Request IR-1:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 6, lines 7-8.

NS Power states that "NS Power will have access to market-based clean energy forecast to be priced in the $50/MWh range."

(a) Please provide sources and analyses to support this statement.

Response IR-1:

Please refer to NSUARB IR-1.

Request IR-2:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 6, lines 12-13.

NS Power states that "Distributed energy resources (DER) and non-regulated DSM are curbing load growth organically, without the need for electricity incentives."

Please provide specific sources and analyses to support this statement.

Response IR-2:

Please refer to SBA IR-8 and NSUARB IR-12.

Request IR-3:

(a) Please provide annual residential rates for the last 10 years, broken out into fuel and non-fuel rate components.

(b) Please indicate which annual rate changes were driven by General Rate Applications, Base Cost of Fuel proceedings, changes to FAM AA/BA amounts, or any other causes.

Response IR-3:

(a) Please refer to NSUARB IR-4 Attachment 1.

(b) Please refer to the table below.

Year	General Rate Application	Base Cost of Fuel	FAM AA/BA	DSM
2010			YES	
2011		YES	YES	YES
2012	YES		YES	YES
2013	YES		YES	YES
2014	YES		YES	YES
2015			YES	YES
2016		YES		
2017		YES		
2018		YES		
2019		YES		

Request IR-4:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 8, lines 21-22.

NS Power states that "the renewable energy sources over the Application window are forecast to provide more economic energy"

Please provide the following information over the Application window as well as for all years of operation for those renewable energy sources that became operational prior to 2020:

(a) A detailed listing of the renewable energy sources over the Application window.

(b) The year that each of the renewable energy sources became operational.

(c) The levelized cost of energy for each of the renewable energy sources (i.e. utility cost $/MWh).

(d) The size (MW) of each of the renewable energy sources.

(e) Identify whether each of the renewable energy sources is 'committed' or 'projected'.

(f) The forecast annual energy (MWh) by year and firm capacity value for each of the renewable energy sources.

Response IR-4:

(a-f) Please refer to NSUARB IR-1 and NSUARB IR-12. The full sentence, partially referenced by E1, refers not to specific itemized renewable generators but rather to non-emitting opportunity energy that will be available to NS Power on the margin compared

to the more expensive incremental DSM that E1 proposes in its Preferred Plan. In comparison, NS Power currently forecasts opportunity energy to be available on the margin at market prices of approximately $50/MWh compared to the $64/MWh cost of incremental DSM from E1's Preferred Plan.

Request IR-5:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 17, lines 14-16.

NS Power states that "E1 could follow the trend in other jurisdictions and wait to allow the benefit of the more expensive DSM measures to become more effective, much the way lighting measures have decreased over the past ten years.

(a) Please list other jurisdictions that are withholding DSM program support to allow more expensive commercially-available measures to become more cost-effective?

(b) Which measures or program activities are they withholding support using this rationale?

Response IR-5:

(a-b) Please refer to CA IR-10.

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Request IR-6:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 17, lines 16-20.

(a) Please list those measures included in EfficiencyOne's 2020-2022 DSM Resource Plan that NS Power expects to experience a reduction in cost by 50% or more in the next three years.

(b) Please provide source(s).

Response IR-6:

NS Power expects that, much like efficient lighting is forecast to decrease by 50 percent by 2020, other products in the efficiency portfolio could experience similar cost reductions as technology improves. The following article from the US National Renewable Energy Laboratory highlights the consistent decrease in solar costs from 2010 to 2018.

https://www.nrel.gov/news/program/2018/costs-continue-to-decline-for-residential-and-commercial-photovoltaics-in-2018.html

NS Power has not conducted research into all of the products contained in E1's Preferred Plan, however industry trends indicate that, similar to the lighting and solar trends, there should be price declines across a suite of other efficient products.

Request IR-7:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 20, lines 10-11.

