
| Maurice Brubaker P.O. Box 412000 St. Louis, Missouri 63141-2000 636-898-6726 | mbrubaker@consultbai.com ; | 636-898-6726 |
| Ali Al-Jabir 5106 Cavendish Drive Corpus Christi, TX 78413 | aaljabir@consultbai.com ; | 361-994-1767 |
| Energy Development Partner Christian F. Capizzo, Counsel Shechtman Halperin Savage, LLP 1080 Main St. Pawtucket, RI 02860 | ccapizzo@shslawfirm.com ; | 401- 272-1400 |
| Frank A. Epps, Managing Director, USA Energy Development Partners, LLC 51 Industrial Drive North Smithfield, RI 02896 | frank@edp-energy.com ; | 401-884-2248 |
| Hecate Energy & CME Energy Alan Shoer, Esq. Adler Pollock & Sheehan, Inc. One Citizens Plaza, 8 th Floor Providence, RI 002903 | ashoer@apslaw.com ; | 401-274-7200 |
| Nicholas Bulling Gabriel Wapner Hecate Energy, LLC 115 Rosa Parks Blvd. Nashville, TN 37203 | NBullinger@HecateEnergy.com ; | |
| | GWapner@HecateEnergy.com ; | |
| CME Energy, LLC William J. Martin, President Kevin Stacom CME Energy, LLC 20 Park Plaza, Suite #400 Boston, MA 02116 | Wmartin@cme-energy.com ; | |
| | Kevin.stacom@gmail.com ; | |
| File an original & 9 copies w/ PUC: Luly E. Massaro, Commission Clerk Public Utilities Commission | Luly.massaro@puc.ri.gov ; Cynthia.wilsonfrias@puc.ri.gov ; Alan.nault@puc.ri.gov ; | 401-780-2107 |

| | | |
|--|--|--|
| 89 Jefferson Blvd. Warwick, RI 02888 | Todd.bianco@puc.ri.gov ; | |
| Linda George, RI Senate Policy | lgeorge@rilin.state.ri.us ; | |
| Matt Davey, Silver Sprint Networks | mdavey@silverspringnet.com ; | |
| Christopher Long | christopher.long@opower.com ; | |
| Douglas Gablinske, The Energy Council-RI | Doug@tecri.org ; | |
| Eugenia T. Gibbons, ECANE d/b/a Mass Energy & People's Power & Light | eugenia@massenergy.org ; | |
| Laurence Ehrhardt | replarry@gmail.com ; | |
| Kat Burnham, People's Power & Light | kat@ripower.org ; | |
| Vito Buonomano | info@neastsolar.com ; | |

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

PRE-FILED SURREBUTTAL TESTIMONY

OF

CAROLINE GOLIN

ON BEHALF OF THE ALLIANCE FOR SOLAR CHOICE

JANUARY 6, 2016

1
2
I. INTRODUCTION

3 **Q. PLEASE STATE FOR THE RECORD YOUR NAME, POSITION, AND**
4 **BUSINESS ADDRESS.**

5 A. My name is Caroline Golin. I am the CEO and principal consultant of the
6 consulting and analysis firm, The Greenlink Group. My business address is 565
7 Harold Ave, Atlanta, GA 30307.

8
9 **Q. ARE YOU THE SAME CAROLINE GOLIN THAT SUBMITTED PRE-**
10 **FILED DIRECT TESTIMONY IN THIS MATTER ON BEHALF OF THE**
11 **ALLIANCE FOR SOLAR CHOICE?**

12 A. Yes.

13
14 **II. PURPOSE OF SURREBUTTAL TESTIMONY**

15 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

16 A. The purpose of my surrebuttal testimony is to respond to the joint rebuttal
17 testimony submitted by Mr. Zschokke, Ms. Lloyd, and Mr. Roughan on behalf of
18 National Grid (“Company”).

