Transitioning to a Low Carbon Economy in New Brunswick

Why Public Investments Are Better Than Subsidies/Incentives

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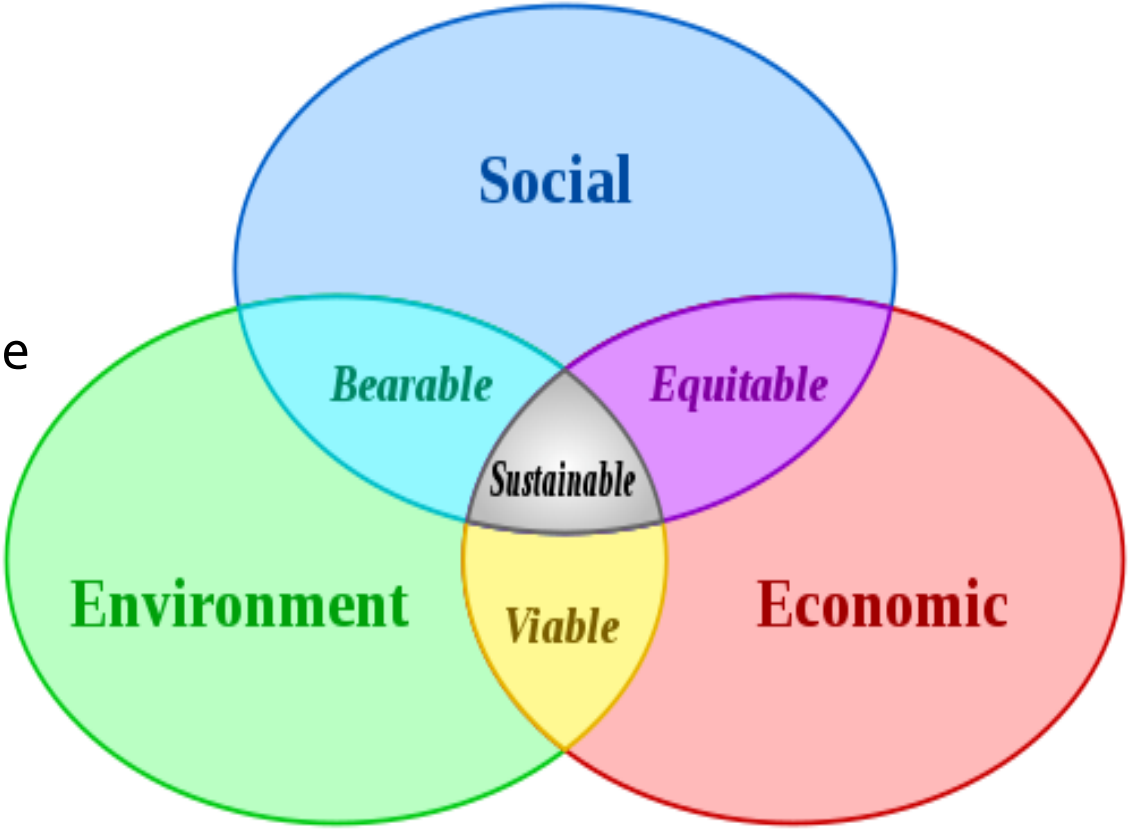
Overview

- Sustainability
- What is a IRP
- Objectives
- NB Power IRP
- Alternative IRP
- Conclusions
- Call to action

Sustainability

- Even Renewables and Efficiency have Environmental Impacts. Nuclear Waste
- Electricity is an Essential Service
- Electricity Rates
- Who Profits Public VS Private financing
- Participants VS Non Participants
- What to do with the profits
- Technical Viability



Integrated Resource Plan (IRP)

- Long-term business plan for NB Power
- Guides decision-making based on:
  - Least cost
  - Environmental, social, and economic sustainability
- An alternative to NB Power's IRP
- We are both the Customers and Owners.

Todays Auditor General Report

Impact on Province of New Brunswick

- Rating agencies signal:
  - NB Power is the Province's largest contingent risk; and
  - Debt to equity remains very high in relation to other provincial utilities.
- There is an impact to all New Brunswickers when NB Power financial targets are not met.
- Significant concerns of sustainability exist, given:
  - NB Power's net income did not meet the Province's expectations by $195 million over the last four years; and
  - Planned major capital projects.

