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January 17, 2019

Sent via email

Ms. Doug Slater
Director, Regulatory Affairs
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8
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Re: FortisBC Energy Inc. 2019-2022 Demand Side Management Expenditures Plan – Project Number 1598964 – Final Order

Dear Mr. Slater:

With respect to your 2019-2022 Demand Side Management Expenditures Plan, enclosed please find British Columbia Utilities Commission Order G-10-19 with Reasons for Decision.

Sincerely,

Patrick Wruck
Commission Secretary

/yl

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ORDER NUMBER
G-10-19

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Energy Inc.
Application for Acceptance of 2019-2022 Demand Side Management Expenditures Plan

BEFORE:
R. I. Mason, Panel Chair/Commissioner
A. K. Fung, QC, Commissioner
R. D. Revel, Commissioner

on January 17, 2019

ORDER

WHEREAS:

A. On June 22, 2018, FortisBC Energy Inc. (FEI) submitted its Application for Acceptance of 2019-2022 Demand Side Management (DSM) Expenditures Plan (Application) pursuant to section 44.2 of the *Utilities Commission Act* (UCA);

B. In the Application, FEI seeks acceptance of total DSM expenditures of $324.6 million for 2019 through 2022, as outlined in Table 6-1 of the Application;

C. FEI seeks the following additional approvals:

   1. approval for funding transfers as set out in Section 9.1 of the Application;
   2. approval of the forecast rate base additions accounting treatment as set out in Section 9.2 of the Application; and
   3. approval to move from a 10 year to a 16-year amortization period for DSM expenditures as set out in Section 9.3 of the Application;

D. On July 25, 2018, by Order G-138-18, the BCUC established a written public hearing process for the review of the Application, providing for one round of BCUC and intervener information requests (IRs), final arguments from FEI and interveners, and reply argument from FEI;

E. By August 16, 2018, the following registered as interveners: British Columbia Hydro and Power Authority (BC Hydro); Movement of United Professionals (MoveUp); BC Sustainable Energy Association and Sierra Club BC (BCSEA-SCBC); Catalyst Paper Corporation (Catalyst); Commercial Energy Consumer Association of British Columbia (CEC); and British Columbia Old Age Pensioners' Organization et al. (BCOAPO);

F. On August 22, 2018, the BCUC submitted IRs to FEI, and on August 30, 2018 BCOAPO, BCSEA-SCBC, CEC and MoveUp submitted IRs to FEI. On October 11, 2018, FEI filed its final argument. On October 25, 2018, final arguments were filed by BCOAPO, BCSEA-SCBC, CEC and MoveUp. On November 1, 2018, FEI filed its reply argument;

G. The BCUC has reviewed the evidence and considers that FEI's 2019-2022 DSM expenditure schedule should be accepted.

NOW THEREFORE pursuant to section 44.2 of the UCA and for the Reasons for Decision attached as Appendix A to this Order, the BCUC orders as follows:

1. The FortisBC Energy Inc. (FEI) demand side management expenditure schedule outlined in Table 6-1 of the Application setting out expenditures of $324.6 million for 2019 through 2022 is accepted.

2. FEI's request for funding transfers as outlined in section 9.1 of the Application is approved.

3. FEI's request for forecast rate base additions accounting treatment as set out in Section 9.2 of the Application is approved.

4. FEI's request to move from a 10-year to a 16-year amortization period for DSM expenditures as set out in Section 9.3 of the Application is denied.

DATED at the City of Vancouver, in the Province of British Columbia, this 17th day of January 2019.

BY ORDER

R. I. Mason
Commissioner

Attachment

FortisBC Energy Inc.

2019-2022 Demand Side Management Expenditures Plan

Reasons for Decision

January 17, 2019

Before:
R. I. Mason, Panel Chair
A. K. Fung, QC, Commissioner
R. D. Revel, Commissioner

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1.0 Introduction

1.1 Background and approvals sought in the Application

On June 22, 2018, FortisBC Energy Inc. (FEI) filed its Application for 2019-2022 Demand Side Management (DSM) Expenditures Plan (Application) with the British Columbia Utilities Commission (BCUC). In the Application, FEI requests acceptance of the DSM expenditure schedule covering the period from 2019 through 2022 as outlined in Table 6-1 of the Application, pursuant to section 44.2 of the *Utilities Commission Act* (UCA). In total, FEI requests acceptance of DSM expenditures of $324.6 million for the four-year period.[1]

FEI's proposed DSM expenditure schedule reflects FEI's 2019-2022 DSM Plan (DSM Plan), included as Appendix A to the Application, which provides details on each of FEI's DSM program areas and individual DSM programs, including cost-effectiveness test results.

FEI is also seeking approval of the following:

1. approval for funding transfers as set out in Section 9.1 of the Application;
2. approval of the forecast rate base additions accounting treatment as set out in Section 9.2 of the Application; and
3. approval to move from a 10-year to a 16-year amortization period for DSM expenditures as set out in Section 9.3 of the Application.

1.2 Regulatory process

By Order G-138-18 dated July 25, 2018, the BCUC established a written hearing process for its review of the Application with one round of BCUC and intervener information requests (IRs) to FEI, final arguments by FEI and interveners, and reply argument by FEI.

The following registered as interveners in this proceeding:

- British Columbia Hydro and Power Authority (BC Hydro);
- Movement of United Professionals (MoveUp);
- BC Sustainable Energy Association and Sierra Club BC (BCSEA-SCBC);
- Catalyst Paper Corporation (Catalyst);
- Commercial Energy Consumer Association Of British Columbia (CEC); and
- British Columbia Old Age Pensioners' Organization *et al*. (BCOAPO).

The BCUC submitted IRs to FEI on August 22, 2018. BCOAPO, BCSEA-SCBC, CEC and MoveUp submitted IRs to FEI on August 30, 2018. FEI provided responses to IRs on September 20, 2018. Final arguments were submitted by FEI on October 11, 2018, and by BCOAPO, BCSEA-SCBC, CEC, and MoveUp on October 25, 2018. FEI filed its reply argument on November 1, 2018.

Additionally, fourteen letters of comment were filed by the following parties:

- Ministry of Energy, Mines and Petroleum Resources,

[1] Exhibit B-1, pp. 1–2

- Township of Langley,
- Regional District of Central Kootenay,
- City of Kelowna,
- Nelson Hydro,
- Home Performance Stakeholder Council,
- BC Advanced Conservation & Efficiency Association,
- District of Summerland,
- City of Kamloops,
- City of North Vancouver,
- District of West Vancouver,
- City of Vancouver,
- Hearth, Patio & Barbecue Association of Canada,
- City of Richmond.

1.3 Legislative and regulatory context

FEI filed the DSM expenditure schedule covering the period from 2019 through 2022 as outlined in Table 6-1 of the Application, requesting BCUC acceptance of expenditures of $324.6 million for the four-year period, pursuant to section 44.2 of the UCA.

Pursuant to section 44.2(3) of the UCA, after reviewing an expenditure schedule, the BCUC, subject to subsections (5), (5.1) and (6), must (a) accept the schedule, if the BCUC considers that making the expenditures referred to in the schedule is in the public interest, or (b) reject the schedule. Section 44.2(5.1) applies to BC Hydro only, and is thus not relevant in considering this Application. Section 44.2(6) addresses expenditures that were determined to be in the public interest under a long-term resource plan filed under section 44.1; no such determinations have been made that apply to this Application.

The BCUC may also accept or reject part of an expenditure schedule, pursuant to section 44.2(4) of the UCA.

Section 44.2(5) states:

> In considering whether to accept an expenditure schedule filed by a public utility other than the authority, the commission must consider
>
> (a) the applicable of British Columbia's energy objectives,
>
> (b) the most recent long-term resource plan filed by the public utility under section 44.1, if any,
>
> (c) the extent to which the schedule is consistent with the applicable requirements under sections 6 and 19 of the Clean Energy Act,
>
> (d) if the schedule includes expenditures on demand-side measures, whether the demand-side measures are cost-effective within the meaning prescribed by regulation, if any, and
>
> (e) the interests of persons in British Columbia who receive or may receive service from the public utility.

Section 2 of the *Clean Energy Act* (CEA) outlines BC's energy objectives.

Section 44.2(5)(c) of the UCA is not relevant to this Application, as it relates to sections 6 and 19 of the CEA. Section 6 of the CEA (electricity self-sufficiency) applies only to BC Hydro or to applications made by public utilities under section 44.1 of the UCA, neither of which is the case here. Section 19 of the CEA does not apply because no regulations have been passed under section 37 (h) of the CEA prescribing public utilities for the purposes of section 19.

