Diane Roy
Vice President, Regulatory Affairs

Gas Regulatory Affairs Correspondence
Email: gas.regulatory.affairs@fortisbc.com

Electric Regulatory Affairs Correspondence
Email: electricity.regulatory.affairs@fortisbc.com

FortisBC
16705 Fraser Highway
Surrey, B.C. V4N 0E8
Tel: (604) 576-7349
Cell: (604) 908-2790
Fax: (604) 576-7074
Email: diane.roy@fortisbc.com
www.fortisbc.com

September 20, 2018

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, B.C.
V6Z 2N3

Attention: Mr. Patrick Wruck, Commission Secretary and Manager, Regulatory Support

Dear Mr. Wruck:

Re: FortisBC Energy Inc. (FEI)

Project No. 1598964

2019-2022 Demand Side Management (DSM) Expenditures Plan (the Application)

Response to the British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1

On June 22, 2018, FEI filed the Application referenced above. In accordance with Commission Order G-138-18 setting out the Regulatory Timetable for the review of the Application, FEI respectfully submits the attached response to BCUC IR No. 1.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered Parties

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A. PORTFOLIO LEVEL ISSUES

1.0 Reference: PORTFOLIO LEVEL ISSUES

Exhibit B-1, p. 5

BC Energy Objectives

Table 3-1 of the FortisBC Energy Inc. (FEI) Application for Acceptance of 2019-2022 Demand Side Management Expenditures Plan (Application) illustrates "BC's Energy Objectives Met by FEI DSM Activity." With respect to BC Energy Objective (b),[1] FEI states that the estimated net present value of natural gas savings (net of free ridership) for the 2019 to 2022 period is projected to be a total of 36,160,900 gigajoules (GJ). With respect to BC Energy Objective (g), [2]FEI states that its Demand Side Management (DSM) programs will result in substantial natural gas savings, in turn leading to commensurate reductions in greenhouse gas emissions of 1,865,902 tonnes CO2e. With respect to BC Energy Objective (k),[3] FEI submits its DSM programs have a broad impact on the provincial economy as measured through employment, gross domestic product (GDP) and industrial output.

1.1 Please confirm that the estimated natural gas savings do not take into account any forecasted load growth over the same period.

Response:

This response also addresses BCUC IRs 1.1.1.1, 1.1.2, 1.1.2.1, 1.1.3, and 1.1.3.1. FEI notes that a correction was made to residential program area spillover, industrial program area energy savings and inflated aggregate DSM Plan expenditures. The following analysis uses the corrected values. Please refer to Appendix A, Exhibits 1, 8 and 12 provided in the Errata filed concurrently with these IR responses for further information.

The net present value (NPV) natural gas savings and greenhouse gas (GHG) emissions reductions set out in the Application, and referenced in the preamble, do not account for forecast load growth. This is appropriate as load growth does not diminish the energy savings and GHG abatement performance of natural gas DSM activity. While load growth is contingent on numerous factors independent of DSM, all else equal, load growth would be greater without FEI's DSM activity. Further, FEI's reporting of natural gas savings and consequent GHG emissions are consistent with the framework set out in the DSM Regulation.

See items 1 and 2 in the table below for the value of gas savings and GHG abatement due to FEI's DSM activities offset by forecast load growth. For the reasons noted above, FEI's position

[1] *Clean Energy Act* section 2(b).
[2] *Clean Energy Act* section 2(g).
[3] *Clean Energy Act* section 2(k).

is that this is not an appropriate method to gauge the performance of FEI's DSM portfolio or the portfolio's contribution to the emissions reductions targets in section 2(g) of the *Clean Energy Act.*

The GHGs emitted when customers combust natural gas delivered to them by FEI accrue to FEI's customers, not to FEI. Item 3 in the table below displays the NPV of GHG abatement from FEI's forecast 2019-2022 DSM programming as a ratio of the NPV of GHGs forecast to be emitted by FEI's customers combusting natural gas. The calculation of item 3 does not quantify impacts of GHG-reducing upstream initiatives, such as electrifying natural gas extraction and processing facilities or implementing methane leakage controls in extraction, processing, and storage facilities.

Item 3 in the table below does not represent FEI's total contribution to the emissions reductions targets in section 2(g) of the *Clean Energy Act*. FEI notes that British Columbia's current GHG emissions-related energy objectives apply to the province as a whole and do not identify any sector-specific allocations. In addition to FEI's DSM programs, FEI's Natural Gas for Transportation programs, Renewable Natural Gas offer, and Connect to Gas Program support provincial GHG emissions-related energy objectives. As outlined in Appendix E of FEI's 2017 LTGRP, further emerging initiatives and technologies exist that have the potential to enable significant GHG abatement in the long term via the use of FEI's gas infrastructure.

Item	Description	Value
1	NPV of Net Gas Savings after Load Growth (GJ)	31,106,609
2	NPV of Net GHG Abatement after Load Growth (tonnes CO_2e)	1,605,101
3	NPV of DSM GHG Abatement per Total GHG Emissions (tonnes CO2e)	1.64%

1.1.1 If confirmed, please provide an estimate of the net change in natural gas (GJ) for the period 2019 to 2022, taking into account projected load growth (excluding Natural Gas for Transportation) and savings from DSM activity.

Response:

Please refer to the response to BCUC IR 1.1.1.

1.2 Please confirm that the greenhouse gas emissions reductions are gross of emissions increases resulting from load growth over the same period.

Response:

Please refer to the response to BCUC IR 1.1.1.

1.2.1 If confirmed, please provide an estimate of the net change in emissions (CO_2e) for the period 2019 to 2022, taking into account projected load growth (excluding Natural Gas for Transportation) and savings from DSM activity.

Response:

Please refer to the response to BCUC IR 1.1.1.

1.3 Please provide an estimate of the reductions in greenhouse gas emissions as a percentage of FEI's overall emissions over this period.

Response:

Please refer to the response to BCUC IR 1.1.1.

1.3.1 With respect to this calculation, please discuss FEI's position regarding its contribution to the emissions reductions targets outlined in section 2(g) of the Clean Energy Act.

Response:

Please refer to the response to BCUC IR 1.1.1.

1.4 Please provide data and/or commentary to support FEI's position with respect to the impact of its DSM programs upon employment, GDP and industrial output.

Response:

Findings from two recent industry studies demonstrate the broad impact that DSM programs have on the economy.

A 2018 study commissioned by Clear Energy Canada, focused on the economic impact of DSM in Canada.[4] This study estimated that every $1 spent on energy efficiency results in a net benefit of $4-7 in terms of GDP. Furthermore, it was estimated that every $1 million of DSM program spending created 16-30 full-time equivalent jobs.

The Illinois Energy Efficiency Stakeholder Advisory Group completed a review of reports that describe job creation resulting from energy efficiency spending in 2015.[5] Their review of research on the topic found that "estimates for job creation for program spending range from 8 to over 200 jobs created per $1 million in DSM program spending". Furthermore, "estimates for job creation for energy efficiency investments alone range from 12 to 20 jobs created per $1 million in energy efficiency investment".

[4] Dunsky Energy Consulting, *The Economic Impact of Improved Energy Efficiency in Canada, prepared for Clean Energy Canada*, April 3, 2018, available at: https://www.efficiencycanada.org/wp-content/uploads/2018/04/Economic-Impact-of-Pan-Canadian-Framework-Energy-Effciency.pdf.

[5] Illinois Energy Efficiency Stakeholder Advisory Group, *Energy Efficiency Program Job Creation Metric Review*, June 22, 2015, available at: http://ilsagfiles.org/SAG_files/Meeting_Materials/2015/6-23-15_Meeting/Jobs_Creation_and_Investments_in_Energy_Efficiency_6-22-15.pdf.

2.0 Reference: PORTFOLIO LEVEL ISSUES

Exhibit B-1, pp. 6 to 7

FEI 2017 Long Term Gas Resource Plan Application, pp. ES-4 to ES-5; pp. 120 to 121

Consistency with 2017 LTGRP

On pages 6 to 7 of the Application, FEI states:

> In 2015, FEI, in collaboration with BC Hydro, FortisBC Inc. (FBC), and Pacific Northern Gas (PNG), initiated a province-wide conservation potential review (BC CPR). This project uses a 2014 base year to determine the technical, economic, and market energy savings potential for natural gas and electricity until 2035. The range of potential natural gas DSM measures from the BC CPR results informed the 2017 LTGRP [Long Term Gas Resource Plan] DSM forecast. FEI's DSM Plan (Appendix A) is informed by both the results from the BC CPR (filed as Appendices D and E and Appendix C-1 of the 2017 LTGRP) and the 2017 LTGRP.
>
> The energy savings in FEI's DSM Plan are generally consistent with the 2017 LTGRP forecast Reference Case energy savings. From 2019 until 2022, FEI's DSM Plan forecasts eight percent higher energy savings than FEI's 2017 LTGRP. FEI's DSM Plan indicates expenditures that average $81.14 million per year (including inflation). For the same period, the 2017 LTGRP Reference Case forecasts a theoretical estimate of DSM expenditures that average $42.80 million per year. However, energy savings and expenditure figures are not directly comparable in absolute terms. By virtue of representing a long term forecast and in contrast to FEI's DSM Plan, the 2017 LTGRP does not take into account the following factors:
>
> - Non-incentive expenditures that support or enable DSM programs at the portfolio level, such as enabling activities and conservation education outreach;
> - Operational program delivery considerations, such as changes in required DSM staffing levels, program eligibility requirements, or measure packaging and marketing; and
> - Emergence of new technologies more than five years into the future or technologies which are currently unknown which may increase aggregate energy savings opportunities and thus enable greater actual DSM program expenditures.

The 2017 LTGRP provides a sensitivity analysis, sourced from the BC CPR's Bass Diffusion model, of how changes in the value of FEI's measure incentives, as a proportion of incremental measure cost, impact forecast energy savings and estimated DSM expenditures. This analysis showed that, directionally, energy savings increased at a lower rate than the estimated DSM expenditures when applying a limited set of increasing measure level incentive values. This directionally aligns with FEI's DSM Plan forecasting eight percent higher energy savings for the 2019-2022 period at 47 percent higher annual expenditures than the 2017 LTGRP.

On pages ES-4 and ES-5 of the FEI 2017 LTGRP Application (2017 LTGRP), FEI states:

> Under DSM activities defined by the DSM Regulation, FEI has estimated C&EM [Conservation and Energy Management] expenditures and energy savings from all cost effective measures identified through the Company's results from the BC Conservation Potential Review (BC CPR) study (undertaken between 2015 and 2017).

Tables 4-10, 4-11 and 4-12 of the 2017 LTGRP outline estimated cumulative energy savings in 2036 from the top ten measures in the residential, commercial, and industrial program areas, respectively.

2.1 Please discuss whether the 2019-2022 DSM Plan includes all measures that are cost-effective as identified through the BC CPR.

Response:

FEI considers measures that are cost-effective as identified through the BC CPR to be all residential measures that pass the Modified Total Resource Cost test and all commercial and industrial measures that pass the Total Resource Cost test as identified by the BC CPR during at least one of the 20 years of its study horizon. The 2019-2022 DSM Plan includes all measures that meet this criterion with the notes and caveats discussed in the table below.

BC CPR Measure Name	Discussion
BC CPR Residential Program Area	
Res | Energy Star Windows	This measure is currently under consideration by the Home Renovation Program utility partners.
Res | Fireplace Timers	FEI pilot results did not confirm this measure to be cost effective; therefore, it was not included in the DSM Plan.
Res | Heat Reflectors	FEI pilot results did not confirm this measure to be cost effective; therefore, it was not included in the DSM Plan.

BC CPR Measure Name	Discussion
Res | Home Energy Reports	This measure is included in the Customer Engagement Tool as part of the Conservation Education and Outreach Initiatives.
Res | Net Zero Home	This measure is included in the New Home Program as part of the transition from Step 1 to beyond Step 5.
Res | Non-Condensing Gas Tankless Water Heater	Uptake of non-condensing water heaters in the Home Renovation Program is low relative to condensing technologies; therefore, FEI, to support upcoming federal water heater regulations, plans to promote condensing rather than non-condensing technologies. FEI is considering whether to include non-condensing water heaters in the New Home Program to support new dwelling affordability. FEI will consult with industry to consider the merits of both approaches when finalizing program design.
Res | Passive House	This measure is included in the New Home Program (Step 5).
BC CPR Commercial Program Area	
Com | Building Automation Controls	Included in the Performance Program for existing and new buildings.
Com | Ceiling Insulation	Will be further investigated as option under “roof insulation”.
Com | Ceiling Insulation (Small Commercial)	Will be further investigated as option under “roof insulation”.
Com | Duct Insulation, Gas	FEI launched incentives for pipe and tank insulation measures in 2018; FEI will consider duct insulation measure incentives based market feedback.
Com | Faucet Aerators, Gas	Included in Rental Apartment Efficiency Program and Performance Program – Existing Building
Com | Gas Boiler Tune-Up	Included in Performance Program – Existing Building
Com | Low-Flow Showerheads, Gas	Included in Rental Apartment Efficiency Program and Performance Program – Existing Building
Com | Occupant Behavior	Included in Performance Program – Existing Building when identified in combination with the planned building upgrades.
Com | Refrigeration Waste Heat Recovery / Compressor Heat Recovery, Gas	Included in the Performance Program for existing and new buildings.
BC CPR Industrial Program Area	
Ind | Unit Heater	Included as a part of “Other Prescriptive Measures” in the Prescriptive Program

2.2 Please outline specifically how the BC CPR has informed the results of the 2019-2022 DSM Plan.

Response:

For context, it is important to note that the method for preparing the BC CPR differs fundamentally from the method for preparing the 2019-2022 DSM Plan. The purpose of a CPR is to examine available energy efficiency technologies, understand the inventory of energy equipment in a utility's service area, and determine the conservation potential that exists. The BC CPR summary report does not recommend specific programs or targets to be implemented. However, the report does identify technology and market opportunities as well as the scope of market energy savings potential across the study period. In contrast, the 2019-2022 DSM Plan represents a bottom-up forecast of specific DSM programs, and requests BCUC acceptance of a portfolio of DSM expenditures.

The program areas in the 2019-2022 DSM Plan use operational delivery considerations for specific programs that bundle multiple measures in order to forecast expenditures, energy savings and cost-effectiveness in the short term. The BC CPR informed which measures to target when preparing the 2019-2022 DSM Plan. The BC CPR has also informed whether the forecast aggregate expenditures and energy savings for the program areas in the 2019-2022 DSM Plan are reasonable.

The two examples below illustrate the relationship between the DSM Plan and the BC CPR.

The commercial program area used the BC CPR to determine the appropriate level of portfolio expenditures and assess the development of additional Prescriptive Program measures. In addition, the BC CPR identified high-efficiency new construction as the top commercial and overall measure for market potential. In response, FEI has proposed a revised and expanded new construction program aligned with the BC Energy Step Code to target those potential energy savings.

In the industrial program area, the BC CPR identified the top industrial measure as being "Energy Management". As the industrial program did not a have a program targeting energy management opportunities, FEI proposed the Industrial Strategic Energy Management (SEM) Program to target the market potential from that measure. In addition, the BC CPR identified several industrial measures that were not currently able to be incented through the Industrial Performance and Prescriptive programs. As a result, FEI developed those measures further and has most of them in the Prescriptive Program.

2.3 Please discuss whether the top ten measures in the residential, commercial, and industrial program areas as identified in the 2017 LTGRP, are all included in the 2019-2022 DSM Plan.

Response:

The 2019-2022 DSM Plan includes the measures identified in the 2017 LTGRP Tables 4-10 to 4-12 with the caveats discussed for certain measures in the table below:

2017 LTGRP Measure Name	Discussion
2017 LTGRP Residential Program Area	
Home Energy Reports	Included in the Customer Engagement Tool as part of the Conservation Education and Outreach Initiatives
Non-Condensing Gas Storage Water Heater	Home Renovation Program uptake of non-condensing water heaters is low relative to condensing technologies. Therefore, in support of upcoming federal water heater regulations, FEI plans to promote condensing rather than non-condensing technologies. FEI is considering whether to include non-condensing water heaters in the New Home Program to support new dwelling affordability. FEI will consult with industry to consider the merits of both approaches when finalizing program design.
Passive House	Included in the New Home Program (Step 5)
2017 LTGRP Commercial Program Area	
HVAC Control Upgrades – Direct Digital Data	Prescriptive Program – HVAC Control is a “catch all” program and may include the identified measure
Heat Control System for Boilers	Prescriptive Program – HVAC Control is a “catch all” program and may include the identified measure
Fireplace Timers	FEI pilot results did not confirm this measure to be cost effective.

2.4 Please provide an estimate of the annual expenditures for the 2019-2022 DSM Plan if non-incentive expenditures, operational program delivery considerations, and emergence of new technologies (as applicable) were not included in the costs.

Response:

This response also addresses BCUC IRs 1.2.4.1 and 1.2.5. FEI consulted with ICF Canada to prepare this response. FEI notes that a correction was made to residential program area spillover and industrial program area energy savings. The following analysis uses the corrected values. Please refer to Appendix A, Exhibits 8 and 12 provided in the Errata filed concurrently with these IR responses for further information.

Please see the table below for a comparison between the 2019-2022 DSM Plan and the Reference Case DSM analysis in the 2017 LTGRP for energy savings and incentive expenditures only, including the impact of emerging technologies up to five years into the future, but excluding data for the Low Income program area (as this program area uses potential adequacy measures identified in the 2017 LTGRP but embeds them within specific program designs) and excluding data for portfolio-level Enabling Activities. The table also displays the absolute and the percentage variance between the 2019-2022 DSM Plan and the 2017 LTGRP.

The table represents the closest possible comparison between the 2019-2022 DSM Plan and the DSM analysis in the 2017 LTGRP for the following reasons:

1. As noted on pages 6 to 7 of the 2017 LTGRP, the LTGRP does not take into account non-incentive expenditures that support or enable DSM programs at the portfolio level. However, the LTGRP does take into account non-incentive expenditures that are tied to specific program areas.

2. The 2017 LTGRP's treatment of emerging technologies in the short term is substantially the same as the 2019-2022 DSM Plan. The 2017 LTGRP does not account for the emergence of new technologies more than five years into the future or technologies which are currently unknown. The 2019-2022 DSM Plan spans four years and considers emerging technologies that are commercially available in British Columbia or are nearing commercial availability.

3. The 2017 LTGRP does not take into account operational program delivery factors. Operational program delivery factors include, but are not limited to, changes in required DSM staffing levels, program eligibility requirements, or measure packaging and marketing. These factors may impact the following metrics: incentive levels, non-incentive expenditures, measure participation in DSM programming, and technical measure assumptions. Some factors may increase these metrics, while other factors may decrease them; thus, the program-specific blend of these factors determine whether the referenced metrics are higher or lower than proposed by the 2017 LTGRP. The 2019-2022 DSM Plan represents a bottom-up forecast of specific DSM programs, whereas the results of the DSM analysis in the 2017 LTGRP display a theoretical estimate of DSM activity as a function of cost-effectiveness and, at the program area level, the ratio between incentive levels and measure incremental costs. As such, the

method for preparing the DSM analysis in the 2017 LTGRP differs fundamentally from the method for preparing the 2019-2022 DSM Plan. This means that isolating the exact quantitative impact of operational program delivery considerations on the metrics is impossible.

The table also demonstrates how the 2019-2022 DSM Plan directionally aligns with the 2017 LTGRP DSM sensitivity analysis. As noted on page 122 of the 2017 LTGRP, the sensitivity analysis suggests that, in aggregate, increasing incentive expenditures does increase energy savings but expenditures will tend to increase faster than energy savings. The table shows that, cumulatively and across the program areas, the 2019-2022 DSM Plan expects incentive expenditures to be 18 percent higher and energy savings to be 3 percent higher than in the 2017 LTGRP. This variance is due to both the table's inability to isolate the exact quantitative impact of operational program delivery considerations (as described in reason 3 above) and also the sensitivity findings from the 2017 LTGRP. FEI uses the term "alignment" to describe this similar relationship but denotes this as "directional" to signal that FEI does not imply any claims about the exact slopes of incentives versus energy savings in the 2019-2022 DSM Plan versus the 2017 LTGRP.

	DSM Plan		2017 LTGRP	
Year	Incentives	Annual Energy Savings (GJ)	Incentives	Annual Energy Savings (GJ)
2019	$ 33,793,644	799,911	$ 30,913,690	881,118
2020	$ 39,341,681	853,295	$ 33,098,803	875,398
2021	$ 50,771,668	1,036,328	$ 42,417,365	982,935
2022	$ 56,506,820	1,124,102	$ 41,048,624	951,016
Aggregate	$ 180,413,813	3,813,636	$ 147,478,482	3,690,467

Absolute Variance - DSM Plan minus 2017 LTGRP

Year	Incentives	Annual Energy Savings (GJ)
2019	$ 2,879,954	(81,206)
2020	$ 6,242,878	(22,104)
2021	$ 8,354,303	53,392
2022	$ 15,458,196	173,086
Aggregate	$ 32,935,331	123,169

Percentage Variance (DSM Plan Base) - DSM Plan minus 2017 LTGRP

Year	Incentives	Annual Energy Savings
2019	9%	-10%
2020	16%	-3%
2021	16%	5%
2022	27%	15%
Aggregate	18%	3%

2.4.1 Please discuss any remaining differences with the annual expenditures forecasted in the 2017 LTGRP.

Response:

Please refer to the response to BCUC IR 1.2.4.

2.5 Please explain why the incentive sensitivity analysis described in the 2017 LTGRP can be said to "directionally align" with respect to the comparison of energy savings and expenditures forecasted with the 2019-2022 DSM Plan, when the 2017 LTGRP expenditures do not account for non-incentive expenditures, operational program delivery considerations, and emergence of new technologies.

Response:

Please refer to the response to BCUC IR 1.2.4.

2.5.1 Please discuss the extent to which the incentive levels in the FEI DSM Plan were determined by the incentive sensitivity analysis described in the 2017 LTGRP.

Response:

This response also addresses BCUC IRs 1.9.2 and 1.9.2.1. FEI consulted with ICF Canada to prepare this response.

The 2019-2022 DSM Plan represents a bottom-up forecast of specific DSM programs, whereas the results of the DSM analysis in the 2017 LTGRP display a theoretical estimate of DSM activity over 20 years as a function of cost-effectiveness and, at the program area level, the ratio between incentive levels and measure incremental costs. As such, the method for preparing the

DSM analysis in the 2017 LTGRP differs fundamentally from the method for preparing the 2019-2022 DSM Plan. Section 4.2.3.4 of the 2017 LTGRP emphasizes this difference by indicating that each of FEI's DSM program teams sets actual incentive levels based on its market research and experience when developing specific programs or preparing C&EM expenditure schedules. In contrast, the BC CPR's Bass Diffusion model represents a theoretical construct that is calibrated to FEI's historical program performance and North American industry benchmark data.

As such, the DSM sensitivity analysis in the 2017 LTGRP informed the specific program teams' ability to assess whether their bottom-up forecast aggregate incentive expenditures and measure participation levels reasonably follow expected trajectories. This means differences between the 2019-2022 DSM Plan and the 2017 LTGRP sensitivity analysis baseline are due to two factors:

1. The 2019-2022 DSM Plan program-specific measure assumptions differ from the BC CPR and 2017 LTGRP measure assumptions, due to the time elapsed since the two long-term studies were conducted and because the 2019-2022 DSM Plan accounts for operational program delivery considerations, and

2. The distribution of participants across measures in the 2019-2022 DSM Plan is based on a detailed bottom-up analysis of numerous operational factors, which diverges from the BC CPR and 2017 LTGRP which are based on an assumption of one aggregate incentive level across each of the program areas and a diffusion model to estimate participation.

The table below summarizes total incentive spending, total incremental cost (based on participation), and incentive spending as a proportion of incremental cost for each program and aggregated program area. FEI notes the following regarding variances between the 2019-2022 DSM Plan and the BC CPR and 2017 LTGRP:

- In the residential and commercial program areas, incentives as a proportion of incremental cost are five and three percentage points lower than the 2017 LTGRP baseline, respectively. These variances are due to these program areas having further developed their measure assumptions and program mix since completing the BC CPR measure characterization in 2016 (which informed the 2017 LTGRP). The measure assumptions and program mix were developed while designing specific programs for the 2019-2022 DSM Plan based on evolving market insights and stakeholder consultation.

- In the industrial program area, incentives as a proportion of incremental cost are 25 percentage points lower than the 2017 LTGRP baseline. This variance is primarily due to additional measure development by a third-party consultant for the 2019-2022 DSM Plan. The consultant provided incentive recommendations and revised measure costing information based on experience in other jurisdictions.

- In the low income program area, the Support Program does not contain any incremental costs which results in the program area aggregate incentive proportion appearing higher than the incentive proportions displayed for the individual programs.

Program	Incentives ($000s)	Incr. Cost ($000s)	Incentive Spending as Proportion of Incr. Cost (%)
	Total	Total	
Home Renovation Rebate Program	66,399	130,819	51%
New Home Program	30,106	75,836	40%
Rental Apartment Efficiency Program	997	999	100%
RESIDENTIAL PROGRAM AREA	**97,502**	**207,654**	**47%**
Prescriptive Program	41,939	76,256	55%
Performance Program - Existing Buildings	8,405	19,130	44%
Performance Program - New Buildings	13,954	40,523	34%
Rental Apartment Efficiency Program	4,014	4,694	86%
COMMERCIAL PROGRAM AREA	**68,312**	**140,603**	**49%**
Performance Program	6,480	9,197	70%
Prescriptive Program	1,805	4,805	38%
Strategic Energy Management Program	1,700	1,700	100%
INDUSTRIAL PROGRAM AREA	**9,985**	**15,701**	**64%**
Direct Install Program	6,860	6,860	100%
Self Install Program	1,300	1,300	100%
Prescriptive Program	11,309	11,217	101%
Support Program	1,040	1,040[6]	100%
LOW INCOME PROGRAM AREA	**20,509**	**20,417**	**100%**

[6] The incentives that are being provided for the Non-Profit Custom Studies and Implementation Support measure under the Low Income Support Program should be equal to the incremental cost of this measure. This is an update to what was filed in the Plan (i.e. $0 incremental cost).

3.0 Reference: PORTFOLIO LEVEL ISSUES

FEI 2017 LTGRP Proceeding Exhibit B-2, Response to BCUC IR 29.1.2

Demand Response

In response to BCUC Information Request (IR) 29.1.2 in the FEI 2017 LTGRP proceeding, FEI states:

> FEI confirms that consideration of energy management programs will be included in the upcoming 2019-2022 DSM Expenditures application although it cannot be confirmed at this time if any of these energy management programs will have a demand response component or be able to specifically target peak demand reductions.

3.1 Please discuss if any programs in the 2019-2022 DSM Plan contain a demand response component or specifically target peak demand reductions.

Response:

The 2019-2022 DSM Plan contains energy management programs and programs that seek to influence energy use behaviors; however, these programs do not contain any demand response components and do not specifically target peak demand reductions. As explained in FEI's responses to the BCUC IR 2.64 series in the 2017 LTGRP proceeding (refer to Attachment 3.1) FEI is currently unable to verify with sufficient degree of certainty whether demand response programs or programs that specifically target peak demand reductions would have the desired future impacts required for accruing economic value to such programs.

4.0 Reference: PORTFOLIO LEVEL ISSUES

Exhibit B-1, p. 22; Appendix B, p. 5

Portfolio Level Expenditures

Table 6-1 of the Application illustrates the forecasted expenditures from 2019 to 2022 for each program area. Table 2-2 of Appendix B of the Application shows the actual expenditures by program area for 2017.

4.1 Please provide a table that shows actual expenditures by program area for 2017 alongside forecasted program expenditures for 2019, and includes the increase in expenditure expressed as ($000s) and percentage.

Response:

The table below provides the 2017 actual expenditures, the 2019 forecast expenditures and the increase in expenditure expressed in ($000s) and percentage by program area.

Program Area	Total DSM Expenditures			
	2017 Actual ($000s)	2019 Plan ($000s)	Increase ($000s)	Increase (%)
Residential	12,203	23,521	11,318	93%
Commercial	10,834	13,837	3,003	28%
Industrial	2,099	3,103	1,003	48%
Low Income	2,644	6,630	3,986	151%
Conservation Education and Outreach	2,590	7,155	4,565	176%
Innovative Technologies	928	2,043	1,115	120%
Enabling Activities	1,181	8,426	7,245	613%
*Portfolio Level Activities	1,559	1,635	76	5%
ALL PROGRAMS	**34,039**	**66,350**	**32,311**	**95%**

4.2 Please provide a table that shows the forecasted expenditures from 2019 to 2022 as a percentage of forecasted revenues from the customer class, for the residential, commercial and industrial program areas.

Response:

The requested ratios for 2019 are provided below. FEI does not have forecast revenues beyond 2019, therefore the requested ratios for 2020 to 2022 cannot be provided.

$000

DSM Expenditures	**2019**
Residential	29,393
Commercial	14,595
Industrial	3,103

Forecast Revenue @ existing rates	**2019** *Note 1*
Residential	702,589
Commercial	374,745
Industrial	92,866

DSM Expenditures / Revenue	**2019**
Residential	4.2%
Commercial	3.9%
Industrial	3.3%

Note 1: Revenue at Existing Rates, Schedule 19 (NON-BYPASS), FEI's Annual Review for 2019 Delivery Rates Application filed August 3, 2018.

4.2.1 Please discuss the extent to which FEI considers the balance of expenditures for each customer class in the development of its overall DSM portfolio.

Response:

The DSM Plan was developed through a bottom-up approach starting with cost-effective DSM measures and market opportunity by program area and ending with programs for all customer segments as outlined in the Plan. In preparing the DSM Plan, FEI gave consideration to the balance of expenditures by customer class; however, this did not inform the development of the Plan.

FEI's DSM Guiding Principles, listed in Section 6.3 of the Application, include the goal of being universal and offering programs for all residential, commercial and industrial customers. Universality is an important objective for FEI's DSM programs, and the 2019 to 2022 DSM Plan includes programs for all customer classes.

5.0 Reference: PORTFOLIO LEVEL ISSUES

Exhibit B-1, p. 28

FEI Multi-year Performance Based Ratemaking Plan for the Years 2014–2018 Decision, pp. 257 to 258, 260

Utility Cost Test

Table 7-1 on page 28 of the Application shows a portfolio level Utility Cost Test (UCT) result of 0.9 for the 2019-2022 DSM Plan.

On pages 257 and 258 of the FEI Multi-year Performance Based Ratemaking plan for the years 2014–2018 Decision (PBR Decision), the BCUC stated:

> An issue to be addressed in this Decision is to what extent, if any, the Commission should encourage the utility to focus on EEC [Energy Efficiency and Conservation] programs that reduce total utility costs.

On page 260, the BCUC further went on to state:

> Accordingly, where appropriate, the Panel may consider the UCT as a checkpoint in evaluating EEC programs requiring the mTRC [modified total resource cost], along with other considerations including the ability of customers to participate in EEC programs…
>
> the Panel considers it appropriate that the result of the UCT test be considered, even if it is not determinative. In evaluating the reasonableness of allocation of EEC funding between EEC programs that pass the TRC [total resource cost] /mTRC, the Commission Panel determines that the UCT result is a relevant consideration.

5.1 Please provide a table that shows the UCT for each program that requires the MTRC (excluding the exempt measures outlined in section 4(1.8) of the DSM Regulation), and an aggregate UCT for all programs requiring the UCT.

Response:

FEI assumes that the reference to "UCT" at the end of the question was meant to be "MTRC".

The following table provides the UCT for each program that requires the MTRC, excluding programs exempt from the UCT pursuant to section 4(1.8) of the DSM Regulation. The table shows that the UCT for the three programs is 0.6, 1.0 and 1.2, and the weighted average UCT if considered on an aggregate basis is 0.9.

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

5.2 Please explain the extent to which FEI considered the results of the UCT at a program or portfolio level in the development of the 2019-2022 DSM Plan.

Response:

FEI first considered the TRC and MTRC results in the development of the 2019-2022 DSM Plan as these are the primary cost-effectiveness tests under the Demand-Side Measures Regulation (DSM Regulation). FEI then considered the results of the UCT at a program and portfolio level. This led FEI to seek opportunities to reduce program administration costs and, in some cases, incentive levels in order to enhance the UCT results. The outcome was a modest improvement in the UCT results.

5.3 Please discuss (and quantify where possible) the impact upon energy savings and total expenditures if the 2019-2022 DSM Plan were to be constructed to achieve a UCT result of 1.0.

Response:

FEI has developed a robust and appropriate DSM plan that should not be limited by attempts to improve the UCT result. There are a number of ways to impact the UCT result. At the most basic level any combination of actions that increase the UCT benefits more than the UCT costs increase, or that decrease the UCT costs more than the UCT benefits decrease will improve the UCT results. Since the UCT benefits are very similar to the TRC benefits for gas utilities in BC, and FEI's review of cost effective measures examined all available measures with high benefits to costs, FEI is confident that there are no measures that it could add to the portfolio specifically to boost the UCT benefits (notwithstanding the response to BCUC IR 1.5.3.1). Therefore, the

remainder of this response discusses options that would attempt to make changes that would decrease UCT costs more than decrease UCT benefits.

