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Interrogatories of Commission Expert

TO: Prince Edward Island Energy Corporation
FROM: Synapse Energy Economics, Inc.
DATE: August 29, 2018
RE: Electricity Efficiency and Conservation Plan
DOCKET: UE41400

Throughout this document, the 2018-2021 Demand Side Management (“DSM”) Resource Plan will be referred to as “the Plan”.

1. Please provide all workpapers and workbooks supporting the Plan in electronic spreadsheet format, including all calculations, formulas, and input links and all assumptions defined. Where appropriate, please identify the source information for data used in this analysis.
2. Please provide the most recent Integrated Resource Plan, referenced on Page 32, Footnote 15 of the Plan. Please provide all related documents including all appendices (if any).
3. Please provide any and all analyses that PEIEC has prepared or utilized regarding the technical, economic, or achievable potential for energy efficiency for the last four years. Please provide any and all related reports, documents, or workpapers associated with those analyses.
4. Please describe any similarities and differences between the energy environment of Nova Scotia and PEI with respect to Nova Scotia’s most recent DSM potential study, referenced on Page 32 of the Plan. Please provide any and all related reports, documents, or workpapers associated with that analysis.
5. Please explain how PEI’s energy environment has changed since the publication of the Vermont Efficiency Investment Corporation (VEIC) Energy Efficiency Designs and Achievable Potential for PEI Study in 2008, referenced on Page 32 of the Plan. Please explain how DSM technology or relevant standards have changed since 2008. Please provide any and all related reports, documents or workpapers associated with that analysis.

6. For each of the programs included in PEIEC's DSM Plan, please provide the annual costs broken out in detail, using the cost tracking categories used by PEIEC or the following cost categories:
 - a. General administration and program development;
 - b. Customer incentive costs, including rebates, grants, energy audits, direct install labor costs, technical assessments and financing interest buy down costs;
 - c. Marketing, sales, call centers, website;
 - d. Training;
 - e. Inspections and quality control;
 - f. Evaluation, monitoring, measurement, and verification;
 - g. Participant cost.
7. In addition to the values provided in Table 2, Table 3, and Table 4 of the Plan and in Appendix A, for each of the programs, please clarify or provide the following information, *for each program year* where appropriate:
 - a. Lifetime energy savings (MWh)
 - b. Peak capacity savings (kW), broken out by summer and winter
 - c. Average measure life (years)
 - d. Number of customers eligible for the program
 - e. Cumulative energy savings (MWh) adjusted for decay, for each year over the lifetime of the program
 - f. Cumulative peak capacity savings (kW) adjusted for decay, for each year over the lifetime of the measures
8. For each of the programs in PEIEC's Plan, please provide all detailed cost-effectiveness results for the following tests (a) Program Administrator Cost test; (b) Total Resource Cost Test; (c) Societal Cost test; (d) Participant test; and (f) any other test used. Please include the following results for each of the tests:
 - a. Annual utility costs for each year of the study period.
 - b. Annual participant costs for each year of the study period.
 - c. Annual benefits for each year of the study period.
 - d. Cumulative present value of costs.
 - e. Cumulative present value of benefits.
 - f. Net benefits.
 - g. Benefit cost ratio.
9. For each of the programs included in PEIEC's DSM Plan, please answer the following questions:
 - a. How did PEIEC develop its cost estimates for each program?
 - b. Please provide all key assumptions used to develop cost estimates for each program. Please also provide all key reports, documents or workpapers used to develop the key cost assumptions.
 - c. How did PEIEC develop its savings estimates for each program?

