

**NEWFOUNDLAND AND LABRADOR HYDRO**

**NETWORK ADDITIONS POLICY – LABRADOR INTERCONNECTED SYSTEM**

**December 4, 2020**

## 1. THE POLICY: GENERAL

The purpose of this Network Additions Policy (“Policy”) is to limit rate increases that can result from investment in new transmission assets to serve new load requests, and to achieve a reasonable balance in the sharing of the benefits and the costs of new transmission investments between the Applicant and existing Customers.

This Policy will be used to determine the contribution requirements from Applicants on the Labrador Interconnected System related to (i) transmission system extensions to connect Applicants or Non-utility Generators; and (ii) demand requirement requests from Applicants that, immediately or over time, may contribute to transmission network extensions or upgrades. The Policy will also be used to determine the Customer Contributions required from Transmission Customers requesting open access transmission service.

This Policy does not address Customer Contributions required for distribution extensions or upgrades.<sup>1</sup>

## 2. DEFINITIONS

**Applicant** means any person who applies for Service. An Applicant can be an existing Customer. Multiple applications for Service may be treated as a single Application for the purposes of this Policy, including those submitted by related corporate entities.

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<sup>1</sup> General Service Customer contributions for distribution extensions or upgrades are determined based on the Contribution in Aid of Construction Policy: Distribution Line Extensions and Upgrades to General Service Customers, as approved by the Board.

**Basic Capacity Investment** is the amount of capacity investment in Common Assets provided for Permanent Service to Applicants from which an Applicant requesting Service is excused payment. The Basic Capacity Investment is 200 kW.

**Basic Capacity Investment Credit** equals the Basic Capacity Investment multiplied by the Expansion Cost per kilowatt (“kW”).

**Betterment** means a substantial improvement of existing structures, facilities or equipment. Betterment includes the replacement or improvement of parts which has the effect of extending the useful life of the property, increasing its capacity, lowering its operating cost, or otherwise adding to its worth through the benefit it can yield.

**Betterment Credit:** The calculation of the Betterment Credit is based on the depreciation assumptions reflected in the determination of the Test Year revenue requirement. In calculating the Betterment Credit, the survivor curves used in the establishment of the approved depreciation rates will be utilized.

**Board** means the Board of Commissioners of Public Utilities for Newfoundland and Labrador.

**Capacity** means the capability to provide energy, measured and expressed in kW.

**Common Assets** means transmission assets that provide benefit to two or more Customers.

**Customer** means any person who accepts or agrees to accept Service.

**Customer Contribution** means the payment required from the Applicant/Customer requesting Service.

**Demand** means the quantity of electricity delivered. It is expressed in kW or kilovolt amperes (“kVA”), either at a given point in time or averaged over a period of time.

**Demand Revenue Credit** equals the Demand Revenue Credit per kW multiplied by the net of the Applicant’s additional Peak Demand requirement less the Basic Capacity Investment. The full Demand Revenue Credit is provided to an Applicant that has a reasonable expectation of service life of at least 25 years and is requesting Permanent Service and required to pay an Upstream Capacity Charge as a result of requesting additional Peak Demand of 1500 kW or greater. The purpose of the Demand Revenue Credit is to reflect that additional future revenues from the Applicant are expected to partially offset the cost incurred to serve the Applicant’s Peak Demand requirements. The amount of Demand Revenue Credit provided will be reduced for Applicants with an estimated service life of less than 25 years

**Demand Revenue Credit per kW** means a per kW credit based on the present value of the forecast recovery of transmission demand-related costs through the electricity charges to be paid by the Applicant.

**EPCA** means the *Electrical Power Control Act, 1994* SNL 1994, Chapter E-5.1.

**Expansion Advancement Cost** means the cost of acceleration of the Transmission Expansion Plan.

**Expansion Cost per kW** means an estimate of the cost of potential transmission upgrades, as provided in the Transmission Expansion Plan, divided by the additional capacity provided by those transmission upgrades. Hydro will update the Expansion Cost per kW within three months of filing a new Transmission Expansion Plan with the Board.

**General Service Customer** means a Customer eligible for Permanent Service or Temporary Service pursuant to any Rate #'s 2.1L, 2.2L, 2.3L or 2.4L of Hydro's Schedule of Rates, Rules and Regulations.

**Hydro** means Newfoundland and Labrador Hydro.

**NLSO** means the Newfoundland and Labrador System Operator.

**Non-utility Generator** is an entity which is not a public utility but which owns facilities to generate electric power for sale.

