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Request IR-1:

In the interest of ratepayer affordability, please explain any reasons why the DSM programs should not be financed solely from debt as opposed to debt plus equity, in order to minimize the total ratepayer cost.

Response IR-1:

NS Power maintains its capital structure within the UARB's approved range for both debt and equity and in accordance with the requirements of its debt banking covenants. NS Power's financings are not in relation to specific programs or assets but rather are based on NS Power's total financing requirements to support its asset base. If NS Power were to allocate a higher percentage of debt than that of its average capital structure to a specific program or asset, other programs or assets would need to be assumed to be financed with additional equity to maintain the overall capital structure within NS Power's targeted range. From a cost of service perspective, this would result in an inequity in the cost of financing NS Power between customer classes.

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Request IR-2:

Under current legislation, the 2015 DSM program costs cannot be expensed during 2015 but must be recovered by NSPI over an 8-year period beginning in 2016.

(a) Please estimate the additional cost to ratepayers resulting from this changed approach to cost recovery.

(b) What cost recovery approach would NSPI recommend for the 2016-18 DSM Plan? Please explain.

Response IR-2:

(a) The total cost of financing the 2015 DSM spend will be approximately \$12.5 million (based on current cost of capital of 7.19 percent and 8-year recovery period).

(b) NS Power has not developed a recommended cost recovery approach for the 2016-2018 DSM program. The Company's recommendation on the cost recovery approach will depend on the level of DSM program costs for this period approved by the Board and the allocation of these costs among rate classes.

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Request IR-3:

Has NSPI undertaken any analysis to compare the cost of these 2016-18 DSM programs against the cost of fuel and other OM&G and capital costs that would be needed to supply the load being offset by the DSM programs?

(a) If so, please describe the analysis and the results of the analysis.

(b) If no analysis was undertaken, please explain why that was not done.

Response IR-3:

(a-b) The analysis contained in NS Power's Evidence at Section 3.3 discusses the Company's evaluation of DSM costs relative to various levels of DSM modelled. The analysis is based on partial revenue requirements which assume that elements not included in the partial revenue requirements are common across plans and therefore represent a "ceteris paribus" analysis – a common standard in economic evaluation. The costs included in the "ceteris paribus" analysis are listed at page 62 of the IRP final Report as follows:¹

Partial revenue requirements include the following:

- fuel and purchased power
- thermal and hydro unit O&M
- capital costs for new resources added in the CRP
- DSM program administrator costs
- sustaining capital costs for existing and new generation added in the CRP

¹ NS Power 2014 Integrated Resource Plan Final Report, NSUARB M05522, October 15, 2014, page 62.

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1 The analysis of partial revenue requirements analyzes fuel and purchased power as well
2 as the associated variable O&M. It assumes other OM&G costs to be common across
3 plans.

4
5 Key findings of this analysis are contained in the Company's Evidence at page 31, lines
6 12 to 19 and page 32, lines 1 to 12 included below:

7
8 NS Power's proposed DSM savings and spend profile for the Contract
9 Period would provide the "Low" level of capacity and energy savings at
10 the "Half-Low" price. This DSM profile would provide the best balance
11 between affordability in the short term and overall cost effectiveness out
12 beyond 2030 for the following reasons:

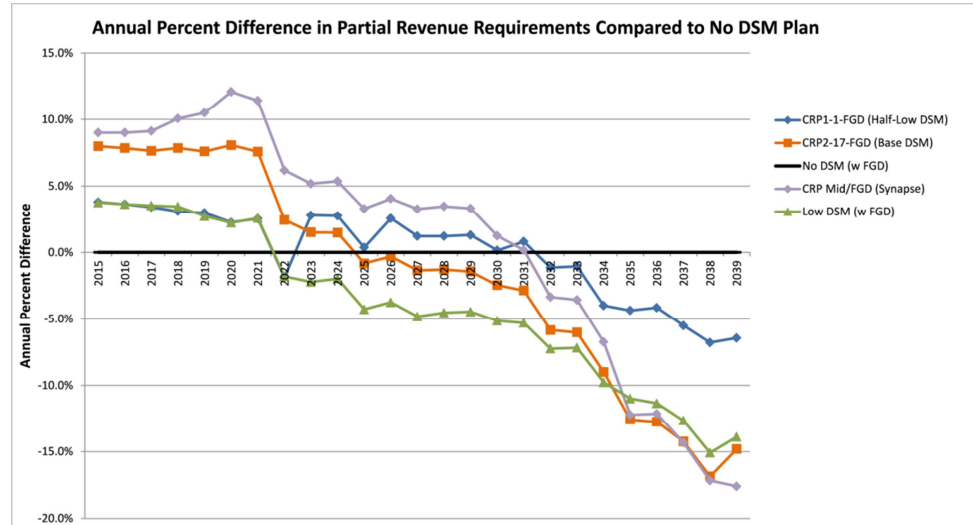
- 13
14 (a) it aligns with near-term utility requirements for energy and
15 capacity;
16
17 (b) it recognizes greater confidence in near term forecasts; and
18
19 (c) it is most economic at years 2025 and 2030, and the cross-over
20 point (where it becomes less cost-effective than the higher DSM
21 option) is not until 2034.

22
23 The delay required for a DSM plan to become economic indicates that a
24 more moderate level of DSM should be undertaken to mitigate near term
25 rate pressure for customers, while not sacrificing the future.
26

2016-2018 DSM Plan (NSUARB M06733)
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Figure 3.7: Annual Percent Difference in Partial Revenue Requirements Compared to No DSM Plan.²



² NS Power, DSM Evidence, April 10, 2015, page 31, line 12 to page 32, line 12.

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Request IR-4:

NSPI is proposing a significantly reduced level of DSM energy savings during the 2016 to 2018 period.

(a) Please prepare a table estimating the annual cost of additional generation associated with the reduced DSM energy savings over the lifetime of the DSM measures (12.96 years per Exh. E-1, p.27 of 64) beginning in each of 2016, 2017, and 2018.

(b) Please add a column to the table to show the estimated amount of additional revenue NSPI could receive by maintaining higher energy sales if the DSM energy savings are reduced.

(c) Please explain how NSPI's calculations were derived.

