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2016-2018 DSM Plan (NSUARB M06733)
NSPI Responses to EfficiencyOne Information Requests

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Request IR-1:

Please provide, for each of the last 10 years, NS Power's:

(a) Revenue requirement;

(b) Annual percentage return on equity and corresponding dollar amount;

(c) The allowed range of return;

(d) The regulated common equity percentage of capitalization (if not 40.0 percent, please explain why not).

Response IR-1:

(a-d) Please refer to the table below.

	(a) Revenue Requirement (\$M)	(b) Return on Equity (%)	(b) Regulated Net Earnings (\$M)	(c) Approved Range of Return (%)	(d) Regulated Common Equity (%)
2005	999.9	8.70%	100.3	9.3% - 9.8%	38.1%
2006	1,106.6	9.60%	107.4	9.3% - 9.8%	39.4%
2007	1,159.5	9.20%	103.0	9.3% - 9.8%	40.0%
2008	1,159.5	9.70%	109.6	9.3% - 9.8%	40.0%
2009	1,255.5	9.20%	111.8	9.1% - 9.6%	42.0%
2010	1,255.5	9.60%	126.8	9.1% - 9.6%	40.0%
2011	1,257.0	9.60%	131.3	9.1% - 9.6%	40.0%
2012	1,367.6	9.40%	130.7	9.1% - 9.5%	39.4%
2013	1,238.3	9.24%	132.2	8.75 - 9.25%	38.8%
2014	1,271.0	9.25%	133.2	8.75 - 9.25%	38.8%

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2

NS Power manages the regulated common equity percentages within the UARB-

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approved band. The equity percentage can fluctuate within this band based on the

4

financing needs of the Company and the timing of financing events.

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1 **Request IR-2:**

2
3 **Please explain how NS Power's interpretation of affordability takes into account how much**
4 **customers pay for fuel and operating costs for generation, as opposed to solely looking at**
5 **capacity additions.**

6
7 **Response IR-2:**

8
9 Please refer to CA IR-38.

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1 **Request IR-3:**

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3 **Reference: On page 14 of its Evidence, lines 16-17, NS Power mentions “the objective of**
4 **lowering costs for customers”**

5
6 **Please define “costs” in this instance, and state whether this includes cost reductions that**
7 **DSM participants incur due to reduced bills from efficiency measures.**

8
9 Response IR-3:

10
11 The full excerpt referenced is included below. In the following sentences “costs” refer to the
12 costs associated with the increased rates that may be experienced by customers if NS Power is
13 required to procure more DSM than the system requires or is affordable for customers.

14
15 In considering the issue of affordability and the objective of lowering costs for
16 customers, NS Power is mindful of the fact that because the energy efficiency
17 charge has been removed from electricity bills, there is no amount in customer
18 rates at present to pay for DSM, so new DSM spend will add to rate pressure. In
19 2016, NS Power will also be in the first period of the eight year amortization of
20 the 2015 expenditure on DSM as approved by the Board under Section 79Q of the
21 Act. As such, every additional dollar in DSM spending the Board approves in this
22 proceeding adds to rate pressure.

23
24 It does not refer to possible cost reductions that DSM participants may incur over the long-term
25 due to efficiency measures.

26
27 In E1 (NSPI) IR-11, E1 acknowledges, in the currently considered contract period, that increased
28 DSM investment will cause increased bills for customers in addition to increased rates.

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1 As shown in ENS's rate and bill impact analysis, in general, rates increase in the
2 near term when DSM investment is increased and decrease in the near term when
3 DSM investment is decreased.¹

¹ ENSC response to NS Power IR-11, March 27, 2015.

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Request IR-4:

Reference: On page 21 of its Evidence, lines 7-8, NS Power states “These changes alone should allow E1 to realize reductions, not increases, from the 2015 spending level of \$35 million.”

Please provide NS Power’s quantitative analysis, including all supporting documentation, and indicate if changes to market baselines and efficiency potential have been considered.

Response IR-4:

The full text of the excerpt referenced above pertains to the transfer of responsibility for low income homeowner programming and eligibility for investment tax credits (ITCs), and is included below. These two items were costs in previous plans and their removal should reduce E1’s 2016-18 costs of delivering DSM programs.

NS Power notes that the Company’s Evidence through Appendix A, the testimony of David Pickles, demonstrates that alternative DSM portfolio designs could achieve 100 GWh savings at reduced customer costs. These designs are supported by quantitative analysis and consider market baselines and efficiency potential as contained in E1’s ELRAM (which was also used to produce E1’s DSM plan).

In the E1 DSM Plan, E1 is now requesting \$0.29 to \$0.31/kWh, although they were able to achieve an actual delivered cost of \$0.26/kWh in 2014 (\$0.25/kWh with ITCs), a year that included as additional components both low income homeowner program costs (which had high unit cost) and full HST costs. For 2016 and beyond, the low income homeowner program costs have been removed from the E1 DSM Plan and the HST costs are expected to be reduced by ITCs. These changes alone should allow E1 to realize reductions, not increases, from the 2015 spending level of \$35 million.¹

¹ NS Power DSM Evidence, page 21 lines 1-8, April 10, 2015.

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1 **Request IR-5:**

2
3 **Reference: On page 23 of its Evidence, lines 11-16, NS Power states that “while all**
4 **customers within classes subject to DSM charges will pay for the costs of DSM, not all**
5 **customers within these classes will directly benefit from DSM in the short-term. This**
6 **inequity must be taken into consideration when assessing the affordability of DSM**
7 **programming.”**

8
9 **Would NS Power’s alternate DSM scenario increase or decrease the number of**
10 **participants? Please provide forecasts and any supporting documentation or analysis.**

11
12 **Response IR-5:**

13
14 Please refer to CA IR-1 and E1 IR-11. NS Power assumes that the franchise holder would
15 consider participation in re-designing its plan.

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1 **Request IR-6:**

2
3 **Reference: NS Power's Evidence, Page 28, lines 9-11.**

4
5 **NS Power suggests that EfficiencyOne should adopt technology at a later date "rather than**
6 **subsidize the market to force early transformation." Apart from the question of timing,**
7 **does NS Power accept that product incentives can be an effective tool for transformation of**
8 **the Nova Scotia market? If not, please explain why not.**

9
10 **Response IR-6:**

11
12 It is possible that Nova Scotia's particular contribution to technology transformation will not be
13 significant due to our market size but rather it generally is a worldwide evolution/development.
14 However, the level of incentive provided should be carefully assessed given the projected
15 evolution of the technology and the desired market uptake. For example, if customers are
16 willing to pay \$4 for a subsidized LED light bulb today, one could assume that they would
17 purchase the same light bulb without subsidy when its market price drops to \$4. If,
18 hypothetically, the price trend showed this market price reduction occurring over a three year
19 period, then the merits of a 50 percent subsidy should be evaluate over such 3 year timeframe.
20 Please refer to E1 IR-47.

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Request IR-7:

(a) Please provide the start date and description of services of ICF's engagement, specifically Mr. Pickles, on NS Power's DSM file.

(b) Please provide the total DSM-related costs NS Power has incurred from January 2014 to April 30, 2015. Please break the costs out into the following categories:

(i) Consultants: provide company or consultant names, costs broken out by company or consultant, and focus area (i.e., 2016-2018 DSM Resource Plan, 2014 IRP, October 1st rate and bill impact analysis filing, etc.);

(ii) Internal staff: provide total number of employees, total number of estimated hours, and total estimate of salary costs;

(iii) Any other costs: please identify.

Response IR-7:

(a) NS Power sought proposals for work in December and ICF's proposal was received on January 7, 2015. Work began shortly thereafter.

The description of work is:

Consultant will provide consulting services to NSPI to support the regulatory approval process and the execution of the 2016-2018 Supply Agreement between NSPI and EfficiencyOne.

NS Power began discussions with Mr. Pickles regarding the provision of expert testimony immediately following E1's filing.

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1 (b) (i) Consultants:

2
3 Aside from the Company engaging The Brattle Group for the 2014 IRP (which
4 would have had DSM aspects), all other consulting engagements were in
5 anticipation of and preparation for the regulatory proceeding for the 2016-2018
6 DSM plan.

7
8 (ii-iii) Internal staff:

9
10 NS Power and its employees are engaged in a variety of DSM-related activities
11 that reduce the energy consumption and peak in the province of Nova Scotia
12 Power. These activities include, but are not limited to the following: customer
13 service on bill-related inquiries and referrals to ENS, administration of the Net
14 Metering program, administration of rates, administration related to the time of
15 use rate, electric equipment promotion and financing.

16
17 The extent of NS Power's engagement in "DSM" is broad and affects many different
18 departments and activities. NS Power does not separately track the requested information
19 and therefore cannot provide those details. There are no staff dedicated to any one DSM
20 activity.

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1 **Request IR-8:**

2
3 **Reference: NS Power's Evidence, Page 3, lines 20-25.**

4
5 **Does NS Power consider avoiding capacity investments, meeting RES requirements and**
6 **meeting power system demand to be the only benefits of DSM? Please explain.**

7
8 **Response IR-8:**

9
10 No. The avoided costs of DSM used to calculate the benefits include the items listed in the IR as
11 well as avoided variable costs, primarily fuel. Participants may experience additional benefits.

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1 **Request IR-9:**

2
3 **Reference: NS Power's Evidence, Page 32, Figure 3.7**

4
5 **(a) Please confirm that CRP 1-1-FGD shows an increase in partial revenue**
6 **requirements beginning in 2023, as compared to a No-DSM scenario.**

7
8 **(b) Please indicate whether these partial revenue requirements include customer costs**
9 **for DSM.**

10
11 **Response IR-9:**

12
13 **(a) Confirmed.**

14
15 **(b) Figure 3.7 does not include the DSM customer costs in the partial revenue requirements.**

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1 **Request IR-10:**

2
3 **For the purposes of analyzing capacity additions, please confirm that NS Power's alternate**
4 **DSM scenario is most closely modeled by CRP 01-01-FGD (the IRP Candidate Resource**
5 **Plan that includes NS Power's Half-Low DSM Scenario), given that the "Low-DSM"**
6 **scenario considered in the IRP provided capacity savings of 72.2 MW over 2016-2018 and**
7 **NS Power's alternate DSM scenario provides 33.8 MW over that period.**

8
9 **Response IR-10:**

10
11 The Low-DSM scenario was not evaluated in the IRP. NS Power cannot confirm the above
12 statement. Please refer to E1 IR-11.

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1 **Request IR-11:**

2
3 **Reference: On Page 8 of its Evidence, lines 23-26, NS Power states that, “Based on the 2014**
4 **IRP results and NS Power’s recent analysis, NS Power’s proposed level of spending and**
5 **savings would produce a similar supply-side resource plan to E1’s proposed 2016-2018**
6 **savings over the next 17 years at approximately half the cost of E1’s proposal” [emphasis**
7 **added].**

8
9 **Please confirm that, at 33.8MW, the capacity savings of NS Power’s alternate DSM**
10 **scenario is only 54% of Efficiency Nova Scotia’s proposed DSM Plan of 62.5MW.**

11
12 **Response IR-11:**

13
14 NS Power used the ELRAM to produce four alternative DSM scenarios, a summary of which
15 had been included in NS Power’s Evidence at Appendix A, page 24, Table 6, as revised (please
16 refer to EAC IR-7).