19
20 **Q. HOW IS YOUR SURREBUTTAL TESTIMONY ORGANIZED?**

21 A. **Section III** of my testimony responds to the Company’s statements regarding the
22 cross-subsidization of distributed generation customers by non-distributed

1 generation customers and the costs and benefits of distributed generation. **Section**
2 **IV** responds to the Company’s assessment of the “complexity” surrounding
3 analyzing the transmission and distribution system and corrects a number of
4 inaccuracies put forth by the Company, including the Company’s
5 misunderstanding of the concept of peak shaving. **Section V** responds to the
6 Company’s comments on rate design and time-of-use pricing. **Section VI**
7 responds to the Company’s comments on the proposed Access Fee; focusing
8 specifically regarding the cost of on-going operation and maintenance for
9 qualifying facilities. **Section VII** provides additional comments on the
10 Company’s rebuttal testimony.

11
12 **Q. PLEASE SUMMARIZE YOUR RESPONSE TO THE COMPANY’S**
13 **REBUTTAL TESTIMONY?**

14 A. The Company’s rebuttal testimony failed to provide any analysis to substantiate
15 its proposed rate design. In contrast, the Company, on a number of occasions,
16 mischaracterized the nature of distributed generation and made claims that run
17 counter to current academic literature, several publicly commissioned studies, and
18 research conducted at national labs.

19
20 **III. CROSS-SUBSIDIZATION**

21 **Q. THE COMPANY CLAIMS THAT DISTRIBUTED GENERATION**
22 **INCURS INCREMENTAL COSTS TO THE DISTRIBUTION AND**

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

1 **TRANSMISSION SYSTEM AND THAT THESE COSTS ARE ADDITIVE**
2 **TO THE AVERAGE COST OF SERVICE FOR ALL CUSTOMERS,**
3 **THEREFORE NECESSITATING ADDITIONAL CHARGES TO**
4 **RECOVER THE COST OF SERVING DISTRIBUTED GENERATION**
5 **CUSTOMERS. DOES THE COMPANY PROVIDE ANY ACTUAL**
6 **EVIDENCE OF SUCH INCREMENTAL COSTS OR COST SHIFT BEING**
7 **INCURRED?**

8 A. No. The Company merely alleges that such costs exist (or will exist), but does not
9 attempt to quantify the impact to give any sense of scale or materiality of those
10 costs. The Company has yet to produce any analysis substantiating the existence
11 of a current cross-subsidization, or cost-shift, or the potential for a cost-shift at a
12 future state of solar adoption levels.

13
14 **Q. IS IT REASONABLE FOR THE COMPANY TO ASSUME THAT THESE**
15 **“INCREMENTAL” COSTS EXIST OR WILL EXIST AT SOME FUTURE**
16 **TIME?**

17 A. No. The Company claims that “the presence of DG on the system causes
18 incremental operating costs to the system in the form of real-time voltage control,
19 management of intermittency of generation, potential for investment in more
20 feeders to meet the needs of DG customers, replacement of current facilities paid
21 for by interconnecting DG after failure, property taxes, and customer service and

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

1 administrative costs.”¹ While many of these operations are needed, it has yet to be
2 substantiated that any of them result in an operating cost that exceeds the average
3 cost of service for all customer classes. In contrast to what the Company proposes,
4 recent studies conducted by Pacific National Laboratories and Electric Power
5 Research Institute have found evidence that distributed generation customers do
6 not impose an impact to the distribution system, in terms of operations and
7 maintenance, that would measurably exceed the average cost of service.²

8
9 **Q. IS IT REASONABLE TO ASSUME THAT MANY AREAS OF THE GRID**
10 **WILL NOT BE IMPACTED BY NEAR-TERM GROWTH IN**
11 **DISTRIBUTED GENERATION?**

12 Yes. For example, a recent study conducted by the Energy Institute at Berkeley’s
13 Haas School of Business found that about 90 percent of PG&E’s feeders (a utility
14 with a much higher penetration of distributed generation solar than National Grid)
15 would see very little to no distribution impact from distributed generation solar
16 over the next ten years.³

17
18

¹ Rebuttal Testimony of Peter T. Zschokke, Jeanne A. Lloyd, and Timonty R. Roughan, at 20.