Environmental Objectives

Transitioning 95% of our total energy needs to renewables using our own Publicly owned renewable energy sources at the least cost and most profitable

RPS1

Green the electricity grid 95% Renewable

(already 75% carbon free)

RPS2

Green energy consumption

95% Renewable

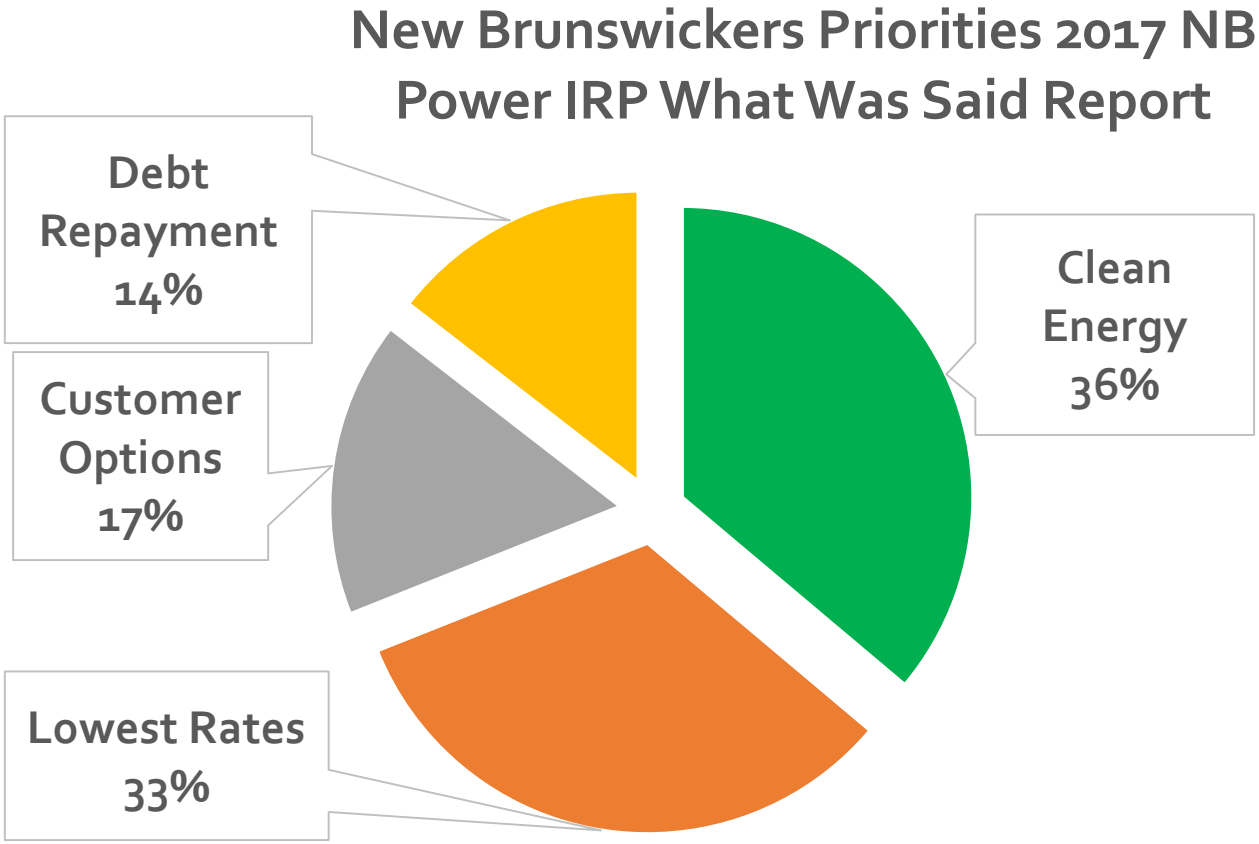
(fuel shift or electrification)

