

# **AESO 2021 Preliminary Forecast and Budget Information**

October 1, 2020

In accordance with its mandate to operate in the public interest, the AESO will be audio recording this session and making the session recording available to the general public at [www.aeso.ca](http://www.aeso.ca). The accessibility of these discussions is important to ensure the openness and transparency of this AESO process, and to facilitate the participation of stakeholders. Participation in this session is completely voluntary and subject to the terms of this notice.

The collection of personal information by the AESO for this session will be used for the purpose of capturing stakeholder input for the 2021 Budget Review Process. This information is collected in accordance with Section 33(c) of the *Freedom of Information and Protection of Privacy Act*. If you have any questions or concerns regarding how your information will be handled, please contact the Director, Information and Governance Services at 2500, 330 – 5th Avenue S.W., Calgary, Alberta, T2P 0L4, by telephone at 403-539-2528, or by email at [privacy@aesocanada.com](mailto:privacy@aesocanada.com).

- The AESO's top priorities are the health and well-being of our employees and stakeholders and continuing to meet the electricity needs of all Albertans
- All business meetings with external stakeholders will be via phone or webinar indefinitely (this includes stakeholder engagement sessions)
- Based on stakeholder feedback, the AESO's own security assessment and the use of Zoom for governments, post-secondary institutions and other companies, the AESO has decided for now to continue using Zoom for our stakeholder engagements until such time that face-to-face engagements are allowed
- The AESO will continue to monitor developments and provide updates to our stakeholders as necessary
- For additional information, please visit the AESO website at [www.aeso.ca](http://www.aeso.ca) and follow the path Stakeholder engagement > Covid-19

# Welcome and Introductions

- Todd Fior, VP, Finance and Chief Financial Officer
- Bill Baker, VP, Information Technology
- Nicole Kinch, Director, Finance – Accounting and Treasury
- Karen Campbell, Director, Settlement, Credit and Business Planning
- Kevin Dawson, Director, Forecasting & Analytics
- Hazel Carvalho, Senior Settlement Analyst
- Riley Prescott, Market Analytics Analyst
- Karla Anderson, Communications Advisor

## *OUR ENGAGEMENT PRINCIPLES*

**Inclusive and Accessible**

**Strategic and Coordinated**

**Transparent and Timely**

**Customized and Meaningful**

The participation of everyone here is critical to the engagement process. To ensure everyone has the opportunity to participate, we ask you to:

- Listen to understand others' perspectives
- Disagree respectfully
- Balance airtime fairly
- Keep an open mind

- All attendees will join the webinar in listen-only mode and the host will have attendee cameras disabled and microphones muted
- When asking or typing in a question, please state
  - **The organization you work for and your first and last name**
- Two ways to ask questions during the Q&A portion if you are accessing the webinar using your computer or smartphone
  - If you would like to ask a question during the Q&A portion, click the icon to raise your hand and the host will see that you have raised your hand. The host will unmute your microphone, you in turn will need to unmute your microphone and then you can ask your question. Your name will appear on the screen but your camera will remain turned off.
  - You can also ask questions by typing them into the Q&A window. Click the “Q&A” button next to “Raise Hand.” You’re able to up-vote questions that have been already asked.



- Using a 2-in-1/PC/MAC Computer
  - Hover your cursor over the bottom area of the Zoom app and the Controls will appear.
  - Click “Raise Hand” and the host will be notified that you would like to ask a question.
  - Click “Lower Hand” to lower it if needed.
  - You can also ask questions by tapping the “Q&A” button and typing them in. You’re able to up-vote questions that have been already asked.
- Using Smartphone
  - Tap “Raise Hand.” The host will be notified that you've raised your hand.
  - Tap “Lower Hand” to lower it if needed.
  - You can also ask questions by tapping the “Q&A” button and typing them in. You’re able to up-vote questions that have been already asked.

- If you are accessing the webinar via conference call
  - If you would like to ask a question during the Q&A portion, on your phone's dial pad, hit \*9 and the host will see that you have raised your hand. The host will unmute your microphone, you in turn will need to unmute your microphone by hitting \*6 and then you can ask your question. Your number will appear on the screen.
- Phone controls for attendees
  - To raise your hand, on your phone's dial pad, hit \*9. The host will be notified that you've raised your hand.
  - To toggle between mute and unmute, on your phone's dial pad, hit \*6.

- Purpose
  - Present and discuss the AESO's 2021 preliminary forecast and budget information, including:
    - Ancillary Services and Transmission Line Loss Cost Forecasts, and
    - AESO Own Cost Budgets

