British Columbia Utilities Commission

IN THE MATTER OF

FortisBC Energy Inc.
2015 System Extension Application

DECISION

and Order G-147-16

September 16, 2016

Before:
K. A. Keilty, Commissioner/Panel Chair
I. F. MacPhail, Commissioner
D. M. Morton, Commissioner

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EXECUTIVE SUMMARY

On June 30, 2015, FortisBC Energy Inc. (FEI) applied to the British Columbia Utilities Commission (Commission) for approval of changes to its mains extension test (MX Test), customer connection policies and related reporting requirements (Application). FEI's filing also addresses concerns raised in Commission letters L-34-14 and L-44-14 about FEI's implementation of the MX Test. FEI proposes amendments to the MX Test and the related customer connection policies including:

- A discounted cash flow term of 40 years;
- Use of a 10-year horizon, if this time period better reflects the expected customer attachments;
- A sliding-scale methodology to calculate the overhead rate where capital costs exceed $25,000;
- Discontinuance of energy efficiency credits;
- An updated service line cost allowance; and
- Establishment of a system extension fund of $1.0 million annually.

FEI also proposes changes to the reporting requirements including a discontinuance of the current reporting requirements.

Regulatory framework and purpose of system extension tests

The applicable legal framework governing system extension policies is sections 29, 30 and 58 to 61 of the *Utilities Commission Act*. In this decision, the Panel considers whether FEI's proposals are: in the public interest; just, reasonable and not unduly discriminatory; and, provide for the consideration and fair treatment of existing and potential customers. The Panel accepts that the purpose and design of the MX Test, service line cost allowance and contribution in aid of construction is to ensure a fair and efficient method of making connections and the fair treatment of customers.

Performance of system extension and customer connection policies

To evaluate FEI's proposals, it is necessary to assess the methods that evaluate the past performance of application of system extension and customer connection polices with respect to ensuring that existing customers are not adversely affected by the addition of a new customer. The Panel finds the use of MX Test results as reported in accordance with the Commission reporting requirements is not an appropriate mechanism to evaluate the economic impact of main extensions on ratepayers. The Panel accepts 2015 rate impact analysis prepared by EES Consulting, modified to include an estimate of sustainment and other capital, as an evaluation method to assess the economic impact of main extensions and infill customers on existing ratepayers.

The 2015 rate impact analysis prepared by EES Consulting demonstrates existing customers are benefiting from new customers added as a result of the use of FEI's mains extension test and customer connection polices.

With respect to future updates to the rate impact analysis, the Panel recognizes that a number of significant changes to the MX Test proposed by FEI will have the impact of reducing the current benefits to existing customers from system extensions. FEI is directed to file an updated rate impact analysis by June 30, 2020, incorporating the results to the end of 2019. In advance of filing this update, FEI is to undertake a stakeholder

engagement process to consider appropriateness of any amendments to the assumptions and methodology used in the rate impact analysis.

Commission letters L-34-14 and L-44-14

The Panel views the Application as generally responsive to the Commission concerns set out in L-34-14 and L-44-14. Since the 2015 rate impact analysis demonstrates existing customers are benefiting from FEI's extensions and connection policies, several of the concerns raised by the Commission have been addressed.

With respect to consumption values used in the MX Test, the Panel accepts FEI's continued use of the previously approved methodology based on using an appliance consumption average derived from the Residential End Use Survey for all existing customers. In addition to this practice being consistent with past decisions, the Panel places weight on the EES Consulting's June 30, 2015 EES Survey of Practices of Other Utilities which indicates FEI's practice is consistent with the practice of other utilities.

The Panel has some remaining concerns with the accuracy of cost estimates used in the MX Test and to ensure a continuing impact from improvements FEI has implemented, FEI is directed to include in its annual reporting to the Commission, documentation of management's assessment of the design and operating effectiveness of its key controls and oversight processes related to the accuracy of cost estimates used in the MX Test.

FEI proposals

Noting that all participants in this proceeding agree that the current MX Test favours existing customers at the expense of new customers, the Panel approves FEI's proposed updates to the MX Test parameters including the discounted cash flow term, the customer addition term, the sliding-scale overhead rate and the discontinuance of energy efficiency credits. The Panel also approves FEI's proposed updates to the service line cost allowance.

The Panel approves FEI's proposal for a system extension fund as a pilot program commencing in 2017 through December 31, 2020. The Panel finds that establishing the proposed SEF on a pilot basis is in the public interest provided that the costs borne by overall ratepayers are reasonable. FEI must address the appropriateness of continuation of the system extension fund SEF pilot program in the June 30, 2020 filing of its updated rate impact analysis.

In the proceeding, FEI's expressed a willingness to explore a commercial customer SLCA. FEI is directed to update the Commission on the results of its stakeholder engagement related to consideration of implementation of a separate commercial customer service line cost allowance at the time of filing its update rate impact analysis in 2020.

Reporting

Noting that all parties agree that the current MX Reporting framework should be discontinued and using the rate impact analysis is appropriate, the Panel generally accepts FEI's proposed reporting framework.[1]

[1] As set out in the Application and in response to BCUC IR 1.32.1.

1.0 INTRODUCTION

1.1 Overview of the application

On June 30, 2015, FortisBC Energy Inc. (FEI) applied to the British Columbia Utilities Commission (Commission) for approval of changes to its mains extension test (MX Test), customer connection policies and related reporting requirements (Application).

The purpose of FEI's system extension policies is to ensure that existing customers are not exposed to undue costs from the connection of new customers. The MX Test is a method for determining whether a main extension to FEI's distribution system will be economic and can proceed without a contribution in aid of construction (CIAC) from the customer wishing to connect to FEI's distribution system. FEI's current MX Test is based on a discounted cash flow (DCF) methodology that considers the revenues and costs associated with a planned main extension over a 20-year period, discounted at a rate based on FEI's weighted average cost of capital. The test produces a profitability index (PI) for a main extension which is the ratio of the DCF of net cash inflows over 20 years and the DCF of capital costs of attaching customers in the first five years of the main extension. If the results do not meet the approved PI threshold, a financial contribution is required from a customer.

FEI proposes amendments to the MX Test and the related customer connection policy as described in Section 1.4.

FEI also proposes changes to the reporting requirements including a discontinuance of the current reporting requirements.

1.2 Background

By Order G-101-93, the Commission approved the DCF-based MX Test including a minimum ratio of 1.0 for each proposed main extension, a revenue forecast calculation based on the 33 year depreciation life of meters and inclusion of full overheads in the main extension cost projections.

On June 9, 1995, by Order G-50-95, the Commission initiated a generic hearing into the mains extension policy and economic tests of the natural gas and electrical distribution utilities in British Columbia. The process considered the existing policies to determine if opportunities existed to improve the fairness and efficiency and to make them more consistent with one another. The proceeding concluded with the issuance of the Utility System Extension Test Guidelines on September 5, 1996 (Guidelines) and these Guidelines reaffirmed the DCF method as the appropriate approach to evaluate the economic viability of proposed main extensions.

In the BC Gas Utility Inc. (now FEI)[2] 1996 Rate Design Application[3] and the Approval of its Service Line Cost Allowance Proposal application[4], the Commission approved the $1,100 service line cost allowance (SLCA) and a

[2] BC Gas Utility Inc. became Terasen Gas Inc. and is now FortisBC Energy Inc.
[3] BC Gas Utility Inc. 1996 Rate Design Application, Order G-98-96 with Reasons for Decision dated October 7, 1996.
[4] BC Gas Utility Inc. Approval of its Service Line Cost Allowance Proposal, Decision dated October 18, 1996, Order G-104-96.

service line installation fee (SLIF) of $215, in addition to the proposed application fee of $85, applicable to infill customers.

In response to Order G-80-96, FEI filed its revised System Extension Test Submission on August 30, 1996. The Commission approved changes to the test including a reduction to the revenue forecast time frame for the MX Test to match the Integrated Resource Plan (IRP) planning time frame of 20 years, the use of the SLCA amount in the MX Test to cap the cost of expected service lines and incorporation of the SLIF and application fee.

In the Terasen Gas Inc. (TGI) Multi-Year Performance Based Rate Plan for 2004-2007 Negotiated Settlement[5], the Commission directed TGI to conduct a comprehensive review of its system extension and customer connection policies, including the MX Test.[6] Subsequently, TGI filed its System Extension and Customer Connection Policies Review application in 2007 and the proceeding resulted in a number of changes being approved by the Commission including:

- The elimination of the SLIF and an increase to the SLCA for single family dwellings and duplexes to $1,535 and $3,070;
- Approval of the use of energy credits;
- Continued use of the DCF-based MX Test;
- Use of an aggregate PI threshold of 1.1 in addition to the individual main extension PI threshold of 0.8, changing from the single PI threshold of 1.0 for all mains extensions; and
- To discontinue the use of the SLCA as an input in the MX Test.[7]

The Commission also required TGI to file a mains extension report (MX Report) annually.[8]

From 2011 to 2012, in response to FEI's annual MX reports, the Commission issued letters L-67-11, L-19-12, L-60-12, L-32-13 and a staff letter dated July 8, 2013.

In 2013, FEI initiated a review of its system extension and connection policies and in 2014, conducted a series of workshops with interested stakeholders and Commission staff.

On June 19, 2014, the Commission issued letter L-34-14, which identified forecasting accuracy, revenue security and existing ratepayer protection as concerns related to FEI's MX policy.

On August 22, 2014, the Commission issued letter L-44-14 encouraging FEI to complete its system extension and customer connection policies review in a timely manner and to file an application for revised mains extension policies addressing the concerns raised in letter L-34-14, by March 31, 2015.

[5] Terasen Gas Inc. Multi-Year Performance Based Rate Plan for 2004-2007, Negotiated Settlement, Order G-51-03 with Reasons for Decision dated July 29, 2003.
[6] Order G-160-06, Appendix A, Reasons for Decision, p. 11.
[7] Exhibit B-1, Application, pp. 12–15.
[8] Order G-152-07, Appendix A, Reasons for Decision, pp. 36–37.

On December 19, 2014, FEI requested a filing extension for its system extension application due to resource constraints and on February 20, 2015, the Commission granted the extension and directed FEI to file its application by June 30, 2015. FEI filed the Application on June 30, 2015.

1.3 Regulatory process

On July 23, 2015, by Order G-126-15, the Commission issued a preliminary Regulatory Timetable including one round of information requests (IRs) and requested submissions on further process.

Ten interveners registered for this proceeding:

- Commercial Energy Consumers Association of BC (CEC);
- British Columbia Hydro and Power Authority (BC Hydro);
- British Columbia Old Age Pensioners' Organization *et al*. (BCOAPO);
- The BC Sustainable Energy Association and the Sierra Club of British Columbia (BCSEA);
- Pacific Northern Gas Ltd. (PNG);
- Peace River Regional District Electoral Area B (PRRD);
- Linda Larson, MLA Boundary Similkameen (Larson);
- Vancouver Island Economic Alliance (VIEA);
- Regional District of the Okanagan Similkameen Electoral Area B (RDOS); and
- Seabird Island Band (Seabird Island).

One party registered as an interested party: Katrine Conroy, MLA Kootenay West, and three parties provided letters of comment: the City of Port Alberni, the District of Saanich and the Greater Victoria Chamber of Commerce.

On August 31, 2015, FEI submitted a letter to the Commission requesting to extend the Regulatory Timetable due to resource constraints from multiple deadlines in other ongoing regulatory processes. On September 1, 2015, by Order G-143-15, the Commission granted the extension request and set out new dates for submissions on further process.

Order G-170-15 set out the remainder of the Regulatory Timetable, including a second round of IRs and written final arguments. FEI's final argument was received on November 22, 2015 and intervener arguments were received on or before December 12, 2015. FEI provided its reply argument on December 17, 2015.

On February 22, 2016, the Commission issued Panel IR No. 1 to FEI to obtain additional information on FEI's rate impact analysis (RIA) inputs and assumptions and what effect changing these assumptions would have on the outcome of that analysis. The Panel also requested further information and clarity on services and meter cost estimates and commercial consumption. To provide for responses and any resulting changes to final arguments and reply arguments, the Commission also amended the Regulatory Timetable.

On February 29, 2016, FEI requested a suspension of the Regulatory Timetable to seek clarification from the Commission on a number of Panel IRs. In addition, due to resource constraints during the period from March 10,

2016 to March 31, 2016, FEI requested an extension of time for those IRs which FEI could not address without clarification.

On March 24, 2016, the Commission issued Exhibit A-10 in response to FEI's request for clarification and the Panel requested FEI to propose a timeline to respond. The Panel also invited FEI and interveners to comment on whether a streamlined review process (SRP) was appropriate to address the issues raised and, if an SRP were to be held, to propose dates.

On April 14, 2016, FEI submitted its responses to Panel IR No. 1. FEI also submitted that the process to date was sufficient to proceed directly to written arguments, unless the Commission had technical questions regarding its responses.

On April 19, 2016, BCSEA, BCOAPO and CEC provided submissions. On April 22, 2016, FEI provided reply and on May 3, 2016, by Order G-57-16, the Commission set out the remaining Regulatory Timetable, including a supplemental argument specific to FEI's responses to Panel IR No. 1.

On May 9, 2016, CEC, BCOAPO and BCSEA provided their supplemental arguments and on May 16, 2016, FEI provided its supplemental reply argument. Accordingly, the argument phase for this proceeding ended on May 16, 2016.

1.4 Approvals sought

In the Application, FEI seeks approval for the following:

1. Effective January 1, 2016, with respect to FEI's MX Test:
    a. To discontinue the use of the 20-year term and the application of a 40-year DCF term for use in the MX Test.
    b. The consideration of a 10-year horizon for customer attachments in circumstances when the existence of a long-term plan for growth that exceeds five years can be reasonably demonstrated.
    c. The application of the sliding-scale methodology as proposed in the Application to calculate the overhead rate for mains extensions where capital costs are forecast to be greater than $25,000.
    d. The discontinued application of the +10 percent and +15 percent Energy Efficiency Consumption credits for customers with high efficiency and Leadership in Energy and Environmental Design (LEED) certified appliances.
2. Effective January 1, 2016, with respect to FEI's customer connection policy:
    a. An updated SLCA amount of $2,150 for single family dwellings and $4,000 for duplexes.
    b. The annual update of the SLCA amounts using the approved methodology in November, for implementation January 1 of the following year.
    c. The establishment of a system extension fund (SEF) of $1.0 Million, to be recovered through gas delivery rates and included in rate base each year as an offset to CIAC.
3. Effective with the reporting on 2015 mains extensions:
    a. The discontinued use of the current MX reporting requirements.

b. To provide a report to the Commission at the end of the first quarter for the preceding year's mains extensions that includes:

   i. The total number of main extensions completed, including the total actual costs for main extensions completed; the forecast PI for all main extensions in aggregate; the total number of customers providing a CIAC, including the total dollar value of CIAC. For main extensions using a 10-year customer addition forecast period, the number of main extensions, the actual costs and the total number and dollar value of CIAC will be provided separately from the total main extensions.

   ii. The total number of approved requests to access the SEF, including the total dollar value of the approved requests; and

   iii. Updated MX Test input parameters consistent with approved practices, for implementation January 1 of the following year.[9]

1.5 Regulatory framework

FEI submits the applicable legal framework governing system extension policies are sections 29, 30 and 59 to 61 of the *Utilities Commission Act* (UCA).[10] FEI states sections 29 and 30 deal with extensions, expressly include a public interest test and contemplates the Commission being able to impose terms on extensions. FEI submits the "MX Test, including any resulting CIAC, represents 'terms the commission directs' with respect to extensions."[11]

FEI also submits sections 59 to 61 of the UCA apply to system extension polices because rate is broadly defined under the UCA to include a rule, practice, measurement, classification or contract of a public utility or corporation relating to a rate.[12] FEI argues the definition of a rate is broad enough to capture all of its proposals related to system extensions.[13] FEI further submits the "public interest analysis and the rate (i.e., 'just and reasonable'/undue discrimination) analysis both require consideration of existing and potential customers."[14]

Intervener arguments

CEC also references sections 28 to 30 and 59 to 61 of UCA[15] and submits there is nothing directing the Commission to follow other jurisdictions. CEC's position is the Commission can decide what its own review tests should be to ensure system extensions are in the public interest and the Commission has authority to determine the appropriate MX Test to be applicable to utilities in BC, generally, and to FEI, specifically.[16]

CEC outlines several considerations of the public interest[17] and submits that the Bonbright Principles should be incorporated into the analysis and states that the guiding principles from the stakeholder consultation reflect the key considerations in the public interest.[18]

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[9] Exhibit B-1, pp. 2–3.
[10] FEI Final Argument, p. 4.
[11] FEI Final Argument, p. 4.
[12] *Utilities Commission Act*, RSBC 1996, Chapter 473, section 1, "rate" includes (a) a general, individual or joint rate, fare, toll, charge, rental or other compensation of a public utility, (b) a rule, practice, measurement, classification or contract of a public utility or corporation relating to a rate, and (c) a schedule or tariff respecting a rate;
[13] FEI Final Argument, p. 4.
[14] FEI Final Argument, p. 4.
[15] CEC Final Argument, p. 7.
[16] CEC Final Argument, pp. 7–8.
[17] CEC Final Argument, p. 8.

FEI reply argument

FEI submits since the MX Test is a "rate construct" any public interest considerations used to inform the test must treat new and existing customers justly and without undue discrimination.[19] FEI also submits that in considering the public interest, broader social and economic considerations are relevant to the extent they can be accommodated by just and reasonable constructs.[20]

Panel discussion

The Panel agrees with FEI and CEC that the applicable legal framework governing system extension policies is sections 29, 30 and 58 to 61 of the UCA and accordingly, in addition to considering the public interest, system extension policies require consideration and fair treatment of existing and potential customers.

2.0 KEY ISSUES

2.1 Purpose of system extension policies

In the 2007 Terasen Gas (Vancouver Island) Inc. and TGI System Extension and Customer Connection Policies Review Decision, the Commission stated:

> ...the primary purpose of extension and connection policies is to promote fair and equitable treatment of customers and, more specifically, to ensure that existing customers are not adversely affected by the addition of a new customer or customers.[21]

FEI states its current system extension policies and related constructs have been defined through a number of regulatory proceedings and the purposes and design of the MX Test, SLCA and CIAC have remained consistent, with periodic updates approved by the Commission.[22]

FEI stated the purpose of an MX Test is to determine the reasonable level of investment for the FEI to incur to construct a requested main extension without contribution by the customer.[23] FEI points out that the MX Test is designed to be an efficient method of attaching customers to the system and a mechanism to attach customers efficiently is warranted because the costs to attach customers to the system are generally small, well below a Certificate of Public Convenience and Necessity (CPCN) threshold.[24]

FEI submits the purpose of the MX Test is to promote a fair balance between the interests of new and existing customers in that "new customers should not be unduly burdened with attachment costs and existing customers should not be exposed to undue costs from the attachment of the new customers."[25]

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[18] CEC Final Argument, pp. 8–9.
[19] FEI Reply Argument, p. 2.
[20] FEI Reply Argument, p. 3.
[21] Terasen Gas (Vancouver Island) Inc. (TGVI) and Terasen Gas Inc. (TGI) System Extension and Customer Connection Policies Review Decision dated December 6, 2007, p. 19.
[22] Exhibit B-1, p. 22.
[23] Exhibit B-9, BCUC IR 2.20.1.
[24] Exhibit B-9, BCUC IR 2.34.1.
[25] FEI Final Argument, p. 4.

In FEI's view, the MX Test is a "practical and fair means" to assess whether a main extension properly balances the interests of new and existing customers, or whether a CIAC is required.[26]

Intervener arguments

PNG states the principal objective of the MX Test is to assist in fairly allocating risks, costs and benefits between existing and new customers.[27]

CEC states the "MX Test accesses whether a main extension is economic, and establishes the appropriate level of investment the Company will make on behalf of a willing customer wishing to attach to the Company's distribution system."[28]

Panel discussion

The Panel accepts that the purpose and design of the MX Test, SLCA and CIAC is to ensure a fair and efficient method of making connections and the fair treatment of customers. In the Panel's view, these criteria should have sufficient checks and balances in place to enable the fair treatment of new and existing customers, ensuring that existing customers are not adversely affected by an extension of the system.

