



New Brunswick Select Committee on Climate Change

July 15, 2016

About Us

- Leader in design and delivery of resource efficiency programs and services for households, businesses, and large industrial clients
- Results and innovative performance cited in 2015 by influential International Energy Agency and Alberta's Climate Change Leadership Report
- Customer satisfaction rating consistently exceeds 90%
- Federally incorporated, led by independent Board of Directors

Our Story

2010

Efficiency Nova Scotia Corporation established to manage electricity Demand Side Management (DSM) initiatives in Nova Scotia. Initiatives are funded by a DSM charge on electricity bills.

2014

Legislative changes establish **Efficiency Nova Scotia** as a franchise and require DSM initiatives to be provided by a franchise holder, now known as **EfficiencyOne**. The cost of these activities will be included in electricity rates.

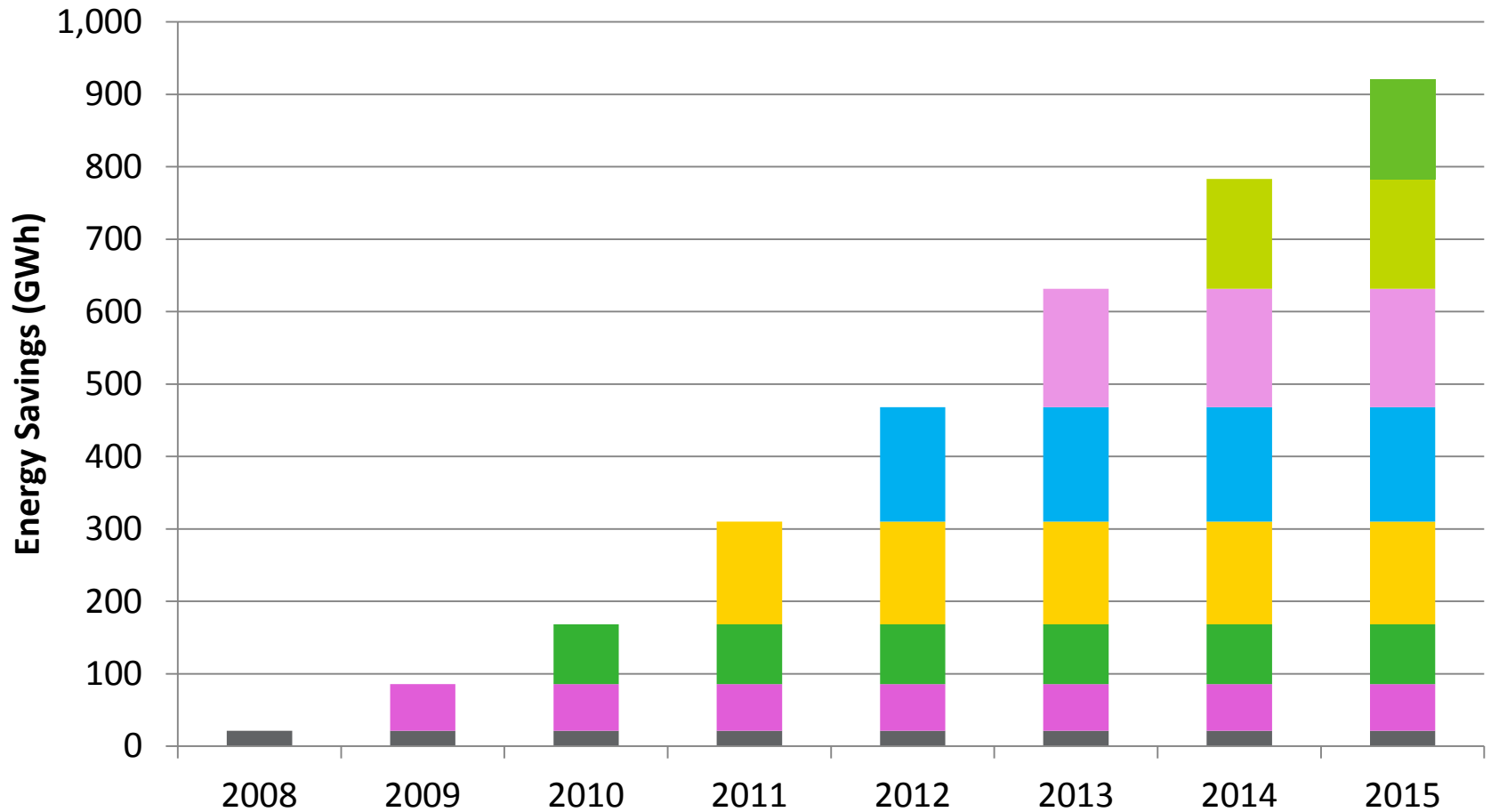
2015

The **UARB** approves a 3-year, \$102 million investment in DSM activities. Funding from the **Province of Nova Scotia** continues to support no-cost upgrades in income-qualified homes across the province.

