Appendix Q - Material Business Cases

Material Investments Report

Project Code	Multiple
Project Name	AMI Renewal
Project Description	AMI Renewal is the continued replacement of Alectra Utilities' approximately 1MM AMI 1.0 meters and related network equipment with AMI 2.0 meters / technology. Alectra Utilities has 4 AMI 1.0 head end systems and meter technologies. AMI 1.0 meter technology is obsolete, and the meters are at or nearing end-of-life. The first AMI 1.0 meters were installed between 2006 and 2010 as part of a provincial mandate to install smart meters and implement Time-of-Use rates. As such, 75% of Alectra's AMI 1.0 meter fleet will be 15+ years of age by 2025. Due to its age, the fleet of AMI 1.0 meters failed at a rate of 1.1% in 2024, more than double the industry expectation of < 0.5%. Immediate investment to replace the AMI networks, including the communication equipment, is necessary to maintain meter-to-bill process flows, mitigate risks related meter and network failures, and avoid the creation of estimated for delayed bills for customers. Alectra Utilities entered into a joint procurement effort with Hydro One Networks for its AMI 2.0 vendor / technology, independently selecting Itron's Gen5 platform as its AMI 2.0 technology. The Gen5 meters are bi-directional, provide increased data granularity, capable of performing remote disconnects and reconnects, "last gasp" outage functionality, have enhanced alerts and power quality analytical capabilities, and enhanced cybersecurity features. Cybersecurity benefits include: data encryption both "in transit" and "at rest"; a Critical Operations Protector ("COP") module which issues permits needed to execute critical commands, a COP tamper-resistant Hardware Security Module which supports physical isolation and additional authentication requirement, and simplifies elements of NERC-CIP compliance; and a KeySafe with tamper-resistant functionality, which enables the secure storage and processing of all keys and certifications used by the AMI Head End system. AMI 2.0 meters are already being deployed strategically in small volumes to minimize operational risks and contain costs, as compared to an adhoc run-to-failure approach that is likely to result in higher costs, strained resources, and increased financial / regulatory / customers risks due to an inability to provide meter data for customer billing and related requirements. AMI 1.0 meters in good working order that are replaced with AMI 2.0 meters, are "harvested" and replaced into inventory for re-deployment within the AMI 1.0 networks (new connections and customer upgrades, meter failures, sampling and revs program).
Investment Category	System Access

02. Additional Information	**Branch Plant**	10 Alectra
	Units	
	Does this Project include R&D?	Yes
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	Yes
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Network Metering
	Alectra Subcategory	AMI Renewal
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Non-Controllable

Material Investments Report

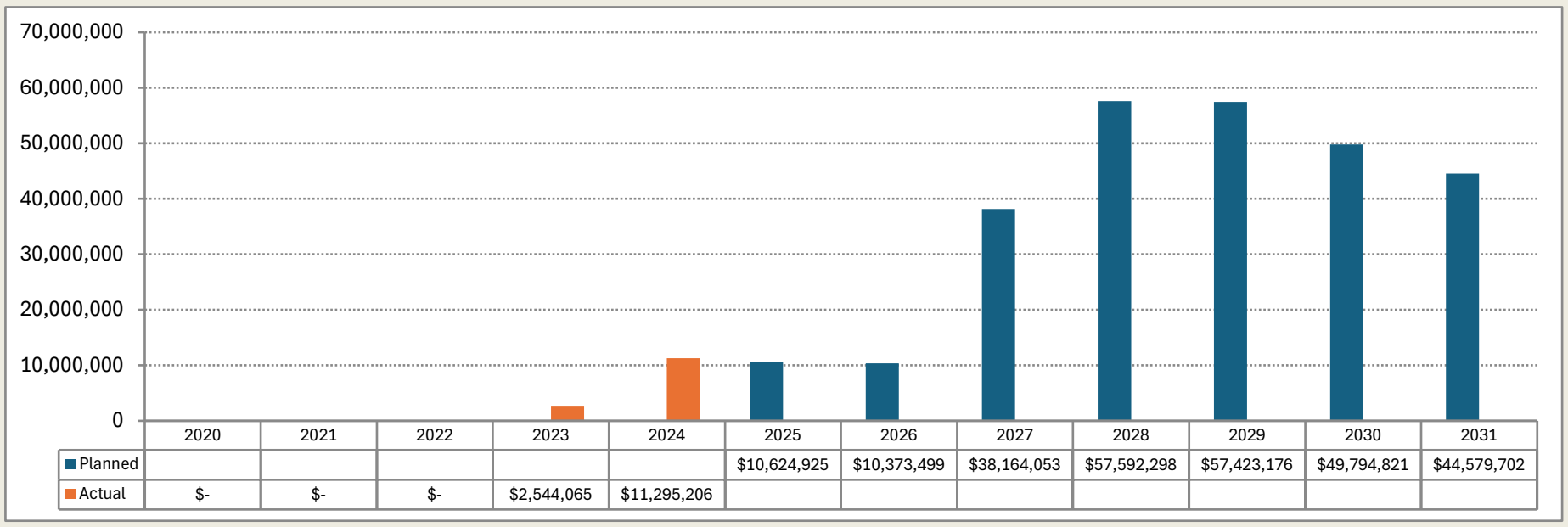
Project Code	Multiple
Project Name	AMI Renewal

05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Alectra's meter fleet is approaching end of life as the majority of these meters were installed through the province's Smart Meter mandate in 2006 to 2010. They are failing at increased rates each year, most recently 1.1% in 2024. Some meter vendors / meter forms are failing at even higher rates (i.e. Trilliant in Brampton at >4% failure rate in 2024). Failures pose significant operational, financial and customer risks. With 1MM meters, a failure rate of 1% necessitates 10,000 "truck rolls". This reactive work is difficult to forecast (geography, meter type, resources) and needs to be performed as a priority to avoid cascading impacts to the network mesh, or customer billing. It is significantly more expensive to replace meters reactively as they fail one at a time, than to follow a planned replacement plan, neighborhood by neighborhood. Metering must "get ahead" of its AMI 1.0 failure risk. Should failure volumes continue to increment, Metering would be unlikely to be able to replace failed meters in time to maintain meter-to-bill process flows, resulting in non-compliance with the Distribution System Code requirements related to monthly billing and estimated bill limitations.
	Customer Attachment / Load (KVA)	Not applicable
	Safety	Work processes and safety protocols related to meter changes and related network equipment installation are well documented and understood. New third party(ies) engaged to perform a subset of the meter changes will be provided with the necessary training to perform tasks safely.
	Cyber-Security, Privacy	Cyber-security and other IT considerations are part of the Meter Renewal vendor technology solution, and significantly enhanced in AMI 2.0 as compared to the AMI 1.0. Customer information privacy and security has been assessed throughout the procurement process. Alectra's IT Security / Risks teams have assessed AMI 2.0 and deemed it compliant / appropriate / aligned with Alectra's cyber-security requirements.
	Coordination, Interoperability	Not applicable
	Economic Development	Not applicable
	Environmental Benefits	The Meter Renewal project will lay the foundation for reducing "truck rolls" through remote disconnect / reconnect capabilities, decrease trouble crew travel time through pinpointing of outage locations for service areas where this capability does not currently exist. AMI 2.0 technology will enable first level triage of meter exceptions to be managed in the back office, not in the field.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Status quo is not a viable alternative. AMI 1.0 meters are no longer available for procurement from 3 of Alectra's 4 meter providers. Alectra Utilities could continue to procure the AMI 2.0 meter version from each legacy meter provider. This would result in increased testing requirements, the need to maintain four networks, an inability to take advantage of favourable volume-based pricing models, increased inventory and warehousing costs and administration, and the need to maintain four AMI Head Ends offering differing technology, customer benefits, integration costs, and upgrade requirements.
	Alternative #1	Alternative #1 is renewal of AMI meters, which were largely installed in 2006 to 2010 and now at or reaching end-of-life, over a 5-year period (2027 to 2031) Benefits: Replacement of aging and end-of-life first generation technology, expected to keep ahead of forecasted AMI 1.0 failure rates, and contain costs related to maintaining four network systems Allows Alectra Utilities to take advantage of favourable pricing and SLAs negotiated through the extensive joint RFP procurement and contract negotiations processes. Recommended alternative.
	Alternative #2	Alternative #2 is the implementation of the full AMI Renewal project over a 3 year period. Benefits: Enables Alectra Utilities to fully mitigate the risk associated with the growing failure rates and supply chain issues. Transitions to a single AMI 2.0 system faster, containing costs. Disadvantages: A faster approach to renewal may be disruptive to customers.

Material Investments Report

Project Code: Multiple
Project Name: AMI Renewal

	Alternative #3	Alternative #3 is the implementation of the full AMI Renewal project over a 7 year period. Benefits: Enables Alectra Utilities to mitigate some of the risk associated with the growing failure rates and supply chain issues although will result in increased failure costs compared to the 5 year alternative. Mitigates customer rate impacts in this DSP period, as costs as extended over two DSP periods. Disadvantages: A slower approach to renewal is not expected to allow Alectra Utilities to receive dispensation from Measurement Canada, will delay the financial benefits of moving to a single AMI 2.0 technology. Metering may not be able to manage reactive meter failures, resulting in increased operational, financial, and customer risks. Most expensive option over the total life of the project (i.e. 2 DSP period of 2027 to 2036)
	Alternative #4	Not applicable
	Justification for Recommended Alternative	The 5 Year Alternative #1 most appropriately balances risks including project execution and mitigation of failure risk.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Metering has undertaken a crawl-walk-run project methodology. The first AMI 2.0 meters were installed in 2023 and 2024 as expanding pilots. Third-party partners are being engaged to support system integration and mass deployment including inventory and warehousing, meter installations, and customer support.
	Comparative Information on Equivalent Historical Projects (if any)	Costs were established based on outcomes from Alectra Utilities RFPs / negotiated costs and System Integrator's project management experience on similar projects.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$10,624,925	$10,373,499	$38,164,053	$57,592,298	$57,423,176	$49,794,821	$44,579,702
Actual	$-	$-	$-	$2,544,065	$11,295,206							

Material Investments Report

Project Code: Multiple

Project Name: Pole Renewal

Project Description: This investment proactively replaces poles that are in deteriorated condition in the Alectra Utilities service territory. Poles that are in a condition which compromise grid resiliency and reliability need to be replaced before they fail and cause outages or endanger the public.

Alectra Utilities relies on poles to support distribution system attachments and maintain safety to the public as poles provide physical separation between ground level and energized conductors. Alectra Utilities must replace these assets to maintain a safe and reliable service to customers. Historically, Alectra Utilities has replaced on average 860 poles per year from 2021 to 2023. The latest Asset Condition Assessment (ACA) conducted in 2023 has concluded that Alectra Utilities has 10,277 deteriorated poles.

Investments in pole replacements will mitigate safety and reliability risks associated with failure of these assets, and maintain regulatory compliance with respect to minimum strength values.

Investment Category: System Renewal

02. Additional Information	**Branch Plant**	10 Alectra
	Units	1051
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Overhead Asset Renewal
	Alectra Subcategory	Pole Remediation
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	The urgency of this investment is high to comply with Ontario Regulation 22/04 particularly to meet or exceed applicable CSA standards. Alectra Utilities relies on poles to support distribution system attachments and maintain safety to the public as poles provide physical separation between ground level and energized conductors. Alectra Utilities must replace these assets to maintain a safe and serviceable condition while meeting prescribed codes for safety and reliability. The latest Asset Condition Assessment (ACA) conducted in 2023 has concluded that Alectra Utilities has 10,277 deteriorated poles. The pole inspection and testing program has revealed that many poles need to be replaced based on their condition (poor or very poor) or residual strength. Historically, Alectra has replaced 860 poles from 2021 to 2023. There is an urgent need to ramp up the annual replacement quantities to reduce the increasing backlog, which has grown by 4% since 2018. Pole residual strength testing is performed for wood poles, along with field inspections for wood and concrete poles. Wood poles are field inspected for decay & degradation (ground-line rot, feathering, cracks), external damage, infestation (ants, woodpeckers) and bends or leans. Concrete poles are field inspected for deterioration; for example, signs of cracking, concrete spalling (breaking in fragments), and exposed rebar. Alectra Utilities complies with industry standards from Canadian Standards Association (CSA) in its overhead construction, namely CSA Standard C22.3 No. 1-10 [3]. Clause 8.3.1.3 of the Standard states: “When the strength of a wood pole structure has deteriorated to 60% of the required design capacity, the structure shall be reinforced or replaced”.

Material Investments Report

Project Code	Multiple
Project Name	Pole Renewal

		Alectra Utilities will select the annual pole replacement candidates based on the following prioritization factors: 1) Poles that have less than 60% remaining strength which are needed to be addressed to meet the requirement of CSA Standard C22.3 No. 1-10 Clause 8.3.1.3. 2) Poles that have more than 60% remaining strength but exhibit worsening conditions such as rot, decay, splitting, insect infestation, bending and leaning, and present a high probability of failure which pose a safety risk to employees and public. 3) Poles that carry four circuits and are under-classed as per current CSA Standards. As climate change worsens, wind gusts are expected to increase. Therefore, the likelihood of poles failing if they are under-classed or in deteriorated condition will increase. Alectra Utilities is also governed by the standards, guidance and reporting requirements of the Electrical Safety Authority (ESA) as part of its regulatory compliance requirements. Without the planned pole renewal investments, Alectra Utilities will be unable to adhere to the adopted CSA standards and risks non-compliance with ESA. Additionally, safety and reliability concerns will be mitigated. This renewal investment has been supported by customers as indicated in customer engagement activities.
	Customer Attachment / Load (KVA)	Not Applicable
	Safety	Pole failures pose safety risks to Alectra Utilities staff and the public. Caused by poles and attached equipment (e.g. overhead transformers and overhead switches) falling.
	Cyber-Security, Privacy	Not Applicable.
	Coordination, Interoperability	Alectra Utilities constructs all new projects using approved construction standards complying with ESA Regulation 22/04. Alectra Utilities participates in regional planning, both at an infrastructure level with local municipalities and regions, as well as at an electrical infrastructure level with Hydro One and other participants in the Regional Planning Process. Alectra Utilities also attends Public Utility Coordinating Committee (PUCC) meetings which jointly allows for the coordination and planning of investments with other utilities who provide cable tv, internet, phone and natural gas services.
	Economic Development	This investment promotes reliability and the safe restoration of power, both of which are valued by customers. Furthermore, some customers review outage statistics as part of the site selection process, and service reliability is valued in this process.
	Environmental Benefits	Addressing climate vulnerable poles provides system hardening to withstand increasing frequency and intensity of storm, aligned with customer preferences and priorities. In the case where there are transformers on the pole, a pole failure will also cause the transformers to fall on to the ground, with a possibility of the transformer tank rupturing. This would result in oil being spilled onto the ground which will impact the surrounding environment.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Do nothing This option would involve no proactive replacement of poles. This alternative leads to the highest safety and reliability risk to customers.
	Alternative #1	Moderate Pace This alternative proposes replacing 826 poles starting in 2027 and ramping to 1,300 poles in 2031, for a total of 5,256 poles from 2027 to 2031 at a total estimated cost of $151.1MM. This alternative strikes the best balance between mitigating public safety risks, resource constraints, annual cost, and customer affordability.

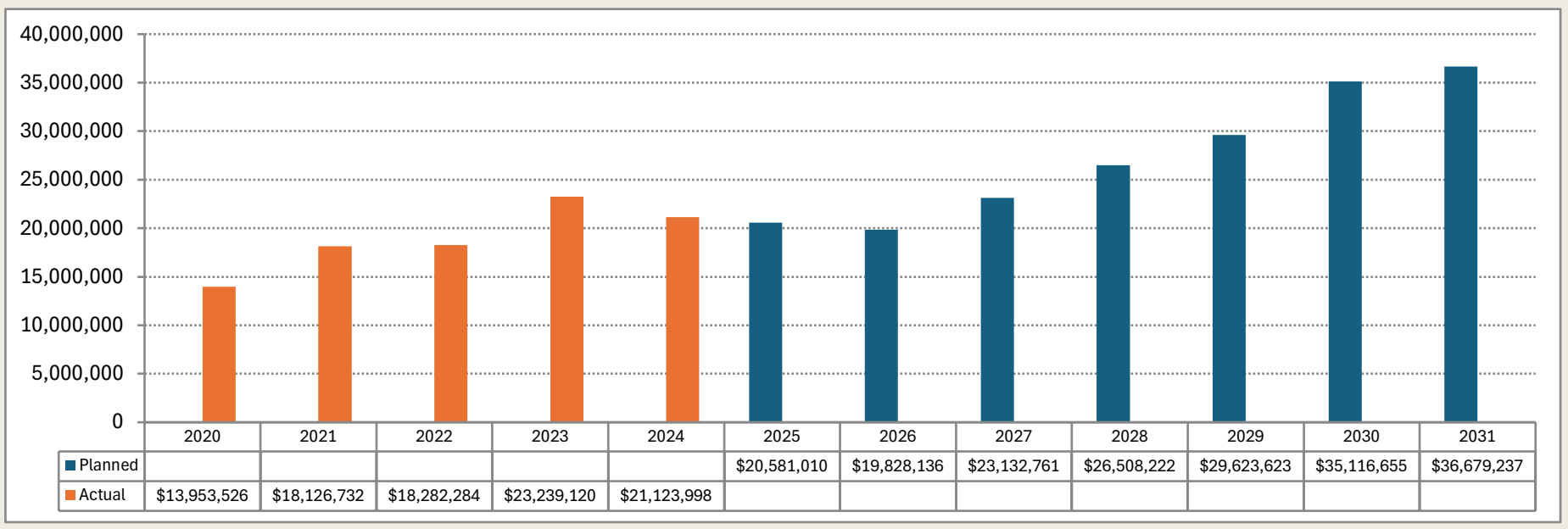
Material Investments Report

Project Code	Multiple	
Project Name	Pole Renewal	
	Alternative #2	Accelerated Pace This alternative proposes replacing 960 poles starting in 2027 and ramping to 1,555 poles in 2031, for a total of 6,265 poles from 2027 to 2031 at a total estimated cost of $182.2MM. The accelerated approach has a greater impact on mitigating pole failure risk than other alternatives. However, the higher volume of work required by this plan would require redirecting funding from other areas to fund the accelerated Pole Renewal budget.
	Alternative #3	Reduced Pace This alternative proposes replacing 746 poles starting in 2027 and ramping to 1,250 poles in 2031, for a total of 4,832 poles from 2027 to 2031 at a total estimated cost of $141.8MM. This alternative mitigates some of the public safety risks within the current planning period. Among the three strategies, the reduced pacing option leaves the highest backlog of deteriorated poles at the end of 2027-2031 DSP period. While this alternative is viable from a resource constraint point of view, as it mitigates some risks and lowers the overall program spending in the current planning period, the reduced pacing approach does not align with customers preferences for a more storm resilient system and will lead to higher spending and a more aggressive system renewal plan beyond 2031.
	Alternative #4	Not applicable
	Justification for Recommended Alternative	CDM and NWS were considered but they were determined not to be feasible options. Poles are critical component of the distribution system as many pieces of equipment are attached to them (conductors, transformers, switches, street lights, telecommunication attachments, etc.). As a pole's physical condition and structural strength deteriorate, the pole may become inadequate for its intended function, and should be replaced to maintain the integrity of the distribution system, and to protect public safety. The pole testing program has revealed that many poles need to be replaced based on their condition (poor or very poor) or residual strength. Alectra Utilities will select the annual pole replacement candidates from the following three categories: 1) Poles that have less than 60% remaining strength which are needed to be addressed to meet the requirement of CSA Standard C22.3 No. 1-10 Clause 8.3.1.33 No. 1-10 that "when the strength of a wood pole structure has deteriorated to 60% of the required design capacity, the structure shall be reinforced or replaced". 2) Poles that have more than 60% remaining strength but exhibit worsening conditions such as rot, decay, splitting, insect infestation, bending and leaning, and present a high probability of failure which pose a safety risk to employees and public. 3) Poles that carry four circuits and are under-classed as per current CSA Standards. As climate change worsens, wind gusts are expected to increase. Therefore, the likelihood of poles failing if they are under-classed or in deteriorated condition will increase. To address the pole condition concern, Alectra Utilities is recommending the replacement of poor and very poor poles at a moderate pace because this alternative strikes the best balance between mitigating public safety risks, resource constraints, and annual cost.

Material Investments Report

Project Code	Multiple
Project Name	Pole Renewal

07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Alectra Utilities considers the following as general risks to project schedule and cost: - customer delays or restricted access to work sites - inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms - delays to material shipment from vendors - general unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Alectra Utilities has utilized coordination with third parties to avoid some of the issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk mitigation strategies.
	Comparative Information on Equivalent Historical Projects (if any)	This program is the continuation of Alectra Utilities' long-term annual pole renewal initiative. The average annual investment from 2020 to 2024 was $19MM. Alectra Utilities has set the recommended average annual investment level to $30MM for 2027 to 2031. This increase is to address the backlog of deteriorated assets.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$20,581,010	$19,828,136	$23,132,761	$26,508,222	$29,623,623	$35,116,655	$36,679,237
Actual	$13,953,526	$18,126,732	$18,282,284	$23,239,120	$21,123,998							

Material Investments Report

Project Code	Multiple
Project Name	Reactive Capital
Project Description	This investment reactively replaces equipment after failures (or replaces equipment that will likely imminently fail in both the overhead and underground distribution systems), as well as equipment damaged by storm activity and distribution equipment damaged by acts by unknown third parties (foreign interference). Alectra Utilities is obligated to maintain safe and reliable power to its customers and emergency replacement of failed equipment to restore power to customers is paramount. Assets requiring reactive renewal may be identified in a number of ways, such as during maintenance and inspections, emergency response, public or third-party complaints, as determined by studies and analysis, or due to a regulatory directive. Alectra Utilities' distribution system can be impacted by significant weather events involving wind, snow, ice, sleet, hail, lightning, or any combination thereof. Such weather events can cause significant damage to the distribution system, and damaged or failed components are replaced promptly. Alectra Utilities' distribution system can also be impacted by damage caused by third parties (foreign interference). Examples of third-party damages are vehicle accidents, such as vehicles colliding with poles or padmounted transformers, and vandalism. In these cases, Alectra Utilities is unable to identify the responsible party, and must, therefore, bear the cost of equipment replacement. Investments in reactive renewal will continue to support reliability, safety requirements, and compliance with various regulatory requirements, such as the Distribution System Code and O.Reg 22/04, which supports Alectra Utilities' distribution licence.
Investment Category	System Renewal

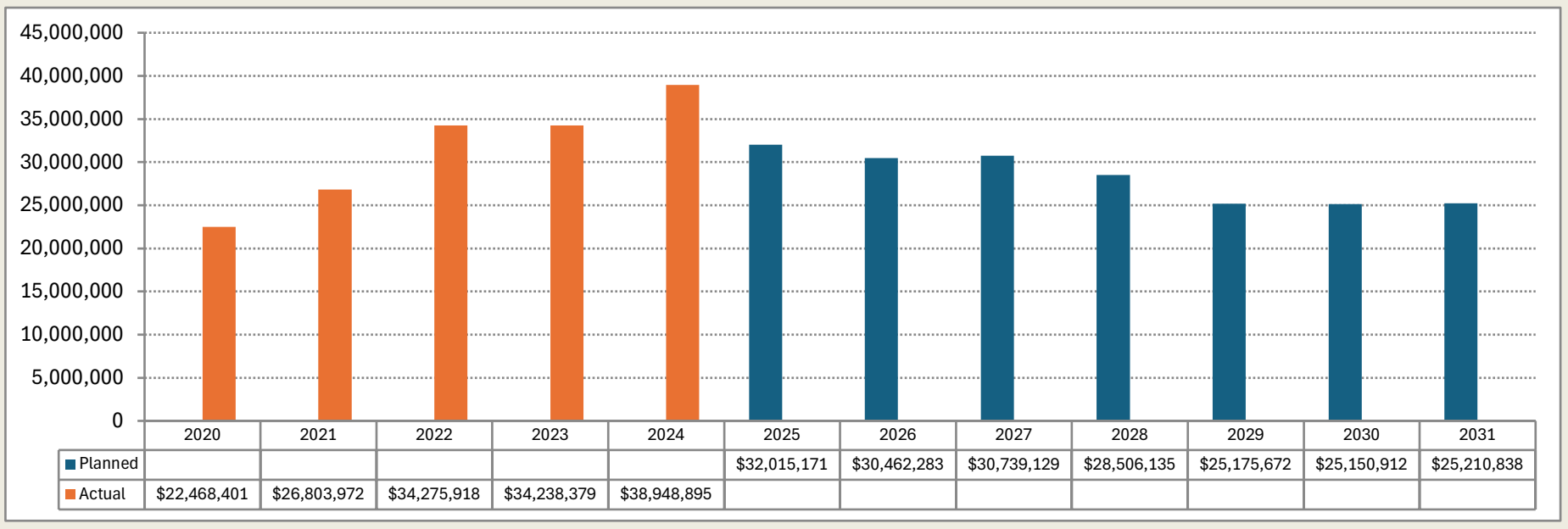
02. Additional Information	**Branch Plant**	10 - Alectra
	Units	1
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	
	Alectra Subcategory	Reactive Capital
	Contributed Capital	Emergency/Restoration/Reactive
	Expenditure Type	Contributed Capital 0%

Material Investments Report

Project Code		Multiple
Project Name		Reactive Capital
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Reactive capital is a mandatory investment. The reactive replacement of poles, conductors, devices and transformers generally occur after the component has failed. Most expenditures under this program are to replace equipment which has failed and resulted in customer interruptions. In a small minority of case, particularly with poles, terminations, connectors, and transformers, the equipment is replaced on an emergency basis if it is found to be in a state where failure is imminent, usually identified during regular inspections, during on site observations conducted by field crews, or by calls from members of the public. Inspections can take many forms, such as planned line patrols or infrared thermographic scanning, which reveal hotspots due to deterioration of live components. In cases where equipment has deteriorated to the point where failure is imminent, there are potential threats to personnel and public safety and system reliability. Reactive capital also includes emergency replacement of distribution equipment damaged as a result of acts by third parties. Examples are vehicle accidents, such as vehicles colliding with poles or padmounted transformers, underground cable dig-ins and vandalism. In some cases, Alectra Utilities is able to identify who the responsible party and is, therefore, able to recover the cost of equipment replacement. The recovered costs are not included in the budget. Storm events can also drive reactive capital costs. When a failure in the distribution system occurs due to a storm, reactive replacement of poles, conductors, devices and transformers is required to restore power. In some cases, equipment can be damaged to the extent where it poses threats to public safety and ongoing system reliability. Replacement of assets is also required in these instances.
	Customer Attachment / Load (KVA)	Not Applicable
	Safety	Public and worker safety could be adversely impacted by not promptly undertaking the replacement of failed assets.
	Cyber-Security, Privacy	Not Applicable.
	Coordination, Interoperability	Reactive capital replacements are coordinated with Fire and Police Departments where trouble calls are initiated by emergency services.
	Economic Development	Unplanned power outages due to failed equipment and power quality disruptions due to deteriorated equipment condition are disruptive to customers' business operations and impact economic development.
	Environmental Benefits	Failed and deteriorated equipment (such as distribution transformers and switchgear units) may contain oil or greenhouse gases which can cause damage to the environment if released. Addressing deteriorated equipment reduces the risk of environmental contamination.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Status Quo would be not investing in reactive renewal or significantly decreasing investment levels by not replacing assets at risk of imminent failure will lead to higher frequency of failures, lower reliability, diminished customer satisfaction, and increase safety and environmental risk. All are unacceptable and will not meet the obligations of Alectra Utilities' distribution license. This is not a viable alternative.
	Alternative #1	Alternative #1 would be to continue to invest in renewing replacements as they occur, or replace imminent failures at similar to historical investment levels.
	Alternative #2	Not Applicable
	Alternative #3	Not Applicable
	Alternative #4	Not Applicable
	Justification for Recommended Alternative	Alectra Utilities is proposing alternative 1 and continuing to replace assets upon failure. The prompt replacement of failed equipment, or imminently failing equipment promotes reliability, safety, regulatory compliance, customer service and is the recommended alternative. The investment level is expected to be at near historical levels but is expected to decrease somewhat as proposed increases to planned replacement investments offset asset risk over time. In addition, Conservation and Demand Management and Non-Wires Solutions were considered but do not present a feasible alternative to Reactive Capital investments.

Material Investments Report

Project Code		Multiple
Project Name		Reactive Capital
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	The condition of equipment and on-site factors may present risks to safety and speedy equipment replacement. Crews analyze and deal with hazards on a case-by-case basis to make the area safe while replacing equipment and restoring power to customers as quickly as possible.
	Comparative Information on Equivalent Historical Projects (if any)	Historical Spends: 2020 - $22.9MM 2021 - $26.8MM 2022 - $34.3MM 2023 - $34.2MM 2024 - $38.9MM Alectra Utilities 3rd Party Damage Work Order Issued: 2020 - 129 2021 - 118 2022 - 185 2023 - 177 2024 - 130 Alectra Utilities MEDs attributable to weather: 2020 - 1 2021 - 1 2022 - 3 2023 - 0 2024 - 2
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$32,015,171	$30,462,283	$30,739,129	$28,506,135	$25,175,672	$25,150,912	$25,210,838
Actual	$22,468,401	$26,803,972	$34,275,918	$34,238,379	$38,948,895							

Material Investments Report

Project Code	Multiple
Project Name	Transformer Renewal
Project Description	This planned investment replaces overhead and underground distribution transformers (pole-mounted, pad-mounted and vault transformers) that are deteriorated or pose a high risk of prolonged service interruption due to inaccessibility, lack of redundancy, or functional obsolescence. Completion of the investment will avoid safety, reliability, and environmental risks associated with the failure of transformers. Alectra Utilities experienced on average 339 transformer failures from 2019 to 2023. The latest Asset Condition Assessment (ACA) conducted in 2023 has concluded that Alectra Utilities has 9,454 deteriorated (very poor and poor) transformers. At the end of 2023, Alectra Utilities has 3,994 transformers leaking oil that need replacement. Additionally, replacing deteriorated transformers aligns with Alectra Utilities' focus on decreasing outage impacts on the underground system and avoiding adverse weather impacts on the distribution system.
Investment Category	System Renewal

02. Additional Information	**Branch Plant**	10 Alectra
	Units	954
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Transformer Renewal
	Alectra Subcategory	Transformer Replacements
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	This investment is a high urgency. The planned renewal of deteriorated distribution transformers will reduce the risk of safety and environmental impacts as well as prolonged outages. If the deteriorated population of distribution transformers are not addressed, the number of yearly failures is expected to rise with more adverse impacts on reliability, safety and the environment. The planned approach towards these transformers allows Alectra Utilities to manage its remaining fleet of in-service distribution transformers with a run-to-failure strategy. As a result, the overall asset management approach for distribution transformers is both effective and prudent throughout the life-cycle of the asset.
	Customer Attachment / Load (KVA)	Not applicable.
	Safety	Deteriorated transformers can leak oil into the environment which impacts both the environment and public safety. Corrosion might make the electrical components of the transformer exposed to the public creating a safety hazard. Deteriorated components of the distribution transformer can create a hazardous situation when operated by Alectra Utilities' employees and contractors.
	Cyber-Security, Privacy	Cyber-Security and Privacy are not applicable to this project.

