



Nuclear Power in New Brunswick

Common Sense

Economics for the Public's
Utility

Assembled by Sharon Murphy-

PEACE-NB

2017

NB Power is looking for a 2% rate increase this year but what about the long term?

- It feels like the New Brunswick public is being **BLACKMAILED** under threat of a huge rate increase down the rd and a 2nd nuclear power plant.
- NB Power estimates it may now require a cumulative 37.8 per cent in rate hikes by 2027



Common Sense Economics employs:

- common sense
- responsible financial management

This approach is
needed in
New Brunswick.



Environmental sustainability and low rates with minimal risk would be responsible goals to guide NB Power's decision making process.

Nuclear Marketing

- Nuclear marketers are trying to sell us a 2nd nuclear plant in the midst of our confusion and concerns about rates and the carbon tax.
- Nuclear power must be assessed for economic and safety risks before decisions are made by our public utility.

Nuclear power is right for N.B.

There is a strong business case for expanding nuclear power in New Brunswick as a long-term solution to both power rate concerns and the risks of climate change. This province has a strong history of safety with nuclear power, and expanding it makes sense for a host of reasons, if deserved support from Ottawa is delivered.

Nuclear Power

DO WE HAVE A CHOICE?



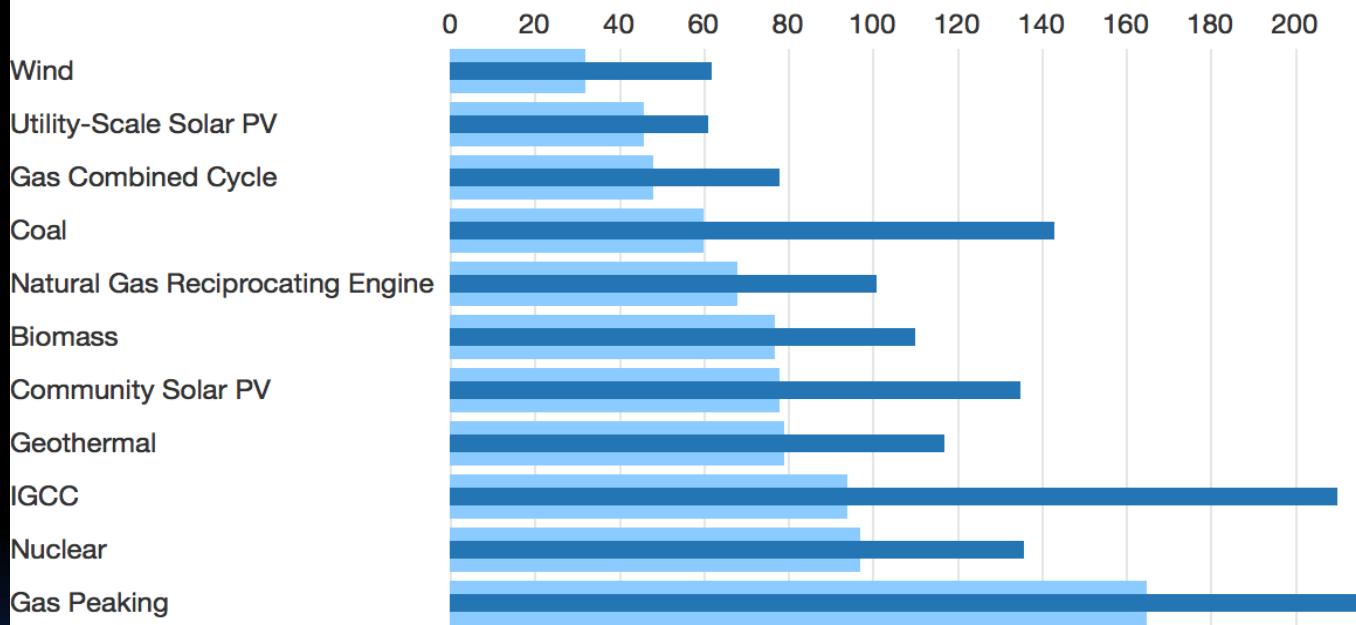
Business as Usual vs Common Sense Economics

- Nuclear plants have a lot of economic costs-NOT appropriate for a small, poor province.
- Large projects which need financing to build are not suitable for a small, poor province.
- Energy projects that could take 10-12 years before any revenue is created are not suitable for a small, poor province.
- Large economic costs are not incurred with small scale generation
- Small scale renewables will not have to pay extra carbon taxes
- small scale generation can be built and creating revenue within a couple of yrs.