Nova Scotia Success

- We work with **100+** local partners to deliver energy-saving services:
 - We've helped over **225,000** Nova Scotians to date
 - Reduced annual electricity use by **8%**
 - Prevented **600,000 tonnes** of GHG emissions annually
 - Lowered power bills by **\$110 million** in 2016 alone
 - Helped **1,300** income-qualified homeowners save money and live more comfortably

Incremental DSM Achievements in Nova Scotia



Our Partners

SIEMENS



Bird & Stairs
J.W. BIRD and COMPANY LIMITED



Economic Benefits

- Nova Scotia model focuses on **building industry capacity**
- Industry currently employs 1,200 Nova Scotians and can be **expanded significantly**
- Every \$1M invested in energy efficiency creates **31 quality, full-time jobs**



Partners are Growing



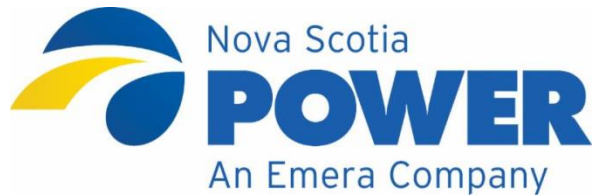
“For us to be able to build something like this and be able to keep 50, 60, 70 people going at home, I’m really proud of it.”