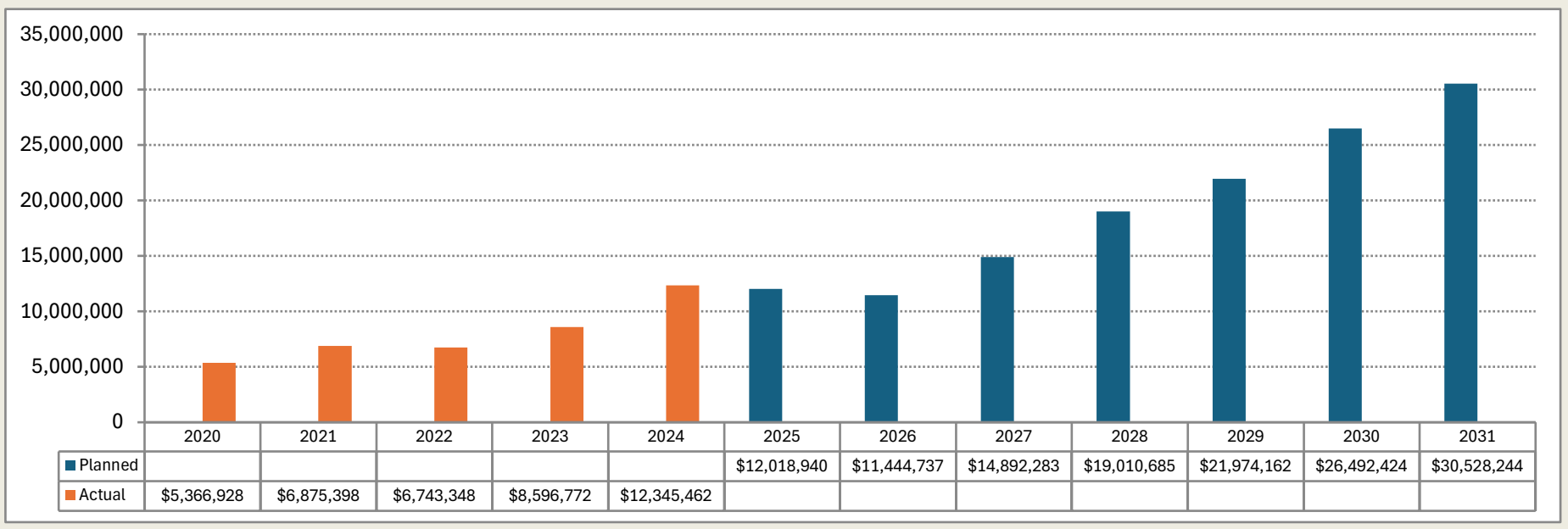
Material Investments Report

Project Code	Multiple	
Project Name	Transformer Renewal	
	Coordination, Interoperability	Pertaining to coordination with utilities, regional planning and other 3rd parties, Alectra Utilities constructs all new projects using approved construction standards complying with ESA Regulation 22/04. Alectra Utilities participates in regional planning, both at an infrastructure level with local municipalities and regions, as well as at an electrical infrastructure level with Hydro One and other participants in the Regional Planning Process. Alectra Utilities also attends Public Utility Coordinating Committee (PUCC) meetings which jointly allows for the coordination and planning of investments with other utilities who provide cable TV, internet, phone, and natural gas services.
	Economic Development	This investment promotes reliability and the safe restoration of power, both of which are valued by customers. Furthermore, some customers review outage statistics as part of the site selection process, and service reliability is valued in this process.
	Environmental Benefits	Replacing transformers following a planned approach will avoid the environmental risk of oil and PCB contamination (where applicable). In addition to avoiding the environmental impacts, Alectra Utilities will avoid environmental remediation costs, which can negatively impact customer rates. Environmental remediation costs increase over time as leaking transformers continue to leak oil into the environment while remaining in-service. From 2021 to 2024, Alectra Utilities continues to spend on average $50,000 per site for environmental remediation due to leaking transformers.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Do nothing This option would involve no planned replacement of transformers. This alternative leads to the highest safety, environmental and reliability risk to customers
	Alternative #1	Moderate Pace Start with replacing 680 transformers/year in 2027 and ramp up to 1,201 by 2031. This pacing approach would replace 4,771 transformers in total at a total estimated cost of $112.9MM. This pacing represents 50% of the 9,454 deteriorated transformers.
	Alternative #2	Accelerated Pace Start with replacing 844 transformers/year in 2027 and ramp up to 1,348 by 2031. This pacing approach would replace 5,442 transformers in total at a total estimated cost of $134.2MM. This pacing represents 58% of the 9,454 deteriorated transformers.
	Alternative #3	Reduced Pace Start with replacing 590 transformers/year in 2027 and ramp up to 1,109 by 2031. This pacing approach would replace 4,222 transformers in total at a total estimated cost of $98.3MM. This pacing approach represents 45% of the 9,454 deteriorated transformers.
	Alternative #4	Not applicable.
	Justification for Recommended Alternative	CDM and NWS were considered but they were determined not to be feasible options. This investment is part of Alectra Utilities' long-term distribution transformer replacement program. Transformer replacement is carried out to replace deteriorated transformers to maintain system reliability and customer service. Each year, Alectra Utilities carries out the annual inspection program to approximately 1/3 of the transformer population, then on a prioritized basis, will re-visit, review, and select the most urgent transformer units for replacement. The locations and priority are determined based on the results from the Asset Condition Assessment (ACA) process, along with discussion and feedback among Lines, System Control, Capital Design, and Asset Sustainment. Alectra Utilities has experienced on average 339 (2019-2023) transformer failures per year. The latest ACA conducted in 2023 concluded that Alectra Utilities has 9,454 deteriorated transformers. Every year the annual inspection program will identify units that are deteriorated and require replacement. The Moderate Pacing option addresses approximately half of the deteriorated transformers identified in the ACA. This was considered appropriate given the need to balance DSP investment priorities across the system and practical execution constraints related to supply chain and available resources. The remaining deteriorated transformer population will be managed under a run-to-failure strategy during this DSP period. While this population exhibits comparable risk characteristics, this approach is supported by established asset sustainment practices and reactive strategy, which will allow Alectra Utilities to appropriately manage safety, environmental, and reliability risks.

Material Investments Report

Project Code	Multiple
Project Name	Transformer Renewal

07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Alectra Utilities considers the following as general risks to project schedule and cost: • Customer delays or restricted access to work sites • Inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms • Delays to material shipment from vendors • General unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Alectra Utilities has utilized coordination with third parties to avoid some of the issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk management strategies.
	Comparative Information on Equivalent Historical Projects (if any)	This project is the continuation of Alectra Utilities' long-term annual transformer replacement initiative. For the Alectra Utilities service territory, the average annual investment from 2020-2024 was $8.0MM per year. Alectra Utilities has set the recommended average annual investment level at $22.6MM for 2027-2031.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$12,018,940	$11,444,737	$14,892,283	$19,010,685	$21,974,162	$26,492,424	$30,528,244
Actual	$5,366,928	$6,875,398	$6,743,348	$8,596,772	$12,345,462							

Material Investments Report

Project Code	Multiple
Project Name	Fleet Renewal
Project Description	Alectra Utilities is broken down into 5 rate zones: West (Hamilton, St. Catharine's), South West (Guelph), Central North (Brampton), Central South (Mississauga), East (Vaughan, Markham, Barrie). Every year vehicles are identified for replacement according to Alectra Utilities' replacement plan. The vehicle replacement budget is developed based on predetermined replacement criteria. The replacement criteria are based on the following: • Manufacturing Standards • Industry Standards • Non-Industry Standards • Vehicle Operational Conditions • Vehicle Age • Vehicle Total Mileage • Highway Traffic Act (HTA) • Canadian Motor Vehicle Safety Standards (CMVSS) • All related CSA standards, specifically those that relate to aerial devices and hydraulic equipment • Motor Vehicle Inspection Station (MVIS) requirements • Infrastructure Health & Safety Association (IHSA) of Ontario, where applicable • Corporate Health & Safety and Environmental Policies Using the criteria listed above, the replacement budget assessment is further broken down into 12 vehicle rate groups listed below. These rate groups assist in determining the vehicle type replacement criticality: AER- Single Bucket Truck, CAH – Cars , CRM - Double Bucket Truck, FTR – Fork Truck, KKB – Flat Bed Truck, OTO – Trailers, PUH – Pick UP Truck, RBD – Digger, SDV – Dump Truck, TEM – Tension Machine, VAH – 1 Ton Van, WSV – ½ Ton Van Most of Alectra Utilities' fleet has surpassed its replacement life cycle, which increases repair and preventative maintenance costs and reducing asset availability. Without reliable Fleet assets, distribution capital projects may not be executed or completed on timely basis and customer outage response times decrease. The overall distribution system performance is it at risk decreasing if operations staff cannot respond to a system failure in a timely manner.
Investment Category	General Plant

02. Additional Information	**Branch Plant**	10 Alectra
	Units	492
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Fleet Renewal
	Alectra Subcategory	Fleet
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable

Material Investments Report

Project Code		Multiple
Project Name		Fleet Renewal
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	It is important and urgent to renew or replace fleet vehicles when needed to ensure our operations teams have safe reliable equipment to perform their work effectively. Aging vehicles pose increasing safety risks and are more prone to breakdowns which can disrupt critical field operations. Failing to renew the fleet in a timely manner will lead to higher operational repair costs as older vehicles require more frequent maintenance and are more likely to suffer costly failures. Alectra Utilities prioritized other capital work and assumed the risk of increased Fleet operating expenses and extended down time for repairs. As a result, many of Alectra vehicles should have been replaced within the last five years. Moving forward, vehicle need to be replaced when they reach end of life or are “flagged” for replacement at which point we will engage our operations teams to determine what replacement vehicle best suits the needs of the team to perform their job duties. The capital budget required for the next five years will ensure the replacement of vehicles that have surpass the vehicles life spend.
	Customer Attachment / Load (KVA)	Not Applicable
	Safety	Vehicles are the workplace for over 60% of Alectra Utilities’ workforce. Providing and maintaining a safe and reliable fleet, is key to building a better workplace for Alectra Utilities’ employees and providing them with the tools required to provide service to Alectra Utilities customers and meet their expectations.
	Cyber-Security, Privacy	Not applicable.
	Coordination, Interoperability	When Alectra Utilities' fleet vehicles need to be replaced the fleet department will engage our operations teams to determine what replacement vehicle best suits the needs of the team to perform their job duties. Alectra Utilities’ five-year vehicle replacement plan is based on the following criteria guidelines: • Operations departments team needs to perform job duties • Manufacturing Standards • Industry Standards • Non-Industry Standards • Vehicle Operational Conditions • Vehicle Age • Vehicle Total Mileage • Highway Traffic Act (HTA) • Canadian Motor Vehicle Safety Standards (CMVSS) • All related CSA standards, specifically those that relate to aerial devices and hydraulic equipment • Motor Vehicle Inspection Station (MVIS) requirements • Infrastructure Health & Safety Association (IHSA) of Ontario, where applicable • Corporate Health & Safety and Environmental Policies
	Economic Development	Alectra Utilities is committed to attempting to purchase fleet vehicles and equipment locally if possible. Therefore, if purchased within Canada, these purchases would contribute to the economy by supporting the creation and support of jobs at automakers, car dealers, parts suppliers, and mechanical trade workers.
	Environmental Benefits	Newer engine models have improved CO2 emissions.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Alectra Utilities prioritized other capital work and assumed the risk of increased Fleet operating expenses and extended down time for repairs. Therefore, a number of vehicles scheduled for replacement were kept in operation and rescheduled for replacement in future years. As a result, many of Alectra Utilities vehicles should have been replaced within the last five years. It is now critical that these vehicles be replaced as maintenance and repair costs have increased and the vehicles no longer operate at full capacity, reducing vehicle availability, impacting service delivery and most importantly, causing potential safety concerns for employees and the public. Regular vehicle replacement is necessary to avoid undue vehicle down and associated negative impacts to customer response time and employee productivity. If we defer replacement of these fleet vehicles it will increase operating costs and downtime. This will negatively impact on Alectra Utilities’ operations teams as to maintain and perform job duties. When a vehicle has reached end of life or is flagged for replacement, Alectra Utilities will determine at that time what vehicle will replace it. This may be an Electric Vehicle (EV) or a hybrid if it meets Alectra Utilities’ needs.

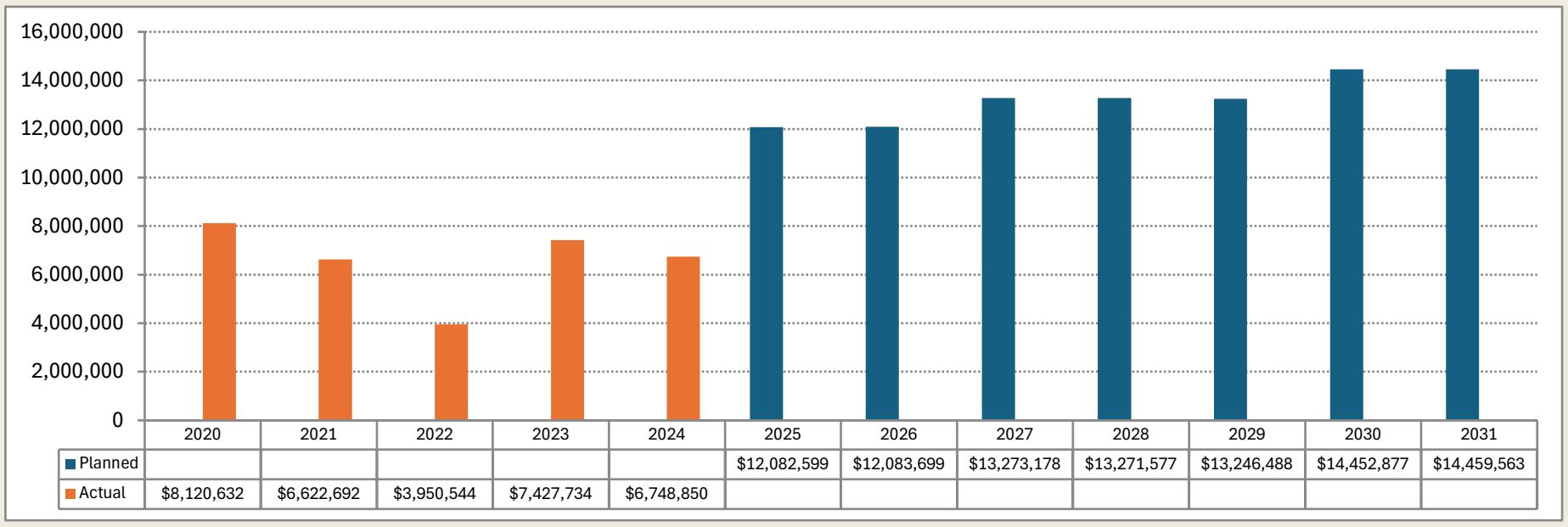
Material Investments Report

Project Code	Multiple	
Project Name	Fleet Renewal	
	Alternative #1	For fleet investment, a run-to-failure approach is not an option because vehicles must be maintained and replaced proactively to ensure the safety of our crews and the reliability of our operations. Allowing vehicles to fail in service would create safety risks, lead to unexpected breakdowns, and prevent our teams from responding to customer needs and maintaining critical infrastructure. Without dependable fleet assets, Alectra Utilities cannot deliver essential services, making timely investment in vehicle up-keep and replacement essential.
	Alternative #2	Replacing components of a heavy-duty vehicle is a viable option and one that Alectra Utilities and its predecessor utilities have exercised in the past with some success, and Alectra Utilities will continue to consider this as an option. The challenge with this option is the overall vehicle condition that may not make financial or operating sense (extended downtime, costly repairs, scarcity of replacement parts, etc.), to get the vehicles back in service. Vehicle replacements need to be planned due to manufacturing scheduling, long delivery timeframes, and to obtain better pricing.
	Alternative #3	Replacing medium- and heavy-duty vehicles with demonstration models instead of new vehicles would theoretically help mitigate the cost of needed Fleet Renewal investments. However, it is difficult to locate demonstration vehicles that meet the operational criteria. Alectra Utilities cannot rely on this approach, since the availability and quality of demonstration vehicles cannot be planned or depended upon. Further, in the event that Alectra Utilities can locate a satisfactory demonstration vehicle that is available for purchase, it does not believe that a sufficient volume will be available to address its needs. Alectra Utilities would be against this approach as it would not be able to rely on a reliable supply of available demonstration vehicles.
	Alternative #4	N/A
	Justification for Recommended Alternative	Assets have or will reach end of life within budget cycle.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Delays in manufacturing supply chain constraints and parts shortages can all impact Alectra Utilities' ability to replace aging units on schedule which in turn affects operational readiness and service reliability. Alectra Utilities is proactively placing vehicle orders well in advance based on current lead time forecasts and is working closely with suppliers to secure manufacturing slots. This approach helps reduce uncertainty, ensures better alignment with operational needs and strengthens the ability to maintain a safe and dependable fleet. Vehicle availability & reliability Employee and public safety Increasing systems outages response timelines to support customers. The reliable, availability and safe fleet operations will also rely on: • Fleet Management as the initiative lead and accountability • SCM Operations Director reviews and approves replacement recommendations • Key management stakeholder support across the organization to define business requirements • Vehicles may be replaced by different models or types based on changes to operations, corporate initiatives and customer requirements. • Corporate Commitment to approved Capital and Operating Budgets required • Any emerging requirements of the organization may change the planned replacement of vehicles such as changes to the resources plan and required budget mitigation efforts
	Comparative Information on Equivalent Historical Projects (if any)	The past 5 years, Alectra Utilities' fleet department has consistently required significant capital funding to replace vehicles that reached the end of their life cycle or no longer met safety and reliability standards. Historically these replacement programs have been essential to maintaining operational readiness, reducing unplanned downtime, and avoiding escalating repair costs associated with aging assets. The current request for funds through 2031 aligns with these past trends, which reflects both the scale of Alectra Utilities' fleet and the long term capital planning necessary to support our operations teams.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code Multiple

Project Name Fleet Renewal



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$12,082,599	$12,083,699	$13,273,178	$13,271,577	$13,246,488	$14,452,877	$14,459,563
Actual	$8,120,632	$6,622,692	$3,950,544	$7,427,734	$6,748,850							

Material Investments Report

Project Code	101887
Project Name	New Residential Subdivision and Condo Tower Development - Alectra East
Project Description	This investment is for the expenditures that Alectra Utilities must provide to support the development community that construct residential and condominium tower subdivisions. This investment involves the installation of a new underground Electrical Distribution System (EDS) in greenfield developments, comprising primary (high voltage) cables, transformers, meters, secondary (low voltage) service cables, switchgears, and poles as needed. This infrastructure enables new residential developments, including detached, semi-detached, and townhouses, to access electricity, while also providing a supply point for electricity to condominium towers in new developments. These investments are required for Alectra Utilities to maintain a valid Distribution license with the OEB (as required by the Distribution System Code). Projects must be completed in accordance with Customer timeline requirements and align with the Conditions of Service.
Investment Category	System Access

02. Additional Information	**Branch Plant**	815 Addiscott Service Centre
	Units	75
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Meeting Growing Electricity Demand
	Alectra Grouping	Customer Connections
	Alectra Subcategory	Subdivisions
	Contributed Capital	*Entered Manually in Forecast
	Expenditure Type	Non-Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	These investments facilitate connections to the existing distribution system based on requests from the development community. These projects are initiated externally, and Alectra Utilities is mandated to provide an Offer to Connect for connection in compliance with the Distribution System Code, which includes applying the Economic Evaluation Model. Failure to comply would constitute a violation of the Distribution System Code, which Alectra Utilities is required to comply with pursuant to its OEB distribution license.

Material Investments Report

Project Code	101887	
Project Name	New Residential Subdivision and Condo Tower Development - Alectra East	
	Customer Attachment / Load (KVA)	The connected and demand kVA load for new residential connections is a forecast based on the following criteria: Average number of connections = 2800 Transformer size = 100kVA Number of services attached to transformers = 10 to 12 Transformer Load Factor = 40% _____ Average calculations based on 2,800 connections: 2,800 connections / 10 services = 280 transformers 280 transformers x 100kVA transformer size = 28,000kVA 28,000kVA * 40% LF = 11,200kVA Connected Load = 28,000kVA Demand Load = 11,200kVA _____ For the case of new Residential condo towers, the service connections are prepared by Alectra Utilities' Institutional/Commercial/Industrial (ICI) department. Refer to Alectra Utilities' Institutional/Commercial/Industrial (ICI) department budget for connected and demand load.
	Safety	These investments are designed based on Alectra Utilities' current standards and are installed using the latest procedures which provide for public and worker safety.
	Cyber-Security, Privacy	Cyber-Security and Privacy are not applicable to this project.
	Coordination, Interoperability	Alectra Utilities will coordinate construction with the developers, home builders, applicable regulatory authorities and all other affected utilities.
	Economic Development	Alectra Utilities ensures that all policies and practices do not intentionally create barriers to economic development within affected communities. This investment supports the economic growth and jobs that residential connections create for the region.
	Environmental Benefits	Newly installed transformers within subdivision developments utilize bio degradable oil for cooling.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Status quo would be to not invest in building the EDS to service new subdivision developments. Because this would result in breaching the Distribution System Code and Alectra Utilities' distribution licence, there would be serious repercussions with the regulator. This is not a viable alternative.
	Alternative #1	The first alternative is to continue to invest in building the EDS to service institutional, commercial and industrial subdivisions for new customers based solely on historical values. This alternative is in compliance with the OEB Distribution System Code and Alectra Utilities' Conditions of Service. These investments must be completed to provide capacity to connect new customers.
	Alternative #2	The second alternative is to continue to invest in building the EDS to service residential subdivisions and condominium towers for new customers. The budgets for Alternative #2 are based on historical values, and incorporate an annual escalation rate that increases by 1% every year (e.x: 1% in the first year, 2% in Year 2, 3% in Year 3, etc.). This alternative is in compliance with the OEB Distribution System Code and Alectra Utilities' Conditions of Service. These investments must be completed to provide capacity to connect new customers.

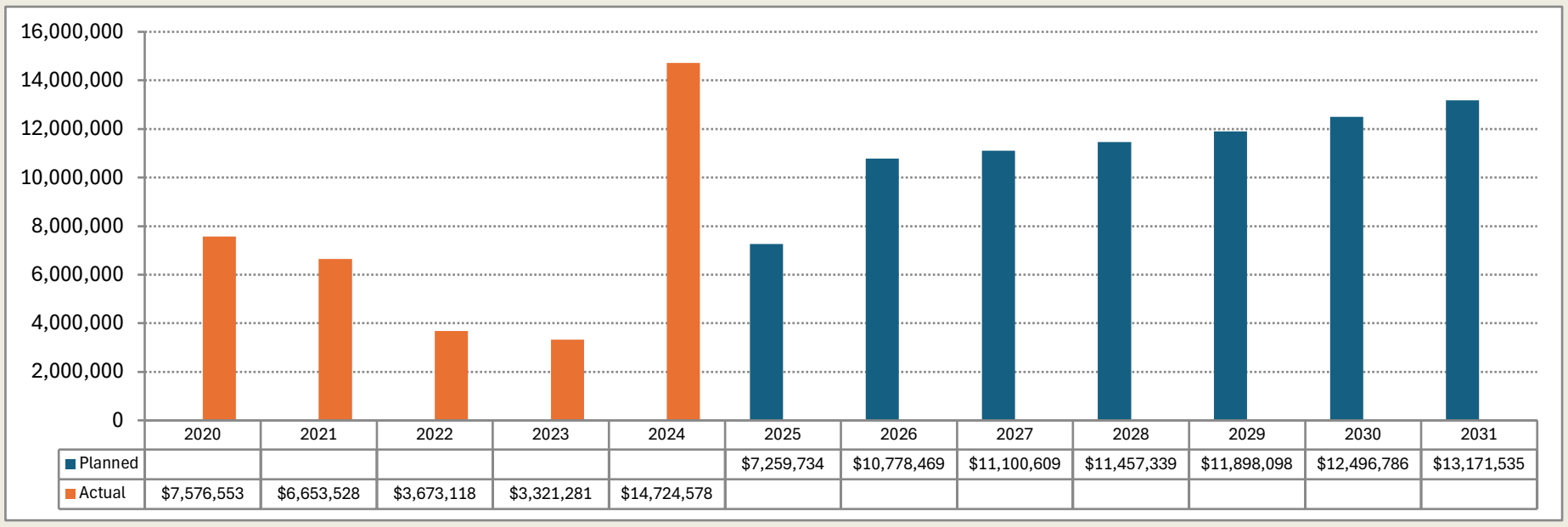
Material Investments Report

Project Code	101887	
Project Name	New Residential Subdivision and Condo Tower Development - Alectra East	
	Alternative #3	The third alternative is to continue to invest in building the EDS to service residential subdivisions and condominium towers for new customers. The budgets for Alternative #3 are based on historical values, and incorporate a 1% annual increase for residential lots, and forecasted high-rise condominium quantities based on planned future projects. This alternative is in compliance with the OEB Distribution System Code and Alectra Utilities' Conditions of Service. These investments must be completed to provide capacity to connect new customers.
	Alternative #4	The fourth alternative would be to use non wires solution such as DER/DR. However this project is to connect new greenfield developments that have no connected capacity to curtail and require new connection to deliver firm capacity for the developments.
	Justification for Recommended Alternative	Alternative #3 is the recommended alternative as it incorporates anticipated future outlooks while maintaining compliance with the Distribution System Code and Alectra Utilities' distribution licence.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	The completion of New Subdivision Residential projects hinges on an array of risk factors, each managed through diligent planning and strategic foresight. Alectra Utilities acknowledges the following risks and has established corresponding mitigation strategies: Labor Availability: Cultivating a pool of reliable contractors and labor resources. Regulatory and Compliance Changes: Keeping abreast of regulatory changes and incorporating regulatory lead times into project schedules. Stakeholder Engagement: Establishing robust communication plans to keep all stakeholders informed and engaged, thus minimizing resistance and ensuring alignment. Project Management: Utilizing best-practice project management methodologies, ensuring cross-departmental coordination, and scheduling regular progress assessments. Contractual Liabilities: Instituting thorough contract reviews, defining clear performance criteria, and establishing dispute resolution mechanisms. Operational Disruptions: Designing phased implementation schedules to minimize impact on ongoing operations, with rapid response plans for unexpected disruptions. In light of these varied risks, Alectra Utilities' approach is to prioritize proactive engagement, adaptive planning, and continuous monitoring to ensure project resilience and timely completion.
	Comparative Information on Equivalent Historical Projects (if any)	The recommended alternative is alternative #3. The historical spending for New Subdivisions includes both residential and condo developments, and is based on the costs in the Offer to Connects provided to the developers. The actual spending incurred during a given year can differ from the number of connections in that year due to Developer driven energization timelines. Furthermore, the connections can occur anytime during the connection horizon agreed to in the Offer to Connect. Since 2022, there has been a shift towards intensification and increased activity in new high density condominium construction within Alectra Utilities' service area. This shift has changed the method for forecasting future New Residential Subdivision expenditures. The forecast is now comprised of: • Residential Subdivisions (single family houses, townhouses, semi detached, etc.), for which Alectra Utilities used the average historical volumes and pricing to forecast future expenditures for residential subdivisions, with a 1% annual increase in volumes. For this category, the average gross unit cost expenditures from 2022 to 2024 were used as a baseline to forecast future expenditures beginning in 2025. The forecasts are adjusted for annual inflation increases beyond that point. • High Rise Condominium buildings are forecasted based on the proposed developments noted in Appendix B13 - Stations Capacity. Alectra Utilities believes that it is possible that the total number of developments indicated may not be fully realized within the DSP period, and as such, has reduced the amount of work budgeted for 2027 to 2031. For this category, the average gross unit cost expenditures from 2022 to 2024 were used as a baseline to forecast future expenditures beginning in 2025. The forecasts are adjusted for annual inflation increases beyond that point.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code 101887

Project Name New Residential Subdivision and Condo Tower Development - Alectra East



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$7,259,734	$10,778,469	$11,100,609	$11,457,339	$11,898,098	$12,496,786	$13,171,535
Actual	$7,576,553	$6,653,528	$3,673,118	$3,321,281	$14,724,578							

Material Investments Report

Project Code	152758
Project Name	Build Richmond Hill TS3
Project Description	This project is to build a new 2x125MVA transformer station with twelve 27.6kV feeder breakers to supply Metrolinx's Yonge North Subway Extension (YNSE) project, as well as other developments in the Richmond Hill area. The in-service date is 2030, as required, to meet anticipated load growth and timelines for subway extension. Alectra Utilities has been requested to provide four dedicated and 100% redundant 27.6kV feeders to supply the 35MW load from the Yonge North Subway Extension in 2030.
Investment Category	System Service

02. Additional Information	**Branch Plant**	815 Addiscott Service Centre
	Units	1
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Meeting Growing Electricity Demand
	Alectra Grouping	Capacity (Stations)
	Alectra Subcategory	Station Capacity Projects
	Contributed Capital	*Entered Manually in Forecast
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Markham and Richmond Hill are supplied by seven Alectra Utilities' owned transformer stations and one Hydro One station, in addition, there are ties to other stations in Vaughan. The total capacity of these stations is 1388MVA, while the existing station loading is 1282MVA. There is only 106MVA available in Markham and Richmond Hill area. All the remaining capacity will be used by 2030. There are several large, proposed customer expansions with a total demand of 112MVA, for example DC4, DC5, DC6, Buttonville airport development and Leslie development. Once these expansions are completed, there will be 0MVA remaining for other developments. The major developments in the area that are intended to be supplied by this project include: Yonge North Subway Extension (YNSE): YNSE will extend the TTC's Line 1 subway service by approximately 8 kilometers from the existing terminus at Finch Station into the City of Richmond Hill. The project runs through the City of Toronto and York Region, including sections within the cities of Markham, Vaughan and Richmond Hill. Four Traction Power Substations have been proposed in Alectra Utilities' service territory: -Traction Power Substation #3 (TPSS-03): Loading to support TPSS and Clark Passenger Station. TPSS-03 location is near 9 Clark Ave, Thornhill. The ultimate demand is 6MVA. -Traction Power Substation #4 (TPSS-04): Loading to support TPSS & Royal Orchard and Bridge Passenger Station. TPSS-04 location is South of 8000 Yonge St, Thornhill. The ultimate demand is 11.3MVA. -Traction Power Substation #5 (TPSS-05): Loading to support TPSS & High Tech and Bridge Passenger Station. TPSS-05 location is East of 30 High Tech Rd, Richmond Hill. The ultimate demand is 12MVA. -Traction Power Substation #6 (TPSS-06): Loading to support TPSS and TSF Building. TPSS-06 location is near to 125 16th Ave, Richmond Hill. The power supply is needed in 2031, and ultimate demand is 6MVA.

Material Investments Report

Project Code	152758
Project Name	Build Richmond Hill TS3

		The maximum demand of these 4 stations is 35MVA, and the customer has requested full supply redundancy. So, four dedicated 27.6kV feeders to supply these stations. Richmond Hill Center (RHC): RHC is planned to accommodate a population of approximately 23,000 residents, 16,500 jobs, and 13,000 residential units at full build-out within an Urban Growth Centre boundary of approximately 60 hectares. The anticipated load is 50MVA when fully built out. Langstaff Gateway Secondary Plan Development: Langstaff Gateway Secondary Plan Area projects development of a high-density urban center with up to 15,000 residential units (or a population of approximately 32,000) and approximately 10,000 jobs. The anticipated load for this area is 45MVA when fully built out. Yonge Steeles Secondary Plan: City of Vaughan's Yonge Steeles Corridor Secondary Plan area is located along the west side of Yonge Street between Steeles Avenue West and Thornhill Public School and on the north side of Steeles Avenue West between Yonge Street and Palm Gate Boulevard in the south plan area; and between the Thornhill Golf and Country Club and Longridge Road in the north plan area projects 25,202 residential units and a population of 45,000. The anticipated load is 88MW when fully built out.
	Customer Attachment / Load (KVA)	Not applicable The new station will have 2x125 MVA transformers and 12x27.6 kV feeders. The designed LTR will be 170 MVA.
	Safety	Not applicable
	Cyber-Security, Privacy	Not applicable
	Coordination, Interoperability	Capacity investments also enable improved coordination and integration of Distributed Energy Resources (DERs) such as rooftop solar, battery storage, and demand response technologies. By upgrading system infrastructure, Alectra Utilities can support greater two-way power flows and enhance grid interoperability, allowing DERs to be actively managed as part of the distribution system. This promotes improved reliability, optimizes system performance, and aligns with evolving industry standards for a more flexible and resilient grid.
	Economic Development	This project will enable the operation of the Yonge north Subway Extension and development of Richmond Hill center, Langstaff Gateway as well as Yonge St/Steeles Ave secondary plan.
	Environmental Benefits	Investing in distribution system capacity enhances climate resilience by enabling the integration of cleaner, low-carbon energy sources and strengthening the grid's ability to withstand and adapt to extreme weather events linked to climate change.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	The status quo would be to do nothing and overload existing transformer stations and feeders beyond their normal ratings. There is no cost to the status quo however there may be anticipated cost in case the equipment fails when it is run in overloaded condition. There is no capacity without operating over the planned limits. Running equipment beyond its rating could lead to failure and possibly cause injury to public or employees. Running equipment beyond it designed rating also reduces the life expectancy of that equipment. The existing transformer stations and feeders are at their planning limit. This further restrict the operational flexibility of transferring load between feeders and stations in case of problems on the distribution system. Alectra Utilities is obligated to serve the load. For these reason the status quo is not an appropriate alternative.

