AUC-AESO-001

Reference
Exhibit 16, Application, paragraph 19

Issue/Sub-Issue
Stakeholder consultations

Preamble
The AESO indicates that all documents used in its stakeholder consultations are accessible from the AESO's website through a specified path.

Request
Please file copies of all documents available at the path specified in paragraph 19 of the application.

Response
Please see Attachment AUC-AESO-001 – Consultation Documents.
AUC-AESO-002(a-c)

Reference
Exhibit 16, Application, paragraph 291

Issue/Sub-Issue
Effective date

Quote
“The investment levels proposed in this application represent a material increase relative to currently approved investment levels. The AESO considers the proposed investment level increase to be large enough that some market participants may attempt to delay projects until this 2012 construction contribution policy proceeding has concluded. Such delays could create inefficiencies and schedule changes that impact many market participants, including transmission facility owners. The AESO submits that retroactive implementation of the 2012 investment levels to July 1, 2012 would avoid the potential for such delays and inefficiencies.”

Preamble
The Commission wishes to understand the current status of its connection project queue to better assess this proposal.

Request
(a) Please provide a copy of the AESO’s current connection project queue.

(b) For each project listed in the connection project queue, please indicate whether the amount of the required customer contribution has been determined and, where applicable, the date at which a decision on the amount of the customer contribution was made.

(c) Please confirm that no projects for which the amount of the contribution has already been determined will be eligible for a re-statement of the contribution calculation upon the approval of the application. If this cannot be confirmed, please indicate any projects where contribution paid would be subject to re-determination.

Response
(a) Please see Attachment AUC-AESO-002(a) – Connection Queue.

(b) Construction contributions have been calculated for all projects in the queue, as such calculations are a normal step in the early stages of the connection process.

Subsection 7(1) of section 8 of the AESO’s tariff states, “The construction contribution will be calculated in accordance with the construction contribution provisions of the ISO tariff in effect on the date on which the Commission issues permit and licence for the connection project.” Therefore, the AESO considers the date the project receives permit and licence to be the date on which a decision on the amount of construction contribution is made.
Attachment AUC-AESO-002(b) – Contribution Status provides the date on which permit and licence has been issued for the load connection projects included in part (a). (It excludes generation connection projects and behind-the-fence connection projects which have no Rate DTS capacity changes.) Calculations would have been completed based on the tariff in effect when permit and licence was issued for a project or, if permit and licence is not yet issued, based on the current tariff.

For contract changes that do not require construction of transmission facilities, permit and licence is indicated as “not applicable” and contribution adjustments would have been determined in accordance with the AESO tariff applied to the transmission facilities when initially constructed, as required by subsection 4(1) of section 9 of the AESO tariff.

(c) The AESO has requested in its application that the proposed investment levels be effective retroactive to July 1, 2012. Therefore, any project in the connection queue which has received or will receive permit and licence after July 1, 2012, would be subject to a contribution re-calculation if the AESO’s request is granted. Attachment AUC-AESO-002(b) indicates which projects meet this criterion. A total of 58 connection projects would be eligible for contribution re-calculation if new investment levels were approved retroactive to July 1, 2012.

The AESO notes that contributions are generally not paid until after the connection project is granted permit and licence, as costs are incurred by the TFO, in accordance with section 5 of the AESO tariff.
AUC-AESO-003

Reference
Exhibit 16, Application, paragraph 44

Issue/Sub-Issue
Contribution policy principles

Preamble
The AESO indicates that it considered the contribution policy principles discussed the following documents:
- the Common Approach to Maximum Investment Levels filed by FortisAlberta as part of its 2010-2011 distribution tariff application (Section 9, Appendix O)
- the Maximum Investment Level Study filed by ATCO Electric as part of its 2011-2012 general tariff application (Section 10, Attachment 1)
- recommendations resulting from AltaLink’s industry consultation process during 2008 on the AESO’s construction contribution policy

Request
Please provide the FortisAlberta Inc., ATCO Electric Ltd. and AltaLink Management Ltd. documents referenced in the preamble.

Response
Please see the documents provided as Attachment AUC-AESO-003.
AUC-AESO-004(a-d)

Reference
Exhibit 16, Application, paragraph 45

Issue/Sub-Issue
Contribution policy principles

Preamble
The AESO discusses characteristics of an optimal contribution policy. It submits that an optimal contribution policy:

- provides effective price signals
- maintains intergenerational equity
- is based on cost causation
- is based on local costs
- is robust and sustainable
- treats all load market participants equitably
- compensates utilities equitably
- is simple, consistent and transparent

The AESO classifies the first three of the above noted principles as “primary” principles and the remaining five as “secondary”.

Request
(a) Comment on whether there is conflict between the two principles: provides effective price signals and maintains intergenerational equity? In other words, is it possible that maintaining intergenerational equity may weaken price signals?
(b) Has the AESO ranked each of the three primary principles equally? If not, please explain.
(c) All things being equal, does the AESO agree that when considering the principle of providing an effective price signal on a stand alone basis (as distinct from balancing the promotion of this principle with the achievement of other principles), a contribution policy that requires a market participant to pay a contribution would provide a more effective price signal than a contribution policy that creates greater frequency and amounts of unused investment capacity? If the AESO does not agree, please fully explain.
(d) Does the AESO agree that the decision in the application to increase the multiplier to the proposed 1.33 primarily reflects the AESO’s attempt to pursue improvements in intergenerational equity? If the AESO does not agree, please explain.

Response
(a) There would be conflict between providing effective price signals and maintaining intergenerational equity only if previous contribution policies did not provide effective price
signals, such that maintaining equity with those policies would continue to not provide effective price signals. If previous contribution policies did provide effective price signals, then maintaining equity with those policies would continue to provide effective price signals. To further respond to this request, the following comments discuss whether the AESO’s previous contribution policies provided effective price signals.

The AESO explained in its application (section 3.1, pages 14-15, paragraphs 52-60) that it is difficult to assess the effectiveness of the price signal provided by a contribution policy. However, the AESO understands that the Commission has long held the view that a contribution policy should provide an effective price signal. For example, in Decision 2000-1, the Alberta Energy and Utilities Board (predecessor of the Commission) found that an appropriate contribution policy “exerts some of the discipline of the utility’s economics on the economic decision-making of the customer.” (section 16.1, page 270) The AESO interprets this statement to be analogous to “provides an effective price signal” and that this principle was to be reflected in the refiled contribution policy which was subsequently approved in Decision 2000-34 and became effective on June 1, 2000. On this basis, the contribution policy included in the 2000 tariff of ESBI Alberta Ltd. (EAL, predecessor of the AESO) would have provided an effective price signal.

The AESO also notes the assessment of different investment mechanisms against contribution policy principles are provided in its application (section 4.2, pages 21-22, Table 4-1 and paragraph 100). The table illustrates that maximum investment level policies (like those approved for EAL’s 2000 tariff and for the AESO’s current tariff) sometimes will provide an effective price signal for an individual connection project and other times will not. (This aspect of the AESO’s assessment of investment mechanisms is discussed in more detail in information response AUC-AESO-014(a).)

Given that the objective of provided effective price signals has existed in the AESO’s contribution policies for a significant length of time, the AESO submits that if this continues to be the case with the proposed and future contribution policies, then this principle will not conflict with maintaining intergenerational equity.

(b) No. The AESO has no basis for stating that any of the primary principles is more important than the others. The AESO considers that discussion and debate of contribution policies in the context of the principles provides useful insight into whether a policy “generally represents a reasonable balance of objectives” (Application, section 3, page 13, paragraph 46), but cannot and should not be reduced to an arithmetical scoring against weighted principles.

(c) As explained in its application (section 3.1, pages 14-15, paragraphs 52-60), the AESO does not consider that payment of a contribution provides a complete indication of the effectiveness of the price signal provided by a contribution policy. The AESO acknowledges that paying a contribution is more likely to provide a price signal than not paying a contribution, and therefore would be expected to also be more likely to provide an effective price signal, all else being equal. The AESO also considers that the existence of unused investment for some projects does not necessarily mean the contribution policy did not provide an effective price signal for those projects. For example, as explained in section 3.1 of the application, the available unused investment may not have been enough to cover additional facilities that may have been useful for the service required. In such a case, the price signal remains effective even though unused investment exists.

(d) The AESO does not agree. The AESO submits that the proposed 70% investment coverage achieved through the proposed 1.33 multiplier represents an attempt to simultaneously satisfy the three primary contribution policy principles while satisfying as many of the secondary principles as possible. The AESO discussed in section 8.3 of the application (pages 52-54, paragraphs
how the proposed 70% investment coverage provides effective price signals, maintains intergenerational equity, and is based on cost causation.

In addition, the AESO submits that the proposed 70% investment coverage is based on local costs, is robust and sustainable, treats all load market participants equitably, and compensates utilities equitably, and thereby also satisfies four of the five secondary principles (as indicated in Table 4-1 of section 4-2, page 22, of the application).
AUC-AESO-005

Reference
Exhibit 16, Application, Section 2

Issue/Sub-Issue
Contribution policy history

Preamble
The AESO summarizes the contribution policies in effect during the following periods of the AESO’s history:
- Pre-1996
- 1996-2000
- 2001-2005
- 2006-2008
- 2008-present

Request
For each of the five periods noted in the preamble, please provide:

(i) an extract of the tariff in effect in respect of each period that shows the terms and conditions for the contribution policy in effect at the time

(ii) an extract of the Decision of the Commission or its predecessor that authorized the contribution policy set out in the part (i) response

Response
As explained in the section 2.1 of the application (page 9, paragraph 29), the AESO does not have specific information regarding transmission contributions to vertically integrated utilities prior to 1996.

Please see Attachment AUC-AESO-005 – Tariffs and Decisions for the remaining periods.
AUC-AESO-006

Reference
Exhibit 16, Application, paragraph 51

Issue/Sub-Issue
Contribution policy principles

Preamble
The application discusses the characteristics of an effective price signal.

Quote
“An effective price signal is one that supports optimal connection project configuration and design. At the same time, the price signal should not be larger than necessary to encourage such optimization and, in particular, should not be so excessive that it discourages the use of system access service by a market participant.”

Request
Please fully explain the rationale for the statement that the price signal “…should not be so excessive that it discourages the use of system access service by a market participant.”

Response
An excessive price signal could result in a market participant avoiding use of system access service even when such avoidance may not be optimal from an overall system perspective. For example, system access service could be avoided by installing on-site generation, requesting service at distribution voltage, or limiting capacity by shutting down or curtailing processes. Such approaches may limit the development of transmission facilities which can be shared with other market participants, may require more facilities to be constructed than those required for system access service, may only provide a short-term solution, or may not support the economic, orderly, and efficient development and operation of the transmission system.

The AESO considers that the price signal should support optimal connection project configuration and design, and should not result in sub-optimal outcomes by being either insufficient or excessive.
AUC-AESO-007

Reference
Exhibit 16, Application, paragraph 53

Issue/Sub-Issue
Contribution policy principles

Quote
“It is difficult to assess the effectiveness of a contribution policy price signal, especially given the limited number of connection projects that occur annually and the variability of those project’s circumstances. In general, requiring an incremental contribution for a connection project in direct proportion to its incremental cost would be expected to send a direct and clear price signal. However, lack of a construction contribution for a specific project may not indicate lack of a price signal: a price signal may have been given and responded to such that the resulting configuration was below the maximum investment level.”

