

AESO Quarterly Stakeholder Report

Q1 2020

- Initiative Updates
- Financial Highlights

The purpose of this section of the quarterly report is to provide stakeholders with an update on the Alberta Electric System Operator's (AESO) progress on the initiatives outlined in its 2020 Business Plan and Budget (Business Plan). The reader of this report should reference the Business Plan published on the AESO's website for additional information to fully understand the various progress updates provided.

Reporting on Business Plan Initiatives

Externally focused initiatives – stakeholder-participation related

Strategic Initiative – Framework Evolution			
<i>Business Initiative</i>	<i>Current Status</i>	<i>Next Milestone</i>	<i>Target</i>
Market sustainability & evolution	Status update to the Minister provided prior to February 1, 2020 with recommendation progressing as per schedule to deliver to the Minister by July 31, 2020 Engaging with stakeholders to evaluate the effectiveness of the energy pricing framework in ensuring signals to promote long-term adequacy and efficient short-term market response.	Gather feedback on draft recommendations from stakeholders and finalize Recommendation Report to Minister by July 31	To be determined based on final recommendations
	Sub-hourly settlement project and engagement progressing as per schedule	Evaluate sub-hourly settlement market benefits and costs and determine the path forward	To be determined
Tariff: Review of bulk and regional transmission rate design	In Q2 2018, the AESO proposed to the Alberta Utilities Commission (AUC) that a consultation process be initiated to review bulk and regional transmission rate design; the AUC approved the proposal, and the AESO initiated the consultation process in Q3 2018. Progress was accelerating in 2020, however engagement has been paused due to COVID-19 as industry participants need to focus on core businesses	Reinitiate engagement on the bulk and regional rate design with the timing to be determined	Prior target was a September 2020 application to the AUC; target to be revisited July 15, 2020

Strategic Initiative – Framework Evolution			
<i>Business Initiative</i>	<i>Current Status</i>	<i>Next Milestone</i>	<i>Target</i>
Tariff: General Tariff Application (GTA)	In Q3 2017, the AESO filed the 2018 GTA (formerly referred to as the 2017 Independent System Operator [ISO] Tariff Application) with the AUC. The AESO filed a revised 2018 GTA application in August 2018. The AUC approved the GTA with numerous directions in Oct 2019; the AESO filed the 2018 GTA compliance filing in January 2020	Ongoing proceeding process for compliance approval underway	Expected AUC approval for the 2018 GTA compliance filing in Q3 2020
	The AESO filed the 2020 tariff rates update in January 2020 with the compliance filing. The AUC approved the rates on an interim basis with a Q2 2020 implementation	AESO implementation of the 2020 tariff rate update, effective as of April 1, 2020	None (implementation complete)
Long-term system developments	Central East Transfer-out (CETO) Needs Identification Document (NID) has been finalized and the Chapel Rock-to-Pincher Creek (CRPC) NID is currently being prepared. However, the decision to file both of these NIDs has been deferred due to the state of the economy/COVID-19 concerns The decision to file the Alberta-BC Intertie Restoration (AIR) NID has also been deferred for the time being	Ongoing	To be determined
Stakeholder Engagement Framework	Finalized stakeholder engagement framework, posted externally, and organization-wide implementation activities initiated to provide stakeholders a more transparent and meaningful experience Due to COVID-19, a complete review of all external engagements was completed and a new external engagement platform was secured to enable remote and collaborative sessions, which will be used for all upcoming sessions	Ongoing	Completed organization-wide implementation activities as of April 30, 2020

