

BEFORE THE NOVA SCOTIA UTILITY AND REVIEW BOARD

In the Matter of the *Public Utilities Act* and In the Matter of an Application by Nova Scotia Power Incorporated for approval of a new Commercial Net-Metering Program in accordance with recent legislative changes to the *Electricity Act* and Section 37C(1) of the *Renewable Electricity Regulations*

(NSUARB M10872)

**Evidence of  
Tyler Fitch**

**On Behalf of  
Counsel to Nova Scotia Utility and Review Board**

**February 24, 2023**

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1     **I.     INTRODUCTION AND QUALIFICATIONS**

2     **Q1.     Please state your name, title, and employer.**

3     A1.     My name is Tyler Fitch. I am a Senior Associate at Synapse Energy Economics, Inc. (“Synapse”),  
4             located at 485 Massachusetts Avenue, Cambridge, MA 02139.

5     **Q2.     Please describe Synapse Energy Economics.**

6     A2.     Synapse is a research and consulting firm specializing in electricity and gas industry regulation,  
7             planning, and analysis. Our work covers several topics, including transportation electrification,  
8             electric generation, transmission and distribution system reliability, ratemaking and rate design,  
9             electric industry restructuring and market power, wholesale electricity markets, stranded costs,  
10            efficiency, renewable energy, environmental quality, and nuclear power. Synapse’s clients include  
11            state attorneys general, state consumer advocates, public utilities commissions, federal agencies  
12            including the U.S. Environmental Protection Agency and the U.S. Department of Energy, state  
13            energy offices, and environmental organizations. Synapse’s staff includes over 35 professionals  
14            with substantial experience in utility industry regulation and analysis.

15    **Q3.     Please summarize your professional and educational experience.**

16    A3.     At Synapse, I conduct analysis, write publications, and provide expert testimony on a variety of  
17             issues relating to the electricity system, including distributed energy resource rate design; integrated  
18             resource planning; general ratemaking principles; system resilience; plant economics in organized  
19             energy markets; and electric vehicle market formation.

20            Before joining Synapse, I was Regulatory Director for the Southeast at Vote Solar, where I led  
21            regulatory intervention on rate design, valuation of distributed energy resources, and resource  
22            planning in the Southeast United States. In my capacities as Regulatory Director at Vote Solar and  
23            Senior Associate at Synapse, I have provided expert testimony to public utilities commissions in  
24            Virginia, North Carolina, South Carolina, and Georgia. I hold a Master of Science from the  
25            University of Michigan and a Bachelor of Science in Environmental Sciences from the University  
26            of North Carolina at Chapel Hill. I provide a copy of my current resume attached to this evidence  
27            as Appendix A.

28    **Q4.     Have you previously testified before the Nova Scotia Utility and Review Board?**

29    A4.     I have not.

1 **Q5. On whose behalf are you providing evidence in this case?**

2 A5. I am providing evidence on behalf of Counsel to the Nova Scotia Utility and Review Board  
3 (“NSUARB” or the “Board”).

4 **Q6. What is the purpose of this evidence?**

5 A6. My evidence addresses selected aspects of Nova Scotia Power, Incorporated’s (“Nova Scotia  
6 Power,” “NS Power,” or the “Company”) commercial net energy metering program, including  
7 access to key information by applicants, distribution upgrade cost allocation, application and  
8 review structure, treatment of renewable energy attributes, and program implementation.

9 **Q7. Please provide a summary of your evidence.**

10 A7. I introduce myself and this evidence in this section. Section II summarizes my conclusions and  
11 recommendations. Section III identifies issues related to public information and transparency  
12 regarding the proposed program. Section IV presents a review of the steps in the proposed  
13 application and interconnection request review process. Section V discusses distribution upgrade  
14 cost allocation and facility access by the Company. Finally, in Section VI, I review NS Power’s  
15 proposed interconnection request and analysis process.

16 **II. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS**

17 **Q8. Please describe your conclusions.**

18 A8. My conclusions are as follows:

- 19
- 20 • Based on the current information available to applicants, applicants under NS Power’s  
21 proposed net metering program would submit applications with little information about the grid  
22 conditions or interconnection queue relevant to their application.
  - 23 • Instituting high-quality monitoring and evaluation processes now will set the stage for a high-  
24 quality net metering program as grid conditions and economic circumstances evolve.
  - 25 • NS Power’s interconnection review process provides incomplete information in terms of the  
26 technical criteria for additional study or upgrades, expected timelines for completion, and  
27 actions when expected timelines are missed.
  - 28 • NS Power’s current distribution upgrade cost-allocation approach distributes costs unevenly  
29 and could suppress net metering uptake.
  - 30 • NS Power and other stakeholders are currently engaged in a review of the interconnections  
31 process before the Board under Matter M10905. Improvements and changes to the  
interconnection process could have implications for the proposed program.

- 1           • NS Power’s facility access provisions unnecessarily compromise participants’ reasonable  
2           expectation of privacy.
- 3           • The proposed net metering program does not include an option for participants to retain control  
4           over the renewable attributes of their energy. The requirement for participants to forfeit control  
5           of these attributes undermines a key reason that participants might build a renewable energy  
6           facility in the first place.
- 7           • NS Power’s rollover date set to January 1 is not necessary for complying with the *Electricity*  
8           *Act* and constrains customer choice.

9   **Q9. Please provide your recommendations.**

10 A9. I recommend the Board direct NS Power to take the following actions to improve its proposed net  
11       metering program and the development of future net metering and interconnection procedures:

- 12           • NS Power should develop a dynamic, publicly accessible hosting capacity map that provides  
13           key information on the configuration and available capacity of its distribution system. As an  
14           intermediate measure, NS Power should make distribution configuration maps available as  
15           soon as reasonably possible.
- 16           • NS Power should develop a pre-application report to prospective applicants that provides  
17           detailed information relevant for development of a net metering application. This report would  
18           not require that NS Power develop any new information.
- 19           • NS Power should submit a net metering program report on a bi-annual basis that provides key  
20           data points on application volume and timelines and interconnected capacity across NS Power’s  
21           distribution system. The bi-annual report should also provide qualitative updates on the  
22           following key topics:
- 23               ○ Development of a publicly accessible hosting capacity map
- 24               ○ Updates from Matter M10905, “Review of NS Power’s Interconnection Processes”
- 25               ○ Changes to distribution upgrade cost allocation
- 26               ○ Development of a pre-application report
- 27               ○ Changes to the interconnection request review process
- 28           • An additional review and potential revision of NS Power’s commercial net metering program,  
29           to begin a set period of time (e.g., 18 months) after the Board’s initial decision, could be  
30           directed at the Board’s discretion.
- 31           • NS Power should develop a set of technical criteria for use as an initial screen for  
32           interconnection requests to “fast-track” approval.

- 1           • NS Power should clarify the expected timeline for each step of its interconnection review  
2           process and articulate a standard procedure when timelines are missed.
- 3           • NS Power should revise its facility access language to preserve participant privacy and make  
4           all reasonable efforts to access the facility or the premises with reasonable notice and at  
5           reasonable hours.
- 6           • The Board should continue to monitor net metering participant sentiment around control of  
7           renewable energy credits (“REC”) and renewable energy attributes. If the Board deems it  
8           necessary, the Board could direct NS Power to develop and propose a net metering option that  
9           allows participants to maintain control over renewable energy attributes for Board approval.
- 10          • NS Power should allow customers to set their own rollover or anniversary date, subject to  
11          reasonable constraints to ensure compliance with the *Electricity Act*.

12   **III.   PROVIDING KEY INFORMATION TO APPLICANTS AND PROGRAM MANAGERS**

13           **A. NS Power’s proposed net metering program does not provide sufficient**  
14           **information to prospective applicants to make informed decisions.**

15   **Q10. Explain why net metering applicants need access to information on grid conditions to inform**  
16   **their interconnection decisions.**

17   A10. The timeline and cost associated with interconnecting any specific project is sensitive to the  
18   conditions on the distribution grid at the place and time of interconnection. In particular, the  
19   capability of the distribution feeder to sustain new generation capacity before an upgrade is  
20   necessary (called the “hosting capacity” of the feeder) and the number of other applicants applying  
21   to connect nearby (the “interconnection queue”) are major determinants of the timeline and cost  
22   associated with any interconnection application. Interconnection queues and required distribution  
23   upgrades can substantially impact the total cost and timeline of net metering projects (up to weeks  
24   of delays<sup>1</sup> and tens of thousands of dollars<sup>2</sup>) and place the viability of the project overall in  
25   jeopardy. These impacts are also unevenly distributed: Figure 1, below, shows average distribution  
26   upgrade costs for projects between 100 kW and 1 MW on NS Power’s distribution grid. While  
27   some do not sustain any distribution upgrade costs, others paid upwards of \$100,000.

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<sup>1</sup> A study of five U.S. states found that 50 percent of small commercial net metering projects took 20 days or more to receive approval on their application; of these, the median time for completion was 39 days. See: Ardani, K., Davidson, C., Margolis, R., & Nobler, E. (2015). A State-Level Comparison of Processes and Timelines for Interconnection in the United States. *National Renewable Energy Laboratory (“NREL”)*. Retrieved at: <https://www.nrel.gov/docs/fy15osti/63556.pdf>.

<sup>2</sup> Bird, L. Flores, F, Volpi, C., & Ardani, K. (2018). Review of Interconnection Practices and Costs in the Western States. *NREL*. Retrieved at: <https://www.nrel.gov/docs/fy18osti/71232.pdf>.

Figure 1. Average Distribution Cost per Interconnected Facility on NS Power System, 2018-2022<sup>3</sup>

Year	Number of DSIS Request(s)	Average Cost (\$/per site)
2018	1	493,784
2019	Nil	Nil
2020	2	133,954
2021	4	Nil
2022	2	Nil

1 When projects are unexpectedly subjected to these impacts, applicants may cancel the project  
2 altogether. In this way, a lack of information about local grid conditions creates uncertainty not  
3 only for individual applicants in terms of costs and timeline, but also for grid planners in terms of  
4 likelihood that applicants will go on to complete their projects.

