

# Managing the Transition to a Clean and Sustainable NB Energy Supply

Select Committee on  
Climate Change

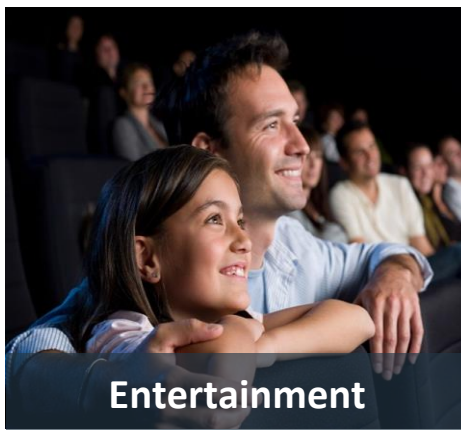
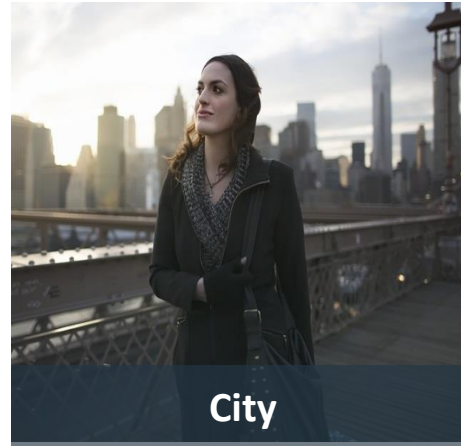
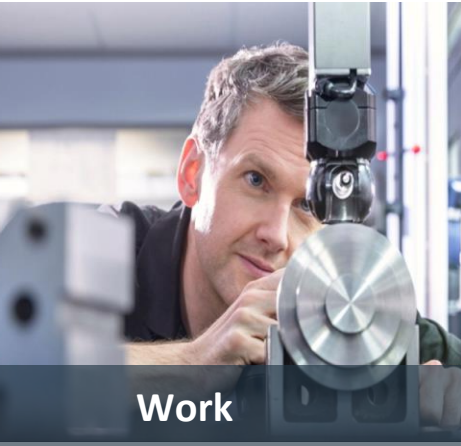
July 2016



**Énergie NB Power**

**Confidential**

# Dependent on electricity & even more so in future



# Electricity in New Brunswick today

**Our Power Grid is the most critical infrastructure we have**

- **North American electric grid is a man-made miracle.**
- **largest machine in the province.**
- **complexity is unmatched**
- **managed by mutual cooperation of numerous stakeholders.**



# A Managed Transition – public feedback



- **8,000+** New Brunswickers engaged online
- **3,000+** New Brunswickers engaged in person
- Strong, consistent endorsement of this approach:

***“New Brunswickers are supportive of investments in renewable electricity within the province as long as it does not result in large rate increases.”***

