

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 at the time of system peak, a two year daily supply cushion, and a two year probabilistic assessment of the Alberta Internal Load (AIL). 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.

*With the recent release of the 2021 Long Term Outlook, the metrics have been revised to include the AESO's updated load forecast found at <https://www.aeso.ca/grid/forecasting>. Along with this, the AESO has updated the load forecast utilized for the supply cushion and probability of supply adequacy shortfall metrics to represent Alberta Internal Load (AIL) rather than system load with the main difference between forecasts being that AIL includes and accounts for behind the fence load. This increases alignment with the current 2021 LTO forecast as well as the AESO's internal Resource Adequacy Model (RAM). This allows the LTA to more accurately treat and account for risks to the full Alberta Internal Load, including more sophisticated modelling of the impacts of behind the fence generation and load.

Summary of Changes since Previous Report

New Generation and Retirements Metric

Projects completed and removed from list:

- Capital Power Whitla Wind Power Phase 2
- Fortis Alberta Buffalo Creek 526S DER Storage
- Capital Power Whitla Wind Phase 3
- EPC Bonnybrook DER Cogen

Generation Projects moved to "Active Construction":

- BowArk Energy Lanfine North Wind WAGF
- TransAlta Garden Plain Wind
- Fortis Alberta Bassano 435S DER Solar
- Joss Wind Jenner Wind Phase 3
- Fortis Alberta Empress 394S DER Solar 1
- Fortis Alberta Empress 394S DER Solar 2
- CNRL Primrose East 641S Gas

Generation projects moved to "Regulatory Approval":

- Greengate Lathom Solar
- RESC Hilda MPC Wind
- Fortis Alberta Metiskow 648S DER Solar
- Fortis Alberta East Crossfield 64S DER Wasteheat
- RESC Enterprise MPC Solar
- Dunmore Solar Inc. Dunmore Solar
- BluEarth Renewables Wheatcrest MPC Solar

- Fortis High River 65S DER Gas
- Fortis High River 65S DER Gas 2
- Fortis Buffalo Atlee Cluster 4 DER Wind
- EDF Cypress 2 Wind
- ATCO Oyen 767S DER Solar
- Enmax Barlow Park DER Solar
- Ksituan River 754S DER Gas

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

- ATCO Poplar Hill 790S DER Gas
- Kiwetinohk Flipi MPC Gas
- Kiwetinohk Opal MPC Gas
- Fortis Moon Lake DER Solar
- Capital Power Whitla MPC Solar
- ENMAX Barlow Park DER Solar
- ABO Fox Meadows MPC Wind
- Aira MPC Solar
- Fortis Stony Plain 434S DER Solar
- BluEarth Bindloss MPC Solar Battery
- BluEarth Bindloss MPC Solar Battery
- Ascent Sunnynook Solar Battery
- Ascent Sunnynook Solar Battery
- Enerfin Winnifred Wind Modification
- PR Prominence MPC Solar
- Pteragen Peace Butte MPC Wind
- Fortis West Brooks 28S DER Solar
- Fortis Buford 538S DER Solar
- EPC SS-24 DER Solar
- Pincher Creek CO2 MPC Cogen
- TransAlta Riplinger MPC Wind
- TransAlta Willow Creek 1 MPC Wind
- TransAlta Willow Creek 2 MPC Wind
- ATCO Thornton 2091S DER Gas
- TransAlta Tempest MPC Wind
- Phoenix MPC Solar

Generation projects that have been added to on hold status:

- Fortis Alberta Burdett 368S DER Solar Battery
- Fortis Alberta High River 65S DER Gas
- TransAlta Sundance Unit 5 Gas
- ATCO Bridge Creek 798S DER Gas
- ATCO Vilna 777S DER Solar
- ATCO Updike 886S DER Gas

- ATCO Ksituan River 754S DER Gas

Generation projects that have been removed:

- Maxim Power Deerland Peaking Station
- FortisAlberta Jenner 275S DER
- FortisAlberta High River 65S DER Gas
- TransAlta Tempest MPC Wind
- Transalta Kaybob 3 Cogen

Other changes to generation projects:

Project	Change
Fengate – Strathcona Cogeneration	New ISD of Oct-2021 from Sep-2021
Greengate Power – Stirling WAGF	New ISD of Jun-2023 from Nov-2022
Suncor – Forty Mile Granlea WAGF	New ISD of May-2022 from Nov-2021
HEP Capital – Alderson Solar	New ISD of Nov-2023 from Jan-2999
FortisAlberta – 255S Vulcan Faribault Farms P/V	New ISD of Feb-2022 from Sep-2021
FortisAlberta – 498S Tilley DG PV	New ISD of Jan-2022 from Aug-2021
FortisAlberta – Coaldale 254S DER Solar 3	New ISD of Feb-2022 from Sep-2021
FortisAlberta – Monarch 492S DER Solar	New ISD of Feb-2022 from Sep-2021
FortisAlberta – Spring Coulee 385S Solar DG	New ISD of Aug-2022 from Oct-2021
FortisAlberta – Gleichen DG Solar	New ISD of Jul-2022 from Oct-2021
FortisAlberta – Strathmore 151S DER Solar 1	New ISD of Nov-2021 from Mar-2022
FortisAlberta – Strathmore 151S DER Solar 2	New ISD of Nov-2021 from Mar-2022
Cascade – Combined Cycle Phase 1	New ISD of Sep-2023 from Sep-2022
Cascade – Combined Cycle Phase 2	New ISD of Sep-2023 from Dec-2022
ATCO – Three Hills 770S DER Solar 1	New ISD of Mar-2022 from Oct-2021
ATCO – Michichi Creek 802S DER Solar	New ISD of Mar-2022 from Oct-2021
FortisAlberta – Bassano 435S DER Solar	New ISD of Feb-2023 from Mar-2023

RESC – Rattlesnake Ridge MPC Wind	New ISD of Nov-2021 from Jul-2021
ENGIE – Duchess Solar	New ISD of Jun-2023 from Jan-2999
ENGIE – Buffalo Trail North MPC Wind	New ISD of Mar-2023 from Jun-2022
Pembina – Empress Cogen	New ISD of Jun-2022 from Nov-2021
ATCO – Sarah Lake 743S DER Geothermal	New ISD of Mar-2022 from Jun-2022
ATCO – Michichi Creek 802S DER Solar	New ISD of Jun-2022 from Sep-2022
FortisAlberta – Empress 394S DER Solar 1	New ISD of Nov-2021 from Dec-2022
RESC – Enterprise MPC Solar	New ISD of Aug-2022 from Aug-2021
EDF – Bull Trail Wind	New ISD of Sep-2023 from Oct-2022
Milner Power – Milner 1 & 2 Gas	New ISD of Dec-2021 from Dec-2022
RESC – Oyen MPC Wind	New ISD of Jun-2024 from Dec-2023
Fortis – Enchant 447S DER Solar	New ISD of Nov-2021 from Oct-2021
Fortis – Enchant 447S DER Solar 2	New ISD of Nov-2021 from Oct-2021
Fortis – Enchant 447S DER Solar 3	New ISD of Nov-2021 from Oct-2021
Fortis – Enchant 447S DER Solar 4	New ISD of Nov-2021 from Oct-2021
Federation – Federation Marguerite Lake CAE Storage	New ISD of Sep-2025 from Aug-2024
Kiwetinohk Primo – Kiwetinohk Homestead MPC Solar	New ISD of Sep-2023 from May-2021
Greengate – Greengate Luna MPC Solar Battery	New ISD of Dec-2023 from Sep-2023
Greengate – Greengate Luna MPC Solar Battery	New ISD of Dec-2023 from Sep-2023
Claresholm – Claresholm Solar	New ISD of Nov-2022 from Sep-2022
Georgetown – Georgetown MPC Battery	New ISD of Nov-2023 from Oct-2023

Reserve Margin Metric

The reserve margin has been updated to reflect changes to the project list and the updated 2021 LTO system load forecast.

Supply Cushion Metric

The forecast supply cushion has been updated to reflect the new time period and updated using the 2021 LTO Alberta Internal Load forecast.

Two Year Probability of Supply Adequacy Shortfall Metric

New values for the metric have been calculated with Total Energy Not Served equaling 73 MWh. This value is below the 1,971 MWh threshold. The forecast PSAS has been updated to reflect the new time period and updated using the 2021 LTO Alberta Internal Load forecast.

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 5 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
Fengate	Strathcona Cogeneration	Gas	116	Oct-2021
RESC	Rattlesnake Ridge MPC Wind	Wind	118	Nov-2021
FortisAlberta	Empress 394S DER Solar 1	Solar	22.5	Nov-2021
FortisAlberta	Empress 394S DER Solar 2	Solar	16	Nov-2021
FortisAlberta	Strathmore 151S DER Solar 1	Solar	18	Nov-2021
FortisAlberta	Strathmore 151S DER Solar 2	Solar	22.5	Nov-2021
FortisAlberta	Buffalo Atlee Cluster 1 WAGF	Wind	18	Dec-2021
FortisAlberta	Buffalo Atlee Cluster 3 WAGF	Wind	17	Dec-2021
FortisAlberta	Buffalo Atlee Cluster 2	Wind	14	Dec-2021
Milner Power	Milner 1 & 2 Gas	Gas	92	Dec-2021
FortisAlberta	Conrad DER Solar	Solar	23	Dec-2021
FortisAlberta	Conrad DER Solar 2	Solar	22	Dec-2021
FortisAlberta	Stavely 349S DER Solar	Solar	8.5	Feb-2022
FortisAlberta	Namaka DER Solar	Solar	20	Feb-2022
FortisAlberta	255S Vulcan Faribault Farms P/V	Solar	22	Feb-2022