– Dwaine MacDonald
President, Trinity Maintenance Solutions

- Partner since 2011
- Assisted over 20,000 homeowners and many businesses

Our Structure / DSM Model

Our Funding

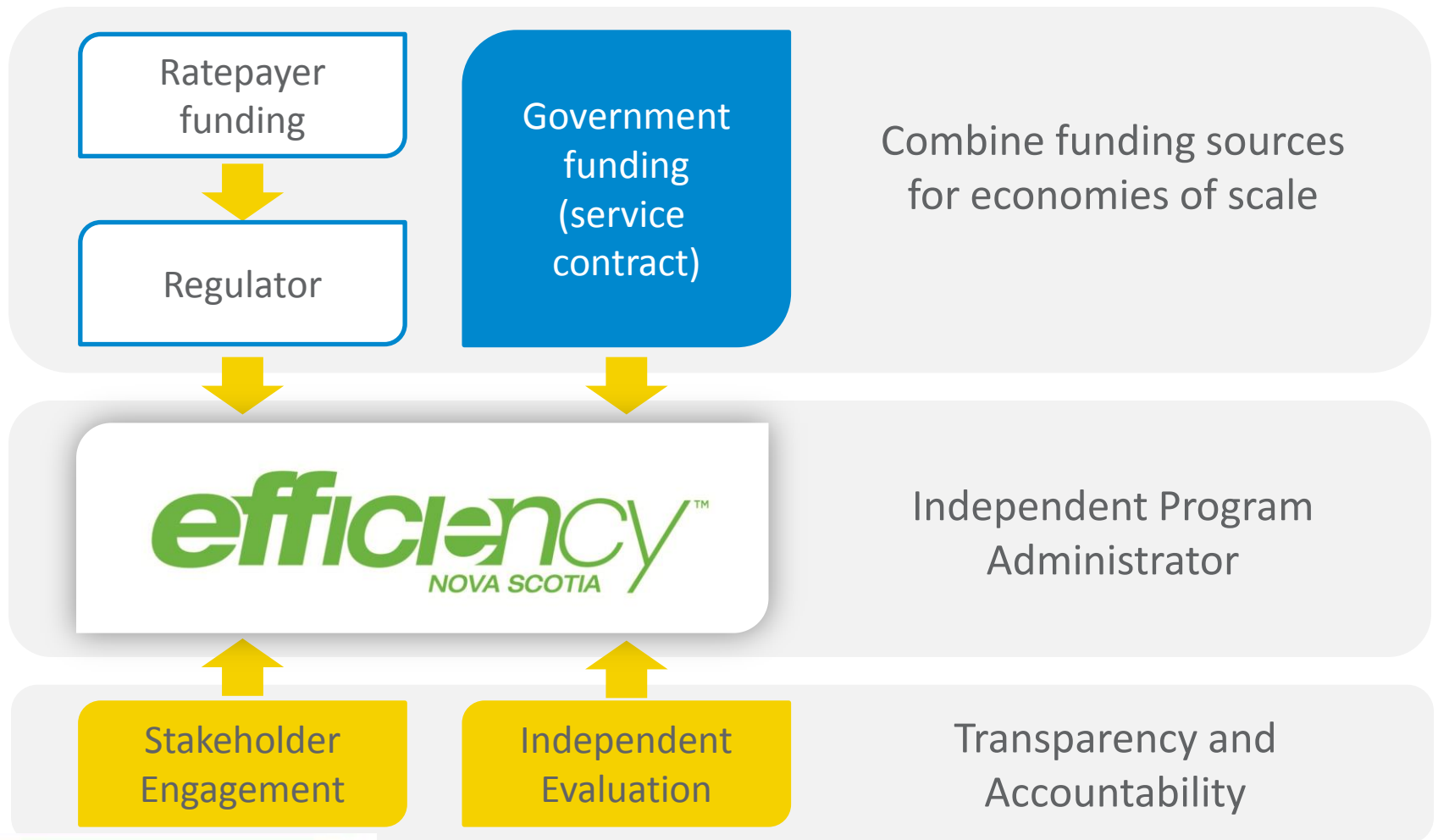


\$33 Million annually
133 GWh and 20 MW targets

