

# SUSTAINABLE ENERGY FOR CANADA: STRATEGIC OPPORTUNITIES

## Recommendation Summary

The federal government has set a laudable goal of generating 90 per cent of our electricity from non-emitting sources by 2020.<sup>64</sup> Achieving this promise will require additional support from the government that builds on its past successful programs. This recommendation includes three strategic opportunities for new targeted support, addressing:

- 1) Northern and Remote Communities**, which are facing the highest and most volatile energy prices in the country;

*Recommendation:* Create a Sustainable Action Fund for Energy (SAFE) for Northern and Remote Communities with a **\$10-15 million commitment for three years.**

- 2) Energy storage opportunities** which can benefit renewable energy deployment in every province and territory, as well as maximizing the efficient use of existing infrastructure;

*Recommendations:*

- **Amend Classes 43.1 and 43.2** of the *Income Tax Act* to specify that capital cost allowances also apply to expenditures on tangible stand-alone energy storage assets; and
- **Create a 30% investment tax credit** for emerging energy storage technologies, resulting in about **\$130 million dollars of support over a 5-year time frame;** and

- 3) Supporting Canadian homeowners to reduce their energy demands and costs.**

*Recommendation:* As an initial part of a Green Homes Strategy, invest **\$250 million per year for five years** to improve the energy efficiency of existing homes, focusing on lower-income households.

### Total Recommended Investment:

- **\$15 million in 2014-15** for SAFE,
- **Over \$130 million** in tax expenditures **over five years**, and
- **\$250 million per year over five years.**

## Background and Rationale

### 1. Sustainable Action Fund for Energy (SAFE) for Northern and Remote Communities

Canada's Northern and remote communities span a vast geographic area with very different community circumstances. But in many cases they face a common reality of depending on importing diesel fuel as their primary source of energy.

Continuing to rely on diesel fuel is risky and expensive for these communities and frequently limits their economic opportunities. Furthermore, diesel fuel is expensive and subject to significant price swings, putting heavy draws on already strained budgets. Numerous diesel spills in remote communities have contaminated buildings and local soils, as well as compromising local air quality.

<sup>64</sup> 2008 Speech from the Throne, <http://www.parl.gc.ca/Parlinfo/Documents/ThroneSpeech/40-1-e.html>

For decades, northern and remote communities have sought to reduce their reliance on diesel power through energy efficiency, local renewable energy sources, and/or transmission connection to main electricity grids. While there have been some notable successes, many communities with potential sustainable energy options have thus far been unable to tap into these alternatives, despite the existence of national renewable energy and energy efficiency programs.

A primary reason for this low adoption rate is that the economic and logistical challenges of remote and off-grid locations have made it much more difficult for these communities to effectively participate in national programs. As a result, these programs have largely failed to begin a market transformation in Canada's remote and northern communities.

Private investment can be an important opportunity for partnerships between Aboriginal communities, natural resource corporations, energy technology firms, energy development companies and utilities. However, this kind of investment can only be unlocked once northern and remote communities' project plans have passed the feasibility stage of development, which validates a project's business case. There are numerous pre-feasibility level studies in northern and remote communities from coast to coast to coast, but the lack of resources available to bring projects to the point of private financing remains a barrier.

A Sustainable Action Fund for Energy (SAFE) for Northern and Remote Communities could help to overcome this bottleneck.

A \$15 million fund would be able to provide feasibility stage funding in the range of \$500,000 to \$2.5 million per project has the potential to catalyze renewable energy, transmission interconnection, large-scale improvements in community energy demand, and major enhancements to promote enhanced home/building/facility energy efficiency for off-grid communities. Selecting a few high potential projects (that have passed the pre-feasibility stage of development) with sufficient resourcing to prove economic and environmental viability will be more effective at realizing sustainable energy projects for northern and remote communities than more fragmented efforts, or minor scale funding contributions. A minimum of three years would enable enough high quality, feasibility-level projects to move towards development stage.

Energy has been a vital component for economic development for the southern and urbanized regions of the country. The 2013 Budget offers an opportunity for sustainable energy infrastructure to be an economic driver for northern and remote regions of Canada.

## **2. Fostering commercialization in energy storage**

Large-scale power storage is one of the most important technological developments that will be required to deliver clean energy at scale.

Energy storage would help to integrate all types of renewable energy technology, and also help to maximize the efficient use of existing assets and infrastructure.

Canada has expertise in leading storage technologies (including power to gas, pumped hydro storage and fuel cells), but there remains a gap between pilot stage and commercialization. With the world's sixth largest electricity system, Canada has a large enough market to be able to play a leading role in commercializing this technology.

An Investment Tax Credit (ITC) would help support emerging storage technologies. The new ITC should target 30% of technology expenditures that are associated with energy storage technologies.

A 30% ITC has a successful track record in supporting the early adoption of solar and fuel cells in the U.S.. The U.S. experience shows that a 30% threshold is large enough to cause industry to accelerate its investment cycle on technologies that are still in the early commercialization stage. It is meaningful enough that industry can better balance the risk of early technology adoption without encouraging free riders.