Work on both efforts at the same time

Let's focus on the first 95% not the last 5%

Social Objectives

- As the owners and customers of NB Power we want clean energy and low rates

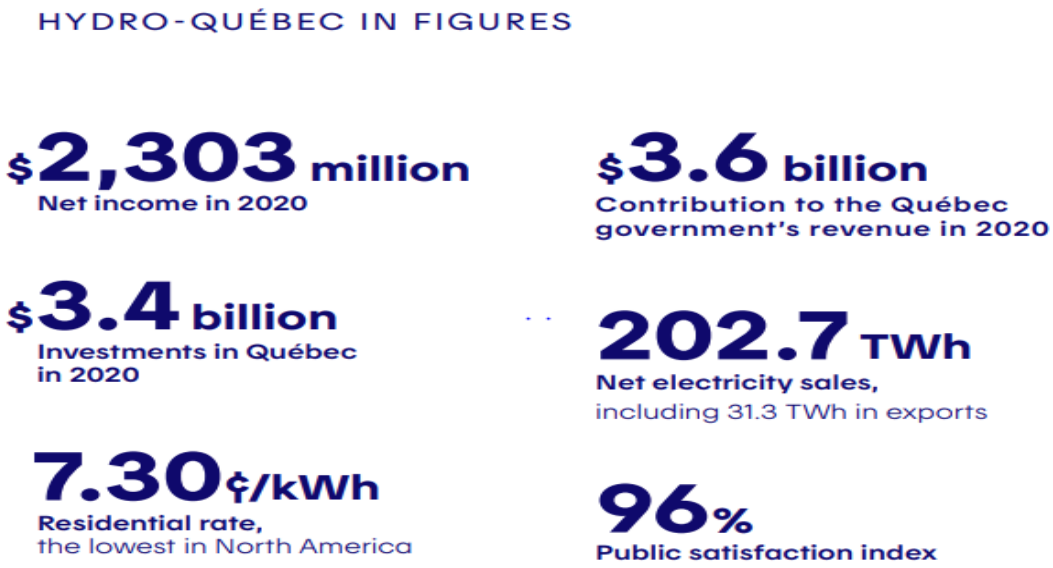


Source NB Power

Do you want clean energy and low rates?

Economic Objectives

- Pay off OUR huge NB Power Debt while maintaining Low Rates
- Have a profitable Healthy Public Utility based on renewables.
- Benefit ALL New Brunswickers



It is Possible!!!!

NB Power IRP

- Efficiency Subsidies/Incentives
- Very Little Renewables and Privately Financed
- More Nuclear
- Deferral-Almost all capacity Needs Replaced in 2041

