

Enabling Continued Collaboration on Energy

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Yellowknife, Northwest Territories

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The energy landscape is changing dramatically.

A new energy era is dawning for Canada.

**An integrated system that
balances energy production,
distribution and use is required.**



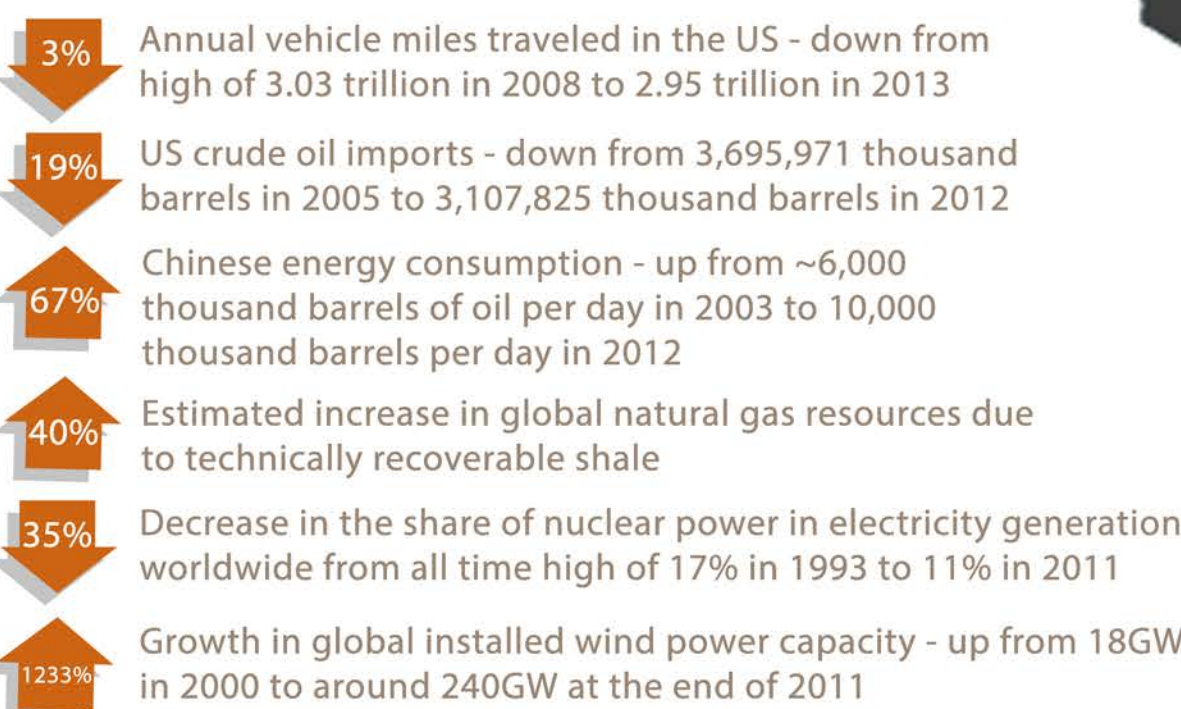
CANADA'S NEW ENERGY LANDSCAPE

Enabling Continued Collaboration on Energy

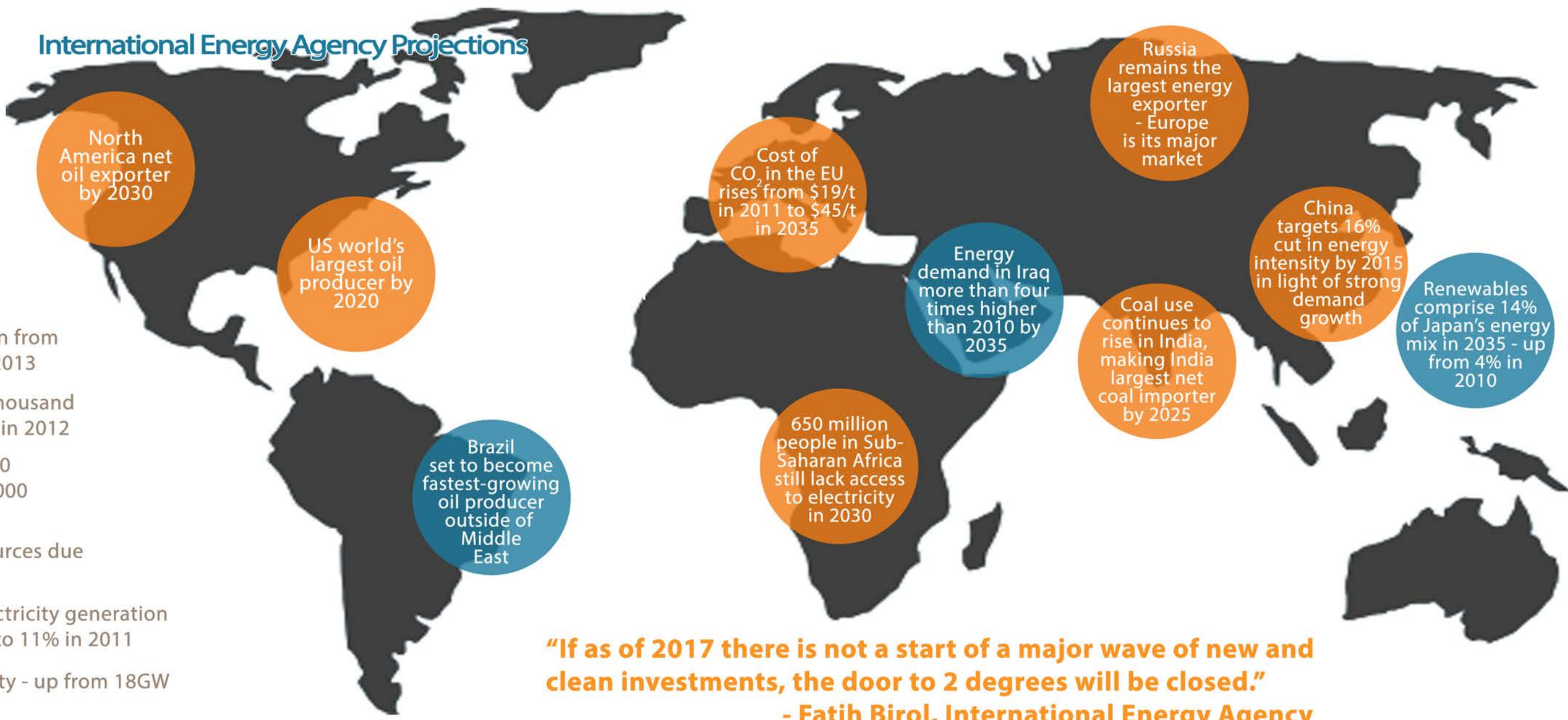
The energy landscape is changing, both within Canada and internationally, pointing to the dawn of a new energy era for Canada. Moving forward, it will be imperative that Canada address energy as an integrated system that involves balanced action across the areas of energy production, distribution and use.

GLOBAL TRANSFORMATION

Globally, the way that energy is being produced and used is shifting. A variety of factors point to what the International Energy Agency is calling “a vast international reordering of energy supply and demand patterns.”



