

**An Energy Policy for New Brunswick 2010-2020**  
**Submitted to the New Brunswick Energy Commission**  
**CCNB**  
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**Citizens are Much More than Consumers**

Citizens are far more than consumers, with concerns for ecological sustainability, quality of life, community cohesion, human solidarity and morality to name a few. Engaging citizens simply from a consumer perspective will truncate discussion as it will be narrowly focussed into consumer interests. This approach has no place in a public discussion about our energy future in which New Brunswickers need to be fully engaged as citizens to ensure that discussions cover the broad range of topics concerning the public interest.

**The Environmental Context**

We are in the midst of an environmental crisis. We have failed so miserably to protect the environment that we have destabilized our climate and our oceans, rendered ecosystems dysfunctional, and contaminated our surroundings with toxic substances. In these instances, the imperative is restoration which means transforming society and our economy in ways which are consistent with this objective.

We need transformative public policy to plot a course for our energy future. Energy production, distribution and use, taken together, have a bigger ecological footprint than any other activity. From the radioactive contamination of the environment around uranium mines and refineries to the habitat fragmentation of electricity and natural gas transmission corridors, the environmental impacts of energy are many. The environmental considerations for energy policy must be broadened and deepened.

With respect to climate action, we currently have a target to reduce greenhouse gas emissions below 1990 levels by 10% by 2020. This domestic target, and the regional targets negotiated with the New England Governors and Eastern Canadian Premiers should be included in the background paper, as should the global agreement that has been struck to limit global warming to 2 degrees C, and the implication this has for our provincial targets. It is widely held that for us to avoid reaching 2 degrees C of warming industrialized societies will have to get their greenhouse gas emissions to at least 25% below 1990 levels by 2020.

## The Ethical Context

Energy policy, like other major areas of public policy, requires an ethical framework. Here are just a few examples of ethical issues which energy policy must address:

**Consumption:** Why do we have wastefully extravagant energy consumption for the well-off versus energy poverty for the poor who may have to decide between heating and eating, or paying a fuel bill versus paying for medication?

**Economic Development:** Why do we tolerate pollution-based profits and pollution-based jobs in the energy sector which cause disease and illness in the short-run and contribute to a ruined world for future generations of humans and other living beings?

**Waste Production:** How can we produce highly radioactive wastes to generate electricity when they cannot be destroyed or neutralized, and must be imposed on future generations?

**Energy Purchases:** How do we justify being a market for energy resources whose extraction and processing involves the destruction of local communities, the trampling of human rights, and the destruction of local environments, out of our sight and mind in other countries.

## Moral Norms for Energy Policy

What does doing the right thing in energy policy mean?

There are moral norms, principles if you like, against which one can evaluate whether an energy policy is just. They can be used to assess energy options and sketch out a new direction for energy policy.

1. **Sustainability:** Does the policy ensure a long-term supply of energy resources to meet human needs without undermining the integrity and resilience of ecosystems or the physical environment? For example there is nothing sustainable about our dependence on fossil fuels and uranium, which undermines justice, peace, and the integrity of our biosphere. Instead we need an energy policy which shifts our energy dependence to the solar energy and the geothermal heat of the planet.
2. **Sufficiency:** Does the policy ensure basic needs are met and that energy resources are shared equitably? Does the policy repudiate wasteful and harmful consumption while encouraging frugality and generosity? Does the policy ensure the poor and have access to the energy supplies they need to maintain healthy households and travel for work and school?
3. **Participation:** Does the policy empower citizens, engaging them in decisions that affect them and their communities? Does it provide a voice for all living things in decisions that might affect their well-being? There are enormous economic interests at stake in maintaining the status quo, and those who benefit from this will use their power to maintain their privilege and control

4. **Solidarity:** Does the policy recognize the plight of the marginalized and ensure New Brunswickers can make common cause with those who are victims of discrimination, abuse and oppression? Does the policy recognize the fundamental interdependence of New Brunswickers with the rest of nature? Does it recognize our obligation to future generations? Solidarity demands our current generation makes sacrifices for the welfare of future generations in ways that this burden is equitably shared. It is unfair for the present generation to burden future generations with the consequences of global warming, ocean acidification, mass extinctions, and repositories of radioactive waste.