Section 4 of the Demand-Side Measures Regulation (DSM Regulation)[2] defines the process for determining cost-effectiveness of the demand-side measures for the purposes of section 44.2(5)(d) of the UCA.

In Order G-208-18 dated November 5, 2018, issued following the recent FEI Annual Review for 2019 Delivery Rates proceeding, the BCUC approved FEI's rates for 2019. However, FEI's 2019 rates were only approved on an interim basis, because, pursuant to section 44.2 (2) (b) of the UCA, the BCUC may not approve rates on a permanent basis under section 61 (2) of the UCA until FEI's DSM expenditures are approved. Since the order to which these Reasons for Decision are attached approves FEI's DSM expenditures for 2019, the BCUC is now authorized under sections 59-61 of the UCA to set FEI's permanent rates for 2019.

2.0 Is the DSM Plan in the Public Interest?

In order to determine whether to accept FEI's DSM Expenditures Plan as being in the public interest, the Panel must examine the relevant areas set out in the applicable legislation described in section 1.3 above. Specifically, the Panel must consider in turn BC's energy objectives, FEI's most recently filed long-term resource plan, the cost-effectiveness of the DSM Plan, and the interests of persons in BC.

The Panel therefore addresses each of these four areas in turn after outlining the particulars of the proposed expenditures as detailed in the Application.

2.1 Application

Pursuant to section 44.2 of the UCA, FEI seeks BCUC acceptance of the following expenditure schedule:

FEI DSM Expenditures - 2019-2022 Forecast, Shown in As Spent Dollars[3]

Program Area	Utility Expenditures ($000s)				
	All Spending				
	2019	2020	2021	2022	Total
Residential	23,521	25,722	28,476	31,383	109,101
Commercial	13,837	17,355	27,437	31,074	89,703
Industrial	3,103	3,152	3,644	3,708	13,607
Low Income	6,630	6,795	6,984	7,217	27,626
Conservation Education and Outreach	7,155	7,353	8,578	9,433	32,518
Innovative Technologies	2,043	2,202	2,631	3,062	9,938
Enabling Activities	8,426	8,322	9,231	8,921	34,900
Portfolio Level Activities	1,635	1,676	1,822	1,979	7,112
ALL PROGRAMS	**66,350**	**72,577**	**88,803**	**96,775**	**324,505**

[2] B.C. Reg. 117/2017.
[3] Exhibit B-1-1, corrected Table 6.1, p. 22.

Based upon these expenditures, FEI forecasts the following natural gas savings and greenhouse gas (GHG) emission reductions from its proposed DSM activities:

DSM Plan Energy Savings & GHG Emission Reductions[4]

Indicator	Year	Total Natural Gas Savings	GHG Emission Reductions*
Net Incremental Annual Gas Savings (GJ/yr.) and GHG Reductions (tonnes/year)	2019	875,933	45,198
	2020	929,884	47,982
	2021	1,113,469	57,455
	2022	1,201,809	62,013
Cumulative Net Annual Gas Savings (GJ) and GHG Reductions (tonnes)	2019-2022	**4,067,599**	**209,888**
NPV of Net Gas Savings (GJ) and Resulting GHG Reductions (tonnes)**		**36,751,641**	**1,896,385**

*Based on long run combustion emission factor of 0.0516 tonnes CO2e/GJ for natural gas from Ministry of Enviroment & Climate Change Strategy

**NPV in this context refers to including the entire stream of savings into the future (by measure life) and annualizing that to present time to show the total value of the stream of savings

2.2 British Columbia's energy objectives

First, pursuant to section 44.2(5)(a) of the UCA, the Panel must consider the applicable of British Columbia's energy objectives, which are set out in section 2 of the CEA. Table 3-1 in the Application outlines how FEI considers the DSM Plan meets the applicable BC energy objectives.[5] FEI identifies the following energy objectives as applicable to the Application:

- (b) to take demand-side measures and to conserve energy;
- (d) to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;
- (g) to reduce BC greenhouse gas emissions (with specific targets for 2012, 2016, 2020 and 2050);
- (i) to encourage communities to reduce greenhouse gas emissions and use energy efficiently; and
- (k) to encourage economic development and the creation and retention of jobs.

FEI also cites a 2018 study commissioned by Clean Energy Canada which estimated that every $1 spent on energy efficiency results in a net benefit of $4 to $7 in terms of gross domestic product, and every $1 million of DSM program spending created 16 to 30 full-time equivalent jobs. FEI also refers to the 2015 review by the Illinois Energy Efficiency Stakeholder Advisory Group that estimated a range of 8 to more than 200 jobs are created per $1 million in DSM program spending.[6]

Position of the Parties

BCSEA-SCBC agrees with FEI that DSM investment has broad economic and employment benefits.[7] BCSEA-SCBC also agrees with FEI that the DSM Plan supports federal and provincial government policy on carbon emissions, but believes that in future, higher levels of GHG reductions will be needed for BC to meet its GHG emissions

[4] Exhibit B-1-1, Corrected Table 3-4, p. 11.
[5] Exhibit B-1, p. 5.
[6] FEI Final Argument, p. 43.
[7] BCSEA Final Argument, p. 14.

reduction targets. BCSEA-SCBC recommends that future analysis include lifecycle GHG emission reductions, as FEI's figures are "at the burner tip" (i.e. only at the point of consumption), and further recommends that a suitable metric for the cost-effectiveness of GHG emissions reductions be developed.[8]

FEI replies that its use of burner tip GHG emission reductions is a reasonable approach, and the metric for provincial reporting requirements is best left for government to determine. FEI also states there is no need to develop metrics for the cost-effectiveness of GHG emission reductions through DSM, as the DSM Regulation provides detailed guidance on how the cost effectiveness of demand-side measures is to be measured.[9]

Panel Discussion

The Panel finds that FEI's DSM Plan is consistent with and supports the relevant energy objectives set out in the CEA.

The Panel agrees with FEI that the energy objectives relevant to the Application are those listed as items (b), (d), (g), (i) and (k) in section 2 of the CEA, and that the remaining objectives listed in section 2 of the CEA do not apply in this case.

The Panel is convinced by FEI's submission that its DSM Plan supports energy objectives (b), (d), (g), (i) and (k) in section 2 of the CEA, and notes that no intervener has challenged this analysis.

BCSEA-SCBC submits that future analysis should consider "life-cycle" GHG emissions, rather than FEI's current approach which evaluates only natural gas savings "at the burner tip". However, the Panel is convinced by FEI's position that its use of "burner tip" GHG emissions reductions is reasonable and takes no position on the use of life-cycle GHG emissions analysis.

BCSEA-SCBC also recommends that a suitable metric for the cost-effectiveness of GHG emission reductions be developed. However, as FEI points out, the existing DSM Regulation provides detailed guidance on the cost-effectiveness of DSM expenditures, and for this reason the Panel declines to pursue BCSEA-SCBC's recommendation.

2.3 The most recent long-term resource plan filed by FEI

Pursuant to section 44.2(5)(b) of the UCA, the Panel must next consider the most recent long-term resource plan filed by the public utility under section 44.1 of the UCA. FEI filed its most recent Long Term Gas Resource Plan on December 14, 2017 (2017 LTGRP), but BCUC review of that plan is still ongoing.

Position of the Parties

FEI acknowledges that comparisons between the DSM Plan and the 2017 LTGRP are difficult due to the different purposes and methods by which each was developed, but that the DSM Plan is aligned with the 2017 LTGRP in several key respects. FEI submits the energy savings in FEI's DSM Plan are generally consistent with the 2017 LTGRP forecast Reference Case energy savings. From 2019 until 2022, FEI's DSM Plan forecasts 8 percent higher energy savings than FEI's 2017 LTGRP.[10]

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[8] BCSEA Final Argument, p. 9.
[9] FEI Reply Argument, pp. 2-3.
[10] FEI Final Argument, p. 43.

FEI notes that sensitivity analysis in the 2017 LTGRP shows that energy savings increase at a lower rate than the estimated DSM expenditures when incentive levels are increased. FEI submits that this analysis is directionally consistent with the estimated energy savings and expenditures in FEI's DSM Plan.