Strategic Initiative – Technology

<i>Business Initiative</i>	<i>Current Status</i>	<i>Next Milestone</i>	<i>Target</i>
Distributed Energy Resources (DER), Energy Storage (ES) and the Technology Plan	The <i>AESO DER Roadmap</i> will be published in June, with priority work focused on defining technical connection requirements for DER and ensuring DER locational information is consistently submitted. ES roadmap work has continued with implementation of Energy Management System (EMS) and market system changes to enable active energy storage connection projects. The Energy Storage Information Learning Forum (ESILF) was launched in May initiating the sharing of energy storage learnings across 20 industry leaders. Internal work is progressing on the technology integration plan focused on enhancing AESO awareness. External engagement on the technology plan has been deferred to 2021 due to current COVID-19 pandemic. Detailed work and change plan being developed	Publish <i>AESO DER Roadmap</i> , plan next ESILF learning workshop, and develop internal technology awareness processes	Publish the Technology Plan (deferred to 2021)

Strategic Initiative – Grid and Market Operations Tools

<i>Business Initiative</i>	<i>Current Status</i>	<i>Next Milestone</i>	<i>Target</i>
Grid Market Operations (GMO) System evolution	Continuing to sustain our EMS and Market tools through the execution of EMS-related projects and Critical System Modernization Initiatives	Adding an Enhancement and System Evolution approach to the sustainment of the GMO tools to determine a holistic investment approach to 2020 – 2025 timeframe. Consolidating existing and future programs based on the above approach under the appropriate governance model	Deliver a sustainable EMS investment plan and develop a long-term market tools transition plan supporting future energy and Ancillary Services (AS) market plans

AESO Internal Initiatives

Strategic Initiative – People and Culture			
<i>Business Initiative</i>	<i>Current Status</i>	<i>Next Milestone</i>	<i>Target</i>
Nurture an inclusive and innovative culture of engagement and excitement to prepare the organization for the transformative environment ahead	Continued implementation of the cultural evolution plan for the AESO to become a more dynamic, agile, inclusive and innovative organization, capable of anticipating and leading transformative change with a continued focus on expertise. Delivering on second-year deliverables of the defined cultural evolution plan	Ongoing	Complete implementation of second-year deliverables of the defined cultural evolution plan
Workforce capabilities and stakeholder education	Initiated implementation of findings from the needs assessment and knowledge management plan to support the cultural evolution and delivery of the 2019-2023 Strategic Plan	Ongoing	Complete implementation of knowledge management plan year-one deliverables
	Initiated review and redesign of external education content and programming. Initiating defining customer experience needs and develop a plan to more effectively address these needs	Ongoing	Complete review and redesign of external education program content. Complete plan and delivery of the 2020 education content as per the defined schedule

Strategic Initiative – Framework Evolution			
<i>Business Initiative</i>	<i>Current Status</i>	<i>Next Milestone</i>	<i>Target</i>
Settlement audit	Initiated readiness assessment in preparation for settlement audit	Initiate settlement audit of AESO settlement processes	Complete settlement audit readiness assessment of AESO settlement processes by end of 2020. Audit scheduled to be completed in 2021 due to COVID-19

Strategic Initiative – Technology			
<i>Business Initiative</i>	<i>Current Status</i>	<i>Next Milestone</i>	<i>Target</i>
Productivity	Continuing implementation of the AESO personal productivity foundation	Ongoing	Complete implementation of the AESO personal productivity foundation to increase efficiency and position AESO for further advancements in future year
	Continuing the modernization of the finance system, integrated talent management system and contract management system advancing the business cases	Implementation business cases approval and initiate the implementation	Complete the modernization of the finance system, integrated talent management system and the contract management system increasing the efficiency, quality and timeliness of information and processes
	Commenced the modernization of market system user experience for both internal staff and market participants	Ongoing	To be determined
Cybersecurity and Critical Infrastructure Protection (CIP) optimization	Enhance cybersecurity protections to further secure the organization against increasing threats	Continue implementing cybersecurity controls according to 2020 strategic plan	Complete implementation of 2020 items from cybersecurity plan; update cybersecurity strategic plan

Financial Update – As of March 31, 2020

Transmission Operating Costs (\$ million)			
	2020	2020	2019
	Actual	Forecast	Actual
Wires costs	479.0	479.0	444.0
Operating reserves	72.7	59.0	58.6
Transmission line losses	34.1	31.5	35.3
Other ancillary service costs	6.2	7.2	5.8
Total Transmission Operating Costs	592.0	576.7	543.8

Numbers may not add due to rounding

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

Wires costs in 2020 are \$479.0 million, which is \$35.0 million or 7.9 per cent higher than the 2019 costs of \$444.0 million due to higher regulated rates charged by the TFOs for the current year and completion of the Fort McMurray West 500 kV Transmission Project, which was energized on March 28, 2019.

