
Opportunity amidst disruption

How energy transformation is shaping Canada's utilities sector



The utilities sector in Canada and around the world is experiencing a profound transformation unlike anything seen before in terms of scale, scope and speed.

For Canadian utility companies, this transformation is impacting long-held business models—and compelling executives to chart a new path forward in a shifting and uncertain landscape. *Opportunity amidst disruption: How energy transformation is shaping Canada's utilities sector* explores how Canadian utility executives and customers are responding to this changing energy landscape—and what the future may hold.

Our report identifies four transformational forces that are driving this rapid and relentless wave of change: technology, policy, customer expectations and innovation. New technologies are changing how utility companies in Canada and around the world generate, transmit

and distribute power and gas—and enabling their customers to generate and store power themselves. Government and regulatory policy is forcing energy companies to continually adapt as legislators and regulators push for greener, more efficient and more flexible energy markets in their jurisdictions. The role of the customer is also changing, influenced by the seamless, cross-platform experiences customers have with their financial institutions and favourite retailers. And tackling these changes increasingly demands that power companies and utilities invest in innovation to bring new products and services to market.

It's difficult to predict with any certainty what Canada's energy market will look like 25 years from now. But what is certain is that it will be very different—and getting there will leave a lasting impact on energy companies and customers alike.

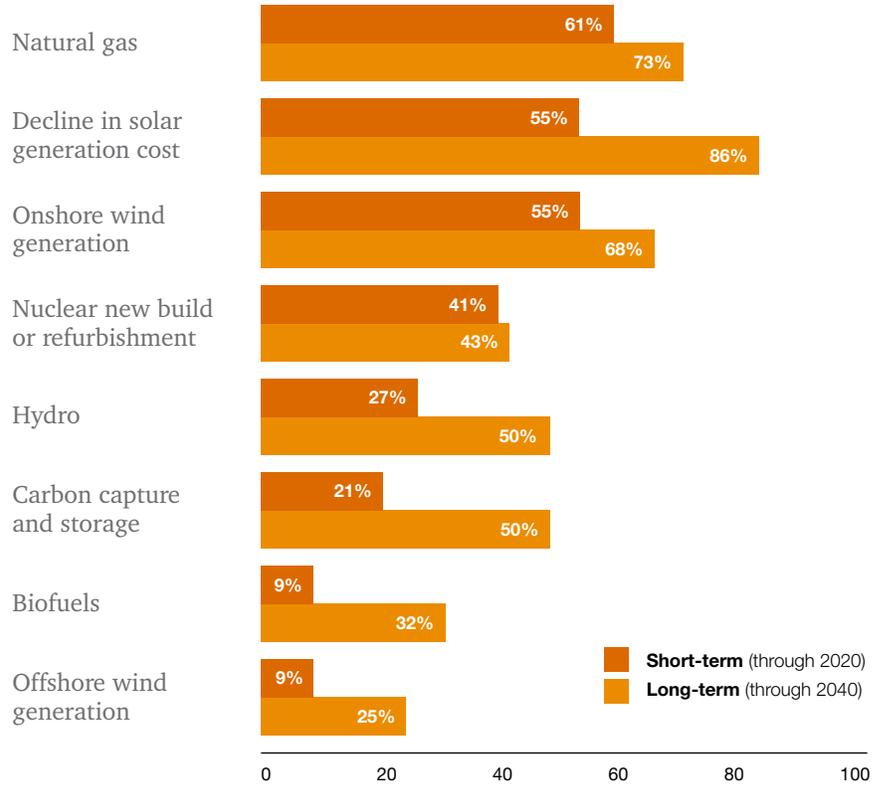
Accelerating technological impact

A different path to gain competitive advantage?

Utility executives understand that technology-driven transformation will touch every part of their industry—though in the short term, they expect generation to experience the brunt of the change. Sixty-eight percent of respondents felt generation will experience a moderate to major impact from transformation by 2020, compared to 52% for distribution and 43% for transmission. This distinction largely disappears over the long term: 9 out of 10 respondents expect all three areas to experience significant change by 2040.

