AESO 2015 Business Plan and Budget Proposal

October 29, 2014

Memo

aeso ALBERTA ELECTRIC SYSTEM OPERATOR

To: AESO Board
From: Vice-President, Finance
Date: October 29, 2014
Subject: **AESO 2015 Busines Plan and Budget Proposal**

Enclosed is the AESO 2015 Business Plan and Budget Proposal (Business Plan). This document was prepared by AESO Management in consultation with stakeholders and outlines:

- The process employed to develop the Business Plan;
- The AESO's proposed 2015 business initiatives;
- The proposed 2015 budgets/forecasts for:
  - general and administrative and interest costs and amortization;
  - market systems replacement and reengineering project;
  - capital costs;
  - other industry costs;
  - wires costs;
  - transmission line losses costs; and
  - ancillary services costs.

AESO Management will be requesting at the December AESO Board meeting that the Board approve, or amend and approve, as appropriate, the items outlined in Section 1 of this document.

Prior to the meeting, stakeholders may request the opportunity to meet with you to discuss their written comments related to the information provided. As you are aware, these meetings are scheduled for November 14, 2014.

Should you have any questions or additional information requirements please let me know.

Yours truly,

Todd D. Fior
Vice-President, Finance

cc: David Erickson, President and Chief Executive Officer
Greg Spence, Director, Business Planning
Carol Moline, Director, Accounting and Treasury
Interested Stakeholders

Public

Table of Contents

Section 1 **Board Decision Items – Executive Summary**

Section 2 **Stakeholder Presentations to the AESO Board**

Section 3 **Stakeholder Consultation Undertaken**

- Terms of Reference for Budget Review Process
- Budget Review Process
- Budget Review Process Schedule

Section 4 **AESO 2015 Business Plan and Budget Proposal**

- General & Administrative and Interest Costs and Amortization
- Market Systems Replacement and Reengineering Project
- Capital Costs
- Other Industry Costs
- Wires Costs
- Transmission Line Loss Costs
- Ancillary Services Costs

Section 5 **Stakeholder Comments and AESO Responses**

Section 1

Board Decision Items Executive Summary

Over the last several months, we have reviewed and discussed with stakeholders and the AESO Board, our proposed business initiatives for 2015 which indicate our planned direction and the focus of our operations in the upcoming year. The business initiatives being proposed and our day-to-day operational activities form the foundation from which we have developed our 2015 budgeted costs (general and administrative, interest, amortization, capital and other industry costs). This *AESO 2015 Business Plan and Budget Proposal* (Business Plan) provides an overview of our proposed business initiatives and business activities that will enable us to meet our mandate[1] and advance our strategic plan.

Our budgeted costs are based on the funding we require to achieve our business initiatives and maintain our business operations as outlined in the Business Plan. In addition to this, we are also providing wires, transmission line losses and ancillary services cost forecasts for 2015 which are within the AESO Board's mandate for approval. These forecasts have been developed internally and have been included in the process to engage stakeholders for review and comment, consistent with our budgeted costs.

We have openly engaged stakeholders interested in reviewing our proposed initiatives, budgets and forecasts and in return stakeholders have provided us with their comments as we worked through this process. This consultation process, referred to as the Budget Review Process (BRP), allows us to prepare a business plan and budget that has been reviewed, discussed and at times challenged before we reach this point. As a part of this proposal to the AESO Board, we are providing the stakeholder written comments we have received to date and our responses to those comments. The purpose of providing these comments and responses is for the AESO Board to gain insight into some of the areas that created discussion throughout this process. We continue to believe that this open and transparent process enables us to prepare a thorough and comprehensive Business Plan, and we believe our stakeholders continue to appreciate this inclusive process. The end result is a well communicated and understood Business Plan that will provide us direction in the coming year. The following are the approvals that we will be requesting from the AESO Board.

[1] The Alberta Electric System Operator (AESO) is responsible for the safe, reliable and economic planning and operation of the Alberta interconnected electric system (AIES) and the facilitation of a fair, efficient and openly competitive electricity market.

AESO Board is requested to:

1. Endorse the 2015 business initiatives as outlined in the Business Plan.

2. Approve the following proposed 2015 budget and forecast amounts as outlined in the Business Plan and summarized as follows:

Budget/Forecast Category	Revenue Source ($ million)			
	Trans-mission	Energy Market	Load Settlement	Total
General and Administrative	67.5	25.0	1.5	94.0
Interest	(0.2)	0.5	0.0	0.3
Amortization	17.0	9.7	0.2	26.9
Capital				20.9
Market Systems Replacement and Reengineering Project	-	-	-	-
Other Industry	16.7	7.7	-	24.4
Wires	1,373.7			1,373.7
Transmission Line Losses	105.3			105.3
Ancillary Services	163.0			163.0

Section 2

Stakeholder Presentations to the AESO Board

Stakeholder presentations to the AESO Board to be inserted when received.

Section 3

Stakeholder Consultation Undertaken

The *Transmission Regulation*[1] (T-Reg) includes provisions addressing the approval of the AESO's own costs, transmission line losses costs and ancillary services costs. The T-Reg provides that the AESO must consult with stakeholders with respect to the proposed costs to be approved by our Board. It also provides that these costs, once approved by the AESO Board, must be considered by the Alberta Utilities Commission (AUC) as 'prudent' unless interested persons satisfy the AUC otherwise.

The practice we have established to carry out this consultation is the Budget Review Process (BRP). The BRP is a transparent process which provides a level of prudence review with input from stakeholders. At the conclusion of the BRP, we make a recommendation with respect to our own costs (general and administrative, interest, amortization, capital and other industry costs),wires, transmission line losses costs and ancillary services costs to the AESO Board for approval.

We have posted the BRP overview, terms of reference and a calendar providing the BRP milestone activities leading up to an AESO Board decision (the calendar was revised during the process to accommodate process changes and schedules). These documents have been included as Appendices A to C to this Section. At a high level, the BRP steps followed are:

- Notice to stakeholders
- AESO Develop 2015 Business Initiatives
- AESO Develops Own Costs Budgets and Ancillary Services and Transmission Line Losses Cost Forecasts
- Review 2015 Business Initiatives with stakeholders
- Technical Meeting(s) to Review the Own Cost Budget, Ancillary Services and Transmission Line Losses Costs Forecasts for 2015
- AESO Board Decision

As with prior years' BRP, the process has been open to all stakeholders and the process had been transparent as all presentation materials, stakeholder comments (if any) and our responses have been posted on the AESO's website. Through this process, we have ensured that all stakeholders have had an opportunity to provide input. The BRP will be re-evaluated with stakeholders at its conclusion and refinements made to the process going forward as required.

[1] A/R 86/2007

Appendix A –

Terms of Reference for Budget Review Process

August 13, 2014

Transparency is the overarching principle in the BRP. The following will help ensure transparency to stakeholders during this process.

- The process should be open to all stakeholders that are interested.
- The size of the group should not be limited.
- Stakeholders are encouraged to register as participants at the outset of each year's process in order to ensure a consistent understanding and to minimize inefficiencies.
- Comments will be collected in written form only, and will be responded to by the AESO and shared with all stakeholders (i.e., posted to AESO's website). As well, stakeholders will have the opportunity to comment on others' comments.
- Comment submissions are a requisite during the technical consultation period in order to be entitled to present to the AESO Board on the same comments.
- The written decision rendered by the AESO Board on these matters will contain reasons or rationale.
- Throughout the process, the AESO will endeavor to provide as much information as reasonably possible to ensure stakeholders have all information relevant to the subject matters under review. However, the AESO and stakeholders will need to agree on the level of detail to discuss (including confidential information), on an issue-by-issue basis, in an effort to be most effective and efficient.
- At the end of each BRP cycle, the AESO and stakeholders will evaluate the effectiveness of the process and make appropriate changes if required for the following year.

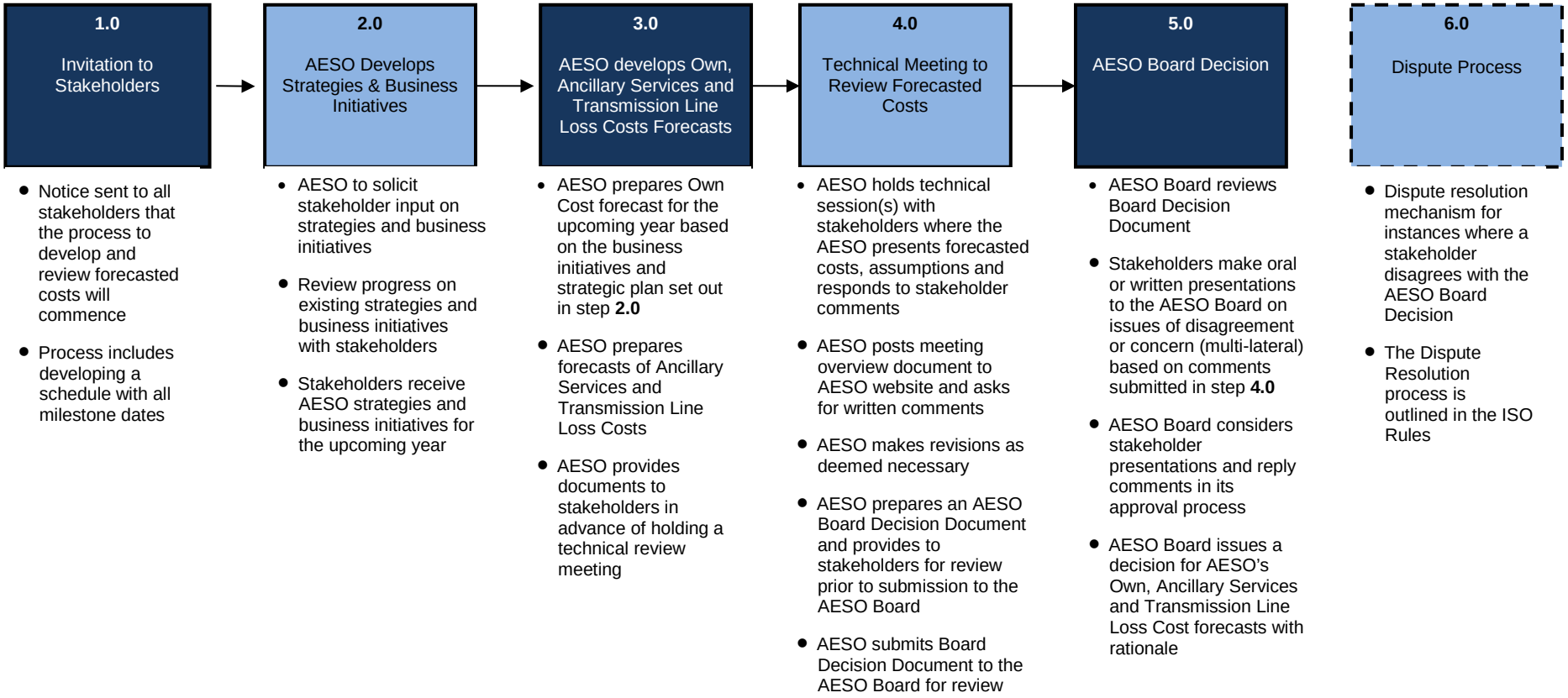
In Addition:

- Everyone is able to present their views.
- Everyone must work within the timeline agreed upon at the start of the process.
- This process is not a negotiated settlement.
- The material to be delivered to the AESO Board in order to prepare a decision does not have to be agreed upon unanimously.
- Information will be provided to all stakeholders in a timely manner.
- Stakeholders will have a reasonable time period to review and respond to AESO material.
- Nothing will preclude the opportunity for stakeholders to ultimately appeal any decision using the dispute mechanism outlined in the Independent System Operator (ISO) Rules.

Appendix B –

Budget Review Process

Refer to the following BRP flow diagram.


1.0
Invitation to Stakeholders
2.0
AESO Develops Strategies & Business Initiatives
3.0
AESO develops Own, Ancillary Services and Transmission Line Loss Costs Forecasts
4.0
Technical Meeting to Review Forecasted Costs
5.0
AESO Board Decision
6.0
Dispute Process
Notice sent to all stakeholders that the process to develop and review forecasted costs will commence
Process includes developing a schedule with all milestone dates
AESO to solicit stakeholder input on strategies and business initiatives
Review progress on existing strategies and business initiatives with stakeholders
Stakeholders receive AESO strategies and business initiatives for the upcoming year
AESO prepares Own Cost forecast for the upcoming year based on the business initiatives and strategic plan set out in step 2.0
AESO prepares forecasts of Ancillary Services and Transmission Line Loss Costs
AESO provides documents to stakeholders in advance of holding a technical review meeting
AESO holds technical session(s) with stakeholders where the AESO presents forecasted costs, assumptions and responds to stakeholder comments
AESO posts meeting overview document to AESO website and asks for written comments
AESO makes revisions as deemed necessary
AESO prepares an AESO Board Decision Document and provides to stakeholders for review prior to submission to the AESO Board
AESO submits Board Decision Document to the AESO Board for review
AESO Board reviews Board Decision Document
Stakeholders make oral or written presentations to the AESO Board on issues of disagreement or concern (multi-lateral) based on comments submitted in step 4.0
AESO Board considers stakeholder presentations and reply comments in its approval process
AESO Board issues a decision for AESO's Own, Ancillary Services and Transmission Line Loss Cost forecasts with rationale
Dispute resolution mechanism for instances where a stakeholder disagrees with the AESO Board Decision
The Dispute Resolution process is outlined in the ISO Rules

Appendix C –

Budget Review Process Schedule

Refer to the following calendar providing the BRP milestone activities.

Budget Review Process - September 5, 2014
External Calendar - Consultation Baseline

- Meeting Material Distributed
- Stakeholder Meetings
- Stakeholder Comments Requested
- Stakeholder Comments Received
- AESO Posts Meeting Summary
- AESO Board Meeting

JULY

Mon	Tues	Wed	Thurs	Fri
	1	2	3	4
	Holiday			
7	8	9	10	11
14	15	16	17	18
21	22	23	24	25
28	29	30	31	

AUGUST

Mon	Tues	Wed	Thurs	Fri
				1
4	5	6	7	8
Holiday				
11	12	13	14	15
		Distribution of Invitation to Stakeholders and Process Materials (Step 1)	Web posting for comments on Invitation and Process Materials. (Step 1)	
18	19	20	21	22
25	26	27	28	29
			Receive Stakeholder comments on Invitation and Process Materials (Step 1)	

SEPTEMBER

Mon	Tues	Wed	Thurs	Fri
1	2	3	4	5
Holiday				Web posting of comments on Invitation and Process Materials (Step 1)
8	9	10	11	12
15	16	17	18	19
Distribution of materials for Business Strategies / Initiatives mtg. (Step 2)				
22	23	24	25	26
Business Strategies / Initiatives Meeting (Step 2)	Web posting for comments on Business Strategies / Initiatives (Step 2)			
29	30			

OCTOBER

Mon	Tues	Wed	Thurs	Fri
		1	2	3
		Distribution of materials for Tech Mtg (Forecasts and Own Costs) (Step 4)		Receive Stakeholder comments on Business Strategies / Initiatives (Step 2)
6	7	8	9	10
Tech. Mtg. (Forecasts and Own Costs) Calgary (Step 4)		Tech. Mtg. (Forecasts and Own Costs) Edmonton (Step 4)	Web posting for comments on Forecasts & Own Costs Budget (Step 4)	
13	14	15	16	17
Holiday		Web posting of comments on Business Strategies / Initiatives (Step 2)		
20	21	22	23	24
Receive Stakeholder comments on Forecasts and Own Costs (Step 4)				
27	28	29	30	31
	Web posting of comments on Forecasts and Own Costs (Step 4)	Web posting of 2015 Draft - Business Plan and Budget (Step 4)		

NOVEMBER

Mon	Tues	Wed	Thurs	Fri
3	4	5	6	7
				Receive Stakeholder written submissions to AESO Board (Step 5)
10	11	12	13	14
Web posting of Stakeholder written submissions to AESO Board (Step 5)	Holiday			Meeting with AESO Board
17	18	19	20	*Oral Presentation to AESO Board or Board Committee (Step 5.2)*
24	25	26	27	28

DECEMBER

Mon	Tues	Wed	Thurs	Fri
1	2	3	4	5
8	9	10	11	12
15	16	17	18	19
22	23	24	25	26
			Holiday	Holiday
29	30	31		

Section 4

AESO 2015 Business Plan and Budget Proposal

The information contained in this document is published in accordance with the AESO's legislative obligations and is for information purposes only. As such, the AESO makes no warranties or representations as to the accuracy, completeness or fitness for any particular purpose with respect to the information contained herein, whether express or implied. While the AESO has made every attempt to ensure the information contained herein is timely and accurate, the AESO is not responsible for any errors or omissions. Consequently, any reliance placed on the information contained herein is at the reader's sole risk.

Table of Contents

Letter from the President and CEO **1**
2015 Business Plan **2**
AESO Operations **3**
Electric System Operations 4
2014 Achievements *5*
2015 Plans *5*
Electric System Development 6
2014 Achievements *7*
2015 Plans *7*
Customer Access Services 8
2014 Achievements *9*
2015 Plans *9*
Market Development 10
2014 Achievements *11*
2015 Plans *11*
Corporate Services 12
2014 Achievements *13*
2015 Plans *13*
Financial Highlights **14**
Section I – 2014 14
Section II – 2015 16
Appendix A: 2014-2018 Strategic Plan **28**
Appendix B: Activity Groups **29**
Appendix C: Year-to-Date August 2014 Financial Results Detail **30**
Appendix D: Transmission Operating Cost Definitions **36**
Appendix E: 2015 General and Administrative Cost Detail **39**
Appendix F: 2015 Capital Projects **43**
Appendix G: Market Systems Replacement and Reengineering (MSR) Project **48**
Appendix H: Allocation of Costs **51**

Letter from the President and CEO

The AESO's annual business plan and budget establishes our organizational direction, outlining both the initiatives and expenditures planned for the upcoming year. The *AESO 2015 Business Plan and Budget Proposal* (Business Plan) is noteworthy, as it is the first one to originate from our new *2014–2018 Strategic Plan.*

The strategic plan establishes our objectives for the next five years, and this business plan and budget outlines the specific tasks we will focus on in 2015 to meet those objectives. Some initiatives will be completed in 2015, others will require more than one year to complete, and some initiatives will commence after 2015. The Business Plan provides transparency as to which initiatives we will be focused on in 2015.

Many of the initiatives identified in the Business Plan are already in progress and we expect to continue to make significant progress in 2015. These initiatives include intertie restoration, storage integration, transmission constraints management, the Abbreviated Need Approval Process, Market Participant Choice, and the Market Systems Replacement and Reengineering Project. In addition to the initiatives identified in the Business Plan, we will manage the interconnected electric system successfully as we have historically. This includes connecting a significant number of load and generator projects to the system and continuing to reinforce the electric system.

We will continue to execute on those activities that create value for stakeholders and all Albertans, including new initiatives to be introduced in 2015, leading to stable and focused operations in 2015. In addition, we will leverage our strengths as an organization and focus on scrutinizing our processes and practices to be more effective and efficient, while continuing to deliver the high-quality services expected by our stakeholders. As a result, our 2015 proposed general and administrative budget is $94 million, which is $2 million lower than the $96 million budget that was approved for 2014.

In 2015, our proposed capital budget will be $20.9 million, which is slightly higher than the AESO's capital budget of $19.9 million for 2014. This increase is driven by two major information technology capital initiatives, the Market Systems Replacement and Reengineering Project, and the Energy Management System Upgrade Project. These two capital projects are foundational to the AESO's operations and will ensure that we can continue to realize the value of the electricity framework, and will allow for continued robust competition and reliable operations into the future. These two capital projects will be the focus in 2015, resulting in a lower general capital budget requirement compared to 2014.

Overall, our new Business Plan continues to focus on moving the electricity framework and the AESO forward, delivering on our public interest mandate and providing ongoing industry leadership.

David Erickson

President and Chief Executive Officer

2015 Business Plan

During 2014, the AESO completed the *2014-2018 Strategic Plan* which establishes the strategies charting the AESO's intended direction over a five-year period. The three strategic objectives from the AESO's strategic plan are provided in Appendix A (2014-2018 Strategic Plan). The *AESO 2015 Business Plan and Budget Proposal* is a comprehensive plan outlining how the AESO will approach the objectives laid out within the *2014–2018 Strategic Plan* for the upcoming year through the execution of the proposed 2015 business initiatives and associated budgets.

The delivery of some objectives may require a timeframe beyond the span of a single year. It is often necessary to address such objectives as a series of initiatives to be completed in succession. The 2015 Business Plan and Budget serves as a vital tool in this regard detailing the initiatives that will be the focus for 2015. This will position the organization to ultimately complete the broader objectives laid out within the *2014–2018 Strategic Plan*.