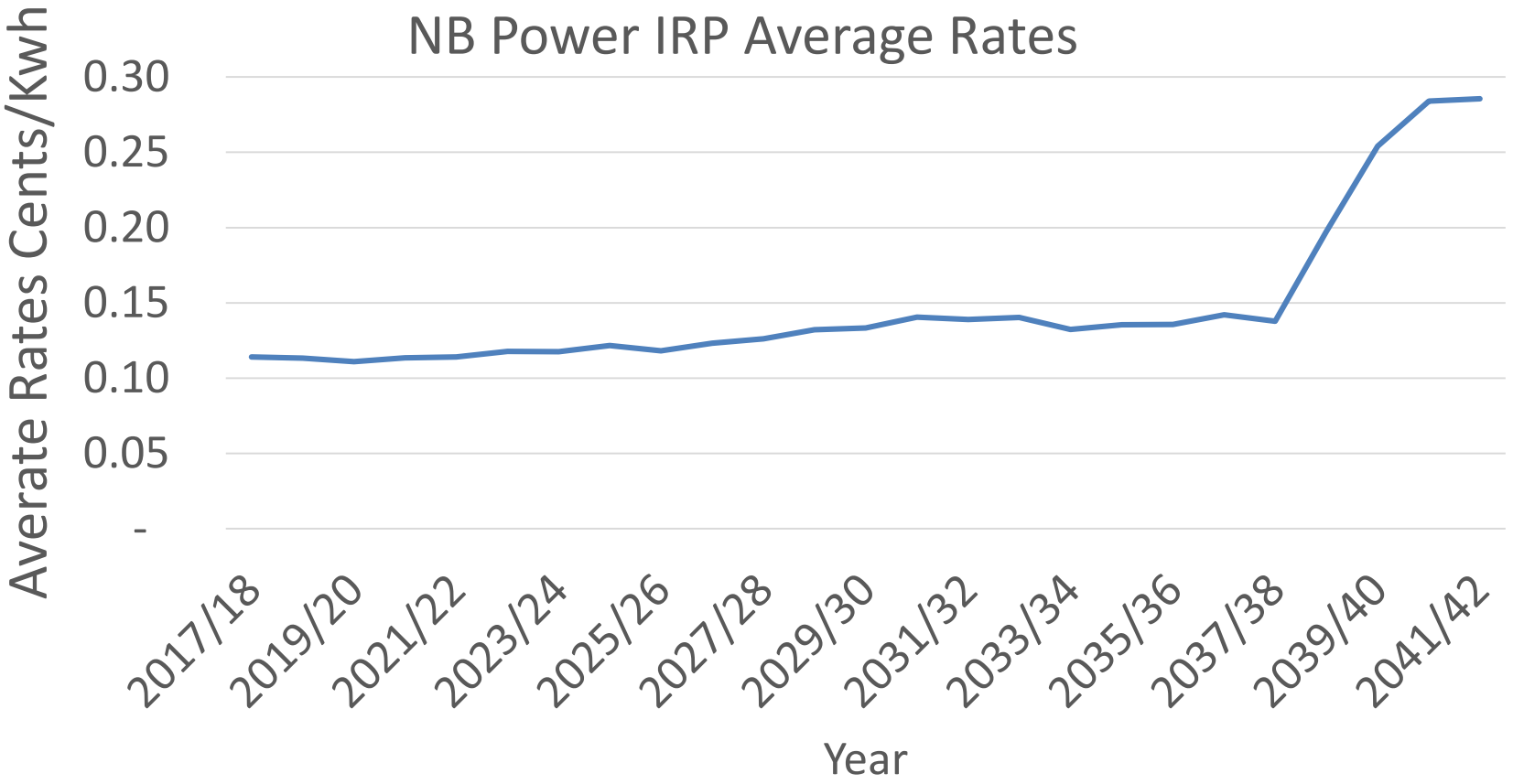
Year	NB Power Plan	Capacity
2018	Reduce and Shift Demand	621 MW
2020	Embeded Generation	13 MW
2021	LORESS	80 MW
2031	Millbank Ste Rose Refurbishment	297 MW
2033	Mactaquac	653 MW
2040	Lepreau Replace in Kind	660 MW
2041	Natural Gas	1236 MW
2041	Millbank Ste Rose Refurbishment	198 MW

Source NB Power

This is Not What We Asked For!!!!