FEI submits that the DSM Plan is consistent with the projected DSM activities in the 2017 LTGRP, and that the DSM Plan includes the measures identified in the 2017 LTGRP Application Tables 4-10 to 4-12, with caveats for certain measures.[11]

FEI submits the differences between the DSM Plan and the 2017 LTGRP can be explained by reference to the different methods by which they were developed. The 2017 LTGRP does not take into account non-incentive expenditures that support or enable DSM programs at the portfolio level, and does not take into account operational program delivery considerations, such as changes in required DSM staffing levels, program eligibility requirements, or measure packaging and marketing.[12] If such assumptions were applied to the DSM Plan, FEI expects the DSM Plan incentive expenditures to be 18 percent higher and energy savings to be 3 percent higher respectively than those outlined in the 2017 LTGRP.[13]

Section 3 of the DSM Regulation specifies the DSM measures that a plan filed under section 44.1 (such as the 2017 LTGRP) must include to be considered "adequate." FEI submits that its DSM Plan complies with the adequacy requirements set out in section 3 of the DSM regulations.[14]

BCSEA-SCBC has reservations about how the British Columbia Conservation Potential Review (BC CPR) determines the level of cost-effective measures that are available, which are being addressed in the 2017 LTGRP proceeding.[15]

CEC notes that FEI's proposal results in a significant increase to its DSM spending relative to the 2017 LTGRP.[16]

Panel Finding

The Panel finds that FEI's DSM Plan is generally consistent with FEI's most recently-filed long-term resource plan.

The Panel is persuaded by FEI's explanation of the differences between the DSM Plan and the 2017 LTGRP on the basis of the differences in purpose and method by which each were developed. The Panel notes that no interveners challenged FEI's Application in this regard.

2.4 Cost-effectiveness of the DSM Plan

The Panel now considers the cost-effectiveness of the DSM Plan.

Section 44.2(5)(d) of the UCA states that, for expenditure schedules including DSM, the BCUC must consider whether the demand-side measures are cost-effective within the meaning prescribed by regulation. Section 4 of the DSM Regulation sets out the process for determining cost-effectiveness for the purposes of section 44.2(5)(d) of the UCA.

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[11] FEI Final Argument, p. 44.
[12] FEI Final Argument, p. 45.
[13] Exhibit B-2, Response to BCUC IR 2.4.
[14] Exhibit B-1 pp. 7-9.
[15] BCSEA Final Argument, p. 9.
[16] CEC Final Argument, p. 6.

For the reasons set out in Section 2.4.1 below, **the Panel finds that FEI's DSM Plan is cost-effective within the meaning prescribed by the DSM Regulation.**

2.4.1 Total Resource Cost Test

The Total Resource Cost (TRC) test is the primary cost-effectiveness test for the BCUC's review of DSM expenditure schedules. The TRC is the ratio that results when the value of the benefits of DSM activity, as measured by avoided energy and capacity costs as applicable, is divided by the sum of the utility and customer costs for that DSM activity. A TRC ratio of 1.0 or more indicates that a DSM activity equals or exceeds its total costs.

Pursuant to section 4(1.5)(b)(ii) of the DSM Regulation, FEI may use the modified Total Resource Cost (mTRC) test for up to 40 percent of its portfolio expenditures. The mTRC uses an alternative avoided cost of energy and includes an adder for non-energy benefits.

Application

The TRC benefit/cost ratios for the program areas comprising the DSM Plan are summarized in the table below. A benefit/cost ratio of 1.0 or above indicates that the program/portfolio is cost-effective. FEI submits that all individual programs for which gas savings have been estimated have a TRC benefit/cost ratio (or where applicable, mTRC) of 1.0 or above.

DSM Plan TRC and mTRC Benefit/Cost Ratios[17]

Program Area	TRC	Blended TRC/ mTRC*
Residential	0.6	2.3
Commercial	1.0	1.5
Industrial	3.5	3.5
Low Income	4.5**	4.5
Conservation Education and Outreach	Savings Not Estimated	
Innovative Technologies	Savings Not Estimated	
Enabling Activities	Savings Not Estimated	
Portfolio Level Activities	Savings Not Estimated	
ENTIRE PORTFOLIO	**1.0**	**1.9**

*Includes the mTRC adder for programs that require it.
**Section 4 of the BC Demand-Side Measures Regulation, as amended in March 2017, requires the use of the Zero Emission Energy Alternative and a 40 percent benefit adder in calculating the TRC for Low Income programs.

FEI also argues that it is appropriate for the BCUC to evaluate the DSM Plan on a portfolio basis, as has been the case in recent decisions.[18] Section 4(1) of the DSM Regulation provides that the BCUC may evaluate cost-effectiveness of DSM measures individually, within a group, or at a portfolio level. FEI notes that at a minimum, the BCUC must use the portfolio approach for "specified demand-side measures" and "public awareness programs" pursuant to sections 4(4) and 4(5) of the DSM Regulation. FEI states that the portfolio approach promotes FEI's goal of customer access to DSM, where some programs such as those in the residential area, often have difficulty passing the TRC.

[17] Table derived from Exhibit B-1, Appendix A, p. 8.
[18] FEI Final Argument, pp. 27-28.

In FEI's opinion, equipment new to the market may have a high initial cost due to lack of economy of scale, but could provide long term prospects of benefits to customer, and thus the portfolio approach can absorb such programs. FEI also notes the challenges of meeting cost-effectiveness in the current low-cost natural gas market, as the avoided cost of natural gas is the primary benefit. FEI states that certain programs that are challenged from a cost-effectiveness perspective can have high non-energy benefits, and failure to carry the programs out could result in lost opportunities in the long term.[19]

In its calculations of the TRC and mTRC, FEI applies an adjustment referred to as the net-to-gross (NTG) ratio, which takes into consideration the presence of free-rider and spillover effects.[20] FEI has been required to estimate and include free rider rates in its cost effectiveness analysis in previous applications, and in the 2014-2018 Performance Based Ratemaking (PBR) Decision, the BCUC approved FEI's request for the endorsement of the recognition of spillover effects on a case-by-case basis.[21] FEI submits that spillover effects are more difficult to measure than free-rider effects, and so FEI has only quantified a spillover rate for one program in the DSM Plan.[22] FEI's position is that both free riders and spillover effects are very subjective and tend to cancel each other out, its preferred approach is to use gross energy savings before adjustment for free-rider and spillover effects in the cost-effectiveness analysis.[23]

FEI has not included energy savings in its DSM Plan from the adoption of codes and standards, and will incorporate savings from the introduction of codes and standards on a case-by-case basis where attribution can be supported. FEI will report on this practice in its DSM Annual Reports.[24]

Position of the Parties

BCSEA-SCBC supports the continuation of the portfolio approach to analyzing cost-effectiveness. BCSEA-SCBC also agrees with FEI that the measurement of free ridership and spillover is subject to much uncertainty and subjective judgment, and that it appears to be easier for FEI (and other utilities) to estimate free ridership than to estimate spillover, creating a negative bias in the estimation of the cost-effectiveness. BCSEA-SCBC agrees with FEI's approach to attribute benefits of savings from the introduction of codes and standards on a case-by-case basis, where such attribution can be supported.[25]

CEC submits that the portfolio approach is appropriate because in addition to providing the utility with the opportunity to test and/or refine programs that may have significant benefits in the long run, the spending can contribute to the knowledge base for DSM programming overall.[26] CEC commends FEI on achieving unity for the portfolio without the mTRC, but submits that the utility could include additional less cost-effective measures in the future, which would still be beneficial even though they would reduce the Portfolio TRC (using the mTRC) down to 1. CEC submits that given the significant increases in spending and savings proposed over the next 4 years, it is reasonable to wait for results of the current DSM program prior to making significant additions to programs with lower cost-effectiveness.[27]

[19] FEI Final Argument, pp. 29-30.
[20] Free riders are program participants who claim a DSM incentive, but would have implemented such a measure in the absence of a utility program. Spillover refers to individuals who implement energy efficiency measures or efficiency actions due to program influences, but do not claim any financial or technical assistance from the program.
[21] PBR Decision, p. 264.
[22] FEI Final Argument, p. 33.
[23] FEI Final Argument, pp. 33-34.
[24] FEI Final Argument, p. 34.
[25] BCSEA Final Argument, pp. 12–13.
[26] CEC Final Argument, p. 9.
[27] CEC Final Argument, p. 10.

FEI replies that it has no obligation to achieve all cost-effective DSM savings, and it may not be in the public interest for FEI to do so, for instance due to rate impacts.[28]

Panel Discussion

The Panel finds that the DSM Plan is cost-effective within the meaning of the TRC test.

When conducting the TRC test, the BCUC may compare the benefits to costs of DSM at the overall portfolio level, or at the level of each individual DSM program. Consistent with prior BCUC decisions regarding FEI's DSM expenditures and in agreement with FEI and all interveners, the Panel concludes that it is appropriate to evaluate the benefit/cost ratios at the overall portfolio level.