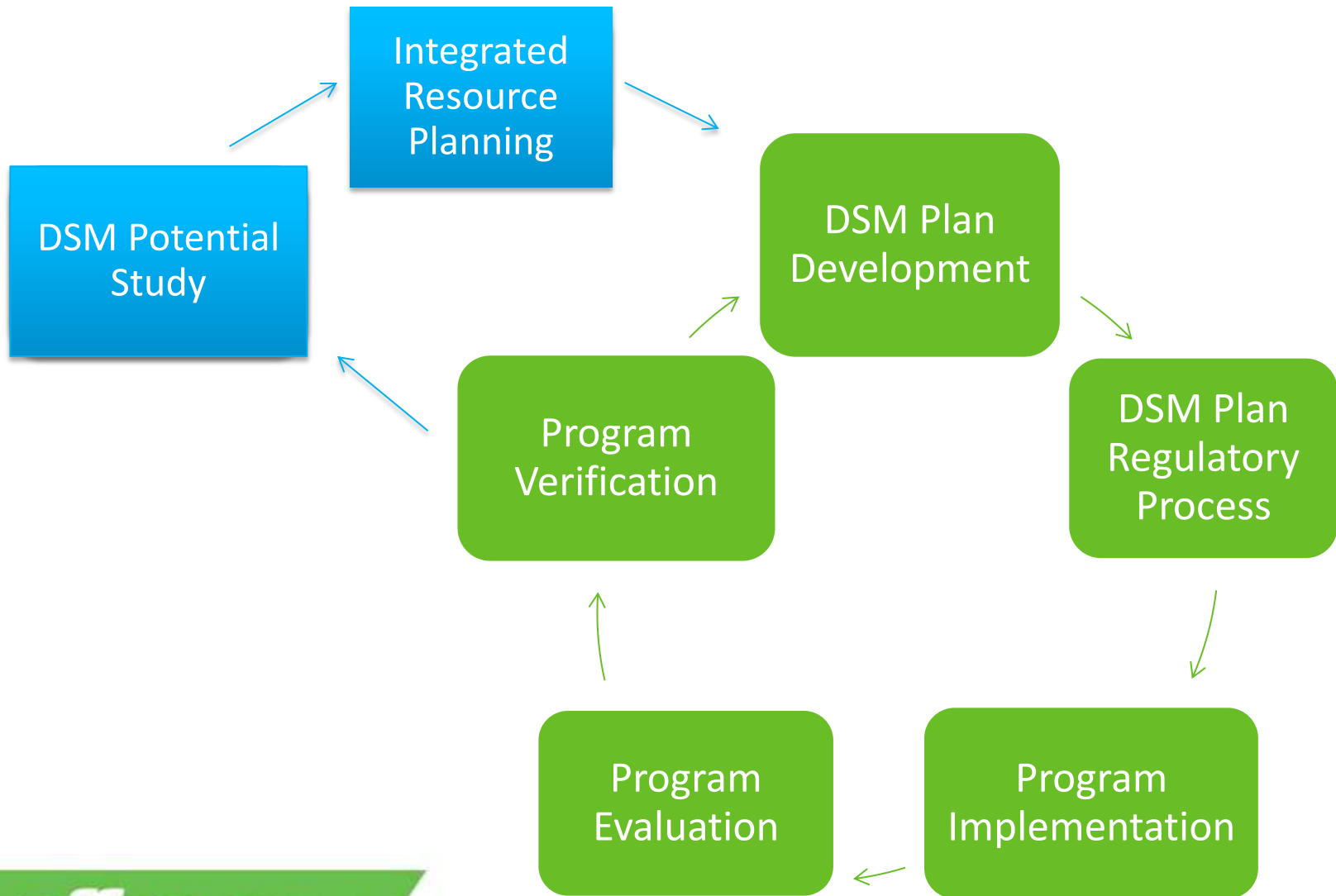
\$13 Million annually
Low Income Non-Electric GJ targets



Governance Model



The DSM Planning Cycle



Climate Change Mitigation

Role of Energy Efficiency

Energy efficiency will play a **leading role** in global efforts to mitigate climate change

