

CI C0085226

101H-T62 Transformer Replacement

U&U

REDACTED

September 11, 2026





NSEB APPROVAL SHEET

Project Title: 101H-T62 Transformer Replacement

CI Number: C0085226

Date: September 11, 2026

Expenditure Profile			Type of Filing	
Year	Budget Amount	Project Estimate	☒	Capital Project Authorization
			☒	Unforeseen and Unbudgeted (U&U)
			☐	Planned & Advanced (P&A)
			☐	Subsequent Approval Item
2025	-	2,489,095	☐	Authorization to Overspend (ATO)
2026	-	443,907	☐	Scope Change
			☐	Final Cost (FIN)
Total	\$0	\$2,933,002		

COMMENTS

Submitted on behalf of NOVA SCOTIA POWER INCORPORATED

Approved on behalf of NOVA SCOTIA ENERGY BOARD

Authorized Signatory
Dave Pickles
Chief Operating Officer

DATE
September 11, 2026

DATE

CI Number: C0085226

Title: 101H-T62 Transformer Replacement

Start Date: 2025/08
In-Service Date: 2026/04
Final Cost Date: 2026/10
Function: Transmission
Forecast Amount: \$2,933,002

DESCRIPTION:

This project includes the replacement of the 101H-T62 transformer at the 101H Cobequid Road substation.

Summary of Related CIs +/- 2 years:

Pursuant to Section 11.2 of the CEJC, related CIs for Transmission include “Work completed on the same asset class (Padmount transformers, Breakers, etc.) or in the same location (feeder, Transmission Line).”

- 2026 - C0083465 – Replenish Spare Transformer - \$3,278,100
- 2026 - C0032382 – Susie Lake Substation Addition - \$8,256,386

Depreciation Class: Transmission Plant – Station Equipment

Retirement Information:

- Categorization of Retirement: Accounting Policy 6420 – Retirement and Disposal of Capital Assets
- Percentage of Asset Pool: 0.24%

Estimated Life of the Asset: 50-60 years

JUSTIFICATION:

Justification Criteria: Transmission

Why do this project?

This project is required to replace transformer assets at NS Power's 101H Cobequid Road substation due to the August 2025 failure of transformer 101H-T62. Replacement of this transformer was necessary to restore service at 101H.

In August 2025, transformer 101H-T62 at the 101H Cobequid Road Substation experienced an unexpected internal failure and was removed from service. Testing and inspection confirmed significant internal damage to the transformer windings. While a specific root cause could not be conclusively identified, the transformer's age (installed in 1979) and condition indicated that repair was not a practical option. A transformer, originally ordered for the Susie Lake Substation (C0032382) was able to be utilized as the replacement as the timelines of that project allow for a replacement transformer to be ordered.

Why do this project now?

This failure was unforeseen and required immediate action to restore transmission service at 101H. Delaying the replacement of the transformer would have increased the risks to system security and reliability for approximately 15,000 customers, including the prolonged reliance on a mobile substation transformer at 101H.

Why do this project this way?

Replacement of the transformer is the only practical option to restore service in a timely manner. Repairing the failed transformer was not a viable option, given the extensive winding damage confirmed by internal inspection and the absence of an identifiable, remediable failure mode. Long-term reliance on a mobile substation transformer is not desirable, as it renders the mobile unavailable for deployment to other system failures or maintenance requirements. Utilizing the transformer reassigned from the Susie Lake project allowed for service restoration as quickly as possible. Procurement of replacement spare transformers is consistent with NS Power's system sparing strategy and industry best practices, ensuring NS Power is prepared for unforeseen contingencies across the transmission fleet.

Contingency Statement

Consistent with the maturity matrix, this project is being filed as a Class 0 estimate with no contingency, as the project is largely complete, with final costing activities remaining.

Execution Year: 2025-2026

Description	Unit	Quantity	Unit Estimate	Total Estimate	Cost Support Reference	Completed Similar Projects (FP#s)
Regular Labour						
Engineering & Project Management	PD	25	\$ 452	\$ 11,424		
Substation Operations Personnel	PD	278	\$ 404	\$ 112,282		
Powerline Technician	PD	0.3	\$ 444	\$ 115		
		Sub-Total		\$ 123,820		
Overtime Labour						
Engineering & Project Management	PD	1	\$ 905	\$ 476		
Substation Operations Personnel	PD	56	\$ 808	\$ 45,406		
Powerline Technician	PD	3	\$ 889	\$ 2,462		
		Sub-Total		\$ 48,345		
Materials						
138-26.4kV, 25/33/42 MVA Transformer	Lot	1				
Transformer Spare Parts	Lot	1				
Contracts						
Civil Contruction - Transformer Pad Extension	Lot	1				
Civil Contruction - Oil Containment Extension	Lot	1	\$ 20,000	\$ 20,000		
Transformer Installation	Lot	1				
		Sub-Total				
Freight						
Transformer Freight	Lot	1				
Transformer Freight	Lot	1				
Travel Expense						
Meals	Lot	1	\$ 1,468	\$ 1,468		
			Sub-Total	\$ 1,468		
Vehicle Overhead						
Vehicle Labour AO	Lot	1	\$ 47,621	\$ 47,621		
			Sub-Total	\$ 47,621		
Interest Capitalized						
AFUDC	Lot	1	\$ 58,048	\$ 58,048		
			Sub-Total	\$ 58,048		
Administrative Overhead						
Labour AO	Lot	1	\$ 79,889	\$ 79,889		
Contractor AO	Lot	1	\$ 13,320	\$ 13,320		
		Sub-Total		\$ 93,210		
SUB-TOTAL (no AO, AFUDC)					\$ 2,734,123	
TOTAL (AO, AFUDC included)					\$ 2,933,002	
Original Cost					\$ 675,895	

