STATE OF RHODE ISLAND

DIVISION OF PUBLIC UTILITIES & CARRIERS
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January 11, 2021

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

IN RE: --Renewable Energy Growth Program for Year 2021 National Grid & RI Distributed Generation Board---Docket 5088

Dear Luly,

Please find enclosed the Pre –Filed Testimony of the Division's consultant Michael Brennan in this matter for filing with the Commission in the above-entitled matter.

I appreciate your anticipated cooperation in this matter.

Very truly yours,

Jon G. Hagopian
Deputy Chief Legal Counsel

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

The Narragansett Electric Company
d/b/a National Grid

Docket No. 5088

RE: 2021 Renewable Energy Growth Program

PREFILED DIRECT TESTIMONY OF

Michael W. Brennan, Consultant
Gregory L. Booth, PLLC
On Behalf of Rhode Island Division of Public Utilities and Carriers

January 11, 2021

Prepared by:
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On Behalf of Rhode Island Division of Public Utilities and Carriers
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Table of Contents

DIRECT TESTIMONY OF MICHAEL W. BRENNAN

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND THE BUSINESS ADDRESS OF YOUR EMPLOYER.

A. My name is Michael W. Brennan. I am engaged by Gregory L. Booth, PLLC ("Booth, PLLC"), mailing address 14460 Falls of Neuse Road, Suite 149-110, Raleigh, North Carolina 27614.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS MATTER?

A. I am testifying on behalf of the Rhode Island Division of Public Utilities and Carriers ("Division").

Q. WOULD YOU PLEASE OUTLINE YOUR EDUCATIONAL BACKGROUND?

A. I graduated from North Carolina State University in Raleigh, North Carolina in 1992 with a Bachelor of Science Degree in Civil Engineering and received a Master's in Business Administration from Wake Forest University in 2000.

Q. PLEASE BRIEFLY DESCRIBE YOUR EXPERIENCE WITH ELECTRIC UTILITIES.

A. I have worked in the electric utility industry since 2000. I was employed by Progress Energy and Duke Energy from 2000 to 2019 in a multitude of positions. Attached is my Curriculum Vitae Exhibit MWB-2. I have been actively involved in all aspects of electric utility strategic and financial planning, utility investment analysis, public policy, ratemaking, and renewable energy program management. I also have experience advising clients on energy markets and renewable energy project development.

Q. HAVE YOU PREVIOUSLY TESTIFIED AS AN EXPERT BEFORE THE RHODE ISLAND PUBLIC UTILITIES COMMISSION?

A. No.

Q. HAVE YOU PREVIOUSLY TESTIFIED AS AN EXPERT IN OTHER JURISDICTIONS?

A. No.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

A. The purpose of my testimony is to provide observations and recommendations on the following key elements of the proposed 2021 Renewable Energy Growth (RE Growth) program.

1. The recommended 2021 ceiling prices and MW allocations including observations on key inputs to the development of ceiling prices.
2. Observations on the competitiveness of the solicitation process including the recommendation to bifurcate the Commercial Class for the 2021 program year.
3. Observations regarding the appropriateness of proposed adders aimed at certain public policy objectives and recommendations to the commission regarding approval of such adders.

III. 2021 CEILING PRICES AND MW ALLOCATIONS

Q. DOES THE DIVISION SUPPORT THE PROPOSED CEILING PRICES AND MW ALLOCATIONS IN THIS DOCKET?

A. Yes, the Division believes that the recommended ceiling prices for 2021 are appropriate based on my review of the inputs used, the process used to arrive at the recommended inputs as well as my review of the model used to calculate the prices. The Division also believes that proposed allocation of MW's across Classes and Technologies are appropriate based on prior MW allocations and the need to spread these equitably across Classes and Technology, recognizing historic under/over subscription rates. The Division has a separate recommendation regarding the bifurcation of the Commercial Class presented in Section IV of my testimony. As described below, the Division recommends consideration should be given in future year proceedings to potential adjustments to certain key inputs.

Q. DOES THIS INCLUDE THE REVISIONS TO THE CEILING PRICES FILED IN JIM KENNERLY'S SUPPLEMENTAL TESTIMONY FILED ON JANUARY 8, 2021?

A. Yes.

Q. WOULD YOU BRIEFLY OUTLINE THE PROCESS WHICH LEADS TO THE DIVISION'S SUPPORT OF THE PROPOSED CEILING PRICES AND MW ALLOCATIONS IN THIS DOCKET?

A. Yes. An evaluation and analysis process was performed, including the following actions and procedures:

1) Participation in stakeholder meetings, technical sessions with the Public Utilities Commission, and meetings of the Distributed Generation ("DG") board.

2) Informal meetings with key individuals from the independent consultant responsible for developing the ceiling price recommendations (Sustainable Energy Advantage, LLC, "SEA") and personnel at National Grid to review key inputs to the ceiling price and gain better understanding of the evolution of this process over time and specifically for the 2021 recommendations.

3) Review of data requested from National Grid regarding the following: a) information related to prior year solicitations including data on projects that bid but were not enrolled, b) data on actual MW's enrolled compared to MW allocation targets, c) interconnection costs for RE Growth projects.

4) Detailed review of historical solicitation results relative to the ceiling prices and classes.

5) Review of the NREL CREST model being used by SEA to produce the final recommended ceiling prices.

6) Review of the supplemental testimony and exhibits filed by Jim Kennerly on January 8, 2021 detailing revisions to the ceiling price inputs and recommended ceiling prices driven by the enactment of the Consolidated Appropriations Act of 2020.

Q. WHAT RECOMMENDATIONS DOES THE DIVISION HAVE REGARDING THE INPUTS AND PROCESS FOR DEVELOPING CEILING PRICES IN FUTURE YEARS?

