

Rhode Island Distributed Generation Board  
SURVEY TO INFORM 2023 PY CEILING PRICE DEVELOPMENT  
DUE DATE: Friday, July 29, 2022

**Dear Renewable Energy Industry Participants:**

**The Rhode Island Office of Energy Resources and Distributed Generation Board seek your input into the development of ceiling prices for renewable energy projects under the Renewable Energy Growth (REG) Program for the 2023 Program Year. OER and the DG Board have an obligation to submit ceiling price recommendations to the RI Public Utilities Commission intended to support viable and cost-effective projects. Receiving current information from market participants is critical to developing robust, accurate, and defensible ceiling price recommendations.**

**Given the evolution of market conditions and the experience with the DG Standard Contracts (SC) and REG programs to date, the DG Board and OER seek your feedback on several topics related to Ceiling Price development for the 2023 Program Year (beginning April 1, 2023). OER requests descriptive explanations and source materials to complement the quantitative data provided in response to the Data Request.**

**Feel free to respond to as many of the following questions as you are able. Please be specific with your comments, recommendations and sources. Use as much room as you need. You may also save your responses and come back to complete the survey at a later time if you are interrupted.**

**This survey is your primary opportunity to provide written comments and recommendations, as well as evidence to substantiate your comments and recommendations. Additional opportunities will also exist for both written comments and participation in public meetings. In general, the absence of a response to any of these questions will be treated as support for the current policy design.**

**As has been the case in prior years, the 2023 Ceiling Prices must ultimately be approved by the Rhode Island Public Utilities Commission (PUC) after thorough review and comment by the Commissioners, Commission staff and the Division of Public Utilities and Carriers, Rhode Island's official advocate for electric ratepayers. In anticipation of this review, we note that it is highly unlikely that we would incorporate suggested changes to the recommended Ceiling Prices that are not supported by substantial and credible evidence, or could be inconsistent with state laws, rules and tariffs governing the REG Program already approved by the General Assembly and/or the PUC. While we welcome the opportunity to receive and vet all stakeholder feedback, our flexibility in incorporating said stakeholder feedback is not absolute.**

**All Survey responses are voluntary and will be kept confidential in accordance with the State's Access to Public Record Act. Any information provided in response to this Survey will not be identified in relation to, or attributed to, an individual respondent in any public presentation or public document.**

**If you have any questions about how to complete this survey, please contact Jim Kennerly at [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) or (508) 665-5862 and/or Toby Armstrong at [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com) or (508) 665-5864.**

## Respondent Information

\* 1. Please provide your name and contact information:

**Name**

**Company**

**Email Address**

**Phone Number**

2. What types of projects are you involved with? You may add multiple responses.

- Small Solar (under 25 kW)
- Medium, Commercial and/or Large Solar (>25 kW-5,000 kW)
- Non-Solar (Wind, Hydroelectric, Anaerobic Digestion)

3. How do you expect recent cost pressures (e.g. inflation, supply chain issues, etc.) to impact projects proposed in Program Year 2023? Responses that are specific and quantifiable are preferred. If quantities are provided, please specify the units for each impact (e.g., \$/kW, % of costs).

Please describe in detail and substantiate with documentation to Jim Kennerly at [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and Toby Armstrong at [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com).

4. What are the most significant market changes in Rhode Island since the Summer of 2021 that should be considered in this round of Ceiling Price development for the following renewable energy classes?

Solar (<=25 kW)

Solar (>25 kW)

Solar CRDG (>25 kW)

Wind (0-5 MW)

Wind CRDG (0-5 MW)

Hydro (0-5 MW)

AD (0-5 MW)

5. In past years of the REG Ceiling Price analysis, the Total Installed Capital Cost estimates have been based on quartiles and averages obtained from databases of projects participating in state programs in MA, CT, NY, and quotes from EnergySage. However, MA now only publishes data associated with completed projects, which only allows for use of such data for projects less than or equal to 25 kW. Is there any reason for the consulting team not to use other available state data sources in Program Year 2023?

If so, please provide documentary data and evidence to substantiate your claim to Jim Kennerly at [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and Toby Armstrong at [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com).

