

September 3, 2015

VIA HAND DELIVERY & ELECTRONIC MAIL

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

**RE: Docket 4568 – The Narragansett Electric Company d/b/a National Grid
Review of Electric Distribution Rate Design Pursuant to R.I. Gen. Laws § 39-26.6-24
Responses to CLF Data Requests – Set 1**

Dear Ms. Massaro:

On behalf of National Grid¹, I enclose ten (10) copies of the Company's responses to the first set of data requests issued by the Conservation Law Foundation on August 13, 2015 in the above-referenced docket.

Thank you for your attention to this transmittal. If you have any questions concerning this filing, please contact me at 781-907-2153.

Very truly yours,



Celia B. O'Brien

Enclosures

cc: Docket 4568 Service List
Leo Wold, Esq.
Steve Scialabba, Division

¹ The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).

Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate was electronically transmitted to the individuals listed below.

Paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission and to the Rhode Island Division of Public Utilities and Carriers.



Joanne M. Scanlon

September 3, 2015

Date

**Docket No. 4568 National Grid's Rate Design Pursuant to R.I. Gen. Laws Sec 39-26.6-24
Service List updated 9/2/15**

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The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 4568
In Re: Review of Electric Distribution Rate Design
Pursuant to R.I. Gen. Laws § 39-26.6-24
Responses to Conservation Law Foundation's First Set of Data Requests
Issued on August 13, 2015

CLF 1-1

Request:

Are the proposed tiers based on gross or net consumption?

Response:

Customers with distributed generation will be placed in the proposed tiers based on either their gross or net consumption depending on the customer's metering configuration. Customers who are participating in the Renewable Energy Growth Program and have two meters will be placed into the appropriate tier based on the gross consumption reflected on the meter that measures the customer's on-site use. Customers that have a single net meter will be placed in the appropriate tier based on net consumption.

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CLF 1-2

Request:

How will a customer's tier be initially established when the new rates come into effect? Please describe from the point of view of: (a) a non-DG customer; (b) a customer who installed DG within the last 1-3 years; and (c) a customer who installed DG more than three years ago.

Response:

A customer's initial tier, whether it be a non-DG customer or a customer who has installed DG regardless of the timing of when the DG was installed, will be established based on the customer's metered use during the first month following implementation of the new structure and rates (Month One). The customer's historical use prior to implementation of the new rates will not be considered when determining the customer's initial tier placement. Month One will become the first month of the 12-month history used to establish the customer's tier. For instance, if a residential customer on Rate A-16 uses 150 kWh in Month One, that customer would be placed in Tier 1 and billed the customer charge applicable to Tier 1. If that same customer stays below 251 kWh for the remaining 11 months, that customer would remain in Tier 1. However, if that customer's usage increases to 300 kWh in any subsequent month, that customer would then move to Tier 2 during that billing period and would remain in Tier 2 until the customer's monthly use increases to Tier 3 or 4 levels or until the customer's monthly use drops back into the Tier 1 level and stays at that level for 12 consecutive months.

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CLF 1-3

Request:

If tiers are based on gross consumption, how will gross consumption be established for net metered customers with only one meter?

Response:

Please see the Company's response to data request CLF 1-1.

CLF 1-4

Request:

- (a) National Grid stated that its overall rate design proposal limits bill impacts for residential (A-16) and small C&I (C-06) customers to +/- 5%. [Zschokke/Lloyd Testimony, 7/31/15, page 12, lines 13-14; page 24, lines 13-16.] Is this true for both DG and non-DG customers?
- (b) Please provide a comparison of the net effect on a DG customer's bill with and without the proposed design.

Response:

- (a) Consistent with the meaning set forth in the Definitions section of CLF Set 1, the Company is assuming that the term "DG customer" means a customer participating in the Renewable Energy (RE) Growth Program. The +/- 5% limit on bill impacts was applied to bills for full requirements customers. However, the Company notes that when it filed its rate design proposal with the PUC, there were no customers yet participating in the RE Growth Program; therefore, it was not possible to analyze bill impacts for RE Growth Program customers.
- (b) The bill comparison set forth in Attachment CLF 1-4 is for an illustrative residential RE Growth Program customer whose on-site consumption is 700 kWh per month and who owns a small scale solar generating unit. Customers participating in the RE Growth Program who receive part of the performance-based incentive (PBI) in the form of a bill credit will have two meters installed at their service location. One meter will measure and bill the customer's on-site load, and the usage from that meter will also be used to calculate the bill credit. The second meter will measure the kWh produced by the customer's generating unit. The PBI applicable to the customer's facility will be applied to the kWh generated during the month. As shown in the Bill Summary section on Attachment CLF 1-4, the customer will be billed for the on-site load consumed during the month and will also receive a bill credit, and they would then owe any remaining balance to the Company. Under current rates, the customer would owe the Company \$11.35 for the month. Under the proposed rates, the customer's monthly bill as a Tier 2 customer, after applying the bill credit, would be \$14.69, an increase of \$3.34. The PBI payment will not change and is calculated as generated kWh, in this example 1,000 per month, multiplied by the applicable PBI of \$0.37750 per kWh, for a total payment of \$377.50. The \$377.50 is split between the bill credit, which is applied to the customer's service bill, and a cash payment. The bill credit calculated using current rates is \$124.83 and would decrease to \$117.55 based on the proposed rates. Therefore, the cash payment issued to the customer will increase from \$252.67 based on current rates to \$259.95 based on proposed rates, an increase of \$7.28.

Bill Calculation for Residential Re-Growth Customer

			Current	Proposed	
<u>Service Bill for On-site Load</u>					
Customer Charge			\$5.00		\$8.50
Distribution Energy Charge	700 kWh	\$0.04065	<u>\$28.46</u>	\$0.03026	<u>\$21.18</u>
Subtotal Distribution			\$33.46		\$29.68
LIHEAP Charge		\$0.73	\$0.73	\$0.73	\$0.73
Transmission Energy Charge	700 kWh	\$0.02348	\$16.44	\$0.02348	\$16.44
Transition Energy Charge	700 kWh	(\$0.00201)	(\$1.41)	(\$0.00201)	(\$1.41)
Energy Efficiency Program Charge	700 kWh	\$0.00983	\$6.88	\$0.00983	\$6.88
Renewable Energy Distribution Charge	700 kWh	\$0.00232	\$1.62	\$0.00232	\$1.62
RE Growth Program		\$0.17	<u>\$0.17</u>	\$0.17	<u>\$0.17</u>
Subtotal Other Delivery Service			\$24.43		\$24.43
Standard Offer Charge	700 kWh	\$0.10111	\$70.78	\$0.10111	\$70.78
Renewable Ege Std Charge	700 kWh	\$0.00294	<u>\$2.06</u>	\$0.00294	<u>\$2.06</u>
Subtotal Supply Service			\$72.84		\$72.84
Subtotal before GET			\$130.73		\$126.95
Gross Earnings Tax			4%	4%	\$5.29
Total Bill including GET			\$136.18		\$132.24
Performance Based Incentive Payment	1000 kWh	\$0.37750	\$377.50	\$0.37750	\$377.50
<u>Bill Credit</u>					
Distribution Energy Charge	700 kWh	(\$0.04065)	<u>(\$28.46)</u>	(\$0.03026)	<u>(\$21.18)</u>
Subtotal Distribution			(\$28.46)		(\$21.18)
Transmission Energy Charge	700 kWh	(\$0.02348)	(\$16.44)	(\$0.02348)	(\$16.44)
Transition Energy Charge	700 kWh	\$0.00201	\$1.41	\$0.00201	\$1.41
Energy Efficiency Program Charge	700 kWh	(\$0.00983)	(\$6.88)	(\$0.00983)	(\$6.88)
Renewable Energy Distribution Charge	700 kWh	(\$0.00232)	<u>(\$1.62)</u>	(\$0.00232)	<u>(\$1.62)</u>
Subtotal Other Delivery Service			(\$23.53)		(\$23.53)
Standard Offer Charge	700 kWh	(\$0.10111)	(\$70.78)	(\$0.10111)	(\$70.78)
Renewable Ege Std Charge	700 kWh	(\$0.00294)	<u>(\$2.06)</u>	(\$0.00294)	<u>(\$2.06)</u>
Subtotal Supply Service			(\$72.84)		(\$72.84)
Total Bill Credit			(\$124.83)		(\$117.55)
<u>Bill Summary</u>					
Electric Service Bill			\$136.18	\$132.24	
Bill Credit			(\$124.83)	(\$117.55)	
Total Electric Service Bill			\$11.35	\$14.69	\$3.34
PBI Payment			\$377.50	\$377.50	
Bill Credit			(\$124.83)	(\$117.55)	
Recipient Cash Payment			\$252.67	\$259.95	\$7.28

CLF 1-5

Request:

Please provide a PV forecast for the Rhode Island load zone with and without the proposed rate design changes including all assumptions used to establish the forecasts. Please provide this forecast on a year-by-year basis for the next six years.

Response:

Working with the Independent System Operator, New England (ISO-NE) and many other parties, including the Conservation Law Foundation, the Company was heavily involved in the Distributed Generation Working Group (DGWG) that developed New England-wide forecasts of PV. Please see Attachment CLF 1-5 for the DGWG's projections for PV for the next six years¹.