²https://www.tva.gov/file_source/TVA/Site%20Content/Energy/Renewables/dgiv_document_october_2015-2.pdf; http://www.pnnl.gov/main/publications/external/technical_reports/PNNL-23226.pdf

³ Cohen, M. A., & Callaway, D. S. (2015). Physical Effects of Distributed PV Generation on California's Distribution System. *arXiv preprint arXiv:1506.06643*.

1 **IV. BENEFITS OF DISTRIBUTED GENERATION**

2

3 **Q. IN THE COMPANY’S TESTIMONY, THE COMPANY STATES THAT**
4 **THE BENEFITS OF DISTRIBUTED GENERATION WILL “LIKELY**
5 **NOT BE KNOWN FOR YEARS” AND CURRENTLY “PROVIDES**
6 **LITTLE TO NO ACTUAL AND QUANTIFIABLE BENEFITS TO THE**
7 **UTILITY AND OTHER CUSTOMERS.”⁴ DO YOU AGREE WITH THIS**
8 **CLAIM?**

9 **A.** No. The Company’s claim is based on an assumption that these benefits are
10 minimal. Further, the Company’s caveats that these benefits are “little to no actual
11 and quantifiable benefits” or “likely not to be known for years”⁵ indicate that the
12 Company has not attempted to quantify these benefit categories. The Company
13 wrongly assumes that the benefits of distributed generation are not being realized
14 in real-time and in doing so stands contrary to rate-design studies throughout the
15 country. A number of studies have recognized the real-time benefits of distributed
16 generation, including reductions in transmission and distribution capacity and line
17 losses. The benefit that distributed solar brings to the grid in terms of transmission
18 and distribution capacity and line losses can vary, but studies throughout the
19 country have shown a benefit from 0.2 cents/kWh to 10 cents/kWh.⁶

20

21 Additionally, it should be noted that the amount of any benefits of distributed

⁴ Rebuttal Testimony of Peter T. Zschokke, Jeanne A. Lloyd, and Timonty R. Roughan, at 7.

⁵ Ibid.

⁶ <http://integratedgrid.epri.com/wp-content/uploads/2015/05/The-Value-of-Solar.pdf>

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

1 generation to transmission, distribution, and grid operations is highly dependent
2 on where the distributed generation is located and will be greatest if the local
3 feeder is significantly stressed. For example, the Energy Institute at Berkeley's
4 Haas School of Business found that on 10 percent of PG&E's feeders, which were
5 in need of capacity upgrades in the near future, distributed generation solar could
6 produce a benefit from \$10 per kilowatt-year to more than \$60 per kilowatt-year.⁷
7 This benefit was a result of distributed solar's ability to reduce feeder peak load
8 and therefore defer investment in distribution capacity infrastructure (distribution
9 equipment such as transformer banks and conductors) and extend the lifetime of
10 existing investments. I disagree with the Company's assertion that these benefits
11 are non-existent or are not capable of being known currently.

12
13 **Q. THE COMPANY ASSERTS THAT THE BENEFITS OF DISTRIBUTED**
14 **GENERATION ARE TOO 'COMPLEX' TO QUANTIFY ACCURATELY**
15 **AND THEREFORE CANNOT BE CONSIDERED IN ANY DECISION-**
16 **MAKING REGARDING RATE DESIGN.⁸ DO YOU AGREE WITH THIS**
17 **ASSERTION?**

18 A. No. The Company's assertion that the benefits of distributed generation are too
19 'complex' to quantify stands in contrast to energy policy all over the country. The
20 Company puts forth the argument that the benefits of distributed generation are
21 too difficult to monetize without the use of advanced monitoring and grid

⁷ Cohen, M. A., & Callaway, D. S. (2015). Physical Effects of Distributed PV Generation on California's Distribution System. *arXiv preprint arXiv:1506.06643*.

⁸ Rebuttal Testimony of Peter T. Zschokke, Jeanne A. Lloyd, and Timonty R. Roughan, at 25-27.

