Long Term Adequacy Report

February 2021

Introduction

The following report provides information on the long term adequacy of the Alberta electric energy market. The report contains metrics that include tables on generation projects under development and generation retirements, an annual reserve margin with a five year forecast period, a two year daily supply cushion, and a two year probabilistic assessment of the Alberta Interconnected Electric System (AIES). The Long Term Adequacy (LTA) Metrics provide an assessment and information that can be used to facilitate further assessments of long term adequacy. This report is updated quarterly in February, May, August, and November. Inquiries on the report can be made at forecast@aeso.ca.

*All metrics have been updated and use the most recent corporate load forecast the 2019 LTO found at https://www.aeso.ca/grid/forecasting.

Summary of Changes since Previous Report

New Generation and Retirements Metric

Projects completed and removed from list:

- ATCO Rycroft 730S Battery DER
- Claresholm Solar GP Inc. Claresholm 1
- Claresholm Solar GP Inc. Claresholm 2

Generation Projects moved to "Active Construction":

- FortisAlberta Westfiled 107S DER Solar
- Enbridge South Terminal Gas
- Medicine Hat CMH Unit 17 Gas
- Fortis Alberta 368S Burdett DER Solar

Generation projects moved to "Regulatory Approval":

- Greengate Travers Solar Phase 2
- EPC EPC Bonnybrook DER Cogen
- Invenergy Schuler Wind
- Fortis Enchant 447S DER Solar
- Fortis Enchant 447S DER Solar 2
- Fortis Enchant 447S DER Solar 3
- Fortis Enchant 447S DER Solar 4

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Generation projects that have been added to "Announced, Applied for AESO Interconnection, and/or Applied for Regulatory Approval":

- Nutrien Redwater Cogen
- ATCO Elmworth 731S DER Gas
- Georgetown MPC Solar
- EPC Bonnybrook DER Cogen
- Invenergy Schuler Wind
- Mistaya Lone Pine Cogen
- Mistaya Wildcat Hills Cogen
- Mistaya Bonavista Cogen
- Sollair MPC Solar

Generation projects that have been removed:

- NextEra Red Deer River Solar
- ATCO Three Hills 770S DER Gas

***Other changes to generation projects*:**

Project	Change
Maxim Power – Deerland Peaking Station	New ISD of Dec-2023 from Dec-2020
Joss Wind – Jenner WAGF	New ISD of Aug-2022 from May-2021
EDP Renewables – Sharp Hills Wind Farm	New ISD of Apr-2022 from Nov-2020
Joss Wind – Jenner WAGF - Phase 2	New ISD of Aug-2022 from May-2021
FortisAlberta – 421S Hays DG PV	New ISD of Jun-2021 from Feb-2021
Northland – Buffalo Trail	New ISD of Dec-2023 from Dec-2020
FortisAlberta – Conrad DER Solar	New ISD of Aug-2021 from Apr-2021
RealPart – Calgary Area Solar	New ISD of Jun-2022 from Dec-2020
FortisAlberta – Conrad DER Solar 2	New ISD of Aug-2021 from Apr-2021
ENMAX – Zephyr Wind Farm	New ISD of Feb-2021 from Dec-2020
ENMAX – Taber Wind Farm	New ISD of Feb-2021 from Dec-2020
Pengrowth – Cold Lake Area Energy Centre	New ISD of Apr-2023 from Oct-2020
TransAlta – Windrise MPC Wind	New ISD of Apr-2021 from Dec-2020

ATCO – Three Hills 770S DER Solar 1	New ISD of Oct-2021 from Nov-2020
ATCO – Michichi Creek 802S DER Solar	New ISD of Oct-2021 from Nov-2020
E.ON – Four Rivers Wind	New ISD of Dec-2023 from Mar-2021
Suncor – Base Plant Cogen	New ISD of Oct-2023 from Jul-2022
TransAlta – Tempest MPC Wind	New ISD of Feb-2021 from Dec-2020
Northland – Bow City MPC Solar	New ISD of Dec-2022 from Nov-2020
FortisAlberta – Acheson 305S DER Solar	New ISD of Dec-2021 from Nov-2020
Joss Wind – Jenner Wind Phase 3	New ISD of Aug-2022 from May-2021
BER Hand Hills Wind LP – MPC Wind	New ISD of Nov-2022 from Oct-2022
CNRL – Primrose East 641S Gas	New ISD of Aug-2022 from Jul-2021
Transalta – Kaybob 3 Cogen	New ISD of Sep-2021 from Jun-2021
Capital Power – Genesee 3 Change	New ISD of Apr-2022 from May-2021

Reserve Margin Metric

The reserve margin has been updated to reflect changes to the project list.

