TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.1:

Reference(s): **2B-EP-27**

To provide the audits or data quality check that are completed to ensure that the correct interruption cause code is used; to describe the quality control done, or quality check, including the number of data entries checked, on a yearly basis, and the percent that fail.

RESPONSE:

Interruption cause codes are selected based on the information available to the control centre operators from field crews and/or other sources, such as the Network Management System ("NMS") and the Supervisory Control and Data Acquisition ("SCADA") system. All interruptions undergo a validation review by the control centre support team prior to the data being finalized. As noted in Table 2 of interrogatory response 2B-SEC-35(a), in 2023 Toronto Hydro recorded 2,577 sustained interruptions. This review includes verification of the interruption cause code against other operational records, such as switch sheets. Long-duration interruptions, interruptions involving key accounts, and/or interruptions impacting a high number of customers are further reviewed by the Planning, Power Quality, and Reliability team.

During any stage of the review process or afterwards, if new information is uncovered that provides better insights into the interruption cause, a revision is made to the outage report. Toronto Hydro does not track the number of interruption records that require a correction.

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UNDERTAKING NO. JT5.2:

Reference(s): 1B-Staff-09

To state Toronto Hydro's position on receipt of a performance incentive under the PIM TRIF target, when there is a fatality of an employee or subcontractor.

RESPONSE:

Toronto Hydro's view is that it would not be eligible to receive funding through the performance incentive mechanism for the TRIF target component in the event of an employee fatality for which Toronto Hydro was found culpable under the relevant occupational health and safety legislation.

Toronto Hydro notes that contractor incidents are not included in the calculation of the TRIF metric. Contractors undergo a rigorous safety pre-qualification process to ensure they meet Toronto Hydro's health, safety and legislative requirements. The comprehensive pre-qualification process is administered by a third party. This prequalification process includes a review of things such as the contractor's performance statistics, content of their safety programs and procedures based on the work performed, and a review of WSIB and insurance status.

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UNDERTAKING NO. JT5.3:

Reference(s): **1B-Staff-9**

For 1B-Staff-09, Figures 1 and 2, to include the calculations for the standard deviations of each cause code for Figures 1 and 2; to explain to the extent possible, and if not to explain why.

RESPONSE:

Toronto Hydro notes that the standard deviation is calculated for the aggregate system level reliability performance and not by cause code. The underlying calculations are provided as Appendix A to this response.

The standard deviation calculations that underpin the target setting for Figures 1 and 2 were performed using the 'LINEST' function[1] in Excel. This function was applied to historical reliability performance results from 2018 to 2022, separately for SAIDI (excluding Loss of Supply, Major Event Days, and Scheduled Outages) and SAIFI (Defective Equipment). The 'se_y' statistic parameter (standard error for the y estimate) from the function was utilized to determine the standard deviation of the linear regression for the SAIDI and SAIFI measures. This resulted in standard deviations of 0.958 and 0.016, respectively. As described in the evidence (Exhibit 1B, Tab 3, Schedule 1, at pages 10 and 16), the targets were set based on a two standard deviation basis.

[1] For more information, refer to Microsoft's documentation on the LINEST function.

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UNDERTAKING NO. JT5.4:

Reference(s): 1B-Staff-9, Appendix A

To clarify the calculation of the five-year values between 2027 and 2021, in Cell G4.

RESPONSE:

In reviewing the transcript, Toronto Hydro notes that the undertaking does not properly capture the request made by OEB Staff. The scope of the undertaking is to clarify whether the reliability forecasts reflect a rolling five-year average of the individual years or a rolling five-year average of the five-year averages.

Toronto Hydro confirms that the breakdown by Major Cause Code reflects a five-year rolling average of annual results (i.e. individual years). Using *Adverse Environment* as an example, the projection for the year 2028 would be based on an average of annual results spanning from 2024 to 2028, inclusive. This principle applies consistently across all years and Major Cause Codes provided in the aforementioned table in 1B-Staff-9, Appendix A.

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UNDERTAKING NO. JT5.5:

Reference(s): **1B-Staff-18**

To clarify the use of the full division composite in 1B-Staff-18E.

RESPONSE:

Toronto Hydro did not rely on the composite index for tracking or forecasting its costs in any specific capital or maintenance programs. As noted in response to 1B-Staff-18(d), the purpose of the inflation figures provided was to convey the challenges faced by Toronto Hydro in the current 2020-2024 rate term, including 40-year high inflation across all facets of its capital and maintenance work plans, and to describe the steps taken to complete its work programs and manage its business in these extraordinary circumstances. For this high-level purpose, Toronto Hydro determined that a broad composite view of inflation was sufficient to highlight the inflationary challenges faced in the current rate term.

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UNDERTAKING NO. JT5.6:

Reference(s): **Exhibit 9, Tab 2, Schedule 1**

Regarding the DVA Continuity Schedule updated April 2, Row 55, to provide the nature of the costs recorded or to be recorded in the accounts, with a breakdown of the costs by cloud solution; for each solution, to provide details of type of costs, such as configuration, testing, data conversion; nature of the costs, capital or OM&A, using the IFRS standard; and the dates the costs were incurred, or when they are expected to be incurred.

RESPONSE:

Table 1 below outlines the costs for each cloud solution and the nature of those costs that Toronto Hydro recorded in the Cloud Computing Implementation Costs deferral account for 2023-2024.[1] Toronto Hydro's financial records are not granular enough to allow further breakdown of these costs by type; however, in the utility's experience, each cloud solution has involved the major categories of implementation costs for configuration, testing, training, data conversion/migration, and business process reengineering.

[1] Exhibit 9, Tab 2, Schedule 1, DVA Continuity Schedule (updated April 2, 2024). 2023 costs only cover the month of December in accordance with Ontario Energy Board, Accounting Order (003-2023) for the Establishment of a Deferral Account to Record Incremental Cloud Computing Arrangement Implementation Costs, November 2, 2023.

Table 1: 2023-2024 Cloud Computing Projects in the Deferral Account

Cloud Computing Project Name	Nature of Costs	Actual/ Bridge	Cost ($ Millions)	Timing of Costs
• Customer Service Request Management Solution*	OM&A	Actual	0.11	December 1–31, 2023
• Enhancements to Electronic Tailboard*			0.05	
• External Reporting Solution			0.17	
• MS Exchange Migration to Cloud*			0.01	
• Outage Map Replacement *			0.13	
• SAP Work Manager Migration to Cloud *			0.01	
• Smart Routing in Oracle Field Services Cloud (OFSC)*			0.01	
2023 Total			**0.49**	
○ Customer Service Request Management Solution	OM&A	Bridge	0.60	January 1, 2024–December 31, 2024
○ Enhancements to Electronic Tailboard			0.12	
○ HR Document Management Solution			0.80	
○ MS Exchange Migration to Cloud			0.50	
○ Onboarding 2.0 Upgrade			0.30	
○ Outage Map Replacement			0.45	
○ SAP Work Manager Migration to Cloud			0.15	
○ Service Management Modernization Solution			0.15	
○ Smart Routing in Oracle Field Services Cloud (OFSC)			0.26	
○ Virtual Reality Training			0.17	
2024 Total			**3.50**	

** Please note that these initiatives are multi-year projects.*

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UNDERTAKING NO. JT5.7:

Reference(s): Exhibit 9, Tab 2, Schedule 1

To clarify if any of the costs in the cloud computing account are associated with the new Enterprise Data Centre.

RESPONSE:

No, the 2023-2024[1] costs that Toronto Hydro recorded in the Cloud Implementation deferral account are not associated with the Enterprise Data Centre project.

[1] The OEB set the effective date for the Cloud Implementation deferral account as of December 1, 2023, and therefore, the costs recorded for 2023 only cover actual costs incurred between December 1, 2023 and December 31, 2023. The 2024 forecast is for the full calendar year.

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UNDERTAKING NO. JT5.8:

Reference(s): **Exhibit 9, Tab 2, Schedule 1 (DVA Continuity Schedule)**

To identify savings that might be part of OM&A related to the $4.1 million cloud computing costs.

RESPONSE:

Toronto Hydro notes that this undertaking refers to the $4.1 million in cloud computing implementation costs that the utility has recorded in the Cloud Implementation deferral account for 2023-2024. That amount does not include any offsetting savings, as the cloud solutions that Toronto Hydro implemented during that period either did not trigger any savings from the replacement of legacy on-premise systems or any savings were immaterial and cancelled out by increasing subscription costs.

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UNDERTAKING NO. JT5.9:

Reference(s): 4-Staff-296

Referring to 4-Staff-296, (A) to describe how Toronto Hydro distinguished between the locates programs, and specifically the effect of Bill 93; (B) to the extent possible, to identify the costs for labour, internal versus external, equipment related to the compliance with Bill 93, training and certification materials, administrative and overhead costs, and any penalties or fees incurred for the 2023 costs and the 2024 forecast costs; (C) to discuss the criteria used to ensure costs were prudently incurred.

RESPONSE:

Toronto Hydro used the historical trending of costs in the Public Safety and Damage Prevention segment from the years prior to the enactment of Bill 93 as a proxy for the growth of organic cost drivers such as the volume and complexity of local construction activity. In applying the OEB's accounting order for the *Getting Ontario Connected Act* variance account ("GOCA VA"),[1] the utility extrapolated historical costs and subtracted them from the actual locates costs for April 1-December 31, 2023 and the full calendar year of 2024 to identify incremental costs arising from Bill 93, which Toronto Hydro recorded in the variance account. This calculation is shown in interrogatory response 4-Staff-296(e). In Toronto Hydro's assessment, this top-down approach provides the most reliable approximation of incremental cost drivers arising from Bill 93. It is not possible to calculate such cost drivers using bottom-up inputs, as it is extremely difficult to assess to what extent

[1] EB-2023-0143, Accounting Order 002-2023 (October 31, 2023).

any individual standard locate was influenced by Bill 93. For additional detail with regards to how Toronto Hydro distinguishes the effect of Bill 93 on locates costs, please also refer to Toronto Hydro's testimony from Day 5 of the Technical Conference.[2]

Toronto Hydro also takes this opportunity to clarify that the OM&A forecast for the Public Safety and Damage Prevention segment for 2025-2029 in Table 6 of Exhibit 4, Tab 2, Schedule 8 reflects a conservative estimate of locates costs, *inclusive* of the anticipated effects of Bill 93 in the 2025-2029 rate period. However, as the utility stated in its evidence,[3] due to the significant uncertainty that still affects locates volumes, service levels and program administration costs in the context of ongoing legislative and regulatory developments, Toronto Hydro is requesting the continuation of the *Getting Ontario Connected Act* ("GOCA") variance account ("VA") to ensure adequate funding of non-discretionary locates work. In the event that the OEB does not approve the 2025-2029 forecast or the continuation of the GOCA variance account, Toronto Hydro would adopt the forecast shown in Table 7 of Exhibit 4, Tab 2, Schedule 8, which reflects the utility's current best estimate of potential costs for 100% compliance with the new regulatory framework.