**Peak Demand** means the maximum demand in kW required to serve a Customer.

**Permanent Service** means electrical service required for at least three years.

**Proportionate Sharing Approach** is the reflection of the Peak Demand requirements for each Applicant in the allocation of the aggregate Upstream Capacity Charge for multiple Applicants.

**Schedule of Rates, Rules and Regulations** means the schedule setting out the rates, rules and regulations relating to Hydro's service, as approved from time to time by the Board.

**Service** means any service provided by Hydro pursuant to the Schedule of Rates, Rules and Regulations.

**Specifically Assigned Assets** means transmission assets that provide benefits to only one Customer. Specifically Assigned Assets also include Hydro's transmission assets required to interconnect the assets of a Non-utility Generator.

**Sustaining Capital** means incremental capital investment in transmission assets so that the transmission assets can continue to provide the capacity and functionality originally intended. Sustaining Capital includes the cost of replacement at the end of the asset life.

**System Impact Study** means an assessment conducted by Hydro regarding the adequacy of the transmission system to accommodate an interconnection or load addition request from an Applicant or a Non-utility Generator and the costs and benefits associated with transmission upgrades or additions to comply with the Service request.

**System Impact Study Charge** refers to all costs and expenses incurred, directly or indirectly, by or on behalf of Hydro in conducting the System Impact Study. Payment of costs and expenses shall include a security deposit as specified in an agreement between the Applicant and Hydro that details the System Impact Study scope, cost, schedule, and other contractual clauses as appropriate. The security deposit shall be payable prior to the commencement of the System Impact Study. The remaining portion of the System Impact Study Charge will be due upon the completion of the System Impact Study.

**Temporary Connection Fee** is calculated as the estimated labour cost of installing and removing lines and equipment necessary to provide the Service plus the estimated cost of non-salvageable material (i.e., consistent with the Schedule of Rates, Rules and Regulations).

**Temporary Service** means a service that is required for a period of less than three years. Applicants requiring Temporary Service will be required to pay a Temporary Connection Fee.

**Transmission Customer** means a Customer that will receive service under the NLSO open access transmission tariff.

**Transmission Expansion Plan** refers to the most recent transmission system expansion plan for the Labrador Interconnected System filed with the Board. The Transmission Expansion Plan identifies Transmission Upgrades required to serve various load growth scenarios and the estimated costs to implement each upgrade.

**Transmission Upgrade** means capital projects undertaken to meet transmission system requirements, for example, to increase capacity, to improve reliability, to meet load growth, to meet generation interconnection and service requests, or to provide congestion relief.

**Transmission Voltage** means 46 kV or higher.

**Upstream Capacity Charge** means the contribution required from an Applicant requesting an increase in access to Capacity on Common Assets. The Upstream Capacity Charge cannot be less than zero.

**Upstream Capacity Cost** means the Expansion Cost per kW multiplied by the Applicant's Peak Demand increase as a result of their new/additional service request.

**3. POINT OF DELIVERY**

Hydro shall determine the point at which power and energy is delivered to the Customer's electrical system from Hydro's facilities.

**4. CUSTOMER CONTRIBUTION FOR SPECIFICALLY ASSIGNED ASSETS**

The Customer Contribution will equal the amount necessary to fully recover the initial capital investment from the Customer to whom the assets are specifically assigned. An additional Customer Contribution will apply to recover all Sustaining Capital for the Specifically Assigned Asset, as required.

Hydro will also recover the estimated annual operating and maintenance costs from the Customer through either a specifically assigned charge or payment to Hydro in accordance with a contractual arrangement.

Hydro will monitor new connections to Specifically Assigned transmission assets for a period of ten years. If other Customers come to be served by the Specifically Assigned Assets, Hydro will charge a Customer Contribution to the new Customer and reduce appropriately the original Customer Contribution through a refund.

**5. UPSTREAM CAPACITY CHARGE TO SUPPLY DEMAND REQUESTS**

This section will apply to determine the required Upstream Capacity Charge to supply peak demand requests<sup>2</sup> of greater than 200 kW from an Applicant.<sup>3</sup>

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<sup>2</sup> As stated in Section 2 Definitions, applications for multiple Services may be treated as a single Application.

**5.1 Applicant Peak Demand Requests of less than 1500 kW**

For Applicant Demand requests of less than 1500 kW, the Upstream Capacity Charge is calculated to equal the Upstream Capacity Cost less the Basic Capacity Investment Credit.