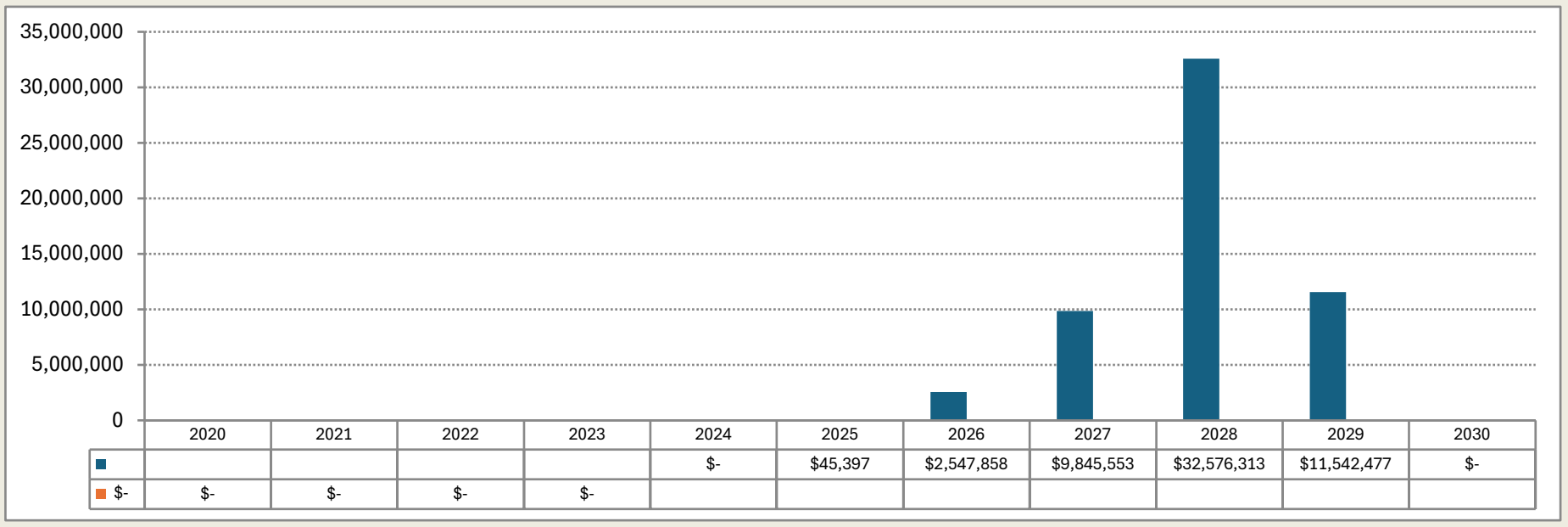
Material Investments Report

Project Code	152758	
Project Name	Build Richmond Hill TS3	
	Alternative #1	This option is to utilize non wires solution such as DER/DR. Alectra Utilities' load forecast is net of CDM and DG. Metrolinx has requested four dedicated 27.6kV feeders with 100% redundancy to supply the Yonge Street Subway Extension. It is not feasible to free-up four breaker positions by utilizing any non-wires solutions. In addition, covering a 170 MVA shortfall would require either utility-scale storage or other dispatchable DERs that urban land, feeder limits, reliability standards cannot support. DR program to locally shed a 170 MVA is not feasible. The cost and space considerations for a BESS/DR would also considerably exceed the forecasted investment in Richmond Hill TS#3. Given these technical, operational and economic barriers, building Richmond Hill TS3 remains the only practical option to supply the capacity and redundance needed.
	Alternative #2	This alternative is to construct a new Richmond Hill TS #3. This station will be a 230/27.6kv DESN with 12 feeder breaker. This station will provide the required capacity and feeder to serve the new developments. This is the recommended alternative.
	Alternative #3	Not applicable
	Alternative #4	Not applicable
	Justification for Recommended Alternative	In order to meet the forecasted capacity deficiency in the summer of 2031 and in service date of the Yonge St subway extension, additional transformation and feeder capacity must be commissioned in December of 2030. Options which require extensive transmission facilities and corresponding right-of-way acquisition must be developed as soon as possible. It is desirable to site a new station adjacent to existing rights-of-way in the study area or locate a new station at an existing transformer station site. The timeline for a new TS is between 5-7 years. In light of the required timelines for Environment Assessment (EA) and public input on the construction of RH-TS3, it is recommended to complete EA by 2027. No land purchase is required as preliminary investigation indicate that there is space at existing Richmond Hill TS which can accommodate for a new station. The recommended alternative addresses long-term growth requirements for the area. The recommended alternative is consistent with Alectra Utilities' established planning guidelines for Transformer Stations and Feeders. The construction will ensure regulatory compliance is achieved in terms of serving our customers. It will allow Alectra Utilities to continue to operate its system in a safe and effective manner. It will enable Alectra Utilities to meet transformer station and feeder loading guidelines. Service reliability will increase once the new station is in service. It will allow for more feeder ties and backup options. System Capacity will increase by an additional 170 MVA. This will ensure additional load growth and customers can be served.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	The location of RH-TS3 is at the existing Richmond Hill TS1&TS2. There is risk of not obtaining major equipment such as transformers and switch gears in time. Station design will place the order in advance to minimize the risk.
	Comparative Information on Equivalent Historical Projects (if any)	Alectra Utilities has standardized its TS designs and has experience in completing station projects. The most recent example is the completion of the 170MVA DESN station in Vaughan (VTS#4).
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code 152758

Project Name Build Richmond Hill TS3



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
					$-	$45,397	$2,547,858	$9,845,553	$32,576,313	$11,542,477	$-
$-	$-	$-	$-	$-							

Material Investments Report

Project Code	Multiple
Project Name	Switchgear Renewal
Project Description	This investment proactively replaces padmounted switchgear units deemed to be at risk of failure in the Alectra Utilities service territory. Alectra Utilities has identified a need to focus on replacing 25kV air-insulated “live front” switchgear and oil-insulated switchgear. This will support Alectra Utilities to manage the outage impacts due to deteriorating underground system assets. Switchgear failure on average account for 34,773 Customer Hours of Interruption between 2019 to 2023. The latest Asset Condition Assessment (ACA) conducted in 2023 has concluded that Alectra Utilities has 329 deteriorated (very poor and poor) switchgears. Investments in switchgear replacements will avoid safety and reliability risks associated with failure of these assets.
Investment Category	System Renewal

02. Additional Information	**Branch Plant**	10 Alectra
	Units	69
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Underground Asset Renewal
	Alectra Subcategory	Switchgear Replacement
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Distribution-class pad-mounted switchgear facilitates the connection of local distribution circuits to main line underground feeder cable systems as well as interconnecting main line feeder circuits. Switchgear are a critical component in the distribution system that help reduce the impact of outage or maintenance activity and improve service reliability. Switchgear units are used for isolating, sectionalizing, and fusing for laterals, and reconfiguring cable loops for maintenance, restoration, and other operating requirements. They enable the provision of service to residential subdivisions and commercial and industrial customers via fused connections to main feeder cable systems. A single switchgear failure can impact up to 5,000 customers. Alectra Utilities has identified a need to focus its investment in replacing two groups of legacy switchgear that carry significant reliability and safety risks due to their deteriorated condition and identified deficiencies. These two groups are (i) 25 kV air-insulated “live front” switchgear and (ii) oil-insulated switchgear. Alectra Utilities plans to replace all of the Poor and Very Poor air-insulated switchgear on the 27.6 kV system and the Very Poor condition oil-insulated units. This renewal investment is supported by customers. The Alectra Utilities’ useful life of pad-mounted switchgear is 20-45 years with a typical useful life of 30 years when operating within a normal continuous rated operating voltage of 25 kV, however, when installed on the 27.6 kV distribution system (as they are in parts of Alectra Utilities' underground distribution system) it accelerates deterioration and these units have failed at service ages as low as 11 years. The low voltage rating of these switchgear contributes to their reduced life and reduces their ability to perform under abnormal conditions, leading to premature failures.

Material Investments Report

Project Code	Multiple	
Project Name	Switchgear Renewal	
		Environmental factors in southern Ontario have also led to earlier failure of these switchgear. While these units function relatively well when their environment remains dry, southern Ontario's environment presents challenges that cause units to fail. High humidity, condensation from changing temperatures and water in the below grade foundations when mixed with dirt and road dust contribute to the formation of conductive paths on the insulating components. Over time this ultimately reduces the insulating properties and leads to flashover and failure of the switchgear. These switchgear use a “live front” design, in which energized components are exposed and accessible when the access doors are opened for inspection, maintenance or operation. This design means that crews must take additional safety precautions when working with this equipment. In addition, the increasing failure rate of these switchgear means that workers may be at higher risk of being exposed to an arc flash. The planned replacement units would remove this risk. Alectra Utilities plans to replace its 25 kV air-insulated switchgear with solid di-electric switchgear. This will reduce incidences of failures due to flashover, promote reliable distribution service and increase the useful life to 45 years with reduced maintenance and inventory cost.
	Customer Attachment / Load (KVA)	Varies by location.
	Safety	Switchgear failures pose safety risk to staff and the public. The switchgear may fail when staff are working on the unit or when the public is in close proximity to the unit. When the switchgear unit fails, there may be flashover or rupture of the enclosure, which may result in injury.
	Cyber-Security, Privacy	Cyber-Security and Privacy are not applicable to this project
	Coordination, Interoperability	For coordination with utilities, regional planning and other 3rd parties, Alectra Utilities constructs all new projects using approved construction standards complying with ESA Regulation 22/04. Alectra Utilities attends Public Utility Coordinating Committee (PUCC) meetings which jointly allows for the coordination and planning of investments with other utilities who provide cable tv, internet, phone and natural gas services.
	Economic Development	This investment promotes reliability and the safe restoration of power, both of which are valued by customers. Furthermore, some customers review outage statistics as part of the site selection process, and service reliability is valued in this process.
	Environmental Benefits	In the case of oil-filled switchgear units, switchgear failures may cause rupture, resulting in oil being spilled onto the ground. Because the oil-filled units are replaced with non-oil units, the environmental risk is eliminated.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Do nothing. This option would involve no planned replacement of switchgears. This alternative leads to the highest safety, environmental and reliability risk to customers.
	Alternative #1	Moderate Pacing Replacing 81 switchgear per year, total of 405, with a total estimated cost of $62.7MM from 2027 to 2031.
	Alternative #2	Accelerated Pacing Replace 110 switchgear per year, total of 550, with a total estimated cost of $85.2MM from 2027 to 2031.
	Alternative #3	Reduced Pacing Replace 69 switchgear per year, total of 344, with a total estimated cost of $54.3MM from 2027 to 2031.
	Alternative #4	N/A

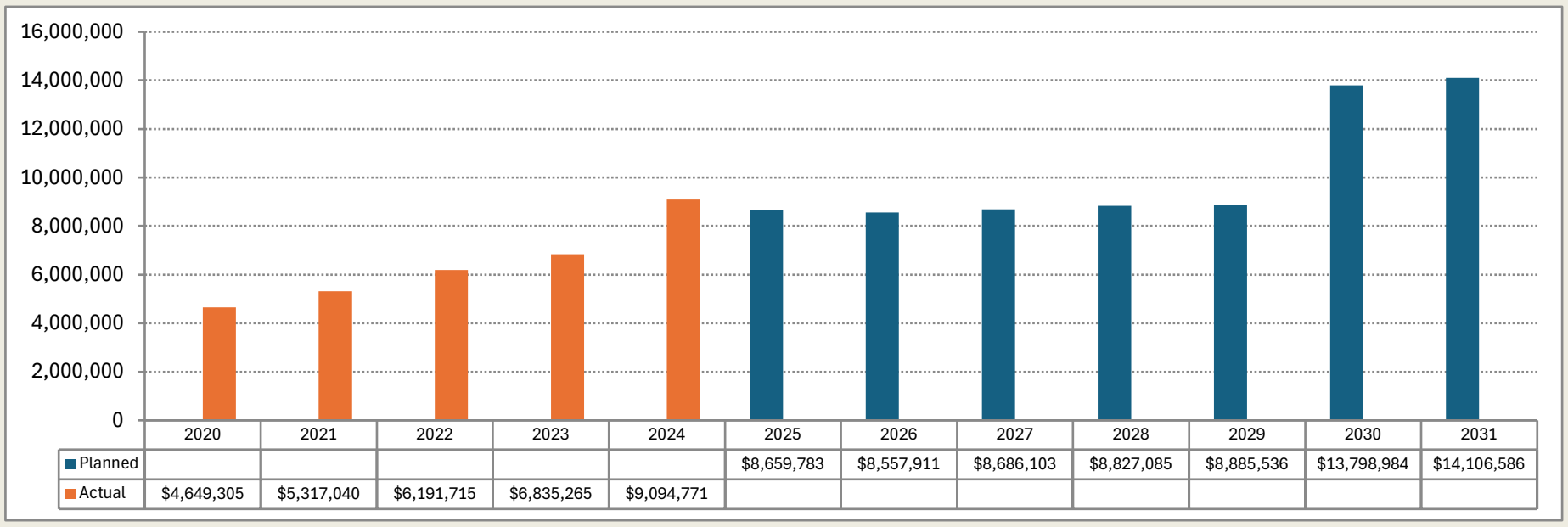
Material Investments Report

Project Code		Multiple
Project Name		Switchgear Renewal
	Justification for Recommended Alternative	CDM and NWS were considered but they were determined not to be feasible options. The failure of legacy switchgear is increasingly contributing to the duration of outages experienced by customers served by Alectra Utilities' underground distribution system. The hours of customer interruption resulting from failure of these assets has increased since 2016, primarily driven by the deteriorating condition of Alectra Utilities' switchgear assets. If the switchgear identified in the proposed investments are not addressed during the term of the DSP, Alectra Utilities expects that the reliability of the underground system will continue to decline. If the proposed investments are delayed, Alectra Utilities expects that a significant backlog of switchgear replacements develop, which will require significant investment and resources to correct (if possible). The Health Index (HI) values produced by Alectra Utilities' 2023 Asset Condition Assessment (ACA) pinpoint specific forms of degradation in distribution assets. Alectra Utilities has oil type switchgears remaining in the field which Alectra Utilities is actively removing from the system as they may fail catastrophically posing risk to the public. In addition, the clean up of the oil spill will increase the cost of maintaining oil insulated switchgear. Alectra Utilities recommends replacement at the moderate pace. The moderate pace strikes the balance between long term costs and short-term reliability impact.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Alectra Utilities considers the following as general risks to project schedule and cost: - customer delays or restricted access to work sites - inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms - delays to material shipment from vendors - general unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Alectra Utilities has utilized coordination with third parties to avoid some of the issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk prevention strategies.
	Comparative Information on Equivalent Historical Projects (if any)	This program is the continuation of Alectra Utilities' long-term annual switchgear replacement initiative. The average annual investments in the Alectra Utilities service territory for 2020-2024 was $6.4MM. Alectra Utilities has set the recommended average annual investment level at $10.9MM for 2027-2031. This increase is a result of including automation at the time of renewal, which reflects customer needs and preferences as well as consistent replacement methodology across Alectra Utilities.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code Multiple

Project Name Switchgear Renewal



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$8,659,783	$8,557,911	$8,686,103	$8,827,085	$8,885,536	$13,798,984	$14,106,586
Actual	$4,649,305	$5,317,040	$6,191,715	$6,835,265	$9,094,771							

Material Investments Report

Project Code	Multiple
Project Name	Distribution Automation
Project Description	Alectra Utilities strives to reduce outage times by restoring power once an outage occurs as quickly as possible. Investments in Distribution Automation will replace existing manual switching locations with automated units. Investments in automated switches, reclosers, switchgear and Trip Saver devices will increase their penetration in the distribution system and facilitate reduced restoration times. These devices provide remote supervision and control through SCADA and serve as the physical nodes that enable remote fault detection, isolation, and restoration at the feeder and Station levels. They reduce diagnostic time when faults occur and reduce feeder patrol times to identify fault locations. In day-to-day operations, the addition of remotely controlled devices provides additional flexibility to balance loads, reconfigure feeders, and optimize the use of available capacity. In practice, the additional deployments of automated devices will break feeders into smaller, switchable sections with multiple alternative supply paths, thereby allowing power interruptions to be confined to the smallest possible line section. Moreover, the additional remotely controlled devices will provide greater capability to quickly restore healthy feeder sections, thereby improving reliability and enhancing customer experience.
Investment Category	System Service

02. Additional Information	**Branch Plant**	10 Alectra
	Units	106
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Enabling Resiliency & Modernization
	Alectra Grouping	SCADA and Automation
	Alectra Subcategory	Distribution Automation - New
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Alectra Utilities has identified that feeders that are lacking in automated devices hindered the ability to reduce feeder down time in case of outages, and to reduce the number of customers affected by outages. Investments in DA are recommended in order to support overall reliability. Investments in Distribution Automation will also result in improved asset utilization, increased efficiency, increased reliability and resiliency.
	Customer Attachment / Load (KVA)	Not applicable.
	Safety	The aspects related to safety for this project include: 1. Allowing switching to occur without staff being in contact or proximity to the equipment during change of state from open to close or vice versa. 2. Allowing switching to occur during an emergency. i.e. customer contact with lines via vehicle or cut down tree, critical injury, fire or explosion.
	Cyber-Security, Privacy	Automated Switches and Reclosers communicate back to the control room via private/secure network. As part of its continuous improvement model, Alectra Utilities performs periodic security assessments to identify opportunities for enhanced system hardening if applicable.

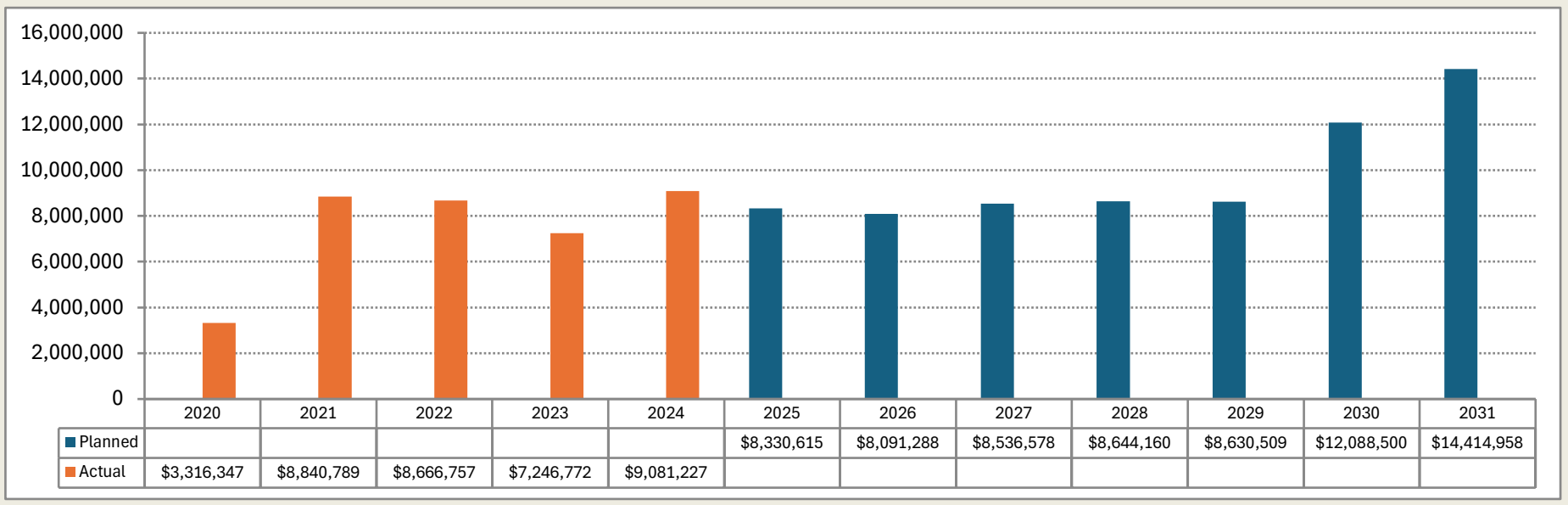
Material Investments Report

Project Code: Multiple
Project Name: Distribution Automation

	Coordination, Interoperability	Pertaining to coordination with utilities, regional planning and other 3rd parties, Alectra Utilities constructs all new projects using approved construction standards complying with ESA Regulation 22/04. Alectra Utilities participates in regional planning, both at an infrastructure level with local municipalities and regions, as well as at an electrical infrastructure level with Hydro One and other participants in the Regional Planning Process. Alectra Utilities also attends Public Utility Coordinating Committee (PUCC) meetings which jointly allows for the coordination and planning of investments with other utilities who provide cable tv, internet, phone and natural gas services. All automated units are installed to the latest standards to allow future units to participate in advanced sectionalizing schemes if required. Some manual units will be replaced with automated units on a case by case basis if applicable to coordinate restoration schemes.
	Economic Development	An efficient and safe distribution system maintains reliability. Business activities and customer satisfaction value reliability. Also, some customers review outage statistics as part of the site selection process, and excellent reliability is valued in this process.
	Environmental Benefits	Not Applicable.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Do Nothing - Do not install automated switches This approach would not allow Alectra Utilities to make the necessary enhancements to the reliability of its distribution system. The continued use of manual switches and switchgear would require lines crews to operate a significant number of manual switches to isolate faults or transfer loads between feeders. This will increase outage restoration time and have a negative impact on system reliability. This is not a preferred alternative.
	Alternative #1	Alternative #1 is to install switches at the fast pace. This would better customer reliability and increase when Alectra Utilities could provide automated FDIR (self-healing) schemes, further developing an intelligent grid with less reliance on manual intervention to respond to system faults. The number of devices in this alternative would outpace the investment in telecommunications and back-end systems stretching operational flexibility. The cost would be $65.8MM between 2027-2031.
	Alternative #2	Alternative #2 would be to install automation at a moderate pace. This level of investment would allow customers to gain reliability benefits but reduce the pace of implementation to allow the advancement of self-healing schemes to be managed along side growth in telecommunications infrastructure to ensure sustained growth functions as needed. The cost would be $56.3MM between 2027-2031.
	Alternative #3	Alternative #3 would be to install automation at a slow pace. This level of investment would be the least impactful to customers' overall reliability, especially in the first 3-4 years. However, the development and deployment of self-healing systems beyond 5 years would benefit from the additional planning, training, and research for larger deployments capable at the reduced pace. The cost would be $52.3MM between 2027-2031.
	Alternative #4	Not Applicable

Material Investments Report

Project Code		Multiple
Project Name		Distribution Automation
	Justification for Recommended Alternative	High service reliability and rapid response to power outages is critical to mission success and customer satisfaction in supplying electricity. RTU controlled switches provide rapid transfer of loads in emergencies, reduce restoration time which improves reliability, provide flexibility to reconfigure the system to avoid feeder and station over loads during summer peak, provide real time system readings, reduce the risk of personnel injury and are the platform for the complete distribution automation system. To determine potential switch candidates, feeders are ranked based on the FAIDI, FAIFI and MAIFI contributions to the systems which determines the Worst Performing Feeders. Outage causes, feeder load balancing plan and location of existing automatic switches are also used to identify and determine the location for additional switches and re-closers wherein it is most beneficial in CMI reduction and operational needs. Also, automatic switch locations are jointly determined among System Planning, System Operations, and Lines by selecting potential switch candidates to address Customer Service reliability needs, feeder loading emergency back-up and load transfer needs and Control Room operations needs on outage sectionalization and restoration. Alectra Utilities recommends the moderate pace as it strikes the balance between costs and customer benefits.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Alectra Utilities considers the following as general risks to project schedule and cost: - customer delays or restricted access to work sites - inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms - delays to material shipment from vendors - general unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Alectra Utilities has coordinated with third parties to mitigate issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk mitigation strategies.
	Comparative Information on Equivalent Historical Projects (if any)	This program is the continuation of Alectra Utilities' long-term annual Distribution Automation initiative. The average annual investments in the Alectra Utilities service territory for 2020-2024 was $7.4MM. Alectra Utilities has set the recommended average annual investment level at $10.5MM for 2027-2031. This increase is a result of including automation at the time of renewal, which reflects customer needs and preferences as well as consistent replacement methodology across Alectra Utilities.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$8,330,615	$8,091,288	$8,536,578	$8,644,160	$8,630,509	$12,088,500	$14,414,958
Actual	$3,316,347	$8,840,789	$8,666,757	$7,246,772	$9,081,227							

Material Investments Report

Project Code	151556
Project Name	Cable and Transformer Replacement - (HAM) - Hollybush - Parkside - Dundas - Spring Creek
Project Description	This investment is for replacing 20,340m of direct-buried XLPE cables with Tree-Retardant XLPE cables installed in conduit in the Alectra West (Hamilton/Waterdown) area between Dundas St and Parkside Dr., east of Highway 6 (while project #151308 covers the cable injection portion). It is to serve 1705 customers most of whom are Residential or Commercial customers, among which are elementary schools. Along with the cable remediation, some of the distribution transformers that are non-standard or deteriorated will also be replaced as part of the project. This area has seen 5 failures between 2019 - 2023 as a result of cable faults for a failure rate of 24.6 failures/100km. Installing the new cables in conduit will reduce the likelihood of future cable failures. In addition, ducts from the transformers to the property line will be installed to prepare for future replacement of secondary services. This change responds to increasing congestion in municipal road allowances as telecommunications companies add fibre optic facilities in the same corridors, reducing the available space for Alectra Utilities' assets and driving up future construction costs. To secure corridor capacity and avoid higher future costs to customers, Alectra Utilities will transition to this concurrent installation approach starting in 2027. This investment aligns with Alectra Utilities' focus on decreasing the outage impacts due to deteriorating underground system assets.
Investment Category	System Renewal

02. Additional Information	**Branch Plant**	820 Nebo Service Centre
	Units	20340
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Underground Asset Renewal
	Alectra Subcategory	Cable Remediation –Replacement
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable

Material Investments Report

Project Code	151556
Project Name	Cable and Transformer Replacement - (HAM) - Hollybush - Parkside - Dundas - Spring Creek

05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	As of 2023, defective equipment accounts for 45% of controllable outages in Alectra Utilities' system. Cable and cable accessory failures account for 50% of all equipment-related outages. This has a large impact on reliability as well as customer service and satisfaction. Cable manufacturers introduced the first-generation XLPE cable into the market in the late 1960's. These cables have inherent problems due to the nature of the manufacturing processes, which led to impurities developing over time in the insulating medium. These impurities are responsible for the increase in cable failures that Alectra Utilities and other utilities have been experiencing with cables from this period. XLPE cables also fail because of the way they were installed. Decades ago, it was standard practice for utilities to bury cables directly in the ground. Over time, the construction standards shifted to installing cable in protective conduits, but much of the system still consists of "direct-buried" cable. When a more modern cable-in-conduit fails, it can typically be entirely removed and replaced with a brand-new cable with relative ease. In contrast, direct-buried cables can only be repaired by excavating the cable and splicing in a replacement segment. This approach is fundamentally reactive and can introduce further complications, since the installed splice may itself become a future failure point. It does not solve the underlying issue, since the older, direct-buried cable remains installed and increasingly likely to fail again. Failing direct-buried cables are causing an increasing number of outages, and when buried cables fail it can take a significant amount of time to restore service and impact the quality of service received by Alectra Utilities' customers. Due to the increasing occurrence of failures caused by this vintage of cable, Alectra Utilities must execute cable replacements within the near term to end the trend and reduce the number of cable failures. Without this proposed investment, cables will continue to degrade and Alectra Utilities expects reliability to decline further as deteriorated cables begin to fail at greater rates, having been stressed from historical faults.
	Customer Attachment / Load (KVA)	1705 customers and 9500 kVA
	Safety	Alectra Utilities is required to ensure its distribution system can support projected load growth while maintaining reliability and quality of service for customers on both a short-term and long-term basis, as required by the Distribution System Code (DSC). Alectra Utilities must also connect new customers within the timelines prescribed by the OEB's service quality standards without adversely affecting the quality and safety of service to existing customers. This investment ensures that both of these requirements can be met and that the distribution system can safely distribute the required capacity.
	Cyber-Security, Privacy	Cyber-Security and Security is not applicable for this investment.
	Coordination, Interoperability	Pertaining to coordination with utilities, regional planning and other 3rd parties, Alectra Utilities constructs all new projects using approved construction standards complying with ESA Regulation 22/04. Alectra Utilities participates in regional planning, both at an infrastructure level with local municipalities and regions, as well as at an electrical infrastructure level with Hydro One and other participants in the Regional Planning Process. Alectra Utilities also attends Public Utility Coordinating Committee (PUCC) meetings which jointly allows for the coordination and planning of investments with other utilities who provide cable tv, internet, phone and natural gas services.
	Economic Development	An efficient and safe distribution system promotes reliability. Business activities and customer satisfaction value reliability. Also, some customers review outage statistics as part of the site selection process, and excellent reliability is valued in this process.
	Environmental Benefits	Several oil filled switching cubicles are located within this scope area and present a risk of contamination to the soil in the event of an oil leak.