At the overall portfolio level, FEI's DSM Plan has a TRC test value of 1.0. That is to say, the benefits of the overall portfolio exactly match the costs, and the portfolio is, barely, cost-effective within the meaning of the regulation. However, using the mTRC test, the overall portfolio has a test value of 1.9, which suggests that the benefits are almost twice the cost of the DSM portfolio. The fact that both tests show results indicating the portfolio is cost-effective gives the Panel comfort.

Notwithstanding its decision to evaluate cost-effectiveness at the portfolio level, the Panel is concerned that the residential program area individually has a TRC test value of 0.6, indicating that by this measure the benefits only cover 60 percent of the cost of the program. However, since the mTRC measure for the residential program area, at 2.3, is well above 1.0, the Panel is satisfied that these DSM expenditures bring sufficient benefits to the DSM Plan.

2.4.2 New Home Program

Section 4 (1.8) of the DSM Regulation provides that the BCUC may determine that a measure that requires the mTRC to be considered cost-effective, and does not fall within a list of excepted measures, is not cost-effective if the measure would not be considered cost-effective under the Utility Cost Test (UCT). When expressed as a benefit to cost ratio, the UCT measures the benefits of a DSM measure(s) to the utility (i.e. the avoided costs of purchasing gas and any avoided capacity costs) divided by the cost to the utility (i.e. incentive costs and other program specific costs such as labour, administration).

The Panel notes that in the PBR Decision, the BCUC stated:

> …where appropriate, the Panel may consider the UCT as a checkpoint in evaluating EEC[29] programs requiring the mTRC, along with other considerations including the ability of customers to participate in EEC programs.

Accordingly, the Panel considers that it is appropriate to follow this approach for its review of the 2019-2022 DSM Plan. In the table below, FEI provides the UCT for each program that requires the mTRC, excluding those programs that are exempt from UCT consideration pursuant to section 4(1.8) of the DSM Regulation.

Program	Benefit/Cost Ratio
	Utility
Home Renovation Rebate Program (Residential)	1.0
New Home Program (Residential)	0.6
Performance Program - New Buildings (Commercial)	1.2
ALL MTRC PROGRAMS	**0.9**

[28] FEI Reply Argument, p. 2.
[29] FEI's DSM expenditures were previously referred to as "Energy Efficiency and Conservation" (EEC).

FEI submits that eliminating programs with a UCT less than 1.0 would result in a loss of the societal and customer benefits of these programs, which are not taken into account in the UCT.[30] BCSEA-SCBC agrees with FEI that the DSM Plan should not be changed to increase the UCT result.[31]

Per the table above, only the New Home Program has a UCT benefit/cost ratio below 1.0. Consistent with the guidance in the PBR Decision, the Panel examines the New Home Program in further detail below.

FEI submits that the New Home Program, which is being run in partnership with FortisBC Inc. (FBC), will support local governments in their adoption of the BC Energy Step Code, as part of an ongoing initiative for market transformation to high performance homes. High efficiency natural gas appliance incentives will be available for further energy savings, and new measures may be added over time from the Innovative Technologies program area. These initiatives may be partially co-funded by program partners FBC, BC Hydro, the BC Ministry of Energy, Mines and Petroleum Resources and BC Housing. FEI and its program partners will support the BC Energy Step Code adoption through builder and trades outreach, training, and customer education about the benefits of high-performance homes and other initiatives.[32] FEI submits that a specific barrier the New Home Program overcomes is builders' focus on lowest cost alternatives, and their resistance to change. To address this barrier, FEI will share information about the benefits of high-performance homes, provide rebates to motivate builders to move to higher steps within the Step Code, and fund regional step code training.[33]

Forecasted expenditures, gas savings and cost test results for the New Home Program are shown in the tables below.

Forecasted Expenditures and Savings for Residential New Home Program

	2019	2020	2021	2022	Total
Expenditure ($000s)[34]	6,094	7,279	8,661	9,785	31,819
Incremental Annual Gas Savings, Net (GJ)[35]	38,921	47,854	56,682	63,336	206,792

Cost Test Results for Residential New Home Program[36]

TRC	MTRC	UCT	Participant	RIM[37]
0.3	1.4	0.6	0.8	0.3

FEI notes that the New Home Program provides benefits, including educating builders and trades for high performance buildings, with a potential 100-year lifespan that add significant societal value. FEI submits that the program has a broad reach and high non-energy benefits associated with building performance, comfort and health, GHG emissions reduction, and community energy planning for local governments.[38] Additionally, FEI notes that eliminating programs such as the New Home Program would be inconsistent with its principle of "universality" as it would reduce the reach of FEI's DSM programs to residential and low income customers.[39] FEI

[30] FEI Final Argument, p. 39.
[31] BCSEA Final Argument, p. 13.
[32] Exhibit B-1, Appendix A, pp. 9-10.
[33] Exhibit B-1, Response to BCUC IR 10.1, Attachment 10.1.
[34] Exhibit B-1, Appendix A, p. 7.
[35] Exhibit B-1, Appendix A, p. 12.
[36] Ibid.
[37] RIM is the Ratepayer Impact Measure.
[38] FEI Final Argument, p. 30.
[39] Exhibit B-2, Response to BCUC IR1.

also claims that failing to carry out new construction programs would result in significant lost opportunities over the long term.[40]

Panel Finding

The Panel finds that the New Home Program is in the public interest.

The Panel acknowledges that the New Home Program does not pass the Utility Cost Test, and, therefore, the program's costs increase rates for FEI ratepayers. However, the Panel is persuaded by FEI that the New Home Program will bring GHG reduction benefits for many decades and that future benefits are not being captured in the benefit-to-cost ratio. Furthermore, the Panel recognizes that cancelling this program would reduce the reach of DSM to residential and low-income customers, who are traditionally under-served groups. This would be inconsistent with the notion that the DSM program should address all customer groups.

2.5 The Interests of Persons in British Columbia

Pursuant to section 44.2(5)(e), the Panel now considers the interests of persons in British Columbia who receive or may receive service from the public utility.

Position of the Parties

FEI submits that it conducts ongoing program consultation with stakeholders in the ordinary course of business as required for program management and program design. In addition, FEI spent approximately one year prior to the Application filing date conducting consultation on the DSM Plan with entities including communities, customers, contractors, manufacturers, government, First Nations, vendors, interest groups, and the Energy Efficiency and Conservation Advisory Group. FEI submits that a consistent piece of feedback was general endorsement for how DSM is managed and operated by FEI.[41] FEI does not consider that there were any gaps or hard-to-reach entities in its consultation activities.[42]

In addition to the interveners participating in this proceeding, fourteen entities[43] submitted letters of comment in support of the DSM Plan. FEI submits the success of its consultation activities is evident from the letters of support.[44]

FEI states that BC's 2016 Climate Leadership Plan set direction to FEI to increase incentives by at least 100 percent.[45] Subsequently, the DSM Regulation was amended in 2017 to increase the incentives FEI can cost-effectively offer, and to add additional adequacy measures in support of the BC Energy Step Code, low income customers, and development of codes and standards. FEI notes that its planned incentive expenditures in 2019 represent a 103 percent increase compared to actual expenditure in 2016.[46] FEI submits that other federal and provincial government policies have continued to support an increase in energy efficient gas appliances, such as the Pan Canadian Framework on Clean Growth and Climate Change, the partnership between the Canadian and BC Governments for energy efficiency and climate action, and the replacement of the 2007 *Greenhouse Gas*

[40] FEI Final Argument, p. 30.
[41] FEI Final Argument, pp. 11-12.
[42] Exhibit B-2, Response to BCUC IR 11.1.
[43] Listed in section 1.2 of these Reasons for Decision.
[44] FEI Final Argument, p. 12.
[45] Climate Leadership Plan, August 2016, p. 32 https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/clp/clp_booklet_web.pdf.
[46] FEI Final Argument, p. 18.

Reduction Targets Act with the *Climate Change Accountability Act*. FEI submits that government direction and policy weigh heavily in favour of FEI's proposal to increase its investment in cost-effective DSM programs.[47]

FEI submits that another key input into the DSM Plan was the BC CPR, which identifies technology and market opportunities as well as the scope of market energy savings potential across the study period, and led to the development of numerous new measures in the DSM Plan.[48] All cost-effective measures identified by the BC CPR are included in the DSM Plan, except as noted in response to BCUC IR 1.2.1.[49]

FEI submits the DSM Plan was developed from the bottom-up, based on a forecast of specific DSM programs and measures designed to achieve energy savings and support market transformation to higher efficiency equipment and buildings, while ensuring compliance with the DSM Regulation. The overall level of DSM spending flows out of FEI's bottom-up approach, being determined by the incentive levels required to achieve participation, forecast program uptake, and the non-incentive spending required to support program uptake.[50]

Most programs are a continuation of FEI's existing programs, although the Industrial Strategic Energy Management Program has been added to the Industrial program area, and the Community Energy Specialist Program has been added to the Enabling Activities program area.[51] FEI submits that new activities in the Residential, Commercial and Industrial program areas are significant drivers of growth in the DSM Plan, while increases to the Low Income Program area that occurred prior to 2019 are sustained over the DSM Plan period.[52]

BCOAPO does not oppose acceptance, but questions whether FEI can ramp up its DSM spending effectively and efficiently[53]. This matter is addresssed below in section 4.4 of the decision.

