Rhode Island Distributed Generation Standard Contracts Program:

Preliminary Input Assumptions & Modeling Results for 2013 Ceiling Price Review

October 22, 2013

Sustainable Energy Advantage, LLC
(with support from Meister Consultants Group)

Background: Changes from 2013 to 2014 (1)

- SB 641 Sub B - An Act Relating To Public Utilities and Carriers - Distributed Generation Standard Contracts
  - **Allow small-scale hydro projects** in DGSC program; **36-month** window to reach commercial operation (other technologies must come online within 18 months)
  - **Maximum project size reduced from 5 MW to 3 MW**
  - **Minimum** solar and wind project size = **50 kW**
  - Require **competitive bidding** for the small DG to decrease the cost of the DG program.
  - Small DG MW allocations separated from large DG MW allocations in each enrollment.
  - Flexibility allowing a DG project to avoid having its DG contract voided as long as it produces 90% of the output proposed in its application
  - Any unused kWh or MW to be eligible for use after 2014
  - Require quarterly status reports from projects awarded DG contract.
  - Require more feedback to the applicant from National Grid on the evaluation of the applicant's project proposal (if requested)
  - RI OER required to complete annual jobs, economic, and environmental impact study for each year of DGSC program, starting in 2014

Background: Changes from 2013 to 2014 (2)

- 2014 size & technology categories based on activity seen in 2013 and 2012 solicitations → If few or no projects proposed, categories may have been modified.

- 2014 Ceiling Prices set for 7 classes:
  - 3 Solar
  - 2 Wind
  - 1 Anaerobic Digestion
  - 1 Hydro
  - 'standard' installations will be modeled to inform setting of ceiling rates for each class

Technology, sub class	Eligible Size Range	Standard Size for Modeling Ceiling Price
Solar, Large	500 kW – 3 MW	1.5 MW
Solar, Medium	201 – 499 kW	400 kW
Solar, Small	50 – 200 kW	150 kW
Wind, Large	1.0 MW – 3 MW	1.5 MW
Wind, Medium	50 kW – 999 kW	750 kW
Anaerobic Digestion	50 kW – 3 MW	500 kW
Hydroelectric	50 kW – 1.0 MW	500 kW

Response to Data Request (1)

- Limited
  - For other than solar, not sufficient to support CP adjustments

Comments – applicable to multiple technologies – provide helpful description of market conditions & impact on DG SC program:

- The non-recourse debt market is still very tight, which suggests that securing debt for capital intensive projects might be difficult
  - The assumption regarding D/E ratio should be consistent across the renewable technologies as financing would likely come from similar sources
- Treatment of federal tax policy
  - There are few Rhode Island-based investors that can fully monetize federal tax benefits, discouraging local participation
  - Stakeholders have also had difficulty realizing the full benefits of the Investment Tax Credit (ITC)

Response to Data Request (2)

- Ceiling prices
  - There is some stakeholder interest in doing away with ceiling prices completely and allowing for a fully competitive solicitation to set prices
  - Stakeholders feel that current ceiling price methodology does not take the full environmental benefit of these projects into account, and should increase prices accordingly
- Other issues
  - There is a disconnect between estimated and actual National Grid interconnection costs

- <u>Next Steps:</u>
  - Feedback during & after 1st stakeholder meeting
  - Interviews
  - Work with National Grid on summary of actual interconnection costs

SUMMARY RESULTS

Summary Results & Sensitivity Analysis

Tech., class (kW)	2013 CP w/ITC/PTC, No Bonus	Tech., class (kW)	2014 Proposed CP w/ITC/PTC + Bonus	2014 Proposed CP w/ITC/PTC, No Bonus	Net Change from 2013 w/ITC/PTC, No Bonus***	2014 Proposed CP No ITC/PTC, No Bonus
Solar*, 500 +	24.95	Solar*, 500-3,000	21.75	23.00	~8%	N/A
Solar*, 251 – 499	28.40	Solar*, 201-499	24.15	25.35	~11%	N/A
Solar*, 101 – 250	28.80	Solar*, 50-200	25.25	26.55	~8%	N/A
Solar*, 50 – 100	29.95					
Wind*, 1,000-1,500	14.80	Wind*, 1,000-3,000	14.35	14.80	0%	18.70
Wind*, 400 – 999	16.20	Wind*, 50-999	15.95	16.20	0%	20.45
Wind*, 90 – 100	24.65					
AD**, 400 – 500	18.55	AD**, 50-3,000	17.50	18.55	0%	19.35
Hydro** 500-1,000	17.90	Hydro**, 50-1,000	16.95	17.90	0%	18.60

* ITC
** PTC
*** Note, changes in selected sub-class definitions prevents a direct comparison in these circumstances.