Material Investments Report

Project Code	151556
Project Name	Cable and Transformer Replacement - (HAM) - Hollybush - Parkside - Dundas - Spring Creek

06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	The status quo is to do nothing, allowing the end-of-life cable to run to failure and responding to outages under reactive capital. Addressing failing cables using a reactive replacement strategy has a negative impact on reliability, incurs a higher cost when repairing the cables under emergency conditions, and is more disruptive to customers when compared to a planned replacement approach. As of 2023, 50% of defective equipment failures are occurring due to cable and cable accessories, and that 45% of all system outages are defective equipment, this would lead to an unacceptable level of outages and customer satisfaction. This is not a viable alternative.
	Alternative #1	Alternative #1 is to perform replacement only of cable segments that have experienced a fault. Several sections of cable would need to be replaced under this alternative. This approach provides a bare minimum investment approach to targeting segments that have already seen repair action taken place, and is intended to remove the possibility of future failures occurring on an already compromised cable segment by installing a new length of cable. This approach neglects the impact that failures have on adjacent equipment within the area. Under this alternative, no transformer replacements would occur, allowing those units to run-to-failure and be replaced reactively. This alternative is disruptive to customers and does not address the failure situation adequately. This is not a preferred alternative.
	Alternative #2	Alternative #2 is to replace all the cables in this area that are of the same vintage as those that have experienced cable faults. The cables will be replaced with Tree-Retardant XLPE cables and installed in conduits. Transformer replacement will also be carried out on those transformers within the scope area that are at risk of failure or do not meet minimum condition criteria to leave in place. The benefit in replacing these transformers is that it mitigates future outages and potential damage to newly installed cable once the transformers fail. In addition, duct from the transformer to the property line will be installed to prepare for future replacement of secondary services. Performing this work now ensures that when the services are due for replacement there will be ducts available within the service corridor to facilitate this replacement. This is the recommended alternative.
	Alternative #3	Not applicable
	Alternative #4	Not applicable

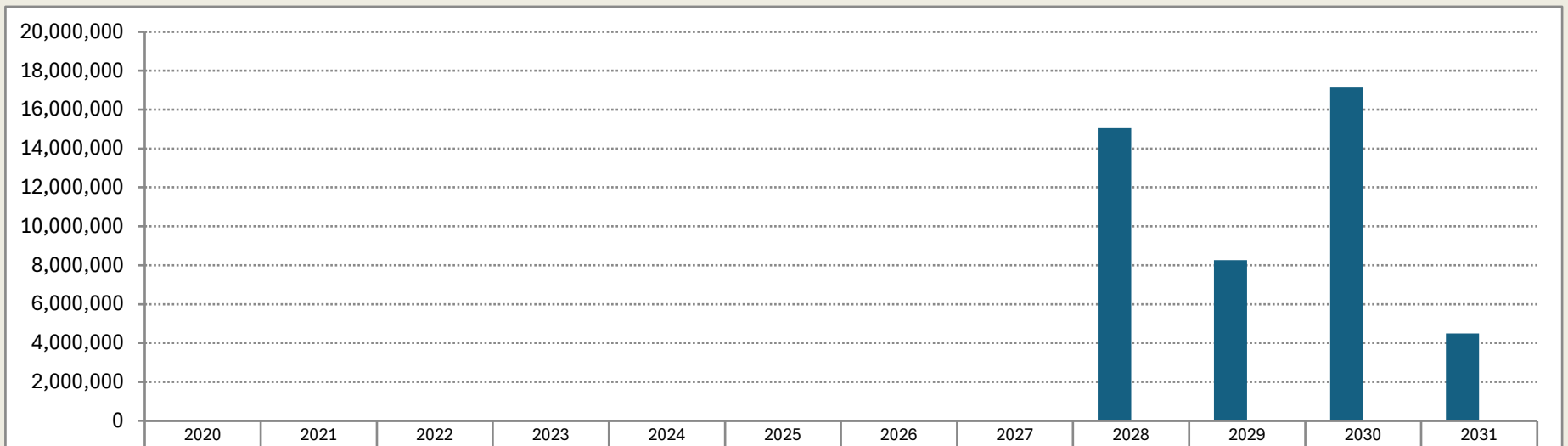
Material Investments Report

Project Code		151556
Project Name		Cable and Transformer Replacement - (HAM) - Hollybush - Parkside - Dundas - Spring Creek
	Justification for Recommended Alternative	CDM and NWS were considered but they were determined not to be feasible options. Deteriorated cables are failing. Since cables are the main component of the underground electrical distribution system, when a cable segment fails, system reliability and customer service are negatively affected. For small-scale outages, Alectra Utilities has the capability to replace or repair the faulted cable segments under reactive capital, however, if too many cable failures occur at the same time, Alectra Utilities would not have sufficient resources to manage the large-scale and cascading outages - system integrity will be compromised and reliability will be unacceptable to the customers. To manage the risk of large-scale cable failures, Alectra Utilities must implement proactive cable remediation projects. These projects are a result of continuous assessments, prioritizing, and remediating the worst cable segments by a combination of cable injection and cable replacement. One other alternative Alectra Utilities considered for cable remediation is cable injection. However, these cables did not meet Alectra Utilities' cable injection criteria. Segments that do meet the criteria for cable injection are covered under a separate project. Therefore, planned cable replacement within the area is selected as the preferred alternative. The added benefit of installing new conduit will help with future cable issues as well as avoiding future outages on other cable segments that have been subjected to previous high stress fault conditions. The benefits to the customer include reducing the likelihood of unplanned disruptions which will promote reliable and continuous service for many more years. Furthermore, the replacement of several transformers that are at risk of failing allows for an opportunistic renewal of assets while work crews are already in the area performing cable replacement, minimizing the outage impacts for customers who would otherwise eventually experience an unplanned outage once the transformer fails. This aligns with Alectra Utilities' focus on decreasing the outage impacts due to deteriorating underground system assets.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Risk: Alectra Utilities considers the following as general risks to project schedule and cost: - fluctuation in cost and staff resources (internal and external) to complete high annual volume of work. - customer delays or restricted access to work sites - inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms - delays to material shipment from vendors - general unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Risk Management: Alectra Utilities has utilized coordination with third parties to avoid some of the issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk avoidance strategies.
	Comparative Information on Equivalent Historical Projects (if any)	
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code 151556

Project Name Cable and Transformer Replacement - (HAM) - Hollybush - Parkside - Dundas - Spring Creek



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$-	$-	$-	$15,054,808	$8,264,839	$17,167,773	$4,490,671
Actual	$-	$-	$-	$-	$-							

Material Investments Report

Project Code	Multiple
Project Name	Cable Replacement Project - Left Behind Cable
Project Description	This investment is for replacing “Left-Behind” underground Cross-Linked Polyethylene (XLPE) cables in the Alectra Utilities service area. "Left-behind" cable segments are those segments that were intended for cable injection but turn-out to be not injectable due to being strand filled and deteriorated. These cables require replacement under the Cable Left behind program. There is a backlog of left behind cables from previous years, therefore, budget is required to clear the backlog of cables left behind. Cable Injection program will end by 2029. Additional left-behind cables require replacement. Alectra Utilities’ planned Underground Asset Renewal investments are driven by an increasing decline in reliability on the distribution system. Cable and cable accessories are the highest cause of failure. In 2023 ACA, these cables were determined to be beyond typical useful life and in poor condition. This investment will replace the direct-buried XLPE cables with Tree-Retardant XLPE cables installed in conduit. If this project is not implemented, Alectra Utilities anticipates that it would experience 7 incremental failures per year, due to "Left Behind" cables, by 2031. Each failure will impact 422 customers for 71 minutes. Installing the new cables in conduit will make future cable replacement easier to execute.
Investment Category	System Renewal

02. Additional Information	**Branch Plant**	10 Alectra
	Units	75000
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Underground Asset Renewal
	Alectra Subcategory	Cable Remediation –Replacement
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable

Material Investments Report

Project Code	Multiple
Project Name	Cable Replacement Project - Left Behind Cable

05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Currently, defective equipment accounts for 45% of controllable outages in Alectra Utilities' system. Cable and cable accessory failures account for 50% of all equipment-related outages. This has a large impact on reliability as well as customer service and satisfaction. Cable manufacturers introduced the first-generation XLPE cable into the market in the late 1960's. These cables have inherent problems due to the nature of the manufacturing processes, which led to impurities developing over time in the insulating medium. These impurities are responsible for the increase in cable failures that Alectra Utilities and other utilities have been experiencing with cables from this period. XLPE cables also fail because of the way they were installed. Decades ago, it was standard practice for utilities to bury cables directly in the ground. Over time, the construction standards shifted to installing cable in protective conduits, but much of the system still consists of "direct-buried" cable. When a more modern cable-in-conduit fails, it can typically be entirely removed and replaced with a brand-new cable with relative ease. In contrast, direct-buried cables can only be repaired by excavating the cable and splicing in a replacement segment. This approach is fundamentally reactive and can introduce further complications, since the installed splice may itself become a future failure point. It does not solve the underlying issue, since the older, direct-buried cable remains installed and increasingly likely to fail again. Failing direct-buried cables are causing an increasing number of outages, and when buried cables fail it can take a significant amount of time to restore service and impact the quality of service received by Alectra Utilities' customers. Due to the increasing occurrence of failures caused by this vintage of cable, Alectra Utilities must execute cable replacements within the next few years to end the trend and reduce the number of cable failures. Without this proposed investment, cables will continue to degrade, and Alectra Utilities expects reliability to decline further. Deteriorated cables fail at greater rates, and Alectra Utilities forecasts that if the investment is not made, the rate of cable failures per year will increase to 1.25 outages in 2025, 5 in 2028 and up to 11.25 outages in 2031.
	Customer Attachment / Load (KVA)	3146 Residential & 61 Commercial customers / 35120 KVA
	Safety	Alectra Utilities is required to ensure its distribution system can support projected load growth while maintaining reliability and quality of service for customers on both a short-term and long-term basis, as required by the Distribution System Code (DSC). Alectra Utilities must also connect new customers within the timelines prescribed by the OEB's service quality standards without adversely affecting the quality and safety of service to existing customers. This investment ensures that both of these requirements can be met and that the distribution system can safely distribute the required capacity.
	Cyber-Security, Privacy	Not Applicable.
	Coordination, Interoperability	Pertaining to coordination with utilities, regional planning and other 3rd parties, Alectra Utilities constructs all new projects using approved construction standards complying with ESA Regulation 22/04. Alectra Utilities participates in regional planning, both at an infrastructure level with local municipalities and regions, as well as at an electrical infrastructure level with Hydro One and other participants in the Regional Planning Process. Alectra Utilities also attends Public Utility Coordinating Committee (PUCC) meetings which jointly allows for the coordination and planning of investments with other utilities who provide cable tv, internet, phone and natural gas services.
	Economic Development	Alectra Utilities ensure all policies and practices don't unnecessarily create barriers to economic development which are primarily focused within our communities. An efficient and safe distribution system promotes reliability. Business activities and customer satisfaction value reliability. Also, some customers review outage statistics as part of the site selection process, and excellent reliability is valued in this process.
	Environmental Benefits	Not Applicable.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives	**Status Quo**	The status quo is to do nothing, allowing the end-of-life cable to run to failure, and respond to outages under reactive capital.
	Alternative #1	Replace all the left behind cables that are of the same vintage as those that experienced cable faults. The cables will be replaced with Tree-Retardant XLPE cables and installed in conduits.

Material Investments Report

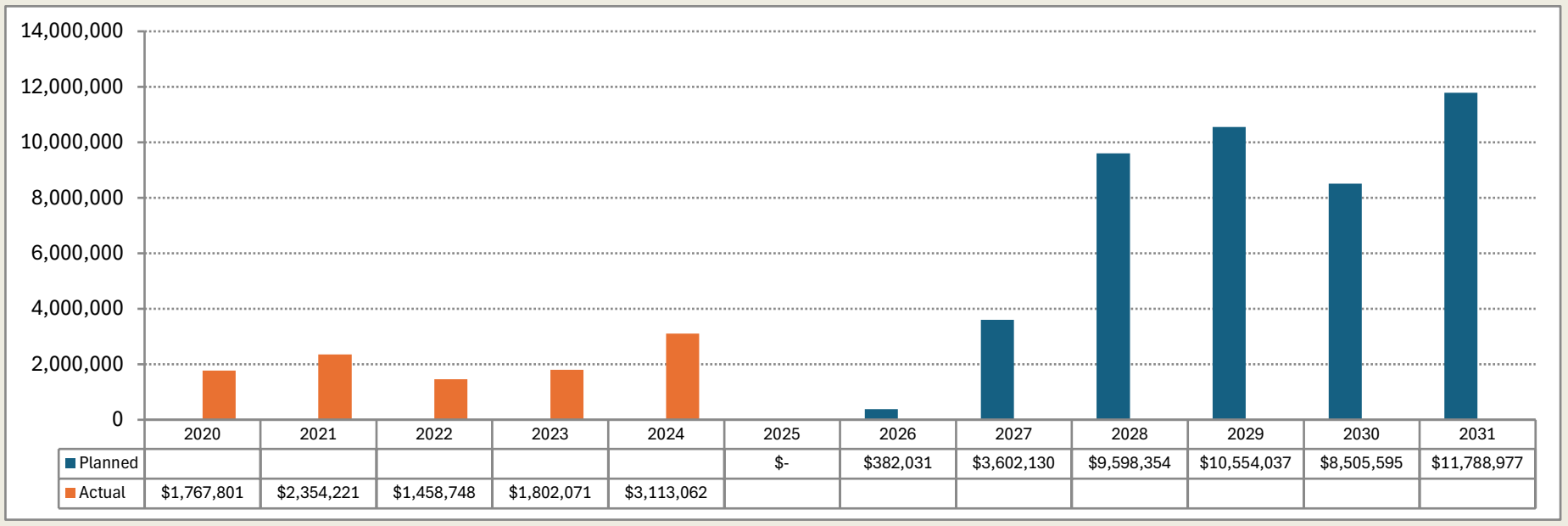
Project Code: Multiple
Project Name: Cable Replacement Project - Left Behind Cable

(OEB)	**Alternative #2**	Replace only the cable segments that experienced cable faults. The cables will be replaced with Tree-Retardant XLPE cables and installed in conduits.
	Alternative #3	Not Applicable.
	Alternative #4	Not Applicable.
	Justification for Recommended Alternative	CDM and NWS were considered, but they were determined not to be feasible options. The cables in this area are at end-of-life and are failing. When a cable segment fails, system reliability and customer service are negatively affected. For small-scale outages, Alectra Utilities has the capability to replace or repair the faulted cable segments under reactive capital, however, if too many cable failures occur at the same time, Alectra Utilities would not have sufficient resources to manage the large-scale and cascading outages, therefore system integrity will be compromised and reliability will be at a level unacceptable to the customers. To manage the risk of large-scale cable failures, Alectra Utilities must implement proactive cable remediation projects. This can only be managed by replacing all the cables that are of the same vintage as the cables that failed. This will reduce the risk of cascading effect of cable failure, stressing the other cables in the same circuit, leading to more failures in the same area which negatively impacts the quality of service to Alectra Utilities' customers. Replacing only the segments that failed negates the issue that the other segments were affected by cable faults which further degrades the cables' insulation and therefore, will not halt or reverse the increasing trend of outages due to cable failure as the cables of the same vintage are at end-of-life, have deteriorated and are at risk of failing soon as exhibited in many areas with multiple cable failures across Alectra Utilities' service territories. Cables in this area have failures and partial replacement will not deal with the degradation and damage done to adjacent segments and therefore total cable replacement is required.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Risk: Alectra Utilities considers the following as general risks to project schedule and cost: - fluctuation in cost and staff resources (internal and external) to complete high annual volume of work. - customer delays or restricted access to work sites - inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms - delays to material shipment from vendors - general unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Risk Management: Regular progress meetings are held to ensure technical and operational issues are resolved promptly; budget performance is monitored; and projects are on track. Alectra Utilities has utilized coordination with third parties to avoid some of the issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk prevention strategies.
	Comparative Information on Equivalent Historical Projects (if any)	Alectra Utilities anticipates larger volume of left behind cables as the cable injection window is closing by 2029 and higher proportions of uninjectable candidates are encountered through these projects, in addition to the current listing of left behind cables from past cable injection projects. The costs are based on historical cost of cable replacement for left behind cables and has plans for managing the increased work load.

Material Investments Report

Project Code	Multiple
Project Name	Cable Replacement Project - Left Behind Cable

	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$-	$382,031	$3,602,130	$9,598,354	$10,554,037	$8,505,595	$11,788,977
Actual	$1,767,801	$2,354,221	$1,458,748	$1,802,071	$3,113,062							

Material Investments Report

Project Code	Multiple
Project Name	Switch Renewal
Project Description	This investment renews overhead manual and automated switches that are deteriorated, pose a safety risk, are deemed functionally obsolete, or lack redundancy. Completion of the investment will avoid safety and reliability risks associated with the failure of switches. Alectra Utilities experienced on average 61 overhead switch failures from 2019 to 2023. The latest Asset Condition Assessment (ACA) conducted in 2023 has concluded that Alectra Utilities has 80 deteriorated overhead switches. The continued operation of the distribution system with these deteriorated devices exposes Alectra Utilities' customers to prolonged outages and creates operational constraints. Alectra Utilities must address the population of deteriorated switches at an appropriate pace to maintain safe and reliable operation of the grid. Failure to replace these assets would result in increased safety risks and decreased reliability due to the significant role these switches play in feeder sectionalizing and load transfers on the distribution grid. Additionally, replacing deteriorated switches aligns with Alectra Utilities' focus on mitigating adverse weather impacts on the distribution system and improve reliability.
Investment Category	System Renewal

02. Additional Information	**Branch Plant**	10 Alectra
	Units	51
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Overhead Asset Renewal
	Alectra Subcategory	Switch Replacement
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Overhead switches are a distributor's main method of switching loads for system operation and to restore customers after an outage. Switches are the basic devices by which Alectra Utilities can sectionalize and isolate parts of the distribution system when needed (e.g. outages and load transfers). Replacing deteriorated switches and switches that are not fit for operation, either because they are functionally obsolete, no longer operable, or otherwise incapable of interrupting the load allow Alectra Utilities to expeditiously restore service, transfer supply and enable isolation. In the case of automated switches, remote operations from the control center enables grid flexibility and operational agility. Customers will experience improved reliability as a result of the replacement of deteriorated and functionally obsolete assets. Deteriorated switches cannot be operated safely. Operating deteriorated switches under load can result in safety hazards for Alectra Utilities' staff and result in significantly longer outages. As a result, the responsiveness of Alectra to outages and load transfers during system peaks will be reduced.
	Customer Attachment / Load (KVA)	Not applicable. Location specific.
	Safety	Devices that are inoperable or require extensive maintenance would be replaced and therefore would not pose a safety hazard to staff trying to operate the system.

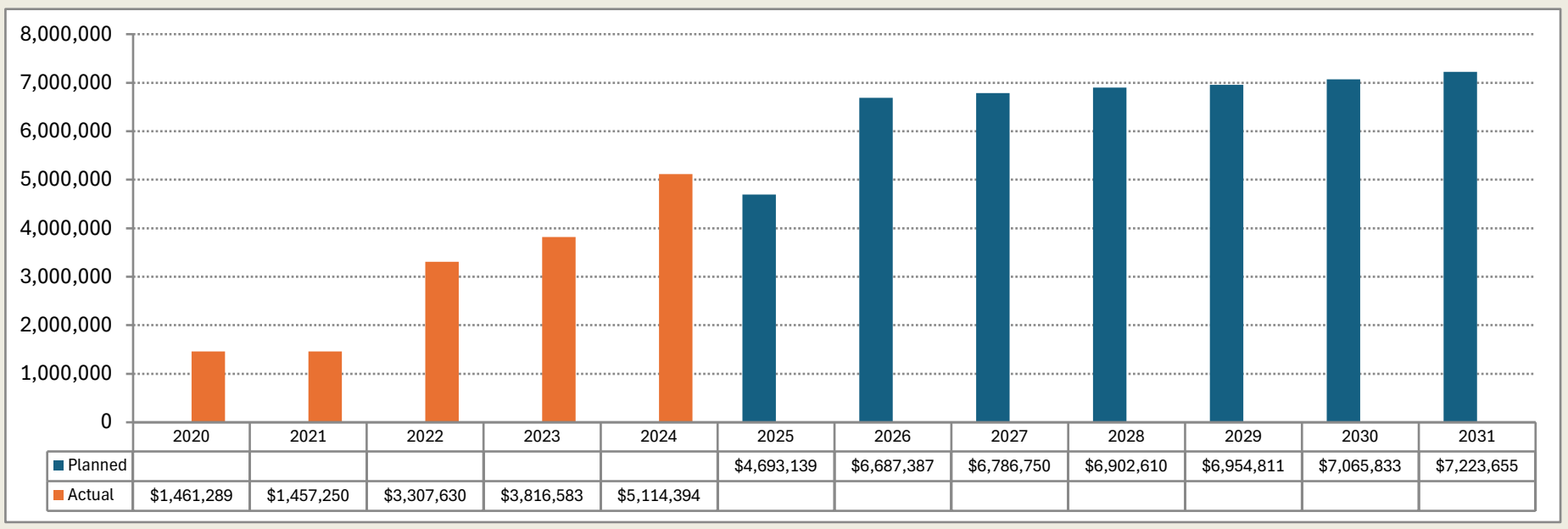
Material Investments Report

Project Code: Multiple
Project Name: Switch Renewal

	Cyber-Security, Privacy	Automated Switches and Reclosers communicate back to the control room via a private/secure network. As part of its continuous improvement model, Alectra Utilities performs periodic security assessments to identify opportunities for enhanced system security.
	Coordination, Interoperability	All units are upgraded to the latest standards. Automated switching units allow for future provision of advanced sectionalizing schemes.
	Economic Development	This investment promotes reliability and the safe restoration of power, both of which are valued by customers. Furthermore, some customers review outage statistics as part of the site selection process, and service reliability is valued in this process.
	Environmental Benefits	Not Applicable
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Do nothing. This option would involve no planned replacement of switches. This alternative leads to the highest safety and reliability risk to customers.
	Alternative #1	Moderate Pace Replace 51 overhead switches per year from 2027 to 2031 at a total estimated cost of $35.0MM. This pace strikes the best balance between managing risk and maintaining affordability for customers. It ensures that the resources are allocated where they deliver the most value on maintaining system reliability, improving outage response times, and enabling load transfers during contingencies.
	Alternative #2	Accelerated Pace Replace 68 overhead switches per year from 2027 to 2031 at a total estimated cost of $46.5MM. While this approach mitigates switch failure risk and ensures the system is more resilient for storm events, it costs more than the other alternatives.
	Alternative #3	Reduced Pace Replace 35 overhead switches per year from 2027 to 2031 at a total estimated cost of $23.0MM. This level of investment reduces the overall benefit to reliability, as many of the switch renewal candidates are replaced with automated devices. Automated devices have a direct impact on SAIDI, and sufficient number of switches are required to enable advanced protection schemes. Reduced number of dependable and operable switches delay the implementation and effectiveness of advanced protection scheme implementation.
	Alternative #4	N/A
	Justification for Recommended Alternative	CDM and NWS were considered but they were determined not to be feasible options. There have been significant failures resulting from obsolete and deteriorated overhead switches. Due to the critical nature of switches for safe restoration, isolation, and operation of the system and customers' preference for faster power restoration, Alectra Utilities decided to follow the Moderate Pace. This pace strikes the optimal balance between managing risk and maintaining affordability for customers. It ensures that the resources are allocated where they deliver the most value on maintaining system reliability, improving outage response times, and enabling load transfers during contingencies. Replacement of the switches will provide a safer working environment for staff, eliminate the obsolete and under performing switches, will contribute to maintaining reliability and ultimately increase customer satisfaction. Switches provide flexibility and agility to the distribution system in cases of load transfers and reducing the impacts outages. This aligns with Alectra Utilities' focus on avoiding the outage impacts due to the increasing effects of adverse weather events.

Material Investments Report

Project Code	Multiple	
Project Name	Switch Renewal	
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Alectra Utilities considers the following as general risks to project schedule and cost: - customer delays or restricted access to work sites - inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms - delays to material shipment from vendors - general unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Alectra Utilities has utilized coordination with third parties to avoid some of the issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk management strategies.
	Comparative Information on Equivalent Historical Projects (if any)	This program is the continuation of Alectra Utilities' long-term annual overhead switch replacement initiative. The average annual investment from 2020 to 2024 was $3MM. Alectra Utilities has set the recommended average annual investment level to $7MM for 2027 to 2031. This increase is a result of addressing deteriorated switches and switches that are not fit for operation, and including automation at the time of renewal, which reflects customer needs and preferences.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$4,693,139	$6,687,387	$6,786,750	$6,902,610	$6,954,811	$7,065,833	$7,223,655
Actual	$1,461,289	$1,457,250	$3,307,630	$3,816,583	$5,114,394							

Material Investments Report

Project Code	Multiple
Project Name	Underground Asset Renewal-Alectra Initiated Distribution System Projects
Project Description	Alectra-Initiated Underground Near-Term projects refer to the collection of projects that are identified during a planning year that are not captured under reactive remediation yet still require some urgency to complete, with the primary driver being related to an underground asset. Such work is required every year, is urgent, and is non-discretionary. These projects require some design work to be carried out to successfully address the issue. Due to the unpredictable nature of these types of projects, spending rates in this category tend to be driven based on historical trends. The work related to these projects varies widely, from the need to urgently replace a faulted cable segment, to the replacement of vault covers damaged by snow removal equipment, to relocating assets on private property. The specific project scopes tend to vary from year to year and region to region, but generally the projects require timely intervention and represent a smaller scope and budget amount (<$500,000) than a typical renewal project.
Investment Category	System Renewal

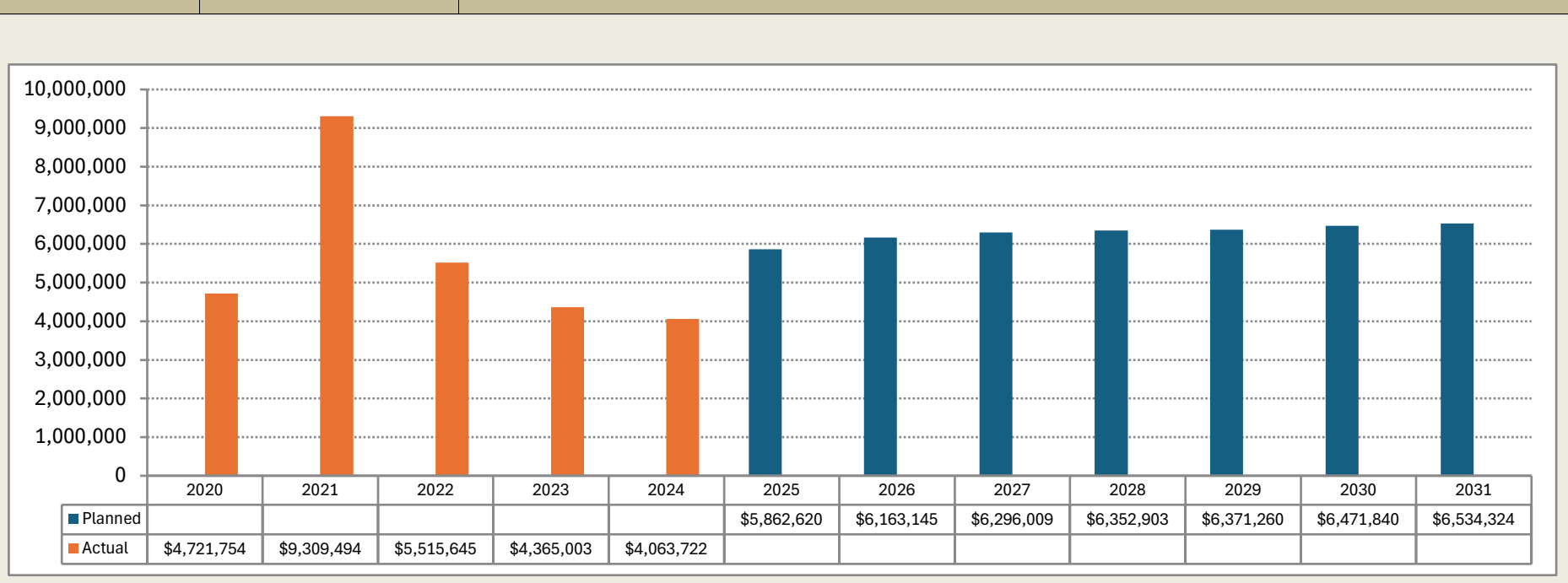
02. Additional Information	**Branch Plant**	10 Alectra
	Units	
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Underground Asset Renewal
	Alectra Subcategory	Alectra Initiated Near term projects (Underground)
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	This project is prioritized as an ongoing yearly project to address immediate concerns as they emerge from inspection, complaints or related asset failures. Such work is required every year, is urgent, and is non-discretionary.
	Customer Attachment / Load (KVA)	Not applicable. Location specific.
	Safety	Due to the planned nature of this program work, improvements to safety can be incorporated through the application of current standards, improved system configuration, and newer equipment.
	Cyber-Security, Privacy	Automated Switches and Reclosers communicate back to the control room via private/secure network. As part of its continuous improvement model, Alectra Utilities performs periodic security assessments to identify opportunities for enhanced system hardening if applicable.
	Coordination, Interoperability	All automated units are upgraded to latest standards allow units to participate in advanced sectionalizing schemes at future dates if required. Some manual units will be replaced with automated units on a case by case basis if applicable.
	Economic Development	Alectra Utilities ensure all policies and practices don’t unnecessarily create barriers to economic development which are primarily focused within our communities.
	Environmental Benefits	Not Applicable.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	If this budget does not exist, all temporary solutions will just remain in place which will result in more failures and customer complaints. Any other emerging issues that require capital expenditures would not have funds.
	Alternative #1	Increase Funding Experience has shown that a larger 'Unforeseen' budget is more effective and decreases outage and compliance risks by forcing immediate asset replacement projects into the current year.

Material Investments Report

Project Code: Multiple

Project Name: Underground Asset Renewal-Alectra Initiated Distribution System Projects

	Alternative #2	Historical values The requested investment level, based on annual historical values, is expected to provide the required level. This is the recommended alternative.
	Alternative #3	Not Applicable.
	Alternative #4	Not Applicable.
	Justification for Recommended Alternative	CDM and NWS were considered but they were determined not to be feasible options. This project is the method Alectra Utilities uses to financially address unforeseen events that impact the quality of the distribution system. The project gives engineering the ability to provide appropriate action to legitimate concerns as they develop. Improvements to reliability and safety are expected as a secondary benefits to this project.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Alectra Utilities considers the following as general risks to the project schedule and cost: - customer delays or restricted access to work sites - inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms - delays to material shipment from vendors - general unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Alectra Utilities has utilized coordination with third parties to avoid some of the issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk prevention strategies.
	Comparative Information on Equivalent Historical Projects (if any)	This budget is built on historical records and trends.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$5,862,620	$6,163,145	$6,296,009	$6,352,903	$6,371,260	$6,471,840	$6,534,324
Actual	$4,721,754	$9,309,494	$5,515,645	$4,365,003	$4,063,722							

Material Investments Report

Project Code	153236
Project Name	Customer Initiated Distribution System Expansion Project - Block 52 Mississauga Rd & Williams Pkwy
Project Description	This investment is a System Access expansion project initiated by a customer request. Additional supply facilities to the proposed development require Alectra Utilities to expand the distribution system. This customer initiated expansion requires four new circuits out of Alectra Utilities' Mount Pleasant TS at Williams Parkway and Chinguacousy Rd in Brampton. The request is for 50.18MW for a proposed subdivision at Block 52 at Williams Parkway to Wanless Drive along Mississauga Road. Scope of work - Exit Mount Pleasant Station with four circuits to proposed corridor on Williams Parkway. Install 6.5km of underground cable and duct bank along Williams Parkway at Chinguacousy Road to Mississauga Road. Install 100 concrete poles along Mississauga Road from Williams Parkway to Wanless Drive. These investments are required by the Distribution System Code, which Alectra Utilities must comply with as a condition of its OEB distribution licence. Projects must be completed in accordance with customer timeline requirements prescribed by the Distribution System Code.
Investment Category	System Access

02. Additional Information	**Branch Plant**	850 Kennedy Service Centre
	Units	0
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Meeting Growing Electricity Demand
	Alectra Grouping	Customer Initiated Dist Sys Projects
	Alectra Subcategory	Customer Initiated Dist Sys Projects
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Non-Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Alectra Utilities has a regulatory obligation to connect customers to its distribution system. In addition to connections for energy, demand customers and distributed generation (DG) customers, system expansions may be required where distribution system modifications are required to adequately service customers. These investments are required by the Distribution System Code, which Alectra Utilities must comply with as a condition of its OEB distribution licence. These projects must be completed in a timely manner based on customer requirements pursuant to the Distribution System Code.
	Customer Attachment / Load (KVA)	50.18MW total 2026 - 0.12MW 2027 - 1.57MW 2028 - 3.08MW 2029 - 6.93MW 2030 - 12.31MW 2031 - 17.17MW 2032 - 22.54MW 2033 - 35.47MW 2034 - 38.40MW 2035 - 41.32MW 2036+ - 50.18MW
	Safety	These investments are designed based on Alectra Utilities' current standards and are installed using the latest procedures which provide for public and worker safety.