One alternative to attempt to achieve a UCT result of 1.0 would be to reduce or eliminate the programs that have a low UCT result at the program level. The programs in the 2019-2022 DSM Plan that have a UCT below 1.0 are the New Home Program, the Low Income Direct Install Program and the Low Income Prescriptive Program. In theory, taking these programs out of the portfolio would produce a UCT of 1.0 (after rounding to the nearest decimal place). Eliminating these programs would have other negative consequences:

- Eliminating programs with a UCT less than 1.0 would significantly reduce FEI's low-income programs.
- Eliminating programs with a UCT less than 1.0 would result in a loss of the societal and customer benefits of these programs, which are not taken into account in the UCT (these programs also rely on the ZEEA and non-energy benefit adders to pass the TRC/MTRC).
- Eliminating programs with a UCT less than 1.0 would be inconsistent with FEI's principle of universality, as it would reduce the reach of FEI's DSM programs to residential and low income customers.
- Eliminating programs with a UCT less than 1.0 would limit FEI's ability to meet the requirements of the DSM Regulation regarding measures intended to result in adoption of the BC Energy Step Code.

Further, pursuant to section 4(1.8) of the DSM Regulation, the Commission may not determine that low-income programs are not cost-effective under the UCT.

For these reasons, FEI does not recommend eliminating programs with a UCT below 1.0, and has not attempted to quantify the impact of doing so on overall energy savings.

FEI identified a number of measures across program areas that when examined individually have a UCT below 1.0. It might be possible to remove enough individual measures from programs to reach a UCT result of 1.0, but doing so would reduce the robustness of the program offerings. Doing so would also be inconsistent with the stakeholder feedback FEI received during the development of the 2019-2022 Plan that less cost effective measures should be combined with more cost-effective measures within programs and the overall portfolio to create a more robust portfolio and maximize energy savings. As such, FEI did not conduct a complete quantitative analysis of this alternative.

Another alternative would be to reduce the utility non-incentive costs. However, since the majority of non-incentive costs are intended to support the energy saving programs, doing so

would likely result in less energy savings from the portfolio overall, or inhibit FEIs ability to properly evaluate DSM activities (if evaluation expenditures were reduced). As such, FEI did not conduct a complete quantitative analysis of the impact of this approach on energy savings.

Finally, while it may be technically possible to make such adjustments to the portfolio and present a planned UCT of 1.0, there are many uncertainties that could negatively impact the actual UCT results for the portfolio. For example, new building codes or equipment standards could be introduced during the Plan period that would reduce the energy savings that FEI could claim and would therefore reduce actual UCT values below 1.0 in spite of any actions to limit the Plan to a UCT of 1.0.

5.3.1 Please explain whether FEI considers that it is feasible for the realization of energy savings from programs that have not forecasted savings in the 2019-2022 DSM Plan (e.g. Conservation, Education and Outreach; Enabling Activities), to result in a portfolio level UCT of 1.0 or greater. If so, please quantify the likelihood of this occurring based on FEI's current proposed Plan.

Response:

Savings expected to be realized from activities included in the 2019-2022 DSM Plan for which no energy savings are currently forecast could result in an improvement to UCT to a value of 1.0 or more. While at this time FEI is not able to confidently quantify the amount and probability of the savings, FEI provides the following discussion and qualitative assessment of the impact on the UCT.

FEI is likely to claim some energy savings in its annual reports for the following areas for which it is challenging to forecast specific energy savings: Residential Customer Engagement Tool, Innovative Technologies, Commercial Energy Specialist Program, Codes & Standards attribution. It is possible that these savings alone would raise the portfolio level UCT to 1.0 or greater.

In addition, FEI notes that the following examples have been highlighted in FEI's recent annual reports as areas where FEI believes it is being conservative in claiming savings but for which actual savings are very difficult to quantify:

- Net to Gross Ratio – The Net to Gross ratio that FEI is using to report energy savings from DSM activity is highly conservative in that it includes the free ridership impact, which serves to reduce reported energy savings, but in most cases does not include the

energy savings benefits of spillover effect[7]. FEI intends to continue identifying and incorporating spillover effects into reporting of energy savings impacts from DSM activity on a program-by-program basis, wherever spillover can be supported.

- Conservation Education and Outreach – CEO activities in general do result in energy savings, however, since these savings remain difficult to quantify, FEI does not currently attribute energy savings to them and these benefits are not reflected in the cost effectiveness results.

- Enabling Activities – Some Enabling Activities support incentive programs and contribute to energy savings, however, these savings are very difficult to quantify. To date, no savings have been claimed for Enabling Activities outside of the Energy Specialist Program (that has resided in the Commercial program area but is classified under Enabling Activities in the 2019-2022 DSM Plan). Since these savings are not included in the Portfolio cost effectiveness calculations, the Company believes the Portfolio energy savings benefits are higher than reported.

In each of these cases, FEI will continue to examine opportunities to quantify savings values where they can be appropriately supported by studies or analysis.

Given the overall conservative nature of estimating savings and the additional savings likely to be claimed but not currently forecast, FEI believes that the current 2019-2022 DSM Plan UCT of 0.9 is also conservative and that it is likely close to or greater than 1.0.

[7] Free ridership refers to individuals who participate in a program who would have participated in the absence of an incentive. Spillover refers to individuals that adopt efficiency measures because they are influenced by program related information and marketing efforts, though they do not actually participate in the program. These can be included in the Net-to-Gross ratio employed in the cost-effectiveness analysis to capture the additive effects of spillover to balance the reductive effects of free ridership.

6.0 Reference: PORTFOLIO LEVEL ISSUES

Exhibit B-1, pp. 29, 31

Waneta 2017 Transaction Application Decision, p. 39

MTRC

On page 29 of the Application, FEI states:

> To ensure that the portfolio meets a combined TRC/MTRC of 1 on an annual basis, FEI will continue its practice of monitoring DSM programs on a monthly basis. This practice will allow FEI to identify trends in cost-effectiveness related to program and portfolio expenditures and make adjustments as needed.

6.1 Please discuss whether a significant scaling up in DSM expenditures creates uncertainty with regards to achieving the forecasted portfolio level cost effectiveness results.

Response:

Significantly increasing expenditures can create challenges and uncertainty; however, FEI believes it has conducted appropriate market research, development work and stakeholder consultation prior to the submission of the Application to support program assumptions. FEI will continue to carefully manage the portfolio cost-effectiveness to achieve a combined TRC/MTRC greater than 1.0 on an annual basis.

The following are the two key challenges FEI anticipates and FEI's strategy for achieving 2019-22 DSM Plan portfolio cost-effectiveness:

1. Maintaining the MTRC cap under 40%

   Historically, Residential programs have the ability to ramp up faster than Commercial and Industrial (C&I) programs. In 2018, the C&I team focused on the following to ensure there is market momentum for the scale up so that a balance can be maintained across the portfolio:

   - Streamlining the application process for program participants;
   - Streamlining the review and approval process for program staff; and
   - Program development such as upstream programs and Trade Ally Network expansion.

2. Changes to Minimum Energy Performance Standards (MEPS)

Introduction of new base lines typically impact claimable energy savings which may require measures or programs to be adjusted. FEI is already actively monitoring MEPS (Minimum Energy Performance Standards) and has established processes for Codes & Standards savings attribution to help with preparing for upcoming changes to MEPS.

On page 31 of the Application, FEI states:

> At the time of writing, the ZEEA [Zero Emissions Energy Alternative] value used in the MTRC calculation is $106/MWh, or 29.45/GJ. The source for this number is BC Hydro's Waneta 2017 Transaction Application to the BCUC that established BC Hydro's LRMC at $106/MWh in F2018$.

On page 39 of the Waneta 2017 Transaction Application Decision (Waneta Decision), the BCUC stated that the $106/MWh long run marginal cost (LRMC) is based on Independent Power Producer financing costs at 7 percent, which was used in the BC Hydro F2017-F2019 RRA proceeding but was subsequently reduced to 6.4 percent in the Site C Inquiry. Table 9 of the Waneta Decision shows an updated LRMC of $105/MWh which accounts for the updated IPP financing costs.

6.2 Please discuss whether there would be any impacts upon the 2019-2022 DSM Plan if a ZEEA value of $105/MWh were used for the MTRC calculation.

Response:

The ZEEA (Zero Emissions Energy Alternative) value used in the MTRC calculation for the 2019-2022 DSM Plan is $106/MWh, or 29.45/GJ. If the ZEEA were changed to $105/MWh (or 29.17/GJ), there would be no material impact to the cost effectiveness results and therefore no impact to the 2019-2022 DSM Plan. Any slight impact would be lost in the rounding of the MTRC values.

On page 31 of the Application, FEI states:

> Section 4(1.1)(c) of the DSM Regulation requires the Commission to allow the inclusion of NEBs [non-energy benefits], the amount of which may be determined either by the Commission based on evidence from the utility or by using a

deemed 15 percent adder to the benefits side of the MTRC calculation. FEI has chosen to use the 15 percent NEB adder in its MTRC calculations for the DSM Plan.

6.3 Is FEI aware of any evidence from other jurisdictions using a societal cost test that indicates other levels of NEB could be appropriate? If so, please summarize.

Response:

An industry review conducted by E Source (an energy industry analytics consultancy) identified three utilities that use a societal cost test (SCT) along with an NEB adder. The adder ranged from 7.5 percent to 15 percent. Table 1 below outlines the application of the SCT and adders in those jurisdictions.

Table 1: Jurisdictional SCT NEB Adder Scan

State	Primary Cost-Effectiveness Test	Adder	Description	Description source
Washington D.C	SCT	10% adder, 10% risk, 10% environ+ NEIs in goals and measured benchmarking	A risk adder is applied to energy efficiency benefits, as a proxy for the risk benefits. Accounts for improved health and reduced environmental degradation	District Dept. of the Environment
Vermont	SCT	15% non-energy adder, 10% cost reduction for risk and flexibility advantages + 15% low income	The Vermont Public Service Board requires that several Other Program Impacts (OPIs) be accounted for in EE screening: 1) the risk benefits of EE resources should be accounted for by applying a 10% discount to the EE costs; 2) the non-energy benefits of EE resources should be accounted for by applying a 15% adder to the energy benefits (Vermont PSB, 2012); 3) water, O&M, and other fuel savings should be accounted for with quantified and monetized estimates of those benefits, and applied to those programs in which these savings are expected to occur; 4) the non-energy benefits of low-income programs should be accounted for by applying a 15% adder to the energy benefits associated with those programs.	RAP/Synapse, 2012
Iowa	SCT	10% adder for electric; 7.5% adder for gas	Iowa legislature, 1999.	Johnson Consulting Group

7.0 Reference: PORTFOLIO LEVEL ISSUES

Exhibit B-1, Appendix F, pp. 1, 2, 4, 7 to 10

Avoided Cost of Gas

On page 1 of Appendix F to the Application, FEI states:

> FEI calculates the commodity cost based on the 10-year Alberta Energy Company/Nova Inventory Transfer (AECO/NIT) price forecast according to GLJ Petroleum Consultants, and then a Station 2 discount factor and T-South transportation fuel are applied to derive a Sumas price.

Attachment B of Appendix F to the Application shows the Weighted Sumas Spot (CDN$/GJ), to be used for Avoided Cost Calculation from 2017 to 2051.

7.1 Please confirm whether the avoided cost calculation for the 2019-2022 DSM Plan is based upon Weighted Sumas Spot price in the most recent year, the average Weighted Sumas Spot price between 2019-2022 a cost calculation taking into account measure persistence, or some other method of calculation. Please provide details of the calculation as applicable.

Response:

The avoided cost calculation for the 2019-2022 DSM Plan is based on Weighted Sumas Spot price calculated in 2017, and is provided in Attachment B of Appendix F in the Application. Please refer to Attachment A of Appendix F for the details of the calculation.

7.1.1 Please discuss whether a 10-year price forecast is used on the basis of the current 10-year amortization period (and assumed measure life).

Response:

GLJ Petroleum Consultants provides an annual 10-year gas price forecast. Beyond the 10-year forecast, the gas price forecast then assumes prices increases at 2 percent per year. The term of gas price forecast is not related to the amortization period. Rather the cost effectiveness calculation for a measure or a group of measures (i.e. a program or a portfolio) uses the avoided cost for each year of the measure's life. Therefore, the gas price forecast used in avoided cost calculation needs to extend far enough into the future to cover the longest measure life included in FEI's DSM portfolio.

7.1.1.1 Please discuss whether FEI would need to modify its avoided cost of gas analysis if a 16 year measure life were accepted as part of this proceeding.

Response:

No, FEI would not need to modify its avoided gas cost calculation as a result of a change to the average measure life of the DSM Portfolio. Please refer to the response to BCUC IR 1.7.1.1 for an explanation of how the avoided cost of gas is applied to each year of the measure life.

On page 2 of Appendix F to the Application, FEI states:

> FEI does not have sufficient evidence at present to confirm that DSM offers peak demand reductions that will avoid or substantially delay major infrastructure projects and thus no reliable means to estimate avoided capacity costs.

7.2 Please discuss whether FEI is aware of any other jurisdictions that use an avoided capacity cost in their cost-effectiveness testing for DSM.

Response:

FEI is aware that gas utilities in some other jurisdictions do include an avoided capacity cost in their cost-effectiveness testing for DSM. These costs appear to be similar to those included in FEI's avoided costs. FEI is not aware of instances where such avoided costs include the avoidance or deferral of major transmission infrastructure or that such costs are based on verified deferral of specific infrastructure projects as a result of DSM Programs.

To assist with this response, FEI asked ESource, an Energy Industry Information Consultancy, to conduct a scan of North American utilities that it could find information on this topic for and provide any insights they are able to. ESource was able to report on three jurisdictions that indicated the use of an avoided capacity value in their cost effectiveness tests: Ontario (Enbridge Gas), New England and Colorado (Excel Energy and Black Hills Energy). In the Ontario and New England cases, ESource describes the inclusion of avoided upstream capacity costs in a similar way to FEI's inclusion of avoided mid-stream costs within its avoided cost of energy calculation. In the Colorado case, ESource describes the simple use of the marginal rate of the highest volume firm transport contract as the avoided capacity cost.

In the Ontario case, ESource also describes the inclusion of downstream distribution system costs. It should be noted that FEI also includes a value for avoided distribution system improvements through its inclusion of a distribution adder in the avoided costs it uses for the cost effectiveness tests. Enbridge's method for calculating avoided distribution is different, but comparable, to FEI's calculation of distribution system infrastructure investment as a consideration in the avoided costs.

FEI is also aware that Northwest Natural (NWN), a gas utility in the U. S. Pacific Northwest, uses an avoided capacity cost in their cost effectiveness calculation. NWN has outlined their method for calculating avoided capacity in their 2018 Integrated Resource Plan. NWN reports having changed the method in their calculation of avoided costs to (among other things) also include infrastructure costs for the downstream distribution system. Their method uses an average of the revenue requirement of reinforcement projects that were completed over the previous five years divided by the estimated growth in peak hour load.

In summary, FEI has not identified any utilities or jurisdictions in North America that include the avoidance or delay of major infrastructure projects as a result of DSM in their estimates of avoided costs. FEI is continuing to explore the applicability of aspects of these recently published Enbridge and NWN avoided cost of distribution methods for potential consideration in the calculation of the distribution adder that FEI currently uses in its avoided costs as part of the DSM cost effectiveness calculation.

On page 4 of Appendix F to the Application, FEI states it does not currently apply a load factor to the avoided midstream costs by rate class because the differences are not material when compared to the overall avoided cost of gas.

7.3 Please describe the impacts upon cost-effectiveness results for residential, commercial and industrial program areas if the respective load factors were applied to the avoided midstream costs.

Response:

FEI consulted with ICF to provide the following response.

There is no impact to the cost effectiveness results from applying the respective rate class load factors to the avoided midstream costs.

To confirm that the impact of applying load factors by rate class to the avoided cost of gas is negligible, FEI undertook a sensitivity analysis wherein the value of the avoided midstream cost

using the industrial rate class load factor (refer to the table on Page 4 of Appendix F in Exhibit B-1) replaced the average midstream cost used for the analysis in the Application. FEI started by applying this value to the entire portfolio. This analysis resulted in the following changes to the cost effectiveness values:

B/C Test:	TRC	Portfolio	Utility	Participant	RIM
Change in Value:	-0.03	-0.02	-0.05	0	-0.02

A negative number means a decrease from the original value.

FEI only reports cost effectiveness test results to one decimal place, since reporting beyond one decimal place would imply a false level of accuracy. Since the change to the cost effectiveness values can only be seen at 2 decimal places, and FEI only reports cost effectiveness results to one decimal place for the stated reason, it can be concluded that load factors have no material impact on the results of the cost-effectiveness tests. Further, this sensitivity analysis is conservative for the following reasons:

- FEI used the avoided cost based on the industrial rate class load factor, which represents the largest difference from the avoided cost using an overall load factor. Applying residential or commercial rate class load factors would have a smaller impact.

- FEI applied the avoided cost using the industrial rate class load factor to the entire portfolio. If FEI were to apply this value only to the industrial DSM programming, and did the same using residential and commercial rate class load factors, the impact would also be smaller than the above sensitivity analysis.

Because this conservative analysis results in no material change to the cost effectiveness results, FEI has not conducted any further sensitivities with respect to load factors impacts on avoided cost and cost test results.

8.0 Reference: PORTFOLIO LEVEL ISSUES

Exhibit B-1, p. 32

Spillover

On page 32 of the Application, FEI states:

> Due to the difficulty in confirming and quantifying spillover, FEI has so far only been able to quantify spillover for inclusion in the cost effectiveness for one of its DSM programs – that being the Residential EnerChoice Fireplace Program. FEI will continue to include spillover identification and quantification on a program by-program basis in its program evaluations.

8.1 Please briefly explain the means by which FEI seeks to identify spillover effects for its programs.

Response:

FEI includes spillover identification and quantification on a program-by-program basis in its program evaluations. For programs where spillover is quantifiable, a survey-based (self-reported) approach is typically used to estimate participant spillover. This approach includes a series of questions tailored to confirm that additional non-incented energy efficiency improvements made by the participants are attributable, in whole or in part, to their participation in the program. Spillover from non-participants, also known as market effects, can be ascertained through surveys of non-participants and/or of trade allies (equipment wholesalers, installers, etc.).

8.1.1 How was spillover for the Residential EnerChoice Fireplace Program identified?

Response:

Spillover for the EnerChoice Fireplace program was identified through a survey-based (self-reported) approach. The spillover estimates were calculated using a series of questions to identify program-induced home energy efficiency upgrades undertaken since participating in the program. Five possible spillover measures were considered attributable to participation in the program, including;

- Upgrading insulation in walls, attics or basements;

- Upgrading windows or outside doors;
- Draft proofing / caulking around doors and windows;
- Installing an energy efficient gas hot water heater; and
- Having a home energy audit conducted by a qualified professional.

To be considered spillover, participants would have completed the action or activity without a utility or government incentive and attributed some or all of the decision to undertake the activity as influenced by participating in the EnerChoice Fireplace Program. All program-induced spillover actions were then converted to a gas savings estimate (GJ per measure) and expressed over the base of program participants (with and without spillover).

Please note there was an error in reporting the spillover value for the EnerChoice Fireplace measure in the Home Renovation Program table in Section 3.4.1 of Appendix A in Exhibit B-1. This does not impact how spillover for this measure was identified. Please refer to the Errata filed concurrently with these IR responses for additional information.

9.0 Reference: PORTFOLIO LEVEL ISSUES

Exhibit B-1, Appendix A

FEI 2017 LTGRP Application, p. 121

Incentive Levels

In Appendix A to the Application, FEI provides a series of tables (see for example, pages 14, 16, 23) that among other things outline the incremental cost, incentive and contractor incentive by measure.

Table 4-13 of the 2017 LTGRP shows the sensitivity inputs for the BC CPR model analysis, with regards to incentive levels as a percentage of incremental measure cost:

Sensitivity	Commercial	Industrial	Residential
Lowest	30%	30%	30%
Low	45%	60%	40%
Baseline*	61%	89%	52%
High	75%	95%	70%
Highest	90%	100%	90%

9.1 Please explain whether the incremental cost in the Appendix A tables represents the total costs required (from the utility and participant) for a participant to implement a given measure.

Response:

Only in certain cases do the incremental costs listed in the Appendix A tables represent the total costs required for a participant to implement a given measure. The incremental cost in the Appendix A tables represent the total cost required to implement the measures in cases where the measures can be implemented immediately (i.e., "full cost" measures). In most cases, this corresponds to measures such as pipe wrap that are not replacing existing equipment and/or are not reliant on existing equipment coming to the end of its useful life. In cases where equipment is being replaced at end of life, the incremental cost represents the difference in cost between the proposed measure and baseline efficiency equipment.

9.1.1 Please explain why certain measures have an incentive level that exceeds the incremental cost (for example, EnerChoice Fireplace and ENERGY STAR Dryer in the Home Renovation Program).

Response:

There are a small number of measures in the 2019-2022 DSM Plan where the incentive exceeds the incremental cost. Incentive levels are determined in consultation with industry and program partners to ensure that levels are high enough to sway the purchase decision towards the selection of energy efficient models over conventional models.

The table below lists the measures claiming savings that have incentives that are larger than their incremental costs and reasons for each:

FEI DSM Program Area	Measure	Reason why incentive larger than incremental cost
Residential	Enerchoice Fireplace (Retrofit, MURBs, New Home)	Incentive determined based on industry feedback that $300 was the minimum amount that would sway the purchase decision towards higher efficiency heating styles versus more decorative models designed for ambience. The retail price of hearth products is much more tied to the decorative components of the appliance rather than the working mechanisms. The incremental cost used in the cost benefit analysis is $132. This incremental cost is based on discussions with manufacturers and confirmed in the Gas Fireplaces, Regulatory Proposal, Energy Efficiency Branch, BC Ministry of Energy and Mines. The number is based on a 2015 technical study commissioned by the U.S. DOE on energy conservation standards for hearth products demonstrating that the incremental total installed cost of an intermittent ignitor (by far the most widely used non-pilot light ignition option) is $101 USD (approximately $132 CAD).
	ENERGY STAR Dryers (Retrofit and New Homes)	The incentive amount is developed in collaboration with program partners, BC Hydro and FBC, based on providing an amount that would sway the purchase decision to choose ENERGY STAR models over a standard dryer.
Low Income	Residential Water Heat Top Up (0.67 EF storage tank)	The Low Income Residential Water Heater Top up has an incremental cost of $246 and an incentive of $250 which is a minor variance. A $250 incentive is a more marketable number to promote and communicate than $246.

9.2 Please provide a table that shows the incentive levels as a percentage of incremental cost, for each program and aggregated program area.

Response:

Please refer to the response to BCUC IR 1.2.5.1.

9.2.1 For the residential, commercial and industrial program areas, please discuss any differences between the "baseline" percentages indicated in Table 4-13 of the LTGRP, and those calculated for the 2019-2022 DSM Plan.

Response:

Please refer to the response to BCUC IR 1.2.5.1.

9.3 Please explain if FEI's incentive levels by measure are assumed to be static over the course of the Plan, or whether incentive levels are updated on an annual basis.

Response:

For purposes of the 2019-2022 DSM Plan, FEI's incentive levels by measure are assumed to be static. Based on current research and planning, FEI did not see any need to modify any of the incentives over the planning period. However, FEI does review incentive levels for programs periodically and intends to make adjustments if, through consultation, the market requires it. The tools that FEI used to develop the 2019-2022 DSM Plan include the ability to modify incentives on an annual basis.

FEI also notes that there are a small number of measures in the 2019-2022 DSM Plan for which incentives will not be available in 2019. This includes HVAC Zone Controls (incentives available from 2020-2022) in the Residential program area and HVAC Controls – Kitchen DCV and Step Code measures under the Performance Program – New Buildings (all with incentives available from 2020-2022) in the Commercial program area. The lack of available incentives for these measures in 2019 is reflected in the estimated participation for these measures.

On page 8 of Appendix A to the Application, Exhibit 5 shows incentive and non-incentive expenditures by program area.

9.4 Please provide a table that illustrates the percentage of total program expenditures that comprise incentives and non-incentives expenditures for each program area.

Response:

The table below shows the percentage of total program expenditures for incentives and non-incentives for each program area.

Total Program Expenditures Percentage

Program Area	Incentives					Non-Incentives				
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total
Residential	88%	90%	90%	91%	90%	12%	10%	10%	9%	10%
Commercial	74%	76%	78%	78%	77%	26%	24%	22%	22%	23%
Industrial	73%	72%	76%	75%	74%	27%	28%	24%	25%	26%
Low Income	75%	75%	75%	75%	75%	25%	25%	25%	25%	25%
Conservation Education and Outreach	0%	0%	0%	0%	0%	100%	100%	100%	100%	100%
Innovative Technologies	37%	41%	50%	57%	47%	63%	59%	50%	43%	53%
Enabling Activities	46%	43%	41%	42%	43%	54%	57%	59%	58%	57%
Portfolio Level Activities	0%	0%	0%	0%	0%	100%	100%	100%	100%	100%
ALL PROGRAMS	**64%**	**67%**	**68%**	**69%**	**67%**	**36%**	**33%**	**32%**	**31%**	**33%**

9.4.1 Please also provide a comparison of actual percentages of incentives and non-incentives expenditures for 2014 to 2017, at a program area level. Please explain any significant differences with the 2019-2022 DSM Plan.

Response:

The table below provides a comparison of incentives and non-incentives for the 2014 to 2017 actuals to the 2019 to 2022 DSM Forecast Plan. The proportion of overall incentive expenditures does increase slightly during the Plan period. This slight increase is difficult to attribute to any one or even a few specific reasons as many factors are at play in determining incentive levels across such a diverse portfolio. Some examples include the implementation of new measures, incentives being increased for certain measures, increased participation in existing programs, and increased Step Code support.

FEI also notes that some incentive delivering initiatives have been added to the Enabling Activities area for 2019-2022. Enabling Activities that will offer incentives are Codes & Standards (incentives related to step code adoption), Commercial Energy Specialist Program (moved from the Commercial program area), and the Community Energy Specialist Program (new program).

Total Program Expenditures Percentage

Program Area	Incentives								Non-Incentives							
	Actual				Forecast				Actual				Forecast			
	2014	2015	2016	2017	2019	2020	2021	2022	2014	2015	2016	2017	2019	2020	2021	2022
Residential	79%	83%	82%	79%	88%	90%	90%	91%	21%	17%	18%	21%	12%	10%	10%	9%
Commercial	77%	81%	80%	82%	74%	76%	78%	78%	23%	19%	20%	18%	26%	24%	22%	22%
Industrial	69%	58%	53%	77%	73%	72%	76%	75%	31%	42%	47%	23%	27%	28%	24%	25%
Low Income	30%	59%	70%	60%	75%	75%	75%	75%	70%	41%	30%	40%	25%	25%	25%	25%
Conservation Education and Outreach	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%
Innovative Technologies[1]	-1%	35%	9%	10%	37%	41%	50%	57%	101%	65%	91%	90%	63%	59%	50%	43%
Enabling Activities	0%	0%	0%	0%	46%	43%	41%	42%	100%	100%	100%	100%	54%	57%	59%	58%
Portfolio Level Activities	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%
ALL PROGRAMS	**60%**	**66%**	**65%**	**64%**	**64%**	**67%**	**68%**	**69%**	**40%**	**34%**	**35%**	**36%**	**36%**	**33%**	**32%**	**31%**

[1] As explained in the 2014 DSM Annual Report, an accrual reversal of $7,250 in incentive spending for the Condensing Gas-Fired Ventilation Unit Pilot resulted when a participant was accounted for in the 2013 program year, but withdrew their participation in the pilot in 2014. This accrual reversal accounts for the negative pilot/demonstration project incentive expenditures for Innovative Technologies in the table.

10.0 Reference: PORTFOLIO LEVEL ISSUES

Exhibit B-1, p. 11

Customer Access to FEI DSM Programs

On page 11 of the Application FEI submits that the proposed DSM expenditures are in the interests of customers and potential customers as they encourage energy efficiency and conservation, reduce GHG emissions, are beneficial to the economy and are cost-effective. Individual customers that avail themselves of DSM measures will reduce their natural gas consumption and, all else equal, their natural gas bills.

10.1 Please discuss whether FEI considers that there are any customer groups (including potential future customers) where there are remaining barriers to accessing FEI's DSM programs.

Response:

FEI believes that avenues exist for all customer groups to access FEI's DSM programs. Where barriers exist within customer groups, they are primarily due to lack of awareness/knowledge of FEI DSM programs and motivation to participate. These barriers are generally well understood as they are investigated as part of the program design and evaluation processes.

Please refer to the table included in Attachment 10.1, which outlines where FEI has identified customer group specific barriers to program awareness and/or adoption and the applicable mitigation strategies either underway or planned.

10.1.1 If yes, please discuss the actions FEI is taking or proposes to take to remove those barriers and ensure all customers have reasonable access to FEI's DSM programs.

Response:

Please refer to the response to BCUC IR 1.10.1.

11.0 Reference: PORTFOLIO LEVEL ISSUES

Exhibit B-1, Section 6.2, p. 20 to 22

Consultation

Section 6.1 of the Application outlines FEI's consultation process for the 2019-2022 DSM Plan.

On page 21, FEI states that consultation feedback included expanded alignment with industry influencers, and the consideration of upstream incentives.

11.1 Does FEI consider that there were any gaps or hard to reach entities with respect to its consultation activities?

Response:

No, FEI believes that its consultation was comprehensive. FEI spent approximately one year prior to the Application filing date conducting its 2019-2022 DSM Plan consultation and before that conducted ongoing program consultation with stakeholders as a regular course of business and as required for program management and program design. In a small number of cases, entities that FEI tried to reach did not respond to requests for information but in those instances the necessary information was obtained through other channels and by consulting other parties.

11.1.1 If yes, please explain.

Response:

Please refer to the response to BCUC IR 1.11.1.

11.2 Please explain further what is meant by industry influencers, and whether FEI considers that it the 2019-2022 DSM Plan works towards achieving alignment.

Response:

FEI considers industry influencers to be all stakeholders who impact the program uptake of energy efficiency programs and measures by FEI customer groups. Throughout the supply

chain, industry influencers impact the purchase decision of customers and installation quality, and educate end users about proper equipment and building operation and maintenance. Government regulations and policy also impact product availability, building codes, installation standards and accreditation programs. The 2019-2022 DSM Plan works towards achieving alignment with these industry influencers. The following are examples of how FEI has reflected this in the 2019-2022 DSM Plan:

- Industry communication through Trade Ally Network communications and events;
- Hosting workshops and webinars with trades, manufacturers, energy advisors, and commercial and industrial energy consultants to elicit feedback on programs;
- Collaborating with program partners such as BC Hydro, BC's Ministry of Energy, Mines and Petroleum Resources, Natural Resources Canada, local governments, BC Nonprofit Housing Association, and BC Housing to expand the depth and reach of program offerings; and
- Collaborating with industry associations.

11.3 Please define upstream incentives in the context of FEI's DSM activities.

Response:

Upstream programs operate differently than downstream programs that engage end-use customers directly by working through manufacturers and/or distributors (also referred to as commercial partners). Upstream programs work with commercial partners to provide rebates in a point-of-sale model rather than providing a post-installation rebate.

In an upstream incentive model, customers may not be required to complete an application, although the commercial partners are required to provide proof of purchase, proof of installation and proof of rebate credit to the end-use customer. With the proof of purchase and installation FEI ensures that the rebated measure is operational and savings can be claimed. FEI claims the same energy savings for an upstream incentive as the downstream equivalent.

The Commercial Prescriptive and Industrial Prescriptive programs in the 2019-2022 DSM Plan intend to include upstream incentives for certain measures as follows:

- Commercial Prescriptive Program:
    - food service equipment;

- furnaces;
- HVAC controls; and
- condensing unit heaters

- Industrial Prescriptive Program:
  - steam trap audits;
  - steam trap replacements; and
  - pipe and tank insulation

FEI also intends to continue to engage commercial partners to explore opportunities to expand on upstream program delivery.

11.3.1 Please outline the programs (if any) where upstream incentives have been included in the 2019-2022 DSM Plan.

Response:

Please refer to the response to BCUC IR 1.11.3.

11.3.2 Please briefly describe how energy savings for upstream incentives are accounted for.

Response:

Please refer to the response to BCUC IR 1.11.3.

B. PROGRAM LEVEL ISSUES

12.0 Reference: PROGRAM LEVEL ISSUES

Exhibit B-1 pp. 9 to 10, 22; Appendix B, p. 5

Residential Program Area

For the residential program area, Table 6-1 of the Application indicates forecasted expenditure of $23.521 million for 2019, compared to 2017 actual expenditure of $12.203 million as shown in Table 2-2 of Appendix B.

