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VIA HAND DELIVERY and E-MAIL

November 22, 2011

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

Re: Proposed Standard Contract with the Rhode Island Distributed Contract
Working Group
Docket No.: 4288

Dear Luly:

Enclosed for filing please find an original and nine (9) copies of the Rhode Island Office of Energy Resources' responses to the Commission's Third Set of Data Requests (November 18, 2011).

Sincerely,



Peter V. Lacouture

PVL:mmv
Enclosures

cc: Service List



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STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

IN RE: RHODE ISLAND OFFICE OF ENERGY
RESOURCES' PROPOSED DISTRIBUTED
GENERATION STANDARD CONTRACT,
CLASSES AND CEILING PRICES

DOCKET NO. 4288

R.I. OFFICE OF ENERGY RESOURCES RESPONSES TO
COMMISSION'S THIRD SET OF DATA REQUESTS (November 18, 2011)

November 22, 2011

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Introduction to the Responses of the OER:

Data Requests 1 through 4 of the Commission's Third Set of Data Requests pertain to the Internal Rate of Return (IRR) used in calculating the ceiling prices submitted to the Commission on September 27, 2011.

A comprehensive overview of considerations taken into account in the developing the IRR used, is provided in the OER's response to Data Request 3-1.

The OER actively sought community involvement in developing the inputs, including the IRR, used in the Cost of Renewable Energy Spreadsheet Tool (CREST):

First, the OER requested ceiling price data by technology type and size from stakeholders; this request specifically asked for the "Recommended Input" for "After Tax Return on Equity (e.g. IRR) (%)"—stakeholders included persons that had experience in project size range provided for in the Distributed Generation Standard Contracts Act (DG-SCA).

Second, the OER circulated a strawman set of ceiling prices among stakeholders and sought comments on the strawman; requested comments included specifically comments on the IRR. Third, the OER held a community review meeting on September 20, 2011, at which ceiling price calculations were discussed at length. The record to date in Docket No. 4288 does not indicate any strong exception to the reasonableness of the IRR used in developing the ceiling prices as submitted.

Finally, the OER observes that the IRR, while critically important, is only one component of the proposed ceiling prices. Since the ceiling prices are fixed as a maximum, the actual IRR achieved in a specific project may be higher or lower depending on other project costs. On a consistent basis, the OER used the lower end of cost ranges in order to assure that projects overall were "cost effective"—"cost effectiveness" is a consideration to be taken into account under the DG-SCA.

(Response prepared by or under
the supervision of Kenneth F. Payne)

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REQUEST NO. 3-1 (2011):

How did OER calculate the 13% IRR cited in its September 27 filing? Please include in your response whether a range of returns was considered in developing the 13% IRR, and identify with specificity all data and other sources used to calculate same.

RESPONSE:

To begin, CREST is designed to calculate a levelized cost of energy (LCOE) which will meet a target IRR subject to other constraints. A 13% leveraged equity return is an input assumption in the analysis of deriving the ceiling prices. The leveraged return on equity presumes the use of lower cost debt, which reduces the overall LCOE compared to an all-equity assumption.

The enabling statute, Distributed Generation Standard Contracts Act (DG-SCA), RI PL of 2011, chapters 129 and 143, requires that the ceiling prices are set at a level *“that would allow a private owner to invest in a given project at a reasonable rate of return, based on recent and reported and forecast information on the cost of capital, and the cost of equipment. The calculation of the reasonable rate of return for a project shall include where applicable any state or federal incentives including, but not limited to, tax incentives.”*¹

In the context of a new policy, such as the DG-SCA, the required return on equity needed to attract investment is one of the most difficult assumptions to establish with precision. There are few available benchmarks, and those that may be available are unlikely to be comparable when the policy is new, and its structure and contract differ from the available benchmarks. One

¹ DG-SCA, sec. 39-26.2-5(a).

can assume a lower return, but if lower than required to attract investors, the ceiling price will not be able to support commercial investment.

OER started by assessing available benchmarks, but also considered a number of other factors through which available data was filtered, including:

- Contract terms and conditions and policy details define the nature and allocation of risk, which impacts the risk premium over a risk-free rate of return required to attract investors. The final contract was developed after the ceiling prices were set; it appears that the contract as it has evolved places some risk on investors, but less than in a situation without long-term bundled contracts for commodity electricity plus RECs.
- Capital structures can vary widely from developer to developer.
- When a policy is new and untested, equity returns are likely to be higher than might be required once a policy and contract is well-established. Once industry experience is gained with a policy, it is possible that equity returns will drop over time.
- Standardization of elements of financing will tend to reduce equity returns for a policy in place over an extended period of time. This policy is too young to have allowed the industry to standardize financing structures and documents.
- Required equity returns will tend to be higher for small projects than for larger power projects. The total magnitude of the investment for a specific solar installation on the size range supported by the DG standard offer is too small to support more sophisticated financing approaches capable of tapping lower cost equity sources. More complex financial structures require substantial legal structuring expenses and financing fees, which cannot be economically supported by projects this small.