NB Power IRP Rate Projections

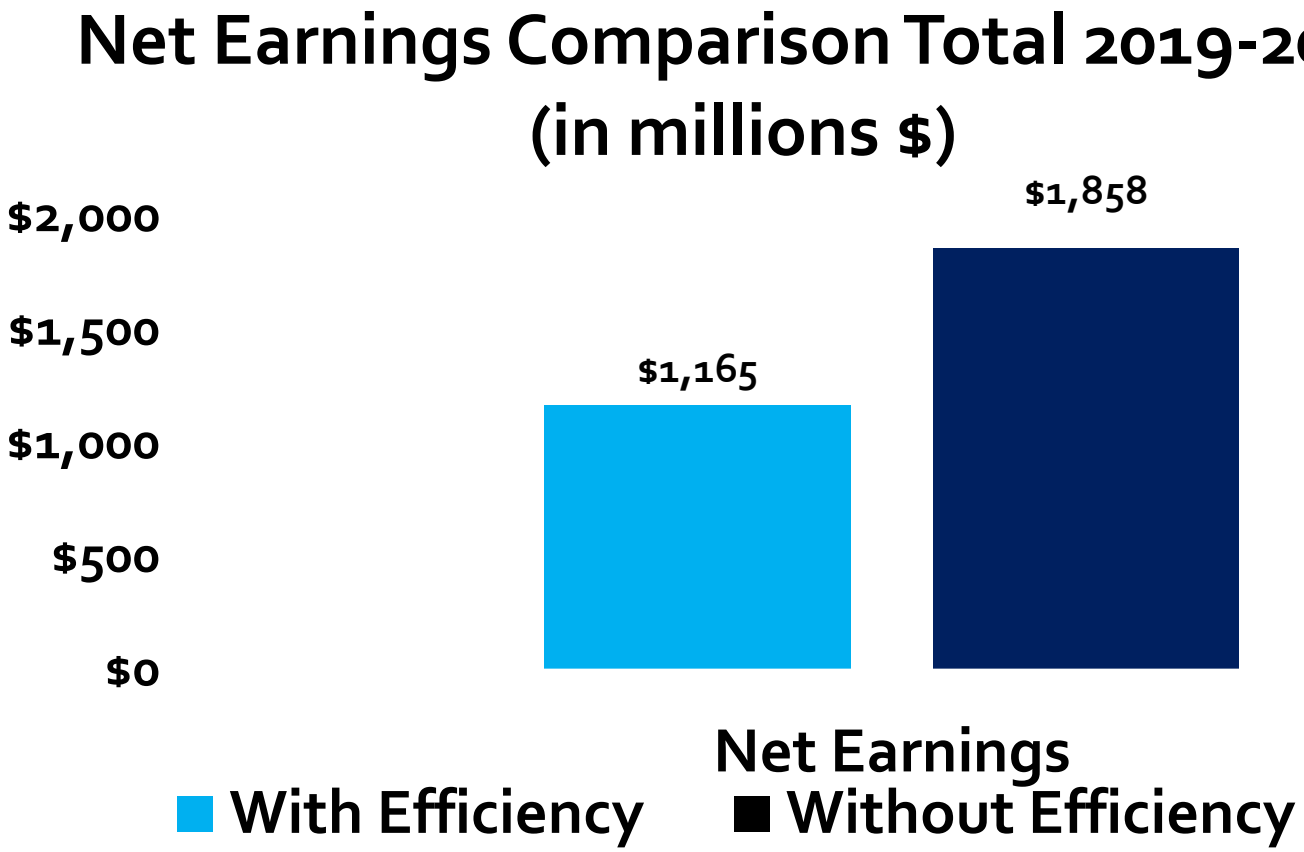
- Deferral Will Cause Huge Rate Increase
- Almost 300% Rate Increase



Source NB Power

Subsidies/Incentives-Economic Sustainability

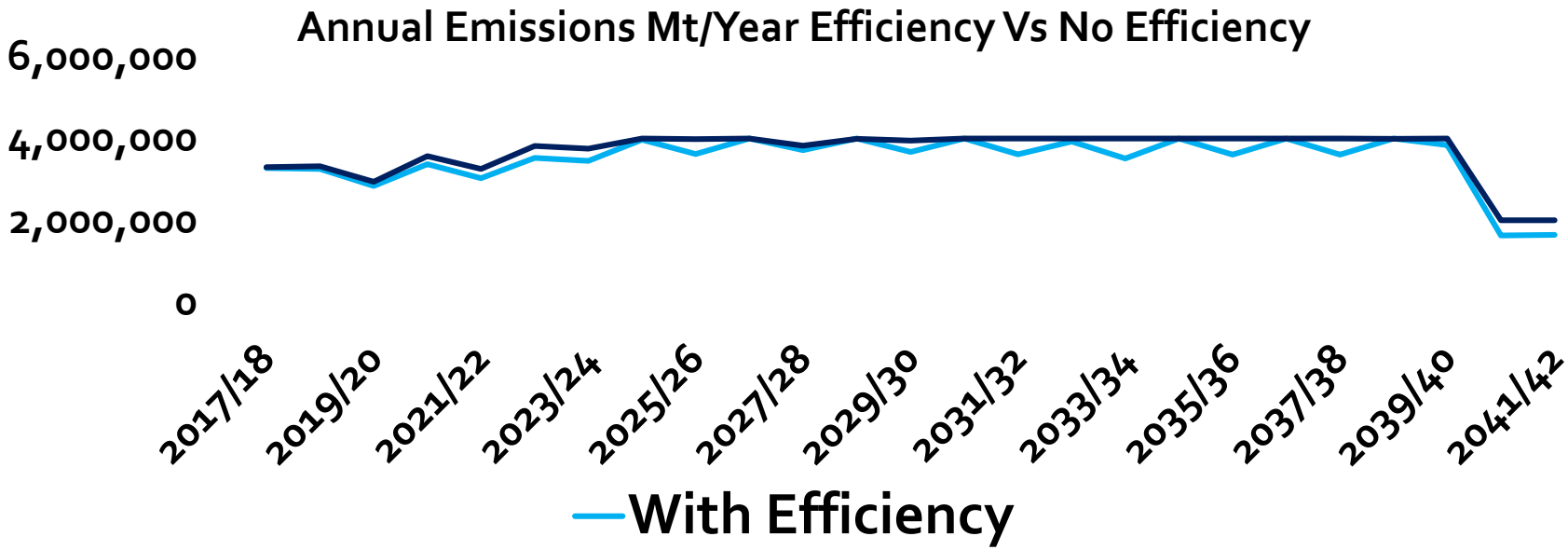
- Subsidies results in $700 Million lost in Net Earning over 10 years
- Causes Rate Increases