2.2 Performance of system extension and customer connection policies

To evaluate the performance of system extensions and customer connection polices, the Panel considers the following questions:

1) Is it appropriate for FEI to continue to use its current system extension and customer connection policies, including use of a discounted cash flow cost-benefit ratio analysis in the MX Test?
2) What is the appropriate methodology to evaluate the past performance of application of system extension and customer connection polices with respect to ensuring that existing customers are not adversely affected by the addition of a new customer?
3) How have existing customers been impacted by growth in customers added as a result of FEI applying its system extension and customer polices?

These issues are addressed below.

2.2.1 Continuing use of existing policies

FEI states its existing system extension regulatory constructs, including the MX Test, the SLCA and CIAC, continue to serve their intended purposes[29] and the fundamentals of the MX Test remain sound.[30] FEI cites several observations made by EES Consulting (EES), its expert, supporting this position.[31]

A summary of EES findings in its 2015 report (2015 EES Report) related to the general approach to extension tests resulting from its survey of practices by other utilities is as follows:

[26] FEI Final Argument, p. 5.
[27] PNG Final Argument, p. 1.
[28] CEC Final Argument, p. 3.
[29] Exhibit B-1, p. 5.
[30] Exhibit B-1, p. 35.
[31] Exhibit B-1, p. 35.

1) The incremental pricing approach is the standard method used for determining the need for CIAC payments for system extensions;
2) While there are differences in the actual tests used, all of the tests are attempting to quantify the benefits and costs associated with a new customer;
3) Consistent with FEI, the most common approach in Canada uses a DCF analysis and looks at the cost-benefit ratio in determining the customer's share of extension costs is the most common approach across Canada; and
4) Other methods exist, however, all are consistent with a cost-benefit approach, with some methods streamlined for simplicity;[32]

Regarding the use of the MX Test, EES concluded:

> …we consider the FEI approach to be in keeping with the methods used by other utilities in Canada and the U.S. We do not see any distinct advantages to the internal rate of return method or other approaches, although we would consider them all to be appropriate methods. There is no reason for FEI to change its overall cost-benefit approach at this time as the current approach provides a reasonable assessment of incremental cost analysis.[33]

FEI submits the MX Test, using a DCF analysis and a PI of 0.8 individually and 1.1 in aggregate, has proven to be a "practical and fair" approach to assess whether a main extension properly balances the interests of new and existing customers, or whether a CIAC is required. FEI also submits its DCF methodology and PI methodology are consistent with Commission guidelines and industry practice and mechanisms employed throughout North America.[34]

Intervener arguments

BCSEA agrees that a DCF methodology is appropriate for the FEI MX Test.[35]

Commission determination

The Panel finds it appropriate for FEI to continue to use its existing system extension and customer connection methodologies, including its use of a discounted cash flow analysis and profitability index. The Panel notes there is no disagreement among the parties and that FEI's existing policies are consistent with Commission Guidelines and the findings of EES' survey of practices by other utilities.

2.2.2 Appropriate performance evaluation methodology

FEI proposes refinements to its current MX Test while retaining its fundamental elements. Prior to deciding on the appropriateness of these refinements, the Panel must assess the past performance of system extension and customer connection polices with respect to ensuring that existing customers are not adversely affected by the addition of a new customer. In this proceeding, a number of methods for evaluation of the performance of system extension have been explored. The two methods considered by the Panel are:

[32] Exhibit B-1, Appendix A, EES Consulting FEI System Extension Policy Review Report (2015 EES Report), dated June 2015, p. 12.
[33] Exhibit B-1, Appendix A, 2015 EES Report, p. 12.
[34] FEI Final Argument, p. 5.
[35] BCSEA Final Argument, p. 2.

1) Use of the MX Test results as reported in accordance with the Commission reporting requirements as set out in Orders G-152-07, G-06-08 and related Commission letters L-67-11, L-19-12 and L-60-12 (the Modified MX Test); and
2) EES ratepayer impact analysis.

2.2.2.1 Use of the Modified MX Test results

In its 2014 Mains Extension Report, FEI stated that the Modified MX Test results cannot be used to determine the past economic performance of a main.[36] FEI outlined its view of the purpose, limitations and use as an evaluation tool as follows:

1) The MX Test is a planning tool that was developed to determine if FEI can connect a customer economically.
2) The parameters that the MX Test uses are a set of point in time forecasted factors/figures, such as the customer's natural gas rate, depreciation period, discount rate and overhead, as well as forecasted customer attachments and costs based on an educated and best effort estimate of certain events that may happen in the future.
3) The MX Test has limitations due to use of forecast information at a point in time.
4) The Modified MX Test does not account for any activity which may occur after the first five years, uses a discounted cash flow calculation over 20 years representing one half of the expected life of the main, and assumes the rate a customer pays remains constant for 20 years.
5) The Modified MX Test is not designed to determine the eventual profitability of a main or the financial impact of a main on ratepayers.
6) The Modified MX Test, as requested by Commission staff:
    a. Assumes that if an attachment does not occur in the year in which it was originally forecast then it will never materialize while FEI's experience is that the vast majority of these attachments do occur over time; and
    b. The reforecast uses actual rather than approved consumption.
7) The unfavourable PI results as reported in the Modified MX Report are not reliable indication that the customer connections are in fact uneconomic.[37]

FEI states the use of only the initial five-year period to forecast customer additions in the DCF analysis makes it an appropriate conservative basis for an ex-ante test for mains extensions. FEI points out this same feature makes re-running the MX Test each year for past main extensions with updated forecasts inappropriate for determining ex-post whether those extensions have been economic. In FEI's view, an extension will continue to generate benefits for its service life (in excess of 50 years), and customers will continue to join the system after the fifth year and as a result, use of the Modified MX Test cannot be used for the purpose of evaluating whether or not past extensions have been beneficial to customers.[38]

FEI states there are three assumptions in the Modified MX Test that are invalid or negatively skew the results:

[36] Exhibit B-1, Appendix D, FEI 2014 Main Extension Report, p. 1.
[37] Exhibit B-1, Appendix D, FEI 2014 Main Extension Report, pp. 4–10.
[38] Exhibit B-1, p. 18.

1) The approach assumes consumption as reflected in the MX Test is intended to be a forecast of what new customers on the extension will consume, when in fact it is a credit for consumption based on the usage of existing customers that is intended for a different purpose;
2) The current reporting approach begins with an original forecast of attachments used in the MX Test, then, when deriving actuals for comparison purposes, as requested by Commission staff, FEI is required to assume that delayed attachments do not materialize; and
3) The analysis that FEI is required to undertake in the MX Report does not produce actual results, but rather produces an updated forecast.[39]

FEI stated the Modified MX Test is not an "Actual PI" and a re-running of the MX Test using actuals could only occur at the end of the useful life of the main.[40]

In its final argument, FEI submits the use of the Modified MX Test to assess FEI's mains extension activity yields unreliable and potentially misleading results[41] and the Commission's use of the current reporting to evaluate FEI's past performance of the MX Test parameters is unfair.[42]

Intervener arguments

CEC submits that it has reviewed the evidence with respect to the current MX reporting and agrees that the current reporting structure does not provide the appropriate information and it is reasonable for the current MX reporting requirements to be discontinued.[43]

In its final argument, BCSEA takes no position regarding the merits of the MX Test reporting methodology.[44] In its supplementary argument, BCSEA accepts:

> …there may be limited benefit in trying to define a valid evaluation methodology based on variance(s) between values used in the MX Test and SLCA and later 'actuals.' In BCSEA-SCBC's view, the MX Test and SLCA function as coarse filters rather than as forecasts.[45]

FEI supplementary reply argument

FEI points out that BCSEA's position as expressed in its supplementary reply argument means that FEI now has the support of all interveners on the merits of this matter.[46]

Commission determination

The Panel finds the use of MX Test results, as reported in accordance with the Commission reporting requirements, is not an appropriate mechanism to evaluate the economic impact of main extensions on ratepayers. The Panel is persuaded that the Modified MX Test approach has limited usefulness as an evaluation tool given the numerous shortcomings identified by FEI. The Panel accepts that a final evaluation of the impact

[39] Exhibit B-1, pp. 45–46.
[40] Exhibit B-3, BCUC IR 1.7.2.
[41] FEI Final Argument, p. 36.
[42] FEI Final Argument, p. 39.
[43] CEC Final Argument, p. 33.
[44] BCSEA Final Argument, p. 4.
[45] BCSEA Supplementary Argument, p. 3.
[46] FEI Supplementary Reply Argument, p. 2.

of a main extension can only occur at the end of the useful life of the main, whereas the Modified MX Test does not account for activity which may occur after the first five years of an extension. As FEI points out, the main extension will continue to generate benefits for its service life and customers may continue to join the system after the fifth year. The Panel also notes all of the parties support FEI's position.

2.2.2.2 Rate impact analysis

Overview of the rate impact analysis

FEI proposes a rate impact approach as an alternative for assessing if the MX Test is achieving its intended results. FEI submits the only way to truly determine the economic benefits of a main is after the passage of a material portion of the economic life of the main and waiting 50 or more years to evaluate mains is impractical.[47]

FEI engaged EES to assist in developing an RIA, a methodology for quantifying the actual impacts associated with the costs of mains and service extensions from adding new customer over a past period of time.[48] EES stated the RIA was designed to determine how the multiple years of growth impacts overall rates and whether the addition of capital costs from new customers are offset by the spreading of fixed costs over a higher amount of sales.[49] In the 2015 EES Report, the methodology is described as follows:

1) The approach employs the same factors that are used to determine FEI's revenue requirements using actual costs and gas consumption for 2015;
2) It isolates the historic growth and total incremental capital costs associated with new customers for a seven year period;
3) It measures the annual sales or gas consumption before and after customer additions and determines total sales with and without the new customers; and
4) It holds constant all other factors and calculates the costs and benefits with and without the growth to determine if the growth itself would lead to a rate increase for existing customers.

The following table provides the detailed results of FEI's RIA.

[47] Exhibit B-1, p. 47.
[48] Exhibit B-1, Appendix A, 2015 EES Report, pp. 1–2.
[49] Exhibit B-1, Appendix A, 2015 EES Report, p. 22.

Table 1 - FEI Rate Impact Analysis[50]

		2015 With Growth	2015 Without Growth	2008-2014 Growth Amount
A	2008-14 Meters/Regulators			$16,026,762
B	2008-14 Services (Company Paid)			$119,082,263
C	2008-14 Mains (Company Paid)			$58,435,929
D	2008-2014 Standing Job Costs and Internal Costs			$7,228,180
E	Rate Base	$3,656,399,000	$3,455,625,867	$200,773,133
F	Return, Depreciation, Taxes	$522,883,000	$495,129,045	$27,753,955
G	Multiplier for Return, Depreciation, Taxes	13.8%	13.8%	13.8%
H	O&M Expenses	$238,093,000	$227,622,688	$10,470,312
I	50% of Customer Growth Rate			4.4%
J	Other Revenues/Expenses	-$3,942,000	-$3,942,000	$0
K	Offsetting Bypass Revenues	-$29,802,000	-$29,802,000	$0
L	Total Revenue Requirement (exc. Cost of Gas)	$757,034,000	$718,809,732	$38,224,268
M	**Net Revenue Requirement (exc. Cost of Gas)**	**$727,232,000**	**$689,007,732**	**$38,224,268**
N	Customers	970,399	885,051	85,348
O	Percent Growth in Customers			8.8%
P	Average GJ/Cust	180	184	134
Q	**Total GJ**	**174,623,400**	**163,169,382**	**11,454,018**
R	**Cost per GJ (exc. Cost of Gas)**	**$4.16**	**$4.22**	-$0.06
S	**Percent Difference**			-1.4%
T	**$ Difference per Original Customer** ***(Rate Impact per Customer per Year)***			-$10.45
U	**Cumulative Rate Impact**			-$10,142,079
V	**Equivalent Capital Spending with 13.8% Multiplier**			$73,368,174

[50] Exhibit B-1, Appendix A, 2015 EES Report, p. 27.

Issues related to key inputs

Prior to an overall evaluation of use of the RIA, the Panel considered the key inputs used in FEI's RIA, including the determination of new customer additions, the calculation of the incremental capital cost and operating, maintenance costs associated with new customers and the average GJ use-per-customer. In its review of these key inputs, the Panel identified issues with respect to new customer additions and identifying incremental capital cost associated with new customers. The specifics of these issues are addressed below.

1. New customer additions

The RIA uses 85,348 new customer additions based on detailed actual information on customers added for the 2008 to 2014 period.[51] FEI confirmed that when a service is retired due to the demolition of an older home and a new home constructed on the same site, the replacement service is treated as a new service.[52] With respect to service line replacement, FEI stated:

1) There will often be a time lag between retirement of the service and installation of a replacement; and
2) As a result of the densification of new developments, multiple service line replacements are increasingly common and in this situation, each service is counted as a new service.[53]

FEI stated a number of scenarios can result in a customer additions included in the RIA:

- A new connection and one customer (increase in revenues);
- A new connection and multiple customers (increase in revenues);
- A disconnection with a like reconnection (no increase in revenues); and
- A disconnection with an unlike reconnection (increase in revenues).[54]

FEI stated that while it is not possible to determine with certainty how many MX Tests and how many SLCA customers are included in the 85,348 count, as such an undertaking would require an individual analysis of each customer's situation. FEI is reasonably confident that only a small percentage of the additions would relate to circumstances related to the third and fourth scenarios above where the service was newer than the seven-year period covered by the RIA.[55] To support this position, FEI stated it:

> …conducted an analysis of the service line abandonments for 2013 based on the original install date of the service. FEI determined that of a total of 3,633 abandonments, only 236 were less than 10 years old at the time, or approximately 6.5%. Within that small percentage, some would have been replaced with a like reconnection and no increase in revenues, others were likely not replaced at all (and therefore would not have been included in the 85,348), while others would have been replaced with multiple services and result in an increase in revenues (i.e. higher density or multi-family). This would leave very few cases where the estimated growth in load

[51] Exhibit B-1, Appendix A, 2015 EES Report, p. 25.
[52] Exhibit B-9, BCUC IR 2.5.1.
[53] Ibid.
[54] Exhibit B-12, Panel IR 1.4.1.
[55] Exhibit B-12, Panel IR 1.4.1.

> would not be higher than current use, and the result would be an insignificant change to the RIA.[56]

FEI confirmed the 85,348 customer additions represent the total population of customer additions resulting from service line additions after application of the MX Test or the SLCA.[57] FEI submits these are the relevant new customer additions in the context of the RIA because the actual number of customers and the consumption of those customers are main drivers in the determination of the revenue calculated in the RIA.[58]

Intervener arguments

In its supplementary argument, BCSEA accepts FEI's response that it is appropriate to use gross customer additions used in the RIA as it is impractical to obtain a net figure due to the detailed analysis required and given the distinction between net and gross, it does not have a material impact on the RIA results based on FEI's analysis of 2013 abandonments.[59]

Commission determination

The Panel accepts FEI's approach for identifying new customer additions for use in its rate impact analysis. The Panel notes BCSEA's support for FEI's position and that none of the other interveners oppose FEI's approach. The Panel also notes that the new customer additions used in an RIA represents the total population of customer additions resulting from service line additions after application of the MX Test or the SLCA.

2. Incremental capital cost associated with new customers

EES stated that to determine the incremental capital cost associated with new customers, they "included the costs associated with meters/regulators, services and mains for new customers as well as costs associated with Standing job orders and internal costs."[60] For the period from 2008 to 2014, the total for the four categories was $200.7 million and this total reflects only the costs paid for by the utility.[61]

FEI explained the incremental capital cost associated with new customers used in the RIA does not include the impact of customer growth on sustainment/other capital. FEI stated:

> The purpose of the EES Rate Impact analysis is to quantify the impacts of near term customer growth on rates. Sustainment/Other capital is not linearly related to customer growth but is required over time. For example, if a new customer is added through a main extension and service line addition then that main and service line would not require sustainment/other capital until such time that either the assets were fully depreciated and needed to be replaced or perhaps a standards change required work on the assets. To be clear, sustainment/other capital is not directly related to near term (immediate) customer growth capital and is not an incremental cost linearly related to the addition of customers.[62]

[56] Exhibit B-12, Panel IR 1.4.1.
[57] Exhibit B-12, Panel IR 1.4.1.
[58] Exhibit B-12, Covering Letter, p. 2.
[59] BCSEA Supplementary Argument, p. 2.
[60] Exhibit B-1, Appendix A, 2015 EES Report, p. 24.
[61] Exhibit B-1, Appendix A, 2015 EES Report, p. 24.
[62] Exhibit B-9, BCUC IR 2.30.4.

FEI stated that adding 100 percent of the customer growth sustainment capital[63] results in a change in the RIA from an average savings (benefit to existing customers) of $10.45 per customer per year to an average savings of $9.61 per customer per year and adding 50 percent of the customer growth sustainment capital resulted in a change in the RIA to an average savings of $10.03 per customer per year.[64]

Intervener arguments

BCSEA submits that if the RIA is to be used, capital associated with customer additions should be included in the RIA. BCSEA notes FEI's point that including sustainment capital in the RIA does not negate the positive results in terms of average savings per customer per year in the data analyzed. However, in BCSEA's view, "the inclusion or exclusion of sustainment capital in the RIA should be determined on consideration of the principles not the size of impact on the results."[65]

BCOAPO submits sustainment capital should be included in the RIA and explains as follows:

> Although sustainment capital is not a near-term expense associated with customer growth, it is a system cost that does increase with increases in the number of customers. It becomes possible to disregard the increasing cost of sustainment capital associated with customer additions only by maintaining a narrow focus on a single main over a limited period of time. If the scope of consideration broadens to include multiple mains or longer time periods, increases in sustainment capital will be required as a consequence of customer additions. That is, while sustainment capital increases may not be linearly related to customer additions in the short term, they are related to customer additions.[66]

BCOAPO also notes the inclusion of sustainment capital in the RIA does not change the analysis that under the existing criteria, customer additions have a significant beneficial effect on existing customer rates and as a result, BCOAPO does amend its previous submissions.[67]

FEI supplemental reply argument

FEI submits that sustainment capital should be excluded from the RIA:

- The principle of the RIA is to represent the actual incremental revenues and costs attributable to adding new customers over a specific period of time;
- Sustainment capital is a future cost that is only partly attributable to new customers and it is also difficult to estimate the proportional impact; and
- Adding sustainment capital to the RIA reintroduces the concept of using a proxy to estimate a future incremental cost or revenue.

FEI submits that, at most, that sustainment capital included in the RIA should be limited to 50 percent of the total.[68]

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[63] Annual customer growth sustainment capital is derived from multiplying total sustainment capital by either 100 or 50 percent of the growth rate in the average number of customers; Exhibit B-12, Panel IR 1.2.1.
[64] Exhibit B-12, Panel IR 1.2.1.
[65] BCSEA Supplemental Argument, p. 1.
[66] BCOAPO Supplemental Argument, p. 1.
[67] Ibid.
[68] Exhibit B-14, p. 2.

Commission determination

The Panel finds it appropriate for FEI's estimate of incremental capital cost associated with new customers to include an estimate of the impact of new customers on sustainment capital. **In the absence of FEI preparing a more refined estimate, the Panel accepts an estimate using 50 percent of the growth rate of average number of customers.**

The Panel acknowledges estimating the short-term impact of new customer growth on sustainment and other capital is difficult, however, the Panel agrees with BCOAPO and BCSEA that the addition of new customers to the system does impact sustainment capital over time and should be included in the impact analysis. The Panel does not agree with FEI that inclusion of such an estimate requires an estimate of "future incremental cost" since it is an estimate related to past costs incurred in the RIA period. The Panel notes FEI's submission that the estimate should be limited to 50 percent and accepts this as a reasonable approach. Using 50 percent of the customer growth rate is also consistent with the approach used in the RIA to estimate the incremental operation and maintenance (O&M) associated with new customers.

Use of RIA to measure performance

FEI states the RIA is a useful ex-post measure of the effectiveness of its system extension policies. Given that the true impact of a main extension can only be measured once a material portion of the life of the main has passed, in FEI's view, the RIA has limitations in its usefulness. However, FEI submits the RIA provides a practical means to guide the assessments of its system extension policies over a given time period and it is free of some of the issues associated with Modified MX Test.[69]

EES outlines the underlying theory of the RIA as being based on the following:

> …while customers cause the utility to incur additional costs, that is offset by the fact that many costs of the utility are fixed in nature and do not increase as customers are added. When more customers and sales are added to the system, those fixed costs are spread out among more customers and that benefits all ratepayers. The rate impact analysis attempts to model both the added costs and the added benefit of the additional sales to new customers.[70]

FEI describes the RIA as a comprehensive analysis of actual costs and revenues.[71] FEI submits the RIA views customer rates with and without actual extensions installed within a predetermined period by considering incremental revenues and costs of extensions completed, based on actual not forecasted data.[72]

Intervener arguments

Although BCSEA and BCOAPO argue for including sustainment capital in the RIA, none of the parties oppose use of the RIA as a method for adjusting how existing customers been impacted by growth in customers added as a result of FEI applying its system extension and customer polices.