NOW is the time for Renewables NOT Nuclear

US Unsubsidized Levelized Cost of Energy (Figures by Lazard)

Light blue = low estimate. Dark blue = high estimate. Figure = \$/MWh



We CAN afford:

- wind turbines, solar, small hydro
- small combined cycle gas turbines NOT mega plants

We can also support renewable projects in adjacent provinces and negotiate long term power purchase contracts that will keep power rates LOW like other provinces.



DEBT

WE

CANT AFFORD NUCLEAR POWER

What's so Bad About Nuclear?

75% of NB Power's debt is nuclear related



DEBT

WE CAN'T AFFORD NUCLEAR POWER

- Currently Lepreau operates within the quagmire of NB Powers debt. The largest part resulted from the refurbishment of Lepreau which took years to refurbish. NB Power said it would take 18 mnths.



It is IMPOSSIBLE to predict the future demand for nuclear



Many American's don't support the notion that nuclear is clean or safe. How do we know they will buy it from us? Plants are shutting down world wide. Who will want nuclear power in the future? WE HAVE NO IDEA!

Reliability? Nuclear FAILS

TABLE IEC-1 PLNGS CAPACITY FACTORS	
	Percent
June 2013 - March 2014	89%
FY 2015	79%
FY 2016	79%
April - October 2016	64%
FY 2018	89%
FY 2019 - FY 2022	81%/96%
FY 2023 - FY 2027	84%/96%
<small>Note: For the long-term forecasts, the lower value represents the capacity factor in the year with a planned maintenance/refueling shutdown. Shutdowns occur every other year.</small>	
<small>Sources: NBP(PI) IR-22, December 2016 10-Year Plan Figure 9</small>	

Nuclear doesn't achieve the nuclear marketers' capacity goals. Fool us once, shame on us but again and again?

Large Project Debt Bad EVERY TIME

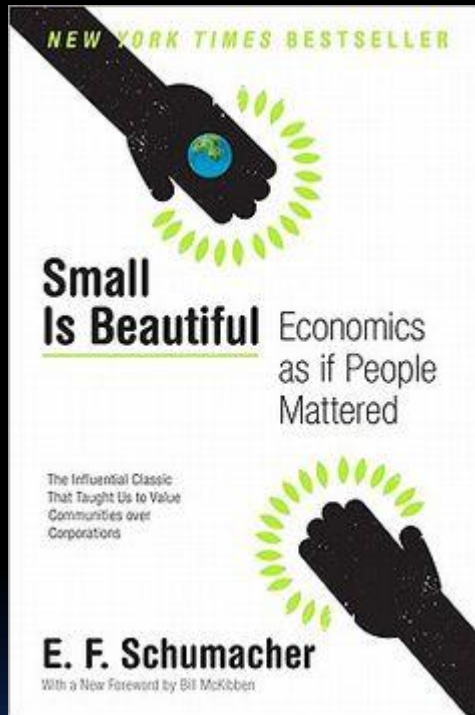


Large energy projects leave huge debt after they're built.

Lessons could be learned.

Coleson Cove, due to other cheaper energy sources, operates at an annual capacity of 5%-2% . The LNG terminal operates at less than 5% capacity.

LARGE is NOT Better



Any large single turbine generating station the size of Lepreau is out of sink with the provinces electrical system.

A lot of power does not fit into a small system like we have with the type of power demands we have.



We've already been told.
Nuclear is not good for New Brunswick.

"The Board, as a result of its review of the evidence in relation to the capacity factor and the cost of capital, finds that there is no significant economic advantage to the proposed refurbishment project. In addition, the Board considers that there are other significant aspects of the refurbishment option for which the economic impact is uncertain. These aspects create additional economic risk which leads the Board to conclude that the refurbishment of Point Lepreau, as outlined in the evidence, is not in the public interest. The Board, therefore, will recommend to the Board of Directors of NB Power that it not proceed with the refurbishment of Point Lepreau."