12.1 Please confirm the percentage of expenditures for the residential program area that require the MTRC adder.

Response:

FEI has used the 2019 forecast expenditure of $23.521 million to calculate the percentage of the residential program area forecast to require the MTRC adder percentage. Both the Home Renovation Program and New Home Program require the MTRC adder, totaling 95 percent of expenditures as shown in the table below:

Program	Requires MTRC Adder	2019 Expenditure ($000s)	MTRC as % of 2019 Residential Program Expenditure
Home Renovation Program	Yes	$16,300	69%
New Home Program	Yes	$6,094	26%
Rental Apartment Efficiency Program (RAP)	No	$432	N/A
Non-Program Specific Expenses	N/A	$696	N/A
Total		**$23,521**	**95%**

12.2 Please explain the extent to which the increase in the residential program area expenditures between 2017 and 2019 is as a result of the March 2017 amendments to the DSM Regulation.

Response:

The increase in residential program area expenditures between 2017 actual expenditures and 2019 forecast expenditures is $11.3 million, representing a 93 percent increase over 2017 expenditures. FEI estimates that approximately 24 percent of the increase in forecast residential program area expenditures between 2017 and 2019 can be attributed to the March 2017

amendments to the DSM Regulation, through the adequacy provisions that require FEI to include demand side measures in support of the BC Energy Step Code.

Other factors that contributed to the increase between 2017 actual and 2019 forecast expenditures are as follows:

- March 2017 amendments to the DSM Regulation – 24%;
- New measures – 16%;
- Higher incentive levels – 13%;
- Greater participation levels overall – 39%; and
- Non-incentive expenditures to support the program area expansion – 8%.

The table below provides details supporting factors contributing to the increased expenditure and a percentage estimate of the factor's contribution to the stated increase.

Factors Contributing to Increased Expenditures (2019 vs 2017) for Residential Program Area Activity	
Factor/Estimate of Contribution to Increased Spend (%)	**Description**
DSM Regulation Amendments (24%)	• The New Home program was revised to meet the DSM Regulation Amendments for adequacy that requires the DSM portfolio to include demand-side measures in support of provincial BC Energy Step Code mandate • Typically building code is the baseline for claimed energy savings for new home measures. In the past, if a municipality adopted a higher energy performance code, a new baseline would have to be considered, resulting in reduced energy savings and potentially an adjustment of incentive levels. This amendment has enabled FortisBC to offer a province-wide step code program offer and streamline the program for energy advisors, builders and local governments. • Municipal adoption of step codes will drive program participation as builders/developers are educated about the benefits of high performance homes and how builders can attain these new standards.
New measures (~16%)	• The following new technologies are being considered for introduction in both the Home Renovation and New Home programs: ○ Combination systems ○ Direct vent wall furnaces ○ Drain water heat recovery ○ Communicating thermostats

Factors Contributing to Increased Expenditures (2019 vs 2017) for Residential Program Area Activity	
Factor/Estimate of Contribution to Increased Spend (%)	**Description**
Higher incentive levels (~13%)	• Condensing tankless water heater rebates will increase from $500 to $1,000 to encourage the uptake of this technology, and to support upcoming federal minimum efficiency regulations proposed for 2020.
Greater participation numbers (~39%)	• In general, an increase in participation numbers was applied to all measures based on historical trends. • Collaboration with program partners, BC Hydro and the upcoming provincial government Building Efficiency Retrofit Partnership activities are expected to drive additional participation in the Home Renovation Program as a whole. • Furnace and boiler rebates will be made available year round rather than on a seasonal basis. • Servicing of condensing tankless water heaters will be added as an eligible rebate under the Appliance Maintenance Rebate program. This seasonal program is also expected to be in market for a longer duration. • The EnerChoice fireplace rebate program eligibility includes MURBs (2018) with significant market opportunity. • Program administration enhancements (online forms), TAN activity and increased CEO activity will improve customer access to programs further driving participation
Non-incentive spend (8%)	• Administration, Communications, Evaluation and Labour to support the expanded residential program area offering.

12.2.1 Please discuss the extent to which the increase is the result of other factors (e.g. new measures, higher incentive levels, and greater participation numbers).

Response:

Please refer to the response to BCUC IR 1.12.2.

On pages 9-10 of Appendix A to Application, with respect to the New Home Program, FEI states:

FEI and its program partners will continue to support the BC Energy Step Code adoption through builder and trades outreach, training, and customer education about the benefits of high performance homes and other initiatives. FEI states these initiatives may be partially co-funded by program partners FortisBC Inc., BC Hydro, the BC Ministry of Energy, Mines and Petroleum Resources and BC Housing.

12.3 If co-funding is provided by program partners, please explain the impact on the expected expenditures for FEI. Would this co-funding decrease the required funding from FEI, or increase the scope of the program?

Response:

Partnerships with FortisBC Inc. (FBC), BC Hydro, the BC Ministry of Energy, Mines and Petroleum Resources and BC Housing do not impact FEI's expected expenditures. This co-funding allows FEI to increase the scope of training and education programs offered throughout the province, by reaching more individuals and increasing the extent of topics covered. FEI will continue to seek partnership opportunities to provide additional value for its customers.

13.0 Reference: PROGRAM LEVEL ISSUES

Exhibit B-1 p. 22; Appendix B, p. 5

Commercial Program Area

For the commercial program area, Table 6-1 of the Application indicates forecasted expenditure of $13.837 million for 2019, compared to 2017 actual expenditure of $10.834 million as shown in Table 2-2 of Appendix B.

13.1 Please confirm the percentage of expenditures for the commercial program area that require the MTRC adder.

Response:

FEI has used the 2019 forecast expenditures of $13.837 million to calculate the MTRC adder percentage for the commercial program area. At the time of filing, the Performance Program – New Buildings required the MTRC adder, totaling 7 percent of expenditures as shown in the table below:

Program	Included MTRC adder	2019 Expenditure ($000s)	MTRC as % of 2019 Expenditure
Prescriptive Program	No	$8,418	N/A
Performance Program – Existing Building	No	$2,429	N/A
Performance Program – New Building	Yes	$1,028	7%
Rental Apartment Efficiency Program (RAP)	No	$1,256	N/A
Non-Program Specific Expenses	N/A	$706	N/A
Total		**$13,837**	**7%**

13.2 Please explain the extent to which the increase in the commercial program area expenditures between 2017 and 2019 is as a result of the March 2017 amendments to the DSM Regulation.

Response:

The 2019 increase in commercial program area expenditures represents a 51 percent increase. This figure takes into account that Table 2-2 of Appendix B includes the Energy Specialist Program as a commercial area program, while the Energy Specialist Program is included under Enabling Activities in the Application. The March 2017 amendments to the DSM Regulation had a minor impact on commercial incentive expenditures in 2019 but the impact is expected to increase in 2020-2022. The FEI-managed Performance Program – New Buildings was

introduced to support the amendment requirement that the DSM portfolio includes demand-side measures in support of the provincial BC Energy Step Code. Given the nature of new construction programs, however, the majority of incentive expenditures will not be incurred until one to three years after participants are accepted into the program and their proposed buildings are completed.

In addition to the amended DSM Regulation, the following factors also contributed to the increased expenditure for 2019:

- New measures in existing programs;
- Addition of a new program;
- Greater participation levels overall, due in part to delivering programs as upstream programs; and
- Non-incentive expenditures to support the expanded program offers.

The table below provides further details about the contributing factors to increased expenditures for 2019.

Factors Contributing to Increased Expenditures (2019 vs 2017) for Commercial program area activity	
Commercial Program	**Description**

Prescriptive Program	• New measures beyond existing program measures as per CPR findings:
	  ○ High efficiency furnaces
	  ○ HVAC Controls
	  ○ Condensing Unit Heaters
	  ○ Roof Insulation
	  ○ Vortex Deaerators
	  ○ Underfired Broilers
	• Increased participation through upstream program delivery (i.e. product rebates through trade allies)

Performance Program – New Buildings	• New program as per CPR findings and the March 2017 amendments to the DSM Regulation – new buildings represent a large potential for savings.
	• Increased participation through program design holistically targeting the new construction market:
	  ○ all commercial building types
	  ○ BC Energy Step Code path
	  ○ traditional new construction market outside of BC Energy Step Code

Factors Contributing to Increased Expenditures (2019 vs 2017) for Commercial program area activity	
Commercial Program	**Description**
Rental Apartment Efficiency Program	• New measures as per CPR findings (i.e. recirculation controls) • Increased participation
Non-incentive spend	• Administration, Communications, Evaluation and Labour to support the expanded commercial program area offering

13.2.1 Please discuss the extent to which the increase is the result of other factors (e.g. new measures, higher incentive levels, and greater participation numbers).

Response:

Please refer to the response to BCUC IR 1.13.2.

14.0 Reference: PROGRAM LEVEL ISSUES

Exhibit B-1, p. 10

Retrofit Partnership

On page 10 of the Application, FEI states that it is currently in discussion with the Ministry of Energy, Mines, and Petroleum Resources regarding the integration of the Retrofit Partnership with the current FEI program portfolio.

14.1 Please explain further the impacts of the potential integration of the Retrofit Partnership with the current FEI program portfolio, with respect to the operation of FEI's current programs, and the forecasted expenditure levels and energy savings in the 2019-2022 DSM Plan.

Response:

The Retrofit Partnership is intended to integrate into FEI's existing residential Furnace and Boiler Replacement Program, Home Renovation Rebate Program, Commercial Performance Program, and Low Income Support Program. The Retrofit Partnership offers are complementary to FEI's programs and will be administered through each program's existing application process. As such, FEI's existing programs will continue to be in market and operate without interruption. The impact on forecast expenditure levels and energy savings is outlined by program area below:

- The residential program area expects the integration to drive additional awareness and program participation as a result of the Province's promotional efforts. The forecast expenditure levels and energy savings are expected to increase proportional to this increased participation, which is captured in the DSM Plan.

- The commercial program area expects the integration to have minimal impact on forecast expenditure levels and energy savings, as the energy conservation measures incented by FEI and the Retrofit Partnership are mutually exclusive.

- The low income program area expects the integration to have minimal impact on forecast expenditure levels and energy savings. Support measures are co-funded between FEI and the Retrofit Partnership, but the energy conservation measures incented by FEI and the Retrofit Partnership are mutually exclusive.

FEI does not expect any material cost-effectiveness test impacts as a result of the integration.

The Retrofit Partnership is anticipated to launch later this year along with further details on the program offering.

14.1.1 Please elaborate on the potential timelines for any integration.

Response:

Please refer to the response for BCUC IR 1.14.1.

15.0 Reference: PROGRAM LEVEL ISSUES

Exhibit B-1 p. 22; Appendix A, pp. 8, 27 to 28; Appendix B, p. 5

Industrial Program Area

For the industrial program area, Table 6-1 of the Application indicates forecasted expenditure of $3.103 million for 2019, compared to 2017 actual expenditure of $ 2.099 million as shown in Table 2-2 of Appendix B.

Exhibit 5 of Appendix A to the Application shows the cost test results for the industrial program area, as follows: TRC of 3.3; UCT of 4.3; Participant Cost Test (PCT) of 4.7, and Ratepayer Impact Measure (RIM) of 0.8.

Pages 27 and 28 of Appendix A to the Application summarize new measures and a new program included in the industrial program area 2019-2022 DSM Plan.

15.1 Please briefly describe the process by which the new industrial measures and program were identified and developed.

Response:

FEI developed new industrial measures by consulting the British Columbia Conservation Potential Review (CPR) and completing a third party study to investigate new industrial energy efficiency measures with the Posterity Group in 2018.

The CPR was completed in 2017 and identified 16 distinct measures that formed the basis of the industrial gas DSM potential. Of the 16 measures identified in the CPR, eleven measures were already incented through FEI's Industrial Prescriptive Program or Performance Program (previously, Industrial Optimization Program) and five measures were not incented through any FEI industrial program. These five measures were:

- Industrial energy management;
- Industrial insulation;
- Direct contact water heaters;
- Replace steam traps; and
- Unit heaters.

Industrial energy management represented the measure with the greatest potential for cost-effective industrial natural gas savings. FEI worked with consultants, customers and other utilities through direct engagement, workshops and research to determine how to support industrial energy management. The leading solution advanced was to develop an industrial

strategic energy management (SEM) program. In consultation with other utility DSM programs, it was noted that a natural gas-only industrial strategic energy management was not best practice and typically SEM was conducted in partnership with electric utilities. FEI collaborated with BC Hydro to develop the framework for an incremental addition to the existing BC Hydro Industrial SEM cohort and industrial energy management program offers. FEI began piloting the joint Industrial SEM cohort with six participants in 2018. The information learned formed the basis of the Industrial SEM program proposed in the Application.

A third party consultant, the Posterity Group, developed the remaining four measures identified in the CPR, as well as additional prescriptive measures identified in other utility industrial DSM programs. The additional measures are captured under "Other Prescriptive Measures" in the Application and may include industrial heat recovery ventilators, destratification fans, door/ramp seals, and thermal curtains.

15.2 Please explain the main factors contributing to the increase in industrial program area expenditures between 2017 and 2019.

Response:

FEI is forecasting an increase in industrial program area expenditures due to the increase in committed Industrial Performance Program projects since 2017, the addition of new Industrial Prescriptive Program offers, and the launch of the Industrial Strategic Energy Management (SEM) Program (as described in response to BCUC IR 1.15.1).

In mid-2016 FEI increased the Industrial Performance Program incentive, increased the certainty of the incentive amount, and reduced the period of time needed for the customer to realize the full incentive. As a result, FEI has experienced an increase in project commitments in 2017 and 2018. Due to the lag between program changes and realization of industrial program savings and expenditures (typically 6 months to evaluate and 12 to 18 months to complete), FEI expects the increase in Industrial Performance Program commitments in 2017 and 2018 to increase industrial program area expenditures in 2019.

In 2017, the Industrial Prescriptive Program measures in market were limited to small industrial boilers. FEI expects that the additional Industrial Prescriptive Program measures proposed will increase industrial program area expenditures in 2019 and beyond.

Finally, FEI is proposing to launch the Industrial SEM Program in 2019. As the Industrial SEM program was not in market in 2017, the proposed increase in industrial program area expenditures to support the Industrial SEM Program in 2019 is incremental.

15.3 Please explain how FEI determined the appropriate expenditure levels for the industrial program area.

Response:

The industrial program area used a bottom-up approach to develop the appropriate expenditure levels. Once FEI developed the programs necessary to support the cost-effective measures identified in the CPR, FEI developed the expenditures and participation numbers by analyzing existing program commitments and feedback from industrial stakeholders.

For the Industrial Performance Program, FEI evaluated the existing project commitments and projected a similar level of commitments across the Application period. For the Industrial Prescriptive Program, FEI developed participation numbers and incentive expenditures based on feedback from FEI Key Account Managers, FEI customers, and industrial trade allies. For the Industrial Strategic Energy Management (SEM) Program, program participation is based on feedback from BC Hydro and program expenditures are based on consultation and estimates from several consultants providing support to BC Hydro's Industrial SEM program. Non-program expenditures were developed based on labour and other resources necessary to support the three proposed industrial programs.

15.3.1 Given the results of the cost tests for the industrial program area, please discuss whether FEI considers that the scope of industrial program offerings could be cost-effectively increased and if so, how this could be achieved.

Response:

The scope of industrial program offerings cannot, from a practical means, be cost-effectively increased. The proposed increase of the industrial program is already a significant increase from previous years and is a cost-effective and achievable budget.

The industrial program area cost-effectiveness result is primarily due to the proposed launch of the Industrial Strategic Energy Management (SEM) Program that targets very cost-effective low- and no-cost measures, while serving as a marketing channel to increase participation in the Industrial Prescriptive and Performance Programs. The FEI Industrial SEM Program is

proposed to be an incremental addition to the existing BC Hydro Industrial SEM program, which has both a cohort and an industrial energy manager offer. The number of customers that can participate in the BC Hydro Industrial SEM program is limited. BC Hydro currently runs up to two Industrial SEM cohorts a year of approximately eight to ten medium-sized industrial customers. There is also a limit to the number of large industrial customers who participate in the BC Hydro industrial energy manager offer. Thus, there is a limited pool of customers that FEI can serve with the proposed FEI Industrial SEM Program. That pool of customers cannot be practically increased without disconnecting the FEI Industrial SEM program from the existing BC Hydro Industrial SEM program. A FortisBC-only SEM offer between FEI and FBC is not currently being considered due to the relatively low number of large industrial customers in the FBC service territory with both a significant natural gas and electric load. As described in the response to BCUC IR 1.15.1, it is not advantageous to run a SEM program that targets natural gas energy savings, without also targeting electric energy savings.

Beyond the Industrial SEM Program, the Industrial Performance Program and Industrial Prescriptive Program provides incentives for the remaining cost-effective measures identified in the CPR and the 2018 Posterity Group review of Industrial Prescriptive Program. No additional cost-effective measures have been identified that are not already proposed for inclusion or further development.

16.0 Reference: PROGRAM LEVEL ISSUES

Exhibit B-1 p. 22; Appendix A, p. 8; Appendix B, p. 5

Low Income Program Area

For the low-income program area, Table 6-1 of the Application indicates forecasted expenditure of $6.630 million for 2019, compared to 2017 actual expenditure of $2.644 million as shown in Table 2-2 of Appendix B.

Exhibit 5 of Appendix A to the Application (p.8) shows the cost test results for the low-income program area, as follows: TRC of 4.5; UCT of 0.8; PCT of 2.6; and RIM of 0.4.

16.1 Please explain the extent to which the increase in the low-income program expenditures between 2017 and 2019 is as a result of the March 2017 amendments to the DSM Regulation.

Response:

The March 2017 amendments to the DSM Regulation were one of many factors contributing to the increase in low-income expenditures between 2017 and 2019.

The March 2017 amendments to the DSM Regulation related to low income programs included:

- an alteration to the cost-effectiveness calculation methods of low income programs; and
- an introduction of charities that serve low income individuals as being eligible for benefits similar to low income programs.

The cost-effectiveness of low income programs was not a limiting factor in forecasting low income expenditure and thus the alteration to the cost-effectiveness calculation in the March 2017 amendments to the DSM Regulation did not create further opportunity.

Charities that serve low income individuals are a potential new market for low income programs. However, it is expected that many of these charities will not be owners of the buildings that they operate in, and may not be the only tenants in the buildings that they operate within, and in these cases their ability and motivation to participate in energy efficiency programs will be limited. Further, there may be charities that serve low income individuals who do own their buildings but are also housing providers and in those cases, these charities would have already been served by the pre-existing offering of low income programs. The remaining group is expected to be a relatively small audience.

While the March 2017 amendments to the DSM Regulation were both positive, they account for only a small amount (less than 5 percent) of the increase in forecast expenditure.

16.1.1 Please discuss the extent to which the increase is as a result of other factors (e.g. new measures, higher incentive levels, and greater participation numbers).

Response:

The most significant factor that is leading to the increase in expenditure between 2017 and 2019 is the introduction of new prescriptive measures. More specifically, FEI proposes the introduction of Furnace Replacement Top Ups and Water Heater Top Ups in 2019 which are both new rebate opportunities for residential low income customers. These new rebates result in a forecast expenditure of $3.024 million in 2019 which represents 74 percent of the increase in overall low income expenditures between 2017 actual expenditures and the 2019 forecast expenditures. The remaining 26 percent is from a combination of greater participation in some programs and inclusion of new measures in existing programs.

16.2 Please explain how FEI determined the appropriate expenditure levels for the low-income program area.

Response:

The low income program area took a bottom up approach to determine appropriate expenditure levels for the low-income program area. Appropriate expenditures levels were determined through:

- historical trend analysis of low income programs and of other relevant DSM programs;
- review of market factors and market knowledge obtained through research and experience;
- consultation and collaboration with stakeholders, program partners, and program participants;
- consideration of labour and other resources necessary to support the low income program area, and

- consideration of the British Columbia Conservation Potential Review (CPR) to test for the reasonableness of the proposed expenditures.

16.2.1 Given the results of the cost tests for the low-income program area, please discuss whether FEI considers that the scope of low-income program offerings could be cost-effectively increased and if so, how this could be achieved.

Response:

The scope of the low income program offerings cannot be cost-effectively increased. The results of the cost tests for the low income program area are one of many factors considered to derive the scope of low income program offerings. There are other factors that limit further increases in expenditure despite positive cost tests. One factor is that there are some measures in the low income program offerings such as Energy Saving Kits that are very cost effective and have been available for many years, but are not expected to reach significantly greater participation levels. Another factor is that some measures are suited to multi-unit social housing complexes and, while those measures are also very cost effective, only a certain number of social housing multi-unit housing complexes will undergo energy efficiency projects in any given year. A third more general factor is that engaging low income participants in energy efficiency programs given many other competing needs (i.e. food, shelter, employment, etc.) is difficult and is an additional constraint on increasing the scope of low income offerings.

Overall, the proposed low income program offering is comprehensive and includes offers for both low income individuals and social housing providers as well as support measures that address some barriers to participation (identified in BCUC IR 1.10.1).

17.0 Reference: PROGRAM LEVEL ISSUES

Exhibit B-1, Appendix A, pp. 42 to 43

Conservation Education and Outreach Initiatives

On pages 42 and 43 of Appendix A to the Application, FEI states:

> CEO [Conservation Education and Outreach] programs are not individually run through the DSM cost effectiveness tests at a program level, and FEI has historically not associated direct energy savings with CEO programs. However, some consulting and academic studies estimate that the impact of behaviour change campaigns range from 0-15%.
>
> …
>
> Once savings are realized, they will be reported in the DSM Annual Reports.

17.1 Please confirm that CEO programs are included in the portfolio level cost effectiveness tests.

Response:

Confirmed. CEO programs are included in the portfolio level cost effectiveness tests.

17.1.1 If confirmed, please describe the directional impact of not attributing savings (assuming that in reality, some savings will be achieved) on each of the cost effectiveness tests.

Response:

There is minimal directional impact at the portfolio level for not attributing savings in the CEO area. The only program within CEO that FEI currently intends to claim savings in is the Residential Customer Engagement Tool. In response to this question, ICF Canada ran a sensitivity test for potential Residential Customer Engagement Tool energy savings and the impact on the portfolio cost effectiveness tests was not material.

17.2 Please explain how FEI measures energy savings for CEO programs.

Response:

The only CEO initiative with potential forecast energy savings is the Residential Customer Engagement Tool. However, since the Residential Customer Engagement Tool initiative is in the planning stage, and the evaluation plan for this initiative is being developed in conjunction with this planning, an evaluation plan is not yet confirmed. FEI anticipates the evaluation plan for this initiative to include a combination of customer acceptance and consumption analysis.

For the remainder of the CEO initiatives, historically FEI has not measured or claimed savings. FEI has in the past analyzed the potential for attributing savings for CEO initiatives, and did not find enough evidence to claim savings. FEI will continue to explore ways to confirm energy savings for CEO initiatives and where possible measure and report on those savings. CEO programs will continue to foster a culture of conservation within the province by providing education to a broad range of customers, including residential and commercial customers and students. CEO programs will also continue to ensure that customers learn about taking steps towards energy conservation so that they will also be receptive to incentive programs when they are proposed.

17.2.1 Once savings are realized, please explain the appropriateness of using historical savings as a proxy for forecasted savings.

Response:

The only CEO initiative with potential forecast energy savings is the Residential Customer Engagement Tool (CET). As noted in Section 7.2 of the DSM Plan, CET savings are primarily based on behavior changes and the relative magnitude is uncertain. Once savings are realized, they will be reported in the DSM Annual Reports for the year they were realized in. It is expected that historical savings, and other factors, will be used in forecasting future CET savings.

For other CEO initiatives, it is unlikely FEI will use historical savings as a proxy for forecast savings. Other CEO initiatives can change significantly year over year making it difficult to use historical savings as they may not have any bearing on current initiatives or variables within those initiatives.

17.2.2 Please explain how, in the absence of forecasting energy savings, FEI determines the appropriate level of expenditure on CEO programs.

Response:

FEI uses various methods to determine the appropriate level of expenditure on CEO programs depending on the type of initiative.

For re-occurring initiatives, such as FEI's Small Business Engagement and Direct Community Engagement, a yearly evaluation is conducted and future expenditure levels are based on cost per customer reached and ability to expand each initiative. FEI's third party partnerships are reviewed annually through a validation assessment where success and reach are analyzed. Then, these partnerships are negotiated annually to ensure sufficient funds are forecast for each partnership. Additional funds are then forecast for new initiatives based on where FEI believes additional customer support is required to assist with incentive programs.

Further, the Commercial Education program is forecast to align with the customer base being approximately ten percent of FEI's residential customer base. As such, these expenditures align with this reach. The School Education Program is based on program costs for development of new curriculum content, program maintenance and an ongoing partnership with the BC Lions to deliver our Energy Champions assembly-style presentation.

Lastly, the Customer Engagement Tool initiative expenditure is based on the planned scope and a market scan.

18.0 Reference: PROGRAM LEVEL ISSUES

Exhibit B-1 pp. 14, 22; Appendix A, pp. 8, 49, 50

Innovative Technologies Program Area

For the Innovative Technologies program area, Table 6-1 of the Application indicates forecasted expenditure of $ 2.043 million for 2019, compared to 2017 actual expenditure of $0.928 million as shown in Table 2-2 of Appendix B.

On page 14 of the Application, FEI states:

> During the 2014-18 PBR test period, FEI continues to explore New Technologies through the Innovative Technologies Program but has not yet introduced any programs within the New Technologies Program.

On page 22 of the Application, FEI states:

> The forecast increase in expenditures in the Innovative Technologies program area is primarily due to the BC Energy Step Code Tier 5 Buildings Pilot, for which FEI expects significant increased participation over the DSM Plan period.

On page 49 of Appendix A to the Application, FEI states:

> The development and implementation of a typical pilot project for those technologies that pass Step 1 takes approximately two to three years, depending on the complexities of the pilot design, program controls and participation requirements.

On page 50 of Appendix A to the Application, FEI states:

> Pilot technologies that demonstrate acceptable levels of technical performance and cost-effective energy savings are typically considered favourably for inclusion into the applicable sector programs. Technologies that do not meet those criteria are typically rejected.

18.1 Given that the forecast increase in expenditures in the Innovative Technologies program area is primarily due to the BC Energy Step Code Tier 5 Buildings Pilot, please explain whether FEI considers that this pilot has a greater probability of being introduced as a new program.

Response:

At this time, FEI cannot determine the probability of Step 5 buildings being introduced as a new program since significant market barriers exist such as high upfront cost, the lack of contractor and builder awareness and industry knowledge. Further analysis is required to determine its

viability and timing related to the inclusion of natural gas space and water heating systems that meet specified Step Code energy metrics. Over the coming years, FEI will run a series of field trials with builders and partners, research new technologies, and develop case studies to share with industry. This research will determine the feasibility, cost effectiveness and best approach for incorporating certain measures that meet Step 5 criteria into the New Home Program.

18.2 Please explain how, in the absence of forecasting energy savings, FEI determines the appropriate level of expenditure on Innovative Technologies.

Response:

FEI determines the appropriate expenditure levels for the Innovative Technology program area based on an assessment of identified innovative technologies to be evaluated through conducting pilots and prefeasibility studies,[8] as well as assessing other jurisdictional benchmarks. An industry review conducted by E Source (an energy industry analytics consultancy) found that other utilities allocate 1 to 4.5 percent of their DSM budget for emerging technology initiatives. FEI's budget for Innovative Technologies of 3 percent of the overall Plan budget falls within that range.

18.3 Please briefly explain why development and implementation of a typical pilot project takes two to three years.

Response:

FEI's Innovative Technology Selection and Implementation Process framework is illustrated in Exhibit 17 found on page 49 of Appendix A to the Application. Technologies that pass Step 1 of the framework can take approximately two to three years to pass Step 2 through to Step 4; the variability is mainly attributed to elements within the pilot study's evaluation scope to ensure a high confidence in the data received. Typically, the more a technology's application or use differs across different building types, customer groups, usage patterns and region, the more variabilities exist that may reduce data confidence. In order to increase the overall confidence of the data, additional participants, program controls or a longer monitoring period may be required

[8] Further details of the pilots and prefeasibility studies planned for the 2019-2022 DSM Plan are found at page 50 of Appendix A to the Application.

all of which may increase the overall pilot timeline. For instance, it is typical that pilots require two years of measured usage data in order to assess energy savings. Up to one year may be required to monitor the pre-existing equipment and an additional year to monitor the upgraded equipment across two heating seasons.

18.4 Please confirm that FEI will continue to provide an update on the progress of studies and pilot programs in its DSM Annual Reports between 2019 and 2022.

Response:

Confirmed.

18.5 Please list the pilot projects undertaken between 2014 and 2018, and briefly summarize the status or recommendations arising from those projects, and indicate which ones will carry over into the 2019-2022 DSM Plan.

Response:

Please refer to the table included in Attachment 18.5, which outlines the pilot projects conducted throughout the years of 2014-2018, their status and recommendations as well as which ones will carry over into the 2019-2022 DSM Plan.

19.0 Reference: PROGRAM LEVEL ISSUES

Exhibit B-1, p. 32; Appendix A, pp. 53, 55, 56; Appendix B p. 49

FEI Multi-year Performance Based Ratemaking Plan for the Years 2014–2018 Decision, p. 274

Enabling Activities

On page 32 of the Application, FEI states:

> FEI intends to attribute the benefit of savings from the introduction of codes and standards to the applicable Program Area where such an attribution can be supported. FEI will incorporate savings from the introduction of codes and standards on a case-by-case basis and report on this practice in the DSM Annual Reports.

19.1 Please discuss the extent to which, in FEI's view, energy savings from the past introduction of codes and standards can be used as a useful proxy for forecasting future savings.

Response:

FEI does not believe attribution savings from historical changes to codes and standards regulation would be a useful proxy for forecasting future savings from codes and standards regulation for the purposes of DSM planning. Energy savings from the introduction of new codes and standards are considered on a case by case basis at the time that the relevant information is available and the energy savings are calculated by comparing the new code to the current baseline code in effect. Details of future changes to codes and standards regulation are only known at the time new regulation is proposed and the energy savings of a proposed code may not be comparable to energy savings that have been claimed in the past.

For the Trade Ally Network program, page 53 of Appendix A to the Application indicates forecasted expenditure of $ 2.3 million for 2019, compared to 2017 actual expenditure of $0.723 million as shown in Table 11-1 of Appendix B. Page 53 of Appendix A also shows forecasted 2019 to 2022 expenditures of $9.05 million, of which $2.4 million is comprised of evaluation activities.

On page 274 of the PBR Decision, the BCUC stated:

The Panel understands the logic behind the development of a contractor network, but has concerns that it may include expenses better characterised as marketing and that it may inadvertently result in load building. FEU are directed in the next EEC Annual Report to explain how it ensures the focus of the contractor network program is on reducing overall gas consumption by customers.

19.2 Please explain the reasons for the expenditure increase in the Trade Ally Network program in the 2019-2022 DSM Plan.

Response:

This response also addresses BCUC IR 1.19.2.1.

The Trade Ally Network currently includes primarily residential contractors. FEI plans to expand the program to other contractors and key stakeholders who influence natural gas end-use and energy efficiency decisions by:

- Increasing residential contractor enrollment;
- Expanding enrollment to commercial and industrial contractors
- Expanding to engage other key stakeholders such as trade associations, manufacturers, distributors, vendors and retailers of natural gas equipment;
- Expanding co-op advertising funding to Trade Ally Network members; and
- Developing a Quality Assurance program to focus on quality installations of gas equipment installations. This will be accomplished by expanding site visits, and providing training and education to contractors to address installation challenges identified through these visits.

The Trade Ally Network expansion is factored into other areas of the 2019-2022 DSM Plan. Certain program expansions, including the Home Renovation Program and the Commercial Prescriptive Program, have assumed the expanded Trade Ally Network proposed in the Plan and will be dependent on this expansion to meet their expanded efforts. It is expected that expanding the Trade Ally Network will:

- Assist in improving customer awareness of DSM program offers (over the past three years 60 percent of residential program participants learned about FEI's DSM programs from their contractor);
- Assist in the development, implementation and operation of upstream offers; and

- Improve the quality of equipment and building envelope installations which will lead to greater equipment and building performance.

19.2.1 Please summarize the relationship between increasing expenditures in FEI's residential, commercial and industrial program areas, and the need to increase expenditures in the trade ally network.

Response:

Please refer to the response BCUC IR 1.19.2.

19.3 Please reproduce the explanation in the FEU 2014 DSM Annual Report with respect to ensuring the focus of the contractor network program is on reducing overall gas consumption by customers. Please provide additional commentary as appropriate describing any changes since 2014.

Response:

The explanation in the FEU 2014 DSM Annual Report (page 18, section 2.5.3, second paragraph) with respect to ensuring the focus of the contractor network program is on reducing overall gas consumption by customers is reproduced below:

> For 2014, the Contractor program has been renamed the Trade Ally Network (TAN). The focus of the TAN is to increase EEC program uptake, and encourage the safe, permitted installation of efficient natural gas appliances. Contractors who are part of the TAN are a key delivery pathway for EEC programs and initiatives. Through the TAN co-op advertising initiative, members have access to funds to offset costs related to the promotion of high efficiency natural gas products and services. Approximately $195,000 of the $348,000 communication expenditure in the TAN program arises from Member contractor co-op advertising activity. All co-op advertising must be pre-approved by FEI to ensure compliance with co-op advertising program terms and conditions; these terms and conditions require that contractor co-op advertising feature energy efficiency messaging related to natural gas products and services in order to be eligible for funding by FEI. The remaining expenses for the TAN program are expenditures

related to contractor training, orientation sessions, and collateral, all of which focus on educating contractors about EEC programs, general FEI business updates, and benefits available to participating contractors through the FortisBC Trade Ally Network program.