From a generation perspective, executives believe natural gas will have the greatest impact in the short term (61%). Natural gas offers the cleanest option available to augment wind and solar generation (Fig. 1). Flexible, readily switched on and off, and currently inexpensive, natural gas will likely be around for some time—unless governments avoid it as a matter of policy. But over the long term, the falling cost of solar is viewed as having the biggest impact on the sector (86%).

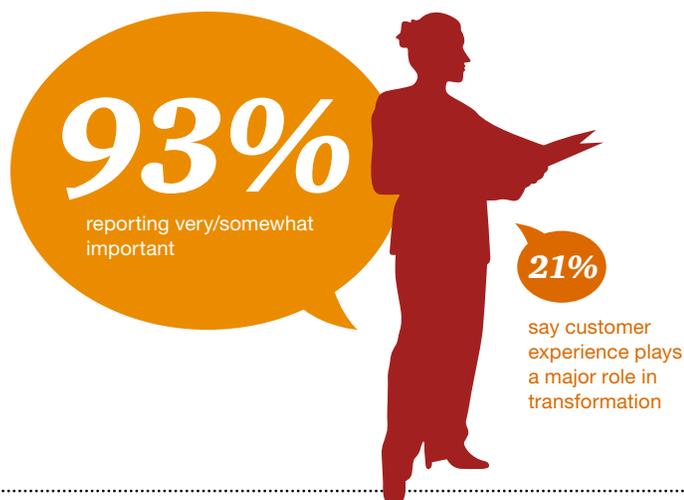
Figure 1: Thinking about generation, what type of impact do you expect each of the following technological developments to have on your market?
% respondents reporting major/moderate impact



Customer engagement

The new frontier for energy companies

Figure 2: How important is customer experience to your company?

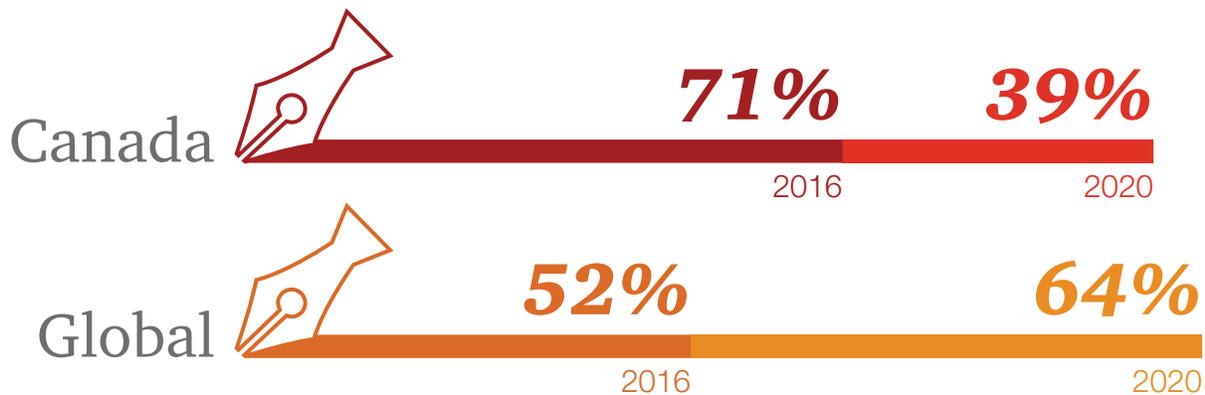


Almost all (93%) of the executives we surveyed say customer experience is important to their business, and their companies are engaged in a variety of engagement activities (Fig. 2). But, there may be a disconnect between this belief and the 21% that feel customer experience is a major component of energy transformation; it may be that many companies underestimate the *real* importance of customer engagement in the energy market to come and have been lulled into a false sense of security by the current lack of competition.

Canadian energy consumers believe energy companies are the most trustworthy source of information about their energy use—above governments and governmental organizations, environmental associations, and academic or scientific bodies. Four out of 10 Canadian energy consumer respondents (39%) most trust their local energy provider or utility to inform them about actions they can take to manage or improve their energy consumption.

Policy matters

Figure 3: Impact of government and policy regulation on home market (major/moderate impact)



The connection between policy and energy transformation is certainly foremost on the minds of utility executives. Nearly three quarters of Canadian utility executives (71%) feel changes in government policy and regulation have the most impact on their companies at this point in time, compared to 52% of their counterparts globally (Fig. 3).