Table 1 below provides the breakdown of costs recorded in the GOCA variance account by internal labour and external contractor costs for April 1 to December 31, 2023 and all of 2024. Toronto Hydro has not recorded any equipment, internal training and certification materials, overhead costs, and any penalties or fees in the GOCA variance account. Internal labour costs in Table 1 are driven by incremental locate program administration costs required to meet the requirements in Bill 93.

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[2] Technical Conference Day 5 Transcript (April 12, 2024), at p. 12, lines 2-19.
[3] Exhibit 4, Tab 2, Schedule 7, from p. 29, line 14 to p. 30, line 5. See also interrogatory response 9-SEC-128(c).

Table 1: Internal and External costs breakdown of GOCA VA ($ Millions)

	2023 Actual[4]	2024 Bridge
Internal Labour Costs	0.1	0.2
External Contractor Costs	0.8	1.3
Total	**0.9**	**1.5**

With regards to prudence, the overall cost control and productivity measures that Toronto Hydro has in place to ensure appropriate locates expenditures are covered in section 4.2 of the Customer Operations program in Exhibit 4, Tab 2, Schedule 8, on pages 12 and 15. In addition, Toronto Hydro has processes in place for the oversight of expenditures and to ensure cost-effective delivery of functions within the Public Safety and Damage Prevention segment. The services of locate service providers ("LSPs") are shared across gas, water, and telecommunications utilities and infrastructure owners in Toronto Hydro's service territory, and Toronto Hydro conducts audits on LSPs on effective service delivery, including quality and safety performance, in coordination with other utilities and infrastructure owners. In addition, Toronto Hydro performs verification steps on completed services to ensure financial accuracy. Locates delivery is managed through short-interval (e.g. weekly, monthly) meetings with LSPs focused on compliance with applicable legislative and regulatory requirements, effective operational performance, and process management.

More specifically to ensure fiscal prudence with respect to the incremental costs associated with Bill 93, to date Toronto Hydro has sought to minimize incremental costs by deferring some drivers that are within Toronto Hydro's control, such as increasing the quantity of resources for managing peak volume capacity and investments in IT systems, to avoid potentially unnecessary costs in the context of ongoing legislative and regulatory developments.

[4] 2023 costs only cover actual costs incurred between April 1, 2023 and December 31, 2023 in accordance with the OEB Decision and Order (EB-2023-0143, October 31, 2023).

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UNDERTAKING NO. JT5.10:

Reference(s): **Exhibit 9, Tab 2, Schedule 1 (Updated April 2, 2024)**

With reference to the Continuity Schedule, Row 60, updated April 2, to explain the increase to the Externally Driven Capital Variance Accounts, and what changed since the original filings.

RESPONSE:

The increase in the balance is associated with higher amounts of derecognition in 2023-2024 than initially forecasted, a significant amount of which was driven by the Eglinton Crosstown LRT and Finch West LRT projects. Table 1 provides the numerical differences between the November 17, 2023 forecast (Exhibit 9, Tab 1, Schedule 1, Table 7) and the forecast variance tracked in the DVA based on the April 2, 2024 update.

Table 1: 2020-2024 Externally Driven Capital Revenue Requirement ($ Millions)

Revenue Requirement Calculation	Actual			~~Forecast~~		Total
				Actual	Forecast	
	2020	2021	2022	2023	2024	
Rate Base	0.3	(5.2)	(9.0)	~~1.8~~ 0.1	~~14.2~~ 8.9	**N/A**
Return on equity	0.0	(0.2)	(0.4)	~~0.1~~ 0.2	~~0.5~~ 0.3	**~~0.1~~ (0.1)**
Interest	0.0	(0.1)	(0.2)	~~0.1~~ 0.1	~~0.3~~ 0.2	**~~0.0~~ (0.1)**
Depreciation	(0.6)	(0.1)	0.7	~~1.2~~ 4.5	~~0.4~~ 2.3	**~~1.6~~ 6.8**
PILs	(0.2)	0.4	0.4	~~(0.4)~~ 0.7	~~(0.3)~~ 0.4	**~~(0.1)~~ 1.6**
Revenue Requirement	**(0.8)**	**0.0**	**0.4**	**~~1.0~~ 5.5**	**~~0.8~~ 3.1**	**~~1.6~~ 8.3**
Carrying Charges	0.0	(0.0)	(0.0)	~~(0.0)~~ 0.0	~~0.1~~ 0.3	**~~0.0~~ 0.3**
Total	**(0.8)**	**0.0**	**0.4**	**~~1.0~~ 5.5**	**~~0.9~~ 3.5**	**~~1.6~~ 8.6**

Table 2 provides the variance in revenue requirement for 2023 and 2024.

Table 2: Externally Driven Capital Revenue Requirement 2023 and 2024 Variance ($ Millions)

Difference	2020	2021	2022	2023	2024	Total
Rate Base	-	-	-	(1.7)	(5.3)	**N/A**
Return on equity	-	-	-	0.1	(0.2)	**(0.1)**
Interest	-	-	-	0.0	(0.1)	**(0.1)**
Depreciation	-	-	-	3.3	1.9	**5.3**
PILs	-	-	-	1.0	0.7	**1.7**
Revenue Requirement	**-**	**-**	**-**	**4.4**	**2.3**	**6.7**
Carrying Charges	-	-	-	0.0	0.3	**0.3**
Total	**-**	**-**	**-**	**4.4**	**2.6**	**7.0**

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UNDERTAKING NO. JT5.11:

Reference(s): **6-Staff-320**
6-Staff-321

QUESTION (A):

a) To update Table 6.2 in 6-Staff-320 with the most recent version of the PILs model and the most recent version of Capital Additions in Appendix 2-BA;

RESPONSE (A):

Table 1 below provides the updated 2025-2029 capital additions forecast as of April 2, 2024. The 2023 and 2024 capital additions were unchanged as part of the evidence update relative to the amounts provided in 6-Staff-320. The reconciliation of 2023 and 2024 capital additions in the PILs model Schedule 8 and Appendix 2-BA were provided in Toronto Hydro's response to interrogatory 6-Staff-320. Table 2 below shows the reconciliation for 2023-2029 capital additions submitted on April 2, 2024.

Table 1: Updated Comparison of Capital Additions for 2023-2029

Capital additions	PILs model Sch 8	Appendix 2-BA	Difference
Historical Year 2023	578,747,322	594,237,479	(15,490,157)
Bridge Year 2024	604,748,823	626,323,423	(21,574,600)
Test Year 2025	640,282,996	657,249,067	(16,966,071)
Test Year 2026	685,927,116	701,933,545	(16,006,429)
Test Year 2027	772,314,135	816,131,844	(43,817,709)
Test Year 2028	754,457,205	777,203,292	(22,746,087)
Test Year 2029	838,987,204	899,001,415	(60,014,211)

Table 2 - Reconciliation of Capital Additions in the PILs model Schedule 8 and Appendix 2-BA for 2023-2029

Capital Additions	[A] PILS model Sch 8	[B] Capital additions for Non-Rate Regulated Utility Assets	[C] Capital additions for Socialized Renewable Energy Generation Investments	[D] Interest capitalized for accounting (AFUDC), not for tax	[E] Other post employment benefits (OPEB) amounts capitalized for accounting, not for tax	[F] Capitalized depreciation for accounting, not for tax	[G] Land additions not required to include in PILs model Sch 8	[H] Accrued decommissioning provisions capitalized for accounting, not for tax	[A] + [B] + [C] + [D] + [E] + [F] + [G] + [H] Appendix 2-BA
Historical Year 2023	578,747,322	-	-	8,303,302	5,928,377	1,293,555	-	(35,077)	594,237,479
Bridge Year 2024	604,748,823	5,990,032	552,685	7,366,822	6,444,840	1,220,221	-	-	626,323,423
Test Year 2025	640,282,996	3,403,977	-	5,634,924	6,478,384	1,448,786	-	-	657,249,067
Test Year 2026	685,927,116	1,991,135	-	5,647,260	6,613,087	1,754,947	-	-	701,933,545
Test Year 2027	772,314,135	7,124,571	13,857,710	7,522,153	6,752,991	2,021,000	6,539,284	-	816,131,844
Test Year 2028	754,457,205	7,143,521	-	6,441,962	6,880,722	2,279,882	-	-	777,203,292
Test Year 2029	838,987,204	31,551,256	7,337,579	11,518,153	7,008,131	2,599,092	-	-	899,001,415

QUESTION (B):

b) to update the depreciation table in 6-Staff-321 in the same way.

RESPONSE (B):

Table 3 below provides the updated 2025-2029 depreciation forecast as of April 2, 2024. The 2023 actuals and 2024 forecasted depreciation were unchanged in the evidence update relative to the amounts provided in 6-Staff-321. The reconciliation of 2023 and 2024 depreciation in the PILs model Schedule 1 and Appendix 2-BA was provided in Toronto Hydro's response to interrogatory 6-Staff-321, page 2, Table 1 and Table 2. Table 4 below shows the reconciliation for 2025-2029 depreciation submitted on April 2, 2024.

Table 3: Updated Comparison of Depreciation table for 2023-2029

Depreciation Expense	PILS module Sch 1	Appendix 2-BA	Difference
Historical Year 2023	259,865,782	247,107,134	12,758,648
Bridge Year 2024	276,564,046	259,753,795	16,810,251
Test Year 2025	290,386,052	272,947,807	17,438,245
Test Year 2026	303,927,677	287,008,872	16,918,804
Test Year 2027	322,740,962	306,002,467	16,738,495
Test Year 2028	343,965,642	328,707,225	15,258,418
Test Year 2029	356,947,682	343,623,671	13,324,011

Table 4: PILs module Sch 1 and Appendix 2-BA depreciation forecast

Depreciation Expense	PILS module Sch 1	Exclude Deferred Revenue	Exclude Derecognition	Appendix 2-BA
	[A]	[B]	[C]	[D] = [A]-[B]-[C]
Historical Year 2023	259,865,782	-15,745,226	28,503,875	247,107,134
Bridge Year 2024	276,564,046	-17,911,385	34,721,635	259,753,795
Test Year 2025	290,386,052	-20,050,183	37,488,428	272,947,807
Test Year 2026	303,927,677	-21,774,956	38,693,760	287,008,872
Test Year 2027	322,740,962	-24,104,436	40,842,930	306,002,467

Depreciation Expense	PILS module Sch 1	Exclude Deferred Revenue	Exclude Derecognition	Appendix 2-BA
	[A]	[B]	[C]	[D] = [A]-[B]-[C]
Test Year 2028	343,965,642	-26,617,890	41,876,308	328,707,225
Test Year 2029	356,947,682	-29,317,863	42,641,874	343,623,671

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UNDERTAKING NO. JT5.12:

Reference(s): **Exhibit 6, Tab 2, Schedule 2**

To explain the figure for Capital Contributions for 2026 to 2029 in the April 2nd update to the PILs model.