5 When applicants have access to high-quality information about local grid conditions, they can be  
6 more confident in their applications, and the likelihood that net metering applications develop into  
7 net metering projects can increase. This information also forms an effective signal for potential  
8 applicants to interconnect projects where grid conditions are most favorable, decreasing overall  
9 costs and project timelines.<sup>4</sup>

10 **Q11. What role does NS Power play in providing information about local grid conditions to net**  
11 **metering applicants?**

12 A11. As the operator of the distribution system, NS Power is the only entity that has any insight into the  
13 grid conditions and hosting capacity across the distribution system—conditions that have  
14 substantial impacts on the cost and timeline assigned to any given net metering application. NS  
15 Power is the only entity that can provide this information to applicants, without which applicants  
16 have little insight into the likelihood that their facility might trigger a distribution upgrade. And,  
17 despite substantial differences in cost of interconnection across locations, applicants cannot receive  
18 a price signal to interconnect in the most economical locations without information shared by NS  
19 Power. In this case, asymmetric access to critical information could ultimately result in higher  
20 overall cost of interconnection across the program.

21 **Q12. What information do net metering applicants have access to under NS Power’s proposed**  
22 **program?**

<sup>3</sup> NS Power Response to Synapse Energy Economics Information Request 14 (“Synapse IR-14”).

<sup>4</sup> Interstate Renewable Energy Council (2017). Priority Considerations for Interconnection Standards: A Quick Reference Guide for Utility Regulators. Retrieved at: <https://irecusa.org/wp-content/uploads/2021/07/IREC-Priority-Considerations-for-Interconnection-Standards-2017-FINAL.pdf>.



1 A12. NS Power does not propose to provide any new information about local grid conditions to  
2 prospective applicants as a part of its net metering program proposal. Applicants may view the  
3 generic interconnection request queue currently published by NS Power on its website,<sup>5</sup> but this  
4 information is not particularly helpful to applicants without information about the configuration  
5 and hosting capacity of NS Power’s distribution zones.

6 **Q13. What options are available for NS Power to provide accessible, high-quality information to**  
7 **prospective applicants?**

8 A13. As an initial, low-complexity measure, NS Power could provide a publicly available basic, static  
9 utility distribution map. Especially given the program’s allowance for netting generation and  
10 consumption across a single distribution zone,<sup>6</sup> participants need to understand whether their  
11 premises lie in the same distribution zone to understand the viability of their net metering approach.

12 Over the last several years, utilities have developed and published “hosting capacity maps,” which  
13 are dynamic maps of the distribution system containing information about the ability to host  
14 additional generation capacity at the distribution feeder level. These publicly accessible hosting  
15 capacity maps are provided on utility websites, free of charge.<sup>7</sup> Figure 2, below, shows an example  
16 of a publicly accessible hosting capacity map provided by Southern California Edison.

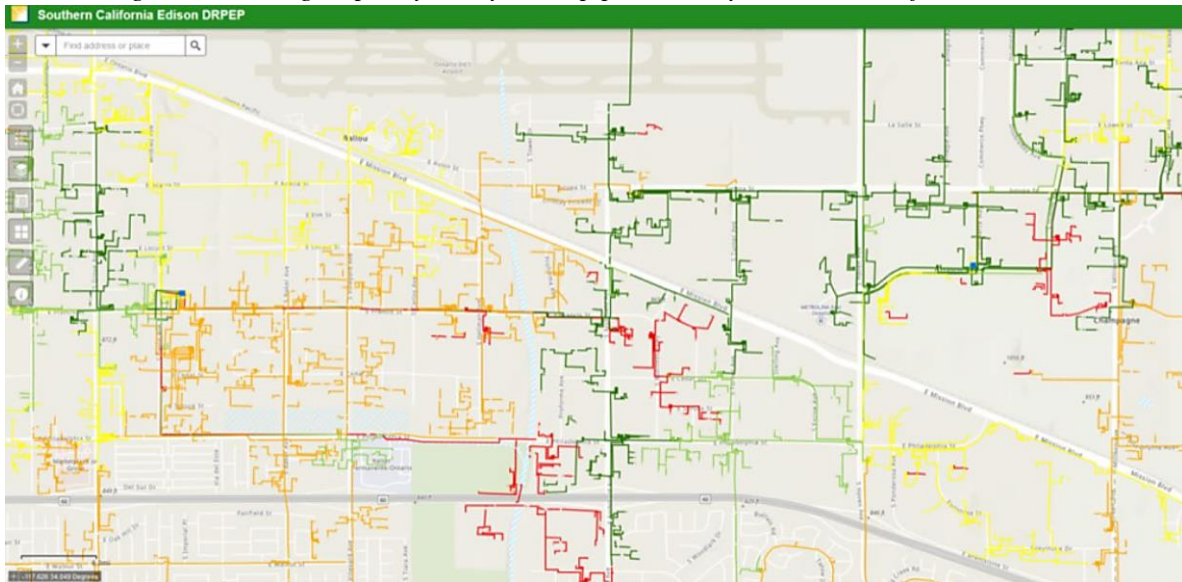
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<sup>5</sup> NS Power (2023) Generation Interconnection Procedures. Retrieved at: <https://www.nspower.ca/oasis/generation-interconnection-procedures>.

<sup>6</sup> NS Power Commercial Net Metering Program Application (“NS Power Application”), p. 5.

<sup>7</sup> IREC (2017), p. 10.

Figure 2. Hosting Capacity Analysis Map provided by Southern California Edison<sup>8</sup>



1 **Q14. Describe NS Power’s requirement to develop a hosting capacity analysis and provide an**  
2 **assessment of its efforts as proposed.**

3 A14. Bill 145 of the *Electricity Act*, passed in April 2022, requires NS Power to “perform hosting  
4 capacity analysis of each of its substations and feeders and ... make this information public to the  
5 extent possible.”<sup>9</sup> NS Power has clarified that it intends to begin this analysis at the conclusion of  
6 this matter and make its analysis public at the conclusion of its approximately 8-month  
7 development process.<sup>10</sup>

8 NS Power does not clarify whether its hosting capacity analysis process would result in ongoing or  
9 dynamic analyses, nor does it describe any efforts to make dynamic hosting capacity information  
10 available. Without regular updates, the initial hosting capacity analysis will become out-of-date  
11 and quickly lose its utility to net metering applicants.

12 **Q15. What other tools have regulators and utilities developed to provide high-quality information**  
13 **to net metering applicants?**

14 A15. The Interstate Renewable Energy Council’s (“IREC”) 2019 Model Interconnection Procedures also  
15 identifies a “Pre-Application Report” available to potential applicants who would like more specific  
16 information about a potential interconnection location before committing the labour and cost

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<sup>8</sup> U.S. Environmental Protection Agency (“US EPA”) (2022) State Energy and Environment Guide to Action: Interconnection and Net Metering. Retrieved at: [https://www.epa.gov/system/files/documents/2022-08/Interconnection%20and%20Net%20Metering\\_508.pdf](https://www.epa.gov/system/files/documents/2022-08/Interconnection%20and%20Net%20Metering_508.pdf), p. 10.

<sup>9</sup> Synapse IR-21.

<sup>10</sup> NS Power Response to Solar Nova Scotia Information Request 6 (“Solar NS IR-6”).

1 associated with developing and submitting a full application.<sup>11</sup> Based on basic details provided by  
2 the prospective applicant, the pre-application report contains more specific and detailed  
3 information about local grid conditions, including existing and queued generation capacity on the  
4 circuit and network configuration and voltage. To manage workload, the pre-application report  
5 does not require the utility to generate any new information or analysis and each report requires a  
6 one-time payment from the applicant commensurate with the effort undertaken to create the report.  
7 A portion of IREC's model interconnection procedures describing the pre-application report is  
8 attached to this evidence as Appendix B.

9 **Q16. Is the preliminary assessment currently provided by NS Power the same as the pre-**  
10 **application report described by IREC?**

11 A16. No. One of the main advantages of the pre-application report is that it requires only high-level  
12 information from applicants, rather than a full and submitted application. This allows prospective  
13 applicants to get detailed information about their potential interconnection site before undertaking  
14 the investment in time, effort, and resources to assemble a complete interconnection request.

15 **Q17. Based on your review, what are your recommendations on transparency for NS Power's**  
16 **proposed net metering program?**

17 A17. First, I recommend that NS Power make all reasonable efforts to make basic distribution system  
18 maps publicly accessible and available to potential applicants. Especially as applicants may be  
19 considering net metering approaches across premises in the same distribution zone, this basic  
20 visibility is critical to prospective applicants as they plan net metering projects. A well-labelled  
21 distribution map will also provide key context to NS Power's existing interconnection queues and  
22 allow applicants some initial understanding of generation capacity in the queue across locations.

23 I also recommend that NS Power clarify its approach to hosting capacity analysis as required by  
24 the *Electricity Act*. NS Power's language suggests a single, static hosting capacity analysis that will  
25 be of limited use at the time of completion and will rapidly become obsolete. In any case, NS Power  
26 should follow the *Electricity Act's* direction to develop high-quality, dynamic hosting capacity  
27 mapping that will provide ongoing support to NS Power's net metering program.

28 Finally, I recommend that NS Power develop a pre-application report broadly consistent with the  
29 pre-application report described in the IREC Model Interconnection Procedures. NS Power could

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<sup>11</sup> IREC (2019) Model Interconnection Procedures. Retrieved at:  
[https://irecusa.org/wp-content/uploads/2021/07/IREC-model-interconnection-procedures-2019\\_100319.pdf](https://irecusa.org/wp-content/uploads/2021/07/IREC-model-interconnection-procedures-2019_100319.pdf).

1 implement this as an additional component of its existing preliminary assessment process, or as a  
2 stand-alone option for prospective applicants.

3 These initial steps are an initial investment in a sound foundation for a high-quality net metering  
4 program. Later sections of this evidence will describe opportunities for ongoing monitoring,  
5 evaluation, and improvement of Nova Scotia Power's net metering program.