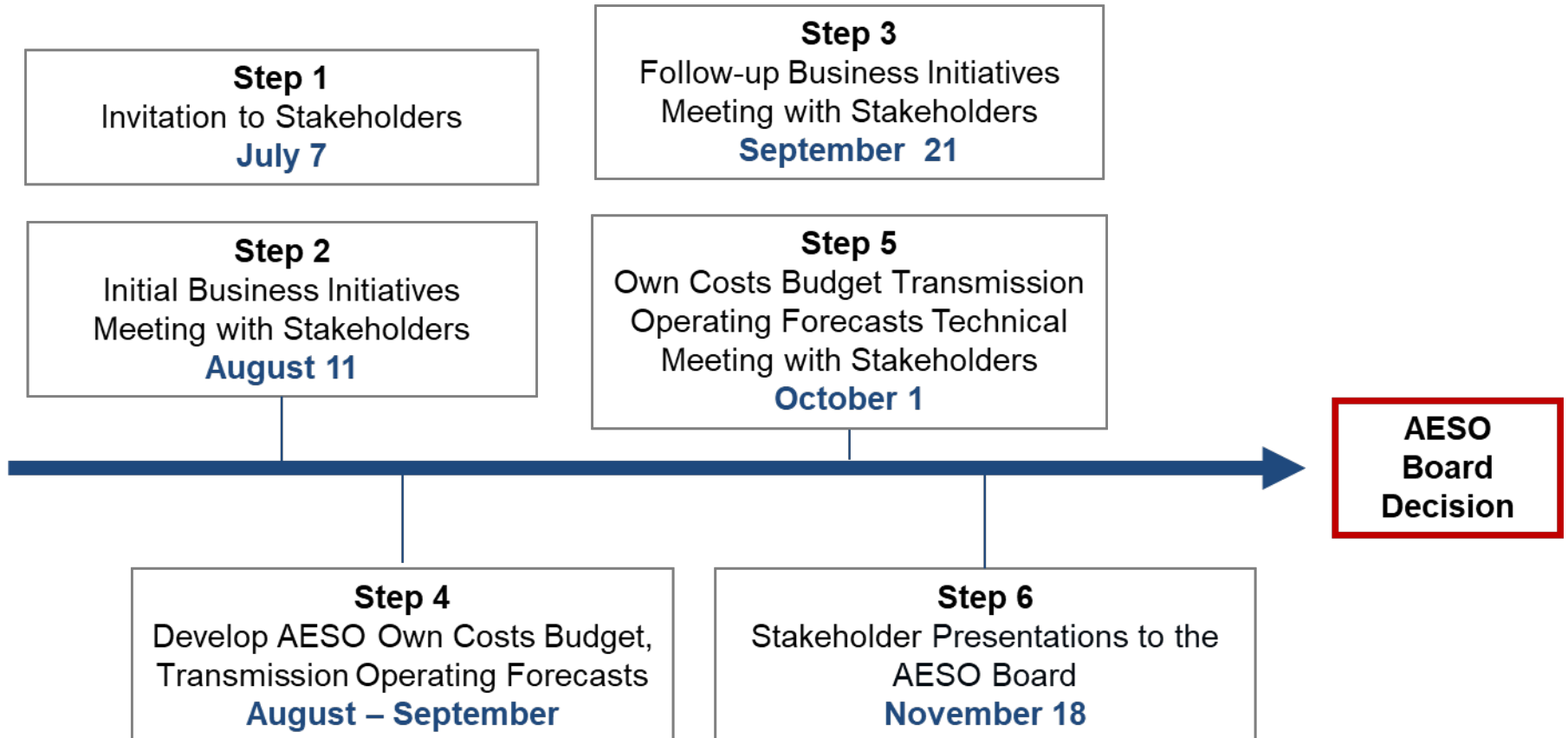
# Registered session attendees (as of Oct. 1, 2020 **updated**)

- Alberta Direct Connect Consumers Association (ADC)
- Alberta Newsprint Company (ANC)
- AltaLink Management
- Best Consulting Solutions Inc.
- BluEarth Renewables
- Canadian Renewable Energy Association (CanREA)
- Capital Power Corporation
- Chymko Consulting Ltd.
- DePal Consulting Limited
- ENMAX Corporation
- Guidehouse Canada
- Heartland Generation Ltd.
- Industrial Power Consumers Association of Alberta (IPCAA)
- Industrial Power Producers Society of Alberta (IPPSA)
- Lionstooth Energy Inc.
- The Office of the Utilities Consumer Advocate (UCA)
- Voltus, Inc.

- Welcome and housekeeping
- Budget review process steps
- 2021 Preliminary Forecast Transmission Operating Costs
  - Wires Costs
  - Forecast Pool Price
  - Load Outlook
  - Ancillary Services Costs
  - Transmission Line Losses Costs
- 2021 Preliminary General & Administrative Budget
- 2021 Preliminary Capital Budget
- Stakeholder Discussion and Input
- Session Closeout and Next Steps

# Budget Review Process Steps

# 2021 BRP milestone dates



# 2021 Preliminary Forecast Transmission Operating Costs



# Transmission Operating Costs Forecast Summary

(\$ millions) ~ by production year	2021 Forecast <sup>1</sup>	2020 Projected <sup>2</sup>	2020 BRP <sup>3</sup>	2019 Actual	2018 Actual
Wires Costs	1,933.8	1,924.0	1,916.0	1,864.8	1,763.8
Ancillary Services	202.6	206.3	257.8	211.8	277.8
Transmission Line Losses	104.4	95.8	113.5	106.5	98.3
<b>TOTAL</b>	<b>2,240.8</b>	<b>2,226.1</b>	<b>2,287.4</b>	<b>2,183.0</b>	<b>2,139.9</b>

Pool Price (\$ /MWh)	53.93	57.81	55.83	57.52	50.35
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*Differences are due to rounding*

<sup>1</sup> Forecast : Cost estimates for AESO Board approval for 2021

<sup>2</sup> Projected: Update of previous cost estimates for 2020

<sup>3</sup> 2020 AESO Budget Review Process (BRP) approved numbers for 2020

# 2021 Preliminary Forecast Wires Costs

# Wires Costs Summary

## 2021 Forecast

(\$ millions) ~ by production year	2021 Forecast	2020 Projected	2020 BRP	2019 Actual	2018 Actual
Wires	1,929.8	1,919.6	1,911.2	1,860.2	1,758.4
Invitation to Bid on Credit (IBOC)	2.0	2.1	2.3	2.1	2.1
Location Based Credit Standing Offer (LBC SO)	2.0	2.3	2.5	2.5	2.7
<b>TOTAL</b>	<b>1,933.8</b>	<b>1,924.0</b>	<b>1,916.0</b>	<b>1,864.8</b>	<b>1,763.8</b>

*Differences are due to rounding*

- Wires costs are the amounts paid to transmission facility owners (TFOs) in accordance with their Alberta Utilities Commission (AUC) approved tariffs and are not controllable costs of the AESO
- IBOC and LBC SO programs are long-term contracts that were initiated in 2001 and 2002 as incentives for generation to locate closer to major load centres

# 2021 Forecast Pool Price

- The hourly pool price forecast is an integral input for calculating the forecasted costs of ancillary services and transmission line losses
- For the 2021 BRP, the August to December 2020 and 2021 hourly pool price forecast is obtained from EDC Associates' Quarterly Forecast Update – Third Quarter 2020, released on August 17, 2020
- The EDC is a commonly utilized industry information source

