

CANADA

PROVINCE OF PRINCE EDWARD ISLAND

**BEFORE THE ISLAND REGULATORY AND APPEALS
COMMISSION**

IN THE MATTER OF: *THE ELECTRIC POWER ACT, R.S.P.E.I. 1988, cap. E-4, as amended*

And

IN THE MATTER OF: *An application by Prince Edward Island Energy Corporation (“PEIEC”) for the approval of a 2018-2021 Demand Side Management (“DSM”) Resource Plan*

INTRODUCTION

1. Prince Edward Island Energy Corporation (“PEIEC”) is a corporation established pursuant to *Energy Corporation Act, RSPEI 1988, c E-7* and carries on business as a public utility to the extent specified in subsection 1(4) of the *Electric Power Act R.S.P.E.I. 1988, Cap. E-4* for the purpose of Section 16(1) of the *Electric Power Act*.
2. PEIEC has voluntarily submitted this application with the Island Regulatory and Appeals Commission, in accordance with the s. 16.1(2.1) of the *Electric Power Act*, for the approval of an electricity efficiency and resource conservation plan for the years 2018 through 2021 (“EE&C Plan”).

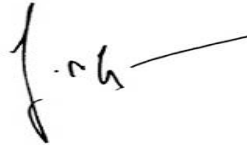
APPLICATION

3. PEIEC hereby applies for an Order of the Island Regulatory and Appeals Commission (“the Commission”) approving the EE&C Plan as outlined in the attached evidence for the term 2018 - 2021.
4. The EE&C Plan is designed so that it is reasonably likely, on implementation, to achieve the results expected.

PROCEDURE

5. Filed hereto is the Affidavit of Darren Chaisson and Neil Stewart containing the evidence upon which PEIEC relies in this Application.

Dated at Sydney, Nova Scotia this 29th day of June 2018.



James R. Gogan

**Solicitor for Prince Edward Island
Energy Corporation**

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AFFIDAVIT

We, Darren Chaisson and Neil Stewart, of Charlottetown, Prince Edward Island, make oath and say as follows:

1. We are the Chair and Vice Chair of Prince Edward Island Energy Corporation and, such, have personal knowledge of the matters herein deposed to, except where noted, in which case we rely upon the information of others and in which case we verily believe such information to be true.
2. PEIEC is a public utility for the purpose of s. 16(1) of the *Electric Power Act*, engaged in the provision of energy efficiency and conservation programs in Prince Edward Island.
3. We prepared or supervised the preparation of the evidence and to the best of our knowledge and belief the evidence is true in substance and in fact. A copy of the evidence is attached to this, our Affidavit, and is collectively known as Exhibit "A" .

Sworn to severally at Charlottetown,
Province of Prince Edward Island the
day of June 2018.







Darren Chaisson



Neil Stewart

Prince Edward Island Energy Corporation

IN THE MATTER OF *THE ELECTRIC POWER ACT, R.S.P.E.I.
1988, cap. E-4, as amended*

- and -

IN THE MATTER OF *An application by Prince Edward Island
Energy Corporation (“PEIEC”) for the approval of a 2018-2021
Demand Side Management (“DSM”) Resource Plan*

Evidence of Prince Edward Island Energy Corporation

FILED

June 29, 2018

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1. INTRODUCTION

This Application is being filed with the Island Regulatory and Appeals Commission (Commission) by the Prince Edward Island Energy Corporation (PEIEC) in its role as a public utility for the purposes of preparing and submitting an energy efficiency and demand-side resources plan as outlined in Section 16.1 of the *Electric Power Act*¹.

The Prince Edward Island Provincial Energy Strategy 2016/2017 includes an action item to set up an independent energy efficiency utility with a mandate to pursue efficiency for all fuels.² This utility is the PEIEC. efficiencyPEI (ePEI), which already provides energy efficiency services for Prince Edward Island (PEI), will be the service agency for the electricity efficiency and conservation (EE&C) responsibilities of PEIEC, and will be the administrator of the EE&C programs proposed in this Application. Effectively, PEIEC is delegating its EE&C responsibilities to ePEI, and ePEI has had the responsibility with its consultants of developing the EE&C Plan in this Application. As such, the PEIEC can be used interchangeably with any reference to efficiencyPEI or ePEI throughout this Application. As the public utility submitting this Application and regulated by the Commission, the PEIEC retains ultimate responsibility for this application, the EE&C Plan included herein, and execution of the Plan that is approved by the Commission.

This Application is filed in support of a three-year 2018/2019 to 2020/2021 Electricity Efficiency and Conservation Plan (EE&C Plan) consisting of electricity energy efficiency and conservation programs to be delivered by efficiencyPEI, commencing in 2018/2019. This Application was informed by consultations with electricity stakeholders; their inputs into the development of the EE&C Plan are incorporated throughout this Evidence. With the benefit of stakeholder input already received, efficiencyPEI plans to establish a permanent stakeholder group that it will engage on an ongoing basis as it moves forward with EE&C planning; expansion of existing programs; introduction of new programs; and program delivery, reporting and evaluation.

Demand Side Management (DSM) is the modification of consumer demand for electricity (level and/or pattern of usage) through various methods such as financial incentives or behavioural change through public information and education. DSM refers to electricity energy savings resulting from energy efficiency or conservation and/or reductions in electricity demand resulting from energy efficiency and conservation, or measures to reduce electricity demand or shift its timing. In most cases measures focused primarily on energy efficiency and conservation will also result in the added benefit of demand reduction. Measures focused primarily on demand response may also achieve electrical energy savings, or they may simply shift demand from peak periods with significant benefit to the electricity system but no reduction in the electrical energy used. Efficiency and conservation have the effect of lowering the overall electricity demand curve for a utility. Demand response has the effect of smoothing the demand curve by shaving peak demand and most often shifting some of this otherwise peak demand requirement to periods

¹ <https://www.princeedwardisland.ca/sites/default/files/legislation/E-04-Electric%20Power%20Act.pdf>

² https://www.princeedwardisland.ca/sites/default/files/publications/pei_energystrategymarch_2017_web.pdf

1 of lesser demand. Incremental electric usage in peak demand periods generally has the highest
2 cost for the utility, and often a substantial premium cost.

3
4 The EE&C Plan in this filing is commonly titled a DSM plan in most jurisdictions. Because of its
5 primary focus on electrical energy savings, it is being referred to as an Energy Efficiency and
6 Conservation Plan to avoid any confusion with the potential misinterpretation of ‘demand’ in
7 DSM as primarily being focused on demand response.

8
9 This EE&C Plan has the primary objective of achieving a reduction in electricity usage from
10 what would have occurred absent energy savings measures. However, its energy savings
11 measures also achieve real reductions in the peak demand of electricity. Forecasts for both
12 energy savings and peak demand savings are included in the Plan, and both will be rigorously
13 measured, reported and evaluated with the Plan’s implementation. The Plan does include
14 continuing incentives for Summerside Electric customers for the installation and use of Electric
15 Thermal Storage (ETS) units; other measures prioritizing demand response have not been
16 included at this time for residential customers because the Maritime Electric Company’s rate
17 structure does not include a time of use rate or real-time pricing of electricity. Summerside
18 Electric, with available time of use rates, has current programs that promote electric thermal
19 storage for both space and water heating. Without a rate signal based on time of use there is no
20 incentive for Maritime Electric Company Ltd. (MECL) customers to alter their electricity
21 demand profile. More demand response measures would be a valuable addition to programming
22 by ePEI when time of use rates are implemented, and this may be pursued through avenues
23 separate from this EE&C Plan.

24
25 It should also be noted that all of the energy and demand savings included in this document are
26 electricity only; as well all of the reported investment/costs are for electricity only. While energy
27 efficiency/EE&C programs will be available to all Islanders for all energy sources (electricity
28 and all fuels) and provided by efficiencyPEI, only the electricity savings and the costs associated
29 with these electricity savings are included herein. ePEI will establish detailed procedures for
30 separately tracking costs and energy savings for electricity and other fuels.

31
32 Section 1 of this Evidence contains background information on the evolution of energy
33 efficiency in PEI and the role of efficiencyPEI. Also included in Section 1 is a summary of the
34 notable components of the EE&C Plan. Section 2 identifies the electricity savings targets for
35 each year of the Plan. Section 3 provides a summary of the Plan for each year including
36 investment, energy savings, demand reduction, avoided costs, and cost effectiveness by program.
37 Section 4 considers alternatives for testing the cost-effectiveness of EE&C, and Section 5
38 discusses the treatment of EE&C costs and their recovery from electricity customers. Section 6
39 deals with financing customer participation in EE&C while Section 7 outlines Summerside
40 Electric’s engagement in province-wide EE&C programs for PEI. Evaluation and verification of
41 EE&C results are noted in Section 8, with the need for future EE&C/DSM Potential Study work
42 included in Section 9. Section 10 contains the conclusions of this Application with a summary of
43 the EE&C investment and electricity savings for each year of the three-year plan, and Section 11
44 details the regulatory approvals that are requested. Appendix A contains the details of the EE&C
45 Plan for 2018/2019, 2019/2020, and 2020/2021 including details on individual programs and
46 measures. Appendix B provides information on evaluation and verification of programs,
47 electricity energy savings, and reduction of electricity demand.

1.1. Lead-Up to EE&C Planning

1.1.1 Electric Power Act

A series of processes led to the development of this EE&C Plan. In 2013, PEI amended its *Electric Power Act* to update the regulation of energy efficiency within the electricity sector. These amendments stipulated the development of electric utility plans for energy efficiency and demand side resources, and authorized the Commission to oversee the process. The Commission's mandate under the *Act* is to seek a plan for implementing energy efficiency and demand-side resources that will be cost effective for electricity.

The *Act* requires an energy efficiency and demand-side resources plan to include:³

- The term of the plan
- Description of the proposed energy efficiency and demand-side resource measures
- Projected results that the plan is expected to achieve
- Design of the plan such that projected savings are reasonably likely
- Reasonable estimate of financial costs and benefits for the public utility and its customers
- Annual reporting on the results of plan implementation

1.1.2 Maritime Electric 2015 DSM Plan

In June 2015 MECL filed with the Commission its proposed Energy Efficiency and DSM Plan⁴ for the years 2015 to 2020. The Plan proposed rebates for light-emitting diode (LED) lighting products, grants for heat pumps and incentives for their thermostatic control, and customer outreach activities. The MECL DSM Plan had a cost of \$10.9 million over 5 years with expected annual energy savings in year 5 of 13.5 gigawatt-hours (GWh) and 9.7 megawatts (MW). In its November 2015 Order⁵, the Commission approved the public outreach and education component of the Plan at a cost of \$800,000 over the five years. The Commission did not approve the Plan's other components noting that the Plan was filed prior to an Order of the Commission directing the filing as provided in Section 16.1 of the *Electric Power Act*. The Commission also had not established criteria for evaluating MECL's Plan at that time.

1.1.3 Assessment of Maritime Electric's DSM Plan

To assist in assessing a utility's energy efficiency and demand-side resources plan, the Commission sought independent advice on a wide range of DSM program issues and best practices, which was provided by Synapse Energy Economics Inc. (Synapse) in a May 2016

³ Section 16.1 of the Electric Power Act (<https://www.princeedwardisland.ca/sites/default/files/legislation/E-04-Electric%20Power%20Act.pdf>)

⁴ http://www.maritimeelectric.com/documents/about_us/Demand%20Side%20Management%20and%20Energy%20Conservation%20Plan%20-%202015-2020.pdf

⁵ <http://www.irac.pe.ca/document.aspx?file=orders/electric/2015/ue15-02.htm>

1 report.⁶ This Synapse report provided recommendations on:

- 2 • The DSM program planning and review process
- 3 • Program design
- 4 • Cost-effectiveness screening of DSM
- 5 • Multi-year planning and savings targets
- 6 • Cost recovery of DSM by the utility
- 7 • Incentives for the utility/program administrator
- 8 • Stakeholder input
- 9 • Evaluation, monitoring and verification of energy savings
- 10 • Electricity tariffs to encourage energy efficiency and conservation

11 12 **1.1.4 PEI Energy and Climate Change Mitigation Strategies**

13
14 The Government of Prince Edward Island has developed a 10-year Energy Strategy⁷ to reduce
15 energy use, establish cleaner and locally produced energy sources, and moderate future energy
16 price increases. The 2016/17 Strategy focuses on three vital areas: efficiency, conservation, and
17 renewables. One of the Strategy's Actions is to achieve first year savings of 2 percent of
18 electrical and non-electrical energy consumption by 2020 and annually thereafter. Another
19 Strategy Action is to set up an independent energy efficiency utility with a mandate to pursue
20 efficiency for all fuels.

21
22 Similarly, Prince Edward Island's March 2017 Recommendations for the Development of a
23 Climate Change Mitigation Strategy⁸ emphasizes:

- 24 • reliance on energy efficiency and conservation for the reduction of energy use;
- 25 • fuel switching to reduce the use of non-renewable heating fuels; and
- 26 • raising the performance of all new construction beyond national code specifications.

27 28 **1.1.5 Current efficiencyPEI Programs**

29
30 Since commencing operations in 2008, efficiencyPEI (formerly the Office of Energy Efficiency)
31 has provided:

- 32 • Over \$7 million in grants to over 9,800 residential clients
- 33 • \$9.4 million in loans to almost 1,800 residential clients
- 34 • A free weatherization service to 4,200 low income homeowners
- 35 • Over 500 businesses with programs and services to help reduce their energy use

36
37 These efficiencyPEI programs have reduced annual space heating energy consumption by 1.1
38 percent equivalent to almost 1.5 million litres of home heating oil annually. efficiencyPEI is
39 proposing an expansion of these programs with the goal of ultimately achieving an annual 2

⁶ http://www.irac.pe.ca/infocentre/documents/UE21406-Synapse-PEI-DSM-Report-Final_2016.05.03.pdf

⁷ https://www.princeedwardisland.ca/sites/default/files/publications/pei_energystategy_march_2017_web.pdf

⁸ https://www.princeedwardisland.ca/sites/default/files/publications/pei_climate_change_mitigation_recommendations.pdf

1 percent reduction in energy use. While ePEI will provide energy efficiency and conservation
2 programs to all Islanders for all energy sources (electricity and all fuels), only the electricity
3 savings and the costs associated with these electricity savings are included in this document.
4

5 EfficiencyOne Services (E1S) reviewed the programs currently offered by efficiencyPEI in an
6 April 2017 report⁹ commissioned by the Government of Prince Edward Island. The report
7 provides insights and recommendations on potential program opportunities based on the
8 experience and knowledge gained through operation of the Efficiency Nova Scotia franchise and
9 similar energy efficiency programs in Nova Scotia. E1S found the current program/service
10 offerings provided by efficiencyPEI to generally be of high quality and offer a relatively
11 comprehensive suite of energy efficiency rebates for residential participants, with emphasis for
12 low income families struggling with energy affordability.
13

14 **1.1.6 Making the PEI Energy Corporation a Public Utility**

15

16 In December 2017, legislative changes to the *Electric Power Act*¹⁰ made the following changes:

- 17 • Provides a new definition of “energy resources and demand-side resources plan”
- 18 • Provides that the PEI Energy Corporation is a public utility for the purposes of section
19 16.1 of the *Act*
- 20 • Provides for the voluntary submission of an energy efficiency and demand-side resources
21 plan by a public utility
- 22 • Sets out the required contents of a voluntary plan
- 23 • Adds a new requirement that, if the plan is approved by the Commission, the
24 Commission issue an order to each public utility affected by the plan to pay the costs as
25 set out in the plan or as directed by the Commission
26

27 These legislative changes position PEIEC to voluntarily submit the EE&C Plan incorporated in
28 this Application.
29

30 As noted previously in section 1.1.4, one of the action items in the PEI Energy Strategy is to set
31 up an independent energy efficiency utility with a mandate to pursue efficiency for all fuels. Also
32 noted in section 1.1.5 are the energy efficiency services ePEI provides province-wide currently
33 and in the past. ePEI will be the independent administrator of all energy efficiency in PEI as the
34 Energy Strategy actioned. ePEI in conjunction with its energy efficiency consultant has
35 developed the EE&C Plan in this Application, which focuses specifically on the Energy Strategy
36 target of reducing annual electricity consumption. ePEI will be the service agency for the EE&C
37 responsibilities of PEIEC. As the public utility submitting this Application and regulated by the
38 Commission, the PEIEC retains ultimate responsibility for this application, the EE&C Plan, and
39 execution of the Plan ultimately approved by the Commission.