RESPONSE:

The tax adjustments for Capital Contributions for 2026 to 2029 in the April 2nd update to the PILs model were kept constant with the tax adjustments for the 2025 Test Year. The tax addback of the "Capital Contributions Received (ITA 12(1)(x))" and the tax deduction of the "ITA 13(7.4) Election - Capital Contributions Received" in the PILs model, net to $nil under income tax rules. Note that the approach is consistent with the approach taken by Toronto Hydro in its last rate application.

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UNDERTAKING NO. JT5.13:

Reference(s): **DVA Continuity Schedule**

To file an updated version of the complete DVA Continuity Schedule.

RESPONSE:

Please refer to Appendix A to this response for the updated DVA Continuity Schedule, which includes the Group 1 rate riders. Toronto Hydro's derivation of Group 2 rate riders are provided as Appendix B.

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UNDERTAKING NO. JT5.14:

Reference(s): GA Analysis Workform

To file an updated version of the GA Analysis Workform.

RESPONSE:

Toronto Hydro has updated the GA Analysis Workform based on 2023 actuals. Please refer to the Excel spreadsheet entitled:
"THESL_JT5.14_AppA_ GA Analysis Workform_Updated_20240422.xlxb".

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.15:

Reference(s): 1B-Staff-49, Appendix A

To file the updated model for accelerated CCA at Exhibit 6, Tab 2, Schedule 1.

RESPONSE:

Please see Appendix A to this response which represents the corrected $3.7 million savings indicated at the Technical Conference.[1] Toronto Hydro notes that this represents an updated version of the model that was filed as part of the response to interrogatory 1B-Staff-49 to account for the double declining aspect of Capital Cost Allowance (“CCA”) calculations.

[1] Technical Conference Vol 5 (April 12, 2024) at page 32, lines 13-24.

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UNDERTAKING NO. JT5.16:

Reference(s): **1B-Staff-49**

To provide the sensitivity analysis on the NPV calculations, and run the CCA numbers after 2028.

RESPONSE:

Please see Appendix A to this response. The revised model continues to present an in-service date of 2025 for accounting and tax purposes to ensure comparability with the version of the model filed in response to undertaking JT5.15. However, as requested by OEB Staff, the calculation of the CCA has been adjusted to reflect the impacts of the phasing out of accelerated CCA, reflecting the maximum allowable CCA deduction, based on current tax rules and legislation, if the in-service date was in 2028 or beyond.

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UNDERTAKING NO. JT5.17:

Reference(s): Exhibit 1B, Tab 4, Schedule 2

To review and assess and report back on prioritization or the ability to prioritize and rank the four pilot project concept areas using the key considerations outlined in Exhibit 1B, Section 4.1.

RESPONSE:

Toronto Hydro included the project concept areas identified in Appendix A of Exhibit 1B, Tab 4, Schedule 2 because it believes that pilot projects in these areas could provide value from an innovation perspective. To be helpful in response to this undertaking, Toronto Hydro performed a high-level preliminary analysis to illustrate the relative ranking and prioritization of the four pilot project concepts based on a cursory review of the criteria outlined in the referenced evidence. This information is illustrative and should not be relied upon as determinative. A finalized ranking and prioritization will only be possible once Toronto Hydro scopes out the potential project details under each of these concept areas.

	EV Demand Response	**EV Commercial Fleets**	**Flexible Connections**	**Advanced Microgrids**
Business Value	Medium. Overnight charging under ULO rate already provides incentives for managed charging.	High. The grid impact of electrified fleet EVs can be significant.	High. Alternative to rejecting a large DER connections where the system is constrained.	To be evaluated on the facts

	EV Demand Response	EV Commercial Fleets	Flexible Connections	Advanced Microgrids
Feasibility	High. Toronto Hydro has experience with EVDR through the Elocity pilot project.	Medium. Toronto Hydro has experience with EVDR but not in a commercial fleet context.	To be evaluated on the facts	To be evaluated on the facts.
Scalability	High. Residential customers will tend to have more similar consumption patterns.	Medium. Commercial fleets tend to have more unique and distinct requirements.	Medium. Notice of proposal to amend DSC may require distributors to develop and offer this option.	Low. Based on current understanding of potential use cases.
External Funding	High. NRCan funding opportunity has been identified.	To be evaluated on the facts	To be evaluated on the facts	To be evaluated on the facts

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UNDERTAKING NO. JT5.18:

Reference(s): **LRAMVA Workform**

[placeholder]

RESPONSE:

Toronto Hydro notes that this undertaking was made as placeholder in response to a "subject to check" response to a request made by OEB Staff. The full scope of the undertaking is to confirm, if not provide, the final IESO EM&V reports that support the updates for the 2020-2022 lost revenues.

Toronto Hydro confirms that the requested information can be found in the following documents filed as part of the April 2, 2024 update:

- Appendix R [excel] – THESL_9_T02_S03_App R - Non-Retrofit Projects (Jun2023-Dec2023)_20240402
- Appendix S [excel] - THESL_9_T02_S03_App S - Retrofit Projects (Jun2023-Dec2023)_20240402

These appendices were included in addition to Appendices B to H previously submitted.

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UNDERTAKING NO. JT5.19:

Reference(s): 3-VECC-25

To provide net forecasted customer additions (or total customer count) in the CSMUR, GS 1,000 to 4,999 kW and Large-Use rate classes, broken down between those known through first-hand information and those which are estimated; for the estimates, to provide formulas used to calculate the estimates.

RESPONSE:

In reviewing the transcript, Toronto Hydro notes that this undertaking does not capture the request made by OEB Staff. The scope of the undertaking is to provide the high-level backup calculations for the customer numbers for the CSMUR, GS 1,000 to 4,999 kW and Large-Use rate classes and the derivation for the forecasted period.

An incremental CSMUR unit forecast was developed based on Toronto's suite metering market share historical data and the number of suites divided for commissioned retrofitting and new construction. Please refer to Appendix A for the incremental additions used in the CSMUR forecast.

Please refer to JT1.1.17, part a) for net forecasted customer additions in the GS 1,000 to 4,999 kW and Large-Use rate classes.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.20:

Reference(s): 1B-Staff-54(d)

To explain the change to the Non-Wires Solutions program in the context of the NPV calculation and whether it changes the PIM measure or the metric itself.

RESPONSE:

The change to the number of stations targeted by the LDR program did not impact the overall 30 MW target. As such, there are no downstream impacts to the Benefit-Cost Analysis (BCA), the NPV analysis or the PIM resulting from this change.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.21:

Reference(s): **1B-Staff-34(c)**

In reference to 1B-Staff-34, Part C, the table compares PIM targets. Provide or request Scott Madden to expand table to include TH's proposed PIM scorecard. Classify the proposed PIMs based on the categories in the table. Consider if its appropriate to put TH PIM against those in the IR in question, and provide or set out rationale for why not.

RESPONSE (PREPARED BY SCOTTMADDEN):

As an initial matter, Toronto Hydro's performance incentive mechanism is unique and does not necessarily fit within the context of the categories "Penalty" and "Reward". Penalty-only mechanisms generally impose financial consequences on utilities for failing to meet certain performance standards, targets, or regulations. Reward-only mechanisms generally provide financial incentives for meeting or exceeding certain targets or outcomes. Toronto Hydro's mechanism provides an upfront discount to the approved ROE that can be earned back by achieving certain performance targets.

However, in the context of Penalty and Reward, Toronto Hydro's mechanism more closely aligns with Penalty since the approved ROE can only be achieved – all other things the same – if the performance targets are met. In addition, there no opportunity to exceed the approved ROE. Toronto Hydro's performance incentive mechanism is listed in Table 1 below.

Table 1: Jurisdictional Review of PIMs by Incentive Type

Jurisdiction	Utility	Penalty Only Performance Incentive	Reward Only Performance Incentive	Penalty and Reward Incentives	Total Metrics
Alberta	ATCO Electric	-	-	-	0
California	SDG&E	-	1	-	1
California	PG&E	-	1	-	1
Hawaii	Hawaiian Electric	-	3	2	5
Illinois	Ameren	-	-	1	1
Maine	Central Maine Power	6	-	-	6
Massachusetts	Eversource	7	1	-	8
Minnesota	Northern States Power Co.	-	-	-	0
New Jersey	PSE&G	-	-	-	0
New York	Con Edison	-	7	-	7
New York	National Grid	-	9	-	9
North Carolina	Duke Energy	1	2	-	3
Nova Scotia	Nova Scotia Power	-	-	-	0
Ohio	AEP	-	-	-	0
Pennsylvania	PECO	-	-	-	0
Rhode Island	Rhode Island Energy	4	1	-	5
UK RIIO	General Review	-	-	10	10
Vermont	Green Mountain Power	-	-	-	0
Ontario	Toronto Hydro	12	-	-	12

Table 2 below shows how Toronto Hydro's Custom Scorecard outcome categories align with the incentive outcome categories of other utilities within the jurisdictional review.

Table 2: Jurisdictional Review of PIMs by Incentive Category

Jurisdiction	Utility	System Reliability & Resilience	Customer Service & Experience	Environment, Safety, & Governance	Efficiency & Financial Performance
Alberta	ATCO Electric				
California	SDG&E	✓			
California	PG&E	✓			
Hawaii	Hawaiian Electric	✓	✓	✓	✓
Illinois	Ameren				✓
Maine	Central Maine Power	✓			
Massachusetts	Eversource	✓			✓
Minnesota	Northern States Power Co.				
New Jersey	PSE&G				
New York	Con Edison	✓		✓	✓
New York	National Grid	✓		✓	✓
North Carolina	Duke Energy	✓	✓	✓	✓
Nova Scotia	Nova Scotia Power				
Ohio	AEP				
Pennsylvania	PECO				
Rhode Island	Rhode Island Energy	✓			✓
UK RIIO	UK RIIO	✓	✓	✓	✓
Vermont	Green Mountain Power				

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.22:

Reference(s): 1B-Staff-34(d)

To ask ScottMadden to comment on trends of the PIMs within the scope of the scan it performed

RESPONSE (PREPARED BY SCOTTMADDEN):

Among the jurisdictions examined, ScottMadden did not find a trend regarding the compensation structure of performance incentive mechanisms and whether recent measures are more penalty or more reward focused.

