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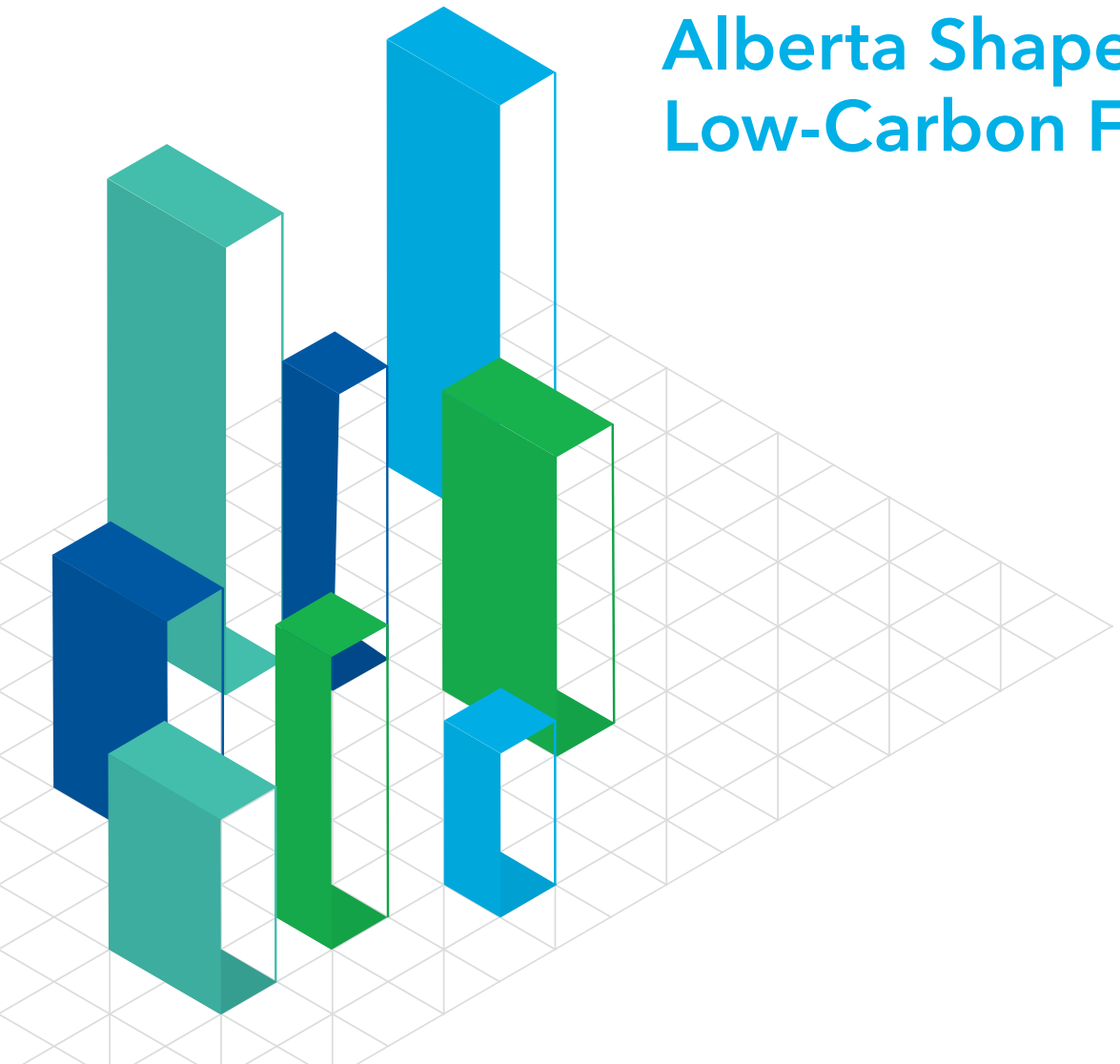
# Sustainability Dialogue: Spotlight on Edmonton

## Alberta Shapes a Low-Carbon Future



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## Alberta Shapes a Low-Carbon Future

As Canada moves towards a low-carbon future, there is a lively debate over the future of Canada's oil and gas industry. With an economy largely dependent on energy production, the stakes are particularly high for Alberta—but the outlook is more promising than it might initially appear.

Driving Canada's transition to a low-carbon economy is the federal government's Pan-Canadian Framework on Clean Growth and Climate Change. It includes national goals for greenhouse gas reduction, a nationwide carbon pricing policy, and a plan to drive clean-tech development. The Framework leaves room for each province to determine how to reach its goals by 2030, in line with the Paris climate agreement's timeline. This flexibility presents both opportunities and challenges for Alberta, which is well- positioned in the Canadian economy as a major producer and exporter of oil and natural gas.

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In March 2018, Bloomberg and TD Bank Group, working with the Energy Futures Lab, an initiative for transforming Alberta's energy system, convened a group of leaders in energy, government, finance, and education to discuss the role of Alberta in Canada's energy transition. The meeting was held in Edmonton to coincide with an international climate change conference being held there that week—the Cities and Climate Change Sciences Conference—hosted by the Intergovernmental Panel on Climate Change.