- d. Please provide all key assumptions used to develop savings estimates for each program. Please also provide all key reports, documents or workpapers used to develop the key savings assumptions.
10. For each of the screening tests used by PEIEC in analyzing cost-effectiveness, please answer the following questions.
 - a. Please describe what types of costs and benefits PEIEC included in the test.
 - b. Please describe how each test was used to screen programs.
 - c. Please provide the discount rate used for each test.
11. For each of the programs included in PEIEC's proposed DSM Plan, please provide any and all estimates of free-riders, spillover, or market transformation impacts assumed by PEIEC. Please provide any and all related reports, documents or workpapers associated with those estimates.
12. The following types of programs and measures are not included in PEIEC's proposed DSM plan. For each program not included in the plan, please provide any and all analyses undertaken regarding the program, including all relevant assumptions regarding the program design, costs, benefits, savings, and cost-effectiveness.
 - a. A multi-family program
 - b. An agricultural program
 - c. A strategic energy management or continuous energy improvement program for commercial and industrial customers
 - d. A net zero energy building pilot program
13. Regarding the Enabling Strategies program described on Page 51, please clarify whether the program will include an energy conservation behavioral program. If so, please describe the behavioral program, including information about targeting, frequency and length of participant engagement with the program, platform/media for engaging participants, number of participants, program administrator cost, and other relevant details.
14. Refer to Page 6 of the Plan where PEIEC described "all of the energy and demand savings included in this document are electricity only; as well all of the reported investment/costs are for electricity only... ePEI will establish detailed procedures for separately tracking costs and energy savings for electricity and other fuels".
 - a. Please explain why the DSM plan does not include fuel savings.
 - b. When does PEIEC plan to establish detailed procedures for separately tracking costs and energy savings for electricity and other fuels?
15. Refer to Page 8 of the Plan, on which PEIEC describes a 10-year Energy Strategy. The Strategy sets a goal to achieve first year savings of 2 percent of electrical and non-electrical energy consumption by 2020. Similarly, on Page 13 of the Plan, PEIEC states that government funding in the form of the Low Carbon Economy Fund (LCEF) will be used to reduce consumption of electricity and other non-electrical fuels.
 - a. In regards to non-electrical fuels, please provide the following, including all related reports, documents, or workpapers associated with that analysis:
 - i. All fuel types from which PEIEC will include or track savings. Please include the units of measurement that will be used to quantify savings.

- ii. Anticipated non-electrical fuel savings by program and by fuel type, in the units of measurement specified above.
 - iii. Anticipated non-electrical fuel savings as a percent of total non-electrical fuel sales, with all units converted to MMBTUs.
 - b. How is the goal allocated between i) electricity and other non-electrical fuels, and between ii) each type of non-electrical fuel noted in part a.i of this question?
 - c. Does the goal allocation reflect non-electrical load forecasts? If so, please provide the forecast by fuel type, describe the methodology and assumptions used to develop the forecast, and provide any related reports, documentation, and workpapers.
 - d. How have non-electrical load forecasts and savings been incorporated into the Plan? Please include all related reports, documents or workpapers associated with that analysis.
- 16. Please provide a complete, detailed description of the avoided costs used by PEIEC in evaluating the cost-effectiveness of its proposed DSM programs. Provide the avoided costs for each year of the study period and by utility. Please provide the avoided costs broken out by the following elements, along with the data sources and methodologies used to develop the avoided costs:
 - a. avoided energy costs (in \$/MWh)
 - b. avoided capacity costs (in \$/kW-year)
 - c. avoided transmission cost (in \$/kW-year)
 - d. avoided distribution costs (in \$/kW-year)
 - e. avoided cost of compliance with current and anticipated provincial and federal environmental regulations
 - f. avoided line losses
 - g. any other element of avoided costs assumed
- 17. Please provide any and all estimates that PEIEC has prepared or utilized within the past three years on the costs of provincial or federal regulations on the emission of greenhouse gases. Please provide any and all reports, documents and workpapers supporting these estimates.
- 18. Refer to the cost-effectiveness analyses of the programs in PEIEC's proposed DSM Plan.
 - a. For each of the proposed programs, please provide any and all estimates of participant non-energy benefits (e.g., safety, health, reduced operations and maintenance costs, and increased productivity) that PEIEC is aware of, has produced, or has caused to be produced, for its programs or for similar program(s) in other jurisdiction(s). Please provide any and all related reports, documents or workpapers associated with those estimates.
- 19. Refer to the cost-effectiveness analysis of the programs in PEIEC's proposed DSM Plan.
 - a. For each of the proposed programs, please provide any and all estimates of other resource benefits (e.g., other fuel savings and water savings) that analysis PEIEC is aware of, has produced, or has caused to be produced, for its programs or for