Request
Please further explain the statement in the passage reproduced above that “…requiring an incremental contribution for a connection project in direct proportion to its incremental cost would be expected to send a direct and clear price signal.”

Response
The referenced statement refers to a direct flow-through of project costs to the construction contribution paid by a market participant. In other words, a $1,000,000 change in project cost would result in an equal $1,000,000 change in construction contribution, on a straight dollar-for-dollar basis. There would be no lessening or mitigation of the change in project cost through application of a mechanism such as a maximum investment level or percentage cost coverage.

Under such an approach, the price signal would be clear because there would be a direct relationship between project cost and construction contribution. The price signal would also be direct because of the direct dollar-for-dollar flow-through of costs.

The AESO considers this to be the strongest price signal possible. (Conceivably, a stronger signal could be sent by “inflating” the contribution such that a dollar increase in cost would result in more than a dollar increase in contribution. The AESO considers that such inflation of the price signal would be inappropriate, however.)
AUC-AESO-008

Reference
Exhibit 16, Application, paragraph 54

Issue/Sub-Issue
Contribution policy principles

Quote
“Conversely, payment of a construction contribution for a specific project does not guarantee the effectiveness of a price signal. A market participant may have modified their service request to reduce costs and, in doing so, may have resulted in a sub-optimal configuration that does not represent the best long-term economic and technical alternative. In general, a price signal should not be excessive such that a market participant unnecessarily sacrifices operability and reliability in pursuit of a lower construction contribution.”

Request
In light of the AESO’s responsibility to determine facilities consistent with good electric industry practice (GEIP), please discuss the potential that connection facilities will be constructed for which operability and/or reliability have been sacrificed because the investment allowance is insufficient to fully cover the cost of the facilities needed.

Response
The quoted phrase refers to the operability and reliability of the market participant’s facilities and processes.

The simplest example would be a market participant reducing the capacity requested or number of low-voltage breakers requested, solely to reduce the cost of the connection project. The connection project would still meet good electric industry practice to satisfy the requested capacity and number of feeders, but the market participant has sacrificed operability and reliability as there could be more conditions under which the market participant’s facilities could not operate as desired.

Other examples would include installing on-site generation, requesting service at distribution voltage, or limiting capacity by shutting down or curtailing processes. In such cases the connection project would still meet good electric industry practice, but the market participant has potentially sacrificed operability and reliability of the facilities and process for which electricity is being supplied.
AUC-AESO-009

Reference
Exhibit 16, Application, paragraph 76

Issue/Sub-Issue
Contribution policy principles

Quote
“The costs attributed to a connection project should also be consistent with current standards, guidelines, and judgment for good electric industry practice. The connection project configuration and design should be neither substandard (which could result from an excessively restrictive contribution policy) nor overbuilt (which could result from an excessively generous contribution policy).”

Request
In consideration of the AESO’s responsibility to ensure that connection projects are constructed and operated in accordance with good electric industry practice, please explain how “an excessively restrictive contribution policy” could result in the construction of substandard connection facilities.

Response
A connection project is designed and constructed to meet a market participant’s requested capacity, reliability, and operating requirements. In response to an excessively-restrictive contribution policy, a market participant could reduce the requested requirements and accept the resulting increased risk of limitations to capacity, reliability, or operability.

The connection project constructed to meet the reduced requirements would still satisfy good electric industry practice, but would generally be considered substandard for the nature of the load being served.
AUC-AESO-010(a-b)

Reference
Exhibit 16, Application, Figure 3-2

Issue/Sub-Issue
Contribution policy principles

Preamble

Request
For each year shown in figure 3-2, please provide:

(a) the amount and full derivation of the average Greenfield project cost shown

(b) a full derivation of how the investment coverage shown was calculated

Response
All data shown in Figure 3-2 is included in the Microsoft Excel workbook provided as Appendix C of the AESO’s application. Figure 3-2 is included on the “Investment History” worksheet in that workbook, while the specific project data is provided on worksheets for each tariff (labeled “2000 Tariff”, “2001 Tariff”, “2003 Tariff”, and so on).

(a) The average greenfield project cost shown for each tariff is the simple arithmetic average of the actual unescalated participant-related cost of greenfield connection projects to which the tariff applied.

(b) The average investment shown is the simple arithmetic average of the actual investment provided to each connection project under the contribution policy of the applicable tariff.

The investment coverage percentage was calculated by dividing the average investment from (b) by the average cost from (a).
AUC-AESO-011(a-c)

Reference
Exhibit 16, Application, paragraphs 199, 206, 82, and 269

Issue/Sub-Issue
Contribution policy principles

Quote
“The AESO considers that a forward-looking contribution policy provides the most appropriate foundation for establishing investment levels.”

“The AESO considers that an appropriate investment level should limit unused investment, while still providing reasonable investment coverage for greenfield and upgrade projects.”

“The AESO understands that the concern arose, in part, because of the high proportion of contributions paid for connection projects under recent AESO tariffs. The AESO considers that a contribution policy should include investment levels sufficient to minimize such concern.”

“Most market participants assume that a contribution policy should provide increased investment (and require smaller contribution) for a larger load. If changes in contribution policy do not align with expectations of a reasonable or fair policy, market participants may express dissatisfaction or complain about a current policy.”

Request
(a) Please comment on how each of these statements is reflected in the contribution policy principles and identify the specific principles that apply.

(b) Please comment on whether the considerations included in these statements are in conflict with the contribution policy principles? Please fully explain.

(c) What weight has the AESO placed on these considerations in developing its contribution policy recommendation?

Response
(a-b) The AESO notes that the quoted statements all include qualifiers such as “appropriate”, “reasonable”, “sufficient”, and “fair”. The contribution policy principles proposed by the AESO in section 3 of its Application include similar qualifiers. For both the quoted statements and the principles, the qualifiers mean judgment must be used when considering the statements and the principles, to ensure the outcome represents a reasonable balance of objectives. In that context, the statements and principles are well-aligned.

However, if any of the statements are pursued individually to the abandonment of other considerations (that is, beyond what would be an appropriate or reasonable degree), then they may conflict with one or more of the contribution policy principles. The following discussion assumes the statements are considered only to the extent that is appropriate and reasonable.
(i) “The AESO considers that a forward-looking contribution policy provides the most appropriate foundation for establishing investment levels.”

A forward-looking contribution policy provides investment levels that are appropriate for current and future connection projects, and provides price signals that influence market participants’ current and future decisions and considerations with respect to their requests for system access service. As the service characteristics, functionality, and standards applicable to connection projects change over time, a forward-looking contribution policy will also accommodate those changes and ensure that transmission facility owners remain equitably compensated if those changes affect the cost of the facilities they own.

A forward-looking contribution policy is primarily reflected in the following principles:
(1) Provides effective price signals
(3) Is based on cost causation
(4) Is based on local costs
(5) Is robust and sustainable
(7) Compensates utilities equitably

The AESO does not consider the statement to conflict with any of the contribution policy principles.

(ii) “The AESO considers that an appropriate investment level should limit unused investment, while still providing reasonable investment coverage for greenfield and upgrade projects.”

An appropriate investment level should be neither excessive nor insufficient, such that it balances what a new market participant pays as a contribution compared to what all market participants pay through related rate components. An appropriate investment level should also reflect cost causation and be based on local costs, such that the resulting contributions are considered fair and equitable by both market participants and transmission facility owners.

An appropriate investment level is primarily reflected in the following principles:
(1) Provides effective price signals
(2) Maintains intergenerational equity
(3) Is based on cost causation
(4) Is based on local costs
(7) Compensates utilities equitably

The AESO does not consider the statement to conflict with any of the contribution policy principles.

(iii) “The AESO understands that the concern arose, in part, because of the high proportion of contributions paid for connection projects under recent AESO tariffs. The AESO considers that a contribution policy should include investment levels sufficient to minimize such concern.”

The quoted text refers to the principle that a contribution policy should compensate utilities equitably. Equitable compensation would be generally consistent with prior investment policies and would be a stable and sustainable component of a transmission facility owner’s financial structure.
Equitable utility compensation is primarily reflected in the following principles:

(2) Maintains intergenerational equity
(5) Is robust and sustainable
(7) Compensates utilities equitably

The AESO does not consider the statement to conflict with any of the contribution policy principles.

(iv) “Most market participants assume that a contribution policy should provide increased investment (and require smaller contribution) for a larger load. If changes in contribution policy do not align with expectations of a reasonable or fair policy, market participants may express dissatisfaction or complain about a current policy.”

The AESO’s examination of connection projects has shown that project costs generally increase as capacity increases. To align with cost causation, investment should also increase with capacity. The AESO considers that a contribution policy based on cost causation would generally provide reasonable and fair outcomes, and would be viewed as such by market participants.

A reasonable and fair contribution policy is primarily reflected in the following principles:

(1) Provides effective price signals
(2) Maintains intergenerational equity
(3) Is based on cost causation
(4) Is based on local costs
(6) Treats all load market participants equitably

A reasonable and fair contribution policy may perhaps conflict with the principle that the policy should be simple, consistent, and transparent. The variability and complexity of connection projects has resulted in similar complexity for the AESO’s contribution policy, as that policy has evolved to align with the principles of cost causation and provision of an effective price signal.

Other than that potential conflict, the AESO does not consider the statement to conflict with any other contribution policy principles.

(c) The AESO discussed and debated all of these considerations during the course of consulting on and preparing its contribution policy recommendations. The AESO considers that all are important considerations in the context of assessing the AESO's contribution policy. However, the AESO’s recommendations are based primarily on satisfying the contribution policy principles. The recommendations were also tested against the considerations discussed above, and the AESO concluded that giving weight to these considerations would continue to result in consistency with the contribution policy principles.
AUC-AESO-012(a-b)

Reference
Exhibit 16, Application, paragraph 82

Issue/Sub-Issue
Contribution policy principles

Quote
“Equitable compensation for transmission facility owners who own, operate, and maintain facilities for which contributions have been paid was discussed extensively during the 2011 generic cost of capital proceeding. The AESO understands the concern arose, in part, because of the high proportions of contributions paid for connection projects under recent AESO tariffs, as illustrated earlier in Figure 3-2. The AESO considers that a contribution policy should include investment levels sufficient to minimize such concern.”

Preamble
Figure 5-1 of the application provides a summary of the construction contributions held by Alberta TFOs.

Request
(a) For each of the TFOs listed in Figure 5-1, please provide an estimate of the amount by which the contribution balance shown is expected to be reduced as a result of market participants taking advantage of the AESO’s Rider I. Please fully describe any assumptions used in preparing your response.

(b) For each TFO shown in Figure 5-1, please provide an estimate of the amount of the contributions relating to distribution company projects.

Response
(a) The AESO has no information on which to base an estimate of the impact of market participants utilizing the AESO’s Rider I, when it is approved.