# Massive Change: Disruption & Innovation



# NB Advantage #1 – Diversity and Capacity



**Point Lepreau – 700MW nuclear**



**7 hydro stations – 889MW**

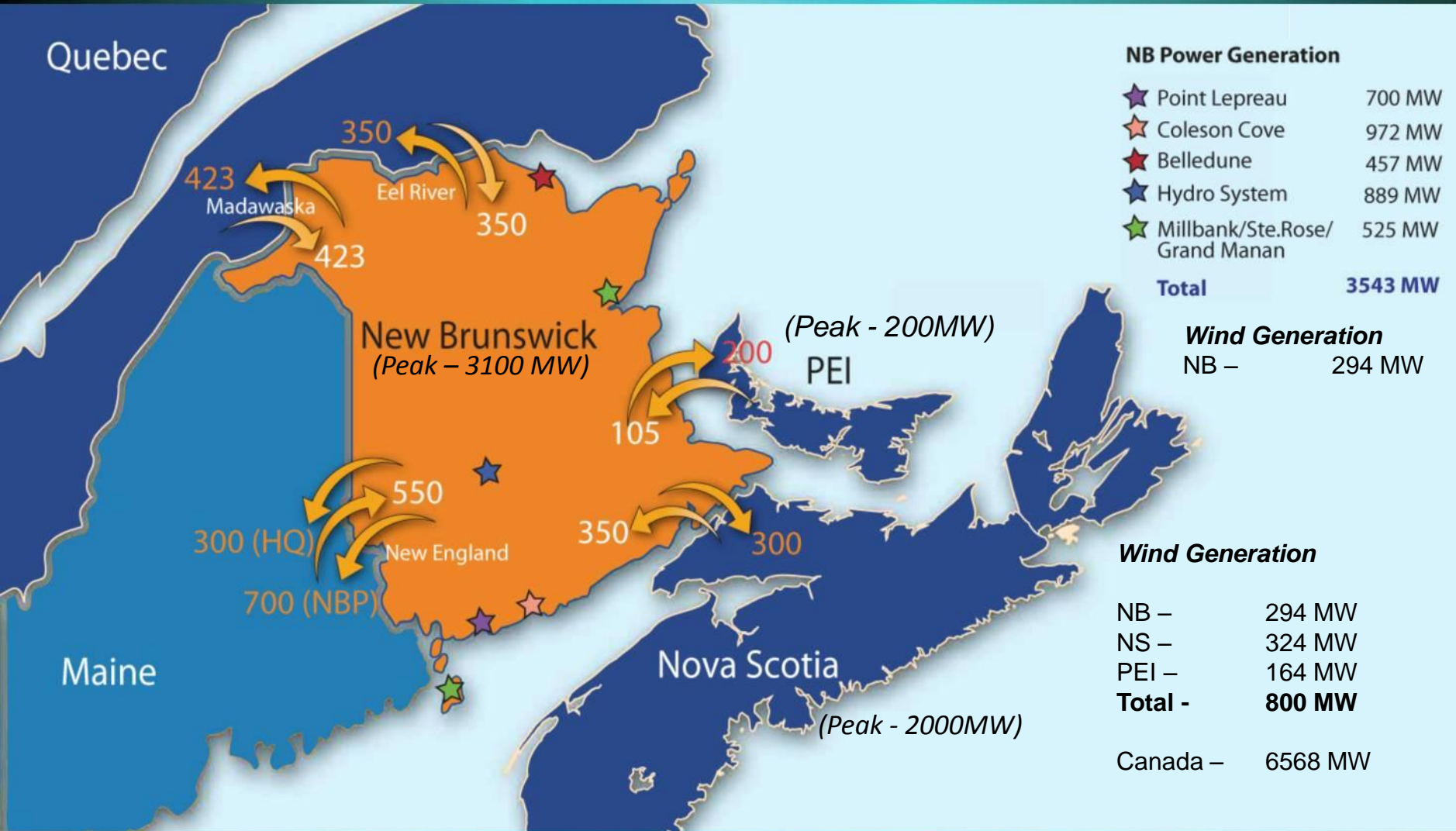


**3 wind farms – 294 MW**

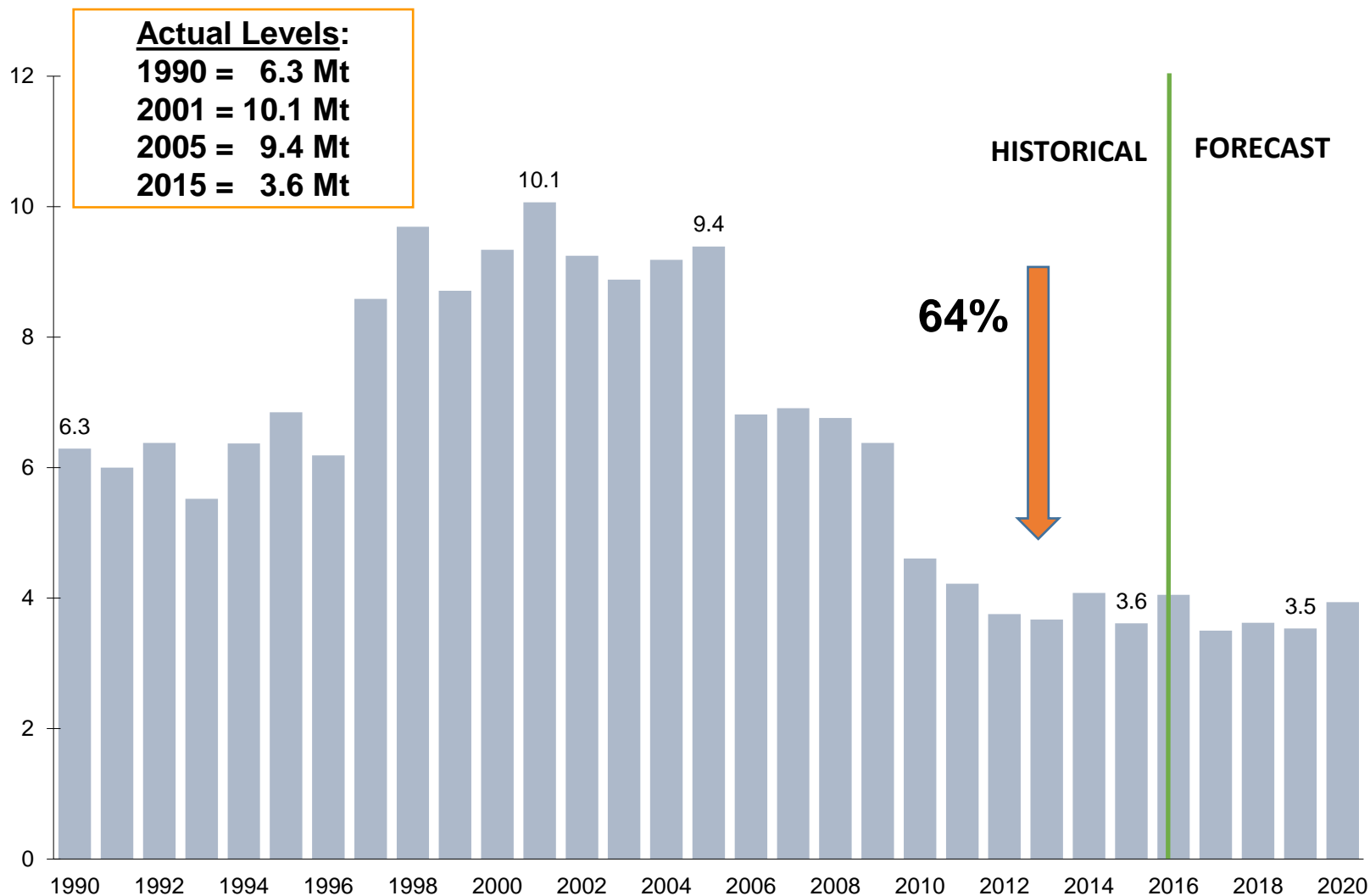