The Division recommends that the following ceiling price inputs should be explored for potential adjustments in future years:

1) Project useful life and post tariff market pricing – the Division recommends extending the useful life of projects, in particular Wind projects, which are currently modeled using a 20-year useful life. Useful lives of 25 or even potentially 30 years are appropriate for all Technology types but may be less well supported for small scale

projects. The Division also recommends a more robust process for developing post tariff market prices. While these pricing assumptions have a relatively small impact on the ceiling prices as currently modeled, alternative price forecasts may produce higher expected future values which could impact the ceiling prices more significantly, especially if longer project lives are assumed. Initial model runs utilized post tariff market prices that resulted in negative cash flows to projects after the tariff expiration (e.g., years 21-25 for solar projects). This would imply an unlikely scenario in which considerable retirement of otherwise viable solar capacity occurs, as prudent owners would shut down operations if revenues failed to cover operating costs. More likely, future market pricing would not drop below operating costs for these assets and may in fact be considerably higher than the initial forecasts used, thus allowing the projects to continue to operate beyond the 20-year term of the tariff and support enhanced post tariff economics, driving the ceiling prices lower. Potential sources for the market forecast could include the Synapse analysis of Avoided Energy Supply Costs in New England or other market forecasts, such as those provided by Wood Mackenzie or Ventyx.

2) Utilization of bonus depreciation – the Division recommends consideration be given in future years for assuming that project owners will take advantage of bonus depreciation in lieu of Modified Accelerated Cost Recovery System depreciation. Historically, the ceiling price development process has recognized that, with significant Investment Tax Credit ("ITC") driven tax credits, many project owners would not have sufficient tax appetite to be able to combine tax credits and bonus depreciation. This is not an unreasonable assumption, however, with the ITC for solar scheduled to decline in future years it would be prudent to consider include the value of bonus depreciation,

either partially or in part, for future 2022 ceiling prices calculations. It should be noted that the enactment of the Consolidated Appropriations Act of 2020 extended tax credits at current levels for solar by two years and wind and other non-solar projects by one year. As a result, the historical approach of assuming no bonus depreciation may be appropriate to continue for solar classes, however this should be reviewed in light of any other changes to tax law such as increased tax rates, which may make tax equity financing more appealing.

Q. SHOULD THE COMMISSION APPROVE THE RECOMMENDED CEILING PRICES AND MW ALLOCATIONS?

A. Yes, the Division recommends that the commission approve the recommended ceiling prices. The Division supports the overall MW allocations but recommends a unique and fixed allocation of the MW's proposed to be allocated to the Commercial class if the Commission approves the recommended bifurcation of the class. The specific recommendation is included in section IV of my testimony below.

IV. COMPETITIVENESS OF SOLICITATION PROCESS

Q. DOES THE DIVISION BELIEVE THAT THE CURRENT PROCESS RESULTS IN THE MOST COMPETITIVE BIDDING POSSIBLE, THEREFORE ACHIEVING THE LOWEST COST PORTFOLIO OF SELECTED PROJECTS?

A. While affirming the position that the ceiling prices are appropriate, the Division has concluded that the historical results of completed rounds of competitive solicitation indicates that the process may not be achieving the most competitive results possible.

Q. WHAT EVIDENCE LEADS TO THE DIVISION'S CONSLUSION REGARDING COMPETITIVENESS?

A. There are three primary observations that lead to this conclusion: 1) Clustering of bids at or very near the upper limit of the Class size range; 2) Limited evidence of relationship between project size and bid pricing; 3) Bid pricing that is very close to the ceiling price, with little variation. I will provide detailed discussion of each of these items below.

Clustering of Bids

Solar projects benefit from economies of scale meaning larger projects in general should produce output on a lower cost per kWh than smaller projects. The design of the solicitation process utilized in the RE Growth program encourages developer to submit bids for projects built at a scale that produces the lowest cost within a given range, which generally means sizing the project at the upper end of the range. The following statistics demonstrate this:

Table 1 Projects bidding at or near the top end of the capacity range for solar classes

	Medium Solar	Commercial Solar	Large Solar
Max Capacity in Range (kW)	250	999	5000
# of projects in total	116	43	23
% of projects within 10% of max capacity	72%	56%	17%

Includes all enrolled projects from 2015 through second enrollment period of 2020

This pattern is to be expected and should yield more competitive overall pricing as these larger projects, within each class, should be more competitively priced than smaller projects within the class.

Relationship between Bid Price and Project Size

Given that larger projects should have cost advantages over smaller projects, one would expect to see a general inverse relationship between size and bid price. In fact, the historical evidence from prior enrollment years up to and including the second enrollment period of 2020 shows that no such relationship exists. Exhibit MWB-1 present graphical representations of this focusing on the Medium and Commercial classes (Charts 1 and 2). For the medium solar class projects that were within 10% of the maximum capacity (72% of total projects in this class), the average bid prices were ~98% of the ceiling price. The average bid prices for smaller projects within the range was ~95% of the ceiling price. For the commercial solar class projects that were within 10% of the maximum capacity (56% of total projects in this class), the average bid prices were ~93% of the ceiling price. The average bid prices for smaller projects within the range was ~92% of the ceiling price.

A closer look at the "boundary" between classes illustrates this point more directly. The figure below shows pricing for projects enrolled in 2018, 2019 and 2020 at or near the 250 kW breakpoint between the medium and commercial class:

Figure 1 – Bid Prices Between 2018 and 2020 for Solar Projects with Capacity of ~200 kW to 300 kW

The projects clustered at the 250kW size limit for the medium class are significantly higher priced than the two bids that were submitted into the commercial class at ~255 kW and 270 kW and therefore subject to a much lower ceiling price. Recognizing that all projects have unique factors influencing the cost and expected production, and hence the required price to earn a reasonable return, it does appear that the nature of the block structure with fixed ceiling prices for each class incentivizes bidding projects at the top end of the size range and very close to the ceiling price. This likely means that these projects clustered at or near the upper end of the size range for each class will earn a higher return than may be required to support the project. It is important to note that the large solar class appears to have a more competitive landscape with a wider range of bid prices and a more distinguishable relationship between size and price (see Exhibit MWB-1, Chart 3). This class has a wider range of allowed project sizes (between 1 MW and 5 MW) and is the

largest class, and therefore does not have the same issue with projects seeking the highest possible ceiling price / size combination given the overall limitations of 5 MW for the program.