As the AESO explained in information response AUC.AESO-011(b) in its 2010 ISO Tariff Application:

*The AESO has no information on which to base an expectation of how much of this balance might actually be converted if Rider I is approved as filed. The AESO understands that market participants generally support the AESO’s proposed Rider I, but any who commented on whether they would convert existing contributions indicated it would depend on the final Rider I details that are approved as well as analysis of several factors, including financing costs applicable to the individual market participant and other opportunities for capital investment available to the market participant.*

The AESO considers that information response to remain applicable.
The AESO notes the amounts provided in Figure 5-1 represent an upper limit for the contribution balances that could be reduced by conversion of existing contributions to Rider I payments.

(b) Contribution balances are estimated by connection project type for each transmission facility owner in the table below.

<table>
<thead>
<tr>
<th>Transmission Facility Owner</th>
<th>DFO-Served Distribution</th>
<th>DFO-Served Transmission</th>
<th>Direct-Connected</th>
<th>Total Contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>AltaLink</td>
<td>$173.7</td>
<td>$35.4</td>
<td>$18.8</td>
<td>$227.9</td>
</tr>
<tr>
<td>ATCO Electric Transmission</td>
<td>72.4</td>
<td>114.2</td>
<td>-</td>
<td>186.6</td>
</tr>
<tr>
<td>ENMAX Transmission</td>
<td>24.4</td>
<td>-</td>
<td>-</td>
<td>24.4</td>
</tr>
<tr>
<td>EPCOR Transmission</td>
<td>58.1</td>
<td>2.8</td>
<td>-</td>
<td>60.9</td>
</tr>
<tr>
<td>Lethbridge Transmission</td>
<td>1.6</td>
<td>-</td>
<td>-</td>
<td>1.6</td>
</tr>
<tr>
<td>Red Deer Transmission</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TransAlta Transmission</td>
<td>-</td>
<td>0.1</td>
<td>-</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Total Contributions</strong></td>
<td><strong>$330.2</strong></td>
<td><strong>$152.5</strong></td>
<td><strong>$18.8</strong></td>
<td><strong>$501.5</strong></td>
</tr>
</tbody>
</table>

In the table:
- “DFO-Served Distribution” refers to contributions for projects where service is provided to a distribution system owner (DFO) who then provides service to the end-use consumer over distribution facilities (that is, the AESO bills the DFO and the DFO bills the end-use consumer an average transmission charge) and the end-use consumer is connected at a distribution voltage level;
- “DFO-Served Transmission” refers to contributions for projects where service is provided to the end-use consumer by a distribution system owner (DFO) (that is, the AESO bills the DFO and the DFO bills the end-use consumer a flowthrough of the AESO charges) and the end-use consumer is connected at a transmission voltage level; and
- “Direct-Connected” refers to contributions for projects where service is provided to the end-use consumer by the AESO (that is, the AESO bills the end-use consumer) and the end-use consumer is connected at a transmission voltage level.
AUC-AESO-013

Reference
Exhibit 16, Application, Figure 5-1, page 24

Issue/Sub-Issue
Contribution balances held by transmission facility owners

Preamble
The following table shows existing contribution balances held by TFOs and the contribution balances that were held by TFO at the time of the 2010 ISO tariff application:

<table>
<thead>
<tr>
<th>TFO</th>
<th>Existing Contributions</th>
<th>2010 ISO Tariff</th>
<th>% Increase (decrease) in two years</th>
</tr>
</thead>
<tbody>
<tr>
<td>AltaLink</td>
<td>$227.9</td>
<td>$103.7</td>
<td>120%</td>
</tr>
<tr>
<td>ATCO Electric</td>
<td>$186.6</td>
<td>$124.0</td>
<td>50%</td>
</tr>
<tr>
<td>ENMAX Trans.</td>
<td>$24.4</td>
<td>$6.1</td>
<td>300%</td>
</tr>
<tr>
<td>EPCOR Trans.</td>
<td>$60.9</td>
<td>$25.7</td>
<td>137%</td>
</tr>
<tr>
<td>Lethbridge</td>
<td>$1.6</td>
<td>$1.7</td>
<td>(6%)</td>
</tr>
<tr>
<td>Red Deer</td>
<td>$---</td>
<td>$---</td>
<td>---</td>
</tr>
<tr>
<td>TransAlta</td>
<td>$0.1</td>
<td>$0.1</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>$501.5</td>
<td>$261.2</td>
<td>92%</td>
</tr>
</tbody>
</table>

Request
If the AESO’s proposed construction contribution policy was in place following the 2010 ISO tariff, to what extent would that have impacted the 92 per cent growth in existing contribution balances held by TFOs?

Response
The AESO estimates there would have been about $100 million less construction contributions currently held by transmission facility owners if the proposed 70% investment coverage had been in place effective January 1, 2010 (the effective date of the AESO’s approved 2010 contribution policy). That would have resulted in about $401.5 million total contributions in the “Existing Contributions” column of the table in the preamble, which would constitute 54% growth in contributions compared to the balance reported during the AESO’s 2010 ISO tariff application proceeding.

The AESO notes a lag will exist between the effective date of a contribution policy and its impact on contribution balances held by transmission facility owners. For example, several connection projects received permit and license during 2009 but have in-service dates of 2010 or later. Based on the date of permit and license, those projects are subject to the AESO’s 2007 contribution policy (which remained in effect until December 31, 2009). The contributions for those projects were likely not included in the balances reported during the AESO’s 2010 ISO tariff application proceeding, but will not be affected by
the question’s premise as it applies only to projects subject to the AESO’s 2010 and 2011 contribution policy.

The AESO estimated the $100 million reduction in construction contributions using information from Appendices B and C of the Application, as summarized below.

<table>
<thead>
<tr>
<th>Project Cost, Investment, and Contribution, $ 000 000</th>
<th>Project Cost</th>
<th>Investment</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2010 and 2011 Project Investment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Greenfield Projects (From Appendix C)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010 Tariff</td>
<td>$50</td>
<td>$30</td>
<td>$20</td>
</tr>
<tr>
<td>2011 Tariff</td>
<td>159</td>
<td>51</td>
<td>109</td>
</tr>
<tr>
<td>Greenfield Subtotal</td>
<td>$210</td>
<td>$81</td>
<td>$129</td>
</tr>
<tr>
<td><em>Upgrade Projects (Estimated 27% Coverage From Appendix B)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrade Estimate</td>
<td>80</td>
<td>22</td>
<td>58</td>
</tr>
<tr>
<td>Total, All Projects</td>
<td>$290</td>
<td>$103</td>
<td>$187</td>
</tr>
<tr>
<td><strong>Investment Assuming Proposed 70% Coverage</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total, All Projects</td>
<td>$290</td>
<td>$203</td>
<td>$87</td>
</tr>
<tr>
<td><strong>Reduction in Contributions</strong></td>
<td></td>
<td></td>
<td>($100)</td>
</tr>
</tbody>
</table>
AUC-AESO-014(a-b)

Reference
Exhibit 16, Application, Section 4, Table 4-1

Issue/Sub-Issue
Possible investment mechanisms

Preamble
In Section 4 of the application, the AESO assesses several potential investment policy mechanisms against the primary and secondary principles described in Section 3 of the application.

Request
(a) Please provide the AESO’s rationale for applying both cross marks and check marks against the investment coverage and average cost multiplier in respect of the principle “provides effective price signals” in Table 4-1.

(b) Please provide the AESO’s rationale for applying cross marks against the “maintains inter-generational equity” principle in Table 4-1 for each of:

(i) the revenue test mechanism
(ii) the maximum line length mechanism
(iii) the percentage cost coverage mechanism
(iv) the zero investment mechanism

Response
(a) The AESO explained in its application (section 4.2, page 21, paragraph 100):

Some cells contain both a cross mark and a check mark, which indicates that when applied to an individual connection project a mechanism may fully support a principle or may not support a principle at all. For example, an investment coverage mechanism provides a price signal when a contribution must be paid for a connection project, but provides no price signal when the full cost of the connection project is covered by investment.

The investment coverage and average cost multiplier mechanisms are each used to establish a maximum investment level. If connection project costs are above that maximum, the market participant will pay a construction contribution, and if connection project costs are below that maximum, the market participant will not pay a construction contribution.

The AESO assumed that neither of the two mechanisms would result in a one-sided outcome where a vast majority of market participants either would pay or would not pay a construction contribution. Yet each mechanism, when applied to an individual connection project, would result in either a contribution being paid (which is assumed to indicate a price signal is being provided).
or no contribution being paid (which is assumed to indicate a price signal is not being provided). The AESO used both a cross mark and a check mark for those mechanisms to indicate that a price signal might or might not be provided, depending on the cost of an individual connection project in relation to the maximum investment level.

The AESO considered that there would be no cases where either the investment coverage or average cost multiplier mechanism would send a “partial” or “moderate” price signal. The price signal (as indicated by the payment of a contribution) would either be strong when a contribution was required or would be non-existent when no contribution was required, with that outcome indicated by the use of both a cross mark and a check mark.

(b) The AESO considers that intergenerational equity is maintained when an investment mechanism would result in similar proportions of investment and contribution for similar connection projects in similar circumstances but in different “generations” of projects. If an investment mechanism would result in different proportions of investment and contribution for similar projects in different generations, then intergenerational equity is not maintained.

Several of the investment mechanisms examined in the application are different in nature or structure from the investment levels approved in prior AESO tariffs. Those different mechanisms would be expected to result in different proportions of investment and contribution when applied to similar projects in different generations. Those mechanisms would therefore result in intergenerational inequity.

(i) Prior contribution policies of the AESO have either not included a revenue-related component or have included a small revenue-related component. Basing investment on a revenue test mechanism would therefore likely result in different proportions of investment and contribution for individual connection projects compared to prior contribution policies.

(ii) Prior contribution policies of the AESO have been based on project costs and not on maximum line length. Basing investment on a maximum line length mechanism would therefore likely result in different proportions of investment and contribution for individual connection projects compared to prior contribution policies.

(iii) Prior contribution policies of the AESO have been based on maximum investment level mechanisms and have not provided investment as a prescribed percentage of the cost of each connection project. Basing investment on a percentage cost coverage mechanism would therefore result in different proportions of investment and contribution for individual connection projects compared to prior contribution policies.

(iv) Prior contribution policies of the AESO have all provided some amount of investment to load connection projects. Adopting a zero investment mechanism would therefore result in different proportions of investment and contribution for individual connection projects compared to prior contribution policies.

As each of these four mechanisms would result in intergenerational inequity, each had a cross mark applied in that column in Table 4-1.
AUC-AESO-015

Reference
Exhibit 16, Application, paragraph 88

Issue/Sub-Issue
Investment mechanisms

Quote
“The AESO identified several different approaches that could be used to determine investment for connection projects.”

Preamble
The final scope of work included the review or principles and methodologies used for other utilities or in other jurisdictions relevant to transmission contributions, and in particular those used to establish maximum investment levels.

Request
Please comment on the types of mechanisms most commonly used in other jurisdictions and discuss commonality with those identified by the AESO.