**Belledune – 457MW coal  
Plus 1500MW avail thermal**

# NB Advantage #2 – Geography & Interconnects



# GHG Emission Reductions - NB Electricity Sector

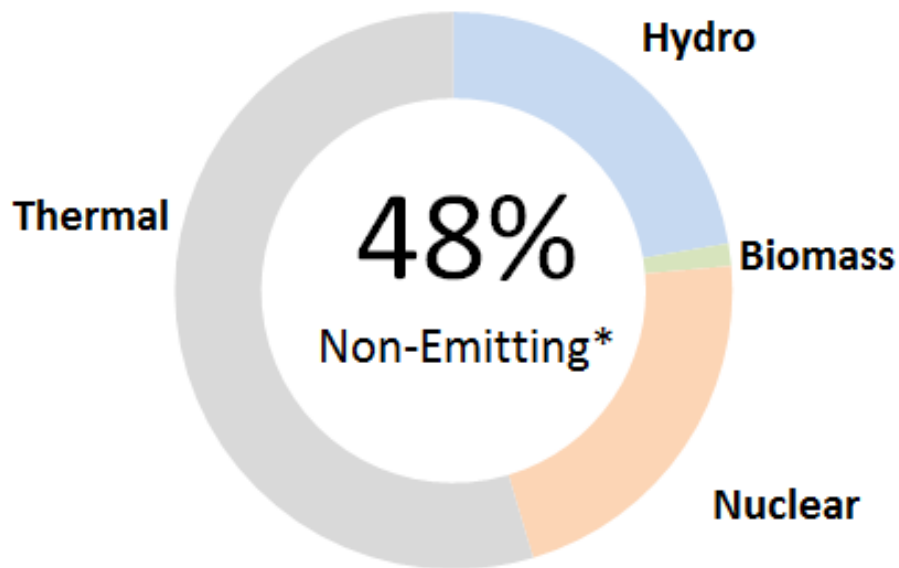




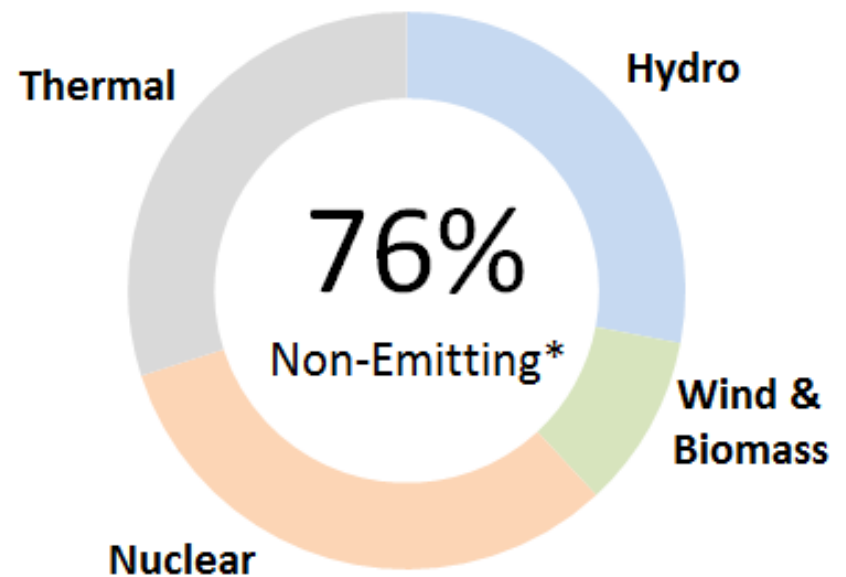
# NB Advantage #3 – Already a Leader in Clean Energy