## Small Solar Screening Question

6. Are you involved with Small Solar (under 25 kW)?

- Yes
- No (skip this section)

## Small Solar (under 25 kW) Questions

7. The table below contains the proposed 2023 Ceiling Price analysis financing assumptions for Small Solar projects.

	Small I (1-15 kW)		Small II (15-25 kW)	
	2022 Final	2023 Proposed	2022 Final	2023 Proposed
Federal Investment Tax Credit (%)	26%	22%	26%	22%
% Debt	60%	60%	50%	50%
Debt Term (years)	13	13	10	10
Interest Rate on Term Debt	6.3%	8.4%	7.0%	9.1%
Lender's Fee (% of total borrowing)	4.25%	4.25%	2.3%	2.3%
Target After-Tax Equity IRR	7%	6%	12.5%	11.5%

NOTE #1: The after-tax equity IRRs shown above reflect a levered value (i.e., the project's net return after paying its debt obligations), to ensure consistency with the inputs to the Cost of Renewable Energy Spreadsheet Tool (CREST) model used to calculate the Ceiling Prices.

NOTE #2: These values are subject to change based on further evidence, research, analysis and stakeholder feedback.

If you believe any of the above inputs should be changed, please enter in your recommended input into the boxes below. For any input that you believe to be reasonable (should remain unchanged), please leave the text box blank.

For assumptions that you think should be revised, please provide more reasonable costs, supported by documentation to [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com).

**Any responses that are not provided in units consistent with units utilized in the table above will not be accepted.**

Small I - % Debt	<input type="text"/>
Small I - Debt Term	<input type="text"/>
Small I - Interest Rate on Term Debt	<input type="text"/>
Small I - Lender's Fee	<input type="text"/>
Small I - Target After-Tax Equity IRR	<input type="text"/>
Small II - % Debt	<input type="text"/>

Small II - Debt Term

Small II - Interest Rate  
on Term Debt

Small II - Lender's Fee

Small II - Target After-  
Tax Equity IRR

8. Copied below are the solar cost and production modeling inputs used in the approved 2022 Ceiling Prices calculations for Small Solar projects. Please reference the table as you answer the questions below.

	Small I	Small II
Nameplate Capacity (kW)	5.8	25
Fixed O&M (\$/kW-yr)	\$29	\$24
O&M Escalation Factor	2.0%	2.0%
Non-O&M Escalation %	2.0%	2.0%
Insurance (% of Cost)	0.0%	0.0%
Project Management (\$/yr)	\$0	\$0
Site Lease (\$/yr)	\$0	\$0

If you believe any of the above inputs should be changed, please enter in your recommended input into the boxes below. **Please specify if the change would apply to Small Solar I, II, or both.** For any input that you believe to be reasonable (should remain unchanged), please leave the text box blank.

For assumptions that you disagree with, please provide more reasonable costs, supported by documentation to [jkennery@seadvantage.com](mailto:jkennery@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com).

**Any responses that are not provided in units consistent with units utilized the table above will not be accepted.**

Fixed O&M	<input type="text"/>
O&M Escalation Factor	<input type="text"/>
Non-O&M Escalation Factor (e.g., site lease, insurance, project mgmt, etc)	<input type="text"/>
Insurance (% of cost)	<input type="text"/>
Project mgmt (\$/yr)	<input type="text"/>
Site Lease (\$/yr)	<input type="text"/>



9. What percentage of your firm's REG program customers choose a lease arrangement in which your firm (or another firm) owns and operates the solar PV system on their behalf?

10. What percentage of your firm's REG program customers choose a power purchase agreement (PPA) arrangement in which your firm (or another firm) owns and operates the solar PV system on their behalf?

11. What percentage of your firm's REG program customers choose to purchase their own solar PV system, regardless of whether the purchase is with cash, or financed with a loan or other line of credit?

12. What percentage of your firm's REG program customers are either of low or moderate income (defined herein as 120% of area median income?)

13. In your experience, what is the market share (% of total) in Rhode Island of customers financing a 1-15 kW system purchase with:

Home equity loans/lines of credit

Specially-designed solar loans

Cash

Other debt (please specify)

14. What is the typical duration (in years) of home equity loans in Rhode Island for systems 1-15 kW?

15. What is the typical duration (in years) of solar loans in Rhode Island for systems 1-15 kW?

16. What are the typical interest rates (in percentage terms) for home equity loans in Rhode Island for systems 1-15 kW?

17. What are typical interest rates for solar loans in Rhode Island for systems 1-15 kW?

18. What are the total fees (expressed as a percentage of the total loan amount) typically charged by the lender to a solar PV system 1-15 kW?