The discussion, summarized below, was part of the TD-Bloomberg Sustainability Dialogues taking place across Canada. The Dialogues focus on the country's transition to a low-carbon economy—and how business can help accelerate it.

### New Legacy

Alberta's economy has been tied to energy production since the 1940s, and still depends on it. The province's oil and gas industry employs about 140,000 people—two-thirds of Canada's oil and gas workers. It has 18 coal-fired power plants in operation, all of which are scheduled to close by 2030 in line with federal policy and the province's Climate Leadership Plan.

In addition, Alberta's Climate Leadership Plan calls for a cap on oil sands emissions to 100 megatonnes per year, a 45 percent cut in methane emissions by 2025, a tax on carbon, and a commitment to have 30 percent of Alberta's electricity from renewable sources by 2030.

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Many Albertans are justifiably uneasy about a future that involves transitioning to a low-carbon economy. Some Albertans are worried about their livelihoods. Beyond that, some question what Alberta's regional identity will be as it moves from its dominant position in energy and natural resource extraction.

Oil and gas will be a major contributor to Alberta's economy for a long time to come, but the industry will change. The province's energy resources, experience, and wealth of human capital form a solid foundation from which to diversify the economy. There's growing recognition that these factors can facilitate a reorientation and a repurposing of existing resources. At the same time, there's an awareness of the role that innovation and collaboration can play in driving change.

Emblematic of these shifting attitudes is Emissions Reduction Alberta (ERA), a non-profit corporation funded from Alberta's $30/tonne carbon tax. It works with partners from government, industry, and other sectors to help move Alberta toward a lower-carbon footprint.

In fiscal 2017, the group committed nearly $54 million for a variety of projects aimed at reducing emissions and supporting sustainable development. Since it was established in 2009, ERA has committed more than $320 million to 122 projects. This will yield eight million tonnes of $CO_2e$ reduction by 2020—equivalent to the emissions of 1.7 million vehicles driven in just one year.

## Government Investment

The Alberta government has staked out its commitment to change with its seven-year, $1.4 billion Climate Leadership Plan. The program includes $440 million for oil sands innovation to help reduce emissions, $400 million in loan guarantees to support investment in efficiency and renewable energy measures, $64 million to develop bioenergy, and $225 million for emission-reducing research and commercialization.

The government also strongly supports research in the field of renewable energy. The University of Alberta in late 2016 received a $75 million grant to establish the Future Energy Systems Research Institute, which will focus on reducing the environmental footprint of unconventional fossil fuels and developing green energy resources. The initiative will build on the university's strengths in developing smart electrical grids, biofuels, and advanced materials for photovoltaics.

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## Emerging Growth

Although Alberta's low-carbon economy is still in the early stages, the combination of the province's natural endowment and vast experience in the energy sector is opening many opportunities.

Energy companies operating in the Alberta oil sands are developing a process for reducing the carbon intensity of their crude oil by up to 33 percent within the decade. The process involves reducing the amount of natural gas in their wells. One example is Canada's Oil Sands Alliance, which is working to improve environmental performance in the oil sands and established a $20 million prize for developing $CO_2$e into usable products.

Alberta has also piloted carbon capture and storage in the oil sands. Both the University of Alberta and the University of Calgary are research leaders in the field of $CO_2$ capture, and an Alberta firm, Nova Chemical, has had a commercial scale CCS facility at its plant in Joffre since 1984. Alberta has unique CCS resources in the form of deep saline aquifers and a large number of aging wells that could be resuscitated with enhanced oil recovery techniques.

The Alberta Carbon Trunk Line project is a promising initiative in this area. Funded by the Canadian government through its eco-technology initiative, the $60 million program will include a 240-kilometer pipeline that will transport $CO_2$ emissions from central Alberta to mature oil reservoirs in the south, where it will be used for enhanced oil recovery purposes.

Development of renewable energy resources is another low-carbon avenue. Ample wind resources underscore one excellent potential growth area. In a key transaction closed in December 2017, the Alberta government conducted an auction to complete a $1 billion deal for construction of four wind farms that will be located in the southern part of the province. Three companies—two from Canada and one from Portugal—won the deal at a figure of $37 per megawatt hour, one of the lowest prices seen for wind power in Canada.

## Growing Public Support

A 2017 survey of Edmonton residents found more than 70 percent were concerned about climate change, and believed action was needed now. That level of backing, combined with the government's commitment, the growing number of business opportunities, and the education sector's research orientation, holds the prospect for Alberta to build its low-carbon future.

Moving forward, Alberta can play a critical role, using its skills and expertise in the oil and gas sector to its advantage. Incentives from government and cooperation among the business and education sectors can scale up and accelerate research and innovation for clean-tech and bio-industrial solutions.

It all must be done quickly—2030 is just around the corner. Alberta needs to move forward now, with urgency.