The Upstream Capacity Cost is computed based on the Applicant's projected increased Peak Demand valued at the Expansion Cost per kW. The Expansion Cost per kW is provided in Table 1 of Appendix A. The Upstream Capacity Charge is a one-time charge for both Temporary Service and Permanent Service to be paid in advance of Hydro providing the Service.

**5.2 Applicant Peak Demand Requests of 1500 kW or greater**

Upon receipt of an Applicant's Demand request of 1500 kW or greater, Hydro will conduct a preliminary assessment to determine if compliance with the request would require acceleration of the Transmission Expansion Plan.

If Hydro concludes there is no acceleration of the Transmission Expansion Plan from complying with the Applicant request, the Upstream Capacity Charge will generally be computed using the same approach as described in Section 5.1. Where applicable, the Demand Revenue Credit will be applied in addition to the Basic Capacity Investment Credit in computing the Upstream Capacity Charge. (The Demand Revenue Credit is detailed further in Section 5.3).

If the potential exists for a material impact on the Transmission Expansion Plan, Hydro will conduct a System Impact Study to determine the technical requirements for interconnection or system upgrades and identify cost

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<sup>3</sup> Applicants that are required to pay Customer Contributions for other Services (e.g., provision of Specifically Assigned Assets, distribution extensions or distribution upgrades, or a Temporary Service Fee) are also subject to the determination of the Upstream Capacity Charge computed in accordance with this Policy.

implications. The Applicant requesting Service will be required to pay Hydro the System Impact Study Charge.

If acceleration of the Transmission Expansion Plan is required, Hydro will determine the Expansion Advancement Cost. The procedures used to determine the Expansion Advancement Cost are provided in Appendix B to this Policy.

A Betterment Credit will be applied if the Transmission Upgrade reflected in the calculation of the Upstream Capacity Charge will result in a life extension for common transmission assets and provide benefits to existing customers.

The Upstream Capacity Charge will then be computed as the Expansion Advancement Cost less the Basic Capacity Investment Credit and, when applicable, less the Demand Revenue Credit and/or the Betterment Credit.

### **5.3 Demand Revenue Credit**

The Demand Revenue Credit is provided to Applicants with Peak Demand requests of 1500 kW or greater to reflect that future revenues resulting from providing the new or additional service will partially offset the transmission cost incurred to serve the Applicant's Peak Demand requirements, thereby limiting the requirement for future rate increases for existing customers resulting from capital investments.

The Demand Revenue Credit per kW is provided in Table 1 of Appendix A. Hydro will update the Demand Revenue Credit per kW at the same time as it updates the Expansion Cost per kW.

The Demand Revenue Credit per kW will be reduced by 3.0% for each year that the estimated life of the Applicant's operations is less than 25 years. This

reduction reflects a reduced current value in the demand revenues to be provided by the Applicant with a Service life projection of less than 25 years.

Where there is a level of uncertainty associated with duration of service for an Applicant, Hydro may require a security deposit in advance of connecting the Applicant. The maximum amount of the security deposit required from the Applicant will be the Demand Revenue Credit reflected in the calculation of the Upstream Capacity Charge and the minimum amount will be the security deposit required under Hydro's Security Deposit Policy (i.e. average of two months billings reflecting the additional load) Any refund of the security deposit will be subject to (i) the Customer meeting the payment terms as required in Hydro's Schedule of Rates, Rules and Regulations; and (ii) the revenues provided by the Customer equaling or exceeding the forecast amounts used in computing the Demand Revenue Credit provided to the Customer. Interest on the security deposits will be determined in accordance with Hydro's Security Deposit Policy.

#### **5.4 Multiple Concurrent Requests**

In cases where new or increased Demand requirements have been requested concurrently by more than one Applicant that amount to 1500 kW or greater, the aggregate Upstream Capacity Charge shall be allocated among the Applicants based on a Proportionate Sharing Approach. In this circumstance, the Basic Capacity Investment Credit provided and the Demand Revenue Credit provided, if applicable, will reflect the number of Applicants used when computing the aggregate Upstream Capacity Charge.

#### **5.5 Transmission Customer Requests**

Hydro will conduct a System Impact Study to determine if an acceleration of its Transmission Expansion Plan is necessary to permit the NLSO to provide a requested service to a Transmission Customer. The Transmission Customer

Applicant requesting service will be required to pay the System Impact Study Charge.