- 
- The government rejected the advice, leaving almost 75% of NB Power's debt thanks to Nuclear.

NUCLEAR IS RISKY BUSINESS

- radioactive releases which we cant even get insurance for are never considered too risky.

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Revisions to the *Nuclear Liability Act*

Petition: No. 193

Issue(s): Environmental assessment, governance, human health/environmental health, natural resources, and science and technology

Petitioner(s): Greenpeace Canada

Date Received: 24 January 2007

Status: Completed

Summary: This petition alleges that the delay in the tabling of amendments to the *Nuclear Liability Act* are industry driven and an attempt to avoid public scrutiny of accident risk from Canada's nuclear stations. The petitioner is also concerned about alleged lack of federal evaluation of environmental and human health consequences from a Chernobyl-scale incident and the possible terrorist threat to nuclear stations. The petitioner is seeking the federal government's timeline and process for consulting and revising the *Nuclear Liability Act*; and challenges the federal government's position that Chernobyl type accidents are of such low-probability that they deserve to be excluded from the review of *Nuclear Liability Act* and federal environmental assessments. The petitioner also requests that the federal government and its agency include the impacts of terrorist attacks at Canadian nuclear stations in environmental assessments. See related petitions 60A and 60B.

- Managing radioactive wastes and spent fuel is a forever job, far beyond the capacity of our current society

Options and Solutions Exist

- We need a sustainable and affordable energy future for New Brunswick.

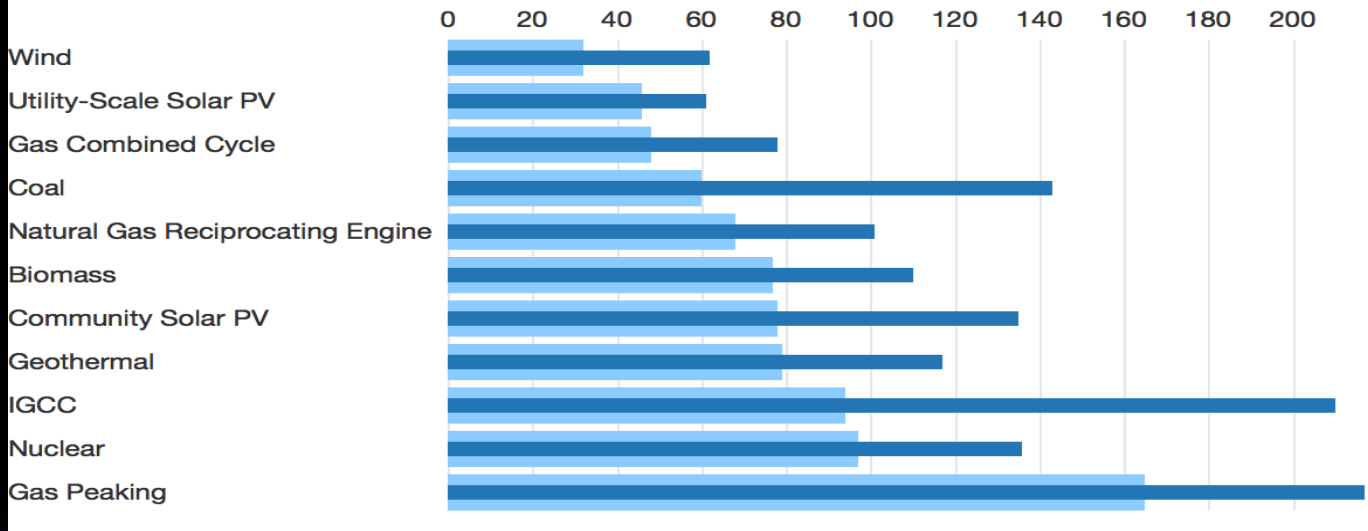


- We need renewables and small scale generation now paid for by the carbon tax.

Responsible Financial Planning starts with COSTS

US Unsubsidized Levelized Cost of Energy (Figures by Lazard)

Light blue = low estimate. Dark blue = high estimate. Figure = \$/MWh



Unit cost of renewables have fallen dramatically and is expected to continue. The prudent positioning for the future would see a mix of smaller renewable generating facilities to gradually replace existing plants for future demand which may be less than today.