[69] Exhibit B-1, p. 82.
[70] Exhibit B-1, Appendix A, 2015 EES Report, p. 23.
[71] FEI Final Argument, p. 1.
[72] FEI Final Argument, p. 14.

In its final argument, BCSEA takes no position on the merits of the RIA. However, in its supplemental argument, BCSEA expresses "support for the concept that a properly designed and implemented rate impact analysis is a valid method of evaluating the results of the particular MX Test and SLCA that are being applied."[73]

FEI supplemental argument

FEI submits BCSEA's endorsement of the use of the RIA as a tool to evaluate the effectiveness of the system extension policy means FEI now has the support of all interveners on this method.[74]

Commission determination

The Panel accepts the use of the rate impact analysis, modified to include an estimate of sustainment and other capital, as an appropriate mechanism to evaluate the economic impact of main extensions and infill customers on existing ratepayers. The Panel notes the RIA uses new customer additions resulting from extensions after application of the MX Test or the SLCA and qualifies a reasonable estimate of actual incremental revenue and cost impacts associated with this growth over a period of time. This quantification provides an acceptable snapshot of how the growth in customers has impacted rates over multiple years, without the need to wait until the end of the mains' life (i.e. 50 years) to do an actual assessment and without the requirement to make further detailed forecasts about the expected future rate impacts. The Panel notes none of the parties oppose the use of the RIA as an evaluation method.

2.2.3 Impact of customer growth on existing customers

EES stated that based on FEI's RIA, its current MX polices have led to rates that are lower than if the growth had not occurred and the annual savings of $10 million associated with this growth should be shared between new and existing customers.[75] EES concluded the RIA "clearly demonstrates that existing customers are actually benefiting from customer growth."[76]

FEI stated the results of the RIA can also be equated to an actual PI of 1.25 for the period between 2008 and 2014.[77]

FEI submits there is consensus among the participants that the conservative parameters of the MX Test are resulting in potential customers paying more than their fair share to access the FEI system.[78]

Commission determination

Since the Panel accepts the RIA as an appropriate mechanism to evaluate the economic impact of main extensions on existing ratepayers and the results are accepted by all parties, **the Panel finds the FEI rate impact analysis prepared by EES Consulting, for the period from 2008 to 2014, demonstrates existing customers are benefiting from new customers added as a result of the application of FEI's mains extension test and customer connection polices.**

[73] BCSEA Supplemental Argument, p. 3.
[74] FEI Supplemental Reply Argument, pp. 1–2.
[75] Exhibit B-1, Appendix A, 2015 EES Report, p. 26.
[76] Exhibit B-1, Appendix A, 2015 EES Report, p. 29.
[77] Exhibit B-9, BCUC IR 2.1.2.
[78] FEI Reply Argument, p. 1.

2.2.4 Frequency of updates

FEI views there to be little benefit in performing a historic RIA on an annual basis since the purpose is to assess how the MX Test and policy is working, not to determine if a specific main is profitable or to serve as a review of actual revenues or expenditures. FEI states if the RIA is performed every 5 to 7 years, this would provide an indication as to the effectiveness of the Commission-approved test and based upon the results may lead to further analysis and an application.

FEI states the MX Test is designed to be an efficient method of attaching customers to the system and performing the RIA annually is counter intuitive to this construct. FEI indicates it is important that the RIA consider a time period covering multiple years so that:

- The impact of customers added in the years following a main extension are included;
- The addition of a very large customer does not overly influence the results; and
- The natural variance in the size and costs for main extensions from year to year are smoothed out.

In FEI's view, when a multi-year period is used, an annual update will not result in significant changes on an annual basis and further, it would be inappropriate to change mains extension policies every year, including PI thresholds, as this would not allow for customer stability from a rate design perspective.

FEI also points out the cost of annual updates would be approximately $100,000-$150,000 higher than what FEI was envisioning and FEI considers the additional benefit does not make the investment worthwhile.[79]

FEI considers a review every 5 to 7 years would provide a balance between stability of policies and ensuring it properly considers impact to new and existing customers. If the review that is undertaken and filed with the Commission indicates that changes to system extension policies or parameters are required, FEI would make an application to the Commission to update its policies at that time.[80]

Intervener arguments

CEC submits it is reasonable for the MX Report to be discontinued and replaced by a "rolling ratepayer impact test using an average calculation of the MX test across all years."[81]

FEI reply argument

FEI reiterates its view that undertaking the RIA every year is too frequent.[82]

Commission determination

FEI is directed to file an updated rate impact analysis by June 30, 2020, incorporating the results to the end of 2019. The Panel agrees with FEI that annual updates to the RIA are not necessary. The Panel accepts an annual update will not result in significant changes to the RIA and that it will take a number of years before the impact

[79] Exhibit B-9, BCUC IR 2.34.1.
[80] Exhibit B-9, BCUC IR 2.34.1.1.
[81] CEC Final Argument, p. 33.
[82] FEI Reply Argument, p. 13.

of extensions in any given year can be assessed. However, the Panel notes FEI is proposing a number of significant changes to the MX Test, the majority of which will have the impact of reducing the current benefits to existing customers from system extensions. In the Panel's view, it is necessary to consider the potential cumulative effect of these changes in arriving at the appropriate time to set the next reporting interval for the RIA. Selecting too long a period could result in a delayed understanding of the impact of these policy changes on rates.

In advance of filing the updated rate impact analysis, FEI is directed to undertake a stakeholder engagement process to consider appropriateness of any amendments to the assumptions and methodology used in the rate impact analysis, including the number of years to be reflected in the updated analysis.

2.3 Commission letters L-34-14 and L-44-14

The Commission issued L-34-14 subsequent to its review of FEI's 2013 MX Report, building upon years of information filed in previous MX Reports and Commission/FEI correspondence on related matters.[83] In L-34-14, the Commission identified areas of concern it believed were contributing to a gap between FEI's MX Test forecasts prepared prior to undertaking an extension and re-calculated PIs using actual and re-forecasted data as specified in the MX Report. The Commission was concerned that FEI was consistently over-forecasting the PI compared to the "recalculated PI" and that FEI's forecasting accuracy, MX Test inputs, revenue security and existing ratepayer protection policies were contributing to the gap. The Commission also noted that it was "…concerned that the 2008 aggregate PI results over the five year period were below 1.0, indicating that existing ratepayers might be exposed to an undue cost burden as a result of the expansion of the distribution system to attach these new customers."[84]

The Commission sought comment from parties on FEI's mains extension performance and policies, asking parties to comment on:

1) The scope and process for a more detailed review of FEI's mains extension performance and policies;
2) FEI's security and ratepayer protection policies;
3) FEI's forecasting performance; and
4) The urgency of a review.

After reviewing comments from FEI and stakeholders, the Commission issued letter L-44-14. In this letter, the Commission encouraged:

> …the Companies [FEI] to continue with and complete their current consultation process in a timely manner. The Commission expects the Companies to continue working with stakeholders and Commission staff to develop and review a detailed terms of reference, address the concerns raised by the Commission in Letter L-34-14, and file an application for revised main extension policies in the first quarter of 2015. The concerns raised by the Commission in letter L-34-14 include but are not limited to: 1) the forecasting accuracy of main extension costs, number of

[83] Previous MX Reports, Shawnigan Lake, West Coast Road and Sooke Road related letters, orders and logs (L-67-11, L-19-12, L-60-12, L-61-12, L-32-13, Order G-44-12 and correspondence in Commission logs 27705, 37036, 33312, 37988, 40851, 43742, and 43347).
[84] Commission letter L-34-14 dated June 19, 2014.

attachments, timing of attachments and use per customer, and 2) the application of efficiency credits, contributions in aid of construction, and security deposits.

In Section 5 of its Application, in response to the concerns raised in Commission letters L-34-14 and L-44-14, FEI provides its views on existing ratepayers potentially being exposed to an undue cost burden, mains extension costs, number and timing of attachments, use-per-customer, energy efficiency credits, security and contributions in aid of construction. FEI also provides a new reporting methodology and states that it considers it has addressed the Commission's requests in the letters.[85]

In its final argument, FEI submits it has addressed the issues in the letters by:

- Undertaking a successful stakeholder consultation;
- Demonstrating that existing ratepayers have benefitted from extensions, rather than potentially being exposed to "undue cost burden";
- Demonstrating that FEI has used reasonable data inputs in the MX Test, and has undertaken steps to improve its data verification;
- Proposing to discontinue the use of efficiency credits; and
- Providing a compelling rationale for FEI's current approach to requiring a CIAC and security deposits.

Interveners did not comment on the Commission's concerns.

Panel discussion

The Panel views FEI's Application as responsive to the Commission concerns set out in L-34-14 and L-44-14. The Panel is satisfied with the stakeholder consultation process. Given the Panel's finding above that the RIA for the period from 2008 to 2014 demonstrates existing customers are benefiting from FEI's extensions and connection policies, this supports FEI's submission that ratepayers were not exposed to an undue cost burden and appropriately addressed this concern raised by the Commission.

In Sections 2.2.1 to 2.2.4 below, the Panel considers issues with respect to other Commission concerns including:

1) Are the consumption values used in the MX Test appropriate?
2) Are the cost estimates sufficiently accurate?
3) Are the forecast attachments reasonable?
4) Are the security deposits collected by FEI sufficient?

2.3.1 Consumption inputs

2.3.1.1 Residential consumption inputs

FEI states the residential consumption input is intended to credit new customers with an amount of consumption equal to the average consumption of other existing customers on a per appliance basis in order to treat the two groups comparably.[86]

[85] Exhibit B-1, pp. 70–82.
[86] Exhibit B-1, p. 78.

Based on a survey of practices of other utilities, EES stated:

> For residential customers, the utilities generally use some form of average usage that reflects appliance installation and/or the specific region. For residential gas use, utilities generally use standard numbers per appliance for their particular region as the basis for the usage per customer for each particular case. These estimates are typically based on the average use of existing customers differentiated by specific appliance. In a few cases, a total system average for the class is used for all customers regardless of appliances. These average use numbers are not intended to reflect the use of customers in the future but rather reflect the average usage of all customers on the system. That allows new customers to be treated equitably compared to existing customers.
>
> FEI is consistent in this practice as it uses the results of the REUS survey of usage per appliance which is based on all customers on the system. Because the REUS is updated periodically, any trends in customer usage will be reflected in the calculations. It is also consistent with the practice of BC Hydro where the line extension credit is a flat amount based on the costs and benefits associated with a customer using a standard amount of electricity based on historic averages.[87]

FEI describes the consumption input it uses as a credit each new customer receives for gas consumed by the appliance(s) being installed in their home. FEI derives the use-per-customer (UPC) by multiplying the individual appliances to be installed by the average consumption per appliance based on the consumption of existing customers as obtained through a Residential End Use Study (REUS).[88] The REUS is conducted by mail every four years at a cost of approximately $300,000.[89] FEI is currently using data from the most recent REUS conducted in 2012 in its MX Tests.[90] FEI anticipates that results from the next REUS, to be conducted in 2016, will be incorporated into the MX Test and SLCA calculations in 2018.[91]

FEI acknowledges there is an overall reduction in UPC for new residential customers when compared to existing customers. FEI identifies several factors which might contribute to this reduction including energy efficiency and conservation efforts, marketplace shifts to high efficiency appliances and a reluctance of customers to incur the high fixed costs associated with installing multiple gas appliances. FEI expects that these factors will continue to impact UPC for new residential customers as technology continues to evolve, energy efficiency programs expand and building codes reflect more energy efficiency.[92]

FEI does not propose any changes to how it calculates the consumption per customer credit in mains extension tests. FEI explains that it would not be fair to new customers to use a lower volume associated with newer more efficient appliances as a credit in the test as this would lead to a lower PI forecast and would inappropriately encourage customers to use less efficient appliances in order to create a more favourable MX Test result. FEI also explains that it does not have data on which to base a volume credit for gas usage in new more efficient appliances.[93]

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[87] Exhibit B-1, Appendix A, 2015 EES Report, pp. 13–14.
[88] Exhibit B-1, p. 19.
[89] Exhibit B-3, BCUC IR 4.2.
[90] Exhibit B-1, p. 19.
[91] Exhibit B-3, BCUC IR 4.1.
[92] Exhibit B-1, p. 79.
[93] Exhibit B-1, p. 79.

Based on discussions between Union Gas Limited and FEI, FEI understands in their mains test, Union Gas Limited and Enbridge Gas Distribution Inc. reduce the average consumption for the existing customers by 10 percent in order to reflect the mix of customers. This is done to efficiently recognize that new customers consumed less than existing customers because they have no way to accurately determine what new customer consumption will be. FEI point out this methodology is different than that used by FEI.[94]

FEI submits that its use of the average consumption of existing customers on a per appliance basis, as determined in the latest REUS, is appropriate as follows:

- Using a forecast consumption that was specific to a particular main extension would introduce a logical inconsistency in the MX Test, since the revenue inputs in the MX Test reflect rates determined with reference to the average consumption. FEI explains that the rates used as an input in the MX Test would have to be higher if the consumption per appliance is lower, given that all other things remained equal;[95]
- Lowering the consumption value without lowering the PI thresholds would penalize new customers for using energy efficient appliances by increasing the likelihood of a CIAC;
- Using the REUS to determine the average consumption takes into account the increased efficiency associated with new appliances because periodic updates to the REUS date will reflect any trends in customer usage. Incremental costs would be incurred to gather customer consumption data specific to new customers and the forecasting accuracy would be limited; and
- Using an average annual consumption of existing ratepayers is consistent with the practice in other surveyed utilities.

Intervener arguments

CEC submits it is appropriate for delivery margin revenues to be estimated using average consumption per customer data by appliance averaged across FEI's customer base.[96] CEC states using average consumption per appliance "is the equivalent of applying a postage stamp principle across all customers, and is therefore a simple, practical method of incorporating public interest concerns into the basic MX test."[97]

BCOAPO submits FEI's use of the average consumption of existing customers as the consumption input for the MX Test should be discontinued for the following reasons:

- Use-per-customer (UPC) is declining and is expected to continue to decline which suggests the current MX Test "significantly overstates the net present value of future cash flows." BCOAPO cites FEI evidence in the 2016 Annual Review of Rates application showing average UPC for residential customers experiencing a non-linear drop from a high of 95.2 GJ/year in 2006 to a low of 81.6 GJ/year forecast for 2016;
- FEI's proposed changes to the MX Test to make the test more reflective of reality will also make it less conservative and FEI's calculation of future revenues must simultaneously be changed to better reflect reality;[98] and

[94] Exhibit B-3, BCUC IR 1.35.4.
[95] FEI Final Argument, pp. 50–51.
[96] CEC Final Argument, p. 13.
[97] CEC Final Argument, p. 13.
[98] BCOAPO Final Argument, p. 5.

- Contrary to FEI's argument regarding the fair treatment of new and existing customers by not penalizing new customers for using more efficient appliances, FEI's approach allows customers who opt for energy efficient appliances to win through reduced CIACs, through reduced future fuel costs and if the appliance qualifies through subsidy under FEI's EEC program.[99]

FEI reply argument

In its reply argument, FEI reaffirms its position by stating that the consumption value is not an assumption about the expected consumption of new customers but this allows new customers to be treated equitably compared to existing customers.[100]

Commission determination

The Panel accepts FEI's continued use of the previously approved residential consumption methodology in its MX Test based on using an appliance consumption average derived from the Residential End Use Survey for all existing customers. In addition to this practice being consistent with past decisions, the Panel places weight on the June 30, 2015 EES Survey of Practices of Other Utilities which indicates FEI's practice is consistent with the practice of other utilities. EES also points out that periodic updates to the REUS will reflect reduced usage by customers over time.

The Panel agrees with FEI's view that more frequent updates to the REUS and segregation of results for newer customers will have a higher cost and may not result in more accurate information.

The Panel notes BCOAPO's concern with respect to FEI's proposed changes to the MX Test making the test less conservative and that this should be offset with a revenue calculation to better reflect expected consumption. The Panel considers the potential cumulative effect of these changes in setting the next reporting interval for the RIA. In the Panel's view, review of an updated RIA in 2020 will provide an opportunity for consideration of the cumulative impact of these changes.

2.3.1.2 Commercial consumption inputs

FEI states the input for commercial and industrial consumption is determined based on the specific business needs and/or operational requirements of each customer.[101] FEI collaborates with these customers and adds its industry experience in order to develop the best estimate possible.[102]

FEI acknowledges that for mains extension projects where there is a mix of residential and commercial customers, the actual consumption figures and UPC are subject to significant variation from the forecast if just one of the larger commercial customers delays their attachment.[103] FEI explains this occurs because the usage of a large business is generally significantly greater than the combined use of several single family dwellings.[104]

[99] BCOAPO Final Argument, p. 6.
[100] FEI Reply Argument, para. 19, p. 8.
[101] Exhibit B-1, p. 19.
[102] Exhibit B-12, Panel IR 16.1.
[103] Exhibit B-1, Section 5.4.3, p. 79.
[104] Exhibit B-1, Section 5.4.3, p. 79.

FEI presents actual annual data for mains extensions completed from 2009 through to 2013.[105] FEI explains that these samples are extracted according to the MX Reporting parameters defined by the Commission, and that FEI considers that the MX Report does not represent a reasonable sample of the population.[106]

FEI explained it is too early to draw conclusions about the consumption patterns of these commercial customers. FEI stated that the data referenced in the Panel IR comes from the 2014 Year End MX Report which is limited to years one and two of the 60+ year life of a main extension. FEI expects that over time, consumption patterns will stabilize as these businesses mature and, it is also likely that additional infill customers, not a part of the original MX Test, will attach to the extension.[107]

FEI considers its methods used to estimate the consumption credits are reasonable and should continue.[108] FEI restated its position that the consumption value is not an assumption about the expected consumption of new customers and that "the referenced variances are the result of comparing apples to oranges."[109]

FEI concludes its discussion regarding the commercial consumption forecast variances by stating:

> …over-forecasting of commercial consumption will reduce the CIAC and result in higher costs being added to rate base, and under-forecasting commercial consumption will increase the CIAC and result in lower costs being added to rate base at the time the main is completed. Over the life of the main, however, the over-forecasting or under-forecasting of consumption during the relatively short (5 or 10 year) consumption forecast term of the MX test is not as relevant to the actual benefits and risks. It is the consumption that is added over the life of the main that ultimately drives the benefit of the main extension, and the more the revenue collected over the life of the main extension exceeds the original costs to install the main, the greater the benefit for customers.[110]

Panel discussion

The Panel notes FEI's view that the samples in the 2014 Mains Extension Report do not represent a reasonable sample of the population and that it is not possible to draw conclusions about the accuracy of forecasts during the relatively short forecast term of the MX Test. As noted previously, the Panel accepts the positive rate impact to new customers demonstrated in the 2008 to 2014 RIA and the Panel acknowledges the additional explanations provided by FEI in response to Panel IR 16.0. The Panel has no remaining concerns with respect to commercial consumption estimates.

2.3.2 Cost estimates

Overview

This section considers FEI's responses to the Commission's concerns related to variances in cost estimates.[111]

[105] Exhibit B-1, Appendix D, pp. 21–127.
[106] Exhibit B-11, Response to item 8.1, p. 6.
[107] Exhibit B-12, Panel IR 16.4.
[108] Exhibit B-12, Panel IR 16.4.
[109] Exhibit B-12, Panel IR 16.1.
[110] Exhibit B-12, Panel IR 16.4.
[111] Exhibit B-1, Appendix C, p. 1.