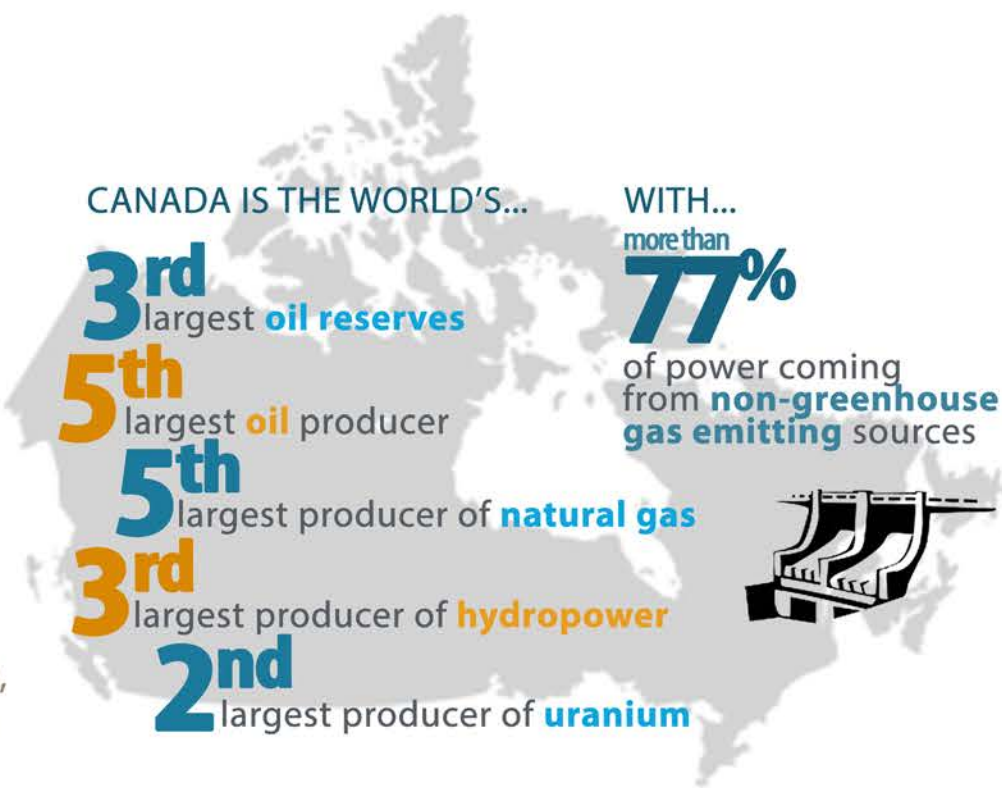
International Energy Agency Projections



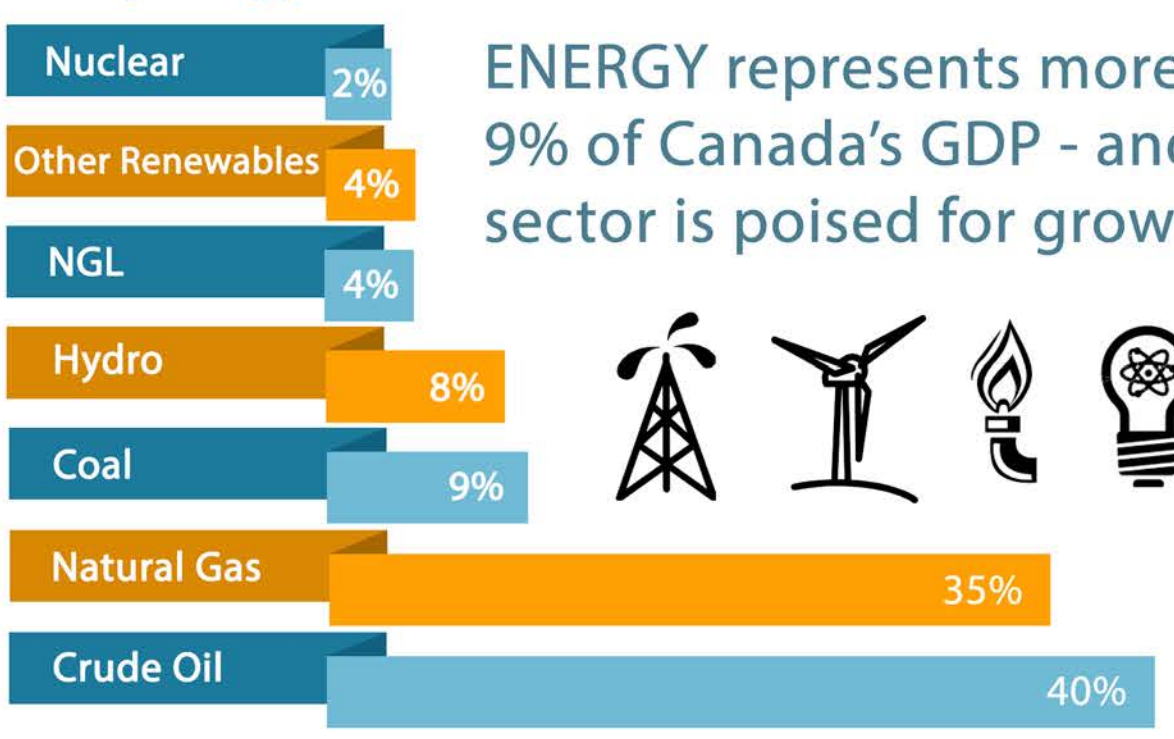
CANADIAN CONTEXT

Energy is critical to Canada's economy, competitiveness, and society - driving jobs, growth, investment and commercial opportunities.