17
18 NS Power is seeking that the Board direct E1 to design a DSM plan with input from NS Power
19 that would provide DSM spending of approximately \$22 million and achieve savings of
20 approximately 100 GWh per year over the 2016-18 contract period.

21
22 The Company’s Evidence provides a number of more cost-effective and affordable indicative
23 DSM profiles which demonstrate that such lower cost alternatives are available. For the current
24 contract period, the Company’s Evidence shows that such a plan would align with the energy and
25 demand savings provided through the “Low” DSM scenario from the franchise holder’s DSM
26 potential study.

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Request IR-12:

Reference: Appendix A, Page 24 of 100, Table 6.

For each scenario listed in Table 6, please provide:

- (a) The electronic version of the model used to develop it, with all internal links and all calculations functioning.**
- (b) Electronic copies of any additional spreadsheets used to develop it (including the one provided as Appendix A, Attachment C), with all internal links and all calculations functioning.**
- (c) A list of all changes made to the initial EL-RAM model provided to NS Power by EfficiencyOne.**
- (d) The file name of the model version provided by EfficiencyOne to NS Power that was used to develop these scenarios.**

Response IR-12:

- (a) The models for scenarios A, B and D have been included as Confidential Attachments 1, 2, and 4, filed electronically, and are each named for their respective scenario.**
- (b) No additional files were used to develop the numbers for these models. The file for Appendix A, Attachment C has been provided, and is included as Confidential Attachment 3, filed electronically. However, this table was not used in the development of the models, but is rather a compilation of output information taken from the models.**
- (c) [REDACTED]**

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[REDACTED]

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9

(d)

[REDACTED]

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CONFIDENTIAL E1 IR-12 Attachments 1-4 have been removed due to confidentiality and have been filed electronically.

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1 **Request IR-13:**

2
3 **Reference: NS Power Alternate Scenario (Appendix B)**

4
5 **NS Power's alternate DSM scenario puts a greater proportion of DSM energy savings and**
6 **investment on non-residential rate classes. Please explain how principles of equity across**
7 **customer classes, referenced in Mr. Pickles' testimony (Appendix A, Page 42 of 100, line**
8 **16), would be achieved with these proportions.**

9
10 **Response IR-13:**

11
12 Please refer to CA IR-1 and E1 IR-11.

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1 **Request IR-14:**

2
3 **Reference: NS Power's Alternate DSM Scenario**

4
5 **(a) Please confirm the difference between NS Power's alternate DSM scenario as**
6 **provided in Appendix B and EfficiencyOne's proposed DSM Resource Plan is 43**
7 **GWh per year on average, not 35 GWh as referenced on page 39, line 2 of NS**
8 **Power's Evidence.**

9
10 **(b) Please confirm that the energy savings of "approximately 100 GWh per year"**
11 **mentioned on page 50, line 12 of NS Power's Evidence consists of the average 93**
12 **GWh per year of DSM administrator energy savings in NS Power's alternate DSM**
13 **scenario (as shown in Appendix B) plus "other non-administrator energy saving**
14 **initiatives" referenced on page 50, lines 11-12. If not confirmed, please explain how**
15 **the 7 GWh in addition to the scenario from Appendix B is expected to be achieved.**

16
17 **(c) Please provide details regarding the "other non-administrator energy saving**
18 **initiatives" (page 50, lines 11-12 of NS Power's Evidence), including:**

19
20 **(i) Energy savings for each initiative;**

21
22 **(ii) The administrator for each initiative;**

23
24 **(iii) An overview of the evaluation and verification process of each initiative;**

25
26 **(iv) An explanation of how each initiative, per Subsection 79I (3)(e) of the *Public***
27 ***Utilities Act*, "will not unduly interfere with the franchise holder's franchise";**
28

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1 (v) **A description of when and how NS Power will seek the UARB's approval,**
2 **per Subsection 79I (3e) of the *Public Utilities Act*, given that NS Power has**
3 **not sought approval to undertake the activities during this proceeding;**

4
5 (vi) **Additional details as available.**

6
7 (d) **If NS Power's partnership with the Clean Nova Scotia Foundation, designed for**
8 **low-income Nova Scotians, is not included in part c) above, is it NS Power's position**
9 **that electricity savings from this partnership should count towards EfficiencyOne's**
10 **UARB-approved savings target? Please provide an explanation that includes, but is**
11 **not limited to, reference to subsection 79I (3) of the *Public Utilities Act*.**

12
13 Response IR-14:

14
15 (a) The difference between 93 GWh per year (NS Power's alternative scenario) and E1's
16 proposal is 42.5 GWh per year. The difference between 100 GWh per year (which NS
17 Power proposes and Dave Pickles' Scenario D shows to be possible using ELRAM) is 35
18 GWh.

19
20 (b-d) Please refer to CA IR-1 and E1 IR-11. The DSM scenarios proposed by NS Power are
21 high-level scenarios and not final designs; the final design should be provided by E1. NS
22 Power expects that E1 can build on the concepts illustrated by NS Power to produce 100
23 GWh of savings or more at a cost of approximately \$22 million.

24
25 How NS Power may contribute to EECA is provided for in 79I (3) of the Act and
26 includes a variety of elements including charitable giving by NS Power.

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Request IR-15:

Reference: Appendix A, page 26 of 100, Table 8.

Please confirm the cumulative GWh target of the EfficiencyOne DSM Resource Plan, listed as 403.50, is an error and should read 405.93. If confirmed, please recreate the table to include the missing GWh (and related MW) in the relevant program(s) and total.

Response IR-15:

The 403.5 is the GWh savings provided by E1 as the portfolio savings in the ELRAM model

[REDACTED]

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Request IR-16:

Please explain how, if NS Power's alternate DSM scenario were to be implemented, future DSM investment requirements will not disproportionately increase due to the need to re-engage with customers to install additional, deeper energy savings measures, when those customers have already been partially served by Efficiency Nova Scotia.

Response IR-16:

Please refer to E1 IR-11 and SBA 5. The alternate DSM scenarios contained in Appendix A of NS Power's Evidence show it is possible, using the ELRAM information, to produce indicative DSM scenarios that provide better affordability than the E1 Application at similar long-term performance. Figure 4.1 from NS Power's Evidence shows that by achieving "Low" demand and energy savings modelled in the franchise holder's DSM Potential Study, at a cost similar to the NS Power analysis, capacity additions are the same as the franchise holder's plan until 2032.

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Request IR-17:

Reference: Appendix A, page 21 of 100, lines 5-6 state that ICF and NS Power developed alternate assumptions for four additional scenarios. NS Power's Evidence, page 39, line 24 states that Mr. Pickles developed "reasonable assumptions".

(a) Please provide a list of the assumptions incorporated within each scenario.

(b) Please identify which assumptions were developed by ICF and which were developed by NS Power.

(c) Please confirm that NS Power's alternate DSM scenario was not developed by ICF. If confirmed, please indicate who developed it and provide their expertise and experience in DSM plan development.

Response IR-17:

(a) Please refer to E1 IR-12(c).

(b) For Scenarios A, B, and D the scenarios were initially characterized by ICF with review and input provided by NS Power. Scenario C was developed by NS Power, with review by ICF. Please refer to CA IR-11 and E1 IR-11.

(c) NS Power alternate Scenario C was prepared by NS Power's consultant, Robert Boutilier, P.Eng.. Mr. Boutilier is a professional engineer whose career includes 28 years of experience at NS Power, most recently as Director, Regulatory Affairs before his retirement in 2012. His experience over his career includes load forecasting, cost of service, rate design and regulatory management of the Company's various filings.

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1 **Request IR-18:**

3 **Reference: Appendix A, page 24 of 100, footnote 4.**

5 **Please explain why Mr. Pickles feels it is appropriate to assume the EL-RAM's**
6 **participation forecasting algorithms would accurately predict customer response to**
7 **different program offerings and incentive levels without changing related assumptions or**
8 **impacts.**

10 Response IR-18:

12 Several considerations led to the conclusion that the EL-RAM participation forecasting
13 algorithms were appropriate for the limited and specific purposes of illustration as presented in
14 the testimony. However, it should be noted that E1 IR-18 as posed is incorrect in that it suggests
15 that customer response was predicted without changing other assumptions. This is not correct.
16 As noted in the testimony, program cost assumptions were also changed.

18 The considerations that led to the use of the EL-RAM algorithms included:

- 20 • E1 has relied upon the algorithms for the purposes of its planning and filing.
- 22 • Inspection of the algorithms in EL-RAM, along with the documentation provided by
23 Navigant in "The Energy Efficiency Resource Assessment Model (EERAM), Model
24 Methodology, January 15, 2014", suggests that a primary driver of participation is the
25 incentive level and resulting customer payback acceptance.
- 27 • The specification of incentive levels in EL-RAM is made separately from other
28 assumptions driving participation, and many other participation related assumptions are
29 not necessarily driven by the level of incentive and hence do not require revision as the
30 level of incentive is varied.

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1 **Request IR-19:**

2
3 **Reference: NS Power's Evidence, Section 7.0, Page 43**

4
5 **(a) Does NS Power believe that cost-effectiveness tests should include a balanced**
6 **treatment of the cost and benefit sides of the equation?**

7
8 **(b) If responding in the affirmative, does NS Power believe that the TRC, when**
9 **excluding the non-energy benefits that participants enjoy but including the costs**
10 **that those same participants incur, is a balanced test?**

11
12 **Response IR-19:**

13
14 Please refer to Peach IR-24.

15
16 (a) Insofar as estimates are available, reasonable and practical, yes.

17
18 (b) There are many items which are often cited as participant benefits which are qualitative
19 in nature or whose quantification can be controversial. NS Power believes that the TRC
20 test as it has been used to date in NS is an appropriate and a more balanced test of overall
21 program economics than PAC, which ignores the participant's contribution to the
22 measure or project.

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Request IR-20:

(a) Please provide the net additional cost to NS Power customers, over the IRP planning period, of NS Power's alternate DSM scenario of 93 GWh per year of DSM (average of 2016-2018) versus the 173 GWh per year (average of 2016-2018 Mid-DSM Scenario) selected as the Preferred Resource Plan in the 2014 IRP.

(b) Over the 2016-2018 term, please provide the type and cost of fuel and emissions expected to be avoided with:

(i) NS Power's alternate DSM scenario;

(ii) EfficiencyOne's proposed DSM Resource Plan (if this has not been modelled, please use the Base-DSM Scenario from the IRP); and

(iii) The Mid-DSM Scenario of the Preferred Resource Plan from the IRP.