Supply Cushion Metric

The forecast supply cushion has been updated to reflect the new time period.

Two Year Probability of Supply Adequacy Shortfall Metric

New values for the metric have been calculated with Total Energy Not Served equaling 29 MWh. This value is below the 2,079 MWh threshold.

New Generation Projects and Retirements Metric

The New Generation Projects and Retirements Metric is a summary of generation at various stages of development in Alberta and is shown in Tables 1 to 4 below. In Alberta's deregulated electricity market competitive forces determine the location, magnitude and timing of new generation additions. Information on prospective generation additions and retirements provides context for the future market in Alberta. The information is drawn from a variety of public sources and includes new generation, changes to existing generation and the retirement of generating units. Changes in project in-service dates (ISDs) and regulatory stages occur as projects move forward and/or market conditions change. Current information on connection project ISDs can be found in the AESO Project List and information on power plant applications can be found at the Alberta Utilities Commission website.

Table 1: Generation Projects under Construction

Sponsor(s)	Project Name	Fuel	Unit Capacity*	ISD*
FortisAlberta	198S Blackfalds DER Gas Phase 2	Gas	4	Feb-2021
FortisAlberta	368S Burdett DER Solar	Solar	20	Feb-2021
FortisAlberta	Westfield 107S DER Solar	Solar	19	Feb-2021
Enbridge	South Terminal Gas	Gas	20	Feb-2021
FortisAlberta	Burdett 368S DG P/V	Solar	11	Feb-2021
TransAlta	Windrise MPC Wind	Wind	207	Apr-2021
FortisAlberta	421S Hays DG PV	Solar	24	Jun-2021
RESC	Rattlesnake Ridge MPC Wind	Wind	118	Jul-2021
Fengate	Strathcona Cogeneration	Gas	96	Sep-2021
Suncor	Forty Mile Granlea WAGF	Wind	200	Nov-2021
Medicine Hat	CMH Unit 17 Gas	Gas	44	Mar-2022
Cascade	Combined Cycle Phase 1	Gas	450	Sep-2022
Greengate	Travers Solar	Solar	400	Dec-2022
Cascade	Combined Cycle Phase 2	Gas	450	Dec-2022
Total (MW)			**2,063**	

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**Unit Capacity – Expected MW capacity; ISD – Estimated in-service date*

Table 2: Generation Projects with Regulatory Approval

Sponsor(s)	Project Name	Fuel	Unit Capacity	ISD
BowArk Energy	Drywood Gas Generator	Gas	38	Jan-2021
ENMAX	Zephyr Wind Farm	Wind	200	Feb-2021
FortisAlberta	275S Jenner Solar DER	Solar	23	Feb-2021
FortisAlberta	Namaka DER Solar	Solar	20	Apr-2021
FortisAlberta	498S Tilley DG PV	Solar	22	Apr-2021
Greengate Power	Stirling WAGF	Wind	115	May-2021
FortisAlberta	255S Vulcan Faribault Farms P/V	Solar	25	May-2021
FortisAlberta	Coaldale 254S DER Solar 3	Solar	22	May-2021
FortisAlberta	Monarch 492S DER Solar	Solar	24	May-2021
FortisAlberta	Stavely 349S DER Solar	Solar	8.5	May-2021
FortisAlberta	Buffalo Creek 526S DER Storage	Storage	20	Jun-2021
FortisAlberta	Vulcan 255S DER Solar	Solar	15	Jun-2021
ATCO	Sarah Lake 743S DER Geothermal	Gas	21	Jun-2021
ATCO	Bullpound 803S DER Solar	Solar	15	Jun-2021
FortisAlberta	Fieldgate 824S DER Gas	Solar	5	Jul-2021
Capital Power	Whitla Wind Power - Phase 2	Wind	97.2	Aug-2021
Transalta	Kaybob 3 Cogen	Gas	43	Sep-2021
Kineticor	Peace River Power Generator	Gas	98	Sep-2021
FortisAlberta	Jenner 275S DER	Gas	23	Sep-2021
Enel	Grizzly Bear Wind	Wind	120	Oct-2021