SOLAR

Est. of 15-year levelized contract: Solar

Tech., class (kW)	2013 CP w/ITC/PTC, No Bonus	Tech., class (kW)	2014 Proposed CP w/ITC/PTC + Bonus	2014 Proposed CP w/ITC/PTC, No Bonus	Net Change from 2013 w/ITC/PTC, No Bonus***	2014 Proposed CP No ITC/PTC, No Bonus
Solar, 500 +	24.95	Solar, 500-3,000	21.75	23.00	~8%	N/A
Solar, 251 – 499	28.40	Solar, 201-499	24.15	25.35	~11%	N/A
Solar, 101 – 250	28.80	Solar, 50-200	25.25	26.55	~8%	N/A
Solar, 50 – 100	29.95					

Capital Cost, Installed: Details, Sources

(Includes soft costs & construction financing; excludes Interconnection)

- Industry Databases Polled

  Usable data extracted from:

  - MA SREC Database [installed cost data analyzed from projects installed within the last 3, 6, and 9 months]

  Database reviewed; data of limited direct usefulness, from:

  - NYSERDA PowerClerks Database (Only systems <100 kW; access to raw data not available)
  - California Solar Initiative Database (Data concerns, inconsistency with more relevant databases)
  - Mass CEC Commonwealth Solar Database (Smaller systems and likely redundant with Mass. SREC Database)
  - CEFIA project database (No systems >18kW in data set)
- Stakeholder Data Request
  - Limited (5) responses received.
- Follow up Interviews;
- Data available to SEA/MCG through other recent engagements

Costs embedded in total installed cost estimates include:

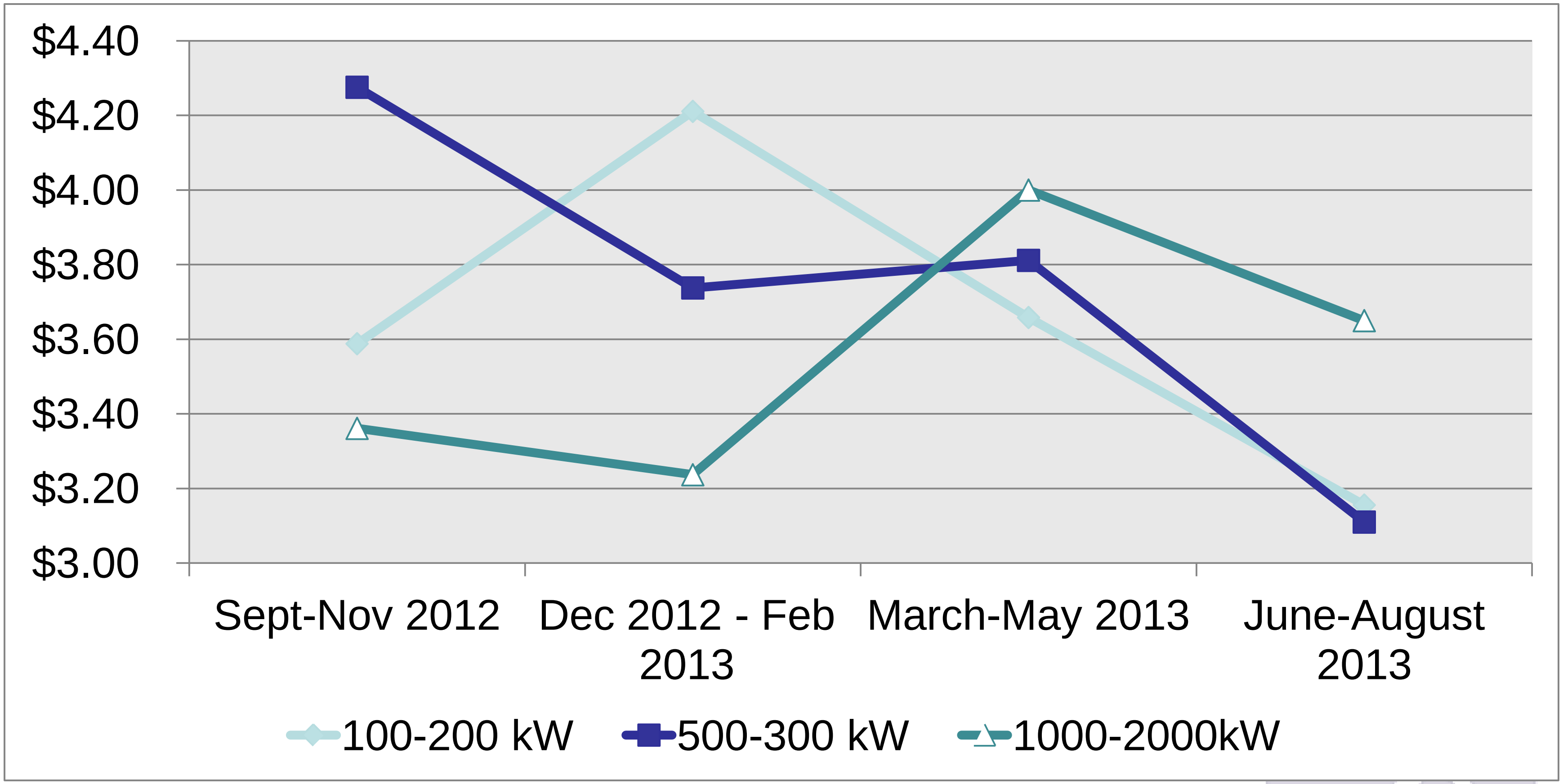
***Soft Costs**: development, permitting, engineering costs, as well as interest incurred during construction, the initial funding of all required reserve accounts, financing closing costs, and lender fees (if applicable)*