Bid Pricing Relative Ceiling Price

Overall, the pricing for most enrolled projects across all classes and technologies tends to be very close to the ceiling prices. Between 2015 and 2020, 84% of all enrolled projects were proposed at a price that was within 10% of the ceiling price. The process for developing the ceiling prices is robust and therefore one would expect that the pricing received in the competitive solicitations would be clustered near the ceiling prices each year. In fact, some projects bidding at 100% of the ceiling price may be accepting less than optimal returns in order to advance projects. That said, the propensity for projects to be clustered near the top end of the range and the lack of relationship between the project size and bid price, especially in the medium and commercial classes indicates that there may be a need to evaluate alternative approaches to the solicitation process in future years. In 2019 and 2020, there has been a considerable increase in the quantity of proposals submitted across all Classes of solar, however this has not come with a change in the patterns noted above, i.e., bids continue to be priced very near the ceiling price for both enrolled and rejected proposals and project sizes near the upper end of size limit for the commercial and medium class.

Q. HOW WILL THE PROPOSED BIFURCATION OF THE COMMERCIAL CLASS HELP ALLEVIATE THE CONCERNS NOTED ABOVE RELATED TO COMPETITIVENESS?

The proposal to bifurcate the commercial class is intended to produce more competitive pricing on the higher end of the size range for the class, between 750 kW and 999 kW by

adding a separate lower ceiling price, reflecting the benefits of economies of scale for these projects. This will be offset by potentially higher cost proposals in the lower end of the range, between 250 kW and 749 kW, where the ceiling price will be higher (the ceiling price for this lower end of the Commercial Class is ~7% higher than the ceiling price calculated for the entire Commercial Class). The goal of the proposed bifurcation is to achieve a net gain in terms of weighted average pricing across the entire commercial class by encouraging more competitive bids for larger projects. A potential issue with this approach arises because the total MW allocation for the commercial class was not split to align with the new sub-classes. The result is that the proposals that previously clustered at or near 999 kW to take advantage of the higher ceiling prices in the commercial class versus the large class may now cluster at or near 749 kW to take advantage of the higher ceiling prices on the low end of the commercial class versus the high end of the commercial class. If that is in fact the outcome, the resulting weighted average price paid for enrolled projects in the entire commercial class may be higher than it would have been absent the bifurcation of the class. In comments provided on September 29, 2020 to the stakeholder process, the Division recommended allocating fixed share of the overall commercial class to the proposed new high end (750 kW to 999 kW) of the class to ensure a reasonable split of total MW across the entire class. The Division takes the position this is the correct approach to this and recommends that the Commission order that the allocations to the commercial class include allocation of 2/3 of the capacity set aside for the entire class be earmarked for the high end, 750 kW to 999 kW end of the range. This allocation is consistent with the historic percentage of larger sized commercial projects as a percentage of total commercial projects enrolled. Chart 4 in Exhibit MWB-1 illustrates the new ceiling prices for the bifurcated Commercial Class, overlayed onto the historical chart showing the

enrolled projects as a percentage of the ceiling price. This visually illustrates the issue noted above regarding the propensity for projects to bid near the ceiling prices, when in fact relatively larger scale projects within a class may be able to earn a reasonable return at a lower price. As shown in Chart 4, the new ceiling price for the higher end of the Commercial Class is ~11% lower than the ceiling price calculated for the full range of this class.

Q. WHAT IS THE RECOMMENDATION OF THE DIVISION AS IT RELATES TO THE PROPOSED BIFURCATION OF THE COMMERCIAL CLASS?

A. The Division supports the proposed bifurcation of the commercial class into two sub-classes. As stated above, the Division strongly recommends that the overall MW allocation to the Commercial class also be divided, with 2/3 of the overall MW allocation going to the higher end of the bifurcated class (750 kW to 999 kW). The resulting allocation would be as follows:

- 250 kW to 749 kW – 3.33 MW
- 750 kW to 999 kW – 6.67 MW
- Total – 10 MW

Q. WHAT OTHER OPTIONS EXIST TO ENCOURAGE A MORE COMPETITIVE PROCESS?

A. Consideration should be given in the stakeholder process in future proceedings to encourage the most competitive bidding and lowest possible prices for renewable energy procured through the RE Growth program by making changes to the design of the procurement process. Some potential options include:

1) Eliminate MW allocations to the solar classes and/ or allow for flexibility to reallocate MW's between classes such that the resulting selections represent the most competitive overall portfolio of proposals, relative to the ceiling prices.

2) Explore the use of auctions as an alternative to the current solicitation process.

V. PUBLIC POLICY ADDERS

Q. WHAT IS THE PURPOSE OF THE PROPOSED PUBLIC POLICY ADDERS?

A. Rhode Island General Law (**§ 39-26.6-22)** allows for National Grid to propose incentive payments to achieve technical or public policy benefits that provide identifiable benefits to customers. An example of such an incentive could be to encourage preferred siting locations such as on brownfields, landfills, or carports that could displace or avoid renewable development on undisturbed greenfield sites, including forested lands, thus preserving the green space and carbon sink value associated with that land.

