

Diversifying energy

Key Points

Alberta's electricity grid - Renewable energy - Energy use for Albertans - Jobs in modern energy

What's going on:

Alberta is diversifying our energy sources, investing in renewables and other forms of energy that produce little to no harmful pollutants or greenhouse gas emissions (GHG). [Alberta's Renewable Energies Act](#) pledges that, by 2030, Alberta will increase the amount of clean energy it produces to 30%, almost triple what it was in 2018.

What are we doing right now?

Alberta is an energy leader and there are many projects and plans in place to diversify our energy and reach our climate targets. Some of these projects include:

- [Carbon Capture for Nonprofits](#) – Alberta Ecotrust – This is deploying four micro-scale carbon capture and utilization units from technology provider CleanO2 in non-profit buildings. Carbon is captured from the building's HVAC system and converted to potash, then sold in soap.
- [Pe-na-koam on-Reserve Wind Project](#) – Kainai/Blood Tribe and Indigena Capital – the first industrial-scale electricity generation wind farm of its kind in Alberta.
- [Renfrew Solar Bond Program](#) – Renfrew Community Association – Leveraging the recently installed Solar Park at TELUS Spark by selling community bonds and creating a trust to install future solar arrays in Calgary communities.

What can I do?

Your contribution to reducing energy consumption includes a lot of choices.

- You may choose to switch to a clean energy plan, or participate in a [pilot program](#) if your provider offers one;
- Be mindful of how much energy you use (e.g., switching off lights, unplugging electrical appliances, etc.); and
- Choose energy-efficient appliances and technology for your home.


Overview

Our homes, our communities and the way we move all rely on energy. Energy derived from burning fossil fuels either directly (e.g., gasoline) or indirectly (e.g., generating electricity), contributes to climate change. This means we must shift the way we design and interact with our communities, transportation systems, homes and how we feed ourselves as [global energy demands](#) change. In response to climate change, our energy systems must continue to diversify into renewable energy that will lead us into a [net-zero](#) future. Net-zero means finding a balance between the pollution we release into the atmosphere and the pollution we take out of it — if we reach “net-zero,” the amount we remove is the same as the amount we put in. Reaching net-zero can mean using systems that do not produce any pollution, as well as those that remove an equal amount of pollution as they produce.

Renewable energy

Solar and wind energy are the [leading opportunities](#) for [renewable energy](#) in Alberta. Our abundant solar energy means we have the optimal landscape for harvesting power from the sun. Consistent wind in southern Alberta makes it a reliable source of clean energy. Renewable

energy can also be much more than just wind and solar. It can include other sources of energy like geothermal, hydro, biomass and others. Just like its name implies, renewable energy gets replenished after it is used, so there is no concern about it running out. Canada has committed to completely decarbonize by 2050 and to transition to a [net-zero electricity grid by 2035](#). Alberta is well-positioned to make our energy system cleaner, safer, more secure and even more affordable. Harvesting our power from the wind and sun through wind turbines and solar panels has proven extremely successful and is becoming increasingly more common as Albertans learn the many benefits (including cost-savings) that come from renewables.



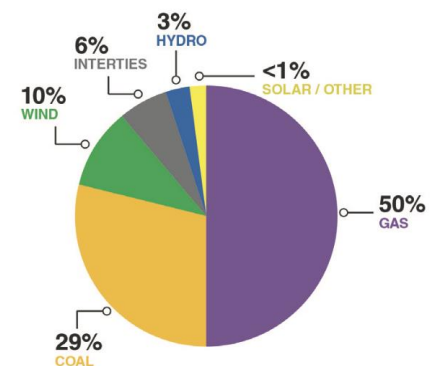
[Lubicon Cree Nation](#) – Renewables in the Heart of the Tar Sands

“The Lubicon Cree Nation of northern Alberta is leading the low-carbon energy transition. Community member Melina Laboucan-Massimo witnessed the changing landscape from industrial development in her territory, and she decided to take action. As part of her master’s thesis, she fundraised and co-ordinated the construction of a 20KW solar energy system. Melina calls the project ‘a beacon of what is possible in our communities,’ and her perspective shows how renewable energy aligns with Indigenous philosophies of reciprocity, relationship and reconnection with the land.”

Source: Prairie Climate Centre

[Alberta’s electricity grid](#)

The electricity we use is only as non-polluting as our power grid. As of 2022, Alberta generates about 80% of its power from natural gas and [coal](#).¹ Our electricity sector is the highest-emitting province in Canada, generating 52% of total Canadian GHG emissions from power generation in 2020. This is because our power is dependent on coal-fired generation.² While only a small fraction of our electricity currently comes from wind and solar, there is a mass shift already underway as Alberta proves the benefits of renewables. Unlike oil and gas, renewable sources of energy like [solar](#) and [wind](#) can be used time and time again as they’ll never be depleted from our planet, making them reliable, affordable sources of energy for future Albertans. When comparing the [carbon intensity](#) of energy sources, renewable energies have a negligible amount compared to fossil fuels. Carbon intensity helps us understand the environmental impacts of different fuel types.³



By 2030, [Alberta’s Renewable Energies Act](#) commits Alberta to increase the amount of clean energy to 30%, almost triple what it was in 2018. In the [Canada’s Energy Future annual report](#), net-zero modelling estimates that, by 2050, more than 75% of Alberta’s energy generation will come from wind and solar.