Source NB Power

Subsidies-Environmental Sustainability

- Only 5% Reduction in Emissions Over 25 Years
- Because our Grid is already 75% Carbon Free
- Using Less Electricity always doesn't mean less carbon



Source NB Power

Subsidies-Social Sustainability

- Very Few Rate Payers Benefit-Participants
- We All Pay for the Programs-Non Participants
- Large upfront costs = Barrier to Accessibility

Program	Total Participants 2015 to 2021	Total In Rate Class	Percentange of Particpants VS Non Particpants
Residential Home Retrofit	9776	366487	2.7%
Residential Direct Install	8100	366487	2.2%
Residential New Contruction	2260	366487	0.6%
Ductless Mini-Split Head Pump	14659	366487	4.0%
Commercial Building Retrofit	428	31326	1.4%
Small Buisiness Lighting Program	4600	31326	14.7%
Commercial New Contruction Program	18	31326	0.1%
Small/Mediam Industrial Program	197	1827	10.8%
Large Industrial Program	69	1827	3.8%

Source NB Power

Is this Fair?

Instead of Subsidies: Investments

- No Cross Subsidization
- Fair to Everyone Even Non Participants
- Efficiency Pays for Efficiency
- No Upfront Costs=Better Access

Program	Units	Cost Per Unit	Investment	Return On Investment
EV Car Incentive	588000	$2,000	$1,176,000,000	Increased Electricity Sales Dependent on Rate Design
School Buses	1200	$300,000	$360,000,000	Increased Electricity Sales Dependent on Rate Design
Normal Buses	1200	$300,000	$360,000,000	Increased Electricity Sales Dependent on Rate Design
Electrode Boiler MW	400	$300,000	$120,000,000	Increased Electricity Sales Dependent on Rate Design
On Bill Financing Solar Lease-Efficiency Loans			$500,000,000	Interest Rate = Used to assure no cross subsidization
Average Return				5.6%
DSM Total Investment			$2,516,000,000	$1,822,602,066

Investment Plan-3 Step Process
"Invest In Solutions"