***Inverter warranty**: The solar CREST model has the ability to incorporate two capital expenditures during operations, which could be used to model inverter replacements. In response to recent data and stakeholder feedback, however, this analysis assumes that a 20-year inverter warranty is included in the total installed cost estimate. No additional inverter replacement costs are modeled.*

Mass SREC Database
(Sept 2012-August 2013)

Mass SREC Database - Average Installed Cost by Bin Quarter ($/Watt)				
Size Bin (kW)	Sept-Nov 2012	Dec 2012 - Feb 2013	March-May 2013	June-August 2013
100-200kW	$3.59	$4.21	$3.66	$3.16
300-500kW	$4.28	$3.74	$3.81	$3.11
1,000-2,000kW	$3.36	$3.24	$4.00	$3.65

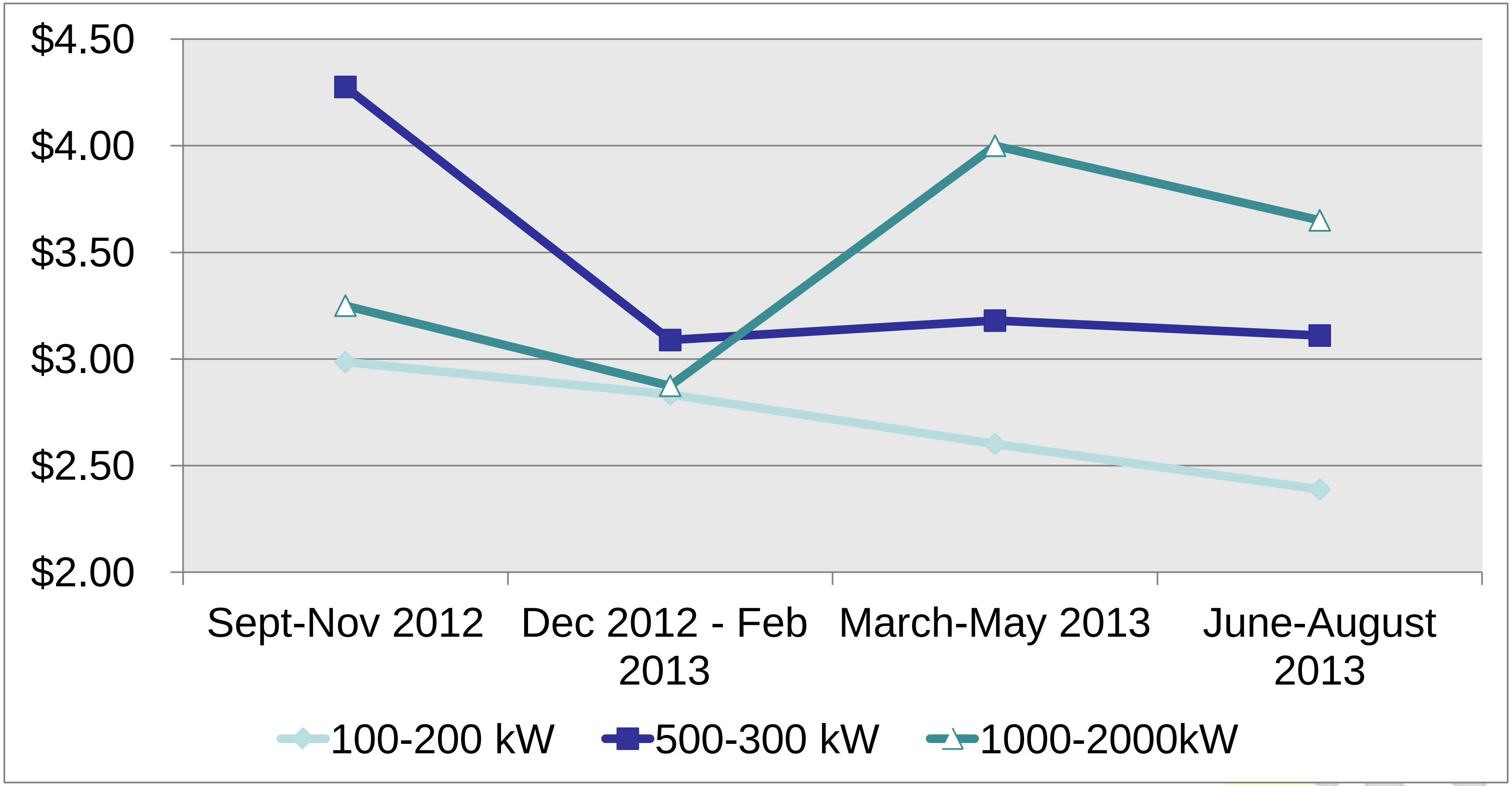
Mass SREC Database Trend: Average Cost
(Sept 2012-August 2013)