Q. WHAT CRITERIA SHOULD BE USED TO ASSESS THE APPROPRIATENESS OF PUBLIC POLICY ADDERS?

A. The PUC has directed National Grid and the DG board to employ the Docket 4600 methodology to analyze such incentives and base their recommendations on the results of such analysis. Specifically, the statute states that: The electric distribution company also may propose other incentive payments to achieve other technical or public policy objectives that provide identifiable benefits to customers." The Division recommends these identifiable benefits should be interpreted to mean the direct quantifiable benefits to ratepayers. The Division concludes a positive benefit to cost ratio (e.g., > 1.0), based predominantly on direct ratepayer benefits should form the basis for recommending such adders.

Q. WHAT OBSERVATIONS DOES THE DIVISION HAVE REGARDING THE APPLICATION OF THE DOCKET 4600 METHODOLOGY TO ASSESS THE APPROPRIATENESS OF THE PROPOSED CARPORT ADDER?

A. The Division believes that the application of the methodology outlined in Docket 4600 including the correct alignment of costs and benefits with the Docket 4600 Framework categories was performed appropriately. The resulting B/C ratios range from a low of 0.64 to a high of 4.05. The primary concern that the Division has relates to the inclusion of one

specific societal benefit and the basis for the quantification of this benefit and the appropriateness. That benefit relates to avoiding property value losses on residential properties. This benefit assumes that construction of greenfield ground mounted sites results in a loss in property values on adjacent properties due to adverse visual impacts and loss of green space. In contrast, a carport project constructed on an already disturbed site, would not incrementally (and negatively) impact adjacent property values. The basis for the calculation of this benefit is a September 2020 study referenced in the joint report provided by Sustainable Energy Associates and Mondre Energy, dated October 13, 2020 titled "RI Renewable Energy Growth Program 2020 Carport Adder Pilot Evaluation". This study conducted by the University of Rhode Island Cooperative Extension evaluated the impacts on property values of large-scale solar facilities (>1.0 MW).[1] The analysis has several flaws. First, the study used to support this benefit is not the only study of this issue. A 2018 study conducted by the LBJ School of Public Affairs at University of Texas Austin[2] produced results indicating no meaningful impact on residential property value due to the development of large-scale solar projects. The study notes that homes in very close proximity (within 100 feet) were potentially likely to see a reduction in value, but also notes that very few homes are located within that proximity, so this impact would be very limited. The study also noted that the presence of vegetative screening or other visual barriers can be an important factor in minimizing any impacts to property values. Second, projects proposing a carport structure do not need to be 100% carport to receive the carport adder. For example, a 1 MW project submitting a proposal in the Large Solar class could

[1] Vasundhara Gaur and Corey Lang. "Property Value Impacts of Commercial-Scale Solar Energy in Massachusetts and Rhode Island" University of Rhode Island Cooperative Extension (2020). Available at: http://works.bepress.com/corey_lang/33/

[2] "An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations"; Leila Al-Hamoodah, Kavita Koppa, Eugenie Schieve, D. Cale Reeves, Ben Hoen, Joachim Seel and Varun Rai https://emp.lbl.gov/sites/default/files/property-value_impacts_near_utility-scale_solar_installations.pdf

have a significant portion of the project located on a portion of the property that will not include a carport structure, and that portion of the project could in fact be located on currently undisturbed land. In these scenarios, the value that is claimed as a benefit associated with carports would not exist. Third, local requirements for screening and setbacks are specifically intended to alleviate issues commonly expressed related to the visual impact of a solar facility close to a residence. As noted in the University of Texas study, these measures can significantly reduce or eliminate any perceived loss in property value. Finally, both referenced studies are focused on the impacts of larger scale solar facilities (>1.0 MW for the Gaur and Land study and greater than 1.5 MW for the Koppa, et al study) and neither of these studies attempted to quantify the impacts of smaller scale (< 1 MW) projects on property values nor to compare the impact of property value losses for a solar project on a carport or other structure to value losses for a solar project on open or forested land. This calls into question the validity of extrapolating backwards to apply the conclusions of the study to facilities sized in the Medium (25 to 250 kW) and Commercial (251 to 999 kW) Classes. Furthermore, even if the results are assumed to be valid for the Large Class, it should be noted that the B/C ratio for the Large Class was only positive in the most optimistic scenario (with a B/C ratio of 1.14). A final observation is that the Gaur and Lang study, which was the basis for the calculated avoided property loss benefits, did not separately analyze groupings of larger solar facilities. A key conclusion of the Koppa study was that property value impacts were most likely to be significant with larger scale projects. In addition to the studies referenced above, the Solar Energy

Industries Association (SEIA) has a factsheet on their website referencing three other studies that have all concluded that solar farms do not negatively impact property values.[3]

Q. HOW SIGNIFICANT IS THE PROPERTY VALUE LOSS FACTOR IN THE OVERALL RESULTS OF THE BENEFIT TO COST ANALYSIS SUPPORTING THE RECOMMENDED CARPORT ADDER?

A. In all scenarios except the "low" benefits scenario the avoided property loss benefit is the largest benefit presented. The table below shows the calculated B/C ratios as presented by National Grid in the direct testimony of Ian Springsteel and Meghan McGuinness[4] with an added column showing the ratios resulting if this avoided property value loss benefit is excluded:

Benefit Scenario	Class	B/C Ratio as Presented	B/C Ratio Excluding Benefit of Avoided Property Value Losses
Low	Medium Solar	0.92	0.46
	Commercial Solar	0.83	0.48
	Large Solar	0.64	0.54
Medium	Medium Solar	1.41	0.49
	Commercial Solar	1.21	0.51
	Large Solar	0.76	0.57
High	Medium Solar	4.05	0.49
	Commercial Solar	2.66	0.74
	Large Solar	1.14	0.63

[3] https://www.seia.org/research-resources/solar-property-value#:~:text=It%20is%20a%20common%20misconception,may%20even%20have%20positive%20effects.
[4] Direct Testimony of Meghan McGuinness and Ian Springsteel as filed in Docket 5088, page 27 and 28. http://www.ripuc.ri.gov/eventsactions/docket/5088page.html

As shown above, in the absence of this avoided property loss benefit, the carport adder does not result in a positive (>1.0) B/C ratio and in fact is at or near 0.5 in most scenarios.