TransAlta	Garden Plain Wind	Wind	131	Oct-2021
Grand Prairie	Grand Prairie MPC Gas	Gas	360	Oct-2021
ATCO	Michichi Creek 802S DER Solar	Solar	13.5	Oct-2021
FortisAlberta	Spring Coulee 385S Solar DG	Solar	29	Oct-2021
Fortis	Enchant 447S DER Solar	Solar	23	Oct-2021
Fortis	Enchant 447S DER Solar 2	Solar	18	Oct-2021
Fortis	Enchant 447S DER Solar 3	Solar	10	Oct-2021
Fortis	Enchant 447S DER Solar 4	Solar	24	Oct-2021
ATCO	Three Hills 770S DER Solar 1	Solar	25	Oct-2021
ATCO	Michichi Creek 802S DER Solar	Solar	25	Oct-2021
ATCO	Michichi DER Solar	Solar	75	Nov-2021
FortisAlberta	Empress 394S DER Solar 1	Solar	22.5	Nov-2021
FortisAlberta	Empress 394S DER Solar 2	Solar	16	Nov-2021
FortisAlberta	Brooks 121S DER Solar 1	Solar	14	Nov-2021
FortisAlberta	Brooks 121S DER Solar 2	Solar	12.5	Nov-2021
FortisAlberta	Buffalo Atlee Cluster 1 WAGF	Wind	18	Dec-2021
FortisAlberta	Buffalo Atlee Cluster 3 WAGF	Wind	17	Dec-2021
Sunset Solar Inc.	Sunset Solar	Solar	60	Dec-2021
EPC	Bonnybrook DER Cogen	Gas	10.1	Jan-2022
EPCOR	WSI DG Solar	Solar	12	Mar-2022
Turning Point Gen	Canyon Creek PHES Storage	Storage	75	Apr-2022
Heartland	Rainbow Lake Gas	Gas	45	Apr-2022
ATCO	Ethel Lake 717S DER Wasteheat	Other	19	Apr-2022
EDP Renewables	Sharp Hills Wind Farm	Wind	300	Apr-2022

FortisAlberta	Chappice Lake 649S DER Solar	Solar	15	Apr-2022
ATCO Power	Poplar Hill Gas	Gas	32	Jul-2022
ATCO	Valleyview Gas	Gas	32	Jul-2022
CNRL	Primrose East 641S Gas	Gas	32	Aug-2022
Naturener	Wild Rose 1 Wind Farm	Wind	192	Aug-2022
Naturener	Wild Rose 2 Wind Farm	Wind	218	Aug-2022
Joss Wind	Jenner WAGF	Wind	122	Aug-2022
Suncor	Forty Mile Maleb WAGF	Wind	200	Sep-2022
TransAlta	Sundance Unit 5 Gas	Gas	795	Sep-2022
Greengate Power	Wheatland WAGF	Wind	120	Sep-2022
BowArk Energy	Lanfine North Wind WAGF	Wind	145	Sep-2022
EDF	Cypress Wind	Wind	201.6	Nov-2022
BER Hand Hills Wind LP	MPC Wind	Wind	200	Nov-2022
RESC	McLaughlin WAGF	Wind	47	Nov-2022
Pteragen	Peace Butte Wind Farm	Wind	120	Dec-2022
Sequoia Energy	Schuler WAGF (MPC)	Wind	100	Dec-2022
Greengate	Travers Solar Phase 2	Solar	65	Dec-2022
Invenery	Schuler Wind	Wind	150	Feb-2023
Greengate Power	Paintearth Wind Farm	Wind	150	Apr-2023
Enbridge	WhiteTail Peaking Station	Gas	200	May-2023
Suncor	Base Plant Cogen	Gas	815	Oct-2023
Maxim Power	Deerland Peaking Station	Gas	186	Dec-2023
Barlow Solar Park	Barlow Solar Park	Solar	27	TBD
Oyen Solar Partners	Oyen Community Solar Project	Solar	15	TBD

Solar Krafte	Wrentham Solar Project	Solar	42	TBD
PetroChina	MacKay-Phase 1	Gas	85	TBD
Syncrude	Mildred Lake (Base Plant)-Phase 1	Gas	85	TBD
Suncor	Hand Hills Wind Energy Project	Wind	80	TBD
TransCanada	Saddlebrook	Gas	350	TBD
Imperial Oil	Kearl - Phase 2	Gas	100	TBD
Imperial Oil	Kearl - Phase 3	Gas	35	TBD
Pattern Development	Lanfine South Wind	Wind	140	TBD
Total (MW)			**7,406**	

Table 3: Generation Projects that have been Announced, Applied for AESO Connection, and/or Applied for Regulatory Approval