6 **B. NS Power should include statistics on application timelines and other relevant**  
7 **program developments in its regular program update reports.**

8 **Q18. Explain the importance of publicly available monitoring and evaluation information in**  
9 **successful net metering programs.**

10 A18. NS Power's proposed net metering program fulfills multiple public policy objectives, including  
11 providing options to ratepayers for managing their energy usage, increasing the supply of  
12 renewable energy, and improving the resiliency of the power grid. Monitoring and evaluation  
13 processes can ensure that the net metering program continues to serve those public policy  
14 objectives, even as key conditions like economic costs, grid needs, and market sophistication  
15 evolve.<sup>12</sup>

16 **Q19. What information is NS Power required to provide to the public on its commercial net**  
17 **metering program?**

18 A19. Nova Scotia's *Renewable Energy Regulations* require that NS Power provide an annual report to  
19 the NSUARB. The report must include, at a minimum, the number of approved applications and  
20 aggregate capacity by class, the total number and capacity of renewable, low-impact generators  
21 installed, and the average processing time for applications over the previous year.<sup>13</sup>

22 **Q20. How do these requirements compare to accepted best practices?**

23 A20. The IREC's Model Interconnection Procedures also provide a template for a bi-annual net metering  
24 report. In addition to the requirements described in the *Renewable Electricity Regulations*, IREC's  
25 template reporting requirements include statistics on pre-application reports (as described in the  
26 previous section), total applications received, and processing time statistics at each step in the  
27 review process. I attach requirements for the IREC bi-annual report to this evidence as Appendix C.

28 **Q21. Are these additional categories of information meaningful?**

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<sup>12</sup> US EPA (2022).

<sup>13</sup> *Renewable Electricity Regulations*, R.S.N.S., 2022 s.37(e).

1 A21. Yes. Especially given that commercial net metering has not processed applications since April  
2 2022<sup>14</sup> and NS Power expects that applications will accelerate in the future,<sup>15</sup> understanding  
3 whether, how, and where applications are encountering delays will provide valuable information  
4 for ensuring a smooth application process and an effective program.

5 **Q22. Are there other topics that would be beneficial for NS Power to regularly provide updates on**  
6 **in relation to the commercial net metering program?**

7 A22. Yes. NS Power and other stakeholders are engaged in a review of the interconnections process  
8 which has commenced under Matter M10905 and is currently before the Board. The proceedings  
9 and outcomes of Matter M10905 will inform several aspects of the interconnection and net  
10 metering process, including distribution upgrade cost allocation. As discussed earlier in this  
11 evidence, information about grid conditions and interconnection costs is critical for an effective net  
12 metering program, and the effectiveness of NS Power’s net metering program depends in part on  
13 the timely and accurate provision of that information. NS Power should provide timely updates on  
14 potential or pending changes to its interconnection process and implications for the net metering  
15 program.

16 Additionally, this evidence identifies several opportunities for NS Power to implement changes to  
17 its net metering application review process. While these revisions will provide substantial  
18 improvements to the net metering program, processes to implement these improvements may not  
19 be simple or short. As a part of its periodic report, NS Power should also provide qualitative updates  
20 on any pending or developing changes to its net metering program, including but not limited to pre-  
21 application report development, changes to distribution upgrade cost allocation, development of  
22 technical screens for “fast track” review, or dynamic hosting capacity maps.

23 **Q23. Based on the above best practices, what is your recommendation for NS Power’s proposed**  
24 **net metering program?**

25 A23. I recommend that NS Power adopt several changes and additions to the annual net metering  
26 reporting requirements defined in the *Renewable Electricity Regulations*. I provide them in the list  
27 below:

28 1. At least for as long as the interconnection update process in Matter No. M10905 continues, net  
29 metering program updates should be provided bi-annually.

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<sup>14</sup> Synapse IR-6.

<sup>15</sup> Synapse IR-3.

- 1           2. NS Power should provide within its bi-annual report additional statistics on processing time  
2           and the cost of each stage of the application and interconnection review process across both  
3           classes, including:
- 4               a. *Pre-application reports*: If these are directed by the Board, the bi-annual report should  
5               include statistics on pre-application reports, including:
- 6                   i. the total number of reports requested  
7                   ii. total number in process  
8                   iii. total number issued  
9                   iv. total number withdrawn  
10                  v. maximum, mean, and median processing time
- 11              b. *Class 1 applications*:
- 12                   i. total number of applications received  
13                   ii. total number of applications in process  
14                   iii. total number of applications accepted  
15                   iv. total number of applications rejected or withdrawn at each stage in the process  
16                   v. total number of applications requiring a Preliminary Assessment  
17                   vi. maximum, mean, and median processing time  
18                   vii. maximum, mean, and median cost of additional distribution upgrades  
19                   identified
- 20              c. *Class 2 applications*:
- 21                   i. total number of applications received  
22                   ii. total number of applications in process  
23                   iii. total number of applications accepted  
24                   iv. total number of applications rejected or withdrawn at each stage in the process  
25                   v. maximum, mean, and median processing time  
26                   vi. maximum, mean, and median cost of additional distribution upgrades  
27                   identified
- 28              d. *Preliminary Assessments*:
- 29                   i. maximum, mean, and median processing time  
30                   ii. maximum, mean, and median cost of additional distribution upgrades  
31                   identified
- 32           3. NS Power should provide qualitative updates on developments that are relevant to the net  
33           metering program (e.g., interconnection process improvements) as well as any planned or  
34           pending improvements to the net metering program (e.g., hosting capacity analysis mapping,

1 changes to upgrade cost allocation, technical screen development, pre-application report  
2 development).

3 Several developments, including Matter M10905 and NS Power’s development of its hosting  
4 capacity analysis, will conclude after the Board’s initial decision on this matter. At the Board’s  
5 election, it may be appropriate to direct a review and revision of NS Power’s commercial net  
6 metering program to begin a set period of time (e.g., 18 months) after the Board’s initial  
7 decision on this program.

8 **IV. APPLICATION PROCESS**

9 **A. NS Power’s interconnection review request should identify clear technical criteria**  
10 **for “fast-track” approval and set clear expectations on timelines for application**  
11 **review.**

12 **Q24. Provide a brief overview of steps involved in application and interconnection for NS Power’s**  
13 **proposed net metering program.**

14 A24. NS Power’s proposed net metering program includes two classes of net metering service: Facilities  
15 with nameplate capacity between 27 and 100 kilowatts (“kW”) are eligible for Class 1 service, and  
16 facilities with capacity 100 to 1,000 kW are eligible for Class 2 service.

17 NS Power proposes discrete application review processes for Class 1 and Class 2 net metering  
18 services. For Class 1 service, facilities connecting to a single-phase circuit must undergo a  
19 Preliminary Assessment, which provides a high-level review of grid conditions and system limits  
20 at an additional cost of \$750. Applicants for Class 2 service must undergo a Preliminary  
21 Assessment and then proceed through NS Power’s Distributed System Impact Study (DSIS)  
22 process.

23 **Q25. Summarize the issues you find with NS Power’s proposed application review process.**

24 A25. NS Power’s proposed application review process does not provide information on the technical  
25 criteria by which NS Power assesses whether additional study or distribution upgrades are needed.  
26 As described in Section III, this type of uncertainty degrades the applicant experience and  
27 undermines the overall quality of net metering applications.

28 Relatedly, NS Power’s application review process provides inconsistent information on expected  
29 timelines for its review activities. Specifically, the following steps in the application review process  
30 do not include service expectations:

- 1       • Class 1 service:
  - 2           ○ The proposed process does not include a timeline for providing acknowledgement of
  - 3           receipt of the interconnection request.<sup>16</sup>
  - 4           ○ The proposed process does not include a timeline for initial eligibility review or length
  - 5           of time before referral to Preliminary Assessment, if needed.<sup>17</sup>
  - 6           ○ The proposed process does not include a timeline for NS Power’s development of cost
  - 7           estimates.<sup>18</sup>
  - 8           ○ The proposed process does not include a timeline for NS Power’s review of the
  - 9           applicant’s electrical plans.<sup>19</sup>
- 10       • Class 2 service:
  - 11           ○ The proposed process does not include a timeline for initial validity review of the
  - 12           applicant’s Distributed Generator Interconnection Request.<sup>20</sup>
  - 13           ○ The proposed process does not include a timeline for joint development of the standard
  - 14           small generator interconnection agreement (SSGIA).<sup>21</sup>

15       NS Power clarifies in its response to Synapse’s eighth information request (“Synapse IR-8”) that it  
16       has established 25 days as a target for review and pre-approval of Class 1 applications.<sup>22</sup> However,  
17       this target does not appear in NS Power’s proposed program. Without clear timeline expectations,  
18       applicants cannot plan on receiving additional information about their application at a given time,  
19       and they may be less likely to provide their own timely responses.

20       Finally, NS Power’s process does not include an expedited review option for facilities that are not  
21       likely to trigger upgrades (sometimes called a “fast track” review). For smaller projects in  
22       distribution zones with plenty of hosting capacity, additional distribution upgrades are not likely.  
23       Subjecting these projects to the same level of scrutiny as larger or more complex projects creates  
24       unnecessary labour and time in the application review process.

25       **Q26. How can net metering programs ensure net metering applications receive an appropriate**  
26       **level of technical review?**

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<sup>16</sup> NS Power Application, Schedule A, p. 4.

<sup>17</sup> *Ibid.*, step 3.

<sup>18</sup> *Ibid.*, step 5

<sup>19</sup> *Ibid.*, step 6.

<sup>20</sup> NS Power Application, Schedule A, p. 5.

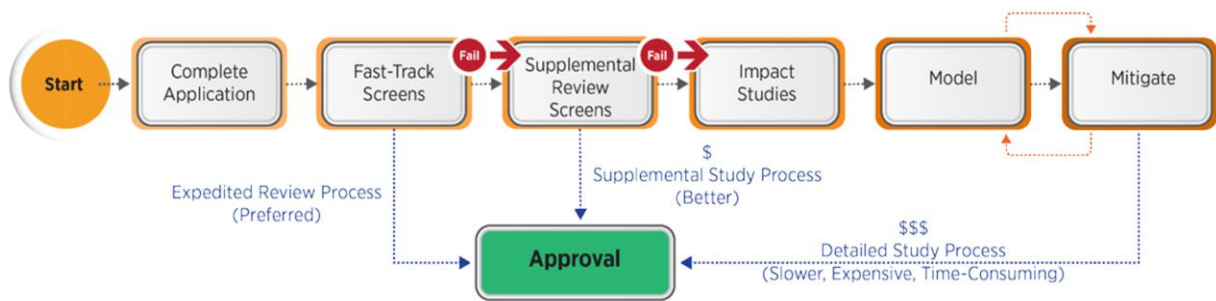
<sup>21</sup> NS Power Application, Schedule A, p. 6.