40 The Electric Power Act in 2013 gave the Commission full regulatory oversight of energy

⁹ Review of efficiencyPEI’s Existing Programs; EfficiencyOne Services; April 28, 2017

¹⁰ <http://www.assembly.pe.ca/bills/index.php> No. 17 *An Act to Amend the Electric Power Act*

1 efficiency and demand-side resource plans, programs and funding, and none of the 2017
2 legislative amendments diminished this oversight. Thus, the Commission has the authority for
3 assessing the entire EE&C program included in this Application with its associated funding from
4 governments, Maritime Electric, and Summerside Electric.

6 **1.1.7 Stakeholder Engagement**

7
8 Stakeholder engagement was a critical element in the development of this EE&C Plan.
9 Representatives of various electricity customers or customer groups and individuals previously
10 engaged in electricity regulatory matters were engaged on an individual basis prior to
11 development of the Plan to inform them of upcoming changes and plans for energy efficiency,
12 future development of an EE&C Plan, the overall process for regulatory review and eventual
13 approval of EE&C, what EE&C means for electricity customers, and just as importantly, to
14 answer their questions and solicit their input. During development of the EE&C Plan,
15 stakeholders were engaged in a group session on 1 December 2017 following the first draft of the
16 EE&C Plan to get their feedback and comments, which have been incorporated in this Plan. In
17 addition, Maritime Electric was kept informed throughout the planning process and Summerside
18 Electric was also engaged.

19
20 With the benefit already received from stakeholder input, efficiencyPEI plans to establish a
21 permanent stakeholder group that it will engage on an ongoing basis as it moves forward with
22 EE&C planning; expansion of existing programs; introduction of new programs; and program
23 delivery, reporting and evaluation.

25 **1.1.8 Why Energy Efficiency**

26
27 The lowest cost energy is the energy Islanders never have to use. Implementing energy
28 efficiency measures saves money for homes, businesses and institutions by reducing their fuel
29 and/or electricity use. With electricity efficiency programs, even non-participants save money
30 because the cost of incenting a kilowatt-hour of electricity savings is less than Maritime
31 Electric's cost of procuring and delivering a kilowatt-hour of supply, thus putting downward
32 pressure on electricity rates over the long term. Energy efficiency also reduces the infrastructure
33 associated with increasing energy use that would otherwise be required.

34
35 The value of electricity efficiency is demonstrated in Section 3 of this filing and Appendix A,
36 where the lifetime benefits of EE&C are compared to the required investment, and the cost
37 effectiveness of EE&C programs is reported. Efficiency improvements not only reduce energy
38 consumption of buildings; they also improve the comfort level for the buildings' inhabitants.
39 Energy efficiency reduces the emissions associated with electricity generation, and electricity
40 reductions from efficiency help strengthen the reliability of the grid. Energy efficiency for
41 businesses improves productivity and profitability, and helps small businesses thrive. Efficiency
42 retrofitting is relatively labour-intensive, benefitting the provincial economy. And efficiency
43 upgrades for low-income households help with energy affordability. These are some of the
44 reasons why efficiency needs to be an essential and substantive component of PEI's energy
45 future.

1 By working with others experienced in the field of energy efficiency and by implementing a
2 portfolio of programs that meet the wide range of opportunities and needs, efficiencyPEI and the
3 province's electricity customers can achieve success. The mandate of efficiencyPEI has
4 expanded to cover all energy sources. It will work with federal, provincial, and municipal
5 governments, industry associations, and non-government organizations to advance energy
6 efficiency and conservation throughout PEI. Building capacity within PEI for managing and
7 delivering energy efficiency is an essential requirement for meeting targets; the private sector
8 will be engaged for the delivery of most efficiency services.

10 **1.2. EE&C Plan Development**

12 A balanced EE&C plan is designed to provide equitable opportunity over time for efficiency
13 services to all electricity customer classes. In addition to providing universal access to programs,
14 a balanced EE&C plan includes elements making it practical for customer groups such as low-
15 income or small business to participate, where otherwise they might not be able to because of
16 financial barriers, lack of time, or lack of awareness or knowledge. In addition to broad and
17 equitable access, a balanced plan will promote immediate implementation of energy savings
18 measures (short term savings) while developing opportunities in the future for new savings or
19 reduced cost of savings. A balanced plan¹¹ will minimize risk with a diversified portfolio while
20 minimizing costs and maximizing the benefits and value of the energy savings it delivers.

22 Enabling Strategies are an integral part of a balanced EE&C plan. Enabling Strategies include
23 activities such as education and outreach, development and research, capacity building,
24 determining the savings potential for EE&C, working with governments, codes and standards,
25 innovative financing, etc. While these activities in their own right generally do not achieve
26 energy savings attributed to an EE&C plan, they are essential in order for efficiency services to
27 continue achieving energy savings. In addition to driving increased program participation
28 through awareness and education, enabling strategies drive market transformation to energy
29 efficient products, and they advance energy efficiency standards and industry practices.

31 **1.2.1. Guiding Principles**

33 To provide grounding for development of its EE&C Plan, efficiencyPEI adopted the guiding
34 principles outlined below. In developing a balanced plan there is clearly tension amongst several
35 of these guiding principles, and efficiencyPEI has sought to strike a reasoned balance with the
36 trade-offs that have been required in developing this EE&C Plan. In addition, this Plan has been
37 developed taking into consideration the provincial government's policies on energy efficiency
38 and climate change, governments' limitations for funding of EE&C, and the MECL and
39 Summerside Electric rate structures currently in place. Within the bounds of these constraints,
40 the EE&C Plan has been designed based on the following principles:

- 41 • Maximize short- and long-term energy savings

¹¹ For additional information on a balanced plan, please refer to EfficiencyOne's Application to the NSUARB for a 2016-2018 DSM supply agreement ns (<https://uarb.novascotia.ca/fmi/webd#UARB15> – Matter M06733 Exhibit E-1 Appendix F, DSM Portfolio Design Principles and Considerations, pages 9-10).

- 1 • Maximize net ratepayer benefits
- 2 • Minimize program costs, without hindering the ability to meet both short- and long-
- 3 term electricity savings targets
- 4 • Seek to provide efficiency programs that are accessible and practical for all electricity
- 5 consumers. These programs should address any unique barriers that particular
- 6 customer segments face (e.g. low income and small business groups)
- 7 • Include Enabling Strategies to support EE&C programs and energy efficient practices
- 8 by encouraging increased participation and promoting the longer-term transformation
- 9 of markets
- 10 • In planning EE&C initiatives, include strategies that will build expertise and human
- 11 resource capacity in PEI for the long-term success of EE&C
- 12 • Emphasize public education on and awareness of electricity use, energy efficiency
- 13 and programs
- 14 • Include evaluation, monitoring and verification of results as an important component
- 15 of EE&C

16
17 Measures prioritizing demand response, with the exception of limited promotion of electric
18 thermal storage (ETS) units for Summerside Electric customers, have generally not been
19 considered for this Plan because MECL does not currently have a residential time of use rate.
20 Without a rate signal based on time of use there is no incentive for customers to alter their
21 electricity demand profile. More demand response measures would be a valuable addition to
22 programming by ePEI when time of use rates are in place, because increasing electrification on
23 the Island and in particular conversion to heat pumps for space heating could add to peak load
24 and disproportionately add to electricity system costs.

25
26 Meeting the PEI Energy Strategy's target for annual electricity reduction of 2 percent in
27 2020/2021 and thereafter requires annual investments of approximately \$10-11 million. In order
28 to move toward this savings target while considering budget constraints and minimizing the
29 effect on the ratepayer, this comprehensive EE&C Plan is based on a Third-Year investment of
30 approximately \$5.9 million. The proposed EE&C Plan will be more affordable for Islanders at
31 this time, and more practical to deliver when electricity efficiency and conservation is
32 undergoing a major increase in program scope and activity and customer engagement. The Plan
33 builds the foundation for EE&C action and potential demand response activities that can
34 continue beyond its three-year term.

35
36 The EE&C Plan includes programs to be implemented in 2018/2019 and thereafter. It identifies
37 specific programs for electricity savings, their projected first-year energy and capacity savings,
38 their costs, their cost-effectiveness, and the avoided costs they will generate over the life of their
39 measures.

40
41 The EE&C Plan included in this Application proposes an expenditure of \$2.77 million for
42 2018/2019 with forecast first year electricity savings of 5.4 GWh and 1.4 MW. The Plan includes
43 an investment of \$4.66 million in 2019/2020 that achieves first year savings of 10.8 GWh and
44 2.6 MW, and first year savings of 13.1 GWh and 2.9 MW in 2020/2021 with an investment of
45 \$5.88 million.

1 In April 2021, at the conclusion of the first three-year EE&C Plan, the total annual electricity
2 savings resulting from implementation of the Plan will be 29.3 GWh of energy and 6.9 MW of
3 demand.

4
5 This Evidence of PEIEC/ePEI relies upon the advice of its expert consultants on EE&C
6 programs, and the success of activities will be measured by the evaluation and verification of
7 results. It recommends an approach for recovery of EE&C costs from electricity customers. The
8 details of the energy efficiency programs and directly related information are the key elements of
9 the Evidence in this proceeding.

10 11 **1.2.2. Key Components of the 2018/2019 to 2020/2021 EE&C Plan**

12
13 The proposed 2018/19 to 2020/21 EE&C Plan includes modifying existing efficiencyPEI efforts
14 and adopting new programs for electricity efficiency and conservation. It also assumes that
15 funding from the federal government's Low Carbon Economy Fund (LCEF) is used throughout
16 the term in Prince Edward Island for programs to reduce consumption of electricity and other
17 non-electrical fuels. Programs that combine funding sources to offer incentives and assistance for
18 reducing all types of energy use would be the most convenient and accessible to Islanders. This
19 approach is commonplace in many jurisdictions, is considered a best practice, and is the desired
20 approach of efficiencyPEI.

21
22 Combining efforts and funds into the same programs for all fuels, where possible, reduces
23 customer confusion and brings significant cost reductions through economies of scale. This
24 includes cost-sharing for most aspects of the programs, including marketing and promotion,
25 administration, and evaluation.

26
27 While the focus of efficiencyPEI's programs to date has been on the residential sector, this
28 EE&C Plan incorporates programs that also targets customers in business sector. Recent
29 electricity use forecasts from Maritime Electric indicate that residential electricity use is
30 expected to grow at a pace slightly faster than that of business customers.

31 32 **1.3. Maritime Electric's Recovery of its EE&C Costs**

33
34 Since electricity savings from efficiency are an alternative to electricity supply, efficiencyPEI
35 recommends treating Maritime Electric's EE&C costs in the same manner as their other
36 electricity supply costs for their recovery from customer classes. Because efficiency investment
37 is expected to be ongoing and, in fact, increase over the next two years, it is recommended that
38 EE&C costs for MECL customers be expensed in the year incurred rather than amortized over
39 the projected life of the EE&C measures. Utility treatment of DSM costs is discussed in more
40 detail in section 5.1 of this Application.

1 EE&C PLAN TARGETS

2

3 Program activity in the start-up year 2018/2019 is being governed by efficiencyPEI's annual
4 funding target of \$2.77 million. This funding depends on a \$600,000 contribution to electricity
5 EE&C by Maritime Electric / Summerside Electric, a \$1,149,500 contribution from
6 efficiencyPEI, and a federal contribution of \$1,019,500, with regulatory oversight by the
7 Commission of the entire funding for EE&C. The \$2.77 million expenditure is forecast to result
8 in 5.4 GWh and 1.4 MW of first-year energy and demand savings, respectively.

9

10 The Plan achieves savings of 10.8 GWh and 2.6 MW in 2019/2020 with an investment of \$4.7
11 million, and savings of 13.1 GWh and 2.9 MW in 2020/2021 with an investment of \$5.9 million.

2. EE&C PLAN SUMMARY

Table 1 provides a summary of the first-year energy and demand savings, and investment for the 2018/2019 – 2020/2021 EE&C Plan. The energy and demand savings included in Tables 1-4 are incremental first year savings. Thus, the cumulative annual savings in Year 2 of the Plan are the sum of Year 1 plus Year 2 savings (16.2 GWh), and the annual savings in Year 3 are the sum of Year 1 plus Year 2 plus Year 3 savings (29.3 GWh) recognizing that all measures have a savings life expectancy longer than three years. The overall cumulative energy savings for the three years of the EE&C Plan are (3 X Year 1 savings + 2 X Year 2 savings + Year 3 savings), with additional ongoing savings extending into the future for the life of the electricity saving measures. This translates into cumulative net energy savings by the end of year 3 of 51.0 GWh.

Table 1: 2018/2019 – 2020/2021 EE&C Plan Investment and Savings

Year	Investment (\$ million)	Lifetime Benefits (\$ million) ^a	Incremental Gross Energy Savings at Generator (GWh)	Incremental Gross Demand Savings at Generator (MW)	Incremental Annual Net Energy Savings at Generator (GWh)	Incremental Annual Net Demand Savings at Generator (MW)	Total Resource Cost Test (TRC) ^b	Program Administrator Cost Test (PAC) ^c	Incremental Gross Energy Savings as % of PEI Electricity Sales
2018/2019	2.77	10.82	7.07	1.91	5.44	1.39	1.8	3.9	0.52%
2019/2020	4.66	21.03	12.99	3.32	10.77	2.61	1.7	4.5	0.95%
2020/2021	5.88	24.74	16.18	3.80	13.14	2.89	1.6	4.2	1.16%
Total	13.31	56.59	36.24	9.02	29.35	6.89	1.7	4.3	N/A

Currency is expressed in nominal dollars. Columns may not add correctly, due to rounding.

Levelized avoided costs include an avoided cost of capacity of \$100 per kW-year, an avoided cost of transmission and distribution of \$160 per kW-year, and an avoided cost of energy of \$0.08 per kWh consistent with the 2015-2020 MECL DSM filing. A discount rate of 3.2 percent is applied.

^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy, capacity, and transmission and distribution over the life of the program measures.

^b TRC is a benefit/cost ratio comparing lifetime benefits to the sum of efficiencyPEI's and participants' costs, with calculation assigning zero value for non-energy benefits.

^c PAC is a benefit/cost ratio comparing lifetime benefits to efficiencyPEI's costs.

Table 2, Table 3 and Table 4 provide the program-level savings and investment for 2018/2019, 2019/2020, and 2020/2021 respectively.

1 **Table 2: 2018/2019 EE&C Plan Investment and Savings**

2018/2019	Investment (\$ million)	Lifetime Benefits (\$ million) ^a	Incremental Gross Energy Savings at Generator (GWh)	Incremental Gross Demand Savings at Generator (MW)	Incremental Annual Net Energy Savings at Generator (GWh)	Incremental Annual Net Demand Savings at Generator (MW)	Total Resource Cost Test (TRC) ^b	Program Administrator Cost Test (PAC) ^c
Residential Programs								
Energy Efficient Equipment Rebates	0.83	4.83	3.37	1.16	2.05	0.71	3.0	5.8
Home Insulation Rebates	0.32	1.46	0.65	0.19	0.52	0.15	0.8	4.5
Winter Warming	0.28	0.57	0.41	0.09	0.35	0.08	2.2	2.1
New Home Construction	0.15	0.46	0.15	0.04	0.14	0.04	1.2	3.1
Instant Energy Savings	0.40	1.95	0.99	0.21	1.10	0.24	2.4	4.9
Business Programs								
Business Energy Rebates	0.40	1.05	1.04	0.14	0.87	0.12	1.1	2.6
Business Energy Solutions	0.29	0.49	0.47	0.07	0.39	0.05	1.6	1.7
Custom Energy Solutions	0.03	0.00	0.00	0.00	0.00	0.00	N/A	N/A
Other Investment								
Enabling Strategies	0.075							
Total	2.77	10.82	7.07	1.91	5.44	1.39	1.8	3.9

2
 3 Currency is expressed in nominal dollars. Columns may not add correctly, due to rounding.
 4 Levelized avoided costs include an avoided cost of capacity of \$100 per kW-year, an avoided cost of transmission
 5 and distribution of \$160 per kW-year, and an avoided cost of energy of \$0.08 per kWh consistent with the 2015-
 6 2020 MECL DSM filing. A discount rate of 3.2 percent is applied.
 7 ^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy, capacity, and
 8 transmission and distribution over the life of the program measures.
 9 ^b TRC is a benefit/cost ratio comparing lifetime benefits to the sum of efficiencyPEI’s and participants’ costs, with
 10 calculation assigning zero value for non-energy benefits.
 11 ^c PAC is a benefit/cost ratio comparing lifetime benefits to efficiencyPEI’s costs.

