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Request IR-28:

Reference: Exhibit E-7(C)(R) ENSC (Avon) IR-11a Confidential Attachment 1 ENSC-EERAM, Tab “new AVCOS”, Columns E and F.

Please provide the analysis and assumptions used to estimate the avoided energy cost and avoided capacity cost.

Response IR-28:

Please refer to Avon IR-31a.

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Request IR-29:

Reference: ENSC Ex E-7(C)(r) Avon-IR-11-a-EERAM Corrected April 11, 2012. When the avoided cost in the EERAM model is set to 50% of the NSPI provided avoided cost (by setting set cell D8 on tab "new AVCOS" to 50%) the vertical bar chart "C&I Incremental Market Energy Potential (MWh)" on tabs "Scenario Switches" and "Summary Report-C&I" shows zero MWh for 2014 and 2015 as well as 2023 and beyond.

a) Is this model behaviour as expected? If so, please explain why the market energy potential is going to zero for years 2014 and 2015 but not the following years, and only for C&I and not residential.

b) If this model behaviour is expected, what other aspects of the model are impacted if C&I market energy potential is zero?

Response IR-29:

a) This question concerns a worksheet in the RAM Tool, labeled "Diffusion" that was unused for ENSC's DSM Plan development. The referenced result occurred since the value in a single cell, in the unused Diffusion worksheet, contained a zero instead of a formula.

b) Please refer to part a.

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Request IR-30:

Reference: Exhibit E-7(C)(R) – Attachment 1, Tab “Avoided Cost”

Why are the avoided cost values zero (Columns C through O), except for the "Other" category (columns Q and R)?

Response IR-30:

The columns with zero values in the “Avoided Cost” worksheet are not used in the ENSC version of the Energy Efficiency Resource Assessment Model (RAM Tool), but have been used in other applications of the RAM Tool for some of Navigant’s other clients. For ENSC, the avoided costs provided by NSPI include two streams, energy and capacity, which are represented in columns Q and R, respectively.

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Request IR-31:

Reference: ENSC (Synapse) IR-14a, Confidential Attachment 1 – 2012 Annual Avoided Costs of DSM.

a) The attachment shows total avoided costs With DSM and No DSM. Please separate the totals between capacity costs and energy costs and separate each of capacity and energy costs between operating costs and capital costs.

b) Provide the generation output by unit and the fuel and non-fuel operating cost for each unit for each year in the With DSM and No DSM cases.

Response IR-31:

a) Please see Confidential Attachment 1 for the total costs of the With DSM and No DSM Plans separated out by operating costs (fuel, purchased power and operating/maintenance) and capital costs.

The individual Plans are not separated out by energy and capacity costs. Rather, a portion of the total cost difference between the Plans is attributed to avoided capacity based on the 280 MW natural gas combined cycle unit added in 2022 in the No DSM Plan. (Other natural gas units added in the No DSM Plan are required for energy and not capacity). These avoided capacity costs are from the generation planning tool, Strategist, which has a specific module that allows for estimating the effect of deferring and avoiding capacity. An incremental 20 percent is added for reserve margin requirements (for every 1 MW of peak demand savings, 1.2 MW of capacity is avoided).

Please refer to Confidential Attachment 2 which shows the annual avoided capacity cost on a \$ per kW basis for the “high bookend” case with Bowater and Port Hawkesbury Paper Mill PM2 Load. These avoided capacity costs are converted to a \$ per MWh value

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1 based on the capacity of the avoided unit (280 MW) and the annual energy of the DSM
2 profile. The avoided capacity costs can then be subtracted from the annual combined
3 energy and capacity values to give the estimated annual avoided energy costs.
4

5 b) Please refer to Confidential Attachment 3 for the generation, fuel costs and non-fuel
6 operating costs by unit and by year for the With DSM Plan.
7

8 Please refer to Confidential Attachment 4 for the generation, fuel costs and non-fuel
9 operating costs by unit and by year for the No DSM Plan.

CONFIDENTIAL (Attachments 1, 2, 3, 4)

- 1 Attachments 1, 2, 3, and 4 are filed Confidentially, and must be accessed through the UARB
- 2 Confidential Repository.

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Request IR-32:

Reference: ENSC (Synapse) IR-14b Confidential Attachment 2

Show how the avoided unit capacity costs and avoided unit energy costs were calculated.

Response IR-32:

Please refer to Avon IR-31a.