ScottMadden did find that performance incentive measures are receiving increased attention for their ability to align expanded policy objectives with shareholder and customer interests. Traditionally, performance incentives have been established for utilities to achieve reliability metrics and program-based performance (e.g., achieved kWh savings, kW reduction). However, more recent performance incentives are providing additional earning opportunities for achieving expanded policy objectives, such as distributed energy resource expansion and utilization, renewables integration, beneficial electrification, and dynamic rate enrollment.

Jurisdictions have stated performance incentives are necessary to achieve desired policy outcomes include the Hawaii Commission, which stated "incentive mechanisms can achieve … objectives, such as incenting cost reduction, incenting achievement of policy goals, improving performance, integrating technological advances, supporting new types of customer choice, and encouraging a low-cost, customer-centric future."

In addition, the New York Commission noted that "outcome-based incentives are the most effective approach to address the mismatch between traditional revenue methods and modern electric system needs, while aligning utility shareholder interests with consumer interests."

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.23:

Reference(s): Exhibit 1B, Tab 2, Schedule 1, Appendix A, Pg 7

To ask ScottMadden to comment on the similarities and differences between Ofgem's uncertainty mechanisms and Toronto Hydro's proposed variance account; (b) to explain the degree to which other volume drivers were considered, and why the DRVA was chosen over that mechanism

RESPONSE (PREPARED BY SCOTTMADDEN):

Please see the table below for a comparison of the Ofgem uncertainty mechanisms to Toronto Hydro's proposed DRVA.

	Ofgem Uncertainty Mechanisms	Toronto Hydro DRVA	Comparison
Objectives	▪ Adjust distributor revenue allowances to changes in operating conditions outside of distributor company control	▪ Protects both ratepayers and the utility from structural unknowns in forecasted costs and revenues	▪ Generally consistent
Mechanism Type	▪ Volume-driven: adjusts allowances due to uncertainty about future demand levels (e.g., low carbon technology uptake) ▪ Pass-through: expenditure is outside company control (e.g., pension funding) ▪ Indexed: evolution of prices is unknown (e.g., inflation) ▪ Use-it-or-lose-it: adjusts allowances where a specific activity has to be done but costs are uncertain (e.g., improving reliability for worst-served customers)	▪ Demand-Related Expenditure Variance Subaccount – Due to policy, customer adoption, or technology market uncertainty ▪ Demand-Related Revenue Variance Subaccount – Result from weather-normalized variances in billing determinants (i.e. customer count, kWh and kVA).	▪ DRVA is generally consistent with volume-driven uncertainty mechanism

	Ofgem Uncertainty Mechanisms	Toronto Hydro DRVA	Comparison
	▪ Administrative Re-opener: need, timing, or scope of project is unclear (e.g., net-zero implementation)		
Adjustment Type	▪ Symmetrical	▪ Symmetrical	▪ Generally consistent
Cost Types	▪ For reopeners, both capital and O&M readjusted based on cost assessment ▪ For volume-driven mechanisms, unit rate of incremental capital funding determined at start of price control period – Incremental operational funding provided at a value of 10.8% of each unit of incremental capital provided	▪ Both capital and O&M for demand-related investments	▪ Generally consistent; incremental O&M funding in UK RIIO differs by uncertainty mechanism type
Adjustment Timing	▪ Automatic (pass-through, indexation, use-it-or-lose-it, volume-driven) ▪ During price control period after administrative review (reopeners)	▪ Next rebasing	▪ Ofgem mechanism provides for recovery/ refund within the plan while DRVA defers recovery/ refund until the end of the plan
Materiality Threshold	▪ No materiality threshold for automatic adjustments ▪ Materiality threshold of 0.5% of annual average base revenue for most reopener mechanisms	▪ $1 million materiality threshold	▪ Ofgem provides no materiality threshold for automatic adjustments and a percentage-based threshold for administrative adjustments, whereas the OEB has a $1 million materiality threshold

RESPONSE (PREPARED BY TORONTO HYDRO):

As noted in Exhibit 1B, Tab 2, Schedule 1 at page 35, due to a confluence of external factors (i.e., policy, technology and consumer behaviour changes) Toronto Hydro is entering a period of unprecedented change and transformation, as customers, communities and governments at all levels are actively embarking on an energy transition to mitigate the existential and economic impacts of climate change. Decarbonization is expected to create new roles for electricity, including as an energy source for transportation and building heating systems. While there is certainty that fundamental change is ahead, there are degrees of uncertainty about how that change will unfold (e.g., the pace and adoption of electrified technologies such as EVs and heat pumps; the role of low-emission gas; and the scale of local vs. bulk electricity supply).

In light of the uncertainty and potential for variability noted above, Toronto Hydro requires greater flexibility to manage demand-driven aspects of its plan in order to protect both the rate payers and the utility from structural unknowns in forecasted costs and revenues. The proposed DRVA provides Toronto Hydro the necessary flexibility using a regulatory mechanism (a variance account) that the utility and the OEB have ample experience with over the last two custom IRs.

At this early stage of the energy transition, a volumetric mechanism would be difficult to design and implement since the relationship between volumes and costs/revenues remains subject to structural uncertainties associated with the factors noted above, and higher degree of variability as Toronto Hydro (i) gains experience integrating new technologies into the grid, (ii) adapts to changing policies and customer behaviours, and (iii) develops advanced capabilities to analyze, predict and address these dynamic external factors into its planning and execution processes. For these reasons, a volumetric mechanism may not be able to effectively address the noted concerns with respect to uncertainty and variability in demand, and as a result could impair the utility's flexibility to: (i) protect customers from structural unknowns in forecasted costs and revenues, (ii) adapt to emerging business conditions related to energy transition, and (iii) take least regret actions to prepare the grid and its operations for a decarbonized and electrified future and provide near-and long-term value to ratepayers.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.24:

Reference(s): 1B-DRC-06, Part C

To comment or summarize how the governance framework and the selection of innovation projects or initiatives compares to the other jurisdictions that it reviewed in formulating this innovation fund proposal.

RESPONSE:

As described in the exchange leading up to this undertaking noted in the April 12, 2024, Technical Conference Transcript at page 64, line 27 to page 65, line 22, Toronto Hydro's jurisdictional scan assessed: (i) which jurisdictions/utilities have similar funds as part of their regulatory framework, (ii) what types of innovation form part of these funds, and (iii) how much funding is being allocated to investments in innovation through similar funds. The referenced research did not specifically consider the governance frameworks in other jurisdictions; however, Toronto Hydro's third-party expert Scott Madden did consider this information in the response to Undertaking JT3.36.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.25:

Reference(s): 1B-EP-23, Part E, Pg 3

To ask ScottMadden to provide the criteria it used to select jurisdictions or utilities in its review.

RESPONSE (PREPARED BY SCOTTMADDEN):

Criteria used to select jurisdictions/utilities in ScottMadden's review included:

- Jurisdictions that have passed mandates regarding climate/ clean energy goals
- Jurisdictions that have implemented elements of performance-based regulation
- Utilities that have proposed or implemented performance-based regulation in the context of meeting mandates regarding climate/ clean energy goals

It is important to note the review was not intended to be a jurisdiction-by-jurisdiction review of rate plans.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.26:

Reference(s): 1B-EP-23, Part E, Pg 3

To ask ScottMadden to comment on whether there were utilities that were excluded that are in a similar stage to Toronto Hydro in the energy transition

RESPONSE (PREPARED BY SCOTTMADDEN):

ScottMadden's review did not specifically exclude any jurisdictions or utilities that met the criteria described in JT5.25.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.27:

Reference(s): 1B-EP-23, Part E, Pg 3

To ask ScottMadden to confirm that within the context of Ofgem, it relies heavily on its own analysis to set the revenue requirements, and that under RIIO-ED-2, Ofgem offers incentives to distributors who manage to present forecasts that do better than Ofgem's benchmark for cost categories for which Ofgem has its high confidence in forecasting.

RESPONSE (PREPARED BY SCOTTMADDEN):

Within the Ofgem UK-RIIO context, revenue requirements are largely based on Ofgem's assessment of each distribution company's analysis of expected costs over the price control period. However, we would not characterize it as heavily. Ofgem does use other information outside of a company's own analysis to set revenue requirements, including comparisons of plans from other electric distributors, international benchmarking evidence, and information on historical performance.

In RIIO-2, Ofgem presented the Business Plan Incentive (BPI) mechanism, which is designed to encourage efficient revenue requirements based on justified cost forecasts. Under BPI mechanism, companies present business plans that identify costs and outputs, such as service quality. The quality of the business plans is subject to rewards or penalties up to

+/-2% of the utility revenues.[1] The greater confidence that Ofgem has in the proposed costs, the higher the incentive rate.

[1] Jamasb, Tooraj. "Incentive Regulation of Electricity and Gas Networks in the UK: From RIIO-1 to RIIO-2." Economics of Energy & Environmental Policy, vol. 10, no. 2, Sept. 2021

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.28:

Reference(s): Exhibit 4

To confirm that 2 JA, JB, JC, and JD have been updated, and if not, to file updated versions.

RESPONSE:

Toronto Hydro confirms that it filed updated OEB Appendices 2-JA, 2-JB, 2-JC, and 2-L in response to interrogatory 4-SEC-89.[1]

[1] Toronto Hydro filed the OM&A Programs Table (OEB Appendix 2-JC) instead of the OM&A by USoA Table (OEB Appendix 2-JD) in accordance with section 2.4.2 of the OEB's Filing Requirements for Electricity Distribution Rate Applications (December 15, 2022).

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.29:

Reference(s): Exhibit 4

Within the System Access category, to provide the annual contributions by program (Customer and Generation Connections, Externally Initiated Plant Relocations and Expansion, Generation Protection Monitoring and Control, Load Demand, and Metering at that resolution) for the 2023 actual, and project it forward by any year that's affected by the April 2, or January 29 updates.