Note 1: The labour figures noted above are an average of salaries across a variety of jobs within similar classifications including fringe, and are used solely for budgeting purposes.

Note 2: Small differences in totals are attributable to rounding.



Instructions: Select option in Column B.
Columns C through G will auto-populate.

Document No: XXX-XX-XXXX-XXXX

Project Cost Estimate Input Checklist and Maturity Matrix						
Transmission Line Infrastructure	Required fields:	Estimate Classification				
Project Name: 101H-T62 Transformer Replacement	Started or Preliminary	Class 5	Class 4	Class 3	Class 2	Class 1
Maturity Level of Project Definition Deliverables	Defined or Complete					
General Project Data						
A. Scope						
Project Scope of Work Description	Defined (D)	P	P	D	D	D
Site Infrastructure (Access, Construction Power, Camp, etc.)	Defined (D)	NR	P	D	D	D
B. Capacity						
Voltage (kV) and Circuits	Defined (D)	P	P	D	D	D
C. Project Location						
Not Applicable						
D. Requirements						
Codes and/or Standards	Defined (D)	NR	P	D	D	D
Environmental Monitoring	Defined (D)	NR	NR	P	P	D
E. Technology Selection						
Not Applicable						
F. Strategy						
Right-of-Way (ROW)	Not Applicable (NA)					
Contracting/Sourcing	Defined (D)	NR	P	D	D	D
Escalation	Not Applicable (NA)	NR				
G. Planning						
System/Grid Planning (including substation and interconnect locations)	Defined (D)	P	P	D	D	D
Logistics Plan	Defined (D)	P	P	P	D	D
Integrated Project Plan	Not Applicable (NA)	NR				
Project Code of Accounts	Defined (D)	NR	P	D	D	D
Project Schedule	Defined (D)	NR	P	D	D	D
Regulatory Approval & Permitting	Not Applicable (NA)	NR				
Risk Register	Not Applicable (NA)	NR				
Stakeholder Consultation/Engagement/Management Plan	Not Applicable (NA)	NR				
Work Breakdown Structure (WBS)	Not Applicable (NA)	NR				
Start-up & Commissioning Plan	Defined (D)	NR	P	P/D	D	D
H. Studies						
Routing Options	Not Applicable (NA)					
Topography & Bathymetry	Not Applicable (NA)					
Environmental Impact/Sustainability Assessment	Not Applicable (NA)	NR				
Environment/Existing Conditions	Defined (D)	NR	P	D	D	D
Meteorology and/or Oceanographic/Subsea	Not Applicable (NA)	NR				
Soils & Hydrology	Not Applicable (NA)	NR				
Technical Deliverables (Specifications and/or Drawings)						
Conductor, Insulator, Grounding, Joint Design (including protection for buried or subsea)	Complete (C)	S	P	C	C	C
Foundation/Structure (Tower) Design	Complete (C)	S	P	C	C	C
Route Mapping/Survey	Not Applicable (NA)					
Design Specifications	Complete (C)	NR	S/P	C	C	C
Instrument List	Complete (C)	NR	S/P	C	C	C
Construction Permits	Not Applicable (NA)	NR				
Geometric Layout, Alignment, Profile, Cross Section	Complete (C)	NR	S/P	P/C	C	C
Land/ROW Title Negotiation	Not Applicable (NA)	NR				
Civil/ Site/Structural/Architectural Discipline Drawings	Complete (C)	NR	S/P	P	C	C
Crossings and Borings Designs and Drawings	Not Applicable (NA)	NR				
Demolition Plans and Drawings	Not Applicable (NA)	NR				
Erosion Control Plan & Drawings	Not Applicable (NA)	NR				
Foundation/Structure (Tower) Discipline Drawings	Complete (C)	NR	S/P	P	C	C
Tower/Structure Location/Spotting	Not Applicable (NA)	NR				
Instrument Datasheets	Complete (C)	NR	NR/S	P	P/C	C
Electrical Discipline Drawings	Complete (C)	NR	NR	S/P	P/C	C
Instrumentation/Control System Discipline Drawings	Complete (C)	NR	NR	S/P	P/C	C
Total # Deliverables for this Project		6	18	22	22	22
% Defined/Complete towards Class Estimate		100%	100%	100%	100%	100%

Comments:

This project is being filed as a Class 0 estimate. The defined deliverables for this project indicate that 100% of Class 1 deliverables are completed. This project is complete; therefore, no contingency has been applied.