FEI confirms that the objectives of the TAN as stated above have not changed, although the program has been expanded in the 2019-2022 DSM Plan. Please refer to the response to BCUC IR 1.19.2 which outlines the components of the planned expansion. The goal of this expansion is energy conservation by:

- Promoting existing DSM programs;
- Supporting the creation of new DSM programs such as upstream programs; and
- Increasing the quality of energy efficient equipment installations.

19.4 Please explain why the Trade Ally Network program includes a relatively high proportion of expenditures on evaluation activities.

Response:

FEI's evaluation activities for the Trade Ally Network include conducting site inspections and evaluating the HVACSaves online tool. In addition to program compliance, site inspections will assess individual contractor performance and industry benchmarking as a whole to identify where contractors can benefit from training. These expenditures will also support the development of "Program-registered" contractor directories and longer term industry accreditation.

FEI recognizes that quality installation ("QI") of equipment and building envelope measures are key to ensuring that energy savings and building performance objectives are met. FEI is working with industry to develop road maps for contractor accreditation in the residential sector. Funding for these initiatives include contractor education, installation and best practices guides, and funding for the Home Performance Stakeholder Council, an industry group that is driving these activities for program partners. FEI is also evaluating HVACSaves, an online tool that can be used to gather equipment commissioning data and provide real-time feedback to contractors during the installation process. The ultimate goal of the project is to provide ENERGY STAR® Verified Installation labels for customer installs. Additional QI activities are planned for commercial and industrial sectors over the reporting period.

On page 55 of Appendix A to the Application, FEI states:

> The Demand-side Management Tracking System ("DSMS") Project will transition FortisBC Inc. and FEI from their existing DSM tracking systems onto a new, joint system.

19.5 Please compare the costs of the new Demand-side Management Tracking System to the existing system.

Response:

The table below compares the costs of the current TrakSmart system (used by FEI) and the new Demand-side Management Tracking System (DSMS) (FEI portion only).

	TrakSmart (FEI Only)	New DSMS (FEI Portion)
Implementation Cost	$940,222*	$1,362,957
Average Annual Cost	$95,855	$459,985

* Incurred in 2010 and 2011

Although the average annual cost of the new system is higher than the legacy system, the new system will deliver positive benefits to customers and FEI, including an online rebate application portal for customers. As noted in Section 9.2.3 (page 55) of Appendix A to the Application, the primary reasons for transitioning both utilities to a new system are: an improved ability to operate joint programs by sharing a platform, the introduction of online application forms for gas customers, improved reporting via integrated dashboards, and a powerful communications management system.

FEI notes that additional benefits from the new tracking system include:

- reduction of manual rebate application transcription;
- faster rebate application processing;
- improved feedback for customers on the status of their rebate; and
- enhanced duplicate application mitigation.

FEI and FBC expect to realize the following benefits from the ability to jointly operate programs using the new system:

- Programs, measures, and other DSM information will only need to be updated in a single system, rather than in both systems.
- The new joint rebate portal will streamline the application process, creating efficiencies for internal users as well as customers.
- Program reporting will be holistic and more efficient. Rather than creating two separate reports to obtain the same information, a single report will now contain all data required.
- New users will only need to be trained on a single system.
- Program representatives will have a single source of information while assisting customers with rebate inquiries.

19.6 Please confirm if the costs of the new Demand-side Management Tracking System will be split with FortisBC Inc.

Response:

Confirmed. FEI and FBC will share the costs of the new Demand-side Management Tracking System in accordance with the Code of Conduct and Transfer Pricing Policy for Provision of Utility Resources and Services to Affiliates.

Costs will be split proportionally to customer base (88 percent for FEI and 12 percent for FBC), unless the work being conducted pertains solely to one utility or the other. For example, the integration of FBC-only customer data into the system would be paid for solely by FBC.

Page 56 of Appendix A to the Application describes the Commercial Energy Specialist program.

19.7 Please explain the reasons for funding positions within commercial organizations, versus funding in-house FEI positions to support the same activities.

Response:

Funding Commercial Energy Specialist positions within large commercial organizations enables FEI to influence areas of those organizations to pursue energy efficiency projects that in-house

FEI positions cannot influence easily or effectively. Embedding the Energy Specialist within the organization allows them greater insight into the organization's energy efficiency project opportunities than an in-house FEI position would have. Having the organization take ownership of this employee position, invest some of their own funds into the position and formally agree to the terms of their work also provides greater up front buy-in from the organization to pursue energy efficiency projects than they would otherwise consider without the Energy Specialist.

More specifically, the Commercial Energy Specialist works within the organization, usually with a BC Hydro funded Energy Manager, primarily to do the following activities that organizations typically would not engage an in-house FEI position in:

- Conduct an inventory of natural gas fired equipment to determine eligible projects for FEI incentives;
- Explore and develop business cases around natural gas related projects;
- Bring forward natural gas related projects to internal management for budget approval;
- Execute natural gas projects and ensure that FEI programs are applied for and utilized where applicable;
- Ensure all necessary invoices are submitted for incentives from FEI;
- Help the Energy Manager complete BC Hydro's Strategic Energy Management Plan with a focus on natural gas; and
- Help coordinate/present any applicable employee awareness training.

19.7.1 Please confirm if the positions funded are fixed term in nature.

Response:

The Commercial Energy Specialist positions are fixed term in that they are reviewed for renewal after a one-year term. However, the funding relationship is variable as FEI enters into these funding relationships with large commercial organizations with the intent to continue funding until there are not enough natural gas energy efficiency projects remaining to warrant a full time position. The overall time frame of this funding relationship varies depending on the organization. FEI renews agreements based on an assessment of past performance and the project plan for the next funding year.

19.7.1.1 Please discuss how FEI will monitor the effectiveness and review the funding requirements of this program.

Response:

FEI will continue to fund Energy Specialist positions as long as the Energy Specialists can show that they are producing results in line with the Energy Specialist Program's key priorities, and have future natural gas energy efficiency projects to work on. The Energy Specialists are accountable to this funding by providing a report every three months detailing how they have progressed on the natural gas energy efficiency projects in their project plan. Energy Specialists are evaluated based on the total DSM program incentive dollars that they are able to qualify their organization for and on the natural gas savings they are able to attribute to their other energy efficiency projects. Prior to renewing these one-year agreements, Energy Specialists are asked to provide a project plan for the following year. FEI reviews the Energy Specialist's quarterly reports and project plan to determine if continued funding is warranted. If it is apparent that there is little to no opportunity to implement further natural gas energy efficiency measures at the organization then FEI discontinues funding for that Energy Specialist position. FEI intends to continue to fund organizations, and add new organizations to the program, that show they can employ a full time position to work on natural gas energy efficiency projects.

At the overall program level, FEI assesses and reports annually on the percentage of C&EM Commercial program participants that come from Energy Specialist organizations. As set out in Appendix G to the Application (p. 4), FEI also plans to invest $175,000 in Commercial Energy Specialist Program process and impact evaluation activities over the 2019-2022 DSM Plan period.

Insights from all of these assessments will be used to monitor the effectiveness and review the funding requirements of this program.

19.8 Please discuss whether the Energy Specialist/Senior Energy Specialist positions will also have a focus on activities beyond FEI's C&EM programs (for example, working on FEI activities other than DSM, or promoting reductions in electricity usage).

Response:

Commercial Energy Specialist Program: Commercial Energy Specialist positions will focus only on activities related to FEI's C&EM programs and using natural gas more efficiently. The only exception to this will be where FEI is co-funding an Energy Specialist position with FBC. In these instances, the Energy Specialist will focus on both FEI and FBC C&EM programs and using natural gas and electricity more efficiently.

Community Energy Specialist Program: As indicated in the DSM Plan (Exhibit B-1, Appendix A, p. 56), FEI's Conservation & Efficiency Management (C&EM) department will contribute 50 percent of the FEI funding amount for co-funded Senior Energy Specialist positions with the other 50 percent coming from FEI's External Relations department. Therefore, these Senior Energy Specialist positions will spend half of their time on activities beyond FEI's C&EM programs and activities. These other areas of focus include renewable natural gas, natural gas for transportation, refreshing community or corporate energy and emissions plans, policy analysis, and supporting local government greenhouse gas emissions reporting requirements. Senior Energy Specialist positions in FEI and FBC's (collectively FortisBC) shared service territory also work to promote FBC's C&EM programs and are also partially funded by FBC.

20.0 Reference: PROGRAM LEVEL ISSUES

Exhibit B-1, pp. 33 to 34; Appendix B, pp. 4, 55; Appendix H, p. 4

California Evaluation Framework June 2004, p. 21

Evaluation, Measurement and Verification (EM&V)

On pages 33 to 34 of the Application, FEI states:

> The total proposed expenditure for program evaluation and M&V [Measurement and Verification] activities to be conducted from 2019 to 2022 is approximately $9.2 million or 2.9 percent of FEI's overall planned portfolio expenditures. This proposed budget aligns with FEI's EM&V Framework, historical evaluation expenditures, and industry general practice for budget spending on EM&V activities.
>
> …
>
> Survey results obtained from E Source, an energy efficiency consultancy serving gas and electric utilities throughout North America, indicate that for utilities with DSM expenditures of between US$20 and US$55 million, DSM budgets are between 2 percent and 3 percent, and that the proportion of DSM expenditures on evaluation decreases as the size of the portfolio increases. Utilities with expenditures greater than US$55 million tend to spend just under 2 percent on evaluation. The Consortium for Energy Efficiency (CEE) found that in 2014 US and Canadian natural gas utilities spent about 2 percent of their overall DSM budgets on evaluation and in 2015 this value dropped to 1 percent for Canadian Utilities. According to these CEE Reports, the proportion of total DSM expenditures appears to be declining in recent years for Canadian natural gas utilities.
>
> It is important to note the definitions that are used for what is and is not included in the EM&V budgets varies significantly between utilities and program administrators. FEI has carefully considered evaluation needs and submits that its evaluation plan is adequate to conduct the appropriate number of program evaluations and effective in keeping evaluation expenditures at a reasonable level consistent with its EM&V Framework and in comparison to other jurisdictions.

On page 55 of Appendix B to the Application, FEI indicates that in 2017, the total expenditure for program evaluation and research activities in 2017 was approximately $703,000. Page 4 of Appendix B indicates total DSM expenditures of $34.039 million in 2017.

20.1 Please confirm that in 2017, FEI's EM&V expenditures represented approximately 2.1 percent of overall DSM expenditures.

Response:

Confirmed. FEI's EM&V expenditures for 2017 was approximately $703,000 which equates to approximately 2.1 percent of the overall DSM expenditures of $34.039 million.

20.1.1 Please explain why percentage of FEI's proposed expenditure for EM&V activities relative to overall DSM expenditures for 2019 to 2022 has increased compared to 2017.

Response:

FEI conducts and completes evaluations at appropriate times within the program lifecycle, given resources and program growth. In alignment with FEI's EM&V Framework and industry standard practices, programs will be evaluated on a program by program basis. FEI's proposed EM&V expenditures for 2019 -2022 have increased compared to 2017 to accommodate the increase in evaluation activities as more DSM programs mature within the period of the funding request. Other evaluation activities driving the increased EM&V expenditures for 2019 – 2022 include increased site visits to assess quality assurance and program compliance, expansion of existing programs, new measures added to existing programs, and the addition of new programs in market. The EM&V expenditures for 2019-2022 cover all program areas including new activities for the Trade Ally Network and Codes and Standards as described in the response to BCUC IR 1.19.4.

20.2 Please confirm whether accounting for inflation and exchange rates as applicable, FEI's forecasted average annual DSM expenditure from 2019 to 2022 exceeds US$55 million.

Response:

In the Errata filed concurrently with these IR responses, FEI has made a correction to the overall Portfolio expenditures presented in Exhibit 1 of Appendix A and Table 6-1 of the Application. The following analysis uses the corrected values.

Confirmed. Accounting for inflation and exchange rates, FEI's planned annual DSM expenditures for the 2019-2022 DSM Plan is $65,370,000 as provided in the following table.

	2019	2020	2021	2022	Total	Average
Total Utility Expenditures ($000s) including inflation in $CAN	66,350	72,577	88,803	96,775	324,505	81,126
Total Utility Expenditures ($000s) including inflation & Exchange Rate in $US	52,659	58,530	72,198	78,044	261,431	65,357

The inflation values used are as presented in Exhibit 2 of Appendix A to the Application. The $CAD/$US exchange rate forecast used for this analysis is as follows:

2018	2019	2020	2021	2022
1.28	1.26	1.24	1.23	1.24

20.2.1 If confirmed, please explain why FEI's EM&V budget for 2019-2022 is higher than the E Source results indicating expenditure by other utilities tends to be just under 2 percent.

Response:

As presented in the response to BCUC IR 1.20.2, FEI's annual EM&V budget differs from year to year to ensure adequate EM&V activities are conducted at appropriate times in a program's life cycle. FEI's EM&V budget for 2019-2022 ranges from 2 to 3 percent which is adequate to conduct the number of program evaluations and effective in keeping evaluation expenditures at a reasonable level consistent with FEI's EM&V Framework and within industry best practice. As presented in response to BCUC IR 1.20.1.1, FEI anticipates an increase in evaluation activities as a result of the following:

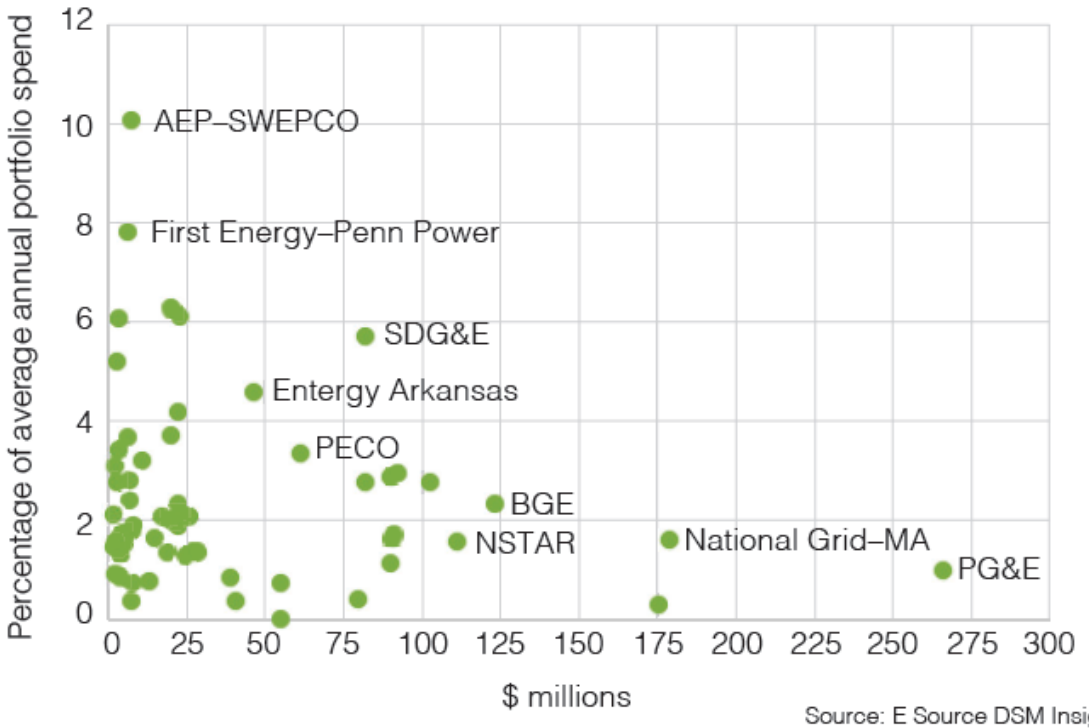
- more DSM programs mature within the period of the funding request;
- increasing site visits to assess quality assurance and program compliance;
- new programs in market;
- expansion of existing programs; and
- new measures added to existing programs.

The EM&V expenditures for 2019-2022 cover all program areas including new activities for the Trade Ally Network and Codes and Standards.

For clarity, the CEE results cited in the Application and included in the preamble to this request were part of the source documentation compiled by E Source and reported to FEI. For this response, as well as the response to BCUC IR 1.20.2.2, FEI refers to these results as the E Source results or the E Source report. According to the E Source results, the budget figures should be considered as only rough guidance, as they are mostly self-reported, and the definitions that are used for what is and is not included in the EM&V budgets varies significantly between states and program administrators. Additionally, not all survey respondents allocate funding for evaluation purposes on an annual basis, and some respondents did not respond to the EM&V budget portion of the survey. In addition to the information cited in the preamble, FEI has provided Figure 1.20.2.1 from ESource (note that the figure is in $US). In this case, ESource plots EM&V spending as a proportion of Portfolio spend for a number of North American utilities between 2012 and 2014. This chart shows the full range of Evaluation spending among utilities and shows that EM&V budgets can vary between utilities and the average annual evaluation spend for each utility from 1 to 10 percent. Considering these factors, FEI's expenditures of 2.9 percent of total portfolio expenditures are within the range of other utilities and not materially out of line with the rough guidance from the cited E Source results.

Figure 3: Evaluation Spending as a Percentage of Average Annual Portfolio Spend

The average annual evaluation spend from 2012 through 2014 for each utility gives us a reasonable measure for evaluation as a share of overall DSM portfolio spending regardless of the maturity of each program.



Source: E Source DSM Insights, 2015

20.2.2 Please explain why the FEI's EM&V budget for 2019-2022 is higher than the CEE data indicating 1 percent of overall DSM budgets were spent in 2015 by Canadian Utilities on evaluation.

Response:

Please refer to the response to BCUC IR 1.20.2.1 for clarification on how the CEE data is represented in the E Source results. FEI's annual EM&V budget for 2019-2022 is higher than the CEE data indicating 1 percent of overall DSM budgets were spent in 2015 by Canadian Utilities on evaluation as FEI anticipates an increase in evaluation activities for the DSM Programs during the funding period. FEI's EM&V budget for 2019-2022 differs from year to year to ensure adequate EM&V activities are conducted at appropriate times in a program's life cycle. Please refer to the response to BCUC IR 1.20.2.1. FEI does not believe a budget

equaling 1 percent of overall DSM budgets is sufficient for the proper evaluation of its DSM activities over the 2019-2022 period. FEI believes that it has developed an appropriate evaluation plan and evaluation expenditure estimate.

According to the E Source reports, the budget figures should be considered as only rough guidance, as they are mostly self-reported, and the definitions that are used for what is and is not included in the EM&V budgets varies significantly between states and program administrators. Additionally, not all survey respondents allocate funding for evaluation purposes on an annual basis, and some respondents did not respond to the EM&V budget portion of the survey.

20.3 Please discuss what actions FEI takes to improve efficiency in its EM&V spending, as measured by the percentage of EM&V expenditures compared to the DSM portfolio expenditures.

Response:

FEI believes the total EM&V spend at approximately 2.9 percent of the overall DSM portfolio expenditures is efficient and within industry best practice. FEI's evaluation group continues to work closely with internal departments from Procurement, C&EM, and other related areas to ensure a consistent approach and process is followed when assessing costs related to conducting EM&V activities. Staff work to identify opportunities to streamline these processes, improve the competitiveness of RFP bidding and increase the value of the studies conducted for program delivery to customers. The EM&V process includes: assessing third party evaluator expertise, value of the EM&V activity, and the level of detail applied in the EM&V methodology. In addition, FEI continues to seek opportunities to collaborate with other utilities for program evaluations. FEI believes efficiency is achieved by maintaining this streamlined approach.

The California Evaluation Framework[9] on page 21 stipulates that program evaluations will be conducted by firms, organizations, or groups that are independent of the implementation administrator or contractor, and that the evaluation teams will maintain an arm's-length relationship with implementation administrators and contractors in order to help assure objective and reliable evaluation efforts.

[9] http://www.calmac.org/publications/California_Evaluation_Framework_June_2004.pdf.

On page 4 of Appendix H to the Application, FEI states:

> In most cases, FEI retains external consultants to conduct evaluation activities. Some aspects of evaluation may also be conducted internally by FEI. Measurement and verification activities may be outsourced or conducted by FEI staff.

20.4 Please comment on FEI's use of internal staff for EM&V activities, with respect to the guidance in the California Evaluation Framework.

Response:

FEI's use of internal staff for EM&V activities aligns with the California Evaluation Framework where the evaluation groups are independent of the program developers and implementers, therefore maintaining an arm's-length relationship. Internal evaluation staff work with other internal groups to procure, manage and review third party evaluation studies, present results of evaluations to internal teams and implement findings and recommendations of evaluation studies. Otherwise, the type of EM&V activities conducted internally are generally limited to engineering calculations, technical review, some site verification work and survey analysis where FEI believes internal involvement provides a level of verification in addition to external consultants. FEI internal staff responsible for EM&V activities have separate lines of reporting from the staff responsible for program development and implementation.

C. ADDITIONAL APPROVALS SOUGHT

21.0 Reference: ADDITIONAL APPROVALS SOUGHT

Exhibit B-1, p. 35

Funding Transfers

On page 35 of the Application, FEI proposes that starting with 2019 it be permitted to transfer or "rollover" unspent expenditures in a Program Area to the same Program Area in the following year. FEI proposes that other program funding transfer rules follow the same process as was directed by the BCUC for the 2012-2013 test period and retained for the 2014-2018 test period.

21.1 Please confirm whether under FEI's proposal regarding "rollover" of unspent amounts from year to year, this would be cumulative or restricted to the following year.

Response:

FEI confirms that its proposal is to rollover unspent amounts from year to year on a cumulative basis such that, by the end of the four-year funding period in 2022, total actual DSM expenditures would be the requested funding amount of $324.5 million with total Program Area amounts as set out in Table 6-1 of the Application (subject to any funding transfers over the period).

FEI notes that due to an error in the background spreadsheet, the inflation portion of the DSM expenditures for 2020-2022 was incorrectly calculated. The correction results in a small reduction to the total requested DSM expenditures of $324.6 million to $324.5 million. Please refer to the Application, page 2, line 4 and Table 6-1 provided in the Errata filed concurrently with these IR responses.

21.2 Please confirm under this proposal how FEI would distinguish between amounts rolled over within a program area to the following year, and funding transfers between program areas within the same year.

Response:

FEI intends to continue reporting on funding transfers between program areas in its DSM program annual reports to the Commission as it has during the 2014-2018 period. If FEI's proposal to transfer or "rollover" unspent expenditures is approved, FEI plans to add information regarding unspent "rollover" values to its DSM program annual reports. This would be reported separately from funding transfers between program areas, so that all amounts rolled over within a program area and transferred between programs are transparently accounted for in the DSM program annual reports.

21.3 Please comment on whether this proposal incurs a greater risk of FEI underspending its overall approved DSM expenditures.

Response:

FEI considers that its proposal to rollover unspent expenditures year over year will actually reduce the risk of underspending its overall approved DSM expenditures. As noted in the Application, the ability to rollover unspent expenditures will allow FEI the flexibility to respond to various external factors and adjust the timing of planned expenditures in order to maximize program participation and savings. If FEI is not able to rollover unspent expenditures then the underspend in the previous year would be locked in, and FEI would fall short of meeting its overall approved DSM expenditures. If FEI is able to rollover unspent expenditures, then if there is an underspend in a given year FEI would have the opportunity to catch up in the following years, therefore increasing the likelihood that FEI would not fall short of spending its overall DSM expenditures.

21.3.1 Please comment on whether this proposal incentivizes FEI to backload spending to the end of the plan.

Response:

FEI's proposal to rollover unspent expenditures in any year to the next does not incentivize FEI to backload spending to the end of the plan.

FEI has undertaken considerable effort together with ICF Canada to develop a DSM Plan for the period 2019 to 2022 that forecasts reasonable and achievable expenditures for each year of the DSM Plan. FEI also undertook an in-depth and varied consultation process that gathered

information from various program stakeholders and interested parties and formed a key input into the DSM Plan. FEI intends to follow and roll out the DSM Plan that it has worked hard to develop.

FEI's request for approval to rollover unspent expenditures is a recognition that the DSM Plan is subject to changes in market conditions, customer responses to programs, and other external factors that could impact the optimal timing of program expenditures and is meant to give FEI flexibility to respond accordingly.

FEI's multi-year DSM Plan has forecast the most reasonable yearly expenditures to achieve a total spending portfolio of $324.5 million[10] by the end of the four-year plan. Given the magnitude of the DSM expenditures that FEI is forecasting over the four years of the Plan, backloading spending to the end of the plan would make achieving the total four-year DSM Plan expenditures much more difficult. Therefore, FEI has no incentive to do so.

21.4 Please describe the expected impacts on the balance of expenditures between years if FEI had the ability to utilize this proposed mechanism for the 2014-18 test period.

Response:

FEI does not believe the ability to utilize the proposed "rollover" mechanism for the 2014-18 test period would have impacted the balance of expenditures during those years. The benefit of this mechanism is forward looking. For example, if a program is planned for implementation in the first year and then it is shifted to the following year due to factors such as changes in market conditions, customer response or other factors as discussed in Exhibit B-1, p. 35, the ability to roll amounts for that program over from the first year could mitigate a situation where another program activity's budget is impacted in order manage the total budget within the approved annual amount.

A further example of where this rollover could benefit customers going forward can be drawn from the residential furnace program during the 2014-2018 test period. The furnace program during this period was implemented as an annual limited time offer, primarily to avoid spending more than approved residential expenditures (including funding transfers into residential in accordance with the funding transfer rules). Although FEI did not spend less than the approved

[10] FEI notes that due to an error in the background spreadsheet, the inflation of the DSM expenditures for 2020-2022 was incorrectly calculated. The correction results in a small reduction to the total requested DSM expenditures of $324.6 million to $324.5 million. Please refer to the Application, page 2, line 4 and Table 6-1 provided in the Errata filed concurrently with these IR responses.

residential expenditure in any year during the 2014-2018 test period, the ability to utilize roll-over amounts in the future could provide the flexibility needed to avoid these types of limitations if actual spending is below approved in the early years of the 2019-2022 DSM Plan.

FEI also believes that there will be benefits to the 2019-2022 DSM Plan from the ability to roll over approved spending amounts in the case of newly emerging initiatives. For example, there is uncertainty regarding the implementation and uptake of programs supporting BC Step Codes – how municipalities will adopt, how builders and contractors will respond, how quickly incentives will be taken up. The ability to utilize rollover amounts will improve FEI's flexibility to make and apply program funding adjustments as the implementation of these programs evolve over the new test period. Another example of this benefit could occur if a program launch is moved from one year to the next or a subsequent year. Allowing underspent amounts to rollover would allow program development and launch cost estimates in the DSM plan to be moved to the year in which the program launch occurs.

21.5 Please discuss whether in the view of FEI, aside from the proposal to roll over funding to following years, the current program funding transfer rules represent an appropriate balance between regulatory oversight and FEI's flexibility to adapt its DSM portfolio.

Response:

In FEI's view the current program funding transfer rules generally represent an appropriate balance between regulatory oversight and FEI's flexibility to adapt its DSM portfolio within a single year of its DSM Plan. In FEI's view, its proposed modification to the transfer funding rules maintains that balance while providing flexibility in the timing of DSM expenditures. For the reasons stated in the Application (Section 9.1) and in the responses to BCUC IR 1.21.1 through 1.21.4, FEI believes that the additional flexibility provided to rollover unspent expenditures would be beneficial, by increasing FEI's ability to execute its approved DSM Plan. Further, FEI's proposal would not diminish the effectiveness of the Commission's regulatory oversight. FEI's DSM expenditures would still be subject to Commission review and acceptance, and FEI would still not have approval to spend more than accepted by the Commission over the period of the DSM Plan. The Commission, however, would be providing FEI with flexibility in the timing of the execution of the DSM plan, acknowledging that the timing of expenditures may be affected by factors outside of FEI's control. In FEI's view, this maintains an appropriate balance between regulatory oversight and FEI's flexibility to adapt its DSM portfolio.

21.6 Does FEI believe that it could be appropriate for there to be a mechanism for reviewing the levels of approved expenditures if there was a material change to the DSM Regulation in the period covered by the 2019-2022 DSM Plan, for example, with respect to cost-effectiveness criteria?

Response:

FEI does not believe such a mechanism is needed. If there were changes to the DSM Regulation in the period covered by the 2019-2022 DSM Plan, FEI would review its level of expenditures in light of the changes and determine whether there was any need to file an amended expenditure schedule with the Commission. For instance, if a change to the DSM Regulation made a new program cost effective or an existing program more cost effective, FEI would have to assess the feasibility and impacts of launching the new program or increasing funding, and determine whether it should file for an increase to its expenditure schedule to accommodate. Such a decision would depend on a variety of factors that would vary in the circumstances, including the amount of time and resources needed to plan and organize any new program, whether the new program could be implemented before the end of the term of the expenditure schedule, whether programs could be ramped up to accommodate any increase in funding, whether changes to program design are necessary, etc. FEI has effectively reviewed changes to the DSM Regulation in this fashion over the five years covered by the last DSM expenditure schedule, and believes this process will continue to work well over the four years covered by the current DSM expenditure schedule. This process is also consistent with the structure of the UCA which gives discretion to FEI on the timing and level of its DSM expenditure schedules, subject to the fact that the Commission cannot approve rates for the purpose of recovering DSM expenditures that have not been the subject of an approved expenditure schedule.

21.6.1 If yes, please discuss how such a mechanism could operate.

Response:

Please refer to the response to BCUC IR 1.21.6.

22.0 Reference: ADDITIONAL APPROVALS SOUGHT

Exhibit B-1, Section 9.2, p. 36, Table 5-1, p. 19, Table 6-1, p. 22

Accounting Treatment

On page 36 FEI states:

> Further to Section 5 and consistent with the spirit of Order G-44-12, FEI is proposing to forecast rate base additions to the Energy Efficiency and Conservation deferral account (historically referred to as the EEC deferral account but hereinafter DSM deferral account) of $30 million, on a net-of-tax basis, for each of the years 2019 through 2022.

22.1 Is FEI seeking in this application, approval to change the name of the rate base and non-rate base EEC deferral accounts to the "DSM deferral account"?

Response:

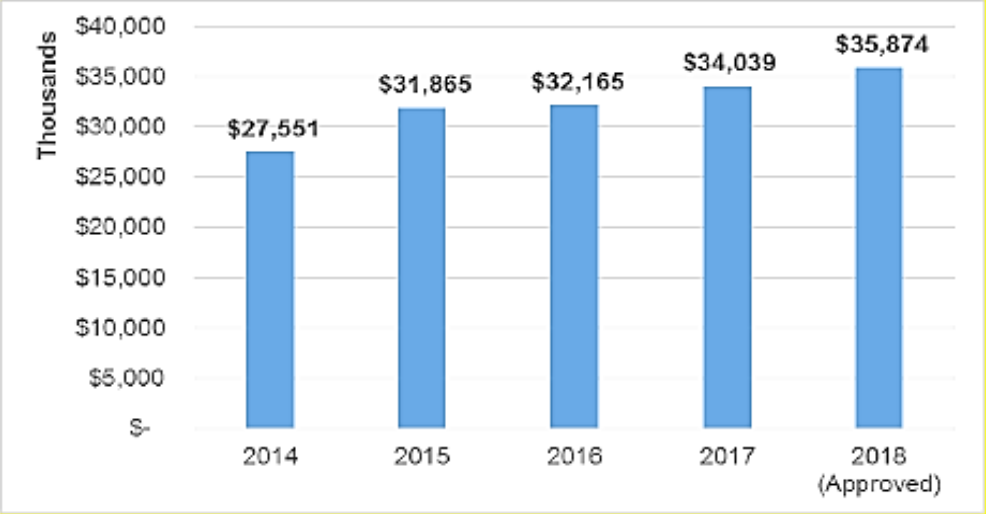
Confirmed. FEI is seeking to change the name of the EEC deferral account to the DSM deferral account, for both the non-rate base and rate base accounts. FEI will include an amended order with this response.

Further on page 36 FEI states:

> FEI proposes that the $15 million limit be increased to $30 million per year as expenditures have been consistently greater than $30 million per year under the DSM portfolio over the past three years (2015 to 2017) as illustrated in Table 5-1. With the significant increase in expenditures proposed in Section 6, FEI submits that at least $30 million annually will continue to be spent over the 2019 to 2022 period proposed in the DSM Plan.