RESPONSE:

Toronto Hydro notes that the 2025-2029 Customer and Generation Connections (Exhibit 2B, Section E5.1) and Externally Initiated Plant Relocations and Expansion (2B, E5.2) investments plans were not affected by the January 29th and April 2nd updates or by the 2023 actuals and updated bridge. The table below provides the 2023-2029 capital contributions by program/segment updated for 2023 actuals and revised 2024 bridge. The 2025-2029 forecasts align with those provided in Section 4 of each program/segment.

Table 1: System Access Capital Contributions ($ Millions)

Program/Segment	2023	2024	2025	2026	2027	2028	2029
Customer Connections	(71.8)	(71.9)	(82.9)	(89.0)	(94.7)	(100.5)	(106.3)
Generation Connections	(0.1)	0.0	0.0	0.0	0.0	0.0	0.0
Externally Initiated Plant Relocations & Expansion	(68.6)	(75.6)	(81.1)	(61.8)	(46.1)	(46.7)	(48.6)
System Access Capital Contributions	**(140.4)**	**(147.5)**	**(164.0)**	**(150.7)**	**(140.7)**	**(147.2)**	**(154.9)**

There are no capital contributions forecasted for the Generation Protection, Monitoring and Control (2B, E5.5), Load Demand (2B, E5.3) or Metering (2B, E5.4) programs.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.30:

Reference(s): Exhibit 4

For the Station Renewal and IT/OT System programs, to provide the Capex data by segment, by year; similarly for 2023 and any year that may have been affected by the January 29 or April 2 updates.

RESPONSE:

Please see Table 1 and Table 2 below for the updates to the 2023-2024 segment-level capital expenditures for the Stations Renewal and IT/OT Systems programs, respectively. Toronto Hydro notes that there are no changes to the 2025-2029 forecasts for these programs since the application filed on November 17, 2023.

Table 1: Stations Renewal Program Historical & Forecast Program Costs ($ Millions)

Segments	Actual				Bridge	Forecast				
	2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Stations TS	12.0	16.7	18.8	9.6	19.5	31.1	31.1	30.0	25.0	16.8
Stations MS	11.5	12.4	2.4	3.3	12.0	10.2	11.3	13.4	17.0	18.4
Stations Control & Monitoring	4.7	3.1	5.1	6.9	8.1	11.9	12.1	13.5	13.1	14.2
Stations Ancillary and Battery	1.9	1.2	1.1	2.1	1.0	3.2	2.2	1.9	3.4	2.9
Total	**30.2**	**33.6**	**27.4**	**21.9**	**40.6**	**56.4**	**56.7**	**58.8**	**58.6**	**52.3**

In preparing the response to this undertaking, Toronto Hydro identified an error in Exhibit 2B, Section E8.4, Table 4 at pages 15-16. The 2022 actuals for Communication

Infrastructure was understated by $0.6 million and is corrected in the table below. This error was isolated and does not affect the total costs in that year or the amounts included in the OEB Appendices.

Table 2: IT/OT Historical & Forecast Program Costs ($ Millions)

Segments	Actual				Bridge	Forecast				
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
IT Hardware	11.6	15.1	14.9	17.3	12.0	17.5	19.8	22.6	18.1	20.3
IT Software	22.2	26.6	42.4	41.6	42.1	38.6	40.6	41.0	33.3	34.8
Communication Infrastructure	3.6	3.0	0.7	2.3	1.8	3.7	2.5	0.9	6.8	1.0
Total	**37.4**	**44.7**	**58.0**	**61.2**	**55.9**	**59.7**	**62.9**	**64.5**	**58.2**	**56.0**

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.31:

Reference(s): **9-Staff-355**

To provide an updated LRMVA using the original LRMVA threshold.

RESPONSE:

Please refer to Table 1 for a calculation of LRAMVA using the original LRAMVA threshold (the "Original LRAMVA Threshold"). Please note that the following CDM savings were excluded to complete this calculation: (a) the CFF wind-down adjustment to the LRAMVA threshold; and (b) 2018 CDM persistence in the threshold and 2018 actual CDM savings.[1]

Table 1: Summary of LRAMVA amounts using the Original LRAMVA Threshold

	Residential	CSMUR	GS<50kW	GS 50-999kW	GS 1000-4999kW	Large User
Original ($ M)	-$0.03	-$0.00	-$5.73	-$8.07	-$2.20	$3.23

The Original LRAMVA Threshold

The LRAMVA amounts in Table 1 are based on the Original LRAMVA Threshold which includes all of the Toronto Hydro CDM programs under the initial CFF plan (prior to the discontinuation of CFF), while the actual CDM savings to be used for the LRAMVA

[1] Toronto Hydro included 2018 CDM persistence in the modified threshold as this information was not included in the Original LRAMVA Threshold that the OEB approved in EB-2018-0165, due to the uncertainty related to CFF. This proposal aligns with VECC's position in EB-2018-0165, VECC Submission (August 28, 2019) at page 21.

calculations only includes programs that the utility continued to manage as contractually obligated under the CFF wind-down, creating an "apples to oranges" comparison. While the Original LRAMVA Threshold is consistent with what was previously approved, Toronto Hydro reiterates that using contrasting CDM assumptions does not provide a fair comparison of LRAMVA as described in Conservation and Demand Management Guidelines for Electricity Distributors.[2] Specifically the guidance that LRAMVA should capture variances of CDM activities undertaken by electricity distributors.

The Proposed Modified LRAMVA Threshold

The modified LRAMVA threshold as outlined in Exhibit 9, Tab 2, Schedule 3, page 3 (the "Modified LRMVA Threshold") was proposed because it addresses the impact of the Conservation First Framework's ("CFF") discontinuation. The Modified LRAMVA Threshold row includes programs that were fully discontinued, and those which the utility was contractually obligated to complete as part of the CFF wind-down, which would allow for a fairer comparison between a modified threshold and the actual CDM savings from the CFF wind-down period. It also includes 2018 CDM persistence, which was only excluded from the original threshold due to the uncertainty related to CFF at the time.

[2] EB-2021-0106, Conservation and Demand Management Guidelines for Electricity Distributors, Section 8, at page 26.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.32:

Reference(s): **Clearspring Working Papers**

In Clearspring's working papers, to review the values for approximately 30 entries in the field called alloc and their associated formulas, to make corrections and adjustments as deemed necessary; to comment on findings and provide them to PEG.

RESPONSE (PREPARED BY CLEARSPRING):

The “alloc” field is a calculated ratio that takes a proportion of A&G expenses and allocates those expenses to the total cost amount within the study. This is useful when the sample contains several utilities with G, T, and D functions. Clearspring took the approach of not making data adjustments within the ratio calculation when calculating the allocator.

In deciding not to make adjustments, there are 28 observations out of the 1,642 total observations that are either negative or higher than 100%. If these 28 values are changed to the prior year value (or the next year value for observations in the year 2000), a minor change in the results occurs. Rather than Toronto Hydro having a benchmark score of -22.9% during the 2025 to 2029 CIR period, the score changes to -21.9%.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.33:

Reference(s): **Clearspring Model**

In Clearspring's model, the O&M-based scope variable, to review the values for approximately three companies, to review, comment, provide updates.

RESPONSE (PREPARED BY CLEARSPRING):

The O&M-based scope variable is a calculated ratio that measures the level of D functions relative to G, T, and D within each observation. Clearspring took the approach of not making data adjustments within the ratio calculation when calculating the variable.

In deciding not to make adjustments, there are 3 observations/values out of the 1,642 total observations that are higher than 100%. If these 3 values are changed to the prior year value, a minor change in the results occurs. Rather than Toronto Hydro having a benchmark score of -22.9% during the 2025 to 2029 CIR period, the score changes to -23.3%.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.34:

Reference(s): **Clearspring Working Papers**
1B-Staff-67

Within the Clearspring working papers and with reference to 1B-Staff-67a, distribution substation data, to review the data and comment on whether there are problems in the counting methods; whether corrections would improve the performance of Toronto Hydro; whether the corrected data could be provided in a timely manner; and to provide any other commentary or alternative models that could be informative.

RESPONSE (PREPARED BY CLEARSPRING):

As Clearspring stated in 1B-Staff-67a, there are hundreds of thousands of addresses and observation lines regarding the construction of the substation variables. In reality the number is well over one million data lines. Clearspring undertook extensive data processing efforts to calculate the substation variables with a view of improving the model specification. Clearspring did this utilizing formulas and made a good faith effort in calculating the variables and provided those formulas and all the data in our working papers. It is not feasible in the very short amount of time since this undertaking was requested, nor worthwhile in Clearspring’s view, to examine the data line-by-line. Examining every line would take many weeks, if not months, of work. Clearspring is of the view that its data processing approach was reasonable and the models are enhanced by the inclusion of the substation variables.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.35:

Reference(s): **Clearspring Working Paper**

To clarify and confirm Toronto Hydro's coverage area.

RESPONSE (PREPARED BY CLEARSPRING):

The Clearspring data for Toronto Hydro’s service area came from GIS mapping from information subscribed to from Platt’s. The 642 km squared number cited by PEG is from the OEB Yearbook data reporting. If the 642 km number is inserted into the model for Toronto Hydro, the benchmark score moves from -22.9% to -27.9%.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.36:

Reference(s): **Clearspring Working Paper**

To review the variable construction and the interaction between logged and unlogged.

RESPONSE (PREPARED BY CLEARSPRING):

Regarding the interaction term with the percentage overhead and forestation, Clearspring constructed this the same way as we previously did, as contained in the Hydro One Joint Report issued by Clearspring and PEG. We logged the forestation variable and then multiplied that by the percentage of overhead (not logged). While this construction of the variable makes intuitive sense to Clearspring by modifying the elasticity on the forestation variable by the proportion of overhead assets, we note that modifying the variable to also take the natural log of the percentage of overhead assets would create a minor change in the results. Rather than the reported -22.9% benchmark score, when both components are logged the result becomes -20.9%.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.37:

Reference(s): 1B-Staff-60

To provide the full list of instances for the three scale variables in 1B-Staff-60, part b.

RESPONSE (PREPARED BY CLEARSPRING):

The custom elasticities are provided in the Excel file "Dataset Dx Custom Elasticities JT5.37". The elasticities are found in columns B, C, and D. This file is provided on a confidential basis.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.38:

Reference(s): 1B-Staff-102

To clarify the response to 1B-Staff-102c, whether the congested urban variable referred to cities or metro areas.