Canada's energy system has evolved dramatically over the past decade, with unconventional sources now accounting for the majority of our oil and gas reserves. And, with the US moving closer to energy self-sufficiency, Canada is looking to build new markets for its energy products. At the same time, renewable energy generating capacity is growing at a rapid pace.



Primary Energy Production in Canada (2011)



ENERGY represents more than 9% of Canada's GDP - and the sector is poised for growth



A NEW ERA FOR ENERGY IN CANADA

BUILDING THE RESOURCES OF TOMORROW

The way that energy is being produced in Canada is changing. Breakthroughs in shale and tight gas have doubled Canada's oil and gas resources. At the same time, the average annual growth rate of wind and solar has been nearly 40% over the past decade, and Canada continues to be a leader in emerging renewable technologies such as tidal energy.

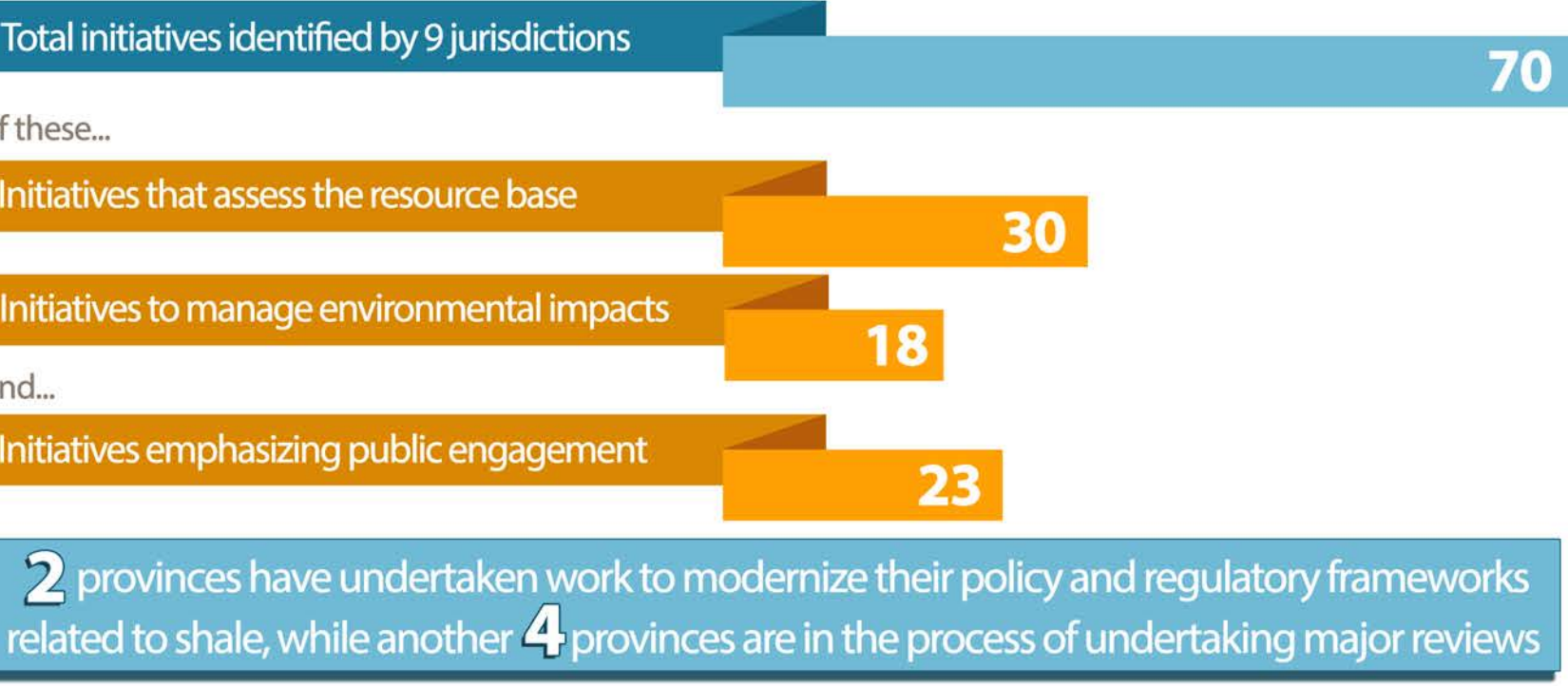
Shale Oil and Gas

"...the shockwaves of rising United States shale gas and light tight oil and Canadian oil sands production are reaching virtually all recesses of the global oil market"

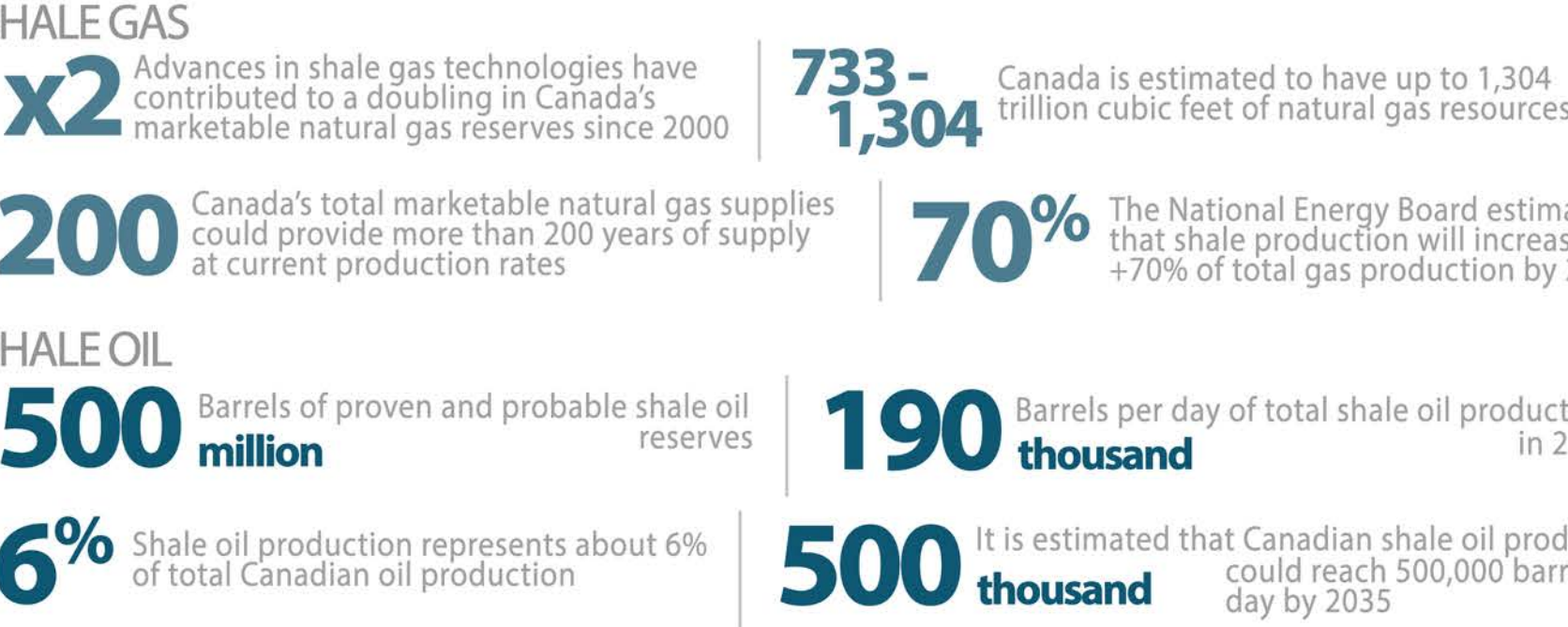
- International Energy Agency, Medium-Term Oil Market Report, 2013

To date, shale development in Canada has been focussed in the Montney and Horn River Basins in British Columbia. A number of jurisdictions across Canada are working to **grow the knowledge** base around their shale resources.