1 **Table 3: 2019/2020 EC&C Plan Investment and Savings**

2019/2020	Investment (\$ million)	Lifetime Benefits (\$ million) ^a	Incremental Gross Energy Savings at Generator (GWh)	Incremental Gross Demand Savings at Generator (MW)	Incremental Annual Net Energy Savings at Generator (GWh)	Incremental Annual Net Demand Savings at Generator (MW)	Total Resource Cost Test (TRC) ^b	Program Administrator Cost Test (PAC) ^c
Residential Programs								
Energy Efficient Equipment Rebates	1.22	6.71	4.66	1.62	2.84	0.99	3.0	5.5
Home Insulation Rebates	0.72	3.63	1.64	0.47	1.30	0.37	0.8	5.1
Winter Warming	0.28	0.57	0.41	0.09	0.35	0.08	2.1	2.0
New Home Construction	0.17	0.54	0.17	0.05	0.16	0.05	1.2	3.2
Instant Energy Savings	0.77	6.62	3.34	0.73	3.74	0.81	3.1	8.6
Business Programs								
Business Energy Rebates	0.47	1.33	1.33	0.18	1.11	0.15	1.2	2.8
Business Energy Solutions	0.42	0.67	0.64	0.09	0.53	0.07	1.5	1.6
Custom Energy Solutions	0.29	0.96	0.80	0.09	0.73	0.08	2.3	3.3
Other Investment								
Enabling Strategies	0.33							
Total	4.66	21.03	12.99	3.32	10.77	2.61	1.7	4.5

2
3 Currency is expressed in nominal dollars. Columns may not add correctly, due to rounding.
4 Levelized avoided costs include an avoided cost of capacity of \$100 per kW-year, an avoided cost of transmission
5 and distribution of \$160 per kW-year, and an avoided cost of energy of \$0.08 per kWh consistent with the 2015-
6 2020 MECL DSM filing. A discount rate of 3.2 percent is applied.
7 ^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy, capacity, and
8 transmission and distribution over the life of the program measures.
9 ^b TRC is a benefit/cost ratio comparing lifetime benefits to the sum of efficiencyPEI’s and participants’ costs, with
10 calculation assigning zero value for non-energy benefits.
11 ^c PAC is a benefit/cost ratio comparing lifetime benefits to efficiencyPEI’s costs.

1 **Table 4: 2020/2021 EE&C Plan Investment and Savings**

2020/2021	Investment (\$ million)	Lifetime Benefits (\$ million) ^a	Incremental Gross Energy Savings at Generator (GWh)	Incremental Gross Demand Savings at Generator (MW)	Incremental Annual Net Energy Savings at Generator (GWh)	Incremental Annual Net Demand Savings at Generator (MW)	Total Resource Cost Test (TRC) ^b	Program Administrator Cost Test (PAC) ^c
Residential Programs								
Energy Efficient Equipment Rebates	1.48	7.45	5.12	1.81	3.13	1.10	2.9	5.0
Home Insulation Rebates	1.03	5.14	2.35	0.68	1.84	0.53	0.8	5.0
Winter Warming	0.28	0.57	0.41	0.09	0.35	0.08	2.1	2.0
New Home Construction	0.21	0.95	0.31	0.09	0.29	0.08	1.4	4.6
Instant Energy Savings	0.68	4.09	2.14	0.42	2.40	0.47	2.2	6.1
Business Programs								
Business Energy Rebates	0.58	1.80	1.79	0.25	1.51	0.21	1.2	3.1
Business Energy Solutions	0.55	0.91	0.87	0.12	0.72	0.10	1.5	1.7
Custom Energy Solutions	0.67	3.82	3.19	0.35	2.91	0.32	3.6	5.7
Other Investment								
Enabling Strategies	0.41							
Total	5.88	24.74	16.18	3.80	13.14	2.89	1.6	4.2

2 Currency is expressed in nominal dollars. Columns may not add correctly, due to rounding.

3
4 Levelized avoided costs include an avoided cost of capacity of \$100 per kW-year, an avoided cost of transmission and distribution of \$160 per kW-year, and an avoided cost of energy of \$0.08 per kWh consistent with the 2015-2020 MECL DSM filing. A discount rate of 3.2 percent is applied.

5
6
7 ^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy, capacity, and transmission and distribution over the life of the program measures.

8
9 ^b TRC is a benefit/cost ratio comparing lifetime benefits to the sum of efficiencyPEI’s and participants’ cost, with calculation assigning zero value for non-energy benefits.

10
11 ^c PAC is a benefit/cost ratio comparing lifetime benefits to efficiencyPEI’s costs.

3. COST EFFECTIVENESS TESTING

The cost of promoting and incenting the adoption of energy efficiency is generally lower than the cost of electricity supply, transmission and distribution to customers. Levelized costs for electricity savings are typically 3-6 cents per kilowatt-hour for jurisdictions in the US Northeast and eastern Canada with annual first year electricity reductions of 1-3 percent. Thus, EE&C can lower overall electricity system costs and customer bills. Cost effectiveness testing directly informs EE&C planning and decision-making processes, and the test provides an analytical framework to ensure that the use of ratepayer funds for EE&C results in sufficient benefits. Three standard tests are currently commonplace: Total Resource Cost (TRC) test, Societal Cost Test (SCT), and Program Administrator Cost test (PAC), also referred to as the Utility Cost Test (UCT). It is also common for jurisdictions to make specific modifications to these standard tests.

3.1. Total Resource Cost Test

The TRC test is designed to compare all direct costs for both the utility and participants to all direct benefits.

$$TRC = \frac{\textit{Avoided Costs} + \textit{Customer Benefits}}{\textit{Net Tech. Costs} + \textit{Gross PA Non Incentive Costs}}$$

While it is relatively straight-forward for the TRC to account for all costs, it is difficult to account for all benefits as this requires quantifying non-energy benefits (NEBs) for participants and the electric utility. Some of these NEBs include increased comfort and health for building occupants, improved worker productivity, decreased maintenance, improved electricity system planning and reliability, the utility's ability to match demand to available capacity, and increased productivity. Accounting for NEBs can be problematic and expensive, because quantifying NEBs is location-specific and not an exact science. Not including NEBs in the equation leads to inaccurate results by counting all costs, but only a portion of the benefits. With all of the TRCs calculated in this Application, the non-energy benefits have been assigned zero value.

3.2. Societal Cost Test

The SCT accounts for societal benefits¹² as well as energy savings benefits and compares them to all of the direct costs for EE&C as illustrated below.

$$SCT = \frac{\textit{Avoided Costs} + \textit{Customer Benefits} + \textit{Societal Benefits}}{\textit{Net Tech. Costs} + \textit{Gross PA Non Incentive Costs}}$$

While the SCT is balanced with consideration of both all costs and all benefits, it is challenged in the same manner as TRC; accounting for societal benefits can be problematic because their quantification is not an exact science.

¹² Societal benefits for energy efficiency can include greenhouse gas reduction; emission reductions of NO_x, SO₂, and particulate matter; the economic impact of efficiency programs (jobs, tax revenue, etc.); energy reliability and security; improved productivity; etc.

3.3. Program Administrator Cost Test

The PAC compares the utility's value of energy savings (the present value of long-run avoided energy and capacity costs) to the utility's EE&C expenditures.

$$PAC = \frac{\textit{Avoided Costs}}{\textit{Total Gross PA Costs}}$$

This cost effectiveness test is fully symmetrical, comparing only the program administrator's costs to its benefits, with all of the costs and benefits identified monetarily. It is therefore the preferred cost effectiveness assessment tool in the current PEI framework where EE&C programs will be administered by an agency independent of the electric utility, and where funding for the Program Administrator's EE&C will come from governments (provincial and federal funds), Maritime Electric ratepayers, and Summerside Electric ratepayers.

Cost effectiveness testing is a tool for the Commission to satisfy itself that EE&C is providing value for the investment being made by electricity consumers and the Program Administrator. To maintain symmetry within the PAC test, efficiencyPEI is recommending that the utility value of electricity savings be weighed against the funding provided by Maritime Electric customers, efficiencyPEI, the federal government, and Summerside Electric, i.e. all Program Administrator costs applicable to electricity efficiency.

A group of organizations and individuals have worked together (National Efficiency Screening Project – NESP) to develop the Resource Evaluation Framework (RVF)¹³ in order to improve the way that electricity and natural gas energy efficiency resources are screened for cost-effectiveness. The RVF is a tool to assess the consistency of a given cost effectiveness approach against the following principles: public interest, energy policy goals, symmetry (inclusion of both relevant costs and benefits), hard-to-quantify benefits, and transparency. In the current circumstances for PEI energy efficiency, of the three cost effectiveness tests considered, use of the PAC test best satisfies these objectives.

3.4. Testing at the Portfolio, Program or Measure Level

Cost effectiveness testing can be applied for screening at the measure, program, or portfolio level. Cost effectiveness test screening at the program or portfolio level allows the inclusion of measures that might otherwise marginally fail on a stand-alone basis, but provide strategic or long-term benefits and pass when delivered in conjunction with other complementary measures. Cost effectiveness test screening at the program or portfolio level recognizes the economy of

¹³ <https://nsuarb.novascotia.ca/> Matter 06733 E-1 2016-2018 EECA Supply Agreement Application Evidence and Appendices, Appendix I, DSM Screening in Nova Scotia - Toward a balanced Cost-Effectiveness Framework, page 26

1 scale with administrative costs and allows for deeper energy savings¹⁴ during a participant's first
2 engagement with EE&C programs thus avoiding the need for, and extra administrative costs
3 associated with, multiple engagements for the same customer. With these considerations,
4 efficiencyPEI recommends that cost effectiveness test screening be assessed for regulatory
5 approval at the portfolio level, although the cost effectiveness test values will also be provided at
6 the program and measure level in the technical tables of the proposed EE&C Plan.

7 8 **3.5. Recommendation for Cost Effectiveness Testing**

9
10 With the above considerations, *efficiencyPEI recommends that the PAC test incorporating all*
11 *applicable program administrator costs be the primary assessment tool for screening at the*
12 *portfolio level for future EE&C planning.*

13 14 **3.6. Discount Rate**

15
16 Discount rates are an essential component of cost effectiveness testing as they effectively reflect
17 the relative importance of short- versus long-term costs and benefits. The energy savings from
18 most EE&C measures have a relatively long life while the associated EE&C costs are incurred in
19 the year that the measures are implemented. Typical discount rates used for EE&C investment
20 include a utility's weighted average cost of capital, Government 10-year bond rate, prime interest
21 rate, or societal rate. With the majority of EE&C funding coming from government,
22 *efficiencyPEI recommends that cost effectiveness testing use the PEI Government's long-term*
23 *cost of borrowing for the discount rate, which is currently 3.2 per cent.*

¹⁴ Deep energy savings is a generally accepted industry term to describe a range of efforts that improve energy efficiency and reduce costs; it typically refers to energy savings measures that are more challenging to achieve because of barriers to uptake such as investment costs, availability of know-how or capacity, etc. A deep energy retrofit is a whole building analysis and construction process, applicable for both residential and commercial buildings, that uses 'integrative design' to achieve much larger energy savings than conventional energy retrofits.

4. COST TREATMENT FOR EE&C

At the outset it is important to emphasize that while it is common terminology to refer to ‘the costs’ of EE&C or DSM, expenditure on these is actually an investment rather than a cost in the traditional sense. It is an investment because the energy and financial savings continue to occur over numerous years while the expenditure is required up-front. Additionally, it is an investment because it is offsetting the need for future supply, which typically also requires up-front investment.

4.1. EE&C Cost Treatment

EE&C costs can be expensed in the year they are incurred by an electric utility or they can be amortized over the life of the energy saving measures. Because the energy savings from efficiency occur over several years, some utilities amortize their EE&C costs accordingly. Ratepayers pay more in the long run because this amortization of EE&C is treated as a utility asset and generally financed at the utility’s Weighted Average Cost of Capital (WACC).

Other utilities treat EE&C as an expense in the year the EE&C cost is incurred. The primary reason for expensing EE&C costs is that EE&C is expected to be maintained for multiple years into the future - a recurring annual cost similar to fuel or purchased electricity, for example. Where the cost is ongoing year after year, there is no advantage to amortization; in only a few years the annual cost with amortization would plateau and be at a level higher than the single year’s investment because of interest expenses.

Amortization can be an effective way of handling EE&C costs during a start-up year, where this EE&C investment has not already been built into the electricity rates. This approach allows EE&C implementation to commence without delay, while ensuring that an electric utility will still be able to fully recover its initial EE&C investment.

4.2. Electric Utility Cost Recovery

As with its other costs, it is essential that a regulated electric utility have certainty that it can recover EE&C costs from customers. These EE&C costs can be allocated to customer classes on the same basis as other costs of electricity supply, with the rationale that EE&C is simply an alternative to supply, and that all electric utility customers benefit from investment in EE&C. Another approach is the allocation of EE&C costs separately for each rate class on the basis of expenditure and corresponding energy savings benefits, particularly in situations where the EE&C effort across rate classes varies significantly. In simple terms, each rate class pays for the EE&C benefit it receives. This approach adds significant tracking and analysis complexity with their associated administrative costs, because it is common for a program to serve more than one rate class, and a methodology is required for handling shared EE&C expenses. In addition, a rate rider for recovering EE&C costs has to be determined and approved for each rate class on a periodic basis.

The electric utility’s charge to its customers for EE&C may appear as a separate line item on customers’ bills or be embedded in the overall electricity rate. This decision may be influenced

1 by the level of delineation of traditional electricity costs on the bill. With some utilities, all costs
2 are rolled into one cost per kilowatt-hour; other utilities break out the cost of electricity supply
3 from the cost of transmission and distribution or even additional layers for nuclear, renewables,
4 etc. The independence of the EE&C Administrator (efficiencyPEI) from the electric utility
5 (Maritime) can also influence the decision on how the cost of EE&C appears on customers' bills.
6 Having a separate line item on customers' electricity bills for energy efficiency and conservation
7 will help build consumer awareness about EE&C programs. As well, a separate line item charge
8 reinforces accountability for the independent program administrator. Transparency is also an
9 important consideration for ePEI.

10
11 Where the electric utility and the program administrator for EE&C are separate entities, as is the
12 case with MECL and ePEI, another alternative is for the electric utility to treat the recovered
13 costs for EE&C using a separate line item on customers' bills as a simple 'pass through'. Using
14 this approach, MECL would simply pass through on a periodic basis the revenue for EE&C
15 collected from its customers to ePEI, and ePEI would have the responsibility for setting the
16 appropriate rate rider(s) for EE&C cost recovery.

17 18 **4.3. Recommendation – Cost treatment and recovery for EE&C**

19
20 Stakeholders have provided substantive input regarding the treatment of EE&C costs by MECL
21 and how these costs are recovered from electricity customers. Several stakeholders have
22 requested that the costs for EE&C be shown as a separate line item on customers' electricity
23 bills. Their reasons for this include accountability of the program administrator, transparency,
24 and building public awareness of EE&C. *efficiencyPEI* supports this stakeholder perspective and
25 ***recommends that MECL use a separate line item on their customers' electricity bills for***
26 ***recovery of EE&C costs.***

27
28 With the objectives set out by the PEI Government in its Energy Strategy and Climate Change
29 plans, the clear expectation has been established that energy efficiency and conservation
30 activities will have significant emphasis for the foreseeable future. Therefore, as noted
31 previously in section 5.1, there is no benefit to amortizing the investment in EE&C; in fact, it
32 penalizes electricity customers with the carrying costs of that investment. As a result, *ePEI*
33 ***recommends that EE&C costs be expensed as incurred and not be amortized over multiple***
34 ***years.***

35
36 Several stakeholders have also requested that EE&C costs be allocated by customer class
37 separately based on the actual EE&C expenditure and the corresponding electricity savings
38 benefits for each rate class. *efficiencyPEI* recognizes stakeholders' concern about the potential
39 for cross subsidization of EE&C across rate classes. While there are alternative ways of ensuring
40 rate classes are treated fairly with the allocation of EE&C expenditures, *ePEI is prepared to*
41 ***undertake the administrative requirements in order to track separately by rate class EE&C***
42 ***expenditure and electricity savings, establish a specific rate rider for each rate class, and is***
43 ***recommending this option for EE&C cost recovery*** in response to requests by several
44 stakeholders. It must be noted, however, that even with this approach there will be some indirect
45 subsidization of EE&C across rate classes because the entire electricity system and all customer
46 classes benefit from reduced electricity usage and demand, not just the customer or the customer

1 class that implements EE&C.