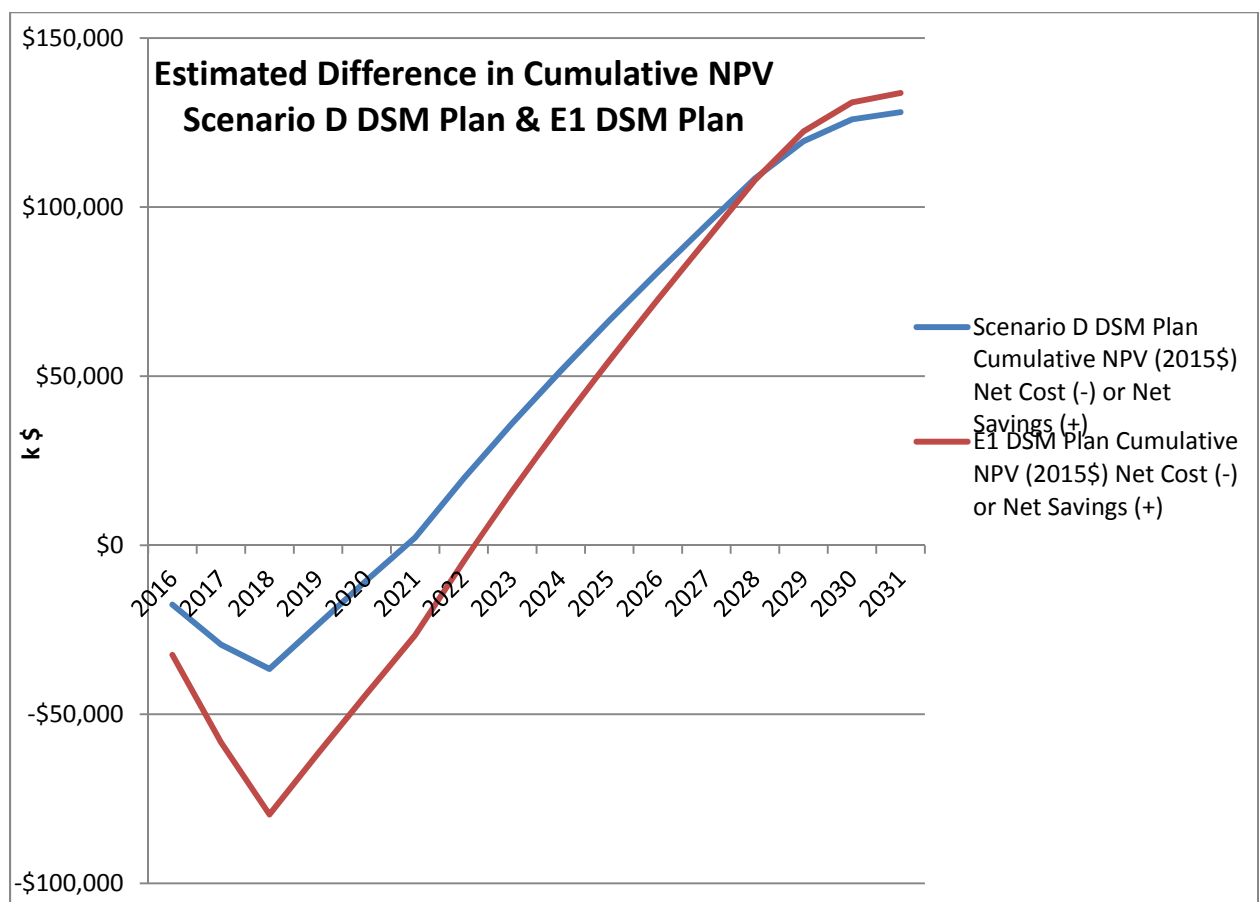
Response IR-4:

(a) Included in NS Power's Evidence are alternative DSM scenarios which meet the Company's energy and capacity savings for DSM at a much reduced cost. These scenarios are not intended as detailed plans for approval, but Scenario D will be used for comparison with the E1 DSM plan to develop the estimate requested. Neither the Scenario D nor the E1 DSM Plan has had an avoided cost analysis performed for their specific energy savings. However, the avoided energy costs have been derived for the Low DSM plan and the Base DSM, and since the incremental energy savings for these plans are in the range of Scenario D and E1 Plan respectively, these avoided costs will be used in the estimate calculations.

Please refer to Attachment 1, also filed electronically, Table 3 which provides the cumulative NPV of the costs and savings for each plan (column E and F) and the difference in cumulative NPV over the DSM program lifetime (Column G). The E1

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DSM Plan has an estimated cumulative NPV savings of \$5.7 million more than the Scenario D DSM plan over the life of the programs; however, the crossover point is 2029 as shown on the graph below. For the first 13 years of the period the cumulative NPV savings of the Scenario D DSM plan are higher. This estimate was developed using the avoided costs derived from the long-term Strategist IRP model runs. NS Power has moved to hourly dispatch models for fuels forecasting purposes.



- (b) Attachment 1, Table 3 (Column D) shows the increased revenue with Scenario D DSM Case savings. In the early years there is a reduction in revenues due to the lower investment cost of the DSM programs.

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1 (c) Attachment 1 uses the avoided energy costs on a \$/MWh, to determine the energy
2 savings over the lifetime of the 2016 to 2018 DSM programs. The annual incremental
3 energy savings for each plan are assumed to have an average measure life of 12.96 years
4 (rounded to 13 years). For each of the three years of DSM programs starting in 2016,
5 2017 and 2018, the DSM investment is assumed to be spent in that year while the energy
6 savings are assumed to be spread over year 1 and year 2, with 50 percent of the energy
7 savings being realized in each year.