Provincial and Federal Initiatives to Better Understand Canada's Shale Resources



This work is helping Canadians to realize the **significant potential** associated with Canada's shale resources



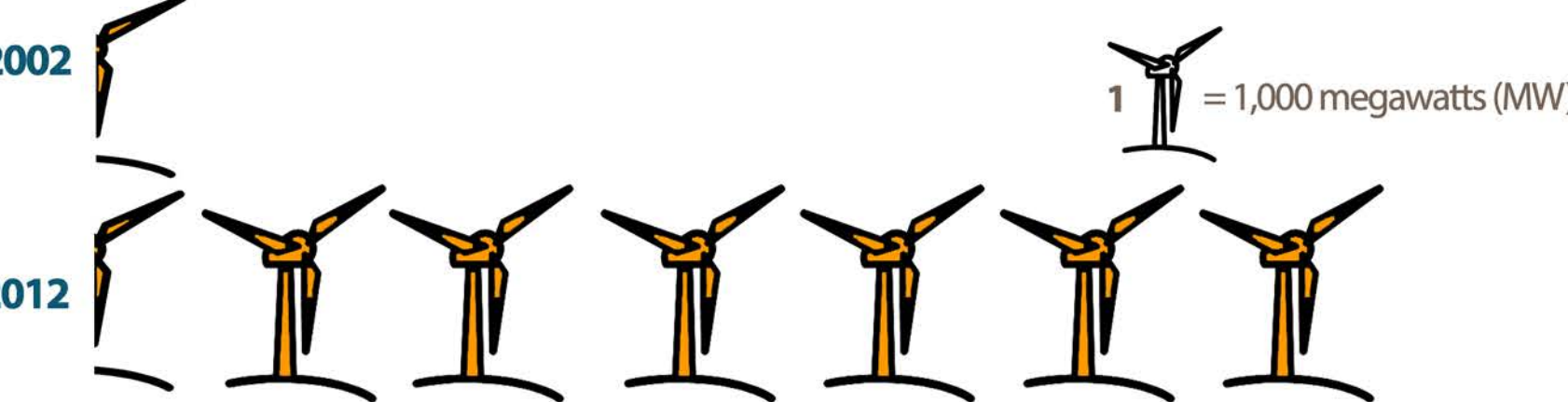
Renewables

"If implemented properly, renewable energy sources can contribute to social and economic development, to energy access, to a secure and sustainable energy supply, and to a reduction of negative impacts of energy provision on the environment and human health."

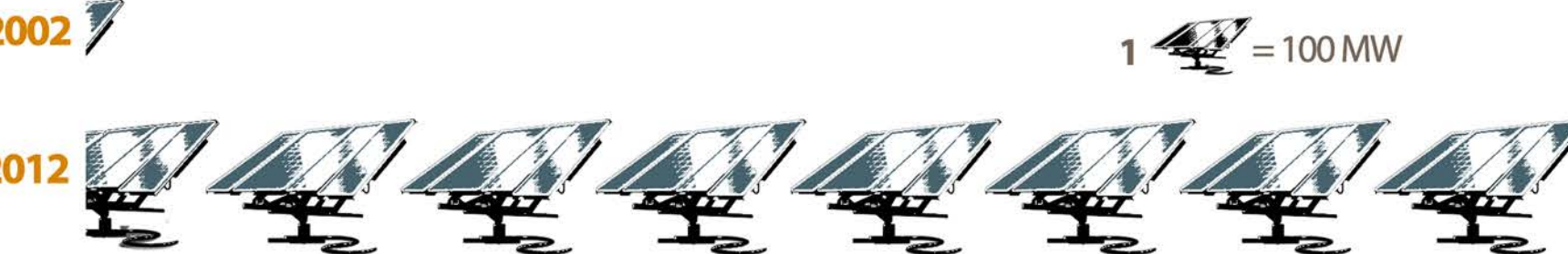
- Intergovernmental Panel on Climate Change, 2011

Canada is a world leader in the production and use of renewable energy. Over the past decade, **renewable energy has been growing at a rapid pace.**

Wind power has grown from just **231 MW** in 2002 to **6,201 MW** in 2012. Currently, there are more than **3,750** wind turbines across the country - up from **320** in 2002.



