

1 Q. Please provide the following information regarding current and future energy
2 efficiency and conservation programs broken out by program and by year, where
3 applicable, for the period 2019 to 2030:

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5 (i) Budgets;

6 (ii) Savings (peak demand, first year, and lifetime savings for electricity; first
7 year and lifetime savings for other fuels);

8 (iii) Average measure life (years);

9 (iv) Number of customers eligible for the program;

10 (v) Number of customers participating in the program;

11 (vi) Cost effectiveness results, assumptions, and methodology, including avoided
12 cost information;

13 (vii) A description of the cost recovery mechanism in these programs, and what
14 costs are recovered.

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17 A. (i) Please refer to PUB-Nalcor-061, Attachment 1;

18 (ii) Please refer to PUB-Nalcor-061, Attachment 1;

19 (iii) Please refer to PUB-Nalcor-061, Attachment 1;

20 (iv) Please refer to PUB-Nalcor-061, Attachment 1;

21 (v) Please refer to PUB-Nalcor-061, Attachment 1;

22 (vi) Please refer to PUB-Nalcor-061, Attachment 1 and PUB-Nalcor-060
23 Attachment 4; and

24 (vii) Please refer to Nalcor's response to PUB-Nalcor-060.

Hydro's Forecasted CDM Program Budget (\$000s)

	2018F	2019F	2020F
Industrial Program	384	384	10
Insulation	85	85	74
Thermostats	25	25	20
HRV	15	15	2
Isolated Community Program	987	987	-
Isolated Business Efficiency Program	174	174	128
Business Efficiency Program	200	200	259
Small Technologies	318	318	-
Benchmarking	23	23	-
Isolated Direct Load Pilot	20	20	-
Total	2,230	2,230	492

Note:

2020 budget does not include the Isolated community program budget as we have not confirmed the program for 2020

2020 does not include the Small Technology program budget as we have not confirmed the program for 2020

A new 5 year plan is being developed in 2019 and new planning/programs will be developed therefore changing 2020 forecasts

Hydro's Forecasted CDM Portfolio Annual Energy Savings (MWh)			
	2018	2019	2020
Industrial Program	-	-	-
Thermostats	53	15	14
Insulation	136	58	54
HRV	11	1	1
Small Technologies	60	-	-
Isolated Community Program	775	422	-
Benchmarking	200	139	-
Business Efficiency Program	545	584	568
Isolated Business Efficiency Program	165	174	182
Total	1,945	1,393	818

Note:

Industrial program has no targets for 2018 -2020 as the projects vary from year to year and viewed as opportunity targets

<u>Average Program EUL(years)</u>	
	EUL(years)
Windows	25
Insulation	25
Thermostats	18
Residential Benchmarking	1
Coupon Program	2
Industrial	5
Block Heater Timer	7
Isolated Systems Community	5
ISBEP	11
Heat Recovery Ventilator	15
Small Technology Program	10
Business Efficiency Program	11

Island Interconnected AVOIDED COSTS

Discount Rates (%)	
Real	5.00%
Nominal	7.00%
Inflation	2.00%

Forecast AVOIDED COSTS for Isolated Systems					
	(\$ per kWh)				
	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Isolated System Locations					
Francois	0.366	0.368	0.387	0.400	0.409
Grey River	0.401	0.404	0.425	0.439	0.449
Little Bay Islands	0.343	0.345	0.367	0.384	0.394
McCallum	0.411	0.414	0.434	0.448	0.458
Ramea	0.343	0.346	0.365	0.378	0.386
St. Brendans	0.280	0.282	0.301	0.315	0.324
Black Tickle	0.339	0.342	0.361	0.374	0.383
Cartwright	0.353	0.355	0.376	0.390	0.400
Charlottetown	0.358	0.359	0.380	0.395	0.405
Hopedale	0.355	0.356	0.377	0.391	0.400
Makkovick	0.344	0.346	0.366	0.380	0.390
Mary's Harbour	0.367	0.369	0.390	0.404	0.416
Nain (Onsite)	0.319	0.321	0.340	0.354	0.362
Norman Bay	0.545	0.548	0.574	0.594	0.606
Paradise River	0.517	0.521	0.549	0.569	0.583
Port Hope Simpson	0.365	0.366	0.389	0.403	0.413
Postville	0.353	0.356	0.377	0.391	0.401
Rigolet	0.343	0.345	0.365	0.379	0.389
St. Lewis	0.345	0.347	0.367	0.381	0.392
William's Harbour	0.499	0.501	0.525	0.544	0.555
Natuashish	0.320	0.322	0.341	0.355	0.364
Notes: 1. Forecast reflects avoided costs for No. 2 distillate fuel consumed at generation facilities. 2. Fuel price forecast is based on Nalcor Corporate Assumptions, October 2016					
Source: Forecast avoided costs provided by Market Analysis, System Planning Department					