Step 1= Tax Problem (Carbon) to Raise Capital

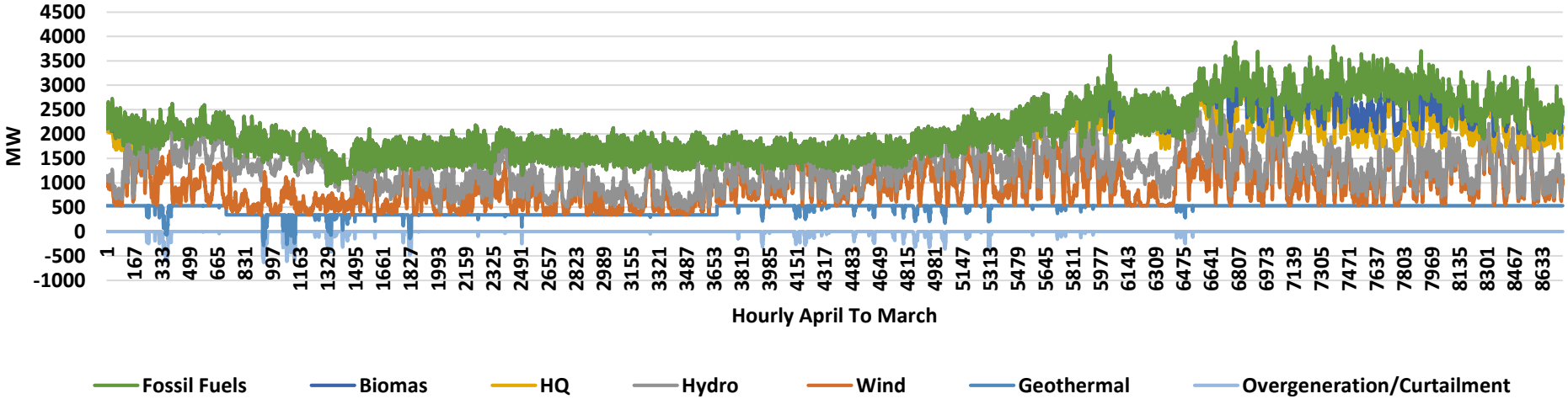
Step 2= Invest In Solutions (Renewables/Efficiency)

Step 3= Reinvest Profits into Solutions

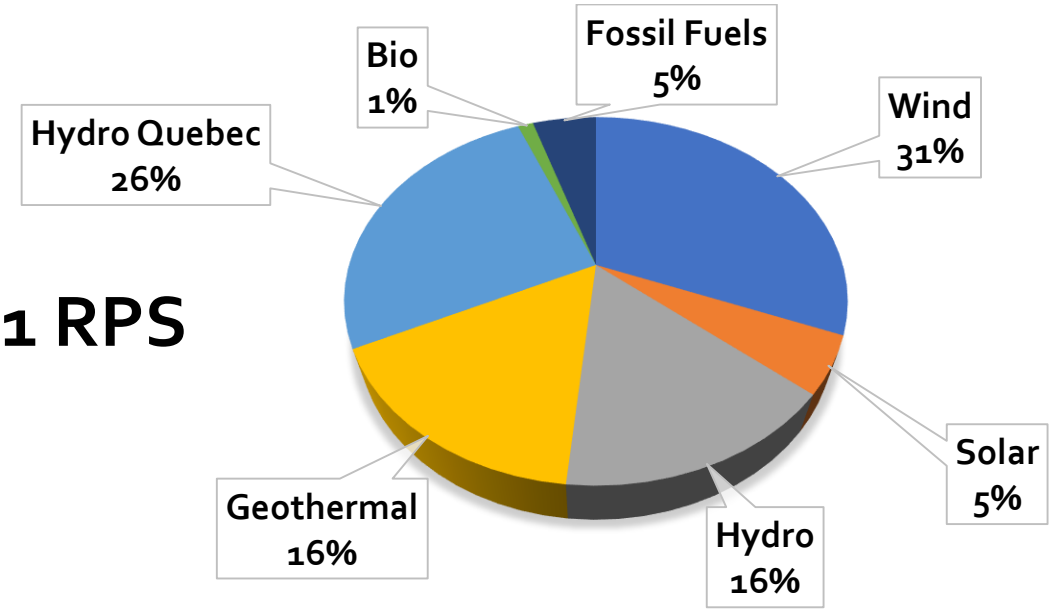
Year-Technology Type	Carbon Tax $/Year $24/Ton	Accumulated Reinvestment $/Year	Total Investment $/Year	Efficiency/Fuel Switching Investments-Debt Repayment-Dividend	Displaced Cost - (O&M +Fuel)
2019 Hydro	$370,000,000	$0	$370,000,000		$24,093,123
2020 Hydro	$370,000,000	$24,093,123	$394,093,123		$25,661,984
2021 Wind	$370,000,000	$49,755,107	$369,755,107	$50,000,000	$27,935,176
2022 Wind	$370,000,000	$77,690,284	$397,690,284	$50,000,000	$30,045,692
2023 Wind	$370,000,000	$107,735,976	$427,735,976	$50,000,000	$32,315,659