Any required contribution from a Transmission Customer Applicant is based on the calculation of the Expansion Advancement Cost. Transmission Customer Applicants requesting Service are not eligible for a Basic Capacity Investment Credit or the Demand Revenue Credit.

## **5.6 Common Asset Replacement and the End of Life**

Applicants that pay an Upstream Capacity Charge are not required to pay a Customer Contribution for the replacement of those Common Assets at the end of the asset life.

## **6. REVIEW OF UPSTREAM CAPACITY CHARGES**

### **6.1 Accuracy of Peak Demand Forecast**

Hydro will conduct a 2-year review of the reasonableness of the forecast Peak Demand used in computing Upstream Capacity Charges. If the Customer's actual Peak Demand exceeds the forecast Peak Demand used in computing the Upstream Capacity Charge by greater than 10%, the Upstream Capacity Charge will be recalculated and will result in an additional charge to the Customer that paid the Upstream Capacity Charge.

### **6.2 Refund Reviews**

In cases where the Upstream Capacity Charge paid by a Customer was computed using the Expansion Advancement Cost approach and resulted in a Transmission Upgrade providing a system Capacity addition exceeding the Customer's Peak Demand requirement by greater than 10%, the Upstream Capacity Charge will be reviewed to determine if a refund to the initial Applicant is appropriate as a

result of the subsequent payment of Upstream Capacity Charges by new Customers.

These refunds will be based on the amount of additional Upstream Capacity Charges facilitated by the Capacity made available by the initial Customer. The refund review will be conducted annually and the eligible refund period is ten years from the date the Service is provided to the initial Customer. No customer will pay less than the Upstream Capacity Cost net of the Basic Capacity Investment Credit.

#### **7. PROVISION OF SPECIAL FACILITIES OR ASSET RELOCATIONS**

Where special facilities are required or requested by the Applicant or any facility is relocated at the request of the Applicant, the Applicant shall pay Hydro in advance the estimated additional cost of providing the special facilities and the estimated cost of the relocation less any betterment.

#### **8. BOARD APPROVALS**

Hydro shall apply to the Board for approval of:

- (i) all Customer Contributions for Specifically Assigned Assets;
- (ii) all Upstream Capacity Charges that are calculated as greater than \$200,000; and
- (iii) any deviations from this Policy in the calculation of Customer Contributions or Upstream Capacity Charges. Deviations from the Policy will be considered for projects that meet a defined public service need, such as emergency services (fire departments, hospitals, etc.); or the provision of necessary services (medical clinics, daycare centers, grocery stores, gas stations, etc.).

**Appendix A**

Table 1 provides the Expansion Cost per kW and the Load Based Investment per kW applicable to the calculation of Upstream Capacity Charges. These factors will be updated as necessary with approval of the Board.

<b>Table 1</b>	
<b>Network Addition Policy – Computation Factors</b>	
Expansion cost per kW	\$465
Demand Revenue Credit per kW	\$250

**Appendix B**  
**Determining Expansion Advancement Cost**

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# 1 Introduction

If acceleration of the Transmission Expansion Plan for the Labrador Interconnected System (“LIS”) is required to comply with a request for Service from an Applicant, Hydro will determine the Expansion Advancement Cost. This cost reflects the cost of acceleration of the Transmission Expansion Plan. This document provides the methodology used to determine the Expansion Advancement Cost.

Figure 1 illustrates Hydro’s Network Additions Policy process.