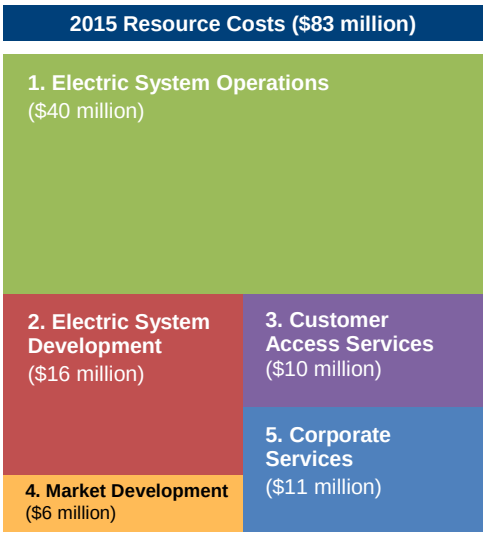
The AESO's annual business plan and budget are presented to industry through the Budget Review Process for valued feedback. The initiatives presented within this document reflect that consultation.

AESO Operations

Alberta is one of the fastest growing electrical jurisdictions on the continent, and providing reliable electricity requires constant planning and ongoing vigilance in the day-to-day operation of the electrical system. The AESO's operations have been purposefully designed to ensure this level of reliability continues. Day-to-day activities include operation of Alberta's fair, efficient and openly competitive energy-only electricity market; determining the order of dispatch of electric energy and ancillary services; providing system access service on the transmission system; directing the safe, reliable and economic operation of the interconnected electric system, planning the capability of the transmission system to meet future needs; and administering load settlement.

The AESO's operations are described using five key processes: Electric System Operations, Electric System Development, Customer Access Services, Market Development, and Corporate Services. With a focus on the activities and outcomes, the AESO associates business initiatives and operating costs with these key processes. This analysis provides two distinct benefits:

- It allows stakeholders to understand AESO operations. What is the AESO delivering? What are the associated costs?
- It allows for organizational awareness to ensure the operations are as efficient and focused as they can be. Are the resource allocations appropriate? Are resources aligned with the value of the outcomes?



The analysis focuses on the association of the activities and costs for AESO staff resources, general contractor services and information technology services to the five processes. Of the $94 million general and administrative budget for 2015, this analysis incorporates $83 million or 87 per cent of the general and administrative costs[1]. And, for the first time, the analysis incorporates $21 million of information technology resource and service costs. The inclusion of the information technology activities in 2015 identifies that approximately 80 per cent of information technology costs are directed towards the critical systems and processes that support electric system operations (real-time grid management and energy market operations).

The results of the 2015 review, which were similar to 2014, identify that the AESO's primary focus is to ensure Albertans have reliable access to electricity each and every day with close to half of the AESO resources dedicated specifically to these efforts. The consistency of results in 2014 and 2015 is aligned with the current direction of the AESO; we are continuing to deliver on multi-year initiatives and have not incorporated a material shift in focus for 2015. However, over time as the industry evolves, the AESO will continue to refine its focus and reallocate its resources to best serve Albertans. While annual changes may have subtle impacts, the impact from material changes will be more evident over time.

Further discussion on the detailed business initiatives and costs is provided in the following section and in Appendix B (Activity Groups).

[1] The administrative and facility costs were not associated with a key process ($11 million in costs in 2015 budget).

Electric System Operations

Optimal management of electric system operations continues to be a primary focus and essential part of the AESO's mandate. Effectively maximizing the use of transmission capacity and monitoring transmission system performance is critical, as Alberta's demand for electricity continues to grow on a system that is currently experiencing constraints.

The AESO operates the Alberta Interconnected Electric System (AIES) and competitive market in accordance with Alberta Reliability Standards and criteria established by the North American Reliability Corporation (NERC) and the Western Electricity Coordination Council (WECC).

Among its 2014 accomplishments, the AESO successfully assumed the reliability coordinator functionality for Alberta on January 1. As the year progresses, the AESO continues implementation of Alberta Reliability Standards (ARS), has filed Critical Infrastructure Protection (CIP) Version 5 Reliability Standards with the Alberta Utilities Commission (AUC), and is preparing for integration of high voltage direct current (HVDC) operations. The compliance program for ARS was also enhanced to ensure completion of audits to meet industry expectations.

The AESO conducts Electric System Operations through four primary activity groups: Real-time Operations, Operations Business Services, Operations Engineering, and Operations Systems. Information Technology provides the underlying infrastructure to enable these operations.

Electric System Operations Costs

$40 million to deliver

49% of total AESO resource dollars

Real-time Operations requires the largest amount of time and dollars spent. A critical component of this is the 24/7 real-time operation of the AIES and AESO markets. Resources are also associated with planning for operating limits and preparations for system restoration.

Operations Business Services includes the resources dedicated to maintaining System Controller procedures and training, managing and facilitating energy market settlement and credit, as well as procuring ancillary services. It also includes the activities related to developing and implementing the ARS and monitoring both the AESO and external market participants to ensure their operations are in compliance with these standards.

Operations Engineering reflects the studies, analysis, monitoring tool development and coordination required for operations planning as well as providing real-time engineering support. Technical rule development is also captured in this activity group.

Operations Systems focuses on the Energy Management System (EMS) application to provide real-time support and modifications resulting from changes to the AIES, as well as the project management required for operations system changes.

Information Technology Resources encompasses resources and system-related requirements to support both critical real-time systems and general business systems. The AESO's operations include 150 active applications used by over 200 market participants and 500 AESO personnel across two data centres with over 900 servers and 300 databases. Many of these systems will directly support the functioning of the electric system operations in real-time or related processes. This established infrastructure is dependent on the licences, maintenance agreements, managed service program, and telecommunications to enable the operations.

Achievements and Plans

In addition to the ongoing Electric System Operations activities, the following table outlines the notable achievements completed or expected to be completed in 2014 and planned initiatives for 2015 categorized by activity group.

Real-time Operations	Operations Business Services	Operations Engineering	Operations Systems
2014 Achievements			
Assumed Reliability Coordinator (RC) function responsibilities for the Province of Alberta effective January 1, 2014	Developed and implemented new Alberta Reliability Standards (ARS) including BAL-002 effective October 1, 2014 and filed various RC-related standards with the AUC Continued to advance Security / Critical Infrastructure Protection (CIP) program to enhance system reliability and operate AIES in accordance with industry-wide criteria and standards Designed CIP Standards which were filed with the AUC Enhanced compliance monitoring program for ARS to meet industry expectations	High Voltage Direct Current (HVDC) operations: – Prepared operations engineering studies and implemented recommendations – Revised operating procedures – Initiated formal training program – Initiated loss calculation review	Initiated implementation of the 2013 revised Energy Management System (EMS) strategy for the EMS Upgrade Project
2015 Plans			
Integrate HVDC lines into operations Review and revise technical standards for interties, ancillary services and generators	Continue to develop and implement RC-related ARS Advance CIP Standards implementation Operational assessment by NERC of the AESO's compliance with RC-related standards	Develop outage coordination plans and commissioning strategies for HVDC integration Provide engineering support for RC-related standard requirements Develop strategies to manage planned outages associated with bulk transmission system and customer connection construction activities	Advance system design and build activities supporting the EMS Upgrade Project

Electric System Development

Alberta's electricity framework is the combination of two interdependent elements; the electricity market and the transmission system. The province's electricity market enables economic prosperity, and depends heavily on an unconstrained, reliable electricity transmission system that can keep pace with an evolving market.

The AESO continues to advance projects outlined in its *2013 Long-term Transmission Plan*, filed with the AUC in January 2014. Several of these projects are well underway, facilitating the reliable delivery of electricity where needed.

As specified in the *Transmission Regulation*, and as outlined in the *Electric Statutes Amendment Act,* the AESO has advanced the Competitive Process. In January 2014, short-listed companies began the process to submit their proposals to develop, design, build, finance, own, operate and maintain the Fort McMurray West 500 kV Transmission Project. Selection and identification of the successful bidder is planned for December 2014. The launch of the second Competitive Process—for the Fort McMurray East 500 kV Transmission Project—will begin in early 2015.

Electric System Development is comprised of three primary activity groups: Plan to Need Identification (NID) Approval, System NID Approval to Energization, and Maintenance.

Electric System Development Costs

$16 million to deliver

19% of total AESO resource dollars

Plan to NID Approval encompasses the planning and preparation work leading up to NID approval for system projects. This includes maintenance and program management for the long-term regional and bulk transmission plans; all of the activities prior to receiving NID approval including stakeholder consultation and regulatory processes; and planning for system enhancements and affected power system and transmission-related market models.

System NID Approval to Energization describes the work completed after a NID is approved and includes all of the activities leading up to energization such as: providing transmission program support; project benchmarking; communication strategies; and developing and implementing the Competitive Process for certain transmission projects.

Maintenance involves data and model maintenance for power system and transmission-related market models.

Achievements and Plans

In addition to the ongoing Electric System Development activities, the following table outlines the notable achievements completed or expected to be completed in 2014 and planned initiatives for 2015 categorized by activity group.

Plan to NID Approval	System NID Approval to Energization	Maintenance
2014 Achievements		
Implemented the updated *2013 Long-term Transmission Plan* and advanced regional and system transmission projects	Initiated Request for Proposal stage of the Competitive Process for the Fort McMurray West 500 kV Transmission Project which is to be completed by year end Initiated implementation of the recommendations from the Department of Energy's *Transmission Cost Management Policy* Ongoing participation in the Cost Oversight Management pilot Enhanced processes with TFOs to coordinate and prioritize customer projects with system projects	General operations focused
2015 Plans		
Continue to implement system and regional projects identified in the *2013 Long-term Transmission Plan* Initiate the development of the *2016 Long-term Transmission Plan*	Integrate and manage the contract requirements for the Fort McMurray West 500 kV Transmission Project Initiate the Competitive Process for Fort McMurray East 500 kV Transmission Project Implement changes to ISO Rule 9.1 *Transmission Facility Projects* Continue development and implementation of transmission cost monitoring business practice changes	General operations focus

Customer Access Services

The primary function of Customer Access Services is to efficiently connect customers and provide excellent customer service throughout the process.

The AESO anticipates approximately 65 requests for system access in 2015, which is comparable to 2014. In 2014, *Transmission Regulation* amendments were approved which allow the AESO to continue to advance initiatives to streamline the connection process, such as the Abbreviated Need Approval Process (ANAP) and Market Participant Choice (MPC) initiatives.

The AESO will continue to look for opportunities to identify further process efficiencies. Leveraging successful consultations with industry through the Connection Process Working Group, several connection process improvements were reviewed and prioritized for future implementation. The AESO remains committed to improving the overall customer experience.

The AESO provides customer access services through four primary activity groups: Plan the Customer Connection, Connection Approvals, Construction to Energization, and Customer Management.

Customer Access Services Costs

$10 million to deliver

12% of total AESO resource dollars

Plan the Customer Connection focuses on the thorough analysis and project management performed by the AESO. It involves conducting customer connection studies; power system model management; and coordination of customer requests and time spent moving through the connection proposal approval process.

Connection Approval involves completing the regulatory requirements such as Need Identification (NID) development, technical review and hearing management as well as creating functional specifications.

Construction to Energization is mostly comprised of coordinating with the transmission facility owner (TFO) on various aspects of the customer connection through to energization as well as the transmission program support provided by the AESO internally and within the industry.

Customer Management includes the financial transactions (transmission settlement and credit management) and consultation and development of the AESO tariff.

Achievements and Plans

In addition to the ongoing Customer Access Services activities, the following table outlines the notable achievements completed or expected to be completed in 2014 and planned initiatives for 2015 categorized by activity group.

Plan the Customer Connection	Connection Approval	Construction to Energization	Customer Management
2014 Achievements			
Coordinated industry consultation through the Connection Process Working Group Prioritized options for connection process enhancements	Supported Department of Energy's development of policy with regard to Abbreviated Needs Approval Process (ANAP)	Market Participant Choice (MPC): – Aligned and developed processes between AESO and industry stakeholders	General operations focused
2015 Plans			
Connection Process efficiency opportunities: – Implement stakeholder recommendations brought forward through the Connection Process Working Group	Complete ANAP development and implementation	Implement MPC processes	General operations focus

Market Development

The current competitive wholesale market and Alberta's electric system comprise an overall electricity framework that continues to reliably serve Albertans and generate numerous benefits for the province.

The market is not static and evolves along with changes in industry, technology and other relevant influences or circumstances. The AESO monitors developments and evaluates the impact of these changes to identify appropriate courses of action. When addressing market changes, the principle objective is to maintain a fair, efficient, and openly competitive (FEOC) market. The AESO monitors market performance and operations, gathering and leveraging metrics to make prudent decisions that provide investor confidence in opportunities in Alberta's electricity sector. Compliance monitoring of market participants' adherence to rules and procedures in their operations, is also an important aspect of maintaining a FEOC market.

Stakeholder engagement is vital to the success of market changes. At all times, an emphasis on stakeholder engagement is maintained — industry experience is essential to identifying and testing issues, opportunities, and solutions regarding market refinements.

Rule development, operating procedure enhancements, and implementation of IT solutions are all impacted when the design of the wholesale market is advanced. Incorporating transmission constraints management (TCM) into the Alberta market is an example of a market enhancement where rules, tariffs and operating procedures are being reviewed by the AESO to ensure they are applicable and appropriate considering the AUC's Decision. Consideration is also given to the market's design and principles, including a FEOC market and reliable grid operations.

During 2014, the AESO worked to address concerns with the management of transmission constraints and, by the end of 2014, an ISO rule which is aligned with the AUC's 2013 Decision on this matter will be filed with the AUC.

The AESO supports market development through three primary activity groups: Design and Create, Implement, and Monitor.

Market Development Costs

$6 million to deliver

7% of total AESO resource dollars

Design and Create involves identifying market evolution initiatives and determining the AESO's position and implementation plan through stakeholder consultation. The implementation plan may include the design of business processes, policies, procedures, or products; and changes to information technology systems. The development of compliance expectations and monitoring procedures for new or changing rules is also an outcome.

Implement includes stakeholder consultation and execution of the implementation plan determined in the Design and Create activities and any required regulatory filings.

Monitor encompasses the compliance monitoring of market participants through audits and assessments in addition to monitoring market performance and operations (market metrics) for issues and required changes.

Achievements and Plans

In addition to the ongoing Market Development activities, the following table outlines the notable achievements completed or expected to be completed in 2014 and planned initiatives for 2015 categorized by activity group.

Design and Create	Implement	Monitor
2014 Achievements		
Rule and information technology system changes completed to allow non-aggregated load to provide spinning reserves Completed Load Shed Service for Imports (LSSi) review and published recommendations Consulted on and designed plans to facilitate integration of energy storage technologies Completed Phase II (RFP stage) of Market Systems Replacement and Reengineering (MSR) Project including the go-forward recommendation Consulted on, designed and plan to file TCM Rule with the AUC	Interties: – Implemented Phase I and started Phase II of the operating horizon transmission studies – Completed the joint planning study with BC Hydro – Developed work plan for implementing provision of regulating reserve across the interties Wind integration: – Filed wind dispatch rules – Analyzed ramping service	General operations focused
2015 Plans		
Design and develop rules to implement storage technologies Develop measures to monitor and assess the ongoing stability of the market framework Initiate frequency response validation activities	Implement TCM Rule and required information technology system changes Continue to implement and monitor intertie restoration solutions including: – LSSi RFP – Develop seasonal operating limits Initiate MSR Project Phase III – Implementation	General operations focus

Corporate Services

The business operations of the AESO are coordinated through the various activities of the corporate services departments. This process provides various organization-wide support services such as human resources, finance, legal, communications and senior management for establishing the strategic direction of the AESO.

The AESO is comprised of an experienced team of many specialized technical experts and the competition to retain and attract these talented individuals is high. Recognizing that talent is a key enabler of the AESO's success, a number of talent management practices continue to be implemented as part of its longer-term roadmap.

The AESO continues to fulfil its public interest mandate through ongoing public engagement to inform Albertans and key stakeholders about changes and enhancements to the province's electricity system.

The AESO's Corporate Services are provided through three primary activity groups: Corporate Management, People Management and Strategy.

Corporate Services Costs

$11 million to deliver

13% of total AESO resource dollars

Corporate Management includes the operations of corporate service functions including legal, accounting, security, facilities management, internal audit, project management and corporate communication.

People Management describes frameworks and programs such as workforce planning, compensation, talent acquisition, development, and organizational effectiveness.

Strategy compasses general strategy development and leadership of the AESO. Executive resources are also associated with other key processes.

Achievements and Plans

In addition to the ongoing Corporate Services activities, the following table outlines the notable achievements completed or expected to be completed in 2014 and planned initiatives for 2015 categorized by activity group.

Corporate Management	People Management	Strategy
2014 Achievements		
Successfully implemented key priorities of 2014 strategic communications plan: – Implemented a social media plan at the AESO – Implemented a comprehensive outreach plan for Competitive Process – Released *2014 Long-term Transmission Plan* Advanced customer service initiative and provided initial stakeholder training	Began implementation of an integrated human resource management system	Developed *2014–2018 Strategic Plan*
2015 Plans		
Continue refinement and execution of strategic communications planning, and continually assess the effectiveness of communications policies and practices Initiate review of AESO website and capabilities Perform ongoing reviews of AESO activities, processes and information technologies to determine where business efficiencies can be realized	Continue implementing the integrated human resource management system Develop initiatives supporting organization effectiveness and agility for staff resources	Continue to advance strategic initiatives

Financial Highlights

As part of this 2015 Business Plan, the AESO is also presenting its 2015 budget that meets the needs of the organization to deliver on its commitments and to demonstrate that financial management continues to be a focus.

The financial information is presented in two sections: Section I reviews the 2014 financial results for year-to-date August and Section II provides budget information for 2015. Additional information is included in Appendices C to H.

Section I – 2014

Costs

The following table provides a summary of costs as of August 2014 compared to the budget.

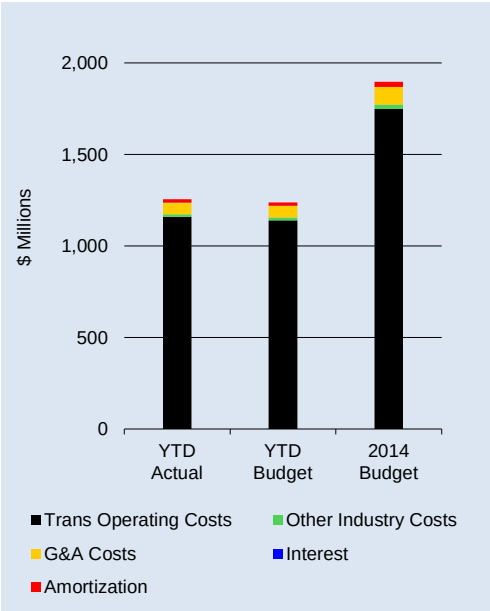
Year-to-Date August 2014 Costs ($ million) ~ by production year

	YTD August Actual	YTD August Budget	YTD August Variance	2014 Budget
Transmission Operating Costs	1,158.9	1,139.9	19.0	1,749.0
Other Industry Costs	14.8	15.9	(1.1)	23.9
General and Administrative Costs	63.2	64.0	(0.8)	96.0
Interest	0.1	0.3	(0.3)	0.5
Amortization of Intangible and Capital Assets	17.3	18.2	(0.9)	27.3
Market Systems Replacement and Reengineering Project	1.2	1.3	(0.1)	2.0

Differences are due to rounding

The notable variance in the year-to-date results relates to transmission operating costs and more specifically, operating reserves and transmission line losses costs being higher than forecast offset by lower actual wire costs. Both operating reserves and transmission lines losses costs are higher than forecast due to higher than forecast pool prices. Wire payments are lower than forecast as a result of pending AUC decisions.

Additional information on year-to-date costs is provided in Appendix C (Year-to-Date August 2014 Financial Results Detail).



The Market Systems Replacement and Reengineering (MSR) Project received initial AESO Board approval in April 2013 and is being managed in three distinct phases. Phase I (Validation/Request for Interest) was completed in 2013 and the key outcome was an AESO Board Decision in December 2013 to proceed with MSR Phase II (Sourcing/Request for Proposal). The approved budget for Phase II was $2.0 million and actual costs are consistent with the 2014 budget. These costs are considered as operating costs, as opposed to capital, given the nature of the work performed in this phase.

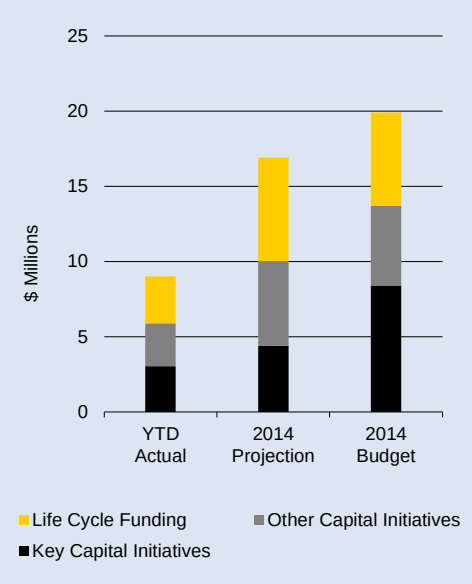
Further details on the MSR Project are provided in Section II – 2015 and Appendix G (Market Systems Replacement and Reengineering (MSR) Project).