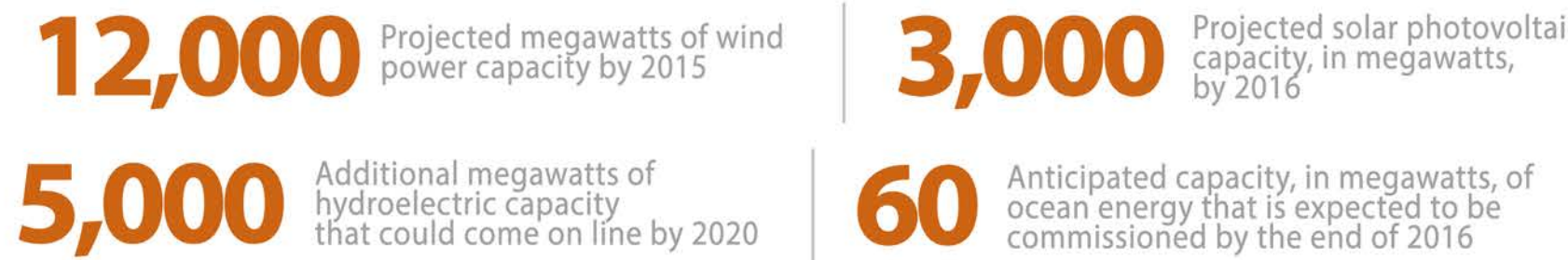
Solar photovoltaic has grown from only **10 MW** in 2002 to **765 MW** in 2012.



And hydro electricity has consistently grown since 2002, adding more than **8,000 MW** of installed capacity.



Going forward, this growth is **projected to continue**, based on existing policies and initiatives.



REACHING DOMESTIC AND INTERNATIONAL MARKETS

How we Distribute our Energy

Canada's energy transportation systems will need to accommodate growing production and respond to changing markets. Greater access to global and domestic markets for Canada's energy resources represents an opportunity to create wealth and economic prosperity, improve energy security globally, and obtain maximum value. An effective, safe and expanding energy transportation system will enable Canada to achieve this goal.

Canada is **outgrowing** its existing pipelines. This is impacting our ability to capture the value in our resources.



In response to these pressures, a number of major **pipeline projects** are currently under consideration:



And action is being taken to promote responsible resource development, and achieve **'one project, one review'**

- 1) Implementing Early Warning Systems
- 2) Strengthening Coordination of Aboriginal Consultations
- 3) Further Harmonizing Fed/Prov Major Resource Project Reviews
- 4) Mapping F/P/T Review Processes
- 5) Implementing Alignment Mechanisms through Pilot Projects

THE DEMAND EQUATION

At the same time, Canadians are thinking about the ways that they use energy in order to achieve considerable savings. According to the International Energy Agency's *Tracking Clean Energy Report 2013*, energy efficiency remains a largely untapped resource. A number of initiatives are underway across Canada to improve energy efficiency.

There are **significant opportunities** associated with energy efficiency - both globally and for Canada.



93 MT Megatonnes of avoided greenhouse gas emissions in 2010 as a result of energy efficiency gains between 1990 and 2010