Mass SREC Database: Avg. - 1 Std. Deviation
(Sept 2012 – August 2013)

Mass SREC Database – Avg. Installed Cost minus 1 Std Dev by Qtr.				
Size Bin (kW)	Sept-Nov 2012	Dec 2012 - Feb 2013	March-May 2013	June-August 2013
100-200kW	**$2.99**	**$2.83**	**$2.60**	**$2.39**
300-500kW	**$4.28**	**$3.09**	**$3.18**	**$3.11**
1,000-2,000kW	**$3.25**	**$2.87**	**$4.00**	**$3.65**

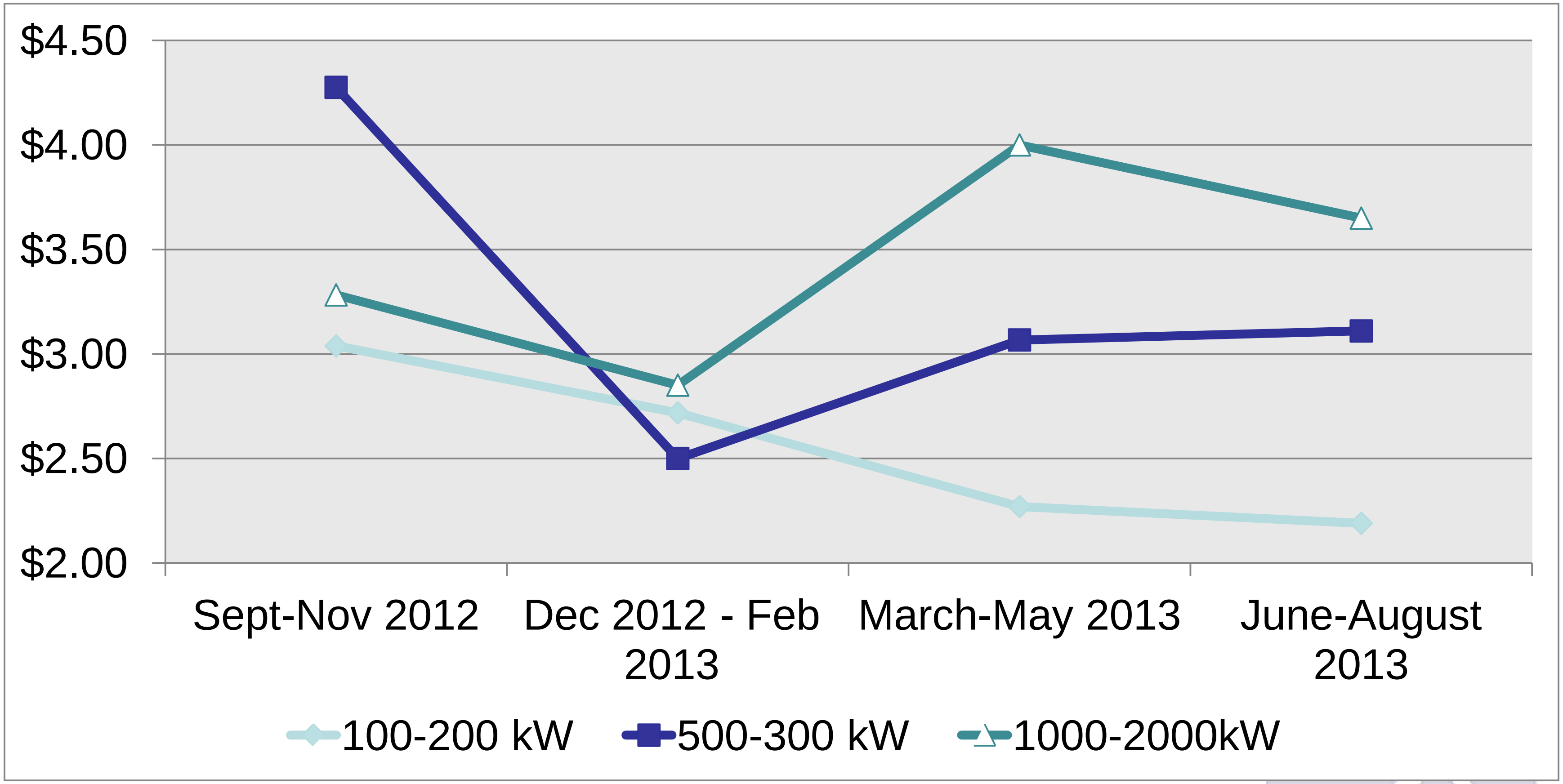
Mass SREC Database Minus 1 Standard Deviation
(Sept 2012-August 2013)