Response
The AESO researched the range of investment mechanisms used in other jurisdictions rather than the frequency of use of those mechanisms. The AESO notes that investment mechanisms generally exist in a broader context of legislation and policy. For example, jurisdictions in which utilities are vertically integrated did not usually identify an investment mechanism specifically applicable to transmission connections. Simply considering the frequency of use of a mechanism may be of limited value without a more thorough examination of its legislative and policy context, especially since the AESO’s contribution policy must satisfy the context that exists in Alberta.

The AESO also observed that investment mechanisms sometimes varied between transmission connections for generators and transmission connections for loads, as well as between connections for interstate transmission and connections for intrastate transmission. For some of the investment mechanisms discussed in the application (such as the maximum line length mechanism), no jurisdictions were identified in which the mechanism was applied to transmission connections.

However, and having consideration for the foregoing comments, the AESO believes the most common investment mechanism in other jurisdictions is the zero investment approach discussed in the application (section 4.1, page 21, paragraph 95). The zero investment mechanism is applied to transmission connections for generators in Alberta, but has little in common with prior and existing investment mechanisms applied to transmission connections for loads in Alberta, which have all provided investment up to a calculated maximum investment level.
AUC-AESO-016(a-c)

Reference
Exhibit 16, Application, paragraph 105, Decision 2011-474

Issue/Sub-Issue
Contributions between regulated utilities

Preamble
The AESO considers that this requirement for contributions by distribution system owners to transmission facility owners should be maintained in the AESO’s contribution policy.

Equity ratios for the Alberta utilities for 2011 and 2012, and until further changed by the Commission, are as set out in Decision 2011-474, page 104.

Request
(a) As outlined in Decision 2011-474, the equity ratios for distribution system owners are higher than those approved for transmission facility owners. Given this difference in equity thickness, and given the AESO’s proposal to continue the requirements for distribution facility owners to pay contributions, how has the construction contribution policy considered and addressed the problem of rate payers being required to pay a higher rate of return than if the funding originated with the TFO?

(b) Please summarize the working group’s discussions and the conclusions reached around the concern described in (a).

(c) Did the AESO consider the possibility of mandatory conversion of unamortized distribution system owner contributions to Rider I as a way of addressing the concern described in (a)? Please summarize the working group’s discussions and the conclusions reached.

Response
(a) The AESO understands that higher equity ratios have existed for distribution system owners for several years, as established, for example, in Alberta Energy and Utilities Board (Board) Decision 2004-052 regarding the 2004 Generic Cost of Capital proceeding (section 5.5, page 55). During that same period, distribution system owners have been required to pay construction contributions for transmission connection projects, as specifically confirmed in Decision 2005-096 which stated (section 6.1.5, page 60), “The Board considers that it is both consistent with past practice and consistent with the desire to send efficient pricing signals through the contribution policy that customer contribution costs incurred by a distribution utility should be recovered through the distribution utility’s own tariff.”

The AESO provided several reasons in the current application (section 5, page 23, paragraphs 106-112) in support of continuing the practice of distribution system owners paying construction contributions. Those reasons included maintaining equity with past practice and sending effective price signals, the two reasons mentioned in the quoted text from Decision 2005-096.
The AESO has anecdotal experience where a distribution system owner appears to have responded to the price signal provided by requiring construction contributions. One specific instance involved locating a new substation where multiple alternatives existed, with the final location resulting in the smallest construction contribution among the alternatives considered. Another instance involved a new substation as an alternative to upgrading an existing substation, with the recommended alternative being the upgrade resulting in the smaller contribution between the two alternatives. Although the AESO does not consider such anecdotal evidence conclusive and cannot state that a different outcome would have occurred had no contribution been required, the AESO considers such experience to support continuing to require distribution system owners to pay construction contributions for transmission connection projects.

The AESO has proposed to continue the practice of distribution system owners paying construction contributions for consistency with the proposed contribution policy principles and for the additional reasons discussed above. The AESO considers the distribution system owners’ cost of financing such contributions, including matters of equity thickness, is beyond its mandate.

The AESO additionally observes that it has requested approval of a contribution policy which will provide investment for, on average, 70% of connection project costs, with the remaining 30% provided through construction contributions. Accordingly, if contributions were not required from distribution system owners, transmission facility owners would make additional investment only in that remaining 30% of distribution connection project costs. There would be no impact on the 70% of connection project costs already covered by investment under the AESO’s proposal.

(b) The working group discussed the different equity ratios between transmission facility owners and distribution system owners very briefly. The discussion instead focused on the several reasons provided in the application in support of continuing the practice of distribution system owners paying construction contributions. The working group generally considered those reasons to provide adequate support to continue requiring those contributions, as summarized in part (a) above.

(c) The AESO did not consider the possibility of mandatory conversion of unamortized distribution system owner contributions to Rider I. Matters related to the AESO’s proposed Amortized Construction Contribution Rider I were considered out-of-scope, in accordance with the Commission’s letter of July 12, 2011 which outlined the final scope of work and application filing schedule for the contribution policy proceeding.
AUC-AESO-017

Reference
Exhibit 16, Application, paragraph 155

Issue/Sub-Issue
Effect of distance

Quote
“Geographic location can add significant costs to a connection project, especially if a project requires long distances of transmission line.”

Request
Please fully explain how the AESO has reflected the incenting of proximate over distant connections in its proposed changes to its contribution policy.

Response
The price signal provided by the AESO’s contribution policy applies to both line-related and substation-related costs. That is, when connection project costs exceed the maximum investment level, incremental costs related both to the transmission line and to the substation will require equivalent incremental construction contribution from the market participant. The AESO considers that the incremental contribution required will provide an incentive for the market participant to reduce line-related costs by minimizing line length if possible.

However, the AESO notes that many market participants have limited opportunity to vary the location of their facilities. Market participants generally locate their facilities close to the resources or services they utilize, which may be oil or gas reserves; materials, labour, or transportation access for manufacturing; or residential and commercial load in an urban development. As the AESO commented in its application (section 3.1, page 14, paragraph 53), “It is difficult to assess the effectiveness of a contribution policy price signal ….”

The AESO also explained (section 10.1, page 57, paragraphs 268-269) that “in the AESO’s experience a change in construction contribution will have little, if any, effect on the number or size of system access service requests it receives …. However, the construction contribution paid by a market participant may still represent a material cost. Market participants appear to respond to the price signal of a construction contribution by optimizing … the service location on their property, to minimize their construction contributions.”

Despite the possibly limited effectiveness of a contribution policy price signal in reducing connection project transmission line length, the AESO considers that its proposed investment levels remain as effective as prior levels. The 69 AESO greenfield projects in the project data provided as Appendix A of the application included, on average, 10.0 km of transmission line per project, which the AESO considers reasonably representative of connection projects in general. The 26 AESO greenfield recent projects used to establish proposed maximum investment levels in the cost and investment functions analysis provided as Appendix B of the application included, on average, 10.7 km of transmission line per project.
The AESO therefore considers that, with respect to the length of line required to connect to existing transmission facilities, the recent projects are comparable to connection projects in general. Those recent projects would accordingly receive a price signal similar to that received by previous projects, assuming that intergenerational equity is maintained in the contribution policies applied to those projects as proposed by the AESO.
AUC-AESO-018

Reference
Exhibit 16, Application, paragraph 167

Issue/Sub-Issue
Inflation index

Quote
“The first modification recognized that the majority of material and construction costs for a connection project are typically incurred by a transmission facility owner 6 to 18 months prior to the in-service date of the project. Original costs for a connection project are therefore typically recorded by a transmission facility owner one year before a project’s in-service date. The AESO has accordingly escalated all project costs starting from the year before the project’s in-service date in the analysis used for this application. (The year before the in-service date is indicated as “ISD-1” in the project database.)”

Preamble
The rationale for escalating project costs used in the analysis for the application is unclear.

Request
Please fully explain the rationale for the escalation of project costs by one-year’s inflation discussed in paragraph 167.

Response
The connection project costs used in the development of a cost function are based on the original nominal-dollar costs recorded as and when incurred by a transmission facility owner. As part of the calculations for the cost functions in prior tariff applications, the AESO escalated those project costs from the in-service year to the year in which the construction contribution policy would be effective. (The AESO notes that the contribution provisions that apply to a connection project are those in effect when the Commission issues permit and licence for the project, in accordance with subsection 7(1) of section 8 of the AESO’s currently-approved tariff.)

When reviewing the inflation factor used for the cost function development for its proposed contribution policy, the AESO realized that a significant portion of the costs of a connection project are typically recorded shortly after permit and licence is issued, when major equipment such as transformers and towers are procured by the transmission facility owner. Construction then proceeds in the following months, with the project entering service typically 6 to 18 months after permit and licence was issued.

For example, for a typical connection project that received permit and licence in early 2010:
- major equipment costs would be incurred in mid-2010;
- construction labour costs would be incurred in late 2010; and
- the project would be placed in service in early 2011.

The majority of costs for the connection project would be recorded in 2010 dollars. However, the AESO previously escalated those costs starting from the in-service year of 2011. In this current contribution
policy application, the AESO has escalated project costs from the year before the in-service year (in this example, from 2010) to more accurately reflect the year in which the majority of the costs would have actually been incurred.
AUC-AESO-019(a-b)

**Reference**
Exhibit 16, Application, paragraphs 168 through 174

**Issue/Sub-Issue**
Inflation index

**Preamble**
The AESO discusses its rationale for adopting an alternative inflation index in paragraphs 168 through 174 of the application.

**Quote**
"In particular, the AESO reviewed inflation indices used by transmission facility owners in Alberta. Two indices (those used by ATCO Electric and ENMAX) are also based on Statistics Canada indices and have been accepted by the Commission in tariff applications of those utilities.

The ATCO Electric and ENMAX inflation indices both use the same two Statistics Canada indices:
- the Electric Utility Construction Price Index (EUCPI), a Canada-wide index that included distribution and transmission sub-indices, and
- Alberta Average Weekly Earnings (AWE), a province-specific labour index.

Each utility combines those two indices in proportions appropriate to their organization. The AESO considered the ATCO Electric and ENMAX indices to be reasonable alternatives and compared them historically to the AESO's composite index, as illustrated in Figure 7-1.

The AESO index factor tends to be somewhat more volatile than the both the ATCO Electric and ENMAX indices, displaying higher peaks and lower valleys. The ENMAX index is the least volatile of the three indices compared in Figure 7-1.

For its analysis in this application, the AESO is proposing an inflation index similar to ENMAX's. The AESO has developed an index using the EUCPI Transmission and Alberta AWE Statistics Canada indices, weighted in proportion to the equipment and labour costs for connection projects in the project database. The AESO proposes a weighting of 53.2% EUCPI Transmission and 46.8% Alberta AWE.

The AESO considers the proposed index to be less volatile and simpler than its previous composite index. The Statistics Canada indices it is based on are publicly available and long-standing, and are not expected to be discontinued in the foreseeable future."

**Request**

(a) Please provide the values of EUCPI Transmission and Alberta AWE indices for each of the years 1996 to 2011, inclusive.