RESPONSE (PREPARED BY CLEARSPRING):

As far as Clearspring recalls, it was city populations above 200,000 that originally served as the criterion to be included in the analysis, as referred to in my report in the last Toronto Hydro proceeding [EB-2018-0165]. The vast majority of the congested urban core areas were contained in cities with populations well above 200,000.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.39:

Reference(s): 1B-STAFF-75J

To give the applicant's view of the causes of Toronto Hydro's such poor SAIFI and good SAIDI scores

RESPONSE:

In reviewing the transcript, Toronto Hydro notes that this undertaking does not fully capture the request made by OEB Staff (PEG). The scope of the undertaking is to provide insights from an engineering perspective on underlying causes of Toronto Hydro's SAIFI and SAIDI performance relative to the benchmark in the context of the reliability benchmarking study conducted by Clearspring.

Toronto Hydro's strong SAIDI performance reflects the distributor's commitment over the years to delivering safe and reliable power to its customers while minimizing the duration of interruptions. This commitment is evident not only in the econometric reliability benchmarking study produced by Clearspring, but also when comparing SAIDI trends with those of other large distributors within the Province of Ontario, as shown in 2B-Staff-245. As evident through Customer Engagement, Toronto Hydro's customers also prioritize the need to continue to address the duration of outages when it comes to reliability preferences. From an engineering and operational perspective, Toronto Hydro attributes its strong SAIDI performance over the years to historical investments in renewal and system enhancement efforts. Particularly, the deployment of remote-operable switches (also known as SCADA controlled switches) and investments in enhancements to Toronto

Hydro's Network Management System (NMS) have had significant impacts on minimizing outage duration. SCADA controlled switches provide operational efficiencies, enabling power system controllers to perform remote switching for fault isolation and restoration. Historically, restoration crews on the ground had to perform these tasks manually, which prolonged outages and restoration times. For more information, please see response to 1B-Staff-98.

In regard to higher SAIFI performance relative to the econometric benchmark, Toronto Hydro views this as largely a reflection of its distribution system (e.g. age, condition, topology, existence of legacy equipment, etc.) and its operating environment. As outlined in the Executive Summary (Exhibit 1B, Tab 1, Schedule 1), Toronto Hydro operates in a complex urban environment within the City of Toronto due to the dense nature of the city's population (4,428 people per sq. kilometer), coupled with a growing tree canopy consisting of approximately 11.5 million trees. This requires approximately 15,000 circuit kilometers of overhead conductors and 13,800 circuit kilometers of underground cable to service the city's 630 square kilometers. These realities of the distribution system result in a high volume of short-duration high-impact interruptions. On average, between 2018 to 2022, 23% of SAIFI contribution (excluding MEDs and Loss of Supply) are associated with interruptions lasting less than 5 minutes.

A large share of SAIFI contribution to Toronto Hydro's distribution system originates from the Horseshoe region, which includes feeders that service thousands of customers. Due to the nature of these feeders (length, topology, and customer density), interruptions that occur along the feeder trunk – i.e. system faults downstream of the station circuit breaker and upstream of expulsion or current limiting fuses – result in a high SAIFI impact, interrupting all customers served from the feeder. Furthermore, the realities of Toronto Hydro's operating context can prevent the utility from constraining certain trunk level outages to less than one minute in duration, meaning that a higher proportion of large, but still very short, outages are counted against SAIFI as sustained interruptions. For example, Toronto Hydro makes extensive use of "hold-offs" to ensure employee and third-party safety when working on or near lines. These hold-offs prevent automatic breaker reclosing under fault conditions. Also, Toronto Hydro does not have control authority over transmitter-owned equipment (including feeder circuit breakers) for certain transformer stations in the Horseshoe region, which in turn prolongs restoration times due to incremental coordination requirements with the transmitter. Please see response to 2B-EP-27 for more information on distribution operation and protection practices, and 2B-Staff-162, part (c) for design differences between the Downtown Core and Horseshoe region.

Additionally, Toronto Hydro's distribution system currently lacks certain advanced technologies aimed at improving system reliability. These include, but are not limited to, the deployment of mid-line reclosers along distribution feeders and the implementation of Fault Location, Isolation, and Service Restoration ('FLISR') or Distribution Automation ('DA'). For more details on Toronto Hydro's plans within the 2025-2029 rate period for mid-line recloser implementation and other strategic investment initiatives that are designed to improve reliability and resiliency of the distribution system over the long term, please refer to Section E7.1 and D5.2.1. For more details on it's FLISR implementation, please refer to Section D5.2.1.2 and D5.3.2.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.40:

Reference(s): **Exhibit 1B, Tab 3, Schedule 3, Appendix A, Page 23**

Toronto Hydro and Clearspring to comment on declines in THESL's total cost efficiency in 2010 and 2011.

RESPONSE PREPARED BY CLEARSPRING:

In the two years of 2010 and 2011, the Company's costs in the total cost benchmarking study increased by an average annual rate of 9.0%. This total cost increase outpaced the total cost model benchmarks for those years. The model benchmarks estimated an average annual increase of 3.3% during those two years.

RESPONSE PREPARED BY TORONTO HYDRO:

Toronto Hydro respectfully disagrees with the characterization of its 2010 to 2011 cost performance as a decline in cost efficiency. It is Toronto Hydro's understanding that the costs underpinning the Total Costs values undergo a series of normalizations, and as such is unable to comment on the trends using those data points. However, Toronto Hydro is able to comment on capital expenditure and OM&A trends between 2009 and 2011 based on data disclosed in its 2011 EDR (EB-2010-0142) and 2015-2019 CIR (EB-2014-0116) Applications.

<u>Capital Expenditures</u>

The increase in capital expenditures between 2009 and 2010 is primarily attributed to emerging requirements associated with:

- Stations Expansion (Copeland TS project, known as Bremner TS at the time);
- The need to address worst performing feeders (i.e. FESI-7); and
- Safety requirements by replacing and upgrading handwells to reduce the risk of contact voltage.

It is also attributed to incremental requirements to convert smart meters in 2010 and 2011 and to replace underground direct buried cables staring in 2010.

OM&A Expenses

The increases in OM&A costs between 2009 and 2011 were driven by Administrative and Other Costs, in part related to internal resources to support the safe and efficient delivery of the capital and operational work programs over that time. Toronto Hydro notes that its headcount increased by about 200 FTE in that period. A more detailed analysis with respect to the specific drivers for the OM&A increase over this period could not be performed within the timeframe of responding to this undertaking.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

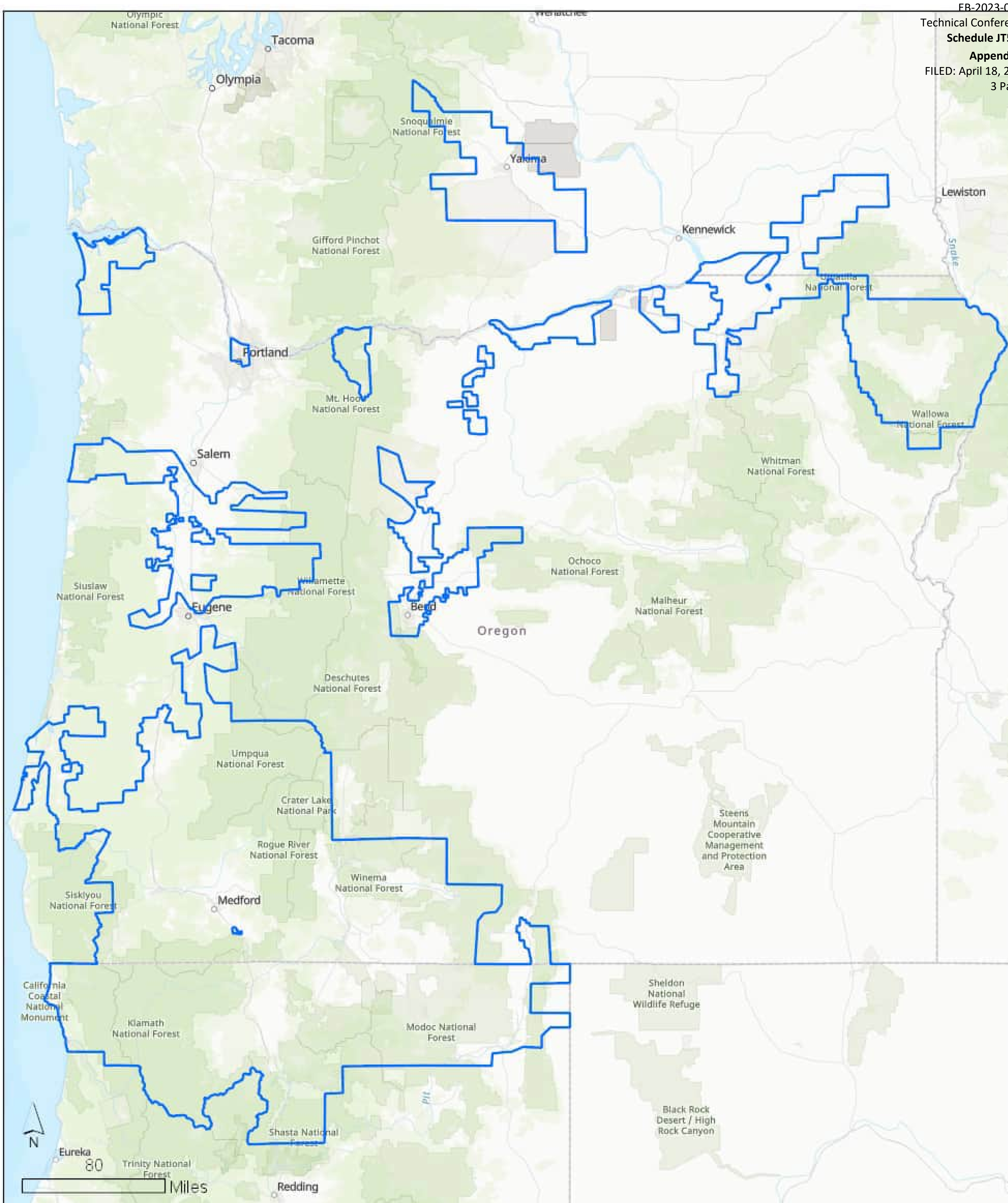
UNDERTAKING NO. JT5.41:

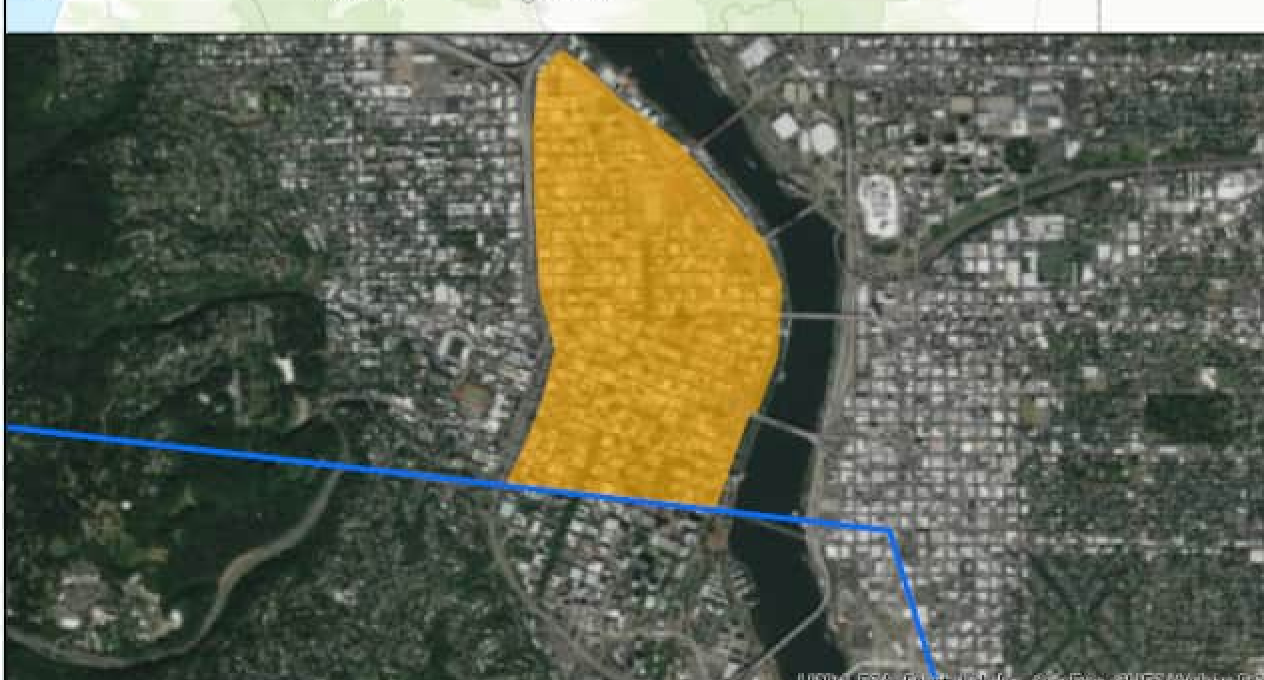
Reference(s): Clearspring Working Paper

To file the two maps related to the congested urban variables.

RESPONSE (PREPARED BY CLEARSPRING):

Clearspring examined our files and we have the maps for Potomac Electric Power and PacifiCorp. Regarding PacifiCorp, there are two maps because the company is a merged entity serving the historic territories of Pacific Power and Rocky Mountain Power. The three maps are provided.