(c) Over the life of the measures, please provide the type and cost of fuel and emissions expected to be avoided with:

(i) NS Power's alternate DSM scenario;

(ii) EfficiencyOne's proposed DSM Resource Plan (if this has not been modelled, please use the Base-DSM Scenario from the IRP); and

(iii) The Mid-DSM Scenario of the Preferred Resource Plan from the IRP.

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Response IR-20:

(a) The DSM plan which NS Power discusses in its evidence and included as Appendix B is not intended to be a detailed alternative for approval. However, for the current contract period, the Company's evidence shows that such a plan would align with the energy and demand savings provided through the "Low" DSM from the franchise holder's DSM potential Study at a cost of between \$20 and \$25 million. Assuming this level of DSM reductions and costs are extended out for the 2014 IRP planning period, the Low DSM case with "Half-Low" costs (for which analysis was provided in Figures 3.7, 3.8 and 4.1 of NS Power's Evidence) can be used to estimate the NPV difference compared to the Mid DSM case from the 2014 IRP.

The table below shows the NPV difference in cost between the two cases. The Mid DSM case shows an NPV savings of \$151M over the 25 year planning period.

The graph below shows the Low DSM case, assuming half low costs, is less expensive than the Mid DSM on a cumulative NPV basis up to 2035.

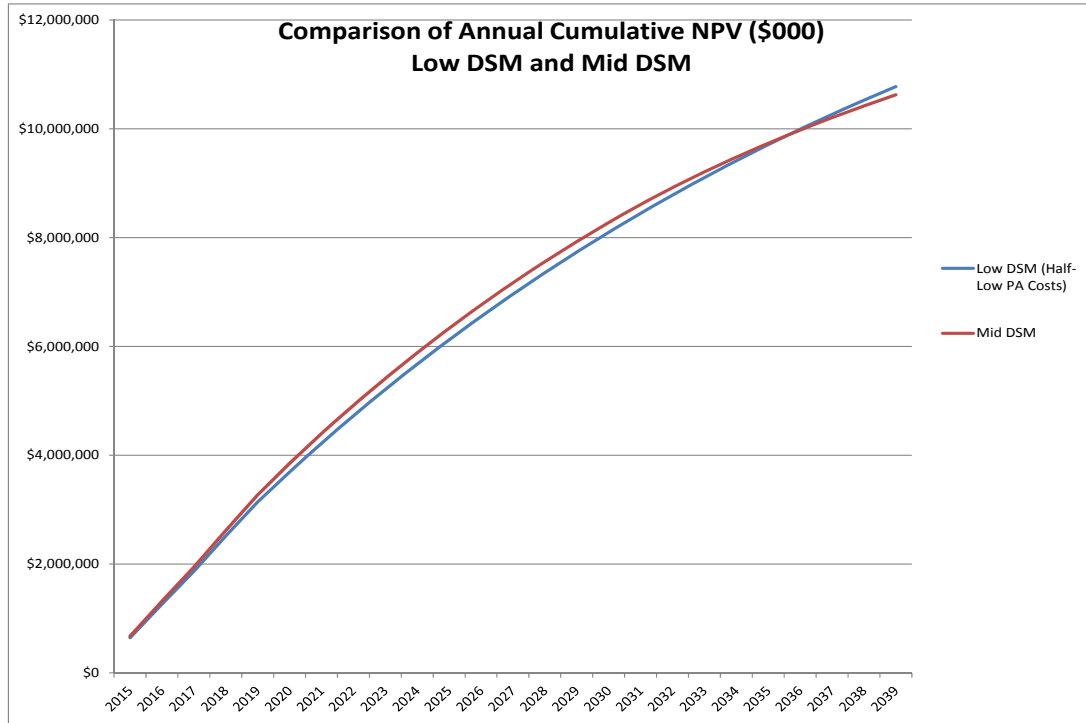
Comparison of Planning NPV Low DSM and Mid DSM Cases

	Low DSM (with Half-Low PA Costs)	CRP Mid DSM/FGD (Synapse Model)	Difference
Planning NPV \$M	10,774	10,623	151

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2016-2018 DSM Plan (NSUARB M06733)
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1
2
3 (b-c) Please refer to Attachment 1, also filed electronically. NS Power has not conducted the
4 analysis for the Low DSM case to evaluate the value of only three years of DSM (2016-
5 2018 term) over the life of the measures. The information is available and has been
6 provided for the Base DSM and Mid DSM cases. The avoided generation and emissions
7 are relative to the No DSM case.

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ELECTRONIC 2016-2018 DSM Plan EOne IR-20 Attachment 1 Page 1 of 3

Generation Avoided for DSM Scenarios

Mid DSM compared to No DSM Plan

Avoided Generation (GWh)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Solid Fuel	253	396	228	13	535	464	-34	501	505	588	547	54	-41	25
Natural Gas / Oil	41	35	61	-2	2	3	-1	1	-1	-1	-3	0	0	2
Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renewables	0	0	0	0	0	0	601	0	0	0	0	0	0	0
COMFIT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maritime Link	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Imports	49	93	406	684	157	227	128	193	190	107	150	478	402	155
TOTAL	343	525	695	695	695	694	694	695	695	694	694	531	360	182

Base DSM compared to No DSM Plan

Avoided Generation (GWh)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Solid Fuel	215	328	135	-8	440	328	-149	417	406	420	413	-47	-28	10
Natural Gas / Oil	35	30	59	-2	3	1	1	1	-1	0	-1	1	0	2
Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renewables	0	0	0	0	0	0	601	0	0	0	0	0	0	0
COMFIT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maritime Link	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Imports	36	74	374	577	125	238	114	149	163	148	155	477	318	137
TOTAL	286	432	568	567	568	568	567	568	568	568	567	431	290	149

Low DSM compared to No DSM Plan

Avoided Generation (GWh)	2016	2017	2018
Solid Fuel	128	223	30
Natural Gas / Oil	23	20	57
Hydro	0	0	0
Renewables	0	0	0
COMFIT	0	0	0
Maritime Link	0	0	0
Net Imports	37	46	288
TOTAL	188	289	375

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ELECTRONIC 2016-2018 DSM Plan EOne IR-20 Attachment 1 Page 2 of 3

Cost of Fuel Avoided for DSM Scenarios

Mid DSM compared to No DSM Plan

Avoided Fuel Cost (\$000)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Solid Fuel	\$ 12,216	\$ 20,103	\$ 11,317	\$ 1,383	\$ 30,238	\$ 27,516	\$ (2,261)	\$ 31,007	\$ 31,911	\$ 36,137	\$ 35,493	\$ 6,823	\$ (1,064)	\$ 1,638
Natural Gas / Oil	\$ 2,827	\$ 2,416	\$ 3,358	\$ 113	\$ 38	\$ 61	\$ 6	\$ 71	\$ 101	\$ 174	\$ 233	\$ (36)	\$ 31	\$ 296
Hydro	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Renewables	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 72,957	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
COMFIT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Maritime Link	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Imports	\$ 4,051	\$ 6,182	\$ 21,785	\$ 39,405	\$ 9,379	\$ 14,248	\$ 7,526	\$ 12,625	\$ 13,083	\$ 8,116	\$ 11,446	\$ 35,846	\$ 33,753	\$ 14,268
TOTAL	\$ 19,095	\$ 28,702	\$ 36,460	\$ 40,901	\$ 39,655	\$ 41,824	\$ 78,228	\$ 43,703	\$ 45,094	\$ 44,427	\$ 47,173	\$ 42,633	\$ 32,720	\$ 16,203

Base DSM compared to No DSM Plan

Avoided Fuel Cost (\$000)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Solid Fuel	\$ 10,420	\$ 16,679	\$ 6,988	\$ 342	\$ 24,955	\$ 19,326	\$ (9,762)	\$ 26,038	\$ 25,780	\$ 26,338	\$ 26,826	\$ 44	\$ (1,092)	\$ 699
Natural Gas / Oil	\$ 2,436	\$ 2,051	\$ 3,276	\$ 135	\$ 37	\$ 50	\$ (3)	\$ 71	\$ 79	\$ 228	\$ 249	\$ (20)	\$ (79)	\$ 293
Hydro	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Renewables	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 72,957	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
COMFIT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Maritime Link	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Imports	\$ 3,158	\$ 4,873	\$ 19,896	\$ 33,382	\$ 7,544	\$ 14,704	\$ 6,765	\$ 9,882	\$ 11,139	\$ 10,569	\$ 11,670	\$ 35,629	\$ 27,271	\$ 12,564
TOTAL	\$ 16,014	\$ 23,603	\$ 30,160	\$ 33,860	\$ 32,536	\$ 34,080	\$ 69,957	\$ 35,991	\$ 36,998	\$ 37,134	\$ 38,746	\$ 35,653	\$ 26,099	\$ 13,555

Low DSM compared to No DSM Plan

Avoided Fuel Cost (\$000)	2016	2017	2018
Solid Fuel	\$ 6,202	\$ 11,261	\$ 2,095
Natural Gas / Oil	\$ 1,651	\$ 1,512	\$ 3,180
Hydro	\$ -	\$ -	\$ -
Renewables	\$ -	\$ -	\$ -
COMFIT	\$ -	\$ -	\$ -
Maritime Link	\$ -	\$ -	\$ -
Net Imports	\$ 2,853	\$ 3,105	\$ 15,293
TOTAL	\$ 10,706	\$ 15,878	\$ 20,568

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ELECTRONIC 2016-2018 DSM Plan EOne IR-20 Attachment 1 Page 3 of 3

Emissions Avoided for DSM Scenarios

Mid DSM compared to No DSM Plan

Avoided Emissions	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
CO2 (kT)	262.2	400.6	254.4	21.8	523.1	462.0	-37.6	486.2	486.4	564.6	529.5	62.9	-47.1	29.1
SO2 (kT)	-0.2	0.0	2.7	0.2	0.0	0.3	0.0	-0.1	0.0	0.0	0.2	0.0	0.2	0.0
Hg (kg)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nox (kT)	0.6	0.9	0.5	0.0	1.2	1.0	0.0	1.2	1.2	1.5	1.4	0.3	-0.1	0.1

Base DSM compared to No DSM Plan

Avoided Emissions	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
CO2 (kT)	223.5	331.9	166.1	1.2	431.3	322.8	-156.2	406.5	391.3	406.8	397.5	-34.1	-32.1	13.1
SO2 (kT)	-0.2	0.0	1.6	0.0	0.0	0.3	0.0	-0.2	0.0	0.0	0.0	0.0	-0.3	0.0
Hg (kg)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nox (kT)	0.5	0.8	0.3	0.0	1.0	0.8	-0.3	1.0	1.0	1.1	1.1	0.0	-0.1	0.0

Low DSM compared to No DSM Plan

Avoided Emissions	2016	2017	2018
CO2 (kT)	134.2	225.0	65.4
SO2 (kT)	-0.2	0.1	0.4
Hg (kg)	0.0	0.0	0.0
Nox (kT)	0.3	0.5	0.1

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2016-2018 DSM Plan (NSUARB M06733)
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1 **Request IR-21:**