- similar program(s) in other jurisdiction(s). Please provide any and all related reports, documents or workpapers associated with those estimates.
- b. For each of the proposed programs, please indicate any and all other resource benefits that were used in the cost-effectiveness analysis. Please provide any and all related reports, documents or workpapers associated with those estimates.
 - c. If any other resource benefits were not included in the cost-effectiveness analysis, why not?
20. Please refer to Tables 8, 9, and 10 of the Plan.
- a. Please provide the expected funding breakout between Maritime Electric and Summerside Electric ratepayers. Please provide any and all related reports, documentation or workpapers.
 - b. Please describe the source, nature, and duration of the federal government funding source.
 - i. What is the expected frequency and value of payments within each program year?
 - ii. How will PEIEC maintain the programs between funding installments?
 - iii. Is there a plan for maintaining the EE&C programs if or when federal funds cease or decrease?
 - c. Please describe the source, nature, and duration of the provincial government funding source.
 - i. What is the expected frequency and value of payments within each program year?
 - ii. How will PEIEC maintain the programs between funding installments?
 - iii. Is there a plan for maintaining the EE&C programs if or when provincial funds cease or decrease?
21. In addition to the electricity sales provided in Table 7, please provide the following historic information for each of the past four years, by customer class and for each utility:
- a. number of customers
 - b. peak demand for summer and winter (in MW)
 - c. revenues collected
 - d. rates, including energy charges, demand charges, customer charges, DSM charges, and any other charges included in customer rates
22. Please describe the methodology and assumptions used to develop the sales forecast in Table 7, and provide any related reports, documentation, and workpapers.
23. In addition to the electricity forecast provided in Table 7, please provide any and all forecasts that PEIEC has of the following information for the next four years, by customer class and utility, including a description of the methodologies and assumptions used to develop each forecasted value:
- a. number of customers
 - b. peak demand for summer and winter (in MW)
 - c. revenues collected

- d. rates, including energy charges, demand charges, customer charges, DSM charges, and any other charges included in customer rates
24. Has PEIEC established whether low and modest income customers will contribute to the funding of EE&C programs? If not, please describe how low and moderate income programs will be funded. Please provide any and all related reports, documentation or workpapers.
25. Refer to Page 24 of the DSM plan, lines 8 to 14.
 - a. Based on PEIEC's review of energy efficiency program cost recovery mechanisms in other jurisdictions, please indicate which jurisdictions recover program costs annually.
 - b. Please describe in detail the administrative burden of resetting riders for each rate class.
 - c. Are there any jurisdictions that set EE&C rate riders on a three-year term basis? If so, please indicate which jurisdictions use this approach.
 - d. Regarding the administrative burden of resetting the EE&C rate riders every year, does PEI have any other rate riders that are reset every year? If so, please describe the experience with modifying the rider annually.
 - e. Would it be administratively burdensome to reset EE&C rate riders annually if the rate riders do not differ for each rate class? Why or why not?
26. Refer to the cost recovery mechanism discussed on Page 24 of the DSM plan and the proposed programs presented on Table 2 through 4 of the DSM plan. Please provide a summary table that presents rate classes targeted under each proposed EE&C program.
27. Refer to Page 26 regarding the proposed program cost true-up mechanism.
 - a. Suppose one program under one rate class is under-subscribed in one year, but another program under the same rate class receives higher than expected demand/participants beyond its allocated budget. For this kind of situation, is PEIEC proposing any mechanism to shift funding between programs in a timely manner to meet the changing market demand? If so, please explain this mechanism in detail. If not, please describe how PEIEC plans to address this issue.
28. On Page 6 and Page 29 of the Plan, PEIEC references the existing and future involvement of Summerside Electric in DSM programs.
 - a. Please describe Summerside Electric's historical involvement with energy efficiency programs and activities.
 - b. Please provide all available savings data for the programs and activities identified in part a. of this question.
 - c. Has Summerside Electric signed any agreement with PEIEC for PEIEC's EE&C service? If so, please provide the agreement. If not, please provide any documentation that shows the utility's commitment to PEIEC's EE&C programs.
29. Refer to Page 30 of the DSM plan regarding evaluation and verification (E&V) of energy savings.
 - a. Has PEIEC developed an E&V plan? If so, please provide it.
 - b. If the answer to part a. of this question is no, please answer the following questions:

- i. Please explain why the entity has not developed the plan yet, and when it is planning to develop an E&V plan.
 - ii. Has PEIEC included the cost of developing an E&V plan in its EE&C Plan? If so, how much did it allocate to this task?
30. Please provide any and all estimates that PEIEC has of the rate impacts of its DSM programs. Please provide any and all related reports, documentation or workpapers.
31. Please provide any and all estimates that PEIEC has of the bill impacts of its DSM programs. Please provide any and all related reports, documentation or workpapers.
32. Please provide any and all related reports, documents or workpapers associated with the recovery of lost revenue from ratepayers.
33. Has PEIEC established a position on whether it should be allowed to earn shareholder incentives with regard to the implementation of energy efficiency programs? If so, please describe PEIEC's position, and please provide any related reports, documents or workpapers associated with it.

Additional interrogatories may follow.