Sponsor(s)	Project Name	Fuel	Unit Capacity	ISD
ENMAX	Taber Wind Farm	Wind	21	Feb-2021 (A)
TransAlta	Tempest MPC Wind	Wind	115	Feb-2021 (A)
Altagas	Glenridge Wind	Wind	150	Apr-2021 (A)
Milner Power	Milner 1 Gas	Gas	26	May-2021 (A)
FortisAlberta	Tilley 498S DG Gas	Gas	22	Jul-2021 (A)
ATCO	Elmworth 731S DER Gas	Gas	9	Jul-2021 (A)
FortisAlberta	High River 65S DER Gas	Gas	13	Aug-2021 (A)
Capital Power	Whitla Wind Phase 3	Wind	54	Aug-2021 (A)
FortisAlberta	Conrad DER Solar	Solar	23	Aug-2021 (A)
FortisAlberta	Conrad DER Solar 2	Solar	22	Aug-2021 (A)
FortisAlberta	Strathmore 151S DER Solar 1	Solar	18	Aug-2021 (A)

FortisAlberta	Strathmore 151S DER Solar 2	Solar	22.5	Aug-2021 (A)
RESC	Enterprise MPC Solar	Solar	100	Aug-2021 (A)
Archer	Piikani Solar	Solar	40	Sep-2021 (A)
FortisAlberta	Bassano 435S DER Solar	Solar	11	Sep-2021 (A)
ATCO	Fieldgate 824S DER Gas	Gas	16	Sep-2021 (A)
ENGIE	Duchess Solar	Solar	90	Sep-2021 (A)
Kineticor	Peace River Power Upgrade	Gas	125	Sep-2021 (A)
Soventix	Forestburg Area Solar	Solar	40	Oct-2021 (A)
E.ON	Grizzly Bear Wind Phase 2	Wind	30	Oct-2021 (A)
Pembina	Empress Cogen	Gas	46	Oct-2021 (A)
ATCO	Bridge Creek 798S DER Gas	Gas	13	Oct-2021 (A)
Milner Power	Milner 1 & 2 Gas	Gas	124	Oct-2021 (A)
ATCO	Youngstown 772S DER Solar	Solar	6	Oct-2021 (A)
FortisAlberta	Gleichen DG Solar	Solar	17	Oct-2021 (A)
ATCO	Vilna 777S DER Solar	Solar	5	Oct-2021 (A)
ATCO	Bridge Creek 798S DER Gas	Gas	10	Nov-2021 (A)
Solar Krafte	Rainier	Solar	450	Nov-2021 (A)
FortisAlberta	High River 65S DER Gas	Gas	16.5	Nov-2021 (A)
FortisAlberta	Cutting Lake 227S DER Gas	Gas	12	Nov-2021 (A)
Chiniki	Chiniki Solar	Solar	40	Nov-2021 (A)
NextEra	Red Deer Battery Energy Storage	Storage	40	Dec-2021 (A)
NextEra	Ghost Pine Battery ES System	Storage	30	Dec-2021 (A)
Enerfin	Winnifred MPC Wind	Wind	90	Dec-2021 (A)
FortisAlberta	Buffalo Atlee Cluster 2	Wind	14	Dec-2021 (A)

ATCO	Mercer Hill 728S DER Battery	Storage	20	Dec-2021 (A)
Sequoia Energy	Oyen MPC Wind	Wind	100	Dec-2021 (A)
ENMAX	FMC DER Cogen	Gas	7	Dec-2021 (A)
ENGIE	Buffalo Trail MPC Wind	Wind	400	Dec-2021 (A)
Solar Krafte	Vauxhall	Solar	150	Dec-2021 (A)
FortisAlberta	Acheson 305S DER Solar	Solar	10	Dec-2021 (A)
FortisAlberta	Joffre 535S DER Solar	Solar	25	Dec-2021 (A)
FortisAlberta	Joffre 535S DER Solar	Solar	22	Dec-2021 (A)
ATCO	Anderson 801S DER Solar	Solar	13	Dec-2021 (A)
MECL	Kirkcaldy MPC Solar	Solar	350	Jan-2022 (A)
BluEarth Renewables	Wheatcrest MPC Solar	Solar	60	Mar-2022 (A)
Capital Power	Genesee 3 Change	Coal	6	Apr-2022 (A)
Spirit Pine	Lone Pine WAGF	Wind	173	Apr-2022 (A)
Quill	Rocky Mountain Gas	Gas	295	May-2022 (A)
FortisAlberta	Castle Meridian DER Wind	Wind	22	May-2022 (A)
ATCO	Updike 886S DER Gas	Gas	33	May-2022 (A)
ATCO	Ksituan River 754S DER Gas	Gas	66	May-2022 (A)
ATCO	Coronation 773S Solar DG	Solar	10	May-2022 (A)
RealPart	Calgary Area Solar	Solar	150	Jun-2022 (A)
RESC	Forty Mile MPC Wind	Wind	400	Jun-2022 (A)
Solar Krafte	Brooks	Solar	400	Jun-2022 (A)
FortisAlberta	Red Deer 63S DER Solar	Solar	20	Jun-2022 (A)
Suncor	Meadow Creek Cogen	Gas	126	Jul-2022 (A)
NaturEner	Buffalo Trail WAGF	Wind	100	Jul-2022 (A)