CONFIDENTIAL (Attachments 1, 2, 3)

Request IR-33:

Reference: ENSC (Synapse) IR-14 Confidential Attachment 3

Please provide a listing of all components of firm capacity (by unit) for each year.

Response IR-33:

Please refer to Confidential Attachment 1 for a breakdown of the firm capacity in 2012.

Please refer to Confidential Attachment 2 for the firm capacity additions in the With DSM Plan.

Please refer to Confidential Attachment 3 for the firm capacity additions in the No DSM Plan.

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Request IR-34:

Reference: ENSC (Avon) IR-13 and ENSC (Synapse) IR-14 Confidential Attachment 3

- a) The response to Avon IR-13 shows the planning reserve through 2017. Please update this to show planning reserve through 2032.
- b) If the planning reserve margins increase after 2017, explain why.
- c) Please explain why the actual reserve margins are higher than the planning reserve margins.
- d) Does NSPI have any plans to bring the actual reserve margins closer to the planning values? Please explain the answer.

Response IR-34:

- a) Please refer to Attachment 1.
- b) The planning reserve margin for Nova Scotia Power is 20% and is a minimum requirement. The forecast planning reserve margin increases in the With DSM and No DSM Plans due to supply side additions that are required to meet the modeled system constraints. No unit retirements were assumed in this analysis.
- c) Please refer to part b.
- d) NSPI is responding to significant changes in the business including increased levels of renewable energy and more stringent environmental requirements. This is reflected in recently announced plans for the seasonal shutdown of two coal units at Lingan. Any plans to reduce capacity will require more detailed study and analysis taking into

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1 consideration such items as the operating flexibility of the fleet, wind capacity
2 contribution, and other operating constraints. NSPI is currently undertaking a
3 Renewables Integration study and the results of the study should provide insight into
4 some of the capacity issues related to renewables.

Avon IR-34 Attachment 1

Forecast Planning Reserve Margin

	With DSM Case	No DSM Case
2012	23%	22%
2013	24%	21%
2014	27%	23%
2015	28%	24%
2016	29%	23%
2017	30%	24%
2018	33%	26%
2019	34%	25%
2020	35%	24%
2021	36%	23%
2022	37%	35%
2023	38%	36%
2024	39%	35%
2025	41%	35%
2026	57%	41%
2027	58%	47%
2028	59%	46%
2029	60%	45%
2030	61%	44%
2031	62%	56%
2032	64%	55%

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Request IR-35:

Reference: ENSC (Avon) IR-14b,

a) Please explain the allocation described as “general”.

b) Once allocated 50/50 between residential and BNI, how or on what basis does ENSC further assign these costs to the individual customer classes which make up the BNI group?

Response IR-35:

a) The term “general” in ENSC’s response to Avon IR-14b refers to a 50:50 preliminary allocation between the Residential and BNI customer classes for the referenced Other Enabling Strategies. The equal share was used for those strategies for which ENSC was not able to predict the participation or benefits for particular customer classes. This allocation is preliminary only. Please see Avon IR-36 for a description of the direct assignment of costs as they are incurred.

b) The portion of the costs allocated to BNI is further allocated among the BNI classes using an allocator that corresponds to the proportion of all other program costs that are allocated to the BNI classes.

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Request IR-36:

Reference: ENSC (Avon) IR-14(d), lines 13-15

Please describe qualitatively and quantitatively by what objective measure as expenditures occur, “ENSC will ‘consider’ the affected rate classes and directly assign costs”?

Response IR-36:

As expenditures for Education and Outreach and Development and Research occur, ENSC will consider each one on a case-by-case basis in order to apply appropriate assignment of costs. As parties are engaged to fulfill these Enabling Strategies, ENSC will determine, to the extent possible, the benefitting rate classes.

Examples of how this determination may occur include:

- service providers identifying the nature of the work on invoices in order to identify the rate classes involved
- participants providing rate-class information
- Program manager direction on the benefitting rate class(es). For example, ENSC would assume a Home Show presentation would benefit Residential customers, while a workshop on commercial kitchens would benefit Small and General rate classes.

ENSC may not be able to directly assign costs of some Education and Outreach or Development and Research components. For example, ENSC’s Green Schools program, in which students learn about energy efficiency, is designed to provide awareness and build an energy efficiency culture among students that they will use throughout their lives in Residential and BNI sectors.

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Request IR-37:

Reference: ENSC (Multeese) IR-6c, Attachment 2, resource plans – 2012 avoided costs of DSM.

Do the resource plans include the outstanding proposed procurement of renewable energy by the REA for which approval of the PPA is being sought? Please explain in what year?