BCSEA-SCBC submits that the DSM Plan is in the public interest and should be accepted, but recommends that the BCUC encourage FEI to identify and develop new DSM opportunities as they become available.[54]

CEC recommends that the BCUC find the proposed spending plan to be in the public interest. CEC also notes that the significant increase in DSM spending for 2019, with continuous and significant increases through to 2022, is a welcome improvement from historical spending and can result in significant benefits for ratepayers in the form of cost-effective supply and GHG savings.[55] CEC supports FEI's expectation that it will exceed its approved budget for 2018, which could provide a good foundation for the significant increases anticipated for 2019.

MoveUP recommends that the BCUC find the DSM Plan to be in the public interest.[56]

All 14 Letters of Comment were unequivocal in their support for acceptance of the DSM Expenditure Schedule as filed. BCSEA-SCBC submits that these endorsements support a conclusion that the Plan is in the public interest.[57]

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[47] FEI Final Argument, pp. 19-20.
[48] FEI Final Argument, p. 20.
[49] FEI Final Argument, p. 21.
[50] Ibid.
[51] FEI Final Argument, pp. 22-24.
[52] FEI Final Argument, p. 24.
[53] BCOAPO Final Argument p. 4.
[54] BCSEA Final Argument, p. 4.
[55] CEC Final Argument, pp. 3, 8.
[56] MoveUp Final Argument, p. 1.
[57] BCSEA Final Argument, p. 6.

Panel Discussion

The Panel finds that the DSM Plan is in the interests of persons in British Columbia who receive or may receive service from FEI.

We are persuaded by FEI's consultation efforts, the letters of support from a broad range of stakeholders and the lack of intervener opposition that the DSM Plan is in the interests of the people of BC. Furthermore, the overall positive outcomes of the cost-effectiveness tests provide additional support for our finding.

2.6 Panel Determination

Having considered section 44.2 of the UCA, and for the reasons set out above and as summarized below**, the Panel accepts the DSM expenditure schedule outlined in Table 6-1 of the Application pursuant to Section 44.2(3) of the UCA.**

The Panel has found that the DSM Plan is consistent with energy objectives set out in the CEA, and with FEI's most recently filed long-term resource plan.

The DSM Plan is also cost-effective within the meaning of the DSM Regulation. The Panel has found that it is appropriate to evaluate the DSM Plan at the portfolio level, and the TRC test value at that level is 1.9, indicating that the DSM Plan has benefits exceeding its costs.

The Panel finds that the New Home Program is in the public interest, despite having a UCT value of 0.6 and thus not having utility benefits which demonstrably exceed costs. The Panel is persuaded that the benefits not captured in the UCT analysis and the additional reach of the program into residential and low-income customer groups outweigh the lack of cost-effectiveness on an individual program basis.

The Panel finds that the DSM Plan is in the interests of persons in British Columbia who receive or may receive service from FEI.

3.0 Additional Approvals Sought

In addition to the request for acceptance of the expenditure schedule, FEI seeks the following:

1. approval for an addition to the current funding transfer rules to permit FEI to rollover unspent funds from one program area to the same program area in the following year, as set out in Section 9.1 of the Application;
2. approval of the forecast rate base additions accounting treatment as set out in Section 9.2 of the Application; and
3. approval to move from a 10 year to a 16-year amortization period for DSM expenditures as set out in Section 9.3 of the Application.

In this section, the Panel addresses each of those requests in turn.

3.1 Funding transfers

As established in the FortisBC Energy Utilities (FEU) 2012 and 2013 Revenue Requirements and Natural Gas Rates Decision (RRA Decision), the current rules respecting FEI's ability to transfer DSM funding under an approved DSM expenditure schedule are as follows:

> Accordingly, the Commission approves the movement of funding to a maximum of 25 percent from one approved Program Area to another approved Program Area without prior approval of the Commission. In cases where a proposed transfer into an approved Program Area is greater than 25 percent of that approved Program Area, prior Commission approval is required. Finally, the transfer of funds … to Innovative Technologies … will require prior Commission approval.[58]

In the Application, FEI proposes that these funding transfer rules continue to apply. In addition, FEI proposes that starting with 2019 it be permitted to transfer or "rollover" unspent expenditures in a Program Area to the same Program Area in the following year.[59] Under FEI's proposal the rollover of funds would be on a cumulative basis and, if approved, FEI plans to add information regarding unspent "rollover" values to its DSM program annual reports. These would be reported separately from funding transfers between program areas.[60] FEI confirms that unspent amounts at the end of the four-year period would not be rolled over into FEI's next DSM expenditure application.[61]

FEI submits that it may have to adjust the timing of its planned expenditures in the DSM Plan due to changes in market conditions, customer responses to programs, input from stakeholders including program partners, changes in government policies, and other external factors. FEI considers flexibility to rollover unspent amounts would allow FEI to adjust to external factors and allow FEI to carry out its DSM Plan over the course of the four years, even if the timing of the expenditures varies from the plan. FEI argues that this proposal reduces FEI's risk of underspending due to the opportunity to "catch up" in following years.[62]

Position of the Parties

BCOAPO does not oppose FEI's proposal, but is concerned that the proposal could lead to low DSM spending in the early years of the DSM Plan, that FEI could choose to transfer funding out of the Low Income and Residential program areas which would materially impact the public interest, and that FEI could hold off investments in favour of ones that may only benefit a minority.[63] In reply, FEI responds that it intends to follow and roll out the DSM Plan that it has worked hard to develop, that the proposed rules do not incentivise decreased spending at the beginning of the plan, and that the rules do not allow FEI to make arbitrary reductions to a program.[64]

BCSEA-SCBC supports the proposed rollover rule. BCSEA-SCBC notes that it provides FEI with flexibility to respond to unplanned factors and strongly agrees with FEI that the proposed rollover rule would reduce the risk of underspending which has been a concern of BCSEA-SCBC at times in the past.[65]

CEC is optimistic that FEI will be able to follow and roll out the DSM Plan that it has developed. However, CEC is of the view that a BCUC review and approval are appropriate if FEI is unable to spend more than 85 percent of its total DSM spending budget in any given year. CEC believes that significant underspending of the DSM Plan as a whole would have the potential to disadvantage customers in terms of potential bill reductions delayed or not achieved.[66] In reply to CEC's proposal, FEI submits that CEC's proposal will "not provide any benefit to customers

[58] RRA Decision, p. 173.
[59] Exhibit B-1, p. 35.
[60] Exhibit B-2, Response to BCUC IR 21.1, 21.2.
[61] Exhibit B-5, CEC IR 1.16.3.
[62] FEI Final Argument, pp. 50-51.
[63] BCOAPO Final Argument, pp. 6-7.
[64] FEI Reply Argument, p. 5.
[65] BCSEA Final Argument, p. 16.
[66] CEC Final Argument, p. 22.

or address [CEC's] concern regarding the potential for FEI to spend less than planned amounts."[67] FEI also argues that the filing of another application for approval of rollover funds would defeat the purpose of FEI's proposal, divert resources to additional regulatory process, and that there are already mechanisms in place to report on and examine under-spending.[68]

Panel Determination

The Panel approves FEI's proposed addition to the funding transfer rules to permit FEI to rollover unspent funds from one program area to the same program area in the following year, as set out in Section 9.1 of the Application.

The Panel notes that FEI's proposed addition to the funding transfer rules will enable unspent funds to be carried over to a future year within the four-year DSM plan. The Panel is persuaded by FEI's position that this will reduce the risk of FEI underspending the approved DSM funds in the event of delays, howsoever caused. No interveners objected to the FEI proposal.