## In-Province Generation Mix

2000/01 Actual



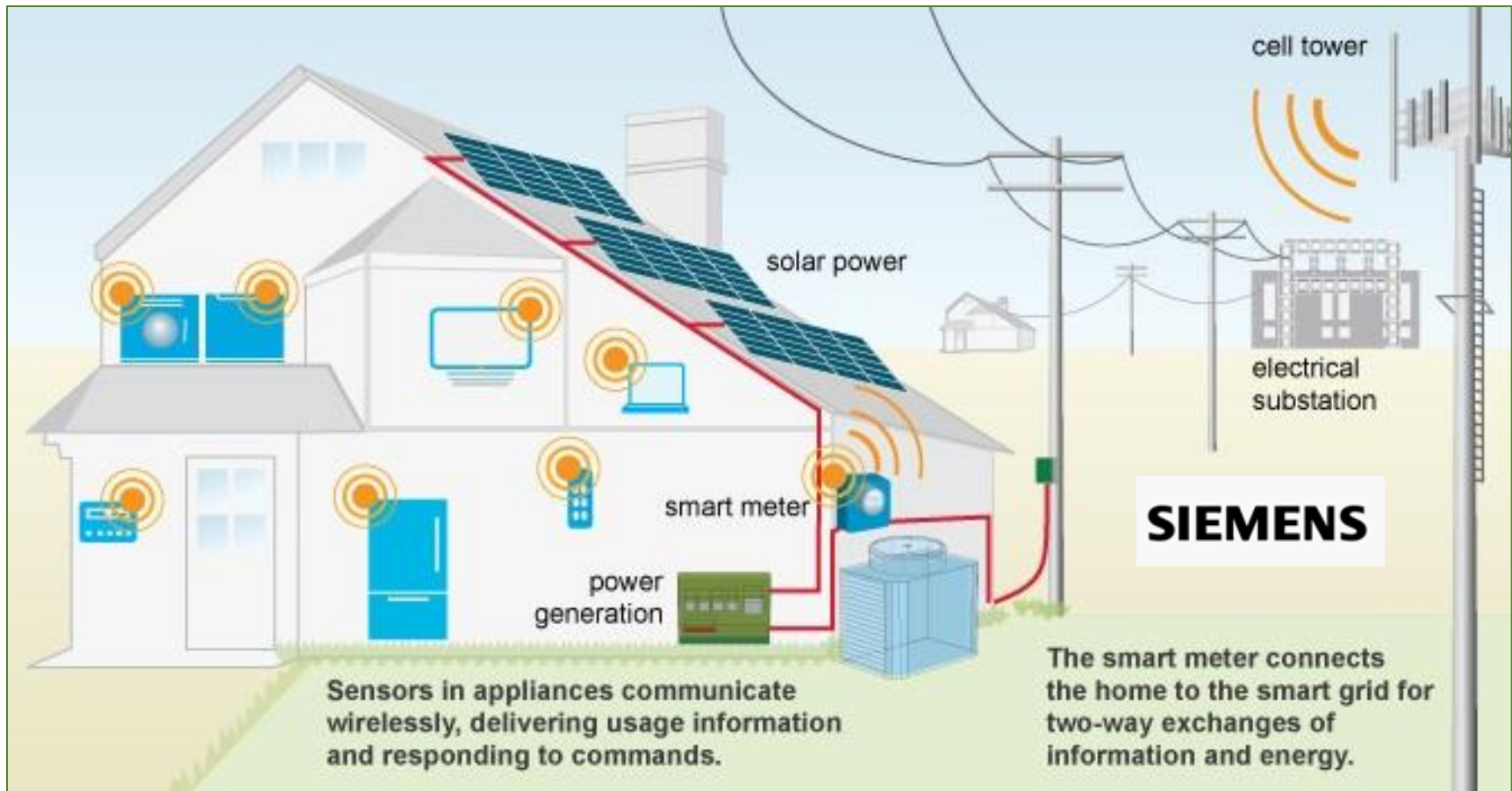
2016/17 Forecast



\*percent of in-province sales

# NB Advantage #4 – Out Ahead on Smart Grid

## Smart grid connects telecom and energy



# NB Advantage #5 – A Green vision that protects customers

## Rate Stability

25 year IRP  
10 Year Financial Plan  