Get Out of the Export Business

The financial future of the province and NB Power should NOT be to sell electricity for export as it isn't sustainable or necessary.

NO MORE

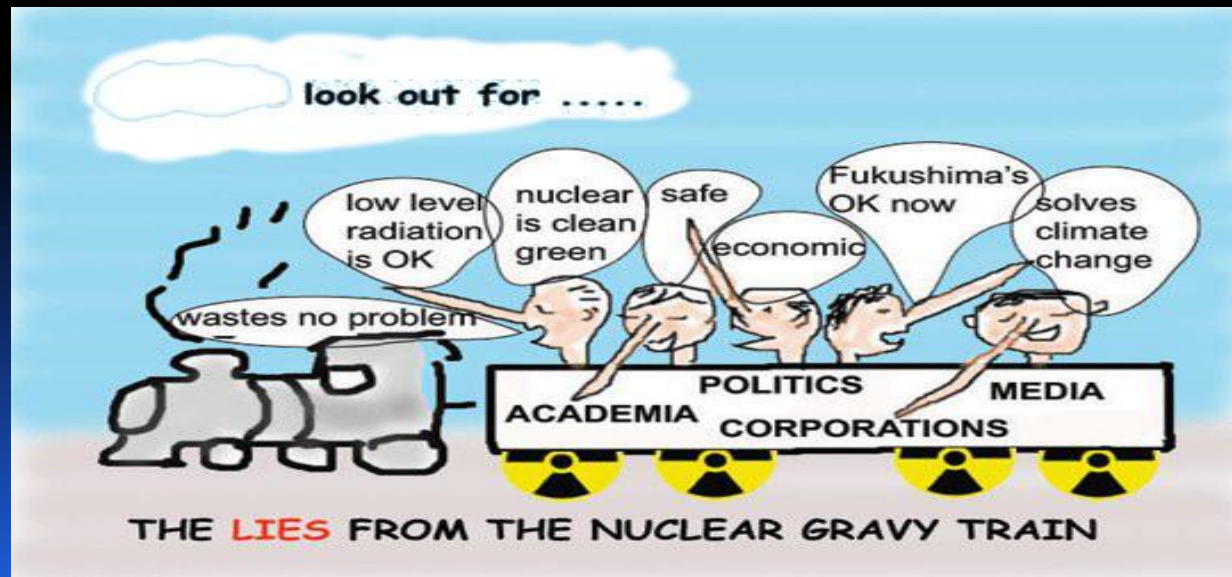
LARGE SCALE PLANTS MAKING ELECTRICITY FOR EXPORT
PROFITEERING 101

CAPITALISTS CAN'T CONSERVE

NB Power's mandate should reflect that responsible power for the people is a priority above all else.

Then there's this.....

- construction costs-nuclear power has a negative learning curve-meaning it's gotten more pricey over time. Costs have gone out of control at every turn and we can't expect it to get cheaper.
- Our lessons learned point to an expensive and dangerous technology that does not perform even close to the numbers used when the marketers sell nuclear power to the public.



NB Power is not Fiscally Responsible with our Money

- Existing nuclear reactors in the states are being shut down due to their high operating costs.



- Bucking the trend by staying with and promoting even more nuclear on a sinking ship is fiscally irresponsible

2% rate hike NOW and 1.8 Billion later NO THANKS



Because of nuclear's high operational costs and more capital investments coming, another 1.8 billion will be continually invested without any regulatory oversight.

WHY IS THIS???

This is because our legislation is fundamentally flawed and that is definitely something that must be fixed before we can seriously call NB Power and their very friendly nuclear friends to task for the outrageous costs of having a nuclear power plant.

Fairy Tales are for Children

- The notion that we have to keep the nuclear plant running for it to pay for itself is false.
- High operational costs and additional investments needed for continued operation (49 million/yr) far out weigh any benefits of nuclear power.

Old plants are being shut down across the globe because they're NOT economical.

We are a very small group of people in the province and should not be participating in a dying industry that we can not in our wildest dreams afford.





Common Sense
Economics guides us to
**BUILD SMALL SCALE
RENEWABLE ENERGY**
projects with the
CARBON TAX and to
**BUY RENEWABLE
POWER** from adjacent
provinces.