Another important policy tool to support power storage is amending the definition of Capital Cost Allowance ("CCA") in Class 43.2 of the *Income Tax Act* to include expenditures on tangible stand-alone energy storage assets. Environment Canada described Class 43.2 as having "been created to provide additional incentive for those systems in Class 43.1 that use fossil fuels more efficiently (efficiency = 72 percent), for specified-waste-fuelled electrical generation systems and for renewable energy systems (small-scale hydro-electric, wind, photovoltaic, geothermal, fuel cell, active solar)."<sup>65</sup>

<sup>65</sup> [https://www.ec.gc.ca/financement-funding/sv-gs/search\\_results\\_e.cfm?action=details&id=319&start\\_](https://www.ec.gc.ca/financement-funding/sv-gs/search_results_e.cfm?action=details&id=319&start_)

Expanding the mandate to all types of electricity storage beyond fuel cells, including “power-to-gas”, would level the playing field for storage systems that are currently excluded from this benefit. This policy change can occur by either adding an additional section to the existing 43.1 CCA class, or by amending the existing Class 43.1 section (d)(xii) which is currently limited to fuel cells, to include both chemical and mechanic energy storage assets. Should the existing Class 43.1(d)(xii) be amended, then the section should eliminate the requirement that the energy stored be generated by photovoltaic, wind, or hydro-electric equipment, since storage can improve the efficiency of all existing forms of generation. This change would enable the deployment of bulk storage systems onto provincial electricity systems without creating the complicating requirement of only sourcing electricity that is substantially “generated by photovoltaic, wind energy conversion or hydro-electric equipment”.<sup>66</sup>

While bulk storage will largely benefit renewable energy integration in the medium- to long-term, the current restrictive requirement to only source electricity from renewable sources will have the unintended consequence of making storage more burdensome for grid operators, thereby impeding its deployment at the scale required to support renewables.

### **3. A National Green Homes Strategy to build on energy efficiency successes in Canadian houses**

Canadians and businesses have huge opportunities to reduce their monthly costs and to cut pollution by becoming more energy efficient. Efficiency is the cleanest, most affordable, and fastest way to make more energy available to our economy. The federal government has taken important steps to improve energy efficiency in the past, but there is much to be done to keep energy bills affordable for Canadians.

An efficient economy depends on the efficient use of energy. At home and at the workplace, Canadians are not as energy efficient as they could be, making household finances and our overall economy vulnerable to price spikes and energy uncertainties. Energy efficiency measures not only reduce the risk exposure to fluctuations in energy prices, but are also some of the most cost-effective ways to reduce pollution. The less energy we use, the fewer fossil fuels we burn, resulting in cleaner air, cleaner water and fewer greenhouse gas emissions. Lowering energy consumption means Canadians will have more capital and discretionary spending power that can be used to invest more productively in the wider economy.

Any program that helps reduce energy costs puts more money in the hands of households and businesses. In other words, it has the same benefit as a permanent tax cut. In a recent study<sup>67</sup> that included four Eastern Canadian provinces, Environment Northeast found that a \$14.5 billion investment over 15 years in cost-effective energy efficiency programs to reduce electricity, natural gas, and heating oil consumption would increase GDP by over \$84 billion, and create jobs equivalent to 625,000 job years. The increased economic activity primarily occurs as consumers spent their energy cost savings in the wider economy, and industry reduces the costs of doing business, bolstering competitiveness and generating new investment.

These win-win opportunities for both environmental and economic gains have inspired collaboration and consensus, such as the Canadian Premiers’ commitment through the Council of Federation to improve energy efficiency by 20 per cent by 2020 in their respective jurisdictions.

The energy used to heat Canadian homes, run appliances and keep lights on is responsible for about 15 per cent of Canada’s total greenhouse gas emissions. Wasted energy (due to inadequate insulation, inefficient lights and appliances, and insufficient weatherproofing) means that Canadians burn more fossil fuels than necessary to keep our homes comfortable. Yet of the over nine million homes

<sup>66</sup> <http://canadagazette.gc.ca/rp-pr/p2/2009/2009-05-13/html/sor-dors115-eng.html>

<sup>67</sup> Environment Northeast, *Energy Efficiency: Engine of Economic Growth in Eastern Canada*, May 2012, <http://www.env-ne.org/resources/detail/energy-efficiency-engine-of-economic-growth-in-canada>. The \$14.5 billion investment, and resulting \$84.0 billion increase in GDP and 625,000 job years represent the “mid-range” cost-effective efficiency investment scenario modeled by the study.

in Canada, only 8 per cent have been retrofitted to improve efficiency as a result of government programs. While these improvements are important, there remains significant work to be done.

Energy costs are particularly challenging for low- and fixed-income Canadians. But while these consumers would see significant benefits from efficiency measures, they are also often least able to afford the initial investment required. (For example, half of all measures for home energy efficiency are directed towards low-income households in the U.K.'s initiative.)

The federal government could play a critical role in leading Canadian energy efficiency efforts, producing tangible benefits that include cost savings for consumers, job creation and economic stimulus. For example, homeowners who conducted retrofits supported by the federal ecoENERGY incentive programs expected to reduce their home energy bills by, on average, 23 per cent.<sup>68</sup>

Looking beyond Budget 2014, a national program should target 15 per cent of existing housing stock retrofitted by 2015, 40 per cent by 2020, and 100 per cent by 2030. This strategy would bring Canada in line with similar efforts in the U.S. and the U.K.

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<sup>68</sup> Natural Resources Canada, Report on the Review of Clean Energy Initiatives, 25 March 2011.