Because the DG Board annually updates the ceiling prices for the Renewable Energy Growth Program to reflect the changing economics of installing solar as well as other renewable generating units and is dealing with other economic changes (e.g., the federal Investment Tax Credit for solar dropping from 30% to 10% for commercial customers and dropping to zero for residential customers at the end of 2016), the Company is still comfortable with the conclusions reached by the DGWG.

¹ Attachment CLF 1-5 is a copy of slide 7 from the slide deck located on ISO-NE's website:
http://www.iso-ne.com/static-assets/documents/2015/05/final_2015_pv_forecast.pdf.

Final 2015 PV Forecast

Nameplate (MW_{ac})

States	Annual Total MW (AC nameplate rating)											Totals
	Thru 2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
CT	118.8	70.9	89.9	45.8	43.1	40.4	40.4	26.9	26.9	26.9	26.9	556.8
MA	666.8	197.0	229.8	51.4	48.4	45.4	45.4	30.2	30.2	30.2	30.2	1,405.1
ME	10.4	2.2	2.2	2.0	1.8	1.7	1.7	1.7	1.7	1.7	1.7	28.9
NH	12.7	4.3	4.3	3.8	3.6	3.4	3.4	2.3	2.3	2.3	2.3	44.4
RI	18.2	9.7	20.4	27.2	31.0	29.0	20.6	7.1	5.4	5.4	5.4	179.3
VT	81.9	40.4	40.4	22.3	13.9	6.3	6.3	6.3	6.3	6.3	4.2	234.7
Regional - Annual (MW)	908.8	324.3	386.9	152.4	141.7	126.2	117.8	74.6	72.9	72.9	70.8	2,449.1
Regional - Cumulative (MW)	908.8	1233.1	1620.0	1772.4	1914.1	2040.3	2158.1	2232.6	2305.5	2378.4	2449.1	2,449.1

Notes:

- (1) Forecast values include FCM Resources, non-FCM Energy Only Generators, and behind-the-meter PV resources
- (2) The forecast reflects discount factors described on slides 4
- (3) All values represent end-of-year installed capacities
- (4) ISO is working with stakeholders to determine the appropriate use of the forecast



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CLF 1-6

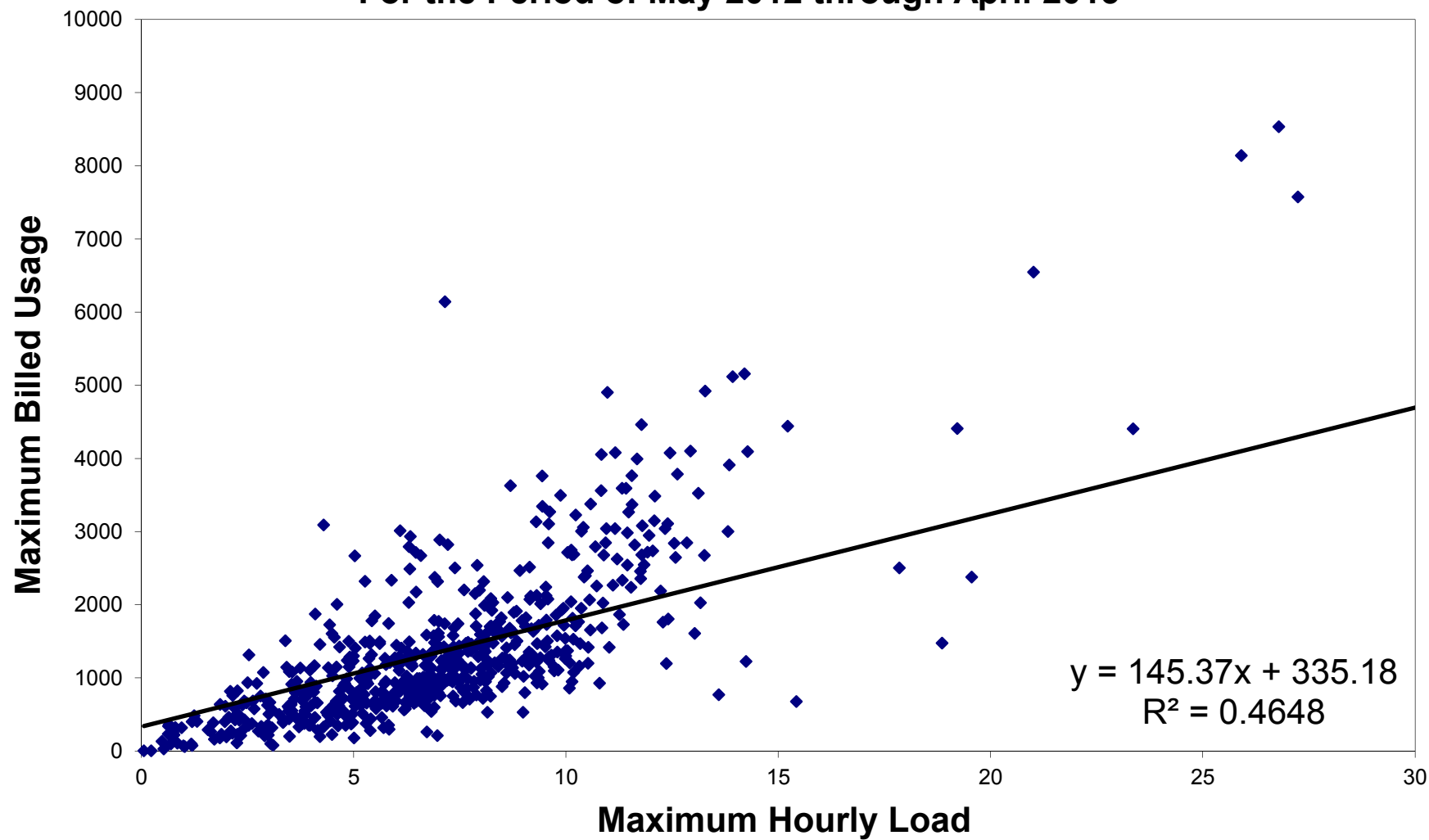
Request:

Please provide the facts and/or analysis that indicates to Grid that electricity consumption is generally a good proxy for demand.

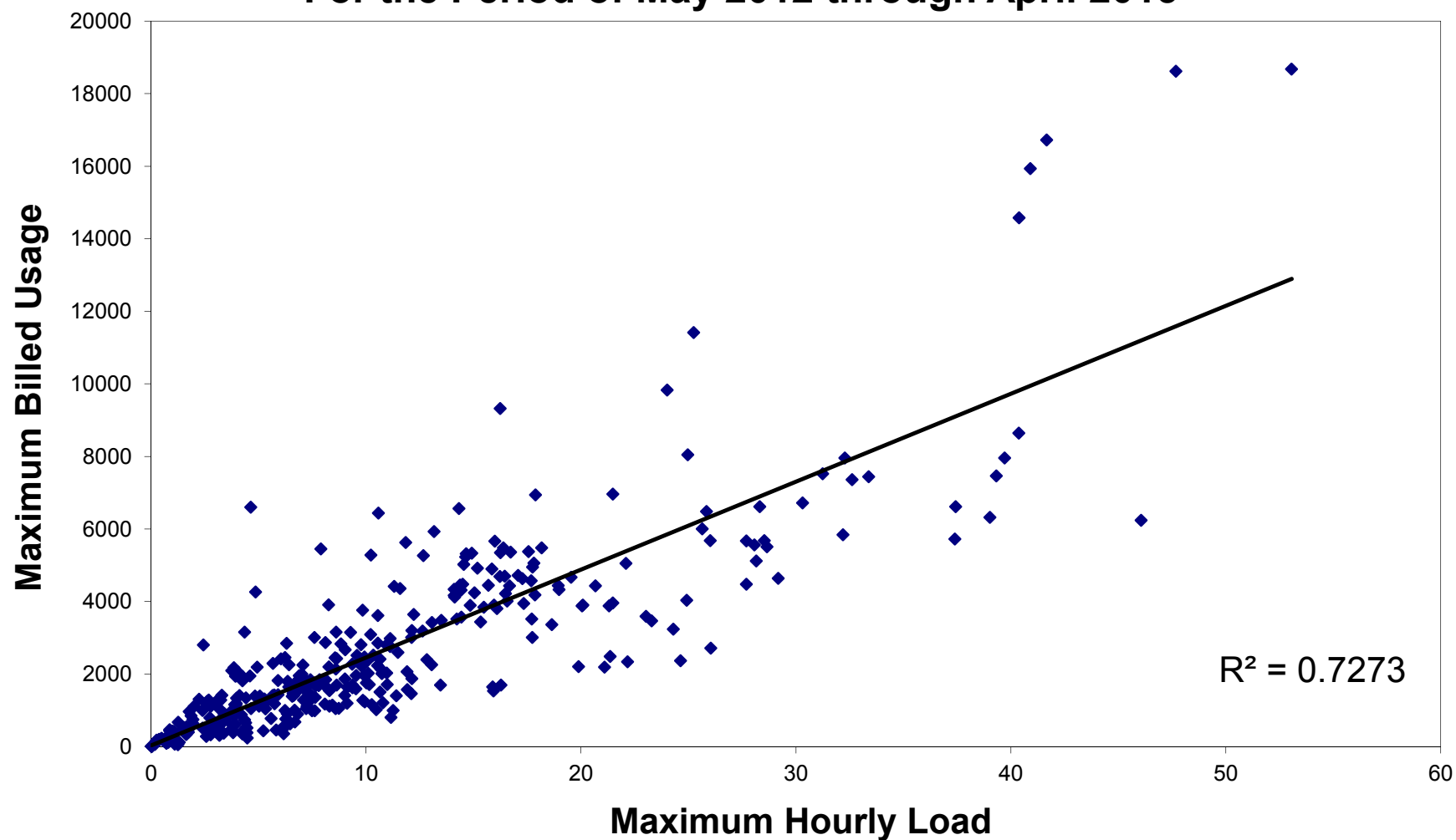
Response:

As indicated in the Company's testimony on page 34, the Company's opinion is that, in general, maximum monthly use (kWh) can be used to reasonably approximate a customer's maximum hourly use (kW). The results of the analysis that the Company performed using customer load data from May 2012 through April 2015, as graphically shown in Schedule NG-7 at Bates stamp pages 131-132 (included here as Attachment CLF 1-6 for convenience), indicate that, while there is considerable variability in the data, there is a correlation between maximum annual kWh consumption and maximum annual demand. The bulk of the observations are clustered around the trend line shown in the graphs provided in Attachment CLF 1-6, indicating a strong correlation between maximum kWh consumption and maximum annual demand for the majority of customers.

Residential Load Data For the Period of May 2012 through April 2015



Commercial Load Data For the Period of May 2012 through April 2015



CLF 1-7

Request:

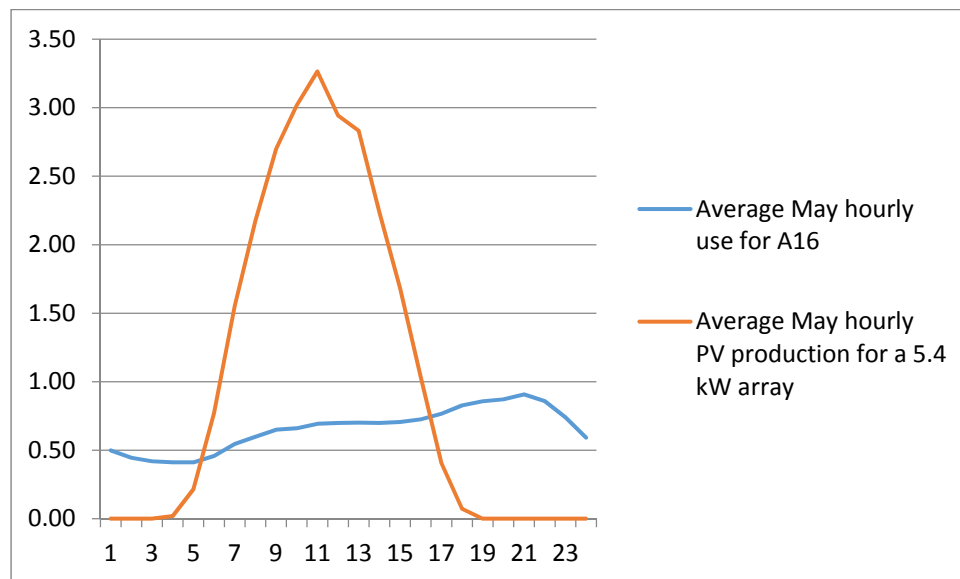
Please provide net demand profiles under a range of consumption levels and PV system sizes.

Response:

As load and PV production differ every day, the Company elected to show the average hourly load of a residential customer on Rate A-16 and a small C&I customer on Rate C-06 for the month of May 2015. Overlaid on the load charts below is the amount of PV that would be generated in May by an array designed to meet 100% of an average A-16 and C-06 customer's annual electricity needs to show the relationship between PV production and customer usage during the month of May. The estimate of PV production was from the latest National Renewable Energy Labs (NREL)'s PVWatts estimator tool on the internet at this link: <http://pvwatts.nrel.gov/pvwatts.php>. Please note that under the RE Growth Program, customer usage and customer generation are metered in parallel and thus there is no net demand to be calculated.

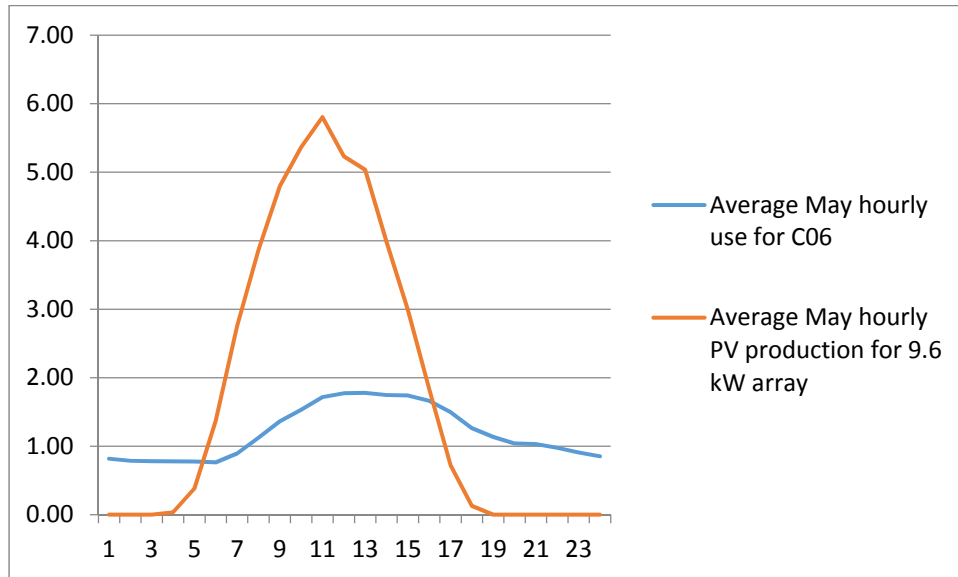
The graph below shows the effect of an A-16 customer who has an average use of 6,600 kWhs per year and installs a PV array to meet their annual electricity requirements. To generate the 6,600 kWhs annually, the customer would need to install an approximately 5.4 kW array. The chart below shows the customer's average hourly use in May 2015 as compared to the average hourly PV production for this size array for the month of May 2015:

CLF 1-7, page 2



The graph below shows the effect of an C-06 customer who has an average use of 11,820 kWhs per year and installs a PV array to meet their annual electricity requirements. To generate the 11,820 kWhs annually, the customer would need to install an approximately 9.6 kW array. The chart below shows the customer's average hourly use in May 2015 as compared to the average hourly PV production for this size array for the month of May 2015.

CLF 1-7, page 3



CLF 1-8

Request:

Please describe the peak for which this proposal is designed to find a proxy (i.e., system peak or circuit peak)?

Response:

The Company's proposal to establish a tiered customer charge structure in which a customer is billed a customer charge as determined by the customer's maximum monthly use is designed to be consistent with the way distribution system costs are incurred and allocated to the Company's rate classes. Distribution system infrastructure costs are allocated to rate classes based primarily on non-coincident demand, also referred to as rate class peak demand, reflecting the fact that distribution system facilities, such as substations and overhead and underground conductors, are designed to accommodate the maximum demands of the customers located in close proximity to the facilities.

CLF 1-9

Request:

Please provide the cost basis and any analysis National Grid has done to support setting the Tiered Customer Charges at \$5.25, \$8.50, \$13.00, and \$18.00 for the residential customers and \$10.50, \$11.75, \$17.50, and \$26.00 for small C&I customers.

Response:

The Company has designed the proposed rates for the residential and small C&I rate classes with the intent to recover most, if not all, of the customer-related revenue requirement as well as a portion of the demand-related revenue requirement, through the proposed customer charges. Additionally, the Company designed the proposed rates for these rate classes to limit the individual customer total bill impact to +/- 5%.

For residential Rate A-16, based on the ACOSS from the Company's last rate case in Docket No. 4323 (see Schedule NG-11, at Bates stamp page 141), the customer-related revenue requirement is \$7.57 per month and the demand-related revenue requirement is \$8.57. With the current customer charge of \$5.00, the Company could not propose a customer charge of \$7.57 for Tier 1 without exceeding the +/- 5% threshold. Therefore, the Company proposed a customer charge of \$5.25 for Tier 1 to stay within the bill impact threshold, while still recovering as much of the customer-related revenue requirement as possible. For residential Tiers 2 through 4, the Company was able to recover the customer-related revenue requirement as well as a portion of the demand-related revenue requirement through the proposed customer charges, while still staying within the parameters of no more than a 5% total bill impact.

For small C&I Rate C-06, the customer-related revenue requirement is \$11.08 per month, with a demand-related revenue requirement of \$8.55. Again, due to the self-imposed guideline of limiting bill impacts to +/- 5%, the Company could not propose a charge of \$11.08 for Tier 1 without the bill impact being greater than 5%. Therefore, the Company proposed an increase from \$10.00 to \$10.50 in order to get as close to the customer-related revenue requirement as possible without exceeding the 5% threshold. For small C&I Tiers 2 through 4, the Company was able to propose customer charges that recover the entire customer-related revenue requirement and a portion of the demand-related revenue requirement while still limiting the bill impacts to +/- 5%.