8
9 The DSM investment costs for the E1 DSM Plan in each of the three years are based on
10 E1's evidence. The DSM investment costs for the Scenario D DSM plan are based on the
11 Scenario D DSM costs.

12
13 The Net Costs (-) or Net Savings (+) each year are the sum of the energy savings and the
14 DSM investment costs. Attachment 1, Tables 1 and 2 give the annual values for the
15 Scenario D DSM plan and the E1 DSM plan respectively.

Table 1 - Estimated Annual Net Savings (or Costs) with Scenario D DSM Plan

A	B	C	D	E	F	G
Year	Low DSM Plan Avoided Cost of Energy \$/MWh	Scenario D DSM Plan Incremental Energy Savings GWh	Scenario D DSM Plan Annual Cumulative Energy Savings * GWh	Energy Savings (B * D) k\$	Scenario D DSM Investment k\$	Net Cost (-) or Net Savings (+) (E + F) k\$
2015	\$64	-	-	-	-	-
2016	\$60	50	50	\$3,005	-\$21,733	-\$18,728
2017	\$59	100	150	\$8,782	-\$22,168	-\$13,385
2018	\$56	100	250	\$13,936	-\$22,611	-\$8,675
2019	\$56	50	300	\$16,879	\$0	\$16,879
2020	\$60	0	300	\$17,915	\$0	\$17,915
2021	\$61	0	300	\$18,410	\$0	\$18,410
2022	\$91	0	300	\$27,188	\$0	\$27,188
2023	\$90	0	300	\$27,020	\$0	\$27,020
2024	\$91	0	300	\$27,199	\$0	\$27,199
2025	\$93	0	300	\$27,988	\$0	\$27,988
2026	\$95	0	300	\$28,530	\$0	\$28,530
2027	\$99	0	300	\$29,811	\$0	\$29,811
2028	\$104	0	300	\$31,095	\$0	\$31,095
2029	\$106	0	250	\$26,438	\$0	\$26,438
2030	\$111	0	150	\$16,638	\$0	\$16,638
2031	\$117	0	50	\$5,835	\$0	\$5,835

Table 2 - Estimated Annual Net Savings (or Costs) with E1 DSM Plan

A	B	C	D	E	F	G
Year	Base DSM Plan Avoided Cost of Energy \$/MWh	E1 DSM Plan Incremental Energy Savings GWh	E1 DSM Plan Annual Cumulative Energy Savings * GWh	Energy Savings (B * D) k\$	E1 DSM Plan DSM Investment ** k\$	Net Cost (-) or Net Savings (+) (E + F) k\$
2015	\$64	-	-	-	-	-
2016	\$60	66.5	66.5	\$3,968	-\$38,500	-\$34,532
2017	\$58	135.0	201.5	\$11,763	-\$41,106	-\$29,343
2018	\$55	136.5	338	\$18,564	-\$44,321	-\$25,757
2019	\$57	68.0	406	\$23,199	\$0	\$23,199
2020	\$60	0	406	\$24,207	\$0	\$24,207
2021	\$62	0	406	\$25,217	\$0	\$25,217
2022	\$84	0	406	\$34,008	\$0	\$34,008
2023	\$85	0	406	\$34,313	\$0	\$34,313
2024	\$86	0	406	\$34,826	\$0	\$34,826
2025	\$87	0	406	\$35,223	\$0	\$35,223
2026	\$89	0	406	\$36,038	\$0	\$36,038
2027	\$93	0	406	\$37,620	\$0	\$37,620
2028	\$98	0	406	\$39,974	\$0	\$39,974
2029	\$102	0	339.5	\$34,701	\$0	\$34,701
2030	\$108	0	204.5	\$22,113	\$0	\$22,113
2031	\$113	0	68	\$7,680	\$0	\$7,680