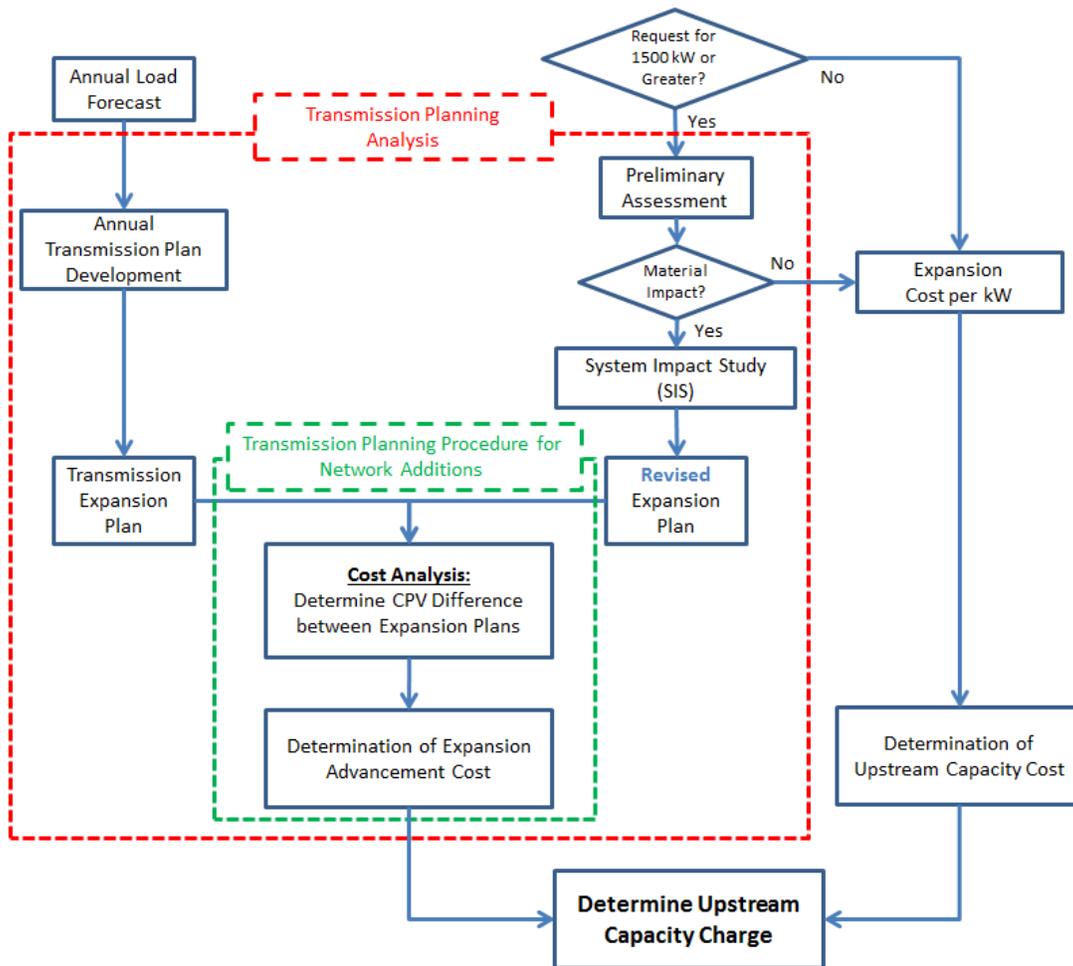


Figure 1 - Network Additions Process

## 1.1 Transmission Plan Development

Hydro performs an annual assessment of the previous Transmission Expansion Plan for the LIS based on its current demand forecast. This assessment allows for the determination of the timing of transmission system additions and modifications necessary to ensure safe, reliable, and economical long-term operation. On this basis, a new Transmission Expansion Plan is developed.

Hydro filed its initial Transmission Expansion Plan for the LIS on October 31, 2018.

## 1.2 System Impact Study

When Hydro receives an interconnection or load addition request from a Customer in excess of 1500 kW<sup>1</sup>, a preliminary assessment of the potential impact is undertaken to determine if compliance with the request would require acceleration of the Transmission Expansion Plan.

If there is potential for a material impact on the Transmission Expansion Plan, Hydro will conduct a System Impact Study to determine the technical requirements for interconnection or system upgrades and identify cost and benefit implications.<sup>2</sup> The Applicant is responsible for the costs of the System Impact Study.

If Hydro concludes there is no acceleration of the Transmission Expansion Plan from complying with the Applicant's request, the Upstream Capacity Charge will be computed as described in Section 5.1 of the Network Additions Policy. If acceleration of the Transmission Expansion Plan is required, Hydro will determine the Expansion Advancement Cost.

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<sup>1</sup> The request may be for a new customer or for increased demand from an existing customer. Large requests may also include the conversion of temporary or curtailable loads to permanent or firm loads.

<sup>2</sup> A customer interconnection or load addition is deemed to have a material impact if it requires an advancement of transmission system expansion, as defined in the Transmission Expansion Plan, or requires additional transmission system expansion which is not yet reflected in the Transmission Expansion Plan.

If a Transmission Upgrade not reflected in the Transmission Expansion Plan becomes required within five (5) years due to an Applicant's service request, the cost of acceleration to meet the Applicant's request will be deemed to be equal to the full project cost. When appropriate, the cost of acceleration will be reduced to reflect Upstream Capacity Charge payments previously provided to Hydro for applicable transmission facilities. However, in no circumstance will the Upstream Capacity Charge for an Applicant be less than the Upstream Capacity Cost net of the Basic Capacity Investment Credit, as calculated in accordance with Section 5.1 of the Network Additions Policy.