Material Investments Report

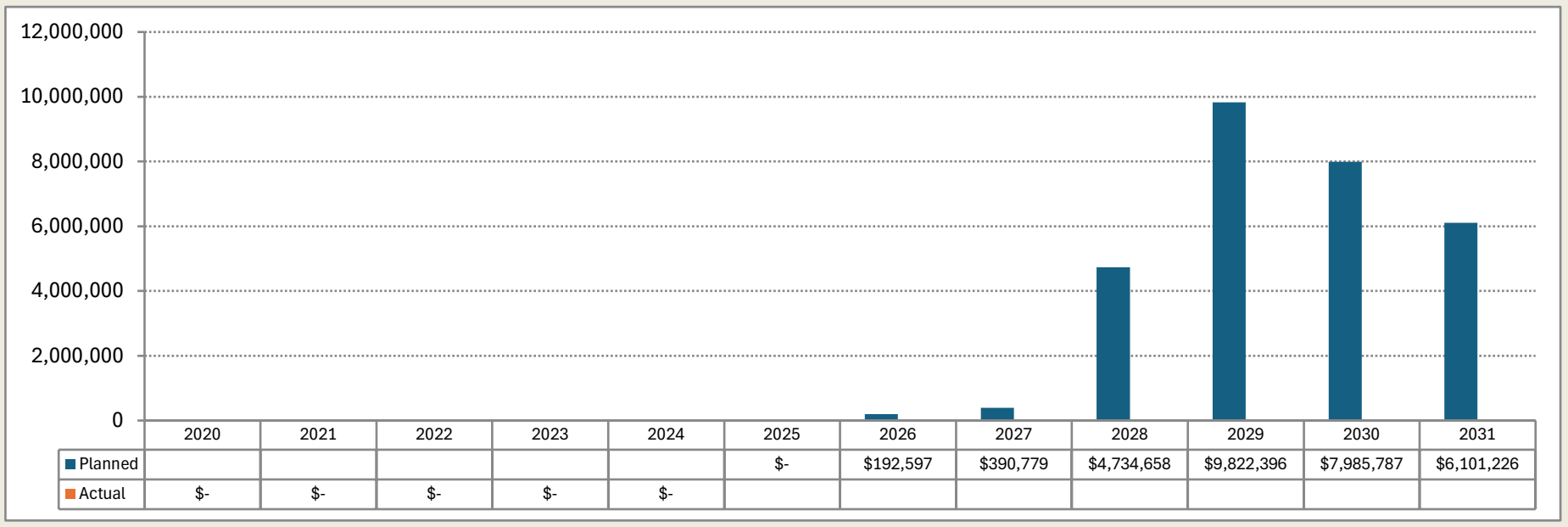
Project Code 153236
Project Name Customer Initiated Distribution System Expansion Project - Block 52 Mississauga Rd & Williams Pkwy

	Cyber-Security, Privacy	Not Applicable
	Coordination, Interoperability	Construction timing will be coordinated with Customer requirements and includes coordination with other impacted utilities and customers.
	Economic Development	By investing in Customer Initiated Distribution System Expansion projects, Alectra Utilities is supporting and servicing economic growth in Alectra Utilities operating areas.
	Environmental Benefits	Not Applicable
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Status Quo would be to not perform the expansion in accordance with the Distribution System Code and Alectra Utilities' distribution license. This is not a viable alternative as it would involve non-compliance with regulatory requirements.
	Alternative #1	The first alternative would be to continue to invest in this customer initiated expansion project to service customers in accordance with the OEB Distribution System Code and Alectra Utilities' Conditions of Service. This project is initiated by a customer request and is not discretionary. This must be completed to provide capacity to connect new customer(s).
	Alternative #2	The second alternative would be for Alectra Utilities defer the work on the distribution system to when Alectra Utilities has additional funding and resources available. This is not a viable alternative as it would involve non-compliance with regulatory requirements.
	Alternative #3	There is no viable third alternative for this investment.
	Alternative #4	Not Applicable
	Justification for Recommended Alternative	CDM and NWS were considered but they were determined not to be feasible options for new connection requirements set up customers. Customers may require additional capacity for new developments, re-development of the existing buildings or other reasons. System expansion projects, such as this one, are non-discretionary, as the scope and timing are determined by the customers and the requirements under the Distribution System Code. Alternative #1 is the recommended alternative as it meets the Customer's requirements, and maintains compliance with the Distribution System Code and Alectra Utilities' distribution license.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	The completion of expansion projects, such as this one, hinges on an array of risk factors, each managed through diligent planning and strategic foresight. Alectra Utilities acknowledges the following risks and has established corresponding mitigation strategies: Property and Easements Acquisition: Engaging early on in the process with landowners and authorities to secure the necessary rights, with contingency plans for legal support if negotiations become protracted. Supply Chain Disruptions: Diversifying suppliers, maintaining a buffer stock of critical materials, and establishing flexible contracts to account for fluctuating availability and prices. Labor Availability: Cultivating a pool of reliable contractors and labor resources. Regulatory and Compliance: Keeping abreast of regulatory requirements and changes, engaging in advocacy where appropriate, and incorporating regulatory lead times into project schedules. Stakeholder Engagement: Establishing robust communication plans to keep all stakeholders informed and engaged, thus minimizing resistance and ensuring alignment. Budget Overruns: Implementing rigorous financial controls, conducting regular budget reviews, and applying conservative estimation practices to build in contingencies. Project Management: Utilizing best-practice project management methodologies, ensuring cross-departmental coordination, and scheduling regular progress assessments. Operational Disruptions: Designing phased implementation schedules to minimize impact on ongoing operations, with rapid response plans for unexpected disruptions. Weather and Climate Variability: Incorporating adaptive project scheduling and sourcing robust construction materials to withstand adverse conditions. In light of these varied risks, Alectra Utilities' approach is to prioritize proactive engagement, adaptive planning, and continuous monitoring to ensure project resilience and timely completion.

Material Investments Report

Project Code	153236
Project Name	Customer Initiated Distribution System Expansion Project - Block 52 Mississauga Rd & Williams Pkwy

	Comparative Information on Equivalent Historical Projects (if any)	Not Applicable
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$-	$192,597	$390,779	$4,734,658	$9,822,396	$7,985,787	$6,101,226
Actual	$-	$-	$-	$-	$-							

Material Investments Report

Project Code	Multiple
Project Name	Fleet Growth
Project Description	Alectra Utilities requires funding to support its fleet growth from 2027 to 2031. This investment is critical for the organization to expand and modernize its fleet, ensuring it meets growth, stays efficient, and adopts new technologies for the future. Over this DSP period, Alectra Utilities will allocate funds to purchase new vehicles and invest in necessary infrastructure improvements. The chart below provides a breakdown of the specific financial allocation for fleet growth, illustrating how Alectra Utilities plans to distribute its resources across different years. This strategy is designed to ensure that Alectra Utilities can sustain its operations and improve service delivery, ultimately benefiting both the organization and its customers. Alectra Utilities relies heavily on its fleet of vehicles and equipment to carry out day-to-day operations, which include delivering reliable service to customers, responding to emergencies, and maintaining infrastructure needed for electricity distribution. Fleet growth is directly tied to the growth of Alectra Utilities' Operations team. As the utility expands to meet increasing customer and system demands, additional field crews are required to perform critical work such as new service connections and infrastructure replacements, capital expansion, and emergency response. These additional crews cannot function effectively without the proper level of fleet vehicles and equipment. Simply put, without the same investment in fleet growth, the Operations team will not have the necessary resources to complete their work safely, efficiently, and reliably. Between 2027 and 2031, Alectra Utilities anticipates continued growth in its operations workforce to address needs driven by population growth, aging infrastructure and electrification initiatives. Each new crew requires access to appropriately equipped vehicles, ranging from light duty trucks and vans to specialized heavy duty equipment such as bucket trucks and trailers. Expanding the fleet ensures that every crew is equipped to respond to customer requests, execute planned projects, and support emergency restoration efforts when severe weather events occur. Aligning fleet growth with Operations team expansion can improve efficiency and productivity. When crews have dedicated access to the proper vehicles, downtime is reduced and waiting periods for equipment are minimized.
Investment Category	General Plant

02. Additional Information	**Branch Plant**	10 Alectra
	Units	74
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Fleet Renewal
	Alectra Subcategory	Fleet
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Vehicle availability is critical to keeping operational cost in control, increased productivity and a contributor to positive employee engagement. Due to budget mitigation efforts during the last few years, a number of vehicles scheduled for replacement were kept in operation and rescheduled for replacement in future years. As a result, many of Alectra Utilities vehicles should have been replaced within the last five years. It is now critical that these vehicles be replaced as maintenance and repairs costs have increased and the vehicles no longer operate at full capacity, reducing vehicle availability, impacting service delivery and most importantly causing potential safety concern for our employees and the public. The capital budget required for the next five years will ensure the replacement of vehicles that have surpass the vehicles life spend. Regular vehicle replacement is necessary to avoid undue vehicle down and associated negative impacts to customer response time and employee productivity.

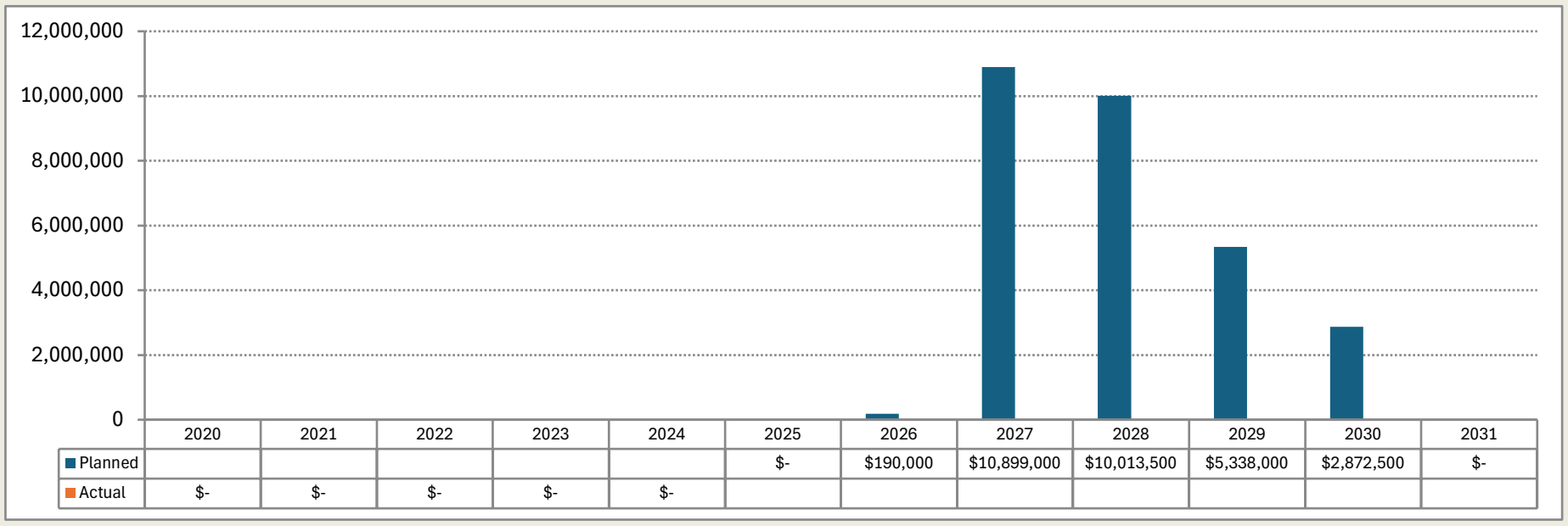
Material Investments Report

Project Code: Multiple
Project Name: Fleet Growth

	Customer Attachment / Load (KVA)	Not Applicable
	Safety	Vehicles are the workplace for over 60% of Alectra Utilities' workforce. Providing and maintaining a safe and reliable fleet, is key to building a better workplace for Alectra Utilities' employees and providing them with the tools required to provide service to Alectra Utilities customers and meet their expectations.
	Cyber-Security, Privacy	Not applicable.
	Coordination, Interoperability	Alectra Utilities fleet department determines operational fleet growth needs through ongoing collaboration and structured discussions with the operations teams. Fleet meets regularly with operational leaders and fields staff to understand current workflows, upcoming project demands and any changes in service requirements. Through these conversations operations identifies the specific types of vehicles and equipment they require to perform their duties safely, efficiently and reliably. Fleet then evaluates these needs, aligns them with lifecycle planning and budget considerations, and ensures the right vehicles are procured to support Alectra Utilities' operations teams. As well, other Alectra Utilities drivers for vehicle growth are as follows: • Manufacturing Standards • Industry Standards • Non-Industry Standards • Vehicle Operational Conditions • Vehicle Age • Vehicle Total Mileage • Highway Traffic Act (HTA) • Canadian Motor Vehicle Safety Standards (CMVSS) • All related CSA standards, specifically those that relate to aerial devices and hydraulic equipment • Motor Vehicle Inspection Station (MVIS) requirements • Infrastructure Health & Safety Association (IHSA) of Ontario, where applicable • Corporate Health & Safety and Environmental Policies
	Economic Development	If possible, Alectra Utilities' attempt to purchase vehicles from Canadian companies, would contribute to the economy by supporting the creation and support of jobs at automakers, car dealers, parts suppliers, and mechanical trade workers.
	Environmental Benefits	Improvements to engine emissions with newer models such as Electric Vehicles (EV) or Hybrids, which could count towards Environmental Benefits.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Do nothing. If additional vehicles are not purchased, operations would be able to perform their work.
	Alternative #1	Leasing vehicles provides the option of spreading costs out over time. However, just like personal vehicles, leasing can be more expensive than owning a vehicle. In this instance, Alectra Utilities customized vehicles would certainly increase the costs of leasing. As well, leasing could create issues around vehicle availability at the end of lease terms which could create issues if replacements are not secured in time. Alectra Utilities will consider leasing in limited cases where it is cost-effective, however, does not view it as a primary option for Fleet Growth.
	Alternative #2	Another option is to defer. However, if vehicles are not purchased for growth, Alectra Utilities may have to consider other distribution expansions and maintain models in the future.
	Alternative #3	Alectra Utilities requires funding to support fleet growth from 2027 to 2031 because expanding the modernizing the fleet is essential to meeting increasing operational demands and ensuring continued service reliability. Fleet growth is directly tied to the ability of operations teams to carry out their duties safely efficiently and at full capacity. Without investment in additional and upgraded vehicles, Alectra Utilities would be unable to support system growth, adopt emerging technologies, or maintain the service levels are expected by customers. Therefore, securing this funding is essential for fleet growth.
	Alternative #4	Not applicable

Material Investments Report

Project Code	Multiple	
Project Name	Fleet Growth	
	Justification for Recommended Alternative	Leasing and deferring purchases were evaluated as alternatives to securing funding for fleet growth but both options present significant drawbacks for Alectra Utilities. While leasing can spread costs over time, it is generally more expensive than owning especially for Alectra Utilities' specialized customized vehicles and also introduces the risk of losing vehicle availability at the end of lease terms if replacements are not secured in time. Deferring vehicle purchases meanwhile would restrict Alectra Utilities' ability to meet growing operational demands and could force the organization to revisit distribution expansion or maintenance strategies in the future, potentially at higher costs and risk. None of the status quo, alternative 1 or alternative 2 are recommended. Alternative 3 is recommended.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Manufacturing and supplier capacity Lead times are always considered and vehicles ordered in advance. Vehicle availability & reliability Employee and public safety Increasing systems outages response timelines to support customers. The reliable, availability and safe fleet operations will also rely on: • Fleet Management as the initiative lead and accountability • SCM Operations Director reviews and approves replacement recommendations • Key management stakeholder support across the organization to define business requirements • Vehicles may be replaced by different models or types based on changes to operations, corporate initiatives and customer requirements. • Corporate Commitment to approved Capital and Operating Budgets required • Any emerging requirements of the organization may change the planned replacement of vehicles such as changes to the resources plan and required budget mitigation efforts
	Comparative Information on Equivalent Historical Projects (if any)	N/A
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$-	$190,000	$10,899,000	$10,013,500	$5,338,000	$2,872,500	$-
Actual	$-	$-	$-	$-	$-							

Material Investments Report

Project Code	Multiple
Project Name	Vault Cover Renewal
Project Description	This investment replaces deteriorated and deficient vault covers in the Alectra Utilities service territory. Deteriorated vault covers and concrete structures pose a high safety hazard to employees and the public. If the vault cover is not adequate to withstand the heavy loading conditions present at street level, there is a risk of serious injury or death due to exposed electrical equipment upon failure. There have also been prolonged outages caused by remnants of degraded chimneys falling and damaging the electrical equipment within. The new vault covers will conform to the 22,000lb requirement outlined in the Ministry of Labour Alert issued on July 7, 2015, which was issued following a fatal accident that occurred on May 21, 2015. Investments in vault covers and concrete structure replacements will mitigate safety and reliability risks and safeguard underground distribution equipment to comply with Ontario Regulation 22/04. This investment aligns with Alectra Utilities focus on decreasing the safety related incidents due to deteriorating and functionally obsolete underground system assets.
Investment Category	System Renewal

02. Additional Information	**Branch Plant**	10 Alectra
	Units	40
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Underground Asset Renewal
	Alectra Subcategory	Civil Structures
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Equipment placed in the below grade chamber, as is common in certain operational areas, is now susceptible to damage from debris, such as falling concrete, which can result in an outage. If the vault cover is not capable of withstanding the heavy loading conditions present at street level, there is a risk of serious personal injury or death upon failure. It is critical that these assets are replaced on a proactive basis rather than a reactive basis in order to mitigate safety, reliability, and compliance risks.
	Customer Attachment / Load (KVA)	Dependent on location.
	Safety	Deteriorated or under-designed vault covers pose a high safety hazard to employees and/or the public. If the vault cover is not strong enough for the loading, there is a risk of personal injury or death.
	Cyber-Security, Privacy	Cyber-Security and Privacy are not applicable to this project.
	Coordination, Interoperability	Pertaining to coordination with utilities, regional planning and other 3rd parties, Alectra Utilities constructs all new projects using approved construction standards complying with ESA Regulation 22/04. Alectra Utilities participates in regional planning, both at an infrastructure level with local municipalities and regions, as well as at an electrical infrastructure level with Hydro One and other participants in the Regional Planning Process. Alectra Utilities also attends Public Utility Coordinating Committee (PUCC) meetings which jointly allows for the coordination and planning of investments with other utilities who provide cable tv, internet, phone and natural gas services.
	Economic Development	This investment promotes reliability and the safe restoration of power, both of which are valued by customers. Furthermore, some customers review outage statistics as part of the site selection process, and service reliability is valued in this process.

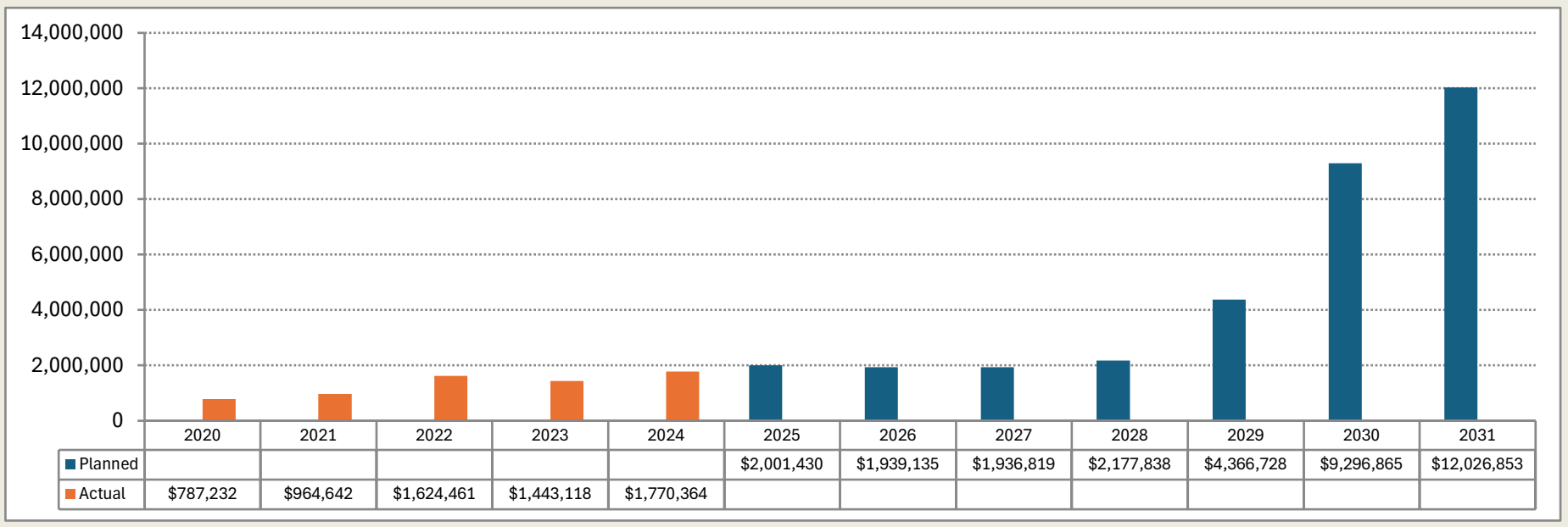
Material Investments Report

Project Code	Multiple	
Project Name	Vault Cover Renewal	
	Environmental Benefits	Replacing vault transformers will mitigate the environmental risk of oil and PCB contamination. In addition to mitigating the environmental impacts, Alectra Utilities will mitigate environmental remediation costs, which can negatively impact customer rates. Environmental remediation costs increase over time as leaking transformers continue to leak oil into the environment while remaining in-service. From 2021 to 2024, Alectra Utilities spent approximately $50,000 per site for environmental remediation due to leaking transformers. While the vault does contain the oil spill, there remains an environmental risk as the oil can reach the soil resulting in high remediation costs.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	The status quo is to do nothing, allowing the existing vault covers to run to failure. This would result in cracking and corrosion of the concrete surrounding the lid. The resulting weakening of the underside of vault cover reduces the cover's ability to withstand vehicular and pedestrian loading forces. This could lead to a collapse resulting in severe injury or death.
	Alternative #1	Replacement of the entire civil structure for all identified vault covers. This would require the rehabilitation of the concrete structures and the vault covers. Some aspects of the work involved would include excavation, road closure, scheduled outages, and reduced system redundancy.
	Alternative #2	Systematic and proactive replacement of vault covers of the worst-rated vaults. Restoration could involve either the roof only, or the entire structure, depending on the extent of the degradation identified.
	Alternative #3	N/A
	Alternative #4	N/A
	Justification for Recommended Alternative	CDM and NWS was considered but was determined not to be a feasible option. Deteriorated and substandard vault covers pose an elevated risk of failure, affecting public and worker safety, and electrical equipment. Maintaining the status quo would allow for the substantive safety risks associated with these lids to continue to exist within the system. These vault covers would continue to pose significant risks to the general public, as well as to the equipment located in these chambers. Therefore, this alternative is not recommended. Replacing the entire civil structure would result in a highly complex, lengthy and costly project for Alectra Utilities, as some vaults will be located within the roadway and not within the off-road boulevard allowance. Relocating all the infrastructure (cables, junctions) is very difficult in comparison to localized rehabilitation. Therefore, this alternative is not recommended. Systematic and planned replacement of under-designed vault covers, along heavily travelled routes, is the most cost effective in comparison to complete replacement. Therefore, this is the recommended alternative. Investments in vault covers and concrete structure replacements will allow Alectra Utilities to realize safety improvements and enhance reliability. This investment aligns with Alectra Utilities focus on decreasing the safety related incidents due to deteriorating and functionally obsolete underground system assets.

Material Investments Report

Project Code	Multiple
Project Name	Vault Cover Renewal

07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Alectra Utilities considers the following as general risks to project schedule and cost: • Customer delays or restricted access to work sites • Inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms • Delays to material shipment from vendors • General unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Alectra Utilities has utilized coordination with third parties to mitigate some of the issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk mitigation strategies.
	Comparative Information on Equivalent Historical Projects (if any)	This project is the continuation of Alectra Utilities' long-term annual vault cover renewal initiative. The average annual investment from 2020 to 2024 was $1.3MM. Alectra Utilities has set the recommended average annual investment level to $6MM for 2027 to 2031. This increase is a result of a need to address under-designed vault covers and concrete structures that pose a high safety hazard to employees and the public.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$2,001,430	$1,939,135	$1,936,819	$2,177,838	$4,366,728	$9,296,865	$12,026,853
Actual	$787,232	$964,642	$1,624,461	$1,443,118	$1,770,364							

Material Investments Report

Project Code	152841
Project Name	Cable Replacement Project - (M27) Hwy 7, Mc Cowan Rd ,16th Ave, Main St Unionville)
Project Description	This investment is for replacing 40,069 m of direct-buried XLPE cables with Tree-Retardant XLPE cables installed in conduit in the Markham grid M27 (Hwy 7, Mc Cowan Rd ,16th Ave, Main St Unionville). There are over 3600 customers in this grid (96% residential and 4% commercial customers). Major customers include over 140 commercial customers and multiple, child care centers, education institutions, and medical clinics. This project will be executed over 5 years: Year 1: Replace 10,000 m Year 2: Replace 7,517 m Year 3: Replace 7,517 m Year 4: Replace 7,517 m Year 5: Replace 7,517 m Alectra Utilities' planned Underground Asset Renewal investments are driven by an increasing decline in reliability on the distribution system. Cable and cable accessories are the highest cause of failure. Within the project grid area there were 19 outages whereas the project scope area had 15 outages from 2017-2023. If not rehabilitated, this cable will continue to degrade, and failures will increase to a level that is not tolerable by customers. Since the cables at this location are nearing end of life, it is estimated that failures will escalate starting with 3 failures in 2025, 6 failures in 2028, and up to 9 failures by 2031. It is expected that completion of this project will help avoid 9 failures per year as of 2031 and 297,936 potential CMI. ***Total Cable Replacement Length = 32,551 m. Will be completed over 4 years in the DSP Cycle. ***
Investment Category	System Renewal

02. Additional Information	**Branch Plant**	815 Addiscott Service Centre
	Units	40069
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Underground Asset Renewal
	Alectra Subcategory	Cable Remediation –Replacement
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable

Material Investments Report

Project Code	152841
Project Name	Cable Replacement Project - (M27) Hwy 7, Mc Cowan Rd ,16th Ave, Main St Unionville)

05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	As of 2023, defective equipment accounts for 45% of controllable outages in Alectra Utilities' system. Cable and cable accessory failures account for 50% of all equipment-related outages. This has a large impact on reliability as well as customer service and satisfaction. Cable manufactures introduced the first-generation XLPE cable into the market in the late 1960's. These cables have inherent problems due to the nature of the manufacturing processes, which led to impurities developing over time in the insulating medium. These impurities are responsible for the increase in cable failures that Alectra Utilities and other utilities have been experiencing with cables from this period. XLPE cables also fail because of the way they were installed. Decades ago, it was standard practice for utilities to bury cables directly in the ground. Over time, the construction standards shifted to installing cable in protective conduits, but much of the system still consists of "direct-buried" cable. When a more modern cable-in-conduit fails, it can typically be entirely removed and replaced with a brand-new cable with relative ease. In contrast, direct-buried cables can only be repaired by excavating the cable and splicing in a replacement segment. This approach is fundamentally reactive and can introduce further complications, since the installed splice may itself become a future failure point. It does not solve the underlying issue, since the older, direct-buried cable remains installed and increasingly likely to fail again. Failing direct-buried cables are causing an increasing number of outages, and when buried cables fail it can take a significant amount of time to restore service and impact the quality of service received by Alectra Utilities' customers. Without this proposed investment, cables will continue to degrade, and Alectra Utilities expects reliability to decline further. Deteriorated cables fail at greater rates, and Alectra Utilities forecast that if the investment is not made, that the rate of cable failures per year will increase to 3 failures in 2025, 6 failures in 2028, and up to 9 failures by 2031.
	Customer Attachment / Load (KVA)	304 Customers (Mixed - Commercial/Residential) / 1,453 KVA
	Safety	Alectra Utilities is required to ensure its distribution system can support projected load growth while maintaining reliability and quality of service for customers on both a short-term and long-term basis, as required by the Distribution System Code (DSC). Alectra Utilities must also connect new customers within the timelines prescribed by the OEB's service quality standards without adversely affecting the quality and safety of service to existing customers. This investment ensures that both of these requirements can be met and that the distribution system can safely distribute the required capacity.
	Cyber-Security, Privacy	Cyber-Security and Security is not Applicable for this investment.
	Coordination, Interoperability	Pertaining to coordination with utilities, regional planning and other 3rd parties, Alectra Utilities constructs all new projects using approved construction standards complying with ESA Regulation 22/04. Alectra Utilities participates in regional planning, both at an infrastructure level with local municipalities and regions, as well as at an electrical infrastructure level with Hydro One and other participants in the Regional Planning Process. Alectra Utilities also attends Public Utility Coordinating Committee (PUCC) meetings which jointly allows for the coordination and planning of investments with other utilities who provide cable tv, internet, phone and natural gas services.
	Economic Development	An efficient and safe distribution system promotes reliability. Business activities and customer satisfaction value reliability. Also, some customers review outage statistics as part of the site selection process, and excellent reliability is valued in this process.
	Environmental Benefits	Not Applicable.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	The status quo is to do nothing, allowing the end-of-life cable to run to failure and responding to outages under reactive capital. Given that as of 2023, 50% of defective equipment failures are occurring due to cable and cable accessories, and that 45% of all system outages are defective equipment, this would lead to an unacceptable level of outages and customer satisfaction. This is not a viable alternative.