19. Are lender fees usually accounted for separately from the loan principal, or are they rolled into the principal itself?

- Accounted For Separately
- Rolled into Principal
- Other (please specify)

20. What percentage of projects from 15-25 kW are:

Purchased 100% with cash

Financed 100% with debt

A mix of cash and debt

21. For customers utilizing a mix of cash and debt, what percentage of cash is typical?

22. What kind of debt do 15-25 kW projects usually utilize? What are typical durations (in years), interest rates, and fees associated with this debt?

Type of debt:

Typical Duration:

Typical Interest Rates:

Fees:

23. Has the recent Antidumping and Countervailing Duties (AD/CVD) investigation by the Department of Commerce into solar panels from southeast Asia, and actions by the Biden Administration to exempt panels from retroactive tariffs, impacted your expected project costs? Responses that are specific and quantifiable are preferred. If quantities are provided, please specify the units for each impact (e.g., \$/kW, % of total capital expenditure).

If so, please be specific and feel free to provide documentary data and evidence to substantiate your claim to Jim Kennerly at [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and Toby Armstrong at [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com).

24. What is your current expected lead time for solar panel procurement for projects that would participate in the 2023 REG program year (e.g. already obtained in 2021, already obtained in 2022, to be obtained in 2023, etc)

25. Will the recently enacted [An Act Relating to Public Utilities and Carriers - Residential Solar Energy Disclosure And Homeowners Bill Of Rights Act](#) have a material impact on Small Solar project costs?

If so, please be specific and feel free to provide documentary data and evidence to substantiate your claim to Jim Kennerly at [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and Toby Armstrong at [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com).

26. If available, please estimate the percentage breakdown of annual household income for your customers (taken from TY 2022 federal income tax brackets for married, filing jointly):

\$0 - \$41,775	<input type="text"/>
\$20,551 - \$83,550	<input type="text"/>
\$83,550 - \$178,150	<input type="text"/>
\$178,151 - \$340,100	<input type="text"/>
\$340,101 - \$431,900	<input type="text"/>
\$431,901 or more	<input type="text"/>

27. Have there been other market changes not previously addressed in this survey (i.e. other than inflation, supply chain, AD/CVD investigation) that may impact project costs that you wish to highlight?

## Solar >25 kW Screening Question

28. Are you involved with solar over 25 kW?

- Yes
- No (skip section)

## Solar Projects Greater than or Equal to 25 kW: Capital Cost, Operating Cost & Financing Assumptions

29. Copied below are the solar cost and production modeling inputs used in the approved 2022 Ceiling Prices calculations for Solar projects 25 kW and above. Please reference the table as you answer the questions below.

	Medium	Comm'l I	Comm'l I (CRDG)	Comm'l II	Comm'l II (CRDG)	Large	Large CRDG
Nameplate Capacity (kW)	250	500	500	1,000	1,000	5,000	5,000
Fixed O&M (\$/kW-yr)	\$14.57	\$12.03	\$34.03	\$12.03	\$34.03	\$8.00	\$30.00
O&M Escalation Factor	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Non-O&M Escalation %	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Insurance (% of Cost)	0.34%	0.57%	0.57%	0.57%	0.57%	0.57%	0.57%
Project Management (\$/yr)	\$3,000	\$4,000	\$4,000	\$4,000	\$4,000	\$20,000	\$20,000
Site Lease (\$/yr)	\$15,000	\$20,000	\$20,000	\$20,000	\$20,000	\$67,500	\$67,500

O&M costs should reflect all fixed and variable expenses associated with project operations, EXCEPT annual expenses for insurance, property taxes, land leases, royalties, and project management.

If you believe any of the aforementioned inputs should be changed, please enter in your recommended input into the boxes below. **For each recommended change, note which project categories (e.g., Medium) the change should apply to.** For any input that you believe to be reasonable (should remain unchanged), please leave the text box blank.

For assumptions that you think should be changed, please provide more reasonable costs, supported by documentation to [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com) (such as a properly-redacted quote or contract for O&M services).

**Any responses that are not provided in units consistent with units utilized in the table above will not be accepted.**

Fixed O&M

Project Management

Site Lease

30. What is the average costs for insurance for these projects as a percentage of original cost?

Please provide redacted premium quotes and / or billing information to support the cost information provided - which can be emailed to [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com)

Medium (25-250 kW)

Commercial (251 kW - 999 kW)

Large (1-5 MW)

31. Is this average insurance cost different for ground mounted systems vs rooftop systems? If so, please provide an average cost for each configuration and specify which renewable energy class you are referring to (e.g., Medium, Commercial, Large).