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

1 infrastructure.⁹ For example, The Company claims that “until every load and
2 generation point on the system has interval metering”¹⁰ measuring line losses is
3 merely an estimate and therefore inappropriate to be incorporated in assessing
4 distributed generation value.¹¹

5
6 However, states throughout the country have assessed the value of distributed
7 generation without the use of advanced metering. The Energy Information
8 Administration provides estimates of transmission losses for every state-in Rhode
9 Island losses are estimated to be 10%.¹² In fact, I am not aware of any Value of
10 Solar methodology that required point-by-point measurements of every single
11 feeder, bus, and demand node in order to attribute a value for line-loss reduction
12 to distributed energy. A number of jurisdictions, including Tennessee, Missouri,
13 and Colorado, New Jersey, and Pennsylvania have used estimates of line losses to
14 assess the value of distributed generation.¹³ While the methods of estimation vary,

⁹ Rebuttal Testimony of Peter T. Zschokke, Jeanne A. Lloyd, and Timonty R. Roughan, at 25.

¹⁰ Rebuttal Testimony of Peter T. Zschokke, Jeanne A. Lloyd, and Timonty R. Roughan, at 35.

¹¹ Ibid.

¹² To calculate transmission and distribution losses as a percentage, the U.S. Energy Information Administration divides the Estimated Losses by the result of Total Disposition minus Direct Use. Direct Use electricity is the electricity that is generated at facilities and that is not put onto the electricity transmission and distribution grid, and therefore does not contribute to transmission and distribution losses. U.S. Energy Information Administration, Form EIA-860, "Annual Electric Generator Report." U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report." U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report" and predecessor forms. SEE: <http://www.eia.gov/electricity/state/rhodeisland/>

¹³ Xcel Energy, Inc. (2013). Costs and Benefits of Distributed Solar Generation on the Public Service Company of Colorado System. May 2013; Perez, R., Norris, B., Hoff, T. (2012) *The Value of Distributed Solar Electric Generation to New Jersey and Pennsylvania*. Clean Power Research, 2012; Contreras, J.L., Frantzis, L., Blazewicz, S., Pinault, D., Sawyer, H., (2008) *Photovoltaics Value Analysis*. Navigant Consulting, Feb, 2008. Tennessee Valley Authority (2015) Distributed Generation, Integrated Value. A Methodology to Value DG on the Grid; https://www.tva.gov/file_source/TVA/Site%20Content/Energy/Renewables/dgiv_document_october_2015-2.pdf

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

1 they do not require point-by-point interval measurements. Furthermore, the
2 Company's justification for not accounting for line-losses is that there isn't
3 enough solar power on the system, compared to total power. This logic seems
4 contrary to their underlying justification for proposing a rate change in the first
5 place. If there is not enough distributed generation power on the system to
6 quantify the benefits of distributed generation to the grid, how is there enough
7 power to substantiate a need for fees to recoup its costs to the Grid?

8
9 Finally, the Commission is presented with complex issues on a regular basis and
10 is well equipped to assess both the benefits and costs of distributed generation as
11 well as any associated analytics.

12
13 **Q. THE COMPANY USES AN EXAMPLE OF A RESIDENTIAL DEMAND**
14 **PROFILE WITH A SOLAR PHOTOVOLTAIC SYSTEM TO ARGUE**
15 **THAT DISTRIBUTED GENERATION DOES NOT REDUCE CUSTOMER**
16 **PEAK AND THEREFORE DOES NOT REDUCE DISTRIBUTION**
17 **CAPACITY OR FUTURE SYSTEM INVESTMENT.¹⁴ WAS THIS**
18 **ILLUSTRATION PRESENTED CORRECTLY?**

19 **A.** No. The Company appears to be misguided in its understanding of peak shaving
20 and makes incorrect claims about distributed generation's ability to reduce peak
21 demand. The Company claims that because solar output only reduces peak

¹⁴ Rebuttal Testimony of Peter T. Zschokke, Jeanne A. Lloyd, and Timonty R. Roughan, at 23.