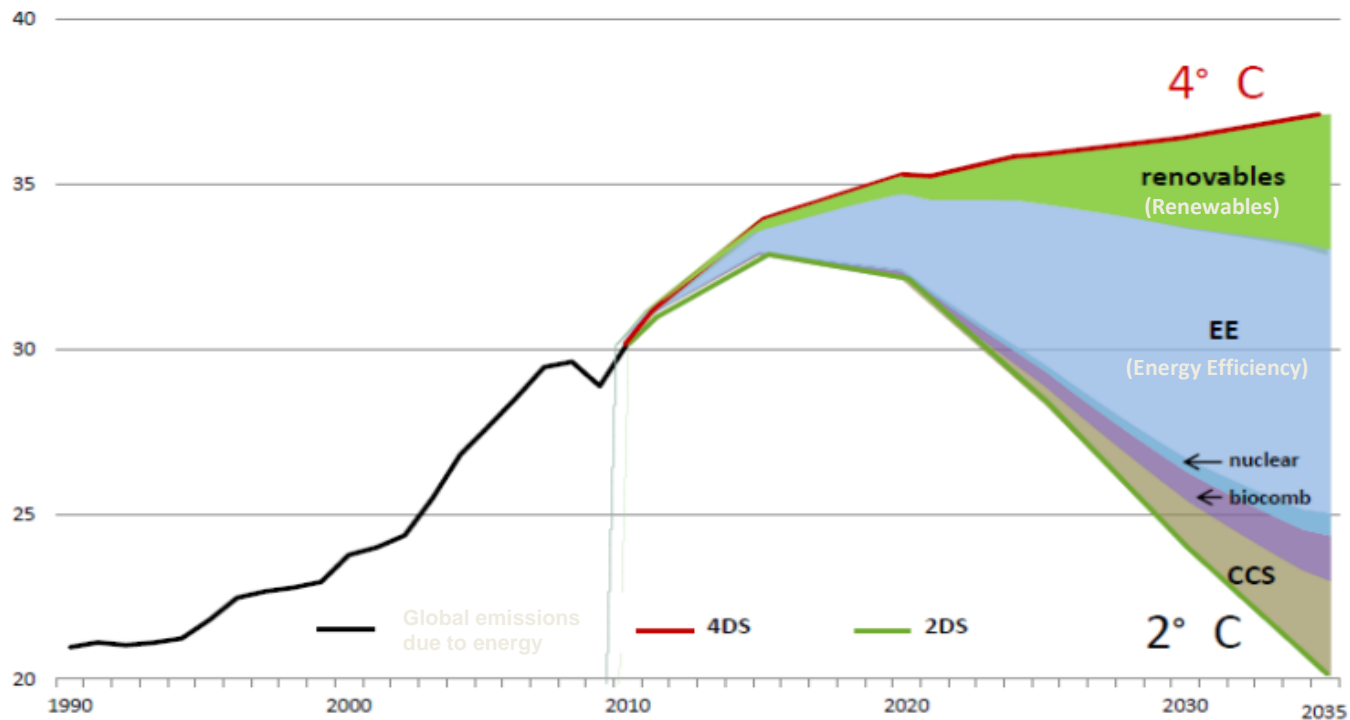
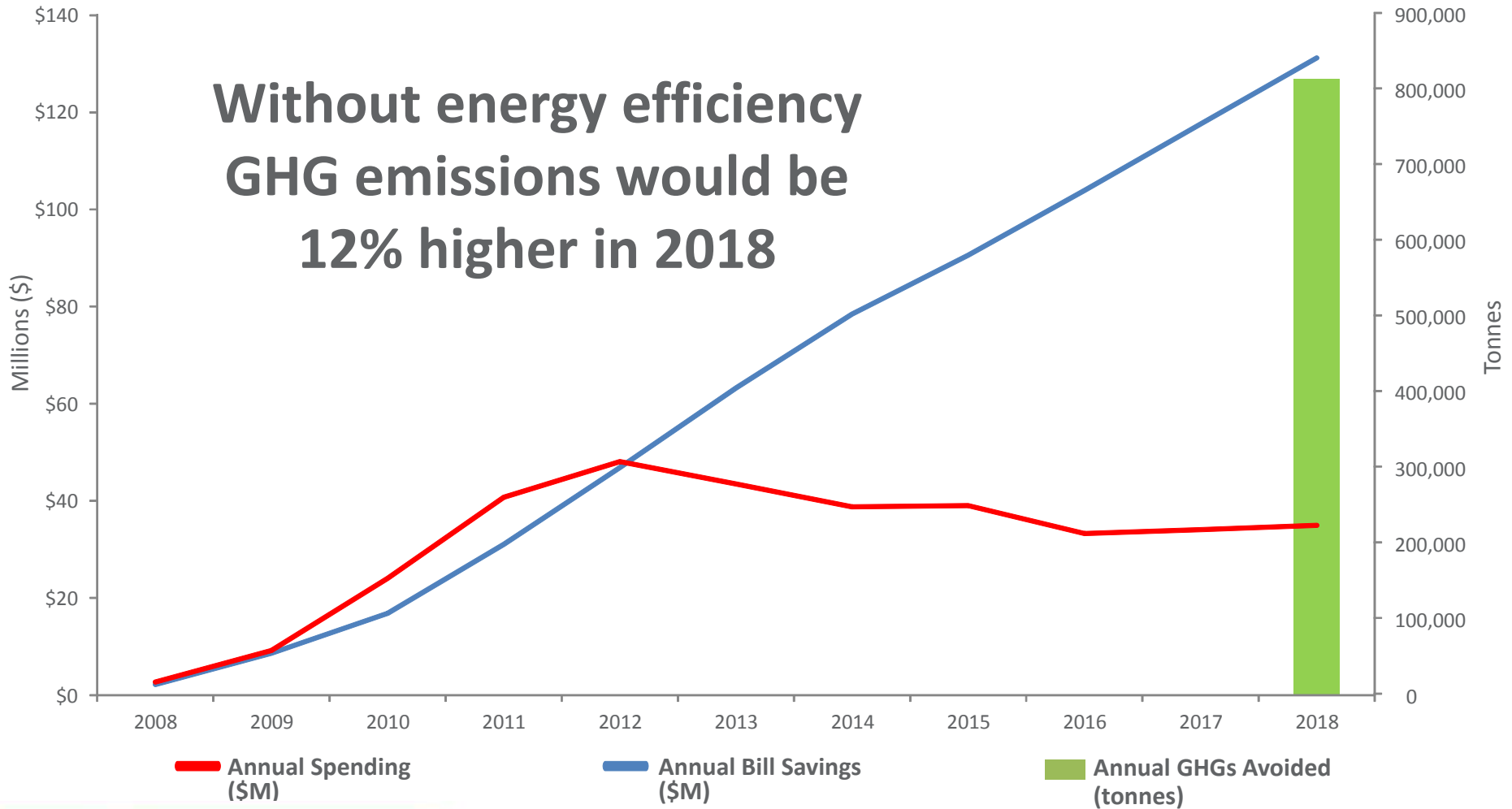