Island Interconnected AVOIDED COSTS					
	Energy (\$/t Demand (\$/kW)		Energy (\$/t Demand (\$/kW)		
2009	\$ 0.09	\$ 19.34	2035	\$ 0.11	\$ 147.09
2010	\$ 0.13	\$ 16.77	2036	\$ 0.11	\$ 150.04
2011	\$ 0.16	\$ 17.31	2037	\$ 0.11	\$ 153.05
2012	\$ 0.20	\$ 17.60	2038	\$ 0.11	\$ 156.12
2013	\$ 0.19	\$ 17.83	2039	\$ 0.11	\$ 159.25
2014	\$ 0.19	\$ 18.20	2040	\$ 0.12	\$ 162.44
2015	\$ 0.11	\$ 73.61	2041	\$ 0.12	\$ 165.70
2016	\$ 0.14	\$ 95.11	2042	\$ 0.12	\$ 169.02
2017	\$ 0.14	\$ 99.40	2043	\$ 0.12	\$ 172.41
2018	\$ 0.05	\$ 125.80	2044	\$ 0.13	\$ 175.87
2019	\$ 0.05	\$ 127.65	2045	\$ 0.13	\$ 179.39
2020	\$ 0.06	\$ 137.57	2046	\$ 0.13	\$ 182.99
2021	\$ 0.06	\$ 141.70	2047	\$ 0.13	\$ 186.66
2022	\$ 0.06	\$ 145.95	2048	\$ 0.14	\$ 190.40
2023	\$ 0.07	\$ 150.33	2049	\$ 0.14	\$ 157.49
2024	\$ 0.07	\$ 154.85			
2025	\$ 0.07	\$ 159.51			
2026	\$ 0.07	\$ 159.44			
2027	\$ 0.08	\$ 159.37			
2028	\$ 0.08	\$ 159.31			
2029	\$ 0.08	\$ 159.28			
2030	\$ 0.09	\$ 159.25			
2031	\$ 0.09	\$ 156.66			
2032	\$ 0.09	\$ 154.15			
2033	\$ 0.10	\$ 151.72			
2034	\$ 0.10	\$ 149.37			

Program	Forecasted Program Participation			Units
	2018	2019	2020	
Windows	-	-	-	Rebates
Insulation		20	18	Rebates
Thermostats	15	13	12	Rebates
Residential Benchmarking	1,000	1,000		# Participants in the sample group
Industrial	-	-	-	Projects
Isolated Systems Community	-	-	-	# of customer premises that received installations
Isolated Business Efficiency Program	4	4	4	Projects
Heat Recovery Ventilator	3	2	1	Rebates
Small Technology Program	-	-	-	Products rebates
Business Efficiency Program(Prescriptive)	706	657	614	Products rebates
Business Efficiency Program(Custom)	11	12	13	projects
Total	1,739	1,708	662	

Note:

Isolated System Community program has savings target forecasted but no participation breakdown forecasted

NL Hydro Customers as of September 2018

Residential	33,417
Commercial	5,203
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Total	38,620

Notes: Residential customers must have electric heat or 15000 kWh of annual consumption to qualify
Approximately half of Hydro's customers use less than 15000 kWh annually therefore making them ineligible for many programs

We do not have the lifetime energy savings calculated for future programs.

Please see the latest Five Year Plan for forecasted demand savings. No reforecast has been completed.

Forecasted Total TRC out to 2020

Program	
Insulation	2.5
Thermostats	2.8
Benchmarking Program	1.0
HRV Rebate Program	1.3
Small Technologies Program	1.3
Business Efficiency Program	2.4

Note:

*The above results are for both Newfoundland Power and Newfoundland and Labrador Hydro programs
NL Hydro does not perform its own cost effective test on these programs, we reported the provincial numbers
The above test results are from the 2015-2020 Five Year Plan*

Cost Effective Results - NL Hydro Programs

Forecasted Total TRC out to 2020

Program	
Isolated Community Program	2.7
Isolated Business Efficiency Program	1.6
Industrial Program	1.7

NL Hydro Cost Effectiveness Results - LUC Results(¢/kWh)

Program	2018	2019	2020
Insulation			
Thermostats			
HRV Rebate Program			
Small Technologies Program	No LUC calculated for future programs		
Residential Benchmarking			
Business Efficiency Program			
Industrial			
Isolated Community Program			
ISBEP			