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

1 demand by 1% at 8 p.m., that overall the solar unit will only be able to reduce the
2 customer's peak demand by 1%, completely disregarding the solar unit's capacity
3 at 6 p.m. and 7 p.m. According to The Company's illustration, peak demand
4 occurs between 6-8pm and totals approximately 3.6 kW. The 5 kW solar unit used
5 in the Company's analysis is producing roughly .5 kW, .15 kW, and 0 kW at 6, 7,
6 and 8 p.m., respectively.¹⁵

$$7 \quad (.5 \text{ kW} + .15 \text{ kW} + 0\text{kW}) / 3.6 \text{ kW} = .18$$

8 This means that the solar system reduces peak demand from 6-8 p.m. by a total of
9 .65 kW. Simple division concludes that the solar unit is actually reducing peak by
10 18%, not 1%.

11
12 **Q. THE COMPANY ALSO PUTS FORTH THE ARGUMENT THAT**
13 **DISTRIBUTED GENERATION DOES NOT PROVIDE A BENEFIT TO**
14 **THE GRID SINCE PEAK LOADS ON DISTRIBUTION FEEDERS DO**
15 **NOT OCCUR AT THE SAME OR NEAR THE TIMES AS THE PEAK**
16 **OUTPUT OF DISTRIBUTED GENERATION. IS THIS A CORRECT**
17 **ASSESSMENT?**

18 A. No. The Company erroneously asserts that because distributed generation highest
19 peak production does not coincide with system peak demand it is not contributing
20 at all to peak-shaving or capacity reduction. This is wrong. The Company seems
21 to be operating under the logic of all or nothing when assessing the benefits of

¹⁵ Rebuttal Testimony of Peter T. Zschokke, Jeanne A. Lloyd, and Timonty R. Roughan, at 23.

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

1 distributed generation- if distributed generation doesn't reduce all of peak demand
2 then it doesn't reduce anything and therefore has no benefit. To be clear, peak
3 shaving is the process of reducing energy (in any amount) purchased from the
4 utility during peak hours. The Company's argument runs in contrast to a number
5 of studies that have analyzed the marginal benefit of solar for capacity reduction¹⁶
6 as well as The Company's own logic that distributed generation produces a
7 marginal cost.

8
9 **Q. ADDITIONALLY, THE COMPANY CLAIMS THAT THE**
10 **INSTALLATION OF DISTRIBUTED GENERATION COULD**
11 **CONTRIBUTE TO GREATER LEVELS OF CUSTOMER USAGE**
12 **BECAUSE THE COST TO INCREASE USE IS NOMINAL TO THE**
13 **DISTRIBUTED GENERATION CUSTOMER.¹⁷ IS THIS A CORRECT**
14 **ASSUMPTION?**

15 A. No. The Company appears to be claiming that distributed generation customers
16 will experience a 'rebound effect' in which they consume more total energy after
17 installing distributed generation than before because the marginal cost of energy
18 is less. However, this concept has been disproved in the academic literature and,

¹⁶ Xcel Energy, Inc. (2013). Costs and Benefits of Distributed Solar Generation on the Public Service Company of Colorado System. May 2013.; SAIC (2013) Updated Solar PV Value Report. Arizona Public Service. May, 2013; Beach, R., McGuire, P., (2013) The Benefits and Costs of Solar Distributed Generation for Arizona Public Service. Crossborder Energy May, 2013. Norris, B., Jones, N. *The Value of Distributed Solar Electric Generation to San Antonio*. Clean Power Research & Solar San Antonio, March 2013; Perez, R., Norris, B., Hoff, T. (2012) *The Value of Distributed Solar Electric Generation to New Jersey and Pennsylvania*. Clean Power Research, 2012; Contreras, J.L., Frantzis, L., Blazewicz, S., Pinault, D., Sawyer, H., (2008) *Photovoltaics Value Analysis*. Navigant Consulting, Feb, 2008

¹⁷ Rebuttal Testimony of Peter T. Zschokke, Jeanne A. Lloyd, and Timonty R. Roughan, at 20.