# Pool Price Forecast

## August to December 2020 and 2021

- Key assumptions in the EDC Associates' Quarterly Forecast Update – Third Quarter 2020 include:
  - Recent market fundamentals such as the effects of the pandemic and low oil prices on demand, carbon pricing regimes, mothballs/retirements/conversions of coal assets, natural gas prices, and renewables additions
  - The forecast used a single seed from a sample of 50 seeds. The single seed that had an average annual price closest to the EDC summary annual price was chosen as the representative price curve
    - Single seed produced a price duration curve more representative compared to average of all seeds

# Pool Price Forecast

## August to December 2020 and 2021

- As of July 31, 2020, the forward market price is similar to the EDC forecast for 2021

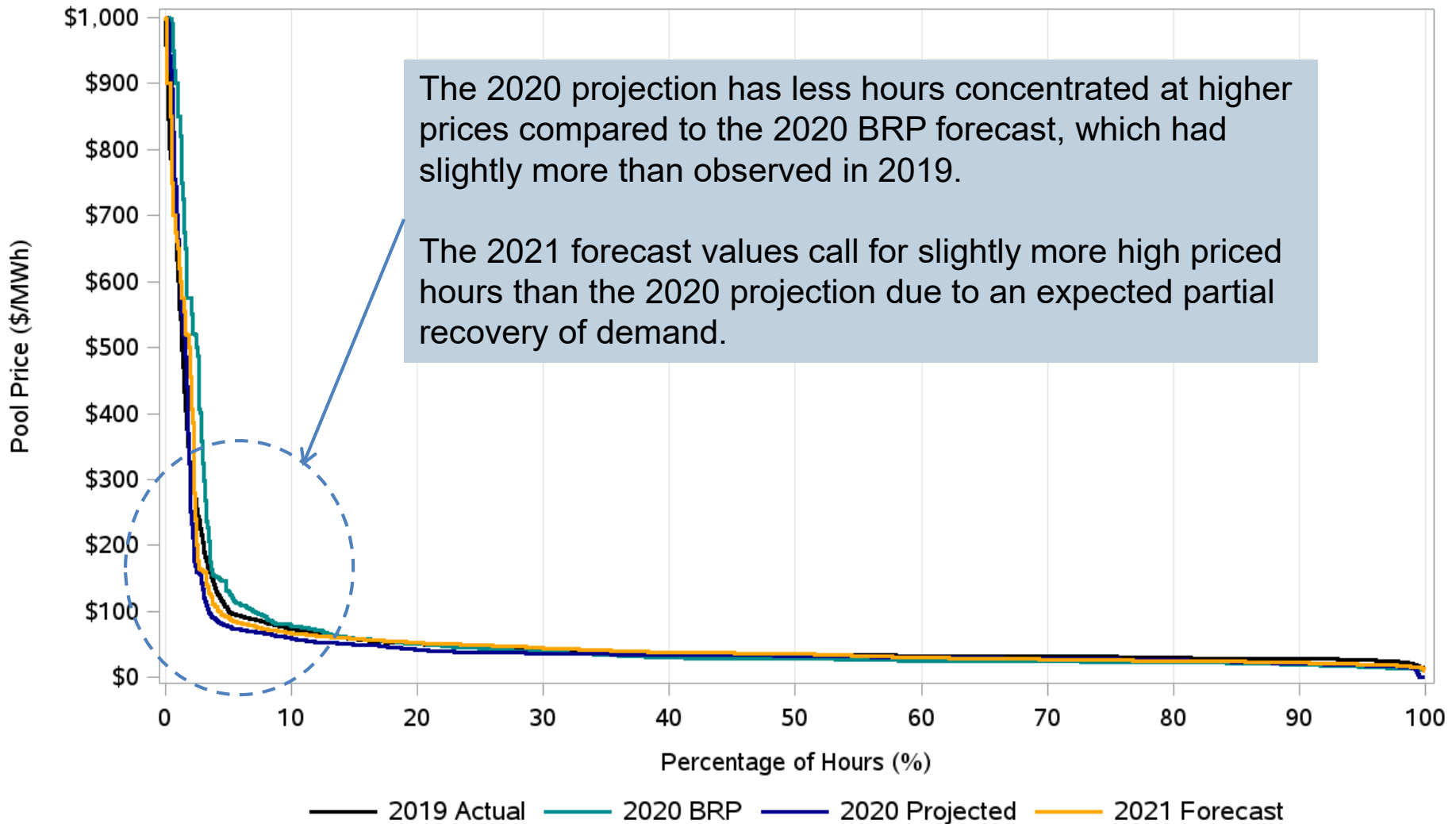
2020	EDC Forecast RoY	Forward Market RoY *	2020 Projected	2020 BRP
Average Hourly Pool Price (\$ /MWh)	49.45	51.70	49.36	57.81
AECO-C Natural Gas Price (\$ /GJ)	2.10	2.17	1.99	1.53

2021	EDC Forecast	Forward Market*
Average Hourly Pool Price (\$ /MWh)	53.93	51.00
AECO-C Natural Gas Price (\$ /GJ)	2.30	2.48

RoY – remainder of year - corresponds to August to December 2020

\* Source: NGX (July 31, 2020)