(b) Please explain the basis for the AESO’s proposal to apply weightings of 53.2 per cent and 46.8 per cent for the EUCPI Transmission and Alberta AWE indices respectively.
Response

(a) The AESO notes that the reference to AWE (Average Weekly Earnings) in the application was incorrect. The ATCO Electric index incorporates AWE, while the ENMAX index incorporates AHE (Average Hourly Earnings). The index used by the AESO as provided in Appendix A of the application (“2012 Escalator” sheet) relies on AHE, similar to the ENMAX index.

The following values reflect EUCPI Transmission and Alberta AHE for the years 1996 to 2011, extracted from Appendix A – 2012 Escalator of the application.

<table>
<thead>
<tr>
<th>Year</th>
<th>Electric Utility Construction Price Index; Canada; Transmission Line Systems</th>
<th>Average Hourly Earnings for Salaried Employees; Alberta</th>
<th>Index 1992 base year $\frac{(53.2% \times \text{EUCPI}) + (46.8% \times \text{AHE}/19.3)}{1}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>113.5</td>
<td>20.78</td>
<td>110.88</td>
</tr>
<tr>
<td>1997</td>
<td>115.7</td>
<td>21.33</td>
<td>113.38</td>
</tr>
<tr>
<td>1998</td>
<td>121.0</td>
<td>21.99</td>
<td>117.81</td>
</tr>
<tr>
<td>1999</td>
<td>122.2</td>
<td>22.25</td>
<td>119.08</td>
</tr>
<tr>
<td>2000</td>
<td>124.7</td>
<td>23.04</td>
<td>122.33</td>
</tr>
<tr>
<td>2001</td>
<td>127.0</td>
<td>23.96</td>
<td>125.78</td>
</tr>
<tr>
<td>2002</td>
<td>129.2</td>
<td>24.47</td>
<td>128.19</td>
</tr>
<tr>
<td>2003</td>
<td>126.4</td>
<td>25.21</td>
<td>128.50</td>
</tr>
<tr>
<td>2004</td>
<td>129.0</td>
<td>26.27</td>
<td>132.46</td>
</tr>
<tr>
<td>2005</td>
<td>130.9</td>
<td>27.14</td>
<td>135.59</td>
</tr>
<tr>
<td>2006</td>
<td>136.2</td>
<td>28.19</td>
<td>140.96</td>
</tr>
<tr>
<td>2007</td>
<td>142.6</td>
<td>29.83</td>
<td>148.35</td>
</tr>
<tr>
<td>2008</td>
<td>148.8</td>
<td>31.79</td>
<td>156.41</td>
</tr>
<tr>
<td>2009</td>
<td>149.7</td>
<td>32.77</td>
<td>159.27</td>
</tr>
<tr>
<td>2010</td>
<td>150.7</td>
<td>34.54</td>
<td>164.10</td>
</tr>
<tr>
<td>2011</td>
<td>153.7</td>
<td>35.67</td>
<td>168.45</td>
</tr>
</tbody>
</table>

(b) The weightings of 53.2% and 46.8% were the weightings established for equipment and labour costs in detailed analysis in the AESO’s 2010 ISO tariff application. That analysis found substation and line costs constituted 53.2% of project costs. The transmission line systems costs included in the EUCPI Transmission Line Systems index are considered representative of substation and line costs.

In the same analysis, engineering and construction costs were found to constitute 46.8% of project costs. Those costs are well-represented by the Alberta AHE index.

The AESO considers these weightings to be representative of the connection project data set.
AUC-AESO-020

Reference
Exhibit 16, Application, Section 7.1, Decision 2010-606

Issue/Sub-Issue
Inflation index

Preamble
In its 2010 general tariff application, the AESO proposed to make annual tariff update filings that would include annual updates to investment amounts approved in the most recent comprehensive tariff reflecting an escalation factor based on the most recent Conference Board of Canada Alberta Consumer Price Index (CPI). In Decision 2010-606 (paragraphs 550 and 551), the Commission approved the AESO’s proposal.

Request
Please provide the value for the price index referenced in the preamble for the years 1996 to 2011.

Response
The AESO’s prior composite price index was based on four components described in its 2010 ISO Tariff Application – POD Cost Function and Investment Level Update, as follows.


(iii) The “Consulting engineering services price indexes by market and by field of specialization – Alberta – Industrial services (v92756)” index from Statistics Canada, utilized to escalate engineering-related cost. Values for this index are not available for 1987-1989 and 2008-2009. For 1987-1989, the index values were approximated as the average increase in the index for the years 1990-1994. For 2008, the index value was replaced with the “APEGGA – Value of Professional Services – Engineers – All Industries” values (from http://www.apegga.org/Members/Publications/salarysurvey.html) calculated using the dollar-weighted average of the escalation rates for all levels. For 2009, the index value was increased proportional to the increase in Alberta CPI.

(iv) The average of “Non-residential building construction price indexes – Calgary, Alberta – Total, industrial structures (v44176046)” and “Non-residential building construction price indexes – Edmonton, Alberta – Total, industrial structures (v44176050)” from Statistics Canada, for Calgary and Edmonton respectively, utilized to escalate construction cost.

Each index was weighted by the cost in the corresponding category to provide a composite escalator.
Attachment AUC-AESO-020 – 2010 Inflation Index Components provides the values for these price indices, as well as a table indicating the derivation of the composite index present value factor. The second sheet in the workbook shows a comparison of the 2010 composite index and the 2012 proposed inflation index.
AUC-AESO-021(a-b)

Reference
Exhibit 16, Application, paragraph 138, Figure 7-7

Issue/Sub-Issue
Connection project data

Quote
“For this application, the AESO compiled final project costs and updated estimates for connection projects included in the 2010 POD Cost Function Update.”

Request

(a) Please comment on the extent to which connection project costs differed as between what was included in the 2010 POD Cost Function compared to the final project costs and updated estimates used for this application.

(b) To what extent does the adjustment for final project costs and updated estimates influence the cost function? Show graphically in a revised Figure 7-7.

Response

(a) The original 2010 Application dataset consisted of 46 greenfield projects and 18 pre-AESO projects. In the 2010 analysis, project cost estimates at the PPS level were included. For this 2012 application, the most recent cost estimates were updated and final costs were recorded where available.

The AESO notes that in addition to updating 2010 project data and adding new projects, other project updates were included in the 2012 data set.

(i) Both projects 10 and 79 entailed the construction of 2 substations. These costs were separated out resulting in 4 new projects, 10A, 10B, 79A and 79B. (+2 projects)

(ii) Project 44 was removed as it was granted an industrial system designation. Connections with industrial systems are not included in the greenfield project analysis as such project include generation and are generally atypical. (-1 project)

(iii) Project 170 was incorrectly included as a greenfield project in the 2010 data. This project actually entailed upgrades at five separate substations. This project is now divided into 5 projects and included in the upgrade project data. (-1 project)

(iv) Project 579 was incorrectly included as a greenfield project in the 2010 data (now included in upgrade project data). (-1 project)

In addition to cost data, the AESO updated all DTS capacity data. To this extent, if a connection project requested additional capacity that did not require the construction of additional facilities; the maximum DTS value for the substation was revised.
The AESO added 24 new projects to the dataset, where estimates were available at the PPS level and a facility application had been filed for the project.

Please see Attachment AUC-AESO-021 “Updated 2010 Data” tab for a comparison of the differences in costs and maximum DTS capacity for the 2010 and 2012 datasets.

(b) Please see Attachment AUC-AESO-021 “Comparison” tab.
Reference
Exhibit 16, Application, paragraph 188

Issue/Sub-Issue
Incorporating upgrade projects

Quote
“Since the cost to accommodate the initial capacity at an upgrade project was based on the original power curve, the new power curve changed the data points for the upgrade projects slightly. Therefore the data points for the upgrade projects were recalculated based on this first iteration of the power curve, and the new upgrade data points were then used with the greenfield data points to develop another iteration of the power curve. This iterative process … was repeated 15 times to allow the power curve determinants to converge on stable values.”

Request
(a) Confirm that the two lines shown in Figure 7-4 are a good representation of the addition of the upgrade projects at iteration #1 (Greenfield-Only) and at iteration #15 (Greenfield and Upgrade). If not, please fully explain.

(b) Please comment on why the iterative process used to develop a stable power curve does not bias the upgrade project data.

Response
(a) The two lines in Figure 7-4 represent:

(i) the cost function for greenfield projects only, prior to any iteration to include upgrade projects, and

(ii) the cost function after the 15th iteration to include upgrade projects.

(In the naming convention used in Appendix B of the application, “Iteration 1” is the cost function after the 1st iteration to include upgrade projects, rather than the cost function for greenfield projects only.)

(b) An upgrade project represents construction of transmission facilities to increase the capacity of or improve system access service to an existing point of delivery. The existing point of delivery may consist only of original greenfield construction or may also include one or more prior upgrades to an original greenfield project. The AESO notes that Table 6-1 in the application (section 6.1.4, page 30) indicates that 69 AESO greenfield projects and 128 upgrade projects occurred over the 1999-2013 period. This suggests that upgrade projects are about twice as common as greenfield projects and, accordingly, that greenfield projects are frequently upgraded more than once.

As discussed in the application (section 7.3, page 37, paragraphs 185-188), incorporating an upgrade project into the cost function should reflect the cost of accommodating capacity at an
existing substation. However, it should not add another instance of the original cost of the existing substation. The approach used by the AESO, which calculates the original cost of the existing substation using the cost function, avoids any impact from multiple additions of the original cost of a substation at which an upgrade occurs.

However, as discussed above, the original cost of a substation at which an upgrade occurs is likely to consist of original greenfield construction plus one or more prior upgrades. The calculation of the original cost of the existing substation should therefore use the cost function after, rather than before, incorporating upgrade projects. The iterative process used by the AESO allows the use of the “with upgrades” cost function in the calculation of the “with upgrades” cost function itself.

The AESO considers that the iterative process reflects the reality that greenfield projects are frequently upgraded more than once. The iterative process provides a more representative cost function, rather than introducing an inappropriate bias.
AUC-AESO-023(a-d)

Reference
Exhibit 16, Application, paragraph 196

Issue/Sub-Issue
Revised cost function

Quote
“… the most significant change in the cost function results when greenfield project data is updated and new greenfield projects are added into the database. Both the impact of using the revised inflation index and that of incorporating upgrade projects are significantly smaller than the impact of updating the greenfield project data.”

Request
(a) Given the assumptions and data manipulation that was needed in order to incorporate the upgrade projects and given the limited impact on the cost function, comment on the advantages and disadvantages of keeping the upgrade projects in the data set compared to continuing the past practice of using of Greenfield-Only projects.

(b) How well does the revised inflation index track actual increases in connection project costs? Please support your response with relevant data.

(c) Is there anything unique about the 23 new connection projects relative to the existing (2011 tariff) connection project data mix that would explain the increase in costs? If so, what are the distinguishing features? Is it possible that this is something that may reverse itself – i.e., projects fall more in line with the “typical project mix” and, as a result, more in line with the existing cost function?

(d) Plot the 23 new connection projects relative to the existing 2011 cost function.

