



Note: As of Oct 30, 2014, ENE is now Acadia Center.



## Energy Efficiency: Engine of Economic Growth in Canada

*A Macroeconomic Modeling and Tax Revenue Impact Assessment*

November 2014

Many jurisdictions are expanding investment in energy efficiency because it is the lowest cost energy resource option. ENE's modeling study – *Energy Efficiency: Engine of Economic Growth in Canada* (<http://www.acadiacenter.org/document/energy-efficiency-engine-of-economic-growth-in-canada>) – helps to better understand the economy-wide benefits and costs from investing in energy efficiency as a resource.

The Engine Report examines the macroeconomic impacts – dollars of Gross Domestic Product (GDP) and jobs created – from investments in cost-effective energy efficiency that reduce demand for three fuel types (electricity, natural gas, and liquid fossil fuel) across the provinces. The results of the study show that reducing demand for energy has a significant, positive impact on economic growth and job creation beyond those commonly acknowledged or measured. Highlights from a range of national scenarios include:

- A total **net increase** in national GDP of \$230 billion to \$580 billion over the study period (2012-2040). **Every \$1 spent on energy efficiency programs results in an increase in GDP of \$5 to \$8** (every \$1 of program plus participant spending increases GDP by \$3 to \$4).
- A total **net increase** in national employment of 1.5 to 4.0 million job-years (one job-year is equivalent to one job for a period of one year). **Every \$1 million invested in efficiency programs generates 30 to 52 job-years** (every \$1M of program plus participant spending generates 22 to 27 job-years).
- Across Canada, the **peak annual increase in GDP is \$19 billion to \$48 billion**, and the **maximum annual increase is 121,000 to 304,000 jobs**.
- This is a **net benefit analysis**. The results also include the negative ratepayer effects, or costs, to fund programs and losses from avoided electricity generation.

The Regional Economic Models Inc. (REMI) PI+ model – a highly regarded economic model used in the study – estimates the net economic impact of a new policy scenario by comparing a base case annual economic forecast of the Canadian economy to an alternate forecast that includes new dollars of investment in energy efficiency, the resulting dollars of savings that are realized and reinvested, and any negative offsets. The above results are the difference, or net gain, between the base case and efficiency scenarios.

## Energy Efficiency and the Economy

Efficiency investments optimize energy consumption and demand. Efficiency resources contribute to economic growth and job creation because:

- **Saving energy starts with smart spending.** Saving energy requires investment in products like high-efficiency lighting and equipment as well as community labor like hiring contractors to install insulation or new windows, generating increased local spending and jobs.
- **Saving energy is less expensive relative to other energy options.** On average, efficiency programs costs 2-4 cents to save a lifetime kilowatt-hour (kWh) of electricity. By comparison, coal-fired generation can cost 10 cents/kWh. Investing in energy efficiency when it is lower cost than traditional energy options lowers the cost of the energy system and saves all ratepayers money.
- **Energy efficiency lowers energy bills.** Improving the energy efficiency of homes and businesses lowers demand for energy and consumer energy bills. Nationally, the scenarios modeled in this study save \$94-\$220 billion in avoided energy costs from 2012 to ~ 2040. Lower energy bills reduce the cost of living and of doing business, leading to increased discretionary spending (dining out, renovations, travel) and improved industrial competitiveness, which drives new economic output.

Energy efficiency is an important resource with many benefits, including a significant potential to save households money, improve industrial competitiveness, and drive economic growth and job creation across Canada (see overview on page 3). All Canadians benefit from investments that reduce energy waste, empower consumers, and improve environmental performance.

### For more information:

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Acadia Center ([www.acadiacenter.org](http://www.acadiacenter.org)) is a non-profit, research and advocacy organization committed to advancing the clean energy future. Acadia Center is at the forefront of efforts to build clean, low carbon and consumer friendly economies. Acadia Center's approach is characterized by reliable information, comprehensive advocacy and problem solving through innovation and collaboration.

# Macroeconomic Impacts from Investing in Energy Efficiency

WORLD ECONOMY

CANADIAN ECONOMY