Strong Capital Investments

40% RPS by 2020  
Smart Grid Vision  
DSM Plan 2016-2018

*Growing  
economy*

## Reliability

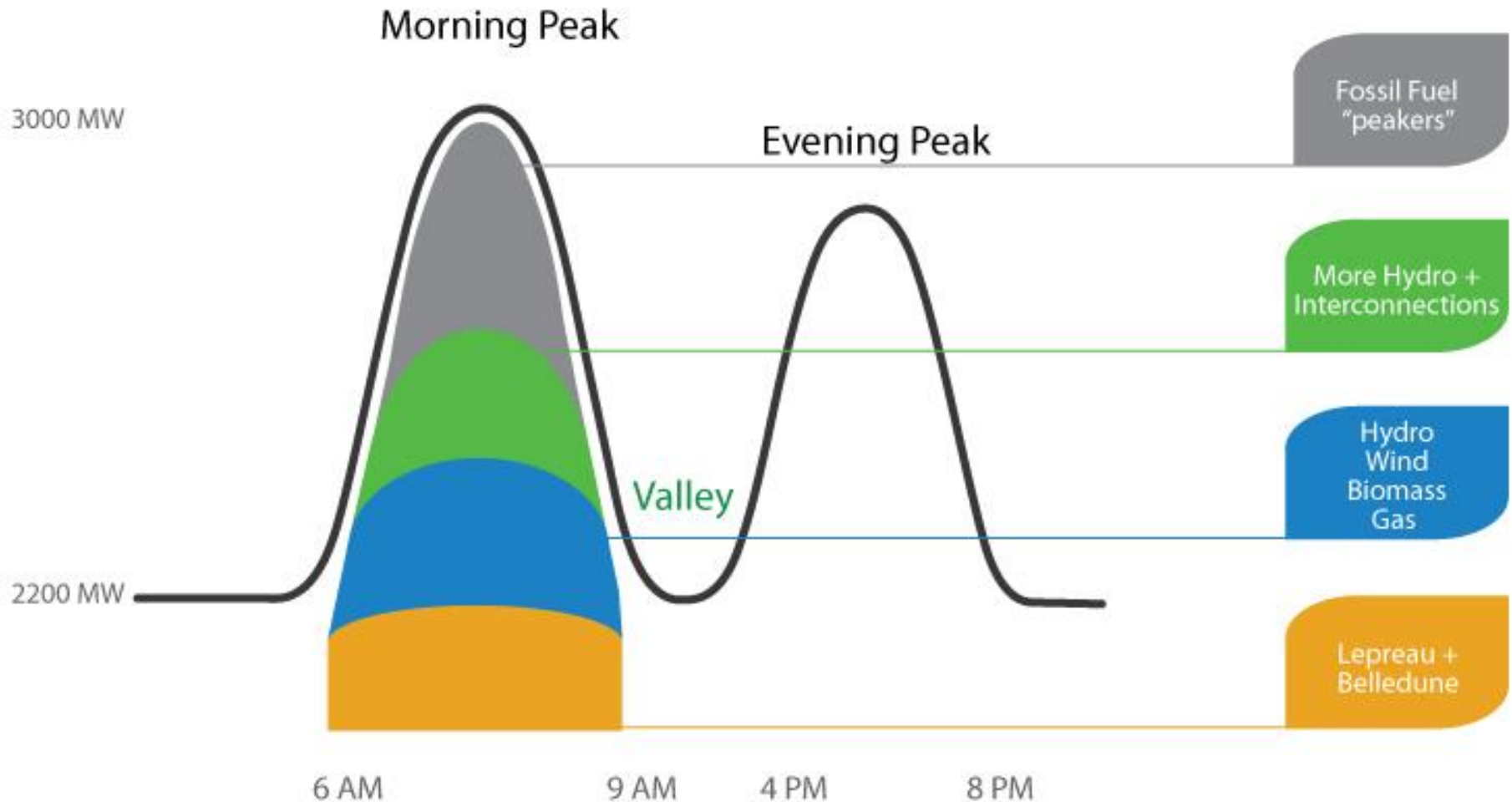
## Cleaner energy

Growth in rates since 2011

NB	7.3%
NS	21.7%
Quebec	9.8%

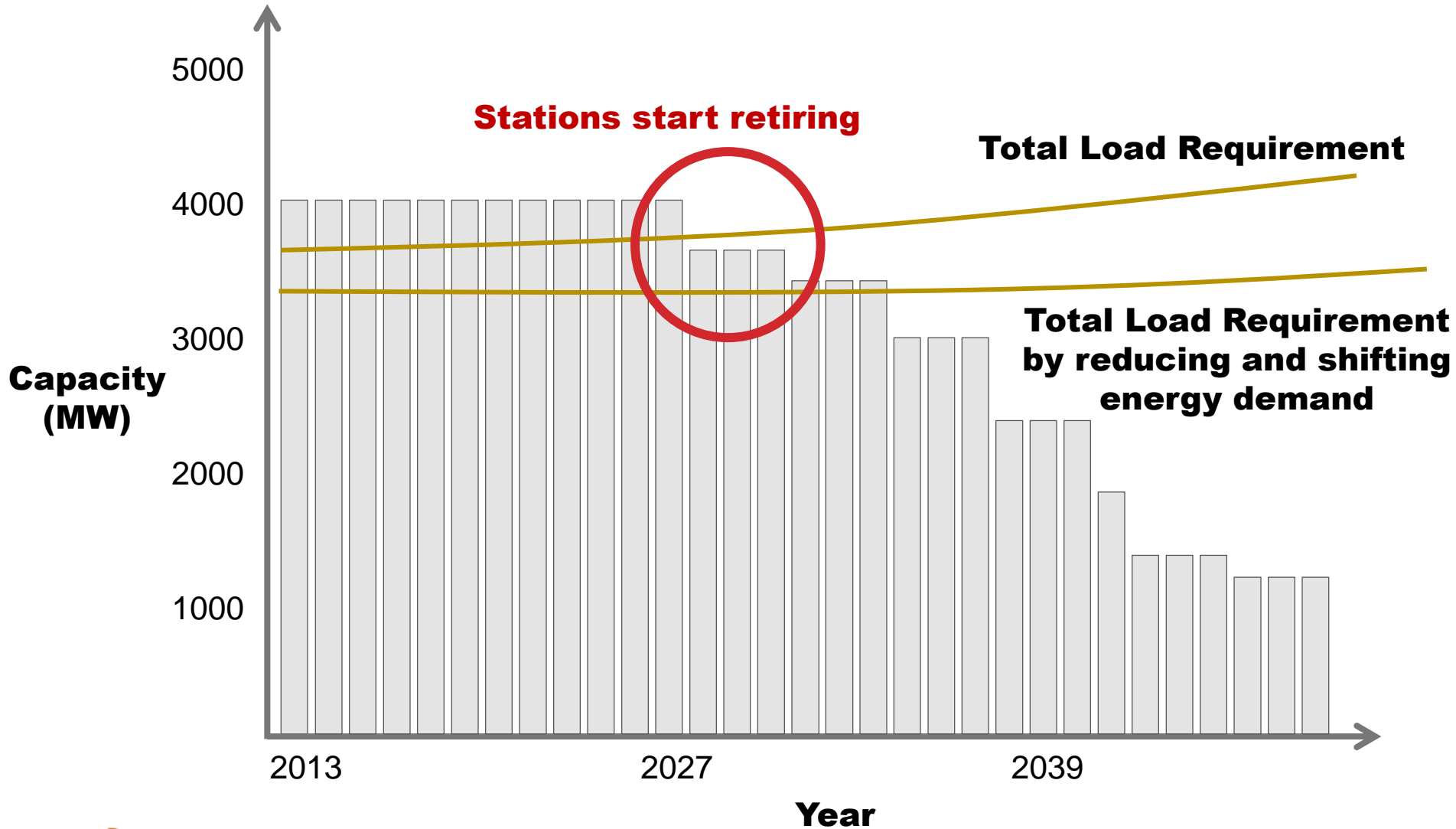
**Rates would rise 38% if Belledune retired in  
2030**