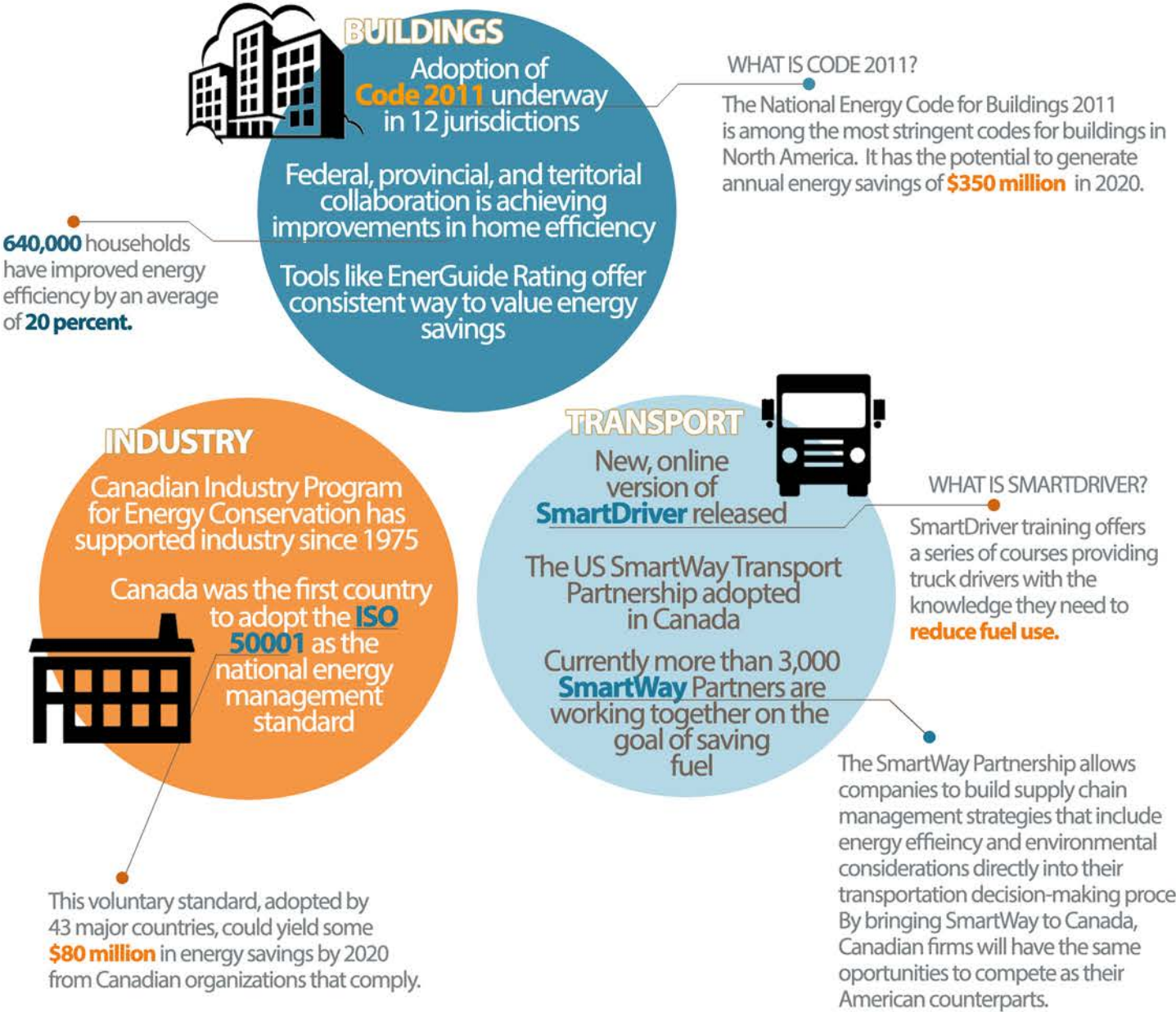
Much of Canada's **potential to reduce energy demand** remains untapped



According to the International Energy Agency, North America has the potential to become virtually oil **self sufficient around 2030**. Energy efficiency would be responsible for **45% - or nearly half - of this outcome**

The International Energy Agency has made a series of **recommendations** for energy efficiency improvements, including:

- Normalize higher efficiency standards as technologies advance
- Make energy efficiency affordable
- Make energy performance visible to the market
- Monitoring and verification are essential to realizing savings
- Raise the profile and importance of energy efficiency



GOING FORWARD

Canada's energy future, and the role that Canada plays in the global energy story, will depend on a careful balancing of the supply and demand sides of the equation. Indeed, the International Energy Agency expects that it is the growth in unconventional sources of energy coupled with improvements in energy efficiency that can get North America to oil self sufficiency by 2030. Preparing our energy transportation infrastructure to reach new markets will help Canada to play a strong role internationally.

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