1 in fact, the opposite has been proven. Recent studies by the University of Texas at
2 Austin and Stanford University have shown that customers with distributed
3 generation actually decrease their overall energy use and often report load-shifting
4 to better match their consumption with electricity from their distributed
5 generation system.¹⁸

6
7 **V. RATE DESIGN**

8 **Q. THE COMPANY SUBMITS THE ARGUMENT THAT PURSUING TIME-**
9 **OF-USE RATES IS NOT PLAUSIBLE BECAUSE OF INFRASTRUCTURE**
10 **BARRIERS? DO YOU AGREE WITH THIS ARGUMENT?**

11 A. Time-of-use rate design does require supportive metering technology so that the
12 utility and the customer receive the correct information about customer energy
13 usage and customers are able to make informed decisions about the cost of their
14 energy use as well as how and when to conserve their energy use. That being said,
15 just because the Company does not currently have the metering technology in
16 place to institute time-of-use pricing, the Commission should not assume that
17 fixed charges are the only option for recovering distribution infrastructure costs or
18 that time-of-use rates are not attainable.

19
20 What is needed is a broader conversation about the array of ratemaking
21 approaches to recover distribution costs as well as how rate design influences the

¹⁸ Rai, V., & McAndrews, K. (2012, May). Decision-making and behavior change in residential adopters of solar photovoltaic. In *Proceedings of the World Renewable Energy Forum, Denver, CO*.

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

1 future development of the Grid. What is clear is that any rate design decision
2 should be one that transitions the grid to a networked structure where distributed
3 generation is encouraged and easily integrated. Fixed charges do not support any
4 of these transitions.

5
6 Given that distributed generation penetration levels are very low in Rhode
7 Island,¹⁹ the Commission is in an excellent position to thoughtfully consider how
8 to best transition the grid and what rate designs will best support that transition.

9
10 **Q. ARE THERE OTHER JURISDICTIONS THAT ARE WRESTLING WITH**
11 **SIMILAR RATE DESIGN ISSUES AND GRID MODERNIZATION?**

12 **A.** Yes. In 2015, 25 states have seen proposals for fixed-charge increases, either for
13 all customers, for solar photovoltaic self-generators only, for all distributed
14 generation (DG) customers only, or for net metering customers only. Nearly three
15 quarters of the decisions published in 2015 on these issues have either denied the
16 implementation of fixed charges outright or the commissioners have scaled back
17 the proposal considerably. Additionally, the question of how to handle the
18 proliferation of distributed generation and prepare the grid and the utility business
19 model for a smarter future is happening all over the country. Comprehensive
20 reviews about the future of electric utility regulation and business models for

¹⁹ Residential and Commercial distributed generation was right under 2.5 million kWh. SEE: National Grid's Response to Public Utilities Commission's First Set of Data Requests (PUC 1-5), issued on August 14, 2015, attached as TASC Exhibit CG-2

1 utilities, regarding “grid modernization,” were initiated this year in Arizona,
2 California, Colorado, Hawaii, Massachusetts, New York, the District of Columbia
3 and Minnesota.²⁰

4
5 **SECTION VI: ACCESS FEE**

6 **Q. THE COMPANY CLAIMS IN ITS TESTIMONY THAT THE PROPOSED**
7 **ACCESS FEE IS NECESSARY TO RECOUP COSTS ASSOCIATED**
8 **WITH LONG-TERM OPERATIONS AND MAINTENANCE OF THE**
9 **GRID, THE REQUIRED INTERVAL METER TECHNOLOGY AND**
10 **ASSOCIATED COMMUNICATION CAPABILITIES. DO THESE COSTS,**
11 **IN SUM, EQUATE TO THE PROPOSED FEE?**

12 **A.** The Company has failed to provide any data showing that the ongoing operations
13 and maintenance of qualifying facilities and the interval metering plus
14 communications technology results in cost equal to the proposed Access Fee.
15 Furthermore, if the Company concluded that the cost of interval metering and
16 communication was a substantial cost, in accordance with the provisions of 220

²⁰ Berry, David, and Amanda Ormond. (2015). “An Unstable State: Conflict and Institutional Change in the Electric Industry,” *Electricity Journal* 28(2), 63-73. DOI: 10.1016/j.tej.2015.01.010; Lange, Nancy, Andrew Twite, and Matt Schuerger. (2015). Docket No. 15-556, Initial Filing – Building a Minnesota Conversation on Grid Modernization With a Focus on Distribution Systems [Planning Meeting Presentation, 12 May 2015]. Minnesota Public Utilities Commission. <http://www.mn.gov/puc/>; SEPA. (2015). A Blank Slate for a New Energy Market [Web page, retrieved 4 Jun 2015]. Solar Electric Power Association, The 51st State. <http://sepa51.org>; Zinaman, Owen et al. (2015). Power Systems of the Future – A 21st Century Power Partnership Thought Leadership Report. National Renewable Energy Laboratory, NREL/TP-6A20- 62611. <http://www.nrel.gov/docs/fy15osti/62611.pdf>