Capital Expenditures

The projected capital expenditures in 2014 are $16.9 million which is $3.0 million or 15 per cent lower than the capital budget of $19.9 million.

In general, the AESO's capital projects, which are predominately multi-year in nature, have continued to progress or have been completed in 2014. Additional detailed information on the status and progress of specific projects is provided in Appendix F (2015 Capital Projects).

While capital development progressed in many areas, there are some notable timeline changes that occurred during 2014. Of particular note is that a significant portion of the Energy Management System (EMS) upgrade was deferred to 2015 to finalize the completion of the internal strategy review that was initiated in 2013.



The following table provides a summary of the current capital project investment for 2014.

Capital Expenditures ($ million)

	2014 YTD Aug Actual	2014 Remaining	**2014 Projection**
Key Capital Initiatives	3.0	1.4	**4.4**
Other Capital Initiatives	2.8	2.8	**5.6**
Life Cycle Funding	3.1	3.8	**6.9**
Total Capital Spending	9.0	8.0	**16.9**

Differences are due to rounding

Key Capital Initiatives represent the most critical capital projects over the planning period that must be completed within the identified timeframe.

Other Capital Initiatives are also necessary projects; however, there is more flexibility in planning or delivery so timing is not as critical as the Key Capital Initiatives.

Life Cycle Initiatives are typically leasehold improvements, replacement of end-of-life IT hardware and recurring software upgrades.

Section II – 2015

Financial Outlook

In planning for 2015, the following cost categories are reviewed:

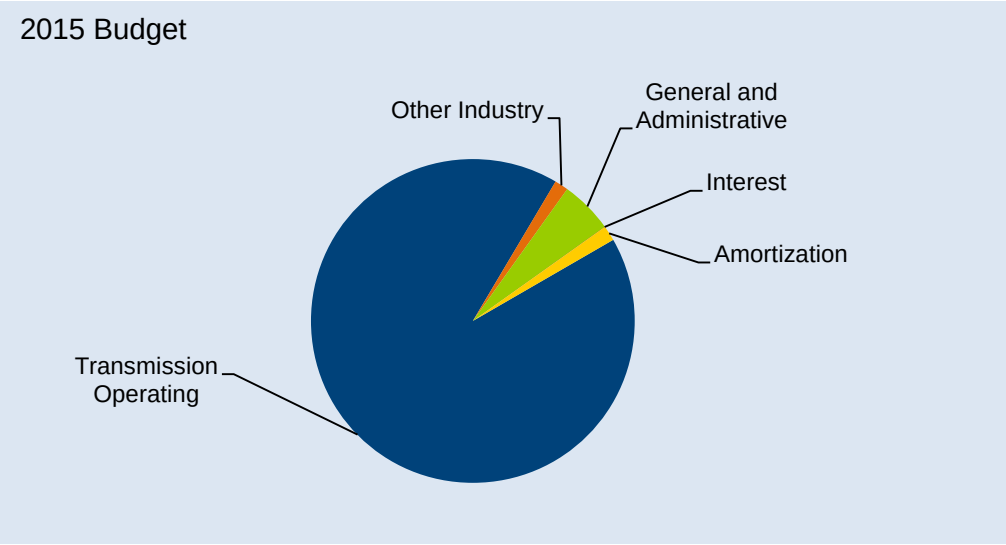
- Transmission Operating Costs (i.e., wires, transmission losses, ancillary services)
- Other Industry Costs
- General and Administrative and Interest Costs and Amortization
- Market Systems Replacement and Reengineering Project
- Capital Expenditures

The focus of the following section is to highlight the changes from the 2014 budgets.

($ million)

	2015 Budget	2014 Budget
Transmission Operating Costs	**1,642.0**	1,749.0
Other Industry Costs	**24.4**	23.9
General and Administrative	**94.0**	96.0
Market Systems Replacement and Reengineering Project	**-**	2.0
Interest Costs	**0.3**	0.5
Amortization	**26.9**	27.3
Capital Expenditures	**20.9**	19.9

Differences are due to rounding



Transmission Operating Costs

The following table provides a summary of transmission operating costs.

Transmission Operating Costs ($ million) ~ by production year

	2015 Forecast	2014 Projection	2014 Forecast	2013 Actual	2012 Actual
Wires Costs	**1,373.7**	1,371.0	1,407.3	1,114.8	944.0
Transmission Line Losses	**105.3**	145.1	117.3	181.7	150.5
Operating Reserves	**130.5**	219.7	193.7	362.2	320.6
Transmission Must-run	**-**	4.0	-	11.2	27.7
Other Ancillary Service Costs	**32.5**	26.3	30.7	24.7	26.6
Transmission Operating Costs	**1,642.0**	1,766.1	1,749.0	1,694.7	1,469.4

Differences are due to rounding

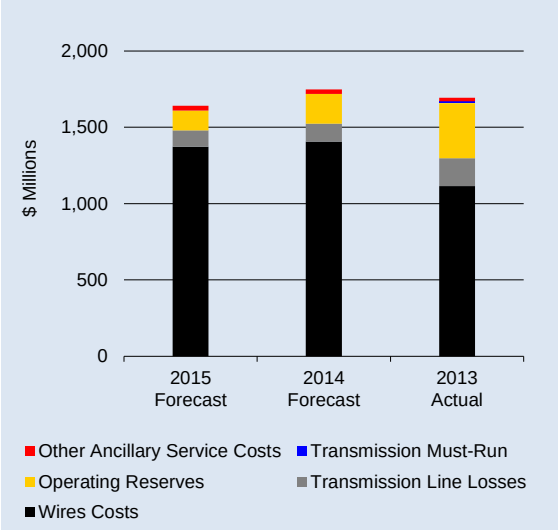
Additional information on the 2015 forecast methodology and descriptions of the cost categories is provided in Appendix D (Transmission Operating Cost Definitions).

Wires

Wires costs represent the amounts paid primarily to owners of transmission facilities (TFOs) in accordance with their Alberta Utilities Commission (AUC)-approved tariffs and are not controllable costs of the AESO.

The 2015 forecast for wires costs is $1,373.7 million which is $33.6 million or two per cent lower than the 2014 forecast of $1,407.3 million. The 2015 forecast is based on the current applied-for or AUC-approved TFO tariffs ($1,367.7 million) and the AESO's forecast for Invitation to Bid on Credit (IBOC) and Location Based Credit Standing Offer (LBC SO) costs ($6.0 million).

Included in wires costs are long-term contracts related to IBOC and LBC SO programs, which were initiated as an incentive for generation to locate closer to major load centres and provide a non-wires solution to transmission wires issues in Alberta.



Transmission Line Losses

The 2015 forecast for transmission line losses is $105.3 million based on 2.47 terawatt hours of energy and the average hourly pool price forecast of $41 per megawatt hour (MWh). The 2015 forecast for transmission line losses costs is $12.0 million or 10 per cent lower than the 2014 forecast of $117.3 million, which was based on 2.34 terawatt hours of energy and an average pool price of $48 per MWh. Lower costs are the result of the lower pool price forecast for 2015, which is attributable to changes in the anticipated generation mix, including the addition of several generating units in 2014.

The 2015 transmission line losses volumes forecast of 2.47 terawatt hours of energy represents an increase of 0.13 terawatt hours of energy or six per cent from the 2014 volumes forecast of 2.34 terawatt hours of energy. This increase is a reflection of the forecast increase in total demand for 2015.

Operating Reserves

The 2015 forecast for operating reserves costs is $130.5 million which is $63.2 million or 33 per cent lower than the 2014 forecast of $193.7 million. The 2015 operating reserves volume forecast is 7.9 terawatt hours, unchanged from the 2014 forecast, however the 2015 cost forecast incorporates a lower average hourly pool price ($41 per MWh compared to $48 per MWh in 2014).

The Western Electricity Coordinating Council (WECC) approved a new contingency reserve standard (BAL-002) in 2014 which results in a four per cent decrease in required reserves in the 2015 forecast compared to 2014. Due to the uncertainty for the standard approval in 2014, this change was not incorporated into the 2014 forecast. Offsetting this decrease is the requirement for higher reserves associated with higher load and generation growth in 2015, which the procurement of operating reserves is directly correlated to.

Transmission Must-Run (TMR)

Due to transmission system enhancements, there are currently no contracted transmission must-run services forecast for 2015, which is consistent with the 2014 forecast.

Other Ancillary Services

Other ancillary services that the AESO procures for the secure and reliable operation of the Alberta Interconnected Electric System (AIES) include load shed service for imports (LSSi), black start, and services provided by Poplar Hill generator.

The 2015 forecast for these services is $32.5 million, which is $1.8 million or six per cent higher than the 2014 forecast of $30.7 million. This increase is mainly attributable to the planned procurement of additional black start capability for the province, which was expected to be available in the last quarter of 2014 and is now scheduled to start in early 2015.

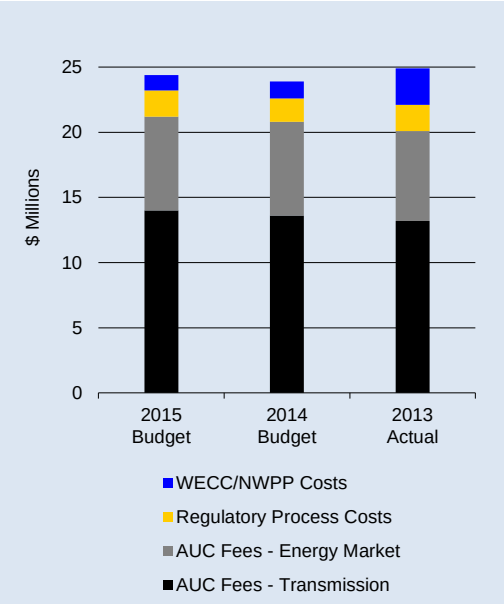
Other Industry Costs

Other industry costs represent fees or costs paid based on regulatory requirements or membership fees for industry organizations; the amounts or requirement for the costs are not under the direct control of the AESO. These costs relate to regulatory process costs, the annual administration fee for the AUC, and the AESO's share of Western Electricity Coordinating Council (WECC) and Northwest Power Pool (NWPP) membership fees.

Other Industry Costs ($ million)

	2015 Budget	2014 Projection	2014 Budget	2013 Actual	2012 Actual
AUC Fees – Transmission	**14.0**	13.4	13.6	13.2	14.0
AUC Fees – Energy Market	**7.2**	7.0	7.2	6.9	7.1
Regulatory Process Costs	**2.0**	1.0	1.8	2.0	2.5
WECC/NWPP Costs[2]	**1.2**	1.1	1.3	2.8	3.0
Other Industry Costs	**24.4**	22.5	23.9	24.9	26.6

Differences are due to rounding



AUC Fees

The AESO is required to pay annual administration fees to the AUC. The AUC recovers its operating and capital costs through an administration fee imposed on the natural gas and electricity market participants that it has jurisdiction over or any person to whom the AUC provides services. The AUC uses a cost assessment model to allocate its costs to the various classes and categories of utilities and persons, and to determine the amount of the administration fee. Two classes of fees are paid to the AUC—one related to transmission operations and the other to energy market operations.

Regulatory Process Costs

The costs associated with the AESO's involvement in an AUC proceeding to hear objections and complaints to ISO Rules or any regulatory application are included in the cost category regulatory process costs; this does not include application preparation costs. These proceedings become a high priority relative to other business initiatives that were identified in the business planning process, and the level of AESO resources required to address these matters brought before the AUC is difficult to determine in advance of a budget year. To ensure ongoing focus and achievement of the planned business initiatives and to avoid constraints on the general and administrative budget management, these costs appear as other industry costs. Intervener costs that received AUC cost order approval are also included in this category.

The 2015 budget for regulatory process costs is $2.0 million compared to the 2014 budget of $1.8 million.

[2] Western Electricity Coordinating Council/Northwest Power Pool

WECC/NWPP Fees

The AESO is an active member of the Western Electricity Coordinating Council (WECC), the organization that coordinates and promotes reliability in the Western Interconnection. Its members coordinate the day-to-day interconnected system operations and long-range planning required to provide reliable electric service in the WECC region that extends from Canada to Mexico and includes the provinces of Alberta and British Columbia, the northern portion of Baja, California, Mexico, and all or portions of the 14 Western states between.

The 2015 budget for WECC assessments to the AESO is $1.1 million, which is consistent with the 2014 budget. The costs are associated with the Regional Entity function performed by WECC and for any tools for data sharing that may be required.

The AESO is also a member of the Northwest Power Pool (NWPP), which operates to achieve maximum benefits of coordinated operations for its member organizations. Participation in the NWPP allows the AESO to take advantage of their Reserve Sharing Group, thereby reducing Alberta's reserve requirements at times. The annual budget for NWPP fees is $0.1 million for 2015, which is consistent with 2014.

General and Administrative Costs

In determining the 2015 budget for general and administrative costs, the AESO continues to focus on identifying ways to improve the delivery of the business operations and to identify efficiencies. The benefits of these efforts are a lower annual budget combined with an organization aligned to deliver what provides the most value, both internally and to the industry. Over the last several years, the AESO has focused on several major initiatives (e.g., Competitive Process, and enhanced regional planning to allow for a more efficient customer connections process) and the results of this work will be leveraged throughout the organization to enable a $2.0 million or two per cent budget reduction in 2015.

The general and administrative budget will be $94.0 million in 2015 compared to the $96.0 million budget in 2014. The budget adjustments for 2015 are summarized as follows:

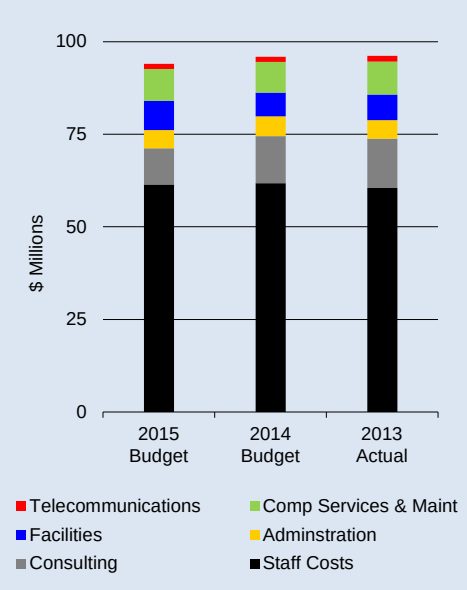
2014 Approved G&A Budget ($ million)		**$ 96.0**
Staff Costs	(0.4)	
Contract Services and Consultants	(2.9)	
Administration	(0.5)	
Facilities	1.5	
Computer Services and Maintenance & Telecommunications	0.3	**(2.0)**
2015 Budget		**$ 94.0**

Differences are due to rounding

There are several components in the 2015 budget that are worth highlighting.

The 2015 budget incorporates a three and a half per cent salary adjustment for staff to ensure the pay structure stays competitive to retain and attract the necessary talent resources. Offsetting the increase for the salary adjustments are the temporary re-assignment of several business resources to focus on the major capital project deliverables and the conclusion of the staff retention program in 2014 that was established in 2012 to retain certain technical staff.

The reduction in contractor services and consultants is primarily due to the completion of the Competitive Process for the Fort McMurray West 500 kV Transmission Project (FMW Project) by the end of 2014. The FMW Project is the first transmission line in Alberta to be awarded through a competitive tendering process. The FMW Project will be integrated into the AESO's ongoing business operations in 2015. The AESO will be initiating a second Competitive Process in early 2015 for the Fort McMurray East 500 kV Transmission Project (FME Project). The tendering, commercial, and other documentation that was developed for the FMW Project over the last several years will be leveraged on the FME Project which is expected to significantly reduce the cost of conducting the second Competitive Process.



One other notable change in 2015 is the higher facility costs. The AESO leases 105,000 square feet of office space in downtown Calgary to accommodate staff and contract

resources through long-term lease arrangements. Higher costs are associated with the 10-year office leases which began in late 2014 under new market-based agreements that have higher base rates than previous leases. In addition, operating costs are forecast to increase in 2015.

General and Administrative Costs ($ million)

	2015 Budget	2014 Budget	2013 Actual	2012 Actual
Staff	**61.4**	61.8	60.5	57.9
Contract Services and Consultants	**9.8**	12.7	13.3	15.3
Administration	**4.9**	5.4	5.0	6.3
Facilities	**7.9**	6.3	6.9	5.7
Computer Services and Maintenance	**8.6**	8.3	8.9	7.6
Telecommunications	**1.4**	1.5	1.6	1.5
General and Administrative Costs	**94.0**	96.0	96.2	94.3

Differences are due to rounding

Market Systems Replacement and Reengineering Project

($ million)

	2015 Budget	2014 Budget	2013 Actual	2012 Actual
Market Systems Replacement and Reengineering Project	**-**	2.0	0.9	-

Phase II (Sourcing/Request for Proposal) of the Market Systems Replacement and Reengineering (MSR) Project is underway and expected to be completed by the end of 2014. Based on Phase II findings, a business case and recommendation regarding Phase III (Implementation) will be presented to the AESO Board for consideration by the end of 2014.

Assuming a decision to proceed is received, the AESO plans to begin Phase III efforts in January 2015 for transition to an appropriate set of market systems. The costs in 2015 will be treated as capital.

Additional information on the MSR Project Phase III (Implementation) is provided in Appendix G (Market Systems Replacement and Reengineering (MSR) Project).

Interest Costs and Amortization

Interest Costs and Amortization ($ million)

	2015 Budget	2014 Budget	2013 Actual	2012 Actual
Interest	**0.3**	0.5	1.3	0.9
Amortization of Intangible and Capital Assets	**26.9**	27.3	23.3	24.4

Interest

Interest expense is incurred as a result of bank debt held throughout the year and the associated borrowing rate. Bank debt is issued to fund intangible and capital asset purchases and working capital deficiencies due to timing differences in the collection of revenues and payment of expenses. Intangible and capital assets are financed through the AESO's credit facilities and recovered over the useful lives of the assets (included in amortization).

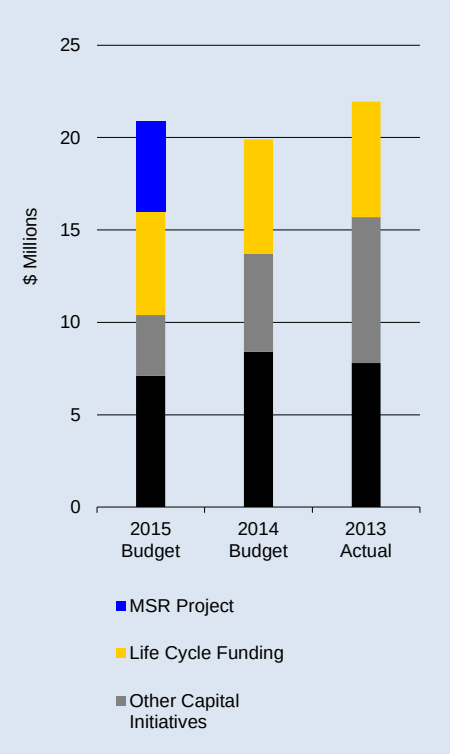
The AESO's working capital includes deposits for generating unit owner's contributions that are held by the AESO and refunded to generators in accordance with the terms and conditions within the ISO Tariff. For 2015, these deposits are estimated to be approximately $70 million and are used to offset otherwise required borrowings until such time as they are refunded.

Amortization of Intangible and Capital Assets

Intangible and capital assets are amortized over their estimated useful lives in accordance with generally accepted accounting principles and reviewed on an annual basis. Additional information on the AESO's 2015 capital projects is provided in Appendix F (2015 Capital Projects).

Capital Expenditures

A detailed review of the capital requirements for 2015 takes into consideration the progress that has been made on the 2014 projects that are multi-year in nature, the new requirements for 2015 and the AESO's capacity to design and implement system solutions. Based on these findings, the 2015 capital budget is $20.9 million.



The AESO considers the budgeting process for capital expenditures as the determination for the annual level of capital expenditures for use in the internal portfolio management process; not the review and approval of specific capital projects. All capital projects initiated by the AESO are reviewed and approved through the portfolio management process. This process is led by senior management and facilitates a regular review and prioritization of major projects to ensure business requirements are met and, at the same time, achieve the most beneficial and cost-effective results. This process also allows for the flexibility to re-evaluate capital plans throughout the year.

The following table identifies a preliminary list of projects that are planned for 2015 based on current operations and the business initiatives. As time progresses in 2015, requirements and circumstances may change and the portfolio management process will be used to manage these changes throughout the year.

Additional information on the 2015 capital projects is provided in Appendix F (2015 Capital Projects).