Response
(a) As the AESO explained in its application, "The previously-developed investment levels had been assessed against upgrade project costs and found to provide a reasonable level of investment, but upgrade projects themselves were not included in the development of the cost functions or investment levels …. The AESO considers that incorporating costs of both greenfield and upgrade projects results in a cost function that better reflects cost causation for all connection projects." (section 7.3, page 36, paragraphs 183-184) The AESO generally views the lack of inclusion of upgrade projects in prior cost functions to be a limitation of those cost functions, which has been overcome with the proposed approach.

Incorporating upgrade projects into the cost function development has the following advantages.

(i) It improves the price signal provided to upgrade projects. The AESO suggests the price signal improvement is illustrated by comparing Figure 8-6 in the application (section 8.2, page 48) to Figure 8-9 (section 8.2, page 52). Figure 8-6 provides current investment based
on the greenfield-only cost function, and shows a discontinuity between investment provided to upgrade projects and that provided to greenfield projects. Figure 8-9 provides investment based on the cost function with upgrade projects, and shows that the investment discontinuity has disappeared.

(ii) It better reflects the cost causation basis of all connection projects, resulting in both investment levels and rates that are better aligned with costs incurred through upgrade projects as well as greenfield projects.

(iii) It improves the equitable treatment of all load market participants, including market participants who initially contract for future load stages as well as those who later request increases that result in upgrade projects.

The disadvantage of incorporating upgrade projects is the complexity it adds to the cost function development. This additional complexity arises only in tariff applications, however, and is mitigated by the AESO’s ability to repeat the methodology included in this application.

The AESO considers that this disadvantage is outweighed by the advantages discussed above, especially given that 128 upgrade projects have occurred during the same period as 69 greenfield projects, as summarized in Figure 6-1 in the application (section 6.1.4, page 30).

(b) The AESO considers that the data used for Figure 3-2 in the application (section 3.1, page 16) provides a measure of actual increases in project costs. The annual increases in actual project costs in Figure 3-1 are compared to average inflation (using the revised inflation index) over the same years in the table below.

<table>
<thead>
<tr>
<th>Years</th>
<th>Project Costs (Unescalated) ($ 000 000)</th>
<th>Annual Increase (Decrease)</th>
<th>Annual Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>5.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2001</td>
<td>4.5</td>
<td>(3.6%)</td>
<td>1.7%</td>
</tr>
<tr>
<td>2003</td>
<td>7.7</td>
<td>30.2%</td>
<td>2.6%</td>
</tr>
<tr>
<td>2006</td>
<td>10.2</td>
<td>11.4%</td>
<td>4.8%</td>
</tr>
<tr>
<td>2007</td>
<td>11.2</td>
<td>6.4%</td>
<td>2.9%</td>
</tr>
<tr>
<td>2010</td>
<td>16.8</td>
<td>31.2%</td>
<td>2.9%</td>
</tr>
<tr>
<td>2011</td>
<td>26.6</td>
<td>58.2%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>17.1%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

Although the data in the table is indicative rather than precise, the AESO considers that the magnitude and variability of the annual project cost increases exceeds any publicly-available inflation indices. The AESO accordingly concluded that factors other than inflation are significantly impacting connection project costs.

As discussed in the application (section 6.2, pages 30-33), the variability of project costs results from many factors, including radial line requirements, transmission voltage level, substation configuration, varying geography and construction conditions, and overall project complexity. In addition to these general factors, the AESO identified additional “outlier factors” which, in combination, have resulted in several projects being significantly above average project costs.

(c) The AESO notes there are 24 new greenfield connection projects in the data set as discussed in information response AUC-AESO-021(a). Section 6.2.1 of the application (pages 30-32)
discusses the “outlier projects” that exhibited the largest differences from average project costs. The AESO considered 14 projects to be outliers, based on the project cost being more than 170% higher than the average cost function estimate.

Of the 24 new connection projects, 9 were included in the outlier group. The AESO has compiled project information for these 24 projects from Appendix A of the Application, including connection type, geographic location co-ordinates, number of transformers, substation voltage, and transmission line length for each of these projects. The data is provided in Attachment AUC-AESO-023(c-d) – New Projects Details. Section 6.2.1 of the application also noted that numerous factors contributed to the higher-than-average costs of the outlier projects.

The AESO considers that projects which involved building in advance of bulk system expansion sometimes include costs of facilities which may potentially be converted to system facilities (with an associated contribution refund). Additionally, facilities that are deemed participant-related for a connecting market participant may be used by future connecting market participants, which would also entitle the original connecting participant to a refund. These factors, however, are not new to recent projects, and such adjustments to past projects have also occurred as contemplated in section 9 of the AESO tariff.

In conclusion, the AESO has not identified any characteristics that are unique to the new connection projects that would explain the observed increase in costs. Furthermore, significant increases in costs have also occurred in prior years, as indicated in part (b) above. The AESO has no basis to expect that the most recent cost increase will reverse itself to align with the existing cost function.

(d) Please see Attachment AUC-AESO-023(c-d) – New Projects.
AUC-AESO-024(a-e)

Reference
Exhibit 20, Appendix D

Issue/Sub-Issue
System vs. participant cost classification

Preamble
In Appendix D to the application, the AESO provides a proposed revision to Section 8 of its tariff terms and conditions. Subsection 3 of Section 8 pertains to the classification of participant related and system related costs. The Commission wishes to understand how the classification of system vs. customer costs has changed over time and the impact of any changes on the customer contribution policy.

Request
(a) Please provide excerpts from the tariff terms and conditions that are comparable to subsection 3 of Section 8 for each of the years 2000, 2001, 2003, 2006, 2007, 2010 and 2011.

(b) Does the AESO agree that, after the enactment of the Transmission Regulation in 2004, the AESO has more proactively planned and constructed new system transmission facilities to anticipate future customers and load growth? If the AESO does not agree, please fully explain.

(c) Considering your response to (b), does the AESO agree that prior to the enactment of the transmission regulation, there was a greater likelihood that the facilities of direct-connect customers who located their operations away from the existing or planned transmission system would be designated as market participant or customer facilities and be subject to assessment under the customer contribution policy in effect at the time. If the AESO does not agree, please fully explain.

(d) Considering your response to (c), please discuss how, if at all, the AESO considers that changes in the classification of costs as system vs. market participant costs over time should be taken into account when assessing investment levels over various time periods.

(e) Please confirm that the AESO will not be proposing any changes to the provisions governing the classification of participant-related and system related costs set out in subsection 3 of Section 8 of its tariff terms and conditions in its next major GTA. If this cannot be confirmed, please fully describe the AESO’s current intentions.

Response
(a) Please see Attachment AUC-AESO-024(a) for the requested tariff excerpts.

(b) The AESO agrees that it is currently planning and constructing more new system transmission facilities, compared to those that were being planned and constructed a decade ago. The AESO considers that the increase in planning and construction responds to:
   - increases in load and generation connecting to the transmission system;
   - the limitations of the pre-existing transmission system to accommodate that growth; and
• the requirements in section 8(a) of the *Transmission Regulation* “that transmission facilities … be planned to be available in a timely manner to accommodate the forecast load and new generation capacity.”

(c) The AESO does not agree. The definitions of system-related and participant-related (previously customer-related) costs have remained generally consistent in the tariffs of the AESO and its predecessors since 2000, as evidenced by the excerpts provided in AUC-AESO-024(a) Attachment, and does not depend on whether services are located away from the existing or planned transmission system.

The question suggests that services were likely to be more distant from the pre-existing transmission system prior to 2004. The project data provided in Appendix A of the application provides the following information:

<table>
<thead>
<tr>
<th>Tariffs Applied to Greenfield Projects</th>
<th>Number of Projects</th>
<th>Average Line Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000, 2001, and 2003</td>
<td>29</td>
<td>11.1 km</td>
</tr>
<tr>
<td>2006 and 2007</td>
<td>25</td>
<td>8.0 km</td>
</tr>
<tr>
<td>2010 and 2011</td>
<td>15</td>
<td>11.2 km</td>
</tr>
<tr>
<td>All Tariffs</td>
<td>69</td>
<td>10.0 km</td>
</tr>
</tbody>
</table>

The data shows very similar average lengths of line associated with greenfield projects from different tariff periods, varying by no more than ±2 km from the average of 10 km over all projects. This indicates that services are currently being located a similar distance from the existing or planned transmission system as in the past, on average.

(d) As indicated in part (c) above, the definitions of system-related and participant-related (previously customer-related) costs have remained generally consistent in the tariffs of the AESO and its predecessors since 2000. As well, services are currently being located a similar distance from the existing or planned transmission system as in the past, on average. There is accordingly no need to specifically consider changes in the classification of system-related and participant-related costs when assessing investment levels over time.

Existing tariff provisions appropriately address both the classification of project costs as system-related and participant-related and the potential reclassification of participant-related costs as system-related, and have remained generally consistent over time. In the event those provisions change, the AESO would assess whether changes to its contribution policy would be required support the principles of providing effective price signals, maintaining intergenerational equity, being based on local costs, and being robust and sustainable. Such assessments would be made in the context of a tariff application by the AESO.

(e) The AESO does not expect to propose in its next comprehensive tariff application any changes to the provisions governing the classification of system-related and participant-related costs set out in subsection 3 of section 9 of its current tariff.
AUC-AESO-025(a-b)

Reference
Exhibit 16, Application, paragraphs 142 and 187

Issue/Sub-Issue
Inclusion of upgrade projects in cost analysis

Preamble
Starting at paragraph 187 of the application, the AESO describes its methodology for incorporating upgrade project costs in its connection project cost function analysis.

Request
(a) The AESO notes (in paragraph 143 of the application) that the cost of upgrade projects will typically not include transmission line costs or incremental costs related to line length. However, does the AESO agree that, all thing being equal, the total cost of a project completed in two or more stages should be greater than a project completed in a single stage as a Greenfield project because certain fixed costs (e.g. design, consultation, application preparation) may have to be incurred for each staged project? If the AESO does not agree, please fully explain.

(b) In instances where more than one upgrade project was required after the initial Greenfield construction, what steps has the AESO taken to ensure that the cost function dataset does not contain multiple “constructed” (Greenfield function cost plus observed upgrade cost) data points rather than a single constructed data point that is based on the multiple upgrades?

Response
(a) Yes, the AESO agrees that the total cost of a connection project completed in two or more stages should be greater than the cost of a connection project of similar capacity completed in a single stage, all else being equal.

Some preliminary investigation of this question in the contribution policy working group suggested that completing a connection project in two stages would increase costs by 5-10% compared to providing similar capacity in a single stage. The incremental cost would be expected to be highly variable, however, and especially dependent on the age and configuration of the substation at which the upgrade occurred.

(b) Under the AESO’s tariff, when construction of transmission facilities is required to increase the capacity of or improve system access service to an existing point of delivery, that construction is considered a separate project. Costs associated with the construction are eligible for investment (assuming the construction represents good electric industry practice), and investment is determined based on the incremental capacity and contract term associated with the construction. Costs associated with prior construction at the point of delivery, and any investment and contribution associated with that prior construction, do not affect the costs, investment, and contribution determined for the upgrade project.
Consistent with this tariff treatment of upgrade projects, the AESO incorporated each upgrade project as a separate data point in its cost function development. The original cost of the existing substation was calculated using the cost function, with the incremental cost and capacity associated with an upgrade then added to create an upgrade data point for each upgrade project.