* Assumes average life of DSM measures is 12.96 years, rounded to 13 years

** Costs for E1 DSM Plan in 2017 and 2018 have been escalated at 2% inflation to express them in nominal dollars

Table 3 - Estimated Difference in Cumulative NPV

A	B	C	D	E	F	G
Year	Scenario D DSM Plan Net Cost (-) or Net Savings (+) (Table 1, Col G) k\$	E1 DSM Plan Net Cost (-) or Net Savings (+) (Table 2, Col G) k\$	Difference E1 DSM less Scen. D DSM Increased Revenue with Scen. D DSM (+) Decreased Revenue with Scen. D DSM (-) (C - B) k\$	Scenario D DSM Plan Cumulative NPV (2015\$) Net Cost (-) or Net Savings (+) k\$	E1 DSM Plan Cumulative NPV (2015\$) Net Cost (-) or Net Savings (+) k\$	Difference Cumulative NPV (2015\$) Net Cost (-) or Net Savings (+) (F - E) k\$
2015	-	-	-	-	-	-
2016	-\$18,728	-\$34,532	-\$15,804	-\$17,587	-\$32,427	-\$14,841
2017	-\$13,385	-\$29,343	-\$15,958	-\$29,390	-\$58,303	-\$28,913
2018	-\$8,675	-\$25,757	-\$17,082	-\$36,574	-\$79,632	-\$43,058
2019	\$16,879	\$23,199	\$6,319	-\$23,448	-\$61,592	-\$38,144
2020	\$17,915	\$24,207	\$6,292	-\$10,366	-\$43,916	-\$33,550
2021	\$18,410	\$25,217	\$6,807	\$2,258	-\$26,624	-\$28,882
2022	\$27,188	\$34,008	\$6,821	\$19,765	-\$4,724	-\$24,490
2023	\$27,020	\$34,313	\$7,293	\$36,104	\$16,024	-\$20,080
2024	\$27,199	\$34,826	\$7,628	\$51,548	\$35,800	-\$15,748
2025	\$27,988	\$35,223	\$7,235	\$66,472	\$54,582	-\$11,891
2026	\$28,530	\$36,038	\$7,509	\$80,758	\$72,627	-\$8,131
2027	\$29,811	\$37,620	\$7,809	\$94,775	\$90,317	-\$4,459
2028	\$31,095	\$39,974	\$8,879	\$108,506	\$107,967	-\$538
2029	\$26,438	\$34,701	\$8,263	\$119,468	\$122,356	\$2,888
2030	\$16,638	\$22,113	\$5,475	\$125,946	\$130,966	\$5,020
2031	\$5,835	\$7,680	\$1,845	\$128,080	\$133,775	\$5,694

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Request IR-5:

Please explain the methodology NSPI would use to determine avoided distribution and avoided transmission costs associated with DSM programs.

Response IR-5:

To estimate avoided T&D costs of DSM programming, NS Power would require coincident peak demand reduction information arising from the participation of customers served by the equipment in question in specific peak reduction DSM programming. NS Power would also require time-adjusted information on all other load modification causes that could influence the loading of the equipment in question, such as:

- customer self-generation,
- net metered generation,
- COMFIT generation,
- heat pump installations or other trends in space or water heating (gas, solar, wood),
- reductions due to code and standard affects,
- industrial or commercial load loss,
- weather adjustments, and
- LED street lighting deployment.

NS Power would net these load modifiers from observed peak load measured on feeders or transformers to try to estimate what part of the load modification could be attributed to DSM programs. Once that portion of peak demand modification was understood, NS Power could attribute that to distribution investment deferral. NS Power would also assess the planned improvements for the circuit or equipment in question. If the uprating in response to overloading conditions was coordinated with reliability improvements or replacing old or damaged equipment, then the avoided cost could be a portion of the total project cost.

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Request IR-6:

Has there been any consideration given to focusing DSM initiatives on a locational basis to reduce anticipated capital expenditures on the distribution, transmission, or generation systems? Please explain.