CLF 1-10

Request:

Please provide any analysis National Grid has done regarding the impact of the tiers it has proposed on a customer's incentive to reduce demand and realize a lower fixed charge?

Response:

The Company has not performed any specific analysis regarding the impact of the proposed customer charge structure on a customer's incentive to reduce kWh consumption in order to move to a lower customer charge tier. As indicated in the Company's pre-filed direct testimony on page 36, the bill savings resulting from a customer's reduced usage is driven by the reduction in billed charges for those components with the highest per-kWh rates. Schedule NG-9 at Bates stamp page 137 (included here as Attachment CLF 1-10 for convenience) is an illustrative example of potential savings for a Residential Rate A-16 customer who reduces monthly kWh consumption from 1,000 kWh to 500 kWh over the course of one year. This analysis demonstrates that, by reducing consumption from 1,000 kWh to 500 kWh, a customer will save \$87.46, or 46.2% on their total bill per month for the first 11 months. As illustrated by this example, the majority of the bill savings is associated with the reduction in the bill charges resulting from per-kWh rates, with most of the reduction realized through the commodity charge.

The additional bill savings from the reduced customer charge in this example as a result of moving from Tier 3 to Tier 2 are \$4.69 per month (including the impact on gross earnings tax), which is an additional 2.5% of total bill savings. Therefore, although the savings in the customer charge component are not realized immediately, the additional savings produced by moving to a lower tier are consistent with the goal of energy conservation. In addition, the savings in the distribution component of the bill produced by the combination of reduced monthly kWh use and placement in a tier with a lower customer charge are approximately equal to the savings produced based on current rates.

The Narragansett Electric Company
Typical Bill - Basic Residential Rate A-16 Customer
Savings based on Proposed Rates

		Savings - Next 11 months				Savings - After 11 months			
Monthly Usage:		1000		500		500			
Rate A-16 - Regular Residential		Proposed	Bill	Proposed	Bill	%	Proposed	Bill	%
		<u>Rates</u>	<u>Charges</u>	<u>Rates</u>	<u>Charges</u>	<u>Difference</u>	<u>Rates</u>	<u>Charges</u>	<u>Difference</u>
1	Customer Charge	\$13.00	\$13.00	\$13.00	\$13.00	\$0.00	\$8.50	\$8.50	(\$4.50)
2	Distribution Energy Charge	\$0.03026	\$30.26	\$0.03026	\$15.13	(\$15.13)	\$0.03026	\$15.13	(\$15.13)
3	Subtotal Distribution		\$43.26		\$28.13	(\$15.13)		\$23.63	(\$19.63)
4									
5	LIHEAP Charge	\$0.73	\$0.73	\$0.73	\$0.73	\$0.00	\$0.73	\$0.73	\$0.00
6	Transmission Energy Charge	\$0.02348	\$23.48	\$0.02348	\$11.74	(\$11.74)	\$0.02348	\$11.74	(\$11.74)
7	Transition Energy Charge	(\$0.00201)	(\$2.01)	(\$0.00201)	(\$1.01)	\$1.00	(\$0.00201)	(\$1.01)	\$1.00
8	Energy Efficiency Program Charge	\$0.00983	\$9.83	\$0.00983	\$4.92	(\$4.91)	\$0.00983	\$4.92	(\$4.91)
9	Renewable Energy Distribution Charge	\$0.00232	\$2.32	\$0.00232	\$1.16	(\$1.16)	\$0.00232	\$1.16	(\$1.16)
10	RE Growth Program	\$0.17	\$0.17	\$0.17	\$0.17	\$0.00	\$0.17	\$0.17	\$0.00
11	Subtotal Other Delivery Service		\$34.52		\$17.71	(\$16.81)		\$17.71	(\$16.81)
12									
13	Standard Offer Charge	\$0.10111	\$101.11	\$0.10111	\$50.56	(\$50.55)	\$0.10111	\$50.56	(\$50.55)
14	Renewable Ege Std Charge	\$0.00294	\$2.94	\$0.00294	\$1.47	(\$1.47)	\$0.00294	\$1.47	(\$1.47)
15	Subtotal Supply Service		\$104.05		\$52.03	(\$52.02)		\$52.03	(\$52.02)
16									
17	Subtotal before GET		\$181.83		\$97.87	(\$83.96)		\$93.37	(\$88.46)
18									
19	Gross Earnings Tax	4%	\$7.58	4%	\$4.08	(\$3.50)	4%	\$3.89	(\$3.69)
20									
21	Total Bill including GET		\$189.41		\$101.95	(\$87.46)		\$97.26	(\$92.15)

****Based on Rates in effect as of July 1, 2015

CLF 1-11

Request:

Please clarify the definition of “stand-alone” DG facilities. Would the proposed Access Fee would be levied on all DG facilities participating in any program (including Qualifying Facilities, net-metered facilities, Renewable Energy Growth Program facilities and DG Standard Contracts projects) or only on those DG facilities with no associated on-site load?

Response:

In its joint pre-filed direct testimony, the Company defined “stand-alone” DG facilities as “DG facilities that are directly connected to the distribution system and have no associated on-site load” (Bates stamp page 59, lines 18-19). The proposed Access Fee would apply to DG facilities participating in any program (including Qualifying Facilities, net-metered facilities, Renewable Energy (RE) Growth Program facilities, and DG Standard Contracts projects) with no associated on-site use, other than station service use, including RE Growth Program participants who choose billing Option 1 pursuant to Section 8.c. of RIPUC No. 2152, Renewable Energy Growth Program for Non-Residential Customers (direct payment of the entire performance-based incentive payment; no bill credits issued based upon on-site use).

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 4568
In Re: Review of Electric Distribution Rate Design
Pursuant to R.I. Gen. Laws § 39-26.6-24
Responses to Conservation Law Foundation's First Set of Data Requests
Issued on August 13, 2015

CLF 1-12

Request:

Please provide the cost basis and any analysis National Grid has done to support setting the Access Fee at \$5.00 per kW-month for the primary voltage level and \$7.25 per kW-month for the secondary voltage level.

Response:

The proposed Access Fees reflect the per unit demand-related revenue requirements, as shown on Schedule NG-11, Bates stamp page 141, line 24, for Rates G-32/G-62 (primary) and Rate G-02 (secondary). The per unit charges are further adjusted by approximately 85% (primary) and 75% (secondary) to reflect the relationship between class non-coincident demand, used in the calculation of the Schedule NG-11 per unit charges, and class maximum demands, used for billing purposes.

CLF 1-13

Request:

- (a) National Grid stated that its overall rate design proposal limits bill impacts for residential (A-16) and small C&I (C-06) customers to +/- 5%. [Zschokke/Lloyd Testimony, 7/31/15, page 12, lines 13-14; page 24, lines 13-16.] Does this hold true when both the proposed tiered customer charge and the proposed Access Fee are included in the calculation?
- (b) Please provide a comparison of customer bills in the A-16 rate class for customers whose gross consumption is 500 kWh/mo., 1,000 kWh/mo., and 1,500 kWh/mo., each of whom produce 50% of their gross consumption from an eligible DG source.
- (c) Please provide a comparison of customer bills in the C-06 rate class for customers whose gross consumption is 1,000 kWh/mo., 2,000 kWh/mo., and 3,000 kWh/mo., each of whom produce 50% of their gross consumption from an eligible DG source.

Response:

- (a) The +/- 5% limit on bill impacts was applied to bills for full requirements customers.
- (b) As indicated in the Definitions section of CLF Set 1, the Company is assuming that eligible DG source refers to a resource participating in the Renewable Energy (RE) Growth Program. Attachment CLF 1-13, Bates stamp page 22, provides a comparison of bills for three illustrative residential RE Growth Program customers with on-site consumption of 500, 1,000, and 1,500 kWh per month, respectively, and who have installed small-scale solar generating units (Standard performance-based incentive (PBI), Host-Owned, 20 years). Customers participating in the RE Growth Program who receive part of the PBI in the form of a bill credit will have two meters installed at their service location. One meter will measure and bill the customer's on-site load. The second meter will measure the kWh produced by the customer's generating unit. The PBI applicable to the customer's facility will be applied to the kWh generated during the month. The customer will be billed for the on-site load consumed during the month, less a bill credit. The bill credit is calculated as the customer's delivery and commodity per kWh charges multiplied by the lesser of the customer's generation or on-site use. The customer will be responsible for the remaining balance after application of the bill credit. The Company will issue a PBI cash payment to the customer each month for the amount of the PBI in excess of the bill credit.

CLF 1-13, page 2

Attachment CLF 1-13, Bates stamp page 22, shows in columns (a) through (h) each customer's gross monthly use, monthly generation, tier, the total monthly bill, the bill credit, the net monthly service bill, the total PBI payment, and the PBI cash payment based on current rates. Columns (i) through (m) show the same information based on the proposed rates. Column (c) indicates the customer's tier based upon each customer's gross monthly use. Columns (n) and (o) indicate the increase in the customer's net monthly electric service bill and the PBI cash payment, respectively.

- (c) Attachment CLF 1-13, Bates stamp page 23, provides a comparison of customer bills for three illustrative small commercial Rate C-06 RE Growth Program customers with on-site consumption of 1,000, 2,000, and 3,000 kWh per month, respectively, and who have installed small-scale solar generating units.