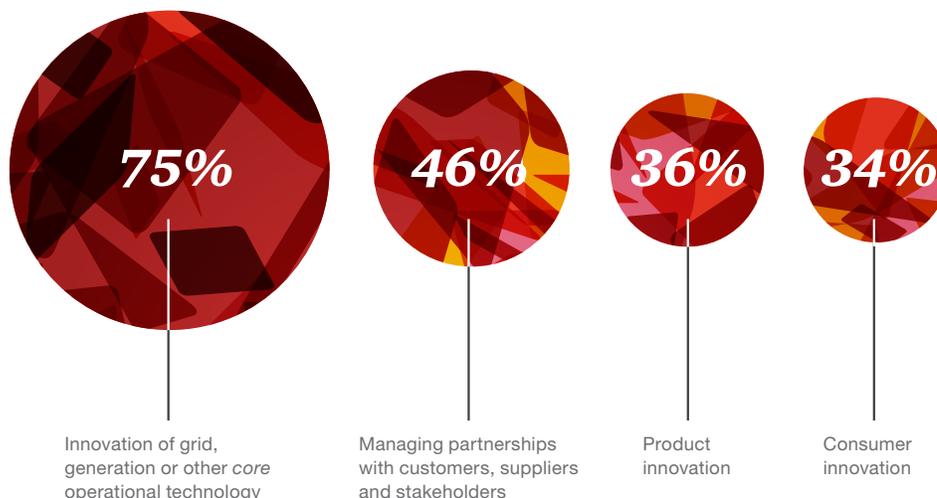
Federal and provincial governments have taken many steps to evolve Canada's energy markets by creating subsidies, grants and other incentives to promote renewables, energy-efficient technologies and more. Unfortunately, many utility executives believe regulators are inadvertently getting in the way of more rapid innovation. While two thirds of

respondents (68%) believe their company's business model is evolving with the pace of energy transformation, more than half (57%) say regulators are holding their company back. The reason may be a disconnect between government policymakers' aspirations and the mandate and tools available to energy regulators themselves.

Innovation

At the heart of energy transformation

Figure 4: Which of the following corporate strategies and capabilities are most important to the success of future power sector business models?



It's increasingly clear from our survey that the traditional energy-sector business model—investing in capital assets, and generating a rate of return on those assets for years, if not decades—may no longer be viable. Virtually all the utility executives we surveyed (96%) believe advances in technology, coupled with changing customer needs and other factors, will cause moderate—if not major—disruption in their industry.

Three quarters of respondents (75%) felt innovation around grid, generation or other core operational technology will be most important to the future of the energy sector's business model. Executives also felt behind-the-meter (41%), product (36%) and consumer (34%) innovation will play important roles (Fig. 4).

Accelerating technological impact

“There are small, innovative but concrete solutions that are just as important as the big solar panel or immense wind generator.”

- Martin Imbleau, Vice President of Business Development and Renewable Energy, Gaz Métro

“Twenty-five years from now, storage is going to be the most influential technology that’s emerging today.”

- Jeff Hilton, Vice President of Engineering and Emerging Technologies, ENMAX Corporation

Customer engagement

“In this day and age, people expect things to be very seamless and very quick—and they don’t really want to have to think about it. They want to set it and forget it.”

- Hannah Bascom, Head of Energy Partnerships East, Nest Labs

Policy matters

“Our current policies are not aligned with moving us to become more innovative.”

- Francis Bradley, Chief Operating Officer, Canadian Electricity Association

Innovation at the heart of energy transformation

“You can’t fight progress. We need to stray from the beaten path. Change will come via legislation if we don’t adapt quickly enough.”

- Élie Saheb, Executive Vice President of Corporate Development, Strategic Planning, Hydro-Québec

“Innovation is key. It will help us move towards some of those productivity, reliability and cost goals that are set ahead of us. It will help us improve as a business.”

- Jack Simpson, Director of Generation and Capacity Planning, Toronto Hydro

“Innovation just as well resides in small process changes. It’s evolutionary, not revolutionary.”

- Neetika Sathe, Vice President of Corporate Development, PowerStream

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