2
3 **Reference: NS Power's Evidence, Page 35, Figure 4.1 and Footnote 44.**

4
5 **(a) Please confirm the Low DSM Scenario presented in Figure 4.1 deviates from the**
6 **Low-DSM Scenario submitted for the 2014 IRP as part of ENSC's DSM Potential**
7 **Study and modelled by NS Power during negotiations with EfficiencyOne.**

8
9 **(i) If confirmed, please provide any analysis conducted on achievability of NS**
10 **Power's new scenario.**

11
12 **(b) Please revise the table to include an additional column for the Low DSM Scenario**
13 **from ENSC's DSM Potential Study.**

14
15 **(c) For the last five rows (the five NPV results), please provide the breakout of the**
16 **dollars by energy and capacity.**

17
18 **(d) For the last five rows (the five NPV results) in Figure 4.1, please explain differences**
19 **in results from the IRP Preliminary Results (with Sustaining Capital) presented in**
20 **the Utility Cost \$M rows on slide 26 of NS Power's September 12, 2014 Technical**
21 **Conference Analysis Results presentation (image provided for clarity of the question**
22 **– EfficiencyOne does not have access to a better-quality image).**

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2016-2018 DSM Plan (NSUARB M06733) NSPI Responses to EfficiencyOne Information Requests

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Preliminary Results (with Sustaining Capital) TRC and Ranking / Utility Cost and Ranking																
Load	CRP1-1 FGD	CRP2-1	CRP2-17 FGD	CRP3-1	CRP4-1	CRP4-1 FGD	CRP5-1	CRP6-1	CRP7-1	CRP8-1	CRP9-1	CRP9WC	CRP10-1	CRP11-1	* CRP21-1 (FGD WIND)	** CRP32-1 (FGD PPA)
DSM Profile	Half Low	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	High	High
Wind	Base	Base	Base	Med	Base	Base	Base	High	Med	High	Med	Med	Med	Med	Med	Base
Retirement Strategy	Max	Max	Max	Max	Med	Med	Max	Min	Min	Min	Min	Min	Med	Max	Max	Max
TRC \$ M																
NPV 2020	\$3,007	\$4,049	\$4,049	\$4,049	\$4,065	\$4,065	\$4,401	\$4,489	\$4,507	\$4,062	\$4,072	\$4,072	\$4,076	\$4,050	\$4,194	\$4,195
NPV 2030	\$9,025	\$8,777	\$8,780	\$8,958	\$8,836	\$8,836	\$9,547	\$9,564	\$9,790	\$9,203	\$9,182	\$9,113	\$9,063	\$8,983	\$9,764	\$9,761
Planning Period	\$12,440	\$11,544	\$11,550	\$11,825	\$11,727	\$11,863	\$12,125	\$12,033	\$12,412	\$12,248	\$12,200	\$12,161	\$12,090	\$11,983	\$13,010	\$13,256
** Study Period	\$10,775	\$17,103	\$17,201	\$17,416	\$17,643	\$17,480	\$17,079	\$17,526	\$17,688	\$18,095	\$18,001	\$17,998	\$17,731	\$17,831	\$19,351	\$20,585
TRC Rank																
NPV 2020	1	3	2	3	7	7	13	12	14	6	9	9	11	5	1	2
NPV 2030	7	1	2	5	3	4	12	14	13	11	10	9	8	6	2	1
Planning Period	12	2	1	9	4	3	9	14	13	11	10	8	7	9	1	2
Avg. Rank	6.7	2.0	1.7	4.3	4.7	4.7	11.3	13.3	13.3	9.3	9.7	8.7	8.7	5.7	1.25	1.75
** Study Period	6	2	3	4	2	1	2	1	5	4	3	3	5	1	1	2
Utility Cost \$ M																
NPV 2020	\$3,794	\$3,555	\$3,557	\$3,556	\$3,574	\$3,574	\$4,054	\$4,051	\$4,050	\$3,871	\$3,880	\$3,880	\$3,883	\$3,850	\$4,002	\$4,003
NPV 2030	\$8,762	\$8,416	\$8,420	\$8,509	\$8,475	\$8,476	\$8,672	\$8,689	\$8,915	\$8,843	\$8,822	\$8,763	\$8,703	\$8,603	\$9,403	\$9,401
Planning Period	\$12,086	\$11,096	\$11,055	\$11,350	\$11,252	\$11,218	\$11,067	\$11,001	\$11,475	\$11,755	\$11,725	\$11,626	\$11,525	\$11,458	\$12,585	\$12,781
** Study Period	\$10,370	\$16,471	\$16,558	\$16,760	\$17,010	\$16,536	\$16,594	\$16,599	\$16,435	\$17,452	\$17,456	\$17,358	\$17,266	\$17,195	\$19,210	\$19,653
Utility Cost Rank																
NPV 2020	1	3	2	3	7	7	13	12	14	6	9	9	11	5	1	2
NPV 2030	10	1	2	5	3	4	7	14	13	12	11	9	8	6	2	1
Planning Period	14	2	1	6	5	4	3	10	13	12	11	9	7	1	1	2
Avg. Rank	8.3	2.0	1.7	4.7	5.0	5.0	7.7	12.0	11.7	10.3	10.7	9.7	9.3	6.0	1.25	1.75
** Study Period	8	2	3	4	2	1	1	2	1	5	4	3	3	5	1	2
Max Retirement Strategy Med Retirement Strategy Min Retirement Strategy																
* High Load plans (CRP 21 & 32) are ranked separately from Base Load plans. ** CRPs have been grouped by retirement strategy for rankings on Study Period costs. For example, all five CRPs with Min Coal retirement strategy are shaded in blue and have been ranked from 1 to 5.																

(e) Please complete, with formulas intact, the spreadsheet attached hereto as Attachment 1, for all DSM scenarios modelled by NS Power.

(f) If the total values in part c) and part d) are different over the IRP planning period (25 years), please explain the reasons they are different.

Response IR-21:

(a) Please refer to CA IR-1 and E1 IR-11. The Low DSM case presented in Figure 4.1 is the same as the Low DSM scenario in ENSC's DSM Potential study in terms of annual energy and demand savings. The only change is the DSM program administrator costs; the Half-Low DSM costs were used.

(i) Please refer to Multeese IR-10(b-c).

(b) Please refer to Attachment 1.

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1 (c) Please refer to Attachment 2.

2

3 (d) The difference between the results shown in Figure 4.1 and Slide 26 of the 2014 IRP
4 Technical Conference Analysis Results (September 12, 2014) is the inclusion of the
5 sustaining capital costs in Slide 26. These costs were not included in Figure 4.1 as this
6 table is a relative comparison between plans. The annual sustaining capital cost
7 assumption is common across each resource plan in Figure 4.1 such that when looking at
8 the difference in cost between plans it would be the same whether the sustaining capital is
9 included or not.

10

11 (e) Please refer to CA IR-20(i) and CA IR-20(j).

12

13 (f) Please refer to part (d).

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Avoided Cost of DSM - 2014 IRP Candidate Resource Plans

2016-2018 DSM Plan EOne IR-21 Attachment 1 Page 1 of 1

	No DSM Plan	CRP01-01-FGD-R01	Low DSM	CRP2-17 FGD	CRP Mid DSM/FGD	Low DSM
		Half-Low DSM	With Half-Low DSM Program Administrator Costs	Base DSM	(Synapse Model)	With Low DSM Program Administrator Costs
2015						
2016						
2017	ML Oct 2017 Lin 2 retire	ML Oct 2017 Lin 2 retire	ML Oct 2017 Lin 2 retire	ML Oct 2017 Lin 2 retire	ML Oct 2017 Lin 2 retire	ML Oct 2017 Lin 2 retire
2018						
2019	Mersey Redevelopment Mersey Expansion Phase 1	Mersey Redevelopment Mersey Expansion Phase 1	Mersey Redevelopment	Mersey Redevelopment	Mersey Redevelopment	Mersey Redevelopment
2020	CT 50 MW					
2021						
2022	PPA					
2023	Mersey Expansion Phase 2	Mersey Expansion Phase 2 PPA				
2024						
2025	TUC 1 Retire CT 100 MW FGD Lin 3/4 (300 MW)	TUC 1 Retire FGD (Lin 3/4 300 MW)	TUC 1 Retire FGD (Lin 3/4 300 MW)	TUC 1 Retire FGD (Lin 3/4 300 MW)	TUC 1 Retire FGD Lin 3/4 (300 MW)	TUC 1 Retire FGD (Lin 3/4 300 MW)
2026		2 x CT 34MW				
2027	CT 50 MW					
2028						
2029						
2030	CT 50 MW					
2031		CT 50MW				
2032	TUC 2 Retire Wind Block 150 MW 2 x CT 50 MW (wind integration) CT 100 MW	TUC 2 Retire CT 50MW	TUC 2 Retire CT 50MW	TUC 2 Retire	TUC 2 Retire	TUC 2 Retire CT 50MW
2033						
2034						
2035	Tre 5 Retire CC 145 MW	Tre 5 Retire CC 145MW	Tre 5 Retire 2 x CT 50MW CT 34MW	Tre 5 Retire CT 50MW	Tre 5 Retire	Tre 5 Retire 2 x CT 50MW CT 34MW
2036		CT 50MW				
2037	CT 34 MW					
2038	CC 145 MW	CT 50 MW CT 50 MW				
2039	PHBM 51.7MW firm * Lin 1 Retire	PHBM 51.7MW firm * Lin 1 Retire	2 x CT 50 MW PHBM 51.7MW firm * Lin 1 Retire	CT 100MW PHBM 51.7MW firm * Lin 1 Retire	PHBM 51.7MW firm * Lin 1 Retire	2 x CT 50 MW PHBM 51.7MW firm * Lin 1 Retire
NPV 2020	3,679	3,742	3,690	3,815	3,851	3,789
NPV 2025	6,341	6,340	6,121	6,275	6,331	6,267
NPV 2030	8,674	8,572	8,097	8,230	8,277	8,275
Planning PV \$M	12,302	11,762	10,774	10,731	10,623	10,981
Study PV \$M	20,833	18,946	16,722	16,244	15,626	16,952

(NPV values include DSM PA costs. Does not include DSM customer costs or sustaining capital).

Option added primarily for capacity (or could be a DR solution)	Option added for economics
Option added for RES	Option added for both capacity and energy

Notes:

These resource plans are based on 2014 IRP assumptions. Plans could be further optimized based on more recent assumptions for the near term.
Half-Low DSM - Mersey Expansion not required for capacity. Added for economics. No capacity additions are required until 2024 with half-low DSM.
Half-Low DSM - PPA is required for RES in 2023 but is oversized.

* It is assumed that when a second Lingan unit retires it frees up transmission allowing PH Biomass to transition to firm capacity.