Q. DO THE CARPORT PROPOSALS RECEIVED IN 2020 SUPPORT THE PREMISE THAT LOWER INTERCONNECTION COSTS WILL RESULT IN LOWER BID PRICES?

A. The data set is limited as only 4 proposals have been submitted in 2020. However, as Table 3 in the SEA/ Mondre report illustrates, carport proposals have not been more competitively bid than other proposals within the class. The BC analysis suggests that the interconnection savings should produce the potential for an approximate cost advantage of ~1.1 to 1.25 cents / kWh based on the ratio of the NPV of interconnection costs to the NPV of the 5-cent adder. In fact, the carport proposals received in 2020 were only 0.08 cents lower on average than non carport proposals for the Commercial class and 0.76 cents **higher** for the Large class.

Q. DOES THE DIVISION SUPPORT THE RECOMMENDATION FOR CARPORT ADDERS IN THE 2021 PROGRAM YEAR?

A. No, the Division does not support the recommended adder for carports for 2021. This position is based on the following:

1) The BC Ratio is significantly lower than 1.0 before application of societal benefits. The Division's position is the statute requires that any incentives or adders must be based on identifiable benefits to ratepayers, with an emphasis on direct ratepayer benefits. In this case the direct, non-societal benefits are less than 50% of the incremental costs of the adder.

2) The societal benefits are overwhelmingly influenced by one factor related to avoided lost property value. The basis for this factor is not well established and because it was not yet published, was not included in the draft benefit to cost discussions at the stakeholder

meetings nor in the materials presented to the DG board. This unsupported societal benefit appears to have been added solely to achieve a positive B/C ratio. Without this benefit, the proposed adder fails to achieve a 1.0 B/C ratio in any scenario.

3) The adder was sized based on an analysis of the incremental costs associated with construction of a carport solar facility versus a greenfield ground mounted facility. The Division believes that the construction of a carport adds considerable value to a property, whether that property is host owned or leased to the solar developer/ owner. This value should provide a meaningful offset to the incremental costs of the solar carport. In other words, a portion of the incremental costs of constructing a carport solar facility would be "paid for" by the incremental value of the carport itself, thus reducing the amount of the incremental costs that need to be paid for with the adder. The analysis that was conducted to establish the level of the adder did not factor in this value of the carport itself, although benefits such as snow clearing and shelter from the elements as well as branding and host site value were identified in the SEA/ Mondre report as additional unquantified benefits. These benefits could be quantified and used to support a lower recommendation for this adder, which would in turn, improve the resulting B/C analysis results all other things equal.

Q. WHAT OBSERVATIONS DOES THE DIVISION HAVE REGARDING THE APPLICATION OF THE DOCKET 4600 METHODOLOGY TO ASSESS THE APPROPRIATENESS OF THE PROPOSED LOW- AND MODERATE INCOME ("LMI") ADDER?

A. The proposed LMI adder is a fixed 3 cents per kwhr incentive applied to Community Remote Distributed Generation ("CRDG") projects that subscribe and maintain at least 20% of the projects capacity to customers on the A-60 rate. The adder is applied only to

the kwhrs associated with those LMI customers. The proposed LMI adder was evaluated based on the following costs and benefits:

- The incremental cost of the adder applied to Commercial and Large scale CRDG projects. This adder is 3 cents per kWh. This equates to a net present value over the life of the tariff of ~$410/ kW for Large scale and ~$415/ kW for Commercial scale projects. This includes both the incentive adder itself as well as the 1.75% remuneration to National Grid.
- The benefits associated with utility cost savings associated with reduced arrearages, reduced terminations and disconnections, reduced bad debt write-offs, reduced customer calls and collections, and reduced notices. The net present value of these benefits were calculated to be ~$31/ kW for both Large and Commercial scale projects.
- The benefits accruing to the participating low-income customer in the form of the shared credit. Note these benefits represent a shift in dollars collected from all ratepayers to the participating low-income CRDG customer. The net present value of these benefits were calculated to be ~$268/ kW Large scale and $272/ kW for Commercial scale projects.
- The total benefits for Large scale projects was ~$300/ kW and when divided by the costs of $410/ kW results in a B/C ratio of 0.73. The total benefits for Commercial scale projects was ~$303/ kW and when divided by the costs of $415/ kW results in a B/C ratio of 0.73.

While this adder does not achieve a benefit to cost ratio greater than 1.0, National Grid asserts this to be a cost-effective and equitable way of expanding access to the benefits of

renewable energy for the Company's Rate A-60 customers as stated in the testimony of Meghan McGuiness and Ian Springsteel[5].