Calculating the original cost of the existing substation using the cost function avoided any impact from multiple additions of the original substation into the data set. The actual cost of a substation will be included as a greenfield project only once, and will therefore influence the cost function curve only once. If an upgrade project later occurred at that substation, the inclusion of an original cost calculated using the cost function would then lie “on the curve” and would not have any impact on the cost function itself. The impact would be limited to the incremental cost and capacity of the upgrade project, which would likely result in an upgrade data point either above or below the curve.

Each separate upgrade project is similarly included once, and only once, in the cost function determination. Combining multiple upgrades at the same location into a single aggregate data point would be inconsistent with the treatment in the AESO’s tariff. For example, if a first upgrade had higher-than-average costs followed by a second upgrade with lower-than-average costs, a combined aggregate cost might be quite close to the average cost function, indicating that no contribution would be required. Yet the first upgrade may have been fully covered by investment while the second was not and did require a contribution. Combining the two upgrade projects would obscure that detail and make it more difficult to assess investment levels and investment coverage.

In conclusion, each greenfield project and each upgrade project is included as a separate data point in the development of the cost function, which is consistent with the AESO’s tariff and which provides the detail necessarily to fully assess investment levels and investment coverage.
AUC-AESO-026(a-c)

Reference
Exhibit 16, Application, paragraphs 198 and 199

Issue/Sub-Issue
Determination of investment level

Quote
“Similar to the methodology approved in recent AESO tariff applications, a multiplier is applied to the average cost function such that a target percentage of projects or of project costs would be covered by investment.”

And

“The AESO considers that a forward-looking contribution policy provides the most appropriate foundation for establishing investment levels. This differs from the point of delivery cost function, which should be based on analysis of all available connection project cost information to establish the average cost function used for both contribution policy and rate design purposes. Instead, recent project costs provide more relevant information on present and future cost trends when establishing investment levels to be applied to current and future connection projects.”

Request
(a) Does the AESO’s approach of using only recent projects to establish a multiplier for setting maximum investment levels conflict with the principle that investment levels should be determined on the same cost causation basis as are the related rate components? Please fully explain.

(b) Does a forward-looking contribution policy run the risk of setting investment policy based on the latest trend in connection projects? In other words, if the most recent connection projects are located at a greater distance or are built in advance of the bulk system – reflecting higher cost connection projects that would ordinarily pay a higher contribution – why should the contribution policy be adjusted to reflect these types of higher cost projects?

(c) Please comment on whether the approach of using recent project costs instead of all available connection project cost information would bias the contribution policy towards projects that cost more (or less) than the average cost function, depending on the “connection project mix” represented by the “recent project costs”.

Response
(a) No, the AESO does not consider its approach creates a conflict with the cost causation principle. The same cost function is used as the basis for investment levels and for the point of delivery charges in Rate DTS, resulting in identical shapes for both maximum investment and point of delivery charge as illustrated in Figure 3-3 in the AESO’s application (section 3.1, page 17).
In the AESO’s tariff since 2006, a multiplier has been applied to the cost function to determine investment levels. This current application continues that approach, and the use of a multiplier does not remove the cost function basis for the investment levels.

(b) The investment levels in the AESO’s application have been requested to apply to connection projects which receive permit and licence in 2012 and are expected to continue to apply to projects which receive permit and licence in 2013. The most recent connection projects for which the AESO has data are most likely to be similar to and representative of those 2012-2013 projects. The AESO found no characteristics of those recent projects that it expects to be absent from future projects.

The request suggests that the most recent connection projects may be located at a greater distance from the pre-existing transmission system than were prior projects. However, the data summarized in information response AUC-AESO-024(c) shows that services are currently being located a similar distance from the existing or planned transmission system as in the past, on average.

The request also suggests that projects may be being built in advance of the bulk system now more than in the past. However, the AESO identified this factor because it has encountered the conversion of participant-related costs to system-related costs for older projects that were originally built in advance of the bulk system. The AESO accordingly considers this a long-term characteristic of the growth of the transmission system.

The AESO discussed these and other factors in its examination of connection projects with costs significantly higher than average costs estimated using the cost function. The AESO noted in its application that, in general, “each of the outliers exhibited several of the factors mentioned above.” (section 6.2.1, page 32, paragraph 157) The AESO does not consider any single factor to be simply “the latest trend in connection projects.”

The AESO also notes that 26 recent greenfield projects, with in-service years from 2010 to 2014, comprise the recent projects used to establish the investment levels proposed in the application. The AESO considers those projects to represent a reasonably substantive data set that is unlikely to be unduly influenced by single factors such as those discussed above.

As one of the principles proposed in the AESO’s application, a contribution policy should be robust and sustainable. A robust and sustainable policy means that it “must accommodate changes to the service characteristics, functionality, and standards that apply to system access service, as those characteristics, functionality, and standards change over time.” (section 3.2, page 18, paragraph 77) Using recent projects to establish investment levels is a reasonable approach to recognize changes to service characteristics, functionality, and standards that occur over time.

Finally, the AESO notes its proposal to assess in 2013 the investment coverage provided to new projects by the approved investment levels. The AESO considers that, if service characteristics, functionality, or standards change such that lower investment levels would provide appropriate future investment coverage, then it would apply for lower investment levels at that time. However, the AESO does not consider the possibility that this might happen to be a valid reason to withhold appropriate investment from projects in 2012 and 2013.

(c) The approach of using recent project costs to establish investment levels should result in a contribution policy that reflects the costs of projects to which the investment levels would apply. The AESO suggests that if recent connection projects represent a different “mix” than connection projects overall, then the investment levels should reflect that, rather than ignore it. The AESO
considers that the investment levels will be applied to projects that will likely be more similar to recent projects than to projects built in a prior time period.

In particular, establishing investment levels based on the costs of all projects would discount changes to service characteristics, functionality, and standards that apply to system access service that may have occurred over time, and would therefore result in a contribution policy that does not satisfy the principle that it should be robust and sustainable as discussed in part (b) above.
**AUC-AESO-027(a-c)**

**Reference**
Exhibit 16, Application, paragraph 200

**Issue/Sub-Issue**
Determination of investment level

**Quote**
“The investment levels proposed in this application are based on 68 projects with in-service dates of 2010 or later. The 68 projects include 26 greenfield projects and 42 upgrade projects.”

**Request**
(a) Provide a plot of the 68 projects (distinguished between Greenfield and Upgrade projects) relative to the existing 2011 cost function.

(b) Provide a plot of the 68 projects (distinguished between Greenfield and Upgrade projects) relative to the proposed cost function.

(c) Based on the two figures, comment on why a forward-looking contribution policy provides a better foundation for establishing investment levels.

**Response**
(a-b) Please see Attachment AUC-AESO-027(a-b).

(c) As stated in its application (section 8.1, page 42, paragraph 199), “The AESO considers that a forward-looking contribution policy provides the most appropriate foundation for establishing investment levels.”

A forward-looking contribution policy provides investment levels that are appropriate for current and future connection projects, and provides price signals that influence market participants’ current and future decisions and considerations with respect to their requests for system access service. As the service characteristics, functionality, and standards applicable to connection projects change over time, a forward-looking contribution policy will also accommodate those changes and ensure that transmission facility owners remain equitably compensated if those changes affect the cost of the facilities they own.

A forward-looking contribution policy is primarily reflected in the following principles:

1. Provides effective price signals
2. Is based on cost causation
3. Is robust and sustainable
4. Compensates utilities equitable
AUC-AESO-028

Reference
Exhibit 16, Application, paragraphs 199 and 200

Issue/Sub-Issue
Project investment coverage

Quote
“The AESO considers that a forward-looking contribution policy provides the most appropriate foundation for establishing investment levels. This differs from the development of the point of delivery cost function, which should be based on analysis of all available connection project cost information to establish the average cost function used for both contribution policy and rate design purposes. Instead, recent project costs provide more relevant information on present and future cost trends when establishing investment levels to be applied to current and future connection projects.

Based on this consideration, the AESO proposes to use only recent projects to establish a multiplier for setting maximum investment levels. The investment levels proposed in this application are based on 68 projects with in-service dates of 2010 or later. The 68 projects include 26 Greenfield projects and 42 upgrade projects.”

Preamble
As noted above, the AESO proposes to use projects with in-service dates after 2010 to establish a multiplier for setting maximum investment levels. Given that the AESO’s current contribution policy was given effect on January 1, 2010, is possible that some of the 68 used in the AESO’s multiplier level analysis would have reflected market participant decision making reflecting the new contribution policy, including the Good Electric Industry Practice (GEIP) standard.

Request
For each of the 68 projects please provide:
- the project number shown in column “A” of the “Investment Proposed” tab of Appendix B
- the total market participant cost of the project (column “J” of “Investment Proposed” tab of Appendix B)
- an indication as to whether the pre or post 2010 contribution policy was used to determine the contribution actually paid on the project, if any
- the cost of facilities that the AESO has deemed to be in excess of GEIP, if any

Response
Please see Attachment AUC-AESO-028.
AUC-AESO-029

Reference
Exhibit 16, Application, paragraph 227 and Figure 8-7

Issue/Sub-Issue
Target investment level

Quote
“The contribution policy should also limit unused investment to avoid potentially encouraging market participants to request facilities beyond those needed to accommodate their requests for system access service.”

Request
What are the advantages and disadvantages of increasing the unused investment levels, which are almost non-existent at the 50 per cent level compared to the level of unused investment available at the proposed 70 per cent level?

Response
Unused investment refers to that portion of a calculated maximum investment that exceeds actual connection project costs and is therefore not required or used as investment in the project. Changes in unused investment are an outcome of changes to maximum investment levels.

An increase in unused investment will result from an increase in maximum investment levels. Increasing maximum investment levels to target investment coverage of 70% has the advantages of satisfying the contribution policy principles of providing effective price signals, maintaining intergenerational equity, being robust and sustainable, and compensating utilities equitably, to an appropriate and reasonable level as proposed in the application.

An increase in unused investment will have the disadvantage of market participants potentially failing to appropriately consider the costs of connections when requesting system access service, requiring additional monitoring of connection projects by the AESO to ensure investment is not provided for:

- facilities beyond those required to accommodate market participants’ need for system access service, or
- facilities in excess of good electric industry practice.
AUC-AESO-030(a-d)

Reference
Exhibit 16, Application, paragraphs 230 and 253

Issue/Sub-Issue
Target investment level

Quote
“The AESO instead proposes that an investment level be established using a multiplier applied to the average cost function, such that 70% of aggregate recent project costs are covered by investment.”

And

“The AESO considers that from the perspective of historical investment coverage, a target of 70% (as represented by the final bar in Figure 8-10) is reasonable. It is slightly higher than the average of 68%, which the AESO considers reasonable as the lower investment levels of recent tariffs have, at least in part, been responsible for this separate contribution policy proceeding.”