On page 19 FEI provides the following table:

Table 5-1: FEI Annual Total DSM Expenditures 2014 to 2018



On page 22 FEI provides the following table:

Table 6-1: FEI DSM Expenditures - 2019-2022 Forecast, Shown in As Spent Dollars [9]

Program Area	Utility Expenditures ($000s) All Spending				
	2019	2020	2021	2022	Total
Residential	23,521	25,722	28,476	31,383	109,101
Commercial	13,837	17,357	27,441	31,081	89,715
Industrial	3,103	3,152	3,644	3,708	13,607
Low Income	6,630	6,795	6,984	7,217	27,626
Conservation Education and Outreach	7,155	7,360	8,595	9,467	32,578
Innovative Technologies	2,043	2,202	2,631	3,062	9,938
Enabling Activities	8,426	8,321	9,230	8,918	34,895
Portfolio Level Activities	1,635	1,676	1,822	1,975	7,108
ALL PROGRAMS	**66,350**	**72,585**	**88,822**	**96,811**	**324,567**

On page 3 of the Application, FEI states:

> As policy has continued to evolve, the market for energy efficiency in British Columbia has also continued to develop and demand for FEI natural gas efficiency programs is strong. FEI's DSM Plan proposes a significant increase in expenditures driven by the March 2017 changes in the DSM Regulation, implementing new measures, increasing incentives for certain measures and increasing participation in existing programs. More specifically, the DSM Regulation changes enable increased activity in support of the BC Energy Step Code, Low Income programs, codes and standards, and programs that require

use of the Modified Total Resource Cost Test (MTRC – discussed in Section 7.1.3).

22.2 Please provide the total amount of DSM expenditures spent to date in 2018 and the total amount of DSM expenditures FEI expects to spend in 2018.

Response:

FEI's total DSM expenditures as of the end of July 2018 is $16.4 million. DSM expenditures are typically weighted more heavily to the later part of the year. FEI projects total DSM expenditures in 2018 of $38.6 million as of July 2018. This is subject to change however indications are that expenditures for 2018 will be above the approved plan and FEI intends to seek Commission acceptance for the potential overage in advance of year-end.

22.3 Please discuss if FEI anticipates any challenges with ramping up for and executing a much larger plan in 2019 compared to 2018.

Response:

FEI anticipates that there will be some challenges with ramping up for and executing a much larger plan in 2019 compared to 2018. As discussed in FEI's responses to BCUC IRs 1.10.1 and 1.22.3.1, FEI has mitigation strategies in place for challenges that were foreseen as of the time of the 2019-2022 DSM Plan development. FEI acknowledges that unforeseen challenges could emerge which limit ramp up as the market, policies, and other factors outside of FEI's control change. FEI has identified the following two key potential challenges to its ability to execute the 2019 planned expenditures that it currently has little ability to mitigate:

- BC Energy Step Code implementation: Due to the infancy of the Step Code, there may be challenges related to the rate at which municipalities, and therefore builders, adopt Step Code; and
- Timing of Application decision: The timing of the decision could impact FEI's ability to ramp up in 2019.

22.3.1 Please discuss whether any of FEI's program areas carries a significantly greater degree of deliverability risk than the portfolio as a whole.

Response:

The commercial and industrial program areas carry a greater degree of deliverability risk than the portfolio as a whole. In particular, the industrial program has historically seen a significant degree of uncertainty, primarily due to the economic and trade uncertainty of BC industries. The commercial and industrial program areas' deliverability risk, and the actions that FEI is taking/will take to monitor, mitigate and address these risks are outlined in the table below.

22.3.2 Please explain the actions that FEI is taking/will take to monitor, mitigate and address these risks.

Response:

Please refer to the response to BCUC IR 1.22.3.1.

22.3.3 Please summarize analysis undertaken by FEI with respect to ramping rates of DSM measures.

Response:

Each program area analyzed a variety of inputs and information to determine applicable ramping rates of DSM measures, as summarized in the table below.

Program	Deliverability Risk	Actions to monitor, mitigate and address risk
Commercial Performance Program – New Buildings	This offer was designed to align with the BC Energy Step Code. However, the roll-out and implementation of the BC Energy Step Code is still somewhat uncertain for Part 3 buildings. There is a deliverability risk associated with how municipalities are adopting Step Code, the extent to which developers are building to the higher steps of the BC Energy Step Code, and the extent to which municipal and provincial regulations may be adopted that limit the use of natural gas for end-uses in new buildings.	• Engage with municipalities and building associations to monitor the roll-out and implementation of the Step Code • Retain a 3rd party Energy Modeler to review the incremental costs associated with high performance buildings • Monitor FEI incentive to evaluate that it continues to cover a design percentage of the incremental cost associated with natural gas end-uses
Commercial Prescriptive Program	The Commercial Prescriptive Program is proposing to launch additional measures not currently in market. While stakeholder feedback informed the Commercial Prescriptive Program planning, the extent of market uptake may differ from the proposed plan which may lead to adjustment of measures.	• Refine and prioritize CPR recommendations by conducting research and survey of local key stakeholders (i.e. customers, engineers and designers, developer) • Leverage expanded Trade Ally Network and upstream program delivery • Monitor participation through monthly reporting and ongoing forecasting • Monitor activity level of Trade Allies to actively engage with Trade Allies
Industrial Prescriptive Program	The Industrial Prescriptive Program is proposing to launch additional measures not currently in market. While stakeholder feedback informed the Industrial Prescriptive Program planning, the extent of market update may differ from the proposed plan which may lead to adjustment of measures.	
Industrial Performance Program	Signed commitments for the Industrial Performance Program are strong and on track to meet the proposed budget for the 2019 year and beyond, the extent that industrial facilities will carry through with commitments depend on the availability of capital that is generally tied with BC's overall industrial economic health. As the Industrial Performance Program consists of a relatively small number of large incentives, the variability on customers completing committed projects results in a degree of variability in program performance.	• Continue regular engagement with customers with signed commitments to confirm they will continue to implement measures • If customers withdraw a commitment, conduct interviews to understand reasons for withdrawing. Focus feedback on determining if amendments to Industrial Performance Program could have encouraged customer to continue to implement measures. • Amend Industrial Performance Program as required to align FEI's incentives and offer with the demands of BC industry
Industrial Strategic Energy Management (SEM) Program	The FEI Industrial SEM program is based on the integration with the existing BC Hydro Industrial SEM Program. As such, there exists a risk that BC Hydro no longer offers their SEM program, which would impact the viability of the FEI SEM Program.	• Continue regular check points with BC Hydro SEM staff to keep abreast of program changes • If FEI becomes aware that BC Hydro is going out of market with the BC Hydro SEM program, develop an alternative program to seek cost savings associated with the 2015 Conservation Potential Review measure for "energy management"

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22.3.4 Please explain why FEI did not pursue a plan that more gradually ramped up from the expected level of expenditure in 2018.

Response:

In order to align with government objectives and policy, FEI developed a plan which would best enable an advanced DSM portfolio. FEI believes that opportunities identified in the CPR and other third party studies, changes to the DSM Regulation, and existing escalating program activity allows for the level of expenditures outlined in FEI's 2019-2022 DSM Plan. FEI is undertaking a number of new initiatives in the 2019-2022 DSM Plan as a result of various drivers for expanded DSM activity. Please refer to CEC IR 1.19.1 more information on these activities.

22.4 Please discuss if there are any differences in the nature of the DSM expenditures planned for 2019 to 2022 compared to the previous DSM plan, such as the proportion of incentive costs versus non-incentive costs.

Response:

The table below provides a comparison of the spending proposed in FEI's 2014-2018 DSM Plan against the spending being proposed in FEI's 2019-2022 DSM Plan. This includes a comparison of the average annual incentive spending and total spending (i.e. incentives and non-incentives), and the proportion of total spending allocated to incentives. As indicated in this table, FEI is planning an increased proportion of incentive spending for the 2019-2022 Plan in comparison to what was proposed in the 2014-2018 Plan (67 percent to 58 percent). This is primarily being driven by a higher proportion of incentive spending in the Residential and Low Income program areas. Other areas plan a relatively similar proportion of incentive spending to what was proposed in the 2014-2018 Plan except for Enabling Activities where incentive spending is now planned where there was no incentive spending previously. This is driven by three areas within Enabling Activities: Codes & Standards, Commercial Energy Specialist Program, and Community Energy Specialist Program. Codes & Standards will be introducing incentives to support the BC Energy Step Code compliance process for Part 9 buildings, the Commercial Energy Specialist Program will continue to offer incentives but has been moved from the Commercial program area to Enabling Activities, and the Community Energy Specialist Program is a new program modeled off of the Commercial Energy Specialist Program that will provide incentives in a similar fashion.

Program Area	Average Annual Incentive Spending ($000s)			Average Annual Total Spending ($000s)			Incentive Proportion of Total Spending (%)	
	2014-2018	2019-2022	% Diff	2014-2018	2019-2022	% Diff	2014-2018	2019-2022
Residential	7,789	24,376	213%	10,980	27,183	148%	71%	90%
Commercial	8,754	17,078	95%	10,829	22,224	105%	81%	77%
Industrial	1,852	2,496	35%	2,579	3,371	31%	72%	74%
Low Income	1,654	5,127	210%	3,045	6,848	125%	54%	75%
Conservation Education and Outreach	0	0	N/A	2,400	7,865	228%	0%	0%
Innovative Technologies	483	1,154	139%	1,217	2,441	101%	40%	47%
Enabling Activities	0	3,673	N/A	4,548	8,563	N/A	0%	43%
Portfolio Level Activities	N/A	0	N/A	N/A	1,710	N/A	N/A	0%
ALL PROGRAMS	**20,532**	**53,904**	**163%**	**35,598**	**80,204**	**125%**	**58%**	**67%**

22.4.1 Please discuss if there are any differences or challenges in forecasting DSM incentive expenditures versus non-incentive expenditures?

Response:

FEI is not able to identify any major differences or challenges related to forecasting DSM incentive expenditures versus non-incentive expenditures. However, FEI notes that there are more challenges related to forecasting for new programs than forecasting for existing mature programs where historical knowledge provides a sound basis for scaling up activity.

For incentive forecasting, FEI developed a bottom up approach where participant uptake was forecast over the program period based on historical uptake, consultation and market factors. Non-incentive forecasting for residential, commercial, industrial and low income was developed as follows:

- Administration expenditures were based on the number of staff required to process rebate applications and support customer inquiries. These forecasts took into account some efficiency gains due to the streamlined processing of online applications through the introduction of the new Demand-side Management Tracking System (DSMS) tracking system;
- Communications expenditures were based on expenditures directly related to the individual program, while Conservation Education and Outreach activities will drive general awareness and overall program uptake;
- Evaluation expenditures were developed as outlined in Appendix G to the Application;
- Labour expenditures were based on the full compensation costs for the full time regular positions required to support program management, continuous improvement, stakeholder engagement and reporting; and
- Each program area provides a non-program specific line item for general expenses that are not attributable to one specific program.

22.5 Please confirm, or explain otherwise, that FEI plans to apply for approval of additions to the EEC rate base deferral account in future applications for the year 2023 and onwards.

Response:

Confirmed.

22.6 Please confirm, or explain otherwise, that if the BCUC approved FEI's proposal to increase the annual additions to the rate base EEC deferral account to $30 million for 2019 to 2022, and if in any given year FEI spends less than $30 million on DSM expenditures, then FEI's ratepayers would be paying for expenditures that FEI did not incur.

Response:

Confirmed with the following clarification. Rates in the forecast year will have the earned return on $15 million (the mid-year balance of the $30 million proposed) embedded. If FEI spent less than the $30 million, then ratepayers will have paid the earned return on the mid-year balance of the difference between forecast expenditures ($30 million) and actual expenditures. However, this would only occur in the forecast year, as actual expenditures and forecast expenditures true-up year over year through FEI's annual Rate setting process. Although it is not possible to quantify the impact to rate payers until actual expenditures are known, for every dollar of DSM expenditures that do not occur and for which are forecast to occur there is approximately $0.033 embedded in FEI's revenue requirement ($1 / 2 x 6.51%).

FEI notes that this $30 million proposal is advanced on the basis of historical spending, the CPR, recent changes to the DSM Regulation which help expand DSM investment, and the potential for expanded DSM program participation and activities gathered from FEI's DSM Plan consultation and is therefore an appropriate level.

22.6.1 If confirmed, please discuss and quantify the rate payer impact of FEI spending less than the approved additions to the EEC rate base deferral account.

Response:

Please refer to the response to BCUC IR 1.22.6.

22.7 Please reproduce the financial schedules in Appendix I "Amortization Period Analysis FEI" under the scenario that the approved annual gross additions to the EEC rate base deferral account is $15 million for 2019 and onwards. Please identify any assumptions used.

Response:

Refer to Attachment 22.7 for the requested amortization period analysis. As requested, FEI changed the amount included in rate base in the forecast year to $15 million from $30 million. As in the original analysis, the expenditures in the non-rate base deferral attract AFUDC until they are transferred to rate base in the following year.

22.8 Please reproduce the financial schedules in Appendix I "Amortization Period Analysis FEI" under the following scenarios. Please identify any assumptions used.

Response:

Please refer to the responses to BCUC IRs 1.22.8.1 through 1.22.8.4 below.

22.8.1 FEI is approved to add annual gross additions to the EEC rate base deferral account of $30 million for 2019 and onwards, and FEI's actual DSM expenditures each year is $29 million.

Response:

Refer to Attachment 22.8.1 for the requested amortization analysis. Compare to the original analysis, FEI has renamed Line 17 to 'Opening Balance True Up'. Line 17 is now the true-up to actual spending that would be recognized the following year assuming that actual spending, as requested for this scenario, was less than the amount that was embedded in rates in the previous year.

22.8.2 FEI is approved to add annual gross additions to the EEC rate base deferral account of $15 million for 2019 and onwards, and FEI's actual DSM expenditures each year is $29 million.

Response:

Refer to Attachment 22.8.2 for the requested amortization analysis. Compared to the original analysis, there are no assumption changes in the requested analysis except for the spending profile.

22.8.3 FEI is approved to add annual gross additions to the EEC rate base deferral account of $30 million for 2019 and onwards, and FEI's actual DSM expenditures each year is $31 million.

Response:

Refer to Attachment 22.8.3 for the requested amortization analysis. Compared to the original analysis, there are no assumption changes in the requested analysis except for the spending profile.

22.8.4 FEI is approved to add annual gross additions to the EEC rate base deferral account of $15 million for 2019 and onwards, and FEI's actual DSM expenditures each year is $31 million.

Response:

Refer to Attachment 22.8.4 for the requested amortization analysis. Compared to the original analysis, there are no assumption changes in the requested analysis except for the spending profile.

23.0 Reference: ADDITIONAL APPROVALS SOUGHT

Exhibit B-1, Section 9.3, pp. 36-37, Appendix J;

FEI Multi-Year PBR Plan for 2014 through 2018 Proceeding;

Exhibit B-24, BCUC IR 2.377.3,

FEI Final Submission regarding Non-PBR Issues, p. 136

Amortization Period

On page 37 FEI states:

> FEI has also provided the analysis for an amortization period (see Appendix I) that is in line with the average weighted measure life of all the measures in the DSM Plan, which is more appropriate from a cost/benefit matching perspective. FEI has determined average weighted measure life to be 16 years (see Appendix J for how this was calculated), meaning that customers benefit from FEI's DSM measures for an average time period of 16 years.

In Appendix J, it shows the average weighted measure life to be 16 years calculated based on expenditures.

In the FEI Multi-Year PBR Plan for 2014 through 2018 Proceeding, FEI stated in response to BCUC IR 2.377.3, that two different approaches were taken to calculate the average EEC measure life values. One approach was weighted by spending while the other was weighted by savings. These approaches resulted in an average measure life of 13.0 years and 13.2 years, respectively.

23.1 Please discuss why only the average measure life weighted by expenditures was calculated in the current application.

Response:

FEI calculated the average measure life weighted by expenditures only because weighting by expenditures is believed to be more accurate as discussed below.

The pros and cons of each approach are as follows. When the average energy efficiency measure life is calculated, it can be weighted by expenditures or by savings. Each weighting method attempts to reflect the time period over which benefits are accrued by the customer (bill savings) and utility (avoided costs) through the adoption of the suite of energy efficiency measures in the DSM Plan. Weighting by expenditures risks over representing the lifetime of the least cost-effective measures (i.e., those with relatively high expenditures per unit of gas saved). Similarly, the reverse is true when weighting by gas savings; the lifetime of the most cost-effective measures is over represented (i.e., those with relatively high gas savings per dollar). In general, weighting by expenditures tends to be more accurate since there is more certainty with

1 regards to the expenditures for an energy efficiency measure than there is for the lifetime gas
2 savings that the measure produces. For this reason, the weighted average energy efficiency
3 measure lifetime was calculated by weighting the expenditures of individual measures.

4 The following table displays the average measure life weighted by energy savings. Weighting
5 following this methodology results in an overall average weighted measure life of 15.1 years.

Program Area and Program	Gross Savings (GJ)	Measure Lifetime (yrs)	Weighted Life by Savings (yrs)
Residential			
Home Renovation Rebate Program	17,262,505	17.1	
New Home Program	5,170,758	19.4	
Rental Apartment Efficiency Program	947,400	10.0	
SUB-TOTAL	**23,380,662**	N/A	**17.3**
Commercial			
Prescriptive Program	18,522,310	17.3	
Performance Program - Existing Buildings	4,288,025	5.7	
Performance Program - New Buildings	5,272,468	19.2	
Rental Apartment Efficiency Program	1,636,720	8.7	
SUB-TOTAL	**29,719,523**	N/A	**15.5**
Industrial			
Performance Program	4,581,014	10.0	
Prescriptive Program	5,543,034	12.7	
Strategic Energy Management Program	2,360,000	5.0	
SUB-TOTAL	**12,484,049**	N/A	**10.2**
Low Income			
Direct Install Program	517,440	12.0	
Self Install Program	1,404,000	10.0	
Prescriptive Program	1,908,796	17.5	
SUB-TOTAL	**3,830,236**	**N/A**	**14.0**
ALL PROGRAMS WITH DIRECT SAVINGS	**69,414,470**	**N/A**	**15.1**
Non-Program Specific Expenses (Residential)	N/A		
Non-Program Specific Expenses (Commercial)	N/A		
Non-Program Specific Expenses (Industrial)	N/A		
Support Program (Low Income)	N/A		
Non-Program Specific Expenses (Low Income)	N/A		
Innovative Technologies	N/A		
Conservation Education and Outreach	N/A		
Enabling Activities	N/A		
Portfolio Level Activities	N/A		

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23.1.1 Please discuss if FEI plans to only base the average measure life by expenditures (and not by savings) in future applications.

Response:

Please refer to the response to BCUC IR 1.23.1.

23.1.2 Please discuss the pros and cons of each approach to calculating the average EEC measure life values (i.e. weighted by expenditures versus weighted by savings).

Response:

Please refer to the response to BCUC IR 1.23.1.

23.2 Please provide the average measure life weighted by savings.

Response:

Please refer to the response to BCUC IR 1.23.1.

23.3 Please discuss the primary reasons for the difference in average weighted measure life calculated in the current application and in the preceding IR compared to the FEI Multi-Year PBR Plan for 2014 through 2018 Proceeding (i.e. 16 years versus 13.0 years and 13.2 years).

Response:

The primary driver behind the increase of the weighted average measure lifetime for the 2019-2022 DSM Plan as compared with the FEI Multi-Year PBR Plan for 2014 through 2018 Proceeding (2014-2018 DSM Plan) is a modification to the calculation approach to improve the accuracy of the weighted average measure lifetime. The change was recommended and then implemented by ICF, the energy efficiency consulting firm that assisted FEI with development of both the 2014-2018 and 2019-2022 DSM Plans. While reflecting back on how the weighted average measure lifetime was developed for the 2014-2018 DSM Plan, ICF took the learning from that experience and recommended an adjustment for the 2019-2022 DSM Plan.

For the 2014-2018 DSM Plan, the weighted average measure lifetime for an individual program was based on the participation for all measures included in that program, regardless of whether or not all of the measures produced direct energy savings. The modified approach excludes measures without direct energy savings from the calculation of the weighted average measure lifetime. Examples of such measures include the "Bonus Offers" (i.e. an incentive top-up for qualified participants) included in the Home Renovation Rebate program and "Feasibility Studies" included in the Industrial Performance program. These measures provide incentives to participants but they do not result in any direct gas savings. As such, they cannot be rationally assigned a specific measure lifetime. Leaving measures with no direct savings in the calculation of the weighted average measure lifetime artificially pulls down the result of this calculation. As such, the updated approach resulted in a more accurate calculation of the weighted average measure lifetime in the 2019-2022 DSM Plan.

This approach of only including measures with direct forecast savings for the 2019-2022 DSM Plan is partially consistent with the approach that was taken for the 2014-2018 DSM Plan. When this calculation was done for the 2014-2018 Plan, programs without forecast savings (e.g. Appliance Service Program and Energy Specialist Program) were removed from the weighting calculation, but individual measures without direct energy savings still carried weight if they were part of a program that also included measures with direct energy savings.

Changes in measures from the 2014-2018 DSM Plan to the 2019-2022 DSM Plan also impacted the average measure life results but only very minimally and was therefore not a primary driver in this instance.

23.4 Considering that the average weighted measure life calculated in the current application is different than that calculated in the FEI Multi-Year PBR Plan for 2014 through 2018 Proceeding (i.e. 16 years versus 13.0 years and 13.2 years),

please discuss the likelihood of the calculation of a different average weighted measure life in future DSM expenditure plans.

Response:

It is likely that the weighted measure life may change from DSM Plan to DSM Plan since new measures may have different lifespans than those in the current portfolio. It is also possible that FEI could have another methodology adjustment for calculating the weighted average measure life should new information and/or recommendations come to light.

23.4.1 If likely, please discuss if FEI would propose a different amortization period for the rate base EEC deferral account in future applications to align with the average weighted measure life calculated at that time.

Response:

Yes, FEI's intention for future applications would be to align with the average weighted measure life calculated at that time unless new information emerges that indicates a different approach would be more appropriate.

On page 136 of FEI's final submission regarding non-PBR issues in the FEI Multi-Year PBR Plan for 2014 through 2018 Proceeding, FEI states:

> FEI believes the currently approved amortization period of 10 years is acceptable for the EEC deferral account, but would be amenable to a longer amortization period for the reasons provided.

23.5 Please discuss if FEI still holds the position that the currently approved amortization period of 10 years is acceptable for the rate base EEC deferral account. Please explain why or why not.

Response:

The above reference is an excerpt from a summary of analysis comparing the rate impacts of expensing EEC expenditures and amortizing expenditures over 5, 10 and 15 years that was included in FEI's 2014-2018 DSM Expenditure Plan submission. It is later noted in the

referenced submission that average EEC measure life, a consideration for the amortization period, was approximately 13 years for the 2014-2018 DSM Plan and "the FEU submit that evidence shows that the continuation of the 10-year amortization would be appropriate, as would a 15-year amortization period"[11].

With the current Application, FEI has updated the calculation of the measure life (now 16 years), and continues to believe that an amortization period that is aligned with the average weighted measure life is appropriate from a cost/benefit matching perspective. The average weighted measure life for the 2019-2022 DSM Plan is 16 years, meaning that customers benefit from the DSM Plan measures for an average 16 year period. FEI believes it is appropriate to amortize the costs over the same period. If the Commission does not accept an amortization period in line with the average weighted measure life, the currently approved 10-year amortization period would be acceptable.

23.5.1 If not, please discuss what circumstances have changed since the FEI Multi-Year PBR Plan for 2014 through 2018 Proceeding, for FEI to currently have a different position on the amortization period for the rate base EEC deferral account.

Response:

Please refer to the response to BCUC IR 1.23.5.

23.6 Assuming a $1 million addition to the rate base EEC deferral account in 2019, please calculate the annual revenue requirement of that addition under an amortization period of 5 years, 8 years, 10 years and 16 years until the year it is fully amortized. Please provide supporting calculations and assumptions.

Response:

FEI has included the requested analysis and financial schedules in Attachment 23.6. For the analysis FEI eliminated all previous additions and amortization from the EEC deferral account

[11] FEI 2014-2018 Multi-Year PBR Plan proceeding, FEI Final Submission Regarding Non-PBR Issues, p 135-137.

so that the revenue requirement effect of the $1 million addition is clear and comparable across amortization scenarios. The annual revenue requirement over the amortization life is shown on line 50 of the analysis and the incremental delivery rate impact is show on line 54. Due to the small impact on delivery rates, FEI increased the number of decimal places to three on line 54.

Line 56 calculates the present value of the revenue requirement associated with the $1 million addition in 2019 over the various amortization periods. The annual revenue requirement was discounted using FEI's after tax WACC (which is equal to the AFUDC rate) setting 2019 as discount year 1. Line 57 sums line 56 to show the total discounted revenue requirement of the $1 million over the four amortization scenarios.

The analysis demonstrates that longer amortization periods have a slightly higher present value cost to ratepayers as the unamortized incentives attract carrying costs (earned return) for a longer period. However, the present value of the revenue requirement should not be the only factor when considering amortization periods. As discussed in Section 9.3 of the Application, it is important to match the costs and benefits of the incentives. Also, annual rate impacts must also be taken into consideration when determining an amortization period as customers ultimately experience the annual impact and not the sum of the present value of the revenue requirement.

23.7 Please discuss if extending the amortization period of the rate base EEC deferral account would result in overall increased costs to ratepayers over the life of each addition.

Response:

Please refer to the response to BCUC IR 1.23.6.

23.8 Is FEI aware of other utilities in North America that capture DSM expenditures in rate base deferral accounts and amortize them over a period greater than 15 years? If so, please provide the details, such as the utility's name, amortization period, and information on the amounts that are deferred, capitalized or expensed, if any.

Response:

An industry review conducted by E Source (an energy industry analytics consultancy) as well as internal research found that few utilities publicly share amortization periods for DSM portfolios. Of those utilities found that share amortization periods and rate base their DSM expenditures, one utility (Seattle City Light) has a 20-year amortization period and two utilities (PSE&G), and (BC Hydro) have a 15-year amortization period. Further details are provided in the table below.

Utility	Jurisdiction	Ratebase type	Amortizaton Period
PSE&G	New Jersey	Ratebased	15-year amortization period
Seattle City Light	Washington	Most DSM expenditures are ratebased with the exception of some administrative costs	20-year amortization period. Amortized costs include only program-specific expenditures that are related to installation of long-lived conservation measures. Expenditures not related to such programs are expensed as they occur.
BCHydro	British Columbia	Ratebased	15-year amortization period

Attachment 3.1

64.0 Reference: DEMAND SIDE RESOURCES

Exhibit B-2, BCUC IR 1.29.1; BCUC IR 1.29.2.1.1

Exhibit B-3, BCSEA IR 1.23.3.1

Peak Demand

In its response to BCUC IR 1.29.1, FEI states:

> FEI is conducting a pilot project on advanced meters for residential and commercial customers that could provide hourly or more frequent meter readings. As part of that pilot, FEI will be examining the ability of such meters to provide improved data for analyzing end use trends which might lead to a better understanding of the impacts of C&EM activities on peak demand.
>
> …
>
> FEI expects that this pilot will also provide insights into whether or not demand response programs (please also refer to the response to BCUC IR 1.29.1.1), other than industrial curtailment as noted above, would potentially be effective in reducing or shifting peak demand.

In its response to BCSEA IR 1.23.3.1, FEI states:

> FEI believes that many years will be required to establish the measurement solutions and develop the end-use method to a point where a reliable determination of the impacts of DSM on peak demand projections and capacity related infrastructure investments can be made.

64.1 Does FEI consider that improved understanding of the impacts of C&EM activities on peak demand is contingent on the success, or otherwise, of the pilot project on advanced meters?

Response:

FEI believes that having advanced meters in place will provide critical information needed to analyze peak demand trends based on better end-user consumption information. However, FEI would like to clarify that:

a) advanced metering will not provide all of the needed information for such peak demand analysis;

b) the current advanced metering pilot project is not designed to test this functionality specifically; and

c) there may be other ways to gather peak demand data that could be further explored and, if found appropriate, implemented.

These clarifications are further explained below.

a) Advanced metering, if implemented across a broad enough customer base to provide reliable data, should allow FEI to analyze customer usage trends associated with peak period events at a much more granular level than current infrastructure allows. However, FEI would still need some understanding of the energy equipment and consumption patterns beyond the customer meters in order to understand the impact of changing equipment technology on peak demand. This type of information might be gained through end use surveys of those customers for which AMI is deployed, through some sort of sub-metering program that would measure consumption at the end-use equipment, through sufficient pre and post measure installation monitoring of hourly load profiles, or some combination of these information sources.

b) The objectives of the current AMI pilot project are primarily focused on validating operational impacts and data collection performance as opposed to analyzing customer use trends. Thus, FEI's view of the success of the pilot study will be based on these objectives rather than on its usefulness in analyzing peak demand trends. However, the pilot is expected to confirm that more granular consumption data can be captured and provides the opportunity to assess how useful the information can be (for example, how the hourly data compares to the peak hour estimates generated from monthly consumption data).

c) An example of another method to gain a more accurate understanding of customer demand during peak period events could be to install metering and data collection equipment at the end-use equipment on an adequate sampling of customer premises. Although FEI has done a preliminary survey of potential technologies, it has not conducted a full assessment of the practicality and costs of this type of study.

64.1.1 If successful, does FEI plan to undertake further pilots or scaled up projects? Please summarize potential timelines for implementing further projects.

Response:

Please refer to the response to BCUC IR 2.64.1 regarding the measuring of success of the AMI pilot study. At this time a decision has not been made with regard to additional studies or an application for implementation of a full AMI project. FEI estimates that if a full AMI project is pursued, the earliest the utility would be able to begin acquiring consumption data useful in the analysis of peak demand trends would be five years from the decision to proceed. If additional studies or limited project scale-ups are pursued, this timing would be extended.

64.1.1.1 What other activities, besides advanced metering projects, does FEI anticipate could be required to achieve a better understanding of the impacts of C&EM activities on peak demand, and the potential for demand response programs? Please summarize which activities could be feasible ahead of FEI's next LTGRP.

Response:

Additional activities that could help in better understanding the impacts of C&EM activities on peak demand include:

- Refining hourly load profiles of natural gas end-use equipment where possible within FEI and to the extent possible with available metered data from jurisdictions where advanced metering or end-use measurement is available;
- Improving understanding of new commercial and near commercial gas end-use equipment technologies to inform future annual and peak demand forecasts;
- Explore marketplace options for cost effective technology for measuring appliance level demand trends;
- Improving understanding of the impact of potential electrification programs being planned or proposed by BC Hydro if such information can be obtained;
- Analyzing the results of UPC_{peak} determined in future base years against the estimates projected from the end-use peak demand forecast method;
- Developing and Implementing customer surveys focused on understanding expected peak demand behavior or responses;

- Improving understanding and methods to examine, by customer segments, peak demand response to C&EM programs; and

- Improving understanding of programs that are most effective at targeting peak demand reductions.

FEI cannot confirm at this time if the information needed to complete all or any of these activities will be sufficiently available in time to fully inform the next LTGRP. FEI does believe that continued examination of the end-use peak demand forecast method is an important activity.

64.1.2 Is FEI aware of similar advanced metering programs undertaken in other jurisdictions? If yes, please briefly summarize and highlight any potentially useful findings for FEI.

Response:

Yes, FEI is aware of Advanced Metering Infrastructure (AMI) projects or programs in other jurisdictions.

Enbridge Gas Distribution and Union Gas in Ontario are exploring an advanced metering pilot project and SaskEnergy began mass deployment of AMI in late 2013 after prior system testing. Currently, most of that deployment is complete. PG&E in California completed a 6 year deployment of AMI technology for its approximately 4.5 million gas customers in 2012.

In addition to these, an industry review conducted by E Source (an energy industry analytics consultancy) identified another 10 utilities in the US that have deployed or are currently in the process of deploying smart meters for gas customers. Two of these utilities, SoCalGas in California and DTE Energy in Michigan, have documented some evaluation of their gas AMI programs. These organizations are finding:

- AMI is necessary for the detailed evaluation of DSM and DR programs; and

- Smart meter campaigns are effective at producing energy savings in the heating season through conservation programs; but

- Direct impacts on peak demand reduction due to some DR pilot programs conducted by SoCalGas have not yet produced statistically significant results.

PG&E's experience shared with FEI through presentations and industry papers has highlighted several useful findings. FEI has found that organizations widely deploying AMI such as PG&E are able to effectively provide aggregated accurate daily profiles for very specific groups of customers such as specific commercial sectors, specific premise types and that results based on hourly metering provided, in many cases, results that were quite different from those generated from monthly consumption data; in some cases higher. The findings confirm that better system knowledge can be obtained with such a program and applied effectively to capacity planning.

In its response to BCUC IR 1.29.2.1.1, FEI states:

> FEI is currently conducting a Smart Learning Thermostat (SLT) pilot through the C&EM Innovative Technologies program area. If the results from the pilot are positive, FEI anticipates offering Smart Learning Thermostats as an incented measure in the future. FEI cannot say at this time if a SLT program can have an impact on peak demand as there is some indication from work done for Enbridge Gas Distribution in Ontario that, although SLTs might reduce annual demand, they could result in an increase in peak demand.

64.2 Please briefly explain why SLTs may lead to an increase in peak demand.

Response:

According to the study report filed with the Ontario Energy Board[9], building modeling suggests that adaptive thermostats contribute to increased demand during winter peak hour periods. These periods of increased demand occur when heating systems are recovering from temperature setback. The results of the modelling conducted for Enbridge show that in both the residential and commercial applications, it can be seen that adaptive thermostats lead to increased demand during other non-setback hours during the winter peak day since it can take several hours to heat up a building's entire thermal mass. The results of that analysis suggest that where adaptive thermostats are deployed on a broad basis, their impacts on a natural gas distribution system would need to be closely monitored.