Response IR-6:

NS Power has no evidence that these considerations have been incorporated within E1's plan. They are the types of considerations that the Company would look to explore with E1 as we move forward and the DSM processes are refined and better aligned with the Company's requirements for energy and demand and near-term affordability considerations.

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1 **Request IR-7:**

2
3 **Has there been any consideration given to determining locational avoided costs? Please**
4 **explain.**

5
6 Response IR-7:

7
8 NS Power has no evidence that this consideration has been incorporated within E1's DSM Plan.
9 This is the type of consideration that the Company would look to explore with E1 as we move
10 forward and the DSM processes are refined and better aligned with the Company's requirements
11 for energy and demand and near-term affordability considerations. .

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1 **Request IR-8:**

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3 **Does NSPI believe that, if unforeseen events occur which require additional funding, E1**
4 **has no opportunity to seek an amended agreement with NSPI or to request UARB**
5 **approval of additional funding? Please explain.**

6
7 Response IR-8:

8
9 Section 26.7 of the Agreed Form of Supply Agreement attached as Appendix J to the Evidence
10 of E1 provides the approved Supply Agreement will not be amended except as agreed by NS
11 Power and E1 in writing (and approved by the Board) or as otherwise ordered or directed by the
12 Board. This provision explicitly recognizes the general supervisory authority of the Board over
13 the franchise holder under the *Public Utilities Act*.

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Request IR-9:

Has NSPI held any discussions with E1 regarding an alternative to creating a reserve fund if unforeseen events occur during implementation of the 2016 to 2018 DSM programs? Please elaborate on any such discussions or explain why the discussions were not held.

Response IR-9:

No. The reserve fund concept was not raised by E1 in its discussions with NS Power over the Supply Agreement.

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1 **Request IR-10:**

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3 **Does NSPI understand the E1 proposed Reserve Fund to be “unrestricted” in nature?**

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5 Response IR-10:

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7 NS Power is aware that E1 has proposed stepped caps on the amount it could hold in reserve
8 subject to UARB approval. The Company maintains, as cited in its Evidence, that the risks
9 outlined by the franchise holder do not justify the need for a reserve fund.

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Request IR-11:

Referencing the costs E1 has proposed to build a Reserve Fund, as outlined in Figure 4.4 on p.55 of 64, with respect to such future costs, please provide:

- (a) Detail of how NSPI covers future severance, pension and retirement obligations.**
- (b) The total revenue collected through rates, by NSPI, in the past 5 years related to future pension and retirement obligations.**
- (c) Detail of how NSPI covers future obligations associated with fuel contracts or capital obligations.**
- (d) The total revenue collected through rates, by NSPI, in the past 5 years related to future obligations associated with fuel contracts or capital obligations.**
- (e) Detail of how NSPI's future obligations, if collected through current rates, differ from E1's.**
- (f) If any of the risk factors E1 identifies materialize and E1's franchise is terminated, how does NSPI believe E1 should cover its costs to wind-up?**

Response IR-11:

- (a) In accordance with Generally Accepted Accounting Principles (GAAP), future costs associated with severance, pension and retirement obligations are accrued as appropriate and included in current period revenue requirement.**
- (b) The following amounts are the future pension and retirement obligations that have been included in the calculation of customer rates for the past 5 years.**

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2010: \$29.3M

2011: \$29.3M

2012: \$40.8M

2013: \$58.3M

2014: \$56.6M

(c) Fuel costs are expensed as incurred and charged to fuel expense (recovered through the FAM). No amounts for future commitments are included in the fuel expense as fuel is expensed as consumed. NS Power makes application to the UARB for approval for capital expenditures and they are included in rate base once they meet the accounting definition of an asset. No amounts for future commitments are included in capital assets.

(d) Future commitments with respect to fuel and capital are not recovered in advance through revenue requirement. These costs are included in revenue requirement once incurred.