NaturEner	Ross Creek WAGF	Wind	100	Jul-2022 (A)
Fortis	High River 65S DER Gas	Gas	5	Aug-2022 (A)
Fortis	High River 65S DER Gas 2	Gas	5	Aug-2022 (A)
Joss Wind	Jenner WAGF - Phase 2	Wind	180	Aug-2022 (A)
Joss Wind	Jenner Wind Phase 3	Wind	106	Aug-2022 (A)
RESC	Hilda MPC Wind	Wind	100	Aug-2022 (A)
ENGIE	Buffalo Trail North MPC Wind	Wind	200	Sep-2022 (A)
TCE	Saddlebrook Solar Storage	Solar	118	Sep-2022 (A)
EDP Renewables	Blue Bridge Solar	Solar	150	Oct-2022 (A)
Buffalo	Buffalo Plains MPC Wind	Wind	500	Oct-2022 (A)
EDF	Bull Trail Wind	Wind	300	Oct-2022 (A)
ATCO	Monitor 2 774S DER Solar	Solar	30	Nov-2022 (A)
ATCO	Monitor 1 774S DER Solar	Solar	10	Nov-2022 (A)
FortisAlberta	East Crossfield 64S DER Wasteheat	Other	10	Nov-2022 (A)
FortisAlberta	Taber 83S DER Solar 1	Solar	19	Nov-2022 (A)
FortisAlberta	Taber 83S DER Solar 2	Solar	16	Nov-2022 (A)
FortisAlberta	Taber 83S DER Solar 3	Solar	16	Nov-2022 (A)
FortisAlberta	Taber 83S DER Solar 4	Solar	14	Nov-2022 (A)
HEP Capital	Alderson Solar	Solar	100	Dec-2022 (A)
FortisAlberta	Metiskow 648S DER Solar	Solar	22.5	Dec-2022 (A)
FortisAlberta	Killarney Lake 267S DER Solar/Battery	Solar	22.5	Dec-2022 (A)
Sollair	MPC Solar	Solar	90	Dec-2022 (A)
Enterprise	Prosperity WAGF	Wind	175	Dec-2022 (A)
Greengate	Lathom Solar	Solar	120	Dec-2022 (A)

Northland	Bow City MPC Solar	Solar	400	Dec-2022 (A)
RESC	Aurora MPC Solar	Solar	150	Dec-2022 (A)
Capital Power	Genesee Unit 1 Repower Gas 1	Gas	430	Mar-2023 (A)
Nutrien	Redwater Cogen	Gas	30	Mar-2023 (A)
Mistaya	Lone Pine Cogen	Gas	44	Mar-2023 (A)
Mistaya	Wildcat Hills Cogen	Gas	44	Mar-2023 (A)
Mistaya	Bonavista Cogen	Gas	44	Mar-2023 (A)
Pengrowth	Cold Lake Area Energy Centre	Gas	100	Apr-2023 (A)
FortisAlberta	Burdett 368S DER Solar Battery Storage	Solar	17.5	Apr-2023 (A)
Dunmore Solar Inc.	Dunmore Solar	Solar	216	Apr-2023 (A)
Pembina	Duvernay Cogen	Gas	46	Jun-2023 (A)
EDF	North Slope Solar	Solar	200	Aug-2023 (A)
Georgetown	MPC Solar	Solar	230	Aug-2023 (A)
Nose Hill	MPC Wind	Wind	120	Oct-2023 (A)
Capital Power	Genesee 1 Repower Gas 2	Gas	-100	Oct-2023 (A)
Joss Wind	Northern Lights	Wind	400	Nov-2023 (A)
Suncor	Forty Mile Granlea Wind Phase 2	Wind	250	Nov-2023 (A)
E.ON	Four Rivers Wind	Gas	450	Dec-2023 (A)
RESC	Oyen MPC Wind	Wind	250	Dec-2023 (A)
Northland	Buffalo Trail	Wind	100	Dec-2023 (A)
PBC	Paul Band Solar	Solar	45	Jan-2024 (A)
AHP Development	Amisk Hydroelectric Project	Hydro	330	TBD (C)
Total (MW)			**11,025**	