Residential Rate A-16

Comparison of Re-Growth Customer Bills Based on Current and Proposed Rates

Gross Consumption kWh	Generation	Tier	Current Rates					Proposed Rates					Difference	
			Total Bill Current Rates	Bill Credit	Net Monthly Service Bill	Total PBI Payment	PBI Cash Payment	Total Bill - Proposed Rates	Bill Credit	Net Monthly Service Bill	Total PBI Payment	PBI Cash Payment	Net Monthly Service Bill	PBI Cash Payment
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)
500	250	2	\$99.03	(\$44.59)	\$54.44	\$94.38	\$49.79	\$97.26	(\$42.00)	\$55.26	\$94.38	\$52.38	\$0.82	\$2.59
1000	500	3	\$191.90	(\$89.17)	\$102.73	\$188.75	\$99.58	\$189.41	(\$83.97)	\$105.44	\$188.75	\$104.78	\$2.71	\$5.20
1500	750	4	\$284.78	(\$133.74)	\$151.04	\$283.13	\$149.39	\$276.88	(\$125.95)	\$150.93	\$283.13	\$157.18	(\$0.11)	\$7.79

Small Commercial Rate C-06

Comparison of Re-Growth Customer Bills Based on Current and Proposed Rates

Gross Consumption kWh	Generation	Tier	Current Rates					Proposed Rates					Difference	
			Total Bill Current Rates	Bill Credit	Net Monthly Service Bill	Total PBI Payment	PBI Cash Payment	Total Bill - Proposed Rates	Bill Credit	Net Monthly Service Bill	Total PBI Payment	PBI Cash Payment	Net Monthly Service Bill	PBI Cash Payment
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)
1000	500	2	\$175.40	(\$78.70)	\$96.70	\$188.75	\$110.05	\$170.67	(\$75.56)	\$95.11	\$188.75	\$113.19	(\$1.59)	\$3.14
2000	1000	3	\$339.34	(\$157.39)	\$181.95	\$377.50	\$220.11	\$333.79	(\$151.10)	\$182.69	\$377.50	\$226.40	\$0.74	\$6.29
3000	1500	4	\$503.29	(\$236.09)	\$267.20	\$566.25	\$330.16	\$500.30	(\$226.66)	\$273.64	\$566.25	\$339.59	\$6.44	\$9.43

CLF 1-14

Request:

Does National Grid plan to install second meters for REG program participants? If yes, what kind of meters does National Grid propose to install as the second meter? Please describe the factors behind that decision, including cost, technology, and public acceptance.

Response:

Yes. As described in the Company's Renewable Energy (RE) Growth Program tariffs,¹ the Company plans to install a Company-owned second meter for a distributed generation (DG) project participating in the RE Growth Program to accurately measure and report the project's output. The Company plans to install existing meter types that are already used throughout the state to meter all current customers. For small-scale solar facilities (i.e., up to and including 25 kW) participating in the RE Growth Program, the Company will install the standard watt-hour automatic meter reading, or AMR, meter that it uses for all small customers as the second meter. AMR meters have been widely accepted by customers throughout the state and can be read utilizing the Company's existing drive-by meter reading system. For all other DG projects participating in the RE Growth Program, the Company will install the standard interval meter that it now uses for all customers on the Company's G-32 Rate as the second meter. In addition, where on-site load is present, the DG project meter will be wired in parallel with, and be located adjacent to, the customer's service meter. These requirements will enable the Company to accurately measure both the output of the DG project and the on-site use of the customer.

The RE Growth Program Statute (the Statute) expressly contemplated that second meters would be installed for DG projects participating in the RE Growth Program to accurately account for all energy generated so that the Company could sell energy products and credit customers with the proceeds to offset the costs of the RE Growth Program, which are paid for by all customers.² Other than residential small-scale solar projects, all projects must be registered with ISO-NE to facilitate the Company's purchase of energy and Renewable Energy Certificates (RECs) from these projects as required under the Statute. These projects must be registered with ISO-NE as outlined in the ISO-NE's Operating Procedure 14 via the generator asset registration process. Once a project is registered and the energy is assigned to the Company, it is recognized in ISO-NE's Market Settlement System (MSS). Meter data for the project's energy production will be

¹ See The Narragansett Electric Company Renewable Energy Growth Program for Residential Customers, RIPUC No. 2151, Section 4, and The Narragansett Electric Company Renewable Energy Growth Program for Non-Residential Customers, RIPUC No. 2152, Section 6, which the PUC approved on March 31, 2015, in Docket No. 4536-A.

² R.I. Gen. Laws § 39-26.6-18.

CLF 1-14, page 2

transmitted to ISO-NE's MSS for settlement purposes. When meter data for the project's energy production is submitted to the ISO-NE MSS, this generation information is also transferred to NEPOOL GIS and RECs are automatically created for each MWh of energy the project generates and deposited into the Company's NEPOOL GIS account. To enable the project to report its energy production to ISO-NE through MSS, the project must have a bi-directional interval meter with communication capabilities installed for reporting, as required by ISO-NE Operating Procedure No. 18. Under the Company's proposed revisions to the Standards for Connection Distributed Generation tariff (RIPUC No. 2078), projects larger than 25 kW are required to have a bi-directional interval meter with these capabilities to achieve the automated reporting for energy and RECs.³

³ Please see the following documents filed by the Company in Docket No. 4536-A: Joint Pre-Filed Direct Testimony, pages 25-26; Joint Rebuttal Testimony, pages 8-10; and Response to Data Request Division 1-2.

CLF 1-15

Request:

Is National Grid willing to use DG production data from customer/DG installer meters rather than incur the expense of installing additional National Grid meters? If not, please explain why.

Response:

No. In Docket No. 4536-A, the PUC approved the Company's ownership of the meters that will be installed on all DG projects enrolled in the Renewable Energy (RE) Growth Program to measure the output of the DG project.¹ The Company should not be required to use meters that it does not own for purposes of billing its customers. The Company will use the data from both the on-site meter and the generation meter to bill a customer and issue performance-based incentive payments under the RE Growth Program. It is important that the metering utilized for this process be consistent with the Company's standards for metering and billing and be readily accessible to the Company for purposes of reading, maintaining and, if necessary, replacing the meter. The best way to ensure conformance with the Company's standards and processes, as well as the Division of Public Utilities and Carriers' *Rules Prescribing Standards for Electric Utilities*, and to ensure accurate metering and billing is to install Company-owned meters.

Company provision of metering provides many benefits for customers and should be retained for this reason. First, the Company's performance related to metering accuracy is regulated by the aforementioned *Rules Prescribing Standards for Electric Utilities* from the Division. Also, the Company is regulated by the PUC and Division regarding bill accuracy and billing complaints. Thus, customers are treated fairly and equitably in the provision of metering service through appropriate regulations and have an avenue for dispute resolution, if necessary. Second, the use of third-party metering introduces increased complexity and cost into the State's and Company's processes for ensuring accuracy and fairness in meter reading. Third, customers can avoid the inconvenience of an interruption in service because use of third party meters would result in the need to test accuracy of meters in the field on a regular basis, which may require the interruption of the device's operation to do so for safety or appropriate testing. Lastly, rather than purchasing an inverter with built-in metering or another device wired into the generation equipment that provides metering, the customer can purchase a device without a meter at lower cost since the Company would provide separate metering for any device on the system as requested.

¹ See Renewable Energy Growth Program for Residential Customers, RIPUC No. 2151, Sheet 3, Section 4 and Renewable Energy Growth Program for Non-Residential Customers, RIPUC No. 2152, Sheet 6, Section 6.

CLF 1-16

Request:

Please quantify the Distribution Cost Impact resulting from the Renewable Energy Growth Program by affected rate class for each year of the program, assuming that the statutory build-out target for each year of the program, as provided in Section 12(c) of the Statute, is met. The response should show the Distribution Cost Impact of each separate renewable energy category under the REG program (see the Statute, Section 7, for definitions of categories) for each year of the program and explain how that cost impact will be allocated across the relevant rate classes.

Response:

In Attachment CLF 1-16, the Company has calculated the estimated displaced kWh deliveries and associated cost expected as a result of implementation of the RE Growth Program. In order to provide a reasonable estimate, a number of simplifying assumptions have been made:

- All small, medium and commercial scale customers participating in the program will have associated on-site load, and therefore, displaced kWh deliveries following installation of generating units.
- Fifty percent of all large scale solar, wind, hydro and anaerobic digestion units will have associated on-site load, and therefore, displaced kWh deliveries following installation of generating units.
- The annual targets for installed MW are completely met in each year.
- The annual installed MW targets in Years 3 through 4 are identical to Year 2.
- The annual target in Year 5 is 20MW.
- There is no change year to year in kWh charges for either current or proposed rates.
- Small scale solar units are installed only at customer locations served on residential Rate A-16.
- Medium scale solar units are installed only at customer locations served on small commercial Rate C-06.
- All other types of generation are installed at customer locations served on medium and large C&I rate schedules.
- Generated kWh are less than or equal to on-site consumption.