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[9] The study completed by ICF Consultants for Enbridge Gas is included as Appendix D to the following document on file with the Ontario Energy Board – http://www.rds.oeb.ca/HPECMWebDrawer/Record?q=CaseNumber=EB-2017-0128&sortBy=recRegisteredOn-&pageSize=400, filename: EGDI_SUB_EB-2017-0128_20180115.

64.3 Does FEI consider that "positive" results from the SLT pilot would constitute a reduction in peak demand, or reduction in annual demand but with an increase in peak demand?

Response:

FEI considers a "positive" result to be an overall reduction in annual energy consumption that meets BC DSM Regulation requirements and customer acceptance scores that indicate satisfaction with the technology, irrespective of an increase or reduction in peak demand. FEI would also view a reduction in peak demand as a positive result, although as discussed in the response to BCUC IR 2.64.2 a contribution to peak demand reduction might not be achievable through an SLT program. FEI will be assessing the energy savings through conducting a billing analysis and customer acceptance rates through surveys.

Attachment 10.1

FEI DSM Program Area	Customer Group (current and potential)	Barrier	Strategy
Residential	Existing homes - In particular, Senior citizens and rural customers are a hard to reach market.	Customers may not be aware of FEI's energy efficiency programs and behaviour change initiatives	Communications strategy with FortisBC channels - web, bill inserts, e-news and paid and earned media
			A residential segmentation framework will be developed in 2019, with the intent to invest more in targeted media buys, improved customer engagement, and increased C&EM program awareness and participation by identifying potential barriers (not yet identified) and motivators for current and future customers
			Collaborating with partners, including continued support of provincial government
			The Residential Customer Engagement Tool will provide a marketing platform and engage customers through home energy reports
		Certain demographics may not adapt to online information and application process	Ensure paper applications or phone support continue to be made available
		Customers find it difficult to find qualified contractors	Expansion of TAN network and developing Program Registered contractor directories for HVAC equipment, insulators and energy advisors; Continue to educate customers re: what to look for in a contractor/quality install
	New home	Builders are resistant to change when focused on lowest cost alternatives	Share information about benefits of high performance homes
			Rebates levels designed to motivate builders to build to higher steps
			Continue to work with municipalities to fund regional step code training
		In 2015 FEI's New home Program evolved to use NRCan's ENERGY STAR for New Home program standard. Although ENERGY STAR has high brand recognition, stringent performance and prescriptive requirements resulted in small numbers of participants.	The revised New Home Program supports provincial policy by aligning with the performance-based BC Energy Step Code. Decoupling the program from a certification program and aligning with a simplified, performance-based approach of the Step Code, the program aspires to educate, engage and incent builders to transform energy-efficiency in the new home sector.
Commercial & Industrial (C&I)	Across the sector	Navigating through FEI DSM Programs	Offer Energy Specialist resources for commercial customers. Offer Strategic Energy Management support for industrial customers where applicable. Support through FEI Account Manager and Energy Solutions Manager (ESMs).
		Customers do not have resources to pursue FEI DSM Program offers	
	Small and medium size businesses (C&I)	Customers lack basic understanding of energy efficiency and FEI rebate programs	Increased prescriptive program offers, upstream incentives and increased TAN network
			Continue to provide behaviour change funding for Energy Specialists to run internal campaigns to support energy efficiency training and employee initiatives
			Small businesses are a target audience within the Commercial Education Program and are reached individually through our small business engagement initiatives
			Yearly partnership continues with Business Improvement Association BC engaging with small businesses through a yearly, province-wide Turn Down your Heat week campaign
		Customers may not be eligible for Performance Programs (customized offers)	Increased prescriptive program offers and upstream incentives
	Industrial customers	Significant competition for investment capital for energy efficiency projects	Calibrate incentives for industrial measures to cover a larger percentage of incremental cost
		Economic uncertainty associated energy intensive, trade-exposed industries	Utilize key account and marketing messaging to emphasize the cost savings associated with energy efficiency projects to energy intensive, trade-exposed industries
Low Income	Social housing providers serving low income residents	Participants lack expertise (identify, plan and execute project) to evaluate options and proposals, plan upgrades and ongoing management of the energy efficiency retrofit process	The Nonprofit Custom Studies and Implementation measure in the Support Program offers funding for professional engineers to assist social housing providers with energy studies and implementation support.
		Funding limitations to hiring of professional engineers (consequences: poor quality of project assessment, poor business case for upgrade, upgrade may not address issues and result into savings).	
	Low income residents	A very diverse customer group with wide ranging barriers.	Conducting a segmentation analysis of low income population to (1) better understand the journey the low income population takes when it comes to learning about and deciding whether to participate in energy efficiency programs, (2) identify regional differences that may exist, and (3) improve communication and marketing to the different segments of the low income population.
		Lack of awareness of FEI DSM Programs in general or lack of understanding of the offer for low income participants	Expansion of marketing tactics beyond the traditional forms of distribution of program information (e.g. direct mail, radio ads) to include targeted communications through community organizations (e.g. fostering relationships with social housing providers, government assistance programs, MLA offices and community social service agencies, dedicated outreach resources for one-to-
			Continued stakeholder engagement to assess which barriers remain, what motivations to cater to, etc.
		Limited ability to pay for high efficiency equipment or other major energy upgrades	Direct install programs provide income-qualified customers with free energy savings equipment and installation
		Self-perception of not being low income and therefore not being eligible for programs	the target group is not referred to as low income in program marketing and communications. Instead "income-qualified" is used.

Attachment 18.5

Year(s)	Pilot Name	Description	Status	Recommendation
2012-2014	City of Courtenay Solar Pool Demonstration Pilot	The objectives of the pilot were to gather real data on the performance and energy savings for outdoor recreational pool heating using solar thermal unglazed collectors.	Complete	Based on the M&V results, the monitored site demonstrated an average natural gas savings of 308 GJ, or 48% annually. Based on the pilot results, solar thermal pool heating systems are now treated as an eligible measure in the DSM Plan under the Performance Program, Existing Buildings within the Commercial Program Area.
2012-2014	City of Vancouver Residential Solar Water Heating Pilot	The objectives of the pilot were to gather real data and validate the energy systems claims associated with the installation of 30 Solar Hot Water systems in Vancouver.	Complete	Outcomes of the pilot showed that a solar hot water system was not cost effective due to the currently low natural gas rate, the relatively high capital costs of a residential solar hot water system, and a relatively small natural gas baseline for Domestic Hot Water in residential setting. The output measure assumptions resulted in not passing the cost effectiveness calculation and was not included as an eligible measure within the Residential Program Area.
2012-2015	ENERGY STAR © 0.67 Storage Tank Water Heater Pilot	The objectives of the pilot were to determine the efficiency and savings of 0.67 EF and 0.70 EF water heaters by assessing their performance under various household profiles as well as understanding installation concerns such as electrical wiring, space considerations and venting.	Complete	Based on the M&V results, the 0.67 EF Energy Star water heater resulted an average of 6 GJ or 15% of energy savings in residential use across the 9 M&V participants. This technology is now an eligible measure in the DSM Plan under the Home Renovation Rebate Program within the Residential Program Area.
2013-2014	Ice Rink Resurfacing Efficiency Pilot	The objectives of the pilot were to validate energy savings claims, assess customer acceptance rates, and identify technical issues associated with the installation and operation of vortex mechanical de-aerator technology for ice re-surfacing in British Columbia ice arenas.	Complete	Based on the M&V results, the vortex mechanical de-aerator technology for ice resurfacing resulted in natural gas savings of 330 GJ/year across the 10 M&V participants. This technology is now an eligible measure in the DSM Plan under the Prescriptive Program within the Commercial Program Area.
2013-2014	Residential High-Efficiency Water Heater Pilot	The objectives of the pilot were to obtain installation, performance and customer acceptance information regarding residential domestic hot water technologies with an Efficiency Factor (EF) of 0.80 or better.	Complete	Based on the M&V results, the .80 EF water heaters resulted in an average of 37.1% energy savings in domestic water heating consumption across the 52 M&V participants. This technology is now an eligible measure in the DSM Plan under the Home Renovation Rebate Program within the Residential Program Area.
2014-2015	Condensing Make-up Air Unit Pilot (CMUA)	The objectives of the program were to validate energy savings claims, assess customer acceptance rates, and identify technical issues associated with the installation and operation of condensing gas-fired ventilation units in British Columbia commercial buildings.	Complete	Based on the M&V results, the CMUA's indicated natural gas savings of 28% relative to pre-existing make up air units and 17% relative to new 80% efficient make up air units across the 8 M&V buildings. This technologyis an eligible measure in the DSM Plan under the Prescriptive Program within the Commercial Program Area.
2014	Ozone Commercial Laundry	The objectives of the pilot were to validate energy savings, assess customer acceptance rates, and identify potential barriers and risks associated with ozone Commercial laundry technologies in British Columbia care facilities and hotels.	Cancelled	The Ozone Commercial Laundry pilot was placed on hold after it was identified that some of those technologies may not be compliant with the Toxic Process Gases regulation and as such was not transitioned as a measure within the Commercial Program Area.
2014-2016	Apartment Fireplace Efficiency Retrofit Pilot (AFER)	The objectives of the pilot were to verify energy savings from replacing older decorative style "B" vented fireplaces with Direct Vent EnerChoice level heating style fireplaces in Multi Unit Residential Buildings (MURB'S).	Complete	Based on the M&V results, the vertical direct vent fireplaces resulted in an average savings of 43% across the 27 M&V participants. This technology is now an eligible measure in the DSM Plan under the Home Renovation Rebate Program within the Residential Program Area.
2014-2017	Combination Space and Water Heating System Pilot (CURP)	The objectives of the pilot were to identify field-validated energy performance of each combination system type, technical issues, field-validated incremental costs, customer acceptance and the effective marketing channels for promoting a combination system retrofit rebate.	Complete	Based on the M&V results, Combination Units showed the following savings across the 97 M&V participants: Type 1 Systems 22%-24% savings (25.7 GJ/yr. to 37.9 GJ/yr.), Type 2 Systems 21% and 22% savings (24.8 GJ/yr. to 32.3 GJ/yr.) and Type 3 Systems 13% and 17% savings (14.8 GJ/yr. to 26.7 GJ/yr.) This technology is now an eligible measure in the DSM Plan under the Home Renovation Rebate Program within the Residential Program Area.
2016-2017	Heat Reflector Pilot (HRP)	The objectives of the pilot were to assess energy savings, costing and customer acceptance data related to the installation of a Reflector Panel behind a perimeter heating system in 19 rental MURBs.	Complete	Based on the M&V results, the Reflector Panel resulted in an average savings of 52 GJ across the 19 M&V participants. The output measure assumptions resulted in not passing the cost effectiveness calculation and was not included as an eligible measure within the Commercial Program Area.
2016-2019	Smart Learning Thermostat Pilot (SLT)	The objectives of this pilot is to gauge the customer acceptance and energy savings associated with smart learning thermostats (SLT) for both the natural gas and electric residential customers where the results will inform future Demand Side Management (DSM) and Demand Response (DR) program offerings. Results are expected Q3 2019.	Active	N/A

Year(s)	Pilot Name	Description	Status	Recommendation
2017-2019	New Construction Combination System Retrofit Pilot (NCCURP)	The objectives of this pilot is to assess the technical characteristics, market opportunity and projected energy savings of combination systems in the new construction market focusing on two new townhome developments within FortisBC territories. Results expected Q4 2019.	Active	N/A
2017-2019	Carbon Capture Technology Pilot	The objectives of this pilot is to test and demonstrate energy efficiency and GHG reduction for 10 carbon capture and conversion technology installations in the Lower Mainland and Vancouver Island. The pilot will test if the CleanO2 Carbon Capture Technology can meet the energy conservation and greenhouse gas (GHG) reduction objectives of commercial and small business clients. Results expected Q2 2019.	Active	N/A
2018-2019	On-Demand Recirculation Controls Pilot (RCP)	The objectives of this pilot is to assess energy savings, customer acceptance and installation of the on-demand recirculation control technology in central domestic hot water recirculation systems for MURBs residing within the Lower Mainland of BC. Results expected Q1 2019.	Active	N/A

Attachment 22.7

FEI DSM deferral impacts - Current Treatment: Amortizing DSM Expenditures over 10 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	66,350	72,585	88,822	96,811	107,110	102,990	86,512	84,452	80,333	78,273	76,213	80,333	70,033	61,794	59,734	59,734	59,734	59,734	59,734	59,734
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	115,792	147,629	180,210	220,497	261,270	304,011	337,437	352,554	361,716	363,618	360,354	352,691	347,379	333,757	315,361	298,048	284,289	273,778	265,275
17	Adjustments	Transfer from non-rate base	12,822	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(14,847)	(17,650)	(21,586)	(26,065)	(31,575)	(37,336)	(43,560)	(49,502)	(53,910)	(58,079)	(61,700)	(64,553)	(65,293)	(65,874)	(64,464)	(61,836)	(58,281)	(55,034)	(53,025)	(51,170)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	115,792	147,629	180,210	220,497	261,270	304,011	337,437	352,554	361,716	363,618	360,354	352,691	347,379	333,757	315,361	298,048	284,289	273,778	265,275	258,628
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	117,740	150,979	185,528	228,055	271,583	317,204	353,742	371,830	383,196	387,183	385,729	379,492	374,551	361,219	342,118	323,491	307,955	295,820	286,313	278,738
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(38,537)	(43,217)	(55,402)	(61,398)	(69,127)	(66,036)	(53,669)	(52,123)	(49,031)	(47,485)	(45,939)	(49,031)	(41,302)	(35,118)	(33,573)	(33,573)	(33,573)	(33,573)	(33,573)
29	Gross Additions	line 12 > Line 13	25,260	51,350	57,585	73,822	81,811	92,110	87,990	71,512	69,452	65,333	63,273	61,213	65,333	55,033	46,794	44,734	44,734	44,734	44,734	44,734	44,734
30	Tax	Line 9 x Line 29	(6,820)	(13,865)	(15,548)	(19,932)	(22,089)	(24,870)	(23,757)	(19,308)	(18,752)	(17,640)	(17,084)	(16,527)	(17,640)	(14,859)	(12,634)	(12,078)	(12,078)	(12,078)	(12,078)	(12,078)	(12,078)
31	Net Additions	Sum of Lines 29 and 30	18,440	37,486	42,037	53,890	59,722	67,240	64,233	52,204	50,700	47,693	46,189	44,685	47,693	40,174	34,160	32,656	32,656	32,656	32,656	32,656	32,656
32	AFUDC	Line 31 / 2 x Line 8	517	1,052	1,180	1,512	1,676	1,887	1,803	1,465	1,423	1,338	1,296	1,254	1,338	1,127	959	916	916	916	916	916	916
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573	33,573
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	3,966	5,086	6,250	7,683	9,149	10,686	11,917	12,526	12,909	13,043	12,994	12,784	12,618	12,169	11,525	10,898	10,374	9,965	9,645	9,390
37	Add: Amortization	- Line 21	11,599	14,847	17,650	21,586	26,065	31,575	37,336	43,560	49,502	53,910	58,079	61,700	64,553	65,293	65,874	64,464	61,836	58,281	55,034	53,025	51,170
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	18,813	22,736	27,836	33,748	40,724	48,022	55,476	62,028	66,819	71,122	74,694	77,337	77,910	78,043	75,989	72,734	68,655	65,000	62,670	60,560
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	25,771	31,145	38,132	46,230	55,787	65,784	75,995	84,970	91,533	97,427	102,321	105,941	106,727	106,908	104,095	99,635	94,048	89,041	85,849	82,959
43																							
44	Tax Expense	Line 40 x Line 42	5,549	6,958	8,409	10,296	12,482	15,062	17,762	20,519	22,942	24,714	26,305	27,627	28,604	28,816	28,865	28,106	26,902	25,393	24,041	23,179	22,399
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	14,847	17,650	21,586	26,065	31,575	37,336	43,560	49,502	53,910	58,079	61,700	64,553	65,293	65,874	64,464	61,836	58,281	55,034	53,025	51,170
48	Tax Expense	Line 44	5,549	6,958	8,409	10,296	12,482	15,062	17,762	20,519	22,942	24,714	26,305	27,627	28,604	28,816	28,865	28,106	26,902	25,393	24,041	23,179	22,399
49	Earned Return	Line 24 x Line 7	6,510	7,585	9,727	11,953	14,692	17,497	20,436	22,790	23,955	24,687	24,944	24,851	24,449	24,130	23,271	22,041	20,841	19,840	19,058	18,446	17,958
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	29,390	35,786	43,834	53,240	64,135	75,534	86,868	96,399	103,312	109,328	114,177	117,605	118,239	118,011	114,611	109,579	103,514	98,134	94,650	91,526
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		5,731	12,127	20,176	29,581	40,476	51,875	63,210	72,740	79,653	85,670	90,518	93,947	94,581	94,352	90,952	85,920	79,855	74,475	70,991	67,868
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		0.68%	0.73%	0.89%	1.01%	1.14%	1.14%	1.09%	0.86%	0.56%	0.44%	0.31%	0.16%	-0.12%	-0.20%	-0.48%	-0.61%	-0.68%	-0.59%	-0.42%	-0.37%

FEI DSM deferral impacts - Scenario 1: Amortizing DSM Expenditures over 8 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	66,350	72,585	88,822	96,811	107,110	102,990	86,512	84,452	80,333	78,273	76,213	80,333	70,033	61,794	59,734	59,734	59,734	59,734	59,734	59,734
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	112,127	140,058	167,946	202,842	238,009	274,524	300,796	308,243	309,573	303,665	294,900	284,056	277,486	264,733	249,274	236,134	225,506	217,197	210,821
17	Adjustments	Transfer from non-rate base	12,822	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(18,511)	(21,556)	(26,279)	(31,456)	(37,181)	(43,562)	(50,714)	(57,172)	(61,743)	(65,889)	(67,200)	(67,734)	(66,551)	(65,005)	(61,527)	(57,662)	(55,150)	(52,832)	(50,899)	(49,160)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	112,127	140,058	167,946	202,842	238,009	274,524	300,796	308,243	309,573	303,665	294,900	284,056	277,486	264,733	249,274	236,134	225,506	217,197	210,821	206,183
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	115,908	145,361	175,610	213,095	251,124	290,830	320,678	331,354	334,969	331,135	323,025	312,448	305,286	291,760	274,562	259,490	247,607	238,138	230,795	225,288
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(38,537)	(43,217)	(55,402)	(61,398)	(69,127)	(66,036)	(53,669)	(52,123)	(49,031)	(47,485)	(45,939)	(49,031)	(41,302)	(35,118)	(33,573)	(33,573)	(33,573)	(33,573)	(33,573)
29	Gross Additions	line 12 > Line 13	25,260	51,350	57,585	73,822	81,811	92,110	87,990	71,512	69,452	65,333	63,273	61,213	65,333	55,033	46,794	44,734	44,734	44,734	44,734	44,734	44,734
30	Tax	Line 9 x Line 29	(6,820)	(13,865)	(15,548)	(19,932)	(22,089)	(24,870)	(23,757)	(19,308)	(18,752)	(17,640)	(17,084)	(16,527)	(17,640)	(14,859)	(12,634)	(12,078)	(12,078)	(12,078)	(12,078)	(12,078)	(12,078)
31	Net Additions	Sum of Lines 29 and 30	18,440	37,486	42,037	53,890	59,722	67,240	64,233	52,204	50,700	47,693	46,189	44,685	47,693	40,174	34,160	32,656	32,656	32,656	32,656	32,656	32,656
32	AFUDC	Line 31 / 2 x Line 8	517	1,052	1,180	1,512	1,676	1,887	1,803	1,465	1,423	1,338	1,296	1,254	1,338	1,127	959	916	916	916	916	916	916
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573	33,573
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	3,905	4,897	5,916	7,179	8,460	9,797	10,803	11,162	11,284	11,155	10,882	10,526	10,284	9,829	9,249	8,742	8,341	8,022	7,775	7,589
37	Add: Amortization	- Line 21	11,599	18,511	21,556	26,279	31,456	37,181	43,562	50,714	57,172	61,743	65,889	67,200	67,734	66,551	65,005	61,527	57,662	55,150	52,832	50,899	49,160
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	22,416	26,453	32,195	38,635	45,640	53,359	61,517	68,334	73,027	77,044	78,082	78,259	76,835	74,834	70,776	66,404	63,492	60,854	58,674	56,750
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	30,707	36,237	44,103	52,925	62,521	73,095	84,270	93,609	100,037	105,539	106,962	107,205	105,254	102,512	96,954	90,964	86,975	83,361	80,376	77,739
43																							
44	Tax Expense	Line 40 x Line 42	5,549	8,291	9,784	11,908	14,290	16,881	19,736	22,753	25,274	27,010	28,496	28,880	28,945	28,419	27,678	26,178	24,560	23,483	22,508	21,701	20,990
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	18,511	21,556	26,279	31,456	37,181	43,562	50,714	57,172	61,743	65,889	67,200	67,734	66,551	65,005	61,527	57,662	55,150	52,832	50,899	49,160
48	Tax Expense	Line 44	5,549	8,291	9,784	11,908	14,290	16,881	19,736	22,753	25,274	27,010	28,496	28,880	28,945	28,419	27,678	26,178	24,560	23,483	22,508	21,701	20,990
49	Earned Return	Line 24 x Line 7	6,510	7,467	9,365	11,314	13,729	16,179	18,737	20,660	21,347	21,580	21,333	20,811	20,129	19,668	18,797	17,689	16,718	15,952	15,342	14,869	14,514
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	34,269	40,705	49,501	59,475	70,240	82,034	94,127	103,794	110,333	115,718	116,891	116,809	114,638	111,480	105,393	98,940	94,586	90,681	87,470	84,664
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		10,611	17,046	25,842	35,816	46,581	58,375	70,468	80,135	86,675	92,059	93,232	93,150	90,979	87,821	81,735	75,282	70,927	67,023	63,811	61,005
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		1.27%	0.73%	0.97%	1.06%	1.11%	1.17%	1.16%	0.86%	0.50%	0.36%	-0.07%	-0.19%	-0.38%	-0.46%	-0.71%	-0.72%	-0.51%	-0.45%	-0.38%	-0.33%

FEI DSM deferral impacts - Scenario 2: Amortizing DSM Expenditures over 5 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	66,350	72,585	88,822	96,811	107,110	102,990	86,512	84,452	80,333	78,273	76,213	80,333	70,033	61,794	59,734	59,734	59,734	59,734	59,734	59,734
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	101,133	118,283	134,877	159,622	185,094	210,719	223,218	217,850	208,847	197,408	186,896	179,166	178,548	171,128	159,689	149,486	142,066	137,119	135,264
17	Adjustments	Transfer from non-rate base	12,822	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(29,506)	(32,337)	(37,573)	(41,607)	(46,876)	(54,452)	(64,486)	(69,986)	(72,076)	(71,420)	(68,947)	(64,619)	(60,599)	(59,672)	(57,508)	(54,725)	(51,943)	(49,469)	(46,378)	(44,832)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	101,133	118,283	134,877	159,622	185,094	210,719	223,218	217,850	208,847	197,408	186,896	179,166	178,548	171,128	159,689	149,486	142,066	137,119	135,264	134,955
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	110,410	128,977	148,188	174,950	203,057	232,470	249,986	247,368	239,410	227,643	215,894	206,001	203,373	195,489	182,968	171,374	162,562	156,379	152,978	151,896
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(38,537)	(43,217)	(55,402)	(61,398)	(69,127)	(66,036)	(53,669)	(52,123)	(49,031)	(47,485)	(45,939)	(49,031)	(41,302)	(35,118)	(33,573)	(33,573)	(33,573)	(33,573)	(33,573)
29	Gross Additions	line 12 > Line 13	25,260	51,350	57,585	73,822	81,811	92,110	87,990	71,512	69,452	65,333	63,273	61,213	65,333	55,033	46,794	44,734	44,734	44,734	44,734	44,734	44,734
30	Tax	Line 9 x Line 29	(6,820)	(13,865)	(15,548)	(19,932)	(22,089)	(24,870)	(23,757)	(19,308)	(18,752)	(17,640)	(17,084)	(16,527)	(17,640)	(14,859)	(12,634)	(12,078)	(12,078)	(12,078)	(12,078)	(12,078)	(12,078)
31	Net Additions	Sum of Lines 29 and 30	18,440	37,486	42,037	53,890	59,722	67,240	64,233	52,204	50,700	47,693	46,189	44,685	47,693	40,174	34,160	32,656	32,656	32,656	32,656	32,656	32,656
32	AFUDC	Line 31 / 2 x Line 8	517	1,052	1,180	1,512	1,676	1,887	1,803	1,465	1,423	1,338	1,296	1,254	1,338	1,127	959	916	916	916	916	916	916
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573	33,573
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	3,719	4,345	4,992	5,894	6,840	7,831	8,421	8,333	8,065	7,669	7,273	6,940	6,851	6,586	6,164	5,773	5,476	5,268	5,153	5,117
37	Add: Amortization	- Line 21	11,599	29,506	32,337	37,573	41,607	46,876	54,452	64,486	69,986	72,076	71,420	68,947	64,619	60,599	59,672	57,508	54,725	51,943	49,469	46,378	44,832
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	33,225	36,682	42,565	47,501	53,717	62,284	72,908	78,319	80,142	79,089	76,220	71,558	67,451	66,258	63,671	60,498	57,419	54,737	51,531	49,949
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	45,514	50,249	58,308	65,070	73,584	85,320	99,874	107,287	109,783	108,341	104,411	98,025	92,398	90,764	87,221	82,874	78,656	74,983	70,590	68,423
43																							
44	Tax Expense	Line 40 x Line 42	5,549	12,289	13,567	15,743	17,569	19,868	23,036	26,966	28,967	29,641	29,252	28,191	26,467	24,947	24,506	23,550	22,376	21,237	20,245	19,059	18,474
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	29,506	32,337	37,573	41,607	46,876	54,452	64,486	69,986	72,076	71,420	68,947	64,619	60,599	59,672	57,508	54,725	51,943	49,469	46,378	44,832
48	Tax Expense	Line 44	5,549	12,289	13,567	15,743	17,569	19,868	23,036	26,966	28,967	29,641	29,252	28,191	26,467	24,947	24,506	23,550	22,376	21,237	20,245	19,059	18,474
49	Earned Return	Line 24 x Line 7	6,510	7,113	8,309	9,547	11,271	13,082	14,977	16,105	15,937	15,424	14,666	13,909	13,272	13,102	12,594	11,788	11,041	10,473	10,075	9,856	9,786
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	48,907	54,214	62,863	70,448	79,826	92,466	107,558	114,890	117,142	115,339	111,047	104,357	98,649	96,773	92,845	88,142	83,653	79,789	75,293	73,092
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		25,249	30,555	39,205	46,789	56,167	68,807	83,899	91,231	93,483	91,680	87,388	80,698	74,991	73,114	69,187	64,483	59,994	56,131	51,634	49,433
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		3.01%	0.56%	0.92%	0.76%	0.93%	1.24%	1.45%	0.59%	0.04%	-0.37%	-0.60%	-0.81%	-0.69%	-0.31%	-0.49%	-0.54%	-0.50%	-0.43%	-0.47%	-0.26%

FEI DSM deferral impacts - Scenario 3: Amortizing DSM Expenditures over 16 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	66,350	72,585	88,822	96,811	107,110	102,990	86,512	84,452	80,333	78,273	76,213	80,333	70,033	61,794	59,734	59,734	59,734	59,734	59,734	59,734
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	121,359	159,745	199,788	249,137	300,578	355,696	403,139	433,685	459,568	478,863	493,532	503,882	514,243	514,154	505,417	492,790	478,866	464,028	449,501
17	Adjustments	Transfer from non-rate base	12,822	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(9,279)	(11,101)	(14,124)	(17,003)	(20,907)	(24,960)	(29,542)	(34,073)	(37,190)	(40,686)	(43,766)	(46,540)	(49,619)	(52,342)	(54,805)	(57,150)	(58,447)	(59,360)	(59,050)	(58,447)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	121,359	159,745	199,788	249,137	300,578	355,696	403,139	433,685	459,568	478,863	493,532	503,882	514,243	514,154	505,417	492,790	478,866	464,028	449,501	435,577
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	120,524	159,821	201,375	252,164	305,557	362,701	412,436	445,247	472,688	493,731	509,940	521,677	533,578	534,849	527,345	515,890	502,614	488,233	473,551	459,325
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(38,537)	(43,217)	(55,402)	(61,398)	(69,127)	(66,036)	(53,669)	(52,123)	(49,031)	(47,485)	(45,939)	(49,031)	(41,302)	(35,118)	(33,573)	(33,573)	(33,573)	(33,573)	(33,573)
29	Gross Additions	line 12 > Line 13	25,260	51,350	57,585	73,822	81,811	92,110	87,990	71,512	69,452	65,333	63,273	61,213	65,333	55,033	46,794	44,734	44,734	44,734	44,734	44,734	44,734
30	Tax	Line 9 x Line 29	(6,820)	(13,865)	(15,548)	(19,932)	(22,089)	(24,870)	(23,757)	(19,308)	(18,752)	(17,640)	(17,084)	(16,527)	(17,640)	(14,859)	(12,634)	(12,078)	(12,078)	(12,078)	(12,078)	(12,078)	(12,078)
31	Net Additions	Sum of Lines 29 and 30	18,440	37,486	42,037	53,890	59,722	67,240	64,233	52,204	50,700	47,693	46,189	44,685	47,693	40,174	34,160	32,656	32,656	32,656	32,656	32,656	32,656
32	AFUDC	Line 31 / 2 x Line 8	517	1,052	1,180	1,512	1,676	1,887	1,803	1,465	1,423	1,338	1,296	1,254	1,338	1,127	959	916	916	916	916	916	916
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	38,537	43,217	55,402	61,398	69,127	66,036	53,669	52,123	49,031	47,485	45,939	49,031	41,302	35,118	33,573	33,573	33,573	33,573	33,573	33,573
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	4,060	5,384	6,784	8,495	10,293	12,218	13,894	14,999	15,924	16,633	17,179	17,574	17,975	18,018	17,765	17,379	16,932	16,447	15,953	15,474
37	Add: Amortization	- Line 21	11,599	9,279	11,101	14,124	17,003	20,907	24,960	29,542	34,073	37,190	40,686	43,766	46,540	49,619	52,342	54,805	57,150	58,447	59,360	59,050	58,447
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	13,339	16,485	20,908	25,498	31,200	37,178	43,436	49,072	53,114	57,319	60,945	64,114	67,594	70,359	72,570	74,529	75,378	75,807	75,003	73,921
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	18,273	22,583	28,641	34,929	42,740	50,929	59,502	67,222	72,759	78,519	83,486	87,827	92,595	96,383	99,411	102,094	103,258	103,846	102,743	101,261
43																							
44	Tax Expense	Line 40 x Line 42	5,549	4,934	6,097	7,733	9,431	11,540	13,751	16,066	18,150	19,645	21,200	22,541	23,713	25,001	26,023	26,841	27,565	27,880	28,038	27,741	27,340
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	9,279	11,101	14,124	17,003	20,907	24,960	29,542	34,073	37,190	40,686	43,766	46,540	49,619	52,342	54,805	57,150	58,447	59,360	59,050	58,447
48	Tax Expense	Line 44	5,549	4,934	6,097	7,733	9,431	11,540	13,751	16,066	18,150	19,645	21,200	22,541	23,713	25,001	26,023	26,841	27,565	27,880	28,038	27,741	27,340
49	Earned Return	Line 24 x Line 7	6,510	7,765	10,296	12,974	16,246	19,685	23,367	26,571	28,685	30,453	31,809	32,853	33,609	34,376	34,458	33,974	33,236	32,381	31,454	30,508	29,592
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	21,978	27,495	34,831	42,680	52,132	62,077	72,179	80,908	87,288	93,695	99,160	103,862	108,996	112,822	115,620	117,951	118,707	118,853	117,299	115,379
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		(1,681)	3,837	11,172	19,021	28,473	38,419	48,520	57,249	63,629	70,036	75,501	80,204	85,337	89,164	91,962	94,293	95,049	95,194	93,640	91,721
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		-0.20%	0.65%	0.83%	0.86%	1.00%	1.01%	0.99%	0.81%	0.53%	0.51%	0.40%	0.31%	0.33%	0.20%	0.09%	0.04%	-0.10%	-0.15%	-0.29%	-0.31%