** - (P):Power Plant application filed with AUC, (A): AESO application in process, (C): Corporate announcement*

Table 4: Generation Projects that have Announced to be Retired/Derated

Sponsor(s)	Project Name	Fuel	Unit Capacity	Date	Status
TransAlta	Sundance 3	Coal	368	August 1, 2020	Retired
TransAlta	Sundance 4	Coal/Gas	113	Jan 1, 2022	Derated
TransAlta	Keephills 1	Coal/Gas	70	Jan 1, 2022	Derated

Federal Coal Compliance Schedule

In 2012, the federal government approved the *Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations*. The regulation requires that coal-fired generation units meet a GHG emissions intensity target once it reaches end of life. The AESO has adopted the federal compliance dates as retirement dates to evaluate metrics included in this report. The decision to retire a coal unit could also be impacted by several potential drivers, including the economics of plant operations, contractual agreements, and provincial and federal legislation. Announcements from the government will continue to be assessed as they are released.

Table 5: Federal Coal Compliance Schedule

Sponsor(s)	Project Name	Fuel	Unit Capacity	In Service Date	Federal Compliance Date[1]
Heartland	Battle River 4	Coal	155	1975	Dec-2025
Total (MW)			**155**		

[1] Federal Compliance Dates are based upon the applicable provisions of the Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations, as set forth in the Canada Gazette Vol. 146, No.19.

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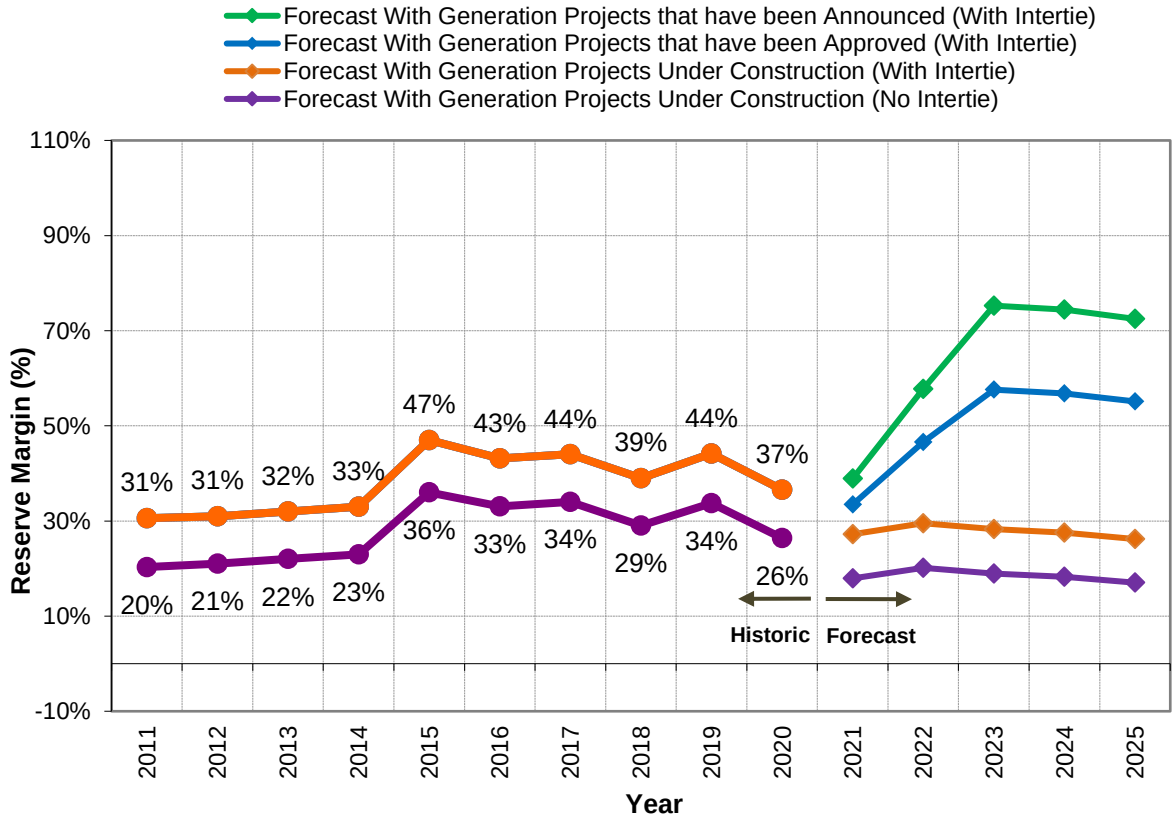
Reserve Margin Metric