¹ [Electricity in Alberta](#)

² [CER – Provincial and Territorial Energy Profiles – Alberta](#)

³ [Fuel Types](#)

What do Albertans think about renewable energy?

Polling shows that Albertans see diversifying our energy sources as inevitable and investing in renewables as a way of tackling climate change. Albertans also see investing in renewable energy sources as a way of making our economy stronger and more competitive. While Albertans support electrification (switching from fossil fuels to electricity that comes from renewable sources), they want influence over how and where infrastructure is built and to ensure that it directly benefits them and their community.

- 68% of Albertans support the goal of net-zero emissions by 2050 ([Pembina Institute, 2021](#))
- Most Albertans do not see the conversation about an energy transition as something intended to harm Alberta's oil sector workers (45%), but something intended to combat climate change (55%). Across Canada, 78% say the intent is to fight climate change ([Abacus, 2020](#))
- While 93% Albertans believe that oil and gas is important for the economy of our province (no surprise that it's the highest in the country), support for the clean energy is on the rise (83%) ([Abacus, 2022](#))
- 59% of Albertans say that transitioning away from oil and gas would benefit the economy in the long term ([Janet Brown Opinion Research, 2022](#))

"Alberta's evolving into a place where you can still value the oil and gas industry, you can still root for its success. But, at the same time, you can also be pro-environment and you can see the need for the oil and gas industry to be transitioning and to be doing things differently."
[Janet Brown, Researcher](#)

What does this mean for Albertans?

Modernizing our energy systems and electricity grids will not bring about major, negative changes to our daily lives. Our [electric grid](#) is constantly being upgraded and maintained to adapt to our energy needs and be more resilient to climate impacts. What we will see is an increased diversity in the energy sources that power our buildings, heat our homes and fuel our modes of transportation. Diversifying our energy sources is important, as it can help protect us against [volatile markets](#) and help us to save money in the long run.

Albertans have a choice when it comes to how we buy our energy. You may consider switching to an [energy plan](#) or [participate in pilot programs](#) if your utility company offers them. Being mindful of our energy use is something some of us may be used to, and this will continue to be an important part in the way we use our electricity. Using more energy-efficient technologies and appliances will be a key way that we can cut back usage, reduce energy bills and increase the comfort of our homes. As these technologies continue to advance and become more common, they will become increasingly useful and more affordable.

"Some things won't change ... you'll have electricity that will come out of the socket in your wall; you'll plug whatever it is into that and you'll get that electricity. That electricity may be generated in a different way, but, as a user and consumer of that electricity, there's not gonna be any major changes there."

- *Dr. Sara Hasting-Simons, Macro Energy Systems expert*

Jobs in modern energy

The job market in modern energy is growing as industries transition into cleaner energy sources. Jobs in clean energy are everywhere. Those new to the workforce can take many [emerging training programs and courses](#) that align with this transition.

“Pursuing net-zero in Alberta could create nearly 170,000 new clean-technology jobs and contribute \$61 billion in GDP to the province’s economy by 2050. For comparison, continuing on a business-as-usual path results in a materially lower 20,000 new jobs and contributes \$4 billion in GDP by 2050.”

–CED Energy Transition Report

Not only are new clean energy jobs becoming more common, but this changing market is full of opportunities for skilled workers with years of experience in other trades — their knowledge is transferable and valuable in clean energy industries. Having both an abundance of skilled workers already in the energy sector and a growing number of skilled workers specialized in clean energy is one of the many reasons Alberta is leading the country in setting a standard for modern clean energy.

Solar Alberta provides a regularly updated list of [solar energy jobs](#), as well as resources for career training opportunities.

Recap

Renewable energy is growing in Alberta — the result of both policy adoption and a growing understanding among Albertans of the benefits to our economy and our environment. Citizens won’t see much change other than an increase in solar farms and wind turbines on the landscape compared to oil pump jacks. While our grid becomes cleaner, we can also find our own ways to use less fossil fuels and change the way we use electricity in our daily lives. While these changes have drastic impacts on mitigating climate change, they’ll also improve our health by reducing air and noise pollution, reduce the costs of energy, and make our environment cleaner.

Resources from local organizations that support learning and action on modern energy			
Resource	Organization	Audience	Description
Energy Systems Map	Student Energy	General Public	Explore the energy system starting with energy sources all the way to the end uses of energy. The Energy Systems map includes an interactive map view, a searchable energy topics index view and accompanying videos.
Energy Futures Youth Seed Fund	Energy Futures Lab	Youth 18-30	The Energy Futures Youth Seed Fund, thanks to Prairies Economic Development Canada, was implemented to provide Albertans aged 18-30 access to low-barrier financial support for projects or initiatives that help accelerate the transition to the energy system the future requires of us.
Future Energy Systems	University of Alberta	Teachers and Educators	Educational content and opportunities to explore future energy systems in Alberta.
Clean Energy opportunities for Alberta Municipalities	Pembina Institute	Local Government	This primer was created to guide Alberta municipalities of all sizes toward practical and effective measures that take advantage of clean energy opportunities across the transportation, buildings and electricity sectors to diversify their economies.
Energy Efficiency Education	Empower Me	Community Groups	Free energy conservation and education-change program designed for and delivered by members of diverse, multilingual and hard-to-reach communities.

[Find more resources here.](#)