FEI explains the cost variances should be considered within the context of the number of attachments and if more customers are added than forecast, this will result in costs higher than forecast.[112] FEI points out the Commission IRs and Panel IRs have introduced six new methodologies directed at assessing the variances in the service line costs and five of the six methodologies involve the need to reforecast data using different assumptions. FEI identifies issues with the use of re-forecasting and with the specific inputs. FEI summarizes that these methodologies have focused on variances in service line costs and variances in consumption forecasts in isolation in only one or two years of the life of a main and variances in all of the MX Test components need to be considered together, as higher costs can be more than offset by higher consumption than forecast.[113]

FEI describes its implementation, in recent years, of a number of additional steps and refinements to increase the accuracy of its forecasts and approach to cost estimating, including the following changes:

- Use of manually intensive estimates for more complex projects versus use pricing averages for those projects that are simpler;
- Use of a manual estimate approach is done in conjunction with Geo-Code prices;
- Graduated senior management oversight and additional approvals from more senior staff based on size of the forecast costs; and
- Identification of efficiencies in mains and services work.[114]

FEI considers its forecasting accuracy with regards to the cost of a project is reasonable, its approach to costing using geo-pricing or manual estimates for special circumstances should continue and its cost variances have been steadily improving since 2010. FEI's expectation is that, with these measures in place and an on-going commitment to improving the processes, the forecasts will continue to be robust, acknowledging however that there will still be variances related to factors beyond FEI's control.[115]

FEI submits there will always be a variance in the forecast to the actual cost of a service line and any variance should be considered within the context of the average cost of attaching a new customer of $1,629. FEI argues that given this relatively low capital cost, efforts to improve the cost variance must also be weighed against the cost of those efforts to create a more accurate forecast for over 10,000 service lines a year. FEI concludes that consideration also needs to be given to the fact that despite this variance, the RIA still shows a positive impact for existing customers.[116]

To assess whether the Panel has any remaining concerns with respect to main and service line cost estimates used in the MX Test, the Panel considered the following:

1) Mains and mains extension cost variance;
2) Service line cost variances including an estimate of expected remaining costs;
3) MX Sample data cost variance analysis; and
4) Use of a contingency in the cost estimate.

[112] Exhibit B-1, p. 74.
[113] Exhibit B-12, Cover Letter, p. 4.
[114] Exhibit B-1, pp. 74–76.
[115] Exhibit B-1, pp. 74–76.
[116] Exhibit B-12, p. 78.

Mains extension cost variances

Mains extensions consist of mains and services and FEI submits the overall main extension cost variance is reasonable in that the variance experienced on main extension costs (adjusting for the distortion in 2012) is well within the margin of error that the Commission would generally require for a CPCN project (+30 percent to -15 percent).[117]

Mains cost variances

In response to Commission IRs, for the 2008 to 2013 period, FEI presented the cost variances on the mains part of mains extensions were 19 percent and 8 percent for FEI and FortisBC Energy (Vancouver Island) Inc. (FEVI), respectively.[118]

Service line cost variances including estimated remaining costs

In response to Commission IRs, FEI presented 2008 to 2013 total service line cost variances for FEI and FEVI of 35 percent and 36 percent, respectively, including an estimate of remaining service costs based on a cost of $1000 multiplied by the number of expected attachments.[119] FEI explained it selected $1,000 per service in its response because it represents the most recent actual, average unit cost for a single simple new residential service (including meter costs) and that this captures approximately 95 percent of all new single residential service lines installed in 2015. However, FEI stated it does not agree with the premise of re-forecasting and considers that using the requested method produces misleading results no matter what value is selected.[120]

With respect to service line cost variances, FEI stated:

> FEI cannot conclude whether there is a trend with service line cost variances, other than the variance in more recent years has decreased. As the earlier years were impacted by the financial crisis, the attachments have taken longer to be realized than was forecast. This has resulted in higher costs due to inflationary pressures as discussed in the response to BCUC IR 1.1.3.[121]

FEI submitted:

> …residential attachments make up 90%[122] of all attachments expected on the mains in the sample. Although the Company does not have rate class information available for all the samples included in the MX Report, based on past experience and actual connection data, it is reasonable to expect that the majority of attachments on the samples will be residential. Therefore, it would not be appropriate to use a blended average of residential, commercial and industrial services lines, such as $1,489.[123]

FEI stated it would not be appropriate to use the SLCA 2014 average values of $2,125 as this includes a mix of both residential and commercial services for multi-meter as well as general standing job costs which are not included in the forecast costs as they do not represent the direct cost for a particular main or service

[117] FEI Final Argument, pp. 47–48.
[118] Exhibit B-9, BCUC IR 2.3.4.
[119] Exhibit B-9, BCUC IR 2.3.8.
[120] Exhibit B-12, Panel IR 1.11.10, 1.11.12.
[121] Exhibit B-9, BCUC IR 2.3.9.
[122] Footnote 23 provides: 463 Rate 1 Forecast Attachments ÷ 561 Total Forecast Attachments = 90%. However, 463 ÷ 561 = 82.5%.
[123] Exhibit B-12, Panel IR 1.14.1.

installation.[124] FEI explained that the average service line cost of $2,125 used in the SLCA analysis is based on dividing the total residential and commercial service line costs for 2014 (excluding vertical subdivisions) including an additional $164 per order of general standing job costs (not associated with those 2014 orders) divided by the total residential and commercial service lines installed in 2014 (excluding vertical subdivisions). FEI submitted that the MX Test service cost inputs use direct costs that are estimated individually based on the specifics of each service line, whereas $2,125 is the actual average of all service lines, not of a specific project.[125]

MX Report sample data cost variance analysis

With respect to the calculations of the average estimated sample service line cost and the average actual sample service line cost, by year and by service territory based on data in the MX Reports, as set out in Panel IR 13.7, FEI commented this method removes the estimate of unknown costs from the calculations and provides a more reliable summary of the average service line cost variances included in the MX Report.[126]

Using this data, FEI calculated the cumulative average service line cost variance using this method to be 27 percent for FEI and 37 percent for FEVI for the period from 2009 to 2013, as follows:

Table 2 - MX Sample Data Cost Variance Analysis[127]

	1. Sample service line cost estimate total / total number of attachments forecast in $	2. Total reported sample service line costs / total reported attachments in $	3. Variance in $	4. Variance in %
2009-FEI	993	1462	469	47%
2010-FEI	890	1356	466	52%
2011-FEI	1433	1560	127	9%
2012-FEI	1541	1589	48	3%
2013-FEI	1228	1489	261	21%
			Average	**27%**
2009-FEVI	773	1544	771	100%
2010-FEVI	901	1292	391	43%
2011-FEVI	1239	1469	230	19%
2012-FEVI	1635	1478	-157	-10%
2013-FEVI	1068	1403	335	31%
			Average	**37%**

FEI submits the above approach provides a fair measure of service line cost variance as it uses actual data and does not attempt to re-forecast future service line cost variance.[128] FEI submitted the results show improvement over time based on the following comments on this methodology:

- the service line cost variance has improved since 2010 due to improvements to FEI's cost estimating methodologies such as the introduction of manual estimates;

[124] Exhibit B-12, Panel IR 1.14.1.
[125] Exhibit B-12, Panel IR 1.12.3.
[126] Exhibit B-12, Panel IR 1.13.8.
[127] Exhibit B-12, Panel IR 1.13.8.
[128] Exhibit B-12, Cover Letter, p. 4.

- The 2013 variances represent only the first year of five years of attachment reporting. The average unit cost variance is based on comparing a five year average to a single year of actuals and therefore highly dependent on the types of attachments that occur in the first year. FEI elaborates in 2013, it attached five industrial customers that were not included as part of the original forecasts, a positive development for existing ratepayers due to the additional annual load and related revenue, but one that also negatively skews the service line cost variance;
- In 2013, FEVI connected 8 percent more residential customers than forecast in the first year. The variance would be highly impacted by the cost of the additional services installed and whether or not they were included in the original forecast.
- The average actual variance is 27 percent for FEI and 37 percent for FEVI. By removing the 2009 outlier from FEVI, the variance drops to 21 percent.[129]

FEI also stated the data included in the table is based on the annual MX Report aggregate main extension samples "which are not, and were never intended to be, a representative sample of the installed service lines in any given year."[130]

Use of a contingency

FEI explained that any cost variances in the forecast or actual costs for each service line are expected due to factors such as: differences in length of the service, materials or location, unanticipated underground encumbrances or obstacles or equipment, restoration or labour charges and project delays resulting from the builder or developer, or FEI. FEI noted that these are some of the primary drivers of cost variances.[131]

FEI stated it adheres to Commission Orders G-152-07 and G-06-08 when developing cost estimates, and consistent with its approved tariff, only allocates the estimated direct capital costs of installing a main and service and does not include contingencies.[132]

FEI stated it promotes the use of conservative estimates by its planners through training and the internal approval process. FEI considers its current practices should continue and there is no advantage to customers of introducing a contingency percentage for new MX Test projects, nor should it be based on past experience.[133]

Intervener arguments

In its supplemental argument, BCSEA submits:

> The Panel asked whether FEI includes cost contingencies in its estimates for mains, service, and meters (Panel IR 10.2). FEI said that it does not include contingencies in these estimates and that this is in accordance with order G-152-07 and G-06-08. FEI provides an excerpt from order G-152-07 that supports the conclusion that the MX Test includes (only) Direct Capital Costs.

[129] Exhibit B-12, Panel IR 1.13.8.
[130] Exhibit B-12, Panel IR 1.13.10.
[131] Exhibit B-12, Panel IR 1.13.10.
[132] Exhibit B-12, Panel IR 1.10.2.
[133] Exhibit B-12, Panel IR 1.15.1–1.15.3.

Commission determination

The Panel accepts the mains cost variances as within a range of acceptability in aggregate for the period 2008 to 2013 but it does note that for 2013, the FEI variance was 54.2 percent.[134] The 2013 result presented is not supportive of FEI's assertion that its estimates have been improving over time.

For service line cost estimates, the Panel agrees with FEI, given the extent of analysis of forecast versus actual requested in this proceeding, any additional re-forecasting exercises will have diminishing returns. The Panel accepts the results of the requested methodologies requiring the blending of forecast and actual results will vary depending on the assumptions used. However, while the service line cost variances including estimated remaining costs of $1,000 per service may have some reliability issues due to the need to develop forecasts, the results still indicate, after considering future expectations for attachments and costs, a variance from the original forecast of more than 30 percent.

With respect to FEI's preference for using the results for service line cost variances based on the MX Report sample data, the Panel accepts the increase in reliability that results from using actual data. FEI asserts that these results indicate improvement over time. However, while the Panel does note that 2013 results were better than 2009, it is not persuaded by FEI's explanation related to the 2013 FEVI variance given that this data is presented on a per attachment basis. Further, the Panel notes FEI's view that the MX Report aggregate main extension samples are not a representative sample of the installed service lines in any given year. Even though this method may not allow a conclusion about the population as a whole, the Panel does note the 2013 FEVI cost variance is higher than 30 percent.

The Panel agrees with FEI that there will always be a variance between forecast and actual. Accordingly, in the Panel's view, it is critical that FEI's processes and controls be sufficient to ensure that estimates are based on the best information available and are prepared with the appropriate level of diligence. The Panel acknowledges FEI's improvements to its cost estimating methodologies. To ensure the continuing impact from these improvements, **FEI is directed to include in its annual reporting to the Commission, documentation of management's assessment of the design and operating effectiveness of its key controls and oversight processes related to the accuracy of cost estimates used in the MX Test.**

FEI and BCSEA point out previous Commission decisions have not required FEI to use a contingency in its cost estimates. The Panel notes none of the interveners comment on altering the MX Test to include a contingency related to cost estimates. Further, given the lack of conclusive actual historical results related to past estimate experience on which to base a contingency estimate, the Panel accepts FEI's view that its current practices should continue.

As discussed above, the Panel has some lingering concerns with the accuracy of cost estimates. However, the Panel is persuaded that variances in all of the MX Test components should to be considered together as higher costs can be more than offset by higher revenues than forecast. The Panel acknowledges the positive results indicated by the 2008 to 2014 RIA which considered all of the variances in the MX Test at the same time.

[134] Exhibit B-9, BCUC IR 2.3.4.

In addition, as a result of this proceeding, the Panel concludes that the detailed reporting requirements required to produce the MX Report does not provide information about the accuracy of the cost estimates that is conclusive. Accordingly, the Panel does not view that the benefits of continuing with this reporting exceed the costs.

2.3.3 Forecasting attachments

Many components of the MX Test utilize the number of customers forecast to connect to a particular main extension (customer attachments). The customer attachments for each of the first five years of a proposed main extension are estimated based on discussions between the customer and FEI, FEI's knowledge of the marketplace and FEI's history with the customer.[135] FEI presented the following table which shows the forecast and actual customer attachments, and variances, for both FEI and FEVI from 2008 through to 2013.

Table 3 - Historical MX customer attachment variance for FEI and FEVI[136]

	Forecast Attachments	Actual Attachments	Variance	Variance (%)	Comments
2008 FEI	571	417	-154	-27.0%	MX reporting complete
2008 FEVI	293	259	-34	-11.6%	
2009 FEI	1228	1061	-167	-13.6%	Year 5 of attachment
2009 FEVI	698	430	-268	-38.4%	reporting
2010 FEI	478	442	-36	-7.5%	Year 4 of attachment
2010 FEVI	402	262	-140	-34.8%	reporting
2011 FEI	715	696	-19	-2.7%	Year 3 of attachment
2011 FEVI	291	226	-65	-22.3%	reporting
2012 FEI	620	853	233	37.6%	Year 2 of attachment
2012 FEVI	166	173	7	4.2%	reporting
2013 FEI	516	641	125	24.2%	Year 1 of attachment
2013 FEVI	232	244	12	5.2%	reporting
		Average Variance		**-7.2%**	

As can be determined from the information above, FEI's average variance over the period is +1.8 percent and FEVI's average variance over the same period is -16.3 percent. Their combined average variance over the period is -7.2 percent.

FEI explains that the timing of the customer attachments, which refers to the year in which attachments are forecast to occur, is more difficult to forecast than the total number of attachments due to events outside FEI's control. FEI states that the 2008 recession delayed attachments, causing many attachments to occur in the sixth year, just outside the five year reporting window.[137]

FEI states that although the variance is a function of market conditions, they have a robust process in place to ensure the customer attachment forecasts are reasonable. In response to BCUC IR 1.2.4, FEI provided a description of this process with a focus on residential customers.[138] FEI has also adopted a graduated approval process, where approvals progress from sales manager approval smaller main extensions, to senior management approval for larger projects.[139]

[135] Exhibit B-1, Section 5.4.2, p. 77.
[136] Exhibit B-1, Section 5.4.2, Table 5-3, p. 76.
[137] Exhibit B-1, Section 5.4.2.2, p. 77.
[138] Exhibit B-3, BCUC IR 1.2.4, pp. 23–24.
[139] Exhibit B-1, Section 5.4.2, p. 77.

FEI submits that the combined average variance of -7.2 percent is reasonable and explains that by comparing forecast to actual data specific to the stage of development of the main extension brings the average variance since 2008 down to 2.7 percent.[140]

Panel discussion

The Panel notes on average, FEI's customer attachment forecasts have been reasonable and therefore the Panel has no remaining concerns with respect to the accuracy of customer attachment forecasts. The Panel acknowledges FEI has established processes that reduce the risk of significant variances.

2.3.4 Sufficiency of security

FEI submits it adheres to its approved General Terms and Conditions (GT&C)[141] which state:

> In those situations where the financial viability of a Main Extension is uncertain, FortisBC Energy may require a security deposit in the form of cash or an equivalent form of security acceptable to FortisBC Energy.[142]

FEI states security for mains development is rarely necessary and changes to FEI's security policy and practices are unwarranted. FEI puts forth the following points:

1) The determination of financial viability is based on FEI's project approval process which draws upon experienced resources, knowledge of the customers and confirmation with municipal resources when appropriate;
2) Security is a means to mitigate risk over and above the MX Test and FEI has required security from projects that pose a higher risk than a typical extension;
3) An obligation to routinely require security for extensions would be inefficient given small size of the average extension;
4) Requiring security when unnecessary can create disincentive to install natural gas use of an excessive risk mitigation tool is detrimental to existing ratepayers in the long run.[143]

Panel discussion

The Panel notes none of the interveners express concerns regarding FEI's security deposit policy. The Panel is persuaded by FEI's points that its existing security deposit policy is sufficient and allows FEI the flexibility to mitigate its financial risks in a main extension project if necessary. Therefore, the Panel has no remaining concerns with respect to the sufficiency of security deposits.

[140] FEI Final Argument, p. 50.
[141] FEI Final Argument, p. 53.
[142] Exhibit B-1, p. 53; Exhibit B-1, Appendix B, FEI General Terms and Conditions (Section 12), Section 12.10.
[143] FEI Final Argument, p. 54.

3.0 FEI PROPOSALS

Given the Panel's acceptance of the RIA as an appropriate method to evaluate the performance of FEI's system extension policies and noting that FEI's RIA demonstrates its system extension policies have resulted in a net benefit to existing customers, in this section, the Panel considers FEI's proposals to:

1) Amend certain input parameters to be used in the MX Test;
2) Update the service line cost allowance; and
3) Establish a system extension fund.

3.1 Updates to the MX Test

The current MX Test formula calculates a PI as follows:

$$P.I. = \frac{\text{Net Present Value of Net Cash Inflows (20 Year DCF Term)}}{\text{Net Present Value of Capital Costs (5 years of Attachments)}}$$

(Delivery Margin + Application Fees-O&M-System Improvement –Municipal Tax-Property Tax-Income Tax)

(Mains, Services & Meter Costs + Overhead + Working Capital)

If an individual PI is 0.8 or greater, a system extension can proceed without the need for a customer contribution. If the PI is less than 0.8, a customer contribution is required to bring the PI up to the 0.8 threshold in order for the system extension to proceed. In aggregate, the portfolio of main extensions completed on an annual basis is to have a PI of 1.1.[144]

The following table outlines FEI's four proposed updates to the current MX Test.

Table 4 - FEI Proposed Updates to the MX Test[145]

MX Test input	Current Practice	Recommended Update
DCF Term	20 years	40 years
Customer additions	5 year estimate	10 years for main extensions with a build out horizon greater than 5 years.
Overhead	Flat rate for all main extensions	Sliding scale for projects with a capital cost greater than $25,000
Energy efficiency credit	Applying to high efficiency appliances	Discontinuing the use of energy efficiency credits

FEI submits these updates are an integrated proposal as there are both positive and negative impacts to the MX Test.[146]

[144] Exhibit B-1, p. 17.
[145] Exhibit B-1, p. 50.

3.1.1 Discounted cash flow term

FEI proposes to discontinue the use of a 20-year discounted cash flow term and proposes to apply a 40-year term for use in the MX Test.[147] FEI states:

> [t]he MX Test currently uses a 20 year DCF term which corresponds with FEI's Integrated Resource Plan (IRP) planning horizon. This approach does not account for the full impact of the benefits of the system extension. The life of the main is a much more relevant DCF term benchmark, and it is consistent with the Guidelines and common in the industry.[148]

FEI explains this increase in the DCF life to 40 years is expected to increase the revenue in the MX Test from 41 percent to 47 percent depending on the main extension cost and customer consumption.[149] FEI states the increase in DCF from 20 to 40 years would have:

- Decreased the CIAC by approximately $2.0 million in total;
- Decreased the percent of customers paying a CIAC by 4.8 percent;
- Reduced the number of customers paying a CIAC from 551 to 261; and
- Resulted in an increase in rates of $0.002/GJ[150]

In regards to the relevance of the life of the main, FEI describes: "…the typical life for distribution mains ranges from 50 to 65 years with significant retirement after 50 years"[151] and indicates the approved average service life for depreciation purposes is 64 years.[152]

Based on its survey of practices of other utilities, EES recommended that FEI use 40 years in its MX Test.[153] EES' findings indicated most utilities surveyed use between 30 and 40 years as a DCF term.[154]

FEI confirmed that at the end of an appliance's life, a customer would typically consider replacing the appliance with either a gas or electric appliance.[155] FEI argued the expected life of the appliance is not relevant to use when determining the DCF term.[156] FEI explained any attempt "to forecast how a customer uses the equipment, when they will retire equipment or when the customer may add an appliance (for example a range, water heater etc.) would be extremely difficult and entirely unreliable."[157]

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[146] Exhibit B-1, Section 4.1, p. 50.
[147] Exhibit B-1, p. 3.
[148] Exhibit B-1, p. 36.
[149] Ibid., p. 52.
[150] Ibid., p. 53.
[151] Exhibit B-1, p. 36.
[152] FEI Final Argument, p. 18, footnote 39.
[153] Exhibit B-1, Appendix A, 2015 EES Report, p. 16.
[154] Exhibit B-1, Appendix A, 2015 EES Report, pp. 14, 16.
[155] Exhibit B-9, BCUC IR 2.18.1.
[156] Exhibit B-3, BCUC IR 1.23.1, 1.23.1.1.
[157] Exhibit B-9, BCUC IR 1.23.1.