2
3 MECL has recommended that they *treat the revenue allocated to EE&C from the separate line*
4 *item on customers' bills as a pass through to ePEI*. Thus, ePEI would calculate the rate rider for
5 each rate class based on each rate class's projected EE&C expenditure and the class's forecast
6 annual electricity usage from MECL. MECL would pass through to efficiencyPEI on a monthly
7 basis the rate rider EE&C revenue collected. *efficiencyPEI supports this approach to*
8 *recovering ratepayer funds for EE&C*. A potential issue with allocating EE&C costs by rate
9 class and their recovery from individual rate classes is that it can lead to significant variations
10 year by year in the rate rider for EE&C, if the EE&C rate rider is set annually. To smooth the
11 rate rider variation and also reduce the administrative burden of resetting rate riders for each rate
12 class, ePEI is recommending that rate riders be set and held for the three-year term of this EE&C
13 Plan. The appropriate frequency of resetting EE&C rate riders for the future can be revisited after
14 Year 2, and rate riders could even be reset for Year 3 if necessary.

15
16 Inevitably, EE&C expenditure for each rate class will vary from forecast. Measure savings will
17 vary from plan; new and more efficient products will become available; and participation rates
18 will differ from forecast. This variation between actual and forecast expenditure can be
19 minimized by using a longer duration (2 or 3 years rather than 1) for fixing the EE&C rate rider
20 for each rate class. The longer duration for a fixed rate rider gives the program administrator
21 more time to make program adjustments for a rate class in order to achieve forecast electricity
22 savings within budget. A true-up of EE&C revenues versus expenditures for each rate class
23 ensures that over multiple rate rider periods expenditures will match revenues. *EfficiencyPEI*
24 *recommends that EE&C revenues relative to expenditures for each rate class be trued up with*
25 *each reset of its EE&C rate rider*.

26
27 The example shown in Table 5 for the residential class demonstrates the mechanics for setting
28 and resetting the rate rider including the true-up adjustment, assuming efficiencyPEI's EE&C
29 program funding commences in October 2018. The same mechanics would be applicable for
30 MECL's other rate classes. Rate riders for each rate class will be calculated and submitted to the
31 Commission for approval within 60 days after Commission approval of the EE&C Plan.

1 **Table 5: MECL Customer EE&C Rate Rider & True-up Calculation**

	Residential Rate Class		General Rate Class		Total for All Rate Classes
	<i>Oct '18 - Mar '21¹</i>	<i>Apr '21 - Mar '24</i>	<i>Oct '18 - Mar '21</i>	<i>Apr '21 - Mar '24</i>	<i>Oct '18 - Mar '21</i>
ePEI approved EE&C period budget for rate class	\$ millions	\$ millions			\$ millions
MECL's share of period funding for rate class ² - info from ePEI	\$ millions	\$ millions			\$ millions
True-up from previous period	\$ 0	\$ thousands / (\$ thousands)			
Net EE&C funding for rate class ³	\$ millions	\$ millions			
Forecast MECL sales – info from MECL	Millions kWh	Millions kWh			Millions kWh
ePEI's EE&C rate rider (funding charge on customer bills) – ePEI calculation	\$ / kWh	\$ / kWh	\$/kWh		
Start date for EE&C rate rider	Oct 2018	April 2021			
Actual EE&C revenue collected from MECL rate class – info from MECL	\$ millions	\$ millions			\$ millions
MECL customers' share of actual EE&C expenditures for rate class ⁴ – info from ePEI	\$ millions	\$ millions			\$ millions
True-up of MECL rate class funding for application in next period [MECL EE&C revenue - expenditure for period (actuals)] ⁵ – ePEI calculation	\$ thousands / (\$ thousands)	\$ thousands / (\$ thousands)			

2 ¹ Duration of period for application of EE&C rate rider recommended for reassessment after Year 2 (April 2020)

3 ² MECL's share = Total EE&C funding for rate class X (MECL funding contribution / Total EE&C funding)

4 ³ Net period funding for rate class = Rate Class funding for period – True-up from previous period

5 ⁴ MECL customers' share = Total actual EE&C expenditures for rate class X (MECL funding contribution / Total EE&C funding)

7 ⁵ True-up of MECL rate class funding = MECL EE&C actual revenue for rate class – MECL customers' share of actual EE&C expenditures for rate class

9

10 **4.4. Contribution to Fixed Costs**

11

12 EE&C will result in lost sales for Maritime Electric compared to what they would have realized
 13 absent EE&C activity. If electricity savings from EE&C are not factored into MECL's
 14 projections for load and energy sales, MECL will have a shortfall from their forecast revenue.
 15 While EE&C avoids the costs associated with purchased fuel or electricity imports to the MECL
 16 system for the electricity saved, MECL will also lose the contribution to its fixed costs that this
 17 saved electricity would otherwise make. This may not be material for a single year, but could
 18 matter with multi-year rate making where rates are fixed until a new revenue requirement case is
 19 adjudicated.

20

21 Furthermore, MECL is likely to have a very different attitude towards EE&C if they can recover
 22 their lost contribution to fixed costs, rather than become a partial driver for a future rate case.
 23 The fact that the Program Administrator is independent from MECL is another factor to consider
 24 in managing lost contribution to fixed costs.

25

26 Alternatively, even with a rate case covering multiple years, if MECL can include the projected
 27 yearly effects of EE&C in its forecast for annual electricity kilowatt-hour (kWh) sales, annual
 28 rates can be set keeping MECL's annual revenue whole, with no loss of contribution to fixed
 29 costs. This is a likely scenario considering the practices with recent MECL multi-year filings and

1 the Commission approvals. As such, *efficiencyPEI recommends that Maritime Electric*
 2 *continue to submit for regulatory approval multi-year revenue requirement plans based on*
 3 *forecast annual loads, but with MECL's annual loads adjusted for reductions resulting from*
 4 *EE&C.* With these adjustments in forecast annual electricity kWh sales resulting from EE&C,
 5 there will be no loss of fixed costs; these will already be accounted for with the adjusted loads in
 6 the annual rates proposed by the electric utility.

8 **4.5. True-Up of EE&C Funding/Costs with MECL**

9
 10 The ability to carry forward over- or under-spending of the Program Administrator's costs in one
 11 year or period for collection or crediting in the following year or period is an important
 12 consideration because actual costs will never exactly match the approved budget, and any
 13 cessation of programs due to budget constraint will significantly harm public support and
 14 program participation. It is advantageous for all parties to allow efficiencyPEI to carry forward
 15 over- or under-spending of Maritime Electric's share of EE&C costs from one year to the next.
 16 efficiencyPEI recommends that the Commission approve ePEI's over or under spending of
 17 MECL's share of EE&C funding from one rate rider setting period to the subsequent period. The
 18 carry forward of EE&C funds simply ensures that unspent EE&C funds in a given period
 19 continue to be available for EE&C investment in the subsequent period. The example in Table 6
 20 demonstrates the carry-forward adjustment for MECL EE&C funding.

21
 22 **Table 6: Carryover of MECL EE&C Funding**

	<i>Oct '18 -Mar '21</i>	<i>Apr '21 -Mar '24</i>
ePEI approved EE&C period total budget	\$ millions	\$ millions
MECL's share of total EE&C funding for period ¹	\$ millions	\$ millions
Carryover from previous period ²	\$ 0	\$ tens of thousands / (\$ tens of thousands)
Net MECL period funding for EE&C ³	\$ millions	\$ millions

23 ¹ MECL's share = Total EE&C funding X (MECL funding contribution / Total EE&C funding)

24 ² Funding carryover to subsequent period = Total MECL customer actual funding from all rate classes for period -
 25 MECL's share of total actual EE&C expenditures for period

26 ³ Net total MECL funding for period = MECL's share of period funding for all rate classes + Carryover of MECL
 27 funds from previous period

28
 29 *efficiencyPEI recommends that it receive funds from Maritime Electric, as collected from*
 30 *customers based on electricity sales, with the ability to carry forward over- or under-*
 31 *expenditure to the subsequent year.*

5. FINANCING EE&C PROGRAM PARTICIPATION

The upfront cost of energy efficiency upgrades is a significant barrier to program participation. For efficiency projects such as home insulation or installation of a heat pump, the participant's cost can be substantial, even with incentives from efficiencyPEI. For many small businesses, cash flow is tight. Yet these examples represent frequent situations with major potential energy savings and an attractive payback. An effective mitigation for this barrier is a loan program where the financial savings from the energy efficiency installation is used to pay off the loan. Electric utility-based financing, commercial financing, and property-based financing are common methods for customer financing of energy efficiency and renewable energy projects. With any of these options, efficiencyPEI would act as an intermediary between the participant and the lender; as a program participant engages with efficiencyPEI on a project, efficiencyPEI would inform them of relevant loan options that are easily accessed by qualified clients.

5.1. Financing on the Electricity Bill

Utility-based financing as a line item on customers' bills is a convenient option for customers with the advantage of a very low default rate. As the program administrator, efficiencyPEI would manage the program application process, screen energy efficiency projects for eligibility, and arrange with the electric utilities for financing of the project and repayment terms. Generally, the interest rate is the utility's weighted average cost of capital, and an additional incentive could be the buy-down of the interest rate by efficiencyPEI. This option normally sees low rates of default, as electricity bills are usually high priority payments to avoid disconnection of utility service.

5.2. Commercial Financing

Another alternative is for the EE&C program administrator to arrange a loan program with a commercial lending agency. Similar to the utility-based financing, efficiencyPEI would act as an intermediary between the approved participant and the commercial lending agency, but the loan is fully managed by the lending agency. Again, an additional incentive could be the buy-down of the interest rate by ePEI. This option tends to have higher default rates than utility-based financing.

5.3. Property-Based Financing

Property Assessed Clean Energy (PACE) is a financing mechanism that allows municipalities to assist eligible homeowners with financing home energy improvements through loans tied to property tax bills. Requiring changes to municipal legislation, the cost of the energy efficiency improvements attach to the property, rather than the person who initiated the improvements, so that the costs remain with the recipient of the benefits, even if the house changes ownership.

5.4. Recommendation for EE&C Financing

A loan program arranged in conjunction with the electric utility and repaid through a line item on customers' electricity bills is attractive, particularly for small business projects. Government

1 financing, financing through a private lender such as a bank or credit union, or PACE financing
2 may be an effective alternative for the residential sector. Many efficiency programs include loans
3 as one of the promotions for customer participation, and there are numerous examples of each of
4 the financing types noted above. *efficiencyPEI requests that the Commission allow ePEI to*
5 *explore and potentially implement options for financing program(s) for EE&C upgrades, for*
6 *all customer classes.*

6. SUMMERSIDE ELECTRIC INVOLVEMENT

Summerside Electric has approximately 7,000 customers and annual electricity sales of approximately 140 GWh – about 10 percent of electricity usage on the Island including Maritime Electric’s 1,200 GWh annual sales. Details of the sales for both MECL and Summerside Electric are provided in Table 7.

Table 7: Electricity Sales (GWh) in PEI

	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Forecast	2019 Forecast	2020 Forecast	2021 Forecast
Maritime Electric	1,167.7	1,188.7	1,188.4	1,208.0	1,220.0	1,229.1	1,236.1	1,245.7
Summerside Electric	130.0	134.0	131.6	131.6	134.2	136.9	139.6	142.4
Total	1,297.7	1,322.7	1,320.0	1,339.6	1,354.2	1,366.0	1,375.7	1,388.1
MECL % of total	90.0%	89.9%	90.0%	90.2%	90.1%	90.0%	89.9%	89.7%
SE % of total	10.0%	10.1%	10.0%	9.8%	9.9%	10.0%	10.1%	10.3%

This EE&C Plan is designed to provide energy efficiency program access to all electricity users in PEI. Although Summerside Electric is not regulated by the Commission, Summerside Electric will be expected to contribute funding for EE&C proportionately comparable to Maritime Electric’s annual contribution. For the purpose of continuity of programs and in recognition of its time of use rate plan offering, there may be some variation in programs offered to Summerside Electric’s customers, particularly during the first year or two of the EE&C programs by efficiencyPEI.

With Maritime Electric being regulated by the Commission, there are numerous references in this Plan to Maritime Electric or MECL. efficiencyPEI will have the same objectives in dealing with Summerside Electric and its customers. Some of the implementation details may differ because of unique circumstances for each system but the services for customers will be comparable, the funding for EE&C will be comparable, and the cost recovery from electricity customers for EE&C will be comparable. Thus, where MECL is identified specifically, in most cases it similarly applies to Summerside Electric. With Summerside Electric not being regulated by the Commission, references to MECL as a regulated entity do not directly apply to Summerside Electric.

7. EVALUATION AND VERIFICATION OF ELECTRICITY SAVINGS

Evaluation and Verification (E&V) of energy savings are essential parts of a portfolio of EE&C programs. Electricity customers who are contributing funds to EE&C need to know that the programs are providing value for their money and that the energy savings are real. The Commission needs certainty that MECL's and ePEI's EE&C expenditures are prudent. MECL's planning for load forecasting and revenue requirement requires their confidence in current and forecast electricity savings results. Evaluation and verification also provide valuable feedback to the Program Administrator regarding the potential need for program changes. Typically, the budget for E&V is 2-5 percent of overall EE&C costs.

Evaluation activities include impact and process evaluations, and can include market evaluations. Impact and process evaluations are essential parts of a program cycle that:

- Assess the effectiveness of program design and delivery
- Determine whether program implementation is proceeding as planned
- Determine the gross energy and demand savings at the generator
- Adjust for free-ridership, spillover, interactive and market effects
- Determine the net energy and demand savings at the generator

A free-rider is a program participant who would have installed an energy-efficiency measure without any program incentives, but still received a financial incentive or rebate. Because the incentive did not influence their decision to proceed, the program cannot be credited with the resulting energy savings.

Spillover refers to additional reductions in energy use due to program influences on actions beyond those directly associated with program participation, and accounts for the actions participants take without program financial or technical assistance.

Interactive effects regard the influence of one measure on the energy savings effect of another measure; for example, use of a more efficient lighting will contribute less heat to a building, thus reducing the air conditioning load in summer and increasing the space heating load in winter.

Market effects refer to a change in the structure of a market or the behaviour of participants in a market resulting from intervention that increases the adoption of energy efficiency. For example, efficiency programs can influence: design professionals; vendors; product availability, practices, and prices; product or practice acceptance; and customer expectations. These influences may induce a consumer to adopt energy efficiency measures or actions without participating specifically in an efficiency program, although they represent market effects from programs previously implemented.

It is recommended that program evaluation be carried out by an independent evaluation consultant engaged by efficiencyPEI through a competitive process, and that efficiencyPEI file the evaluation report with the Commission. Evaluation by a third party provides an unbiased review of program efforts and results, with recommendations for future improvements.

The Commission may want to consider engaging a savings verification consultant to verify the

1 impact presented in the evaluation report and provide any additional recommendations for future
2 improvements. The Nova Scotia Utility and Review Board engages a savings verification
3 consultant who generates a verification report annually; these verification reports are available
4 publicly.

5
6 While evaluating and verifying program results are important, it will prove challenging for PEI
7 because of the relatively small scale of program activity and participants. For similar programs,
8 efficiency PEI may opt to rely on evaluation information from Efficiency Nova Scotia DSM
9 programs for the first year or two. Efficiency Nova Scotia's evaluation results are public
10 information filed annually with the Nova Scotia Utility and Review Board within one quarter
11 after the end of each program year. Conducting E&V work over a two- or three-year cycle
12 (rather than annually) may be another way of realizing the important outcomes from evaluation
13 while keeping the cost of evaluation reasonable.

