

# Energy Productivity: A Win-win for Canada's Economy and Environment

Growth in productivity is closely related to growth in standards of living, innovation and economic competitiveness. In Canada, much ink has been spilt over labour or multifactor productivity growth rates. Yet another productivity statistic deserves closer attention. Energy productivity, the amount of economic output possible at a given energy supply, can improve Canada's economic competitiveness while effectively addressing greenhouse gas emissions and other environmental impacts of energy production and use. There are several ways investments in energy efficiency that improve energy productivity benefits the Canadian economy:

- *Large international market* – The global market for energy efficient products and services is very large. According to the International Energy Agency, investment in energy efficiency worldwide was between \$310 billion and \$360 billion in 2012. This sum was larger than the money put into renewable, coal, oil or gas electricity generation, and around half the size of upstream oil and gas investment.<sup>1</sup> Due to increased global demand, the market for energy efficiency-related goods, services and technologies could reach \$550 billion per year by 2035.<sup>2</sup>
- *Source of jobs* – According to a report by Natural Resources Canada, in 2011 there were about 100,000 people working in energy-efficiency related occupations in Canada with total annual wages of \$7.7 billion. Every \$1 million spent on energy efficiency programs within Canada generates between 30-57 job years in firms that sell energy efficient products or services.<sup>3</sup>
- *Freeing up resources for reinvestment* – Reducing energy use can act like a tax cut, releasing funds for reinvestment into a business or allowing households to spend more in other areas, ultimately resulting in job growth and improved overall economic performance. Between 1990 and 2011, more than \$34 billion in energy savings was reinvested into the Canadian economy. Companies addressing energy efficiencies often end up improving other characteristics and thereby improving overall performance, efficiency, innovation and market share.<sup>4</sup>
- *Freeing up energy for export* – Aside from its impact on the domestic economy, improved performance on energy productivity can also promote exports. Energy that is produced but not consumed within Canada can be exported, creating broader economic benefits through royalties and taxes collected. Energy savings, if passed to consumers, increases price competitiveness usually resulting in increase market share.

Improving Canada's energy productivity will have significant environmental benefits as well and could play an essential role in an effective climate change strategy for Canada. Reducing waste in energy production and transportation and reducing the need to use energy in the first place will result in lower greenhouse gas emissions and the need for fewer power plants and transmission lines.

Unlike many other productivity measures, Canada has had success in improving its energy productivity performance. Between 1995 and 2010, Canadian GDP grew by 46%, while demand for energy rose by only 12%.<sup>5</sup> Yet Canada has not made continuous improvements in energy productivity an explicit part of its approach to economic competitiveness or action on climate policy. This is in contrast to other peer nations. In 2013, President Obama pledged to double energy productivity from the 2010 level by 2030, while Australia's government recently released an energy white paper proposing an increase of up to 40% in energy productivity by 2030.

There are two significant barriers to further improvements in Canada's energy productivity that the federal government could address. First are measures to reduce the costs of energy efficiency. In the 2014 Canadian Energy Efficiency Alliance conducted a survey of business attitudes toward investments in energy efficiency, with over half

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<sup>1</sup> International Energy Agency. 2014. "Executive Summary". *Energy Efficiency Market Report 2014*.

<sup>2</sup> International Energy Agency. 2014. "Factsheet". *World Energy Investment Outlook 2014*.

<sup>3</sup> Natural Resources Canada. 2014. *Energy Efficiency Update 2014: Economic Benefits of Responsible Energy Use*.

<sup>4</sup> Ibid.

<sup>5</sup> Ralph Torrie and David B. Layzell. "The secret life of Canada's Energy System." Canadian Energy Systems Analysis Research. <http://www.cesarnet.ca/blog/secret-life-canada-s-energy-systems>.

of respondents cited costs as the most significant barrier to improved energy efficiency. A fifth suggested and improved incentives would be the most effective approach to removing these barriers.<sup>6</sup>

A second significant barrier is the need for effective and accurate methods by which to measure and record energy productivity/efficiency. Without proper methods to track and report on energy productivity, making businesses or government accountable for progress will be difficult to achieve.

## **Recommendations**

That the federal government work with provinces and territories to:

1. Identify the means for overcoming the economic and environmental barriers of increased energy productivity/efficiency to business and promote energy efficiency measures.
2. Research and adopt across Canada the best available science to measure barriers, record and implement energy productivity and efficiencies.

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<sup>6</sup> The Canadian Energy Efficiency Alliance. *CEEA 2014 Survey: Canadian Business Attitudes on Energy Efficiency*.