Capital Expenditures ($ million)

	2015 Budget	2014 Projection	2014 Budget	2013 Actual	2012 Actual
Key Capital Initiatives					
1. Reliability (EMS[3] components)	3.6	0.6	3.2	0.5	1.2
Reliability (HVDC[4] & other components)	0.3	1.6	2.0	1.5	-
2. Critical Infrastructure Protection	0.4	-	-	-	-
3. IT/Cyber Security	1.2	0.2	-	-	-
4. Wind Integration	-	0.8	0.9	0.0	0.3
5. FEOC[5] Regulation Implementation	-	-	-	0.2	1.0
6. Market Evolution (Incorporates TCM[6])	1.2	0.2	0.2	0.6	0.0
7. Demand Response	-	0.4	0.6	0.1	0.0
8. Intertie Framework	0.4	0.3	0.6	2.3	3.4
9. Operating Reserve	-	0.3	0.5	0.2	-
10. Transmission Cost Accountability	0.0	0.2	0.3	-	-
11. BUCC[7] Replacement	-	-	-	2.4	0.4
Total Key Capital Initiatives[8]	**7.1**	**4.4**	**8.4**	**7.8**	**6.5**
Other Capital Initiatives	**3.3**	**5.6**	**5.3**	**7.9**	**10.8**
Life Cycle Funding	**5.6**	**6.9**	**6.2**	**6.2**	**8.2**
Sub-total Capital	**16.0**	**16.9**	**19.9**	**22.0**	**25.5**
Major Project – MSR Phase III	**4.9**				
Total Capital	**20.9**				

Differences are due to rounding

Key Capital Initiatives represent the most critical capital projects over the planning period that must be completed within the identified timeframe.

Other Capital Initiatives are also necessary projects; however, there is more flexibility in planning or delivery so timing is not as critical as the Key Capital Initiatives.

Life Cycle Initiatives are typically leasehold improvements, replacement of end-of-life IT hardware and recurring software upgrades.

Additional detailed information on capital projects is provided in Appendix F (2015 Capital Projects).

[3] Energy Management System (EMS) – Project components reclassified as G&A after decision to defer upgrade – EMS strategy review
[4] High Voltage Direct Current (HVDC)
[5] Fair Efficient Open Competitive (FEOC) Multi-year project completed. Additional funding not required.
[6] Transmission constraints management (TCM) –TCM project components specifically relating to HVDC were reclassified to the Reliability HVDC & Other category.
[7] Back-up Control Centre (BUCC) Multi-year project completed. Additional funding not required.
[8] Information Management Program – Reclassified; Key and Other category subtotals adjusted in 2013 and 2012

Revenue

The AESO recovers its operating and capital costs through three separate revenue sources. Each is designed to recover the costs directly related to a specific service as well as a portion of the shared corporate services costs. The AESO's operations integrate the functions of transmission, energy market, and load settlement to maximize benefits under the *Electric Utilities Act* (EUA). This integration results in cost allocations in many parts of the organization for the purpose of cost recovery. In determining the revenue requirement on a function-by-function basis, all AESO costs are assigned or allocated to one of the three functions. Additional information on the 2015 cost allocation methodology is provided in Appendix H (Allocation of Costs).

Transmission

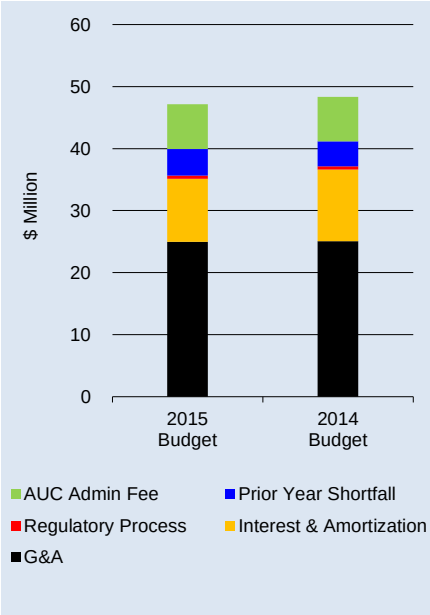
The AESO is responsible for paying the costs of the provincial transmission system and recovering the costs through a tariff approved by the AUC. The ISO Tariff is designed to allocate the costs to all users of the transmission system based on level of usage. The 2015 budget costs related to the transmission function will be incorporated into the AESO's tariff rates.

Energy Market

The AESO recovers the costs of operating the real-time energy market through an energy market trading charge on all MWhs traded. Based on the 2015 budget and a current trading volume forecast, an energy market trading charge of 35.8¢ per MWh traded is required for 2015.

The 2015 trading charge is lower than the 2014 trading charge due lower general and administrative and Market Systems Replacement and Reengineering Project costs budgeted for 2015. The 2015 trading charge is expected to recover any shortfall carried over from 2014 to 2015.

These trading charge amounts are independent of the Market Surveillance Administrator (MSA) charge. The 2015 MSA cost recovery amount will be communicated to the AESO in the latter part of 2014. The MSA cost recovery amount is approved by the Chair of the AUC in an independent budget process.



Trading Charge Recoverable Amounts ($ million)

	2015 Budget	2014 Budget	2013 Budget
AESO Costs	**35.6**	37.2	33.1
Energy Market Shortfall / (Surplus)	**4.3**	4.0	(1.0)
AESO Component	**39.9**	41.2	32.1
AUC's Portion of Energy Market Administration Fee	**7.2**	7.2	7.2
Total Recoverable Amount	**47.1**	48.4	39.3

Differences are due to rounding

Trading Charge (¢ per MWh)

	2015 Budget	2014 Budget	2013 Budget
AESO Costs	**27.0¢**	29.1¢	26.7¢
Energy Market Shortfall / (Surplus)	**3.2**	3.1	(0.8)
AESO Component	**30.3**	32.3	25.9
AUC's Portion of Energy Market Administration Fee	**5.5**	5.6	5.8
Total	**35.8¢**	37.9¢	31.7¢

Differences are due to rounding

Load Settlement

Expenses that the AESO incurs to provide services related to administering provincial load settlement are charged to the owners of electric distribution systems and wire service providers conducting load settlement under AUC Rule 21 *Settlement System Code Rules*.

Appendix A: 2014-2018 Strategic Plan

The AESO reviews its strategic plan on an annual basis and amends the plan accordingly. The recently completed *2014–2018 Strategic Plan* update serves as the starting point for the development of this business plan, and the successive business plans and budgets that will follow.

AESO Mission

Alberta's need for fairness and efficiency in an openly competitive marketplace will continue, as will the need for safe, reliable, and economic operation of the provincial transmission system. Meeting these needs is the AESO's mission. As such, our mission remains the same as in previous years:

> *The AESO facilitates a fair, efficient and openly competitive market for electricity and provides for the safe, reliable, economic operation of the Alberta Interconnected Electric System.*

AESO Vision

The manner in which we execute our mandate must continually evolve in order to consistently serve Albertans. With that firmly in mind, the AESO's vision contains similar themes to the previous AESO vision, but with an emphasis on being a trusted leader based on our credibility, expertise and maturation as an organization to advance the electricity framework:

> *The AESO is the trusted leader in the advancement of the electricity framework by ensuring reliability, facilitating competition, enabling Alberta's economic growth, and enhancing the quality of life for Albertans.*

Strategic Objectives

Moving forward, we will pursue three key objectives; build on the current electricity framework that has been successful to date, provide value to Albertans as an organization, and retain and attract the right people. The objectives have been captured within three strategic objectives, and are summarized under the headings *Framework*, *Value*, and *People*.

The three strategic objectives, which have been simplified from the AESO's previous eight strategic objectives, are as follows:

Framework

We will enable Albertans to continue to realize the value provided by robust competition and reliable operations, while providing our stakeholders with confidence to invest in the province as we guide the evolution of the electricity framework.

Value

We will drive value throughout all that we do in the execution of our mandate by maintaining focus, striving for exceptional delivery, and upholding high standards of excellence while being adaptable to change.

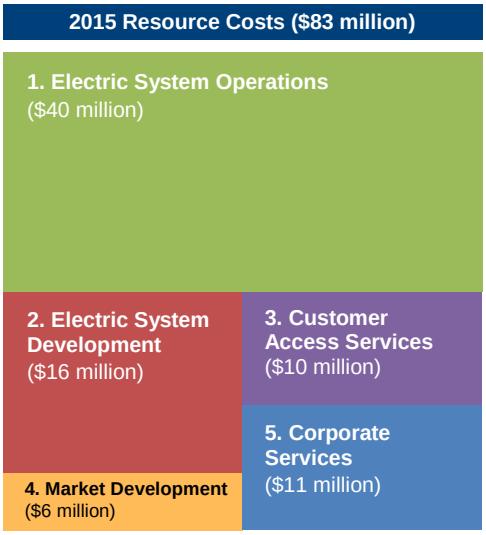
People

We will continue to strengthen our workforce capacity and talent to enable the AESO to meet the changing needs of the organization.

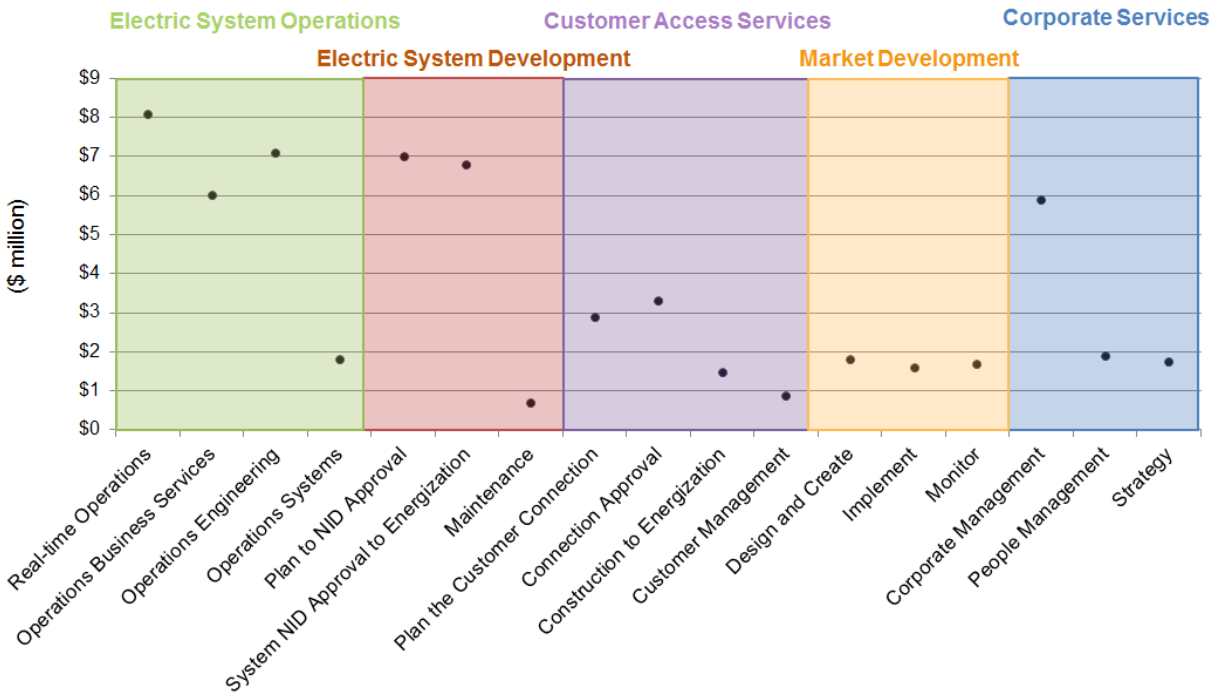
These objectives are interrelated and interdependent; and by achieving them, the AESO will continue to operate in the public interest of all Albertans, and ultimately realize our vision.

Appendix B: Activity Groups

Underlying the five key processes are the following activity groups that best describe the day-to-day focus of AESO resources, excluding the information technology resources.



This chart provides a comparison of the costs by activity groups across the organization. Descriptions of the activity groups are provided under AESO Operations in pages 4 through13.



Appendix C: Year-to-Date August 2014 Financial Results Detail

Costs

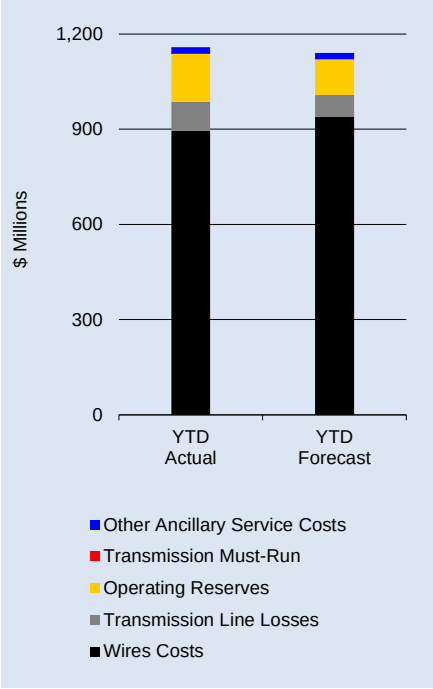
Year-to-Date August 2014 Transmission Operating Costs ($ million) ~ by production year

	YTD Aug Actual	YTD Aug Forecast	YTD Aug Variance	2014 Projection	2014 Forecast
Wires Costs	895.6	938.2	(42.6)	1,371.0	1,407.3
Transmission Line Losses	90.2	69.9	20.3	145.1	117.3
Operating Reserves	152.6	112.5	40.1	219.7	193.7
Transmission Must-run	0.4	0.0	0.4	4.0	-
Other Ancillary Service Costs	20.1	19.3	0.8	26.3	30.7
Transmission Operating Costs	**1,158.9**	1,139.9	19.0	1,766.1	1,749.0

Transmission Operating Costs

The following table provides the transmission operating costs as of August 2014 compared to the forecast.

Transmission operating costs represent wires, transmission line losses and ancillary services costs. As of August 2014, actual costs of $1,158.9 million are $19.0 million or two per cent higher than the forecast costs of $1,139.9 million. This variance is attributable to variances in wires, transmission line losses and operating reserves.



Wires Costs

Wires costs as of August 2014 are $895.6 million, which is $42.6 million or five per cent lower than the forecast of $938.2 million based on the amounts paid primarily to the owners of transmission facilities (TFOs) in accordance with their AUC-approved tariffs. This variance is attributable to wires payments to some providers being lower than forecast due to pending AUC decisions.

The 2014 projection is anticipating actual wires costs of $1,371.0 million, which is $36.3 million or three per cent lower than the 2014 forecast of $1,407.3 million.

Transmission Line Losses

Transmission line losses costs at the end of August 2014 are $90.2 million, which is $20.3 million or 29 per cent higher than the forecast of $69.9 million. This variance is due to the year-to-date actual average hourly pool price, which has been $60 per MWh compared to a forecast of $49 per MWh. The higher pool price is primarily due to changes to the duration and timing of planned outages as well as unanticipated outages of several key generating units in 2014.

Transmission line losses volumes to the end of August are 1.5 terawatt hours compared to the forecast volumes of 1.5 terawatt hours.

The 2014 projection anticipates transmission line losses costs of $145.1 million, which is $27.8 million or 24 per cent higher than the 2014 forecast of $117.3 million, mainly attributable to pool price.

Operating Reserves

Operating reserve costs at the end of August 2014 are $152.6 million, which is $40.1 million or 36 per cent higher than the forecast of $112.5 million. This variance is mainly attributable to the costs of operating reserves during periods of much higher than average pool prices. In the time period from January to August 2014, there were 24 days when the on-peak average pool price was above $200 per MWh. The operating reserve costs associated with these days was $99.7 million or approximately 65 per cent of the costs. As operating reserve costs are indexed to the hourly pool price, higher than forecast pool prices result in higher than anticipated operating reserve costs. The higher pool prices can be associated with periods of planned and unplanned generation outages and transmission system constraints.

Actual operating reserve volumes to the end of August are 5.5 terawatt hours which is 0.3 terawatt hours or approximately five per cent higher than the forecast volumes of 5.2 terawatt hours.

The 2014 projection is anticipating actual operating reserve costs of $219.7 million, which is $26.0 million or 13 per cent higher than the 2014 forecast of $193.7 million mainly attributable to pool price volatility.

Transmission Must-run (TMR)

Transmission must-run costs at the end of August 2014 are $0.4 million. There were no planned or forecast contracts for TMR services for 2014; actual costs are associated with payments for unforeseeable events. Unforeseeable TMR is required to mitigate the overloading of transmission lines associated with line outages, system conditions in real time and the loss of generation in an area.

Other Ancillary Service Costs

Other ancillary services that the AESO procures for the secure and reliable operation of the Alberta Interconnected Electric System (AIES) include load shed service for imports (LSSi), black start, and services provided by Poplar Hill generator. Other ancillary services costs at the end of August 2014 are $20.1 million, which is $0.8 million or four per cent higher than the forecast of $19.3.

The 2014 projection for other ancillary services costs is $26.3 million, which is $4.4 million or 14 per cent lower than the 2014 forecast of $30.7 million, mainly attributable to the delay in procuring black start services until early 2015.

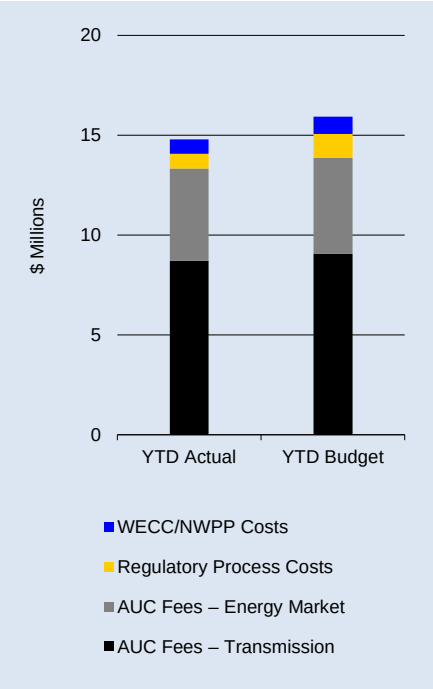
Other Industry Costs

The following table provides other industry costs as of August 2014 compared to the budget.

Year-to-Date August 2014 Other Industry Costs ($ million)

	YTD Aug Actual	YTD Aug Budget	YTD Aug Variance	2014 Projection	2014 Budget
AUC Fees – Transmission	8.7	9.1	(0.3)	13.4	13.6
AUC Fees – Energy Market	4.6	4.8	(0.2)	7.0	7.2
Regulatory Process Costs	0.7	1.2	(0.5)	1.0	1.8
WECC/NWPP Costs[1]	0.7	0.9	(0.2)	1.1	1.3
Other Industry Costs	14.8	15.9	(1.1)	22.5	23.9

Other industry costs represent fees or costs paid based on regulatory requirements or membership fees for industry organizations; the amounts or requirement for the costs are not under the direct control of the AESO. These costs relate to regulatory process costs, the annual administration fee for the Alberta Utilities Commission (AUC), and the AESO's share of Western Electricity Coordinating Council (WECC) and Northwest Power Pool (NWPP) membership fees.



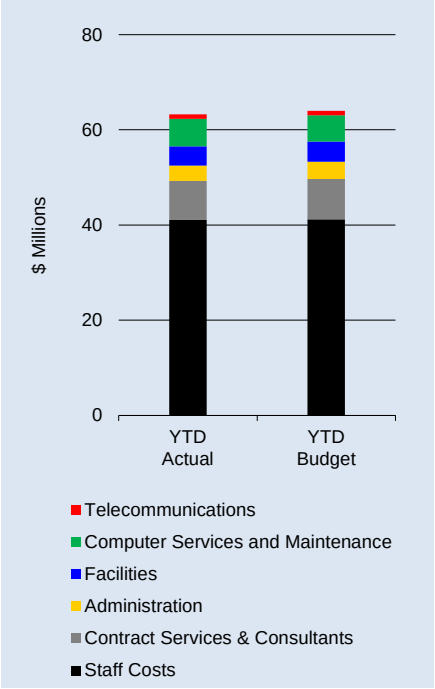
General and Administrative Costs

The following table provides the general and administrative costs as of August 2014 compared to the budget.

Year-to-Date August 2014 General and Administrative Costs ($ million)

	YTD Aug Actual	YTD Aug Budget	YTD Aug Variance	2014 Projection	2014 Budget
Staff Costs	41.1	41.2	(0.1)	62.1	61.8
Contract Services and Consultants	8.2	8.5	(0.3)	12.4	12.7
Administration	3.3	3.6	(0.4)	5.1	5.4
Facilities	4.0	4.2	(0.2)	6.3	6.3
Computer Services and Maintenance	5.8	5.5	0.3	8.6	8.3
Telecommunications	0.9	1.0	(0.0)	1.5	1.5
General and Administrative Costs	**63.3**	**64.0**	**(0.7)**	**96.0**	**96.0**
Market Systems Replacement and Reengineering Project	**1.2**	**1.3**	**(0.1)**	**1.9**	**2.0**

Differences are due to rounding



Staff Costs

The AESO maintains market-based compensation for staff which incorporates a benefits plan and a performance-based incentive. It is anticipated that staff costs will be near budget in 2014.