By technology type and size, data sources and their associated equity rates of return considered were as follows:

1500 kW Solar:

12.13%	VT Standard Offer model (utility return)
15%	Data request to stakeholders
12-18%	Data request to stakeholders
12% (cash equity)	Data request to stakeholders
15% (tax equity)	Data request to stakeholders
9-10% (unlevered)	Data request to stakeholders

500 kW Solar:

15%	Data request – estimated to be sufficient to attract investment
12-18%	Data request to stakeholders
9-10% (unlevered)	Data request to stakeholders

150 kW solar:

15%	Data request – est. sufficient to attract investment
9-10% (unlevered)	Data request to stakeholders
12-18%	Data request to stakeholders

Wind

15% (target)	3 rd party equity discount rate assumed for Turkey Hill Wind Project
12.13% (proxy for utility return)	feasibility study, funded by MA CEC
13%	VT Standard Offer model
9-10% (unlevered)	Nova Scotia Feed-in tariff model
	Data request to stakeholders

In addition, a recent survey of northeastern developers and financiers reported that a 15% return on equity would be required, at minimum, for them to focus on the Massachusetts solar RPS market. *See* Flynn, H., Breger, D., Belden, A., Bier, A., Laurent, C., Howlett, N., et al. (2010). System dynamics modeling of the Massachusetts SREC market. *Sustainability*, 2, 2746-2761.

Finally, the 13% levered return, combined with the assumed cost of debt used to calculate the ceiling prices, results in a lower ceiling price than unlevered returns in the 9% to 10% range noted above. As can be seen, the 13% equity return is towards the low end of the range of available data, consistent with selected inputs for other CREST inputs.

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REQUEST NO. 3-2 (2011):

Did OER's calculation of the rate of return, assumed in the CREST model, include any state or federal incentives?

RESPONSE:

Yes, the rate of return was calculated based in the assumption that Federal Incentives, as follows:

- Federal Investment Tax Credit (ITC) assumed available at time of initial operation (2012)
- Assume full monetization
- 50% Bonus Depreciation utilized

No state incentives were assumed, as discussed previously.

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REQUEST NO. 3-3 (2011):

Why did OER use the same IRR for each technology and size class?

RESPONSE:

See the response above to Commission data Request 3-1 regarding the sources of data used. While OER did not set out to use the same rate across the range of technologies and sizes, stakeholder feedback did not support a differentiation. The use of standard IRR assumptions has precedent for standard offers in other North American jurisdictions, including Vermont (12.13%), Ontario (11%), and Nova Scotia (13%).

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REQUEST NO. 3-4 (2011):

On what basis does OER consider the 13% IRR to be a reasonable rate of return?

RESPONSE:

OER expects that many different types of ownership and finance structures could be used for solar installations driven by the DG Standard Offer. The financial structure and cost of debt and equity used for setting ceiling prices reflected a good proxy for the variety of approaches prevailing in the market. Importantly, it is consistent with and reflects the prevalence in the solar marketplace of the third party ownership model, rather than systems owned by installation hosts. While in New England both third-party and host-owned approaches are used, third-party ownership currently appears to be the dominant mode, reflecting the ability for third-party owners to best take advantage of tax and depreciation benefits, as well as the appeal to hosts of not having to come up with the up-front cash required to invest in a solar installation. While acceptable equity returns may be lower for non-profit or municipal system owners, nevertheless available tax benefits favor use of private capital.

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REQUEST NO. 3-5 (2011):

OER's response to Commission DR 2-16 is not clear as a result of an apparent typographical error. Please resubmit a response to this data request.

Below are the Commission's Data request 2-16 and the OER's Response with the typographical error corrected, the missing "Renewable Energy Fund" has been inserted, with emphasis added to highlight the correction.

The OER further wishes to clarify that in using CREST, if a grant program becomes generally available, the amount of the grant would reduce the capital cost, resulting in a lower ceiling price.

RESPONSE:

REQUEST NO. 2-16 (2011):

How would the proposed ceiling prices be impacted if other grants (i.e. Renewable Energy Fund grants) had been assumed?

The EDC typically retains the RECs for projects it funds through the Renewable Energy Fund; thus projects that receive funding (other for initial feasibility studies) would not have a bundled commodity as required by the statute.

The CREST spreadsheet model is flexible and as conditions change, the inputs to the spreadsheet can change. If a grant program becomes generally available, the amount of the grant could be deducted from the capital cost of the project in calculating a ceiling price.

(Response prepared by or under

the supervision of Kenneth F. Payne)

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the within Responses to the Commission's Third Set of Data Requests (2011) were sent by email to the following this the **22** day of November, 2011.

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