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2016-2018 DSM Plan EOne IR-21 Attachment 2 Page 1 of 1

Breakout of Dollars by Energy, Capacity, and DSM Program Administrator Costs

2014 IRP	No DSM Plan				CRP-01-FGD-R01				Low DSM				CRP2-17 FGD				CRP Mid DSM/FGD			
					Half-Low DSM								Base DSM				(Synapse Model)			
	Total Cost	Capacity	Energy	DSM PA	Total Cost	Capacity	Energy	DSM PA	Total Cost	Capacity	Energy	DSM PA	Total Cost	Capacity	Energy	DSM PA	Total Cost	Capacity	Energy	DSM PA
NPV 2020 \$M	3,679	14	3,665	0	3,742	9	3,616	117	3,690	0	3,573	117	3,815	0	3,540	275	3,851	0	3,512	340
NPV 2025 \$M	6,341	117	6,224	0	6,340	68	6,081	191	6,121	0	5,930	191	6,275	0	5,839	436	6,331	0	5,753	578
NPV 2030 \$M	8,674	259	8,414	0	8,572	166	8,147	258	8,097	0	7,838	258	8,230	0	7,667	563	8,277	0	7,503	773
Planning PV \$M	12,302	586	11,715	0	11,762	366	11,043	352	10,774	55	10,366	352	10,731	18	10,012	701	10,623	0	9,677	946
Study PV \$M*	20,833	-	-	-	18,946	-	-	-	16,722	-	-	-	16,244	-	-	-	15,626	-	-	-

NPV Values include DSM Program Administrator (PA) costs. Does not include DSM customer costs or sustaining capital.

*Note: breakout of dollars for Study Period PV is not available as this is a direct output from the model.

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1 **Request IR-22:**

2
3 **Reference: Appendix A, page 10 of 100, Tables 1 and 2.**

4
5 **(a) Please describe the most significant technology or market changes that Mr. Pickles**
6 **believes are likely to have taken place – in terms of their impact on the overall unit**
7 **cost of DSM – between 2013 and 2016-2018? Please limit your answer to the three or**
8 **four most significant items.**

9
10 **(b) Does Mr. Pickles believe that comparing others’ past programs with**
11 **EfficiencyOne’s forward-looking Plan provides a fair and appropriate, “apples-to-**
12 **apples” comparison? Please provide supporting rationale.**

13
14 **Response IR-22:**

15
16 **(a) The changes, and the significance of those changes, will be a function of the specific**
17 **nature of the programs and the specific circumstances of the jurisdiction. General**
18 **categories of potential change that could influence the unit cost of DSM include:**

- 19
20 • the scale, cost, and response to the programs, which will in part be a function of:
- 21 a) changes in the cost-effectiveness of the programs as driven by the capacity and
- 22 energy requirements of the system, b) changes in the level of expenditure found to
- 23 be affordable by regulators, c) changes in the measure and program mix found to
- 24 be equitable and appropriate by regulators, and d) changes in program design;
- 25
- 26 • changes in technology and implementation cost;
- 27
- 28 • changes in market saturation of targetable measures; and
- 29
- 30 • changes in baselines.
-

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1

2 (b) Mr. Pickles believes that the comparisons set forth in the testimony, along with the
3 accompanying caveats, are appropriate for the purposes set forth in the testimony.
4 Specifically – to compare the overall portfolio costs of the proposed E1 plan to
5 achievements in other jurisdictions as one factor to be used in determining if additional
6 investigation into, and justification of, the E1 costs are appropriate.

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1 **Request IR-23:**

2
3 **Reference: In Appendix A, page 9 of 100, lines 7-9, Mr. Pickles states that “to the extent**
4 **that benchmarks are available, they suggest that EfficiencyOne’s proposed programs may**
5 **be more expensive than those of other DSM providers”.**

6
7 **(a) If EfficiencyOne’s proposed programs turned out to be at or below the unit cost of**
8 **comparable regions, would this suggest that EfficiencyOne’s proposed programs are**
9 **as or more economical than those of other DSM providers?**

10
11 **(b) Should other jurisdictions be determined to be more comparative to Efficiency Nova**
12 **Scotia than all of those currently selected, would NS Power recommend spending at**
13 **the average rate of a more comparative set of jurisdictions even if that meant Nova**
14 **Scotia DSM investment would be raised to be at the average of those comparative**
15 **jurisdictions?**

16
17 **Response IR-23:**

18
19 **(a-b) Please refer to CA IR-29.**

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1 **Request IR-24:**

2
3 **Reference: Appendix A, page 15 of 100.**

4
5 **Please explain Mr. Pickles' rationale for choosing a \$/capita metric to compare regions,**
6 **when most other benchmarking exercises focus instead on \$/kWh and % savings/load**
7 **metrics.**

8
9 **Response IR-24:**

10
11 The metric of \$/capita was chosen as a data point to be taken into consideration alongside other
12 data points and to provide additional insight into the relative affordability of the programs.

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1 **Request IR-25:**

2
3 **Reference: Appendix A, page 10 of 100 (Tables 1 and 2).**

4
5 **(a) For Wisconsin (Focus on Energy), please confirm that net – not gross – savings were**
6 **used to calculate the \$/kWh.**

7
8 **(b) For Maine (Efficiency Maine Trust), please confirm that net – not gross – savings**
9 **were used to calculate the \$/kWh.**

10
11 **(c) For Power Stream, please confirm that all incentives paid to consumers, as well as**
12 **all other program costs incurred, were accounted for in your calculations, whether**
13 **these costs were paid directly by the utilities or indirectly by third-parties (including**
14 **the Ontario Power Authority).**

15
16 **(d) For Hydro One, please confirm that all incentives paid to consumers, as well as all**
17 **other program costs incurred, were accounted for in your calculations, whether**
18 **these costs were paid directly by the utilities or indirectly by third-parties (including**
19 **the Ontario Power Authority).**

20
21 **(e) For Toronto Hydro, please confirm that all incentives paid to consumers, as well as**
22 **all other program costs incurred, were accounted for in your calculations, whether**
23 **these costs were paid directly by the utilities or indirectly by third-parties (including**
24 **the Ontario Power Authority).**

25
26 **(f) For Power Stream, please confirm that only the net incremental annual savings**
27 **accruing to activities in 2013 were used. If not, please clarify which years'**
28 **incremental annual savings were used, and which years' program costs were used. If**
29 **these were not for the same period, please explain why.**

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1 **(g) For Manitoba Hydro, please confirm that results are based on savings that**
2 **underwent third-party evaluation, as EfficiencyOne's do.**

3
4 **(h) For all data presented in Tables 1 and 2, please provide the detailed calculations and**
5 **inputs, with reference to source material, in electronic Excel file format.**

6
7 Response IR-25:

8
9 (a-b) Yes, net savings were used.

10
11 (c) Yes, based on ICF's understanding of the costs as reported by Power Stream in their 2013
12 annual program report, all costs, incentive and other program costs, whether they were
13 paid by utilities or the Ontario Power Authority, are included in the calculations.

14
15 (d) Yes, based on ICF's understanding of the costs as reported by Hydro One in their 2013
16 annual program report, all costs, incentive and other program costs, whether they were
17 paid by utilities or the Ontario Power Authority, are included in the calculations.

18
19 (e) Yes, based on ICF's understanding of the costs as reported by Toronto Hydro in their
20 2013 annual program report, all costs, incentive and other program costs, whether they
21 were paid by utilities or the Ontario Power Authority, are included in the calculations.

22
23 (f) Yes, only net incremental annual savings accruing to activities in 2013 due to energy
24 efficiency programs were used. Note that data for demand response programs was not
25 included in the calculations.

26
27 (g) For Manitoba Hydro, results are based on Program Reported Ex Ante savings. Note that
28 the values for E1 in Table 1 and Table 2 are based on E1 planned values.

29
30 (h) Please refer to Attachment 1, also filed electronically.

Residential Portfolio, DR Excluded

Rank	State/ Province	Program Administrator	Data Type	Year	2013 CAD/ kWh	Net or Gross	2016 CAD/ kWh
1	WI	Wisconsin Focus on Energy	Actual	2013	\$0.12	Net	\$0.12
2	ON	PowerStream	Actual	2013	\$0.15	Net	\$0.16
3	ME	Efficiency Maine	Actual	2013	\$0.18	Net	\$0.18
4	MB	Manitoba Hydro	Actual	2013	\$0.22	Net	\$0.23
5	ON	Hydro One	Actual	2013	\$0.26	Net	\$0.27
6	ON	Toronto Hydro	Actual	2013	\$0.26	Net	\$0.27
7	NS	ENS	2016-18 Plan	2016-18 Plan		Net	\$0.31
8	BC	BC Hydro	Actual	2013	\$0.33	Net	\$0.34

*NSP programs as modeled for 2016-2018 by ENS/Navigant.

Data for other administrators is net actual for PY2013

Source for other administrator data: Esource; Efficiency Maine

Non-Residential Portfolio, DR Excluded

Rank	State/ Province	Program Administrator	Data Type	Year	2013 CAD/ kWh	Net or Gross	2016 CAD/ kWh
1	MB	Manitoba Hydro	Actual	2013	\$0.07	Net	\$0.07
2	WI	Wisconsin Focus on Energy	Actual	2013	\$0.13	Net	\$0.14
3	BC	BC Hydro	Actual	2013	\$0.15	Net	\$0.16
4	ME	Efficiency Maine	Actual	2013	\$0.18	Net	\$0.19
5	NS	ENS	2016-18 Plan	2016-18 Plan		Net	\$0.25
6	ON	PowerStream	Actual	2013	\$0.29	Net	\$0.30
7	ON	Toronto Hydro	Actual	2013	\$0.29	Net	\$0.30
8	ON	Hydro One	Actual	2013	\$0.34	Net	\$0.35

*NSP programs as modeled for 2016-2018 by ENS/Navigant.