Please provide redacted premium quotes and / or billing information to support the cost information provided - which can be emailed to [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com)

Ground-mounted

Rooftop

32. What is the average O&M escalation factor for these projects?

Please provide redacted quotes and / or billing information to support the cost information provided - which can be emailed to [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com)

Medium (25-250 kW)

Commercial (251 kW - 999 kW)

Large (1-5 MW)

33. What is the average Non-O&M Operating Expense (e.g., insurance, project mgmt, land lease etc) escalation factor for these projects?

Please provide redacted quotes and / or billing information to support the cost information provided - which can be emailed to [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com)

Medium (25-250 kW)

Commercial (251 kW - 999 kW)

Large (1-5 MW)

34. The table below shows our proposed 2023 RI REG financing assumptions for Non-Small Solar projects.

Assumption Set	Medium (25-250 kW)		Comm'l & Comm'l CRDG (251-999 kW)		Large & Large CRDG (1 MW-5 MW)	
	2022 Final	2023 Proposed	2022 Final	2023 Proposed	2022 Final	2023 Proposed
Federal Investment Tax Credit (%)	26%	22%	26%	22%	26%	22%
% Debt	55%	55%	55%	55%	53%	53%
Debt Term (years)	15	15	15	15	15	15
Interest Rate on Term Debt	6.6%	8.7%	5.85%	7.95%	5.85%	7.95%
Lender's Fee (% of total borrowing)	1.0%	1.0%	1.0%	1.0%	2.0%	2.0%
% Equity Share of Sponsor Equity	25%	40%	25%	40%	25%	40%
Target After-Tax Equity IRR (Sponsor Equity, Levered Return)	13.0%	12.0%	12.0%	12.0%	11.0%	11.0%
% Equity Share of Tax Equity	75%	60%	75%	60%	75%	60%
Target After-Tax Equity IRR (Tax Equity, Levered Return)	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
Depreciation Approach	5-Year MACRS	5-Year MACRS	5-Year MACRS	5-Year MACRS	5-Year MACRS	5-Year MACRS

NOTE #1: The after-tax equity IRRs shown above reflect a levered value (i.e., the project's net return after paying its debt obligations), in order to ensure fidelity with the inputs to the Cost of Renewable Energy Spreadsheet Tool (CREST) model used to calculate the Ceiling Prices.

NOTE #2: These values are subject to change based on further evidence, research, analysis and stakeholder feedback.

Are there any proposed 2022 Solar REG assumptions that you find to be outside the normal range? If so, please identify them and propose an alternative assumption. **For each recommendation, state which category of projects (e.g., Medium) it should apply to.**

**Any responses that are not provided in units consistent with units utilized in the table above will not be accepted.**

% Debt	<input type="text"/>
Debt Term (years)	<input type="text"/>
Interest Rate on Term Debt	<input type="text"/>
Lender's Fee (% of total borrowing)	<input type="text"/>
% Equity Share of Sponsor Equity	<input type="text"/>
Target After-Tax Equity IRR (Sponsor Equity, Levered Return)	<input type="text"/>
% Equity Share of Tax Equity	<input type="text"/>
Target After-Tax Equity IRR (Tax Equity, Levered Return)	<input type="text"/>



Depreciation Approach

35. For Solar projects, we currently assume that only the most creditworthy borrowers are eligible for loan terms beyond 15 years, and therefore modeling a loan term over 15 years would not accurately reflect a value that is appropriate to the market as a whole. Do you agree or disagree with this assumption?

If you do not agree, please explain what debt term we should assume instead as a reasonable proxy for the market as a whole.

- Agree
- Disagree (please specify)

36. We currently assume (based on previous market participant feedback) that competition and market conditions have applied downward pressure to sponsor equity returns for Solar projects in recent years, and that these conditions have (and will continue) to assert themselves as the COVID-19 pandemic subsides. If you do not agree with this assumption, please compare sponsor equity target returns between 2021 and 2022 with expected sponsor equity target returns for Program Year 2023 and provide the source or other basis for your comparison.