FEI confirmed it is generally more difficult to predict consumption further into the future,[158] but argued the "…risks and uncertainties in forecasting each of the items in the revenues part of the MX Test using a 40 years DCF term is the same as using the current 20 DCF term."[159]

FEI submits its proposal to change the DCF term from 20 years to 40 years better recognizes the expected benefits associated with new mains. FEI argues the DCF method is a means of determining whether or not expected revenues exceed expected costs[160] and using a DCF term that is less than the expected service life has "the effect of capturing the bulk of the expected costs, while excluding a portion of the expected revenues. It will, other things being equal, understate the PI."[161]

FEI submits its proposal is more consistent with the Utility System Extension Test Guidelines than the present 20-year DCF term given the Guidelines recommend the analysis of system extensions be based on full incremental costs and benefits and that the DCF analysis term should be long enough "to consider the full impact of the extension."[162]

FEI also refers EES' survey to support its position.[163]

Intervener arguments

CEC recommends approval of a term between 50 to 65 years to better match the life of the relevant assets.[164]

BCOAPO does not object to increasing the term to 40 years but suggests a more cautious approach would be to increase "the DCF term to 30 years as an interim measure pending a subsequent ratepayer impact assessment."[165]

PNG supports FEI's proposal to revise the period to 40 years to greater reflect the asset life and capture all of the revenue and costs in the analysis. BCSEA also supports the increase to 40 years.

FEI reply argument

FEI notes all parties support an extension of the DCF term and BCSEA and the non-traditional interveners, expressly support FEI's 40-year proposal. In response to BCOAPO, FEI submits its 40-year proposal is already a "cautious approach" since 40 years is "well short of the expected service life of mains." FEI recognizes CEC's observation that its proposal will still understate the expected benefits of new extensions. FEI submits its proposed 40 years is a reasonable middle ground and a term shorter than 40 years does not give sufficient "recognition to the present significant imbalance favouring existing customers."[166]

[158] Exhibit B-9, BCUC IR 2.18.3.
[159] Exhibit B-3, BCUC IR 1.23.2.
[160] FEI Final Argument, p. 17.
[161] FEI Final Argument, p. 18.
[162] FEI Final Argument, p. 19.
[163] FEI Final Argument, p. 19.
[164] CEC Final Argument, p. 2.
[165] BCOAPO Final Argument, p. 2.
[166] FEI Reply Argument, p. 6.

Commission determination

The Panel approves FEI's proposal to extend the DCF period to 40 years.

The Panel agrees with FEI that changing the DCF term from 20 years to 40 years may better recognize the expected benefits associated with new mains and notes that 40 years is likely a long enough period to consider the potential full impact of a new main extension.

The Panel does not agree with CEC's recommendation to approve a term between 50 to 65 years for the planning horizon. Although 50 to 65 years may be the current life of the relevant assets, it may not continue to be the economic life in the future; a planning horizon of 50 to 65 years appears unreasonably long.

The Panel agrees with BCOAPO that increasing the DCF period to 30 years as an interim measure, pending a subsequent ratepayer impact assessment, is a more cautious approach than approving a 40-year DCF period. However, the Panel views that allowing FEI the opportunity to implement the 40-year DCF period with the requirement to file periodic updates of its RIA, a sufficiently cautious approach. If the RIA filed in 2020 (or any subsequent, if applicable, RIA) shows a negative rate impact, FEI will be expected at that time to propose changes to its MX Test and customer connection policies to rectify the negative rate impact, which may include a reduction in the DCF period. At that time, FEI is also expected to report developments that may affect the expected economic life of new mains or services, for example, changes to government policies, technology, cultural shifts, or FEI's operating experience. Accordingly, to account for such changes, FEI would be expected to propose adjustments to the DCF period at that time.

3.1.2 Customer addition term

Multiple components of the MX Test rely on the number of customers forecast to connect to the main extension over the five years currently used by FEI.[167] FEI explains that because the DCF analysis assumes no customer additions after the initial five-year period, it is an appropriately conservative ex-ante test for mains extensions. FEI states that after five years, an extension will continue to generate benefits over its service life.[168]

FEI proposes to increase the forecast period for customer attachments from 5 to 10 years in circumstances where it can be reasonably demonstrated there is a longer term municipality-accepted plan for growth exceeding five years. The process proposed by FEI includes limiting eligibility to developers and municipalities on a case by case basis, using the following types of data to determine if a planning horizon period greater than five years is appropriate for use in the MX Test for a given project:

- Municipal Official Community Plans;
- Zoning Plans;
- Discussions with municipal city planners;
- Evidence of commercial commitments having been made to developers; and
- The various options available to FEI to install a main(s) to serve the area.[169]

[167] Exhibit B-1, p. 18.
[168] Ibid.
[169] Exhibit B-1, p. 55.

For main extensions which utilize a 10-year customer addition forecast, FEI proposes to include the following in its annual MX reporting:

- The number of main extensions using a 10-year customer addition forecast;
- The actual costs for the mains; and
- The number of customers providing a CIAC and the dollar value of any CIAC provided.[170]

Based on its survey of practices of other utilities, EES recommended that 10 years be considered, especially in cases where growth is planned over a longer period.[171] EES' findings indicated that many of the other Canadian utilities surveyed use a similar timeframe - a ten year timeframe is used by SaskEnergy, Union Gas Limited and Enbridge Gas Distribution Inc.[172]

FEI states that main extensions using a 10-year forecast are expected to have a higher capital cost than the average main extension, with capital costs approximating $11,600.[173] FEI estimated that a small percentage, less than 1 percent[174], of the average 785 main extensions installed each year would warrant the use of the 10-year forecast and stated that a 5-year forecast period will continue to be appropriate for the majority of main extensions.[175]

FEI provided an example of a scenario where a time horizon greater than 5 years could be utilized for a customer forecast period.[176] FEI acknowledged that this scenario is currently treated in FEI's system extension policies as two separate extension projects to serve two developments and explained that by moving to a 10-year forecast period would effectively treat this scenario as two different phases of the same development.[177]

FEI explained that one benefit of this proposal would be a reduction of total capital costs for a particular development, by installing one longer main extension in the early stages of the development instead of multiple, shorter main extensions over a 10-year period, which would require future road cuts and repairs.[178]

FEI states the 5-year time horizon incorporates conservatism into the MX Test. However, FEI submits the current short time horizon represents a lost opportunity. FEI argues its proposal to extend to 10 years on a case-by-case basis is beneficial to both existing and new customers.[179] In addition to identifying the benefits associated with installation cost savings, FEI submits that the uncertainties and risks that the attachments will not occur are likely indistinguishable between a 5-year and a 10-year forecast.[180] FEI also submits the EES survey findings support this change.[181]

[170] Exhibit B-1, p. 55.
[171] Exhibit B-1, Appendix A, 2015 EES Report, p. 16.
[172] Exhibit B-1, Appendix A, 2015 EES Report, p. 14.
[173] Exhibit B-1, p. 54.
[174] Exhibit B-6, CEC IR 1.40.5.
[175] Exhibit B-3, BCUC IR 1.24.1, 1.24.2.
[176] Exhibit B-6, CEC IR 1.25.1.3.
[177] Exhibit B-9, BCUC IR 2.22.1.
[178] Exhibit B-3, BCUC IR 1.24.7.
[179] FEI Final Argument, p. 20.
[180] FEI Final Argument, p. 21.
[181] FEI Final Argument, p. 21.

FEI submits that in the future, the periodic RIA could be used to inform whether a 10-year customer attachment forecast period should be adopted more generally or whether five years should remain the default.[182]

Intervener arguments

BCSEA and PNG support FEI's proposal to use a 10-year horizon for customer attachments when the existence of a long-term plan for growth that exceeds 5 years can be reasonably demonstrated.[183] BCOAPO has no objections to this proposal.[184]

CEC is supportive, however further recommends that the Commission extend the attachment horizon to 10 years for all customer attachments, and allow for consideration of an extended time horizon where conditions warrant and are supported by data up to the projected length of time for a given development project.[185]

CEC also submits the proposed reporting for 10-year customer addition forecasts are unnecessary at the level of detail proposed by FEI for reasons of administrative and regulatory efficiency.[186]

FEI reply argument

FEI submits that its proposal to proceed with a 10-year horizon on a more limited basis:

> …was founded on a (possibly mistaken) belief that stakeholders would generally prefer to move towards the more appropriate 10 year period in an incremental manner. FEI stands by its proposal, but would also support CEC's position. CEC's proposal would promote further efficiency and consistency in the application of the MX Test. FEI agrees with BCOAPO and CEC that there is sufficient evidence on the record for the Commission to make a determination on the use of a ten year horizon for all main extension projects.[187]

Commission determination

The Panel approves FEI's proposal to use a 10-year forecast period for customer attachments in the MX Test in circumstances where it can be reasonably demonstrated that there is a longer term municipality-accepted plan or other persuasive evidence for growth exceeding five years. The Panel also approves FEI's proposed annual reporting related to main extensions utilizing a 10-year addition forecast.

The Panel agrees with FEI, the five-year time horizon incorporates conservatism in the MX Test for circumstances where a build-out longer than five years is foreseeable and notes that while several interveners supported the proposal, there were no objections from any interveners.

Noting CEC's recommendation that the attachment horizon be extended to 10 years for all attachments, it is the Panel's view that FEI's reporting proposal for main extensions which utilize a 10-year customer addition forecast will provide a reasonable foundation to consider further changes in the future.

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[182] FEI Final Argument, p. 22.
[183] BCSEA Final Argument, para. 5, p. 2; PNG Final Argument, p. 2.
[184] BCOAPO Final Argument, para. 7, p. 4.
[185] CEC Final Argument, p. 20.
[186] CEC Final Argument, p. 20.
[187] FEI Reply Argument, p. 7.

The Panel notes that FEI estimates that less than 8 (1 percent, of the average of 785) main extensions installed each year would warrant the use of the 10-year forecast.

3.1.3 Sliding-scale overhead rate

FEI proposes a sliding-scale methodology to calculate the overhead rate for mains extensions where capital costs are forecast to be greater than $25,000.[188] FEI states the overhead in the MX Test is intended to represent an allocation of general costs that it incurred to install main extensions that cannot be associated to a particular main extension including administrative duties related to mains extensions, right of way management and governmental fees.[189] The overhead rate used in the MX Test is updated annually and has ranged from 23 to 33 percent between 2008 and 2014. The rate in 2014 was 23 percent.[190]

FEI analyzed the relationship between overhead costs and the capital costs of main extensions installed between 2008 and 2014 and concludes that overhead costs do not increase linearly with direct capital costs.[191] FEI states given that a linear relationship does not exist, "a flat fee percentage allocation method results in a disproportionate allocation of overhead to projects that have a higher cost."[192] To address this issue, FEI recommends continuing its current practice of allocating a fixed percentage to the majority of its projects and a sliding-scale overhead percentage for larger extensions projects.[193]

FEI outlines that the overhead percentage applied to larger projects using the sliding-scale method would decrease based on the percent of direct overheads to direct capital costs and have a floor equal to five percent.[194] Main extensions less than or equal to $25,000 would continue to be charged the fixed overhead rate of 23.3 percent. FEI's analysis of the impact of using the sliding-scale methodology for all mains installed from 2008 to 2014, all else being equal, indicates there would be a reduction in the CIAC amount by $1.041 million or a rate impact of $0.001/GJ.[195] FEI also states applying a sliding-scale overhead rate to capital projects greater than $25,000 in the MX Test, results in 13 main extension projects having a lower CIAC, equivalent to a 0.2 percent reduction in the amount of CIAC received.[196]

Based on its survey of practices of other utilities, EES identified considerable variation in overhead rates and noted that while the method proposed by FEI is more complicated than most utilities, it is consistent with Gaz Métro's use of a percentage that declines as the size of the project increases.[197]

With respect to the methodology used to determine the sliding-scale overhead formula, FEI stated:

> FEI modeled linear, log10, natural log and exponential scales in an attempt to create a curve that best fit the data to determine the sliding scale overhead formula. FEI found an exponentially declining curve with a minimum (floor) overhead rate and exponential slope of -0.963 to be the

[188] Exhibit B-1, p. 3.
[189] Exhibit B-1, p. 38.
[190] Exhibit B-1, p. 39.
[191] Exhibit B-1, p. 39.
[192] Ibid.
[193] Exhibit B-1, p. 55.
[194] Exhibit B-1, p. 56.
[195] Exhibit B-1, pp. 57–58.
[196] Exhibit B-1, p. 58.
[197] Exhibit B-1, Appendix A, 2015 EES Report, p. 15.

> best fit to calculate an overhead rate that was slightly (conservatively) greater than the data suggests. The standard error of the estimate is 0.0349.[198]

In its response to CEC IR 2.8.2, FEI confirmed that direct and indirect overhead are estimated at 8 and 15.3 percent, respectively, for 2015.[199] FEI provided its rationale for why capital costs for a customer addition that was not carried out should be included in the economic test for a different prospective customer, as follows:

> Generally, the capital costs incurred (a planner's time for example) for an addition that is not carried out would not have occurred if FEI was not adding customers. To that extent, one could consider those costs incremental and caused by customer growth. Consequently, the Company has traditionally considered them an incremental cost of adding customers and accounted for them in the Test.

FEI stated it does not plan to update the sliding-scale formula on an annual basis.[200] FEI considered it appropriate to review the sliding-scale overhead formula when the main extension test is reviewed as a whole.[201]

FEI submits its "proposed change will more fairly allocate the overhead costs, consistent with the Commission's Guidelines and industry practice" and notes the rate impact on existing customers is expected to be minimal.[202]

Intervener arguments

BCSEA agrees that FEI's proposal is reasonable.[203] BCOAPO does not object to FEI's proposal and accepts that applying a uniform overhead rate results in large projects making a disproportionate contribution to FEI's overhead.[204]

CEC submits that a sliding-scale that more accurately represents the actual incremental overhead costs is preferable to one that does not, and in the absence of further change, support the proposal.

CEC also recommends that the Commission direct FEI to include only variable and not direct overhead costs or general planning costs for main extensions in the test for a specific customer.[205] CEC submits it is inappropriate to charge a single prospective new customer with the costs of customers who did not complete and recommends charging these costs to the entire customer base.[206]

FEI reply argument

FEI notes all interveners support its proposals to more accurately reflect overhead costs. FEI submits the effect of CEC's suggestion to include only variable and not direct overhead costs or general planning costs for main extensions in the test for a specific customer, however, FEI reiterates the reasonableness of its rationale but also

[198] Exhibit B-3, BCUC IR 1.27.1.
[199] Exhibit B-6, CEC IR 2.8.2.
[200] Exhibit B-3, BCUC IR 1.27.2.
[201] Exhibit B-9, BCUC IR 2.25.1.
[202] FEI Final Argument, p. 23.
[203] BCSEA Final Argument, p. 2.
[204] BCOAPO Final Argument, p. 4.
[205] CEC Final Argument, pp. 23–24.
[206] CEC Final Argument, p. 22.

considers that there may be merit in CEC's proposal as an additional future step, and states that it will explore CEC's suggestion following the conclusion of this proceeding. However, in its view, the Commission should decide this Application based on the evidence before it and "[t]he potential for future refinements should not hold up changes critical to rebalancing the MX Test."[207]

Commission determination

Noting the agreement of all parties, **the Panel finds reasonable and approves FEI's proposal to apply a sliding-scale overhead methodology to calculate the overhead rate for mains extensions where capital costs are forecast to be greater than $25,000.**

FEI indicates it will explore with CEC, its suggestion to include only variable and not direct overhead costs or general planning costs for mains extensions in the test for a specific customer. Accordingly, the Panel makes no determination on this issue

FEI must review and update the sliding-scale formula when it files its next RIA.

3.1.4 Energy efficiency credits

The use of energy efficiency credits in the MX Test was approved by Commission Order G-152-07[208] to promote energy efficiency through high efficiency gas-fired space heating, water heating and LEED™ General Certification.[209]

FEI explains that energy efficiency is now driven by their Energy Efficiency and Conservation (EEC) demand-side management program. The Commission approved a budget for FEI's EEC program of approximately $35 million annually over the period 2014 to 2018, which is a significant increase over the annual EEC budget of $3.1 million (excluding partner investment) when energy efficiency credits were approved for use in the MX Test.[210]

FEI explains that this increase in the budget for the EEC program has allowed FEI to provide ample opportunity for potential customers to improve energy efficiency and hence negates the use of the energy efficiency credits within the MX Test.[211] Currently, FEI provides residential demand-side management (DSM) incentives ranging from $200 to $2,000 for energy efficiency related to space heating, water heating and whole homes, and provides commercial DSM incentives of up to $45,000 related to space and water heating.[212] FEI states that using the REUS data to estimate the consumption per customer in the MX Test already reflects the success of their DSM programs, as seen by the gradual decline in UPC.[213]

For each year from 2008 through to 2014, between 1 percent and 17 percent of main extensions qualified for the 10 percent energy efficiency credit, while less than 1 percent qualified for the 15 percent energy efficiency

[207] FEI Reply Argument, p. 7.
[208] Commission Order G-152-07, p. 51.
[209] Exhibit B-1, p. 58.
[210] Exhibit B-1, p. 59; FEI Final Argument, p. 23.
[211] FEI Final Argument, p. 23.
[212] Exhibit B-3, BCUC IR 1.31.1.
[213] FEI Final Argument, p. 24.

credit.[214] FEI states that the impact of this proposed update to customers is not likely to be significant given the relatively small portion of main extensions that have used the credit.[215]

FEI states that the discontinuance of the use of energy efficiency credits will result in a MX Test more understandable for customers and easier for FEI to administer. FEI notes that this update will offset other updates to the MX Test by decreasing the consumption per customer and thus increase the likelihood of a CIAC being paid by customers with high efficiency appliances.[216]

Intervener arguments

CEC accepts that there has been a substantial increase in the budget for the DSM program and notes that it is now roughly ten times its original size. CEC submits that the energy efficiency credits are no longer necessary and recommends their elimination.[217]

BCOAPO does not object to FEI's proposal to discontinue the use of energy efficiency credits.[218] BCOAPO explains that customers investing in high efficiency appliances reap the benefit of such investments through reduced fuel consumption over the life of the appliance, and may also receive incentives under FEI's DSM programs.[219]

BCSEA states that the "purpose of the EEC is to motivate developers to include energy efficient appliances and/or energy efficiency measures in the subject development."[220] BCSEA opposes elimination of the energy efficiency credits and explains that FEI should instead be encouraged to make more use of energy efficiency credits and coordinate their use with FEI's EEC programs.[221]

FEI reply argument

FEI addresses BCSEA's opposition, stating that administrative efficiency and a more mature EEC program are valid reasons to discontinue the use of energy efficiency credits.[222]

Commission determination

The Panel directs FEI to discontinue applying energy efficiency credits in mains extension tests. The Panel accepts FEI's argument that its DSM program is considerably expanded in scope, that a relatively small percentage of extensions qualified for the EEC program and that elimination of the EEC improves administrative efficiency.

[214] Exhibit B-3, BCUC IR 1.6.1.
[215] FEI Final Argument, p. 24.
[216] Exhibit B-1, p. 59.
[217] CEC Final Argument, p. 29.
[218] BCOAPO Final Argument, p. 5.
[219] Ibid.
[220] BCSEA Final Argument, p. 3.
[221] Ibid.
[222] FEI Reply Argument, p. 8.