The Panel also notes CEC's concern that underspending of the DSM funding risks disadvantaging customers. However, the Panel considers that FEI's proposal reduces rather than increases this risk because it allows FEI the flexibility to spend unspent funds in future years of the program rather than losing the ability ever to spend those funds. Further, the Panel does not agree with CEC that, if FEI is unable to spend 85 percent of its DSM budget in a given year, a regulatory review will be helpful, as such a process is more likely to delay DSM spending than to encourage it. Furthermore, such regulatory review would simply divert resources away from recovery from delays in DSM spending and may exacerbate rather than ameliorate the problem. The Panel notes that FEI is already obligated to report annually to the BCUC on the spending under the DSM Plan, and considers that this reporting is sufficient inducement to FEI to spend the allocated DSM funds.

BCOAPO is concerned that FEI's proposal could lead to low DSM spending in the early years of the plan. However, the Panel considers that the proposed rules provide no incentive for FEI to delay spending, but rather they provide a mechanism for FEI to recover sooner from any early underspending should it occur.

3.2 Accounting treatment for the rate base DSM deferral account

FEI proposes to increase the forecast rate base additions to the Energy Efficiency and Conservation deferral account to $30 million (hereinafter referred to as the DSM deferral account), on an after-tax basis, for each of the years in 2019 through 2022. FEI is also requesting to change the name of the deferral account to the DSM Deferral Account.[69]

Currently, FEI adds $15 million annually to the rate base DSM deferral account and adds the difference between the actual DSM expenditures, up to the approved expenditure amount, and the $15 million to FEI's non-rate base DSM deferral account. The non-rate base DSM deferral account earns a return equal to FEI's weighted average cost of capital in the year expended. At the beginning of each subsequent forecast year, the closing balance in the non-rate base DSM deferral account is transferred to the rate base DSM deferral account.

FEI indicates that if the amount forecast for inclusion in the rate base DSM deferral account is not actually spent, then ratepayers would be paying approximately $0.033 for every unspent dollar.[70] However, if the amount

[67] FEI Reply Argument, p. 4.
[68] FEI Reply Argument, pp. 4-5.
[69] Exhibit B-1, p. 36; Exhibit B-2, BCUC IR 22.1.
[70] Exhibit B-2, BCUC IR 22.6.

forecast to the rate base DSM deferral account is actually spent, then the overall costs to ratepayers would be reduced compared to the alternative of first adding the expenditure to the non-rate base deferral and then transferring it to rate base deferral account in the following year.[71]

As presented in Table 5-1 of the Application, FEI's actual DSM expenditures have been greater than $30 million per year from 2015 to 2017, and FEI anticipates DSM expenditures of $38.6 million for 2018.[72] For the period 2019 through 2022, FEI proposes DSM expenditures totalling $66.35 million to $96.78 million annually.[73] FEI concludes that with the significant increase in expenditures proposed, "at least $30 million annually will continue to be spent over the 2019 to 2022 period proposed in the DSM Plan."[74]

Position of the parties

None of the interveners opposed FEI's request. However, BCOAPO expresses concerns that there could be returns earned on "phantom rate base" and would like to "ensure no returns are unfairly earned on monies not yet spent." BCOAPO further recommends that if the BCUC finds, "the reasoning for FEI's proposed accounting treatment is no longer applicable" then it suggests that, "at the very least some of the DSM spending could be expensed for a one-time recovery."[75]

FEI claims that the proposed increase from $15 million to $30 million to the rate base DSM deferral account is appropriate due to the following:

- its historical spending since 2015 has been greater than $30 million; and
- the increase in DSM expenditures planned for 2019 through 2022.

Further, the increase in DSM expenditures planned for 2019 through 2022 is, "supported by the BC CPR, changes to the DSM Regulation, consultation and FEI's bottom-up forecast for expanded DSM program participation and activities."[76]

In response to BCOAPO, FEI states that there will be no "phantom rate base" as long as FEI continues to spend more than $30 million annually as anticipated in its DSM Plan.[77] Furthermore, FEI explains that the Decision accompanying Order G-44-12 approved the current $15 million annual addition to the rate base DSM deferral account on the basis that there was no evidence to suggest that FEI was going to incur less than $15 million in DSM expenditures. Therefore, FEI's proposal to increase the annual addition to $30 million is consistent with the spirit of that Decision.[78]

In addition, FEI explains that expensing DSM expenditures would not address BCOAPO's "phantom rate base" concern. It would also be inconsistent with past BCUC approvals of the accounting treatment for DSM expenditures by FEI and its predecessors, and no change of circumstances have occurred since then to suggest that the accounting treatment is no longer appropriate. Further, FEI points out that "expensing DSM expenditures would result in rate spikes for customers."[79]

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[71] Exhibit B-1, p. 36.
[72] Exhibit B-1, p. 19, Table 5-1; Exhibit B-2, BCUC IR 22.2.
[73] Exhibit B-1-1, p. 22, Table 6-1.
[74] Exhibit B-1, p. 36.
[75] BCOAPO Final Argument, pp. 7-8.
[76] FEI Final Argument, p. 53.
[77] FEI Reply Argument, p. 6.
[78] FEI Reply Argument, pp. 6-7.
[79] FEI Reply Argument, p. 7.

Panel determination

The Panel acknowledges BCOAPO's concern with "phantom rate base." However, the Panel agrees with FEI that as long as at least $30 million is spent annually during the period of the DSM Plan, "phantom rate base" would not occur. Based on the historical actual and projected annual DSM expenditures from 2015 to 2018, and the proposed increased expenditures in the DSM Plan, the Panel finds it reasonable to expect that FEI will spend at least $30 million annually during the period from 2019 through 2022. **Accordingly, the Panel approves FEI's proposal to forecast annual additions of $30 million to the rate base DSM deferral account for the period from 2019 through 2022.**

The Panel agrees with FEI's reasoning in the current Application to forecast annual rate base additions of $30 million to the DSM deferral account is consistent with the spirit of the Decision accompanying Order G-44-12. Furthermore, the Panel agrees with FEI that no evidence has been presented in this proceeding to suggest that a change in circumstance has occurred to warrant a change to this accounting treatment. As such, in the Panel's view, the reasoning for FEI's proposed accounting treatment continues to be applicable under this DSM Plan.

The Panel also finds FEI's request to change the name of both the rate base and non-rate base Energy Efficiency and Conservation (EEC) deferral accounts to the DSM deferral account reasonable as the term "DSM" is more informative of the nature of the accounts. **Therefore, FEI is approved to change the name of the EEC deferral account to the DSM deferral account for both the rate base and non-rate base deferral accounts, effective January 1, 2019.**

3.3 Amortization period for the rate base DSM deferral account

As part of this Application FEI requests approval to increase the amortization period for the rate base DSM deferral account to 16 years from 10 years, which would align with the estimated average weighted measure life of the DSM expenditures as determined by FEI.[80]

In the PBR Decision, the BCUC directed FEI to include in its next DSM application an analysis of the rate impact of a reduction in the DSM amortization period to 8 years and to 5 years. FEI has provided this analysis in addition to an analysis of a 16-year amortization period in Section 9.3 of the Application and reproduced below.

Table 9-1: FEI Incremental Delivery Rate Impacts

FEI Summary of Rate Impacts

Incremental Delivery Rate Impact Compared to Prior Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Current Treatment: Amortizing DSM Expenditures over 10 years	0.73%	0.90%	0.87%	0.99%	1.12%	1.13%	1.07%	0.84%	0.54%	0.43%
Scenario 1: Amortizing DSM Expenditures over 8 years	1.32%	0.94%	0.94%	1.04%	1.08%	1.15%	1.14%	0.84%	0.48%	0.16%
Scenario 2: Amortizing DSM Expenditures over 5 years	3.06%	0.90%	0.88%	0.73%	0.89%	1.21%	1.11%	0.59%	0.05%	-0.36%
Scenario 3: Amortizing DSM Expenditures over 16 years	-0.15%	0.75%	0.82%	0.84%	0.99%	1.00%	0.98%	0.79%	0.52%	0.50%

Incremental Delivery Rate Impact Compared to Prior Year	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Current Treatment: Amortizing DSM Expenditures over 10 years	0.29%	0.00%	-0.12%	-0.19%	-0.48%	-0.61%	-0.67%	-0.59%	-0.41%	-0.37%
Scenario 1: Amortizing DSM Expenditures over 8 years	-0.06%	-0.18%	-0.38%	-0.46%	-0.71%	-0.71%	-0.51%	-0.45%	-0.38%	-0.33%
Scenario 2: Amortizing DSM Expenditures over 5 years	-0.60%	-0.81%	-0.69%	-0.31%	-0.49%	-0.54%	-0.50%	-0.43%	-0.47%	-0.26%
Scenario 3: Amortizing DSM Expenditures over 16 years	0.39%	0.30%	0.32%	0.19%	0.08%	0.04%	-0.11%	-0.23%	-0.29%	-0.31%

[80] Exhibit B-1, p. 37.