As shown in Attachment CLF 1-16, page 3, Section 1 (Bates stamp page 32), the estimated kWh generated in Year 1 is 28.9 million kWh assuming the indicated capacity factor for each type of generation and the installed MW target. In Section 2, the Company calculates the estimated revenue associated with the displaced kWh for Year 1. This is done by applying the current and

CLF 1-16, page 2

proposed distribution kWh charges, plus the current per kWh charges for transmission, transition, energy efficiency, and renewable distribution energy, to the estimated annual generation for each rate class. Pursuant to the terms of the RE Growth Program tariffs, these amounts calculated will be paid to participating customers in the form of a bill credit. The bill credits will be recovered from all distribution customers through the RE Growth Program Cost Recovery Factor. The revenue associated with the displaced kWh based on proposed distribution rates is shown in Section 2 of page 3 (Bates stamp page 32).

Similar calculations for Year 2 and Year 5 are performed on pages 4 and 5, respectively, (Bates stamp pages 33 and 34), using estimated annual program MW targets. Page 1 (Bates stamp page 30) presents a summary of the results for both current rates and proposed rates. Annual revenue for Year 1 is calculated on page 3 (Bates stamp page 32). Annual cumulative revenue for Year 2 is the revenue calculated on page 4 (Bates stamp page 33), plus Year 1 revenue. Cumulative annual revenue for Years 3 and 4 is the prior year's revenue plus the Year 2 annual revenue since approximately 40 MW of new generation is expected to be enrolled in the program in each year of the five-year program. The revenue for Year 5 is the Year 4 revenue plus the revenue calculated on page 5. The revenue for Years 6 through 25 is equal to the Year 5 revenue.

Please note that only the bill credit portion of the RE Growth Program total performance-based incentive (PBI) compensation has been calculated for the purposes of this response. Total compensation paid to RE Growth Program customers will include the amount of the bill credit plus a residual payment that is the difference between the total PBI payment (i.e., PBI x total generation) less the bill credit. The residual payments will also be recovered from all customers through the RE Growth Program Cost Recovery Factor.

The annual cost per customer is also shown on page 1 (Bates stamp page 30) for both current and proposed rates. The cost per customer is calculated by first allocating the annual revenue to each class based upon a rate base allocator, then dividing the total revenue for each class by the number of customers in the class. The Renewable Energy Growth Program Cost Recovery Provision, RIPUC No. 2153, describes the procedure for allocating RE Growth Program costs to each customer class.

The distribution cost impact, defined as the shift in distribution system cost from DG customers to non-DG customers, is shown on page 2 of Attachment CLF 1-16 (Bates stamp page 31). Note that the *total compensation* paid to customers participating in the RE Growth Program will not change as a result of the rate design proposals in this docket. The calculation of the bill credit will be affected by the change in the proposed distribution kWh charge, and therefore, the resulting residual payment will also change as well. Please see the Company's response to data

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request CLF 1-4 for examples of the impact of the proposed rates on individual RE Growth Program customers.

Renewable Energy Growth Program
Summary of RE Growth Program Cost Associated with Displaced kWh
Estimated for 25 year period

Section 1: Estimated Cost of Re-Growth due to displaced kWh (Current Rates)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	(a)	(b)	(c)	(d)	(e)
Distribution	\$456,243	\$1,328,027	\$2,199,810	\$3,071,593	\$3,507,485
Transmission	\$382,714	\$1,069,584	\$1,756,454	\$2,443,323	\$2,786,758
Egy Efficiency	\$283,735	\$762,942	\$1,242,148	\$1,721,355	\$1,960,958
Transition	(\$58,017)	(\$156,003)	(\$253,990)	(\$351,976)	(\$400,969)
Renewable Dist Egy	\$66,965	\$180,064	\$293,162	\$406,261	\$462,810
Total	\$1,131,640	\$3,184,612	\$5,237,584	\$7,290,556	\$8,317,042

Annual Cost per Customer

	<u>Allocation to</u>	<u>Customers in</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	<u>Class</u>	<u>Class</u>					
	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Residential A-16/A-60	52.8%	436,995	\$1.37	\$3.85	\$6.33	\$8.81	\$10.05
Small C&I C-06	9.7%	51,350	\$2.14	\$6.02	\$9.90	\$13.79	\$15.73
General C&I G-02	14.7%	8,589	\$19.34	\$54.43	\$89.52	\$124.61	\$142.15
Large Demand G-32	13.8%	1,120	\$139.62	\$392.91	\$646.20	\$899.49	\$1,026.13
Optional Large Demand G-62	3.8%	16	\$2,725.57	\$7,670.19	\$12,614.80	\$17,559.42	\$20,031.73
Lighting	5.2%	98,787	\$0.60	\$1.68	\$2.76	\$3.85	\$4.39
		596,856	\$1.90	\$5.34	\$8.78	\$12.21	\$13.93

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|--|--|
| (a) Page 3, Cols (m) through (q) | (g) Number of customers in class |
| (b) Page 4, Cols (m) through (q) + Col (a) | (h) Col (a) Divided by Number of Customers |
| (c) Page 4, Cols (m) through (q) + Col (b) | (i) Col (b) Divided by Number of Customers |
| (d) Page 4, Cols (m) through (q) + Col (c) | (j) Col (c) Divided by Number of Customers |
| (e) Page 5, Cols (m) through (q) + Col (d) | (k) Col (d) Divided by Number of Customers |
| (f) RE-Growth Program costs allocated on rate base per tariff (See Schedule NG-1 Supplemental, Docket No.4542) | (l) Col (e) Divided by Number of Customers |

Section 2: Estimated Cost of Re-Growth due to displaced kWh (Proposed Rates)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	(a)	(b)	(c)	(d)	(e)
Distribution	\$345,684	\$1,007,127	\$1,668,570	\$2,330,013	\$2,660,734
Transmission	\$382,714	\$1,069,584	\$1,756,454	\$2,443,323	\$2,786,758
Egy Efficiency	\$283,735	\$762,942	\$1,242,148	\$1,721,355	\$1,960,958
Transition	(\$58,017)	(\$156,003)	(\$253,990)	(\$351,976)	(\$400,969)
Renewable Dist Egy	\$66,965	\$180,064	\$293,162	\$406,261	\$462,810
Total	\$1,021,081	\$2,863,713	\$4,706,344	\$6,548,976	\$7,470,292

Annual Cost per Customer

	<u>Allocation to</u>	<u>Customers in</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	<u>Class</u>	<u>Class</u>					
	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Residential A-16/A-60	52.8%	436,995	\$1.23	\$3.46	\$5.68	\$7.91	\$9.02
Small C&I C-06	9.7%	51,350	\$1.93	\$5.41	\$8.90	\$12.38	\$14.13
General C&I G-02	14.7%	8,589	\$17.45	\$48.95	\$80.44	\$111.93	\$127.68
Large Demand G-32	13.8%	1,120	\$125.98	\$353.32	\$580.65	\$807.99	\$921.66
Optional Large Demand G-62	3.8%	16	\$2,459.29	\$6,897.30	\$11,335.30	\$15,773.31	\$17,992.31
Lighting	5.2%	98,787	\$0.54	\$1.51	\$2.48	\$3.46	\$3.94
		596,856	\$1.71	\$4.80	\$7.89	\$10.97	\$12.52

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|--|--|
| (a) Page 3, Cols (u) through (y) | (g) Number of customers in class |
| (b) Page 4, Cols (u) through (y) + Col (a) | (h) Col (a) Divided by Number of Customers |
| (c) Page 4, Cols (u) through (y) + Col (b) | (i) Col (b) Divided by Number of Customers |
| (d) Page 4, Cols (u) through (y) + Col (c) | (j) Col (c) Divided by Number of Customers |
| (d) Page 5, Cols (u) through (y) + Col (d) | (k) Col (d) Divided by Number of Customers |
| (f) RE-Growth Program costs allocated on rate base per tariff (See Schedule NG-1 Supplemental, Docket No.4542) | (l) Col (e) Divided by Number of Customers |

**Renewable Energy Growth Program
Summary of RE Growth Program Cost Associated with Displaced kWh
Estimated for 25 year period**

Section 1: Estimated Distribution Related Cost of Re-Growth due to displaced kWh (Current Rates)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	(a)	(b)	(c)	(d)	(e)
Small Scale Solar (Rate A-16)	\$149,559	\$510,995	\$872,430	\$1,233,866	\$1,414,583
Medium Scale Solar (Rate C-06)	\$179,937	\$494,828	\$809,718	\$1,124,609	\$1,282,054
Other	\$126,746	\$322,204	\$517,661	\$713,119	\$810,848
Total	\$456,243	\$1,328,027	\$2,199,810	\$3,071,593	\$3,507,485

Annual Cost per Customer

	<u>Allocation to</u>	<u>Customers in</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	<u>Class</u>	<u>Class</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Residential A-16/A-60	52.8%	436,995	\$0.55	\$1.60	\$2.66	\$3.71	\$4.24
Small C&I C-06	9.7%	51,350	\$0.86	\$2.51	\$4.16	\$5.81	\$6.63
General C&I G-02	14.7%	8,589	\$7.80	\$22.70	\$37.60	\$52.50	\$59.95
Large Demand G-32	13.8%	1,120	\$56.29	\$163.85	\$271.41	\$378.96	\$432.74
Optional Large Demand G-62	3.8%	16	\$1,098.87	\$3,198.57	\$5,298.28	\$7,397.98	\$8,447.83
Lighting	5.2%	98,787	\$0.24	\$0.70	\$1.16	\$1.62	\$1.85
		596,856	\$0.76	\$2.23	\$3.69	\$5.15	\$5.88