Q. DOES THE DIVISION SUPPORT THE RECOMMENDATION FOR THE LMI ADDER IN THE 2021 PROGRAM YEAR?

A. The Division does not support this adder. While the Division recognizes that there may be good public policy reasons to support an initiative that does not achieve a favorable benefit to cost result (BC ratio of at least 1.0), the Division does not believe this adder is one of them. First, there is no compelling public policy reason to support an adder that picks winners and losers among low income ratepayers when all low income ratepayers need assistance paying their bills and when all low income ratepayers will be paying for the adder through the RE Growth Factor. In addition, a substantial portion of the adder (as much as one third of the total) is earmarked for administrative costs associated with enrolling customers, providing ongoing support for the program and maintaining enrollment at the required levels. Finally, the primary source of the benefits arises from a shifting of dollars from all ratepayers who will pay for the adder to the LMI customers participating in selected CRDG projects. Effectively, the proposal is the equivalent of taking 3 cents out of the pocket of all ratepayers, giving 1 cent to the project developer/owner and returning 2 cents to a select few low-income customers. In response to PUC interrogatory 1-20, National Grid estimates that between 50 and 150 customers on the A-60 rate could be enrolled under the low income adder during the 2021 program year. This represents a small fraction of the total number of A-60 customers, around one third of one percent. The Division believes that more cost-effective approaches should be explored

[5] Direct Testimony of Meghan McGuinness and Ian Springsteel as filed in Docket 5088, page 22 through 24. http://www.ripuc.ri.gov/eventsactions/docket/5088page.html

to achieve the stated objectives of the proposed adder, namely, to encourage the development of CRDG projects that directly benefit customers on the Company's Rate A-60. This should include efforts to make this benefit available to more A-60 customers.

VI. CONCLUSION

Q. DO YOU AND THE DIVISION SUPPORT THE NATIONAL GRID FY 2021 RENEWABLE ENERGY GROWTH FILING?

A. The Division supports the proposed ceiling prices for FY 2021. The Division supports the overall MW allocations, with the caveat that if the bifurcation of the Commercial Class is approved, the Division recommends the allocation of MW's to the Commercial Class should also be split and that 66.7% of the recommended overall allocation to the Commercial Class should be directed to the 750 kW to 999 kW sub-class. The Division does not support the following proposed adders for the 2021 Renewable Energy Growth Program:

- The Solar Carport Incentive adder of 5 cents per kWh
- The Low-Income CRDG Incentive adder of 3 cents per kWh

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Exhibit MWB – 1

The following graphs illustrate bid price as a percentage of the ceiling price for projects that were enrolled in the program between 2015 and the second enrollment period of 2020 (note – Medium solar includes only 2018-2020). The dotted line in each is a best fit linear trendline.