Mass SREC Database: Minimum Installed Cost in Each Bin

Mass SREC Database – Min. Installed Cost				
Size Bin (kW)	Sept-Nov 2012	Dec 2012 - Feb 2013	March-May 2013	June-August 2013
100-200kW	**$3.04**	**$2.72**	**$2.27**	**$2.19**
300-500kW	**$4.28**	**$2.50**	**$3.07**	**$3.11**
1,000-2,000kW	**$3.28**	**$2.85**	**$4.00**	**$3.65**

Mass SREC Database: Minimum Installed Cost in Each Bin



Operation & Maintenance (O&M) Cost

Sources

- 2012 NREL National PV Cost Estimates

Project Size	Fixed O&M ($/kW-year)	O&M Std Dev
<10 kW	$29	$20
10-100 kW	$26	$19
100-1000 kW	$24	$13
1-10 MW	$22	$10

- MCG experience
- SEA experience
- Stakeholder DR

Capacity Factor Comparison

Size Class	PV Watts CF	CF from 2011 - 2013	Proposed CF for 2014
50-200	14.25-14.85%	14.39%*	**14.39%**
201-499	14.25-14.85%	14.56%	**14.56%**
500+	14.25-14.85%	14.65%	**14.65%**

** Both comparing to 150kW size class from 2011*

No changes in PV Watts data since process to set 2013 Ceiling Prices.

Researched cost, O&M & financing inputs: Solar ≈ 150 kW dc (1)

Input category*

Expected Annual Average Net capacity factor, (%) DC

Proposed Input = 14.39%

2013 Input = 14.39%

Annual Production Degradation (%)

Proposed Input = 0.5%

2013 Input = 0.5%

Total installed cost ($/$kW_{DC}$), excluding Interconnection Cost

Proposed Input = $2,900

2013 Input = $3,150/kW

Interconnection cost ($)

Proposed Input = $50/kW

2013 Input = $50/kW

O&M expenses (in $/$kW_{DC}$-year) in Year 1 of operations

Proposed Input = $20/kW-yr

2013 Input = $20/kW-yr

*There was no 150kW CP for 2013. The 2013 100 kW inputs are shown here for comparison.

Researched cost, O&M & financing inputs: Solar ≈ 150 kW dc (2)

Input category*
Insurance, Yr 1, (% of total project costs or $/yr) **Proposed Input = 0.3%** **2013 Input = 0.3% of total proj. costs**
Project Management, Yr 1 ($/yr) **Proposed Input = $1,400/yr** **2013 Input= $1,400/yr**
Land Lease, Yr 1 ($/yr) **Proposed Input = $2,500/yr** **2013 Input = $2,500/yr**
Annual average escalation rate for O&M expenses (%) **Proposed Input = 3%** **2013 Input = 3%**
Royalties (% of Revenue, or $/yr) **Proposed Input = 0% (covered in lease)** **2013 Input = 0.0% (covered in lease)**
Property Taxes ($ in Yr 1 and annual adjustment factor) **Proposed Input = same methodology/mil rate as 2013** **2013 Input = yr 1 = 95% of $15/1000, basis declines by 5%/yr thereafter to floor of 30%**

*There was no 150kW CP for 2013. The 2013 100 kW inputs are shown here for comparison.

Researched cost, O&M & financing inputs: Solar ≈ 150 kW dc (3)

Input category*
Debt-to-equity ratio **Proposed Input = 50/50** **2013 Input = debt optimized to cash flow**
Debt tenor (years) **Proposed Input = 13 yrs** **2013 Input = 13 yrs**
Interest rate on debt (%) **Proposed Input = 6.0%** **2013 Input = 6.5%**
Lender's Fee (% of loan amt) **Proposed Input = included in cap. cost** **2013 Input = included in cap. cost**
Avg. Debt Service Coverage Ratio Target **Proposed Input = 1.40** **2013 Input = 1.40**
After Tax Return on Equity (e.g. IRR) (%) **Proposed Input = 10%** **2013 Input =12%**
Decommissioning Reserve? **Proposed Input = $0** **2013 Input = $0 (= salvage value)**

*There was no 150kW CP for 2013. The 2013 100 kW inputs are shown here for comparison.