Attachment 22.8.1

FEI DSM deferral impacts - Current Treatment: Amortizing DSM Expenditures over 10 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000
13	DSM Embedded in Rates in Expenditure Year		30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	111,681	125,339	127,525	128,634	128,590	127,581	125,956	124,025	121,761	119,459	117,207	116,337	116,337	116,337	116,337	116,337	116,337	116,337	116,337	116,337
17	Adjustments	Opening Balance True Up	12,822	7,700	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)
18	Gross Additions	Line 12, Limited by Line 13	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
19	Tax	Line 9 x Line 18	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)
20	Net Additions	Sum of Lines 18 and 19	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900
21	Amortization		(11,599)	(15,942)	(18,714)	(19,792)	(20,944)	(21,909)	(22,525)	(22,831)	(23,164)	(23,201)	(23,152)	(21,770)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	111,681	125,339	127,525	128,634	128,590	127,581	125,956	124,025	121,761	119,459	117,207	116,337	116,337	116,337	116,337	116,337	116,337	116,337	116,337	116,337	116,337
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	106,531	122,360	125,932	127,580	128,112	127,585	126,268	124,490	122,393	120,110	117,833	116,272	115,837	115,837	115,837	115,837	115,837	115,837	115,837	115,837	115,837
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	7,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Adjustments	Transfer to rate base	(12,822)	(7,700)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Gross Additions	line 12 > Line 13	10,260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Tax	Line 9 x Line 29	(2,770)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Net Additions	Sum of Lines 29 and 30	7,490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	AFUDC	Line 31 / 2 x Line 8	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	7,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,589	4,122	4,242	4,298	4,316	4,298	4,254	4,194	4,123	4,046	3,970	3,917	3,902	3,902	3,902	3,902	3,902	3,902	3,902	3,902	3,902
37	Add: Amortization	- Line 21	11,599	15,942	18,714	19,792	20,944	21,909	22,525	22,831	23,164	23,201	23,152	21,770	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,188	20,064	22,956	24,089	25,260	26,207	26,779	27,025	27,287	27,247	27,122	25,687	24,802	24,802	24,802	24,802	24,802	24,802	24,802	24,802	24,802
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,805	27,484	31,447	32,999	34,602	35,900	36,683	37,020	37,380	37,325	37,153	35,188	33,976	33,976	33,976	33,976	33,976	33,976	33,976	33,976	33,976
43																							
44	Tax Expense	Line 40 x Line 42	5,617	7,421	8,491	8,910	9,343	9,693	9,904	9,995	10,093	10,078	10,031	9,501	9,173	9,173	9,173	9,173	9,173	9,173	9,173	9,173	9,173
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	15,942	18,714	19,792	20,944	21,909	22,525	22,831	23,164	23,201	23,152	21,770	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900
48	Tax Expense	Line 44	5,617	7,421	8,491	8,910	9,343	9,693	9,904	9,995	10,093	10,078	10,031	9,501	9,173	9,173	9,173	9,173	9,173	9,173	9,173	9,173	9,173
49	Earned Return	Line 24 x Line 7	6,863	7,883	8,113	8,219	8,254	8,220	8,135	8,020	7,885	7,738	7,591	7,491	7,463	7,463	7,463	7,463	7,463	7,463	7,463	7,463	7,463
50	Total Revenue Requirement	Sum of Lines 47 through 49	24,080	31,245	35,318	36,921	38,540	39,822	40,564	40,846	41,142	41,017	40,775	38,761	37,536	37,536	37,536	37,536	37,536	37,536	37,536	37,536	37,536
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		7,166	11,238	12,841	14,461	15,742	16,485	16,767	17,062	16,937	16,695	14,682	13,457	13,457	13,457	13,457	13,457	13,457	13,457	13,457	13,457
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		0.85%	0.46%	0.16%	0.15%	0.11%	0.05%	-0.01%	0.00%	-0.05%	-0.06%	-0.23%	-0.15%	-0.03%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%

FEI DSM deferral impacts - Scenario 1: Amortizing DSM Expenditures over 8 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000
13	DSM Embedded in Rates in Expenditure Year		30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	111,681	121,401	119,415	116,278	112,123	107,925	103,778	99,875	96,525	95,437	95,437	95,437	95,437	95,437	95,437	95,437	95,437	95,437	95,437	95,437
17	Adjustments	Opening Balance True Up	12,822	7,700	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)
18	Gross Additions	Line 12, Limited by Line 13	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
19	Tax	Line 9 x Line 18	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)
20	Net Additions	Sum of Lines 18 and 19	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900
21	Amortization		(11,599)	(19,880)	(22,886)	(24,036)	(25,055)	(25,098)	(25,048)	(24,803)	(24,250)	(21,987)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	111,681	121,401	119,415	116,278	112,123	107,925	103,778	99,875	96,525	95,437	95,437	95,437	95,437	95,437	95,437	95,437	95,437	95,437	95,437	95,437	95,437
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	106,531	120,391	119,908	117,346	113,701	109,524	105,352	101,326	97,700	95,481	94,937	94,937	94,937	94,937	94,937	94,937	94,937	94,937	94,937	94,937	94,937
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	7,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Adjustments	Transfer to rate base	(12,822)	(7,700)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Gross Additions	line 12 > Line 13	10,260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Tax	Line 9 x Line 29	(2,770)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Net Additions	Sum of Lines 29 and 30	7,490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	AFUDC	Line 31 / 2 x Line 8	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	7,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,589	4,056	4,039	3,953	3,830	3,690	3,549	3,413	3,291	3,217	3,198	3,198	3,198	3,198	3,198	3,198	3,198	3,198	3,198	3,198	3,198
37	Add: Amortization	- Line 21	11,599	19,880	22,886	24,036	25,055	25,098	25,048	24,803	24,250	21,987	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,188	23,936	26,926	27,989	28,885	28,787	28,597	28,216	27,541	25,204	24,098	24,098	24,098	24,098	24,098	24,098	24,098	24,098	24,098	24,098	24,098
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,805	32,789	36,885	38,342	39,569	39,435	39,174	38,653	37,728	34,526	33,011	33,011	33,011	33,011	33,011	33,011	33,011	33,011	33,011	33,011	33,011
43																							
44	Tax Expense	Line 40 x Line 42	5,617	8,853	9,959	10,352	10,684	10,647	10,577	10,436	10,186	9,322	8,913	8,913	8,913	8,913	8,913	8,913	8,913	8,913	8,913	8,913	8,913
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	19,880	22,886	24,036	25,055	25,098	25,048	24,803	24,250	21,987	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900
48	Tax Expense	Line 44	5,617	8,853	9,959	10,352	10,684	10,647	10,577	10,436	10,186	9,322	8,913	8,913	8,913	8,913	8,913	8,913	8,913	8,913	8,913	8,913	8,913
49	Earned Return	Line 24 x Line 7	6,863	7,756	7,725	7,560	7,325	7,056	6,787	6,528	6,294	6,151	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116
50	Total Revenue Requirement	Sum of Lines 47 through 49	24,080	36,489	40,570	41,949	43,064	42,801	42,412	41,767	40,731	37,461	35,929	35,929	35,929	35,929	35,929	35,929	35,929	35,929	35,929	35,929	35,929
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		12,410	16,491	17,869	18,984	18,722	18,332	17,688	16,651	13,381	11,850	11,850	11,850	11,850	11,850	11,850	11,850	11,850	11,850	11,850	11,850
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		1.48%	0.45%	0.12%	0.09%	-0.07%	-0.08%	-0.11%	-0.14%	-0.37%	-0.18%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%

FEI DSM deferral impacts - Scenario 2: Amortizing DSM Expenditures over 5 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000
13	DSM Embedded in Rates in Expenditure Year		30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	111,681	109,585	96,020	82,936	72,471	65,827	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087
17	Adjustments	Opening Balance True Up	12,822	7,700	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)
18	Gross Additions	Line 12, Limited by Line 13	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
19	Tax	Line 9 x Line 18	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)
20	Net Additions	Sum of Lines 18 and 19	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900
21	Amortization		(11,599)	(31,696)	(34,466)	(33,984)	(31,365)	(27,543)	(22,640)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)	(20,900)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	111,681	109,585	96,020	82,936	72,471	65,827	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087	64,087
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	106,531	114,483	102,303	88,978	77,203	68,649	64,457	63,587	63,587	63,587	63,587	63,587	63,587	63,587	63,587	63,587	63,587	63,587	63,587	63,587	63,587
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	7,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Adjustments	Transfer to rate base	(12,822)	(7,700)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Gross Additions	line 12 > Line 13	10,260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Tax	Line 9 x Line 29	(2,770)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Net Additions	Sum of Lines 29 and 30	7,490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	AFUDC	Line 31 / 2 x Line 8	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	7,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,589	3,857	3,446	2,997	2,601	2,313	2,171	2,142	2,142	2,142	2,142	2,142	2,142	2,142	2,142	2,142	2,142	2,142	2,142	2,142	2,142
37	Add: Amortization	- Line 21	11,599	31,696	34,466	33,984	31,365	27,543	22,640	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,188	35,552	37,912	36,982	33,966	29,856	24,811	23,042	23,042	23,042	23,042	23,042	23,042	23,042	23,042	23,042	23,042	23,042	23,042	23,042	23,042
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,805	48,702	51,934	50,660	46,529	40,898	33,988	31,565	31,565	31,565	31,565	31,565	31,565	31,565	31,565	31,565	31,565	31,565	31,565	31,565	31,565
43																							
44	Tax Expense	Line 40 x Line 42	5,617	13,149	14,022	13,678	12,563	11,043	9,177	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	31,696	34,466	33,984	31,365	27,543	22,640	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900
48	Tax Expense	Line 44	5,617	13,149	14,022	13,678	12,563	11,043	9,177	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522	8,522
49	Earned Return	Line 24 x Line 7	6,863	7,376	6,591	5,732	4,974	4,423	4,153	4,097	4,097	4,097	4,097	4,097	4,097	4,097	4,097	4,097	4,097	4,097	4,097	4,097	4,097
50	Total Revenue Requirement	Sum of Lines 47 through 49	24,080	52,221	55,079	53,395	48,902	43,009	35,969	33,519	33,519	33,519	33,519	33,519	33,519	33,519	33,519	33,519	33,519	33,519	33,519	33,519	33,519
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		28,141	30,999	29,315	24,822	18,929	11,890	9,439	9,439	9,439	9,439	9,439	9,439	9,439	9,439	9,439	9,439	9,439	9,439	9,439	9,439
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		3.36%	0.27%	-0.26%	-0.57%	-0.70%	-0.80%	-0.28%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%

FEI DSM deferral impacts - Scenario 3: Amortizing DSM Expenditures over 16 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000
13	DSM Embedded in Rates in Expenditure Year		30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	111,681	131,318	140,451	148,348	155,446	161,481	166,678	170,991	174,279	177,183	179,226	180,631	181,609	181,757	181,625	180,989	179,581	179,037	179,037	179,037
17	Adjustments	Opening Balance True Up	12,822	7,700	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)
18	Gross Additions	Line 12, Limited by Line 13	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
19	Tax	Line 9 x Line 18	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)
20	Net Additions	Sum of Lines 18 and 19	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900
21	Amortization		(11,599)	(9,963)	(11,767)	(13,003)	(13,803)	(14,865)	(15,703)	(16,587)	(17,612)	(17,997)	(18,857)	(19,494)	(19,922)	(20,752)	(21,032)	(21,536)	(22,308)	(21,444)	(20,900)	(20,900)	(20,900)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	111,681	131,318	140,451	148,348	155,446	161,481	166,678	170,991	174,279	177,183	179,226	180,631	181,609	181,757	181,625	180,989	179,581	179,037	179,037	179,037	179,037
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	106,531	125,349	135,384	143,900	151,397	157,963	163,580	168,335	172,135	175,231	177,704	179,428	180,620	181,183	181,191	180,807	179,785	178,809	178,537	178,537	178,537
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	7,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Adjustments	Transfer to rate base	(12,822)	(7,700)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Gross Additions	line 12 > Line 13	10,260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Tax	Line 9 x Line 29	(2,770)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Net Additions	Sum of Lines 29 and 30	7,490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	AFUDC	Line 31 / 2 x Line 8	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	7,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,589	4,223	4,561	4,848	5,100	5,321	5,511	5,671	5,799	5,903	5,986	6,044	6,085	6,104	6,104	6,091	6,057	6,024	6,014	6,014	6,014
37	Add: Amortization	- Line 21	11,599	9,963	11,767	13,003	13,803	14,865	15,703	16,587	17,612	17,997	18,857	19,494	19,922	20,752	21,032	21,536	22,308	21,444	20,900	20,900	20,900
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,188	14,186	16,327	17,850	18,903	20,186	21,213	22,258	23,411	23,900	24,843	25,539	26,007	26,856	27,136	27,627	28,364	27,467	26,914	26,914	26,914
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,805	19,433	22,366	24,452	25,894	27,653	29,059	30,490	32,069	32,740	34,032	34,985	35,626	36,789	37,172	37,845	38,855	37,627	36,869	36,869	36,869
43																							
44	Tax Expense	Line 40 x Line 42	5,617	5,247	6,039	6,602	6,991	7,466	7,846	8,232	8,659	8,840	9,189	9,446	9,619	9,933	10,037	10,218	10,491	10,159	9,955	9,955	9,955
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	9,963	11,767	13,003	13,803	14,865	15,703	16,587	17,612	17,997	18,857	19,494	19,922	20,752	21,032	21,536	22,308	21,444	20,900	20,900	20,900
48	Tax Expense	Line 44	5,617	5,247	6,039	6,602	6,991	7,466	7,846	8,232	8,659	8,840	9,189	9,446	9,619	9,933	10,037	10,218	10,491	10,159	9,955	9,955	9,955
49	Earned Return	Line 24 x Line 7	6,863	8,076	8,722	9,271	9,754	10,177	10,539	10,845	11,090	11,289	11,449	11,560	11,636	11,673	11,673	11,648	11,583	11,520	11,502	11,502	11,502
50	Total Revenue Requirement	Sum of Lines 47 through 49	24,080	23,286	26,528	28,875	30,548	32,508	34,087	35,664	37,360	38,126	39,494	40,500	41,178	42,358	42,742	43,403	44,381	43,123	42,357	42,357	42,357
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		(794)	2,448	4,796	6,468	8,428	10,007	11,585	13,281	14,046	15,415	16,420	17,098	18,278	18,662	19,323	20,301	19,043	18,277	18,277	18,277
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		-0.09%	0.38%	0.26%	0.18%	0.20%	0.15%	0.15%	0.15%	0.05%	0.11%	0.07%	0.03%	0.08%	0.00%	0.03%	0.05%	-0.14%	-0.10%	-0.03%	-0.03%

Attachment 22.8.2

FEI DSM deferral impacts - Current Treatment: Amortizing DSM Expenditures over 10 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	115,792	119,599	122,273	123,738	124,183	123,957	123,368	122,391	121,321	120,245	119,400	119,400	119,400	119,400	119,400	119,400	119,400	119,400	119,400
17	Adjustments	Transfer from non-rate base	12,822	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(14,847)	(17,650)	(18,783)	(19,991)	(21,012)	(21,683)	(22,045)	(22,434)	(22,527)	(22,533)	(22,302)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	115,792	119,599	122,273	123,738	124,183	123,957	123,368	122,391	121,321	120,245	119,400	119,400	119,400	119,400	119,400	119,400	119,400	119,400	119,400	119,400
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	117,740	122,949	126,189	128,259	129,214	129,323	128,916	128,133	127,110	126,036	125,076	124,653	124,653	124,653	124,653	124,653	124,653	124,653	124,653	124,653
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)
29	Gross Additions	line 12 > Line 13	25,260	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000
30	Tax	Line 9 x Line 29	(6,820)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)
31	Net Additions	Sum of Lines 29 and 30	18,440	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220
32	AFUDC	Line 31 / 2 x Line 8	517	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	3,966	4,142	4,251	4,321	4,353	4,357	4,343	4,316	4,282	4,246	4,213	4,199	4,199	4,199	4,199	4,199	4,199	4,199	4,199	4,199
37	Add: Amortization	- Line 21	11,599	14,847	17,650	18,783	19,991	21,012	21,683	22,045	22,434	22,527	22,533	22,302	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	18,813	21,792	23,034	24,312	25,365	26,040	26,388	26,751	26,809	26,779	26,515	25,656	25,656	25,656	25,656	25,656	25,656	25,656	25,656	25,656
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	25,771	29,852	31,553	33,304	34,746	35,671	36,148	36,645	36,724	36,684	36,322	35,145	35,145	35,145	35,145	35,145	35,145	35,145	35,145	35,145
43																							
44	Tax Expense	Line 40 x Line 42	5,549	6,958	8,060	8,519	8,992	9,381	9,631	9,760	9,894	9,916	9,905	9,807	9,489	9,489	9,489	9,489	9,489	9,489	9,489	9,489	9,489
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	14,847	17,650	18,783	19,991	21,012	21,683	22,045	22,434	22,527	22,533	22,302	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457
48	Tax Expense	Line 44	5,549	6,958	8,060	8,519	8,992	9,381	9,631	9,760	9,894	9,916	9,905	9,807	9,489	9,489	9,489	9,489	9,489	9,489	9,489	9,489	9,489
49	Earned Return	Line 24 x Line 7	6,510	7,585	7,921	8,130	8,263	8,325	8,332	8,305	8,255	8,189	8,120	8,058	8,031	8,031	8,031	8,031	8,031	8,031	8,031	8,031	8,031
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	29,390	33,631	35,432	37,246	38,718	39,646	40,110	40,583	40,631	40,558	40,167	38,977	38,977	38,977	38,977	38,977	38,977	38,977	38,977	38,977
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		5,731	9,972	11,773	13,588	15,059	15,988	16,452	16,925	16,972	16,899	16,508	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		0.68%	0.48%	0.18%	0.18%	0.13%	0.07%	0.02%	0.01%	-0.03%	-0.04%	-0.07%	-0.15%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%

FEI DSM deferral impacts - Scenario 1: Amortizing DSM Expenditures over 8 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	112,127	112,028	110,709	108,302	105,783	103,243	100,880	98,999	97,943	97,943	97,943	97,943	97,943	97,943	97,943	97,943	97,943	97,943	97,943
17	Adjustments	Transfer from non-rate base	12,822	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(18,511)	(21,556)	(22,776)	(23,864)	(23,976)	(23,996)	(23,821)	(23,337)	(22,513)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	112,127	112,028	110,709	108,302	105,783	103,243	100,880	98,999	97,943	97,943	97,943	97,943	97,943	97,943	97,943	97,943	97,943	97,943	97,943	97,943
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	115,908	117,331	116,622	114,759	112,296	109,766	107,315	105,193	103,724	103,196	103,196	103,196	103,196	103,196	103,196	103,196	103,196	103,196	103,196	103,196
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)
29	Gross Additions	line 12 > Line 13	25,260	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000
30	Tax	Line 9 x Line 29	(6,820)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)
31	Net Additions	Sum of Lines 29 and 30	18,440	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220
32	AFUDC	Line 31 / 2 x Line 8	517	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	3,905	3,953	3,929	3,866	3,783	3,698	3,615	3,544	3,494	3,476	3,476	3,476	3,476	3,476	3,476	3,476	3,476	3,476	3,476	3,476
37	Add: Amortization	- Line 21	11,599	18,511	21,556	22,776	23,864	23,976	23,996	23,821	23,337	22,513	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	22,416	25,509	26,704	27,730	27,759	27,694	27,436	26,881	26,007	24,933	24,933	24,933	24,933	24,933	24,933	24,933	24,933	24,933	24,933	24,933
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	30,707	34,943	36,581	37,986	38,026	37,936	37,583	36,823	35,626	34,155	34,155	34,155	34,155	34,155	34,155	34,155	34,155	34,155	34,155	34,155
43																							
44	Tax Expense	Line 40 x Line 42	5,549	8,291	9,435	9,877	10,256	10,267	10,243	10,147	9,942	9,619	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	18,511	21,556	22,776	23,864	23,976	23,996	23,821	23,337	22,513	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457
48	Tax Expense	Line 44	5,549	8,291	9,435	9,877	10,256	10,267	10,243	10,147	9,942	9,619	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222
49	Earned Return	Line 24 x Line 7	6,510	7,467	7,559	7,513	7,393	7,235	7,072	6,914	6,777	6,682	6,648	6,648	6,648	6,648	6,648	6,648	6,648	6,648	6,648	6,648	6,648
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	34,269	38,550	40,166	41,514	41,478	41,310	40,882	40,057	38,815	37,327	37,327	37,327	37,327	37,327	37,327	37,327	37,327	37,327	37,327	37,327
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		10,611	14,891	16,507	17,855	17,819	17,652	17,223	16,398	15,156	13,668	13,668	13,668	13,668	13,668	13,668	13,668	13,668	13,668	13,668	13,668
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		1.27%	0.48%	0.15%	0.11%	-0.04%	-0.06%	-0.08%	-0.12%	-0.16%	-0.18%	-0.03%	-0.03%	-0.03%	-0.03%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%

FEI DSM deferral impacts - Scenario 2: Amortizing DSM Expenditures over 5 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	101,133	90,252	79,742	71,740	67,448	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758
17	Adjustments	Transfer from non-rate base	12,822	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(29,506)	(32,337)	(31,967)	(29,459)	(25,749)	(23,147)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)	(21,457)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	101,133	90,252	79,742	71,740	67,448	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758	65,758
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	110,410	100,946	90,251	80,994	74,847	71,856	71,011	71,011	71,011	71,011	71,011	71,011	71,011	71,011	71,011	71,011	71,011	71,011	71,011	71,011
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)
29	Gross Additions	line 12 > Line 13	25,260	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000
30	Tax	Line 9 x Line 29	(6,820)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)
31	Net Additions	Sum of Lines 29 and 30	18,440	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220
32	AFUDC	Line 31 / 2 x Line 8	517	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	3,719	3,401	3,040	2,729	2,521	2,421	2,392	2,392	2,392	2,392	2,392	2,392	2,392	2,392	2,392	2,392	2,392	2,392	2,392	2,392
37	Add: Amortization	- Line 21	11,599	29,506	32,337	31,967	29,459	25,749	23,147	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	33,225	35,738	35,007	32,188	28,270	25,568	23,849	23,849	23,849	23,849	23,849	23,849	23,849	23,849	23,849	23,849	23,849	23,849	23,849	23,849
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	45,514	48,956	47,955	44,093	38,726	35,024	32,670	32,670	32,670	32,670	32,670	32,670	32,670	32,670	32,670	32,670	32,670	32,670	32,670	32,670
43																							
44	Tax Expense	Line 40 x Line 42	5,549	12,289	13,218	12,948	11,905	10,456	9,456	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	29,506	32,337	31,967	29,459	25,749	23,147	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457
48	Tax Expense	Line 44	5,549	12,289	13,218	12,948	11,905	10,456	9,456	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821	8,821
49	Earned Return	Line 24 x Line 7	6,510	7,113	6,503	5,814	5,218	4,822	4,629	4,575	4,575	4,575	4,575	4,575	4,575	4,575	4,575	4,575	4,575	4,575	4,575	4,575	4,575
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	48,907	52,059	50,729	46,582	41,027	37,233	34,853	34,853	34,853	34,853	34,853	34,853	34,853	34,853	34,853	34,853	34,853	34,853	34,853	34,853
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		25,249	28,400	27,071	22,924	17,368	13,574	11,194	11,194	11,194	11,194	11,194	11,194	11,194	11,194	11,194	11,194	11,194	11,194	11,194	11,194
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		3.01%	0.31%	-0.22%	-0.53%	-0.66%	-0.45%	-0.28%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%

FEI DSM deferral impacts - Scenario 3: Amortizing DSM Expenditures over 16 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	121,359	131,715	140,799	149,049	156,202	162,482	167,843	172,144	176,026	179,012	181,327	183,178	184,165	184,838	184,971	184,298	183,770	183,770	183,770
17	Adjustments	Transfer from non-rate base	12,822	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(9,279)	(11,101)	(12,372)	(13,207)	(14,304)	(15,177)	(16,096)	(17,156)	(17,575)	(18,470)	(19,142)	(19,605)	(20,470)	(20,784)	(21,323)	(22,130)	(21,985)	(21,457)	(21,457)	(21,457)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	121,359	131,715	140,799	149,049	156,202	162,482	167,843	172,144	176,026	179,012	181,327	183,178	184,165	184,838	184,971	184,298	183,770	183,770	183,770	183,770
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	120,524	131,790	141,510	150,178	157,879	164,595	170,416	175,247	179,338	182,772	185,423	187,506	188,925	189,755	190,158	189,888	189,288	189,023	189,023	189,023
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)	(10,507)
29	Gross Additions	line 12 > Line 13	25,260	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000
30	Tax	Line 9 x Line 29	(6,820)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)	(3,780)
31	Net Additions	Sum of Lines 29 and 30	18,440	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220
32	AFUDC	Line 31 / 2 x Line 8	517	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507	10,507
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	4,060	4,440	4,767	5,059	5,319	5,545	5,741	5,904	6,041	6,157	6,246	6,317	6,364	6,392	6,406	6,397	6,377	6,368	6,368	6,368
37	Add: Amortization	- Line 21	11,599	9,279	11,101	12,372	13,207	14,304	15,177	16,096	17,156	17,575	18,470	19,142	19,605	20,470	20,784	21,323	22,130	21,985	21,457	21,457	21,457
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	13,339	15,541	17,139	18,266	19,623	20,721	21,837	23,059	23,617	24,627	25,389	25,922	26,834	27,177	27,729	28,527	28,362	27,825	27,825	27,825
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	18,273	21,289	23,478	25,022	26,881	28,385	29,913	31,588	32,352	33,736	34,779	35,509	36,759	37,228	37,985	39,077	38,851	38,116	38,116	38,116
43																							
44	Tax Expense	Line 40 x Line 42	5,549	4,934	5,748	6,339	6,756	7,258	7,664	8,077	8,529	8,735	9,109	9,390	9,587	9,925	10,052	10,256	10,551	10,490	10,291	10,291	10,291
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	9,279	11,101	12,372	13,207	14,304	15,177	16,096	17,156	17,575	18,470	19,142	19,605	20,470	20,784	21,323	22,130	21,985	21,457	21,457	21,457
48	Tax Expense	Line 44	5,549	4,934	5,748	6,339	6,756	7,258	7,664	8,077	8,529	8,735	9,109	9,390	9,587	9,925	10,052	10,256	10,551	10,490	10,291	10,291	10,291
49	Earned Return	Line 24 x Line 7	6,510	7,765	8,491	9,117	9,675	10,171	10,604	10,979	11,290	11,554	11,775	11,946	12,080	12,171	12,225	12,251	12,234	12,195	12,178	12,178	12,178
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	21,978	25,340	27,828	29,638	31,733	33,445	35,151	36,975	37,864	39,354	40,478	41,273	42,566	43,061	43,830	44,914	44,670	43,926	43,926	43,926
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		(1,681)	1,681	4,169	5,979	8,075	9,786	11,493	13,316	14,206	15,696	16,820	17,614	18,908	19,402	20,172	21,255	21,011	20,267	20,267	20,267
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		-0.20%	0.40%	0.28%	0.19%	0.22%	0.17%	0.16%	0.17%	0.06%	0.12%	0.08%	0.04%	0.09%	0.01%	0.03%	0.06%	-0.06%	-0.10%	-0.03%	-0.03%

Attachment 22.8.3

FEI DSM deferral impacts - Current Treatment: Amortizing DSM Expenditures over 10 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000
13	DSM Embedded in Rates in Expenditure Year		15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	126,742	130,647	133,301	134,626	134,812	134,206	133,120	131,525	129,718	127,786	125,965	125,965	125,965	125,965	125,965	125,965	125,965	125,965	125,965
17	Adjustments	Transfer from non-rate base	12,822	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
18	Gross Additions	Line 12, Limited by Line 13	15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
19	Tax	Line 9 x Line 18	(4,050)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)
20	Net Additions	Sum of Lines 18 and 19	10,950	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900
21	Amortization		(11,599)	(14,847)	(18,745)	(19,997)	(21,325)	(22,465)	(23,256)	(23,737)	(24,245)	(24,457)	(24,583)	(24,471)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	126,742	130,647	133,301	134,626	134,812	134,206	133,120	131,525	129,718	127,786	125,965	125,965	125,965	125,965	125,965	125,965	125,965	125,965	125,965	125,965
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	123,215	129,070	132,349	134,339	135,094	134,884	134,038	132,698	130,997	129,127	127,251	126,340	126,340	126,340	126,340	126,340	126,340	126,340	126,340	126,340
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)
29	Gross Additions	line 12 > Line 13	25,260	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
30	Tax	Line 9 x Line 29	(6,820)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)
31	Net Additions	Sum of Lines 29 and 30	18,440	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730
32	AFUDC	Line 31 / 2 x Line 8	517	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	4,151	4,348	4,459	4,526	4,551	4,544	4,515	4,470	4,413	4,350	4,287	4,256	4,256	4,256	4,256	4,256	4,256	4,256	4,256	4,256
37	Add: Amortization	- Line 21	11,599	14,847	18,745	19,997	21,325	22,465	23,256	23,737	24,245	24,457	24,583	24,471	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	18,997	23,093	24,456	25,850	27,016	27,800	28,252	28,716	28,870	28,933	28,758	26,907	26,907	26,907	26,907	26,907	26,907	26,907	26,907	26,907
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	26,024	31,634	33,501	35,412	37,008	38,082	38,702	39,336	39,548	39,635	39,394	36,858	36,858	36,858	36,858	36,858	36,858	36,858	36,858	36,858
43																							
44	Tax Expense	Line 40 x Line 42	5,549	7,026	8,541	9,045	9,561	9,992	10,282	10,449	10,621	10,678	10,701	10,636	9,952	9,952	9,952	9,952	9,952	9,952	9,952	9,952	9,952
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	14,847	18,745	19,997	21,325	22,465	23,256	23,737	24,245	24,457	24,583	24,471	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650
48	Tax Expense	Line 44	5,549	7,026	8,541	9,045	9,561	9,992	10,282	10,449	10,621	10,678	10,701	10,636	9,952	9,952	9,952	9,952	9,952	9,952	9,952	9,952	9,952
49	Earned Return	Line 24 x Line 7	6,510	7,938	8,315	8,527	8,655	8,703	8,690	8,635	8,549	8,439	8,319	8,198	8,139	8,139	8,139	8,139	8,139	8,139	8,139	8,139	8,139
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	29,811	35,601	37,569	39,541	41,161	42,228	42,822	43,415	43,575	43,604	43,306	40,742	40,742	40,742	40,742	40,742	40,742	40,742	40,742	40,742
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		6,152	11,943	13,911	15,882	17,502	18,569	19,163	19,757	19,916	19,945	19,647	17,083	17,083	17,083	17,083	17,083	17,083	17,083	17,083	17,083
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		0.73%	0.66%	0.20%	0.19%	0.14%	0.08%	0.02%	0.02%	-0.02%	-0.04%	-0.07%	-0.28%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%

FEI DSM deferral impacts - Scenario 1: Amortizing DSM Expenditures over 8 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000
13	DSM Embedded in Rates in Expenditure Year		15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	123,077	122,803	121,160	118,279	115,137	111,826	108,541	105,590	103,314	103,314	103,314	103,314	103,314	103,314	103,314	103,314	103,314	103,314	103,314
17	Adjustments	Transfer from non-rate base	12,822	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
18	Gross Additions	Line 12, Limited by Line 13	15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
19	Tax	Line 9 x Line 18	(4,050)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)
20	Net Additions	Sum of Lines 18 and 19	10,950	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900
21	Amortization		(11,599)	(18,511)	(22,925)	(24,294)	(25,531)	(25,793)	(25,961)	(25,935)	(25,601)	(24,926)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	123,077	122,803	121,160	118,279	115,137	111,826	108,541	105,590	103,314	103,314	103,314	103,314	103,314	103,314	103,314	103,314	103,314	103,314	103,314	103,314
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	121,383	123,315	122,356	120,095	117,083	113,857	110,559	107,441	104,828	103,690	103,690	103,690	103,690	103,690	103,690	103,690	103,690	103,690	103,690	103,690
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)
29	Gross Additions	line 12 > Line 13	25,260	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
30	Tax	Line 9 x Line 29	(6,820)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)
31	Net Additions	Sum of Lines 29 and 30	18,440	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730
32	AFUDC	Line 31 / 2 x Line 8	517	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	4,089	4,154	4,122	4,046	3,944	3,836	3,724	3,619	3,531	3,493	3,493	3,493	3,493	3,493	3,493	3,493	3,493	3,493	3,493	3,493
37	Add: Amortization	- Line 21	11,599	18,511	22,925	24,294	25,531	25,793	25,961	25,935	25,601	24,926	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	22,600	27,079	28,415	29,577	29,737	29,797	29,660	29,221	28,458	26,144	26,144	26,144	26,144	26,144	26,144	26,144	26,144	26,144	26,144	26,144
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	30,959	37,094	38,925	40,516	40,735	40,818	40,630	40,028	38,983	35,813	35,813	35,813	35,813	35,813	35,813	35,813	35,813	35,813	35,813	35,813
43																							
44	Tax Expense	Line 40 x Line 42	5,549	8,359	10,015	10,510	10,939	10,999	11,021	10,970	10,808	10,525	9,670	9,670	9,670	9,670	9,670	9,670	9,670	9,670	9,670	9,670	9,670
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	18,511	22,925	24,294	25,531	25,793	25,961	25,935	25,601	24,926	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650
48	Tax Expense	Line 44	5,549	8,359	10,015	10,510	10,939	10,999	11,021	10,970	10,808	10,525	9,670	9,670	9,670	9,670	9,670	9,670	9,670	9,670	9,670	9,670	9,670
49	Earned Return	Line 24 x Line 7	6,510	7,820	7,945	7,883	7,737	7,543	7,335	7,123	6,922	6,754	6,680	6,680	6,680	6,680	6,680	6,680	6,680	6,680	6,680	6,680	6,680
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	34,690	40,885	42,686	44,208	44,334	44,317	44,028	43,331	42,205	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		11,032	17,226	19,027	20,549	20,676	20,659	20,370	19,672	18,547	15,342	15,342	15,342	15,342	15,342	15,342	15,342	15,342	15,342	15,342	15,342
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		1.32%	0.70%	0.17%	0.13%	-0.03%	-0.05%	-0.07%	-0.11%	-0.15%	-0.36%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%