# Our Opportunity – Rely less on GHG fuels



**Today – we're at 1300 MW.**

# Our Opportunity – defer \$1 Billion in costs

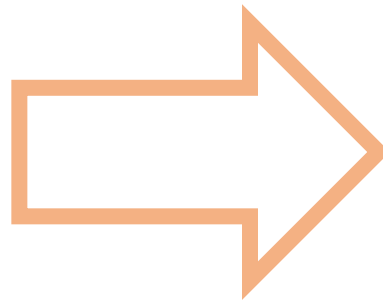


# Our Opportunity – why we're building Smart Grid

## Emergence of local and community generation



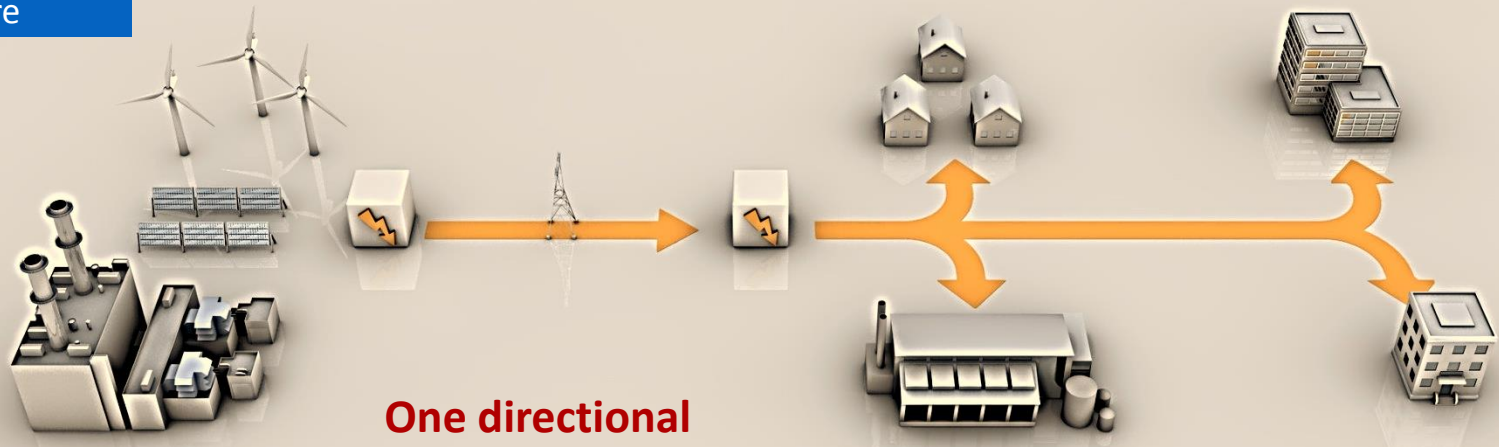
**Large scale,  
fossil fuel-based,  
centralized generation**



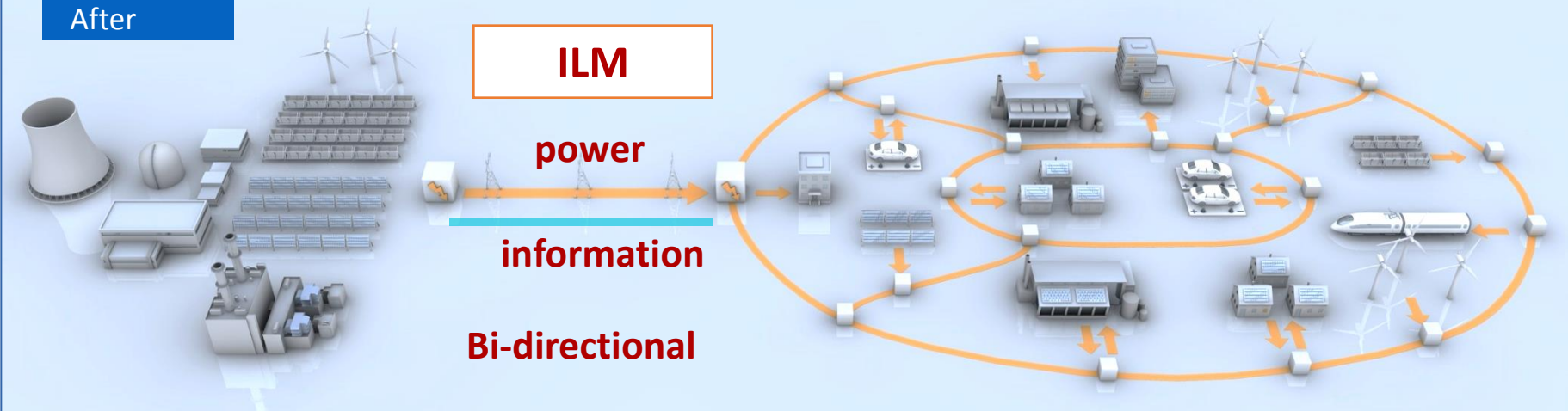
**Small scale, renewables  
distributed generation**