3.2 Service line cost allowance

FEI states the SLCA customer connection policy is intended to determine if any contribution is required from "infill" Rate 1 customers[223] and Rate 2 customers[224] connecting to an existing main.[225] In its decision dated December 6, 2007, issued concurrently with Order G-152-07, the Commission approved the SLCA of $1,535 for other than a duplex[226] and $3,070 for duplexes.[227]

FEI proposes to increase the SLCA to $2,150 for other than a duplex and $4,300 for duplexes, effective January 1, 2016. FEI also proposes to update the SLCA amounts annually in November, using the approved methodology, for implementation on January 1 of the following year that the updates are approved.[228]

FEI is proposing to use seven years of consumption data in its annual updates of the SLCA. For example, FEI would use the consumption data from 2009 to 2015 in the 2017 SLCA analysis.[229] The proposed SLCA amounts are calculated by inputting the actual 2008-2014 normalized average annual consumption of 68.3 GJ/year for residential customers that connected to FEI's system and the actual 2014 average main cost of $745 per customer in 2014 into the MX Test and solving for a PI equal to 1.0 to determine the "target average service line cost." The calculated "target service line cost" is $1,521.[230]

Using the 2014 average service line costs of $2,125 for Rate Schedule 1 and 2 customers and solving the equation where the average service line cost equals the target service line cost results in a maximum allowance of $2,150.[231] As a consequence, 33 percent of customers have costs greater than the SLCA and are required to pay a CIAC.[232]

FEI noted that the normalized average annual consumption of residential customers for the most recent year was used in the 1996, 2007 and 2015 SLCA analyses and the 2007 analysis also factored in "theoretical sensitivity scenarios to address the decline in use."[233] FEI explained that it used that actual normalized average annual consumption for customers that attached from 2008 to 2014 to account for the decline use per customer and this "more accurately characterizes the decline in annual use" compared to the sensitivity scenarios in the 2007 analysis.[234] FEI stated using consumption data, 68.3 GJ/year, as a base case is consistent with the 2007 approach and provides a "reasonable representation of a new customer's consumption and captures a sufficient mix of dwelling types and regional consumption variations."[235]

FEI explained that the lower 2014 consumption results in a higher service line allowance, because the SLCA is directly correlated to the "target average service line cost" and not customer consumption. FEI notes that the

[223] Residential rate for single-family residences and separately metered multi-family residences.
[224] Small commercial rate for businesses with consumption of less than 2,000 GJ annually.
[225] Exhibit B-1, p. 11.
[226] Referred to as "other than a duplex" in the FEI General Terms and Conditions, p. S-1.
[227] TGVI and TGI System Extension and Customer Connections Policy Review, Decision dated December 6, 2007, p. 25.
[228] Exhibit B-1, pp. 3, 63.
[229] Exhibit B-9, BCUC IR 2.26.1.1.
[230] Exhibit B-1, pp. 62–63.
[231] Exhibit B-1, p. 63; Exhibit B-3, BCUC IR 1.30.3.
[232] Exhibit B-1, p. 63.
[233] Exhibit B-3, BCUC IR 1.30.1.
[234] Exhibit B-3, BCUC IR 1.30.1.
[235] Exhibit B-3, BCUC IR 1.30.1; Exhibit B-9, BCUC IR 2.26.1.1.

2007 to 2014 increase in the SLCA results from the change multiple factors including rates and the MX Test parameters. The decline in customer consumption from 2007 to 2014 was offset by increases in the fixed and variable charges and reductions in the overhead and income tax rates.[236]

Using three years instead of seven years of consumption data to calculate the SLCA was explored in Commission IRs. If the 2012 to 2014 average main cost of $728 and the residential normalized average annual consumption of 65.6 GJ/ year for new customers are used, the re-calculated SLCA amount is $1,983 for a single family dwelling and $3,966 for a duplex. This results in 36 percent of customers having costs greater than the SLCA and required to pay a CIAC.[237] FEI stated that the SLCA value should not be derived from 2012 to 2014 consumption because it considers the 2012 to 2014 data incomplete. FEI explained that 2014 reflects the data for one year only and does not represent an average.[238]

FEI submits the current SLCA inputs were developed eight years ago and it is appropriate to update the SLCA inputs using the existing methodology. FEI also proposes to update the inputs and recalculate the SLCA annually "to reflect the best information available."[239] FEI also submits:

> The average consumption value in the SLCA should be determined using a long enough time frame to include a sufficient mix of consumption data over different dwelling types, regions and individual customer usage patterns. A six year [sic] rolling average provides a reasonable sample to be used in the derivation of the SLCA, which will be updated annually.[240]

Intervener arguments

CEC recommends that the Commission direct FEI to annually update its commercial and residential SLCA, effective January 1, 2016.[241] CEC submits:

- Use of the 68.3 GJ figure may be considered overly conservative in that it does not account for the overall average use, but instead relies on the 2008-2014 average consumption;
- The overall average by dwelling or premises type may be more desirable than the lower 2012 to 2014 consumption because it tends to penalize new customers for possible increased efficiency and such a penalty is not consistent with the British Columbia's Energy Objectives in the *Clean Energy Act* objective of energy conservation;[242]
- Determining customer consumption over a chronological time frame is contrary to postage stamp pricing rather "average consumption by dwelling or premises type for the whole class of customers should be used to implement a form of postage stamp pricing for the MX test;"[243]
- Exclusion of commercial consumption from the calculation unduly reduces the SLCA;
- The SLCA methodology should utilize average costs corresponding to the same group from which the consumption volumes are derived.[244]

[236] Exhibit B-3, BCUC IR 1.30.3.
[237] Exhibit B-9, BCUC IR 2.26.1–2.26.1.1.1.
[238] Exhibit B-9, BCUC IR 2.26.1.
[239] FEI Final Argument, p. 24.
[240] FEI Final Argument, pp. 24–25.
[241] CEC Final Argument, p. 3.
[242] CEC Final Argument, p. 27.
[243] CEC Final Argument, p. 27.
[244] CEC Final Argument, p. 28.

CEC acknowledges FEI's willingness to explore a commercial customer SLCA or to include commercial consumption levels in calculating the existing SLCA, if directed to do so by the Commission. CEC states it would be appropriate for FEI to determine an appropriate commercial SLCA using average consumption, including commercial consumption since one advantage of a single SLCA is that the system is not differentiated between the two classes and both customer classes benefit from the others' presence.[245]

BCOAPO does not object to FEI's proposal to update the SLCA. BCOAPO explains that the FEI proposal to use 2008-2014 UPC data to calculate the SLCA is reasonable, but asks the Commission to consider if UPC data should be drawn from more recent 2012-2014 attachments. BCOAPO states that "the smaller the attachment group used to calculate average consumption; the more likely it is that the calculated average won't accurately represent the consumption patterns of future attachments." However; BCOAPO has no opinion on whether the 2008 to 2014 customer attachments or a recent group of attachments is appropriate for calculating the SLCA.[246]

BCSEA supports the FEI proposal to update the SLCA inputs based on the data from the previous six years and to revise the calculations annually.[247]

FEI reply argument

FEI notes CEC is the only intervener to oppose FEI's SLCA proposal. FEI recognizes that CEC has proposed a new methodology to derive the SLCA. FEI submits:

> …while there may be merit in exploring the future potential for less conservative SLCA methodologies that are more aligned with postage stamp principles, FEI's proposal is a practical and efficient solution that is consistent with the methodology previously approved by the Commission.[248]

With respect to CEC's submission that it would be appropriate to develop a commercial SLCA, FEI states if the Commission considers it appropriate, it is willing to provide a commercial SLCA value to the Commission and interveners and engage in a discussion of the implications of the concept. FEI submits that consideration of CEC's idea, irrespective of its potential merit, should not delay the implementation of FEI's present proposals.[249]

Panel IR 1.12.4

In response to Panel IR 1.12.4, FEI stated:

A. FEI's proposal in the Application which is based on the original approved methodology where the average service line cost of both commercial and residential customers is used to calculate an SLCA based on residential consumption from 2008-2014.

B. An SLCA analysis including a new average service line cost which includes only the costs associated with residential customers and uses only the consumption from rate schedule 1 for 2008-2014.

[245] CEC Final Argument, p. 28.
[246] BCOAPO Final Argument, pp. 6–7.
[247] BCSEA Final Argument, p. 3.
[248] FEI Reply Argument, p. 9.
[249] FEI Reply Argument, p. 9.

C. An SLCA analysis including a new average service line cost which includes only the costs associated with rate schedule 2 commercial customers and uses only the consumption from rate schedule 2 for 2008-2014.

Scenario	A	B	C
Average Service Line Cost	$2,125	$2,006	$4,249
Average Consumption	68.3	68.3	356.5
Resulting Service Line Cost Allowance	$2,150	$2,220	>$10,000

FEI stated it cannot reliably calculate the SLCA and average service line cost for Rate Schedule 3 customers given the significant variation in consumption which can range from 2,000 GJs per year to hundreds of thousands of GJs per year and this is one of the reasons why Rate Schedule 3 customers are subject to an individual MX Test rather than the SLCA. FEI argued using an average cost and consumption over such a wide variance would result in a misleading and inaccurate SLCA.[250]

FEI reiterated its position supporting the SLCA in scenario A. FEI noted CEC's interest in a separate commercial CIAC and stated it "does not object to this request and, if preferable to the Commission, this could be achieved by creating a separate residential SLCA of $2,200 (scenario B), and commercial (Rate Schedule 2) SLCA of $10,000 (scenario C)."[251]

Intervener supplemental argument

BCOAPO agrees with FEI that the SLCA of $2,150 should continue to apply to residential and commercial customers in accordance with existing Commission approved methodology. BCOAPO states while it sees the rationale behind CEC's request to have a separate SLCA for commercial customers, it notes that separating the customer classes appears to result in a higher SLCA for both classes and this suggests that separating residential and commercial customers for purposes of calculating the SLCA will have potentially far reaching consequences for the economics of attaching new customers. BCOAPO submits that if the residential and commercial customer classes are to be separated for purposes of calculating the SLCA, a separate application may be required.[252]

BCSEA also supports FEI's proposal and arguments and does not support a separate SLCA for commercial customers at this time since it is not convinced that the ramifications have been sufficiently examined.[253]

In its supplemental argument, CEC notes:

> …in Panel Information Request 12.4 there is an item of interest to the CEC referencing the acceptability of a commercial CIAC. The CEC notes the importance of the commercial customer additions through extensions to the Rate Impact Analysis (RIA) but does not propose any amendment to its Final Submission to emphasize this point, or any of the issue confirmed or clarified through the Panel Information Request process.[254]

[250] Exhibit B-12, Panel IR 1.12.1.
[251] Ibid.
[252] BCOAPO Supplemental Argument, p. 2.
[253] BCSEA Supplemental Argument, p. 2.
[254] CEC Supplemental Argument, p. 1.

FEI supplemental reply argument

FEI notes the support for its methodology used to derive the SLCA values and identifies the only point of debate as being whether there should be separate residential and commercial values as proposed by CEC. To address BCSEA's submission that the ramifications of separate SLCA values have not been sufficiently examined and BCOAPO's view that a separate application may be required if separate SLCA values were preferred, FEI submits that there is ample evidence on the record for the Commission to adopt either approach. FEI further submits "additional process would not add value, and the Commission should adopt one of the two approaches at this time."[255]

Commission determination

The Panel approves FEI's proposed changes to the service line cost allowances, effective November, for implementation January 1 of the following year. This includes an updated service line cost allowance amount of $2,150 for single-family dwellings and $4,300 for duplexes, the proposed methodologies for calculating the service line cost allowance and the annual update to the amounts using the approved methodology.

The Panel agrees with FEI that the parties support the methodology used to derive the SLCA values and that the only contentious item is determining if there should be separate residential and commercial values as suggested by CEC. The Panel does not agree with FEI that there is ample evidence to allow the Commission to adopt one of the proposals explored in Panel IR 1.12.4. Considering FEI's comments with respect to the wide variation in consumption of Rate Schedule 3, the Panel notes there is variation in Rate Schedule 2 customers. The Panel is concerned that using the average cost and consumption over this amount of variance may not be appropriate and requires further investigation as suggested by BCSEA and BCOAPO. The Panel agrees with FEI that further consideration of the merits of a separate SLCA for commercial customers should not delay the implementation of the proposed changes.

The Panel notes FEI's willingness to explore a commercial customer SLCA and its offer to provide a commercial SLCA value to the Commission and interveners and engage in a discussion of the implications of the concept. **FEI is directed to update the Commission on the results of its stakeholder engagement related to consideration of implementation of a separate commercial customer service line cost allowance at the time of filing its updated rate impact analysis in 2020.**

3.3 System extension fund

FEI recommends and proposes establishing a system extension fund (SEF) in an amount of $1 million per year to help eligible customers in lower density areas of FEI's service area to pay for upfront CIAC. FEI explains individual customers in lower density areas are further from existing mains and therefore these customers will be required to pay a larger CIAC in order to obtain natural gas service. FEI states that the SEF is designed to create greater equity between new customers in lower density areas with those new customers in more urban areas.[256] Specifically, FEI requests the following:

[255] FEI Supplemental Reply Argument, p. 2.
[256] Exhibit B-1, p. 63.

> The establishment of the System Extension Fund of $1.0 Million, to be recovered through natural gas delivery rates of non-bypass customers and included in rate base each year as an offset to Contributions in aid of Construction[257]

FEI views there is a rate design rationale and cites the BC Hydro's Uneconomic Extension Fund as precedent to support FEI's SEF proposal. The BC Hydro Uneconomic Extension Fund is capped at $1.5 million per year. FEI notes that the BC Hydro Uneconomic Fund is available to those customers that are building individual homes in areas where distribution lines are nearby but not in front of the property. The customer is still required to share a portion of the extension cost. In FEI's case, it considers that customers who are further away from the gas system will be able to have more equitable access to natural gas service, consistent with the theory of amalgamation and common rates established for FEI.[258]

The SEF is intended to be applicable to end-users of natural gas. FEI proposes that customers applying for the SEF must be the lawful owner of a separately metered single family residence. The residence must also be used as the principal residence for the customer.[259] Multi-property developments will not be eligible as builders and developers will likely include the costs for the project in the selling price of the units. FEI would have no way of knowing or requiring that the unit selling price to take into account the amount of SEF awarded to the benefit of natural gas end-users.[260] FEI did not include large commercial and industrial customers as they have high energy requirements, and therefore, a CIAC is often not required. However, FEI is not opposed to making the SEF fund available to commercial customers.[261]

In the proposed SEF, customers must meet a minimum PI ratio of 0.2 in the MX Test and are not eligible for a contributory main refund. The extension costs would be shared among the customer and FEI's other customers, where the applying customer would pay share 50 percent of the CIAC. The total amount paid by the SEF will be capped at $10,000 per customer.[262]

FEI views that the SEF is policy driven and compares it to BC Hydro's Uneconomic Fund. FEI indicates that the SEF will help new customers with the upfront CIAC required in order to proceed with a main while existing customers will benefit from rate reductions resulting in any increased throughput on FEI's system and bear a modest rate impact.[263] FEI is "putting forward the SEF because it believes it is the right thing to do from a policy perspective, and not because it is legally obligated to do so."[264]

FEI views the expansion of access to natural gas services also supports the government's energy objectives. FEI estimates that switching from heating oil to natural gas for heating purposes will result in a reduction of 1.6 tonnes of CO_2 per year.[265] FEI anticipates that conversion customers who will switch from one fuel to another

[257] Exhibit B-1, p. 3.
[258] Exhibit B-1, p. 64.
[259] Exhibit B-1, Appendix E, Section 12.11 of the FortisBC Energy Inc. General Terms and Conditions, p. 12-4.
[260] Exhibit B-6, CEC IR 1.47.6.
[261] Exhibit B-6, CEC IR 1.47.4.
[262] Exhibit B-1, pp. 65–66; Exhibit B-9, BCUC IR 2.17.2, 2.17.5.
[263] Exhibit B-3, BCUC IR 1.14.1.
[264] Exhibit B-9, BCUC IR 2.13.1, 2.14.5.
[265] Exhibit B-1, p. 33; Exhibit B-3, BCUC IR 1.46.1; Exhibit B-5, BCSEA IR 1.15.1–1.15.5.

are most likely to access the SEF. The greatest conversion potential is on Vancouver Island although opportunities exist throughout the province.[266]

The Commission and intervener IRs explored several aspects of the proposed SEF, including the Commission's jurisdiction to approve the SEF; the appropriateness of the program and funding amount; and any compliance requirements necessary if the SEF is approved. Interveners representing small communities and PNG support the SEF while BCOAPO, BCSEA and CEC are opposed.

3.3.1 FEI proposal and alternatives considered

FEI's proposal of $1 million per year is based on a two-thirds ratio when comparing the customer base between FEI and BC Hydro. Using the RIA, FEI forecasts the rate impact to be $0.001/GJ assuming the SEF is fully subscribed annually.[267] The proceeding explored a number of ways to establish the appropriate SEF amount, based on the relative amounts between gas and electricity, summarized as follows:

Table 5 - Alternative Approaches for the SEF

Approach	Estimated SEF amount	Reference (Exhibit B-9)
50 percent of the historical FEI CIAC	$300,000	BCUC IR 2.11.1
Proportional to BC Hydro's rate base	$680,000	BCUC IR 2.12.4
Gas main vs. electricity line cost	$750,000	BCUC IR 2.12.5.1
Gas vs. Electricity CIAC	$500,000	BCUC IR 2.12.5.2

3.3.2 Evaluation of the SEF

FEI stated "The success of the SEF is measured by how many potential eligible customers will apply for and receive funding and proceed with the main extension... the Company proposes to include the total number of approved requests to access the Fund [SEF] and the total dollar value of the approved requests in its MX reporting. The Commission will thus be able to monitor the fund's activities." FEI submitted if there are circumstances where the fund is not functioning as intended or is being underutilized, either FEI or the Commission can bring forward modifications or termination of the SEF.[268]

In terms of additional reporting, FEI indicated that it has the ability to report on: (i) actual number of applications received; (ii) approved and denied SEF requests; and (iii) reasons for denied funding.[269]

3.3.3 Commission's jurisdiction

FEI is applying for the updates to its system extension policies under sections 28 to 30 and 59 to 61 of the UCA, including the establishment of the SEF.[270] Sections 28 to 30 relate to the public interest test and the test under

[266] Exhibit B-3, BCUC IR 1.18.6.
[267] Exhibit B-1, p. 66; Exhibit B-3, BCUC IR 1.14.1.
[268] Exhibit B-3, BCUC IR 1.15.1.1, 1.15.3.
[269] Exhibit B-9, BCUC IR 2.15.1.1, 1.15.4.1.
[270] Exhibit B-3, BCUC IR 1.15.1.

sections 58 to 61 is "not unjust or unreasonable" rates. FEI is of the position that all sections cited in the UCA should be considered in approving the SEF.[271] With respect to rates, FEI states[272]:

> The test in the UCA is whether there is 'undue discrimination'. Rates will almost always involve some degree of cross-subsidy or discrimination in the technical sense because the cost to serve individual customers will almost always differ. The question is whether the subsidy is 'undue'. … [The SEF] is not unfair to existing customers, because:
>
> - The SEF in aggregate is only for a short period of time until additional customers have attached to the distribution system. If this occurs to a main which is affected by the SEF, the main could then provide a net benefit to existing customers over the life of the main. In other words, the SEF is a deferral of the benefits that will be realized by existing customers; and
> - The use of the SEF eases the access to natural gas. A higher throughput on FEI's distribution system means lower rates for existing customers, all else being equal.