Contract Services and Consultants

By the end of August, costs related to contract services and consultants are $0.3 million or four per cent lower than budget mainly due to the timing of required consulting services for various initiatives. The costs are expected to be incurred in the last quarter of 2014.

Administration

Administration costs include corporate communications, recruiting, travel and training, AESO Board fees, and office costs that present the general operating costs of the organization. Based on current estimates, it is anticipated that actual costs in 2014 will be consistent with the 2014 budget.

Facilities

Facility costs include rent and operating costs for three AESO locations. The facility costs in 2014 are anticipated to be consistent with the 2014 budget.

Computer Services and Maintenance

Ongoing costs are incurred to purchase annual software operating licences and maintenance agreements for the AESO's information technology systems. Based on current estimates, it is anticipated that actual costs for 2014 will be consistent with the 2014 budget.

Telecommunications

The AESO incurs costs for network systems and telecommunications to support general business operations and, to a much larger extent, to support real-time operations. Based on current estimates, it is anticipated that actual costs for telecommunications in 2014 will be consistent with the 2014 budget.

Market Systems Replacement and Reengineering Project

The Market Systems Replacement and Reengineering (MSR) Project has been designed with three distinct phases for the implementation of the full project. The funding for Phase I (Validation/Request for Interest) was approved by the AESO Board as part of the 2014 BRP for $2.0 million with actual costs in 2014 anticipated to be $1.9 million. These costs are considered as operating costs, as opposed to capital given the nature of the work performed in this phase.

Further details on the MSR project are provided in Section II and Appendix G (Market Systems Replacement and Reengineering (MSR) Project).

Interest and Amortization Costs

The following table provides the interest and amortization costs as of August 2014 compared to the budget.

Year-to-Date August 2014 Costs ($ million)

	YTD Aug Actual	YTD Aug Budget	YTD Aug Variance	2014 Projection	2014 Budget
Interest	0.1	0.3	(0.2)	0.2	0.5
Amortization of Intangible and Capital Assets	17.3	18.2	(0.9)	26.8	27.3

Differences are due to rounding

Interest

Actual interest costs are lower than budget for 2014 due to lower borrowing requirements. The lower borrowing requirements are attributable to collections exceeding costs resulting in surplus cash combined with generating unit owner's contribution deposits of approximately $70 million. Both the deferral account balances and the generating unit owners' contribution deposits are used to offset borrowing requirements for working capital and intangible and capital asset purchases.

Amortization

A number of variables are taken into consideration in developing the annual amortization budget. These variables include the asset addition types (impacting the estimated useful life), the purchase amount, and the timing (commissioning date) of asset additions. Based on current estimates, it is anticipated that the actual amortization for 2014 will be $26.8 million, which is $0.5 million or two per cent lower than budget.

Capital Expenditures

The AESO has three main asset categories: people, technology and processes. While investment occurs in all three areas, only the technology assets (computer systems and System Coordination Centre) are the focus for capital expenditures. The development and acquisition of capital assets is a major budget component given the AESO's significant reliance on IT infrastructure and applications for business operations. As with all IT-intensive organizations, the challenge is to find the right balance between implementing technology advancements, determining the level of IT development that can be supported by business operations and then establishing the funding requirements to make it all happen.

To address these challenges, a vetting and prioritization process has been implemented and continues to be enhanced to ensure capital expenditures achieve the most beneficial and cost-effective results to continue to meet operating requirements. This is referred to as the portfolio management process. Throughout the year, capital projects are reviewed on an ongoing basis to assess progress and budget spending and identify unanticipated issues. Any new or modified requirements are also reviewed and prioritized to determine how they align with existing work. This is a continual process to ensure alignment of priorities and business needs.

The estimated capital expenditures in 2014 are $16.9 million which is $3.0 million or 15 per cent lower than the capital budget of $19.9 million.

Additional information on capital projects is provided in Appendix F (2015 Capital Projects).

Capital Expenditures ($ million)

	2014 YTD Aug Actual	2014 Remaining	**2014 Projection**
Key Capital Initiatives	3.0	1.4	**4.4**
Other Capital Initiatives	2.8	2.8	**5.6**
Life Cycle Funding	3.1	3.8	**6.9**
Total Capital Spending	9.0	8.0	**16.9**

Key Capital Initiatives represent the most critical capital projects over the planning period that must be completed within the identified timeframe.

Other Capital Initiatives are also necessary projects; however, there is more flexibility in planning or delivery so timing is not as critical as the Key Capital Initiatives.

Life Cycle Initiatives are typically leasehold improvements, replacement of end-of-life IT hardware and recurring software upgrades.

Appendix D: Transmission Operating Cost Definitions

2015 Pool Price Forecast Methodology

The AESO has prepared its 2015 pool price forecast using the AURORAxmp Power Market Model, which reflects the Alberta market fundamentals. The most up-to-date information available on future supply, demand and market fundamentals, as well as random variables including forced outages, weather-related demand fluctuations and gas prices are used to generate price volatility in the forecast. However, many planned outages can change in duration and timing throughout the year and this will impact the hourly pool price in ways that the AESO cannot predict. The AESO has run 1,001 simulations of the hourly pool price forecast, producing price distributions that reflect the volatility seen in the Alberta market.

The AESO has selected the results from the 95th percentile of the 1,001 simulations as the 2015 pool price forecast. The average hourly pool price forecast for 2015 of $41 per MWh is $7 per MWh or 15 per cent lower than the 2014 average hourly pool price forecast of $48 per MWh, which was derived using the same model and methodology. This decrease in pool price forecast is primarily due to increases in available generation capacity in 2015, including a significant amount of new generation supply that came on-line in second half of 2014 (representing close to 1,200 MW of generation).

The 2015 average hourly pool price forecast is used as an input to calculate the transmission line losses and ancillary services costs forecasts.

Transmission Line Losses

Transmission line losses represent the amount of energy that is “lost” as a result of electrical resistance on the transmission lines. Volumes associated with line losses are determined through the energy market settlement as the difference between generation and import volumes, less consumption and export volumes. The hourly volumes of line losses vary based on load and export levels, generation (baseload, peaking units and import) available to serve load, weather conditions, and changes in the transmission topology. System maintenance schedules, unexpected failures, dispatch decisions on the Alberta Interconnected Electric System (AIES), and short-term system measures (such as demand response) may also affect the volume of losses.

The annual volume forecast for transmission line losses is based on the hourly forecast losses volumes, which are calculated based on the following:

- Historical actual losses volumes from the AESO’s settlement system, incorporating post-final restated metering data; and
- A forecasting model using the historical data.

The annual forecast for transmission line losses costs is the accumulation of the hourly forecast losses volumes multiplied by the hourly forecast pool prices. As such, the transmission line losses costs are highly correlated with the pool price forecast. For 2015, the AESO has applied the 95th percentile of the 1,001 simulations of the hourly pool price forecast, as discussed above, to the forecast transmission line losses volumes to create a projected cost curve for the transmission line losses cost forecast.

Ancillary Services

Ancillary services are procured by the AESO to ensure reliability of the transmission system. Ancillary services are procured through various methods including a daily competitive exchange for operating reserves, which includes generation capacity and load reduction capabilities, and competitive processes that result in contracts for other ancillary services such as transmission must-run (TMR), load shed service for imports (LSSi) and system restoration services.

Operating Reserves

Operating reserves are generating capacity or load that is held in reserve and made available to the System Controller to manage the transmission system supply-demand balance in real time. Operating reserves are procured through an online exchange, where offer prices are indexed to the pool price. In exchange for this payment, the AESO obtains the right to utilize the provider's energy and/or capacity as reserves. Over-the-counter contracts are used only as a back-up to procure operating reserves in the absence of the availability of the online exchange. All providers who sell volumes over-the-counter are paid their offer price.

While the prices of operating reserves procured through the online exchange are indexed to the hourly pool price, changes to the average pool price do not result in proportional changes to the operating reserve costs; the pool price for each hour has a significant impact on the operating reserve costs for that hour. Additionally, during periods of high hourly pool prices, the less expensive operating reserve suppliers may not be available which results in higher operating reserve costs.

The AESO procures the different types of operating reserves in two forms: active and standby. Active operating reserves are the operating reserves that are forecast by the AESO as necessary to operate the AIES securely and meet the AESO's reliability obligations. Standby operating reserves provide additional reserves for use when the resources available under the active portfolio are insufficient. Payments for standby reserves include a premium for the option to activate the standby reserves and an activation price that is paid if the reserves are activated.

Operating reserves are comprised of three types of active reserves, with the minimum levels of operating reserves required based on standards established by the Western Electricity Coordinating Council (WECC):

- **Regulating reserves** – The generation capacity, energy and manoeuvrability responsive to the AESO's automatic generation control (AGC) system that is required to automatically balance supply and demand on a minute-to-minute basis in real time.
- **Spinning reserves** – Unloaded generation that is synchronized to the transmission system, automatically responsive to frequency deviation and ready to provide additional energy in response to an AESO system controller directive. Spinning reserve suppliers must be able to ramp up their generator within 10 minutes of receiving a system controller directive.
- **Supplemental reserves** – While similar to spinning reserves, supplemental reserves are not required to respond to frequency deviations. They include unloaded generation, off-line generation or system load that is ready to serve additional energy (generator) or reduce energy (load) within 10 minutes of receiving a system controller directive.

The annual forecast for operating reserves costs is based on the forecast annual operating reserves volumes (governed by WECC requirements using the new contingency reserve standard BAL-002 starting in 2015), the distribution curve for the forecast pool price and historical premiums/discounts. The hourly premium/discount estimates are derived from a rolling window of 24 months of historical data. A probabilistic analysis using 1,001 simulations is then performed on the input parameters to establish monthly and annual cost curve projections. For 2015, the AESO has used the summation of the 95th percentile of the monthly cost forecasts to establish the annual operating reserves cost forecast. This methodology allows the AESO to better capture monthly and seasonal volatilities.

Transmission Must-run (TMR)

TMR is generation required to be on-line and operating to ensure reliability in specific areas of the AIES with insufficient transmission capacity. This service is typically procured through commercial contracts involving fixed and variable payment components.

A market participant may be directed to provide unforeseeable TMR service when the provider does not have an existing contract for the service. In these circumstances, the ISO Tariff specifies the method to calculate the amount to be paid to the provider.

Other Ancillary Services

Other ancillary services the AESO procures for the secure and reliable operation of the AIES include LSSi, black start and services provided by Poplar Hill generator. These services are procured through bilateral contracts with suppliers using competitive procurement processes whenever possible. The Poplar Hill generator provides voltage support (VArs) in addition to power (MW), to support the transmission system reliability in the Northwest part of the province. As such, the associated costs are included in Other Ancillary Services.

Appendix E: 2015 General and Administrative Cost Detail

Human Resources

Human Resources ($ million)

	2015 Budget	2014 Projection	2014 Budget	2013 Actual	2012 Actual
Staff	**61.4**	62.1	61.8	60.5	57.9
Consulting	**9.0**	10.1	11.5	11.4	13.9
Legal	**0.5**	2.2	1.0	1.8	1.2
Audit/Reviews	**0.2**	0.2	0.2	0.1	0.2
Human Resources	**71.2**	74.5	74.5	73.8	73.3

Differences are due to rounding

Staff Costs – These costs are based on several key budget variables or factors:

- **Base pay for performance adjustments for existing staff or an overall change in the AESO's compensation philosophy** – While the compensation philosophy will remain unchanged in 2015, the AESO has incorporated a three and a half per cent base pay adjustment for general salaries. This adjustment percentage is the result of compensation planning analysis that includes salary survey information, as well as economic indicators. Near the end of the year, management will recommend a final base salary adjustment to the AESO Board's Human Resources Committee for final approval.
- **Short-term (annual) incentive plan** – The AESO's short-term incentive plan is based on an assessment of corporate and individual performance, as aligned to corporate goals. In preparing the budget, the AESO has confidence in its approach to successfully deliver on its goals and has reflected this in its incentive compensation at 60 per cent of eligibility. The incentive program that was in place from 2012 to 2014 for a select number of critical roles to provide for staff retention to enable delivery on critical projects will not extend into 2015.
- **Vacancy rate** – Due to staff attrition trends and the time required to hire, a number of positions may remain vacant for a period of time. The AESO has included an eight per cent vacancy rate in 2015 which is consistent with the 2014 budget. The AESO anticipates a seven per cent vacancy rate in 2014; the AESO's recruitment strategy is to target an actual vacancy rate close to zero per cent.
- **Benefit costs** – In addition to their salary, each employee participates in the organization's comprehensive benefit plan. For the organization, this represents costs such as health and dental coverage, defined contributions for retirement savings and government payroll costs. These costs are presented as a percentage of salary costs to determine the "benefits load factor" which has been budgeted at 22 per cent of salary costs in 2015 which is consistent with the 2014 budget.

Consulting – The AESO uses consultants to supplement staff resources for two general purposes. It is not practical to retain staff that have all of the skill sets that may be required from time to time. In these circumstances, consultants are utilized to either complete the work or assist in training AESO staff. Consultants are also used to address workload peaks to maintain seamless operations and continual progression on key initiatives.

Legal – Legal counsel is retained to support general business operations by supplementing in-house legal resources and to provide expertise on regulatory filings and more complex matters. Costs associated with the AESO's involvement in an AUC proceeding to hear objections and complaints to ISO Rules or any regulatory application are included in the cost category regulatory process costs, as opposed to the general and administrative cost category.

Audit/Review – To conduct audits or reviews on AESO processes, systems or reporting, the professional services of others will be used to assist with these initiatives.

Administration

Administration Costs ($ million)

	2015 Budget	2014 Projection	2014 Budget	2013 Actual	2012 Actual
AESO Board Fees	**0.5**	0.5	0.6	0.5	0.5
Travel and Training	**1.8**	1.8	1.8	2.0	2.0
Insurance	**0.6**	0.6	0.6	0.6	0.5
Other Administrative	**2.0**	2.3	2.5	1.9	3.2
Administration	**4.9**	5.1	5.4	5.0	6.3

Differences are due to rounding

AESO Board Member Fees – The AESO is governed by the AESO Board whose members are appointed by the Alberta Minister of Energy. While the number of Board members can vary from time to time, there can be no more than nine members, with their compensation based on a retainer fee and additional fees based on their Board committee involvement and time spent on corporate matters.

Travel and Training – The travel and training category covers costs incurred for general business travel, staff training and associated travel, corporate meetings and related meals. In addition, costs related to stakeholder consultation and open houses for proposed transmission projects and public communication and education are included in this category.

Insurance – The EUA provides limited statutory protection for the business risks of the AESO organization, directors, officers and staff. To ensure business risks are properly insured, the AESO carries insurance for exposures not covered by the EUA, specifically for direct damages resulting from negligence. The AESO has statutory protection for indirect damages, which would typically be the most costly damages that would occur for business interruption and lost revenue.

Other Administrative Costs – This includes corporate relations, general office costs, printing, recruiting, corporate subscriptions/memberships and professional membership fees. The 2015 budget is $0.5 million lower than the 2014 budget due to fewer open houses planned for transmission development projects and a change in the AESO's approach for hosting open houses.

Facilities

Facilities Costs ($ million)

	2015 Budget	2014 Projection	2014 Budget	2013 Actual	2012 Actual
Rent	**7.9**	6.3	6.3	6.9	5.7

Facility costs are associated with three office locations: i) the main offices in downtown Calgary which are leased through long-term lease arrangements, ii) the System Coordination Centre which is owned and operated by the AESO, and iii) additional space for the AESO's Backup Coordination Centre to accommodate redundant computer systems to support seamless operating performance in the event of a disruption to the operations at the System Coordination Centre.

To accommodate staff and contract resources in the main offices, 105,000 square feet of office space is currently leased through agreements that will expire in 2024.

In 2015, higher base rent and higher operating costs related to the AESO's downtown office space will occur. No additional office space has been planned for 2015.

Computer Services and Maintenance

Computer Services and Maintenance ($ million)

	2015 Budget	2014 Projection	2014 Budget	2013 Actual	2012 Actual
IT Maintenance and Services	**8.6**	8.6	8.3	8.9	7.6

As the AESO continues to invest in IT infrastructure to support its business operations, ongoing costs are incurred to purchase annual software and hardware operating licences and maintenance agreements for these systems with high availability requirements supported by appropriate class maintenance and support agreements. The AESO operates with a managed services model[9] for IT infrastructure operating support (network, server and database).

The software and hardware operating licences and maintenance agreements for the systems are a combination of a core base infrastructure system and applications that change as new projects are approved. In 2015, costs for IT maintenance and services are anticipated to increase by $0.3 million due to additional requirements or new negotiated agreements.

[9] A managed service model is where the AESO transfers the day-to-day management and operations of a support function (not the strategic management) to a third party provider. With this support approach the AESO would be able to leverage available technical resources and tools to provide more effective support for its critical processes. The managed services approach will facilitate resource efficiencies and improve reliability.

Telecommunications

Telecommunication ($ million)

	2015 Budget	2014 Projection	2014 Budget	2013 Actual	2012 Actual
Telecommunications	**1.4**	1.5	1.4	1.6	1.5

The AESO incurs costs for network systems and telecommunications to support general business operations and, to a much larger extent, to support real-time operations. The strategy for developing and maintaining the telecommunication infrastructure is based upon the requirement for high availability, which necessitates redundancies of services and equipment.

Appendix F: 2015 Capital Projects

The following tables provide information on the AESO's current capital plan for 2015. Actual projects to be completed in 2015 will vary, and include the addition of projects yet to be determined, deferral of projects in this plan, or elimination of projects deemed no longer necessary.

Key Capital Initiatives

These are the most critical capital projects over the planning period that the AESO believes must be completed within the identified timeframe.

Key Capital Initiatives		
Reliability Program – Energy Management System (EMS) Upgrade	**Description**	The EMS is used by System Controllers in grid operations to monitor, control and optimize the performance of the power system. The EMS is comprised of two major components: the Application suite; and Infrastructure. Both components have reached end of life; and will no longer be supported through their respective vendors. In order to ensure reliable grid operations, be CIP compliant and have supported hardware and software it was deemed prudent to proceed with an upgrade to the AESO EMS. The upgrade is a multi-year project expected to conclude in 2017.
	2014 Progress	Major investment activities were deferred while AESO management completed a review of its EMS strategy. During this period EMS upgrades were limited to the enhancement of the System Controller operating environment. Management has since completed and confirmed its EMS investment strategy, which is to utilize the existing software base and implement functional and infrastructure upgrades as required.
	2015 Plan	The key deliverable for 2015 is the completion of Phase II, the definition phase. This phase will define the detailed business requirements and design requirements and help to provide a higher degree of certainty regarding the timing, costs and approach of the subsequent implementation phase. Depending on the recommendation from the definition phase, the AESO currently plans to begin the implementation phase activities in the second half of 2015. The implementation phase is currently envisioned to be a multi-year initiative requiring separate Board-approval.
Reliability Program - Other Components	**Description**	Grid management projects that are intended to enhance the efficiency and improve the ability to reliably run the Alberta Interconnected Electrical System (AIES).
	2014 Progress	Completed HVDC engineering studies which identified the need to monitor system stability during the HVDC ramping activities and enhance outage reporting information during commissioning periods.
	2015 Plan	A number of system developments and enhancements have been identified to enhance the reliability of the AIES to support HVDC commissioning activities and ongoing operations. These include: expansion of the outage planning software to correct existing business processes with System Controller Procedures and outage coordination, and the upgrade of the PhasorPoint application software to provide System Controllers the ability to observe system stability conditions in real time, and run studies for various HVDC loading scenarios to find the appropriate loading

Key Capital Initiatives		
		levels to facilitate grid reliability.
Critical Infrastructure Protection (CIP)	**Description**	Implementation of facility upgrades and/or changes to AESO sites that are required to support CIP V5 implementation and compliance requirements.
	2014 Progress	Identification and validation of the requirements and development of an associated work plan.
	2015 Plan	Initiate implementation of facility access upgrades at the System Coordination Centre.
IT / Cyber Security	**Description**	Upgrade systems and processes to reduce the risk of cyber security breaches and facilitate AESO compliance to CIP V5 requirements.
	2014 Progress	Validated IT security and CIP V5 requirements. (This included an investigation of the steps being taken by other ISOs.) Security event monitoring expanded; phishing program delivered; 2015 initiatives prioritized.
	2015 Plan	Continue to improve AESO's cyber security maturity. This includes intrusion detection and intrusion prevention systems and processes; improved identity and access management systems and processes; network firewall reinforcement; and continuous vulnerability assessment implementation.
Market Evolution	**Description**	The identification, development and implementation of tools in support of market optimization and/or performance improvements. This includes the ongoing review (assessment and consultation) of the market design and its structural elements in consideration with the potential Market Systems Replacement and Reengineering (MSR) Project.
	2014 Progress	Monitor, assess and consult on the transmission constraints management (TCM) requirements.
	2015 Plan	Initiate development of TCM systems changes and a new TCM metrics reporting tool. Focus on settlement system.
Demand Response	**Description**	Facilitate demand side participation in the market and remove barriers to the degree possible.
	2014 Progress	Developed and implemented system changes to enable non-generating resources such as load to provide spinning reserve.
	2015 Plan	No significant information technology development or implementation requirements are planned at this time.
Intertie Development	**Description**	Develop and implement a framework and tools that support increased transfer capacity with neighboring jurisdictions. This includes, but is not limited to, restoring existing intertie capacity, support for merchant transmission additions and implementation of dynamic scheduling solutions.
	2014 Progress	Complete and implement the results from updated operating horizon limit studies in AESO systems. Complete joint AESO/BC Hydro planning horizon study and initiate appropriate next steps based on the results. Complete the implementation of the dispatchable interties project.