Image produced by the Inter-American Development Bank. English translations by EfficiencyOne.

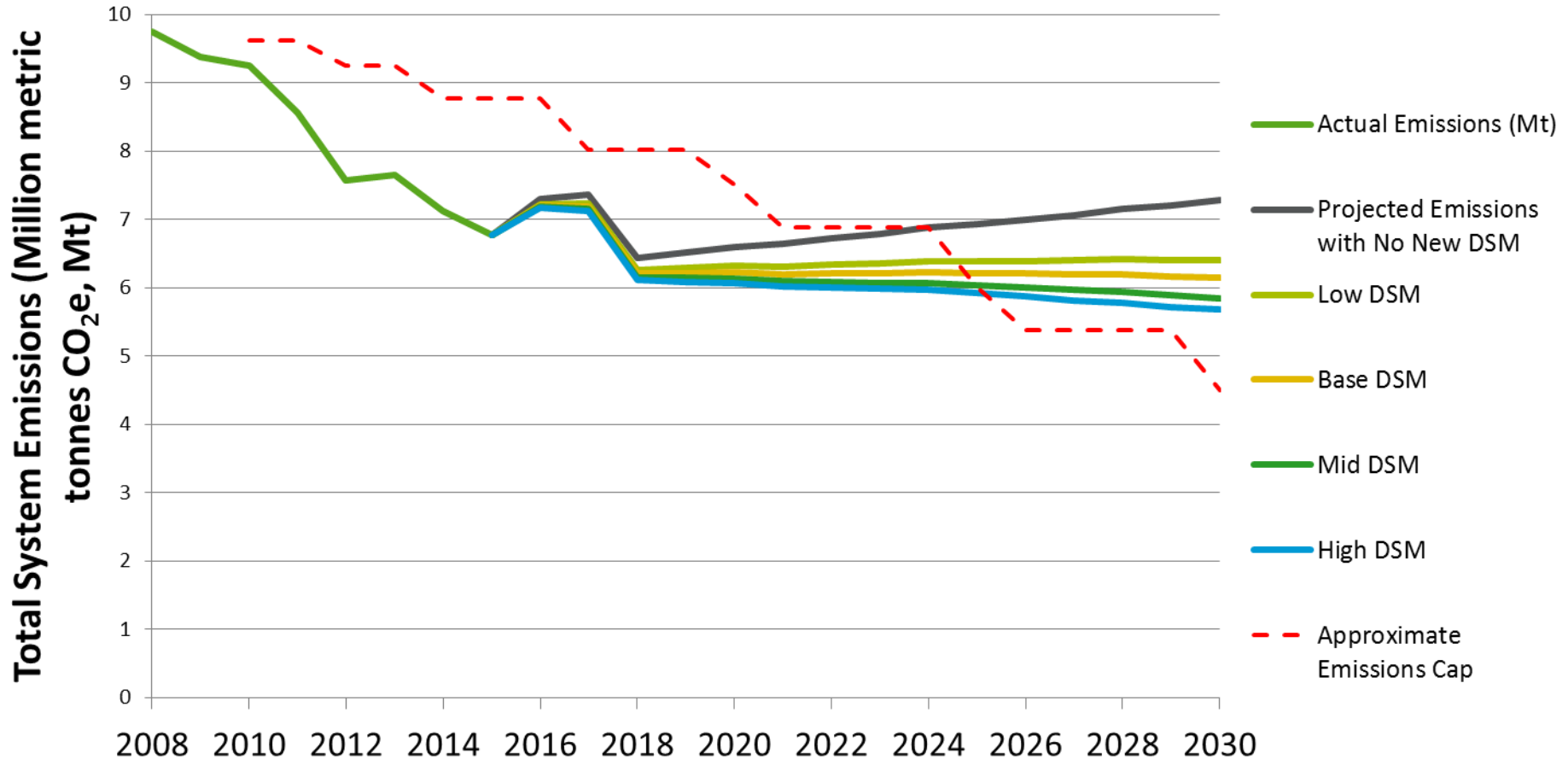
Electricity Savings & Avoided GHGs

Without energy efficiency
GHG emissions would be
12% higher in 2018



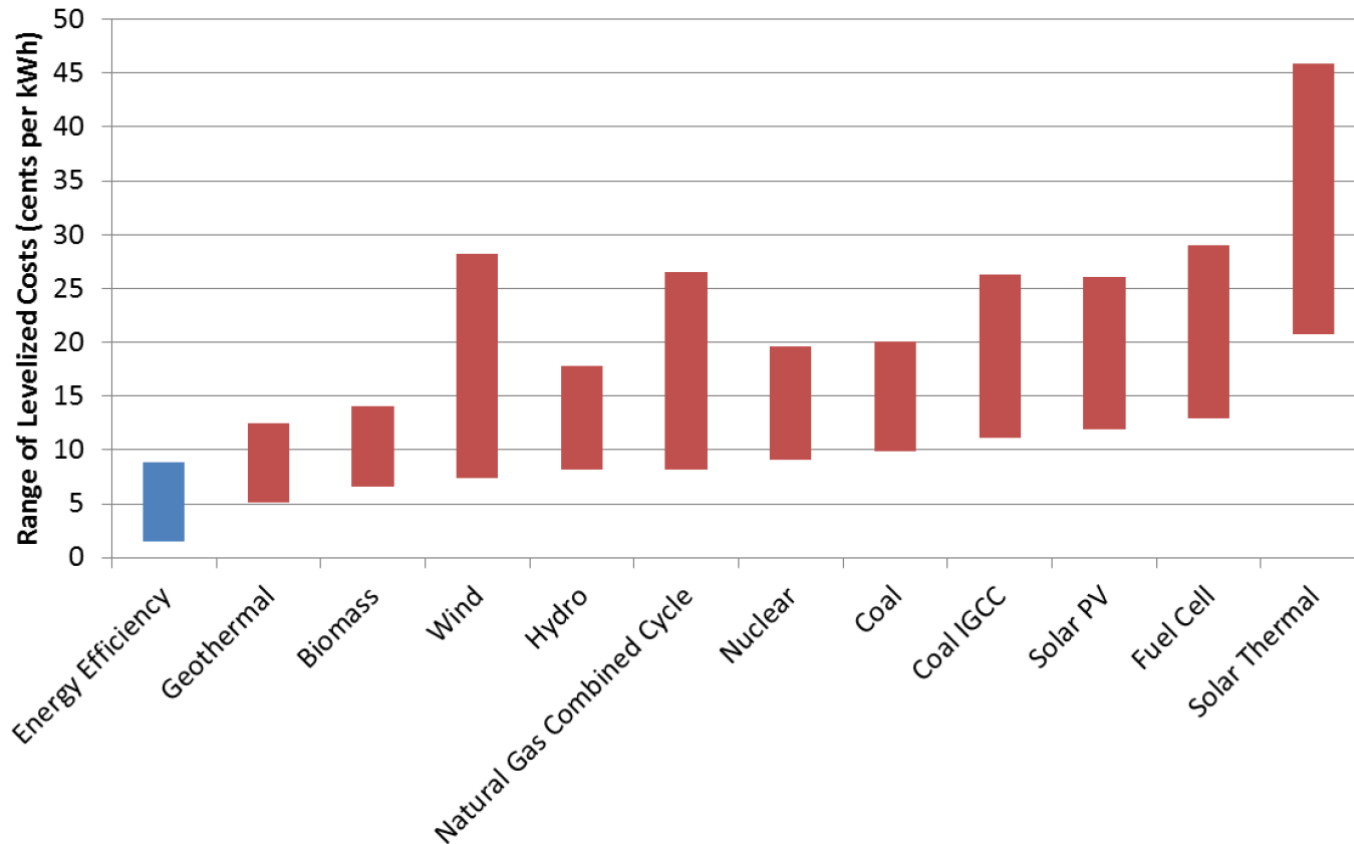
Potential GHG Reductions in Context

Contribution of DSM to GHG Emission Caps, 2008-2040



Energy Efficiency First

Energy Efficiency: Our *First* Fuel

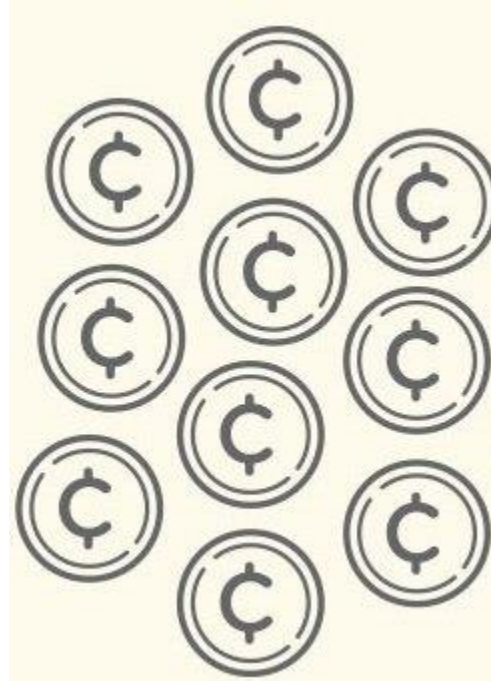


Source: Market Trends for the Supply and Demand of Electricity in Nova Scotia, ICF 2014

Energy Efficiency First

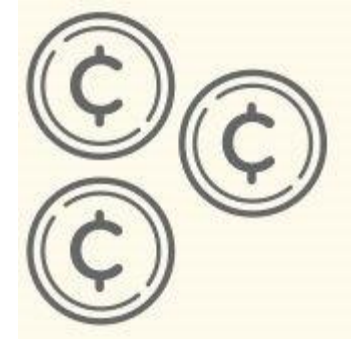
10¢

Cost to generate 1 kWh of wind energy in Nova Scotia



3¢

Cost to save 1 kWh of electricity in Nova Scotia





“Being energy efficient actually helps you do more and get more for your fellow citizens.”

- Cecil Clarke, Mayor,
Cape Breton Regional Municipality

CAPE BRETON REGIONAL MUNICIPALITY

Last year one of our Onsite Energy Managers helped Cape Breton Regional Municipality develop a five year plan to reduce the city's energy consumption by 15% or \$1.5 million. The city is currently on track to reach those savings having completed more than 50 projects in 2015 with projected savings over \$470,000.

Service Delivery: Bringing Energy Efficiency To Life

Services for Every Nova Scotian

Residential

- Product rebates
- Home Energy Assessment
- New Home Construction
- Efficient product installation
- Appliance retirement
- Low-income homeowner support
- Services for rental properties and condos

Commercial

- Product rebates
- Small business rebates/financing
- New construction