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

1 CMR 8.04(1) and the Company's interconnection standards for Qualifying
2 Facilities set forth in the Company's Interconnection Requirements Document,
3 these costs could be assessed and applied with any other interconnection fees.

4 **Q. ARE THERE ANY MECHANISMS IN PLACE THAT WOULD**
5 **ACCOUNT FOR THE COLLECTION OF THE ONGOING OPERATIONS**
6 **AND MAINTENANCE COSTS OF QUALIFYING FACILITIES TO THE**
7 **GRID?**

8 A. Yes. The structure of purchase agreements and how Grid then sells qualifying
9 facility power at retail rates, accounts for recovery of the long-term operation and
10 maintenance costs of the grid. And, if there are any operation and maintenance
11 costs attributed to the ongoing use of qualifying facilities, these are costs that
12 should be shared by all customers, as all customers (equally) use the power
13 produced by these facilities. Therefore, the correct outlet for assessing and
14 attributing these costs would be through a formal rate case.

15 **Q. DOES TASC SUPPORT THE COMPANY'S PROPOSAL TO**
16 **GRANDFATHER CERTAIN CUSTOMERS FROM HAVING TO PAY**
17 **THE ACCESS FEE?**

18 A. Yes. TASC agrees with the proposition that it is not appropriate to levy any new,
19 discriminatory charge on customers, as such charges upset their reasonable
20 expectation of investment in distributed generation. However, to be clear, TASC
21 opposes the application of the Access Fee to any customer because the basis and
22 justification for the charge is invalid.

1

2

VII. ADDITIONAL COMMENTS

3

**Q. THE COMPANY PUTS FORTH THE ARGUMENT THAT THE
COMMISSION IS REQUIRED TO MAKE A DECISION REGARDING
COST RESPONSIBILITY AND RATE DESIGN.²¹ DO YOU AGREE WITH
THIS ARGUMENT?**

4

5

6

7

A. No. From my reading of Section 24, the Act allows the Commission to deny the
Company's proposal and does not require Commission to make a rate change.

8

9

Rather, the Act requires the Commission to "*consider* rate design and distribution

10

cost allocation." R.I. Gen. Laws § 39-26.6-24 (Section 24). From my

11

understanding and my reading of Webster's dictionary, the word 'consider' means

12

to 'think carefully about' and does not equate to 'decide.'²²

13

Furthermore, from my reading of Section 24, there appears to be several instances

14

that leave the decision to implement a rate change at the discretion of the

15

Commission and does not require any rate change to be implemented. I have

16

provided a few of these instances below.

17

- "...the commission *shall open* a docket to *consider* rate design and

18

distribution cost allocation among rate classes..."

²¹ Rebuttal Testimony of Peter T. Zschokke, Jeanne A. Lloyd, and Timonty R. Roughan, at 23.

²² <http://www.merriam-webster.com/dictionary/consider>

THE ALLIANCE FOR SOLAR CHOICE
RIPUC DOCKET NO. 4568
REVIEW OF DISTRIBUTION RATE DESIGN
WITNESS: CAROLINE GOLIN

- 1 • "The commission *may also address* the rate design for the equitable
2 recovery of costs associated with energy efficiency..."
3 • "In establishing *any new rates* the commission *may deem appropriate...*"
4 • "The commission *may consider* any reasonable rate design options..."

5 From my reading, it is clear that while the Commission is required to "consider" a
6 new rate design; it is not required to approve a new rate design. Likewise, while
7 the commission is permitted to address cost recovery for energy efficiency or rate
8 design changes in this docket, it is not required to. Rather, Section 24 permits the
9 Commission to not establish new rates.

10 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

11 A. Yes.