Key Capital Initiatives		
	2015 Plan	Implement system changes supporting the LSSi review recommendations and revised operating limit study parameters.
Operating Reserve	**Description**	Design, develop and implement AESO systems that allow for ancillary services market changes to accommodate harmonization and convergence with interjurisdictional reliability standards.
	2014 Progress	Implemented system changes required to support a new Alberta Reliability Standard reflecting the WECC Reliability Standard BAL-002-WECC-with related changes to EMS so that the Operator can operate to the new standard. Validated compliance reporting requirements for the NWPP to ensure the AESO is reporting the contingency reserve change correctly.
	2015 Plans	No significant information technology development or implementation requirements are planned at this time.
Cost Accountability	**Description**	Develop transmission cost benchmarking competency and a database to assist in the assessment of reasonableness of the costs. The AESO would use the benchmarking data to test cost estimates proposed by transmission facility owners in the need identification document phase and proposal to provide services stages.
	2014 Progress	The AESO has created a benchmarking database using cost estimate data from Alberta transmission projects over the 2005 to 2012 time period. This benchmarking data is now available on the AESO website. The database is currently hosted on a public server (tableausoftware.com). The AESO is in the process of migrating the database and application in-house.
	2015 Plans	Define and develop enhancements to the benchmarking application intended to enhance the efficiency of data management and reporting.
Key Initiatives		**$7.1 million**

Other Capital Initiatives ($ million)

These are necessary projects that have more flexibility in planning or delivery so timing is not as critical as the Key Capital Initiatives.

Other Capital Initiatives	Description	2015 Capital Budget Total
PI Historian Upgrade Implementation	Upgrade of the real time reporting software. The upgrade includes software, infrastructure and integration requirements.	1.2
Information and Records Management	Expansion of the AESO's information/records management program to include policy, retention and governance revisions to support automated archiving and deletion practices. This includes the implementation of software and infrastructure to support the expanded governance model.	0.3
Human Resources Management Tool	Implementation of commercial software that supports the AESO's HR talent management processes (e.g. talent acquisition, compensation planning, learning and development, performance planning and review, and succession planning).	0.3
Website tools and Content	Replacement of discontinued web hosting technology in support of hosting AESO.ca.	0.2
System Enhancement Program	Ongoing high-priority minor enhancements to production applications.	1.1
Miscellaneous	Other projects not exceeding $0.1 million.	0.3
Other Capital Initiatives		**3.3**

Differences are due to rounding

Life Cycle Initiatives ($ million)

These are typically replacement of end-of-life hardware and recurring software upgrades.

Life Cycle Initiatives	Description	2015 Capital Budget Total
Server Upgrades	Retire and replace corporate server hardware/software based on a pre-determined corporate retirement plan. Priority replacements include critical database servers and servers within the development environment.	0.5
Storage Upgrade	Implement selected storage infrastructure upgrades to address existing end-of-life cycle considerations, support the high-performance storage requirements of on-line stakeholder systems and increase the reliability/availability of critical data systems between AESO's data centres.	1.4
Enterprise Services	Upgrades to the AESO inter-application messaging platform to ensure consistent and accurate data is exchanged.	0.8
Monitoring Solutions	Upgrade and integration of disparate monitoring solutions for a more holistic view of infrastructure and application performance.	0.0
Applications Lifecycle	Upgrades to the underlying technologies that support AESO corporate and enterprise applications.	0.5
Database Upgrade	Upgrade to the database environment that supports the AESO's critical applications.	1.2
End User Computing	Upgrade activities that keep the end user computing platform current.	0.3
Network Upgrades	Upgrade AESO voice and data networks to ensure vendor support, meet reliability requirements and address increased capacity needs. This includes data switches, remote access capabilities, and redundancy of critical network services.	0.3
Non Project Capital	Ongoing investment in desk side systems, productivity tools, services and mobile devices to replace aging software and equipment and accommodate resource growth (e.g., data storage).	0.4
Leasehold Improvements	Office furniture purchase, replacement and other leasehold improvements.	0.2
Life Cycle Initiatives		**5.6**

Differences are due to rounding

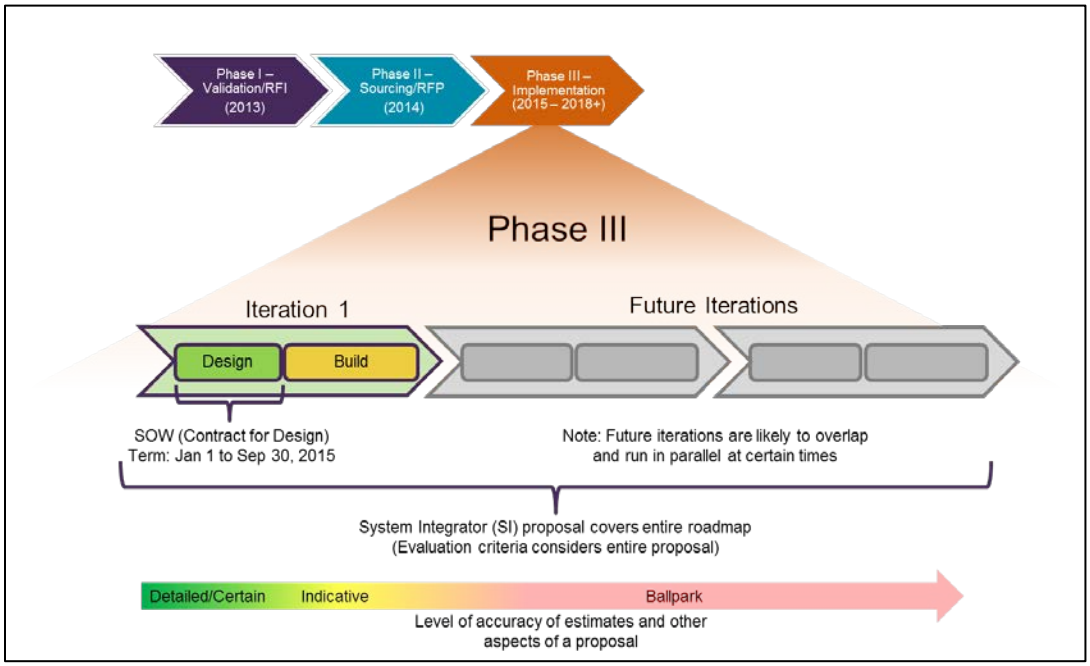
Appendix G: Market Systems Replacement and Reengineering (MSR) Project

MSR Project Overview	
Description	Reliable operation of the wholesale electricity market and timely evolution of the market both require reliable and flexible AESO market systems. The AESO's market systems have endured a significant amount of change and growth over the past several years including enablement of the DDS (Dispatch Down Service) market, wind management, LSSi (Load Shed Service for Imports), congestion management, supply surplus, multiple intertie projects and others. Many systems have been stretched past their useful life and in many cases, have become increasingly difficult and costly to change and operate reliably. Market evolution is expected to continue with changes resulting from continued advancement of the intertie program, alignment of dispatch and settlement periods, enhanced market metrics reporting, etc. The current state of the AESO's market systems poses a risk to the reliability of market operations and to the AESO's ability to evolve the market in a timely manner. These risks increase with time as the market system technology becomes increasingly obsolete and the systems become more complex as a result of additional market change. While the AESO has taken actions over the past three years to temporarily extend the life of its existing market systems, it would be prudent to begin addressing the long term lifecycle replacement and reengineering needs of these systems. This project has the following objectives: • Improving and sustaining the reliability of existing market system functions • Positioning the market systems to better accept future changes (i.e. enable timely market evolution)
Scope of the Market Systems	Multiple interrelated market systems are in scope for this project. This includes the AESO's Energy Trading System (ETS), Ancillary Services Procurement system (ASP), Dispatch Tool (DT), settlement systems and other market related tools. The market components of the Energy Management System (EMS) are also included.
Project Approach	A multi-year phased approach is recommended to incrementally address the AESO's highest priorities with a minimum amount of change rather than an all-at-once replacement (i.e. the AESO is not doing what is sometimes known as a "big bang" implementation). A phased implementation approach will: • Minimize the business impact by reducing the learning curve for end-users and the number of requirements (processes, people and technology) that need to be in place. • Ensure we replace only what is needed which may help to reduce the overall costs. • Allow for multiple and frequent decision points to ensure we are delivering

MSR Project Overview	
	the right priorities at the right time. • Provide the opportunity to assess impacts of each phase and incorporate learnings into subsequent phases to allow for better planning of future releases. <u>Phase I – Validation (completed December 2013)</u> This phase included project definition, understanding long-term business drivers and requirements, business process analysis, high-level solution option analysis, narrowing the list of potential implementation partners, and business case development. MSR Phase I clearly identified the need for change to the AESO's market systems is significant and growing. As the status quo for these systems will not meet the industry's and the AESO's future needs, it is appropriate that the AESO proceeds with MSR Phase II with a level of urgency. This will mitigate growing technology risk, address market evolution scenarios and meet ongoing expectations for reliability of market operations and systems. <u>Phase II – Sourcing / Request for Proposal (to be completed December 2014)</u> MSR Phase II objectives are: • Refine the target state of what market systems should be to meet the industry's future needs by further defining business and technical requirements • Determine candidate vendors, execute and evaluate RFP • Establish sequencing and implementation plan for MSR Phase III MSR Phase II will be completed over the balance of 2014. A business case for MSR Phase III (Implementation) is being presented to the AESO Board at the end of 2014 to enable a decision to proceed (or not to) with MSR Phase III. <u>Phase III – Implementation</u> The implementation phase includes the bulk of the execution effort to design, build, configure, test and transition to an appropriately upgraded, replaced and reengineered set of market systems. Phase III will be delivered over multiple iterations, with highest priority market systems functionality being addressed in the first iteration (Iteration 1). Each iteration is divided into Design and Build sub-phases: • Design: verification of business and technical requirements and assumptions, detailed design and detailed planning/estimation for the Build sub-phase, proof of concept for solution design • Build: configuration and development of the solution, integration with existing systems, quality assurance, data migration, deployment, change management, warranty and sustainment Phase III estimates were determined after an extensive RFP process that required bidders to provide detailed estimates for Iteration 1 Design, indicative estimates for Iteration 1 Build and ballpark estimates for Phase III beyond

MSR Project Overview	

	Iteration 1. Note that these estimates include both vendor and internal costs.
	
	• Iteration 1 Design (detailed estimate)
	  o Timing: 9 months (January to September 2015)
	  o Cost: $5.1 million
	
	• Iteration 1 Build (indicative estimate)
	  o Timing: 24 to 30 months (starting in Q4 2015)
	  o Cost: $15-16 million
	
	• Phase III beyond Iteration 1 (ballpark estimate)
	  o Timing: 24 to 30 months
	  o Cost: $11-12 million
	
	It is important to note that the actual timing and costs for Iteration 1 Build and Phase III beyond Iteration 1 could be substantially different from the estimates provided above. More accurate estimates for Iteration 1 Build will be provided after completion of Iteration 1 Design.



Appendix H: Allocation of Costs

Management reviews allocation percentages twice a year. They are first reviewed when the annual budget is prepared and again at year end when the allocations are finalized based upon actual activities and costs for each department.

Cost Type	Allocation Methodology
Direct Operating	Individual department review/analysis for current year work focus
Shared Services – Corporate Services[10]	Based on allocation of direct operating group costs
Shared Services – Information Technology	Activity-based analysis on system and resource costs
Shared Services – Office Leases	Based on AESO staff count
Capital	Assigned on a project-by-project basis
Other Industry Costs – Fees and Memberships	Based on related function
Other Industry Costs – Regulatory Process Costs	Individual review/assessment for each proceeding

[10] Corporate Services includes departments such as: Accounting, Settlement and Credit, Human Resources, Corporate Communications, Legal, etc.

Section 5

Stakeholder Comments and AESO Responses

Throughout the current year Budget Review Process (BRP), we held meetings with stakeholders to discuss our business plan, budget and forecast materials and provided stakeholders with an opportunity to provide comments on this information.

The following table lists the companies that participated in the current year BRP and the meeting dates they attended.

Stakeholders in the Budget Review Process		Sept 22 Business Initiatives Calgary	Oct 6 Budgets/ Forecast Calgary	Oct 8 Budgets/ Forecast Edmonton
Alberta Direct Connects (ADC)	Attendance	√		√
Alberta Newsprint Company	Attendance			√
AltaLink	Attendance	√		
ATCO Electric	Attendance	√		√
BP Canada Energy Group	Attendance	√	√	
Capital Power Corporation	Attendance	√		√
ENERNOC	Attendance	√	√	
Industrial Power Consumers Association of Alberta (IPCAA)	Attendance	√	√	
Market Surveillance Administrator	Attendance		√	
Millar Western Forest Products	Attendance			√
Sherritt International	Attendance			√
TransCanada	Attendance	√	√	

The following table identifies the key BRP dates in 2014.

Key BRP Dates in 2014	Purpose
August 13	Notice to stakeholders – A notice was distributed to stakeholders regarding the initiation of the BRP (i.e., stakeholder consultation process), an overview of the process steps, terms of reference, and proposed process schedule.
September 22	First stakeholder meeting – Stakeholder meeting to discuss the 2015 business initiatives.
October 6 (Calgary)	First technical meeting - Stakeholder meeting to review the 2015 own costs budgets (general and administrative, interest, amortization, capital and other industry costs) and for transmission line losses and ancillary services costs.
October 8 (Edmonton)	Second technical meeting - Stakeholder meeting to review the 2015 own costs budgets (general and administrative, interest, amortization, capital and other industry costs) and for transmission line losses and ancillary services costs
November 14	Stakeholder and AESO Board meetings (as required).

Following stakeholder meetings and/or the posting of BRP information on the AESO's website, we asked stakeholders for their comments. Stakeholder comments and AESO responses to those comments are enclosed.

Stakeholder Comment and AESO Replies Matrix

AESO Consultation – 2015 Budget Review Process, Invitation to Stakeholders and Supporting Material

August 13, 2014

The AESO is asking market participants and interested parties to participate in its consultation regarding its 2015 Business Plan and Budget.

Invitation to Participate		
Do stakeholders accept the invitation to participate in the 2015 Budget Review Process (BRP)?		
Stakeholder	**Stakeholder Comment**	**AESO Replies**
Alberta Direct Connect (ADC)	*ADC appreciates the opportunity to participate in the AESO 2015 budget review process.*	The Alberta Electric System Operator (AESO) thanks stakeholders for their commitment and support to the process.
AltaLink	*Attending BRP meetings this year.*	
ATCO Electric	*Yes, ATCO Electric intends to participate in the AESO's 2015 BRP.*	
BP Canada Energy Group ULC ("BP Canada")	*BP Canada appreciates the opportunity to participate in the AESO's 2015 Budget Review Process and accepts the AESO's invitation.*	
Capital Power	*Capital Power appreciates the opportunity to participate in the AESO's 2015 Budget Review Process and accepts the invitation.*	
EnerNOC	*Yes.*	
Industrial Power Consumers Association of Alberta (IPCAA)	*IPCAA accepts the invitation to participate in the 2015 BRP.*	
MSA	*The MSA would like to participate.*	
TransCanada	*TransCanada appreciates the AESO continuing*	

	the annual BRP and intends to participate in the BRP.	
Terms of Reference		
Do stakeholders agree with or have comments on the principles set out in the in the Terms of Reference?		
Stakeholder	**Stakeholder Comment**	**AESO Replies**
Alberta Direct Connect (ADC)	*The* ADC *accepts the principles set out in the terms of reference.*	Noted.
AltaLink	*None.*	
ATCO Electric	*ATCO Electric supports the principles set out in the Terms of Reference.*	
BP Canada	*BP Canada has reviewed the Terms of Reference and believes the terms are appropriate for the 2015 Budget Review Process.*	
Capital Power	*Capital Power has no comments on the proposed Terms of Reference at this time and agrees with the principles set out.*	
EnerNOC	*Yes. No comments.*	
Industrial Power Consumers Association of Alberta (IPCAA)	*IPCAA will comply with the Terms of Reference, as written. The AESO could be willing to accept comments from meetings as well as written comments, instead of restricting the process to written comments only.*	Noted. The BRP is a consultative process. The AESO agrees that verbal comments are important and are always encouraged as they provide valuable input for discussion and consideration. Written comments will continue to be requested following a stakeholder meeting as they facilitate process transparency and allow for the greatest consideration of stakeholder viewpoints by management and the AESO Board.
MSA	*No comments.*	

TransCanada	*TransCanada has no comments on the Terms of Reference for the BRP.*	
Process Steps		
Do stakeholders agree with or have comments on the steps identified in the BRP Process?		
Stakeholder	**Stakeholder Comment**	**AESO Replies**
Alberta Direct Connect (ADC)	*ADC supports the steps identified in the BRP.*	Noted.
AltaLink	*None.*	
ATCO Electric	*ATCO Electric agrees with the steps identified as they are consistent with those used successfully in previous BRPs.*	
BP Canada	*BP Canada finds the process outlined by the AESO to be reasonable. We would appreciate the AESO providing a best estimate projection of the 2015 Energy Marketing Trading Charge at the Technical Meeting along with the caveat that the projection is subject to change.*	Noted. The target date for publishing the estimated 2015 Energy Market Trading Charge is October 29th. A number of considerations prevent the presentation of an estimate projection at the Technical Meeting. This includes receipt of flow-through costs from external parties and the development of the allocation model (which requires a review of all the budget costs and then determines the percentage to be allocated to the Energy Market Trading Charge). Regardless, AESO management recognizes the importance of this information in supporting the stakeholder budgeting process and will make an effort to provide a high-level indication of the trading charge direction, e.g. increase/decrease at the Technical Meeting.
Capital Power	*Capital Power has no comments on the steps identified in the BRP process.*	
EnerNOC	*Yes. No comments.*	

Industrial Power Consumers Association of Alberta (IPCAA)	*IPCAA is familiar with the AESO's BRP steps and has no comments on the process.*	
MSA	*No comments.*	
TransCanada	*TransCanada has no comments on the steps in the BRP.*	
Calendar and Schedule		
Do stakeholders agree with the proposed BRP stakeholder calendar? Are there any comments regarding the meetings scheduled? Would stakeholders attend the proposed Forecasts and Own Costs meeting in Edmonton?		
Stakeholder	**Stakeholder Comment**	**AESO Replies**
Alberta Direct Connect (ADC)	*The proposed September 19th meeting conflicts with the TFCMC meeting in Edmonton.* ADC *can follow up with the AESO to review the materials the following week.*	Noted. The AESO will review the proposed calendar revisions requested by stakeholders and will consider alternative dates. The AESO will follow up with stakeholders on any proposed calendar changes to determine if the revised dates are appropriate.
	ADC representatives would attend the technical meeting in Edmonton.	Noted.
AltaLink	*None.*	
ATCO Electric	*ATCO Electric does not have any concerns with the proposed BRP stakeholder calendar.*	
	ATCO Electric intends to attend the proposed Forecasts and Own Costs meeting in Edmonton on October 8.	Noted.
BP Canada	*BP Canada has reviewed the proposed timetable and finds the dates and timeframes to be reasonable, although we do note the turnaround time for Stakeholders after the Business Strategies/Initiatives Meeting and Technical Meeting to provide comments is tight.*	Noted. The current calendar is designed to provide stakeholders and the AESO with a minimum of 5 days to prepare or respond to written comments arising from a BRP meeting. The resulting turnaround (10 business days) is intended to support a collaborative review

		process as well as minimize the total time spent on budget planning activities. With this in mind AESO management plans to review all of the timing considerations identified by stakeholders and issue a revised calendar that reflects these considerations.
Capital Power	*Capital Power has the following comments regarding the proposed stakeholder calendar and scheduled meetings:*	
	The Alberta Power Symposium is taking place September 24-25 in Calgary. This may create a shortened window for BRP participants who may be attending that event to prepare comments on the Business Strategies and Initiatives phase.	See reply to BP Canada above
	The AESO's calendar shows the web posting for stakeholder comments on the Forecasts and Own Costs initiative after the Calgary technical meeting but prior to the Edmonton one. To the extent that the AESO proceeds with an Edmonton meeting, it should wait until after both sessions have been completed to post comment materials and officially launch the comment window for that phase.	Noted.
	Capital Power would attend the proposed Forecast and Own Costs meeting in Edmonton and appreciates the AESO providing the option.	Noted.
EnerNOC	*Agree with the BRP stakeholder calendar. TBD on meeting in Edmonton*	Noted.
Industrial Power Consumers Association of Alberta (IPCAA)	*The September 19th Business Strategies / Initiatives Meeting is at the same time as the September Transmission Facilities Cost Monitoring Committee meeting in Edmonton.*	See reply to ADC above.