37. We also currently assume (based on previous market participant feedback) that tax equity investors in Solar projects continue to lack the tax capacity to elect 100% bonus depreciation and continue to utilize the five-year schedule of the Modified Accelerated Cost Recovery System (MACRS) for depreciation. Would you agree with this assumption? Why or why not? If you do not agree, please explain what we should assume instead.

38. What percentage of projects that you encounter have investors that are not able to fully leverage both 5-year MACRS and the federal Investment Tax Credit (ITC) in the year that said benefits are generated?

5-year MACRS

ITC

39. Has the recent Antidumping and Countervailing Duties (AD/CVD) investigation by the Department of Commerce into solar panels from southeast Asia, and actions by the Biden Administration to exempt panels from retroactive tariffs, impacted your expected project costs? Responses that are specific and quantifiable are preferred. If quantities are provided, please specify the units for each impact (e.g., \$/kW, % of total capital expenditure).

If so, please be specific and feel free to provide documentary data and evidence to substantiate your claim to Jim Kennerly at [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and Toby Armstrong at [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com).

40. What is your current expected lead time for solar panel procurement for projects that would be bid into the 2023 REG program year, from the date of bids being placed (e.g. obtained one year prior to bid placement, obtained less than six months prior to bid placement, obtained six months after bid placement, etc)

41. Will the recently enacted [Act Relating To Public Utilities And Carriers — Labor Standards In Renewable Energy Projects](#) have a material impact on Non-Small Solar project costs?

If so, please be specific and feel free to provide documentary data and evidence to substantiate your claim to Jim Kennerly at [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and Toby Armstrong at [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com).

42. If the labor standards law will have an impact please estimate the incremental impact (over existing electrician requirements), on a \$/kWDC basis, for a covered project.

43. Please indicate what percentage of your company's projects utilized private or union-associated licensed electricians for services performed supporting the installation solar Renewable Energy Growth systems over 25 kW DC between 2016-2021.

44. Have there been other market changes not previously addressed in this survey (i.e. other than inflation, supply chain, AD/CVD investigation) that may impact project costs that you wish to highlight?

45. In your experience, are the costs of developing a solar project on forested land materially different if the forest is fragmented vs non fragmented?

- Yes - Costs are higher for development on more-fragmented forests
- Yes - Costs are higher for development on less-fragmented forests
- No - Costs are the same
- Unsure

46. If costs of development on fragmented or non fragmented forests are different, please provide which cost components (e.g., CAPEX, OPEX, land lease costs etc.) are impacted and provide an estimate of the cost differential. Please note which units your estimate is provided in (e.g., \$/kWh, \$/year etc.)

## Questions Regarding Returns to Scale for Solar Projects >25 kW

47. It is well known that as the system scale of a solar PV project increases, the unit costs decline with increasing returns to scale. In the text boxes below, please note **the point(s) within between 25 kW and 5000 kW** that capital and operating costs begin to drop (on a unit basis) resulting from increasing returns to project scale. Please notes as many points as you feel accurately reflects inflection points for project economics, but no more than five for each cost category (Please also note, as applicable, if any of these costs do not substantially decline with increased system scale within this size range).

Upfront Capital Costs -  
Inflection point 1

Upfront Capital Costs -  
Inflection point 2

Upfront Capital Costs -  
Inflection point 3

Upfront Capital Costs -  
Inflection point 4

Upfront Capital Costs -  
Inflection point 5

Non-Capital Operating  
Costs - Inflection point  
1

Non-Capital Operating  
Costs - Inflection point  
2

Non-Capital Operating  
Costs - Inflection point  
3

Non-Capital Operating  
Costs - Inflection point  
4

Non-Capital Operating  
Costs - Inflection point  
5

## Solar Projects Greater than or Equal to 25 kW: Post-Tariff Assumptions

48. When your firm is evaluating the overall economics of a potential projects to bid into Renewable Energy Growth program Open Enrollments, what do you see as your principal sources of revenue following the expiration of the REG tariff term? Note, under current law, Net Metering is not available for projects participating in the REG program. Please indicate how much, in \$/MWh, you expect to receive (and include in your pro forma) from these sources of revenue from the end of the tariff term until the end of the project's expected useful life.

Capacity (\$/MWh)

RECs (\$/MWh)

Energy (\$/MWh)

Ancillary Serv.  
(\$/MWh)

Other - please specify  
(\$/MWh)

49. If you assume zero value for these assets after the tariff term, please explain the rationale for this?

50. When sizing the inverter for projects you submit into the REG program, what DC-AC ratio range do you typically employ? Please explain your reasoning for this DC-AC sizing ratio.