# Pool Price Duration Curves

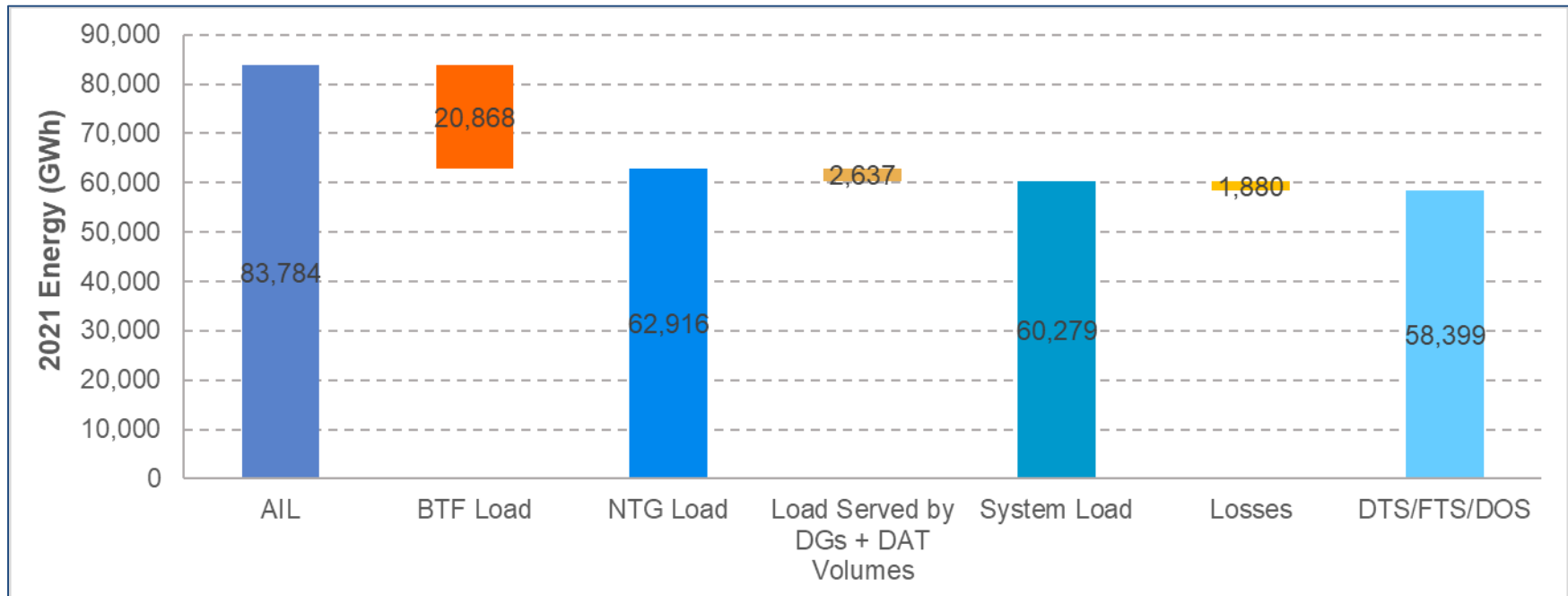




# 2021 Load Outlook

# Load Measurement Definitions

- **Alberta Internal Load (AIL):** System load plus load served by on-site generating units, including those within an industrial system and the City of Medicine Hat
  - Input in the OR Volumes Forecast (imports)
- **Net-to-grid (NTG) Load:** System Load + Load Served by Distributed Generation (DGs) > 5 MW and Duplication Avoidance Tariff (DAT) Volumes
  - One of the primary inputs in the OR volumes forecast
- **System Load:** DTS/FTS/DOS Net Load + Transmission Line Losses Volumes (“Losses”)
  - Input in the energy market trading charge process



- As part of the BRP process, the AESO prepares a near-term load outlook as context for the AESO's cost forecasts
- 2020-2021 AIL outlook considers:
  - Alberta real GDP, population, and employment predictions from the RBC Bank June 2020 Outlook
  - Oilsands production from the 2020 IHS Markit forecast
  - Historic weather patterns (P50 weather)
  - The impact of the pandemic on load
  - Calendar effects
- AIL is estimated to:
  - Decrease by -2.6% from 2019 to 2020
  - Increase by 1.3% from 2020 to 2021

- In 2021 AIL is expected to increase due to:
  - An expected partial recovery from the pandemic, forecasted growth in the economy and employment, and forecasted oilsands production growth

(GWh)	2021 Forecast	2020 Projected	2020 BRP	2019 Actual	2018 Actual
AIL* Volumes	83,784	82,716	87,948	84,925	85,330
Per cent change (YoY)	1.3%	-2.6%**	3.6%	-0.5%	-