FortisAlberta	Coaldale 254S DER Solar 3	Solar	22	Feb-2022
FortisAlberta	Monarch 492S DER Solar	Solar	24	Feb-2022
Medicine Hat	CMH Unit 17 Gas	Gas	44	Mar-2022
EPCOR	WSI DG Solar	Solar	12	Mar-2022
Capital Power	Genesee 3 Change	Coal	6	Apr-2022
Suncor	Forty Mile Granlea WAGF	Wind	200	May-2022
Joss Wind	Jenner WAGF	Wind	122	Jun-2022
Joss Wind	Jenner WAGF - Phase 2	Wind	180	Jun-2022
Greengate Power	Wheatland WAGF	Wind	120	Jun-2022
Joss Wind	Jenner Wind Phase 3	Wind	106	Jun-2022
TransAlta	Garden Plain Wind	Wind	131	Jul-2022
FortisAlberta	Spring Coulee 385S Solar DG	Solar	29	Aug-2022
CNRL	Primrose East 641S Gas	Gas	32	Aug-2022
ATCO	Ethel Lake 717S DER Wasteheat	Biomass	19	Aug-2022
BowArk Energy	Lanfine North Wind WAGF	Wind	145	Sep-2022
EDF	Cypress Wind	Wind	201.6	Nov-2022
Greengate	Travers Solar	Solar	400	Dec-2022
Greengate	Travers Solar Phase 2	Solar	65	Dec-2022
FortisAlberta	Bassano 435S DER Solar	Solar	10	Feb-2023
Greengate Power	Stirling WAGF	Wind	115	Jun-2023
Cascade	Combined Cycle Phase 1	Gas	450	Sep-2023
Cascade	Combined Cycle Phase 2	Gas	450	Sep-2023
Suncor	Base Plant Cogen	Gas	806	Dec-2024
Total (MW)			4,239	

*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
ATCO	Michichi DER Solar	Solar	75	Nov-2021
FortisAlberta	Brooks 121S DER Solar 1	Solar	14	Nov-2021
FortisAlberta	Brooks 121S DER Solar 2	Solar	12.5	Nov-2021
Fortis	Enchant 447S DER Solar	Solar	23	Nov-2021
Fortis	Enchant 447S DER Solar 2	Solar	18	Nov-2021
Fortis	Enchant 447S DER Solar 3	Solar	10	Nov-2021
Fortis	Enchant 447S DER Solar 4	Solar	24	Nov-2021
FortisAlberta	498S Tilley DG PV	Solar	22	Jan-2022
ATCO	Three Hills 770S DER Solar 1	Solar	25	Mar-2022
ATCO	Michichi Creek 802S DER Solar	Solar	25	Mar-2022
ATCO	Sarah Lake 743S DER Geothermal	Gas	23	Mar-2022
BluEarth Renewables	Wheatcrest MPC Solar	Solar	60	Mar-2022
Turning Point Gen	Canyon Creek PHES Storage	Storage	75	Apr-2022
FortisAlberta	Fieldgate 824S DER Gas	Solar	5	Apr-2022
ATCO	Oyen 767S DER Solar	Solar	15	Apr-2022
EDP Renewables	Sharp Hills Wind Farm	Wind	300	Apr-2022
FortisAlberta	Chappice Lake 649S DER Solar	Solar	15	Apr-2022
ENMAX	Barlow Park DER Solar	Solar	27	Apr-2022
FortisAlberta	Vulcan 255S DER Solar	Solar	15	May-2022
Fortis	Buffalo Atlee Cluster 4 DER Wind	Wind	10	May-2022
Pembina	Empress Cogen	Gas	46	Jun-2022