## **2 Network Additions Analysis**

This section provides a description of the process for calculating the Expansion Advancement Cost based on the cumulative present value ("CPV") impact associated with the acceleration of the Transmission Expansion Plan. The costs associated with each new large service request are examined over a 10-year study period and are evaluated in terms of CPV.

### **2.1 Inputs**

The following inputs are required for the analysis:

- Hydro's Transmission Expansion Plan, including capital costs, asset replacement schedules and operating costs;
- A revised peak demand forecast reflecting the Customer's request;
- Details of the acceleration of the Transmission Expansion Plan,<sup>3</sup> including capital costs, asset replacement schedules, and operating costs;
- Escalation and discount rates in accordance with corporate assumptions; and
- Fuel price forecasts in accordance with corporate assumptions.

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<sup>3</sup> As per the results of the System Impact Study.

## 2.2 Procedure

The Network Additions analysis includes the following considerations:<sup>4</sup>

- Capital Project Costs;
- Operating and Maintenance (“O&M”) Costs;
- Reliability Assessment; and
- Betterment Credit Evaluation.

### 2.2.1 Capital Project Costs

Acceleration of the Transmission Expansion Plan will impact capital expenditures. Revised costs and timing are determined as part of the System Impact Study. The CPV for both the Transmission Expansion Plan and the accelerated Transmission Expansion Plan are determined using appropriate escalation indices and discount rates, permitting the calculation of the CPV difference between the two plans.

### 2.2.2 O&M Costs

Acceleration of the Transmission Expansion Plan also produces O&M cost impacts. These impacts can relate to equipment or to operating costs associated with peak shaving or backup generation, as appropriate.<sup>5</sup> Additionally, there may be an advancement of asset retirements where costs associated with the removal and/or decommissioning of existing equipment are incurred.<sup>6</sup> As is the case for capital costs, the CPV for O&M costs is determined for both the Transmission Expansion Plan and the accelerated plan using appropriate escalation indices and discount rates. The CPV difference for O&M costs is calculated accordingly.

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<sup>4</sup> Transmission losses are not considered in the Network Additions analysis. Rather, losses are a technical and economic design consideration in the System Impact Study. Losses are a factor in the determination of the least-cost technically viable solution and associated costs/benefits would be shared by all customers.

<sup>5</sup> In Labrador, this may include operation of the Happy Valley Gas Turbine or other generation as required.

<sup>6</sup> It is assumed that if an asset with remaining net book value is removed from service, it will be returned to inventory. Special consideration will be given to cost allocation in cases where it is not practical to return all assets to inventory.

### **2.2.3 Reliability Assessment**

The addition of a new large load and the resulting acceleration of increased transmission capacity has the potential to influence technical characteristics of the transmission system such as equipment ratings, voltage levels, and transient stability. Analysis may be performed to determine how relevant parameters affect the capacity of the LIS transmission system and thereby affect reliability. A System Impact Study therefore includes an assessment of the reliability impacts for existing customers.

Adverse reliability impacts associated with the interconnection of new customers will be addressed as part of the System Impact Study. Required transmission system upgrades will be identified and reflected in the Expansion Advancement Cost to ensure acceptable reliability for all customers.

### **2.2.4 Betterment Credit Evaluation**

A Betterment Credit will apply to reduce the Upstream Capacity Charge if a Transmission Upgrade required to provide service to the Applicant results in substantial improvement of existing structures, facilities or equipment to the benefit of existing customers. The calculation of the Betterment Credit is based on the depreciation assumptions reflected in the determination of the Test Year revenue requirement. In calculating the Betterment Credit, the survivor curves used in the establishment of the approved depreciation rates will be utilized.

## **2.3 Results**

The results of the Network Additions analysis enable the calculation of the Expansion Advancement Cost based on a comparison of the CPV for all costs resulting from the acceleration of the Transmission Expansion Plan. The items reflected in the analysis include:

- Capital Costs; and
- Operating and Maintenance Costs.

As detailed previously, the Expansion Advancement Cost will be adjusted, as required, to reflect (i) prior payments of Upstream Capacity Charges to Hydro for applicable transmission assets; and (ii) any Betterment Credit resulting from the Transmission Upgrade.