Intervener arguments

CEC views that having only residential homeowners eligible for the SEF but not commercial class customers is unduly discriminatory. CEC states:

> … it is unduly discriminatory for residential customers to have access to SEF funding and not commercial customers… a 'residential only' fund is unreasonably discriminatory and provides undue preference for the residential rate class vis a vis commercial ratepayers.[273]

If the Commission decides to approve the SEF, CEC submits that it would be appropriate for FEI to include commercial customers.[274] CEC further states:

> …In addition to issues relating to fairness, commercial properties such as multi-property developments such as row houses, townhouses, condominiums and apartments are an important target market for FEI… The higher density of a multi-property development represents an important opportunity for FEI to be able to serve a multitude of customers at a lower cost per customer than traditional single family detached homes… If commercial customers or other classes of customers were eligible for SEF funding, then the financing provided would also lower their required CIACs.[275]

CEC recommends the Commission deny the SEF and instead apply a social discount in applicable circumstances without the need for special applications and deadlines.[276]

Both BCOAPO and BCSEA share the view that the proposed SEF would subsidize uneconomic extensions. BCSEA argues any changes to the MX Test should consider the economic consequences but should not be influenced by the concept of expanding the natural gas system.[277] BCOAPO submits that making the system extension test

[271] Exhibit B-3, BCUC IR 1.15.1, 1.16.2; Exhibit B-9, BCUC IR 2.14.2.
[272] Exhibit B-3, BCUC IR 1.16.2.
[273] CEC Final Argument, p. 32.
[274] CEC Final Argument, pp. 31–32.
[275] CEC Final Argument, p. 31.
[276] CEC Final Argument, p. 32.
[277] BCSEA Final Argument, pp. 1, 3.

easier to meet would be more equitable than subsidizing a small number of uneconomic customers.[278] BCOAPO also submits that the SEF would be detrimental to FEI's existing customers in two ways: (i) subsidizing uneconomic connections; and (ii) transferring a non-rate base CIAC with no return to FEI into rate base with a return on equity of 8.75 percent or more.[279]

Regarding the comparison to the BC Hydro Uneconomic Extension Fund, BCSEA submits that the existence of the BC Hydro Uneconomic Extension Fund is not a valid rationale for the SEF proposed by FEI. Electricity is a practical necessity but not natural gas.[280] BCOAPO shares the same view in that uneconomic connections are allowed in the electric grid because electricity is essential while many fuels can substitute natural gas. Natural gas is the cheaper alternative under current economic conditions.[281]

Interveners representing communities support FEI's approvals sought which include the SEF. They are interested in having affordable access to natural gas.[282] PNG submits that FEI's proposals including the SEF will have long-term benefits to all customers and do not place undue burden on existing customers.[283]

FEI reply argument

FEI argues that the SEF is not subsidization but should be viewed as financing. FEI is of the position that the revenue generated from the life of the main can cover the cost in the long run. FEI indicates that the overall rate impact associated with the SEF would be minimal. The incremental earnings associated with a $1 million fund would be immaterial to FEI, whereas the economic and social benefit to more remote communities would be material.[284]

Commission determination

For the reasons outlined below, the Panel approves FEI's proposal for a system extension fund as a pilot program commencing in 2017 through December 31, 2020. The SEF is capped at $1.0 million per year, to be recovered through natural gas delivery rates of non-bypass customers and included in rate base each year as an offset to contributions in aid of construction. As proposed by FEI, no funds will roll over from one year to the next.

The Panel reviewed the evidence on record and positions of the parties. The Panel acknowledges FEI's efforts to provide certain communities, including rural communities, an opportunity to connect to the natural gas system. In addition to giving the communities an alternative energy option and making natural gas more accessible, there could be favourable clean energy impact if customers are fuel switching from a high carbon intensive fuel. The Panel will first discuss whether the Commission has jurisdiction to approve the SEF, and if so, the Panel will determine whether the SEF should be established.

[278] BCOAPO Final Argument, p. 7.
[279] BCOAPO Final Argument, p. 8.
[280] BCSEA Final Argument, p. 3.
[281] BCOAPO Final Argument, p. 7.
[282] Final Arguments of Seabird, VIEA, PRRD, Larson, and RDOS.
[283] PNG Final Argument, p. 2.
[284] Exhibit B-9, BCUC IR 2.14.5; FEI Reply Argument, pp. 10–11.

The Panel agrees with FEI that the Commission has the jurisdiction to consider the SEF in light of the public interest test and the broad definition of rates. Related to the utility's obligation to supply service, the Panel notes that the Commission may set out terms it considers proper and in the public interest, under sections 28 to 30 of the UCA. Under sections 59 to 61, the issue the Panel must consider is whether the proposal put forward by FEI is unjust or unreasonable; whether there is undue discrimination, preference, prejudice or disadvantage in respect of a rate or service.

Among other conditions as proposed by FEI, the SEF is designed in a way that single-family residence homeowners are eligible with the costs spread amongst all ratepayers through the delivery charge. The proposed SEF excludes builders and commercial customers. Therefore, the Panel notes that approval of the SEF may lead to some degree of subsidization and discrimination to favour a targeted group of customers which are single-family residence homeowners in this case. However, the Panel does not consider this unduly discriminatory given the potential benefit to the overall FEI ratepayer resulting from increased throughput. Customers who would otherwise not connect due to high contributory costs may now connect to the natural gas system with the SEF assistance. Since the proposed SEF is a fairly new initiative for natural gas customers, the Panel views that a limited rollout pilot is appropriate and it will allow FEI sufficient time to assess whether the new program should be continued or expanded in the future.

The Panel finds that establishing the proposed SEF on a pilot basis is in the public interest provided that the costs borne by overall ratepayers are reasonable. The Panel reviewed the alternatives to the $1 million proposed SEF amount and finds that $1 million per year is reasonably sufficient and do not impose excessive cost burden to the overall FEI ratepayers.

The Panel directs FEI to include the following in its annual MX Report:

- **Total number of SEF applications received, including the breakdown of approved and denied requests;**
- **Dollar values of the approved requests;**
- **Reasons for denied funding; and**
- **Switches from higher greenhouse gas (GHG) sources to natural gas (e.g. propane, oil, diesel, gasoline etc…).**

FEI must address the appropriateness of continuation of the SEF pilot program in the June 30, 2020 filing of its updated RIA.

4.0 OTHER ISSUES

4.1 Consistency with Commission Guidelines

Throughout the Application, FEI refers to its proposals as being consistent with the Guidelines. FEI submits that the MX Test, incorporating FEI's proposals, is consistent with the Commission's Guidelines and includes a table in its final submission detailing each guideline and: (1) how its proposals are consistent with the specific

guidelines; or (2) for those items where FEI is not proposing any changes comments indicating the item has been previously approved by the Commission.[285]

In this section, the Panel considers the following issues related to FEI's submission that the MX Test as proposed is consistent with the Guidelines:

1) Consistency with other BC utilities; and
2) Social perspective.

4.1.1 Consistency with other BC utilities

The Commission identified one of the purposes of the system extension hearing policies was to make the policies more consistent among BC utilities.[286] In the Utilities System Extension Test Guidelines, the Commission stated:

> [C]onsistency within and among Utilities in the analysis of system extension is desirable in that it reduces the potential for discrimination among current and prospective customers with regard to the availability of and charges for energy service. Nevertheless, the Commission recognizes that neither the values used as inputs into the analysis of proposed system extensions, nor the detailed calculation method, will necessarily be the same for each utility. In evaluating Utilities' system extensions, the Commission will endeavor to apply as much consistency as it considers reasonable given the individual circumstances of each utility.[287]

With respect to consistency of its proposals with other utilities, FEI stated:

- It does not believe that the proposed changes to the MX Test will be unfair to other utilities or their customers since each utility in BC operates in distinct service areas and serves different customers under its own rates, structures and operating circumstances, to which its system extensions must apply;
- The changes proposed were developed to address the particular circumstances of FEI and are related to the specific parameters of FEI's existing Commission approved MX test;
- A change in FEI's policies does not necessarily mean that a change is also warranted for other utilities; and
- Other utilities in BC who wish to revisit their own system extension approach can do so in consideration of their own individual circumstances and also in consideration of the policies in place in other utilities at the time.[288]

FEI provided the following table comparing various parameters of its proposed changes to the MX Test to other utilities:

[285] FEI Final Argument, pp. 29–31.
[286] British Columbia Utilities Commission (BCUC) Utility System Extension Test Guidelines, dated September 5, 1996, p. 1.
[287] BCUC Utility System Extension Test Guidelines, p. 9.
[288] Exhibit B-3, BCUC IR 1.13.3, p. 68.

Table 6 - Comparison of MX Test Parameters[289]

Utility	Cash Flow Term	Customer Addition Term	Cost Allowance (residential service)
FEI	40 years	5 (or 10) years	$2,150 single family dwellings / $4,300 duplexes
FBC	N/A	N/A	$1,741
BC Hydro*	20 years	5 years	$1,475
PNG	20 years	5 years	None

* As indicated in the response to BCUC IR 1.4.6, BC Hydro's (BCH) distribution extension policies differ markedly from that of the Company's, where BCH calculates a flat contribution for residential customers to be applied as an offset to the cost of the required extension. That is, required CIACs from BCH customers are determined solely based on the difference between the flat cost allowance and the cost of the extension.

FEI submits that there is a high degree of consistency of the elements of the MX Test among BC utilities, including the use of a DCF approach and a discount rate based on the utility's cost of capital. FEI argues that the Guidelines explicitly recognize the need to tailor extension tests to reflect the unique circumstances of each utility. FEI also submits it be held to the status quo to achieve consistency if changing a parameter is otherwise appropriate for FEI.[290]

Panel discussion

The Panel agrees with FEI that while a degree of consistency is desirable, the Guidelines do not require consistency among the utilities and explicitly recognize the individual circumstances of each utility should be considered in evaluating changes to system extension tests. In this decision, the Panel has evaluated FEI's proposed changes considering FEI's circumstances.

4.1.2 Social perspective

The Guidelines state:

> …the Commission believes that a social discount rate should be used for evaluating projects from a social perspective, and that the utility's discount rate should be used when evaluating projects from a ratepayer and shareholder perspective. The requirement to accommodate both a social and a utility perspective can be achieved by engaging in two calculations: one which adopts a social cost-benefit perspective, and one which adopts a private investment perspective, with each calculation using the discount rates appropriate to its perspective.[291]

The Guidelines identify an appropriate social discount rate as being one adopted or mandated by the provincial government for public investment projects by ministries or crown corporations such as BC Hydro.[292]

[289] Exhibit B-3, BCUC IR 1.13.3, p. 69.
[290] FEI Final Argument, pp. 31–32.
[291] BCUC Utility System Extension Test Guidelines, p. 13.
[292] BCUC Utility System Extension Test Guidelines, pp. 13–14.

In response to CEC IR 1.2.2, FEI stated that the social perspective evaluation as described in the Guidelines has yet to be developed in BC and FEI has not identified any BC utility that evaluates system extensions using a social discount rate.[293] FEI also stated:

> The Company believes the exercise of defining a social cost-benefit perspective and a corresponding 'social discount rate' falls well beyond the scope of this Application. The social perspective and what constitutes societal costs and benefits is really a matter of provincial policy and it is in this forum that the societal-cost perspective and the corresponding social discount rate would be most appropriately defined, from a wider policy perspective. For this reason, the Company agrees with the Commission in its Guidelines that the appropriate social discount rate would be one that was adopted or mandated by the provincial government for public investment projects by ministries or Crown Corporation.[294]

With respect to Guideline item 5 (f), a reasonable consideration of externalities (for the social perspective evaluation), FEI stated the Guidelines also limit the type of externalities that have the potential to be considered. FEI stated, in its view, there were no externalities that have the potential to "eventually emerge as unavoidable regulatory costs for the utilities and their customers" as contemplated in Section 5.2 of the Guidelines.[295]

Intervener arguments

CEC submits it is important for the public interest to be reflected in the MX Test and failing to incorporate a social discount rate results in the creation of an MX Test that does not fulfill the Commission's Guidelines which provide for both financial and social perspectives to be included.[296]

CEC submits:

1) It is not appropriate to disregard the application of a social discount rate because it has been largely ignored to date and has not been adopted or mandated by the provincial government;
2) The Commission reference to a rate that was adopted or mandated by the provincial government may be interpreted as an example of suitable social discount rate, but not necessarily the only possible option;
3) The Commission has jurisdiction to implement its own policy guidelines which should be undertaken in this proceeding. The application of a social discount rate is clearly established in Commission Guideline 2 which goes hand in glove with the application of a public interest test to the MX Test;
4) The current guideline identifying the need for a social discount rate is nearly 20 years old and it will be many more years before the MX Test may be reviewed again, as a result, a public interest test should be applied in this proceeding; and
5) A public interest test should be evaluated and considered in this proceeding, and a social discount rate or equivalent reduction to the financial discount rate should be developed for application in the test under suitable circumstances.[297]

[293] Exhibit B-6, CEC IR 1.2.2, p. 10.
[294] Exhibit B-6, CEC IR 1.2.2, p. 10.
[295] Exhibit B-5, BCSEA IR 1.3.1, 1.5.1.
[296] CEC Final Argument, p. 6.
[297] CEC Final Argument, pp. 6–11.

Based on its view of the application of a public interest test, CEC recommends a reduction of about 1.5 percent for the extension of service to significant developments within existing service areas, and another 1.5 percent to be appropriate for the extension of service to communities currently isolated from the service area.[298]

FEI reply argument

FEI submits that further evaluation would be required to consider the legality, feasibility and implications of introducing a social discount rate.[299]

Panel discussion

In the Panel's view, since FEI did not propose a social discount rate in the Application, this issue has not been sufficiently explored in this proceeding for the Panel to make any determinations on the issue. The Panel agrees with FEI that further evaluation would be required to consider the introduction of a social discount rate.

4.2 CEC proposal to lower aggregate PI to 1.0

FEI does not request any change to the current aggregate PI of 1.1. As part of the 2007 System Extension and Customer Connection Policies Review application, FEI sought approval for an aggregate PI of 1.1 as the threshold for all main extensions completed on an annual basis. This was a change from the single PI threshold of 1.0 for all main extensions. By Order G-152-07, the Commission found that FEI's proposal to establish an aggregate PI threshold of 1.1 to be in the public interest and compliant with the Guidelines. FEI does not request any change to the current aggregate PI of 1.1.[300]

FEI states that it historically proposed 1.1 as the aggregate PI threshold and an individual PI equal to 0.8 in order to have a conservative approach to its system extension policies. FEI noted that in light of the information provided in response to BCUC IR 1.3.1, the 1.1 threshold could be seen as being overly conservative as customers continue to add to mains long after the initial 5-year window considered in the MX Test. FEI considered an aggregate PI threshold equal to 1.0 is a more fair and reasonable approach to balance the interests of new and existing customers and to realize the incremental benefits referred to in CEC IR 2.6.1.[301]

When asked whether the gap between 0.8 PI and 1.0 PI could be viewed as one group of new customers subsidizing another group of new customers in the same cohort year, FEI responded that the use of an individual PI of 0.8 and an aggregate PI of 1.1 is appropriate and consistent with other the practices of other utilities. In support, it cited the 2015 EES Report:

> …a 1.1 overall target, is consistent with the practices of other utilities surveyed. While there are differences among the utilities, FEI is well within the range of options used…. FEI's practice of using a lower individual target and a higher aggregated target allows for recognition of the potential benefits in the future associated with new customers that are below 1.0 on their own, as well as the uncertainty in actual costs and benefits. Further, projects with a PI above 1.1

[298] CEC Final Argument, p. 6.
[299] FEI Reply Argument, p. 11.
[300] Exhibit B-1, p. 15.
[301] Exhibit B-10, CEC IR 2.6.2.

> offset the added costs of those projects below 1.0, leading to an aggregated outcome that does results in holding existing customers harmless from the growth in customers.[302]

FEI considers this is appropriate and should continue as it is preferable to having a lower aggregate PI of 1.0 citing Commission Order G-152-07 in support:

> The Commission Panel notes that one of Terasen's stated objectives for system extensions tests and policies is to promote fair and equitable treatment of customers and avoid undue discrimination, and notes that Terasen is effectively broadening the scope of the policy to ensure that the addition of a full year's cohort of customers does not adversely affect the customers in existence at the beginning of that year. The Commission Panel finds such a proposal to be in the public interest and to conform with its Guidelines and approves the proposal to establish a new threshold PI of 0.80 for individual main extensions, and to establish an aggregate PI of 1.10 as the threshold for all main extensions completed on an annual basis.[303]

The Ontario Energy Board's (OEB) Guidelines are based upon principles which reflect the OEB's conclusions in its Distribution System Expansion Reports under Board File No. E.B.O. 188.[304]

OEB states that it does "not agree that a design target of zero NPV and a P.I. of 1.0 is appropriate given the forecast risks inherent in the Investment Portfolio analysis."[305] OEB "concludes that the Investment Portfolio should be designed to achieve a positive NPV including a safety margin (for example, corresponding to a P.I. of 1.10). The Board believes that a portfolio designed in this way will minimize the forecast risks and hence more likely achieve the desired results of no undue rate impacts."[306]

Intervener arguments

CEC submits that an aggregate PI threshold of 1.0 is appropriate in balancing the interests of all ratepayers and prospective ratepayers. CEC also submits that assuming the calculation of the PI includes all reasonable incremental costs, an aggregate PI threshold of 1.0 effectively saves existing ratepayers harmless financially and potentially improves their position by having new customers contribute to overhead costs that are otherwise borne by the existing ratepayer. However, CEC also argues that "[e]ven a figure of 1.0 does not address the public interest in having new customers attach to the system."[307]

FEI reply argument

FEI replies that CEC's position on the PI is not unreasonable; pointing out that it was 1.0 previous to 2007, when it was changed to 1.1. However, FEI submits that its "proposal in this Application to maintain the current aggregate PI in conjunction with other changes to the MX Test is also reasonable and has the support of all other interveners… the Application should be approved as proposed."[308]

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[302] Exhibit B-1, Appendix A, 2015 EES Report, p. 15.
[303] Exhibit B-3, BCUC 1.16.5.
[304] Exhibit A2-1, p. 1, para. 1.1.1.
[305] Exhibit A2-1, p. 11, para. 2.3.9.
[306] Exhibit A2-1, p. 11, para. 2.3.10.
[307] CEC Final Argument, paras. 111–113, p. 25.
[308] FEI Reply Argument, para. 30, p. 11.

Commission determination

The Panel is not persuaded that the PI should be changed at this time. The Panel notes that FEI indicates both CEC's proposal of 1.0 and its own proposal of 1.1 are reasonable. However, considering the support of other interveners, the Panel considers it reasonable to maintain the current aggregate PI. **Accordingly, CEC's request to change the aggregate profitability index to 1.0 is denied.**

5.0 REPORTING

In the Application, FEI proposes the following annual reporting:

> Effective with the reporting on 2015 mains extensions:
>
> a. The discontinued use of the current MX reporting requirements.
>
> b. To provide a report to the Commission at the end of the first quarter for the preceding year's mains extensions that includes:
>
> iv. The total number of main extensions completed, including the total actual costs for main extensions completed; the forecast PI for all main extensions in aggregate; the total number of customers providing a CIAC, including the total dollar value of CIAC. For main extensions using a 10-year customer addition forecast period, the number of main extensions, the actual costs and the total number and dollar value of CIAC will be provided separately from the total main extensions.
>
> v. The total number of approved requests to access the SEF, including the total dollar value of the approved requests; and
>
> vi. Updated MX Test input parameters consistent with approved practices, for implementation January 1 of the following year.[309]

In response to BCUC IR 1.32.1, FEI provided a sample annual report as a spreadsheet and elaborated on what it will provide in its annual reports. FEI notes the annual reports will include:

- Forecast PI;
- Mains extension test parameter updates;
- Mains extension installation activity;
- System Extension Fund activity; and
- Service line and meter activity.[310]

FEI argues that reporting at a more granular level is not appropriate as it inconsistent with the recommendation of the Ministry of Energy and Mines' Core Review[311] to ensure all compliance reports are necessary and useful.[312]

[309] Exhibit B-1, pp. 2–3.
[310] Exhibit B-3, BCUC IR 1.32.1.
[311] Ministry of Energy and Mines, Independent Review of the British Columbia Utilities Commission, Final Report dated November 14, 2014.
[312] Exhibit B-3, BCUC IR 1.32.7.1.

In its final argument, FEI submits that the Core Review emphasized the need to re-evaluate compliance reporting to ensure it is useful and necessary. FEI argues that reporting has become more complex over time and the annual cost and effort associated with reporting is out of proportion to the amount of capital involved. FEI considers the current reporting yields unreliable and potentially misleading results and its proposed reporting offers a better way for the Commission to oversee compliance with the MX Test, to assess past extensions, and to evaluate whether the parameters of the MX Test remain appropriate.[313]

Intervener arguments

CEC submits that the current MX reporting is overly onerous and does not provide the appropriate information. It recommends the Commission discontinue the current MX reporting requirements and require two metrics to be reported in its Annual Review under performance based ratemaking (PBR) including a ratepayer impact of the MX Test and the aggregate PI for all extensions under the MX Test.[314]

BCOAPO submits that reporting on individual extensions in a format that can be easily manipulated will allow the Commission to better determine how the MX Test is functioning.[315]

In its final argument, BCSEA submits it strongly supports annual reporting regarding the MX Test and it takes no position regarding the merits of the current MX Test reporting methodology.[316] However, in its supplementary submission, BCSEA notes it now supports the concept that a properly designed and implemented rate impact analysis is a valid method of evaluating the results of the particular MX Test and SLCA that are being applied. BCSEA also accepts there may be limited benefit in trying to define a valid evaluation methodology based on variance(s) between values used in the MX Test and SLCA and later "actuals." In BCSEA's view, the MX Test and SLCA function as coarse filters rather than as forecasts.[317]

FEI reply argument

In its reply argument, FEI argues: "BCOAPO has offered little in the way of a rationale for why such intensive reporting is now appropriate..." and, in response to CEC, submits that MX Reporting should remain compliance reporting and not be part of PBR because it will undermine the efficiency gains associated with FEI's proposals."[318]

Commission determination

The Panel agrees with FEI that any annual MX reporting should remain compliance reporting and not be part of PBR because it will undermine the efficiency gains associated with FEI's proposals. In terms of BCOAPO's submission to report on all individual extensions, the Commission is of the opinion that it should ensure the information contained in compliance reports is necessary and useful and that reporting on all individual extensions is overly onerous. For these reasons, **the Panel directs FEI to report annually in a form consistent with FEI's proposal provided in response to BCUC IR 1.32.1.** In addition to providing a spreadsheet, the

[313] FEI Final Argument, p. 36.
[314] CEC Final Argument, pp. 3, 33–34.
[315] BCOAPO Final Argument, p. 9.
[316] BCSEA Final Argument, p. 4.
[317] BCSEA Supplementary Argument, p. 3.
[318] FEI Reply Argument, p. 12.