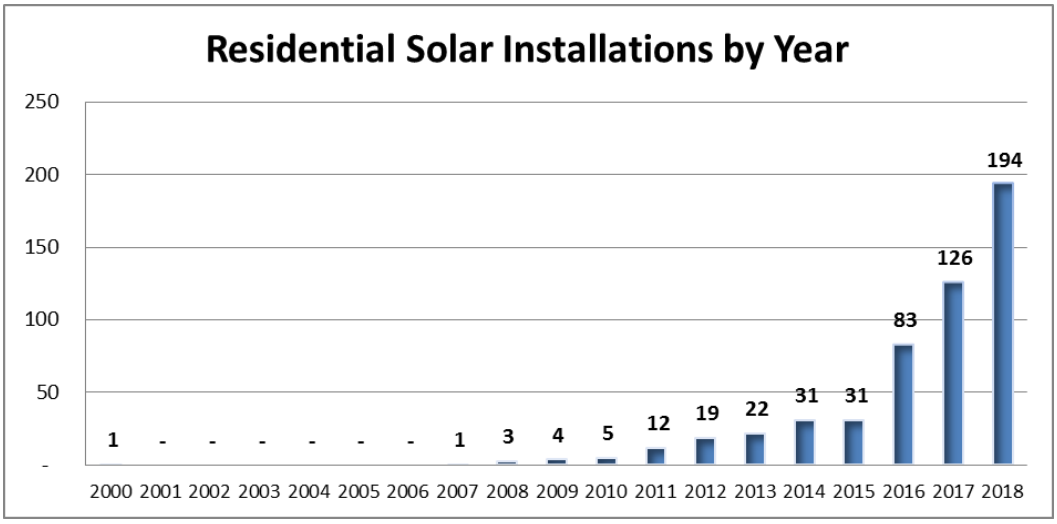
(a) Please provide Figure 6 utilizing kW of installed capacity on the vertical axis and extending the horizontal axis through to 2022.

(b) Please provide the source for the installed/projected capacity for 2019-2022.

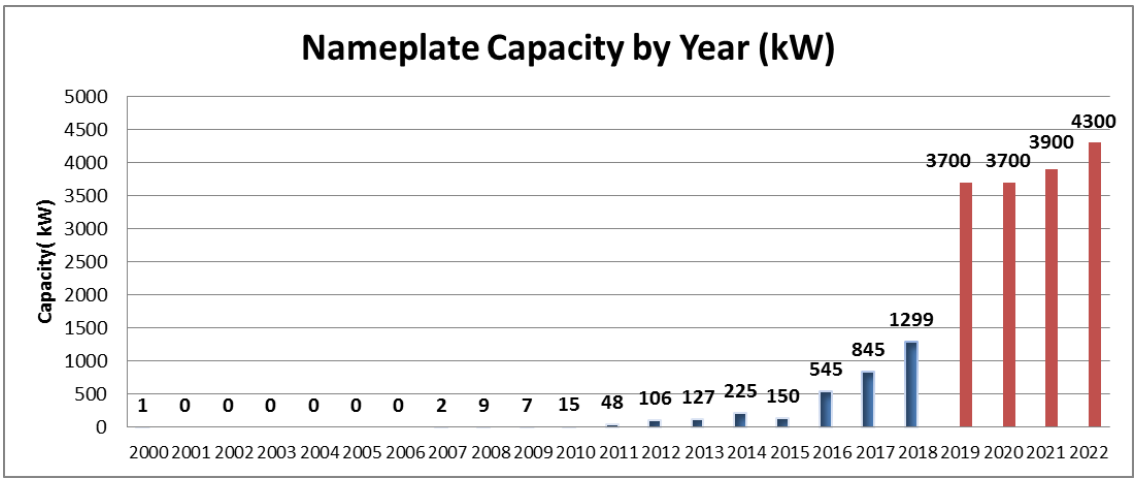
(c) Please identify the amount of this installed/projected capacity that is firm capacity.

Response IR-7:

(a) Figure 6 in NS Power's evidence included all net metering installations. The same graph is reproduced below but represents only residential solar installations.



The same graph representing residential capacity by year from 2000 to 2022 is set out below.



(b) Forecast installed net metering solar capacity for the residential sector is taken from the following report (the scenario used is "Maintain Current Market Activity"):

Nova Scotia Residential Solar Market Outlook and Labour Force Study Final Report - April 2019 prepared by Dunsky Energy Consulting.

https://www.cansia.ca/uploads/7/2/5/1/72513707/cansia_nova_scotia_residential_solar_market_outlook_and_labor_force_study_-_final_report__2019-04-09_.pdf

(c) None is firm capacity.

Request IR-8:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 21, lines 5-10.

NS Power suggests that the IRP levels are not appropriate to be used in establishing DSM plan energy and investment levels. What form of planning model does NS Power consider appropriate to be used when assessing short, medium and long-term DSM planning levels for the utility?

Response IR-8:

NS Power believes an IRP process informs long-term strategic direction and provides context on the impact of DSM levels on resource plans as load modifier inputs over the long term and provides the basis for the calculation of avoided costs. However, it does not take into account other factors that are important in setting the appropriate level of DSM, such as affordability and system requirements in the short term. The DSM proceeding is the appropriate venue to assess and establish the appropriate levels of DSM for the utility, taking into consideration the current outlook and utility requirements as well as affordability.