- (a) Page 3, Col (m)
(b) Page 4, Col (m) + Col (a)
(c) Page 4, Col (m) + Col (b)
(d) Page 4, Col (m) + Col (c)
(e) Page 5, Col (m) + Col (d)
(f) RE-Growth Program costs allocated on rate base per tariff (See Schedule NG-1 Supplemental, Docket No.4542)
- (g) Number of customers in class
(h) Col (a) Divided by Number of Customers
(i) Col (b) Divided by Number of Customers
(j) Col (c) Divided by Number of Customers
(k) Col (d) Divided by Number of Customers
(l) Col (e) Divided by Number of Customers

Section 2: Estimated Distribution Related Cost of Re-Growth due to displaced kWh (Proposed Rates)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	(a)	(b)	(c)	(d)	(e)
Small Scale Solar (Rate A-16)	\$111,333	\$380,386	\$649,440	\$918,494	\$1,053,021
Medium Scale Solar (Rate C-06)	\$149,081	\$409,973	\$670,865	\$931,757	\$1,062,203
Other	\$85,270	\$216,767	\$348,264	\$479,761	\$545,510
Total	\$345,684	\$1,007,127	\$1,668,570	\$2,330,013	\$2,660,734

Annual Cost per Customer

	<u>Allocation to</u>	<u>Customers in</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	<u>Class</u>	<u>Class</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Residential A-16/A-60	52.8%	436,995	\$0.42	\$1.22	\$2.02	\$2.81	\$3.21
Small C&I C-06	9.7%	51,350	\$0.65	\$1.90	\$3.16	\$4.41	\$5.03
General C&I G-02	14.7%	8,589	\$5.91	\$17.21	\$28.52	\$39.82	\$45.48
Large Demand G-32	13.8%	1,120	\$42.65	\$124.26	\$205.86	\$287.47	\$328.27
Optional Large Demand G-62	3.8%	16	\$832.59	\$2,425.68	\$4,018.78	\$5,611.87	\$6,408.42
Lighting	5.2%	98,787	\$0.18	\$0.53	\$0.88	\$1.23	\$1.40
		596,856	\$0.58	\$1.69	\$2.80	\$3.90	\$4.46

- (a) Page 3, Col (u)
(b) Page 4, Col (u) + Col (a)
(c) Page 4, Col (u) + Col (b)
(d) Page 4, Col (u) + Col (c)
(e) Page 5, Col (u) + Col (d)
(f) RE-Growth Program costs allocated on rate base per tariff (See Schedule NG-1 Supplemental, Docket No.4542)
- (g) Number of customers in class
(h) Col (a) Divided by Number of Customers
(i) Col (b) Divided by Number of Customers
(j) Col (c) Divided by Number of Customers
(k) Col (d) Divided by Number of Customers
(l) Col (e) Divided by Number of Customers

Section 3: Distribution Cost Impact

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	(a)	(b)	(c)	(d)	(e)
Small Scale Solar (Rate A-16)	(\$38,227)	(\$130,609)	(\$222,990)	(\$315,372)	(\$361,563)
Medium Scale Solar (Rate C-06)	(\$30,856)	(\$84,855)	(\$138,853)	(\$192,851)	(\$219,851)
Other	(\$41,476)	(\$105,436)	(\$169,397)	(\$233,357)	(\$265,338)
Total	(\$110,559)	(\$320,899)	(\$531,240)	(\$741,580)	(\$846,751)

Annual Cost per Customer

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 through 25</u>
	(f)	(g)	(h)	(i)	(j)
Residential A-16/A-60	(\$0.13)	(\$0.39)	(\$0.64)	(\$0.90)	(\$1.02)
Small C&I C-06	(\$0.21)	(\$0.61)	(\$1.00)	(\$1.40)	(\$1.60)
General C&I G-02	(\$1.89)	(\$5.48)	(\$9.08)	(\$12.67)	(\$14.47)
Large Demand G-32	(\$13.64)	(\$39.59)	(\$65.54)	(\$91.49)	(\$104.47)
Optional Large Demand G-62	(\$266.28)	(\$772.89)	(\$1,279.50)	(\$1,786.11)	(\$2,039.41)
Lighting	(\$0.06)	(\$0.17)	(\$0.28)	(\$0.39)	(\$0.45)
	(\$0.19)	(\$0.54)	(\$0.89)	(\$1.24)	(\$1.42)

**Renewable Energy Growth Program
RE Growth Program Cost Associated with Displaced kWh
Year 1**

Section 1: Estimated kWh Generated - Year 1

<u>Unit</u>	<u>Estimated Unit Capacity (kW)</u> (a)	<u>Target (kW)</u> (b)	<u>Number of Units</u> (c)	<u>Unit Availability Factor</u> (d)	<u>Percent Used for On-site Load</u> (e)	<u>Estimated Twelve-Month Output (kWh)</u> (f)
1. Small Scale Solar I and II	25.0	3,000.0	120	14%	100%	3,679,200
2. Medium Scale Solar	250.0	4,000.0	16	14%	100%	4,905,600
3. Commercial Scale Solar	1,000.0	5,500.0	6	14%	100%	7,358,400
4. Large Scale Solar	5,000.0	6,000.0	1	14%	50%	3,066,000
5. Wind	5,000.0	5,000.0	1	25%	50%	5,475,000
6. Hydro/Anaerobic Digestion	1,000.0	1,500.0	2	50%	50%	4,380,000
7. Estimated Annual Generation		25,000.0				28,864,200

- (a) per tariff
(b) estimated target for Re-Growth Program in Year 1
(c) col (b) ÷ col (a)
(d) estimated
(e) estimated
(f) col (a) x col (c) x 8,760 hours x col (d) x col (e)

Section 2: Estimated Cost of Re-Growth due to displaced kWh

	<u>Estimated Annual Generation</u> (g)	<u>Distribution Current per kWh Charge</u> (h)	<u>Transmission Current per kWh Charge</u> (i)	<u>Egy Efficiency Current per kWh Charge</u> (j)	<u>Transition Current per kWh Charge</u> (k)	<u>Renewable Dist Egy Current per kWh Charge</u> (l)
8. Small Scale Solar (Rate A-16)	3,679,200	\$0.04065	\$0.02348	\$0.00983	(\$0.00201)	\$0.00232
9. Medium Scale Solar (Rate C-06)	4,905,600	\$0.03668	\$0.02072	\$0.00983	(\$0.00201)	\$0.00232
10. Other (1)	20,279,400	\$0.00625	\$0.00960	\$0.00983	(\$0.00201)	\$0.00232

	<u>Distribution</u> (m)	<u>Transmission</u> (n)	<u>Egy Efficiency</u> (o)	<u>Transition</u> (p)	<u>Renewable Dist Egy</u> (q)	<u>Total</u> (r)
11. Small Scale Solar (Rate A-16)	\$149,559	\$86,388	\$36,167	(\$7,395)	\$8,536	\$273,254
12. Medium Scale Solar (Rate C-06)	\$179,937	\$101,644	\$48,222	(\$9,860)	\$11,381	\$331,324
13. Other	<u>\$126,746</u>	<u>\$194,682</u>	<u>\$199,347</u>	<u>(\$40,762)</u>	<u>\$47,048</u>	<u>\$527,062</u>
14. Total	\$456,243	\$382,714	\$283,735	(\$58,017)	\$66,965	\$1,131,640

Notes:
col (g) col (f)
col (h)-(l) current tariff
col (m)-(q) col (g) x cols (h) through (l)
col (r) sum of cols (m) through (q)

	<u>Estimated Annual Generation</u> (s)	<u>Distribution Proposed per kWh Charge</u> (t)	<u>Distribution</u> (u)	<u>Transmission</u> (v)	<u>Egy Efficiency</u> (w)	<u>Transition</u> (x)	<u>Renewable Dist Egy</u> (y)	<u>Total</u> (z)
15. Small Scale Solar (Rate A-16)	3,679,200	\$0.03026	\$111,333	\$86,388	\$36,167	(\$7,395)	\$8,536	\$235,027
16. Medium Scale Solar (Rate C-06)	4,905,600	\$0.03039	\$149,081	\$101,644	\$48,222	(\$9,860)	\$11,381	\$300,468
17. Other (1)	20,279,400	\$0.00420	<u>\$85,270</u>	<u>\$194,682</u>	<u>\$199,347</u>	<u>(\$40,762)</u>	<u>\$47,048</u>	<u>\$485,586</u>
21. Total			\$345,684	\$382,714	\$283,735	(\$58,017)	\$66,965	\$1,021,081

Notes:
col (s) col (f)
col (t) current tariff
col (u) col (s) x col (t)
col (v)-(y) cols (n) through (q)
col (z) sum of cols (u) through (z)

(1) per kWh charges are based upon a weighted average of the individual charges for Rates G-02, G-32 and G-62