Medium Solar (25-250  
kW)

Commercial Solar  
(251-999 kW)

Large Solar (1-5 MW)

51. Do you plan to replace your project's inverter?

Yes

No

52. **(if yes to inverter replacement)** Please indicate the year in which you assume that you will replace your project's inverter (e.g., year 10)

53. **(if yes to inverter replacement)** How much do you expect an inverter replacement to cost (in \$/kW) in the year specified above?

54. **(if yes to inverter replacement)** Would you consider replacing the project's inverter with a smaller inverter?

Yes

No

55. **(if yes to inverter replacement)** To what DC-AC ratio would you consider sizing your inverter to, upon replacement of the inverter? Please explain your reasoning for over-sizing the project's output to its inverter.

Medium (25-250 kW)

Commercial (251-999 kW)

Large (1-5 MW)

56. When your firm seeks financing for projects you bid into Renewable Energy Growth program Open Enrollments, how long (in years) do you assume projects will operate prior to their decommissioning?

## Non-Solar Screening Question

57. Are you involved with non-solar projects (Hydro, Wind, AD)

- Yes
- No (skip section)

## Non-Solar (Hydro, Wind, AD)

58. What Non-Solar technology type do you develop (you may select multiple answers)?

- Wind 0-5 MW
- Hydroelectric 0-5 MW
- Anaerobic Digestion 0-5 MW

59. Copied below are the non-solar cost and production modeling inputs used in the approved 2022 Ceiling Prices calculations for Wind, Hydroelectric, and Anaerobic Digestion projects. Please reference the table as you answer the questions below.

	Wind	Large Wind - CRDG	Hydroelectric	Anaerobic Digestion
Nameplate Capacity (kW)	3,000	3,000	500	725
Fixed O&M (\$/kW-yr)	\$26.50	\$48.50	\$2.00	\$600
O&M Inflation	2.0%	2.0%	2.0%	2.0%
Insurance (% of Cost)	0.29%	0.29%	4.0%	1.5%
Project Management (\$/yr)	\$18,000	\$18,000	\$3,000	\$75,000
Site Lease (\$/yr)	\$162,000	\$162,000	\$8,750	\$35,000

If you believe any of the aforementioned inputs should be changed, please enter in your recommended input into the boxes below. **For each recommended change, note which project categories (e.g., Hydro) the change should apply to.** For any input that you believe to be reasonable (should remain unchanged), please leave the text box blank.

For assumptions that you think should be changed, please provide more reasonable costs, supported by documentation to [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com) (such as a properly-redacted quote or contract for O&M services).

Note that we are not asking for feedback on total cost inputs, as they are derived from an analysis of recent installed cost data.



**Any responses that are not provided in units consistent with units utilized in the table above will not be accepted.**

Nameplate Capacity (e.g., typical sized project modeled for the category)	<input type="text"/>
Capacity Factor	<input type="text"/>
Annual Degradation	<input type="text"/>
Fixed O&M	<input type="text"/>
Project Management	<input type="text"/>
Site Lease	<input type="text"/>

60. What is the average costs for insurance for these projects as a percentage of original cost?

Please provide redacted premium quotes and / or billing information to support the cost information provided - which can be emailed to [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com)

Hydro	<input type="text"/>
Wind	<input type="text"/>
AD	<input type="text"/>

61. What is the average O&M escalation factor for the following project types?

Please provide redacted premium quotes and / or billing information to support the cost information provided - which can be emailed to [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com)

Hydro	<input type="text"/>
Wind	<input type="text"/>
AD	<input type="text"/>

62. What is the average Non-O&M Escalation Factor (e.g., site lease, insurance, project mgmt, etc) for the following project types?