ATCO	Michichi Creek 802S DER Solar	Solar	13.5	Jun-2022
BowArk Energy	Drywood Gas Generator	Gas	38	Jun-2022
ATCO Power	Poplar Hill Gas	Gas	32	Jul-2022
ATCO	Valleyview Gas	Gas	32	Jul-2022
Naturener	Wild Rose 1 Wind Farm	Wind	192	Aug-2022
Naturener	Wild Rose 2 Wind Farm	Wind	218	Aug-2022
Fortis	High River 65S DER Gas	Gas	5	Aug-2022
Fortis	High River 65S DER Gas 2	Gas	5	Aug-2022
RESC	Hilda MPC Wind	Wind	100	Aug-2022
RESC	Enterprise MPC Solar	Solar	65	Aug-2022
Suncor	Forty Mile Maleb WAGF	Wind	200	Sep-2022
BER Hand Hills Wind LP	MPC Wind	Wind	200	Sep-2022
Enel	Grizzly Bear Wind	Wind	120	Oct-2022
FortisAlberta	East Crossfield 64S DER Wasteheat	Biomass	10	Nov-2022
EDF	Cypress 2 Wind	Wind	46.5	Nov-2022
RESC	McLaughlin WAGF	Wind	47	Nov-2022
FortisAlberta	Metiskow 648S DER Solar	Solar	22.5	Dec-2022
FortisAlberta	Killarney Lake 267S DER Solar/Battery Storage	Solar	22.5	Dec-2022
Greengate	Lathom Solar	Solar	120	Dec-2022
Invenery	Schuler Wind	Wind	150	Mar-2023
Greengate Power	Paintearth Wind Farm	Wind	150	Apr-2023
Dunmore Solar Inc.	Dunmore Solar	Solar	216	Apr-2023
Enbridge	WhiteTail Peaking Station	Gas	200	May-2023

Potentia Renewables	Stirling WAGF Phase 2	Wind	39	Jul-2023
Capital Power	Genesee 1 Repower GT	Gas	430	Oct-2023
Capital Power	Genesee 1 Repower ST	Gas	286	Dec-2023
Capital Power	Genesee 2 Repower GT	Gas	430	Jan-2024
Capital Power	Genesee 2 Repower ST	Gas	286	Dec-2024
Grand Prairie	Grand Prairie MPC Gas	Gas	360	TBD
Sunset Solar Inc.	Sunset Solar	Solar	60	TBD
FortisAlberta	High River 65S DER Gas	Gas	13	TBD
TransAlta	Sundance Unit 5 Gas	Gas	795	TBD
ATCO	Ksituan River 754S DER Gas	Gas	66	TBD
Old Elm Wind	Old Elm Wind	Wind	60	TBD
PetroChina	MacKay-Phase 1	Gas	85	TBD
Syncrude	Mildred Lake (Base Plant)-Phase 1	Gas	85	TBD
Sequoia Energy	Schuler WAGF (MPC)	Wind	100	TBD
Heartland	Rainbow Lake Gas	Gas	45	TBD
Suncor	Hand Hills Wind Energy Project	Wind	80	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)			6,540	

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
ATCO	Mercer Hill 728S DER Battery	Storage	20	Dec-2021
ATCO	Elmworth 731S DER Gas	Gas	9	Dec-2021
ENMAX	FMC DER Cogen	Gas	7	Dec-2021
FortisAlberta	Castle Meridian DER Wind	Wind	22	May-2022
ATCO	Fieldgate 824S DER Gas	Gas	16	Jun-2022
RESC	Forty Mile MPC Wind	Wind	400	Jun-2022
Solar Krafte	Brooks	Solar	400	Jun-2022
FortisAlberta	Gleichen DG Solar	Solar	17	Jul-2022
ATCO	Poplar Hill 790S DER Gas	Gas	16.5	Sep-2022
TCE	Saddlebrook Solar Storage	Solar	118	Sep-2022
Soventix	Forestburg Area Solar	Solar	40	Oct-2022
E.ON	Grizzly Bear Wind Phase 2	Wind	34	Oct-2022
ATCO	Youngstown 772S DER Solar	Solar	6	Oct-2022
FortisAlberta	Taber 83S DER Solar 1	Solar	19	Nov-2022
FortisAlberta	Taber 83S DER Solar 2	Solar	16	Nov-2022
FortisAlberta	Taber 83S DER Solar 3	Solar	16	Nov-2022
FortisAlberta	Taber 83S DER Solar 4	Solar	14	Nov-2022
MECL	Kirkcaldy MPC Solar	Solar	350	Nov-2022
Fortis	Fortis Blackmud DER Solar	Solar	24	Nov-2022
Fortis	Fortis Leduc DER Solar	Solar	67.3	Nov-2022
Fortis	Fortis Devon DER Solar	Solar	21	Nov-2022