<sup>22</sup> NSUAR IR-8.



1 A26. Net metering review processes typically apply a tiered approach to technical review. All projects  
2 are subjected to a set of basic technical screens. If the application passes those screens, the  
3 application may be “fast tracked” for approval. If it fails to pass those screens, supplemental  
4 screening analysis may be performed to identify if distribution upgrades are needed. For  
5 particularly complex applications, supplementary modeling may be needed. Figure 3 provides a  
6 basic schematic of this tiered process as adopted by the U.S. Federal Energy Regulatory  
7 Commission’s (“FERC”) Small Generator Interconnection Procedure (“SGIP”) for distributed  
8 generators with nameplate capacities of 20 MW or less.

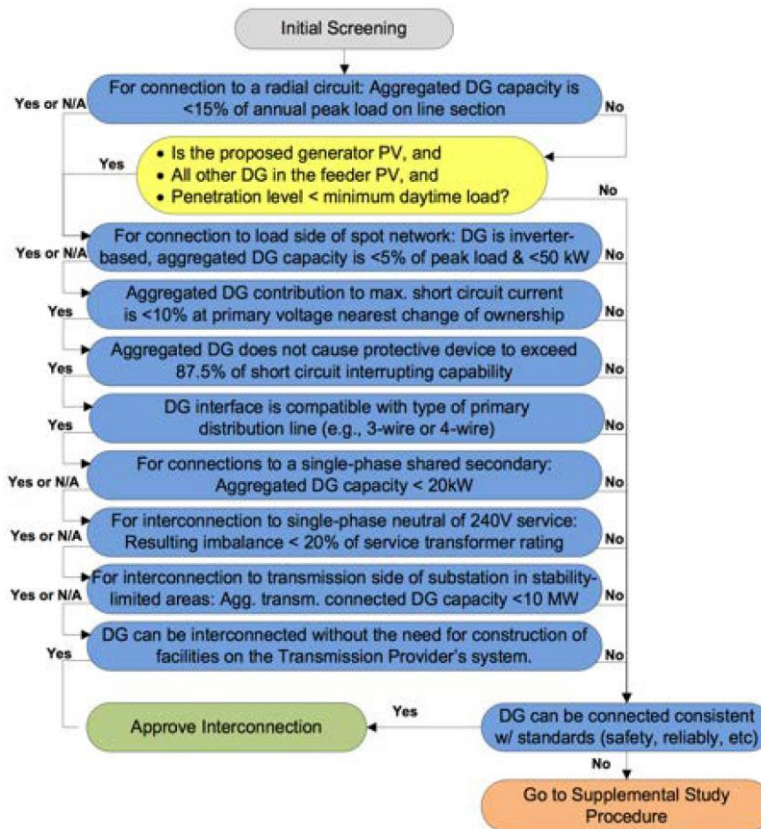
Figure 3. Overview of interconnection process used by FERC SGIP and several U.S. states.<sup>23</sup>



9 When net metering programs provide the specific criteria for their “Fast-Track” screens, applicants  
10 can tailor their application to meet those criteria, thereby creating a smooth process for the applicant  
11 and the reviewer. FERC’s Small Generator Interconnection Procedure, for instance, uses the  
12 technical screens shown in Figure 4 to identify distributed generators that can be “fast-tracked” for  
13 approval.

<sup>23</sup> [NREL \(2015\)](#), p. 17.

Figure 4. FERC SGIP Technical Screens Summary<sup>24</sup>



1 I do not recommend that the criteria developed by FERC be accepted without adaptation into NS  
 2 Power’s own interconnection processes. NS Power’s program and distribution grid have their own  
 3 specific circumstances and conditions, and it would not be appropriate to adopt these technical  
 4 screens without ensuring that they would appropriately flag possible impacts on NS Power’s  
 5 system. At the same time, publicly accessible technical screens of this kind provide a target for  
 6 applicants to aim for and can simplify a resource-intensive application review process. NS Power  
 7 should work to develop its own set of transparent technical screens for “fast-tracked” approval.

8 **Q27. What could NS Power do at the program design stage to promote timeliness in application**  
 9 **review and approval?**

10 A27. Interconnection procedures should set clear expectations about what activities are required of the  
 11 utility and the applicant at each step in the process, and how long that activity will take.<sup>25</sup> Net

<sup>24</sup> Horowitz, K., Peterson, Z., Coddington, M., Ding, F., Sigrin, B., Saleem, D., Baldwin, S., Lydic, B., Stanfield, S., Enbar, N., Coley, S., Sundararajan, A., & Schroeder, C. (2019). Overview of Distributed Energy Resource (DER) Interconnection: Current Practices and Emerging Solutions. NREL. Retrieved at: <https://www.nrel.gov/docs/fy19osti/72102.pdf>.

<sup>25</sup> IREC (2017).

1 metering program designers should also anticipate that applications may not succeed at every step  
2 on the first attempt, and build in procedures for re-submission or re-review throughout the  
3 interconnection review process.

4 Even where required actions and timelines are clear at every step of the process, some applications  
5 will inevitably encounter barriers that slow review down and take longer than the designated  
6 timeline. When delays do arise, NS Power should set clear guidelines and expectations within its  
7 program proposal to communicate promptly and clearly with applicants and provide clear estimates  
8 on how and when the review process will get back on schedule. This could include, for example, a  
9 standard that if NS Power cannot meet a published deadline, it will notify the applicant within one  
10 business day after the deadline, explain the reason for the missed deadline, and provide a new  
11 estimate on when the step will be completed.<sup>26</sup>

12 **Q28. Based on your review, what are your recommendations for NS Power’s proposed net**  
13 **metering program?**

14 A28. NS Power should develop a set of clearly defined technical screens that can be used to “fast-track”  
15 projects that are not likely to require distribution upgrades or adversely affect the operation of the  
16 distribution system. These technical screens should be publicly accessible and, to the extent  
17 practicable, compatible with information provided through the hosting capacity analysis or pre-  
18 application report described in Section III.

19 NS Power should also provide applicants with more detail on the specific activities involved at  
20 each step in the review process and set clear expectations on how long each step in the process will  
21 take. NS Power’s net metering program should also outline the actions that NS Power will take  
22 when it cannot meet a timeline.

23 **V. DISTRIBUTION UPGRADES AND FACILITY ACCESS**

24 **A. NS Power’s proposed net metering program’s distribution upgrade cost-**  
25 **allocation approach could lead to inefficiency and suppress overall program**  
26 **enrollment.**

27 **Q29. Please describe the Company’s proposed cost-allocation method for system upgrade costs**  
28 **associated with interconnection.**

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<sup>26</sup> IREC (2019), p. 23.

1 A29. NS Power’s net metering program proposes to assign all costs associated with distribution system  
2 upgrades to the application that triggered the need for the upgrade.<sup>27</sup> This is true for upgrades  
3 needed at the point of interconnection and for upgrades within the same Distribution Zone beyond  
4 the premises of the Customer Facility.<sup>28</sup> This interconnection cost-allocation method is colloquially  
5 known as the “cost-causer pays” approach because the costs of distribution system upgrades are  
6 paid by the most immediate cause for the upgrades.<sup>29</sup>

7 **Q30. Summarize some of the challenges posed by the “cost-causer pays” approach.**

8 A30. The “cost-causer pays” approach predominates across interconnection programs because of the  
9 clear link between the application that triggers the upgrade and the upgrade costs, location-specific  
10 price signals, and simplicity of administration. However, the approach also poses significant  
11 challenges and drawbacks for a fair and effective interconnection process.

12 First, the “cost-causer pays” approach distributes costs unevenly, **without consideration for which**  
13 **applicants benefit from a given upgrade**. Distribution system upgrades increase the hosting  
14 capacity of the distribution zone beyond the immediate needs of the most recent applicant.  
15 Subsequent applicants who take advantage of this additional hosting capacity are not required to  
16 provide any payment for distribution investments because their specific application did not trigger  
17 the need for an additional upgrade. These subsequent applicants are “free riding” on the initial  
18 payer: They benefit from the additional hosting capacity without paying for the distribution upgrade  
19 that created that capacity and, ultimately, made their project possible.

20 Second, the high magnitude of costs and uncertainty of which application will sustain these costs  
21 can undermine interconnection application quality and decrease the efficiency of the  
22 interconnection process overall. Applicants may delay the processing of their application or submit  
23 applications at multiple locations to avoid being the interconnection customer who triggers  
24 upgrades.<sup>30</sup> Projects that are ultimately assigned these costs may drop out of the queue altogether,  
25 repeating the process until someone else pays for the upgrade costs. For smaller projects, these  
26 costs can lead to a termination of the project. This is especially true for customers with small  
27 projects who are less able to shoulder large financial burdens. This can delay hosting capacity

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<sup>27</sup> NS Power Application, Schedule B, p. 5.

<sup>28</sup> Appendix 1 to Schedule A, Section (iv) and (v), 5.

<sup>29</sup> NREL (2019)

<sup>30</sup> NREL (2019), p. 40.