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, day-ahead exchange, where offer prices are indexed to the pool price. While the prices of operating reserves procured through the online exchange are indexed to the 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.

Operating reserve costs in 2020 are \$72.7 million, which is \$14.1 million or 24.1 per cent higher than the 2019 costs of \$58.6 million. The cost of operating reserves is impacted by actual volumes, hourly pool prices and operating reserve prices. The average hourly pool price is \$67 per megawatt hour (MWh) in 2020 compared to \$69 per MWh for the same period in 2019, representing a decrease of 2.9 per cent. However, the pool price in January 2020 was \$121 per MWh compared to \$38 per MWh in January 2019, attributable to extremely cold weather conditions. The cold temperatures resulted in higher load, variability of coal outages, and higher differentials between Mid-C price and Alberta pool price, which created imports incentives, increased standby activation volumes and rates. Operating reserve volumes financially settled in 2020 are 2,085 gigawatt hours (GWh) compared to 1,926 GWh in 2019, representing an 8.3 per cent increase.

Transmission line losses – Transmission line losses represent the volume 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 process 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 imports) 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 value of line losses is calculated based on the hourly pool price.

The cost of transmission line losses in 2020 is \$34.1 million, which is \$1.2 million or 3.4 per cent lower than the 2019 cost of \$35.3 million due to the impact of a 2.9 per cent lower average pool price in 2020 combined with lower volumes. Line loss volumes financially settled in 2020 are 512 GWh compared to 525 GWh in 2019, representing a 2.5 per cent decrease.

Other ancillary services costs – The AESO procures other ancillary services for the secure and reliable operation of the AIES. These services are procured through a competitive procurement process where possible, or in instances where such procurement processes may not be feasible, through bilateral negotiations.

Other Ancillary Services Costs (\$ million)			
	2020	2020	2019
	Actual	Forecast	Actual
Load shed service for imports	4.1	5.2	3.1
Transmission must-run			
Contracted	0.8	0.6	0.8
Conscripted	0.1	0.1	0.0
Reliability services	0.7	0.7	0.7
Poplar Hills	0.0	0.0	0.4
Black Start	0.6	0.6	0.6
Transmission constraint rebalancing	0.0	0.0	0.3
Total Other Ancillary Services	6.3	7.2	5.8

Numbers may not add due to rounding

Load shed service for imports (LSSi) is interruptible load that can be armed to trip, either automatically or manually, on the loss of the Alberta-British Columbia intertie to allow for increased import available transfer capability (ATC). LSSi costs are impacted by volume availability, contract prices and AIES requirements for arming and tripping. The 2020 costs for LSSi are \$4.1 million, which is \$1.0 million or 32.3 per cent higher than the 2019 costs of \$3.1 million due to increased active arming costs.

Transmission must-run (TMR) occurs when generation is required to mitigate the overloading of transmission lines associated with line outages, system conditions in real time or the loss of generation in an area.

The AESO contracts with a generator in Northwest Alberta to provide TMR services which cost \$0.8 million in 2020 and 2019. In circumstances when this service is required for an unforeseeable event and there is no contracted TMR, non-contracted generators may be dispatched to provide this service (referred to as conscripted TMR). Conscripted TMR services cost \$0.1 million in 2020 and \$0.0 million in 2019.

Reliability services are procured for grid restoration balancing support in the event of an Alberta blackout and emergency energy in the event of supply shortfall.