Chart 1 Medium Scale Solar

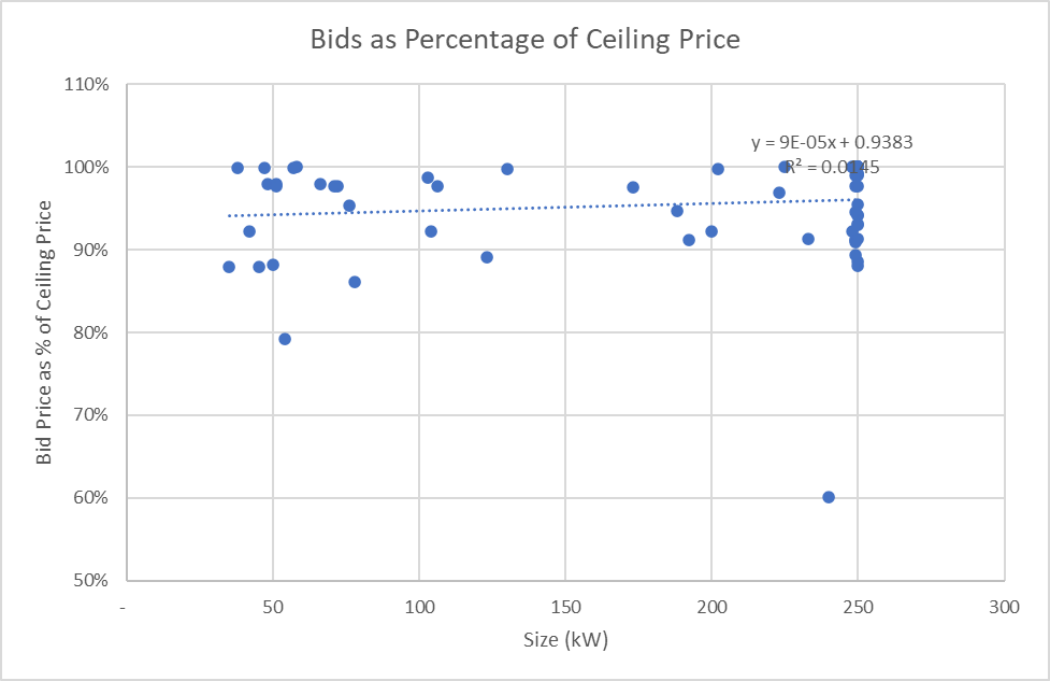


Chart 2 Commercial Scale Solar

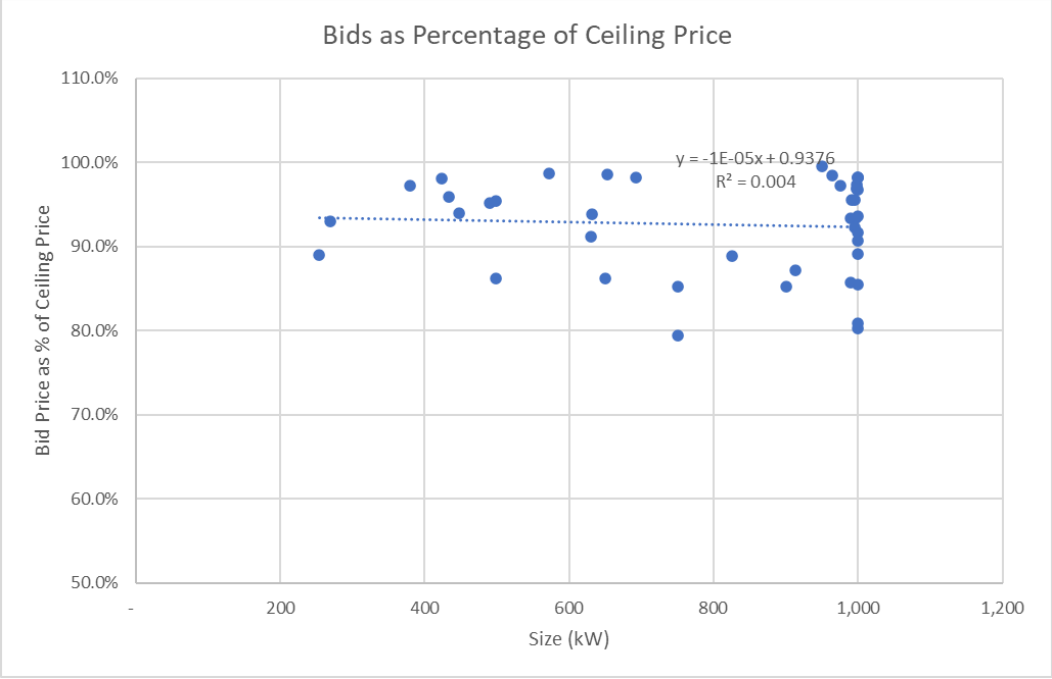


Chart 3 Large Scale Solar

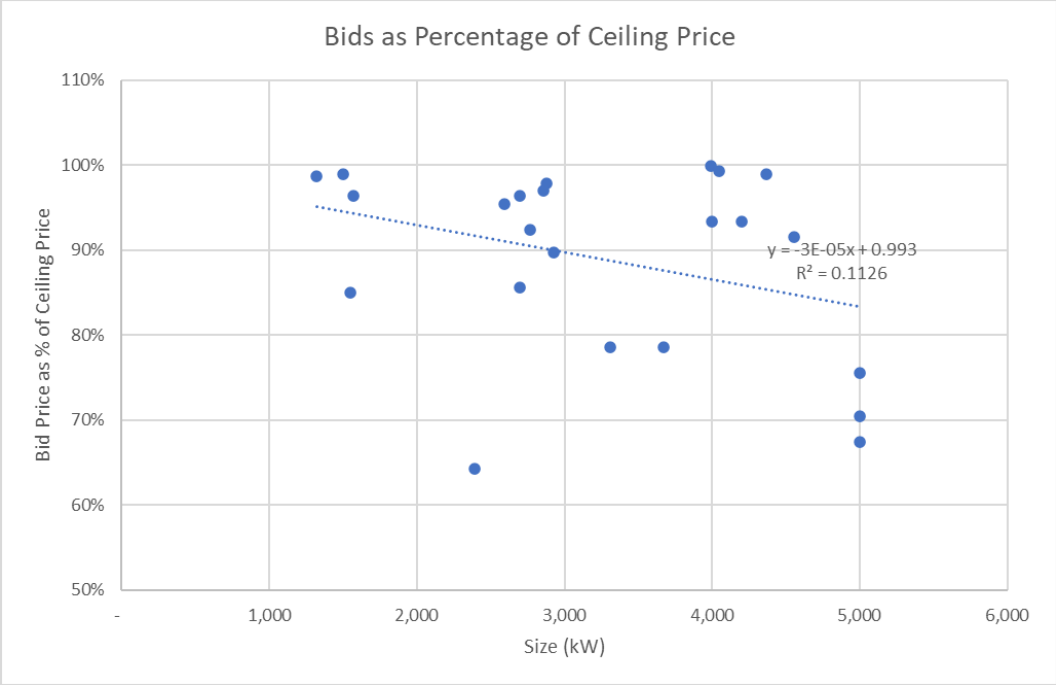
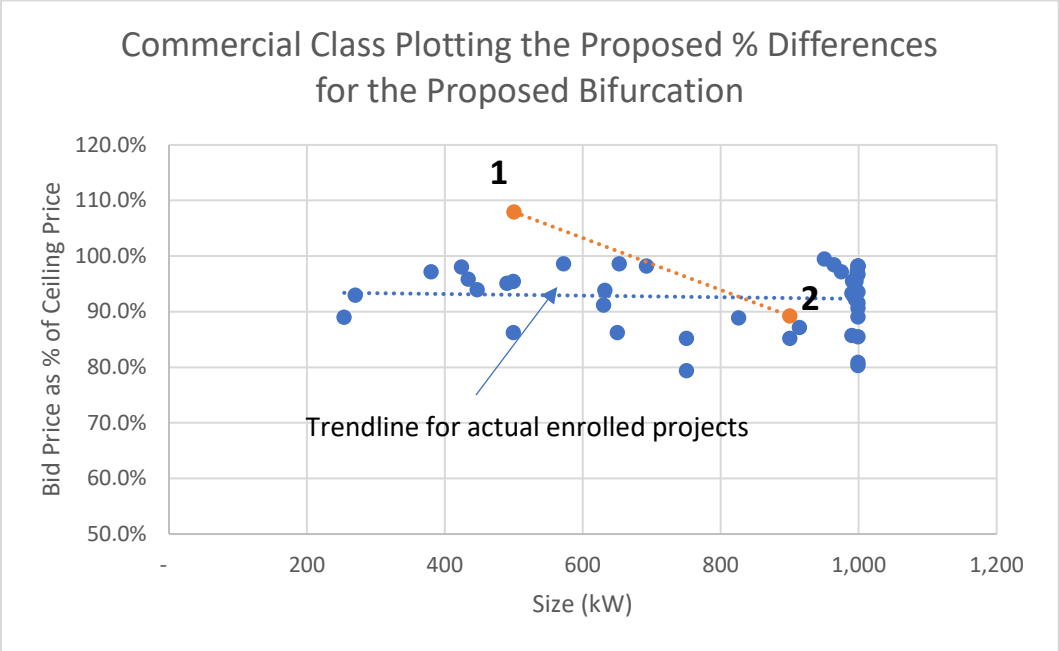


Chart 4 – Commercial Class with Overlay of Proposed New Ceiling Prices



Note – the intent of Chart 4 is to plot the proposed bifurcated ceiling prices for the Commercial Classes as a % of the ceiling price calculated for the non-bifurcated Commercial Class and contrast that with the historical enrolled proposals. Data point 1 is the proposed low end of the bifurcated Commercial Class as a percentage of the ceiling price for a single Commercial Class at the full range. Data point 2 is the proposed new high end of the bifurcated Commercial Class as a percentage of the ceiling price for a single Commercial Class at the full range. These are plotted at the kW size used in the NREL CREST model to calculate these prices.