1 upgrades across the distribution system and suppress both the pace and magnitude of  
2 interconnection.<sup>31</sup>

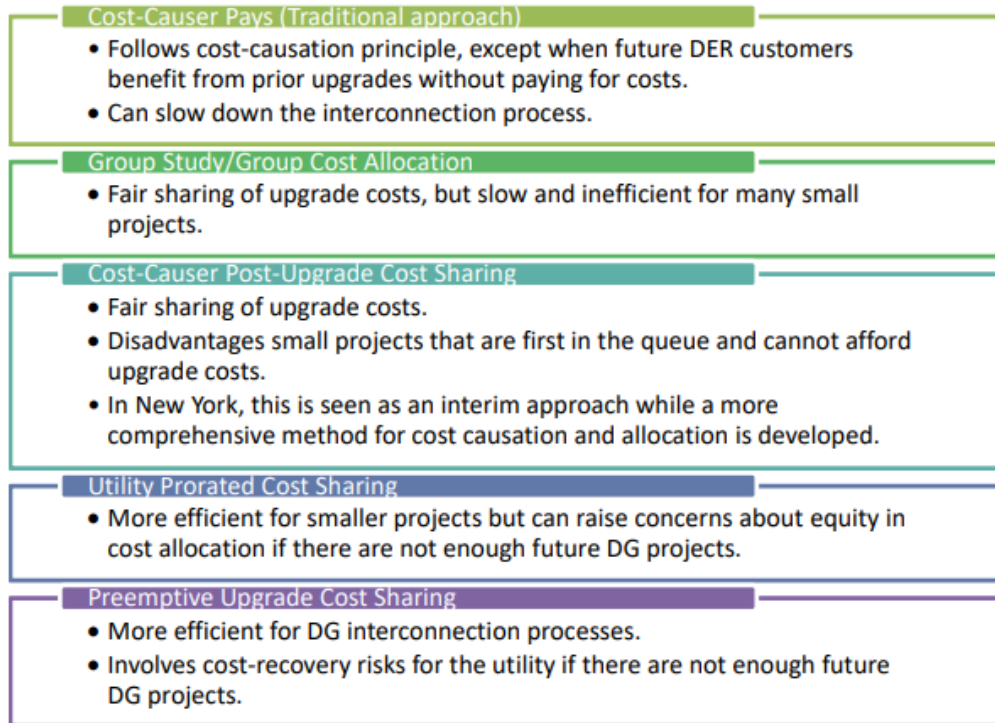
3 **Q31. How much visibility do potential applicants have into whether their application will**  
4 **necessitate a distribution upgrade?**

5 A31. As discussed above in Section III, prospective interconnection applicants have little insight into  
6 local conditions before submitting their application. Applicants therefore have no ability to predict  
7 or discern whether their application will trigger an upgrade. This lack of visibility can exacerbate  
8 the phenomenon described above.

9 **Q32. Are there any alternatives to the “cost-causer pays” approach in interconnection cost**  
10 **allocation?**

11 A32. Yes. While “cost-causer pays” is the most common approach, new practices are emerging that can  
12 more fairly allocate these costs across causers, beneficiaries, and in some cases the utility or the  
13 broader customer base. The U.S. National Renewable Energy Laboratory’s *Overview of Distributed*  
14 *Energy Resources (DER) Interconnection: Current Practices and Emerging Solutions* identifies  
15 four emerging approaches, summarized below in Figure 5.

Figure 5. Summary, Advantages, and Disadvantages of Emerging Cost-Allocation Schemes<sup>32</sup>



<sup>31</sup> *Id.*

<sup>32</sup> NREL (2019).

1 I briefly summarize each of these cost-allocation strategies below.

- 2 • **Group Study / Group Cost Allocation:** Interconnection impact studies for applicants are  
3 grouped according to location and application. Interconnection costs are spread across the  
4 group according to their relative contribution to upgrade needs.
- 5 • **Cost-Causer Post-Upgrade Cost Sharing:** The initial “cost-causer” pays for the entirety of  
6 the upgrade as a part of their interconnection process. As additional projects interconnect using  
7 this additional capacity, they reimburse the original “cost-causer.”
- 8 • **Utility Pro-rated Cost Sharing:** Once an interconnection request triggers the need for an  
9 upgrade, the utility pays for the upgrade and gets reimbursed by the original cost-causer and  
10 each subsequent project that uses the upgraded capacity.
- 11 • **Preemptive Upgrade Cost Sharing:** The utility proactively provides upgrades to allow for  
12 additional distributed energy resource penetration, then recovers costs from future projects.

13 Emerging alternatives promise improvements to the drawbacks of the traditional “cost-causer pays”  
14 approach, but also add complexity to the interconnection and distribution upgrade process and  
15 require high-quality distributed energy resource forecasts to work most effectively. NS Power and  
16 the Board should consider the trade-offs presented by these alternatives.

17 **Q33. Does NS Power currently use any other cost-allocation method for any required upgrades as**  
18 **a part of its small-scale interconnection process?**

19 A33. Yes. NS Power provides post-upgrade cost-causer refunds for any line extensions required as a part  
20 of its interconnection process. Interconnection applicants that require a significant line extension  
21 are required to pay a capital contribution for the line extension. As additional customers connect to  
22 the contributed line, the initial capital contributor receives a pro-rated refund from NS Power.<sup>33</sup>

23 **Q34. Does NS Power cite any programmatic requirements on how NS Power may allocate**  
24 **distribution upgrade costs in its proposed net metering program?**

25 A34. Yes. Section 5.1.3 of NS Power’s Standard Small Generator Interconnection Agreement states that  
26 “the Interconnection Customer is responsible for and shall re-imburse the cost of Distribution  
27 Upgrades including without limitation, overheads of the Distribution Provider.”<sup>34</sup> Citing this

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<sup>33</sup> Nova Scotia Power, Incorporated (2019) Tariffs & Regulations. Retrieved at:  
[https://www.nspower.ca/docs/default-source/default-document-library/nspowerregulations.pdf?sfvrsn=2353330b\\_0](https://www.nspower.ca/docs/default-source/default-document-library/nspowerregulations.pdf?sfvrsn=2353330b_0).

<sup>34</sup> Nova Scotia Power, Incorporated (2013) Standard Small Generator Interconnection and Operating Agreement (SSGIA). Retrieved at: <https://www.nspower.ca/docs/default-source/pdf-to-upload/class-2-master-ssgia---clean-copy---approved-by-executives---september-10-2013.pdf>.

1 requirement, NS Power notes in a response to Synapse IR-11 that “Each Interconnection Customer  
2 is responsible for the cost of upgrades driven by their Interconnection Request.”<sup>35</sup>

3 **Q35. Are there any current fora available for NS Power, the Board, and other relevant**  
4 **stakeholders to deliberate on improvements to the interconnection process?**

5 A35. Yes. Board Matter No. M10905, Board Review of NS Power’s Interconnections Processes, is  
6 currently underway and Synapse is preparing its initial report in preparation for stakeholder  
7 sessions beginning in April 2023. This Matter will review several aspects of NS Power’s  
8 interconnection processes, including its current processes for allocating upgrade costs. Given the  
9 need for additional information and the potential complexity of changing cost-allocation practices,  
10 M10905 provides a timely opportunity to develop alternatives to the current “cost-causer pays”  
11 interconnection approach. NS Power indicated in its shared assessment that M10905 may impact  
12 cost allocation, the queue process, and other interconnection matters, which could have an impact  
13 on the net metering program in the future.<sup>36</sup>

14 **Q36. Based on your assessment, what are your recommendations for how NS Power should allocate**  
15 **costs for distribution upgrades?**

16 A36. NS Power and the Board should continue to investigate improvements and alternatives to the “cost-  
17 causer pays” approach. As evidenced by the Company’s line extension approach, post-upgrade  
18 cost-sharing is a familiar and effective tool for improving procedural fairness and reducing barriers  
19 to distribution upgrades. M10905, Board Review of NS Power’s Interconnections Processes  
20 presents a valuable opportunity for assessing potential cost-allocation alternatives, and the  
21 Company and Board should continue an assessment of upgrades through the stakeholder process.  
22 In the meantime, NS Power should include updates to its distribution upgrade cost-allocation  
23 process, both inside and outside of M10905, in its bi-annual update on net metering issues.

24 **B. NS Power’s proposed facility access provisions do not preserve participant**  
25 **privacy.**

26 **Q37. Describe NS Power’s provisions on accessing participant facilities in its proposed net**  
27 **metering program.**

28 A37. The proposed Commercial Net Metering Participant Agreement provided with NS Power’s  
29 proposed commercial net metering program includes two provisions that address access to the  
30 participant’s facility and premises by NS Power. The Agreement notes that “[NS Power] reserve

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<sup>35</sup> Synapse IR-11.

<sup>36</sup> Synapse IR-16.

1 the right, at its option, to inspect the Facility at any time.”<sup>37</sup> In a response to an information request  
2 from the Board, NS Power recommended that the provision be amended to read “... to inspect the  
3 Facility at any reasonable time.”<sup>38</sup>

4 The agreement also requires that the participant agree to the following:

5 “The Customer hereby grants NSPI access over and across the Premises for the  
6 purpose of maintaining, operating, inspecting, meter reading, or disconnecting the  
7 Facility or the Interconnection Equipment, as the case may be, without prior notice  
8 to the Customer, provided that such entry is made, except in cases of emergency,  
9 during reasonable hours.”<sup>39</sup>

10 **Q38. Are there legitimate reasons for utilities like NS Power to have access to interconnected**  
11 **generation facilities?**

12 A38. Yes. Electric system safety and reliability is the primary responsibility of the utility, and in urgent  
13 or emergency conditions utilities should have access to the facilities to ensure the continued safety  
14 of the grid and its ratepayers. NS Power also has legal service obligations that may require access  
15 to net metering facilities.

16 **Q39. In light of NS Power’s responsibilities, are the access provisions described above reasonable?**

17 A39. No. As with all NS Power ratepayers, net metering applicants have a reasonable expectation of  
18 privacy that should be preserved through access at reasonable hours and reasonable notice.  
19 Exceptions outside of reasonable hours or without reasonable notice can be made in urgent or  
20 emergency conditions, but these should be exceptions rather than the rule.

21 **Q40. Provide your recommendations on reconciling NS Power’s legitimate need to access net**  
22 **metering facilities with net metering participants’ reasonable expectation of privacy.**

23 A40. IREC’s *Model Interconnection Procedures* provide a helpful reference for tried-and-true  
24 interconnection practices.<sup>40</sup> Based on my review of the access provisions provided in the *Model*  
25 *Interconnection Procedures*, I provide the following illustrative recommendations regarding the  
26 provisions in NS Power’s proposed net metering program:

27 “NSPI reserves the right, at its option, to inspect the facility at any reasonable  
28 time.”<sup>41</sup>

29 could be revised to:

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<sup>37</sup> NS Power Application, Schedule B p. 4.