Researched cost, O&M and financing inputs: Solar ≈ 400 kW dc (1)

Input category
Expected Annual Avg. Net c.f. (%) **Proposed Input = 14.56%** **2013 Input = 14.56%**
Annual Production Degradation (%) **Proposed Input = 0.5%** **2013 Input = 0.5%**
Total installed cost ($/kW$_{DC}$), excluding Interconnection Cost **Proposed Input = $2,550/kW** **2013 Input = $2,650/kW**
Interconnection cost ($) **Proposed Input = $200/kW** **2013 Input = $300/kW**
O&M expenses (in $/kW$_{DC}$-year) in Year 1 of operations **Proposed Input = $20/kW-yr** **2013 Input = $20/kW-yr**

*There was no 400kW CP for 2013. The 2013 500 kW inputs are shown here for comparison.

Researched cost, O&M and financing inputs: Solar ≈ 400 kW dc (2)

Input category
Insurance, Yr 1, (% of total project costs or $/yr) **Proposed Input = 0.3%** **2013 Input = 0.3% of total proj. costs**
Project Management, Yr 1 ($/yr) **Proposed Input = $6,500** **2013 Input= $6,500/yr**
Land Lease, Yr 1 ($/yr) **Proposed Input = $10,000** **2013 Input = $15,000**
Annual avg. escalation rate for O&M expenses (%) **Proposed Input = 3%** **2013 Input = 3%**
Royalties (% of Revenue, or $/yr) **Proposed Input = 0%** **2013 Input = 0.0% (covered in lease)**
Property Taxes ($ in Yr 1 and annual adjustment factor) **Proposed Input = same methodology/mil rate as 2013** **2013 Input = yr 1 = 95% of $15/1000, basis declines by 5%/yr thereafter to floor of 30%**

*There was no 400kW CP for 2013. The 2013 500 kW inputs are shown here for comparison.

Researched cost, O&M and financing inputs: Solar ≈ 400 kW dc (3)

Input category
Debt-to-equity ratio **Proposed Input = 50/50** **2013 Input = debt optimized to cash flow**
Debt tenor (years) **Proposed Input = 13 yrs** **2013 Input = 13 yrs**
Interest rate on debt (%) **Proposed Input = 5.5%** **2013 Input = 6.0%**
Lender's Fee (% of loan amt) **Proposed Input = included in cap. cost** **2013 Input = included in cap. cost**
Avg. Debt Service Coverage Ratio Target **Proposed Input = 1.35** **2013 Input = 1.35**
After Tax Return on Equity (e.g. IRR) (%) **Proposed Input = 10%** **2013 Input = 11%**
Decommissioning Reserve? **Proposed Input = $0** **2013 Input = $0 (= salvage value)**

*There was no 400kW CP for 2013. The 2013 500 kW inputs are shown here for comparison.

Researched cost, O&M and financing inputs: Solar ≈ 1,500 kW dc (1)

Input category
Expected Annual Avg. Net capacity factor, (%) **Proposed Input = 14.65%** **2013 Input = 14.65%**
Annual Production Degradation (%) **Proposed Input = 0.5%** **2013 Input = 0.5%**
Total installed cost ($/kW$_{DC}$), excluding Interconnection Cost **Proposed Input = $2,350/kW** **2013 Input = $2,550/kW**
Interconnection cost ($) **Proposed Input = $150/kW** **2013 Input = $150/kW**

Researched cost, O&M and financing inputs: Solar ≈ 1,500 kW dc (2)

Input category
O&M expenses (in $/kW$_{DC}$-year) in Yr 1 of operations **Proposed Input = $15/kW-yr** **2013 Input = $15/kW-yr**
Insurance, Yr 1, (% of total project costs or $/yr) **Proposed Input = 0.25%** **2013 Input = 0.25%**
Project Management, Yr 1 ($/yr) **Proposed Input = $10,000** **2013 Input= $10,000**
Land Lease, Yr 1 ($/yr) **Proposed Input = $30,000** **2013 Input = $34,500 to reflect tax on underlying land**

Researched cost, O&M and financing inputs: Solar ≈ 1,500 kW dc (3)

Input category
Annual average escalation rate for O&M expenses (%) **Proposed Input = 3%** **2013 Input** = **3%**
Royalties (% of Revenue, or $/yr) **Proposed Input = 0%** **2013 Input = 0.0% (covered in lease)**
Property Taxes ($ in Yr 1 and annual adjustment factor) **Proposed Input = same methodology/mil rate as 2013** **2013 Input = 95% of $15/1000, basis declines by 5%/yr thereafter to floor of 30%**
Debt-to-equity ratio **Proposed Input = 50/50** **2013 Input = debt optimized to cash flow**
Debt tenor (years) **Proposed Input = 13 yrs** **2013 Input** = **13 yrs**;

Researched cost, O&M and financing inputs: Solar ≈ 1,500 kW dc (4)

Input category
Interest rate on debt (%) **Proposed Input = 5%** **2013 Input = 5.5%**
Lender's Fee (% of loan amt) **Proposed Input = included in cap. cost** **2013 Input = included in cap. cost**
Avg. Debt Service Coverage Ratio **Proposed Input = 1.35** **2013 Input = 1.35**
After Tax Return on Equity (e.g. IRR) (%) **Proposed Input = 10%** **2013 Input =12%**
Decommissioning Reserve? **Proposed Input = $200,000** **2013 Input = $200,000**