The Reserve Margin Metric, shown in Figure 1, presents a comparison of generation supply and demand in Alberta. It is a calculation of the firm generation capacity at the time of system peak that is in excess of the system annual peak demand, expressed as a percentage of the system peak. Information on the annual peak demand within the reserve margin can be found on the AESO's Forecasting web page. Firm generation is defined as installed and future generation capacity, adjusting for seasonal hydro capacity and behind-the-fence demand and generation, and excludes wind and solar capacity. Three forecast reserve margins are presented, each with different future supply additions. The supply additions correspond to the stage of the generation projects in the New Generation Projects and Retirements Metric. The metric is graphed with and without intertie capacity in one reserve margin since full import capability may not always be available at the time of system peak demand.

Figure 1: Alberta Interconnected Electric System (AIES) Reserve Margin, 2011 – 2025



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Supply Cushion Metric

The Supply Cushion Metric provides visibility of the Alberta Interconnected Electric System's ability to meet peak demand on a daily basis. The supply cushion is the difference between the daily available firm supply minus daily peak demand. Only existing generation and generation under construction are used within the metric. The supply cushion refines the reserve margin calculation by using daily system peak rather than annual and incorporates planned outages. Figure 2 presents the estimated daily supply cushion for the next two years. Figure 3 presents daily peak demand and firm supply by fuel type, as well as interties, wind and solar which are not included in the supply cushion calculation due to the intermittent or uncertain nature of the supply. When the supply cushion is negative in Figure 2, there is an increased level of reliance on interties and wind, as indicated in Figure 3.

Figure 2: Alberta Interconnected Electric System (AIES) Daily Supply Cushion, February 1, 2021 to Jan 31, 2023