Claresholm	Claresholm Solar	Solar	20	Nov-2022
FortisAlberta	Cutting Lake 227S DER Gas	Gas	12	Nov-2022
Pteragen	Peace Butte Wind Farm	Wind	120	Dec-2022
Sollair	MPC Solar	Solar	90	Dec-2022
Greencells	Estuary Solar	Solar	200	Dec-2022
ATCO	Thornton 2091S DER Gas	Gas	17.1	Dec-2022
ATCO	Anderson 801S DER Solar	Solar	13	Dec-2022
FortisAlberta	Joffre 535S DER Solar	Solar	25	Dec-2022
FortisAlberta	Joffre 535S DER Solar	Solar	22	Dec-2022
EPC	SS-24 DER Solar	Solar	37	Dec-2022
RESC	Aurora MPC Solar	Solar	150	Dec-2022
Solar Krafte	Vauxhall	Solar	150	Feb-2023
Enerfin	Winnifred MPC Wind	Wind	90	Feb-2023
ENGIE	Buffalo Trail North MPC Wind	Wind	200	Mar-2023
Nutrien	Redwater Cogen	Gas	30	Mar-2023
Buffalo	Buffalo Plains MPC Wind	Wind	500	Apr-2023
Kiwetinohk	Opal MPC Gas	Gas	101	May-2023
Pembina	Duvernay Cogen	Gas	46	Jun-2023
ENGIE	Duchess Solar	Solar	90	Jun-2023
EER	Foothills MPC Solar	Solar	150	Jun-2023
Capital Power	Capital Power Halkirk 2 MPC Wind	Wind	150	Jul-2023
Capital Power	Whitla MPC Solar	Solar	88	Jul-2023
Enerfin	Winnifred Wind Modification	Wind	38	Jul-2023
PR	Prominence MPC Solar	Solar	80	Jul-2023

EDF	North Slope Solar	Solar	200	Aug-2023
Georgetown	MPC Solar	Solar	230	Aug-2023
Vega	Vega Solar Battery	Solar	100	Aug-2023
Vega	Vega Solar Battery	Storage	100	Aug-2023
EDF	Bull Trail Wind	Wind	300	Sep-2023
Sol	Aurora Solar Battery	Solar	200	Sep-2023
Sol	Aurora Solar Battery	Storage	100	Sep-2023
Fortis	West Brooks 28S DER Solar	Solar	23	Sep-2023
Saamis	Saamis Solar Park	Solar	325	Sep-2023
EDTI	EDTI Edmonton 3 H2 Plant Cogen	Gas	100	Sep-2023
Kiwetinohk Primo	Kiwetinohk Homestead MPC Solar	Solar	400	Sep-2023
Fortis	Moon Lake DER Solar	Solar	18.4	Sep-2023
Fortis	Stony Plain 434S DER Solar	Solar	18.4	Sep-2023
Fortis	Buford 538S DER Solar	Solar	18.4	Sep-2023
Fortis	Fortis Tilley 498S DER Solar	Solar	23.6	Sep-2023
HEP Capital	Alderson Solar	Solar	100	Nov-2023
Georgetown	Georgetown MPC Battery	Storage	100	Nov-2023
Suncor	Forty Mile Granlea Wind Phase 2	Wind	250	Nov-2023
Pteragen	Peace Butte MPC Wind	Wind	120	Nov-2023
ABO	Fox Meadows MPC Wind	Wind	200	Dec-2023
TransAlta	Riplinger MPC Wind	Wind	300	Dec-2023
TransAlta	Willow Creek 1 MPC Wind	Wind	70	Dec-2023
TransAlta	Willow Creek 2 MPC Wind	Wind	70	Dec-2023
TransAlta	Tempest MPC Wind	Wind	100	Dec-2023

Greengate	Jurassic MPC Solar Battery	Solar	300	Dec-2023
Greengate	Jurassic MPC Solar Battery	Storage	300	Dec-2023
RESC America Development	RESC Big Sky MPC Solar	Solar	120	Dec-2023
Greengate	Greengate Midnight MPC Solar Battery	Solar	530	Dec-2023
Greengate	Greengate Midnight MPC Solar Battery	Storage	530	Dec-2023
Greengate	Greengate Luna MPC Solar Battery	Solar	530	Dec-2023
Greengate	Greengate Luna MPC Solar Battery	Storage	530	Dec-2023
Phoenix	MPC Solar	Solar	299	Jan-2024
Pengrowth	Cold Lake Area Energy Centre	Gas	100	Apr-2024
Aira	MPC Solar	Solar	450	Jun-2024
RESC	Oyen MPC Wind	Wind	250	Jun-2024
Ascent	Sunnynook Solar Battery	Solar	250	Aug-2024
Ascent	Sunnynook Solar Battery	Storage	100	Aug-2024
BluEarth	Bindloss MPC Solar Battery	Solar	100	Aug-2024
BluEarth	Bindloss MPC Solar Battery	Storage	20	Aug-2024
Northland	Buffalo Trail	Wind	100	Oct-2024
Pincher Creek	CO2 MPC Cogen	Gas	438	Aug-2025
Kiwetinohk	Flipi MPC Gas	Gas	444	Aug-2025
Federation	Federation Marguerite Lake CAE Storage	Storage	320	Sep-2025
Kiwetinohk Primo	Kiwetinohk Primo MPC Gas	Gas	577	Oct-2025
NextEra	Red Deer Battery Energy Storage	Storage	40	TBD
NextEra	Ghost Pine Battery ES System	Storage	30	TBD
Spirit Pine	Lone Pine WAGF	Wind	173	TBD