<sup>38</sup> NS Power Response to NSUARB Information Request 23 (“NSUARB IR-23”).

<sup>39</sup> NS Power Application, Schedule B p. 5.

<sup>40</sup> IREC 2019.

<sup>41</sup> NSUARB IR-23.



1 NSPI reserves the right, at its option, to inspect the facility at any reasonable time  
2 and with reasonable prior notice provided to the Customer.

3 Similarly,

4 “The Customer hereby grants NSPI access over and across the Premises for the  
5 purpose of maintaining, operating, inspecting, meter reading, or disconnecting the  
6 Facility or the Interconnection Equipment, as the case may be, without prior notice  
7 to the Customer, provided that such entry is made, except in cases of emergency,  
8 during reasonable hours.”<sup>42</sup>

9 could be revised to:

10 The Customer hereby grants NSPI access over and across the Premises for the  
11 purpose of maintaining, operating, inspecting, meter reading, or disconnecting the  
12 Facility or the Interconnection Equipment at reasonable hours and upon reasonable  
13 notice, or at any time without notice in the event of an emergency or hazardous  
14 condition, or as is necessary to meet a legal obligation to provide service to  
15 customers.

16 I provide these recommendations as illustrative examples to the Board.

17 **VI. RENEWABLE ENERGY ATTRIBUTES AND ROLLOVER POLICY**

18 **A. NS Power’s proposed treatment of the renewable attributes of participants’ net**  
19 **metering energy constrains customer autonomy, undermines the reasons that**  
20 **participants decide to build renewable energy facilities, and could create double-**  
21 **counting issues.**

22 **Q41. Provide a brief introduction to renewable energy attributes and RECs.**

23 A41. Electricity generated by a renewable source has the “attribute” of being renewably generated. Once  
24 these renewably generated kilowatt-hours enter the electricity system, however, they are  
25 indistinguishable from any other kilowatt-hour. Renewable energy certificates, or RECs,  
26 memorialize and commodify these attributes and allow them to be possessed by one entity and  
27 transferred to another. When a REC owner “retires” a REC, they claim the renewable energy  
28 attributes as associated with their own energy use and are no longer able to trade that REC.

29 **Q42. Provide an overview of NS Power’s proposed treatment of renewable energy attributes and**  
30 **RECs within its net metering program.**

31 A42. Under NS Power’s proposal, all renewable energy attributes are allocated toward NS Power’s  
32 renewable portfolio standard requirements. More specifically, “the total electricity energy output

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<sup>42</sup> NS Power Application, Schedule B p. 5.

1 of the Customer’s Facility... whether delivered to NSPI or self-supplied to the Customer, shall be  
2 counted by NSPI toward such renewable portfolio standard, and the Customer shall take no actions  
3 to utilize or take credit for the Facility’s environmental attributes in a manner that could hinder  
4 NSPI from doing so.” The proposed program allows customers to request that NS Power create a  
5 REC on their behalf and receive a document confirming the creation of the REC, but under the  
6 current proposal NS Power would retire the REC before providing the participant with the  
7 document that confirms that the REC is created.<sup>43</sup>

8 **Q43. What implications does this have for the relative level of clean or renewable energy for net**  
9 **energy metering participants versus NS Power ratepayers without net metering?**

10 A43. NS Power’s proposed program would allocate all the renewable attributes from the participant’s  
11 facility to NS Power. If a commercial or industrial customer claimed that their energy supply was  
12 renewable or clean because of their net metering facility, this would mean that two separate  
13 entities—NS Power and the participant—were both claiming ownership of the renewable energy  
14 attributes of the same generated kilowatt-hours. This is called “double counting” and overstates the  
15 total supply of renewable electricity on the grid. As an example of what claims would or would not  
16 be appropriate under this treatment of RECs, a commercial net metering participant could claim  
17 that their facility generated some amount of renewable energy, but it would not be appropriate for  
18 the participant to claim that their business was powered by the amount of clean energy it generated.

19 **Q44. Under NS Power’s proposed program, do participants have the option to retain control over**  
20 **the renewable energy attributes of the generation of their facility?**

21 A44. No, they do not. NS Power’s proposed program does not provide any option for participants to  
22 retain control of their renewable energy attributes or RECs.

23 **Q45. Does NS Power intend to compensate participants for the allocation of their renewable energy**  
24 **attributes toward NS Power’s renewable portfolio standard?**

25 A45. No. In a response to an information request, NS Power cites s. 37(4) of the *Renewable Energy*  
26 *Regulations* which state that “[t]he total output of all energy generated under a net-metering  
27 program... may be counted by NS Power to meet the applicable renewable electricity standard.”<sup>44</sup>  
28 Therefore, NS Power asserts that it can allocate these renewable energy attributes to its own energy  
29 supply without specifically, separately, purchasing them from participants.

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<sup>43</sup> NS Power Application, Schedule B, p. 7-8.

<sup>44</sup> Synapse IR-28.

1 **Q46. Under the *Renewable Energy Regulations*, is it permissible for a net metering program to**  
2 **allow participants the option to maintain control over their renewable energy attributes?**

3 A46. Based on my reading as a lay-person with expertise on net metering programming and policy, the  
4 *Renewable Energy Regulations* do not require that participants turn over their renewable energy  
5 attributes to the utility. While s. 37(4) of the *Renewable Energy Regulations* states that NS Power  
6 may allocate renewable energy attributes from net metered energy toward its renewable electricity  
7 standard,<sup>45</sup> the *Regulations* do not state that NS Power shall or must do so. NS Power is not,  
8 effectively, required to treat participants' renewable energy attributes in any specific way.

9 **Q47. Do you recommend that the Board continue to monitor and consider the need for a net**  
10 **metering option that allows participants to maintain control of their RECs?**

11 A47. I do. Entities decide to construct renewable energy facilities for a variety of reasons, one of which  
12 is the desire to clean up their own energy supply and reduce their environmental footprint.  
13 Requiring customers to forfeit these renewable energy attributes to NS Power could undermine one  
14 of the core reasons that customers install renewable energy in the first place. Retaining customer  
15 autonomy and choice should be a core objective of net metering programs, and for this reason  
16 authorities on net metering best practices recommend that net metering programs include an option  
17 for participants to retain their RECs.<sup>46</sup> I recommend the Board continue to monitor this program  
18 and net metering participant sentiment around control of renewable energy attributes and RECs. If  
19 the Board deems it necessary, it could direct NS Power to develop and propose a net metering  
20 option that allows participants to preserve control over their renewable energy attributes. This  
21 proposal would then be submitted to the Board for review and approval.

22 **B. NS Power's Proposed net metering "anniversary date" undermines customer**  
23 **choice and would create an uneven pattern of energy compensation.**

24 **Q48. Explain how generation from the net metering facility offsets a participant's energy**  
25 **consumption.**

26 A48. Under NS Power's proposal, generation exported to the distribution grid by the customer-generator  
27 offsets energy that is purchased by the customer from NS Power, and the customer is billed for  
28 consumption net of those exports. When the customer-generator exports more energy than they  
29 consume in a given month, kilowatt-hours are "banked" for use in future months.<sup>47</sup>

30 **Q49. How do net metering programs manage banking credits?**

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<sup>45</sup> *Ibid.*

<sup>46</sup> IREC (2019), EPA (2022).

<sup>47</sup> NS Power Application, Schedule B, p. 6.

1 A49. Many net metering programs have a limit on the amount or duration of “banked” energy for any  
2 given net metering participant. These programs typically identify a date when any banked credits  
3 are either credited at a fixed amount, credited against previous compensation, or in some cases set  
4 to zero.<sup>48</sup> This date is typically referred to as the “anniversary date” or the “rollover date.” The  
5 timing of these rollover dates and the treatment of banked credits at the rollover date are determined  
6 by the underlying net metering policy.

7 **Q50. How did NS Power’s previous net metering policy handle banked credit rollover policy?**

8 A50. Under NS Power’s previous net metering policy, each net metering participant selected their  
9 rollover date. On the rollover date, banked credits would be purchased by NS Power at a fixed per-  
10 kWh rate and NS Power would issue a cheque to the participant.<sup>49</sup>

11 **Q51. Is the offset of energy consumption under NS Power’s proposed program subject to any legal  
12 or regulatory requirements?**

13 A51. Yes. The *Electricity Act* states that “Nova Scotia Power may not compensate a customer for  
14 electricity in excess of that customer’s consumption in a calendar year.”<sup>50</sup>

15 **Q52. How does NS Power propose to comply with this provision of the *Electricity Act*?**

16 A52. NS Power’s program proposes to implement the limit of compensation in excess of customer  
17 consumption in two ways. First, the proposed program restricts the facility’s maximum capacity  
18 such that generation will not exceed the customer’s annual consumption.<sup>51</sup>

19 The proposed program also includes changes to NS Power’s rollover or anniversary date. Under  
20 NS Power’s proposed program, the rollover date for all participants would be set at January 1. On  
21 January 1, any credits banked by the participant would be retroactively applied to energy previously  
22 purchased by the participant over the calendar year. Any remaining credits would be removed from  
23 the customer’s account, and the total number of banked credits would be set to zero.<sup>52</sup> NS Power  
24 explains in a response to a data request that it believes this provision of the *Electricity Act* prohibits  
25 customers from carrying energy credits into a subsequent calendar year.

26 **Q53. Do you agree with this assessment?**

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<sup>48</sup> US EPA (2022), p. 14.

<sup>49</sup> Synapse IR-4.

<sup>50</sup> NUSRB IR-3.

<sup>51</sup> NS Power Application, Schedule A p. 2.

<sup>52</sup> NS Power Application, Schedule B p. 5.

1 A53. Based on my reading as a lay-person with expertise on net metering programming and policy, I do  
2 not think this provision necessarily prohibits customers from carrying forward credits to a  
3 subsequent calendar year.

4 As an example, consider a net metering participant under NS Power's previous net metering  
5 program. This customer may have purchased 300 kWh from NS Power in the initial months of a  
6 given year, then generated and banked credits equivalent to 100 kWh over the remaining months  
7 of the year. This customer has banked credits on December 31, but NS Power has not compensated  
8 the customer in excess of their consumption over the year.