Data for other administrators is net actual for PY2013

Source for other administrator data: Esource; Efficiency Maine

2013 Annual Average Exchange rate	
1 CAD=	1.071 USD
Source: U.S. IRS	

2013-2015 CAD inflation	
1 2013 CAD=	1.022 2015 CAD
Target annual inflation	0.020
2013-2016 inflator	1.042
Source. Bank of Canada	

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1 **Request IR-26:**

2
3 **Reference: Appendix A, Page 53 of 100, Section 1.3 of ICF's "Review of Nova Scotia's**
4 **Energy Savings Portfolio" and Appendix A, pages 10-13 of 100.**

5
6 **As stated, constructing peer groups upon which comparisons can legitimately be made is a**
7 **complex process. With regard to Section 1.3 of the ICF Review, can ICF please provide**
8 **clarity on the following:**

9
10 **(a) Assuming Mr. Pickles has access to the complete E-Source database, the rationale**
11 **for choosing the seven program administrators and rejecting all others in his**
12 **review;**

13
14 **(i) In particular, please provide the rationale for excluding other nearby New**
15 **England states, including a significant number of states with DSM savings**
16 **goals similar to those of Efficiency Nova Scotia?**

17
18 **(ii) In particular, please provide the rationale for excluding other third-party**
19 **administered program administrators, such as Efficiency Vermont or the**
20 **Energy Trust of Oregon?**

21
22 **(b) Please elaborate on the statement made within paragraph 2 of Section 1.3?**
23 **Specifically, please elaborate on:**

24
25 **(i) How the "context" items listed by ICF has been considered and reflected**
26 **within the analysis undertaken by ICF;**

27
28 **(ii) Why or why not, following ICF consideration of this context, the peer group**
29 **was still considered to be reasonable for purposes of assessing the**
30 **appropriateness of Nova Scotia's Energy Savings Portfolio?**

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1
2 **(c) Does Mr. Pickles believe that benchmarking Efficiency Nova Scotia's unit cost of**
3 **savings against the cost of savings in regions with significantly lower energy savings**
4 **goals provides a fair and appropriate, "apples-to-apples" comparison?**

5
6 Response IR-26:
7

8 (a) (i-ii) With respect to the jurisdictions chosen for the comparison, Mr. Pickles' intent
9 was not to provide a census of all jurisdictions. Instead, Mr. Pickles focused on a
10 sample of jurisdictions, with similar climate zones, regulatory environments, and
11 other attributes (to the extent practical for the purposes of the testimony) and for
12 which information was available. Canadian jurisdictions were the focus of the
13 comparisons, but no effort was made to specifically exclude any jurisdiction, to
14 include a census of all possible jurisdictions, or to adjust for all possible
15 differences between jurisdictions since the results were used not to make specific
16 conclusions with respect to the cost profile of individual programs, but rather to
17 characterize the general cost level of E1 programs to determine if additional cost-
18 support information and analysis is appropriate.
19

20 (b) (i) As noted by the testimony at Appendix A page 53 "the metrics have not been
21 adjusted from what is publically available and the research presented in this report
22 does not account for all the differences."
23

24 (ii) Note that ICF did not characterize the chosen jurisdictions as a "peer group".
25 Please also refer to part (a).
26

27 (c) The appropriateness of such comparisons would depend upon how they would be used,
28 the risk or cost associated with making a poor decision, the availability of and/or cost to
29 collect additional information, the relative differences between E1 and the other program
30 administrators and regulatory environments, the timeframe in which a decision is needed,

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1 and other factors. Mr. Pickles believes that the comparisons presented in his testimony
2 are appropriate for the purposes they were used. Specifically – to compare the overall
3 portfolio costs of the proposed E1 plan to achievements in other jurisdictions as one
4 factor to be used in determining if additional investigation into, and justification of, the
5 E1 costs are appropriate.

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1 **Request IR-27:**

2
3 **Reference: Appendix A, Page 9 of 100, lines 18-19.**

4
5 **Please provide the CAD-USD conversion factors that were used.**

6
7 **Response IR-27:**

8
9 An exchange rate of 1.071 was used to convert USD to CAD. That is, 1.000 CAD equals 1.071
10 USD, in 2013 terms. This exchange rate was used to convert reported 2013 program costs from
11 U.S. program administrators to 2013 CAD. The source of the conversion rate is the U.S. Internal
12 Revenue Service.

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Request IR-28:

Reference: In Appendix A, Page 14 of 100, lines 1-2, Mr. Pickles concludes that “there exist different program types which are cheaper than the programs proposed by EfficiencyOne”.

(a) Which “program types” are being referred to, and has Mr. Pickles considered whether they would be, if applied in Nova Scotia to the level suggested by the IRP, indeed “cheaper”?

(b) Has Mr. Pickles considered the possibility that his “program typology” is simply different than that used by EfficiencyOne? Is it his view that a large number of program silos is preferable to an aggregated program approach?

Response IR-28:

(a) Potential “Program Types” might include, but not be limited to:

(i) Those programs listed in Tables 3 and 4 with a lower cost per kWh than E1’s programs.

(ii) Other potential programs with comparatively low costs, including:

- Midstream and Upstream programs
- Certain behavioural programs (especially in the C&I sector)
- Rate and information enabled programs

(iii) Programs similar to E1’s current programs, but potentially delivered at lower cost through the use of, leverage of trade ally delivery channels, or more influential incentive strategies.

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1
2 (iv) Industrial energy efficiency programs.

3
4 (v) Other low-cost programs.

5
6 Mr. Pickles has not performed an analysis of the cost of these programs if they were to be
7 delivered in Nova Scotia.

8
9 (b) Mr. Pickles has considered the possibility that his “program typology” is different than
10 that used by E1. In general, Mr. Pickles believes that relative benefits and costs of
11 multiple versus aggregated programs depends upon many factors, including but not
12 limited to:

- 13
- 14 • the degree to which an aggregated program can adequately reach and serve the
15 unique characteristics of the targeted customer base, when compared to segment
16 specific programs;
 - 17
 - 18 • the degree to which the service territory characteristics and potential customer
19 participation rates and savings support a sector-specific approach; and
 - 20
 - 21 • the relative costs of an aggregated versus sector-specific approach.

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Request IR-29:

Reference: Appendix A, Page 59 of 100, Exhibit 3 (Program Cost Effectiveness)

- (a) Please provide the rationale for excluding BC Hydro's individual programs from Mr. Pickles' benchmarking exercise.
- (b) Please provide the rationale for using a limited number of Efficiency Maine's programs in the same analysis.
- (c) Please recreate Exhibit 3 to show the portfolio \$/kWh of Efficiency Maine, BC Hydro and ENSC. Please ensure all programs are included in the portfolio.
- (d) Please confirm that BC Hydro's levelized unit costs account for the utility's full DSM costs, and do not exclude costs allocated by BC Hydro, for accounting purposes, to the programs' resulting capacity savings.

Response IR-29:

- (a) ICF's research for the "Review of Nova Scotia's Energy Savings Portfolio" directly references publically available utility documents at the level of detail provided and, in this case, adjusted to the level of information provided in the *Triennial Plan of the Efficiency Maine Trust 2014 – 2016*. That is, the data was reported at whatever level was available for all the program administrators. Since Maine reported at an aggregated level, BC Hydro was also reported at an aggregated level.
- (b) ICF referenced the *Triennial Plan of the Efficiency Maine Trust 2014 – 2016*. Please also refer to part (a).
- (c) ICF has not previously performed the requested analysis and therefore cannot provide it.

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1

2 (d) Per BC Hydro's footnote regarding the referenced data, the "Net levelized utility cost is
3 calculated by subtracting capacity benefits from gross utility costs and then dividing the
4 resulting net utility costs by electricity savings."

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1 **Request IR-30:**

2
3 **Reference: Appendix A, page 68 of 100, Exhibits 13 and 14 (Percentage Change from**
4 **Approved to Actual) and statement “Depending on the constraints of a system and the**
5 **volume and measure life of the program savings in question, large variances may**
6 **negatively affect an electric system’s planning process.”**

7
8 **(a) Please explain whether the statement regarding “large variance” refers to program-**
9 **level variances or portfolio-level variances.**

10
11 **(b) For the type of variance confirmed in part a), please compare ENSC’s variances to**
12 **the variances of ICF’s benchmarked regions’ programs (or portfolios).**

13
14 **(c) In ICF’s experience, are ENSC’s variances within or outside the norm?**

15
16 **(d) Please reproduce Exhibits 13 and 14 to show the portfolio total percentages of**
17 **budget expended and energy savings realized.**

18
19 **(e) In ICF’s view, are the levels of variance observed in ENSC’s past portfolios likely to**
20 **materially and negatively affect NS Power’s system planning process?**

21
22 **(f) Please explain how the Nova Scotia load forecast planning process is different from**
23 **Vermont’s utilities, which have successfully managed three-year DSM energy saving**
24 **goals with Efficiency Vermont since 2000?**

25
26 **Response IR-30:**

27
28 **(a) The statement refers to both program-level variances and portfolio-level variances.**
29

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- 1 (b) The analysis relied upon by Mr. Pickles is provided in the testimony. Mr. Pickles has not
2 previously performed the requested analysis.
3
- 4 (c) The ENSC variances identified in the testimony are, in Mr. Pickles' experience, outside
5 the norm.
6
- 7 (d) The requested analysis has not been previously prepared.
8
- 9 (e) Potentially, yes.
10
- 11 (f) Mr. Pickles' testimony does not address the topic raised by the question, therefore, a
12 response cannot be provided.

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1 **Request IR-31:**

2
3 **Reference: Appendix A, Page 62 of 100 (Attachment B, Page 13 of 37), Exhibit 7.**

4
5 **(a) ICF has highlighted the individual performance of 3 Local Distribution Companies**
6 **(LDC) within Ontario; Hydro One, Powerstream and Hydro Ottawa. Given that**
7 **Ontario's LDC programs during the period were by and large the same across the**
8 **province, why did ICF feel it appropriate to demonstrate the performance of these**
9 **LDCs against Nova Scotia individually?**

10
11 **(b) If ICF believes is it appropriate, then, in reference to Appendix A, pages 10-13 of**
12 **100, why is the performance of the jurisdictions demonstrated in all other**
13 **comparisons not included within Exhibit 7?**

14
15 **Response IR-31:**

16
17 **(a-b) The information presented in Exhibit 7 is not available at the provincial level. ICF**
18 **included the available information for the LDC's researched rather than exclude Ontario**
19 **from the exhibit.**

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Request IR-32:

Exhibit 8 in Appendix A, Page 63 of 100 lists Efficiency Nova Scotia with the greatest number of programs except for the Ontario IESO, while the Summary of Insights in Appendix A, page 54 of 100 concludes that “ENSC offers one of the most comprehensive DSM portfolios in the country”. On Appendix A, page 5 of 100, line 22, Mr. Pickles states that EfficiencyOne should “assess a broader range of programs”. Please reconcile these statements.

Response IR-32:

The referenced statements are not in conflict. Even though E1 offers one of the most comprehensive portfolios in Canada, as noted in Mr. Pickles’ testimony and in the response to E1 IR-28, there exists a range of other program types, variations of existing E1 programs, and different expenditure levels (including no expenditure on certain programs and measures), that should be assessed – including the possibility of offering a less comprehensive and costly portfolio.

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1 **Request IR-33:**

2
3 **Reference: Appendix A, Page 61 of 100.**

4
5 **(a) ICF suggests that Efficiency Nova Scotia's programs do not adequately serve the**
6 **industrial customer base. What analysis has ICF undertaken to support this**
7 **suggestion?**

8
9 **(b) How does Nova Scotia differ from other similar jurisdictions in terms of its**
10 **approach to the industrial sector?**

11
12 **Response IR-33:**

13
14 (a) The cited testimony does not say that "Efficiency Nova Scotia's programs do not
15 adequately serve the industrial customer base". Rather, the analysis presented in the
16 testimony illustrates that savings from NS Power's industrial customers have historically
17 comprised a disproportionately small share of total portfolio savings given: a) the relative
18 size and energy consumption of the industrial customer base, and b) the savings potential
19 indicated by the Nova Scotia 2015-2040 Demand Side Management (DSM) Potential
20 Study. The testimony also notes that the knowledge and approach necessary to serve
21 industrial customers generally requires different resources than those required for a
22 program serving business, non-profit, and institutional customers. This observation is
23 based on ICF's experience delivering programs to each of these customer classes.