	TFCMC is an all-day meeting. Note: if this is only a conflict for IPCAA, we can send different representatives to each meeting.	
	IPCAA will attend the Forecasts and Own Costs meeting in Calgary.	Noted.
MSA	*No comments.*	
TransCanada	*TransCanada has no issue with the proposed calendar but questions if the AESO would consider moving the*	
	"Receive Stakeholder comments on Business Strategies/Initiatives (Step 2)" *from Sept 26 to Oct 1. This would allow stakeholders more time after the presentation on September 19 to develop and vet comments within their organization.*	See reply to BP Canada above.
	TransCanada suggests that the ***"Web posting of comments on Business Strategies/ Initiatives (Step 2)"*** *currently set for Oct 3 could also be moved out a few days as well. These changes would have no impact on the overall duration of the BRP or other activities in the BRP.*	See reply to BP Canada above.
	TransCanada is likely to attend the Calgary Forecasts and Own Costs meeting and not likely to attend the Edmonton meeting.	Noted.

Other Comments

Do stakeholders have any other comments to offer at this time?

Stakeholder	Stakeholder Comment	AESO Replies
Alberta Direct Connect (ADC)	No further comments.	
AltaLink	*Looking forward to attending the BRP meetings*	

	and being part of the process this year.	
ATCO Electric	*No additional comments.*	
BP Canada	*BP Canada believes one of the AESO's priorities for 2015 should be a review of Net Settlement Instructions ("NSIs"). It is our belief that refinements to the AESO's settlement process of NSIs would lead to increased liquidity and more equitable distribution of costs between market participants.*	Noted. AESO's proposed priorities for 2015 will be presented at the Business Strategies / Initiatives meeting.
Capital Power	*Capital Power has no further comments to offer at this time.*	
EnerNOC	*No comments at this time.*	
IPCAA	*No additional comments.*	
MSA	*No comments.*	
TransCanada	*TransCanada has no further comments at this time.*	

Stakeholder Comment and AESO Replies Matrix
AESO Consultation – 2015 Budget Review Process:

Meeting September 22nd - AESO's Preliminary List of 2015 Business Initiatives

The following information is intended to summarize AESO management's responses to stakeholder comments on the AESO's Preliminary List of 2015 Business Initiatives. This information was presented to stakeholders at the September 22nd Budget Review Process (BRP) meeting in Calgary.

Preliminary List of 2015 Business Initiatives – September 22, 2014 meeting
Do stakeholders have any comments on the AESO's Business Initiatives proposed for 2015?
ADC 1. *System Performance* *The ADC commends the AESO's continued work on the LSSi program as well as further opportunities for loads to participate in the spinning reserves market. We encourage the AESO to keep developing the load providing spin product to at least include aggregation of equipment on a single site as the 10 MW minimum threshold eliminates many potential participants. Also further work with load on asset substitution may allow for more flexibility for loads to participate.* ***Noted. The AESO remains committed to continue to focus on removing barriers and encouraging load participation in the market.*** 2. *Market Evolution* *The ADC appreciates the efforts of the AESO on the TCM file and looks forward to a timely implantation of the proposed rule changes.* ***Noted. The TCM Rule is expected to be filed by year end with information technology system changes to be implemented immediately thereafter.*** 3. *Market Systems Replacement* *The ADC requests the AESO to keep moving forward with the implementation of a 15 min settlement window.*

Noted: Dispatch and settlement period alignment is included in the list of information technology system requirements in an effort to provide longer term flexibility as part of the Market Systems Replacement (MSR) project. The complete set of requirements is being assessed as part of the Phase II (RFP) review process. An information session regarding MSR implementation plans including associated deliverables (e.g. in/out of scope items) is planned for 2/3Q 2015.

In addition, it should be noted that dispatch and settlement period alignment is not currently considered a high priority when compared to other market initiatives such as Transmission Constraints Management, Interties Restoration and Market Systems Replacement. Management also highlights that planning is an iterative process that will provide the opportunity to review initiative requirements and priorities on an ongoing basis.

4. *Transmission Cost Monitoring*
    a. *The ADC supports the AESO's efforts on the TFCMC and the continued resource allocation to those efforts (including benchmarking, rule and business practice enhancements)*

       Noted. The AESO remains committed to support enhancements in the Costs Oversight and Management area.

    b. *The ADC has found the Transmission Rate Impact Projection (TRIP) model very useful and requests the AESO keep it current with at least a semi annual update.*

       Noted. The AESO plans to update the TRIP workbook when key assumptions change that would significantly affect the rate impact projection, which is expected to result in annual (rather than semi-annual) updates.

5. *Connection Process Efficiency Opportunities*
   ADC encourages the AESO to continue to streamline the connection process.
   We encourage the AESO to also look at its system study process to ensure that information provided to those performing studies is reliable and accurate to avoid costly rework.

   Noted. The AESO is committed to continue to work with industry to facilitate enhancement of the connection process. The AESO believes that system study process effectiveness is in part the result of the effective coordination and sharing of information between the parties involved (e.g. AESO, Transmission Facility Owners, and Customer). Timely receipt of final project details (i.e. scope) will help reduce the amount of rework and cycle time required and increase the overall process efficiency.

6. *Customer Service Strategy*
   The ADC encourages the AESO to implement further training opportunities in Edmonton. Many of the Industrial participants are located in Northern Alberta and would benefit from further training and knowledge sharing on the energy and operating reserves markets.

   Noted. A training session is tentatively scheduled for Edmonton in early February 2015.

7. *Process and Efficiency Improvements*
   The ADC requests the AESO post the time of the peak coincident metered demand at month end for accounting purposes – this could be provided along with the operating reserves preliminary settlement file.

   The AESO is preparing a coincident metered demand Information Document that will include historical coincident peak information and be updated after the end of each month. The AESO expects to post the Information Document by December.

AltaLink

-Looks like the AESO has a comprehensive plan in place. AltaLink agrees with the proposed business initiatives for 2015.

1. *On Storage Integration initiative, AltaLink encourages AESO to allocate suffice resources to enable a comprehensive assessment of potential benefit of allowing storage to participate in electricity markets in Alberta and the best practices of integrating energy storage in other North America jurisdictions. Results from these efforts would provide useful inputs for AESO in developing new rules to integrate energy storage technologies for the benefit of the grid reliability and FEOC market.*

   Noted. The AESO is currently working on developing responses received on its discussion paper regarding energy storage which incorporates this comment.

2. *AltaLink would appreciate additional background information regarding the a) intertie restoration and b) frequency response validation business initiatives.*

   a. ***The AESO continues to pursue implementation of the Intertie Framework identified in 2010 with different aspects of the Framework at various development stages. This work is expected to continue in 2015. The AESO does not have a formal completion date for this initiative at this time. Progress updates will continue to be provided to stakeholders through the AESO website and ongoing information sessions. While no specific Intertie policy review is planned, consideration of the role of interties will be included in the Market Evolution business initiative.***

   b. ***Frequency response validation is a new initiative that is in its initial planning stages. A specific work plan has not been developed at this time. Information updates will be provided through the AESO website and/or information sessions.***

ATCO Electric

1. *Overall, ATCO supports the AESO's Business Initiatives proposed for 2015. However, ATCO is wondering whether a review of Intertie policy is part of the listing of 2015 business plan initiatives and if so, where is it incorporated?*

   The AESO continues to pursue implementation of the Intertie Framework identified in 2010 with different aspects of the Framework at various development stages. This work is expected to continue in 2015. While no specific Intertie policy review is planned, consideration of the role of interties will be included in the Market Evolution business initiative.

2. *ATCO is also wondering if the competitive process for Fort McMurray East will be the same as that used for Fort McMurray West?*

   Yes. The Fort McMurray East process will be materially the same as that used for Fort McMurray West as per AUC decision 2013-44.

3. *Are there any plans to evaluate the success or efficiency of the process used for FMW prior to possibly using the same process for FME? (i.e. in light of the recent Cabinet decision to delay expansion of CPP for major projects until FMW is completed and fully evaluated).*

   The AESO is continually reviewing the competitive process for efficiency opportunities and will complete its review of the competitive process on award of the Fort McMurray West project.

4. *ATCO Electric looks forward to working with the AESO on the design and implementation of changes to Transmission Cost Monitoring, in particular, Rule 9.1.*

   Noted. The AESO looks forward to working with industry to advance the design and implementation of changes to Transmission Cost Oversight and Monitoring.

BP

1. *BP Canada would like to thank the AESO for providing a high-level overview of the AESO's 2015 Business Initiatives.*

   Noted.

2. *Due to the broad overview presented, BP Canada remains uncertain of the AESO's intentions around reviewing net settlement instructions in the context of the 2015 business priorities. BP Canada would appreciate some clarity on where our request fits with the AESO's 2015 Business Initiatives?*

The AESO does not have formal plans to review the net settlement instruction request in the upcoming year. The AESO believes that the fees charged for virtual generation units are reasonable for transacting in the energy market. Moreover, the initiatives that have been identified in the AESO's preliminary list of 2015 business initiatives are considered to have much greater impact to the market (e.g. Transmission Constraints Management, Interties, Market Systems Replacement).

Capital Power

Capital Power generally supports the AESO's revised Strategic Objectives and proposed Business Initiatives for 2015. Capital Power trusts that the AESO will continue to consult and engage stakeholders on individual Business Initiatives as they progress.

The information provided by the AESO in the Budget Review Process (BRP) allows Capital Power to gain a better understanding of the AESO's priorities for the coming year which is a valuable input into internal business planning and resource management. In this context, Capital Power would appreciate further information from the AESO on the following items:

1. Capital Power understands that the AESO plans on completing the RFP phase for the Market System Replacement (MSR) initiative by years end and beginning implementation in 2015, subject to Board approval. At the information hosted by the AESO in June 2014, details about the content of the RFP were not communicated to stakeholders and no details have been released since. Given that the MSR project could potentially have significant impacts for market participants and the systems they currently have in place, the AESO should provide market participants with more information regarding the key provisions of the RFP, specifically those related to scope, design, costs and implementation timelines. The AESO should also communicate to stakeholders the process that it envisions for engaging with stakeholders and soliciting input from those parties whose systems stand to be affected throughout these phases.

   An interim update of the MSR project including Phase II (RFP) status was provided at the October BRP technical meeting. See AESO.CA for a copy of the presentation material. In summary, there have been no major changes to the high level plans presented to stakeholders at the June 2014 information session. The AESO is currently in the middle of its RFP evaluations. The AESO MSR project team will publish when stakeholder involvement will recommence and when the list of prioritized requirements will be finalized. This will occur sometime after the award of the contract and completion of the design discovery and planning stage for iteration-1. Assuming approvals and negotiations take place as planned stakeholders can expect further involvement in the Q2/3 2015 timeframe.

2. Capital Power requests that the AESO release the forecast Energy Market Trading Charge for 2015 at the October 6/8 Technical Review Meetings. This type of information is important to stakeholders and used in developing their own budgets for the upcoming year, anything that the AESO can provide, as early as possible in the process, is greatly appreciated. In the future the AESO should consider providing information on the forecast Energy Market Trading Charge earlier in the BRP process to better align with the internal budget cycles of stakeholders.

   Noted. The AESO provided BRP stakeholders with an interim Energy Market Trading Charge forecast update on October 15.

3. Capital Power would appreciate the AESO providing expected timelines for the Intertie Restoration Initiative, and information regarding

the process envisioned to provide updates to market participants and receive input and feedback on any proposed actions being considered as part of that initiative

The AESO does not have a formal completion date for this initiative at this time. Progress updates will continue to be provided to stakeholders through the AESO website and ongoing information sessions.

4. The AESO should provide a status update on proposed revisions to Generating Unit Owner's Contribution ISO Rule and ISO Tariff provisions and its plans for re-engaging stakeholders and furthering this initiative in 2014-2015. The last communication from the AESO on this initiative was the posting of Stakeholder Comments on the AESO Recommendation Paper in Nov. 2012. It was Capital Power's understanding that the AESO intended to respond to these comments and proceed with drafting a revised ISO Rule for consultation. Given the time that has passed it may be necessary to re-engage stakeholders on this initiative prior to continuing the process.

   The AESO has continued to assess and evaluate the proposed generating unit owner's contribution tariff and rule provisions since the 2012 stakeholder consultation. Revisions to tariff provisions were included in the AESO's 2014 tariff application. Stakeholder consultation on the revisions to rule provisions and additional tariff provisions is planned for late 2014 or early 2015, with filing and implementation of those provisions after the conclusion of the tariff compliance filing process.

5. Capital Power is also interested more generally in understanding the priority assigned to the various Business Initiatives proposed by the AESO for 2015 and the AESO's basis for determining such priority. The AESO should provide this information to stakeholders at the earliest opportunity in the BRP process.

   The preliminary list of Business Initiatives presented to BRP stakeholders is the AESO's proposed list of priority initiatives for the upcoming year. The purpose of this BRP step is to consult with industry to reconfirm that these initiatives are the appropriate priorities for the organization. The actual timing/scheduling for each of the initiatives will be confirmed as the supporting programs/projects are rolled out.

IPCAA

MARKET EVOLUTION
Framework monitoring and ongoing assessment of stability:

1. IPCAA supports a review of the OR market to assess overall competitiveness. The AESO may want to consider coordinating such a review with the MSA.

   The AESO has no immediate plans to review the OR market. The comment will be taken into consideration by AESO management.

2. Transmission Constraint Management (TCM) revisions (AUC directions)

a. Transmission Constraint Management (TCM) – IPCAA applauds the AESO's efforts to provide an annual report on the cost of implementing the existing TCM rule. However, we would like to see this information on a more frequent basis (i.e quarterly). Also, how detailed will this report be in identifying the location, time, cause and cost of each transmission constraint? Will stakeholders get a breakdown of the individual transmission constraint events? Or are stakeholders simply going to get one aggregated cost number? IPCAA submits that a high degree of resolution in this report is desirable.

New AESO reports or changes to existing reports will be implemented to provide information on the cost and location of constraints both in real time and in a historical reporting context. Changes to market participants' systems may be required to allow them to make use of the new data. There will also be changes to settlement reporting procedures to incorporate the new TCM payments, both in energy settlement and in tariff settlement. The AESO is committed to provide market participants with information on the associated data descriptions, formats and reporting as soon as possible through the implementation phase of the revised TCM Rule.

b. IPCAA is keen to see the implementation of the new TCM rule embodying the principles of RTMR in place. Once again, we applaud the AESO's efforts in conducting its internal system review and deciding this can be done in advance of its IT system upgrade. IPCAA assumes this means the new rule should come into place in a 12-18 month period.

Noted. The TCM Rule is expected to be filed by year end with information technology system changes to be implemented immediately thereafter.

3. WIND PHASE II

The AESO mentioned this initiative would be rolled in into its regular base program. Will stakeholders receive regular reports on the status of wind integration? (The type of report that comes to mind here is analogous to the quarterly connection process reports that the AESO currently publishes. It would be useful information for the stakeholders to be able to track the penetration, efficiency and dispatch-ability of wind generation assets.)

The AESO does not intend to provide specific reports on the status of wind integration. In cases where new rules related to the wind integration initiative have been introduced, the AESO will follow its regular practice of reviewing these rules 12-18 months after they have been implemented. Information regarding wind generation will continue to be available through various AESO reports and publications such as various real time market reports and the Annual Market Statistics publication.

4. DEMAND-SIDE PARTICIPATION

Non-Aggregated Load Participation in Spinning Reserves

a. The AESO indicated that further studies are required to see how well aggregated loads can be accommodated. Does the AESO

have a timeline in mind for when it plans to complete this study and decide whether to allow aggregated load participation?

The AESO is studying a number of issues related to frequency response including the aggregation of assets for the provision of operating reserves. The specific timeline for completing this study has not been established at this point.

b. IPCAA supports the implementation of an educational campaign to help consumers become aware of Demand Response and Ancillary Services opportunities in Alberta. IPCAA is willing to help the AESO in facilitating such a campaign.

Noted. These topics have been covered in the new participant training program that the AESO recently introduced. The AESO appreciates IPCAA's offer to assist and looks forward to IPCAA's feedback on the new training sessions.

5. TRANMISSION COST MONITORING

The AESO has plans to revise its Rule 9.1 into three individual rules governing: cost estimates, cost reporting, and procurement. Does the AESO have any metrics established in place to measure the efficiency or improvements gained from a revised Rule 9.1? If not, why not? If so, does the AESO plan to share this information with stakeholders?

No specific metrics have been considered. Improvements are generally expected under proposed changes to Rule 9.1. Stakeholders have expressed support for and contributed to the changes considered.

6. TRANSMISSION RATE AND IMPACT

IPCAA applauds the AESO's efforts in providing stakeholders with the Transmission Rate Impact Projection (TRIP) model. IPCAA members would be very interested to have consistent, updated information on transmission rates forecast at least on an annual basis. An area of great concern is the accuracy of the estimated project costs being used in the TRIP model. It would be useful to see updated numbers indicating which way the project costs are trending.

Noted. The AESO plans to update the TRIP workbook when key assumptions change that would significantly affect the rate impact projection, which is expected to result in annual updates.

7. SYSTEM PERFORMANCE

Intertie Restoration

IPCAA would like to commend the AESO in their efforts to collaborate with BC-Hydro. This is an initiative that IPCAA is interested in and we would appreciate regular updates from the AESO on its progress.

Noted. Progress updates will continue to be provided to stakeholders through the AESO website and ongoing information

sessions.

8. AESO Website Refresh

   It would be beneficial to have an API interface to access both the real time market data and historical market data.

   Noted. The AESO will include this comment as a system requirement for consideration.

Other Comments
Do stakeholders have any other comments to offer at this time?
ADC 1. *The ADC appreciates the opportunity to provide input to the AESO BRP process.* ***Noted.***
ATCO Electric 1. *In that light, ATCO supports sufficient resources being available to the AESO to consult, assess and ensure that its proposed new Rule 9.1 cost accountability processes are consistent and work seamlessly with the AUC cost management initiatives, particularly the new ACE and COM regulatory processes.* **Noted.**
BP 1. *As setting the Energy Market Trading Charge is one of the outcomes of the business plan and budget process, it would be helpful to understand the breakout of the sources of revenue collected in the AESO component of the Energy Market and Trading Charge.* ***This information is provided in the annual business plan and budget posted on the AESO website. See the 2014 Business Plan and Budget for a recent example.*** 2. *BP Canada would appreciate the AESO providing Stakeholders with a detailed breakout of the annual amount of revenue collection from the AESO Component of the Energy Market and Trading Charge by each asset type for the past three years and a projection of the breakdown for 2015* ***The following table provides trading charge information for a 5 year period (2010-2014).***

		Metered Asset	Virtual Asset
Year	**Annual Trading Charge**	**Trading Charges $**	**Trading Charges $**
2010	$ 0.298	$ 35,344,087.63	$ 257,712.95
2011	$ 0.319	$ 38,533,795.91	$ 430,010.96
2012	$ 0.361	$ 43,419,153.28	$ 219,730.69
2013	$ 0.339	$ 41,803,542.19	$ 186,723.30
2014 *	$ 0.412	$ 35,272,991.35	$ 317,540.54

* Year to August 31

Stakeholders can extrapolate this information to develop a projection for 2015.

Capital Power

1. Capital Power appreciates the opportunity to participate in the 2015 BRP process and supports the overarching principle of transparency that such an initiative represents.

   Noted.

Stakeholder Comment and AESO Replies Matrix

AESO Consultation – 2015 Budget Review Process (BRP):

Technical Meeting October 6th and October 8th
AESO's 2015 Forecasts (Pool Price, Ancillary Services, Transmission Line Losses) and Draft Own Costs Budget

The following information is intended to summarize AESO management's response to stakeholder comments on the AES's 2015 Forecasts and draft Own Costs Budget update. This information was presented at the October 6th and 8th BRP technical meeting(s) in Calgary and Edmonton.