The following table summarizes the differences in the first-year rate impact, the present value (PV) cost to ratepayers of a $1 million addition in 2019 to the deferral account, and the peak balance in the deferral account based on an amortization period of 5, 8, 10 and 16 years.

DSM deferral account - Impact of Amortization Period			
	Incremental delivery rate impact in year 1	PV of $1 million*	Peak deferral account balance (millions)*
	(Note 1)	(Note 2)	(Notes 1 & 2)
5 years	3.06%	$ 951,000	$ 222.30
8 years	1.32%	$ 952,000	$ 308.27
10 years	0.73%	$ 954,000	$ 363.05
16 years	-0.15%	$ 956,000	$ 514.56
Note 1:	Based on increasing the annual gross additions to $30 million from $15 million as proposed in the Application		
Note 2:	Over a 20-year period from 2019 to 2038		

[81]

FEI has calculated 16.2 years as the average weighted measure life of its DSM Plan based on an average measure life weighted by expenditures.[82] During the 2014-2018 PBR proceeding, FEI calculated 13 years as the average weighted measure life of its then DSM Plan. FEI explains that the primary reason for the difference is a modification to the calculation. For the current DSM Plan, only measures that had direct savings were included in the calculation, which results in higher but more accurate results.[83] Further, FEI explains that future DSM Plans may have a different weighted measure life compared to the current plan because new measures may have different lifespans than in the current portfolio and new information and/or recommendations may be made in the future to warrant another methodology adjustment for calculating the weighted average measure life.[84] FEI submits that it intends for future applications to align with the average weighted measure life calculated at that time "unless new information emerges that indicates a different approach would be more appropriate."[85]

FEI also explains that measure life is typically determined through research of measure life of similar utility programs, industry standards, and data collected through program delivery, such as contractor feedback. The measure life for a program can be weighted based on participation for each measure.[86] FEI goes on to elaborate that factors that determine the persistence of "future expected savings from implementing an energy efficient measure (i.e. measure life) include user behavior, expected building use change, equipment operation time and continued mechanical service."[87]

Position of the parties

The interveners either support FEI's proposal to increase the amortization period to 16 years, or do not take a position.

[81] Table prepared by BCUC Staff from Exhibit B-1, Appendix I; Exhibit B-2, Attachment 23.6.
[82] Exhibit B-1, p. 37, Appendix J.
[83] Exhibit B-2, BCUC IR 23.3.
[84] Exhibit B-2, BCUC IR 23.4.
[85] ExhibitB-2, BCUC IR 23.4.1.
[86] Exhibit B-5, CEC IR 18.1.
[87] Exhibit B-5, CEC IR 18.4.

MoveUP makes no comments regarding the amortization period. BCOAPO does not take a position on the appropriateness of FEI moving to a 16 year amortization period. However, it expresses reservations regarding the "persistence" of DSM measures in general, and is also concerned with the prospect of short term rate spikes from moving to an 8 or 5 year amortization period.[88]

BCSEA-SCBC, on the other hand, agrees with FEI that the amortization period should match the benefits period, and it has "no reason to disagree with the results that support a 16 year amortization period."[89]

CEC agrees with FEI that the appropriate principle for amortization is benefits matching, and supports the increase in the amortization period to 16 years.[90]

FEI submits that customers benefit from the DSM Plan measures for an average of 16 years. From a cost/benefit matching perspective, an amortization period that is in line with the average weighted measure life of all the measures in the DSM Plan is appropriate as it avoids intergenerational inequity. FEI submits that its DSM activities provide long-term benefits and the DSM deferral account is a "benefits matching" account. [91] Also, while FEI acknowledges that, "a longer amortization period will have a higher present value cost to ratepayers, this is justified by the need to match the benefits and costs of the DSM activity."[92]

Further, FEI states that an amortization period that is shorter than the average weighted measure life of the measures in the DSM Plan would cause intergenerational inequity and rate instability. Shortening the amortization period from 10 years would cause a rate spike in the first year.[93] By contrast, a 16-year amortization period would result in lower rate impacts for customers.[94] FEI submits that there is no justification for shortening the amortization period from 10 years.[95] Furthermore, if the BCUC does not accept an amortization period that is in line with the average weighted measure life, then the currently approved 10 year amortization period would be acceptable.[96]

Panel determination

The Panel rejects FEI's request to move from a 10 year to a 16 year amortization period for the rate base DSM deferral account.

In past proceedings, the BCUC had stated that the forecast assumptions used to calculate the average weighted measure life is "too inherently uncertain to give them much weight."[97] The BCUC also stated that the amortization period should be determined based on criteria such as rate impact and matching the benefits of DSM measures with the costs.[98] Although the BCUC was not persuaded that a 10 year amortization is

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[88] BCOAPO Final Argument, pp. 8-9.
[89] BCSEA Final Argument, p. 17.
[90] CEC Final Argument, p. 23.
[91] FEI Final Argument, p. 55.
[92] FEI Final Argument, p. 56.
[93] Ibid.
[94] Exhibit B-1, p. 37.
[95] FEI Final Argument, p. 56.
[96] Exhibit B-2, BCUC IR 23.5.
[97] Terasen 2009 EEC Programs Application Proceeding, Decision, p. 45.
[98] FEI 2014-2018 PBR Decision, pp. 279-280.

appropriate, it had accepted 10 years primarily because of the rate impact concerns of moving to a shorter amortization period. However, the BCUC was interested in shortening the amortization period because of the following:

- the decrease in customers costs over the long run;[99] and
- the potential for large balances accumulating in the deferral account.[100]

The Panel has concerns regarding the calculation of the estimated average life of the DSM plan because the calculation only includes a subset of the costs in the deferral account. This is due to the calculation excluding measures and programs with no quantifiable benefits, but the costs of these measures and programs would be included in the deferral account. Furthermore, over the past decade the estimated average weighted measure life has fluctuated from 22.5 years in the 2009 FEI (then Terasen Gas Inc.) EEC Programs Application to 13 years in FEI's 2014-2018 PBR proceeding. Accordingly, the Panel is not convinced that the current 16 year estimate is necessarily a more accurate reflection of the benefits of the total balance of the deferral account than previous estimates of measure life.

FEI's primary rationale for a 16 year amortization period is to align with the average weighted measure life of its DSM Plan to match the benefits of the DSM measures with the costs. However, the measure life is influenced by factors that are outside of FEI's control, such as user participation and behaviour, and is based on achieving the estimated volumes, mix and lives of the various measures proposed in the Application. In the Panel's view, the evidence presented does not demonstrate that the measure life is no longer "inherently uncertain" and that it should be given much weight.

From a rate impact perspective, the Panel is cognizant of the effect of a reduction in the amortization period to 8 years and 5 years. Similarly, the Panel is concerned that an increase in the amortization period from the current 10 years would be difficult to reverse in the future due to rate impact concerns even if future measure life estimates should decrease given the proposed increase in DSM spending and the resulting balances in the deferral account.

Furthermore, the Panel is mindful of the fact that increasing the amortization period would increase the overall cost of the DSM Plan to ratepayers as shown by the table above. In the Panel's view, this must be weighed against the inter-generational equity consideration, whereby future ratepayers would be paying for benefits that would be enjoyed by current ratepayers. Given the issues with the 16 year estimate discussed above, the Panel is reluctant to cause ratepayers to pay more when it is not clear how far in the future the benefits will actually extend.

Accordingly, the Panel does not consider the evidence for the 16 year period to be sufficiently compelling at this time to warrant approval of an increase in the amortization period.

4.0 Other matters

Having addressed each of the requests made by FEI in its Application, the Panel now turns to other questions arising during this proceeding or in previous BCUC directives relating to FEI's DSM Plans.

[99] FEI 2014-2018 PBR Decision, pp. 279-280.
[100] FEU 2012-2013 RRA, Decision, pp. 183-184; FEU was a predecessor of FEI.

4.1 Previous directives addressed

In Table 4-1 of the Application, FEI demonstrates how it has met the previous BCUC directives from the PBR Decision. The Panel has already noted that FEI in its Application has satisfied the directives with respect to 5 and 8 year amortization periods.

The Panel notes that FEI was directed to submit a detailed plan for each program for approval prior to the expenditure of any funds related to the New Technologies Program in the PBR Decision.[101] While the Panel considers that this directive was most appropriately satisfied with respect to funds in the 2014 through 2018 period, the Panel acknowledges that in the Application, FEI has provided a plan respecting its planned expenditures in the Innovative Technologies program area.