(e) NS Power accrues future obligations as a going concern, in accordance with GAAP and as approved by the Board in its approval of the Company's Accounting Policies and Procedures. If these future obligations change at any point in time, offsetting adjustments are made. E1 has used non-GAAP assumptions to calculate a reserve fund, assuming the wind-up of the franchise at the end of the franchise term (costs of wind-up, loss of cost synergies and impact of external factors).

(f) Please refer to Section 9 of NS Power's Evidence. NS Power expects that the recovery of E1 costs incurred at the date of termination of E1's franchise would be a matter for the Board's consideration and would reflect the magnitude and circumstances associated with these costs.

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Request IR-12:

NSPI has suggested that funding to E1 should be allocated on an annual basis and if the full annual amount in a given year is not spent, then it is to be deducted from the amount owing in the following years.

(a) Does NSPI anticipate that this reduced spending could restrict E1's ability to achieve the 3-year savings targets? Please provide an explanation.

(b) Does NSPI acknowledge any responsibility if such a spending restriction results in E1 failing to meet its savings targets? Please explain.

Response IR-12:

(a) No. E1 has operated in this fashion since its inception and has actually exceeded annual targets within budget in all years except its first full year of operation (2011).

(b) No. Responsibility for the execution of the electricity efficiency conservation activities rests with the franchise holder. In addition, Section 79M(2) of the *Public Utilities Act* provides that NS Power is to have no liability in the event the franchise holder fails to meet its performance requirements except in a very limited set of circumstances:

(2) The failure of the franchise holder to achieve performance requirements established pursuant to subsection (1) is not the responsibility of Nova Scotia Power Incorporated except to the extent that the Board determines that Nova Scotia Power Incorporated materially contributed to the franchise holder's failure to achieve the requirements by failing to comply with the approved agreement.

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1 **Request IR-13:**

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3 **On p.9 of 51, NSPI makes reference to “E1’s new status as a regulated public utility” and**
4 **that it should be subject to the same rigour in demonstrating the prudence of its**
5 **expenditures as any other public utility. Given that E1’s predecessor was also a regulated**
6 **entity which was subject to public hearings prior to approval of proposed DSM programs,**
7 **please elaborate on the additional rigour being suggested by NSPI.**

8
9 **Response IR-13:**

10
11 **Please refer to NS Power’s Evidence, Appendix A, pages 30-34.**

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Request IR-14:

On pp.24 - 25, NSPI asks the question: “To what extent does it remain appropriate to ask customers to pay for products and services that they do not personally use, but which may benefit them indirectly, over time, through lower system costs?”

(a) Does this refer to the 25/75 allocation between system benefit costs and participating class benefit costs agreed upon while NSPI was the DSM Administrator?

(b) If so, what change does NSPI consider to be appropriate?

Response IR-14:

(a-b) No. The citation referenced refers to the fact that in a given year all customers within a customer class will pay for DSM but not all will benefit from DSM program incentives. The question is generated from the concern that within the 9 year franchise window, customers who fund DSM programs but do not participate in them may not see benefits until after the 7th year of DSM programs as demonstrated in revised NS Power’s Evidence Figure 3.4. (Multese IR-6 Attachment 1).

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Request IR-15:

On p. 30 of 51, NSPI refers to the “non-administrator energy savings initiatives (such as NS Power’s program with Clean Nova Scotia)”.

(a) Is this program being funded by NSPI or by an affiliate?

(b) What is NSPI’s forecast of annual energy and demand savings from this program?

(c) How does NSPI anticipate these savings will be evaluated and verified?

(d) What is the unit cost per kWh for these non-administrator initiatives?

Response IR-15:

(a) Please refer to page 15, lines 22-25 of the Application. The program is funded by NS Power’s shareholders, with no cost to customers.

(b-c) Please refer to Multeese IR-2 Confidential Attachment 1 for the contract between NS Power and the Clean Foundation.

(d) NS Power does not have a unit cost per kWh because a detailed forecast is not available.