

Potential impact of siting restrictions on renewable energy projects

Proposed projects located on Class 1 and 2 agricultural land and within 35 km of national parks in Alberta

by Jason Wang, Karambir Singh, Grace Brown | March 11, 2024

Summary

Rules proposed for the electricity sector potentially impact 9 projects already awaiting regulatory approval, valued at \$1.7 billion, and 33 proposed projects, valued at \$9.5 billion, our analysis based on Alberta's most recent direction to the Alberta Utilities Commission (AUC) and statements made to media indicates.

Context

The Government of Alberta announced new restrictions on the renewable energy sector on February 28, 2024.¹ The Pembina Institute examined proposed projects that could be prohibited under the interpretation of two new rules:

- **Rules around agricultural lands:** Prohibiting renewable energy development on Class 1 and 2 agricultural land unless crops and/or livestock can coexist with the renewable generation project.
- **Rules around viewscapes:** The establishment of buffer zones with a radius of a minimum of 35 km around “protected areas and other ‘pristine viewscapes’” where new wind projects will no longer be permitted.² Based on statements made to media since that announcement, we have used a 35 km buffer on mountain national parks for this analysis.

¹ Government of Alberta, “Renewed path forward for renewable energy,” media release February 28, 2024. <https://www.alberta.ca/release.cfm?xID=898196983D0FA-AECA-5F92-FF655CE1369C4E28>

² “Renewed path forward for renewable energy.”

Methodology

There are two distinct stages of projects that are affected by the government’s new policy announcement: projects that have already submitted applications for full approval by the Alberta Utilities Commission (AUC), and projects that are earlier in their development process (proposed projects), which are listed by the Alberta Electric System Operator (AESO).

This analysis follows the methodology described in Pembina Institute’s August 2023 assessment of projects impacted by the moratorium announcement.³ AESO projects that are active, in a cluster study, on hold, or have their in-service date under review are all considered projects that are in the development process.

Our assessment for agricultural lands is based on the Canada Land Inventory (CLI) at the 1:250,000 scale. This is similar to the Alberta AGRASID dataset reports multiple Land Suitability Rating System (LSRS) ratings per data area. As noted by the Governments of Alberta and Canada, the LSRS system builds upon the CLI.^{4,5}

Our assessment for viewsapes is based on a 35 km buffer around national parks. This may underestimate impacts as the government has yet to clarify what they mean by “protected areas or other pristine viewsapes.” See Figure 1 for locations of projects and restricted sites.

Results

Out of a total of 111 solar and 34 wind projects proposed in Alberta, **36 solar projects** (28 proposed and 8 already awaiting AUC approval) and **6 wind projects** (5 proposed and 1 already awaiting AUC approval) **could be affected by the agricultural land classification restriction** (Table 1 and Figure 2). The wind project awaiting AUC approval could also be affected by a proposed 35 km viewsapes buffer.

These projects would collectively add 6.3 GW of renewable energy generation to Alberta’s grid (this could almost double current renewable capacity in Alberta) and represent \$11.1 billion of

³ Jason Wang and Will Noel, *Investment Impact of Alberta’s Renewable Energy Moratorium* (Pembina Institute, 2023). <https://www.pembina.org/pub/investment-impact-albertas-renewable-energy-moratorium>

⁴ Alberta Agriculture and Forestry, *Land Suitability Rating System* (Government of Alberta, 2017). <https://open.alberta.ca/publications/land-suitability-rating-system>

⁵ Agronomic Interpretations Working Group, *Land Suitability Rating System for Agricultural Crops: 1. Spring-seeded small grains* (Agriculture and Agri-Food Canada, 1995), 1-2. <https://sis.agr.gc.ca/cansis/publications/manuals/1995-lsrs/lrs.pdf>

investment and 9,360 job-years to construct and operate.⁶ If constructed, these solar projects would impact approximately 7,624 ha, or 0.11%, of Class 1 and 2 land in Alberta.⁷

⁶ There is currently 1,650 MW of solar generation capacity in Alberta using 2,483 ha of land, implying an average land intensity of 1.5 ha/MW. For more information, see footnote 56 at Jason Wang et al., *Alberta Utilities Commission Renewable Electricity Generation Inquiry - Module A: Pembina Institute's written submission* (Pembina Institute, 2023). <https://www.pembina.org/pub/alberta-utilities-commission-renewable-electricity-generation-inquiry-module>

⁷ There were 6,899,422 ha of class 1 and 2 lands in Alberta in 2022. Government of Alberta, *Annual report 2022 land use changes in Alberta* (2023), 4. <https://open.alberta.ca/publications/annual-report-land-use-changes-in-alberta>

Table 1. List of potentially impacted projects

All projects listed are impacted by the agricultural land class restrictions. Projects marked with an asterisk are also possibly affected by a 35 km buffer zone.