# Smart Grid: one direction to multi – controlled by ILM

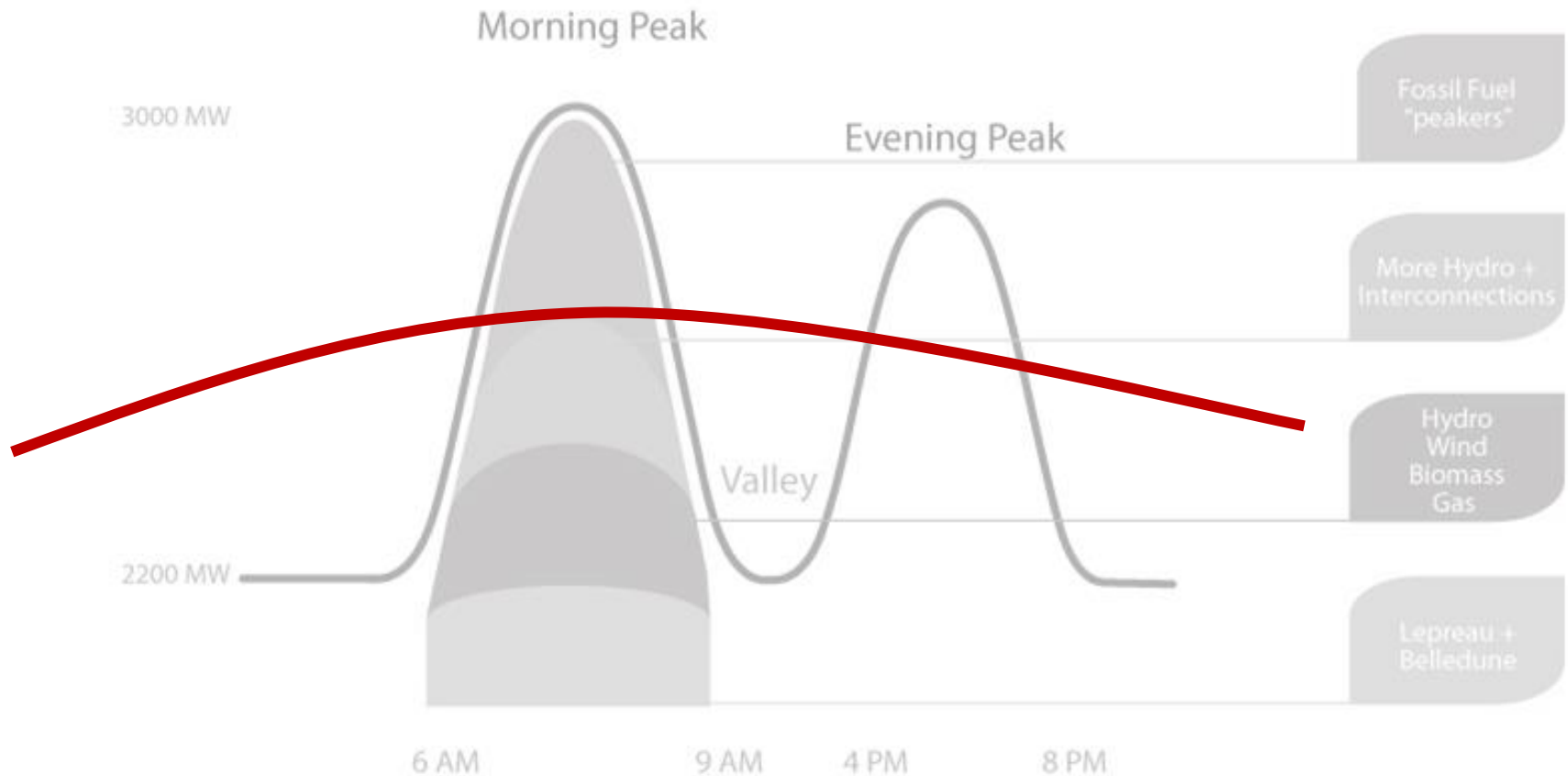
Before



After



# Opportunity Defined – Reduce and Shift 609MW





# Demand Side Management = EE + Smart Grid

## Economic Benefits of Plan

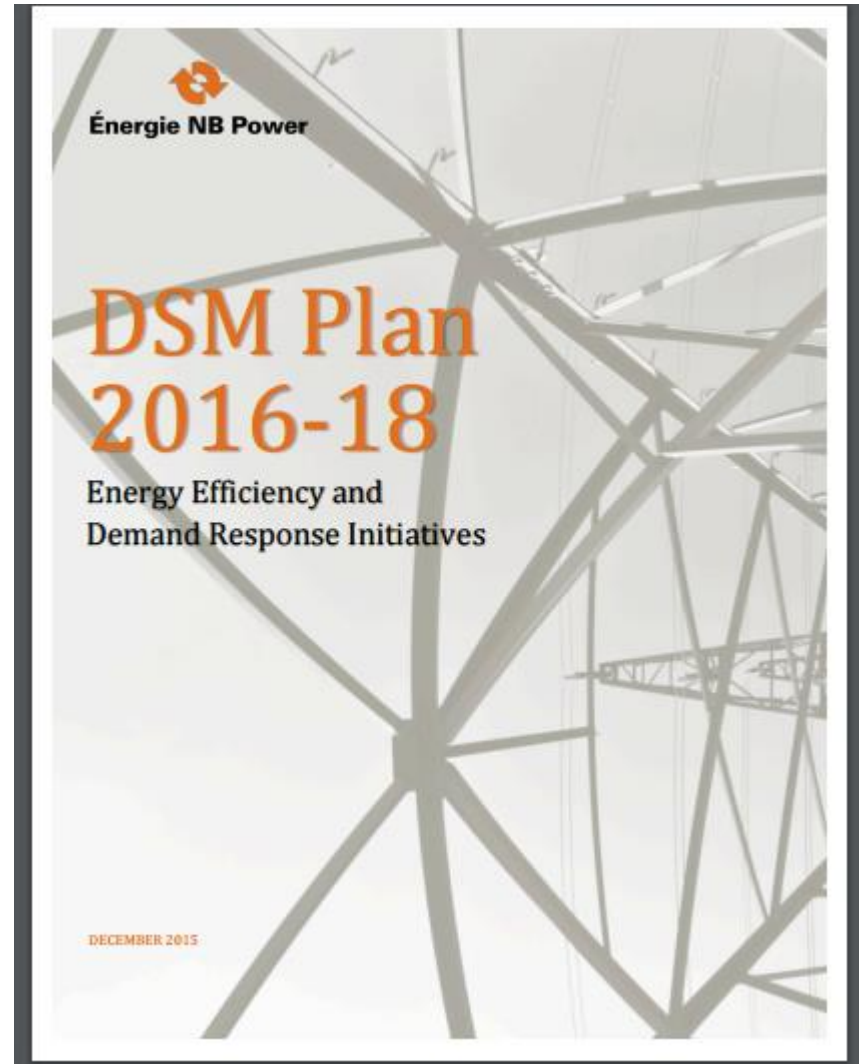
- Energy savings of 152.1 GWh
- Benefit-to-cost ratio of >4:1
- \$130 Million savings long-term