8. DSM POTENTIAL STUDY

DSM potential studies¹⁵ are most useful when carried out prior to: developing an energy efficiency plan, engaging a new market segment, or adding new programs or measures including demand response measures. The schedule for developing an EE&C Plan and programs for 2018/19 implementation does not allow time to conduct a DSM Potential Study in advance. In the absence of such a market analysis, efficiencyPEI relied on the DSM potential work and resulting programs in the relatively similar energy environment of Nova Scotia to develop the efficiencyPEI EE&C Plan. In addition, the Vermont Efficiency Investment Corporation (VEIC) undertook an Energy Efficiency Designs and Achievable Potential for PEI Study in 2008, and the findings of this study were used to help shape the current plan.

There is still *a need for a DSM Potential Study for PEI, but it can be initiated after initial EE&C programs are operational. Funding for a DSM Potential Study has been included* in the Enabling Strategies budget *for 2019/2020*; undertaking this then will inform the design of the next DSM Plan developed in 2020/2021 for implementation beginning in April 2021.

¹⁵ . A DSM potential study seeks to develop reliable estimates of the magnitude, timing, and costs of DSM resources over a pre-determined planning horizon (25 years, for example). The potential for energy savings is typically divided into three categories – technical, economic, and achievable potential. Technical potential represents the amount of energy savings possible by implementing all efficiency measures. Economic potential estimates the energy savings that are cost effective when compared to the cost of supply, and achievable potential estimates the energy savings that can be achieved taking into account the barriers that prevent customer adoption and transformation of markets. Information from a DSM potential study often feeds into an electric utility’s integrated resource planning process to inform forecasting and DSM resource acquisition.

1 **9. CONCLUSIONS**

2
3 The PEI Energy Corporation/efficiencyPEI has worked with Commission staff, consultants,
4 Maritime Electric Corp., Summerside Electric, electricity customer representatives, and parties
5 interested in electricity and/or energy efficiency in developing a balanced and achievable plan
6 for electricity energy and demand savings. This Application contains the Evidence of
7 ePEI/PEIEC and its consultants in support of the EE&C Plan for the years 2018/2019,
8 2019/2020, and 2020/2021.

9
10 The first year 2018/2019 plan outlined in Table 8 has been designed with funding \$2.77 million.

11
12 **Table 8: EE&C Target for 2018/2019 (Year 1)**

	Year 1
Maritime Electric Funding	\$600,000
Summerside Electric Funding	
Province of PEI Funding	\$1,149,500
Federal Government Funding	\$1,019,500
Total Funding	\$2,769,000
Net Energy Saved (GWh)	5.4
Net Demand Reduction (MW)	1.4

13
14 The plan as outlined below in Table 9 for year 2 (2019/2020) includes a gradual ramp up of
15 EE&C activity with funding of \$4.66 million.

16
17 **Table 9: EE&C Target for 2019/2020 (Year 2)**

	Year 2
Maritime Electric Funding	\$970,000
Summerside Electric Funding	
Province of PEI Funding	\$1,916,000
Federal Government Funding	\$1,774,000
Total Funding	\$4,660,000
Net Energy Saved (GWh)	10.8
Net Demand Reduction (MW)	2.6

18
19 The 2020/2021 (Year 3) plan has been designed as shown in Table 10 below with funding of
20 \$5.88 million.

1 **Table 10: EE&C Target for 2020/2021 (Year 3)**

	Year 3
Maritime Electric Funding	\$1,200,000
Summerside Electric Funding	
Province of PEI Funding	\$2,431,500
Federal Government Funding	\$2,251,500
Total Funding	\$5,883,000
Net Energy Saved (GWh)	13.1
Net Demand Reduction (MW)	2.9

- 2 This EE&C Plan strives to achieve ambitious electricity efficiency and conservation goals with a
 3 balanced portfolio of programs while maintaining emphasis on affordability.

10. REGULATORY APPROVALS REQUESTED

With this application, PEIEC/ePEI seeks approval for:

- The 2018/2019 EE&C programs with an investment of \$2.77 million and electricity savings of 5.4 GWh and 1.4 MW, including MECL funding of \$540,000;
- The ramp-up of programs and expenditure for 2019/2020 with an investment of \$4.66 million and electricity savings of 10.8 GWh and 2.6 MW, including MECL funding of \$873,000;
- The 2020/2021 EE&C programs with an investment of \$5.88 million and electricity savings of 13.1 GWh and 2.9 MW, including MECL funding of \$1,080,000;
- Use of the Program Administrator Cost test in future EE&C planning for determining cost effectiveness of EE&C, and its application at the portfolio level;
- Use of all applicable program administrator costs in calculation of the PAC test
- Use of PEI's long term borrowing rate in the calculation of cost effectiveness testing;
- Carry-forward of over- or under-spending of MECL customer funding of EE&C in one year/period for collection or crediting in the following year/period.
- EE&C costs to be treated as an expense as they are incurred rather than amortized over the life of the electricity savings
- EE&C costs to be allocated by customer class separately based on the actual EE&C expenditure for each rate class
- EE&C costs to be shown as a separate line item on customers' electricity bills
- MECL to treat EE&C line item revenue as a pass-through to ePEI
- EE&C revenues relative to expenditures for each rate class to be trued up with each reset of its EE&C rate rider.
- ePEI to explore and potentially implement options for financing program(s) for EE&C upgrades for all customer classes.
- Program evaluation to be carried out by an independent evaluation consultant engaged by efficiencyPEI.
- A DSM Potential Study for PEI be undertaken in 2019/2020 to inform the next EE&C Plan.

1 APPENDIX A: 2018/19 TO 2020/21 EE&C PLAN

3 A.1 Introduction

5 This 2018/19 to 2020/21 EE&C Plan (EE&C Plan) is structured in a way that allows
6 efficiencyPEI to continue to evolve its current program offerings, while also adopting new
7 programs. Initially, a draft Plan was created in an effort to meet the ambitious energy efficiency
8 targets set out in the Prince Edward Island Provincial Energy Strategy 2016/17. This strategy
9 seeks to achieve savings of 2 percent of annual electricity use (and non-electrical energy
10 consumption) by 2020.

12 Following discussions this EE&C Plan was modified to provide details of programs with a \$5.9
13 million budget to reduce electricity use in 2020/21. The EE&C Plan assumes that funding will be
14 available from multiple sources, including MECL, Summerside Electric, the Province of Prince
15 Edward Island, and the Federal government.

17 A.2 efficiencyPEI History and Coinciding Activities

19 This EE&C Plan is for the 2018/19 to 2020/21 period, and focuses on reducing electrical energy
20 consumption. The EE&C Plan is built around a desire to offer uninterrupted programs and
21 provide all Islanders with access to energy efficiency incentives. To build an effective and
22 achievable EE&C Plan, it is essential to consider efficiencyPEI activities to date and additional
23 planned activities that relate to reducing non-electrical energy consumption.

25 Energy efficiency programs have been offered in Prince Edward Island for many years. Since
26 opening in 2008, efficiencyPEI (formerly the Office of Energy Efficiency) has helped thousands
27 of Islanders reduce their energy use (both electrical and non-electrical). In recent years, the
28 majority of the programs offered by efficiencyPEI have been offered to residential clients. These
29 programs include incentives for home energy assessments, rebates for building envelope
30 upgrades and heating systems, installing cost-effective energy efficiency measures in low income
31 homes, and more. For businesses, efficiencyPEI has offered a subsidy for commercial buildings
32 owners to help them better understand where energy is being used, and options to reduce energy
33 consumption.

35 Energy efficiency programs seek to reduce barriers to adopting energy efficient upgrades or
36 actions. The three primary barriers for most participants are a lack of knowledge/education, lack
37 of financial resources, and a lack of time. As a whole, the programs offered by efficiencyPEI to
38 date are relatively comprehensive and seek to overcome one or more of these three barriers.

40 The proposed EE&C Plan for 2018/19 to 2020/21 includes modifying existing efficiencyPEI
41 efforts and adopting new programs.

43 This EE&C Plan also assumes that programs will be available in Prince Edward Island to reduce
44 consumption of non-electrical fuels. Programs that combine funding sources to offer incentives
45 and assistance for reducing all types of energy use would be the most convenient and accessible
46 to Islanders. This situation is commonplace in many jurisdictions, and is a best practice

1 approach. Combining efforts and funds into the same programs for all fuels, where possible, not
2 only reduces customer confusion, but also brings significant cost-sharing benefits. This includes
3 cost-sharing for most aspects of the programs, including marketing and promotion,
4 administration, and evaluation.

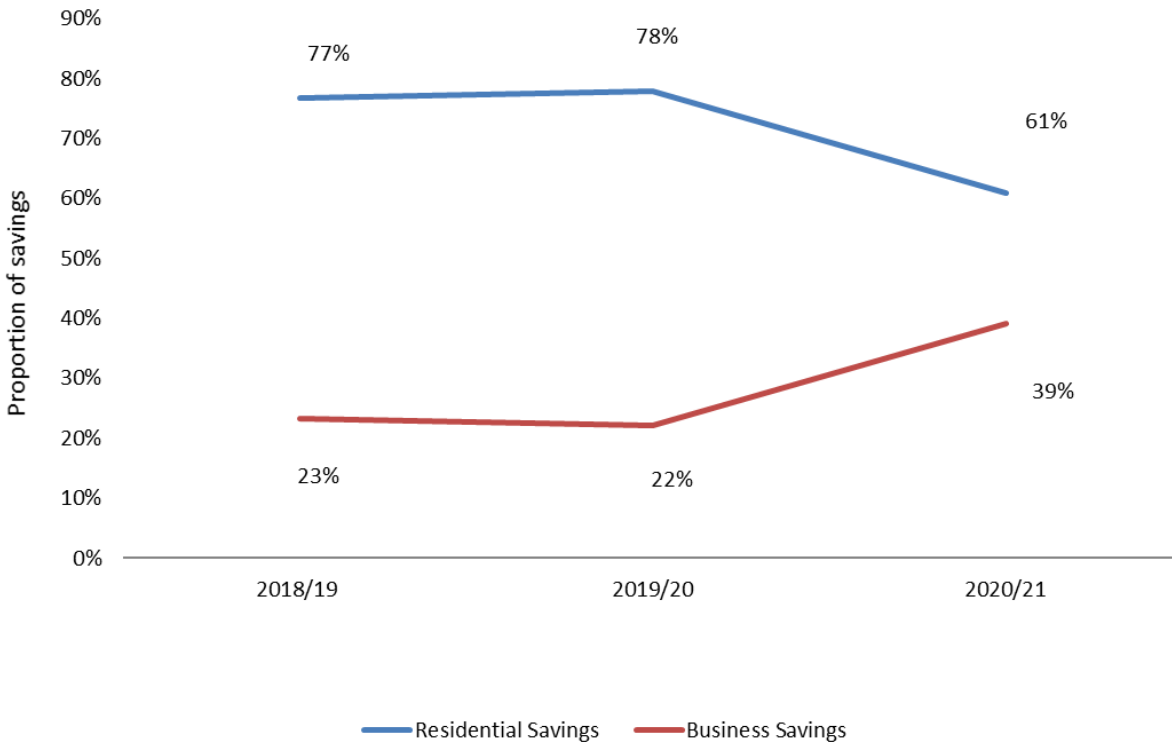
5
6 While an all-energy program mix is planned, this EE&C Plan includes only the energy savings
7 and costs for the electricity component. efficiencyPEI will develop methodology to separately
8 track the energy savings and costs for electricity saving measures and those for all other energy
9 sources.

10 11 **A.3 Electricity Use**

12
13 While the focus of efficiencyPEI's programs to date has been on the residential sector, this Plan
14 incorporates programs that also target the business sector. Recent electricity use forecasts from
15 MECL indicate that residential electricity use is expected to grow at a pace slightly faster than
16 that of business customers. A recent MECL load forecast provided in October 2017 indicates that
17 by 2022, residential use will account for 48 percent of electricity sales. Business use will account
18 for just under 52 percent, and an estimated 0.5 percent will come from street lighting and
19 unmetered accounts. Similar trends were indicated in the Provincial Energy Strategy 2016/17,
20 which projected that by 2026, 48 percent of PEI's electricity will be used by residential
21 customers, 45 percent by businesses, and 7 percent by "other".

22
23 The EE&C Plan considers these forecasts and includes programs that help both sectors achieve
24 significant energy savings. Recognizing that new programs for businesses will take time to ramp
25 up, annual targets are higher for the residential sector at the beginning of the 3-year Plan, with
26 energy savings from participating businesses increasing by year 3.

1 **Figure 1: Anticipated electrical energy savings by sector**



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A.4 Residential Programs

Maritime Electric serves roughly 58,000 residential customers. Details from the 2016 PEI Home Heating Survey suggest that roughly 27 percent of homes on Prince Edward Island use electricity as their primary heating source. For water heating, the 2016/17 Energy Strategy indicates that roughly 30 percent of residential customers use electricity for domestic water heating.

Residential programs will continue to evolve. Details of each program are provided in the following sections.

A.4.1 Energy Efficient Equipment Rebates

In homes heated primarily with electricity, the majority of energy is typically used for space and water heating. Ultra-efficient homes or homes in which other fuels are used to supplement electric space heating are the exceptions to this norm, but these account for a small subset of homes.

In some cases, homeowners have the desire and funds to make one substantial energy efficiency improvement to their home. In these situations, a rebate on an efficient space or water heating system can help the homeowner proceed with the energy efficiency upgrade. This program provides a simplified participation process for customers who only wish to replace or supplement

1 their electric space heating and/or water heating system(s).

2
3 As part of this EE&C Plan, this program will offer incentives on a variety of products such as:

- 4 • Mini-split heat pumps
- 5 • Central air- or ground-source heat pumps
- 6 • Wood and pellet stoves
- 7 • Wood and pellet central heating (furnaces and boilers)
- 8 • Heat recovery ventilators
- 9 • Outdoor temperature reset controllers
- 10 • Electric thermal storage space heaters, domestic hot water systems and furnaces
- 11 (note: for Summerside Electric clients)
- 12 • Heat pump water heaters
- 13 • Solar domestic water heaters
- 14 • Drain water heat recovery units

15
16 With efficiencyPEI programs already in place, the goal is to ramp up participation levels over the
17 3-year period. Approximately 45% of the energy savings from this program are anticipated to be
18 from mini-split heat pumps. The goal of the program will be to provide incentives to 2,350
19 participants over the three years, resulting in significant electrical energy savings for participants,
20 as shown in Table 11.

21
22 **Table 11: Summary of Energy Efficient Equipment Rebates Program**

Energy Efficient Equipment Rebates	2018/19	2019/20	2020/21	3-Year total
Budget (\$M)	\$0.80	\$1.19	\$1.45	\$3.44
Participants	550	820	980	2,350
Energy Savings (GWh)	2.1	2.8	3.1	8.0
Demand Savings (MW)	0.7	1.0	1.1	2.8

23 *Budget exclusive of Evaluation*

24
25
26 In an effort to assist low- and modest-income Islanders, the program will offer a special incentive
27 tier with rebates roughly 1.8 (1.75 – 1.875) times higher for low-income participants. Thus, the
28 program will consist of one standard rebate and one for low- income participants.

29
30 Energy Efficient Equipment rebates will be available for qualifying equipment, and qualification
31 criteria will encourage homeowners to purchase the most efficient type of equipment. Program
32 criteria will evolve over time, with funding and program uptake changes.

33
34 Promotion of this program will be through its existing efforts, and efficiencyPEI will also work
35 directly with heating distributors, retailers and contractors, especially those involved with heat
36 pumps. These companies will be provided with information on program criteria and available
37 incentives, and possibly application forms, to help increase understanding of and uptake in the
38 program.

A.4.2 Home Insulation Rebates

Many homes, regardless of heating source, can benefit from upgrades to their building envelope. It is common for utilities or DSM program administrators to offer building envelope energy efficiency programs that help customers overcome financial barriers (through the provision of incentives) and knowledge barriers, by facilitating home energy assessments that provide expert guidance and information about the home.

This program is ideal for customers who wish to take a holistic approach to reducing energy use in their homes. It leverages Natural Resources Canada's (NRCan) existing and widely-used EnerGuide Rating System and HOT2000 energy modeling software, and requires that data from all participating homes is entered into NRCan's system. One of the main benefits to provinces of NRCan's system is the customized reports it generates on participant results. These reports can aid with program tracking, evaluation, and general analysis.