- Existing building optimization
- On-site energy managers
- Strategic energy management
- Employee engagement
- Custom projects

Program Partnerships

RESIDENTIAL

Program Name	Types of Partners
Instant Savings	Retailers of household products
Appliance Retirement	Refrigeration recyclers
Home Energy Assessment	Energy Auditors Building envelope & HVAC contractors
Green Heat	HVAC contractors
Direct Installation	Customer engagement agencies
New Home Construction	Energy Modelers
Green Schools	Education & engagement agencies
HomeWarming	Energy Auditors Building envelope & HVAC contractors

Residential - Space and Water Heating

Home Energy Assessments

- Existing Homes
 - Rebates or low interest financing
- New Homes
 - Rebates



HomeWarming

In 2015, we provided upgrades to over **1,300** income-qualified homeowners:

- Main wall insulation
- Basement insulation
- Attic insulation
- Draft proofing



David and Aline Keddy of Dartmouth are saving over **\$2,000** per year and say their home is more comfortable.

Residential - Space and Water Heating

Mail-In Rebates

- Space or water heating equipment
- Rebates or financing



Residential - Product Installation

- Free installation of:
 - LEDs
 - Low flow showerheads
 - Faucet aerators
 - Electric dhw tank wraps
 - Dhw pipe wrap
 - Smart strips



Residential - Appliances, Lighting, Other

In-Store Instant Rebates

- Lighting, dimmer switches, motion sensors
- Fridges, clothes washers
- Powerbars
- Outdoor timers
- Programmable thermostats
- Clothes lines

Retirement of Older Appliances

- Fridges, freezers, room air conditioners
- At-home pickup, small incentive to participate