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. The contract with Poplar Hill was terminated in July 2019.

Black start services are provided by generators that are able to restart their generation facility with no outside source of power. In the event of a system-wide blackout, black start services are used to re-energize the transmission system and provide start-up power to generators who cannot self-start. Black start providers are required in specific areas of the AIES to ensure the entire system has adequate start-up power.

Transmission constraint rebalancing costs are incurred when the transmission system is unable to deliver electricity from a generator to a given electricity-consuming area without contravening reliability requirements. When this occurs, a market participant downstream of a constraint may be dispatched for purposes of transmission constraint rebalancing under the ISO Rules and would receive a transmission constraint rebalancing payment for energy provided for that purpose.

Other Industry Costs (\$ million)			
	2020	2020	2019
	Actual	Budget	Actual
AUC fee – Transmission	2.5	3.0	2.9
AUC fee – Energy Market	1.6	1.6	1.8
WECC/NWPP/NERC costs	0.6	0.7	0.5
Regulatory process costs	0.3	0.8	1.1
Total Other Industry Costs	5.0	6.1	6.2

Numbers may not add due to rounding

Other industry costs represent fees or costs paid based on regulatory requirements or membership fees for industry organizations, which are not under the direct control of the AESO. These costs relate to the annual administration fee for the AUC, the AESO's share of Western Electricity Coordinating Council (WECC), Northwest Power Pool (NWPP) and North American Electric Reliability Corporation (NERC) membership fees and regulatory process costs. Regulatory process costs are associated with the AESO's involvement in an AUC proceeding to hear objections and complaints to ISO Rules or a regulatory application and costs incurred to respond to specific agency-related directions or recommendations that are beyond the routine operations of the AESO; this does not include application preparation costs.

Other industry costs in 2020 are \$5.0 million, which is \$1.2 million or 19.4 per cent lower than 2019 costs of \$6.2 million. The decrease is mainly attributable to regulatory process costs as 2019 included costs related to the AUC's review and approval of rules to launch a capacity market and related cost orders. In addition, AUC fees for transmission were \$0.4 million lower than 2019 actuals and \$0.5 million lower than budgeted expectations.

General and Administrative Costs (\$ million)

	2020 Actual	2020 Budget	2019 Actual
Staff costs	17.6	16.7	19.5
Contract services and consultants	0.8	1.8	2.1
Facilities	1.0	1.1	1.0
Administration	1.0	1.2	1.1
Computer services and maintenance	2.6	2.9	2.9
Telecommunications	0.3	0.4	0.4
Total General and Administrative Costs	23.4	24.0	26.9

Numbers may not add due to rounding

In 2020, staff costs are \$17.6 million, which is \$1.9 million or 9.7 per cent lower than the 2019 costs of \$19.5 million. The decrease is associated with organizational restructuring in the latter half of 2019 following the decisions by the Government of Alberta that the province would not transition to a capacity market or proceed with additional competition rounds under the Renewable Electricity Program (REP).

In 2020, contract services and consultants are \$0.8 million, which is \$1.3 million or 61.9 per cent lower than the 2019 costs of \$2.1 million. The decrease is due to the conversion of consultants to staff positions throughout 2019, as well as cessation of REP procurement and capacity market initiatives. Actual 2020 costs are lower than budgeted expectations due to the timing of activities and initiatives requiring consulting services.

Interest and Amortization (\$ million)

	2020 Actual	2020 Budget	2019 Actual
Amortization of right-of-use assets, intangible assets and depreciation of property, plant and equipment	7.2	5.5	5.9
Interest	1.4	1.8	1.1

In 2020, amortization of intangible assets and depreciation of right-of-use assets and PP&E collectively total \$7.2 million, which is \$1.3 million or 22.0 per cent higher than the 2019 amortization of \$5.9 million. The increase is primarily due to the change to the asset base being amortized and depreciated year-over-year, as well as a change in estimated life of computer software that resulted in an increase to amortization.