Company Name	Project information				Project benefits		
	Name	Planning area	Type	Size (MW)	Investment (\$ million)	Land lease and local taxes (\$ million/year)	Jobs (job-years)
2365921 Alberta	Coaldale 254S DER Solar & Wind	Lethbridge	Wind	12	37	0.25	22
Abacus Power	Three Hills Solar Project	Hanna	Solar	18	27	0.25	22
ABO Wind Canada	Stettler 769S DER Solar Battery	Hanna	Solar + Storage	20 (+16 storage)	60	0.40	35
Airport City Solar East	Airport City Solar East	Edmonton	Solar	112	167	1.57	139
Acestes Power ULC	East Camrose 285S DER Solar Battery	Wetaskiwin	Solar + Storage	19 (+7.8 storage)	56	0.38	33
	Ponoka Solar Project	Wetaskiwin	Solar + Storage	23 (+7.8 storage)	69	0.46	41
	Westlock 438S DER Solar Battery	Athabasca/ Lac La Biche	Solar + Storage	22 (+8.1 storage)	67	0.45	40
ATCO	Kitscoty Wind	Lloydminster	Wind	174	519	3.48	308
Aura Power	Fortis Aura Provost DER Solar	Provost	Solar	21	31	0.29	26

Capital Power	Capital Power Aldersyde Solar	High River	Solar	200	299	2.80	248
Cardiff Solar STL	Northwest Cardiff 191S DER Solar	Edmonton	Solar	21	32	0.30	27
Clem	Sunrise Solar*	Fort Macleod	Solar	75	112	1.05	93
COL	COL Chinook 181S DER Solar	Lethbridge	Solar	9	13	0.12	11
Dromore Energy Inc.	Ra MPC Solar Battery	Vegreville	Solar + Storage	250 (+80 storage)	746	5.00	443
	Apex MPC Solar Battery	Wabamun	Solar + Storage	350 (+80 storage)	1,044	7.00	620
	Atacama MPC Solar Battery	Wabamun	Solar + Storage	350 (+80 storage)	1,044	7.00	620
EDF	EDF Bull Trail Wind	Medicine Hat	Wind	300	895	6.00	531
EER	EER Foothills MPC Solar	High River	Solar	150	224	2.10	186
Enbridge Power	Kersey Solar Battery	Airdrie	Solar + Storage	225	671	4.50	398
Frontline	Kneehill Solar	Hanna	Solar	450	673	6.30	558
Greenwood	Red Deer 63S DER Solar	Red Deer	Solar	17	25	0.23	21
HEP Canada SPV4	Carseland 525S DER Solar	Strathmore/ Blackie	Solar	20	30	0.28	25

Kirkcaldy Solar	Kirkcaldy MPC Solar	Stavelly	Solar	350	523	4.90	434
Kiwetinohk	Kiwetinohk Homestead MPC Solar	Fort Macleod	Solar	400	598	5.60	496
	Kiwetinohk Granum MPC Solar	Fort Macleod	Solar	400	598	5.60	496
Lamoureux Solar	Lamoureux Solar	Fort Saskatchewan	Solar	200	299	2.80	248
Lethbridge Three	Lethbridge Three Solar	Lethbridge	Solar	140	209	1.96	174
Lethbridge Two	Riverbend 618S DER Solar	Lethbridge	Solar	15	23	0.22	19
Morinville Solar STL	Northwest Cardiff 191S DER Solar	Edmonton	Solar	14	21	0.19	17
Neoen Renewables	Sweetgrass MPC Solar Battery	Fort Macleod	Solar + Storage	315 (+150 storage)	940	6.30	558
NGCI	NGCI Ermineskin Cree Nation Solar	Wetaskiwin	Solar	80	120	1.12	99
PACE Canada LP	Valhalla Solar Project	Wainwright	Solar	9	13	0.13	11
	Wainwright 51S DER Solar Battery	Wainwright	Solar + Storage	11 (+7.2 storage)	33	0.22	20
Phoenix	Phoenix MPC Solar	Red Deer	Solar	299	447	4.19	371
PR	PR Prominence Solar	Lethbridge	Solar	80	120	1.12	99