Legend:

The maturity level is an approximation of the completion status of the deliverable. The completion is indicated by the following descriptors:

General Project Data:

- Not Required (NR): May not be required for all estimates of the specified class, but specific project estimates may require at least preliminary development.
- Preliminary (P): Project definition has begun and progressed to at least an intermediate level of completion. Review and approvals for its current status has occurred.
- Defined (D): Project definition is advanced, and reviews have been conducted. Development may be near completion with the exception of final approvals.

Technical Deliverables:

- Not Required (NR): Deliverable may not be required for all estimates of the specified class, but specific project estimates may require at least preliminary development.
- Started (S): Work on the deliverable has begun. Development is typically limited to sketches, rough outlines, or similar levels of early completion.
- Preliminary (P): Work on the deliverable is advanced. Interim, cross-functional reviews have usually been conducted. Development may be near completion except for final reviews and approvals.
- Complete (C): The deliverable has been reviewed and approved as appropriate.

Inclusions:

For the purposes of this document, the term *power transmission line infrastructure industries* is assumed to include greenfield or brownfield sites for overhead, buried and submarine transmission of electrical power in the infrastructure industries. High voltage is typically >100kV but may be less (e.g., 33 or 66kV) if long distance with light electrical loads. This excludes power supply and distribution scope within a process plant, mining facility, building complex or other facility site. It also excludes power generation facilities and substations. The defining deliverables of those excluded project scopes are covered in other RPs (e.g., 18R-97 for process plants [2]).

Power transmission is considered an element of the infrastructure industry. The Construction Industry Institute has provided a good definition of infrastructure in its Project Definition Rating Index for Infrastructure Projects as follows [3]:

“A capital project that provides transportation, transmission, distribution, collection or other capabilities supporting commerce or interaction of goods, services, or people. Infrastructure projects generally impact multiple jurisdictions, stakeholder groups and/or a wide area. They are characterized as projects with a primary purpose that is integral to the effective operation of a system. These collective capabilities provide a service that is made up of nodes and vectors into a grid or system.”

Using this definition, power transmission lines are a vector or linear scope element that connects substation or other facility nodes at its terminations. The substation nodes may be part of or associated with a generation, consuming or interconnection facility. As such, transmission projects are often executed as part of a program that also involves node project scope or facility operational changes (or at least considerations for integrated system commissioning and startup). As the definition states, a distinguishing feature of these projects is that they often traverse wide areas, cross country or subsea, which puts an emphasis on the definition of routing, land ownership and conditions, and establishing right-of-way (ROW). Associated scope definition challenges include defining stakeholder, permitting and regulatory requirements. Buried and submarine installations increase the focus on the protection philosophy and strategies affecting cable selection, armoring and joint considerations. While many distinguish power transmission (higher voltage, long distances) from power distribution (short distance, lower voltage connections to retail customers), the principles of estimating these elements are similar; i.e., the RP applies to both.

The main physical power transmission line scope elements are conductors and their support structures if installed overhead. Main installation elements include land clearing if over land (including forestry if applicable), foundation and structure erection and conductor stringing if overhead, or trenching, laying and horizontal boring if subsurface or subsea. Special scope elements are involved with crossings of water, road, rail and so on and at terminations. Because conductor (e.g., aluminum) and structure (e.g., steel) material costs are usually a significant cost element, these project estimates are particularly sensitive to escalation uncertainty. In general, the more developed the route, the more complex the installation will be. In urban areas, visual appeal and concern for safety and health can be major issues. Installation in remote location and/or difficult or environmentally sensitive terrain creates its own challenges. Subsea installation adds the need for bathymetry¹ and metocean² studies and specialized installation equipment and vessels. Before any installation work can begin in an area, stakeholder consultation must be advanced (sometimes requiring agreements with local populations with rights), and appropriate land and ROW must be acquired which creates unique scheduling as well as cost challenges.

For the purpose of estimate classification then, the main scope definition deliverables are associated with defining the power requirements (i.e., kV), the conductors and structure, and the routing. Conductors can vary widely in content (copper, aluminum, etc.) and insulation. Overhead structures may be wood, concrete, composite or steel in various configurations with various foundation designs including pilings, concrete and so on. The route's land or subsea characteristics and the nature of developments drive the need for special design features and execution strategies. Operability and maintainability considerations may also affect ROW and access design. Brownfield and revamp projects add their own concerns for interface with existing elements, crowded working conditions, etc. For each scope definition decision, stakeholder requirements need to be considered.

Power substation projects are usually associated with transmission projects. However, substations being equipment-centric and located on a facility site have physical and defining characteristics similar to process plant projects (e.g., reliance on one-line diagrams, plot plans, etc.).