9 **Q54. Would a rollover date set at a different date than January 1 still manage banked credits over  
10 a 12-month period?**

11 A54. Yes. Under NS Power's proposed rollover policy, a rollover date set at any date would ensure  
12 customers cannot accumulate banked credits over a given 12-month period.

13 **Q55. Discuss the issues you find with NS Power's proposed fixed January 1<sup>st</sup> rollover date.**

14 A55. First, the fixed rollover date unnecessarily constrains customer choice. As described above, any  
15 rollover date will ensure that customers cannot accumulate banked credits year-to-year. NS Power's  
16 previous policy allowed participants to choose their rollover date, and NS Power can ensure  
17 compliance with the *Electricity Act* without sacrificing customer flexibility.

18 Second, the January 1<sup>st</sup> anniversary date is likely to lead to uneven compensation over the course  
19 of the year. Net metering participants with solar photovoltaic facilities sized to offset their annual  
20 electricity use are likely to generate excess energy and build up banked credits in the summer  
21 months, and consume more than they generate and draw down their banked credits in the winter  
22 months. A January 1 rollover date, situated midway through the winter months, is likely to apply  
23 credits retroactively and zero out the participant's banked credits that would otherwise be drained  
24 to zero over the remaining winter and spring months. **Placing the rollover date at a different  
25 point over the course of the year would not change the participant's annual compensation,**  
26 but it could lead to a smoother and more intuitive cash flow.

27 **Q56. Please provide your recommendations on NS Power's proposed rollover policy.**

28 A56. NS Power should continue its previous program's policy of allowing customers to select their  
29 anniversary or rollover date. To ensure compliance with the *Electricity Act*, NS Power could  
30 prohibit participants from changing their rollover date more than once in a 24-month period.

- 1 **Q57. Does that conclude your testimony?**
- 2 A57. Yes.

**APPENDIX A: RESUME**



## Tyler Fitch, Senior Associate

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### PROFESSIONAL EXPERIENCE

**Synapse Energy Economics Inc.**, Washington, DC. *Senior Associate*, November 2021 – Present.

Conducts regulatory analysis and provides expert testimony on energy & climate issues. Examples include:

- Evaluating utility proposals for additional generation infrastructure against more economic and less carbon-intensive alternatives;
- Assessing the economic viability and prudence of continued operations of legacy coal plants as opposed to alternative resources and market purchases.

**Vote Solar**, Washington, DC. *Regulatory Director*, February – November 2021; *Regulatory Manager*, August 2018 – February 2021.

#### *Regulatory Director:*

- Directed Vote Solar’s climate and clean energy regulatory advocacy in the Carolinas, including public-facing reports and webinars; directing regulatory litigation; managing professional services and consultants; and developing advocacy in coalition with clean energy, environmental, and environmental justice stakeholders.
- Authored a technical report assessing stranded asset risk of electric generation infrastructure as a result of corporate carbon neutrality commitments. Results quoted in *Bloomberg*, *S&P*, and *GreenTechMedia*.
- Implemented a settlement with Duke Energy to conduct a region-leading investigation into physical climate-related impacts to electricity infrastructure in the Carolinas.
- Provided expert testimony in utility integrated resource planning proceedings identifying emergent climate-related risks and implications for utility planning, then providing recommendations for utility resource planning moving forward.

#### *Regulatory Manager:*

- Developed nation-leading quantitative assessment and regulatory direction for responding to the increase in residential utility debts as a result of COVID-19.
- Provided expert testimony on best practices in grid modernization in the context of climate-related physical risks to the North Carolina Utilities Commission.
- Provided expert testimony on utility rate design to the Virginia State Corporation Commission and Georgia Public Service Commission.



- Developed a flexible spreadsheet-based tool for assessing solar value proposition across several different rate design and project cost sensitivities.

**The University of Michigan**, Ann Arbor, MI. *Research Assistant, Urban Energy Justice Lab*, September 2016 – May 2018.

**ICF International**, Fairfax, VA. *Analyst*, October 2013 – June 2016.

- Developed energy efficiency scores for *ENERGY STAR* buildings using large data sets and multiple linear regression.
- As data lead for the multifamily sector of the *Better Buildings Challenge* wrote data policy and managed data submission for 100+ partners, spanning hundreds of buildings across the country.

## EDUCATION

**The University of Michigan**, Ann Arbor, MI

Master of Science, School of Natural Resources and the Environment, 2018

Masters Project: *Fueling a Transition: Evaluating the Feasibility for a Hybrid Renewable Microgrid in Beni, Democratic Republic of Congo*

**University of North Carolina**, Chapel Hill, NC

Bachelor of Science, 2013

Environmental Science, Focus: Energy and Sustainability; Minor: Computer Science

## PUBLICATIONS

Fitch, T., J. Tabernerero, D. Bhandari. 2022. *Carbon-Free by 2050: Pathways to Achieving North Carolina's Power Sector Carbon Requirements at Least Cost to Ratepayers*. Synapse Energy Economics for North Carolina Sustainable Energy Association, Southern Alliance for Clean Energy, Natural Resources Defense Council, and the Sierra Club.

Fitch, T., Kwok, S., Kalley, J., & Chang, M. 2022. *Designing Effective Electric Grid Resiliency Plans: Brief for Decisionmakers in Entergy New Orleans' Resiliency Planning Process*.

Fitch, T. 2021. *Carbon Stranding Briefing: Risks of Carbon Stranding in Duke Energy's Modified 2020 Integrated Resource Plan*. Vote Solar.

Fitch, T. 2021. *Initial Comments to South Carolina Public Service Commission on Measures to Be Taken to Mitigate Impact of Threats to Safe and Reliable Utility Service*. Vote Solar.

Fitch, T. 2021. *Partial Proposed Order to South Carolina Public Service Commission, related to Duke Energy Carolinas, LLC and Duke Energy Progress, LLC's 2020 Integrated Resource Plans*. Vote Solar.

Fitch, T. 2021. *Initial Comments to North Carolina Utilities Commission in the Matter of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC's 2020 Integrated Resource Plans*. Vote Solar.

Fitch, T. 2021. *Carbon Stranding: Climate Risk and Stranded Assets in Duke Energy's Integrated Resource Plans*. Vote Solar.

Fitch, T. 2020. *10 Principles for Duke's Integrated Resource Plans in the Public Interest*. Vote Solar.

Fitch, T., & Ottenweller, K. 2020. *The State of Rooftop Solar in Florida*. Vote Solar.

Fitch, T. 2020. *Principles for Protecting Electric Utility Customers in the Regulatory Response to COVID-19*. Vote Solar.

Fitch, T., & Ottenweller, K. 2020. *The Costs & Risks of Florida's Dependence on Natural Gas*. Vote Solar.

Fitch, T. 2020. *COVID-19 and the Utility Bill Debt Crisis*. Vote Solar.

Culley, T., & Fitch, T. 2019. *Comments to the North Carolina Department of Environmental Quality on Draft Clean Energy Plan*.

Fitch, T. 2018. *Islands of Light: Microgrids and the Public Good*. *Agora Planning Journal*, 12, 74-80.

Vanderwilde, C., & Fitch, T. 2018. *Fueling the Energy Transition: Can a Congolese community affordably electrify with renewable resources?* University of Michigan Sustainability Cases.

Fitch, T., Lenhart, A., Buchanan, C., & Jeong, B. 2018. *Get Free: Understanding the Potential for Community Solar Power in Highland Park*. Dow Sustainability Report Series.

## TESTIMONY

**North Carolina Utilities Commission (Docket No. E-100 Sub 179):** Direct Testimony of Tyler Fitch in the matter of Duke Energy Progress and Duke Energy Carolinas' 2022 Carbon Plan. September 2, 2022.

**Georgia Public Service Commission (Docket No. 44160):** Direct Testimony of Tyler Fitch in the matter of Georgia Power Company's 2021 Integrated Resources Plan. May 4, 2022.

**South Carolina Public Service Commission (Docket Nos. 2019-224-E and 2019-225-E):** Surrebuttal Testimony of Tyler Fitch in the matter of the 2020 Integrated Resource Plans for Duke Energy Carolinas, LLC and Duke Energy Progress, LLC. April 15, 2021.

**South Carolina Public Service Commission (Docket Nos. 2019-224-E and 2019-225-E):** Direct Testimony of Tyler Fitch in the matter of the 2020 Integrated Resource Plans for Duke Energy Carolinas, LLC and Duke Energy Progress, LLC. February 5, 2021.

**North Carolina Utilities Commission (Docket No. E-2, Sub 1219):** Direct Testimony of James Van Nostrand and Tyler Fitch in the Matter of Application of Duke Energy Progress, LLC for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina. April 13, 2020.

**Virginia State Corporation Commission (Docket No. PUR-2019-00214):** Direct Testimony of Tyler Fitch in the matter of the Application of Virginia Electric and Power Company for approval to establish an experimental residential rate. March 31, 2020.

**North Carolina Utilities Commission (Docket No. E-7, Sub 1214):** Direct Testimony of James Van Nostrand and Tyler Fitch in the Matter of Application of Duke Energy Carolinas, LLC for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina. February 18, 2020.

**Georgia Public Service Commission (Docket No. 42516):** Direct Testimony of Tyler Fitch and Rick Gilliam in the Matter of Georgia Power Company's 2019 Base Rate Case. October 17, 2019.

*Resume updated January 2023*

**APPENDIX B: EXCERPT OF INTERSTATE RENEWABLE ENERGY COUNCIL'S *MODEL***  
**INTERCONNECTION PROCEDURES (2019): PRE-APPLICATION REPORT**

## MODEL INTERCONNECTION PROCEDURES – 2019 EDITION

Interconnection Agreement apply for existing Generating Facilities.

5. Group Study: In some instances, typically where multiple Generating Facilities are electrically interrelated, studying them jointly in a group study process could increase cost and time efficiencies. If the Utility and the Applicant mutually agree, the Application may be studied in a group with other applications.<sup>4</sup>
6. Continued Review: If an Application is denied approval for interconnection under one level, but the Applicant decides to continue with review under another level within ten (10) Business Days of receipt of that denial, the Applicant shall retain its original queue position.