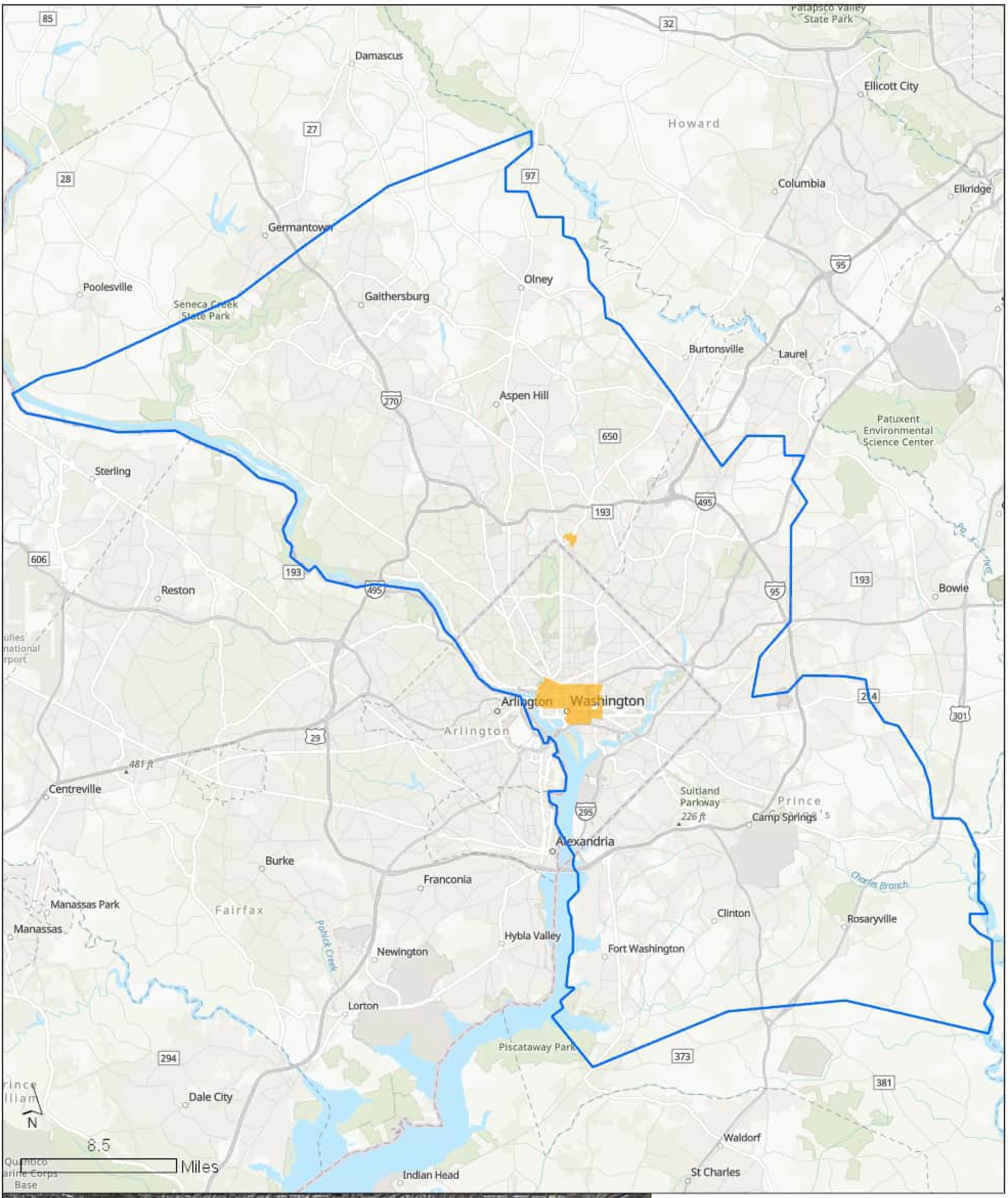


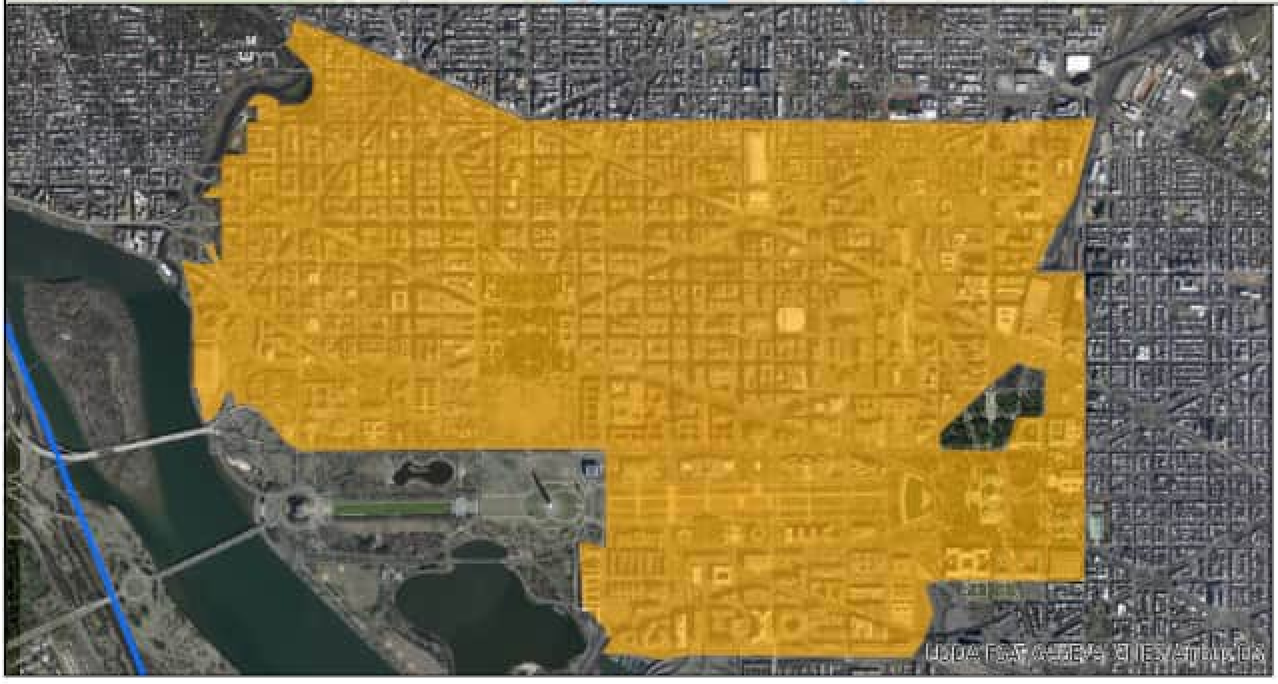


Congested Urban
Service Territory

Percent Congested: 0.0026%

PACIFIC POWER



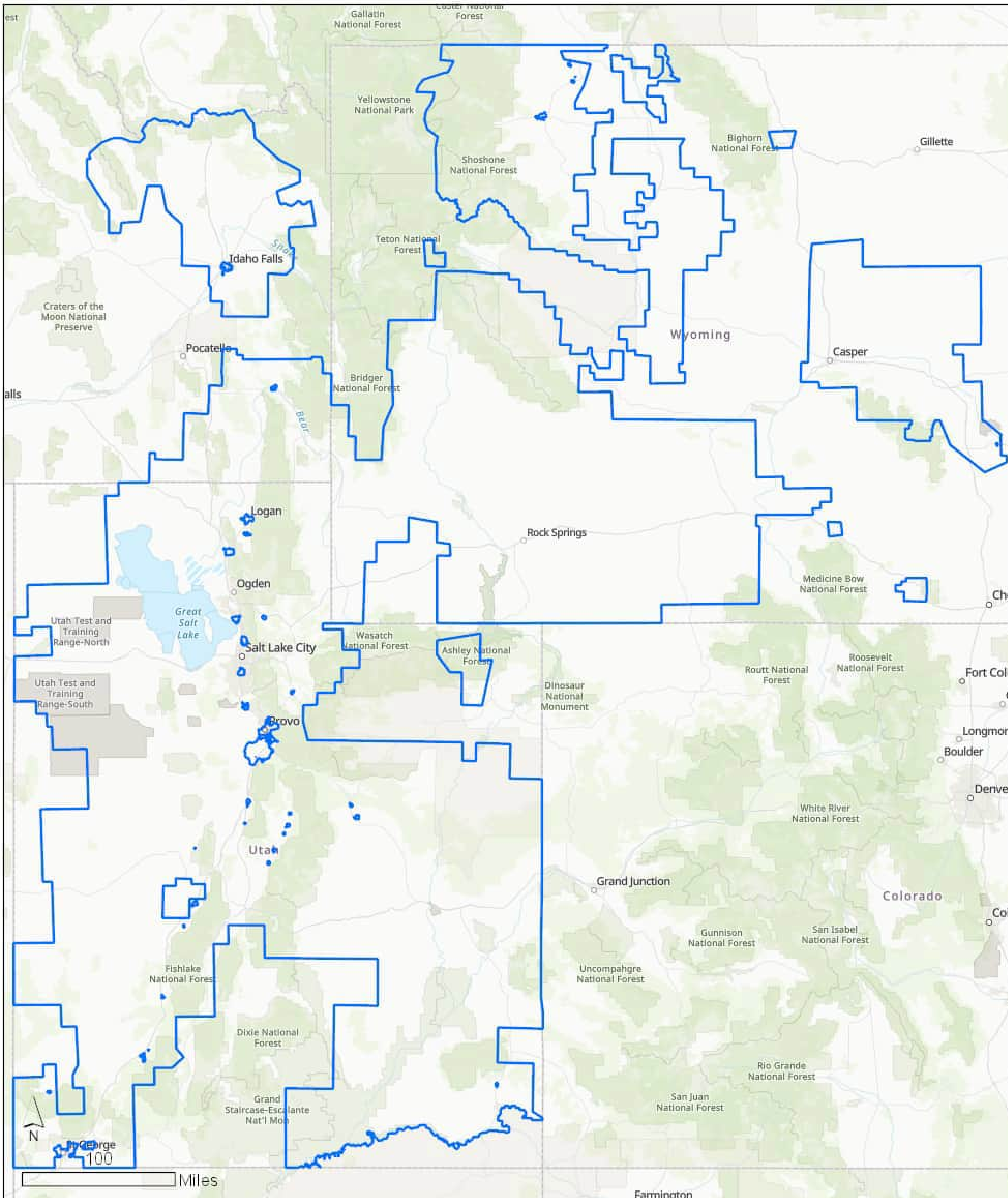


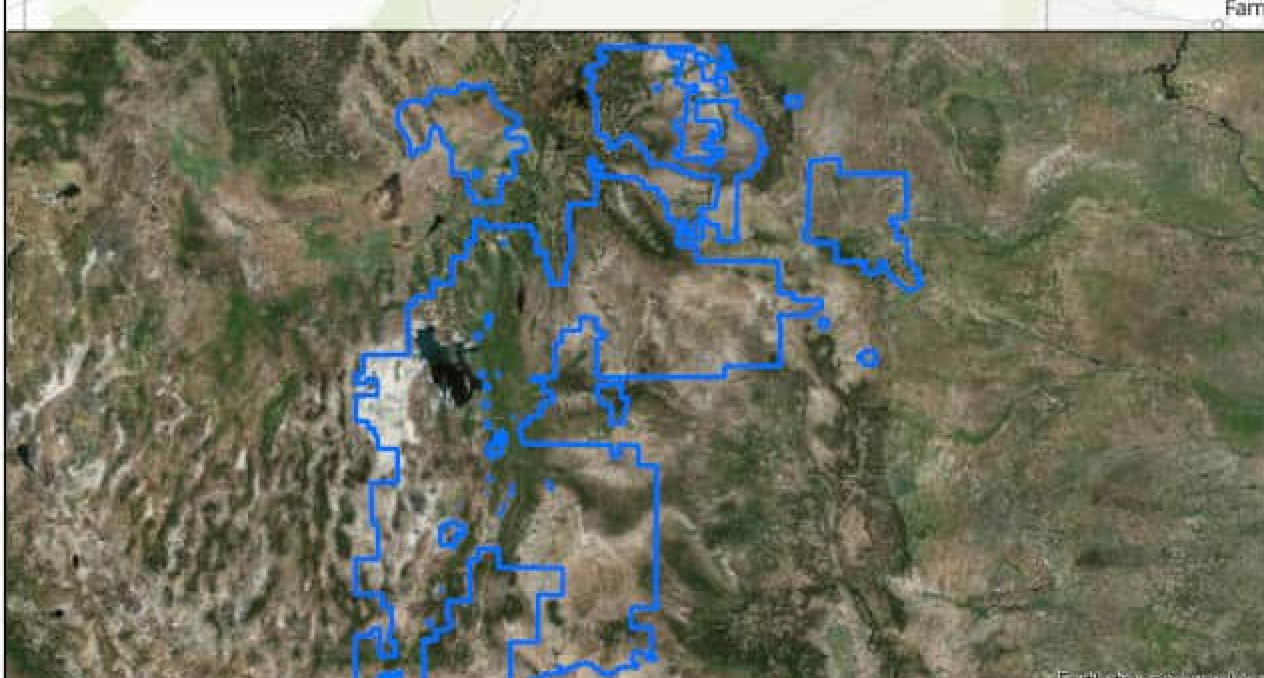
Congested Urban

Service Territory

Percent Congested: 0.6452%

POTOMAC ELECTRIC POWER CO.





Congested Urban

Service Territory

Percent Congested: 0.0000%

ROCKY MOUNTAIN POWER

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO ONTARIO ENERGY BOARD STAFF

UNDERTAKING NO. JT5.42:

Reference(s): NA

To update study results based on the evidentiary updates.

RESPONSE (PREPARED BY CLEARSPRING):

We have updated the study results as requested based on the April 2, 2024 updates. The evidentiary updates produce only a slight change in the total cost benchmarking results. The 2025-2029 result for Toronto Hydro moves from a benchmark score of -22.9% to -22.4%. Table 1 found in the Clearspring report has been updated and is provided below.

1 Table 1 Toronto Hydro's Total Cost Performance 2005-2029

Year	% Difference from Total Cost Benchmark
2005	-62.1%
2006	-62.9%
2007	-59.3%
2008	-56.5%
2009	-54.5%
2010	-48.2%
2011	-43.1%
2012	-45.2%
2013	-41.6%
2014	-39.5%
2015	-38.1%
2016	-33.9%
2017	-30.7%
2018	-28.8%
2019	-27.6%
2020	-29.4%
2021	-27.6%
2022	-26.8%
2020-2022 average score	**-28.0%**
2023	-25.5%
2024	-24.6%
2025	-23.5%
2026	-22.6%
2027	-22.4%
2028	-22.0%
2029	-21.3%
2025-2029 average score	**-22.4%**

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO SCHOOL ENERGY COALITION

UNDERTAKING NO. JT5.43:

Reference(s): 1B-SEC-27

To revisit the response to 1B-SEC-27, and comment on any material methodological changes.

RESPONSE (PREPARED BY CLEARSPRING):

Clearspring provided a list of material methodological changes in Section 2 of the current report along with the other two sources cited in the response to 1B-SEC-27. Clearspring is not aware of any additional material methodological changes since the last Toronto Hydro study not listed and discussed in those sources.

TECHNICAL CONFERENCE UNDERTAKING RESPONSES TO SCHOOL ENERGY COALITION

UNDERTAKING NO. JT5.44:

Reference(s): **1B-SEC-27**

(ref: 1B-SEC-27d) (a) for each year of the plan, that's the hydro one (sic) 2025 to 2029, can you provide the dollar increase in total costs to the benchmark for; a, each additional megawatt of peak demand; and b, each additional customer; (b) for each year of the Toronto Hydro plan, can you please provide the percentage increase in total costs in the benchmark for each: a, one percent increase in peak demand; and b, 1 percent increase in customers.

RESPONSE (PREPARED BY CLEARSPRING):

The 2025 to 2029 dollar increase in the total cost benchmark when adding one additional megawatt of peak demand to Toronto Hydro is provided in the following table. The peak demand variable is a 10-year rolling average of the prior ten years of system peak demands. Therefore, for the variable to be increased by one additional megawatt requires a hypothetical increase by one megawatt over all ten prior years.

	Dollar Increase in Total Cost Benchmark
2025	$ 197,617
2026	$ 203,182
2027	$ 211,225
2028	$ 208,050
2029	$ 227,603

The 2025 to 2029 dollar increase in the total cost benchmark when adding one additional customer to Toronto Hydro is not distinguishable in the results as the econometric benchmarking software due to the small change in total costs resulting from adding just one customer. To compensate for this and provide useful information, we provide the dollar impact from the 1% change in customers and then divided by the total change in customers to provide a per customer estimate.

	Dollar Increase in Total Cost Benchmark
2025	$ 650.14
2026	$ 684.46
2027	$ 714.88
2028	$ 754.17
2029	$ 788.50

The 2025 to 2029 percentage increase in the total cost benchmark when increasing the peak demand variable by one percent for Toronto Hydro is provided in the following table. The peak demand variable is a 10-year rolling average of the prior ten years of system peak demands. Therefore, for the variable to be increased by one percent requires a hypothetical increase by one percent over all ten prior years.

	% Change in Total Cost Benchmark
2025	0.59%
2026	0.58%
2027	0.58%
2028	0.57%
2029	0.56%

The 2025 to 2029 percentage increase in the total cost benchmark when increasing the peak demand variable by one percent for Toronto Hydro is provided in the following table.

	% Change in Total Cost Benchmark
2025	0.36%
2026	0.37%
2027	0.37%
2028	0.37%
2029	0.37%

The estimates provided above are calculated from the econometric total cost model coefficients. These coefficients are based on the estimated cost impacts of a typical utility. The actual costs of a specific utility may vary based on specific conditions and system needs that may or may not be related to a change in peak demands or customers.