Investment Plan-Viability

Supply Stage 1 RPS Hourly Generation Stacked



Stage 1 RPS



Investment Plan vs. Business-as-Usual

Buisness As Usual Comparison	95% Renewable Publicly Financed	2014-15 NB Power Annual Report
Total Generation	18,223,000	18,223,000
Total System Rate (PPA) $/MWh	$101	$101
Total Revenue $/Year	$1,791,000,000	$1,791,000,000
Total System Capital Investment $/Lifespan	$10,850,823,211	NA
Depreciation and Amortization Expense $/Year	$310,118,118	$239,000,000
Total Fuel and Purchased Power $/Year	$383,197,360	$826,000,000
Total O & M $/Year	$367,169,556	$477,000,000
Debt to Equity Ratio	0:100	96:4
Financing Cost/Interest	$0	$229,000,000
Taxes	$37,000,000	$37,000,000
Net Debt	$0	$4,913,000,000
Total Net Earnings (Interest) $/Year	$693,514,966	$73,000,000

This is What New Brunswickers Asked For!!!!

Sensitivity Analysis Technology

- Renewables are Least Cost Option
- Renewables are Least Risk
- Renewables are Most Profitable

Technology Mix	Gas	95% Renewable	Nuclear
Total Generation	18,223,000	18,223,000	18,223,000
Total System Rate (PPA) $/MWh	$101	$101	$101
Total Revenue $/Year	$1,791,000,000	$1,791,000,000	$1,791,000,000
Depreciation and Amortization Expense $/Year	$279,092,753	$310,118,118	$365,107,070
Total Fuel and Purchased Power $/Year	$494,701,520	$383,197,360	$429,464,080
Total O & M $/Year	$327,672,649	$367,169,556	$358,441,627
Debt to Equity Ratio	0:100	0:100	0:100
Taxes	$37,000,000	$37,000,000	$37,000,000
Net Debt	$0	$0	$0
Total Net Earnings (Interest) $/Year	$652,533,078	$693,514,966	$600,987,223

Public Vs Private Financing (PPA's)

- Privatization Will Raise Rates
- Privatization Will Reduce OUR Profits
- Privatization Will Benefit Very Few
- Public Financing will Still Create many private sector jobs

Financing Sensitivity	Private Financing	Stage 1 RPS Public Financing	80% Debt Financing
Total Generation MWh	18,223,000	18,223,000	18,223,000
Total System Rate $/MWh	$101	$101	$101
Total Revenue $/Year	$1,791,000,000	$1,791,000,000	$1,791,000,000
Total System Capital Investment $/Lifespan	$1,280,000,000	$9,303,543,531	$9,303,543,531
Depreciation and Amortization Expense $/Year	$42,666,667	$310,118,118	$310,118,118
Total Fuel and Purchased Power $/Year	$1,340,331,600	$383,197,360	$383,197,360
Total O & M $/Year	$191,072,000	$367,169,556	$367,169,556
Debt to Equity Ratio	0:100	0:100	20:80
Financing Cost/Interest	$0	$0	$387,027,411
Taxes	$37,000,000	$37,000,000	$37,000,000
Net Debt	$0	$0	$7,442,834,825
Total Net Earnings $/Year	**$179,929,733**	**$693,514,966**	**$306,487,556**

Conclusions

- Not all Green Policy is created equally
- Investments benefit all New Brunswickers
- Investments Keeps power rates low and stable
- Investments will pay down our NB Power debt and make it profitable
- Investments will reduce carbon emissions
- Investments will create many jobs – in both the public and private sectors.

Call To Action

- Lobby All Political parties, and NB Power for investments rather than subsidies
- Intervene In Public EUB

Hearings (Oct 2021)

- Share on Social Media

A made in New Brunswick Green New Deal

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