Request
(a) To what extent was the selection of a target investment level driven by the consideration that lower investment levels “have, at least in part, been responsible for this separate contribution policy proceeding”?

(b) Please comment on whether the recent findings and directions of the Commission in the 2011 Generic Cost of Capital proceeding (Decision 2011-474) related to an approval in principle for Rider I and the reasons for denying the proposed management fee alleviates most of the concerns about the lower investment levels of recent tariffs.

(c) If the answer to (b) is yes, is it still necessary to propose an investment target that is slightly higher than the average of 68 per cent?

(d) What are the advantages and disadvantages of reducing the investment target towards the 50 per cent level?

Response
(a) The selection of 70% as a target investment coverage represents a reasonable balance of satisfying, to the greatest extent possible, all the contribution policy principles proposed in the AESO’s application, as discussed in section 8.3 (pages 52-54, paragraphs 248-255). The AESO does not consider that it gave undue consideration to any specific principle or to any specific concern identified during the development of the application.

The AESO understands that the frequency and amount of contributions required under its recent tariffs have, at least in part, been responsible for this separate contribution policy proceeding. The final scope of the proceeding established in the Commission’s letter of July 12, 2011, included reviewing changes in the frequency and amount of contributions over time. The AESO
accordingly considers the frequency and amount of contributions to be an important concern that needed to be addressed, but not more important than the contribution policy principles and other concerns discussed in the application.

(b) No, the AESO does not consider the recent findings and directions of the Commission with respect to Rider I alleviate concerns about the frequency and amount of contributions under recent tariffs. Rider I is an option that provides an alternative to up-front payment of a contribution, but does not reduce the size of a contribution or remove the requirement for a market participant to pay a contribution. The frequency and amount of contributions is a separate matter that needs to be addressed along with the contribution policy principles and other concerns discussed in the application.

(c) The AESO considers that the target investment coverage of 70% continues to represent a reasonable balance of satisfying, to the greatest extent possible, all the contribution policy principles proposed in the AESO’s application.

(d) Setting maximum investment levels to target investment coverage of 50% would have the advantages of:
   • reducing upward pressure on point of delivery charges under Rate DTS as discussed in section 10.2 of the application (pages 58-60, paragraphs 274-284); and
   • reducing the amount of unused investment available for some connection projects, thereby ensuring those market participants appropriately consider the costs of connections when requesting system access service.

However, the AESO considers that target investment coverage of 50% would be unreasonably low and would have the disadvantages of:
   • failing to reasonably satisfy the contribution policy principles of providing effective price signals, maintaining intergenerational equity, being robust and sustainable, and compensating utilities equitably; and
   • continuing to prompt frequent expressions of dissatisfaction and complaints from market participants arising from the frequency and magnitude of construction contributions.
AUC-AESO-031(a-b)

Reference
Exhibit 16, Application, paragraph 288

Issue/Sub-Issue
Rate changes

Quote
“Although the AESO has provided this information to illustrate potential rate impacts that will result from a change to the cost function, the AESO is not requesting any change to its rates at this time. The AESO anticipates that the use of an updated cost function for rate design purposes will be examined in the comprehensive tariff application it will file in March 2013, in accordance with directions included in Decision 2010-606 on the AESO’s 2010 ISO tariff application.”

Request
(a) Please confirm that the AESO intends to update the POD charge component of rate DTS to reflect the updated cost function devised in Section 7 of the application in its next comprehensive tariff application. If this cannot be confirmed, please clarify the AESO’s current plans.

(b) In light of your response to (a), please comment on the reasonableness of adopting changes in the cost function for contribution policy purposes outside of a proceeding where the rate design impact of the cost function will be tested.

Response
(a) Confirmed.

(b) One of the AESO’s primary contribution policy principles is a basis on cost causation, which means, “Investment levels should be determined on the same cost causation basis as are the related rate components ….” (Application, section 3.1, page 16, paragraph 67)

However, having the same cost causation basis does not mean the identical cost function must be used at all times for both the maximum investment levels and the design of the point of delivery charge in Rate DTS. In particular, the AESO notes that a construction contribution is paid for a service at a point in time and is not subject to later change, while Rate DTS charges for that service will be paid for many subsequent years and subject to changes reflecting revisions and updates to the cost function.

The AESO accordingly considers it reasonable to adopt the changes in the cost function for contribution policy purposes outside of a proceeding where the rate design impact of the cost function will be tested.

The cost function for contribution policy purposes should be updated without waiting for the AESO’s next tariff application to:

- ensure the contribution policy is based on the best information currently available; and
• incorporate upgrade projects into the cost function, which the AESO considers to result in a cost function that better reflects cost causation for all connection projects.

It would be inappropriate to also adjust the point of delivery charge in Rate DTS to reflect the proposed cost function at this time as stakeholders have not been advised that such an adjustment could happen. The AESO expects that some stakeholders who would be affected by a change to the point of delivery charge have not participated in this contribution policy proceeding, as adjusting the point of delivery charge was not included in the final scope of work for the proceeding set out in the Commission’s letter of July 12, 2011. As noted in that letter, the AESO had argued the contribution policy proceeding should be integrated into the AESO’s next tariff application to “allow coordination with activities such as development of the point of delivery charge” (paragraph 12); the Commission rejected the AESO’s position and considered “that there is merit in a focused proceeding that is separate from the tariff application.” (paragraph 13)

The AESO does not consider that this separation of the contribution policy proceeding from a tariff application supports a delay to implementing the proposed refinements to the cost function for contribution policy purposes. The AESO submits that if further adjustments to the cost function result from the next tariff application proceeding, those adjustments can also be incorporated into the contribution policy at that time. As already mentioned, over time differences will exist between the cost function used for the rate being paid and the cost function on which a contribution policy was based.
AUC-AESO-032(a-c)

Reference
Exhibit 16, Application

Issue/Sub-Issue
Stranded cost risk

Request
(a) Please provide the AESO’s estimate of the average service life of the assets that would typically be installed to accommodate a Greenfield connection project.

(b) Considering the average service life estimates provided in response (a), and considering the fact that the AESO’s tariff provides for maximum DTS contracts of 20 years, minimum contract terms of 5 years, and permits DTS terminations or contract reductions on 5 years notice, does the AESO agree that, all things being equal, adopting a contribution policy that increased investment levels would increase the stranded cost risk borne by the AESO’s ultimate end-use customers? If the AESO does not agree, please fully explain.

(c) In light of the stranded cost issues discussed in part (b), how does the AESO consider that potential increases in stranded cost risks should be taken into account in the AESO’s contribution policy design?

Response
(a) Based on the depreciation studies filed as part of AltaLink’s 2013-2014 General Tariff Application (Application No. 1608711 and Proceeding ID No. 2044) and ATCO Electric’s 2013-2014 Transmission General Tariff Application (Application No. 1608610 and Proceeding ID No. 1989), the AESO expects most of the assets which comprise greenfield connection projects would have average service lives of 45-60 years, depending on the specific facilities involved.

(b-c) If investment in a connection project was based on the revenue received from the service over the life of the connection facilities, then an increase in investment would result in an increase in the magnitude of potentially stranded costs from that service. However, the AESO’s contribution policy is not based on a revenue test mechanism (as discussed in the AESO’s application, section 4.1, page 20, paragraph 91), and there is not a direct correlation between amount of investment and potential stranded cost risk.

For clarity, the AESO notes that, effective with the proforma agreements approved as Appendix B of the AESO’s current tariff, system access service agreements no longer have a maximum contract term. For example, subsection 9 of the proforma Rate DTS agreement states, “This DTS Agreement … will continue unless it is terminated in accordance with the ISO tariff.” This reflects the ongoing nature of almost all system access services provided by the AESO. However, the AESO also notes that the investment term used to calculate investment must be from 5 to 20 years, and the additional comments below are provided in the context of those limits to investment term.
The AESO further notes that a system access service reduction or termination under Rate DTS does not in itself present a stranded cost risk, as such an event would result in an adjustment to the construction contribution associated with that service under section 9 of the ISO tariff.

A correlation between amount of investment and amount of stranded cost at risk should not, in the AESO’s opinion, prevent the approval of a contribution policy that satisfies the principles proposed in the application. In particular, the AESO does not recall that the amount of stranded cost at risk has been a consideration when prior contribution policies were approved for the AESO and its predecessors. Giving increased significance to such a consideration now would therefore also conflict with the primary principle of maintaining intergenerational equity.

The AESO considers that the risk of stranded cost resulting from investment becoming unrecoverable due to a market participant’s default or abandonment of a service is extremely small regardless of the level of investment. The AESO does acknowledge that, everything else being equal, a larger amount of investment will result in a larger stranded cost in such a circumstance.
AUC-AESO-033(a-b)

Reference
Exhibit 16, Application, paragraphs 199, 200 and 302

Issue/Sub-Issue
Project investment coverage analysis

Quote
“The AESO considers that a forward-looking contribution policy provides the most appropriate foundation for establishing investment levels. This differs from the development of the point of delivery cost function, which should be based on analysis of all available connection project cost information to establish the average cost function used for both contribution policy and rate design purposes. Instead, recent project costs provide more relevant information on present and future cost trends when establishing investment levels to be applied to current and future connection projects.

Based on this consideration, the AESO proposes to use only recent projects to establish a multiplier for setting maximum investment levels. The investment levels proposed in this application are based on 68 projects with in-service dates of 2010 or later. The 68 projects include 26 greenfield projects and 42 upgrade projects.”

And

“The AESO’s tariff currently includes an annual update of investment levels to reflect inflation. Inflation has not kept pace with costs of connection project[s], however, as illustrated earlier in this application.”

Request
(a) Please explain why the AESO has determined that only recent projects rather than the consideration of costs of recent projects in conjunction with (appropriately inflated) historical projects should be used to establish a multiplier for setting maximum investment levels.

(b) In consideration of the AESO’s observation in paragraph 302 of the application that “…(i)nflation has not kept pace with costs of connection project[s]…,” please explain why the AESO considers this has occurred.

Response
(a) As discussed in information response AUC-AESO-026(b-c), the proposed investment levels have been requested to apply to future connection projects only — specifically, those that receive permit and licence on or after July 1, 2012. The proposed investment levels are not expected to apply to projects that received permit and licence prior to July 1, 2012. Therefore, using historical projects to establish a multiplier for setting maximum investment levels would not appropriately represent the projects to which the maximum investment levels are expected to apply.

Instead, the AESO considers that the most recent connection projects for which the AESO has data are most likely to be similar to and representative of those future connection projects.
As discussed in information response AUC-AESO-023(b), the increases in average connection project costs illustrated in Figure 3-2 of the AESO’s application (section 3.1, page 16) exceed the increases that would result from the application of any of the inflation indices reviewed by the AESO. The AESO concludes that connection project costs have increased due to other factors, including changes to the service characteristics, functionality, and standards that apply to system access service, in addition to increases due to inflation.

The AESO discussed several factors that have contributed to project cost increases in section 6.2 of the application (pages 30-33, paragraphs 149-164). None of the factors discussed in that section would be captured by the inflation indices reviewed by the AESO.