FEI DSM deferral impacts - Scenario 2: Amortizing DSM Expenditures over 5 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000
13	DSM Embedded in Rates in Expenditure Year		15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	112,083	100,206	88,461	78,985	72,980	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339
17	Adjustments	Transfer from non-rate base	12,822	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
18	Gross Additions	Line 12, Limited by Line 13	15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
19	Tax	Line 9 x Line 18	(4,050)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)
20	Net Additions	Sum of Lines 18 and 19	10,950	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900
21	Amortization		(11,599)	(29,506)	(34,527)	(34,396)	(32,127)	(28,655)	(26,292)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)	(22,650)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	112,083	100,206	88,461	78,985	72,980	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339	69,339
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	115,885	106,520	94,709	84,098	76,358	71,535	69,714	69,714	69,714	69,714	69,714	69,714	69,714	69,714	69,714	69,714	69,714	69,714	69,714	69,714
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)
29	Gross Additions	line 12 > Line 13	25,260	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
30	Tax	Line 9 x Line 29	(6,820)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)
31	Net Additions	Sum of Lines 29 and 30	18,440	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730
32	AFUDC	Line 31 / 2 x Line 8	517	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	3,904	3,588	3,191	2,833	2,572	2,410	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348	2,348
37	Add: Amortization	- Line 21	11,599	29,506	34,527	34,396	32,127	28,655	26,292	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	33,409	38,115	37,586	34,960	31,227	28,702	24,999	24,999	24,999	24,999	24,999	24,999	24,999	24,999	24,999	24,999	24,999	24,999	24,999	24,999
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	45,766	52,213	51,488	47,890	42,777	39,317	34,245	34,245	34,245	34,245	34,245	34,245	34,245	34,245	34,245	34,245	34,245	34,245	34,245	34,245
43																							
44	Tax Expense	Line 40 x Line 42	5,549	12,357	14,097	13,902	12,930	11,550	10,616	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	29,506	34,527	34,396	32,127	28,655	26,292	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650	22,650
48	Tax Expense	Line 44	5,549	12,357	14,097	13,902	12,930	11,550	10,616	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246	9,246
49	Earned Return	Line 24 x Line 7	6,510	7,466	6,863	6,102	5,418	4,919	4,609	4,491	4,491	4,491	4,491	4,491	4,491	4,491	4,491	4,491	4,491	4,491	4,491	4,491	4,491
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	49,328	55,487	54,399	50,475	45,124	41,516	36,388	36,388	36,388	36,388	36,388	36,388	36,388	36,388	36,388	36,388	36,388	36,388	36,388	36,388
	Cumulative Revenue Requirement Change																						
51	vs. 2018 Approved	Line 50 - Line 50 Year 2018		25,670	31,828	30,740	26,817	21,466	17,857	12,729	12,729	12,729	12,729	12,729	12,729	12,729	12,729	12,729	12,729	12,729	12,729	12,729	12,729
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		3.06%	0.66%	-0.20%	-0.51%	-0.65%	-0.44%	-0.58%	-0.03%	-0.03%	-0.03%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%

FEI DSM deferral impacts - Scenario 3: Amortizing DSM Expenditures over 16 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000
13	DSM Embedded in Rates in Expenditure Year		15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	132,309	143,174	152,693	161,303	168,741	175,232	180,730	185,093	188,961	191,860	194,012	195,627	196,303	196,589	196,262	195,054	193,916	193,916	193,916
17	Adjustments	Transfer from non-rate base	12,822	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
18	Gross Additions	Line 12, Limited by Line 13	15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
19	Tax	Line 9 x Line 18	(4,050)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)	(8,100)
20	Net Additions	Sum of Lines 18 and 19	10,950	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900
21	Amortization		(11,599)	(9,279)	(11,786)	(13,131)	(14,041)	(15,212)	(16,159)	(17,153)	(18,288)	(18,782)	(19,752)	(20,498)	(21,036)	(21,975)	(22,364)	(22,978)	(23,859)	(23,788)	(22,650)	(22,650)	(22,650)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	132,309	143,174	152,693	161,303	168,741	175,232	180,730	185,093	188,961	191,860	194,012	195,627	196,303	196,589	196,262	195,054	193,916	193,916	193,916	193,916
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	125,999	138,117	148,309	157,373	165,397	172,362	178,356	183,286	187,402	190,786	193,312	195,195	196,340	196,821	196,801	196,034	194,861	194,292	194,292	194,292
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)	(750)
29	Gross Additions	line 12 > Line 13	25,260	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
30	Tax	Line 9 x Line 29	(6,820)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)	(270)
31	Net Additions	Sum of Lines 29 and 30	18,440	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730
32	AFUDC	Line 31 / 2 x Line 8	517	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	4,245	4,653	4,996	5,302	5,572	5,806	6,008	6,174	6,313	6,427	6,512	6,576	6,614	6,630	6,630	6,604	6,564	6,545	6,545	6,545
37	Add: Amortization	- Line 21	11,599	9,279	11,786	13,131	14,041	15,212	16,159	17,153	18,288	18,782	19,752	20,498	21,036	21,975	22,364	22,978	23,859	23,788	22,650	22,650	22,650
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	13,524	16,439	18,127	19,342	20,784	21,966	23,162	24,462	25,095	26,179	27,010	27,611	28,589	28,994	29,607	30,462	30,353	29,196	29,196	29,196
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	18,526	22,519	24,832	26,496	28,472	30,090	31,728	33,510	34,377	35,861	37,000	37,824	39,163	39,718	40,558	41,729	41,579	39,994	39,994	39,994
43																							
44	Tax Expense	Line 40 x Line 42	5,549	5,002	6,080	6,705	7,154	7,687	8,124	8,567	9,048	9,282	9,683	9,990	10,212	10,574	10,724	10,951	11,267	11,226	10,798	10,798	10,798
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	9,279	11,786	13,131	14,041	15,212	16,159	17,153	18,288	18,782	19,752	20,498	21,036	21,975	22,364	22,978	23,859	23,788	22,650	22,650	22,650
48	Tax Expense	Line 44	5,549	5,002	6,080	6,705	7,154	7,687	8,124	8,567	9,048	9,282	9,683	9,990	10,212	10,574	10,724	10,951	11,267	11,226	10,798	10,798	10,798
49	Earned Return	Line 24 x Line 7	6,510	8,117	8,898	9,555	10,139	10,656	11,104	11,491	11,808	12,073	12,291	12,454	12,575	12,649	12,680	12,679	12,629	12,554	12,517	12,517	12,517
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	22,398	26,764	29,391	31,333	33,555	35,388	37,210	39,143	40,137	41,725	42,942	43,823	45,198	45,768	46,607	47,755	47,569	45,966	45,966	45,966
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		(1,260)	3,105	5,732	7,675	9,897	11,729	13,552	15,485	16,478	18,067	19,284	20,165	21,540	22,110	22,948	24,096	23,910	22,307	22,307	22,307
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		-0.15%	0.51%	0.29%	0.21%	0.23%	0.18%	0.17%	0.17%	0.07%	0.13%	0.08%	0.05%	0.09%	0.01%	0.04%	0.06%	-0.06%	-0.18%	-0.04%	-0.04%

Attachment 22.8.4

FEI DSM deferral impacts - Current Treatment: Amortizing DSM Expenditures over 10 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	115,792	121,100	125,124	127,791	129,287	129,960	130,123	129,746	129,126	128,350	127,655	127,655	127,655	127,655	127,655	127,655	127,655	127,655	127,655
17	Adjustments	Transfer from non-rate base	12,822	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(14,847)	(17,650)	(18,933)	(20,291)	(21,462)	(22,284)	(22,795)	(23,335)	(23,577)	(23,734)	(23,653)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	115,792	121,100	125,124	127,791	129,287	129,960	130,123	129,746	129,126	128,350	127,655	127,655	127,655	127,655	127,655	127,655	127,655	127,655	127,655	127,655
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	117,740	124,450	129,116	132,462	134,543	135,627	136,046	135,938	135,440	134,742	134,006	133,659	133,659	133,659	133,659	133,659	133,659	133,659	133,659	133,659
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)
29	Gross Additions	line 12 > Line 13	25,260	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000
30	Tax	Line 9 x Line 29	(6,820)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)
31	Net Additions	Sum of Lines 29 and 30	18,440	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680
32	AFUDC	Line 31 / 2 x Line 8	517	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	3,966	4,192	4,350	4,462	4,532	4,569	4,583	4,579	4,563	4,539	4,514	4,503	4,503	4,503	4,503	4,503	4,503	4,503	4,503	4,503
37	Add: Amortization	- Line 21	11,599	14,847	17,650	18,933	20,291	21,462	22,284	22,795	23,335	23,577	23,734	23,653	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	18,813	21,842	23,283	24,754	25,995	26,853	27,378	27,914	28,140	28,273	28,167	27,460	27,460	27,460	27,460	27,460	27,460	27,460	27,460	27,460
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	25,771	29,921	31,894	33,909	35,609	36,785	37,505	38,239	38,548	38,731	38,585	37,617	37,617	37,617	37,617	37,617	37,617	37,617	37,617	37,617
43																							
44	Tax Expense	Line 40 x Line 42	5,549	6,958	8,079	8,611	9,155	9,614	9,932	10,126	10,324	10,408	10,457	10,418	10,157	10,157	10,157	10,157	10,157	10,157	10,157	10,157	10,157
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	14,847	17,650	18,933	20,291	21,462	22,284	22,795	23,335	23,577	23,734	23,653	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958
48	Tax Expense	Line 44	5,549	6,958	8,079	8,611	9,155	9,614	9,932	10,126	10,324	10,408	10,457	10,418	10,157	10,157	10,157	10,157	10,157	10,157	10,157	10,157	10,157
49	Earned Return	Line 24 x Line 7	6,510	7,585	8,018	8,318	8,534	8,668	8,738	8,765	8,758	8,726	8,681	8,633	8,611	8,611	8,611	8,611	8,611	8,611	8,611	8,611	8,611
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	29,390	33,746	35,863	37,981	39,744	40,954	41,686	42,417	42,711	42,872	42,704	41,725	41,725	41,725	41,725	41,725	41,725	41,725	41,725	41,725
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		5,731	10,087	12,204	14,322	16,086	17,295	18,028	18,758	19,052	19,213	19,045	18,067	18,067	18,067	18,067	18,067	18,067	18,067	18,067	18,067
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		0.68%	0.50%	0.22%	0.21%	0.16%	0.10%	0.04%	0.04%	-0.01%	-0.02%	-0.05%	-0.13%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%

FEI DSM deferral impacts - Scenario 1: Amortizing DSM Expenditures over 8 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	112,127	113,529	113,523	112,242	110,661	108,872	107,071	105,566	104,697	104,697	104,697	104,697	104,697	104,697	104,697	104,697	104,697	104,697	104,697
17	Adjustments	Transfer from non-rate base	12,822	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(18,511)	(21,556)	(22,963)	(24,239)	(24,539)	(24,746)	(24,759)	(24,463)	(23,826)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	112,127	113,529	113,523	112,242	110,661	108,872	107,071	105,566	104,697	104,697	104,697	104,697	104,697	104,697	104,697	104,697	104,697	104,697	104,697	104,697
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	115,908	118,832	119,530	118,887	117,455	115,770	113,976	112,322	111,135	110,701	110,701	110,701	110,701	110,701	110,701	110,701	110,701	110,701	110,701	110,701
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)
29	Gross Additions	line 12 > Line 13	25,260	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000
30	Tax	Line 9 x Line 29	(6,820)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)
31	Net Additions	Sum of Lines 29 and 30	18,440	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680
32	AFUDC	Line 31 / 2 x Line 8	517	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	3,905	4,003	4,027	4,005	3,957	3,900	3,840	3,784	3,744	3,729	3,729	3,729	3,729	3,729	3,729	3,729	3,729	3,729	3,729	3,729
37	Add: Amortization	- Line 21	11,599	18,511	21,556	22,963	24,239	24,539	24,746	24,759	24,463	23,826	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	22,416	25,559	26,990	28,244	28,496	28,646	28,598	28,247	27,570	26,687	26,687	26,687	26,687	26,687	26,687	26,687	26,687	26,687	26,687	26,687
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	30,707	35,012	36,972	38,691	39,035	39,242	39,176	38,694	37,768	36,558	36,558	36,558	36,558	36,558	36,558	36,558	36,558	36,558	36,558	36,558
43																							
44	Tax Expense	Line 40 x Line 42	5,549	8,291	9,453	9,983	10,446	10,540	10,595	10,577	10,447	10,197	9,871	9,871	9,871	9,871	9,871	9,871	9,871	9,871	9,871	9,871	9,871
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	18,511	21,556	22,963	24,239	24,539	24,746	24,759	24,463	23,826	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958
48	Tax Expense	Line 44	5,549	8,291	9,453	9,983	10,446	10,540	10,595	10,577	10,447	10,197	9,871	9,871	9,871	9,871	9,871	9,871	9,871	9,871	9,871	9,871	9,871
49	Earned Return	Line 24 x Line 7	6,510	7,467	7,656	7,701	7,659	7,567	7,458	7,343	7,236	7,160	7,132	7,132	7,132	7,132	7,132	7,132	7,132	7,132	7,132	7,132	7,132
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	34,269	38,665	40,646	42,345	42,646	42,800	42,679	42,147	41,184	39,960	39,960	39,960	39,960	39,960	39,960	39,960	39,960	39,960	39,960	39,960
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		10,611	15,006	16,988	18,686	18,987	19,141	19,020	18,488	17,525	16,302	16,302	16,302	16,302	16,302	16,302	16,302	16,302	16,302	16,302	16,302
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		1.27%	0.49%	0.19%	0.15%	-0.01%	-0.02%	-0.05%	-0.09%	-0.14%	-0.16%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%

FEI DSM deferral impacts - Scenario 2: Amortizing DSM Expenditures over 5 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	101,133	91,753	82,444	75,342	71,650	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261
17	Adjustments	Transfer from non-rate base	12,822	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(29,506)	(32,337)	(32,267)	(30,060)	(26,649)	(24,348)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)	(22,958)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	101,133	91,753	82,444	75,342	71,650	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261	70,261
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	110,410	102,447	93,103	84,897	79,500	76,959	76,264	76,264	76,264	76,264	76,264	76,264	76,264	76,264	76,264	76,264	76,264	76,264	76,264	76,264
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)
29	Gross Additions	line 12 > Line 13	25,260	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000
30	Tax	Line 9 x Line 29	(6,820)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)
31	Net Additions	Sum of Lines 29 and 30	18,440	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680
32	AFUDC	Line 31 / 2 x Line 8	517	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	3,719	3,451	3,136	2,860	2,678	2,593	2,569	2,569	2,569	2,569	2,569	2,569	2,569	2,569	2,569	2,569	2,569	2,569	2,569	2,569
37	Add: Amortization	- Line 21	11,599	29,506	32,337	32,267	30,060	26,649	24,348	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	33,225	35,788	35,403	32,920	29,328	26,940	25,527	25,527	25,527	25,527	25,527	25,527	25,527	25,527	25,527	25,527	25,527	25,527	25,527	25,527
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	45,514	49,025	48,498	45,095	40,175	36,904	34,968	34,968	34,968	34,968	34,968	34,968	34,968	34,968	34,968	34,968	34,968	34,968	34,968	34,968
43																							
44	Tax Expense	Line 40 x Line 42	5,549	12,289	13,237	13,094	12,176	10,847	9,964	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	29,506	32,337	32,267	30,060	26,649	24,348	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958	22,958
48	Tax Expense	Line 44	5,549	12,289	13,237	13,094	12,176	10,847	9,964	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441	9,441
49	Earned Return	Line 24 x Line 7	6,510	7,113	6,600	5,998	5,469	5,122	4,958	4,913	4,913	4,913	4,913	4,913	4,913	4,913	4,913	4,913	4,913	4,913	4,913	4,913	4,913
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	48,907	52,174	51,360	47,705	42,618	39,270	37,313	37,313	37,313	37,313	37,313	37,313	37,313	37,313	37,313	37,313	37,313	37,313	37,313	37,313
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		25,249	28,515	27,701	24,046	18,960	15,611	13,654	13,654	13,654	13,654	13,654	13,654	13,654	13,654	13,654	13,654	13,654	13,654	13,654	13,654
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		3.01%	0.32%	-0.16%	-0.47%	-0.61%	-0.40%	-0.24%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.03%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%	-0.02%

FEI DSM deferral impacts - Scenario 3: Amortizing DSM Expenditures over 16 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		40,260	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000
13	DSM Embedded in Rates in Expenditure Year		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	88,558	100,731	121,359	133,216	143,707	153,271	161,643	169,049	175,442	180,681	185,407	189,144	192,115	194,529	195,985	197,033	197,448	196,963	196,528	196,528	196,528
17	Adjustments	Transfer from non-rate base	12,822	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
18	Gross Additions	Line 12, Limited by Line 13	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
19	Tax	Line 9 x Line 18	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)	(4,050)
20	Net Additions	Sum of Lines 18 and 19	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
21	Amortization		(11,599)	(9,279)	(11,101)	(12,466)	(13,395)	(14,586)	(15,552)	(16,565)	(17,718)	(18,232)	(19,221)	(19,987)	(20,543)	(21,502)	(21,910)	(22,543)	(23,443)	(23,392)	(22,958)	(22,958)	(22,958)
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	100,731	121,359	133,216	143,707	153,271	161,643	169,049	175,442	180,681	185,407	189,144	192,115	194,529	195,985	197,033	197,448	196,963	196,528	196,528	196,528	196,528
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	101,056	120,524	133,291	144,465	154,493	163,460	171,349	178,249	184,065	189,048	193,279	196,633	199,326	201,261	202,513	203,244	203,209	202,749	202,532	202,532	202,532
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	12,822	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
28	Adjustments	Transfer to rate base	(12,822)	(18,957)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)	(12,008)
29	Gross Additions	line 12 > Line 13	25,260	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000
30	Tax	Line 9 x Line 29	(6,820)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)	(4,320)
31	Net Additions	Sum of Lines 29 and 30	18,440	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680	11,680
32	AFUDC	Line 31 / 2 x Line 8	517	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328	328
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	18,957	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008	12,008
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	3,404	4,060	4,490	4,867	5,204	5,507	5,772	6,005	6,201	6,369	6,511	6,624	6,715	6,780	6,822	6,847	6,846	6,830	6,823	6,823	6,823
37	Add: Amortization	- Line 21	11,599	9,279	11,101	12,466	13,395	14,586	15,552	16,565	17,718	18,232	19,221	19,987	20,543	21,502	21,910	22,543	23,443	23,392	22,958	22,958	22,958
38	Taxable Income After Tax	Sum of Lines 36 through 37	15,003	13,339	15,592	17,333	18,599	20,092	21,324	22,570	23,919	24,601	25,732	26,611	27,258	28,282	28,732	29,390	30,289	30,222	29,781	29,781	29,781
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	20,552	18,273	21,358	23,743	25,478	27,524	29,211	30,917	32,766	33,699	35,249	36,453	37,340	38,742	39,359	40,260	41,491	41,400	40,795	40,795	40,795
43																							
44	Tax Expense	Line 40 x Line 42	5,549	4,934	5,767	6,411	6,879	7,431	7,887	8,348	8,847	9,099	9,517	9,842	10,082	10,460	10,627	10,870	11,203	11,178	11,015	11,015	11,015
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	11,599	9,279	11,101	12,466	13,395	14,586	15,552	16,565	17,718	18,232	19,221	19,987	20,543	21,502	21,910	22,543	23,443	23,392	22,958	22,958	22,958
48	Tax Expense	Line 44	5,549	4,934	5,767	6,411	6,879	7,431	7,887	8,348	8,847	9,099	9,517	9,842	10,082	10,460	10,627	10,870	11,203	11,178	11,015	11,015	11,015
49	Earned Return	Line 24 x Line 7	6,510	7,765	8,587	9,307	9,953	10,531	11,039	11,484	11,858	12,179	12,452	12,668	12,842	12,966	13,047	13,094	13,092	13,062	13,048	13,048	13,048
50	Total Revenue Requirement	Sum of Lines 47 through 49	23,659	21,978	25,455	28,184	30,227	32,548	34,478	36,396	38,424	39,510	41,190	42,497	43,466	44,929	45,584	46,507	47,737	47,632	47,021	47,021	47,021
	Cumulative Revenue Requirement Change																						
51	vs. 2018 Approved	Line 50 - Line 50 Year 2018		(1,681)	1,797	4,525	6,568	8,889	10,819	12,737	14,765	15,852	17,531	18,838	19,808	21,270	21,925	22,848	24,079	23,974	23,362	23,362	23,362
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		-0.20%	0.41%	0.31%	0.22%	0.24%	0.19%	0.18%	0.18%	0.08%	0.14%	0.09%	0.06%	0.10%	0.02%	0.04%	0.07%	-0.05%	-0.09%	-0.04%	-0.04%

Attachment 23.6

FEI DSM deferral impacts - Current Treatment: Amortizing DSM Expenditures over 10 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		-	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	DSM Embedded in Rates in Expenditure Year		15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	-	-	730	657	584	511	438	365	292	219	146	73	-	-	-	-	-	-	-	-	-
17	Adjustments	Transfer from non-rate base	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Gross Additions	Line 12, Limited by Line 13	-	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Tax	Line 9 x Line 18	-	(270)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Net Additions	Sum of Lines 18 and 19	-	730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Amortization		-	-	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	-	-	-	-	-	-	-	-	-
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	-	730	657	584	511	438	365	292	219	146	73	-	-	-	-	-	-	-	-	-	-
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	-	365	694	621	548	475	402	329	256	183	110	37	-	-	-	-	-	-	-	-	-
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Adjustments	Transfer to rate base	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Gross Additions	line 12 > Line 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Tax	Line 9 x Line 29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Net Additions	Sum of Lines 29 and 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	AFUDC	Line 31 / 2 x Line 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	-	12	23	21	18	16	14	11	9	6	4	1	-	-	-	-	-	-	-	-	-
37	Add: Amortization	- Line 21	-	-	73	73	73	73	73	73	73	73	73	73	-	-	-	-	-	-	-	-	-
38	Taxable Income After Tax	Sum of Lines 36 through 37	-	12	96	94	91	89	87	84	82	79	77	74	-	-	-	-	-	-	-	-	-
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	-	17	132	129	125	122	119	115	112	108	105	102	-	-	-	-	-	-	-	-	-
43																							
44	Tax Expense	Line 40 x Line 42	-	5	36	35	34	33	32	31	30	29	28	27	-	-	-	-	-	-	-	-	-
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	-	-	73	73	73	73	73	73	73	73	73	73	-	-	-	-	-	-	-	-	-
48	Tax Expense	Line 44	-	5	36	35	34	33	32	31	30	29	28	27	-	-	-	-	-	-	-	-	-
49	Earned Return	Line 24 x Line 7	-	24	45	40	35	31	26	21	16	12	7	2	-	-	-	-	-	-	-	-	-
50	Total Revenue Requirement	Sum of Lines 47 through 49	-	28	153	148	142	136	131	125	120	114	108	103	-	-	-	-	-	-	-	-	-
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		28	153	148	142	136	131	125	120	114	108	103	-	-	-	-	-	-	-	-	-
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		0.003%	0.015%	-0.001%	-0.001%	-0.001%	-0.001%	-0.001%	-0.001%	-0.001%	-0.001%	-0.001%	-0.010%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
55																							
56	PV of Total Revenue Requirement	Line 50 / (1 + Line 8)^Yr		27	137	125	114	104	94	85	77	70	63	56	-	-	-	-	-	-	-	-	-
57	Sum PV of Total Revenue Requirement	Sum of Line 56	954																				

FEI DSM deferral impacts - Scenario 1: Amortizing DSM Expenditures over 8 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		-	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	DSM Embedded in Rates in Expenditure Year		15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	-	-	730	639	548	456	365	274	183	91	-	-	-	-	-	-	-	-	-	-	-
17	Adjustments	Transfer from non-rate base	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Gross Additions	Line 12, Limited by Line 13	-	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Tax	Line 9 x Line 18	-	(270)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Net Additions	Sum of Lines 18 and 19	-	730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Amortization		-	-	(91)	(91)	(91)	(91)	(91)	(91)	(91)	(91)	-	-	-	-	-	-	-	-	-	-	-
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	-	730	639	548	456	365	274	183	91	-	-	-	-	-	-	-	-	-	-	-	-
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	-	365	684	593	502	411	319	228	137	46	-	-	-	-	-	-	-	-	-	-	-
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Adjustments	Transfer to rate base	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Gross Additions	line 12 > Line 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Tax	Line 9 x Line 29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Net Additions	Sum of Lines 29 and 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	AFUDC	Line 31 / 2 x Line 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	-	12	23	20	17	14	11	8	5	2	-	-	-	-	-	-	-	-	-	-	-
37	Add: Amortization	- Line 21	-	-	91	91	91	91	91	91	91	91	-	-	-	-	-	-	-	-	-	-	-
38	Taxable Income After Tax	Sum of Lines 36 through 37	-	12	114	111	108	105	102	99	96	93	-	-	-	-	-	-	-	-	-	-	-
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	-	17	157	152	148	144	140	136	131	127	-	-	-	-	-	-	-	-	-	-	-
43																							
44	Tax Expense	Line 40 x Line 42	-	5	42	41	40	39	38	37	35	34	-	-	-	-	-	-	-	-	-	-	-
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	-	-	91	91	91	91	91	91	91	91	-	-	-	-	-	-	-	-	-	-	-
48	Tax Expense	Line 44	-	5	42	41	40	39	38	37	35	34	-	-	-	-	-	-	-	-	-	-	-
49	Earned Return	Line 24 x Line 7	-	24	44	38	32	26	21	15	9	3	-	-	-	-	-	-	-	-	-	-	-
50	Total Revenue Requirement	Sum of Lines 47 through 49	-	28	178	171	164	157	150	143	136	129	-	-	-	-	-	-	-	-	-	-	-
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		28	178	171	164	157	150	143	136	129	-	-	-	-	-	-	-	-	-	-	-
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
55																							
56	PV of Total Revenue Requirement	Line 50 / (1 + Line 8)^Yr		27	159	145	131	119	108	97	88	79	-	-	-	-	-	-	-	-	-	-	-
57	Sum PV of Total Revenue Requirement	Sum of Line 56	952																				

FEI DSM deferral impacts - Scenario 2: Amortizing DSM Expenditures over 5 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		-	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	DSM Embedded in Rates in Expenditure Year		15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	-	-	730	584	438	292	146	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Adjustments	Transfer from non-rate base	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Gross Additions	Line 12, Limited by Line 13	-	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Tax	Line 9 x Line 18	-	(270)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Net Additions	Sum of Lines 18 and 19	-	730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Amortization		-	-	(146)	(146)	(146)	(146)	(146)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	-	730	584	438	292	146	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	-	365	657	511	365	219	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Adjustments	Transfer to rate base	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Gross Additions	line 12 > Line 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Tax	Line 9 x Line 29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Net Additions	Sum of Lines 29 and 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	AFUDC	Line 31 / 2 x Line 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	-	12	22	17	12	7	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	Add: Amortization	- Line 21	-	-	146	146	146	146	146	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Taxable Income After Tax	Sum of Lines 36 through 37	-	12	168	163	158	153	148	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	-	17	230	224	217	210	203	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43																							
44	Tax Expense	Line 40 x Line 42	-	5	62	60	59	57	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	-	-	146	146	146	146	146	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	Tax Expense	Line 44	-	5	62	60	59	57	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	Earned Return	Line 24 x Line 7	-	24	42	33	24	14	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	Total Revenue Requirement	Sum of Lines 47 through 49	-	28	251	239	228	217	206	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		28	251	239	228	217	206	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	-0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
55																							
56	PV of Total Revenue Requirement	Line 50 / (1 + Line 8)^Yr		27	225	203	183	165	148	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	Sum PV of Total Revenue Requirement	Sum of Line 56	951																				

FEI DSM deferral impacts - Scenario 3: Amortizing DSM Expenditures over 16 Years

Line	General Assumptions	Reference	Approved 2018	1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
1	ROE	Approved	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
2	Equity	Approved	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%	38.50%
3	STD Rate	Approved	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
4	STD %	Approved	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
5	LTD Rate	Approved	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%	5.26%
6	LTD %	Approved	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%	56.40%
7	Return on Rate Base	Line 1 x Line 2 + Line 3 x Line 4 + Line 5 x Line 6	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%	6.44%
8	AFUDC Rate	Line 1 x Line 2 + (Line 3 x Line 4 + Line 5 x Line 6) x (1 - Line 9)	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
9	Tax Rate		27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
10	Inflation Rate		N/A	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
11	Delivery Margin	2018 Approved	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
12	DSM Expenditures		-	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	DSM Embedded in Rates in Expenditure Year		15,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
14																							
15	**Rate Base DSM Deferral**																						
16	Opening Deferral	Prior Year Closing	-	-	730	684	639	593	548	502	456	411	365	319	274	228	183	137	91	46	-	-	-
17	Adjustments	Transfer from non-rate base	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Gross Additions	Line 12, Limited by Line 13	-	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Tax	Line 9 x Line 18	-	(270)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Net Additions	Sum of Lines 18 and 19	-	730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Amortization		-	-	(46)	(46)	(46)	(46)	(46)	(46)	(46)	(46)	(46)	(46)	(46)	(46)	(46)	(46)	(46)	(46)	-	-	-
22	Closing Deferral	Line 16 + Line 17 + Line 20 + Line 21	-	730	684	639	593	548	502	456	411	365	319	274	228	183	137	91	46	-	-	-	-
23																							
24	Rate Base	(Line 16 + Line 17 + Line 22) / 2	-	365	707	662	616	570	525	479	433	388	342	297	251	205	160	114	68	23	-	-	-
25																							
26	**Non-Rate Base DSM Deferral**																						
27	Opening Deferral	Prior Year Closing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Adjustments	Transfer to rate base	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Gross Additions	line 12 > Line 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Tax	Line 9 x Line 29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Net Additions	Sum of Lines 29 and 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	AFUDC	Line 31 / 2 x Line 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Closing Deferral	Line 27 + Line 28 + Line 31 + Line 32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34																							
35	**Tax Expense**																						
36	Equity Return	Line 24 x Line 1 x Line 2	-	12	24	22	21	19	18	16	15	13	12	10	8	7	5	4	2	1	-	-	-
37	Add: Amortization	- Line 21	-	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	-	-	-
38	Taxable Income After Tax	Sum of Lines 36 through 37	-	12	69	68	66	65	63	62	60	59	57	56	54	53	51	49	48	46	-	-	-
39																							
40	Tax Rate	Line 9	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%
41																							
42	Taxable Income Before Tax	Line 38 / (1 - Line 40)	-	17	95	93	91	89	87	85	83	80	78	76	74	72	70	68	66	64	-	-	-
43																							
44	Tax Expense	Line 40 x Line 42	-	5	26	25	25	24	23	23	22	22	21	21	20	19	19	18	18	17	-	-	-
45																							
46	**Revenue Requirement**																						
47	Amortization	- Line 21	-	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	-	-	-
48	Tax Expense	Line 44	-	5	26	25	25	24	23	23	22	22	21	21	20	19	19	18	18	17	-	-	-
49	Earned Return	Line 24 x Line 7	-	24	46	43	40	37	34	31	28	25	22	19	16	13	10	7	4	1	-	-	-
50	Total Revenue Requirement	Sum of Lines 47 through 49	-	28	117	113	110	106	103	99	96	92	89	85	82	78	75	71	68	64	-	-	-
51	Cumulative Revenue Requirement Change vs. 2018 Approved	Line 50 - Line 50 Year 2018		28	117	113	110	106	103	99	96	92	89	85	82	78	75	71	68	64	-	-	-
52	Forecast Delivery Margin	Line 11	822,033	838,474	855,243	872,348	889,795	907,591	925,743	944,258	963,143	982,406	1,002,054	1,022,095	1,042,537	1,063,387	1,084,655	1,106,348	1,128,475	1,151,045	1,174,066	1,197,547	1,221,498
53																							
54	Incremental Delivery Rate Impact	Line 51 / Line 52 - Sum of prior years Line 54		0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.01%	0.00%	0.00%
55																							
56	PV of Total Revenue Requirement	Line 50 / (1 + Line 8)^Yr		27	105	96	88	81	74	68	62	56	51	47	42	38	35	31	28	25	-	-	-
57	Sum PV of Total Revenue Requirement	Sum of Line 56	956																				