Material Investments Report

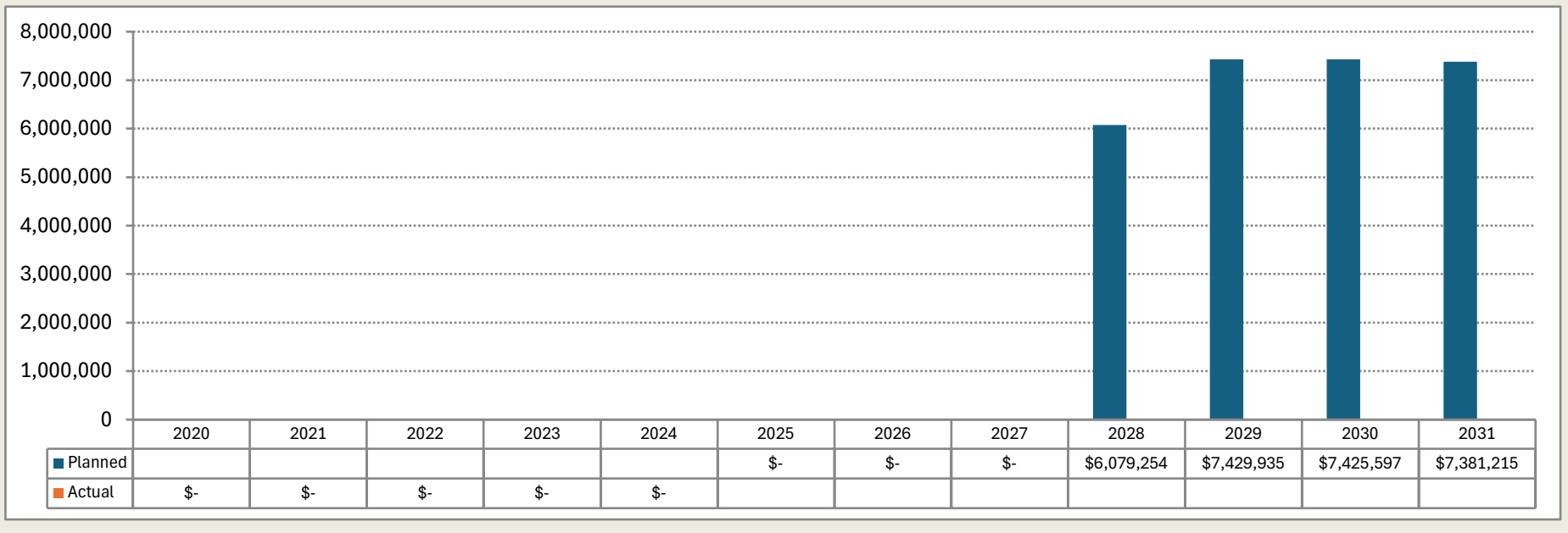
Project Code	152841
Project Name	Cable Replacement Project - (M27) Hwy 7, Mc Cowan Rd ,16th Ave, Main St Unionville)

Alternative #1	Alternative #1 is to perform replacement only of cable segments that have experienced a fault. Several sections of cable would need to be replaced under this alternative. This approach provides a bare minimum investment approach to targeting segments that have already seen repair action taken place, and is intended to remove the possibility of future failures occurring on an already compromised cable segment by installing a new length of cable. This approach neglects the impact that failures have on adjacent equipment within the area. Under this alternative, no transformer replacements would occur, allowing those units to run-to-failure and be replaced reactively. This alternative is disruptive to customers and does not address the failure situation adequately. This is not a preferred alternative.
Alternative #2	Alternative #2 is to replace all the cables in this area that are of the same vintage as those that have experienced cable faults. The cables will be replaced with Tree-Retardant XLPE cables and installed in conduits. Transformer replacement will also be carried out on those transformers within the scope area that are at risk of failure or do not meet minimum condition criteria to leave in place. The benefit in replacing these transformers is that it reduces future outages and potential damage to newly installed cable once the transformers fail. This is the recommended alternative.
Alternative #3	N/A
Alternative #4	N/A
Justification for Recommended Alternative	CDM and NWS were considered but they were determined not to be feasible options. The cables in this area are at end-of-life and are failing. When a cable segment fails, system reliability and customer service are negatively affected. For small-scale outages, Alectra Utilities has the capability to replace or repair the faulted cable segments under reactive capital, however, if too many cable failures occur at the same time, Alectra Utilities would not have sufficient resources to manage the large-scale and cascading outages, therefore system integrity will be compromised, and reliability will be at a level unacceptable to the customers. To manage the risk of large-scale cable failures, Alectra Utilities must implement proactive cable remediation projects. This can only be managed by replacing all the cables that are of the same vintage as the cables that failed. This will reduce the risk of cascading effect of cable failure, stressing the other cables in the same circuit, leading to more failures in the same area which negatively impacts the quality of service to Alectra Utilities' customers. Replacing only the segments that faulted negates the issue that the other segments were affected by cable faults which further degrades the cables insulation and therefore, will not halt or reverse the increasing trend of outages due to cable failure as the cables of the same vintage are at end-of-life, have deteriorated and are at risk of failing soon as exhibited in many areas with multiple cable failures across Alectra Utilities service territories. Within the project grid area there were 19 outages whereas the project scope area had 15 outages from 2017-2023. If not rehabilitated these cables will deteriorate and will fail more often to a level that is not tolerable by customers. One other alternative Alectra Utilities considered for cable remediation is cable injection. However, these cables did not meet Alectra Utilities' cable injection criteria. Cables in this area have failures and partial replacement will not deal with the degradation and damage done to adjacent segments and therefore total cable replacement is required.

Material Investments Report

Project Code	152841
Project Name	Cable Replacement Project - (M27) Hwy 7, Mc Cowan Rd ,16th Ave, Main St Unionville)

07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Risk: Alectra Utilities considers the following as general risks to project schedule and cost: - fluctuation in cost and staff resources (internal and external) to complete high annual volume of work. - customer delays or restricted access to work sites - inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms - delays to material shipment from vendors - general unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Risk Management: Alectra Utilities has regular progress meetings to ensure technical and operational issues are resolved promptly; budget performance is monitored; and projects are on track. Alectra Utilities has coordinated with third parties to avoid some of the issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk reduction strategies.
	Comparative Information on Equivalent Historical Projects (if any)	Alectra Utilities has completed similar cable replacement projects since 2010.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$-	$-	$-	$6,079,254	$7,429,935	$7,425,597	$7,381,215
Actual	$-	$-	$-	$-	$-							

Material Investments Report

Project Code	Multiple
Project Name	GP - Facilities Misc
Project Description	There are two segments within Alectra Utilities' Facilities department that require financial support in order to maintain building services and keep its buildings fully operational - 1. Replacement Capital and 2. Reactive Capital. This project description is a combination of multiple Facilities Business Case projects that relate to Security/life safety, building electrical systems for vehicle electrification, building envelope, building outdoor walkways and driveways, building heating ventilation and air conditioning (HVAC), roofing structure and roofing. This section will also provide input to both of these required funding areas. 1.(Replacement Capital) - Alectra Utilities manages a portfolio of three corporate offices and six service centres, encompassing more than one million square feet of space throughout its service territory. As part of its ongoing commitment to operational excellence and asset sustainability, Alectra Utilities' Facilities team regularly commissions third-party facility condition assessments to evaluate the state of Alectra Utilities' buildings and their supporting infrastructure. Alectra Utilities engaged Pinchin Ltd. to conduct comprehensive assessments across our facilities. These evaluations include in-depth reviews of mechanical, electrical, plumbing, structural, and architectural systems. The objective is to obtain detailed insights into the current condition and projected life cycles of building components and equipment. The findings from these assessments serve as a critical tool in planning our capital investment and equipment replacement strategies. By proactively identifying assets approaching the end of their service life, we can prioritize replacements before failures occur. This planned replacement approach not only enhances the reliability and safety of our work environments for employees but also helps reduce the risk of service disruptions that could affect our customers. Ultimately, a well-informed asset planning contributes to a more consistent, safe, and cost-effective operation, helping to optimize operating expenses while supporting Alectra Utilities broader mission of service excellence. 2.(Reactive Capital) Given the scale of complexity of the three corporate offices and six service centres, it is critical to have dedicated reactive capital budget to address unexpected infrastructure failures and urgent repairs. This budget is specifically designed to fund unplanned, time-sensitive projects that arise from sudden equipment breakdowns or facility related issues. Without sufficient funding allocated for reactive capital needs, we risk extended downtime, operational disruption, and the potential failure of critical building systems. These failures not only impact employee safety and productivity but could also have downstream effects on customer service and regulatory compliance. The core objective of this funding is to quickly restore assets to proper working condition, thereby minimizing operational downtime and maintaining continuity across all business functions. Examples of typical reactive capital expenditures include: Replacement of emergency repairs to HVAC systems and components, Restoration of security and surveillance infrastructure, Remediation or upgrades to life safety systems (eg, fire alarms, emergency lighting), Correction of deficiencies identified during internal audits or external assessment, Emergency repairs to the building envelope, including roofing, windows, and structural components. Proactively securing financial support for reactive capital needs is essential to managing risk, reducing the long-term cost of deferred maintenance, and preserving the integrity and performance of Alectra Utilities facilities.
Investment Category	General Plant

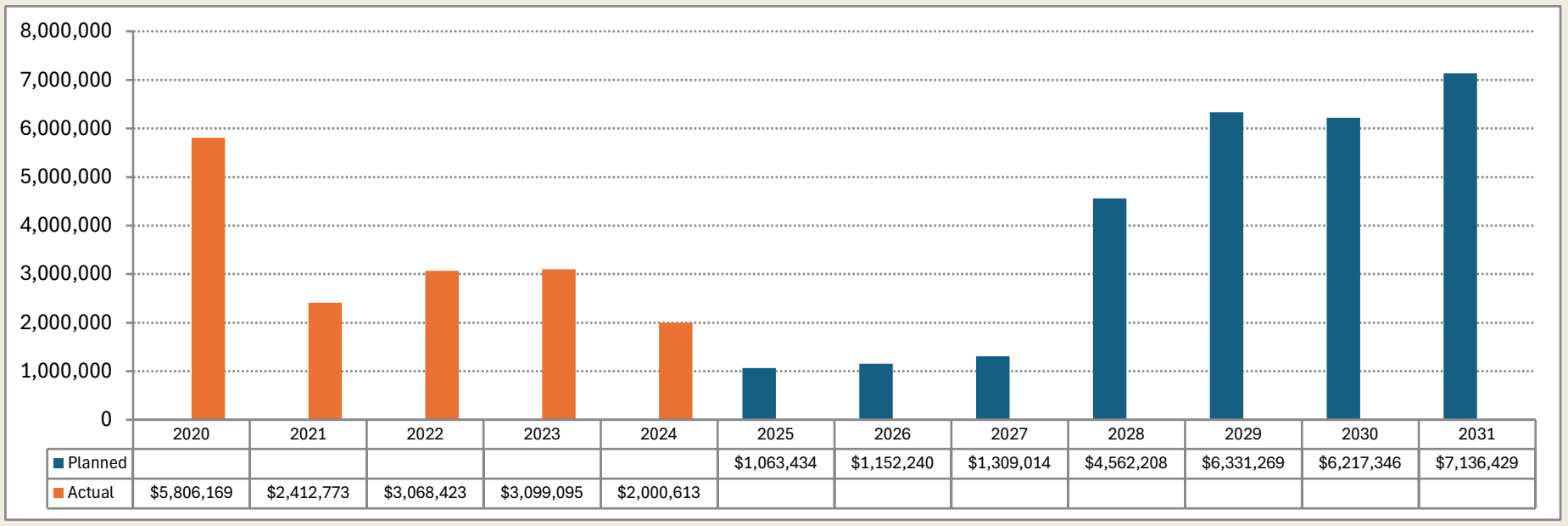
02. Additional Information	**Branch Plant**	10 Alectra
	Units	
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Facilities Management
	Alectra Subcategory	Buildings
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Non-Controllable

Material Investments Report

Project Code		Multiple
Project Name		GP - Facilities Misc
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Urgent funding for Facilities Misc project is required because they directly impact the safety, reliability, and operational readiness of Alectra Utilities buildings and workforce. Security and life systems must remain fully functional to protect employees and assets, while electrical systems upgrades are essential to support vehicle electrification and future operational requirements. Critical infrastructure such as building envelope, roofing, HVAC systems, and outdoor walkways and driveways must be maintained to prevent safety hazards, avoid costly failures, and ensure consistent building performance. Adequate reactive capital is also needed to address unexpected asset failures and emergency replacements, minimizing downtime to preventing disruptions that could impede service delivery.
	Customer Attachment / Load (KVA)	Not Applicable
	Safety	Need to address safety issues and concerns as a result of facility asset conditions.
	Cyber-Security, Privacy	Not applicable
	Coordination, Interoperability	Not applicable
	Economic Development	Not applicable
	Environmental Benefits	Not applicable
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Do nothing – reactive vs proactive A reactive approach is less effective because it focuses on fixing problems only after they occur, which often leads to safety risks, unexpected downtime, and higher emergency repair costs. When assets fail unexpectedly operations can be disrupted and repairs must be done urgently, usually at a premium cost. A proactive approach allows for planned maintenance, timely replacements, and better budgeting, ultimately reducing risk and ensuring facilities remain safe, reliable, and fully functional.
	Alternative #1	Increase investments to have a more proactive approach. See above for explanation of proactive approach.
	Alternative #2	Prioritize Only Critical Health & Safety Repairs -Focus limited resources on issues that pose immediate safety, regulatory, or operational risks, deferring all non-critical enhancements. The issue with this is it will lead to a backlog of deferred maintenance. It will also save money in the short term but require bigger financial investments in the long term as the smaller issues will escalate into larger issues. Essentially this could negatively employee safety within Alectra Utilities' buildings.
	Alternative #3	Do nothing and have all facilities have rapid deterioration. Without funds building systems such as: HVAC, plumbing, electrical, security, roofing, fire protection would degrade quickly which would increase the likelihood of sudden system or equipment failures. This is not a viable option.
	Alternative #4	Not Applicable
	Justification for Recommended Alternative	Alternative #1 was selected based on historical failures and proactive projects based on risk assessments and facility condition assessments.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	The assets fail before proactive replacement and cost increases from the market.
	Comparative Information on Equivalent Historical Projects (if any)	Alectra Utilities' facilities department has previously had reactive expenditures to address unexpected failures in critical building systems such as HVAC units, electrical infrastructure, roofing components, and life safety equipment. These reactive projects were necessary to resolve urgent issues that posed immediate risks to building safety, building compliance, and operational continuity. For example, emergency HVAC replacements during system failures, urgent electrical repairs to prevent outages, roof leak remediation to protect assets, and rapid corrective actions to restore fire alarms or security systems. These past expenditures demonstrate that unplanned asset failures can and do occur often requiring immediate investment to avoid safety hazards, operational disruptions, and more costly damage.

Material Investments Report

Project Code	Multiple	
Project Name	GP - Facilities Misc	
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$1,063,434	$1,152,240	$1,309,014	$4,562,208	$6,331,269	$6,217,346	$7,136,429
Actual	$5,806,169	$2,412,773	$3,068,423	$3,099,095	$2,000,613							

Material Investments Report

Project Code	151147
Project Name	New Station - Campbell TS Metal Clad Expansion
Project Description	This project is to upgrade and increase capacity at the Hydro One owned Campbell TS. This project entails upgrade to the metal clad switchgear JQ bus which will increase the capacity from 96MVA to 118MVA and Campbell T3/T4 56MW LTR to upgrade to 96MW (103MVA) using the spare Transformer winding.
Investment Category	General Plant

02. Additional Information	**Branch Plant**	Guelph Service Centre
	Units	1
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Meeting Growing Electricity Demand
	Alectra Grouping	Connection & Cost Recovery Agreements
	Alectra Subcategory	CCRA Payments
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	The north side of the City of Guelph is supplied by two HONI-owned transformer stations Campbell TS, and Cedar TS. The north-west area in the City of Guelph contains a large portion of the industrial/commercial load and the Campbell TS and will exceed LTR limit. The proposed downtown intensification and greenfield growth in the north-west area will create load growth on both Campbell and Cedar TSs. The combined capacity of Campbell T1/T2 will be exceeded in 2031. The TS upgrade is to increase add capacity within T1/T2 and T3/T4. Campbell TSs T1/T2 transformers were upgraded to 140MVA; however, the existing bus maximum limits the rating to 96MVA. With the JQ bus upgrade the LTR would increase to 118MVA. Campbell TSs T3/T4 transformers have an existing capacity of 60MVA (56MW). The LTR is to be revised to 103MVA (96MW). The timeline to upgrade the new TS is approximately 3 years, and work will begin in 2028 for an in-service date of 2031.
	Customer Attachment / Load (KVA)	North-West Side Developments The north-west side of the City of Guelph is highly commercial/industrial, with growth occurring near Speedvale Avenue West and Woodlawn Road West. Greenfield areas in the south, such as Laird Rd, are seeing growth and intensification at Southgate Drive, Stone Road, St Clair to Maltby, and Watson Road. The total load is 39MVA. A large amount of ongoing expansion is occurring in the north side of the City of Guelph, and potential future load from new electric initiatives in transportation and decarbonization of heating. Electric Transit & Decarbonized Heating Guelph is focused in supporting the use of zero and low-emission vehicles. The city is planning the conversion of the city bus system to electric with need of charging infrastructure. Additional load growth (EV charging - 17MVA) identified by the City of Guelph which will be needed to connect to Cedar TS.
	Safety	Not Applicable.

Material Investments Report

Project Code 151147

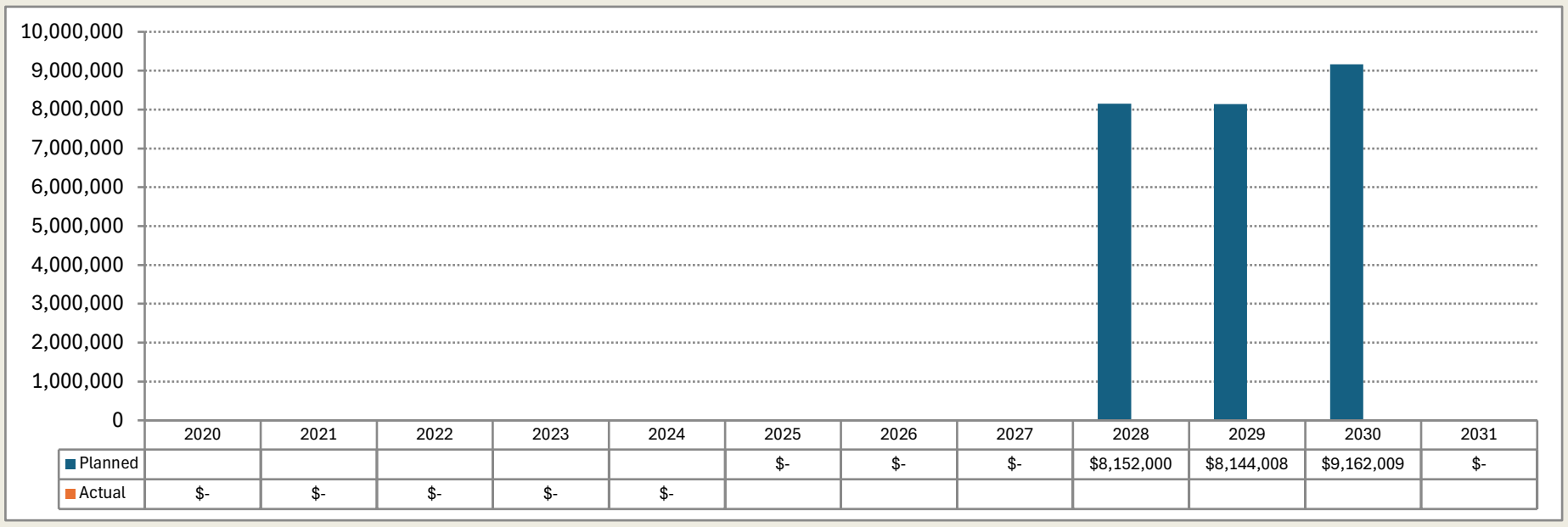
Project Name New Station - Campbell TS Metal Clad Expansion

	Cyber-Security, Privacy	Not Applicable.
	Coordination, Interoperability	Capacity investments also enable improved coordination and integration of Distributed Energy Resources (DERs) such as rooftop solar, battery storage, and demand response technologies. By upgrading system infrastructure, Alectra Utilities can support greater two-way power flows and enhance grid interoperability, allowing DERs to be actively managed as part of the distribution system. This promotes improved reliability, optimizes system performance, and aligns with evolving industry standards for a more flexible and resilient grid.
	Economic Development	Supports growth in the City of Guelph. This continues to support local economic development.
	Environmental Benefits	Investing in distribution system capacity enhances climate resilience by enabling the integration of cleaner, low-carbon energy sources and strengthening the grid's ability to withstand and adapt to extreme weather events linked to climate change.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	The status quo will not provide the required capacity relief for the other Guelph facilities or the required capacity for the new residential developments, nor the necessary contingency transfer capacity. Loading station beyond the LTR is not a viable alternative and may lead to equipment degradation and failure. For these reasons the status quo is not being recommended.
	Alternative #1	This option is to utilize Non-Wires Alternative such as DER/DR: Alectra Utilities' load forecast is net of CDM and DG. Campbell also support large industrial customers which already participate in the ICI program and curtail their peak load. Covering 60 MVA (240MVAhr) shortfall would require either utility-scale storage or other dispatchable DER that feeder limits and reliability standards cannot support. The high level cost of the 240MVAhr BESS solution load would be $102MM and require 4.2 acres of land. The cost and space considerations for a BESS/DR would also considerably exceed the forecasted investment in station upgrade. Hence this option has been rejected.
	Alternative #2	This alternative is to expand the capacity at the existing Campbell TS. This station will provide the required capacity and feeder to serve the new developments. This is the recommended alternative.
	Alternative #3	This alternative is to build a new TS and not to expand Campbell TS. Alectra Utilities will require to purchase land and expand the 115KV system to connect the new TS. This option will more expensive than upgrading the existing station.
	Alternative #4	Not Applicable.
	Justification for Recommended Alternative	In order to meet the forecasted load growth in Guelph area additional station capacity is required. The upgrade is necessary to serve Alectra Utilities' customers, which is a regulatory obligation. It will allow Alectra Utilities to continue to operate its system in a safe and effective manner. It will enable Alectra Utilities to meet transformer station and feeder loading guidelines. The new station upgrades will also promote reliable service and will allow for more feeder ties and backup options.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	The load restoration need has been identified by IESO. Alectra Utilities and HONI will need to coordinate on the project.
	Comparative Information on Equivalent Historical Projects (if any)	Alectra Utilities has experience in engaging in HONI for station upgrades.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code 151147

Project Name New Station - Campbell TS Metal Clad Expansion



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$-	$-	$-	$8,152,000	$8,144,008	$9,162,009	$-
Actual	$-	$-	$-	$-	$-							

Material Investments Report

Project Code	152493
Project Name	New Station - Newton TS (Capacity)
Project Description	New Station capacity at Newton TS is needed to provide 13.8kV capacity in the North-West side of Hamilton. Alectra Utilities plans to enter into a CCRA agreement with HONI to upgrade the existing transformer station to have a Summer LTR of 140MVA. The timeline to upgrade the station is approximately three years. Alectra Utilities plans to initiate the upgrade in 2028 for an in-service date of 2031.
Investment Category	General Plant

02. Additional Information	**Branch Plant**	10 Alectra
	Units	1
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Meeting Growing Electricity Demand
	Alectra Grouping	Connection & Cost Recovery Agreements
	Alectra Subcategory	CCRA Payments
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	The medium-term stations assessment has shown a need for new capacity at Newton TS. By 2028, the existing Newton TS will not have the capacity to supply additional load due to new residential, commercial, and industrial developments. Newton TS supplies the geographical areas of Westdale and Ainsle Wood in Hamilton which contains McMaster University along with residential, commercial, and industrial customers. Limited options exist for connecting to other station feeders due to Highway 403 crossing on the east, the Hamilton escarpment on the south, conservation lands in the west, and Lake Ontario to the North. Newton TS and Elgin TS serve the developments in Northwest Hamilton; however, connections between the two stations are limited due to challenges in crossing Highway 403. Expected load transfer ability from Newton TS to Elgin TS is 6MVA. Load forecast indicates large developments such as McMaster and Frid St in near term and will require capacity.

Material Investments Report

Project Code		152493
Project Name		New Station - Newton TS (Capacity)
	Customer Attachment / Load (KVA)	Newton TS will supply the following developments: Hamilton Light Rail Transit (LRT) OMSF Hamilton LRT will connect key areas, destinations and institutions along Main Street, King Street and Queenston Road which is expected to lead to secondary growth through intensification along the corridor. The Operations Maintenance Storage Facility (OMSF) will require 7.2MVA of capacity. Innovation Park Growth A large customer Innovation park has indicated their current loading requirement of 15MVA and an additional 6MVA in the future. Frid Street Developments Alectra Utilities has been approached to provide an additional 22MVA for developments on Frid St. Locations further south off Frid St have also requested additional capacity of over 20MVA. These developments will be supplied from Newton TS.
	Safety	Not Applicable.
	Cyber-Security, Privacy	Not Applicable.
	Coordination, Interoperability	Capacity investments enable improved coordination and integration of Distributed Energy Resources (DERs) such as rooftop solar, battery storage, and demand response technologies. By upgrading system infrastructure, Alectra Utilities can support greater two-way power flows and enhance grid interoperability, allowing DERs to be actively managed as part of the distribution system. This promotes improved reliability, optimizes system performance, and aligns with evolving industry standards for a more flexible and resilient grid.
	Economic Development	Supports electricity as a result of growth in the City of Hamilton. This continues to support local economic development.
	Environmental Benefits	Investing in distribution system capacity enhances climate resilience by enabling the integration of cleaner, low-carbon energy sources and strengthening the grid's ability to withstand and adapt to extreme weather events linked to climate change.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	The status quo would be to do nothing and overload existing transformer stations and feeders beyond their normal ratings. There is no cost to the status quo, however there may be anticipated cost in case the equipment fails when it is run in overloaded condition. There is no capacity without operating over the planned limits. Running equipment beyond its rating could lead to failure and possibly cause injury to public or employees. Running equipment beyond it designed rating also reduces the life expectancy of that equipment. The existing transformer stations and feeders are at their planning limit. This further restrict the operational flexibility of transferring load between feeders and stations in case of problems on the distribution system. The status quo will not provide the required capacity for Alectra Utilities to comply with its obligation to serve the projected new residential and commercial developments, nor the necessary contingency transfer capacity. For these reasons the status quo is not a viable alternative.

Material Investments Report

Project Code 152493

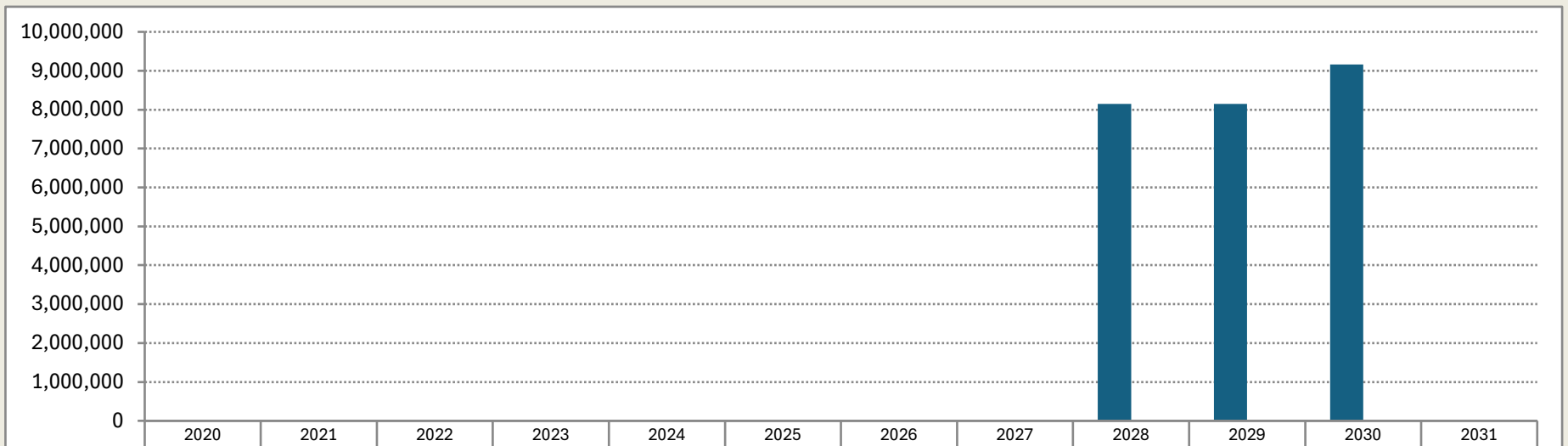
Project Name New Station - Newton TS (Capacity)

	Alternative #1	The other option is to use Non-Wires Solution such as DER/DR/procuring DER. Alectra Utilities load forecast is net of CDM and DG. The need of the station from 2029 to 2030 is relatively modest and can be accommodated by procuring DER,.. As such, DER will be utilized for meeting the needs during the 2029-2030 period. However, there will be load growth beyond 2030. The LRT traction and research-park chillers draw long-duration power that is poorly suited to curtailment. In addition, Highway 403, the Escarpment and the conservation lands limit the feeder ties. The DER will be limited to a tight urban pocket where land is scarce. As a result, the HONI transformer upgrade makes a BESS/DER/DR alternative unattractive for the meeting needs beyond 2030.
	Alternative #2	This alternative is to expand the capacity at the existing Newton TS. This station will provide the required capacity and feeder to serve the new developments. This is the recommended alternative.
	Alternative #3	This option is to build a new TS to supply. Alectra Utilities will require a land and transmission expansion. Land is very hard to get in the urban pocket and it will be very expensive to expand the transmission system. Hence this option has been rejected.
	Alternative #4	Not Applicable
	Justification for Recommended Alternative	By 2028, the existing Newton TS will not have the capacity to supply additional load due to new residential, commercial, and industrial developments. The capacity short in the short term will be met by procuring DER however in the medium to long term firm capacity is required. Upgrading the existing Newton TS transformers station will provide the required capacity for the medium to long term and will allow Alectra Utilities to support the new load growth and maintain the reliability is recommended to meet the capacity needs of the area and it uses the existing real estate.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	There are challenges in maintaining supply to the existing customers while the station is being upgraded. Alectra Utilities and HONI will complete an outage supply and staging plan to mitigate this risk. Existing expansion with LRT and feeder Existing expansion with LRT to the north and construction of a new south side egress will need coordination. Alectra Utilities will coordinate with LRT on expansion and timelines for egress expansion.
	Comparative Information on Equivalent Historical Projects (if any)	Not Applicable
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code 152493

Project Name New Station - Newton TS (Capacity)



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$-	$-	$-	$8,152,000	$8,144,008	$9,162,009	$-
Actual	$-	$-	$-	$-	$-							

Material Investments Report

Project Code	151339
Project Name	Cable Replacement Project - (BA19) - Letitia - Anne - Edgehill - Ferndale, Barrie
Project Description	This investment is for replacing 33,645 m of direct-buried XLPE cables with Tree-Retardant XLPE cables installed in conduit in the East (BA19) - Letitia - Anne - Edgehill - Ferndale area in Barrie area. This project will address deteriorated cables and for part of the scope, Alectra Utilities will renew non-standard and deteriorated transformers. There are over 6400 customers in this area (97% residential and 3% commercial customers). Major customers include over 175 commercial customers and multiple education institutions, a water treatment station, and child care centers. This project will be executed over 5 years: Year 1: Replace 6,729 m Year 2: Replace 6,729 m Year 3: Replace 6,729 m Year 4: Replace 6,729 m Year 5: Replace 6,729 m Alectra Utilities planned Underground Asset Renewal investments are driven by an increasing decline in reliability on the distribution system. Cable and cable accessories are the highest cause of failure. Within the project grid there were 3 outages and project scope area there was 1 outage from 2018-2023. If not rehabilitated, this cable will continue to degrade, and failures will increase to a level that is not tolerable by customers. Since the cables at this location are nearing end of life, it is estimated that failures will escalate starting with 1 failure in 2025, 2 failures in 2028, and up to 3 failures by 2031. It is expected that completion of this project will help avoid 3 failures per year as of 2031 and 99,312 potential CMI. ***Total Cable Replacement Length = 20,187 m. Will be completed over 3 years in the DSP Cycle. ***
Investment Category	System Renewal

02. Additional Information	**Branch Plant**	825 Patterson Service Centre
	Units	33645
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Underground Asset Renewal
	Alectra Subcategory	Cable Remediation –Replacement
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable

Material Investments Report

Project Code	151339
Project Name	Cable Replacement Project - (BA19) - Letitia - Anne - Edgehill - Ferndale, Barrie

05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Alectra Utilities' service area has a population of underground cables totaling approximately 21 million linear meters of cable. Alectra Utilities planned Underground Asset Renewal investments are driven by an increasing decline in reliability on the distribution system. As of 2023, defective equipment accounts for 45% of controllable outages in Alectra Utilities' system. Cable and cable accessory failures account for 50% of all equipment-related outages. Alectra Utilities plans to gradually but significantly increase its spending to rejuvenate or replace Cross-Linked Polyethylene (XLPE) cable and related accessories that are either in poor or very poor condition. This investment will replace failing direct-buried XLPE cables with Tree-Retardant XLPE cables installed in conduit. It is expected that completion of this project will help reduce customer outage frequency and duration. This aligns with Alectra Utilities' focus on decreasing the outage impacts due to deteriorating underground system assets. Cable manufacturers introduced the first-generation XLPE cable into the market in the late 1960's. These cables have inherent problems of having impurities due to the nature of the manufacturing processes. Utilities installed these cables directly in the ground. These led to breakdown of insulation over time and are responsible for the increase in cable failures that Alectra Utilities and other utilities have been experiencing with cables from this period. When failed, direct-buried cables can only be repaired by excavating the cable and splicing in a replacement segment. This approach is fundamentally reactive and introduces further complications, since the installed splice may itself become a future failure point. In addition, it does not solve the underlying issue, since the deteriorated direct-buried cable remains installed and likelihood of failing again increases over time. Failing direct-buried cables are causing an increasing number of outages, and when buried cables fail it can take a significant amount of time to restore service. Failing cables are significantly and increasingly impacting the quality of service received by Alectra Utilities' customers. Within the project grid there were 3 outages and project scope area there was 1 outage from 2018-2023. Due to the increasing occurrence of failures caused by this cable vintage, Alectra Utilities must not only halt the increasing trend, but also to reverse it and reduce the number of cable failures to return customers back to historical reliability levels. Without the proposed expenditures, cables will continue to degrade, and Alectra Utilities expects reliability to decline further as deteriorated cables begin to fail at greater rates, having been stressed from historical faults. Future failures are predicted at an escalating rate as cables deteriorate.
	Customer Attachment / Load (KVA)	304 Customers (Mixed - Commercial/Residential) / 1,453
	Safety	Not Applicable.
	Cyber-Security, Privacy	Cyber-Security and Security is not applicable for this investment.
	Coordination, Interoperability	Pertaining to coordination with utilities, regional planning and other 3rd parties, Alectra Utilities constructs all new projects using approved construction standards complying with ESA Regulation 22/04. Alectra Utilities participates in regional planning, both at an infrastructure level with local municipalities and regions, as well as at an electrical infrastructure level with Hydro One and other participants in the Regional Planning Process. Alectra Utilities also attends Public Utility Coordinating Committee (PUCC) meetings which jointly allows for the coordination and planning of investments with other utilities who provide cable tv, internet, phone and natural gas services.
	Economic Development	Alectra Utilities ensure all policies and practices don't unnecessarily create barriers to economic development which are primarily focused within our communities.
	Environmental Benefits	Not Applicable.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	The status quo is to do nothing, allowing the end-of-life cable to run to failure, and respond to outages under reactive capital. This would lead to an unacceptable level of outages and customer satisfaction. Within the project grid there were 3 outages and project scope area there was 1 outage from 2018-2023. Since the cables at this location are at end of life, it is estimated that failures will escalate starting with 1 failure in 2025, 2 failures in 2028 up to 3 failures by 2031.
	Alternative #1	Replace all the cables in this area that are of the same vintage as those that experienced cable faults. The cables will be replaced with Tree-Retardant XLPE cables and installed in conduits.