Commission requires FEI to provide thorough discussion and analysis on the data, including issues arising in higher cost individual extensions. **FEI is directed to file the first annual report, including both 2015 and 2016 information, on or before March 31, 2017.**

5.1 Summary of other directives related to reporting

Section 2.1.4 Frequency of updates

FEI is directed to file an updated rate impact analysis by June, 30, 2020, incorporating the results to the end of 2019.

Section 2.2.2 Cost Estimates

FEI is directed to include in its annual reporting to the Commission, documentation of management's assessment of the design and operating effectiveness of its key controls and oversight processes related to the accuracy of cost estimates used in the MX Test.

Section 3.1 1 Discounted Cash Flow Term

At the time of filing the updated RIA, FEI is also expected to report developments that may affect the expected economic life of new mains or services, for example, changes to government policies, technology, cultural shifts, or FEI's operating experience.

Section 3.6 Service Line Cost Allowance

FEI is directed to update the Commission on the results of its stakeholder engagement related to consideration of implementation of a separate commercial customer service line cost allowance at the time of filing its updated rate impact analysis in 2020.

Section 3.7 System Extension Fund

The Panel directs FEI to include the following in its annual MX report:

- **Total number of SEF applications received, including the breakdown of approved and denied requests;**
- **Dollar values of the approved requests;**
- **Reasons for denied funding.**
- **Switches from higher greenhouse gas sources to natural gas (e.g. propane, oil, diesel, gasoline etc…)**

FEI must address the appropriateness of continuation of the SEF pilot program in the June 30, 2020 filing of its updated RIA.

6.0 SUMMARY OF DIRECTIVES

This summary is provided for the convenience of readers. In the event of any difference between the directions in this summary and those in the body of the decision, the wording in the decision shall prevail.

	Directive	Page
1.	**The Panel finds it appropriate for FEI to continue to use its existing system extension and customer connection methodologies, including its use of a discounted cash flow analysis and profitability index.**	8
2.	**The Panel finds the use of MX Test results, as reported in accordance with the Commission reporting requirements, is not an appropriate mechanism to evaluate the economic impact of main extensions on ratepayers.**	10
3.	**The Panel accepts FEI's approach for identifying new customer additions for use in its rate impact analysis.**	14
4.	**In the absence of FEI preparing a more refined estimate, the Panel accepts an estimate using 50 percent of the growth rate of average number of customers.**	16
5.	**The Panel accepts the use of the rate impact analysis, modified to include an estimate of sustainment and other capital, as an appropriate mechanism to evaluate the economic impact of main extensions and infill customers on existing ratepayers.**	17
6.	**the Panel finds the FEI rate impact analysis prepared by EES Consulting, for the period from 2008 to 2014, demonstrates existing customers are benefiting from new customers added as a result of the application of FEI's mains extension test and customer connection polices.**	17
7.	**FEI is directed to file an updated rate impact analysis by June 30, 2020, incorporating the results to the end of 2019.**	19
8.	**In advance of filing the updated rate impact analysis, FEI is directed to undertake a stakeholder engagement process to consider appropriateness of any amendments to the assumptions and methodology used in the rate impact analysis, including the number of years to be reflected in the updated analysis.**	20
9.	**The Panel accepts FEI's continued use of the previously approved residential consumption methodology in its MX Test based on using an appliance consumption average derived from the Residential End Use Survey for all existing customers.**	23
10.	**FEI is directed to include in its annual reporting to the Commission, documentation of management's assessment of the design and operating effectiveness of its key controls and oversight processes related to the accuracy of cost estimates used in the MX Test.**	29
11.	**The Panel approves FEI's proposal to extend the DCF period to 40 years.**	35

12.	**The Panel approves FEI's proposal to use a 10-year forecast period for customer attachments in the MX Test in circumstances where it can be reasonably demonstrated that there is a longer term municipality-accepted plan or other persuasive evidence for growth exceeding five years. The Panel also approves FEI's proposed annual reporting related to main extensions utilizing a 10-year addition forecast.**	37
13.	**the Panel finds reasonable and approves FEI's proposal to apply a sliding-scale overhead methodology to calculate the overhead rate for mains extensions where capital costs are forecast to be greater than $25,000.** **FEI must review and update the sliding-scale formula when it files its next RIA.**	40
14.	**The Panel directs FEI to discontinue applying energy efficiency credits in mains extension tests.**	41
15.	**The Panel approves FEI's proposed changes to the service line cost allowances, effective November, for implementation January 1 of the following year. This includes an updated service line cost allowance amount of $2,150 for single-family dwellings and $4,300 for duplexes, the proposed methodologies for calculating the service line cost allowance and the annual update to the amounts using the approved methodology.**	46
16.	**FEI is directed to update the Commission on the results of its stakeholder engagement related to consideration of implementation of a separate commercial customer service line cost allowance at the time of filing its updated rate impact analysis in 2020.**	46
17.	**For the reasons outlined below, the Panel approves FEI's proposal for a system extension fund as a pilot program commencing in 2017 through December 31, 2020. The SEF is capped at $1.0 million per year, to be recovered through natural gas delivery rates of non-bypass customers and included in rate base each year as an offset to contributions in aid of construction. As proposed by FEI, no funds will roll over from one year to the next.**	50
18.	**The Panel directs FEI to include the following in its annual MX Report:** • **Total number of SEF applications received, including the breakdown of approved and denied requests;** • **Dollar values of the approved requests;** • **Reasons for denied funding; and** • **Switches from higher greenhouse gas sources to natural gas (e.g. propane, oil, diesel, gasoline etc…).** **FEI must address the appropriateness of continuation of the SEF pilot program in the June 30, 2020 filing of its updated RIA.**	51
19.	**Accordingly, CEC's request to change the aggregate profitability index to 1.0 is denied.**	57

20.	**the Panel directs FEI to report annually in a form consistent with FEI's proposal provided in response to BCUC IR 1.32.1.**	58
21.	**FEI is directed to file the first annual report, including both 2015 and 2016 information, on or before March 31, 2017.**	59

DATED at the City of Vancouver, in the Province of British Columbia, this 16th day of September 2016.

Original Signed By

K. A. KEILTY
PANEL CHAIR / COMMISSIONER

Original Signed By

I. F. MACPHAIL
COMMISSIONER

Original Signed By

D. M. MORTON
COMMISSIONER

British Columbia Utilities Commission

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ORDER NUMBER
G-147-16

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

and

FortisBC Energy Inc.
2015 System Extension Application

BEFORE:
K. A. Keilty, Panel Chair/Commissioner
I. F. MacPhail, Commissioner
D. M. Morton, Commissioner

on September 16, 2016

ORDER

WHEREAS:

A. On June 30, 2015, FortisBC Energy Inc. (FEI) applied to the British Columbia Utilities Commission (Commission) for approval of changes to its mains extension test (MX Test), customer connection policies and related reporting requirements (Application);

B. Ten interveners registered for this proceeding:

- Commercial Energy Consumers Association of BC;
- British Columbia Hydro and Power Authority;
- British Columbia Old Age Pensioners' Organizations *et al.*;
- BC Sustainable Energy Association and the Sierra Club of British Columbia;
- Pacific Northern Gas Ltd.;
- Peace River Regional District Electoral Area B;
- Linda Larson, MLA Boundary Similkameen;
- Vancouver Island Economic Alliance;
- Regional District of the Okanagan Similkameen Electoral Area B; and
- Seabird Island Band;

C. One party registered as an interested party: Katrine Conroy, MLA Kootenay West, and three parties provided letters of comment: the City of Port Alberni, the District of Saanich and the Greater Victoria Chamber of Commerce;

D. The Application was reviewed through two rounds of Commission and intervener information requests, written arguments, one round of Panel information requests, and supplemental written arguments; and

E. The Commission reviewed the Application, the evidence and the submissions of the parties and finds that changes to FEI's MX Test, customer connection policies and related reporting requirements are warranted.

NOW THEREFORE pursuant to sections 29, 30 and 59 to 61 of the *Utilities Commission Act* and for the reasons contained in the decision issued concurrently with this order, the British Columbia Utilities Commission orders as follows:

1. Changes to FortisBC Energy Inc.'s mains extension test, customer connection policies and related reporting requirements as described in the decision accompanying this order are approved.

2. FortisBC Energy Inc. is directed to file black-line changes to its General Terms and Conditions that are consistent with the decision accompanying this order and to do so within 30 days of the date of the decision.

3. FortisBC Energy Inc. is to comply with all directives and determinations set out in the decision accompanying this order.

DATED at the City of Vancouver, in the Province of British Columbia, this 16th day of September 2016.

BY ORDER

Original Signed By

K. A. Keilty
Commissioner

FortisBC Energy Inc.
2015 System Extension Application

LIST OF ACRONYMS

2015 EES Report	EES Consulting FortisBC Energy Inc. System Extension Policy Review report dated June 2015
Application	FortisBC Energy Inc. 2015 System Extension Application
BC Hydro	British Columbia Hydro and Power Authority
BCOAPO	British Columbia Old Age Pensioners' Organization *et al.*
BCSEA	BC Sustainable Energy Association and the Sierra Club of British Columbia
BCUC, or Commission	British Columbia Utilities Commission
CEC	Commercial Energy Consumers Association of British Columbia
CIAC	contribution in aid of construction
CPCN	Certificate of Public Convenience and Necessity
DCF	discounted cash flow
DSM	demand-side management
EEC	Energy Efficiency and Conservation
EES	EES Consulting
FEI	FortisBC Energy Inc.
FEVI	FortisBC Energy (Vancouver Island) Inc.
GHG	greenhouse gas
GT&C	General Terms and Conditions
Guidelines	British Columbia Utilities Commission Utility System Extension Test Guidelines dated September 5, 1996
IR	Information Request(s)

IRP	Integrated Resource Plan
Larson	Linda Larson, MLA Boundary Similkameen
LEED	Leadership in Energy and Environmental Design
MX Report	mains extension report
MX Test	mains extension test
OEB	Ontario Energy Board
O&M	operation and maintenance
PBR	performance based ratemaking
PI	profitability index
PNG	Pacific Northern Gas Ltd.
PRRD	Peace River Regional District Electoral Area B
RDOS	Regional District of the Okanagan Similkameen Electoral Area B
RIA	rate impact analysis
REUS	Residential End Use Study
Seabird Island	Seabird Island Band
SEF	system extension fund
SLCA	service line cost allowance
SLIF	service line installation fee
SRP	streamlined review process
TGI	Terasen Gas Inc.
UCA	*Utilities Commission Act*
UPC	use-per-customer
VIEA	Vancouver Island Economic Alliance

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

and

FortisBC Energy Inc.
2015 System Extension Application

EXHIBIT LIST

Exhibit No.	Description
COMMISSION DOCUMENTS	
A-1	Letter dated July 22, 2015 – Appointing the Commission Panel for the review of the FEI 2015 System Extension Application
A-2	Letter dated July 23, 2015 – Commission Order G-126-15 establishing the Regulatory Timetable and Public Notice
A-3	Letter dated August 10, 2015 – Commission Information Request No. 1
A-4	Letter dated September 1, 2015- Commission Order G-143-15 Amending the Regulatory Timetable
A-5	Letter dated October 2, 2015 – Commission requesting Comments on Further Process
A-6	Letter dated October 22, 2015 – Commission Order G-170-15 establishing the remainder of the timetable
A-7	Letter dated October 30, 2015 – Commission Information Request No. 2 to FEI
A-8	Letter dated February 22, 2016 – Panel Information Request No. 1 to FEI
A-9	Letter dated March 3, 2016 – Commission Response to Request for Suspension
A-10	Letter dated March 24, 2016 – Panel's response to FEI's Clarification of Panel IR No. 1 – Attachment 1
A-11	Letter dated May 3, 2016 – Commission Order G-57-16 establishing the remainder of the regulatory timetable

A-12 Letter dated June 29, 2016 – Extending appointment of Commissioner MacPhail

COMMISSION STAFF DOCUMENTS

A2-1 Letter dated August 10, 2015 – Ontario Energy Board's Final Report of the Board

A2-2 Letter dated August 10, 2015 – Ontario Energy Board's Guidelines for Assessing and Reporting on Natural Gas System Expansion in Ontario

A2-3 Letter dated August 10, 2015 – Ontario Energy Board decision regarding an application by Natural Resource Gas Ltd. to construct a natural gas pipeline and ancillary services

A2-4 Letter dated October 30, 2015 – British Columbia Utilities Commission Generic Cost of Capital Proceeding Exhibit B-20, Response to BCUC Information Request No. 1, 108.0 Excerpt

A2-5 Letter dated October 30, 2015 - FortisBC Energy Inc. Application for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 through 2018 Exhibit B-26, Response to BCUC Information Request No. 2a, 17.0 Excerpt

A2-6 Letter dated October 30, 2015 - FortisBC Energy Inc. Application for Approval for 2015 Delivery Rates pursuant to the Multi-Year PBR Plan approved for 2014 through 2019 Exhibit B-1-1, Evidentiary Update Excerpt

APPLICANT DOCUMENTS

B-1	**FORTISBC ENERGY INC. (FEI)** letter dated June 30, 2015 – 2015 System Extension Application
B-2	Letter dated August 31, 2015 – FEI Submitting Filing Extension Request
B-3	Letter dated October 2, 2015 - FEI Submitting Response to BCUC IR No. 1
B-3-1	**CONFIDENTIAL** Letter dated October 2, 2015 - FEI Submitting Confidential Response to BCUC IR No. 1.22.1
B-4	Letter dated October 2, 2015 - FEI Submitting Response to BCOAPO IR No. 1
B-5	Letter dated October 2, 2015 - FEI Submitting Response to BCSEA IR No. 1
B-6	Letter dated October 2, 2015 - FEI Submitting Response to CEC IR No. 1
B-7	Letter dated October 6, 2015 - FEI Submission on Process
B-8	Letter dated October 6, 2015 - FEI Reply Submission on Further Process
B-9	Letter dated November 13, 2015 - FEI Submitting Response to BCUC IR No. 2
B-10	Letter dated November 13, 2015 - FEI Submitting Response to CEC IR No. 2
B-11	Letter dated February 29, 2016 – FEI Requesting Suspension of Timetable and for Clarification of Information Requests
B-12	Letter dated April 14, 2016 - FEI Submitting Response to Panel IR No.1 and Supplemental Submission
B-13	Letter dated April 22, 2016 – FEI Reply Submission to Intervener submissions on items A and B of (Exhibit A-10)
B-14	Moved to Arguments - Letter dated May 16, 2016 – FEI Reply Submission

INTERVENER DOCUMENTS

C1-1 **COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BRITISH COLUMBIA (CEC)** Letter Dated July 24, 2015 – Request for Intervener Status by Christopher Weafer

C1-2 Letter Dated August 17, 2015 – CEC Submitting IR No. 1 to FEI

C1-3 Letter dated August 31, 2015 – CEC Submitting Comments regarding FEI Extension Request

C1-4 Letter dated October 9, 2015 - CEC Submission on Further Process

C1-5 Letter dated November 4, 2015 - CEC Submitting IR No. 2

C1-6 Letter dated April 19, 2016 - CEC SRP Submission

C1-7 Moved to Arguments - Letter dated May 9, 2016 - CEC Submission on Panel IR No. 1 Responses

C2-1 **BRITISH COLUMBIA HYDRO & POWER AUTHORITY (BC HYDRO)** Letter Dated July 28, 2015 – Request for Intervener Status by Alice Ferreira

C2-2 Letter dated September 1, 2015 – BC Hydro Submitting Comments regarding FEI Extension Request

C3-1 **BRITISH COLUMBIA OLD AGE PENSIONERS' ORGANIZATION, DISABILITY ALLIANCE BC, COUNCIL OF SENIOR CITIZENS' ORGANIZATIONS OF BC, AND THE TENANT RESOURCE AND ADVISORY CENTRE (BCOAPO)** Letter Dated July 29, 2015– Request for Intervener Status by Tannis Braithwaite, Lobat Sadrehashemi and James Wightman

C3-2 Letter Dated August 17, 2015 – BCOAPO Submitting IR No. 1 to FEI

C3-3 Letter dated September 1, 2015 – BCOAPO Submitting Comments regarding FEI Extension Request

C3-4 Letter dated October 9, 2015 - BCOAPO Submission on Further Process

C3-5 Letter dated November 4, 2015 - BCOAPO Submission Regarding IR No. 2

C3-6 Letter dated April 19, 2016 - BCOAPO SRP Submission

C3-7 Moved to Arguments - Letter dated May 9, 2016 - BCOAPO Submission on Panel IR No. 1 Responses

C4-1 **PACIFIC NORTHERN GAS LTD. (PNG)** Letter Dated July 30, 2015– Request for Intervener Status by Janet Kennedy, Verlon Otto and Peter Schriber

C4-2 Letter dated October 9, 2015 - PNG Submission on Further Process

C5-1	**PEACE RIVER REGIONAL DISTRICT ELECTORAL AREA B (PRRD)** Letter Dated July 31, 2015– Request for Intervener Status by Karen Goodings
C5-2	Letter dated September 23, 2015 – PRRD Submitting Comments
C5-3	Letter dated October 8, 2015 - PRRD Submission on Further Process
C6-1	**BC SUSTAINABLE ENERGY ASSOCIATION AND THE SIERRA CLUB OF BRITISH COLUMBIA (BCSEA)** Letter dated July 31, 2015 – Request for Intervener Status by William Andrews and Thomas Hackney and Filing Extension Request
C6-2	Letter Dated August 17, 2015 – BCSEA Submitting IR No. 1 to FEI
C6-3	Letter dated August 31, 2015 – BCSEA Submitting Comments regarding FEI Extension Request
C6-4	Letter dated October 9, 2015 - BCSEA Submission on Further Process
C6-5	Letter dated November 4, 2015 - BCSEA Submission Regarding IR No. 2
C6-6	Letter dated April 19, 2016 - BCSEA SRP Submission
C6-7	Moved to Arguments - Letter dated May 9, 2016 - BCSEA Submission on Panel IR No. 1 Responses
C7-1	**LARSON, LINDA MLA (LARSON)** Letter dated July 31, 2015 – Request for Intervener Status by Linda Larson, and Colleen Misner
C8-1	**VANCOUVER ISLAND ECONOMIC ALLIANCE (VIEA)** Letter dated August 4, 2015 Web registration – Request for Intervener status by George Hanson
C8-2	Letter dated October 8, 2015 - VIEA Submission on Further Process
C9-1	**SEABIRD ISLAND BAND (SEABIRD ISLAND)** Letter dated August 4, 2015 Web registration and Email – Request for Intervener status by Clement Seymour
C9-2	Letter dated October 13, 2015 - Seabird Island Submitting Letter of Support
C9-2-1	Letter dated October 19, 2015 - Seabird Island Submitting Letter of Support Clarification
C10-1	**REGIONAL DISTRICT OKANAGAN SIMILKAMEEN (RDOS)** Letter dated August5, 2015 Web registration – Request for Intervener status by George D. Bush

INTERESTED PARTY DOCUMENTS

D-1 **CONROY, KATRINE MLA** – Web Registration dated August 4, 2015 - Request for Interested Party status

LETTERS OF COMMENT

E-1 City of Port Alberni - Letter of Comment dated August 27, 2015

E-2 District of Saanich – Letter of Comment dated August 27, 2015

E-3 Greater Victoria Chamber of Commerce – Letter of Comment dated September 3, 2015

E-4 Peace River Regional District – Letter of Comment dated September 23, 2015