Details, Sources

Capital Cost, Installed (Includes soft costs & construction financing; excludes Interconnection)

- Stakeholder Data Requests
- Interviews

Costs embedded in total installed cost estimates include:

***Soft Costs**: development, permitting, engineering costs, as well as interest incurred during construction, the initial funding of all required reserve accounts, financing closing costs, and lender fees (if applicable)*

O&M

- Stakeholder Data Requests

Interconnection

- National Grid (anticipated)
- Stakeholder Data Requests

Finance Structure, Cost of Debt/Equity

- Stakeholder Data Request
- SEA Experience

Performance

- No changes from 2013 CP process

Incentives

- Federal Investment Tax Credit (ITC) assumed available to all solar projects operational on or before 12/31/2016.
- Ceiling prices evaluated with and without 50% Bonus Depreciation
- Ceiling prices evaluated assuming 80% monetization of federal ITC
- Benefit of Net Operating Loss at state level assessed both as generated and carry-forward. Proposed ceiling prices are an average of these two results.
- No federal, state, local or other grants assumed.

Additional Assumptions

- COD achieved in 2014
- Project Useful Life: 25 years
- 0.5%/yr production degradation
- Debt Service Coverage Ratio Target: 1.35X
- Interconn. Costs depreciated on 15-year MACRS schedule
- All other project costs:
  - 96% depreciated on 5-year MACRS
  - 2% depreciated on 15-year MACRS
  - 2% not depreciable
- Fed. Income Tax rate 35%; State rate 9%

- *Assumed NEPOOL Membership costs either covered by NGRID as lead participant, or spread over many installations and therefore negligible*
- Market value of production (assumed revenue) post-contract = 90% of sum of ***solar-weighted*** energy and capacity price forecasts from 2013 Avoided Energy Supply Cost Study and $5/REC (next slide)

Additional Assumptions:

Forecast of Market Value of Production

Project Year	Calendar Year	Time-of-Production Weighted Market Value of Production (incl. energy, capacity & RECs) (cents/kWh)
16	2029	12.13
17	2030	12.53
18	2031	12.94
19	2032	13.36
20	2033	13.79
21	2034	14.24
22	2035	14.7
23	2036	15.18
24	2037	15.67
25	2038	16.17

WIND

Est. of 15-year levelized contract: Wind

Tech., class (kW)	2013 CP w/ITC/PTC, No Bonus	Tech., class (kW)	2014 Proposed CP w/ITC/PTC + Bonus	2014 Proposed CP w/ITC/PTC, No Bonus	Net Change from 2013 w/ITC/PTC, No Bonus***	2014 Proposed CP No ITC/PTC, No Bonus
Wind, 1,000-1,500	14.80	Wind, 1,000-3,000	14.35	14.80	0%	18.70
Wind, 101 – 999	16.20	Wind, 50-999	15.95	16.20	0%	20.45
Wind, 90 – 100	24.65					

Comments

- Project Categories
  - Feedback requested reinstatement of the small wind category (based on visibility and success of 100kW turbines)
- Ceiling Prices
  - As industry has matured, market forces are playing a larger role; higher ceilings will allow for more competition without discouraging bids
  - It was suggested that late changes to the 2013 ceiling price based on PTC availability hurt participation and undermined the integrity of the stakeholder process
- Other issues
  - Stakeholders commented that the issue of property taxes has not been adequately addressed in Rhode Island. They opined that the state should develop a clear policy on how renewable energy projects should be taxed, and in the meantime, ceiling prices should reflect a worse case scenario.

Incentives

- Current Production Tax Credit (PTC) available to projects under construction as of 12/31/2013.
  - Qualifying wind projects assumed to elect the ITC in lieu of the PTC
  - For 750 kW and 1500 kW wind, ceiling prices calculated both with and without ITC
- Ceiling prices evaluated with and without 50% Bonus Depreciation
- Ceiling prices evaluated assuming 90% monetization of federal ITC
- Benefit of Net Operating Loss at state level assessed both as generated and carry-forward. Proposed ceiling prices are an average of these two results.
- No federal, state, local or other grants assumed.