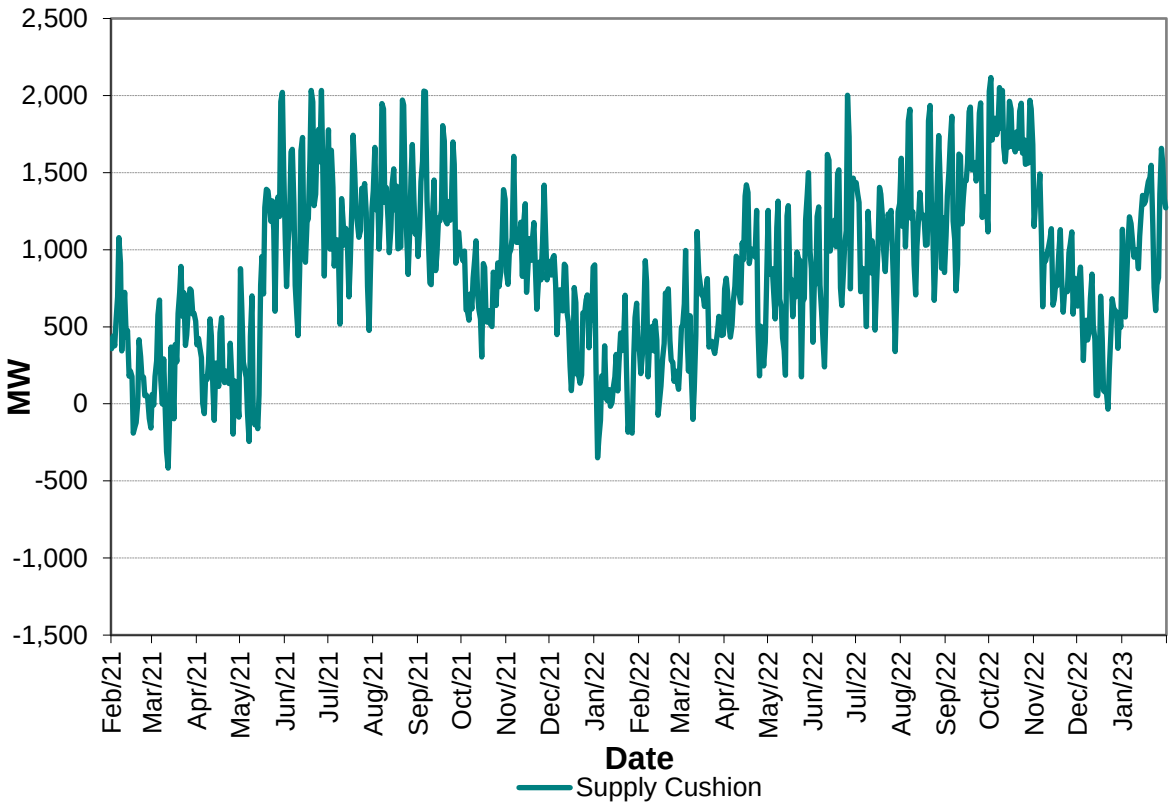
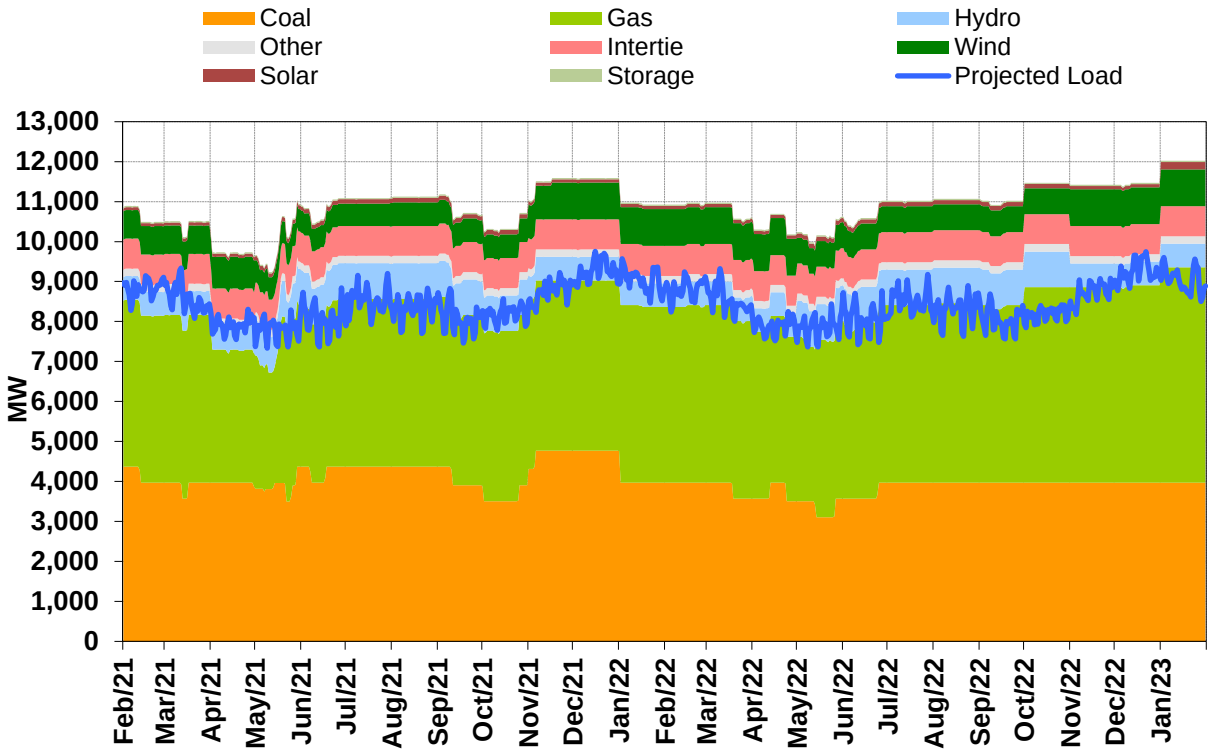


Figure 3: Alberta Interconnected Electric System (AIES) Daily Peak Demand and Available Supply, February 1, 2021 to January 31, 2023



Outage information as of Jan 24th, 2021

Two Year Probability of Supply Adequacy Shortfall Metric

The Two Year Probability of Supply Adequacy Shortfall Metric is a probabilistic assessment of encountering a supply shortfall over the next two years. It builds on the Supply Cushion Metric by incorporating the probability of wind production, forced generation outages and generation derates into the calculation of hourly firm supply. The calculation estimates, on a probabilistic basis, how much load may go without supply over the next two year period. Based on extensive consultation with stakeholders, when this unserved energy exceeds 2,079 MWh (consistent with ISO rule 202.6, Section 5(1)), the AESO may take certain actions to bridge the temporary supply adequacy gap while maintaining investor confidence in the market. The total energy not served shown in Table 6 does not reach the threshold.

Table 6: Two Year Probability of Supply Adequacy Shortfall, February 1, 2020 to January 31, 2023

Worst Shortfall Hour (MW)	# of Hours in Shortfall	Total Energy Not Served (MWh)
12	0	29

Note: Values are rounded and represent average outputs