NaturEner	Buffalo Trail WAGF	Wind	100	TBD
NaturEner	Ross Creek WAGF	Wind	100	TBD
Enterprise	Prosperity WAGF	Wind	175	TBD
Joss Wind	Northern Lights	Wind	400	TBD
Archer	Piikani Solar	Solar	40	TBD
Altagas	Glenridge Wind	Wind	150	TBD
RealPart	Calgary Area Solar	Solar	150	TBD
Solar Krafte	Rainier	Solar	450	TBD
ATCO	Coronation 773S Solar DG	Solar	10	TBD
Chiniki	Chiniki Solar	Solar	40	TBD
E.ON	Four Rivers Wind	Wind	450	TBD
EDP Renewables	Blue Bridge Solar	Solar	150	TBD
Northland	Bow City MPC Solar	Solar	400	TBD
Quill	Rocky Mountain Gas	Gas	295	TBD
PBC	Paul Band Solar	Solar	45	TBD
ATCO	Monitor 2 774S DER Solar	Solar	30	TBD
FortisAlberta	Acheson 305S DER Solar	Solar	10	TBD
FortisAlberta	Red Deer 63S DER Solar	Solar	20	TBD
Suncor	Meadow Creek Cogen	Gas	126	TBD
ATCO	Monitor 1 774S DER Solar	Solar	10	TBD
ENGIE	Buffalo Trail MPC Wind	Wind	400	TBD
ATCO	Bridge Creek 798S DER Gas	Gas	10	TBD
FortisAlberta	Burdett 368S DER Solar Battery	Solar	17.5	TBD
Nose Hill	MPC Wind	Wind	120	TBD

ATCO	Bridge Creek 798S DER Gas	Gas	13	TBD
ATCO	Vilna 777S DER Solar	Solar	5	TBD
ATCO	Updike 886S DER Gas	Gas	33	TBD
AHP Development	Amisk Hydroelectric Project	Hydro	330	TBD
Total (MW)			18,129	

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

Sponsor(s)	Project Name	Fuel	Unit Capacity*	Date	Status
TransAlta	Keephills 1	Coal/Gas	395	Jan 1, 2022	Retired
TransAlta	Sundance 4	Coal/Gas	113	Jan 1, 2022	Derated
TransAlta	Sundance 4	Coal/Gas	113	Apr 1, 2022	Retired

**MC values are announced derate values*

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 greenhouse gas (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

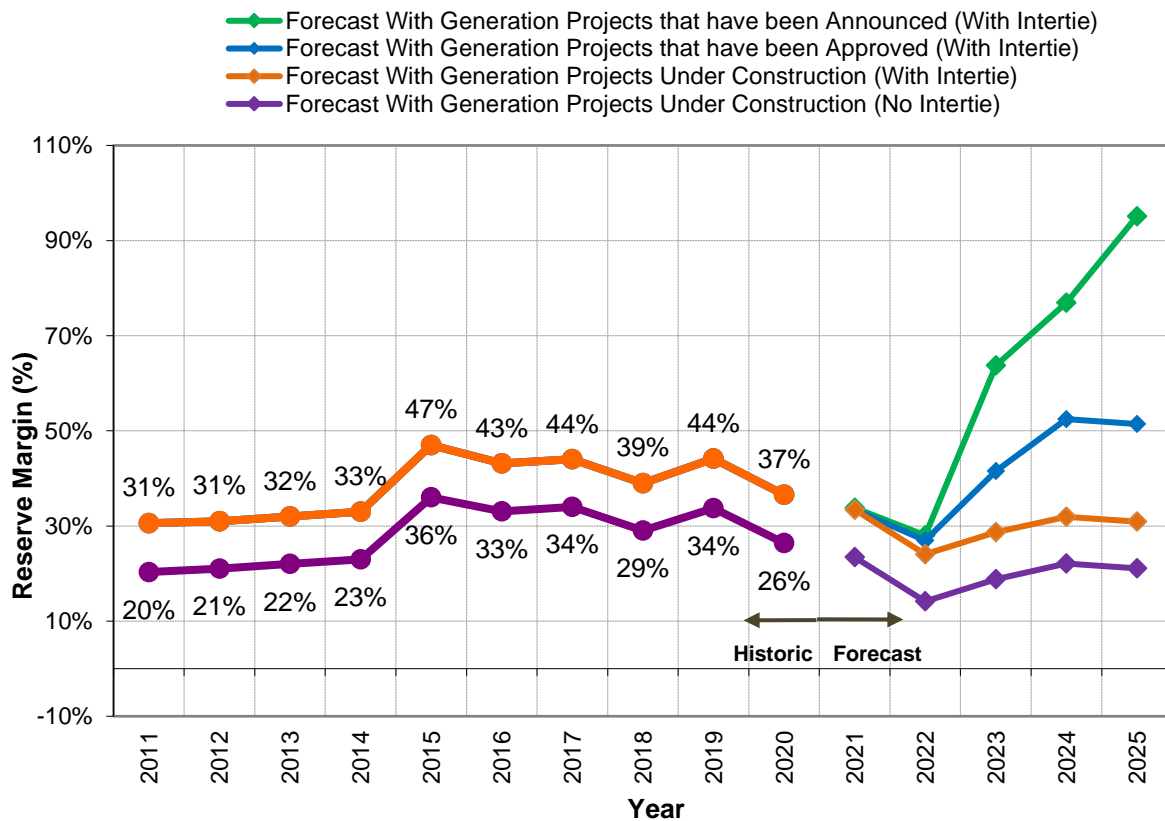
Sponsor(s)	Project Name	Fuel	Unit Capacity	In Service Date	Federal Compliance Date ¹
Heartland	Battle River 4	Coal	155	1975	Dec-2025
Total (MW)			155		