AESO Pool Price Forecast for 2015
Do stakeholders have any comments on the Pool Price forecast for the upcoming year?
Capital Power 1. *Capital Power appreciates the AESO providing the option to stakeholders to attend the Technical Meeting in both Edmonton and Calgary and hopes that the AESO will continue to provide this option in the future whenever practical.* ***Noted.***
IPCAA 1. Last year, IPCAA commented that it would be useful for the AESO to publish a high level description of how the hourly price forecast is modeled. Such a description would indicate the assumptions, inputs/outputs at each stage of the forecast model, and the intent of the various scenarios used to arrive at the final set of numbers. This would give stakeholders an idea on how the results were obtained. IPCAA would still appreciate this type of description. ***Noted. The response to this comment was provided in the Reply to Stakeholder Comments on the AESO's 2014 Draft Forecasts, Own Costs Budget and MSR Project Update and also addressed in the AESO 2013 Business Plan and Budget Proposal. The AESO provides the level of description necessary for stakeholders to understand and assess the price forecast for the purposes of the Budget Review Process.*** 2. Going forward, it would be helpful to include information that reviews the accuracy of the AESO load and price forecast against actuals for the past five years. It would be helpful to understand whether the AESO has altered its methodology from year to year, and whether it is learning from past years' experiences to strive for ongoing improvements in forecast accuracy.

Noted. The AESO makes every effort to ensure reasonable forecasts however we make no warranties as to the accuracy of the forecast.

The AESO regularly reviews the accuracy of its load forecasts with a focus on improving future forecast reasonableness and accuracy. Appendix D (page 66) of the 2014 Long Term Outlook (LTO) includes an assessment of load forecast accuracy. The 2014 LTO also includes the background, methodology, and assumptions which were included in the AESO's load forecast.

The BRP presentation provides a comparison of the price forecast to actual for current year and past year. The key drivers of the price forecast are forward looking supply and demand market fundamentals. The AESO makes every attempt to ensure that the forecast represents the best information available at the time. However, it will vary from actual prices as market fundamentals change in ways the AESO cannot predict. The AESO is confident in its forecasting methodology and is committed to continuous improvement. Any improvements in methodology will be highlighted in future stakeholder sessions.

TransCanada Energy Ltd.

1. *TransCanada Energy Ltd. (TCE) understands that the AESO only utilizes one annual wind generation profile in its Pool Price forecasting and encourages the AESO to continue moving toward forecasting with varied wind generation output. This would tend to more closely match the actual historic wind generation behavior and lead to more volatility in some runs and more accurate price forecasts.*

   Noted. Agreed, the AESO is developing an enhancement to the market simulation methodology that would allow for random hourly wind profiles based on actual historical wind production. We are planning to implement this in 2015. Random wind would be a significant improvement but would not guarantee more accurate price forecasts.

2. *Does the Pool Price forecasting utilize similar inputs (i.e Generic Stacking Order) as the forecasting for losses? The losses forecasting seems to have a number of wind profiles while this price forecast has only one.*

   The Pool Price forecast does use similar historical information as that used to create the Generic Stacking Order. However with the different objectives and models two very different methodologies are used to forecast pool price and estimate loss factors. The pool price forecast uses an hourly wind output profile in the simulations, whereas the Generic Stacking Order uses a static representative value for wind output in each of the 12 seasonal cases.

3. *TCE notes the AESO's forecast of $41.29 for 2015 while the current forward price is $48.21. This implies that the AESO model is not reflecting the hours when supply is tight. Based on history, even in high reserve margin years, there is event driven tightness at some point that results in some high priced days/ months. Can the AESO modify its forecasting process to reflect this?*

   Noted. The AESO makes every effort to ensure a reasonable forecast is generated based on the market fundamentals known at this time. Monte Carlo simulation is used to account for randomness in forced outages, gas prices, and hourly demand, which produces the price volatility that is typical of the Alberta Market and aims to capture the event driven tightness (supply) that drives higher prices. The AESO is confident in the forecasting methodology and includes the forward price for information purposes only.

4. *Can the AESO provide the hourly price duration curves for the P50 and P95 forecasts? Can the AESO also provide the Supply/Offer stack?*

   Noted. The AESO provides the level of description necessary for stakeholders to understand and assess the price forecast for the purposes of the Budget Review Process. The AESO will not be publishing the requested information as part of the BRP.

5. *Can the AESO modify the forecast results such that the forecast duration curve matches the historic duration curve?*

   Noted. The AESO could take such an approach however it would implicitly assume that the outcomes from a historic year would occur again in the future year. The AESO feels that the modeling we utilize, which takes a fundamental view of the market, our knowledge and available information is the best approach. AESO uses an industry standard model for price forecasting that accounts for many historical variables.

6. *The presentation states that random variables included forced outages, demand, and gas prices. Can the AESO provide the ranges that were used for these random variables?*

   Noted. The AESO provides the level of description necessary for stakeholders to understand and assess the price forecast for the purposes of the Budget Review Process. The AESO will not be publishing the requested information as part of the BRP.

AESO Ancillary Services Cost Forecast for 2015
Do stakeholders have any comments on the Ancillary Services Costs forecasts for the upcoming year?
ADC 1. *The ADC encourages the AESO to continue expanding opportunities for load to participate in the market. An example would be a load shed program where participating loads would contract to be taken off line in emergency alert situations to avoid rolling black outs of firm customers.* ***Noted. Management will take the load shed program suggestion into consideration. The AESO remains committed to removing barriers and encouraging load participation in the market.***
IPCAA 1. There appears to be a trend of consistent under-forecasting in the OR cost category. Has the AESO taken a closer look at the factors causing this to occur? (Besides inaccuracies in pool price forecast).

Noted. The AESO conducts periodic reviews of the models used to create the Ancillary Services cost forecast, and updates the models and methodology as required. The AESO has reviewed the calculation methodology used to estimate the annual costs of operating reserve, and is satisfied that it delivers satisfactory results. Discrepancies in estimating the annual cost of operating reserve is due largely to differences between simulated and actual pool prices which the AESO strives to estimate as accurately as possible however there are challenges when market fundamentals change in ways the AESO cannot predict.

2. It is unclear from the OR cost formula (i.e. summation of the hourly product of OR volume and pool price) whether the AESO is accounting for any OR activation costs (i.e. dispatch payment & directive payments).

   Yes, the estimated costs of standby operating reserve in the Ancillary Services cost forecast includes both procured and activated standby OR.

3. In predicting OR costs, it is unclear how the AESO came up with the estimated hourly premium/discounts that are indexed to the pool price. It is unclear whether this comes out as a part of the AURORA model, or if another methodology was used.

   Noted. As addressed in the AESO reply to stakeholders in the 2014 BRP, estimates of hourly premiums and discounts were derived from a rolling window of twenty-four (24) months of historical data. That estimated premium or discount is combined with the pool price results from the AURORA simulation model to yield the price of active operating reserve, or forms the procurement or activation price of standby OR.

AESO Transmission Line Losses Costs Forecast for 2015 – October Technical Meeting
Do stakeholders have any comments on the Transmission Line Losses Costs forecasts for the upcoming year?
TransCanada Energy Ltd. 1. *TCE is concerned with the volume forecast for 2015 losses. The AESO is forecasting the volume to rise more from 2014 to 2015 (111GWh) than it has over the past two years (2012-2014, 106 GWh). This seems counterintuitive given the HVDC lines, which are supposed to lower overall system losses, coming into service and generation coming online closer to load (cogen. Shepard, etc.). Can the AESO explain further why the losses are forecast to increase so dramatically?* ***When forecasting losses for the BRP process the AESO examines historical losses and determines on average what percent of the system they account for. It is assumed that this percentage will hold constant in the future. Therefore, as the system grows it is expected that losses will increase over time. In this process the AESO does not account for the specific effects of new generation or transmission, such as HVDC, in its transmission loss forecast.***

AESO Own Costs Budget for 2015
Do stakeholders have any comments on the General & Administrative budget proposal for the upcoming year?
ADC 1. *The ADC commends the AESO on some training initiatives this year for market participants. We would like to see the AESO allocate money in the budget for training sessions in Edmonton or Northern Alberta. This would make training more accessible for northern loads and generators.* ***Noted. A training session is tentatively scheduled for Edmonton in early February 2015.*** 2. *The ADC would also like to see that the AESO allocate sufficient resources to transmission cost monitoring and rule development. In cases where the AESO feels that independent expertise would add balance and knowledge to the process, they should the ability to contract the necessary resources. An example of this would be rule 9.1 – the load groups did not have the resources to provide the expertise and the rule may have benefited from an independent review.* ***AESO management believes there are sufficient resources allocated to this area. This also includes access to internal resources that from time to time can be recruited to assist during peak periods. Management continues to review transmission cost monitoring and rule development requirements on an ongoing basis and will add additional resources if necessary. AESO will obtain expert opinion when needed as has been the case during consultation on the cost estimating and procurement modules of Rule 9.1.***
ATCO Electric 1. *ATCO commends the AESO for its continued focus on identifying organizational efficiencies and leveraging existing work to offset increases in its 2015 General & Administrative (G&A) budget.* ***Noted.*** 2. *ATCO also appreciates the detailed cost information related to the Competitive Process Initiative and the Transmission Cost Monitoring and Oversight initiative that was included in the AESO's Own Costs presentation (October 6 and 8, 2014).* ***Noted.*** 3. *However, in light of the AESO's focus on limiting significant cost increases to its G&A budget and limited number of dedicated staff to support the Transmission Cost Monitoring and Oversight Initiative, ATCO urges the AESO to ensure that sufficient staff and resources are allocated to support this initiative in 2015. In addition to the AESO's ongoing consultation with respect to ISO Rule 9.1, the AESO will also require adequate resources to ensure that the AESO's processes will be consistent with the AUC's cost management initiatives, in*

particular, the introduction of the Approved Cost Estimate (ACE) and Cost Oversight Management (COM) processes.

AESO management believes there are sufficient resources allocated to this area. It also includes access to internal resources that from time to time can be recruited to assist during peak periods. Management continues to review COM services requirements on an ongoing basis and will add additional resources if necessary.

4. *ATCO supports the AESO's continued use of activity-based cost reporting.*

   Noted. Activity-based cost reporting has been included in the AESO's 2015 Business Plan and Budget.

IPCAA

1. IPCAA is concerned with the limited number of staff allocated to transmission cost monitoring and oversight. There are a number of projects underway and ratepayers are about to see large amount of capital costs added to rate base. Three FTEs appear to be insufficient given the size of capital costs we are looking at.

   AESO management believes there are sufficient resources allocated to this area. It also includes access to internal resources that from time to time can be recruited to assist during peak periods. Management continues to review COM services requirements on an ongoing basis and will add additional resources if necessary.

2. Going forward, it would be helpful to understand the AESO's transmission cost monitoring and oversight plan in greater detail. For example, what existing functions is the AESO including in this activity? What new functions (if any) is the AESO adding to this activity? Is there any expansion in scope?

   The AESO continues to participate in the AUC COM Pilot and ACE initiative development. AESO continues to consult on Rule 9.1 changes. AESO has initiated business practices for cost reviews including using the transmission cost benchmark database. Changes to the overall scope of cost management would be considered following the conclusion of the COM Pilot and ACE initiative.

IPCAA

3. Regulatory Process Costs are considered part of "Other Industry Costs". Can the AESO provide some information as to the regulatory costs associated with major hearings from the past few years (including line losses, ATC and TCM)? Can the AESO provide some information on the split between transmission and market allocations for these costs?

The costs associated with the AESO's involvement in an AUC proceeding to hear objections and complaints to ISO Rules or any regulatory application are included in the cost category regulatory process costs. This does not include application preparation costs incurred by the AESO or internal AESO resources working on the proceeding.

SUMMARY OF REGULATORY PROCESS COSTS 2012 TO AUGUST 2014:

Total	Transmission	Energy Market	
$1.0	$1.0	$0.0	Regulatory Application - Competitive Process
0.9	0.0	0.9	Objection to Loss Factor Methodology and Requirements
0.8	0.8	0.0	Various NID Proceedings
0.6	0.0	0.6	Complain to Real Time Transmission Constraint Management Rule
0.5	0.0	0.5	Objection to Available Transfer Capability
0.5	0.5	0.0	Regulatory Application - 2014 ISO Tariff App
0.2	0.2	0.0	AUC Notices of Hearings
0.4	0.4	0.0	Various Proceedings Less than $0.2 million
$5.0	$2.9	$2.1	

4. Can the AESO provide the total number of employees at year-end 2014?

The estimated number of AESO employees at December 31, 2014 is 405 (excluding vacant positions).

Do stakeholders have any comments on the Capital Budget proposal for the upcoming year?

IPCAA

1. Can the AESO provide the total cost of the benchmarking database?

The production version of the transmission project cost benchmarking database is being developed in 2 phases.

Phase	Cost ($ millions)	Status
Production - Phase I	0.1	Completed
Production - Phase II	0.3	Estimate at Completion
Total (estimate)	**0.4**	

Special Projects Comments

Do stakeholders have any comments on the Market Systems Replacement or Energy Management System Upgrade project plans?

ADC

1. *The ADC supports these efforts.*

Noted.

Capital Power

1. *Capital Power appreciates the updates provided by the AESO regarding the MSR and EMS Upgrade Initiatives.*

   Noted.

2. *Given the significance of the MSR Initiative, the estimated cost for Phase III, and the potential impacts for market participants, the AESO should take steps to ensure that stakeholders are actively engaged and consulted in all phases of the project's development and implementation.*

Noted. Stakeholder involvement is considered essential to the success of the MSR project. Stakeholders will continue to be engaged throughout the lifecycle of the project.

IPCAA

1. How flexible will the AESO's Market System be after the EMS upgrade? Will it be flexible enough to accommodate changes to the OR market redesign?

   Noted. Both the EMS and MSR systems projects are intended to provide solutions that are sufficiently flexible to allow for future market changes.

TransCanada Energy Ltd.

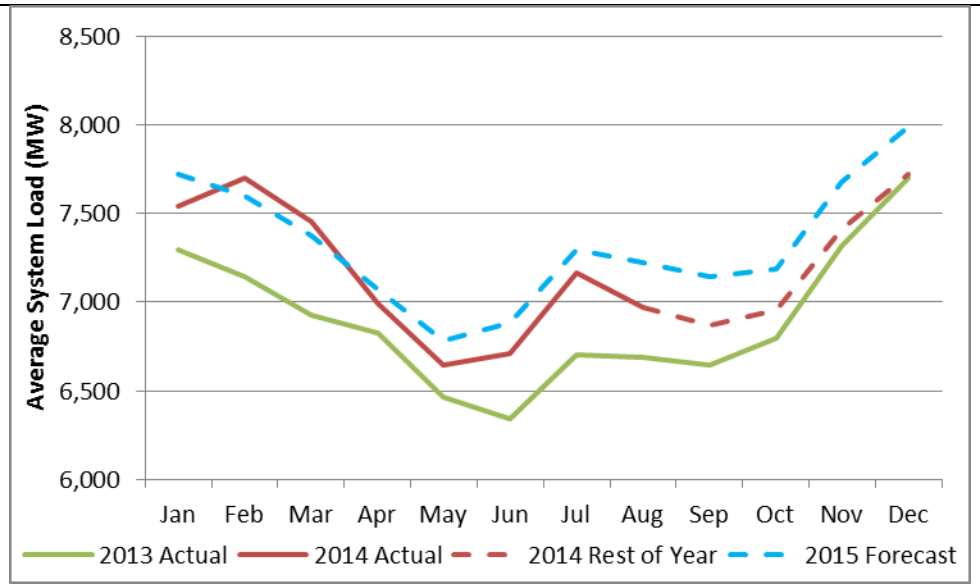
1. *Can the AESO confirm that some of the justification for the EMS Upgrade Project is that the current system will not be compliant with the Critical Infrastructure Protection (CIP) reliability standards the AESO has recently filed with the AUC?*

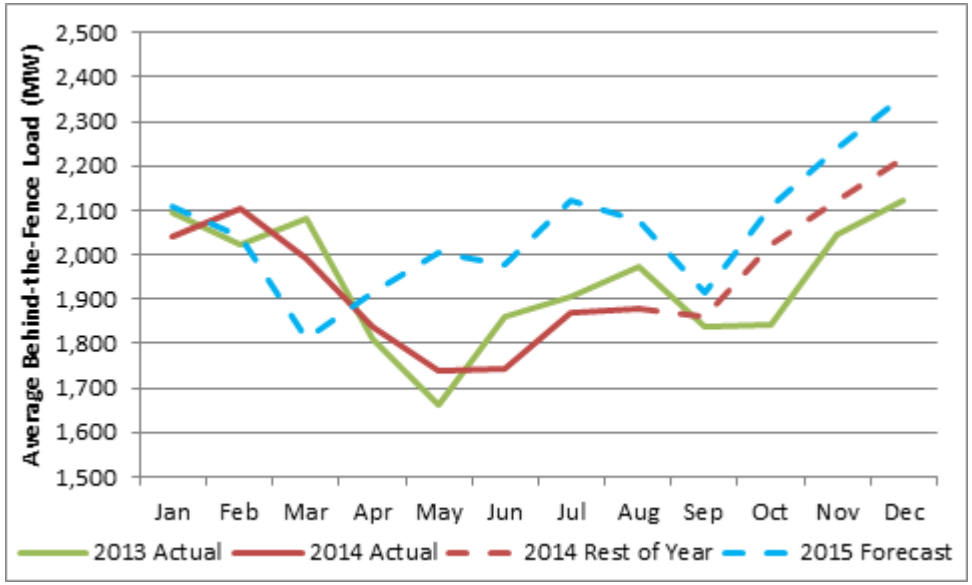
   The EMS upgrade is required because of aging application and infrastructure. The result of the upgrade is that the system will be CIP compliant.

2. *The Preliminary Estimates and Timing slide shows the Definition Phase and Implementation Phase running from Q3 2014 through to Q1 2017, 11 quarters or 33 months. Is the AESO concerned this project may take longer to complete? If it does exceed this estimate will the AESO be able to accelerate the project to have it completed before the CIP effective date? Would there be an increase in cost (currently $16 million - $20 million) to accelerate the project?*

   The AESO intends to meet the established project timelines. Mitigation strategies will be developed to reduce the risk of slippage and non-compliance. There are no plans to accelerate the project.

Other Comments
Do stakeholders have any other comments to offer at this time?
ATCO Electric 1. *ATCO values the opportunity to participate in the AESO's BRP and appreciates the information that the AESO has shared.* ***Noted.***
Capital Power 1. *Capital Power appreciates the efforts made by the AESO to provide a preliminary Energy Market Trading Charge for 2015 prior to the release of the Draft Business Plan and Budget. The AESO should continue this practice and aim to provide such information as early as possible in the BRP Process.* ***Noted.***
IPCAA 1. Can the AESO provide the load forecast graph (from page 9 of the presentation) with Behind-the-fence load displayed separately from AIES load? **With revisions during the implementation of Bal-002 the AESO no longer uses the term "AIES load". System Load, as defined in the Consolidated Authoritative Document Glossary (http://www.aeso.ca/rulesprocedures/20550.html), matches load formerly referred to as "AIES load". Below are equivalent charts of both System Load and Behind-the-fence (BTF) load forecasts. Furthermore, this data (minus 2014 year to date) is also available in the AESO 2014 Long-term Outlook Data File (found on the AESO's website, http://www.aeso.ca/transmission/8638.html). BTF data is equivalent to Non-Reserved Demand and can be found on the associated tabs and System Load can be calculated by subtracting BTF (Non-Reserved Demand) from AIL which can be found on the AIL tabs.**


8,500
8,000
7,500
7,000
6,500
6,000
Average System Load (MW)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2013 Actual
2014 Actual
2014 Rest of Year
2015 Forecast


2,500
2,400
2,300
2,200
2,100
2,000
1,900
1,800
1,700
1,600
1,500
Average Behind-the-Fence Load (MW)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2013 Actual
2014 Actual
2014 Rest of Year
2015 Forecast

2. IPCAA submitted this comment in the 2014 BRP process and we would like to reiterate the importance of this point here again:

   Under Electric System Development, IPCAA would like to see additional transparency from the AESO on transmission project prioritization and cost-benefit analysis, and for the AESO to start incorporating ratepayer input into its planning and prioritization process. In AUC Decision 2013-358, the Commission offered the following statement regarding project prioritization:

   "Notwithstanding, the Commission considers the approach advocated by the [Ratepayer Group] RPG to include rate payers in the process, and to plan transmission on the basis of overall project prioritization, to have merit. However, as set out in Section 17 of the Electric Utilities Act and Part 2 of the Transmission Regulation, system planning is clearly the responsibility of the AESO. Consequently, apart from encouraging the AESO to consider this approach, the Commission cannot direct the AESO to engage in this process." – paragraph 388

   Noted. The AESO has worked closely with TFOs to enhance the prioritization process and has found the coordination and prioritization between customer projects and system projects to be effective. The AESO considers the process a rigorous exercise that evaluates several inputs when developing priorities. Moreover, the process is iterative which provides the ongoing opportunity to review priorities should requirements change.