With the exception of Directive 136 from the PBR decision, which is addressed below, the Panel considers that FEI has complied with all other directives related to DSM in its DSM Annual Reports or in specific filings.

Directive 136 from the PBR Decision, which is shown on row 2 of Table 4-1 of the Application, is addressed in section 4.2 below. Directive 136 directed FEI:

> …to provide an estimate of the effect of each of its simplifying assumptions on the avoided cost of gas used for the TRC in the next EEC Expenditure Request. This should include an estimate of the avoided FEU capacity cost and the effect on the avoided cost of gas estimate of (i) use of a weighted average for FEI's commodity rates for the most recent calendar year, (ii) use of the marginal or most expensive gas in FEU portfolio for the most recent calendar year using the current receipt point allocation, and (iii) use of the customer load profile to determine the avoided cost of gas for each customer class. In each case, FEU is to provide a detailed explanation of the methodology used.[102]

4.2 Avoided cost of gas

A key component of the "benefits" aspect of the TRC and UCT calculations is FEI's assumed avoided cost of gas.[103] In the PBR Decision, the BCUC accepted the calculation of the cost of energy for the TRC, however the BCUC directed FEI to file an analysis its calculation of the avoided cost of gas. FEI responds to this directive by providing its "Avoided cost of gas calculation methodology."[104] FEI submits:

> FEI's Energy Supply group provides avoided costs of gas calculation for evaluating DSM programs. FEI developed the method several years ago. The Commission reviewed this method during prior DSM funding request proceedings and approved those applications. FEI has been following the same method to update the avoided costs annually.[105]

Position of the Parties

No interveners commented on FEI's avoided cost of gas calculation methodology.

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[101] PBR Decision, p. 268.
[102] PBR Decision, p. 263.
[103] For the mTRC test, FEI uses BC Hydro's long-run marginal cost of acquiring electricity generated from clean or renewable resources, the "Zero Emission Energy Alternative", pursuant to section 4(1.1)(a) of the DSM Regulation.
[104] Exhibit B-1, Appendix F.
[105] Exhibit B-1, Appendix F, p. 1.

Panel Discussion

The Panel finds that FEI's avoided cost of gas calculation methodology is appropriate, and considers that FEI has satisfied Directive 136 of the PBR Decision.

In doing so, the Panel gives weight to the lack of comment from interveners, and the consistency of the calculation methodology with previous DSM applications.

4.3 Multi-year expenditure schedule

FEI submits that one of its DSM principles is that DSM expenditure schedules will be multi-year so as to create the funding certainty necessary to support effective implementation in the marketplace.[106] FEI also states that four years was established as the time frame for the DSM Plan to better align with the long term gas resource planning cycle and to better align with FEI's DSM and long term electric resource planning cycle. FEI submits alignment promotes regulatory and internal operational efficiency related to both FEI and FBC DSM Plan applications.[107]

Position of the Parties

CEC submits that FEI provides good reasons for developing a four year plan, and recommends that the BCUC approve four years as the appropriate term for this DSM expenditure plan.[108]

BCSEA-SCBC agrees with FEI that four years is an appropriate length for the 2019-2022 expenditure schedule. BCSEA-SCBC submits a four year timeframe, as opposed to a shorter timeframe, is important for program designers, contractors, and customers, and is also better for regulatory efficiency.[109]

Panel discussion

The Panel agrees that multi-year DSM applications are beneficial, in that they provide FEI and its DSM program partners with more certainty of funding, and improve regulatory efficiency. When combined with the year-to-year funding transfer mechanism, the multi-year approach increases the likelihood that all the approved DSM funds will be spent within the period covered by the DSM plan.

4.4 Achievability of the DSM Plan

FEI proposes increasing its DSM spending in the period 2019 through 2022 by over 100 percent from 2016 level, as demonstrated in Table 3-3 of its Application reproduced below:

Table 3-3: FEI Incentive Expenditures: 2016 Actuals vs. DSM Plan

	Actual	Proposed			
	2016	2019	2020	2021	2022
Total incentive expenditures (thousands)	$ 21,045	$ 42,623	$ 47,957	$ 59,625	$ 65,411
Increase as a percentage of 2016	0%	103%	128%	183%	211%

[110]

106 FEI Final Argument, p. 8.
107 Exhibit B-5, Response to CEC IR 5.1.
108 CEC Final Argument, p. 21.
109 BCSEA Final Argument, p. 7.
110 Exhibit B-1, p. 10.

Position of the Parties

BCOAPO questions whether FEI can ramp up DSM spending effectively and efficiently, noting recent trends of underspending and the difficulty forecasting participation rates. [111]

The CEC states it is optimistic that FEI will be able to deliver the DSM Plan, but is of the view that the BCUC review and approval is appropriate if FEI is unable to spend over 85 percent of its total DSM spending budget in any given year. The CEC believes that significant underspending of the DSM Plan would have the potential to disadvantage customers in terms of potential bill reductions delayed or not achieved.[112]

In reply, FEI submits that it has recognized and addressed the challenge of ramping of its DSM spending by identifying the deliverability risks to its DSM Plan and developing actions to mitigate those risks, as outlined in its response to BCUC IR 22.3.3.[113]

Panel discussion

The Panel agrees with BCOAPO and the CEC that there is some risk FEI will not be able to ramp up its DSM activities fast enough to achieve the planned spending. However, the Panel finds no evidence that FEI is incented to underspend its DSM budget. Further, the Panel considers that the funding transfers requested by FEI, which the Panel has approved in this decision, will give FEI greater flexibility to carry unspent funds into future years and increase the likelihood that the money will be spent within the period covered by the DSM Plan.

For the reasons already outlined in Section 3.1 above, the Panel rejects the CEC's suggestion of further regulatory process in the event that FEI is unable to spend at least 85 percent of its total DSM spending budget in any given year. FEI already reports its DSM spending annually to the BCUC, which provides sufficient information to monitor FEI's DSM spending progress.

4.5 Market Transformation Studies

One of FEI's guiding principles for DSM is that programs will support market transformation by incenting efficient measures through customers and/or trade allies, developing trade ally capacity, and supporting codes and standards development and implementation.[114]

FEI conducts market studies on a program-by-program basis and assesses adoption of energy efficient equipment through end-use studies. Over the last five years FEI has formally conducted three program-level market transformation studies and two end-use studies through third party consultants.[115]

Position of the Parties

The CEC submits that the studies are useful in providing important market information and recommends that the BCUC provide encouragement for FEI to continue to pursue market transformation studies to inform future DSM planning.[116]

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[111] BCOAPO, Final Argument, pp. 4-5.
[112] CEC Final argument p. 22.
[113] FEI Reply Argument, p. 2; Exhibit B-2, response to BCUC IR 22.3.3.
[114] Exhibit B-1, p. 26.
[115] Exhibit B-5, response to CEC IR 9.1.
[116] CEC Final Argument, p. 5.

Panel Discussion

The Panel supports FEI's continued use of program-by-program and end-use studies to evaluate the effectiveness of DSM spending.

4.6 Collaboration with Utilities and Other Parties

FEI's 2019 through 2022 DSM Plan reflects collaboration with FBC, BC Hydro and Power Authority (BC Hydro) and Pacific Northern Gas (PNG), as well as with other industry stakeholders. FEI, FBC and BC Hydro estimate total incremental cost efficiencies of approximately $21.5 million as a result of working together. These incremental cost efficiencies occur as a direct result of the partnership over the April 1, 2013 to March 31, 2018 time period.[117] FEI submits that its collaboration with other utilities and parties is a cost-effective approach that improves the overall quality of its DSM Plan in numerous ways for the benefit of customers.[118]

Position of the Parties

BCSEA-SCBC acknowledges and supports FEI's cooperation and collaboration with FBC, BC Hydro, and PNG in developing and implementing the 2019-2022 DSM Plan.[119]

CEC commends FEI for having undertaken a quantitative analysis of the cost savings benefits of collaborating with BC Hydro and FBC, estimating a combined incremental cost savings of $21.5 million as a result of working together over the 2013-2018 period. CEC submits that collaboration between the utilities is clearly in the ratepayers' interests and recommends that the BCUC provide direction to the utilities that they should continue to collaborate where practicable and in the ratepayer interests.[120]

Panel Discussion

The Panel supports FEI's collaboration with other parties and commends FEI for achieving the associated cost savings. The Panel encourages FEI to continue to collaborate with other utilities and industry stakeholders on DSM Plans where practicable and in the ratepayers' interests.

[117] FEI Final Argument, pp. 12-14.
[118] FEI Final Argument, p. 15.
[119] BCSEA Final Argument, p. 6.
[120] CEC Final Argument, p. 5.