24
25 (b) The filing provides very little detail on E1's proposed approach to the industrial customer
26 base, and the approach to the industrial sector in other jurisdictions varies widely.
27 Therefore, it is not possible to compare E1's proposed approach to that of other
28 jurisdictions without additional information. That being said, other program
29 administrators including BC Hydro, SaskPower, Manitoba Hydro, Quebec Hydro, and
30 Newfoundland Power and Newfoundland and Labrador Hydro, have specific energy

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1 savings targets and budgets for their industrial DSM programs. And, other administrators
2 have sector-specific specialists and offerings designed to address the unique needs and
3 technologies associated with industrial processes and manufacturing.

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1 **Request IR-34:**

2
3 **Reference: On Page 51 of its Evidence, lines 2-4, NS Power states that, “If E1 does not**
4 **spend the full annual amount in a given year, it is to be deducted from the amount owing in**
5 **the following year or refunded to customers.”**

6
7 **Does NS Power believe that EfficiencyOne should be required to achieve its 3-year energy**
8 **savings target without having access to the 3-year approved contract amount to do so?**

9
10 **Response IR-34:**

11
12 The 2016-2018 contract identifies yearly targets including yearly levels of spending. Annual
13 funding and composition of the annual DSM programs is the subject of this proceeding. NS
14 Power’s recommendation is that E1 be held accountable for the annual DSM program targets and
15 budget approved by the UARB. Further, if E1 is able to achieve the annual target with a lower-
16 than-approved unit price in any given year, this surplus should be returned to customers.

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1 **Request IR-35:**

2
3 **Reference: NS Power's Evidence, Page 50, line 3.**

4
5 **Given that the programs of EfficiencyOne's proposed DSM Resource Plan are cost-**
6 **effective based on both the PAC test of ratepayer efficiency and the UARB-approved TRC,**
7 **is NS Power's assertion that EfficiencyOne's DSM Resource Plan is not cost-effective a**
8 **rejection of the current cost-effectiveness framework in Nova Scotia?**

9
10 **Response IR-35:**

11
12 No. NS Power's comments regarding cost-effectiveness relate to affordability as described on
13 page 3 of the Evidence and not to the results of DSM cost effectiveness tests. DSM investment
14 in Nova Scotia is among the highest in Canada on both per-capita and per-customer bases. This
15 level of investment also produces more savings than is needed for avoidance of future capacity
16 or for near-term legislative compliance.

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1 **Request IR-36:**

2
3 **Reference: NS Power’s Evidence, Page 41, lines 9-11 and Appendix A, page 37 of 100.**

4
5 **(a) What approval authority, oversight, and supervision over EfficiencyOne are NS**
6 **Power and ICF proposing NS Power should be granted?**

7
8 **(b) Given subsections 79C(3-4), 79G(1), 79K(1-2), 79L(6), and 79M(2,5) of the Public**
9 **Utilities Act, please provide the basis, statutory or otherwise, upon which NS Power**
10 **and ICF are making this proposal.**

11
12 **Response IR-36:**

13
14 **(a) NS Power’s proposal to address E1’s need for flexibility to make changes to the approved**
15 **2016-18 DSM Plan is set out by David Pickles in NS Power’s Evidence at Appendix A,**
16 **pages 37-38.**

17
18 **(b) The Agreed Form of Supply Agreement attached as Appendix J to the Evidence of E1**
19 **sets out how the parties had agreed to deal with significant changes to the approved 2016-**
20 **18 DSM Plan. Section 5.1 of the Agreed Form of Supply Agreement provides:**

21
22 5.1 EfficiencyOne shall provide notice of Significant Changes to NSPI at
23 the same time as EfficiencyOne makes application to the UARB for the
24 approval of the Significant Changes. Subject to the terms of the Act and
25 the general discretion of the UARB under the Act, NSPI shall have the
26 right to make written submissions to the UARB on any such Significant
27 Changes to the EECA Plan.
28

29 Section 1.1(x) of the Agreed Form of Supply Agreement defines “Significant Changes”
30 as “any proposed change to the EECA Plan for which the UARB orders or directs E1 to
31 obtain approval of the UARB prior to the implementation of such proposed change.” NS

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- 1 Power disagrees with the degree of flexibility requested by E1 to make changes to the
- 2 2016-18 DSM Plan after it has been approved by the Board.

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1 **Request IR-37:**

2
3 **Reference: Appendix A, Page 28, lines 16-19 of 100.**

4
5 **Please define “standard industry practice” in the context of oversight, information, and**
6 **management supervision necessary for a DSM Administrator that is a regulated utility, not**
7 **a program delivery agent. Please provide examples of jurisdictions that conform to this**
8 **definition.**

9
10 **Response IR-37:**

11
12 The cited testimony reads “The EfficiencyOne proposal does not support the level of oversight,
13 information, and management supervision necessary to ensure prudent delivery of the programs
14 and is inconsistent with standard industry practice.” In this context, Mr. Pickles uses the term
15 “standard industry practice” to mean “generally used or accepted as normal.” As noted in Mr.
16 Pickles’ testimony, E1’s proposal provides much more autonomy and flexibility for E1 than is
17 typically afforded to regulated utility DSM program administrators. While specific requirements
18 vary by jurisdiction, and despite variations in the detailed requirements across these jurisdictions,
19 the following are examples of jurisdictions that generally conform to Mr. Pickles definition of
20 standard practice in this context:

- 21
22 • Maryland,
23 • Illinois,
24 • New York, and
25 • New Jersey.

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Request IR-38:

Reference: Appendix A, Page 7 of 100, lines 17-18.

(a) Please provide a listing of the DSM plans (not IRP submissions) developed by Mr. Pickles that include a range of program options and spending levels.

(b) Please provide a listing of the DSM plans (not IRP submissions) developed by Mr. Pickles that do not include a range of program options and spending levels.

Response IR-38:

(a) The cited testimony reads “In selecting its recommended spending level, I believe EfficiencyOne considered too narrow a range of program options and spending levels. I recommend that the EfficiencyOne plan be rejected, and that EfficiencyOne be directed to evaluate a broad range of alternatives and determine a more appropriate portfolio of programs.” Mr. Pickles has not maintained a comprehensive list of all DSM plans he has developed. However, some of the plans developed by Mr. Pickles that considered a range of program options and funding levels include:

- (i) [REDACTED]
- (ii) [REDACTED]
- (iii) [REDACTED]
- (iv) [REDACTED]
- (v) [REDACTED]
- (vi) [REDACTED]
- (vii) [REDACTED]
- (viii) [REDACTED]
- (ix) [REDACTED]
- (x) [REDACTED]

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REDACTED

- 1 (xi) [REDACTED]
- 2 (xii) [REDACTED]
- 3 (xiii) [REDACTED]
- 4 (xiv) [REDACTED]
- 5 (xv) [REDACTED]
- 6 (xvi) [REDACTED]
- 7 (xvii) [REDACTED]

8

- 9 (b) Mr. Pickles has not maintained a comprehensive list of all DSM plans he has developed.
- 10 However, he does not recall that any of the plans he developed did not consider a range
- 11 of program options and funding levels.

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1 **Request IR-39:**

2
3 **Reference: Appendix A, Page 30 of 100, lines 9-11.**

4
5 **If the UARB approves EfficiencyOne's Performance Targets to be cumulative annual**
6 **energy and demand savings over the 3-year term, would EfficiencyOne's annual reporting**
7 **of independently evaluated energy and demand savings make it possible to track progress**
8 **against the UARB approved Targets? If not, please explain why not.**

9
10 **Response IR-39:**

11
12 **Yes, provided sufficient information on costs and savings is provided to the Board on a quarterly**
13 **basis. Please refer to David Pickles' testimony at Appendix A, pages 33-34.**

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Request IR-40:

Reference: Appendix A, Page 35 of 100.

In the following table, please indicate which information recommended by Mr. Pickles is filed with the regulator on a quarterly (Q) and annual (A) basis in the benchmarked jurisdictions selected by Mr. Pickles.

Jurisdiction	Participation (measure count) by measure and comparison to plan		Participation (individual customer count) by customer type and by program		Project/ participant pipeline		Energy (annual and lifetime) and demand savings by measure		Detailed performance metrics for each program		Expenditure by category and comparison to budget		Description of customer and trade ally complaints, and discussion of resolution		Benefit cost ratios (TRC, PAC, and RIM) for the year and program cycle to date (annual only)	Updated forecasts (participation, savings, and costs) for the next 12 months	
	Q	A	Q	A	Q	A	Q	A	Q	A	Q	A	Q	A	A	Q	A
BC Hydro																	
SaskPower																	
Manitoba Hydro																	
Ontario IESO																	
Hydro Quebec																	
Efficiency Maine																	
Efficiency New Brunswick																	
NL Power and NLLH																	

Response IR-40:

It should be noted that, although not necessarily required by the Canadian jurisdictions identified in the table, quarterly or semi-annual filings are common in U.S. jurisdictions with significant spending on energy efficiency programs.

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Jurisdiction	Participation (measure count) by measure and comparison to plan		Participation (individual customer count) by customer type and by program		Project/ participant pipeline		Energy (annual and lifetime) and demand savings by measure ¹		Detailed performance metrics for each program		Expenditure by category and comparison to budget		Description of customer and trade ally complaints, and discussion of resolution		Benefit cost ratios (TRC, PAC, and RIM) for the year and program cycle to date (annual only)	Updated forecasts (participation, savings, and costs) for the next 12 months	
	Q	A	Q	A	Q	A	Q	A	Q	A	Q	A	Q	A	A	Q	A
BC Hydro ²												x			x ³		
SaskPower ⁴												x					
Manitoba Hydro ⁵		x ⁶		x								x			x ⁷		
Ontario IESO ⁸												x					
Hydro Quebec ⁹ , 10		x										x			x ¹¹		x
Efficiency Maine ¹²		x		x						x		x			x ¹³		x ¹⁴
Efficiency New Brunswick ¹⁵												x					
NL Power and NLLH ¹⁶				x								x ¹⁷					

1

¹ This information is available only by program for most utilities.² http://www.bcuc.com/Documents/Proceedings/2014/DOC_41968_A2-1_BCH-DSM-Activities_Rpt_F2014.pdf, pg. 4, pg. 14.³ Utility test, TRC, Ratepayer Impact test.⁴ <http://www.saskratereview.ca/images/docs/SaskPower2013/2014-spc-final-april-10-with-cover-and-executive-summary.pdf>, pg. 66.⁵ http://www.hydro.mb.ca/projects/development_plan/bc_documents/pub_095b_attachment_2.pdf, pg. 101-102, pg. 2, pg. 89-91, pg. 64-71.⁶ Does not compare to plan.⁷ TRC, RIM, LUC.⁸ http://www.ontarioenergyboard.ca/oeb/Documents/EB-2010-0215/CDM%20Summary%20Report%20-%202013%20Results_20141217.pdf, pg. 16.⁹ http://publicsde.regie-energie.qc.ca/projets/282/DocPrj/R-3905-2014-B-0038-Demande-Piece-2014_08_01.pdf, pg. 31, pg. 25, pg. 19.¹⁰ <http://www.regie-energie.qc.ca/audiences/RappHQD2013/HQD-07-03Rev-Planglobalenefficaciteenergetique.pdf> (annual report).¹¹ TCR, TP, TNT (French).¹² <http://www.efficiencymaine.com/docs/2014-Efficiency-Maine-Annual-Report.pdf>¹³ TRC, PACT.¹⁴ Update budget.¹⁵ http://0101.nccdn.net/1_5/250/0f8/0fb/2012-13-Annual-Report-FINAL.pdf, pg. 33.¹⁶ <http://www.pub.nl.ca/applications/NLH2013GRA/files/rfi/IN-NLH-009.pdf>, 2012 Conservation and Demand Management Report, pg. 10, pg. 4.¹⁷ Not compared to budget.