Incentives for home energy assessments have been available in PEI for quite some time. In recent years, efficiencyPEI has offered subsidies on the energy assessments; however, rebates for building envelope improvements were not contingent on conducting a home energy assessment.

This recently updated program now offers a higher subsidy on the energy assessment, thus reducing the cost to enroll in the program. Previously, efficiencyPEI subsidized the energy assessment so that the participant cost was \$150. To encourage greater uptake, the new program increased this subsidy to reduce the participant cost to \$99.

In the new program, participants who heat their home primarily with electricity will have access to rebates for building envelope upgrades. Participants will enroll in the program by having a certified Energy Advisor (EA) visit their home and conducting a home energy assessment, following NRCan protocols to model the home in HOT2000. The energy assessment considers the size of the home, its space and water heating systems, insulation levels in the basement or crawlspace, exposed floors, walls and attic, the windows and doors, and ventilation systems. The assessment also includes a "blower door test", which involves testing the levels of natural ventilation in the home. Following inputs into HOT2000, the EA prepares a tailored home energy report for each participant, outlining the home's upgrade opportunities, prioritized by potential energy savings.

Participants will have 12 months to select the upgrades they will complete (by themselves or with assistance from contractors), complete the desired upgrades, and have a follow-up energy assessment, the cost of which is included in the initial price. One of the main benefits of the follow-up assessment is that it provides estimated energy savings specific to the home, based on the upgrades completed. The EA sends the follow-up data to NRCan who then provides efficiencyPEI with upgrade details. The results provided by NRCan can also be compared to results from other provinces, as NRCan provides monthly statistics on participation details in each province. This can be a useful benchmark to gauge success in the program. Eliminating a cost to the participant for the follow-up assessment and tying the follow-up assessment to the rebate payment encourages participants to complete this useful step.

1
2 Uptake in the Home Insulation Rebates program is expected to be less than that of the Energy
3 Efficient Equipment Rebates program. However, this program provides a useful avenue for
4 homeowners who want to complete building envelope upgrades to reduce electricity use in their
5 home.

6
7 Taking into consideration the need to increase service delivery capacity on PEI to meet demand
8 for a program that offers incentives for all fuels, efficiencyPEI estimates that in 2018/19, 150
9 homes heated primarily with electricity will enroll in the program, and that approximately 75 of
10 these homes will complete upgrades within that timeframe. As shown in Table 12, participation
11 rates will continue to grow in the second and third years, with 210 and 313 electrically-heated
12 homes completing eligible upgrades, respectively.

13
14 **Table 12: Summary of Home Insulation Rebates Program**

Home Insulation Rebates	2018/19	2019/20	2020/21	3-Year total
Budget (\$M)	\$0.30	\$0.69	\$1.00	\$1.99
Participants	80	210	313	603
Energy Savings (GWh)	0.5	1.3	1.8	3.7
Demand Savings (MW)	0.2	0.4	0.5	1.1

Budget exclusive of Evaluation

15
16

1 A.4.3 New Home Construction Program

2
3 A focus on new construction is a key component to a comprehensive energy efficiency and
4 conservation portfolio as it improves the quality of the future building stock. For homeowners,
5 the design phase of a new building is the ideal time to incorporate energy efficiency upgrades; in
6 fact, for some upgrades, not incorporating them into the building design results in significant
7 missed opportunities and/or significant cost increases to retrofit the building at a later time.

8
9 Like the Home Insulation Rebates program outlined in section A.4.2, efficiencyPEI's program
10 for new houses uses the EnerGuide Rating System and HOT2000 software.

11
12 New Home Construction programs often base rebate criteria on achieving a minimum energy
13 rating. efficiencyPEI's program is based on the ENERGY STAR[®]/R2000 rating and/or an
14 EnerGuide rating that demonstrates improved performance compared to a code-built home. As
15 the EnerGuide Rating System depicts the home's energy use (in Gigajoules), it is possible to
16 compare the energy efficient home's projected energy use to that of a house built to code.

17
18 In this program, an EA models the energy use of the home based on the proposed building plans
19 prior to construction. This incorporates all design details except the building's air leakage rate, so
20 an estimate is used instead. This allows the EA to model the impact of various upgrade options
21 on energy use. The builder and/or homeowner can use this information to determine the upgrades
22 they will incorporate. Following completion of the home's construction, the EA conducts an on-
23 site test to verify the home's final energy rating.

24
25 Program participation is subsidized to allow enrollment for \$99, and will offer rebates to homes
26 that meet the energy efficiency criteria. It is anticipated that most homes will be eligible for the
27 lower level rebate (for achieving ENERGY STAR rating, or a comparable rating above code)
28 and a smaller number of high-performing homes will be eligible for the highest rebate; other
29 homes may not achieve either threshold for rebates.

30
31 Marketing and promotion of this program will focus on builders, and providing program
32 information to permit offices. There is already a good rapport between efficiencyPEI and many
33 builders on the Island, and efficiencyPEI has held sessions to discuss new construction
34 techniques related to energy efficiency. efficiencyPEI will build upon these efforts to encourage
35 participation in the program; the targets included in this EE&C Plan are achievable.

36
37 **Table 13: Summary of New Home Construction Program**

New Home Construction	2018/19	2019/20	2020/21	3-Year total
Budget (\$M)	\$0.13	\$0.14	\$0.18	\$0.45
Participants	20	20	40	80
Energy Savings (GWh)	0.1	0.2	0.3	0.6
Demand Savings (MW)	0.0	0.0	0.1	0.2

38 *Budget exclusive of Evaluation*

39

1 A.4.4 Winter Warming

2
3 In recent years, efficiencyPEI has offered a service to low income Islanders through which
4 contracted delivery agents will install low-cost residential energy efficient upgrades at no cost to
5 participants. This has been a successful program, with over 4,200 installations island-wide. Other
6 jurisdictions offer similar programs and provide cost-effective energy savings to a large number
7 of participants.

8
9 efficiencyPEI will offer the Winter Warming program to low-income Islanders. The name used
10 in this Plan differs from the current Home Energy and Low Income Program (HELP), to allow
11 for the potential addition of “modest” income Islanders, depending on uptake levels and budget
12 permitting.

13
14 While the mix of measures offered in the program may evolve over time, efficiencyPEI expects
15 they will be similar to those offered in recent years:

- 16 • Air sealing:
 - 17 • door weather stripping
 - 18 • caulking
 - 19 • foam gaskets
 - 20 • attic hatch insulation
- 21 • LED lights:
 - 22 • A-Series
 - 23 • non-A-Series
 - 24 • night lights
- 25 • Smart power strips
- 26 • Low-flow showerheads
- 27 • Faucet aerators
- 28 • Electric domestic water tank wrap
- 29 • Electric domestic water pipe wrap

30
31 The program will install any of the above technologies in the home, to the extent possible. The
32 measures above are focused on electricity savings only. For homes heated with non-electric
33 fuels, the air sealing upgrades (and potentially other measures, such as furnace cleaning) will be
34 conducted, provincial or federal funding permitting.

35
36 The program will be promoted by efficiencyPEI through local community papers, organizations
37 and social media can be used to encourage participation of low income residents.

1 **Table 14: Summary of Winter Warming Program**

Winter Warming	2018/19	2019/20	2020/21	3-Year total
Budget (\$M)	\$0.26	\$0.26	\$0.26	\$0.77
Participants	350	350	350	1,050
Energy Savings (GWh)	0.3	0.3	0.3	1.0
Demand Savings (MW)	0.1	0.1	0.1	0.2

2 *Budget exclusive of Evaluation*

3 4 5 **A.4.5 Instant Energy Savings**

6
7 In an effort to further expand energy efficiency benefits to all Islanders, this EE&C Plan includes
8 a program that provides in-store rebates on energy efficient products. Other jurisdictions offer
9 this type of program which can reach a high number of participants.

10
11 Due to the ramp up time required and limited first year budget, efficiencyPEI will launch this
12 program half-way through the 2018/19 year, and continue to offer it throughout the second and
13 third years.

14
15 The program will consider offering year-round rebates for larger and costlier appliances to help
16 Islanders purchase the most efficient appliances available, while rebates for smaller purchases,
17 such as lighting products and thermostats, will be offered during designated campaigns during
18 the year. It is expected that efficiencyPEI will run two campaigns during a 12-month period, with
19 each campaign running for four to eight weeks. One of the benefits of this program is the ability
20 to ramp up or ramp down efforts as needed. For example, if electricity savings in the first
21 campaign of the year are lower than anticipated, the second campaign can incorporate additional
22 promotional efforts, and vice-versa.

23
24 It is recognized that some of the products eligible under this program overlap with those offered
25 under the Winter Warming program; however, instant rebates will also be available for larger
26 appliances and products that require the services of an electrician for installation. The product
27 list will continue to evolve over time, but will initially include:

- 28 • Clothes washers
- 29 • Refrigerators
- 30 • Indoor occupancy sensors with dimmers
- 31 • Power bars and smart power strips
- 32 • Heavy duty outdoor timers
- 33 • Outdoor motion sensors
- 34 • Indoor motion sensors
- 35 • Programmable thermostats
- 36 • Dimmer switches
- 37 • Outdoor clotheslines
- 38 • LED recessed down-lights
- 39 • ENERGY STAR LED fixtures with motion sensors
- 40 • ENERGY STAR LED fixtures

- 1 • LED lamps (A-Series)
- 2 • LED lamps (non-A-Series)

3
4 Based on the above product mix, models estimate that roughly 28,000 products will be sold and
5 rebated during the first year (with one campaign), and that this number will increase to over
6 95,000 products during the second year. In the third year, the Plan assumes less activity (energy
7 savings) from LED A-Series lighting, and as such the number of products sold is anticipated to
8 be reduced to 48,000.

9
10 **Table 15: Summary of Instant Energy Savings Program**

Instant Energy Savings	2018/19	2019/20	2020/21	3-Year total
Budget (\$M)	\$0.37	\$0.73	\$0.65	\$1.75
Products Rebated	28,291	95,901	48,334	172,526
Energy Savings (GWh)	1.1	3.7	2.4	7.2
Demand Savings (MW)	0.2	0.8	0.5	1.5

11 *Budget exclusive of Evaluation*

12 13 14 **A.4.6 Residential Summary**

15
16 This EE&C Plan includes a mix of residential programs that will allow Islanders to reduce
17 electricity use at home in a number of ways. The programs are set up to allow significant energy
18 savings in residences, and to encourage participation in a variety of programs.

19
20 In addition to the programs included in this EE&C Plan, efficiencyPEI may also offer other
21 programs to residents through federal and/or provincial funding. Of particular note, a program
22 that offers low income homeowners building envelope and/or heating system upgrades at no cost
23 could be funded by government(s), providing significant benefits to Islanders who need it the
24 most; however, as this EE&C Plan is intended to increase cost-effective energy efficiency
25 activities, it excludes this type of rate-payer funded program. As such, efficiencyPEI will
26 consider adding other programs, such as those focused on retiring inefficient appliances,
27 changing behaviour, etc., in the future, beyond the timeline for this EE&C Plan.

28
29 **Table 16: Summary of Residential Programs**

Residential Total	2018/19	2019/20	2020/21	3-Year total
Budget (\$M)	\$1.87	\$3.01	\$3.53	\$8.41
Participants	1,000	1,400	1,683	4,083
Energy Savings (GWh)	4.2	8.4	8.0	20.6
Demand Savings (MW)	1.2	2.3	2.3	5.8

30 *Budget exclusive of Evaluation*

1 **A.5 Programs for Businesses**

2
3 There are over 7,200 Maritime Electric business customers on PEI. These businesses include
4 small stores and retail outlets, restaurants, hotels, recreational facilities, small and large industrial
5 customers, and others.

6
7 In recent years, efficiencyPEI has offered subsidies on energy audits for commercial customers;
8 however, participation in efficiencyPEI's business programs has been relatively low. In an effort
9 to significantly increase participation and energy savings, efficiencyPEI will adopt three new
10 programs, and incorporate energy audits for businesses under two of these programs. The
11 expanded program mix will allow for savings from a wider range of upgrades, including lighting;
12 heating, ventilation and air conditioning (HVAC); refrigeration; motors; and, customized
13 measures.

14 **A.5.1 Business Energy Rebates**

15
16 Rebates will be offered to businesses that purchase qualifying energy efficient equipment. There
17 are several mechanisms through which to offer rebates, including mail-in rebates and instant
18 point-of-sale rebates (or discounts). The product mix will include lighting, HVAC, refrigeration,
19 motors, and more, but will initially limit the number of eligible products to allow efficiencyPEI
20 to manage the program budget and gauge uptake of the products. These insights will guide future
21 program changes.

22
23 The program will focus primarily on lighting products as cost-effective energy efficiency
24 upgrade options. The mix of eligible products will evolve over time, but will initially include:

- 25 • Decorative lamps
- 26 • General use lamps
- 27 • Reflector (directional) lamps
- 28 • Down-light luminaires
- 29 • Low-bay luminaires
- 30 • 1x4 troffers
- 31 • 2x2 troffers
- 32 • 2X4 troffers
- 33 • Linear ambient luminaires
- 34 • Track or mono-point directional luminaires
- 35 • Linear replacement lamps
- 36 • Full cut-off wall-mounted area luminaires
- 37 • Flood and spot luminaires
- 38 • Occupancy sensors
- 39 • Linear ambient luminaires with LED strips
- 40 • Indoor high bay luminaires
- 41 • Indoor refrigerated case luminaires
- 42 • Outdoor pole- or arm-mounted area luminaires
- 43 • Outdoor LED replacement lamps for HID lamps
- 44

- 1 • Outdoor case lighting for sign retrofits
- 2 • Lighting controls
- 3 • Air source heat pumps
- 4 • Packaged terminal air conditioners
- 5 • Open to closed cooler conversions
- 6 • Humidity-based door and frame heater controls for refrigeration units
- 7 • Electronically-commutated motors for coolers

8
 9 Incentives will be provided for any eligible products that meet criteria requirements. These
 10 criteria may include minimum efficiency and efficacy values, or industry performance standards
 11 such as ENERGY STAR Canada, Design Lights Consortium (DLC) or the National Electrical
 12 Manufacturers Association (NEMA). Furthermore, it will continue to expand the mix of products
 13 offered under this program in future years, diversifying to include equipment for commercial
 14 kitchens, hospitality industry, agriculture and data centres.

15
 16 This program will be available to all businesses on the Island. Participation will be encouraged
 17 by promoting the program via electrical and HVAC distributors and contractors; these businesses
 18 have a vested interest in promoting product rebates as a means to increase sales, and should be
 19 seen as key partners in the program.

20
 21 This program will require time in the first year to set up and promote, but will ramp up
 22 aggressively over time. Participation is expected to grow quickly, as shown in the following
 23 table.

24
 25 **Table 17: Summary of Business Energy Rebates Program**

Business Energy Rebates	2018/19	2019/20	2020/21	3-Year total
Budget (\$M)	\$0.38	\$0.44	\$0.55	\$1.38
Products Rebated	4,100	5,300	7,100	16,500
Energy Savings (GWh)	0.9	1.1	1.5	3.5
Demand Savings (MW)	0.1	0.2	0.2	0.5

26 *Budget exclusive of Evaluation*

27

1 A.5.2 Business Energy Solutions Program

2
3 Small businesses can benefit greatly from energy efficiency improvements, but are often
4 challenged to complete projects within time and financial resource limitations. As such,
5 efficiencyPEI will launch a program specifically designed to meet the needs of small business
6 customers, and will include subsidies for energy assessments for eligible businesses, and
7 substantial rebates for completing eligible energy efficiency improvements.

8
9 Similar to the Business Energy Rebates program, the Small Business Energy Solutions program
10 will achieve the majority of its energy savings through lighting and HVAC upgrades; in fact, the
11 products included in this program will mirror that of the Business Energy Rebates program. The
12 two programs differ in the level of incentives available to small businesses. Small businesses that
13 wish to perform a limited number of upgrades will be eligible for higher levels of incentives (as
14 much as 60 percent of the project costs). For participating small businesses, efficiencyPEI will
15 collect and use additional information to tailor incentives for achieving energy savings. To
16 ensure the eligibility of businesses, business owners or, in some cases, their lighting or HVAC
17 contractors, will apply to efficiencyPEI for program approval prior to initiating a project. Like
18 the Business Energy Rebates program, contractors will be key partners in promoting the
19 Business Energy Solutions program.