Red Willow Solar	Red Willow Solar Battery	Alliance/ Battle River	Solar + Storage	225 (+100 storage)	671	4.50	398
RESC	RESC Nova MPC Solar	Strathmore/ Blackie	Solar	150	224	2.10	186
	Western MPC Solar	Calgary	Solar	150	224	2.10	186
TransAlta	Magrath MPC Wind	Glenwood	Wind	190	567	3.80	336
	TransAlta Riplinger MPC Wind*	Glenwood	Wind	300	895	6.00	531
Universal Kraft	UK LS4 MPC Solar	Valleyview	Solar	89	133	1.25	110
Voltarix	Fortis Buford 538S DER Solar	Wetaskiwin	Solar	15	23	0.21	19
Total				6,263 (+621 storage)	11,135	104.44	9,360

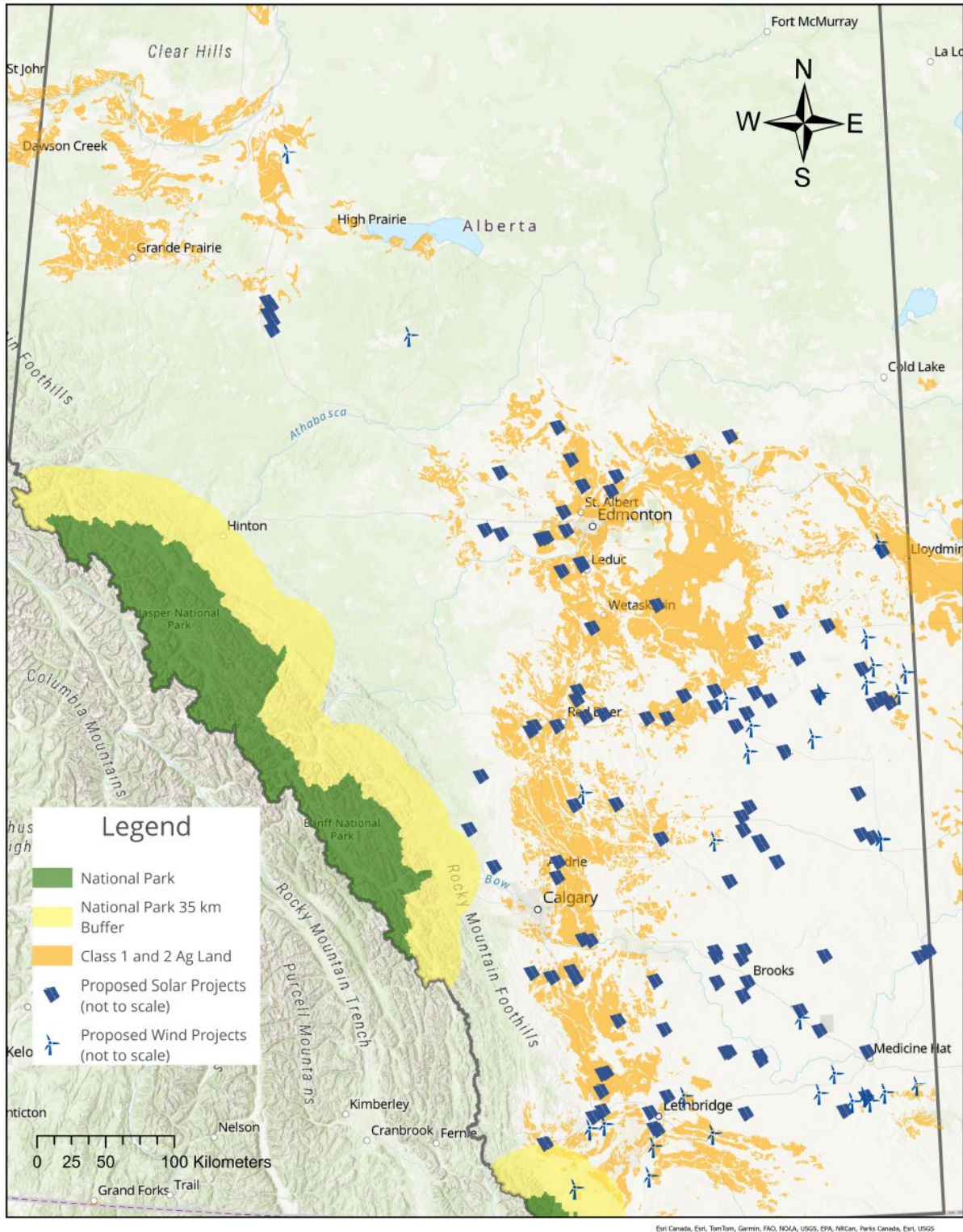


Figure 1. All proposed solar and wind projects in Alberta