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1 **Request IR-41:**

2
3 **Reference: NS Power's Evidence, Page 48, lines 19-21.**

4
5 **(a) Given that the current cost allocation methodology approved by the UARB provides**
6 **for true-up in the form of a Balance Adjustment at a rate-class level, is NS Power**
7 **proposing that this true-up remain in place?**

8
9 **(b) If the answer to part (a) is "yes", please explain how an overall true-up will be**
10 **avoided while maintaining the current methodology.**

11
12 **Response IR-41:**

13
14 **(a-b) Please refer to NSUARB IR-2(b).**

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2016-2018 DSM Plan (NSUARB M06733)
NSPI Responses to EfficiencyOne Information Requests

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1 **Request IR-42:**

2
3 **Reference: NS Power's Evidence, Page 51, lines 6-8.**

4
5 **Given that the 2015 DSM Settlement Agreement provided for deferring the discussion on**
6 **cost allocation issues to the 2016-2018 DSM Plan, is NS Power now proposing that the**
7 **UARB defer its Decision on cost allocation issues to a future, unspecified time when NS**
8 **Power may make an Application?**

9
10 **Response IR-42:**

11
12 **Please refer to IG IR-3.**

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2016-2018 DSM Plan (NSUARB M06733)
NSPI Responses to EfficiencyOne Information Requests

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1 **Request IR-43:**

2
3 **Reference: NS Power's Evidence, Page 22, lines 19-23 and Footnote 32.**

4
5 **Does NS Power intend to expense the costs of DSM in years 2016, 2017 and 2018 as they**
6 **occur or defer or amortize the costs over multiple years as permitted by the *Public Utilities***
7 ***Act*?**

8
9 **Response IR-43:**

10
11 **Please refer to Synapse IR-4.**

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NSPI Responses to EfficiencyOne Information Requests

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1 **Request IR-44:**

2
3 **Reference: NS Power's Evidence, Page 23, line 16 to page 24, line 2.**

4
5 **Since NS Power is not referencing the magnitude of DSM in this statement, is NS Power**
6 **referencing the existing cost-allocation methodology? If so, please provide a proposed**
7 **solution. If not, please explain the intent of the question asked and NS Power's proposed**
8 **solution.**

9
10 **Response IR-44:**

11
12 **No. NS Power is not referencing the existing cost-allocation methodology. Please refer to**
13 **NSUARB IR-14.**

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2016-2018 DSM Plan (NSUARB M06733)
NSPI Responses to EfficiencyOne Information Requests

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1 **Request IR-45:**

2
3 **Please confirm that:**

4
5 **(a) 432 GWh of incremental DSM electricity savings for 2016-2018 were built into the**
6 **Maritime Link load forecast.**

7
8 **(b) NS Power projected that the electricity system would use 895 GWh annually of**
9 **Maritime Link electricity (plus an additional 240 GWh of supplemental energy for**
10 **the first five years), not including Maritime Link surplus energy.**

11
12 **Response IR-45:**

13
14 **(a-b) Confirmed.**

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2016-2018 DSM Plan (NSUARB M06733)
NSPI Responses to EfficiencyOne Information Requests

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Request IR-46:

(a) Has NS Power included the impact of naturally-occurring market adoption of energy efficient technologies in its load forecast? If not, why?

(b) Does NS Power assert that the inclusion of program free ridership in costs and impact of EfficiencyOne's DSM Resource Plan does not adequately account for the natural adoption of efficient technologies? If not, why?

Response IR-46:

(a) Yes. The estimated impact of naturally-occurring market adoption of energy efficient technologies is recognized in historical sales which are input to the forecast. The load forecast also utilizes end-use saturation forecasts which recognize this naturally-occurring efficiency improvement.

(b) NS Power expects that there may be customers who adopt energy efficient technologies completely on their own and are not included in free-ridership counts.

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2016-2018 DSM Plan (NSUARB M06733)
NSPI Responses to EfficiencyOne Information Requests

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1 **Request IR-47:**

2
3 **Reference: NS Power's Evidence, Pages 25-26, "Codes and Standards"**

4
5 **Does NS Power assert that the adoption of codes and standards would not be accelerated**
6 **by market transformation strategies?**

7
8 **Response IR-47:**

9
10 NS Power's Evidence on market transformation is contained in its filing at page 28, line 8 to
11 page 29, line 15:

12
13 In NS Power's view, the Nova Scotia market is simply not large enough to hold
14 market power or weight in regard to enabling market transformation. If we adopt
15 the technology at a later date, rather than subsidize the market to force early
16 transformation, the programs will cost less and customers will pay less. Given
17 Nova Scotia's relative size, it is better to benefit from the influence of larger
18 markets and adopt emerging technologies only when it is more pressing to do so
19 and at a lower cost. Economies of scale and technology advancements will make
20 some of today's higher cost programs, lower cost programs in the future."¹

¹ NS Power Evidence page 28.

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Request IR-48:

- (a) Did the load forecast used in the 2014 IRP, which used New England forecasts, include the impacts of expected changes to equipment standards in the United States?
- (b) Did the load forecast used in the 2014 IRP include Nova Scotia's LED streetlight legislation?
- (c) If the answers to (a) and/or (b) above are "yes", since expected codes and standards were included in NS Power's load forecast, what codes and standards could be attributed to DSM (per NS Power's Evidence, pages 25-26, "Codes and Standards")?
- (d) If examples are provided, please explain why those energy savings should be used to reduce EfficiencyOne's Targets instead of using them to close the gap with NS Power's Preferred Resource Plan, which incorporated a Mid-DSM Scenario, and was determined to be the lowest-cost option for Nova Scotians over 25 years?

Response IR-48:

(a-b) Yes.

(c) The noted reference was in general support of codes and standards adoption in the market where opportunities exist. These may or may not be currently accounted for in forecasts or if accounted for, reflect what may unfold.

An example is the legislated changeover of street lighting to LEDs in Nova Scotia as mentioned in part (b). This was a local initiative that was not embedded in the load forecast long before its adoption.

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2 (d) NS Power's Evidence demonstrates that the "Low" DSM Case at the "Half-Low" price is
3 the most cost effective and affordable DSM profile for the contract period. Therefore,
4 any codes and standards DSM savings occurring during this period should be counted
5 towards meeting the targets established in this profile.

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2016-2018 DSM Plan (NSUARB M06733)
NSPI Responses to EfficiencyOne Information Requests

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1 **Request IR-49:**

2
3 **Reference: NS Power's Evidence, Page 32, line 5 and Page 33, line 2.**

4
5 **Please confirm that NS Power's use of the terms "economic" and "competitive" do not**
6 **include an analysis of bill impacts. If not confirmed, please explain what analysis was done.**

7
8 Response IR-49:

9
10 Please refer to Multeese IR-1 and Synapse IR-21. These references refer to partial revenue
11 requirement analysis.

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NSPI Responses to EfficiencyOne Information Requests

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1 **Request IR-50:**

2
3 **With regard to savings from codes and standards, please provide a spreadsheet that**
4 **identifies the quantities of NS Power-owned street lights (before NS Power's LED**
5 **Streetlight conversion program began), grouped by fixture type and wattage. For each of**
6 **these groups, include how many streetlights have been replaced to date with LED units**
7 **along with the wattage of the replacement LED fixtures. Please provide NS Power's**
8 **replacement schedule and expected incremental annual wattage savings out to the end of**
9 **the LED Streetlight conversion program.**

10
11 **Response IR-50:**

12
13 NS Power owned approximately 83,000 roadway lights subject to the legislative change. Please
14 refer to Attachment 1, also filed electronically. Approximately 40,000 of these have been sold or
15 in process to be sold.

16
17 NS Power does not have a schedule prepared illustrating the exact change out of lights with their
18 replacements at this time.

19
20 Please refer to Attachment 2, also filed electronically, for details. NS Power started replacement
21 of streetlights in August 2012, before sales transactions were completed. As a result, NS Power
22 installed LEDs that were subsequently sold. For this reason the schedule of replacements since
23 2012 shown in Attachment 2 exceeds the NS Power streetlight count post sales transactions.
24 Please note that Attachment 2 does not reflect the energy savings of municipal projects. NS
25 Power estimates these at approximately 10 GWh of energy savings.

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ELECTRONIC 2016-2018 DSM Plan EOne IR-50 Attachment 1 Page 1 of 1

Rate Code	Description	Total Lights In Asset Pool pre Sale	Total Lights In Asset Pool Post Sale
1	LE 300W Incandescent Light	16	10
2	GT 300W Incandescent Light	1	1
100	100W Mercury Vapour Light	97	52
101	125W Mercury Vapour Light	9,165	6,738
102	175W Mercury Vapour Light	989	457
103	250W Mercury Vapour Light	689	537
104	400W Mercury Vapour Light	778	623
105	700W Mercury Vapour Light	9	9
106	1000W Mercury Vapour Light	3	2
107	250W Mercury Vapour/Continuous	-	-
110	Fluorescent 24 X 2 Light	852	850
111	Fluorescent 48 X 2	36	30
112	Fluorescent 72 X 2	65	64
113	Fluorescent 72 X 4	15	14
114	Fluorescent 96 X 1	-	-
115	Fluorescent 72 X 1	1	1
116	Fluorescent 48 X 4	-	-
121	250W High Pressure Sodium	2,208	848
122	400W High Pressure Sodium	913	725
123	70W High Pressure Sodium	35,843	13,304
124	100W High Pressure Sodium	27,523	16,638
125	150W High Pressure Sodium	3,084	1,664
126	100W High Pressure Sodium-Cont	9	9
130	135W Low Pressure Sodium Light	56	-
131	180W Low Pressure Sodium	215	132
140	400W Metallic Additive Light	137	56
141	1000W Metallic Additive Light	38	19
142	250W Metallic Additive Light	16	4
143	150W Metallic Additive Light	2	1
144	100W Metallic Additive Light	6	3
		82,766	42,791

ELECTRONIC 2016-2018 DSM Plan EOne IR-50 Attachment 2 Page 1 of 1

Total	Estimated Savings (GWH)
49,729	14.9