YoY = Year over Year

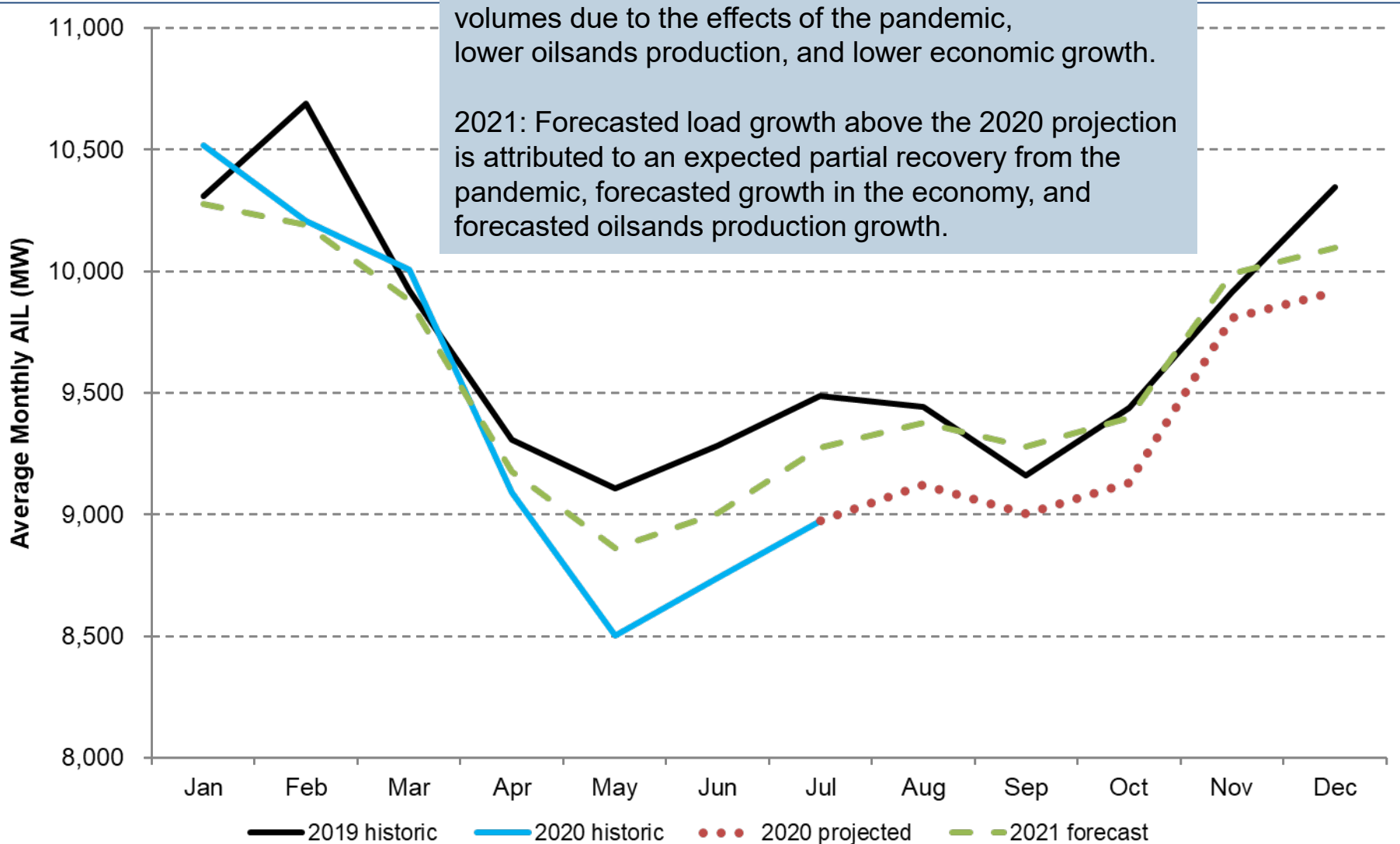
\* AIL – Alberta Internal Load

\*\* 2020 projected compared to 2019 actual

# Load Outlook (cont.)

2020: Projected decrease compared to 2019 historic volumes due to the effects of the pandemic, lower oilsands production, and lower economic growth.

2021: Forecasted load growth above the 2020 projection is attributed to an expected partial recovery from the pandemic, forecasted growth in the economy, and forecasted oilsands production growth.



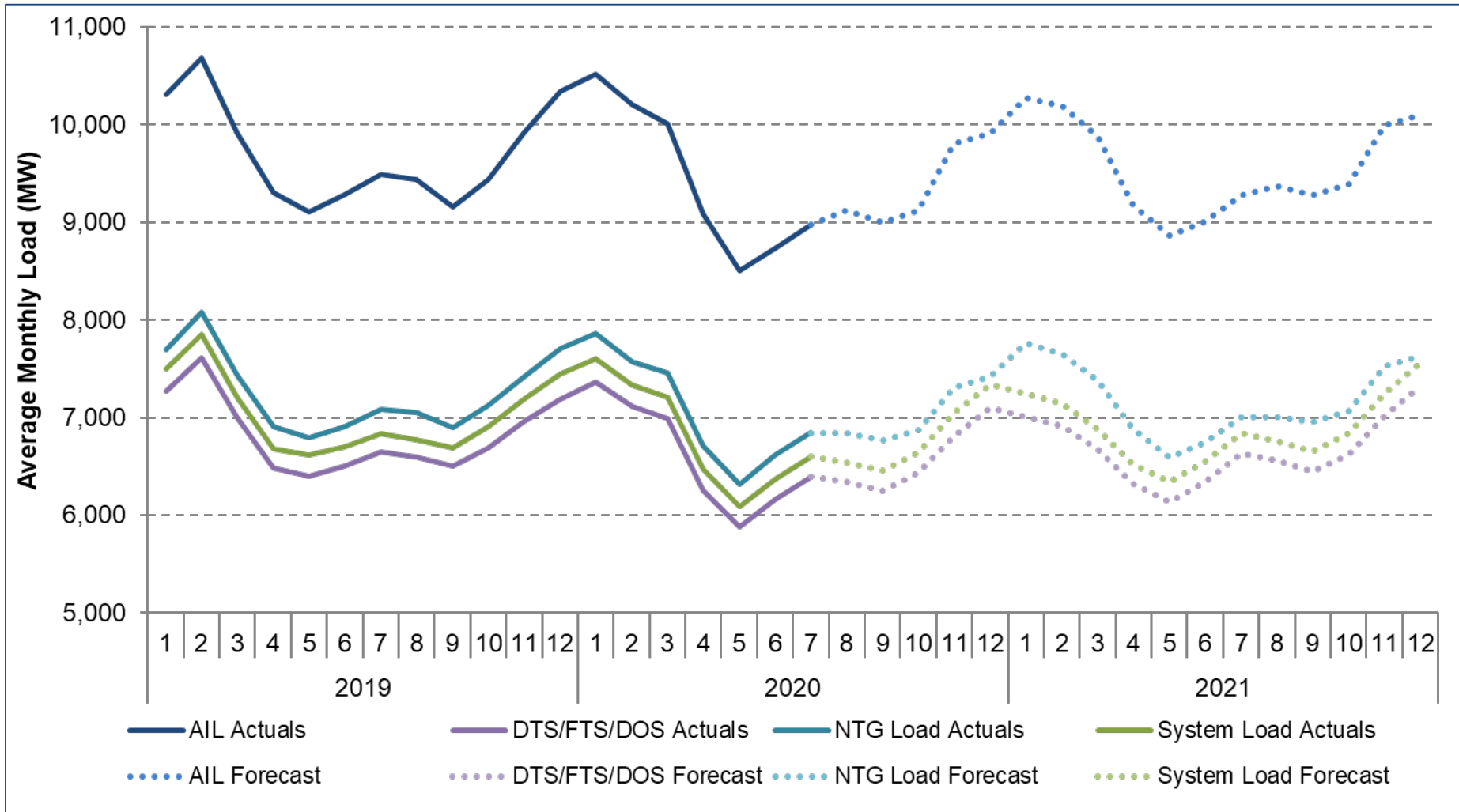
- 2020-2021 Net-to-grid (NTG) Load and System Load Outlooks consider:
  - Alberta real GDP, population, and employment predictions from the RBC Bank June 2020 Outlook
  - Historic weather patterns (P50 weather)
  - The impact of the pandemic on load
  - Time-series trend variables
  - Calendar effects
- NTG Load is estimated to:
  - Decrease by -2.6% from 2019 to 2020
  - Increase by 1.6% from 2020 to 2021
- System Load is estimated to:
  - Decrease by -2.8% from 2019 to 2020
  - Increase by 0.8% from 2020 to 2021