Request IR-9:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 22, lines 7-8.

Please provide a re-stated Figure 7 that identifies the following for each of the nine customer proposed DER projects:

(a) Year project will be operational.

(b) Amount of firm generation resulting in available capacity to the electricity utility system.

Response IR-9:

(a) The Company does not have the specific dates when each of the proposed projects would be operational. Details discussed to date have been around conceptual design details. NS Power expects that the majority of these projects will be operational within the next 5 years.

(b) Please see the table below for firm capacity of the proposed projects, assuming that all of the associated projects will be built.

Generation Type	Firm capacity (MW)
CHP	11.75
CHP/DE	11
CHP/DE & Solar/Wind	9.52
CHP/Solar/Wind/Storage	0
District Energy (DE) Plant	12.75
Solar	0
Solar & Wind	0.85
Wind	0.34

Request IR-10:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 23, lines 2-4.

(a) Please list the data fields that are tracked for each heat pump installed through NS Power's program.

(b) Please provide quantities for all heat pumps installed through the NS Power program for the years 2012 to 2018, broken down by the type of heating system replaced (electric or non-electric), and include the installed heat pump model.

(c) Please provide NS Power's estimate of the aggregate annual electrical energy and system peak demand impact of the NS Power heat pump program (over 2012 to 2018), including installations that replaced electric and non-electric heating systems.

Response IR-10:

(a) The following fields are tracked for each heat pump installed through NS Power's program:

- Customer name
- Approval status
- NS Power account number
- Approval number
- Application processed by [Name]
- Financing amount requested
- Amount financed
- Date application processed
- Date lease processed

- Contractor
- Equipment financed
- Previous heating fuel (beginning 2017)
- Additional information
- Lease processed by [Name]
- Equifax score
- ERS score
- BNI score
- Bankruptcy
- CIS credit rating
- Homeowner/property owner
- Approved up to
- Customer email
- Install cost
- Outstanding Balance

(b) Please refer to Q4 2017 Regulated Financial Statements (M08631) – NSUARB IR-47 Attachment 1 and Attachment 2 for quantities installed and previous heat source assumptions. NS Power does not track installed heat pump models. 2018 information is not yet available.

(c) Please refer to Q4 2017 Regulated Financial Statements(M08631) – NSUARB IR-47 Attachment 1 and Attachment 2 for energy impact of these installed heat pumps. 2018 information is not yet available.

Request IR-11:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 32, lines 4-7.

Please provide the model analysis (working excel model with formulas intact) that was used to calculate the percent rate change referenced here (+0.5 percent, +2.2 percent, +3 percent).

Response IR-11:

Please refer to Synapse IR-17.

Request IR-12:

Reference: NS Power Evidence, 2020-2022 DSM Plan, page 36, lines 17-19.

Please provide the quantification and analysis for the short-term rate impacts referenced here.

Response IR-12:

Please refer to Synapse IR-23 Attachment 1.

The rate and customer bill impact effects in the years 2019-2024 shown in the "Inter-class Outputs NSP" tab can be characterized as falling into a short-term category.

Request IR-13:

Reference: Appendix A, Evidence of Richard L. Levitan, Levitan & Associates, Inc., page 24 of 103, lines 6-21.

Please provide the unitized cost of energy savings for the full 2020-2022 Preferred Plan. Please provide the percent increase in the unitized cost of energy savings from the 2019 Plan to the 2020-2022 Preferred Plan.

Response IR-13:

From Richard Levitan, Levitan & Associates, Inc.:

The referenced section of Appendix A, Evidence of Richard L. Levitan, Levitan & Associates, Inc. was prepared to show the first-year energy savings unit cost beyond the investment in the 2019 DSM Plan.

In preparing my evidence, I did not calculate the first year unitized cost of energy savings for the full 2020-2022 Preferred Plan and the percent increase in the unitized cost of energy savings from the 2019 Plan to the 2020-2022 Preferred Plan, but believe they can be calculated using the values in Table 2 of Appendix A to EfficiencyOne's Application and EfficiencyOne's peak demand reduction investments.

Request IR-14:

Reference: Appendix A, Evidence of Richard L. Levitan, Levitan & Associates, Inc., page 50 of 103, lines 20-26, page 51 of 103, lines 1-3.

Please provide the calculations for the monetary rate impacts of $97.4 million, $5.7 million, $53.2 million, $9.3 million, $7.1 million, $6.9 million, $9.4 million and $2.4 million.

Response IR-14:

Please refer to Attachment 1.