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.

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

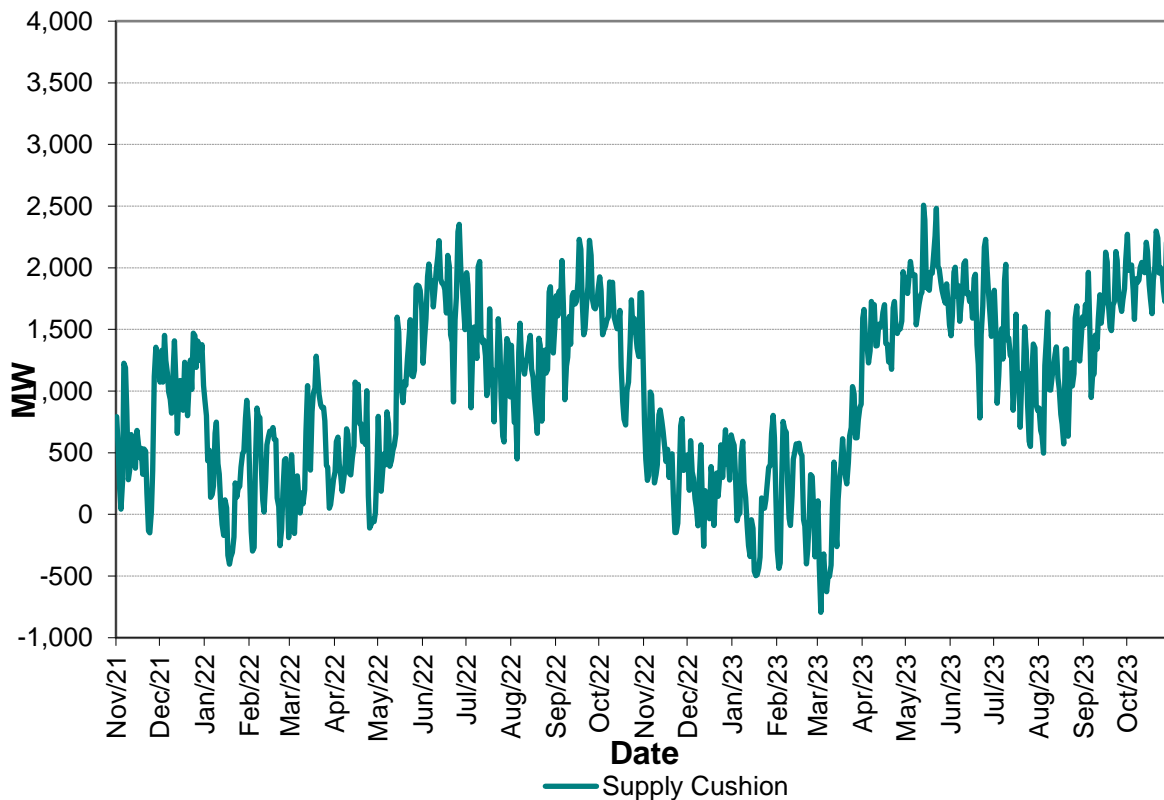


Supply Cushion Metric

The Supply Cushion Metric provides visibility of the Alberta Internal Load’s ability to meet peak demand daily. 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.