- In 2021 load is expected to increase primarily due to:
  - An expected partial recovery from the pandemic
  - Economic and employment growth

GWh Volume	2021 Forecast	2020 Projected	2019 Actual	2018 Actual	2017 Actual
AIL (% YoY growth rate)	83,784 (1.3%)	82,716 (-2.6%)	84,925 (-0.5%)	85,330 (3.3%)	82,572
NTG Load (% YoY growth rate)	62,916 (1.6%)	61,923 (-2.6%)	63,554 (-2.0%)	64,876 (2.5%)	63,279
System Load (% YoY growth rate)	60,279 (0.8%)	59,815 (-2.8%)	61,554 (-2.2%)	62,926 (0.9%)	62,383
DTS, FTS, & DOS (% YoY growth rate)	58,399 (0.9%)	57,899 (-3.0%)	59,680 (-2.3%)	61,058 (1.5%)	60,172

# Load Outlook (cont.)

- All load measurements have a similar shape





# 2021 Preliminary Forecast Ancillary Services Costs

- All OR products are forecast
  - Active: spinning, supplemental and regulating
  - Standby: spinning, supplemental, and regulating (including activations)
- Forecast OR costs is the sum of forecast hourly volumes multiplied by the hourly OR price

$$cost = \sum_{\substack{hour, \\ product}} volume * OR\ price$$

- **Volumes:** set by Alberta Reliability Standard (ARS) requirements and dependent on forecast generation, load, and imports
  - Using a forecast of net-to-grid load and generation consistent with the AESO's day-ahead forecast, and import level assumptions, all contingency reserves are forecast based on ARS requirements
  - Using the formulas that outline regulating reserves volumes in each hour, all regulating reserve volumes are forecast
- **OR price:** hourly price of operating reserves determined for each product type
  - Based on the relationship between pool price levels and OR premiums (discounts) of the previous four years

# 2021 Forecast Ancillary Services Cost Summary



(\$ millions) ~ by production year	2021 Forecast	2020 Projected	2020 BRP	2019 Actual	2018 Actual
Operating Reserve (OR)	164.3	166.2	229.1	192.7	239.8
Load Shed Service for Imports (LSSi)	32.6	31.7	20.6	16.2	31.0
Contracted Transmission Must-run (TMR)	-	2.8	2.4	3.0	3.1
Conscripted Services (OR and TMR)	0.4	0.4	0.2	0.4	0.4
Reliability Service	2.9	2.9	2.9	2.9	2.9
Black Start	2.4	2.3	2.3	2.3	2.2
Transmission Constraint Rebalancing (TCR)	0.1	0.1	0.1	0.3	0.0
Poplar Hill	-	-	-	0.9	2.3
<b>TOTAL</b>	<b>202.6</b>	<b>206.3</b>	<b>257.8</b>	<b>211.8</b>	<b>277.8</b>
Pool Price (\$ /MWh)	53.93	49.36	57.81	54.88	50.35
Gas Price (\$ /GJ)	2.30	1.99	1.53	1.68	1.45

Refer to the Supplementary 2021 Forecast and Budget Information document for additional details including forecast methodologies and variance explanations.

# 2021 Preliminary Forecast Transmission Line Losses Costs

- Forecast transmission line losses costs is the sum of hourly volumes multiplied by hourly pool prices

$$cost = \sum_{hour} volume * pool\ price$$

- **Volumes:** derived from an updated statistical model that utilizes an economic outlook, weather (P50), and calendar effects
  - This model maps out the relationship between historic load drivers and losses
- **Pool price:** hourly; pool price provided by EDC

# Transmission Line Loss Costs Summary

(\$ millions) ~ by production year	2021 Forecast	2020 Projected	2020 BRP	2019 Actual	2018 Actual
Cost (\$ million)	104.4	95.8	113.5	106.5	98.3
Volume (GWh)	1,880	1,916	1,870	1,874	1,869
Pool Price (\$ /MWh)	53.93	49.36	57.81	54.88	50.35

- Transmission losses volumes in 2020 are projected to be higher than the 2020 BRP. This increase in losses volumes is attributed to less NW gas-fired generation
- Losses volumes in 2021 are expected to be at similar levels to historic values, slightly below the 2020 projected volumes

# 2021 Preliminary General and Administrative Budget

# AESO Own Cost Summary

(\$ millions) ~ by production year	2021* Budget	2020 Projected	2020 BRP	2019 Actual	2018 Actual
General & Administration	94.2	90.7	96.2	104.4	111.1
Interest	2.8	3.9	7.1	5.4	1.4
Amortization	26.2	31.5	22.1	38.8	26.1
<b>Total</b>	<b>123.2</b>	<b>126.1</b>	<b>125.4</b>	<b>148.6</b>	<b>138.6</b>

*Differences are due to rounding*

\*Preliminary



- AESO prepares its Own Cost budget based on the business planned for the budget year
- The AESO's business initiatives were discussed at the August 11 and September 21, 2020 BRP meetings
- Assessments of required resources both internally and externally are evaluated on various criteria. These include, but are not limited to:
  - resource requirements to deliver on key business initiatives
  - consideration of specialized knowledge, skills or cost effective resources
  - resource constraints due to workflow and timing of initiatives
  - risk mitigation requirements, and
  - resources are assessed on a holistic basis

- Ensuring reliability of AIES is critical
- Focus on delivery of key initiatives as discussed with stakeholders:
  - External Initiatives
    - Red Tape Reduction
    - General Tariff Application
    - Tariff Modernization
    - Optimizing the Grid
    - Distribution Coordination
    - Technology Integration
    - Settlement Audit
    - Operating Reserve (OR) Market Competitiveness Enhancement
    - Market Sustainability and Evolution I & II
  - Internal Initiatives
    - Continued work and effort is provided to a variety of internal initiatives in addition to the external initiatives noted above
- Driven by the successful delivery of the key corporate initiatives while maintaining our high standards of reliability
- No new staff resources have been added in 2021 to deliver on base business or initiatives