Program Partnerships

BUSINESS, NOT-FOR-PROFIT AND INSTITUTIONAL

Program Name	Types of Partners
Business Energy Rebates	Electrical equipment wholesalers, Installation contractors
Small Business Energy Solutions	Energy auditors, Installation contractors
Commercial New Construction	Energy modellers
Existing Building Commissioning	Energy auditors, Commissioning agents, Building control system managers
Custom Retrofit	Energy auditors, System-specific consultants, Installation contractors, Measurement & Verification contractors
Energy Management Information Systems	Industrial energy auditors, Measurement and controls contractors
Strategic Energy Management	Energy management consultants

Commercial – Product Rebates

Instant Rebates at Distributors

- Lighting
- Pumping

Mail-In Rebates

- Rebates or on-bill financing
- Products include:
 - Lighting, pumping, compressed air, HVAC, IT and datacentres, agriculture, kitchen, laundry, refrigeration, VFDs, solar, water heating.

Commercial - Small Business

- No-cost energy audit for qualified small businesses
- Cover **up to 60%** of the project cost through rebates
- Offer 24 months **interest free on-bill financing**



Success Story: Becky's Daycare



BECKY'S DAYCARE

Last year Becky's Daycare went through our Small Business Energy Solutions program to install a heat pump. They were so pleased with the results, they decided to install two more.

Now they're on track to save almost \$2,000 each year in electricity costs.

Commercial – Custom Projects

- Cover 50% of scoping study cost and 100% of feasibility study cost
- Offer rebates up to 50% of eligible project costs, to a maximum of \$500,000
- Financing available
- Free compressed air leak detection survey

Success Story: GoodLeaf Farms

GOODLEAF FARMS

GoodLeaf Farms is saving over \$37,000 each year after working with us to install LEDs optimized for their indoor, hydroponic grow-op for leafy greens like spinach and lettuce. These specialized lights only emit blue and red wavelengths, providing a purple glow.



“Our technology is on the cutting edge of plant science. It was great to have a group that was able to work with us on an individual basis and understand what we were trying to accomplish.”

– Greg Veinott, Manager Business Development, GoodLeaf Farms

Success Story: New Construction



“The school certainly wouldn’t be as efficient without Efficiency Nova Scotia’s participation. It was very, very welcome.”

– Chief Terry Paul, Membertou First Nation

MEMBERTOU FIRST NATION

Membertou First Nation’s new elementary school has energy saving features expected to trim annual electricity costs by \$70,000. Through our New Construction program, energy efficient technologies were incorporated into the building plans for the new school that exceeded the energy code baseline by 60%. Technologies included an open-loop ground source heat pump, improved insulation, low flow faucets, more efficient light fixtures and occupancy sensors.

Commercial – Energy Management

Energy Management Information Systems

- Monitor and analyze energy use
- Audit, plan, implement

Strategic Energy Management

- Develop plan – operational and procedural changes
- Ongoing company engagement

On-Site Energy Manager

- Co-fund energy manager

Success Story: Oxford Frozen Foods



“The numbers speak for themselves.”

- Clark Hanna, Production Manager,
Oxford Frozen Foods

OXFORD FROZEN FOODS

Over the past three years, we've worked with industrial companies like Oxford Frozen Foods to improve productivity and reduce operating costs through our Energy Management Information Systems (EMIS) service. EMIS provided the Appetizer Plant with the tools and training required to systematically monitor, manage, and control their energy consumption.

Success Story: Cape Breton University



CAPE BRETON UNIVERSITY

Cape Breton University is set to be the first North American university to be energy self-sufficient and carbon neutral. Some of the work they've completed to date includes a retrofit of the university's ice rink, compressor heat recovery systems, energy-efficient water treatment system and improved interior and exterior lighting. They're now on track to save over \$130,000 each year in electricity costs.

The Future of Energy Efficiency

A Future Outlook

- 2016-2018 DSM Resource Plan

Three-Year Energy Efficiency Investment	Total Annual Energy Savings (GWh)	Total Annual Demand Savings (MW)
\$ 102 Million	406	63

- Plan will save ratepayers \$416 million over lifetime of Plan measures and will avoid 3.5 million tonnes of carbon emissions
- Achievable energy savings potential by 2040 is approximately 30% of current total system load

A Future Outlook – Challenges and Opportunities

- Increasing depth of savings per participant
 - Requires a focus on water heating and envelope performance, energy management in BNI
- Passive House for new construction
- Removing barriers to participation in whole-home retrofits
- Strategic Energy Management for the BNI sector



Why Energy Efficiency

- **Tackling climate change and GHGs.** Energy efficiency is one of the fastest and cheapest ways to reduce GHGs. It costs only 3 cents to save 1 kWh of electricity – significantly lower than the cost of renewables.
- **Helping residents and businesses save money.** Energy efficiency increases household disposable income and improves business productivity and competitiveness.
- **Creating clean, innovative new jobs.** Energy efficiency is delivered locally; the industry is rapidly growing.