Please provide redacted premium quotes and / or billing information to support the cost information provided - which can be emailed to [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com)

Hydro	<input type="text"/>
Wind	<input type="text"/>
AD	<input type="text"/>

63. The table below shows our proposed 2023 RI REG financing assumptions for Non-Solar projects.

Assumption Set	Wind & Wind CRDG		Hydroelectric		Anaerobic Digestion	
	2022 Final	2023 Preliminary	2022 Final	2023 Preliminary	2022 Final	2023 Preliminary
Federal Investment Tax Credit	0%	0%	0%	0%	0%	0%
% Debt	60%	60%	70%	70%	45%	45%
Debt Term (years)	15	15	20	20	15	15
Interest Rate on Term Debt	6.6%	8.6%	7.15%	9.15%	6.85%	8.85%
Lender's Fee (% of total borrowing)	1.0%	1.0%	1.88%	1.88%	1.5%	1.5%
% Equity Share of Sponsor Equity	60%	60%	80%	80%	60%	60%
Target After-Tax Equity IRR (Sponsor Equity, Levered Return)	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
% Equity Share of Tax Equity	40%	40%	20%	20%	40%	40%
Target After-Tax Equity IRR (Tax Equity, Levered Return)	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
Depreciation	Average of 100% bonus and 5-Year MACRS	Average of 100% bonus and 5-Year MACRS	7-year MACRS	7-year MACRS	5-year MACRS	5-year MACRS

If you believe any of the aforementioned inputs should be changed, please enter in your recommended input into the boxes below. For each recommended change, note which project categories (e.g., Hydro) the change should apply to. For any input that you believe to be reasonable (should remain unchanged), please leave the text box blank.

For assumptions that you think should be changed, please provide more reasonable costs, supported by documentation to jkennerly@seadvantage.com and tarmstrong@seadvantage.com (such as a properly-redacted quote or contract for O&M services).

**Any responses that are not provided in units consistent with units utilized in the table above will not be accepted.**

% Debt	<input type="text"/>
Debt Term (years)	<input type="text"/>
Interest Rate on Term Debt	<input type="text"/>
Lender's Fee (% of total borrowing)	<input type="text"/>
% Equity Share of Sponsor Equity	<input type="text"/>
Target After-Tax Equity IRR (Sponsor Equity, Levered Return)	<input type="text"/>
% Equity Share of Tax Equity	<input type="text"/>
Target After-Tax Equity IRR (Tax Equity, Levered Return)	<input type="text"/>
Depreciation Approach	<input type="text"/>

64. For Non-Solar projects, we currently assume that only the most creditworthy borrowers are eligible for loan terms beyond 15 years, and therefore modeling a loan term over 15 years would not accurately reflect a value that is appropriate to the market as a whole. Do you agree or disagree with this assumption?

If you do not agree, please explain what debt term we should assume instead as a reasonable proxy for the market as a whole.

- Agree
- Disagree (please specify)

65. When your firm seeks financing for projects you bid into Renewable Energy Growth program Open Enrollments, how long do you assume projects will operate prior to their decommissioning?

66. When your firm is evaluating the overall economics of a potential projects to bid into Renewable Energy Growth program Open Enrollments, what do you see as your principal sources of revenue following the expiration of the REG tariff term?

Note, under current law, Net Metering is not available for projects participating in the REG program.

Please indicate how much, in cents/kWh, you expect to receive (and include in your pro forma) from these sources of revenue from the end of the tariff term until the end of the project's expected useful life.

Capacity (\$/MWh)	<div style="border: 1px solid black; width: 180px; height: 25px;"></div>
RECs (\$/MWh)	<div style="border: 1px solid black; width: 180px; height: 25px;"></div>
Energy (\$/MWh)	<div style="border: 1px solid black; width: 180px; height: 25px;"></div>
Ancillary Serv. (\$/MWh)	<div style="border: 1px solid black; width: 180px; height: 25px;"></div>
Other (\$/MWh)	<div style="border: 1px solid black; width: 180px; height: 25px;"></div>

67. If you assume zero value for these assets after the tariff term, please explain the rationale for this?

68. Will the recently enacted Act Relating To Public Utilities And Carriers — Labor Standards In Renewable Energy Projects have a material impact on Non-Small Solar project costs for the following technologies?

If so, please be specific and feel free to provide documentary data and evidence to substantiate your claim to Jim Kennerly at [jkennerly@seadvantage.com](mailto:jkennerly@seadvantage.com) and Toby Armstrong at [tarmstrong@seadvantage.com](mailto:tarmstrong@seadvantage.com).

Wind 0-5 MW?

Hydro 0-5 MW?

Anaerobic Digestion 0-5 MW?

69. If the labor standards law will have an impact please estimate the incremental impact (over existing electrician requirements), on a \$/kWDC basis, for a covered project.

70. Please indicate what percentage of your company's projects utilized private or union-associated licensed electricians for services performed supporting the installation non-solar Renewable Energy Growth systems between 2016-2021.