Exhibit MWB – 2 Resume for Michael W. Brennan

Michael W. Brennan
500 N Boundary Street
Raleigh, NC 27604

Professional Experience

MW BRENNAN CONSULTING, LLC **Raleigh, NC**
Owner **May 2019 to Present**

- Consulting services on energy policy and utility regulatory activities
- Business and financial consulting for a wide range of industries and clients on business strategy, capital investment analysis, mergers and acquisitions, renewable energy projects and general business consulting

DUKE ENERGY Raleigh, NC
Renewable Compliance Manager **March 2018 to April 2019**
Responsible for development, oversight and implementation of a multi-year, 2,600 MW renewable competitive procurement program for Duke Energy Carolinas and Duke Energy Progress

- Development of program structure and guidelines including compliance with enabling statute and regulatory orders, procurement targets and schedule and proposal evaluation approach
- Regulatory filings and approvals for key documents including power purchase agreement, RFP documents and other guidance to bidders
- Key point of contact and interface with independent third party RFP administrator

Lead Wholesale Renewable Analyst **March 2017 to March 2018**
Provides deal structuring and analytic support to Duke Energy's Regulated Renewables and Distributed Energy department. Responsibilities include:

- Support of compliance activities related to NC Renewable and Energy Efficiency Portfolio Standards (REPS) including ownership and maintenance of tools to support decision making, compliance and reporting
- Analysis and pricing support for business development activities for new regulated utility products and services, investments and purchase activities for renewable and distributed energy technologies
- Development and ongoing maintenance of key Excel based analytic tools for project evaluation, rate design, and strategic analytics to support regulatory and legislative initiatives

ECO-SITE, INC. **Durham, NC**
Vice President – Finance and Administration **November 2012 to February 2017**
Lead key finance functions for a growing developer of cell towers and other wireless infrastructure. Grew this function from the formation of the company to multimillion dollar annual G&A and Capital budgets and rapidly growing revenue. Interface for company management and private equity investors on all finance, information technology and human resource related matters.

- Responsible for monthly, quarterly and annual financial close and reporting as well as the preparation and approval of the annual budget for G&A and Capital spending
- Managed commencement and ongoing financial administration of leases related to wireless infrastructure assets
- Developed a comprehensive multi-year forecasting and analytic tool for evaluation of opportunities and near and long term financial and strategic planning.
- Built all financial infrastructure for start up company including implementation of accounting system, development of chart of accounts and key financial policies and processes
- Planned and coordinated the procurement and installation of key IT infrastructure to support

growing staff and growing business needs
- Created and maintained key human resource functions including benefits programs, payroll, employee handbook, recruiting and onboarding procedures and performance management tools.

PROGRESS ENERGY **Raleigh, NC**
Director – Strategic and Financial Planning **2007 to September 2012**
Directed annual and ongoing corporate strategic planning process, financial planning process and market research function for Fortune 250 regulated electric utility company. Provided analytic and decision support for key strategic initiatives and decisions, coordinated and managed the preparation of consolidated financial forecasts/budgets and associated analysis, and planned and coordinated key strategic and financial planning meetings with CEO's senior management committee
- Led a key integration team that designed the financial planning and analysis, budgeting, strategy and M&A organizations for the new Duke Energy
- Played a key role in the analysis and due diligence associated with Progress Energy's merger with Duke Energy
- Revamped the strategic and financial planning process including improvements to subsidiary governance, enhanced interfaces with key stakeholders and more frequent and robust discussions with senior management
- In 2010, consolidated corporate strategy and financial planning and analysis functions into a single organization under my direction

Manager, Financial Analysis and Special Projects – Treasury Department **2004 to 2007**
Managed team of 6 finance professionals responsible for providing financial analysis for major capital and O&M projects, wholesale power contracts, divestitures and acquisitions and for supporting special projects and initiatives.
Supervisor, Financial Services – Shearon Harris Nuclear Plant **2002 to 2004**
Managed team of 6 finance and accounting professionals responsible for the financial governance and control activities for a nuclear power plant.
Senior Analyst / Lead Financial Specialist **2000 to 2002**
Primary financial analyst for $440 million project financing for 2,500 MW portfolio of natural gas fired power plants.

WOOLPERT, LLP - engineering and infrastructure consulting firm **Charlotte, NC**
Project Engineer/ Project Manager, Water Resources Engineering Department **1995 to 1998**
Managed numerous engineering projects for public and private clients and assisted municipal clients with program development

US ARMY **Fort Carson, CO/ Fort Leonard Wood, MO**
Platoon Leader and Battalion Adjutant, 4th Engineer Battalion **1992 to 1995**
Led combat engineer platoon and assault and obstacle platoon before being promoted to battalion adjutant
Deployed with battalion as part of division task force to National Training Center in Fort Irwin CA

Education

WAKE FOREST UNIVERSITY, Babcock Graduate School of Management **Winston-Salem, NC**
Master of Business Administration; Recipient, Charles H. Babcock Scholarship **May 2000**

NORTH CAROLINA STATE UNIVERSITY **Raleigh, NC**
Bachelor of Science in Civil Engineering; Magna Cum Laude; Recipient, Army ROTC Scholarship **May 1992**