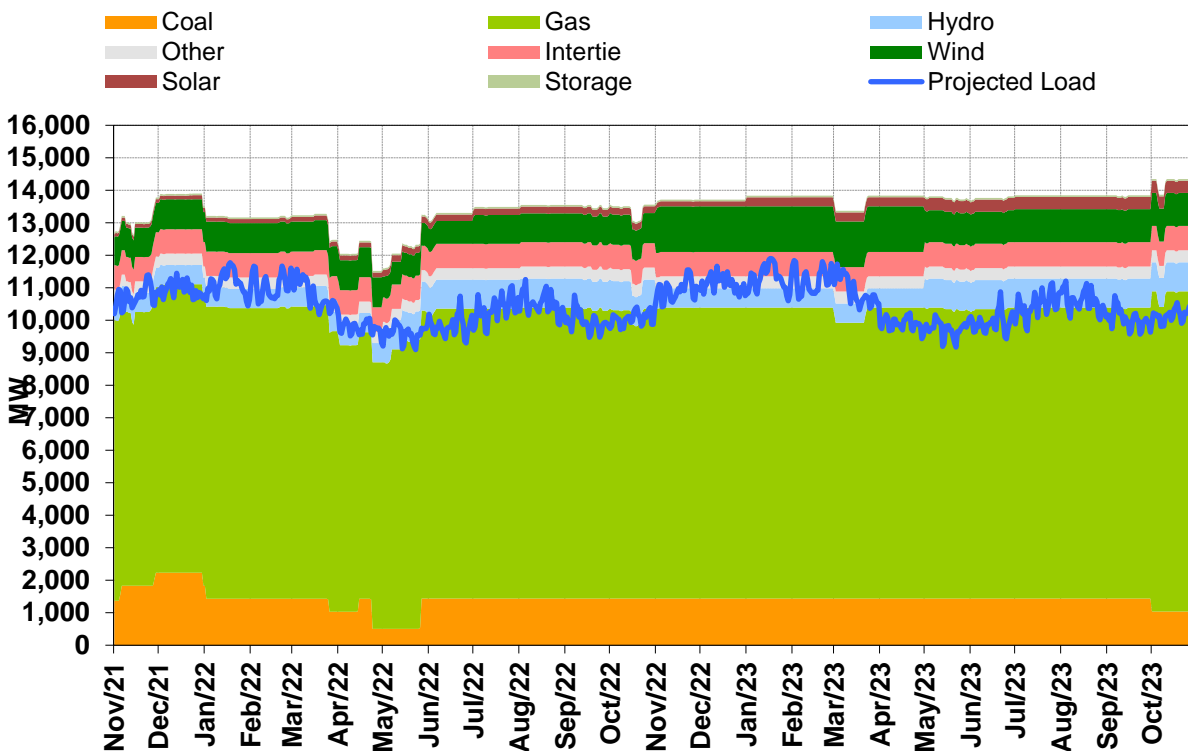
*Note a general increase in the supply cushion from the May 2021 LTA, which is due to the utilization of the 2021 LTO AIL forecast which has overall lower load values compared with the 2019 LTO. This metric uses Alberta Internal Load (AIL) rather than system load with the main difference between forecasts being that AIL includes and accounts for behind the fence load and as such the metric also now accounts for the generation anticipated to supply behind the fence load.

Figure 2: Alberta Internal Load (AIL) Daily Supply Cushion, November 1, 2021 to October 31, 2023



*Note a general increase in the supply cushion from the May 2021 LTA, which is due to the utilization of the 2021 LTO AIL forecast which has overall lower load values compared with the 2019 LTO. This metric uses Alberta Internal Load (AIL) rather than system load with the main difference between forecasts being that AIL includes and accounts for behind the fence load and as such the metric also now accounts for the generation anticipated to supply behind the fence load. Gas supply has increased, and coal supply decreased due to the reclassification of units from coal to gas fired steam and dual fuel.

Figure 3: Alberta Internal Load (AIL) Daily Peak Demand and Available Supply, November 1, 2021 to October 31, 2023



Outage information as of Oct 15th, 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 1,971 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.

*Note the Aug 2021 LTA utilization of the 2021 LTO AIL forecast which has overall lower load values compared with the 2019 LTO. This metric uses Alberta Internal Load (AIL) rather than system load with the main difference between forecasts being that AIL includes and accounts for behind the fence load and as such the metric also now accounts for the generation anticipated to supply behind the fence load. Gas supply has increased, and coal supply decreased due to the reclassification of units from coal to gas fired steam and dual fuel.

Table 6: Two Year Probability of Supply Adequacy Shortfall, Nov 1, 2021 to Oct 31, 2023

Worst Shortfall Hour (MW)	# of Hours in Shortfall	Total Energy Not Served (MWh)
32	1	73

Note: Values are rounded and represent average outputs