- Budgeted proposed general and administrative (G&A) cost for 2021 are \$2 million (2%) lower than budgeted 2020 costs due to significant efforts to minimize and/or defer costs given current economic conditions
- Forecasted G&A costs for 2020 are lower than budgeted expectations due to the impacts of COVID-19 on timing and completion of work, as well as reduced administrative costs given a remote work environment. This is in addition to strategic efforts to minimize and/or defer spend
- Budgeted staff costs include a proposed staff compensation adjustment (e.g. inversions, compressions and promotions, etc.)
  - The amount is the prior year approved amount and is a placeholder in the current budget
  - Additional assessment is required to determine the amount for 2020 and will be subject to separate AESO Board approval as in prior years
- The trading charge for 2021 is lower than 2020, reflecting the reduction in costs and efforts to reduce some of the impact of COVID19 and the economic environment

# General & Administrative Costs

**(updated)**

(\$ millions) ~ by production year	2021 Budget*	2020 Projected	2020 BRP	2019 Actual	2018 Actual
Staff Costs	66.7	65.9	66.7	77.7	74.3
Contract Services & Consultants	5.4	5.0	7.4	5.5	12.1
Administrative	5.3	3.8	4.8	4.3	4.4
Facilities	4.0	4.1	4.3	3.9	7.6
Computer Services and Maintenance	11.3	10.4	11.6	11.5	11.2
Telecommunications	1.5	1.5	1.5	1.5	1.5
<b>Total</b>	<b>94.2</b>	<b>90.7</b>	<b>96.2</b>	<b>104.4</b>	<b>111.1</b>

*Differences are due to rounding*

\*Preliminary

# 2021 Reconciliation to 2020 Budget

(\$ millions)		
<b>2020 Approved Budget</b>		<b>96.2</b>
Staff Costs (\$1 million proposed compensation adjustment offset by increased capitalized labor of approximately \$600k and misc. staff cost decreases of approximately \$300k)	0.0	
Contract Services and Consultants	(2.0)	
Administration (insurance premium increase)	0.4	
Facilities, Computer Services, Maintenance and Telecommunications	(0.5)	
<b>2021 Preliminary Budget</b>		<b>94.2</b>

*Differences are due to rounding*

# 2021 General and Administrative Consulting Costs by Business Initiative

	Consulting Cost* (\$ Million)	Capital Cost* (\$ million)
Red Tape Reduction	-	-
Tariff Modernization, General Tariff Application (GTA)	0.3	-
Optimizing the Grid	-	1.2
Distribution Coordination	-	-
Technology Integration	0.3	0.4
Settlement Audit	0.1	-
Market Sustainability Evolution I, Market Sustainability Evolution II, Operating Reserve (OR) Market Competitiveness Enhancement	0.1	-
<b>Total Direct Costs</b>	<b>0.8</b>	<b>1.5</b>

*Differences are due to rounding*

\*Preliminary

# Preliminary Other Industry Costs

(\$ millions) ~ by production year	2021 Budget*	2020 Projected	2020 BRP	2019 Actual	2018 Actual
AUC Fees – Transmission	11.3	8.6	11.5	12.2	11.6
AUC Fees – Energy Market	6.6	5.6	7.9	6.5	6.3
Regulatory Process Costs ***	1.3	1.6	4.3	2.9	3.7
WECC/NWPP/NERC** Costs	2.2	2.5	2.1	2.4	2.1
<b>Total Costs</b>	<b>21.4</b>	<b>18.3</b>	<b>25.9</b>	<b>24.0</b>	<b>23.8</b>

*Differences are due to rounding*

\* Preliminary

\*\* Western Electricity Coordinating Council / Northwest Power Pool / North American Reliability Corporation

\*\*\* Reduction from capacity market activities that occurred or were planned to occur in 2019

# 2021 Preliminary Energy Market Trading Charge

Trading Charge Components (¢ per MWh)	2021 Budget	2020 Actual	2019 Actual	2018 Actual	2017 Actual	2016 Actual	2015 Actual
AESO Costs	28.5	29.8	34.7	23.7	26.2	26.2	27.0
Energy Market Deficit (Surplus)*	1.2	6.6	3.0	(5.5)	-	-	3.2
Total AESO Component	29.7	36.4	37.7	18.2	26.2	26.2	30.3
AUC's Portion of Energy Market Administration Fee	5.4	6.2	4.8	3.2	5.3	5.3	5.5
<b>Total</b>	<b>35.2</b>	<b>42.6</b>	<b>42.5</b>	<b>21.4</b>	<b>31.5</b>	<b>31.5</b>	<b>35.8</b>

*Differences are due to rounding*

This information does not include the Market Surveillance Administrator (MSA). The MSA cost recovery amount is approved by the Chair of the AUC in an independent budget process.

\* Cumulative energy market deferral account shortfall as of 2020 to be recovered over 3 years (2020 to 2022)



# 2021 Preliminary Energy Market Trading Charge – Recoverable Costs

Trading Charge Components (Recoverable Costs – in \$millions CAD)	2021 Budget	2020 As Posted
AESO Costs	\$34.3	\$40.0
Energy Market Deficit (Surplus)*	1.5	8.9
<b>Total AESO Component</b>	<b>\$35.8</b>	<b>\$48.9</b>
AUC's Portion of Energy Market Administration Fee	6.6	8.3
<b>Total</b>	<b>\$42.4</b>	<b>\$57.2</b>

*Differences are due to rounding*

This information does not include the Market Surveillance Administrator (MSA). The MSA cost recovery amount is approved by the Chair of the AUC in an independent budget process.