Material Investments Report

Project Code 151339

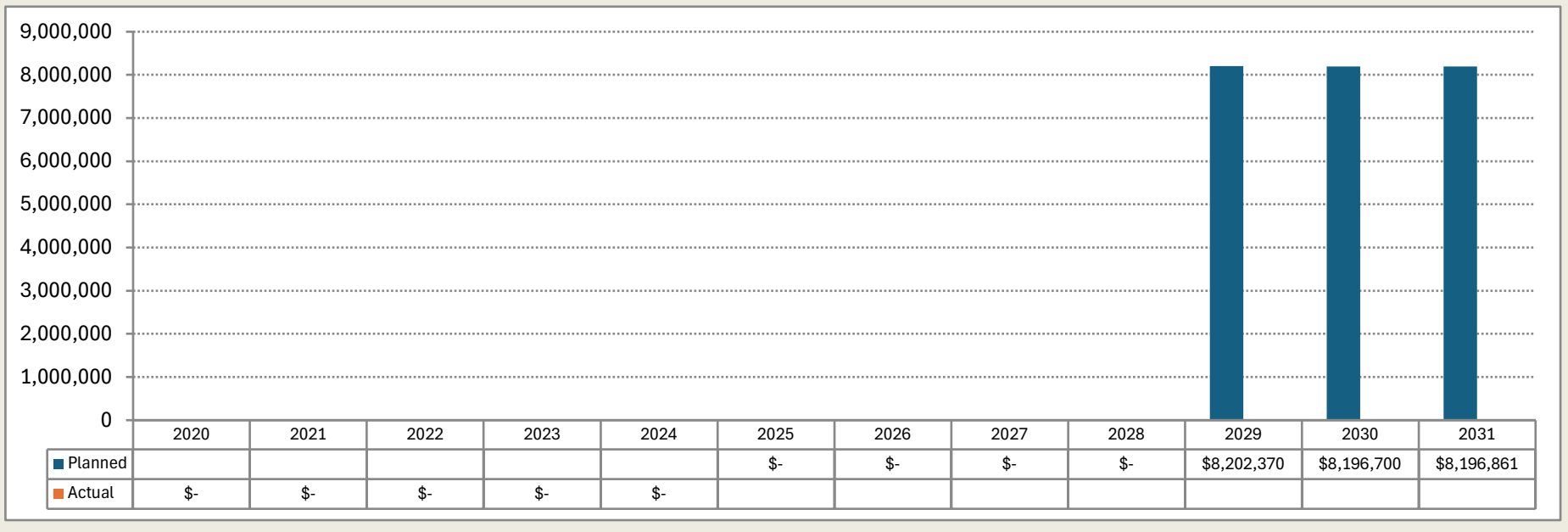
Project Name Cable Replacement Project - (BA19) - Letitia - Anne - Edgehill - Ferndale, Barrie

	Alternative #2	Replace only the cable segments that experienced cable faults. The cables will be replaced with Tree-Retardant XLPE cables and installed in conduits.
	Alternative #3	N/A
	Alternative #4	N/A
	Justification for Recommended Alternative	CDM and NWS were considered but they were determined not to be feasible options. The Status Quo is not recommended because when a cable segment fails, system reliability and customer service are negatively affected. For small-scale outages, Alectra Utilities has the capability to replace or repair the faulted cable segments under reactive capital, however, if too many cable failures occur at the same time, Alectra Utilities would not have sufficient resources to manage the large-scale and cascading outages, therefore system integrity will be compromised and reliability will be at a level unacceptable to the customers. Alternative #2 is not recommended because replacing only the segments that failed will not halt or reverse the increasing trend of outages due to cable failure as the cables of the same vintage are at end-of-life, have deteriorated and are at risk of failing soon as exhibited in many areas with multiple cable failures across Alectra Utilities' service territories. Alectra Utilities considered cable injection, however, these cables did not meet Alectra Utilities' cable injection criteria. Therefore, the recommended Alternative is Alternative #1. It will help decrease the outage impacts due to deteriorating underground system assets within the (BA19) - Letitia - Anne - Edgehill - Ferndale area in Barrie, thereby maintaining system reliability and customer service which is a key theme for customers during customer engagement. This project will address deteriorating cables. Within the project grid there were 3 outages and project scope area there was 1 outage from 2018-2023. If not replaced this cable will continue to degrade, and failures will increase to a level that is not tolerable by customers. Since the cables at this location are at end of life, it is estimated that failures will escalate starting with 1 failure in 2025, 2 failures in 2028, and up to 3 failures by 2031. This investment will help avoid a total of 3 potential cable failures per year by 2031 and 99,312 potential CMI. To manage the risk of large-scale cable failures, Alectra Utilities must implement proactive cable remediation projects. This can only be managed by replacing all the cables that are of the same vintage as the cables that failed. This will avoid the risk of cascading effect of cable failure, stressing the other cables in the same circuit, leading to more failures in the same area which negatively impacts the quality of service to Alectra Utilities' customers.

Material Investments Report

Project Code	151339
Project Name	Cable Replacement Project - (BA19) - Letitia - Anne - Edgehill - Ferndale, Barrie

07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Risk: Alectra Utilities considers the following as general risks to project schedule and cost: - fluctuation in cost and staff resources (internal and external) to complete high annual volume of work. - customer delays or restricted access to work sites - inclement weather, either in the form of extreme temperatures or due to restoration activities following major storms - delays to material shipment from vendors - general unforeseen delays such as striking rock when digging, tree conservation, municipal/regional consent forms Risk Management: Alectra Utilities has regular progress meetings to ensure technical and operational issues are resolved promptly; budget performance is monitored; and projects are on track. Alectra Utilities has utilized coordination with third parties to avoid some of the issues where possible, with municipalities/region/suppliers/customers. Alectra Utilities has implemented a Planning and Scheduling solution to track projects and resources. The Program Delivery department allows Alectra Utilities to manage schedule and cost risks and improve the overall efficiency of implementation. Alectra Utilities is able to reduce controllable cost impacts on the project due to these risk avoidance strategies.
	Comparative Information on Equivalent Historical Projects (if any)	Alectra Utilities has completed similar cable replacement projects since 2010.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$-	$-	$-	$-	$8,202,370	$8,196,700	$8,196,861
Actual	$-	$-	$-	$-	$-							

Material Investments Report

Project Code	101762
Project Name	Road Authority Projects- East South
Project Description	This investment replaces and relocates the distribution system to accommodate requests by Road Authorities. Alectra Utilities distributes electricity to residential, commercial, and industrial customers through overhead and underground infrastructure. To accomplish this, Alectra Utilities installs significant infrastructure along road allowances that are under the jurisdictions (owned and managed) of various authorities. In accordance with the Public Service Works on Highways Act (PSWHA), Alectra Utilities is required to remove, relocate or reconstruct its facilities in order to accommodate the specific requirements of the road authorities during road related projects. Additionally, MUP and sidewalk improvement projects, either municipally or regionally driven, can also trigger relocation requests to Alectra Utilities. Investments in road authority projects will permit Alectra Utilities to remove, relocate or reconstruct its distribution system to support the road authority initiatives and the mandated requirements of Alectra Utilities' distributors licence. During these projects Alectra Utilities reviews its system requirements and may modify or increase capacity at reduced cost. This aligns with Alectra Utilities requirement to prepare the distribution system to be able to address system capacity needs driven by intensification and redevelopment.
Investment Category	System Access

02. Additional Information	**Branch Plant**	815 Addiscott Service Centre
	Units	1
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Meeting Growing Electricity Demand
	Alectra Grouping	Road Authority
	Alectra Subcategory	Road Authority
	Contributed Capital	*Entered Manually in Forecast
	Expenditure Type	Non-Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	Alectra Utilities has a regulatory obligation to connect customers to its distribution system. In addition to connections for energy, demand customers and distributed generation (DG) customers, system modifications may be required where conflicts arise with existing facilities due to Road Authority requests. Road Authority projects are non-discretionary and are a requirement of the Public Service Works on Highways Act R.S.O. 1990, CHAPTER P.49. These investments are required for Alectra Utilities to maintain a valid Distribution license with the OEB (as required by the Distribution System Code). Projects must be completed in accordance with Road Authority timeline requirements.
	Customer Attachment / Load (KVA)	Not Applicable.

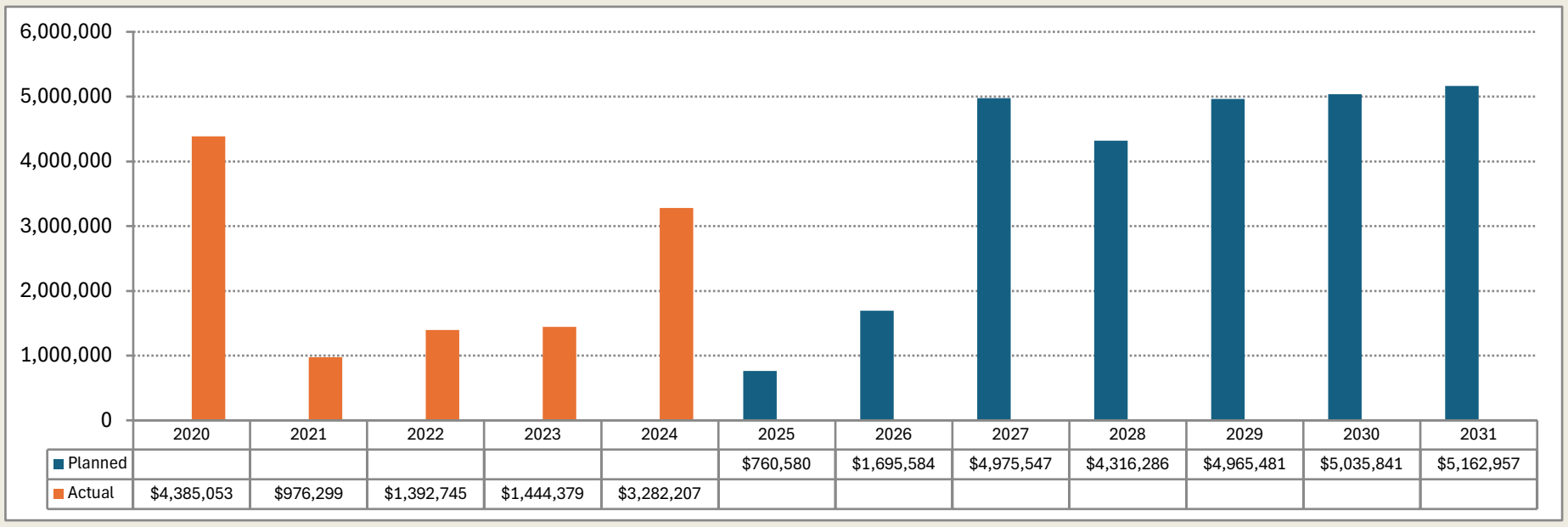
Material Investments Report

Project Code	101762	
Project Name	Road Authority Projects- East South	
	Safety	The relocation of Alectra Utilities' Distribution System needs to be completed prior to any road work commencing. This is necessary as there are Ministry of Labour requirements on single contractors on site as well as space/time requirements. These investments are designed based on Alectra Utilities' current standards and are installed using the latest procedures which provide for public and worker safety. In some cases, the relocation of the distribution system may be required to maintain safety clearances.
	Cyber-Security, Privacy	Not Applicable.
	Coordination, Interoperability	Construction timing will be coordinated with Road Authority requirements and includes coordination with other impacted utilities and customers.
	Economic Development	By investing in road authority projects, Alectra Utilities is supporting and servicing economic growth in Alectra Utilities service territories.
	Environmental Benefits	Not Applicable.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	The status quo is to continue to perform work on the distribution system, when required by Road Authorities in accordance with the OEB Distribution System Code, Alectra Utilities' Conditions of Service and the Public Service Works on Highways Act (PSWHA).
	Alternative #1	The first alternative is for Alectra to not perform the relocations and breach the requirements of the PSWHA. There would be legal and financial repercussions. This is not a viable alternative.
	Alternative #2	The second alternative would be for Alectra Utilities to perform work on the distribution system when Alectra Utilities has funding and resources available. This is not a viable alternative.
	Alternative #3	N/A
	Alternative #4	N/A
	Justification for Recommended Alternative	NWS and CDM were considered but they were determined not to be feasible options. The Regions and local Municipalities require Alectra Utilities to relocate the distribution system to accommodate road works. These projects are non-discretionary as the scope and timing are determined by the Road Authorities. Status quo is the recommended alternative as it meets Road Authorities' expectations, maintains compliance with the PSWHA, Distribution System Code and Alectra Utilities' distribution license. If Alectra Utilities were to relocate the existing overhead line after the proposed road works were commenced or completed, existing structures may be in conflict with construction activities and proposed lanes of traffic, or with the newly installed structures and sub-surface facilities. It would result in higher costs and introduce safety issues.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	The timing, scope and schedule of a Road Authority relocation project is non-controllable and is based on the project being advanced or deferred within a calendar year based on various constraints such as the Road Authority's budget, political pressures, new or delayed economic development, changes in traffic flow, etc. Designs can be changed/ modified through the 30/60/90 design and construction lifecycle based on input from the Road Authority, changes in their design methodology and specifications, and other utilities' input. Alectra Utilities reviews the impact of any changes at each stage.
	Comparative Information on Equivalent Historical Projects (if any)	Aggregated average annual historical expenditures by region were used to forecast the expenditures for unspecified projects and known projects below VLP threshold. Cost sharing follows PSWHA. Historically, this results in 35% contributed capital and 65% net amounts for Alectra Utilities.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code 101762

Project Name Road Authority Projects- East South



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$760,580	$1,695,584	$4,975,547	$4,316,286	$4,965,481	$5,035,841	$5,162,957
Actual	$4,385,053	$976,299	$1,392,745	$1,444,379	$3,282,207							

Material Investments Report

Project Code	150630
Project Name	New Residential Subdivision and Condo Tower Development - Alectra Central North
Project Description	This investment is for the expenditures that Alectra Utilities must provide to support the development community that construct residential and condominium tower subdivisions. This investment involves the installation of a new underground Electrical Distribution System (EDS) in greenfield developments, comprising primary (high voltage) cables, transformers, meters, secondary (low voltage) service cables, switchgears, and poles as needed. This infrastructure enables new residential developments, including detached, semi-detached, and townhouses, to access electricity, while also providing a supply point for electricity to condominium towers in new developments. These investments are required for Alectra Utilities to maintain a valid Distribution license with the OEB (as required by the Distribution System Code). Projects must be completed in accordance with Customer timeline requirements and align with the Conditions of Service.
Investment Category	System Access

02. Additional Information	**Branch Plant**	805 Sandalwood Service Centre
	Units	
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Meeting Growing Electricity Demand
	Alectra Grouping	Customer Connections
	Alectra Subcategory	Subdivisions
	Contributed Capital	*Entered Manually in Forecast
	Expenditure Type	Non-Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	These investments facilitate connections to the existing distribution system based on requests from the development community. These projects are initiated externally, and Alectra Utilities is mandated to provide an Offer to Connect for connection in compliance with the Distribution System Code, which includes applying the Economic Evaluation Model. Failure to comply would constitute a violation of Alectra Utilities' distribution license.

Material Investments Report

Project Code		150630
Project Name		New Residential Subdivision and Condo Tower Development - Alectra Central North
	Customer Attachment / Load (KVA)	The connected and demand kVA load is a forecast based on the following considerations: Average number of connections = 1800 Transformer size = 100 kVA Number of services attached to a 100 kVA transformer = 12 Transformer Load Factor = 40% Calculations: 1800 connections / 12 services = 150 transformers 150 transformers x 100 kVA transformer size = 15,000 kVA 15,000 kVA * 40% LF = 6,000 kVA Connected Load = 15,000 kVA Demand Load = 6,000 kVA For the case of new Residential condo towers, the service connections are prepared by Alectra Utilities' Institutional/Commercial/Industrial (ICI) department. Refer to Alectra Utilities' Institutional/Commercial/Industrial (ICI) department budget for connected and demand load.
	Safety	These investments are designed based on Alectra Utilities' current standards and are installed using the latest procedures which provide for public and worker safety.
	Cyber-Security, Privacy	Cyber-Security and Privacy are not applicable to this project
	Coordination, Interoperability	Alectra Utilities will coordinate construction with the developers, home builders, applicable regulatory authorities and all other affected utilities.
	Economic Development	Alectra Utilities ensures that all policies and practices do not intentionally create barriers to economic development within affected communities. This investment supports the economic growth and jobs that residential connections create for the region.
	Environmental Benefits	Newly installed transformers within subdivision developments utilize biodegradable oil for cooling.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Status quo would be to not invest in building the EDS to service new subdivision developments. Because this would result in breaching the Distribution System Code and Alectra Utilities' distribution licence, there would be serious repercussions with the regulator.
	Alternative #1	The first alternative is to continue to invest in building the EDS to service institutional, commercial and industrial subdivisions for new customers based solely on historical values. This alternative is in compliance with the OEB Distribution System Code and Alectra Utilities' Conditions of Service. These investments must be completed to provide capacity to connect new customers.
	Alternative #2	The second alternative is to continue to invest in building the EDS to service residential subdivisions and condominium towers for new customers. The budgets for Alternative #2 are based on historical values, and incorporate an annual escalation rate that increases by 1% every year (e.x: 1% in the first year, 2% in Year 2, 3% in Year 3, etc.). This alternative is in compliance with the OEB Distribution System Code and Alectra Utilities' Conditions of Service. These investments must be completed to provide capacity to connect new customers.
	Alternative #3	The third alternative is to continue to invest in building the EDS to service residential subdivisions and condominium towers for new customers. The budgets for Alternative #3 are based on historical values, and incorporate a 1% annual increase for residential lots, and forecasted high-rise condominium quantities based on planned future projects. This alternative is in compliance with the OEB Distribution System Code and Alectra Utilities' Conditions of Service. These investments must be completed to provide capacity to connect new customers.
	Alternative #4	The fourth alternative would be to use non wires solution such as DER/DR. However this project is to connect new greenfield developments that have no connected capacity to curtail and require new connection to deliver firm capacity for the developments.

Material Investments Report

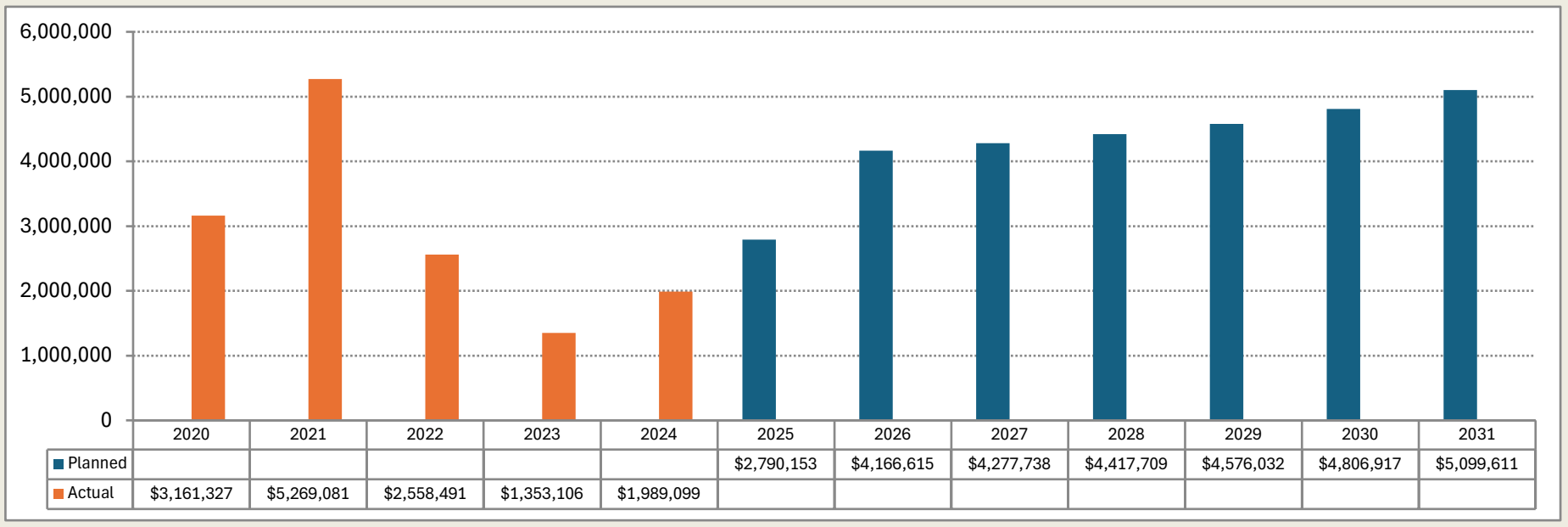
Project Code 150630
Project Name New Residential Subdivision and Condo Tower Development - Alectra Central North

	Justification for Recommended Alternative	Alternative #3 is the recommended alternative as it incorporates anticipated future outlooks while maintaining compliance with the Distribution System Code and Alectra Utilities' distribution license.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	The completion of New Subdivision Residential projects hinges on an array of risk factors, each managed through diligent planning and strategic foresight. Alectra Utilities acknowledges the following risks and has established corresponding mitigation strategies: Labor Availability: Cultivating a pool of reliable contractors and labor resources, providing competitive terms, and implementing workforce development programs. Regulatory and Compliance Changes: Keeping abreast of regulatory changes, engaging in advocacy where appropriate, and incorporating regulatory lead times into project schedules. Stakeholder Engagement: Establishing robust communication plans to keep all stakeholders informed and engaged, thus minimizing resistance and ensuring alignment. Project Management: Utilizing best-practice project management methodologies, ensuring cross-departmental coordination, and scheduling regular progress assessments. Contractual Liabilities: Instituting thorough contract reviews, defining clear performance criteria, and establishing dispute resolution mechanisms. Operational Disruptions: Designing phased implementation schedules to minimize impact on ongoing operations, with rapid response plans for unexpected disruptions. In light of these varied risks, Alectra Utilities' approach is to prioritize proactive engagement, adaptive planning, and continuous monitoring to ensure project resilience and timely completion.
	Comparative Information on Equivalent Historical Projects (if any)	The recommended alternative is alternative #3. The historical spending for New Subdivisions includes both residential and condo developments, and is based on the costs in the Offer to Connects provided to the developers. The actual spending incurred during a given year can differ from the number of connections in that year due to Developer driven energization timelines. Furthermore, the connections can occur anytime during the connection horizon agreed to in the Offer to Connect. Since 2022, there has been a shift towards intensification and increased activity in new high density condominium construction within Alectra Utilities' service area. This shift has changed the method for forecasting future New Residential Subdivision expenditures. The forecast is now comprised of: • Residential Subdivisions (single family houses, townhouses, semi detached, etc.), for which Alectra Utilities used the average historical volumes and pricing to forecast future expenditures for residential subdivisions, with a 1% annual increase in volumes. For this category, the average gross unit cost expenditures from 2022 to 2024 were used as a baseline to forecast future expenditures beginning in 2025. The forecasts are adjusted for annual inflation increases beyond that point. • High Rise Condominium buildings are forecasted based on the proposed developments noted in Appendix B13 - Stations Capacity. Alectra Utilities believes that the total number of developments indicated may not be fully realized within the DSP period, and as such, the volume has been slightly reduced from 2027 to 2031. For this category, the average gross unit cost expenditures from 2022 to 2024 were used as a baseline to forecast future expenditures beginning in 2025. The forecasts are adjusted for annual inflation increases beyond that point.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code 150630

Project Name New Residential Subdivision and Condo Tower Development - Alectra Central North



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$2,790,153	$4,166,615	$4,277,738	$4,417,709	$4,576,032	$4,806,917	$5,099,611
Actual	$3,161,327	$5,269,081	$2,558,491	$1,353,106	$1,989,099							

Material Investments Report

Project Code	150354
Project Name	Voltage Conversion - Eastmount MS, Hamilton
Project Description	This investment is addressing the renewal of assets served by Eastmount MS in Hamilton. Currently the station supplies 5812 customers at a primary voltage of 4kV from an indoor municipal substation. The customers are a mix of residential and commercial, among which are several elementary schools, secondary schools and churches. As part of the renewal of feeder assets, the equipment will be replaced with similar equipment rated for 13.8kV. The existing feeder assets are of a 1950's vintage and have minimal tie points. There are some feeders from these stations which feature rear-lot construction, and generally the overhead construction is on deteriorating cross-arms. By completing this renewal, it will allow the municipal substation assets to be bypassed, thereby avoiding the cost to refurbish station assets in the future. Furthermore, by bundling the voltage conversion along with the renewal of rear lot assets, greater cost efficiencies can be gained.
Investment Category	System Renewal

02. Additional Information	**Branch Plant**	820 Nebo Service Centre
	Units	0
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Renewing and Replacing Infrastructure
	Alectra Grouping	Overhead Asset Renewal
	Alectra Subcategory	Voltage Conversion
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	This project mainly addresses deteriorated and obsolete assets at the station and on the feeders by performing a renewal of the assets and converting the voltage to a higher class, thereby avoiding any future costs in upgrading the municipal substation and associated equipment. The asset condition assessment indicate that the Switchgear is in Fair condition and the breakers are in Poor or Very Poor condition. The priority assets determining the voltage conversion are the substation assets as failure of a critical component, such as the switchgear bus, can cause a major outage for an extensive timeframe impacting a large number of customers. Furthermore due to system design and legacy construction practices, feeder redundancy is minimal and loss of a station would result in stranded load and increased cost as generators would be required The legacy substation equipment is - No longer supported by the manufacturer - Parts are difficult to come by or must be custom made - Difficult or costly to maintain - Functional and Operational Obsolescence (e.g. safety restrictions on operation circuit breakers) - Unable to meet current safety standards (e.g., switchgears that are not arc resistant) - Introduces challenges to meet current performance standards Feeder Assets Since there is large population of feeder assets, the condition of feeder assets is diverse. While the overall condition shows the average, diverse populations mask the impact of individual deteriorated assets. If the Voltage Conversion projects were not to proceed, significant renewal investments would still be required to renew these deteriorated assets as part of the Overhead Renewal investment.

Material Investments Report

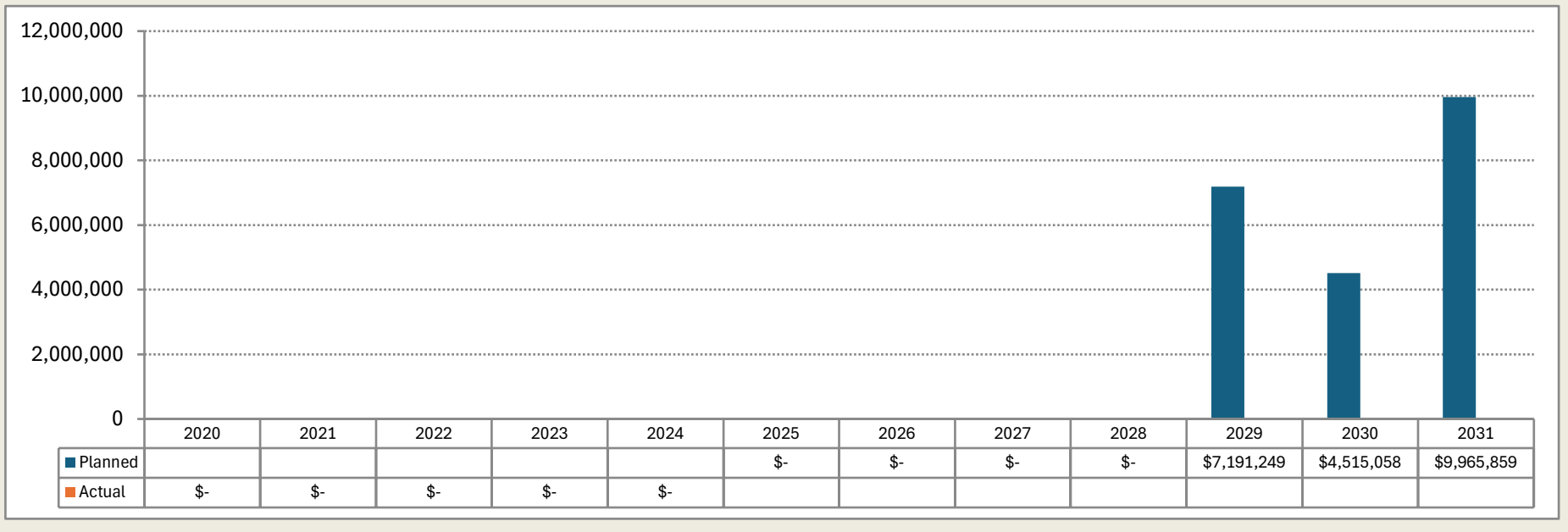
Project Code	150354
Project Name	Voltage Conversion - Eastmount MS, Hamilton

	Customer Attachment / Load (KVA)	20,348 kVA and 5812 customers.
	Safety	Alectra Utilities is required to ensure its distribution system can support projected load growth while maintaining reliability and quality of service for customers on both a short-term and long-term basis, as required by the Distribution System Code (DSC). Alectra Utilities must also connect new customers within the timelines prescribed by the OEB's service quality standards without adversely affecting the quality and safety of service to existing customers. This investment ensures that both of these requirements can be met and that the distribution system can safely distribute the required capacity.
	Cyber-Security, Privacy	Not applicable.
	Coordination, Interoperability	New construction built to current standards, coordination with joint-use tenants, coordination with the municipality.
	Economic Development	Not applicable.
	Environmental Benefits	Supports reducing line losses due to conversion to higher voltage class.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Under the status quo option, Alectra Utilities would only replace these legacy assets should they fail reactively. Under this scenario, there would be no opportunity to convert these assets to the standardized voltage levels, as assets would have to be replaced in a like-for-like manner. Replacing assets reactively tends to lead to the highest per-unit cost, and greatest impact to customer outage times. Furthermore, the reliability and safety risks associated with this infrastructure would continue to persist. Alectra Utilities would also be required to continue to maintain, and possibly replace or upgrade the legacy substations that supply these lower voltage levels, as the breaker assets have reached functional obsolescence and there are no parts available.
	Alternative #1	Like-for-like replacement of existing assets with new assets at the same voltage ratings. Under the like-for-like replacement option, existing 4.16 kV infrastructure would be replaced with 4.16 kV infrastructure. This approach is very similar to the status quo option, with the exception that customer outages can be avoided by replacing assets before they fail. By planning ahead to perform the replacements, the added benefit of like-for-like over the status quo is lower per-unit costs given that multiple assets can be addressed at a time. However, by keeping these system voltages intact, the functional obsolescence issues associated with these assets will continue to persist and eventually significant substation investments will be required. Should a future outage occur, it would likely be longer and create a larger customer impact, due to the lack of contingency options available at these voltage levels.
	Alternative #2	Full conversion of the lines to new 13.8 kV primary system voltages This alternative proposes to renew the assets in the area while also proceeding with voltage conversion to a higher voltage class for the equipment. Other benefits include taking the opportunity to redesign the feeder configuration to promote enhanced reliability where possible by creating loops where none exist today as well as converting rear lot supply to front lot. This alternative also provides value in the form of avoided costs to rebuild the existing 4kV substation assets.
	Alternative #3	Not applicable
	Alternative #4	Not applicable
	Justification for Recommended Alternative	CDM and NWS were considered but they were determined not to be feasible options. Like-for-like or reactive replacement does not prove to be as economical on a large scale renewal project with numerous assets affected. 13.8kV equipment are standard stock items in many cases and can result in savings over the 4kV equivalent. Upgrading the voltage of substation assets supports line loss reductions and improvements to the system configuration for greater operability and reliability. As such, this alternative provides the greatest value to customers.