Additional Assumptions

- Commercial operation achieved in 2014
- Project Useful Life: 20 years
- Average Debt Service Coverage Ratio Target: 1.35X
- Interconnection Costs depreciated on 15-year MACRS schedule
- All other project costs:
  - 96% depreciated on 5-year MACRS
  - 2% depreciated on 15-year MACRS
  - 2% not depreciable
- Federal Income Tax rate 35%; State rate 9%
- Market value of production (assumed revenue) post-contract = 90% of sum of ***wind-weighted*** energy and capacity price forecasts from 2013 Avoided Energy Supply Cost Study and $5/REC (see next slide)

Additional Assumptions:
Forecast of Market Value of Production

Project Year	Calendar Year	Time-of-Production Weighted Market Value of Production (incl. energy, capacity & RECs) (cents/kWh)
16	2029	11.01
17	2030	11.39
18	2031	11.78
19	2032	12.19
20	2033	12.61

ANAEROBIC DIGESTION

Est. of 15-year levelized contract:
Anaerobic Digestion

Tech., class (kW)	2013 CP w/ITC/PTC, No Bonus	Tech., class (kW)	2014 Proposed CP w/ITC/PTC + Bonus	2014 Proposed CP w/ITC/PTC, No Bonus	Net Change from 2013 w/ITC/PTC, No Bonus***	2014 Proposed CP No ITC/PTC, No Bonus
AD, 400 – 500	18.55	AD, 50-3,000	17.50	18.55	0%	19.35

Incentives

- Current Production Tax Credit (PTC) available to projects under construction as of 12/31/2013.
  - Anaerobic digesters eligible for 50% of face value
  - Ceiling prices calculated both with and without PTC extension.
- Ceiling prices evaluated with and without 50% Bonus Depreciation
- Ceiling prices evaluated assuming 90% monetization of federal PTC
- Benefit of Net Operating Loss at state level assessed both as generated and carry-forward. Proposed ceiling prices are an average of these two results.
- No federal, state, local or other grants assumed.

Additional Assumptions

- Commercial operation achieved in 2014
- Project Useful Life: 20 years
- Average Debt Service Coverage Ratio Target: 1.50X
- Interconnection Costs depreciated on 15-year MACRS schedule
- All other project costs:
  - 96% depreciated on 5-year MACRS
  - 2% depreciated on 15-year MACRS
  - 2% not depreciable
- Federal Income Tax rate 35%; State rate 9%
- Market value of production (assumed revenue) post-contract = 90% of sum of energy and capacity price forecasts from 2013 Avoided Energy Supply Cost Study and $5/REC (see next slide)

Additional Assumptions:
Forecast of Market Value of Production

Project Year	Calendar Year	Market Value of Production (incl. energy, capacity & RECs) (cents/kWh)
16	2029	11.35
17	2030	11.72
18	2031	12.10
19	2032	12.49
20	2033	12.90

HYDRO

Est. of 15-year levelized contract:
Hydro

Tech., class (kW)	2013 CP w/ITC/PTC, No Bonus	Tech., class (kW)	2014 Proposed CP w/ITC/PTC + Bonus	2014 Proposed CP w/ITC/PTC, No Bonus	Net Change from 2013 w/ITC/PTC, No Bonus***	2014 Proposed CP No ITC/PTC, No Bonus
Hydro 500-1,000	17.90	Hydro, 50-1,000	16.95	17.90	0%	18.60

Hydro Comments

- Consider technology longevity and front-loaded development costs when establishing DG contract term (15 yrs is too short).
  - The true value of hydro resources is out 20-30 years after the sunk costs are recovered and the project still has lots of life left.
- Hydro is extremely site specific.
  - The turbines are specifically designed and manufactured for each application/site;
  - As a result, the costs can vary widely;
  - Beyond the basic turbine and generator package, the potential civil works required to install the units typically varies considerably (again depending on the site).
- Higher permitting costs (which are all equity funded), paid over a longer period of time (time value of money) need to be considered.

Incentives

- Current Production Tax Credit (PTC) available to projects under construction as of 12/31/2013.
  - Hydro is eligible for 50% of face value
  - Ceiling prices calculated both with and without PTC extension.
- Ceiling prices evaluated with and without 50% Bonus Depreciation
- Ceiling prices evaluated assuming 90% monetization of federal PTC
- Benefit of Net Operating Loss at state level assessed both as generated and carry-forward. Proposed ceiling prices are an average of these two results.
- No federal, state, local or other grants assumed.

Additional Assumptions

- Commercial operation achieved in 2016
- Project Useful Life: 30 years
- Interconnection Costs depreciated on 15-year MACRS schedule
- All other project costs:
  - 96% depreciated on 5-year MACRS
  - 2% depreciated on 15-year MACRS
  - 2% not depreciable
- Federal Income Tax rate 35%; State rate 9%
- Market value of production (assumed revenue) post-contract = 75% of sum of energy and capacity price forecasts from 2013 Avoided Energy Supply Cost Study and $5/REC (see next slide)

Additional Assumptions:

Forecast of Market Value of Production

Project Year	Calendar Year	Market Value of Production (incl. energy, capacity & RECs) (cents/kWh)
16	2029	11.49
17	2030	11.83
18	2031	12.18
19	2032	12.54
20	2033	12.90
21	2034	13.28
22	2035	13.67
23	2036	14.07
24	2037	14.49
25	2038	14.91
26	2039	15.35
27	2040	15.80
28	2041	16.26
29	2042	16.74
30	2043	17.23

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