20
21 In other cases, efficiencyPEI will subsidize energy audits to help businesses identify energy
22 efficiency opportunities. Third-party auditing companies who have an agreement with
23 efficiencyPEI will complete the energy audits, collect information required to calculate program
24 energy savings, and the customer will receive a report estimating their upgrade options, energy
25 savings and available incentives. The program will require pre-approval of all audits and
26 associated upgrades to ensure the business has sufficient energy efficiency savings potential to
27 warrant the energy audit subsidy and higher incentive level. This will help manage program
28 budgets and provide efficiencyPEI customers with assurance that their upgrades will be eligible.

29
30 As with the other new business programs, efficiencyPEI will require time in year one to
31 complete program design, and build capacity in and vet program energy auditors.

32
33 **Table 18: Summary of Business Energy Solutions Program**

Business Energy Solutions	2018/19	2019/20	2020/21	3-Year total
Budget (\$M)	\$0.27	\$0.39	\$0.52	\$1.18
Participants	20	30	30	80
Energy Savings (GWh)	0.4	0.5	0.7	1.6
Demand Savings (MW)	0.1	0.1	0.1	0.2

34 *Budget exclusive of Evaluation*

35 36 37 A.5.3 Custom Energy Solutions Program

38
39 The Business Energy Rebates and Business Energy Solutions programs are well suited to
40 encourage completion of upgrades common to many types of businesses; however, larger
41 businesses with unique energy usage need a more customized approach and program. Such a

1 program is a key component of a diversified portfolio of energy efficiency programs. Not only
2 will it allow for the implementation of less common upgrades, but it also attracts larger-scale
3 energy efficiency projects. These large projects have significant energy savings per project and
4 allow businesses to access a greater diversity of measures, reducing the emphasis on any
5 particular measure type. PEI's 2016/17 Energy Strategy notes the benefits of a diversified mix of
6 savings: *"We need to offer programs that allow Islanders to achieve all cost-effective energy*
7 *savings, rather than simply assisting them only with certain products or technologies"*.

8
9 The Custom Energy Solutions program outlined in this EE&C Plan offers incentives for both
10 new construction and large retrofits in existing facilities. In both cases, the program will require
11 energy assessments prior to installing upgrades. For new construction, the assessment will model
12 the energy use of the proposed building and then add upgrade options to the model to determine
13 their impacts; program staff then use these models to calculate the customer's potential
14 incentives for incorporating the proposed energy efficiency upgrades. In the case of retrofitting
15 existing buildings and equipment, customers will need to obtain a pre-retrofit high-level scoping
16 study and/or detailed feasibility study to quantify the impact of the proposed upgrades, and
17 program staff will use this documentation to determine the available incentives for the project.
18 After completion of the project, program staff will verify energy savings using industry standard
19 protocols and if required, the amount paid to the participant will be reduced in cases where the
20 actual energy savings is unacceptably low.

21
22 The Custom Energy Solutions program will rely on approved third-party service providers to
23 conduct energy modelling for both new construction and existing building retrofits. Their
24 expertise will ensure the proposed upgrades will result in the desired energy savings. The
25 program will subsidize the costs of scoping and/or feasibility studies, and will also provide
26 rebates for approved upgrades. Given that the proposed upgrades will be customized to meet the
27 needs of each building or facility, efficiencyPEI will consider factors such as estimated energy
28 savings, the customer's return on investment, the types of measures, and available program
29 budget, to negotiate a customized rebate amount that enables the project to proceed.

30
31 The Custom Energy Solutions program will target high electricity users and efficiencyPEI will
32 encourage participation through outreach activities such as one-on-one discussions with
33 companies and through the use of on-site energy managers.

34
35 This program seeks to obtain significant electricity savings from each project (in the
36 tens/hundreds of thousands of kilowatt hours). As the program evolves, efficiencyPEI will
37 consider offering a pared-down version of the program, which may include incentives for smaller
38 projects not eligible under the Business Energy Rebates or Business Energy Solutions programs.

39
40 Given the need to set up the program and work with third party energy modellers to establish
41 program standards and requirements, efficiencyPEI expects to launch the Custom program and
42 begin incenting scoping and/or feasibility studies in late 2018/19. Accounting for the time
43 required for customers to complete their projects, efficiencyPEI expects that the program will
44 realize energy savings in 2019/20 and 2020/21. In some cases, especially with larger new
45 construction projects and significant retrofit projects, it can take years following the initial
46 discussion with efficiencyPEI for the projects to complete.

1 **Table 19: Summary of Custom Energy Solutions program**

Custom Energy Solutions	2018/19	2019/20	2020/21	3-Year total
Budget (\$M)	\$0.03	\$0.26	\$0.64	\$0.90
Participants	n/a	5	20	25
Energy Savings (GWh)	n/a	0.7	2.9	3.6
Demand Savings (MW)	n/a	0.1	0.3	0.4

2 *Budget exclusive of Evaluation*

3

4

5 **A.5.4 Summary of Business Programs**

6

7 It is recognized that energy savings from businesses will be critical in meeting the desire for a
 8 diversified portfolio for the Island. As such, efficiencyPEI will add new efforts related to
 9 establishing, promoting and growing its business programs.

10

11 The mix of business programs in this EE&C Plan allows for a multitude of Island businesses to
 12 participate with small and large projects, and also allows for a diversification of the types of
 13 energy savings, an essential characteristic to a sustainable EE&C Plan. For example, many
 14 jurisdictions in North America rely significantly on energy savings from lighting as cost-
 15 effective projects for customers. A more diversified approach will allow efficiencyPEI to
 16 continue to offer cost-effective energy efficiency programs as markets become more saturated
 17 and transformed.

18

19 **Table 20: Summary of Business programs**

Business Total	2018/19	2019/20	2020/21	3-Year total
Budget (\$M)	\$0.68	\$1.10	\$1.71	\$3.49
Participants	20	35	50	105
Products Rebated	4,100	5,300	7,100	16,500
Energy Savings (GWh)	1.3	2.4	5.1	8.8
Demand Savings (MW)	0.2	0.3	0.6	1.1

20 *Budget exclusive of Evaluation*

21

22

23 **A.6 Financing**

24

25 This EE&C Plan places significant emphasis on providing rebates to overcome a key barrier to
 26 adopting energy efficient upgrades: the burden of capital costs. Financial incentives can take the
 27 form of rebates (e.g. money paid to a program participant to recoup some of the costs of a
 28 project) or financing (e.g. providing loans and/or buying down the cost of financing options).
 29 Rebates are traditionally the most common type of incentive, as they are often most popular with
 30 participants, but financing also plays an important role in encouraging action.

31

32 In 2018/19, efficiencyPEI will research options for financing. While this EE&C Plan does not
 33 include specific details on financing, adding this type of incentive will have no net impact on the
 34 proposed budgets as financing can be offered to participants as an alternative to rebates, using
 35 the same level of budget as rebates.

Options for financing can include, but are not limited to:

- On-bill financing provided by Maritime Electric and/or Summerside Electric
- Government loans
- Financing from third-party financial institutions
- Financing via municipalities through a Property Assessed Clean Energy (PACE) program

A.7 Enabling Strategies

A variety of initiatives will be employed to ramp up activities, encourage ongoing participation in programs, and maintain long term energy savings. The program budgets include program-specific marketing and promotional costs; however, the organization will also need to further increase awareness of efficiencyPEI and the benefits of energy efficiency through corporate marketing, and non-program-specific energy efficiency outreach activities, which are part of a larger group of activities referred to as enabling strategies. Other activities funded by enabling strategies will include implementing reporting requirements to each funding source and conducting further development and research.

This EE&C Plan has the costs of enabling strategies at a rate of roughly 6.2 percent of the overall budget. This is lower than the level in Nova Scotia, where Efficiency Nova Scotia spent 9.2 percent of its 2017 DSM budget on enabling strategies. In the first year, while the overall budget remains relatively small, efficiencyPEI will primarily focus its efforts on public education, general outreach and reporting activities. As funding grows in the second and third year of the Plan, efficiencyPEI will focus on other areas, such as research, tracking database development, and other efforts that improve the efficiency of program administration. This fund will also be used for the DSM Potential Study.

A.8 Program Plan Summary

As submitted, this EE&C Plan provides Islanders a comprehensive mix of residential and business programs. Tables 21-24 provide a summary of programs and budgets. Energy savings presented are expressed both as net and gross¹⁶ electrical energy savings at the generator (meaning the supply point to the PEI electrical grid), and do not include non-electrical energy savings.

¹⁶ “Gross” savings are the total electrical savings that have been confirmed via third party evaluation to have occurred. These consider installation rates (products that were confirmed as installed) and interactive effects (how one energy efficiency upgrade impacts the energy use of another part of the building / facility), in addition to confirming the validity of assumptions used to quantify electrical savings. “Net” savings take the total gross savings and factor in free ridership (participants who would have completed the same/similar upgrade/purchase at the same time, without the program being available) and spillover (additional energy savings that will occur by the participant, without going through the program again). Net savings are the total amount of electrical savings that would not have occurred in the absence of the program.

1 **Table 21: 2018/2019 – 2020/2021 EE&C Plan Investment and Savings**

Year	Investment (\$ million)	Lifetime Benefits (\$ million) ^a	Incremental Gross Energy Savings at Generator (GWh)	Incremental Gross Demand Savings at Generator (MW)	Incremental Annual Net Energy Savings at Generator (GWh)	Incremental Annual Net Demand Savings at Generator (MW)	Total Resource Cost Test (TRC) ^b	Program Administrator Cost Test (PAC) ^c	Incremental Gross Energy Savings as % of PEI Electricity Sales
2018/2019	2.77	10.82	7.07	1.91	5.44	1.39	1.8	3.9	0.52%
2019/2020	4.66	21.03	12.99	3.32	10.77	2.61	1.7	4.5	0.95%
2020/2021	5.88	24.74	16.18	3.80	13.14	2.89	1.6	4.2	1.16%
Total	13.31	56.59	36.24	9.02	29.35	6.89	1.7	4.3	N/A

2 Currency is expressed in nominal dollars. Columns may not add correctly, due to rounding.

3 Levelized avoided costs include an avoided cost of capacity of \$100 per kW-year, an avoided cost of transmission
4 and distribution of \$160 per kW-year, and an avoided cost of energy of \$0.08 per kWh. A discount rate of 3.2
5 percent is applied.

6 ^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy, capacity, and
7 transmission and distribution over the life of the program measures.

8 ^b TRC is a benefit/cost ratio comparing lifetime benefits to the sum of efficiencyPEI's and participants' costs, with
9 calculation assigning zero value for non-energy benefits.

10 ^c PAC is a benefit/cost ratio comparing lifetime benefits to efficiencyPEI's costs.

1 **Table 22: 2018/2019 EE&C Plan Investment and Savings**

2018/2019	Investment (\$ million)	Lifetime Benefits (\$ million) ^a	Incremental Gross Energy Savings at Generator (GWh)	Incremental Gross Demand Savings at Generator (MW)	Incremental Annual Net Energy Savings at Generator (GWh)	Incremental Annual Net Demand Savings at Generator (MW)	Total Resource Cost Test (TRC) ^b	Program Administrator Cost Test (PAC) ^c
Residential Programs								
Energy Efficient Equipment Rebates	0.83	4.83	3.37	1.16	2.05	0.71	3.0	5.8
Home Insulation Rebates	0.32	1.46	0.65	0.19	0.52	0.15	0.8	4.5
Winter Warming	0.28	0.57	0.41	0.09	0.35	0.08	2.2	2.1
New Home Construction	0.15	0.46	0.15	0.04	0.14	0.04	1.2	3.1
Instant Energy Savings	0.40	1.95	0.99	0.21	1.10	0.24	2.4	4.9
Business Programs								
Business Energy Rebates	0.40	1.05	1.04	0.14	0.87	0.12	1.1	2.6
Business Energy Solutions	0.29	0.49	0.47	0.07	0.39	0.05	1.6	1.7
Custom Energy Solutions	0.03	0.00	0.00	0.00	0.00	0.00	N/A	N/A
Other Investment								
Enabling Strategies	0.075							
Total	2.77	10.82	7.07	1.91	5.44	1.39	1.8	3.9

2
3 Currency is expressed in nominal dollars. Columns may not add correctly, due to rounding.
4 Levelized avoided costs include an avoided cost of capacity of \$100 per kW-year, an avoided cost of transmission
5 and distribution of \$160 per kW-year, and an avoided cost of energy of \$0.08 per kWh. A discount rate of 3.2
6 percent is applied.
7 ^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy, capacity, and
8 transmission and distribution over the life of the program measures.
9 ^b TRC is a benefit/cost ratio comparing lifetime benefits to the sum of efficiencyPEI’s and participants’ costs, with
10 calculation assigning zero value for non-energy benefits.
11 ^c PAC is a benefit/cost ratio comparing lifetime benefits to efficiencyPEI’s costs.

1 **Table 23: 2019/2020 EE&C Plan Investment and Savings**

2019/2020	Investment (\$ million)	Lifetime Benefits (\$ million) ^a	Incremental Gross Energy Savings at Generator (GWh)	Incremental Gross Demand Savings at Generator (MW)	Incremental Annual Net Energy Savings at Generator (GWh)	Incremental Annual Net Demand Savings at Generator (MW)	Total Resource Cost Test (TRC) ^b	Program Administrator Cost Test (PAC) ^c
Residential Programs								
Energy Efficient Equipment Rebates	1.22	6.71	4.66	1.62	2.84	0.99	3.0	5.5
Home Insulation Rebates	0.72	3.63	1.64	0.47	1.30	0.37	0.8	5.1
Winter Warming	0.28	0.57	0.41	0.09	0.35	0.08	2.1	2.0
New Home Construction	0.17	0.54	0.17	0.05	0.16	0.05	1.2	3.2
Instant Energy Savings	0.77	6.62	3.34	0.73	3.74	0.81	3.1	8.6
Business Programs								
Business Energy Rebates	0.47	1.33	1.33	0.18	1.11	0.15	1.2	2.8
Business Energy Solutions	0.42	0.67	0.64	0.09	0.53	0.07	1.5	1.6
Custom Energy Solutions	0.29	0.96	0.80	0.09	0.73	0.08	2.3	3.3
Other Investment								
Enabling Strategies	0.33							
Total	4.66	21.03	12.99	3.32	10.77	2.61	1.7	4.5

2
 3 Currency is expressed in nominal dollars. Columns may not add correctly, due to rounding.
 4 Levelized avoided costs include an avoided cost of capacity of \$100 per kW-year, an avoided cost of transmission
 5 and distribution of \$160 per kW-year, and an avoided cost of energy of \$0.08 per kWh. A discount rate of 3.2
 6 percent is applied.
 7 ^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy, capacity, and
 8 transmission and distribution over the life of the program measures.
 9 ^b TRC is a benefit/cost ratio comparing lifetime benefits to the sum of efficiencyPEI’s and participants’ costs, with
 10 calculation assigning zero value for non-energy benefits.
 11 ^c PAC is a benefit/cost ratio comparing lifetime benefits to efficiencyPEI’s costs.

1 **Table 24: 2020/2021 EE&C Plan Investment and Savings**

2020/2021	Investment (\$ million)	Lifetime Benefits (\$ million) ^a	Incremental Gross Energy Savings at Generator (GWh)	Incremental Gross Demand Savings at Generator (MW)	Incremental Annual Net Energy Savings at Generator (GWh)	Incremental Annual Net Demand Savings at Generator (MW)	Total Resource Cost Test (TRC) ^b	Program Administrator Cost Test (PAC) ^c
Residential Programs								
Energy Efficient Equipment Rebates	1.48	7.45	5.12	1.81	3.13	1.10	2.9	5.0
Home Insulation Rebates	1.03	5.14	2.35	0.68	1.84	0.53	0.8	5.0
Winter Warming	0.28	0.57	0.41	0.09	0.35	0.08	2.1	2.0
New Home Construction	0.21	0.95	0.31	0.09	0.29	0.08	1.4	4.6
Instant Energy Savings	0.68	4.09	2.14	0.42	2.40	0.47	2.2	6.1
Business Programs								
Business Energy Rebates	0.58	1.80	1.79	0.25	1.51	0.21	1.2	3.1
Business Energy Solutions	0.55	0.91	0.87	0.12	0.72	0.10	1.5	1.7
Custom Energy Solutions	0.67	3.82	3.19	0.35	2.91	0.32	3.6	5.7
Other Investment								
Enabling Strategies	0.41							
Total	5.88	24.74	16.18	3.80	13.14	2.89	1.6	4.2

2
3 Currency is expressed in nominal dollars. Columns may not add correctly, due to rounding.
4 Levelized avoided costs include an avoided cost of capacity of \$100 per kW-year, an avoided cost of transmission
5 and distribution of \$160 per kW-year, and an avoided cost of energy of \$0.08 per kWh. A discount rate of 3.2
6 percent is applied.
7 ^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy, capacity, and
8 transmission and distribution over the life of the program measures.
9 ^b TRC is a benefit/cost ratio comparing lifetime benefits to the sum of efficiencyPEI’s and participants’ costs, with
10 calculation assigning zero value for non-energy benefits.
11 ^c PAC is a benefit/cost ratio comparing lifetime benefits to efficiencyPEI’s costs.