Material Investments Report

Project Code	150354
Project Name	Voltage Conversion - Eastmount MS, Hamilton

07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Not applicable.
	Comparative Information on Equivalent Historical Projects (if any)	Historical projects that compare would be from other similar voltage conversion projects undertaken as part of the 4kV/8kV Renewal Program.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$-	$-	$-	$-	$7,191,249	$4,515,058	$9,965,859
Actual	$-	$-	$-	$-	$-							

Material Investments Report

Project Code	150588
Project Name	New Residential Subdivision and Condo Tower Development - Alectra West
Project Description	This investment is for the expenditures that Alectra Utilities must provide to support the development community that construct residential and condominium tower subdivisions. This investment involves the installation of a new underground Electrical Distribution System (EDS) in greenfield developments, comprising primary (high voltage) cables, transformers, meters, secondary (low voltage) service cables, switchgears, and poles as needed. This infrastructure enables new residential developments, including detached, semi-detached, and townhouses, to access electricity, while also providing a supply point for electricity to condominium towers in new developments. These investments are required for Alectra Utilities to maintain a valid Distribution license with the OEB (as required by the Distribution System Code). Projects must be completed in accordance with Customer timeline requirements and align with the Conditions of Service.
Investment Category	System Access

02. Additional Information	**Branch Plant**	820 Nebo Service Centre
	Units	
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Meeting Growing Electricity Demand
	Alectra Grouping	Customer Connections
	Alectra Subcategory	Subdivisions
	Contributed Capital	*Entered Manually in Forecast
	Expenditure Type	Non-Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	These investments facilitate connections to the existing distribution system based on requests from the development community. These projects are initiated externally, and Alectra Utilities is mandated to provide an Offer to Connect for connection in compliance with the Distribution System Code, which includes applying the Economic Evaluation Model. Failure to comply would constitute a violation of Alectra Utilities' distribution license.

Material Investments Report

Project Code		150588
Project Name		New Residential Subdivision and Condo Tower Development - Alectra West
	Customer Attachment / Load (KVA)	The connected and demand kVA load for new residential connections is a forecast based on the following criteria: Average number of connections = 2800 Transformer size = 100kVA Number of services attached to transformers = 10 to 12 Transformer Load Factor = 40% _____ Average calculations based on 2,800 connections: 2,800 connections / 10 services = 280 transformers 280 transformers x 100kVA transformer size = 28,000kVA 28,000kVA * 40% LF = 11,200kVA Connected Load = 28,000kVA Demand Load = 11,200kVA _____ For the case of new Residential condo towers, the service connections are prepared by Alectra Utilities' Institutional/Commercial/Industrial (ICI) department. Refer to Alectra Utilities' Institutional/Commercial/Industrial (ICI) department budget for connected and demand load.
	Safety	These investments are designed based on Alectra Utilities' current standards and are installed using the latest procedures which provide for public and worker safety.
	Cyber-Security, Privacy	Cyber-Security and Privacy are not applicable to this project
	Coordination, Interoperability	Alectra Utilities will coordinate construction with the developers, home builders, applicable regulatory authorities and all other affected utilities.
	Economic Development	Alectra Utilities ensures that all policies and practices do not intentionally create barriers to economic development within affected communities. This investment supports the economic growth and jobs that residential connections create for the Region.
	Environmental Benefits	Newly installed transformers within subdivision developments utilize biodegradable oil for cooling.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	Status quo would be to not invest in building the EDS to service new subdivision developments. Because this would result in breaching the Distribution System Code and Alectra Utilities' distribution licence, there would be serious repercussions with the regulator. This is not a viable alternative.
	Alternative #1	The first alternative is to continue to invest in building the EDS to service institutional, commercial and industrial subdivisions for new customers based solely on historical values. This alternative is in compliance with the OEB Distribution System Code and Alectra Utilities' Conditions of Service. These investments must be completed to provide capacity to connect new customers.
	Alternative #2	The second alternative is to continue to invest in building the EDS to service residential subdivisions and condominium towers for new customers. The budgets for Alternative #2 are based on historical values, and incorporate an annual escalation rate that increases by 1% every year (e.g: 1% in the first year, 2% in Year 2, 3% in Year 3, etc.). This alternative is in compliance with the OEB Distribution System Code and Alectra Utilities' Conditions of Service. These investments must be completed to provide capacity to connect new customers.
	Alternative #3	The third alternative is to continue to invest in building the EDS to service residential subdivisions and condominium towers for new customers. The budgets for Alternative #3 are based on historical values, and incorporate a 1% annual increase for residential lots, and forecasted high-rise condominium quantities based on planned future projects. This alternative is in compliance with the OEB Distribution System Code and Alectra Utilities' Conditions of Service. These investments must be completed to provide capacity to connect new customers.

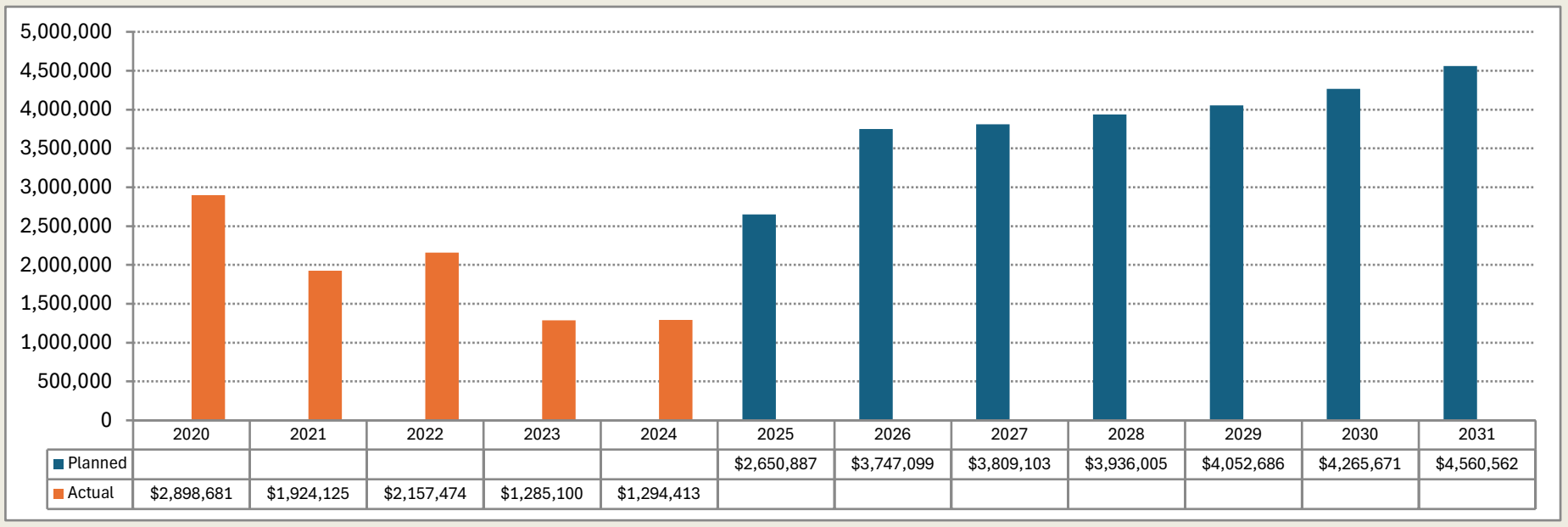
Material Investments Report

Project Code	150588	
Project Name	New Residential Subdivision and Condo Tower Development - Alectra West	
	Alternative #4	The fourth alternative would be to use non wires solution such as DER/DR. However this project is to connect new greenfield developments that have no connected capacity to curtail and require new connection to deliver firm capacity for the developments.
	Justification for Recommended Alternative	Alternative #3 is the recommended alternative as it incorporates anticipated future outlooks while maintaining compliance with the Distribution System Code and Alectra Utilities' distribution license.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	The completion of New Subdivision Residential projects hinges on an array of risk factors, each managed through diligent planning and strategic foresight. Alectra Utilities acknowledges the following risks and has established corresponding mitigation strategies: Labor Availability: Cultivating a pool of reliable contractors and labor resources. Regulatory and Compliance Changes: Keeping abreast of regulatory changes and incorporating regulatory lead times into project schedules. Stakeholder Engagement: Establishing robust communication plans to keep all stakeholders informed and engaged, thus minimizing resistance and ensuring alignment. Project Management: Utilizing best-practice project management methodologies, ensuring cross-departmental coordination, and scheduling regular progress assessments. Contractual Liabilities: Instituting thorough contract reviews, defining clear performance criteria, and establishing dispute resolution mechanisms. Operational Disruptions: Designing phased implementation schedules to minimize impact on ongoing operations, with rapid response plans for unexpected disruptions. In light of these varied risks, Alectra Utilities' approach is to prioritize proactive engagement, adaptive planning, and continuous monitoring to ensure project resilience and timely completion.
	Comparative Information on Equivalent Historical Projects (if any)	The recommended alternative is alternative #3. The historical spending for New Subdivisions includes both residential and condo developments, and is based on the costs in the Offer to Connects provided to the developers. The actual spending incurred during a given year can differ from the number of connections in that year due to Developer driven energization timelines. Furthermore, the connections can occur anytime during the connection horizon agreed to in the Offer to Connect. Since 2022, there has been a shift towards intensification and increased activity in new high density condominium construction within Alectra Utilities' service area. This shift has changed the method for forecasting future New Residential Subdivision expenditures. The forecast is now comprised of: • Residential Subdivisions (single family houses, townhouses, semi detached, etc.), for which Alectra Utilities used the average historical volumes and pricing to forecast future expenditures for residential subdivisions, with a 1% annual increase in volumes. For this category, the average gross unit cost expenditures from 2022 to 2024 were used as a baseline to forecast future expenditures beginning in 2025. The forecasts are adjusted for annual inflation increases beyond that point. • High Rise Condominium buildings are forecasted based on the proposed developments noted in Appendix B13 - Stations Capacity. Alectra Utilities believes that the total number of developments indicated may not be fully realized within the DSP period, and as such, the volume has been slightly reduced from 2027 to 2031. For this category, the average gross unit cost expenditures from 2022 to 2024 were used as a baseline to forecast future expenditures beginning in 2025. The forecasts are adjusted for annual inflation increases beyond that point.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code 150588

Project Name New Residential Subdivision and Condo Tower Development - Alectra West



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$2,650,887	$3,747,099	$3,809,103	$3,936,005	$4,052,686	$4,265,671	$4,560,562
Actual	$2,898,681	$1,924,125	$2,157,474	$1,285,100	$1,294,413							

Material Investments Report

Project Code	150366
Project Name	Webb MS New 20 MVA Substation
Project Description	The City of Mississauga's intensification plans are focused on several areas including the downtown Mississauga core. Mississauga downtown core is supplied by 44/13.8kV system. The 44kV stations (Erindale and Tomken) are owned by HONI which step down the voltage to 13.8kV. Currently, there are approximately 75 buildings in the Downtown Core and three substations, which are Woods MS, Confederation MS, and City Centre MS. These substations are equipped with either two or three power transformers, and most of their capacity is dedicated to supply the existing load in the Downtown Core. In addition, John MS, located on Hurontario Street near John Street, also provides power to the Downtown 21 master plan area, especially to Mississauga Valley and Sussex districts. The total connected transformation in the Downtown Core is approximately 130MVA. The current capacity available for all districts of the Downtown 21 masterplan is about 160MVA ONAN/266MVA ONAF. Available capacity allows for short-term growth and N-1 contingency in the Downtown Core. Based on the proposed model and Master Plan provided by the City, it is estimated that upon completion of Mississauga's Downtown 21 plan, the combined transformation will increase to approximately 300MVA. 45MVA of new projects are in various stages of construction and energization. The total projected calculated peak demand for 45MVA of connected developments is estimated to be 35MVA. A new station is required to connect the developments in the downtown core. The project entails constructing a new station Webb MS 44/13.8kV station which will have 2 x20MVA transformers and 10 feeder positions. Alectra Utilities will have to expand its infrastructure in the Downtown Core and increase the number of substations to reliably supply power to all the buildings
Investment Category	System Service

02. Additional Information	**Branch Plant**	800 Mavis Service Centre
	Units	0
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Meeting Growing Electricity Demand
	Alectra Grouping	Capacity (Stations)
	Alectra Subcategory	Station Capacity Projects
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable

Material Investments Report

Project Code	150366
Project Name	Webb MS New 20 MVA Substation

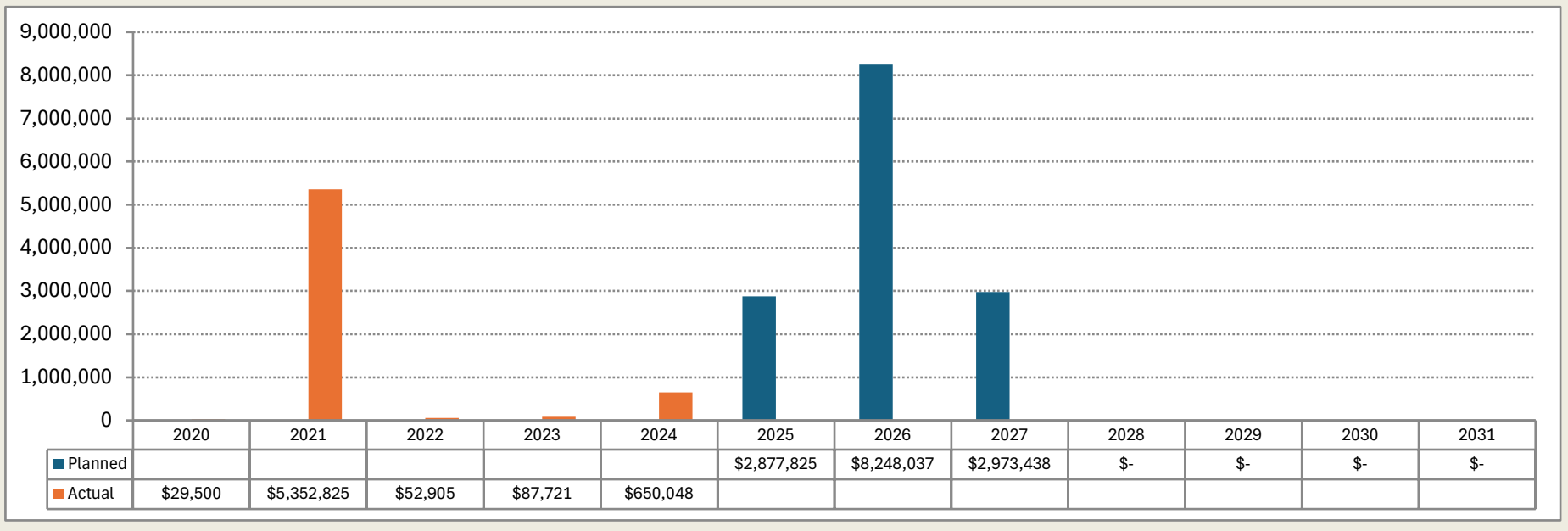
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	The Downtown Core is supplied by both underground (UG) and overhead (OH) distribution systems that provide the power to residential and commercial customers. The power is supplied to the Downtown Core through a 13.8kV distribution system being fed from five Municipal Stations. The distribution system in the Downtown Core is supplied by more than two dozen underground and overhead feeders that are interconnected with multiple tie connections to provide reliable power with redundancy capability using the loop feed configuration. The current capacity available for all districts of Downtown 21 is about 160MVA ONAN/266MVA ONAF. Available capacity allows for short-term growth and N-1 contingency in the Downtown Core. Based on the proposed model and Master Plan provided by the City, it is estimated that upon completion of Downtown 21, the combined transformation will increase to approximately 300MVA. With the load growth, John MS will be over 127% of ONAN and in a contingency situation, there is not enough capacity on the remaining stations to pick up the potential additional loading based on feeder ties. City Center MS has capacity; however, load cannot be transferred to it due to the existing underground infrastructure as Alectra Utilities cannot expand new the feeders from that station. New feeder breakers are required to connect new buildings which will be constructed and come online in the Downtown Core. New feeder breakers are required to connect new buildings which will be constructed and come online in the Downtown Core.
	Customer Attachment / Load (KVA)	45MVA of new projects are in various stages of construction and energization. The total projected calculated peak demand for 45MVA of connected developments is estimated to be 35MVA. An additional 38 projects are in the site plan application stage which are expected to be energized within a 10-year window with the forecasted peak demand of 70MVA.
	Safety	Not Applicable
	Cyber-Security, Privacy	Not Applicable
	Coordination, Interoperability	Capacity investments also enable improved coordination and integration of Distributed Energy Resources (DERs) such as rooftop solar, battery storage, and demand response technologies. By upgrading system infrastructure, Alectra Utilities can support greater two-way power flows and enhance grid interoperability, allowing DERs to be actively managed as part of the distribution system. This promotes improved reliability, optimizes system performance, and aligns with evolving industry standards for a more flexible and resilient grid.
	Economic Development	This investment will allow new condos development and support the housing development.
	Environmental Benefits	Investing in distribution system capacity enhances climate resilience by enabling the integration of cleaner, low-carbon energy sources and strengthening the grid's ability to withstand and adapt to extreme weather events linked to climate change.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	This option is to maintain the status quo and continue to supply from existing infrastructure. The status quo would be to do nothing and overload existing transformer stations and feeders beyond their normal ratings. There is no cost to the status quo however there may be anticipated cost in case the equipment fails when it is run in overloaded condition. There is no capacity without operating over the planned limits. From a regulatory point of view, Alectra Utilities is obligated to serve the load. Alectra Utilities' customer will be at the increased risks of longer service disruptions given the status quo. If adequate backup facilities are not available during contingency conditions, there is a strong probability that not all of the load could be serviced.
	Alternative #1	This option is add another transformer at John MS site. The John MS site has sufficient space for the installation of an additional transformer. However, the new feeders coming out of the substation cannot be extended north to the Downtown Core due to existing infrastructure and considering future projects, including the LRT along Hurontario Street.

Material Investments Report

Project Code 150366

Project Name Webb MS New 20 MVA Substation

	Alternative #2	This option is to utilize Non Wires Alternative such as DER/DR. Alectra Utilities load forecast considers CDM and DG. The need is to energize largely new condos green-field developments in the downtown core load that have no connected load to curtail. The new development will require new feeders to deliver firm power supply to the new developments. A BESS option to supplement capacity of 20MW, 80MWh would require approximately 1.5 acres of land and would cost $35MM. Hence this option is rejected.
	Alternative #3	This option is to build a new station Webb MS with 2 X20MVA transformer and 10 feeder position. This is the recommended alternative.
	Alternative #4	Not Applicable.
	Justification for Recommended Alternative	45MVA of new projects are in various stages of construction and energization. The total projected calculated peak demand for 45MVA of connected developments is estimated to be 35MVA. An additional 38 projects are in the site plan application stage which are expected to be energized within a 10-year window with the forecasted peak demand of 70MVA. Based on growth projection and existing infrastructure to connect new buildings, one additional MS is required in near term. At completion the Webb MS will house 2x20MVA power transformer, two high voltage switchgear, two low voltage switchgear units, and ten 13.8kV feeder breaker. With this new station new feeder positions will be available for connecting new condos and providing additional feeder ties with the existing system. This will help maintain contingency capacity and ensure supply to downtown core.
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	The major risk to the project would be obstacles in obtaining land in the downtown core. However, Alectra Utilities has acquired the land for the Webb MS under a land swap agreement with the developer.
	Comparative Information on Equivalent Historical Projects (if any)	York MS
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$2,877,825	$8,248,037	$2,973,438	$-	$-	$-	$-
Actual	$29,500	$5,352,825	$52,905	$87,721	$650,048							

Material Investments Report

Project Code	101488
Project Name	Build Markham TS #5
Project Description	This investment is to support the completion of the construction of the new station Markham TS5, as identified by the Independent Electricity System Operator's (IESO) Regional Resource Planning Process (IRRP) completed in 2020. Alectra Utilities' load forecast indicates that the transformation capacity of the distribution system in the Markham/Richmond Hill area will be exceeded by 2028. The new station will have 230/27.6kV DESN with 230DESN with 2x125MVA transformers and twelve 27.6kV feeder breakers. It will provide 170 MVA new supply capacity to Markham/Richmond Hill area.
Investment Category	General Plant

02. Additional Information	**Branch Plant**	815 Addiscott Service Centre
	Units	1
	Does this Project include R&D?	No
	Will this Project generate ongoing IT OM&A Costs?	No
03. Project Management Office Information	**Is this a Technology Project or does it have a Technology Component?**	No
04. General Project Information (OEB)	**DSP Investment Theme**	Meeting Growing Electricity Demand
	Alectra Grouping	Connection & Cost Recovery Agreements
	Alectra Subcategory	CCRA Payments
	Contributed Capital	Contributed Capital 0%
	Expenditure Type	Controllable
05. Evaluation Criteria (OEB)	**Urgency and Reasons for Urgency**	The existing station capacity and feeder breakers at MTS4 and Buttonville TS will be used up by 2027. All existing feeders are at their capacity and have no capacity for future development. Some feeders have low voltage issues during summer peak time due to high loading and long supply distance. The existing feeders supplying Markham and Richmond Hill north don't have sufficient capacity for future growth. As of 2024, the area has a population of approximately 575,164, and 15,190 businesses with 259,858 employees. Between 2024 and 2033, Markham and Richmond Hill are projected to add approximately 47,430 residential units (32,672 units in Markham and 14,758 units in Richmond Hill) and 3.1 million square meters of commercial/industrial space (2.5 million square meter in Markham and 0.6 million square meters in Richmond Hill). The major developments in the area that are intended to be supplied by this project include: Markham Future Urban Area (FUA) The City of Markham is working on an Official Planning Amendment which expands the Urban Area of the City of Markham to both sides of Warden Ave to provide opportunities for urban growth to the year 2031. The north Markham Future Urban Area covers about 1,288 hectares (3,183 acres bordered by Major Mackenzie Drive to the south, the Hydro Corridor and Woodbine Avenue to the west, the northernly city limits and Elgin Mills Road to the north, and the Robinson Creek to the east. Approximately 675 hectares (1,668 acres) of developable lands are designated for future neighborhoods, located primarily between Major Mackenzie Drive and Elgin Mills Road. Approximately 300 hectares (741 acres) located north of Elgin Mills Road are designated for employment uses. In total,ff the Future Urban Area is intended to accommodate approximately 12,000 residential units with a population of approximately 38,000 persons, and approximately 19,000 jobs. It is expected approx. 60 MW of new loads are expected on both sides of Warden Ave north of Major Mackenzie Dr.

Material Investments Report

Project Code	101488	
Project Name	Build Markham TS #5	
		Three new 27.6kV feeders are required for the Future Urban Area expansion in Markham. The development of FUA is well underway: e.g., houses are being built in Berczy Glen Secondary plan area bounded by Elgin Mills Road to the north, Warden Ave to the east, Major Mackenzie Drive to the south and HONI corridor to the north. The Markham Innovation Exchange (MiX) The Mix will be Ontario's first innovation cluster that connects knowledge and production clusters. Located on 1,920 acres directly adjacent to Highway 404. The total estimated loading for the entire expansion is 120MW.
	Customer Attachment / Load (KVA)	Not applicable The station will support additional 170MVA of load growth in Markham and Richmond Hill Area.
	Safety	Not applicable
	Cyber-Security, Privacy	Not applicable
	Coordination, Interoperability	Capacity investments also enable improved coordination and integration of Distributed Energy Resources (DERs) such as rooftop solar, battery storage, and demand response technologies. By upgrading system infrastructure, Alectra Utilities can support greater two-way power flows and enhance grid interoperability, allowing DERs to be actively managed as part of the distribution system. This promotes improved reliability, optimizes system performance, and aligns with evolving industry standards for a more flexible and resilient grid.
	Economic Development	This project will provide supply capacity for development in north Markham and Richmond Hill.
	Environmental Benefits	Investing in distribution system capacity enhances climate resilience by enabling the integration of cleaner, low-carbon energy sources and strengthening the grid's ability to withstand and adapt to extreme weather events linked to climate change.
06. Qualitative and Quantitative Analysis of Project and Project Alternatives (OEB)	**Status Quo**	The status quo would be to do nothing and overload existing transformer stations and feeders beyond their normal ratings. There is no cost to status quo however there may be anticipated cost if equipment fails due to overloading. Running equipment beyond its rating could lead to failure and possibly cause injury to public or employees. Running equipment beyond it designed rating also reduces the life expectancy of that equipment. The existing transformer stations and feeders will experience over loading as the load grows. This will restrict the operational flexibility of transferring load between feeders and stations in case of problems on the distribution system. From a regulatory point of view, Alectra Utilities is obligated to serve the load. Alectra Utilities will be at the increased risks of longer service disruptions given the status quo. If adequate backup facilities are not available during contingency conditions, there is a strong probability that not all of the load could be serviced. If the TS is not built at all, there is a risk of not being able to meet new customer needs as well as increase the risk of the duration of outages to existing customers. Therefore, the status quo is not a viable alternative.
	Alternative #1	This option entails using DR/DER options. Alectra Utilities load forecast is net of CDM and DG. This station will support the greenfield developments in the Markham Future area. The need is to energize largely green-field developments that have no connected load to curtail so it is not possible to procure DER resources. The new development will require firm station capacity and new feeders to connect new customers in the Markham North area.

Material Investments Report

Project Code 101488

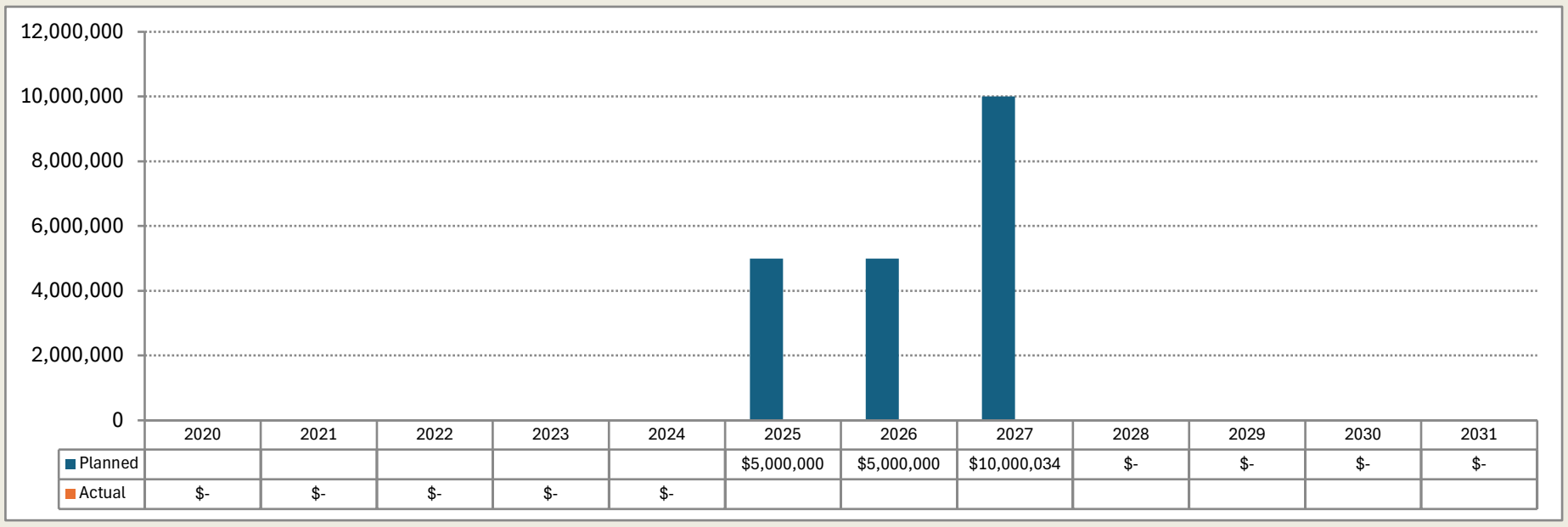
Project Name Build Markham TS #5

	Alternative #2	This option is to build a new DESN at the existing site at Buttonville. This option does not require land purchase and 230KV expansion. This is the recommended alternative.
	Alternative #3	This option is to build a new DESN in North Markham. This option will require extensive 230kV transmission system upgrade and not a feasible option to supply immediate expansions. Hence this option has been rejected.
	Alternative #4	Not applicable
	Justification for Recommended Alternative	In order to meet the forecast capacity deficiency in the summer of 2028, additional transformation and feeder capacity must be commissioned by the spring 2028. This project will provide supply capacity for development in Markham and Richmond Hill. No land purchase for this is required as the station will be inside existing Buttonville TS . The recommended alternative addresses long term growth (10 years) requirements for Markham and Richmond Hill. The recommended alternative is consistent with Alectra Utilities approved planning guidelines for Transformer Stations and Feeders. The new station will also promote enhanced reliability as it will allow for more feeder ties and backup options. System Capacity will increase by an additional 170 MVA. This will ensure additional load growth and customers can be served
07. General Information on the Project/Activity (OEB)	**Risks to Completion and Risk Management**	Alectra Utilities consulted with HONI about locating the new station at the Buttonville TS. There is sufficient space to construct a new 230/27.6KV 75/125MVA DESN.
	Comparative Information on Equivalent Historical Projects (if any)	Alectra Utilities has experience in entering into CCRAs with HONI for new Transformer Stations.
	Total Capital and OM&A Costs for Renewable Energy Generation portion of Projects (0 if not applicable)	0

Material Investments Report

Project Code 101488

Project Name Build Markham TS #5



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Planned						$5,000,000	$5,000,000	$10,000,034	$-	$-	$-	$-
Actual	$-	$-	$-	$-	$-							