**Renewable Energy Growth Program
RE Growth Program Cost Associated with Displaced kWh
Year 2**

Section 1: Estimated kWh Generated - Year 2

<u>Unit</u>	<u>Estimated Unit Capacity (kW)</u> (a)	<u>Target (kW)</u> (b)	<u>Number of Units</u> (c)	<u>Unit Availability Factor</u> (d)	<u>Percent Used for On-site Load</u> (e)	<u>Estimated Twelve-Month Output (kWh)</u> (f)
1. Small Scale Solar I and II	25.0	7,250.0	290	14%	100%	8,891,400
2. Medium Scale Solar	250.0	7,000.0	28	14%	100%	8,584,800
3. Commercial Scale Solar	1,000.0	8,000.0	8	14%	100%	9,811,200
4. Large Scale Solar	5,000.0	8,000.0	2	14%	50%	6,132,000
5. Wind	5,000.0	8,250.0	2	25%	50%	10,950,000
6. Hydro/Anaerobic Digestion	1,000.0	1,500.0	2	50%	50%	4,380,000
7. Estimated Annual Generation		40,000.0				48,749,400

(a) per tariff

(b) estimated target for Re-Growth Program in Year 2

(c) col (b) ÷ col (a)

(d) estimated

(e) estimated

(f) col (a) x col (c) x 8,760 hours x col (d) x col (e)

Section 2: Estimated Cost of Re-Growth due to displaced kWh

	<u>Estimated Annual Generation</u> (g)	<u>Distribution Current per kWh Charge</u> (h)	<u>Transmission Current per kWh Charge</u> (i)	<u>Egy Efficiency Current per kWh Charge</u> (j)	<u>Transition Current per kWh Charge</u> (k)	<u>Renewable Dist Egy Current per kWh Charge</u> (l)
8. Small Scale Solar (Rate A-16)	8,891,400	\$0.04065	\$0.02348	\$0.00983	(\$0.00201)	\$0.00232
9. Medium Scale Solar (Rate C-06)	8,584,800	\$0.03668	\$0.02072	\$0.00983	(\$0.00201)	\$0.00232
10. Other (1)	31,273,200	\$0.00625	\$0.00960	\$0.00983	(\$0.00201)	\$0.00232

	<u>Distribution</u> (m)	<u>Transmission</u> (n)	<u>Egy Efficiency</u> (o)	<u>Transition</u> (p)	<u>Renewable Dist Egy</u> (q)	<u>Total</u> (r)
11. Small Scale Solar (Rate A-16)	\$361,435	\$208,770	\$87,402	(\$17,872)	\$20,628	\$660,364
12. Medium Scale Solar (Rate C-06)	\$314,890	\$177,877	\$84,389	(\$17,255)	\$19,917	\$579,817
13. Other	<u>\$195,458</u>	<u>\$300,223</u>	<u>\$307,416</u>	<u>(\$62,859)</u>	<u>\$72,554</u>	<u>\$812,790</u>
14. Total	\$871,783	\$686,870	\$479,207	(\$97,986)	\$113,099	\$2,052,972

Notes:

col (g) col (f)

col (h)-(l) current tariff

col (m)-(q) col (g) x cols (h) through (l)

col (r) sum of cols (m) through (q)

	<u>Estimated Annual Generation</u> (s)	<u>Distribution Proposed per kWh Charge</u> (t)
15. Small Scale Solar (Rate A-16)	8,891,400	\$0.03026
16. Medium Scale Solar (Rate C-06)	8,584,800	\$0.03039
17. Other (1)	31,273,200	\$0.00420

	<u>Distribution</u> (u)	<u>Transmission</u> (v)	<u>Egy Efficiency</u> (w)	<u>Transition</u> (x)	<u>Renewable Dist Egy</u> (y)	<u>Total</u> (z)
18. Small Scale Solar (Rate A-16)	\$269,054	\$208,770	\$87,402	(\$17,872)	\$20,628	\$567,983
19. Medium Scale Solar (Rate C-06)	\$260,892	\$177,877	\$84,389	(\$17,255)	\$19,917	\$525,819
20. Other	<u>\$131,497</u>	<u>\$300,223</u>	<u>\$307,416</u>	<u>(\$62,859)</u>	<u>\$72,554</u>	<u>\$748,830</u>
21. Total	\$661,443	\$686,870	\$479,207	(\$97,986)	\$113,099	\$1,842,632

Notes:

col (s) col (f)

col (t) current tariff

col (u) col (s) x col (t)

col (v)-(y) cols (n) through (q)

col (z) sum of cols (u) through (z)

(1) per kWh charges are based upon a weighted average of the individual charges for Rates G-02, G-32 and G-62

**Renewable Energy Growth Program
RE Growth Program Cost Associated with Displaced kWh
Year 5**

Section 1: Estimated kWh Generated - Year 5

<u>Unit</u>	<u>Estimated Unit Capacity (kW)</u> (a)	<u>Target (kW)</u> (b)	<u>Number of Units</u> (c)	<u>Unit Availability Factor</u> (d)	<u>Percent Used for On-site Load</u> (e)	<u>Estimated Twelve-Month Output (kWh)</u> (f)
1. Small Scale Solar I and II	25.0	3,625.0	145	14%	100%	4,445,700
2. Medium Scale Solar	250.0	3,500.0	14	14%	100%	4,292,400
3. Commercial Scale Solar	1,000.0	4,000.0	4	14%	100%	4,905,600
4. Large Scale Solar	5,000.0	4,000.0	1	14%	50%	3,066,000
5. Wind	5,000.0	4,125.0	1	25%	50%	5,475,000
6. Hydro/Anaerobic Digestion	1,000.0	750.0	1	50%	50%	2,190,000
7. Estimated Annual Generation		20,000.0				24,374,700

- (a) per tariff
(b) estimated target for Re-Growth Program in Year 2
(c) col (b) ÷ col (a)
(d) estimated
(e) estimated
(f) col (a) x col (c) x 8,760 hours x col (d) x col (e)

Section 2: Estimated Cost of Re-Growth due to displaced kWh

	<u>Estimated Annual Generation</u> (g)	<u>Distribution Current per kWh Charge</u> (h)	<u>Transmission Current per kWh Charge</u> (i)	<u>Egy Efficiency Current per kWh Charge</u> (j)	<u>Transition Current per kWh Charge</u> (k)	<u>Renewable Dist Egy Current per kWh Charge</u> (l)
8. Small Scale Solar (Rate A-16)	4,445,700	\$0.04065	\$0.02348	\$0.00983	(\$0.00201)	\$0.00232
9. Medium Scale Solar (Rate C-06)	4,292,400	\$0.03668	\$0.02072	\$0.00983	(\$0.00201)	\$0.00232
10. Other (1)	15,636,600	\$0.00625	\$0.00960	\$0.00983	(\$0.00201)	\$0.00232

	<u>Distribution</u> (m)	<u>Transmission</u> (n)	<u>Egy Efficiency</u> (o)	<u>Transition</u> (p)	<u>Renewable Dist Egy</u> (q)	<u>Total</u> (r)
11. Small Scale Solar (Rate A-16)	\$180,718	\$104,385	\$43,701	(\$8,936)	\$10,314	\$330,182
12. Medium Scale Solar (Rate C-06)	\$157,445	\$88,939	\$42,194	(\$8,628)	\$9,958	\$289,909
13. Other	<u>\$97,729</u>	<u>\$150,111</u>	<u>\$153,708</u>	<u>(\$31,430)</u>	<u>\$36,277</u>	<u>\$406,395</u>
14. Total	\$435,892	\$343,435	\$239,603	(\$48,993)	\$56,549	\$1,026,486

Notes:
col (g) col (f)
col (h)-(l) current tariff
col (m)-(q) col (g) x cols (h) through (l)
col (r) sum of cols (m) through (q)

	<u>Estimated Annual Generation</u> (s)	<u>Distribution Proposed per kWh Charge</u> (t)	<u>Distribution</u> (u)	<u>Transmission</u> (v)	<u>Egy Efficiency</u> (w)	<u>Transition</u> (x)	<u>Renewable Dist Egy</u> (y)	<u>Total</u> (z)
15. Small Scale Solar (Rate A-16)	4,445,700	\$0.03026	\$134,527	\$104,385	\$43,701	(\$8,936)	\$10,314	\$283,991
16. Medium Scale Solar (Rate C-06)	4,292,400	\$0.03039	\$130,446	\$88,939	\$42,194	(\$8,628)	\$9,958	\$262,910
17. Other (1)	15,636,600	\$0.00420	<u>\$65,749</u>	<u>\$150,111</u>	<u>\$153,708</u>	<u>(\$31,430)</u>	<u>\$36,277</u>	<u>\$374,415</u>
21. Total			\$330,721	\$343,435	\$239,603	(\$48,993)	\$56,549	\$921,316

Notes:
col (s) col (f)
col (t) current tariff
col (u) col (s) x col (t)
col (v)-(y) cols (n) through (q)
col (z) sum of cols (u) through (z)

(1) per kWh charges are based upon a weighted average of the individual charges for Rates G-02, G-32 and G-62

CLF 1-17

Request:

Based on the responses to #16, what is the per-customer Distribution Cost Impact of the Renewable Energy Growth Program by affected rate class for each year of the program, 2015 through 2019?

Response:

Please see the Company's response to data request CLF 1-16.