APPENDIX B: Evaluation and Verification

B.1 Overview

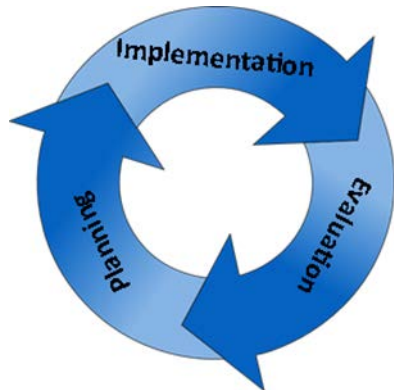
This section presents the approach to evaluation and verification, to which approximately six percent of the budget is allocated.

Section 1 identifies the importance of evaluation and verification and section 2 explains what comprises evaluation and verification activities. Section 3 outlines the key aspects of efficiencyPEI's evaluation plan and concludes with the evaluation schedule for each of the three years of this EE&C Resource Plan.

B.2 Why Evaluate and Verify?

Evaluation and verification assess the impacts of energy efficiency programs and suggest opportunities for improvement. Effective evaluators employ transparent and reliable methods of determining the impacts of energy efficiency programs and can therefore determine whether funds were well-spent. They pinpoint areas of opportunity and thus, contribute to continued program improvement, as measured across a range of metrics such as improved unit costs, total energy and demand savings, and customer satisfaction. Ultimately, evaluation and verification are critical parts of a cyclical process of continuous improvement (see Figure 2) where energy efficiency program planning is followed by implementation, and then evaluation, which feeds into further planning, implementation and evaluation.

Figure 2: Planning, Implementation and Evaluation Cycle



Specifically, evaluation and verification aim to:¹⁷

- Document the impacts and benefits of energy efficiency programs (quantitatively and qualitatively), and thus, determine whether an administrator achieved its goals;
- Provide insight into why program-induced effects occurred and help identify areas of further opportunity; and

¹⁷ Steven R. Schiller, Schiller Consulting Inc., *Energy Efficiency Program Impact Evaluation Guide* (December 2012), online: State & Local Energy Efficiency Action Network < <https://www4.eere.energy.gov> > [Schiller].

- Support energy forecasting and added certainty in resource planning by providing robust evidence of quantitative energy and demand savings.

Independent evaluation and verification produce credible and reliable results in which the administrator, regulator, and stakeholders can have confidence, making it a fundamental element of EE&C program planning and administration.

For a comprehensive overview of evaluation and verification, please see the State and Local Energy Efficiency Action Network's (SEE Action) Energy Efficiency Program Impact Evaluation Guide,¹⁸ which is a well-recognized guide on standard evaluation and verification procedures and best practices.

B.3 What is Evaluation and Verification?

Third party evaluation consultants assist in the development of key program and evaluation-related components such as:

- Development and documentation of deemed savings estimates for prescriptive measures based on measure characterizations;
- Direct market baseline research and market characterization to support improved implementation;
- Energy and demand savings assumption review; and
- Engagement with stakeholders on issues related to evaluation and verification.

Evaluations will be conducted by an independent, well-recognized evaluation consultant obtained through an RFP process. Evaluation reports that include all findings and recommendations will be filed with the Commission on an annual basis, enabling them to be reviewed and discussed with the Commission, stakeholders, and implementation contractors to drive continued program improvement.

ePEI will ensure its evaluations adhere to the following key characteristics of effective evaluations, as adapted from SEE Action's Energy Efficiency Program Impact Evaluation Guide¹⁹:

- Evaluation planning is integrated into program implementation planning and aligned with program budgets and schedules;
- Evaluation is designed to support the policy goals of the energy efficiency programs being evaluated;
- Evaluation budgets and resources are adequate to support the desired level of certainty;
- Evaluation methods follow accepted industry standards;

¹⁸ SEE Action is an effort facilitated by the U.S. Department of Energy and the U.S. Environmental Protection Agency to help states and local stakeholders, including utilities, operate energy efficiency initiatives at scale and achieve all cost-effective energy efficiency by 2020.

¹⁹ Adapted from Schiller, *supra* note 1.

- 1 • Evaluation reports are complete, readable, fair, accurate and transparent; and
- 2 • Key opportunities for improvement are identified.

3
4 The Commission may want to consider hiring a savings verification contractor, to be directed by
5 Commission staff. The verification contractor will review, audit and verify claimed savings (i.e.,
6 the savings confirmed by the evaluation consultant) for the previous program evaluation and
7 make recommendations. This could include:

- 8 • Reviewing savings estimates, including free ridership and spillover estimates;
- 9 • Reviewing savings based on a file review and, potentially, targeted field verification;
- 10 • Reviewing data tracking systems for consistency and accuracy; and
- 11 • Preparing a draft and final report for the Commission regarding suggested revisions to
12 annual savings claims and progress toward EE&C program goals.

13
14 The annual savings verification process is anticipated to be an independent and cooperative
15 endeavor, with an opportunity for ePEI to comment and discuss items of concern identified by
16 the savings verification contractor prior to the final savings verification report being issued to the
17 Commission. Following the issuance of the verification report, the Commission will decide on
18 ePEI's progress in attaining its established performance goals.

19 20 **B.3.1 Process, Market and Impact Evaluations**

21
22 There are three common types of energy efficiency program evaluations: impact, market, and
23 process. Each of these evaluation types provides insight on different aspects of program
24 performance and each may play a different role at different stages of a program's maturity. In its
25 first three years of operation, ePEI will focus on impact evaluations but try to incorporate
26 elements of process evaluations where possible. In future years, ePEI anticipates continuing
27 impact evaluations but bringing in more focus on market and process activities.

28
29 **Impact evaluations** determine the impact of a program, typically in terms of energy and demand
30 savings, but can also include non-energy benefits. They examine program-reported savings and
31 can support cost-effectiveness analyses by validating the outcomes attributable to programs.
32 Calculations are performed to determine *net* energy and demand savings by adjusting *gross*
33 savings to account for measures that would have been installed even if the program did not exist
34 ("free ridership") and for measures that were influenced by a program but not captured by
35 program tracking ("spillover"). To conduct impact evaluations, evaluators normally use data
36 from the program tracking system, carry out interviews and surveys with participants and
37 partners, and complete site visits to verify installation rates. They may also perform engineering
38 calculations, billing analyses, simulation modelling calibrations, and regression analyses of
39 energy data to verify savings. In some cases, literature reviews may be more feasible and cost-
40 effective approaches to validating certain savings assumptions (e.g. it may be acceptable to use
41 hours of use for residential lighting determined in a comparable jurisdiction rather than
42 conducting a costly local metering study).

43
44 **Market evaluations** assess aspects of the market with respect to energy efficiency through the

1 use of market indicators. These indicators are designed to measure how markets change over
2 time, the choices key market actors make, market actor attitudes, and market baselines. Market
3 information is usually collected through surveys with trade allies, participants and non-
4 participants. Secondary sources such as NRCan are often used to support market evaluation
5 efforts.

6
7 **Process evaluations** document program processes and suggest improvements to increase the
8 program's effectiveness in saving energy and in meeting its goals, while maintaining high levels
9 of participant satisfaction. They look closely at program design and delivery, identify potential
10 bottlenecks, assess successes and challenges and ultimately, aim to provide insight into how to
11 improve program implementation²⁰. Process evaluations usually begin with a detailed review of
12 program documents, application forms and relevant policies and procedures. They often involve
13 interviews with program managers, program partners, participants, program drop-outs and non-
14 participants to gather a range of perspectives on the program.

15 16 **B.4 Evaluation and Verification Plan**

17
18 Programs often progress at different rates as customers choose to participate in different
19 programs. It is important to recognize that planning targets are just that, i.e., targets. This is why
20 initial program evaluation activities are essential to effective program rollout; they permit early
21 learning and help ensure a program is given every opportunity for success.

22 23 **B.4.1 Focus for Initial Evaluation and Verification Efforts**

24
25 ePEI and its evaluator will adapt its evaluation to programs as they are being rolled out, and the
26 early years will have a different evaluation and verification focus than future years. Evaluation
27 work in the first three years will focus on the following, while working within the allocated
28 budget:

- 29 • Monitoring program implementation to ensure it is proceeding as planned, i.e., the
30 technologies are installed and working as expected;
- 31 • Ensuring all data required for evaluation is being collected and maintained;
- 32 • Validating initial energy and demand savings estimates. The evaluator can help develop a
33 “realization rate” if there are differences between the initial tracking estimates and in-
34 field estimates²¹; and
- 35 • Process and market evaluation activities, where possible, to assess the effectiveness of
36 program design and delivery and develop recommendations regarding program
37 implementation, where appropriate.

²⁰ *Ibid.*

²¹ The realization rate is defined as the percentage of the assumed savings as represented by the initial tracking system that can be verified by the in-field studies. A realization rate of 100 percent indicates that all of the initial savings estimates are verified by the in-field estimates. A realization rate of 90 percent indicates that the initial estimates were overstated by 10 percent. This may be due to any number of reasons including fewer equipment operating hours than expected (e.g., the hours of use of high efficient lighting), or having participant characteristics be different than those assumed in the initial tracking system estimates.

B.4.2 Evaluation Framework and Plans

A comprehensive framework will be developed in the first two years of program implementation and evaluation. It will establish definitions, allowable approaches, reporting requirements, timelines, metrics for determination of gross and net savings, target confidence and precision levels, and the roles and responsibilities of all parties involved.²² Once developed, it will be updated periodically to reflect changing priorities and program maturity levels.

B.4.3 Establish and Assess Evaluation Infrastructure

Ensuring that the tracking system supports each program's evaluation is a critical first task for ePEI. The tracking system will capture site or technology-specific initial estimates of energy and peak demand savings as they are installed or delivered. For evaluation and verification purposes, this will include, at minimum:

- **Baselines:** A baseline is an estimate of what was removed or would have been installed if the program did not exist. The energy consumption of this baseline equipment must be estimated.
- **Technologies Installed:** Information on what was installed for each project is required. Energy consumption of the new energy efficient equipment must be estimated.
- **Initial Savings Estimates:** Based on the assumed baseline and the attributes of the new equipment installed, an initial estimate of energy savings is made and recorded in the tracking system. Initial estimates should improve over time as evaluation and verification is performed. These estimates can be deemed savings estimates for simple technologies (e.g., LEDs or energy efficient shower heads) or be based on select site characteristics for more complex measures (e.g., new construction projects may require modelling and depend on site-specific information such as square footage).

Other elements of the tracking system will reflect program-specific delivery processes. It is essential that the tracking system become an integrated part of ongoing EE&C program implementation.

B.4.4 Integrated Data Collection

Evaluation and verification plans aim to integrate data collection within program implementation processes and provide near real-time feedback on key indicators of program progress. Evaluation and verification processes that take an "integrated data collection" (IDC) approach to planning seek opportunities in the program implementation process where evaluation data can be collected efficiently, cost-effectively, and accurately to produce timely results. Appropriate data types and methods of collection are highly dependent on program design and the particular types of

²² Schiller, *supra* note 1; New York State Department of Public Service and the Evaluation Advisory Group, *New York Evaluation Plan Guidance for EEPS Program Administrators* (August 2013), online: New York State Department of Public Service <<http://www.dps.ny.gov/>> [NYSDPS].

1 interaction with customers and trade allies. Data such as where customers heard about the
2 program, equipment baseline characteristics, and which measures were installed due to program
3 influence can be collected and input directly into efficiencyPEI's data system at various points,
4 including during application submission, implementation, and when incentives are paid.

5
6 The IDC approach requires the evaluation and verification and implementation staff to work
7 closely together to develop a protocol for collecting data as part of standard program
8 implementation practices.

9 10 **B.4.5 Budget Priorities**

11
12 To determine the scope and budget of evaluation activities, evaluation and verification
13 investment decisions must balance evaluation costs and the value of information that comes out
14 of them.²³ Inevitably, this also means finding a balance between acceptable uncertainty and costs
15 for obtaining this level of uncertainty. There are several factors that should influence the
16 allocation of the whole portfolio evaluation budget to specific programs:

- 17 • Complexity of program delivery;
- 18 • Number of participants in the program;
- 19 • Uncertainty level associated with expected savings in each program;
- 20 • Indications that the program is not meeting interim targets; and
- 21 • Share of budget and/or savings – programs expected to yield a high percentage of the
22 portfolio's savings may contribute to a higher likelihood that the program will
23 significantly influence the administrator's ability to achieve its portfolio goals.

24
25 While there is significant variation between jurisdictions in North America, evaluation and
26 verification costs are generally 2-5 percent of portfolio budgets.²⁴ Smaller jurisdictions may land
27 on the higher end of this range due to the required base costs of any evaluation services contract
28 (e.g., writing an evaluation report for a 100-participant program may require the same amount of
29 time as writing a report for a 1,000-participant program).

30 31 **B.4.6 Evaluation Schedule**

32
33 An evaluator will be selected through an RFP process for a three-year contract to perform
34 evaluations on the implementation of programs in the first three years, consistent with the
35 duration of the EE&C Resource Plan.

36
37 The RFP will be issued within the first six months of ePEI initiating implementation of this
38 EE&C Plan in order to benefit from the evaluator's input on early program decisions, such as
39 identifying opportunities for IDC approaches. The schedule below should serve as guide for
40 evaluation activities in each of the three years within the EE&C Plan, as opposed to outlining
41 precise activities. Given that procurement has not taken place for an independent evaluator, ePEI

²³ Schiller, *supra* note 1.

²⁴ *Ibid*; NYSDPS, *supra* note 6.

1 requests flexibility in the types of activities performed, recognizing that the value obtained in
2 procurement for a given investment is impossible to precisely predetermine.

3
4 *Year 1:*

5 In the first year of evaluation, the evaluator's role will focus on helping establish processes to
6 ensure programs can be evaluated in future years. The evaluator can also perform other high-
7 priority evaluation activities in this first year. While they will not complete full impact
8 evaluations, they will perform initial reviews and advise the administrator on any required
9 changes to data collection to effectively evaluate programs the following year. This work is
10 essential to ensuring future evaluation success. The administrator will report tracked savings
11 only.

12
13 *Year 2:*

14 In the second year of program implementation, all programs will have impact evaluations
15 conducted, which will cover the complete duration of each program since its initial
16 implementation; in most cases, this means that the evaluation will cover two years of program
17 operation. The evaluator will write a report for each program with their findings that will be
18 submitted to the Commission. Completing evaluations on all programs in Year 2 will ensure that
19 evaluated results are available in time to develop the next EE&C Plan. While no programs are
20 scheduled for a process or market evaluation in the three-year timeframe, ePEI will work with its
21 evaluator to incorporate process evaluation activities where possible within the allocated budget.

22
23 *Year 3:*

24 In the third year of program implementation, all programs will undergo an impact evaluation, but
25 some may use savings assumptions established through Year 2's evaluation (e.g. free ridership
26 values assessed in Year 2 may be applied again in Year 3 if there is no reason to believe they
27 have changed). By not repeating all evaluation activities in Year 3, the evaluator may be able to
28 focus on other market and process evaluation activities that can bring value to the administrator.
29 ePEI and its evaluator will decide which programs are best suited for reduced activities in Year 3
30 based on the results of the evaluations in Year 2.

31
32 **B.4.8 Evaluation Results to the Portfolio Level**

33
34 Final evaluation reports will roll up the results of all program evaluations (process, market,
35 impact) to the portfolio level. The evaluator will use this information to develop a set of
36 recommendations regarding possible program modifications.