Interest costs in 2020 are \$1.4 million, which is \$0.3 million or 27.3 per cent higher than 2019 costs of \$1.1 million. The increase is primarily due to receivables of \$154.1 million related to the deferral account reconciliation application for the 2017 and 2018 year that was outstanding at December 31, 2019 and not collected until January 2020.

Capital Expenditure Update – As of March 31, 2020

Capital Program (\$ million)							
	Total Project Approved	Prior Year(s) Actual	Spent in 2020 to date	ETC in 2020	ETC Future Yr.(s)	Total Cost Est.	Variance Approved to Total Cost Est.
Key Capital Initiatives							
EMS Sustainment*	10.5	5.9	1.0	2.6	1.0	10.5	0.0
CIP	0.3	0.0	0.0	0.1	-	0.2	0.1
Critical Systems External Interface Modernization	0.8	0.2	0.3	0.2	-	0.8	0.0
Cyber and Physical Security Advancements	0.9	-	0.1	0.8	-	0.9	0.0
Market Evolution - Other	0.6	0.5	0.1	-	-	0.6	0.0
Personal Productivity	3.8	0.9	0.6	2.0	0.2	3.8	0.0
Other Capital Initiatives	10.0	1.8	1.5	5.8	0.1	9.2	0.9
Life Cycle Funding	6.3	1.4	0.8	3.6	-	5.8	0.5
General / Total Capital	33.2	10.7	4.4	15.1	1.3	31.8	1.5

Numbers may not add due to rounding

General Capital Program (\$ million)	
Spent to March 31, 2020*	4.4
Estimate to Complete (ETC) in 2020	15.1
Subtotal	19.5
General Capital approved	29.3
2020 budget remaining (variance)	9.8

*EMS Sustainment updated as of April 30, 2020

Appendix I - Notes

The following tables provide information on the AESO's capital plan for 2020

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		
Energy Management System (EMS) Sustainment	Description	The EMS is used by System Controllers in grid operations to monitor, control and optimize the performance of the power system. Upgrades relating to the sustainment and optimization requirements of the EMS evergreen strategy includes vendor software upgrades and improved analysis and reporting capabilities
	2020 Plan	Adding an Enhancement and System Evolution approach to the sustainment of the GMO tools to determine a holistic investment approach to 2020 – 2025 timeframe Consolidating existing and future programs based on the above approach under the appropriate governance model to deliver a sustainable EMS investment plan and develop a long-term market tools transition plan supporting future energy and AS market plans
Cyber and Physical Security Advancements	Description	Enhance cybersecurity protections to further secure the organization against increasing threats
	2020 Plan	Implementation of various cybersecurity-related projects and programs including Wi-Fi access, network upgrades, consolidated network monitoring, network access control and identity and access management
Critical Infrastructure Protection (CIP)	Description	Optimize the AESO CIP program and comply with the new CIP-014 Physical Security standard
	2020 Plan	Implementation of various CIP-related projects and programs including robotic process automation, optimization, service management, management of logging, monitoring and configuration.
Market Evolution – Other	Description	The identification, development and implementation of tools in support of market optimization and/or performance improvements and required market changes
	2020 Plan	Design and implementation related to market evolution, as required, to be determined in 2020

Key Capital Initiatives		
Productivity Applications and Tools	Description	Complete implementation of the AESO personal productivity foundation to increase efficiency and position AESO for further advancements in future years
	2020 Plan	Implement the Windows 10 & Office Suite upgrade and mobile device program as well as various other personal productivity enhancements relating to cloud, email and collaboration technology
Critical Systems External Interface Modernization	Description	Energy Trading System (ETS) web framework replacement and modernization of market system user experience for both internal staff and market participants
	2020 Plan	Complete implementation of the ETS web framework replacement and initiate implementation of the market systems interface modernization
Key Initiatives 2020 Budget		\$13.5 million