Supply rate difference between with and without EE cases (¢/kWh)

Year	Residential	Small general	General	Large general	Small industrial	Medium industrial	Large industrial	Municipal utility
2020	0.468	0.568	0.554	0.633	0.740	0.258	0.314	0.314
2021	0.521	0.646	0.614	0.686	0.792	0.277	0.351	0.351
2022	0.461	0.625	0.608	0.683	0.782	0.250	0.330	0.330
2023	0.043	0.050	0.031	0.024	0.027	0.017	0.026	0.026
2024	0.057	0.067	0.041	0.032	0.036	0.022	0.034	0.034
2025	0.073	0.088	0.053	0.042	0.046	0.028	0.044	0.044
2026	0.084	0.103	0.061	0.048	0.053	0.032	0.051	0.051
2027	0.087	0.109	0.064	0.050	0.055	0.032	0.052	0.052
2028	0.080	0.104	0.060	0.047	0.051	0.030	0.048	0.048
2029	0.085	0.113	0.064	0.050	0.054	0.031	0.051	0.051
2030	0.079	0.109	0.060	0.046	0.050	0.028	0.048	0.048
2031	0.065	0.093	0.050	0.038	0.041	0.023	0.039	0.039
2032	0.040	0.059	0.031	0.024	0.025	0.014	0.024	0.024
2033	0.070	0.106	0.055	0.041	0.043	0.024	0.042	0.042
2034	-0.004	-0.007	-0.003	-0.003	-0.003	-0.001	-0.003	-0.003
2035	-0.025	-0.041	-0.020	-0.015	-0.016	-0.008	-0.015	-0.015

Annual sales with EE (GWh)

Year	Residential	Small general	General	Large general	Small industrial	Medium industrial	Large industrial	Municipal utility
2020	4,462	218	2,372	389	253	596	664	164
2021	4,451	214	2,333	386	254	615	662	163
2022	4,456	210	2,306	384	255	645	659	163
2023	4,466	206	2,280	381	256	676	657	164
2024	4,501	202	2,256	378	257	699	655	165
2025	4,495	199	2,228	376	258	714	653	165
2026	4,496	195	2,216	373	259	728	651	165
2027	4,488	190	2,186	370	259	740	648	165
2028	4,502	185	2,165	367	260	751	645	166
2029	4,470	179	2,124	364	260	761	642	165
2030	4,458	173	2,086	360	260	772	639	165
2031	4,447	167	2,049	356	260	783	636	165
2032	4,439	161	2,013	353	260	795	633	164
2033	4,432	155	1,978	349	260	807	630	164
2034	4,428	150	1,945	346	260	819	627	164
2035	4,427	145	1,914	343	260	832	625	165

Rate Impact ($)

Year	Residential	Small general	General	Large general	Small industrial	Medium industrial	Large industrial	Municipal utility
2020	20,862,445	1,238,724	13,144,728	2,463,902	1,870,958	1,538,156	2,088,008	515,713
2021	23,211,853	1,383,154	14,331,576	2,648,282	2,012,494	1,700,959	2,320,434	571,346
2022	20,520,983	1,313,245	14,022,351	2,624,347	1,994,686	1,609,873	2,172,205	537,283
2023	1,920,566	102,485	696,041	92,187	69,974	115,441	167,830	41,894
2024	2,548,207	135,938	921,412	121,989	92,935	154,489	222,538	56,059
2025	3,265,535	174,350	1,177,126	156,214	119,208	199,031	284,894	71,987
2026	3,775,925	201,461	1,359,797	180,143	138,056	231,132	329,221	83,443
2027	3,887,533	207,636	1,395,323	185,143	142,045	239,087	338,346	86,153
2028	3,597,720	192,160	1,288,240	171,021	131,856	221,937	312,557	80,441
2029	3,795,055	202,717	1,352,876	180,235	139,104	234,811	329,268	84,625
2030	3,533,195	189,041	1,254,086	167,193	129,558	219,389	306,125	79,046
2031	2,892,476	154,911	1,022,389	136,371	106,095	180,191	250,279	64,931
2032	1,778,263	95,193	625,736	83,729	65,210	111,207	153,614	39,799
2033	3,080,988	164,616	1,079,389	144,474	112,952	193,383	265,762	69,183
2034	-193,118	-10,347	-67,372	-9,041	-7,074	-12,158	-16,629	-4,350
2035	-1,104,289	-59,187	-383,665	-51,598	-40,405	-69,788	-95,070	-25,098
Total	97,373,337	5,686,097	53,220,034	9,294,592	7,077,651	6,867,140	9,429,383	2,352,454