## Environmental Benefits

- DSM is the least-cost path to reducing GHG emissions.
- Plan will lead to nearly 70,000 tonnes of CO<sub>2</sub>e emissions reduced

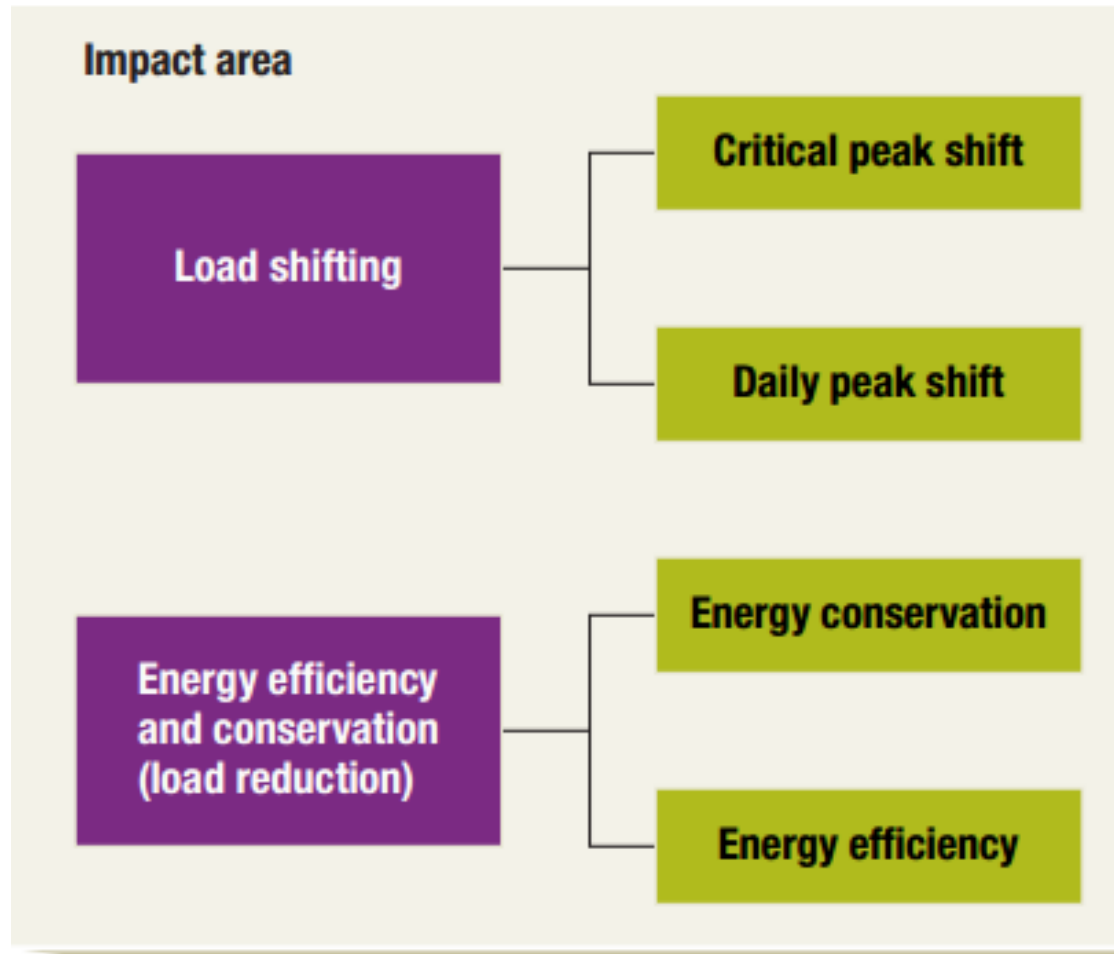
## 2015-2016 Highlights

- \$17M in energy efficiency = \$40M in Long Term savings
- Reduced GHG's by 6,000 tonnes
- Over 7,350 High Efficiency, cold climate heat pumps installed



# DSM: A broader approach with much more impact and benefit

DSM  
components



Increased customer satisfaction through an easy-to-use, more controllable energy offering

# 609MW – combination of efficiency & smart grid

**60%**

**Energy Efficiency  
(reduce)**

**Behavioural Programs**

**Energy Efficiency Products**

**Municipal Programs  
(LED Lighting)**

**Smart Grid  
(shift off peak)**

**40%**

**Control of Smart Devices**

**Connected Energy  
Generation and Storage**

**Local and Community  
Generation**



# Customers are changing. Rapidly.

## Customers want...



# Starting the journey with our customers

## SMART HABITS

Why pay for electricity you don't need?

## REBATES AND PROGRAMS

Rebates and incentive programs to help homeowners and businesses save money and benefit from energy-saving upgrades. [Learn more >](#)



# Changing Climate – Research and Planning



**Ice Storm Dec 2013**

# Changing Climate – Assess and Prepare



**Arthur Aug 2014**

# Changing Climate – Investing in Tree Trimming





# Wrap up

- **A 64% drop in GHG's since 2001**
- **Already at 76% non-emitting today**
- **Lowest rates in Canada after hydro provinces**
- **Electricity vital to heating New Brunswick homes**
- **We have an electricity intensive economy**
- **Customers have signaled more renewables but no big rate increases**
- **A Vision that includes smart grid, energy efficiency and renewables with more comfort, choice and control for customers at bill levels they can afford.**

# Questions?



**Énergie NB Power**