### D. Applicable Standards

Unless waived by the Utility, a Generating Facility must comply with the standards identified in Attachment 2, as applicable.

## II. PRE-APPLICATION REPORT<sup>5</sup>

### A. Pre-Application Report Request

1. A Pre-Application Report Request shall include:
  - a. Contact information (name, address, phone number, and email address).

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<sup>4</sup> In markets with substantial interconnection activity it can be difficult for utilities to complete studies in a timely manner where there are many projects in the queue. Some states have created group or cluster study processes to try to move the study process faster. Group studies do create additional complexities, however, and no best practice has emerged on how to best handle them. It does make sense to allow them where a natural group of projects emerge (particularly where one developer is the proponent for multiple projects) and there can be a group study timeline and cost allocation worked out on a mutually agreeable basis.

<sup>5</sup> In addition to Pre-Application Reports, some utilities are now publishing publicly available maps of their systems, which provide basic information such as line voltage and capacity at specific points on the systems, or even offer actual calculated hosting capacity for each node. Adoption of mapping tools enable customers to get information without requiring utility staff time and can reduce the number of requests for Pre-Application Reports. California's Rule 21 also provides for an Enhanced Pre-Application Report. For an additional fee, an applicant can request additional packages of information from the utility, including information about minimum load, existing upstream protection devices, available fault current at the proposed Point of Interconnection, transformer data, and primary and secondary services characteristics. These can help applicants design projects more correctly from the start with fewer surprises later in the process.

**MODEL INTERCONNECTION PROCEDURES – 2019 EDITION**

- b. A proposed Point of Interconnection. The proposed Point of Interconnection shall be defined by latitude and longitude, site map, street address, utility equipment number (e.g., pole number), meter number, account number, or some combination of the above sufficient to clearly identify the location of the Point of Interconnection.
  - c. Generating Facility type (e.g., solar, wind, combined heat and power, storage, solar plus storage, etc.).
  - d. Nameplate Rating and Generating Capacity (if different).
  - e. Single- or three-phase configuration.
  - f. Whether generator is stand-alone or will service on-site load.
  - g. Whether new service is requested.
  - h. \$300 non-refundable processing fee.
2. In requesting a Pre-Application Report, a potential Applicant understands that:
- a. The existence of “available capacity” in no way implies that an interconnection up to this level may be completed without impacts because there are many variables studied as part of the interconnection review process.
  - b. The distribution system is dynamic and subject to change.
  - c. Data provided in the Pre-Application Report may become outdated and not useful at the time of submission of the complete Application.

**B. Pre-Application Report**

1. Within ten (10) Business Days of receipt of a completed Pre-Application Report Request, the Utility shall provide a Pre-Application Report. The Pre-Application Report shall include the following information, if available:
  - a. Total capacity (MW) of substation/area bus or bank and circuit likely to serve proposed site.

**MODEL INTERCONNECTION PROCEDURES – 2019 EDITION**

- b. Aggregate existing Generating Capacity (MW) interconnected to the substation/area bus or bank and circuit likely to serve proposed site.
- c. Aggregate queued Generating Capacity (MW) proposing to interconnect to the substation/area bus or bank and circuit likely to serve proposed site.
- d. Available capacity (MW) of substation/area bus or bank and circuit likely to serve proposed site. Available capacity is the total capacity less the sum of existing and queued Generating Capacity, accounting for all load served by existing and queued generators. Note: Generators may remove available capacity in excess of their Generating Capacity if they serve on-site load and utilize export controls which limit their Generating Capacity to less than their nameplate rating.
- e. Whether the proposed Generating Facility is located on an area, spot or radial network.
- f. Substation nominal distribution voltage or transmission nominal voltage if applicable.
- g. Nominal distribution circuit voltage at the proposed site.
- h. Approximate circuit distance between the proposed site and the substation.
- i. Relevant Line Section(s) and substation actual or estimated peak load and minimum load data, when available.
- j. Number and rating of protective devices and number and type of voltage regulating devices between the proposed site and the substation/area.
- k. Whether or not three-phase power is available at the site and/or distance from three-phase service.
- l. Limiting conductor rating from proposed Point of Interconnection to distribution substation.
- m. Based on proposed Point of Interconnection, existing or known constraints such as, but not limited to, electrical dependencies at that location, short circuit interrupting capacity issues, power quality or stability issues on the circuit, capacity constraints, or secondary networks.

## MODEL INTERCONNECTION PROCEDURES – 2019 EDITION

- n. Any other information the Utility deems relevant to the Applicant.
2. The Pre-Application Report need only include pre-existing data. A Pre-Application Report request does not obligate the Utility to conduct a study or other analysis of the proposed project in the event that data is not available. If the Utility cannot complete all or some of a Pre-Application Report due to lack of available data, the Utility will provide the potential Applicant with a Pre-Application Report that includes the information that is available and identify the information that is unavailable.
3. Notwithstanding any of the provisions of this Section, the Utility shall, in good faith, provide Pre-Application Report data that represents the best available information at the time of reporting.

### III. INTERCONNECTION REVIEW

#### A. Level 1: Screening Criteria and Process for Certified Inverter-Based Generating Facilities Not Greater than 25 kW

1. Application: An Applicant must submit a Level 1 Application, pursuant to Section I.C.1, using the standard form provided in Attachment 3 to these Interconnection Procedures, which may be sent electronically to a recipient designated by the Utility. An Applicant executes the standard Interconnection Agreement for Level 1 by submitting a Level 1 Application. A Utility may elect to charge a standard Application fee of up to \$100 for Level 1 review.<sup>6</sup>
2. Applicable Screens:
  - a. Facility Size: The Generating Facility has a Nameplate Rating not greater than 25 kW and is using a UL 1741 Certified inverter.
  - b. For interconnection of a Generating Facility to a radial distribution circuit, the Generating Facility's Generating Capacity<sup>7</sup> aggregated

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<sup>6</sup> Most states apply a Level 1 Application fee in the \$100 to \$200 range, though a number of states have chosen to waive the fee for net-metered facilities. In general, the appropriate fee should ensure that the Utility is compensated, on average, for a conducting reasonably efficient process. This can be achieved by requiring a utility to provide data regarding its actual costs for processing Level 1 applications and how many Level 1 applications it processes. This same approach should be used for setting any fee in these Interconnection Procedures.

<sup>7</sup> Currently there is no best practice for how Screen 2.b (Section III.A.2.b) should address the potential for Inadvertent Export from Generating Facilities incorporating the methods in Section IV.E.5 or IV.E.6 to limit their Generating Capacity. Whether the Generating Capacity, as proposed here, or Nameplate Rating is more appropriate for study under Screen 2.b (Section III.A.2.b) should be addressed as part of individual states' review and update of their interconnection procedures.



**APPENDIX C: EXCERPT OF INTERSTATE RENEWABLE ENERGY COUNCIL'S *MODEL INTERCONNECTION PROCEDURES* (2019): BI-ANNUAL REPORTING REQUIREMENTS**

**MODEL INTERCONNECTION PROCEDURES – 2019 EDITION****Attachment 9****Reporting Requirements**

Each Utility shall submit to the Commission make available to the public on its website an interconnection report the following information, as required by Section IV.D. The report shall contain information in the following areas, including relevant totals for both the year and the most recent reporting period.

1. Pre-Application Reports
  - a. Total number of reports requested
  - b. Total number of reports in process
  - c. Total number of reports issued
  - d. Total number of requests withdrawn
  - e. Maximum, mean, and median processing times from receipt of request to issuance of report
  - f. Number of reports processed in more than the ten (10) Business Days allowed in Section II.B.1
  
2. Interconnection Applications:
  - a. Total number received, broken down by:
    - i. Primary fuel type (e.g., solar, wind, bio-gas, etc.)
    - ii. System size (e.g., <20 kW, <1 MW, <5MW, >5MW)
  
  - b. Level 1 Review Process
    - i. Total number of applications processed
    - ii. Maximum, mean, and median processing times from receipt of complete Application to provision of counter-signed Interconnection Agreement
  
  - c. Level 2 Review Process
    - i. Total number of applications that passed the screens in Section III.B.2
    - ii. Total number of applications that failed the screens in Section III.B.2<sup>1</sup>  
Maximum, mean, and median processing times from receipt of complete Application to issuance of Interconnection Agreement

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<sup>1</sup> If the specific screens failed are not tracked in the public queue, or a queue is not published for smaller projects, then the utilities should be required to report on the number of projects that are failing each screen and in what size categories. Failure of specific screens is an important indication of whether penetrations are reaching high levels or whether other issues exist that may require a broader policy or technical solution.

**MODEL INTERCONNECTION PROCEDURES – 2019 EDITION**

- d. Level 3 Review Process
  - i. Total number of applications that passed the screens in Section III.B.2
  - ii. Total number of applications that failed the screens in Section III.B.2
  - iii. Maximum, mean, and median processing times from receipt of complete Application to issuance of Interconnection Agreement
  
- e. Supplemental Review
  - i. Total number of applications that passed the screens in Section III.D.1
  - ii. Total number of applications that failed the screens in Section III.D.1
  - iii. Maximum, mean, and median processing times from receipt of complete Application to issuance of Interconnection Agreement
  
- f. Level 4 Review Process
  - i. System Impact Studies
  - ii. Total number of System Impact Studies completed under Section III.F.4
  - iii. Maximum, mean, and median processing times from receipt of signed Interconnection System Impact Study Agreement to provision of study results
  
- g. Facilities Studies
  - i. Total number of Facilities Studies completed under Section III.F.5
  - ii. Maximum, mean, and median processing times from receipt of signed Interconnection Facilities Study Agreement to provision of study results
  - iii. Maximum, mean, and median processing times for projects undergoing the study process from receipt of complete Application to issuance of Interconnection Agreement
  
- h. Construction: Number of projects where final construction milestone was not reached by time specified in the Interconnection Agreement
  
- i. Number of Projects that achieved Commercial Operation, by:
  - i. Primary fuel type (e.g., solar, wind, bio-gas, etc.)
  - ii. System size (e.g., <20 kW, <1 MW, <5MW, >5MW)