\* Cumulative energy market deferral account shortfall as of 2020 to be recovered over 3 years (2020 to 2022)

# 2021 Preliminary Capital Budget

# Preliminary Capital Budget Summary

(\$ millions)	2021* Budget	2020 Projected	2020 BRP	2019 Actual	2018 Actual
Key Capital Initiatives	10.9	10.3	13.4	17.4	4.5
Other Capital Initiatives	10.5	9.7	11.0	3.7	7.5
Life Cycle Funding	5.2	3.9	4.9	7.7	5.2
<b>Total General Capital</b>	<b>26.6</b>	<b>23.9</b>	<b>29.3</b>	<b>28.9</b>	<b>17.2</b>
Major Project – SCC**	-	-	-	11.5	8.1
<b>Total Capital</b>	<b>26.6</b>	<b>23.9</b>	<b>29.3</b>	<b>40.3</b>	<b>25.3</b>

*Differences are due to rounding*

\* Preliminary

\*\*System Coordination Centre (SCC) Expansion - Major project completed Q4 2019. Ongoing operation thereafter

**Key Capital Initiatives** – Most critical projects that the AESO believes must be completed within the timeframe identified

**Other Capital Initiatives** – Other projects that have more flexibility in planning or delivery so timing is not as critical

**Life Cycle Funding** – Leasehold improvements, hardware replacements (end of useful life) and recurring software upgrades

**Major Project** – Significant multi-year project requiring separate Board approval

- Budgeted proposed capital cost for 2021 are \$2.7 million (9%) lower than budgeted 2020 costs due to efficiency gains and significant efforts to minimize and/or defer costs given current economic conditions
- Projected capital costs for 2020 are \$5.4 million (18%) lower than budgeted expectations due to the impacts of COVID-19 on timing and completion of work. This is in addition to efficiency gains and strategic efforts to minimize and/or defer spend

# Preliminary Capital Budget

(\$ millions)	2021 Budget*	2020 Projected	2020 BRP	2019 Actual	2018 Actual
<b>Key Capital Initiatives</b>	<b>10.9</b>	<b>10.3</b>	<b>13.4</b>	<b>17.4</b>	<b>4.5</b>
1. Business System Modernization	1.0	-	-	-	-
2. Cyber Security and Critical Infrastructure Protection	1.1	1.5	2.9	1.2	1.7
3. Optimizing the Grid	1.2	-	-	-	-
4. Technology Integration	0.4	-	-	-	-
5. **EMS Sustainment	7.3	3.9	4.8	5.3	-
6. Market Evolution – Other	-	0.3	1.6	1.7	0.5
7. Productivity Applications and Tools	-	3.5	3.3	-	-
8. Critical Systems External Interface Modernization	-	1.0	0.8	-	-
9. Capacity Market	-	-	-	9.1	1.7
10. Reliability - Other (non-EMS)	-	-	-	-	0.4
11. ***MSR - Sustainment	-	-	-	-	0.2
<b>Other Capital Initiatives</b>	<b>10.5</b>	<b>9.7</b>	<b>11.0</b>	<b>3.7</b>	<b>7.5</b>
<b>Life Cycle Funding</b>	<b>5.2</b>	<b>3.9</b>	<b>4.9</b>	<b>7.7</b>	<b>5.2</b>
<b>Total General Capital</b>	<b>26.6</b>	<b>23.9</b>	<b>29.3</b>	<b>28.9</b>	<b>17.2</b>
Major Project – SCC	-	-	-	11.5	8.1
<b>Total Capital</b>	<b>26.6</b>	<b>23.9</b>	<b>29.3</b>	<b>40.3</b>	<b>25.3</b>

*Difference are due to rounding* \*Preliminary

\*\*Energy Management System (EMS) - Major project implemented in 2017. Ongoing sustainment activity for years 2018-2020.

\*\*\*Market System Replacement and Reengineering

# Preliminary Capital Budget

## Other Capital Initiatives – Summary

- Other application or infrastructure upgrades
  - Facilities – end of life renewals and replacements
  - System Enhancements Program
  - Business technology solutions
    - Records management
    - Personal Productivity tools
    - Forecasting software
    - Contract systems
    - Enterprise Resource Planning (ERP) System
    - Governance, Risk and Compliance (GRC) tool
    - Various other

# Preliminary Capital Budget

## Life Cycle Funding - Summary

- Ongoing investment in general infrastructure and application platforms
  - Communications
  - Database
  - Application middleware
  - End-user computing
  - Enterprise services
  - Monitoring
  - Network
  - Non-project capital
  - Servers
  - Storage



# Management Controls and Contingency

Results of Forecast	Related Budget Process
<p>If the forecast is <u>below or in line</u> with the previously approved budget amount</p>	<p>At management’s discretion, any under-budget amounts will be used to advance future year business priorities or will be accumulated in the deferral accounts</p>
<p>If the forecast is <u>above</u> the previously approved budget amount and the amount is determined to be a ‘manageable variance’</p>	<p>Management would request approval from the AESO Board and subsequently issue a stakeholder communication</p>
<p>If the forecast is <u>above</u> the previously approved budgeted amount and the amount is in excess of a ‘manageable variance’</p>	<p>Management will review the new funding requirements with stakeholders, followed by a request for approval from the AESO Board</p>

A ‘**manageable variance**’ is a forecast to actual variance that would be:

- Less than 10% of budgeted general and administrative expenditures
- Less than 20% of budgeted capital

## Session Close-out and Next Steps

- We want to thank you for attending the AESO 2021 Preliminary Forecast and Budget session and we would appreciate your feedback on the session
- To limit stakeholder fatigue, we are modifying how we collect your initial feedback on the session by conducting a Zoom poll during the session rather than emailing you a short session survey following the session. The questions remain the same
- Poll questions:
  - The purpose of the session was clear
  - The information was presented in a clear manner
  - The session was valuable

- We value stakeholder feedback and we invite all interested stakeholders to provide their input on this session and the Sept. 21 proposed business initiatives session via the questions set out in the **Stakeholder Comment Matrix 2021 BRP Forecast, Budget and Business Initiatives on or before Oct. 16, 2020**. The matrix will be posted on Oct. 1, 2020 on our website at [www.aeso.ca](http://www.aeso.ca)
  - Path: AESO > About the AESO > Business planning and financial reporting > Business plan and budget > 2021
- The AESO will review, consider and respond to stakeholder feedback received
- The AESO's *2021 Proposed Business Plan and Budget* and the AESO replies on the Forecast, Own Cost and Business Initiatives will be posted on Oct. 29, 2020 on our website

- Stakeholders who wish to present to the AESO Board as per the BRP *Terms of Reference*, based on comments they submitted in one of the earlier steps of the 2021 BRP **may express their interest to do so by emailing [Karen.Campbell@aeso.ca](mailto:Karen.Campbell@aeso.ca) by Oct. 31, 2020**

**Thank you**