Response IR-37:

The resource plans include the renewable options that were developed in the 2009 IRP Update Basic Assumptions. The model selects from these options to meet the Renewable Electricity Standard (RES) requirements in the With DSM and No DSM Plans. These options are general in nature and do not represent specific projects.

The short term plans of the Renewable Electricity Administrator (REA) are generally consistent with the wind additions in the With DSM plan up to 2015. Please refer to Avon IR-38b.

CONFIDENTIAL (Attachments 2, 3)

Request IR-38:

Reference: ENSC (Multeese) IR-6c Attachment 2

- a) Please reconcile the capacity additions to the total capacity figures on Synapse IR-14 Confidential Attachment 3.**
- b) What are NSPI's or the REA's plans for solicitations of new capacity? Please show wind, solar, hydro and other separately.**
- c) How much renewables capacity does NSPI require to meet the Renewables Energy Standard in each of the next 10 years?**
- d) Wind projects are shown in terms of nameplate capacity. What is the firm capacity of each?**
- e)**
 - i. Explain the "back-up adder cost" of \$10/MWh.**
 - ii. How and when was this determined and why is it shown in US\$?**
 - iii. Is NSPI updating the back-up adder cost? Please explain the answer.**
- f) Please show the transmission cost for each project (capital and operating costs separately).**
- g) Provide calculations of the annual costs of return, taxes and depreciation.**

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Response IR-38:

a) Please refer to Avon IR-33.

b) NSPI does not have plans to release a solicitation for new capacity.

The REA is expected to release an RFP for new renewable energy in May 2012. The REA has signaled that all projects that have filed a Notice of Intent to bid are wind. The draft RFP is for 300 GWh/year and the REA has stated that he will be willing to accept up to 407 GWh/year under the planned process. Projects selected under this RFP are required to be online by December 31, 2014.

c) There is no specific renewable capacity requirement to meet the Renewable Electricity Standard. The requirement is for a minimum amount of energy to be served by renewables as a percentage of sales. The nameplate capacity added for each renewable project will depend on the annual energy production target in the PPA. Please refer to Attachment 1 for the renewable energy requirements for the next ten years in the With DSM Plan and the No DSM Plan.

d) Please refer to Avon IR-33.

e)

i. The back-up wind adder was estimated as the cost of a long run build of assets required to provide power system regulation and load following.

ii. The back-up adder was part of the 2009 IRP Update Basic Assumptions that were developed jointly by NSPI and the UARB staff and consultants and vetted by stakeholders. The assumption for the backup wind adder in the 2007 IRP and 2009 IRP Update was assumed in USD.

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1 iii. The back-up adder will be re-evaluated as more wind is added to the system and
2 actual system performance can be studied. As well, NSPI is currently involved in
3 a Renewables Integration study and the results from the study could provide an
4 updated approach to account for the cost of ancillary services.

5
6 f) The transmission costs were modeled as capital costs only. Multeese IR-6c Attachment 2
7 indicates that there were transmission costs modeled for the Biomass PPA and the
8 Combined Cycle Gas (150 MW); however there were no transmission costs for these
9 projects. Please refer to Confidential Attachment 2.

10
11 g) Please refer to Confidential Attachment 3 for the return on rate base, depreciation and
12 taxes in the With DSM and No DSM Plans. Annual values are from the Strategist model
13 output.

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- 1 Attachments 2 and 3 are filed Confidentially, and must be accessed through the UARB
- 2 Confidential Repository.

With DSM Plan (Case with Bowater and Port Hawkesbury Paper Mill (PM2) Load

	Estimate of Sales GWh	RES Target %	Renewable Energy Requirement GWh
2012	11,257	5	563
2013	11,245	10	1125
2014	11,217	10	1122
2015	11,198	25	2799
2016	11,148	25	2787
2017	11,108	25	2777
2018	11,037	25	2759
2019	10,980	25	2745
2020	10,899	40	4359
2021	10,835	40	4334
2022	10,763	40	4305

No DSM Plan (Case with Bowater and Port Hawkesbury Paper Mill (PM2) Load

	Estimate of Sales GWh	RES Target %	Renewable Energy Requirement GWh
2012	11,351	5	568
2013	11,457	10	1146
2014	11,554	10	1155
2015	11,657	25	2914
2016	11,745	25	2936
2017	11,834	25	2958
2018	11,896	25	2974
2019	11,973	25	2993
2020	12,038	40	4815
2021	12,113	40	4845
2022	12,175	40	4870