## **Ethical Guidelines**

Within each of the four moral norms, guidelines can be written to apply them to specific issues and policy questions.

## **Sustainability**

1. **Renewability:** Reliance on renewable energy sources should be the priority requiring a transformation of our energy system.
2. **Risk:** Measures with the lowest risk to harm human health, ecological systems, and communities are preferable.
3. **Peace:** An energy policy should avoid dependence on supplies which increase the potential for armed conflict.
4. **Flexibility:** Move away from energy systems that are subject to sudden disruption such as nuclear power or imported fuels.
5. **Aesthetics:** Beauty is an important aspect of our quality of life, so we should avoid policies and options which scar the landscape.

## **Sufficiency**

1. **Adequacy:** Policy must ensure that everyone's basic energy needs for heating, cooking, lighting and mobility are met.
2. **Efficiency:** Energy policy must ensure power and heat are supplied with fewer resources with less pollution and waste and that consumption is frugal.
3. **Cost:** All costs (monetary, social, and environmental) should be included in the price industry and consumers pay for energy.

## **Participation**

1. Citizen Engagement: Citizen engagement processes should ensure all who are affected have a voice in policy development.
2. Employment: Impacts on the meaningfulness of work, skills and employment levels must be considered.
3. Appropriateness: Tailoring energy systems to meet basic needs, end uses, local demand in a way that empowers citizens. Heating with electric resistance systems is inappropriate in New Brunswick, producing power as close to where it is required is appropriate.

## **Solidarity**

1. Equity: Evaluate impacts of energy policy on all sectors of society with a particular concern for the poor and vulnerable, in New Brunswick and in communities outside the province supplying us with energy resources (e.g. coal from Columbia, oil from Nigeria).
2. Inter-generational Equity: Does energy policy today ensure we make the necessary sacrifices to avoid burdening future generations and are these sacrifices equitably shared.
3. Interdependence: Does energy policy recognized our interdependence on the rest of nature.

## **Further Ethical Considerations**

1. Does the energy policy reflect the urgency for action to address the environmental crisis?
2. Does the energy policy achieve the greatest measure of ecological and social well-being at the least economic cost?
3. Do all citizens understand the consequences of the energy policy for them and how it will be implemented?

## **The Social Context**

Energy development can radically alter the quality of life in a community. Shale gas development, for example, has the potential to industrialize rural communities beyond recognition. Communities surely need the authority to determine the location, pace and scale of energy development if they want it at all.

Rising prices for oil and electricity will make it impossible for low income and poor New Brunswickers to meet their basic needs for warmth and mobility. These needs must be met

through public investment in retrofits, fuel switching, affordable housing, and public transportation infrastructure.

## **The Energy Context**

Only 25% of the energy we consume is in the form of electricity. Oil accounts for 48 percent of our energy consumption. Biomass accounts for 20 percent, while natural gas represents 6 percent and coke 1% of the total energy we consume. The background paper is too heavily weighted towards electricity.

Our economy and way of life at this moment is heavily dependent on cheap oil. Its production, refining and use have huge impacts on both our physical and biological environments. Cheap supplies of oil are declining, while global oil demand continues to rise, making for a world with very expensive oil. Triple digit oil prices are likely by the second half of the current government's mandate. A provincial energy policy needs to respond to these challenges.

While the Energy Commission is downplaying the challenges of our deep reliance on oil, it is exempting any consideration of the role of wood/biomass though it is responsible for almost as much of the energy we consume as electricity. Furthermore, it could have a significant role to play in transforming the way we heat our buildings, reducing our dependence on both electricity and oil for heating – in some cases contributing electricity to the grid at the same time. In doing so the potential is great to reap significant environmental and economic benefits in terms of employment and community development. The same could be said for solar energy, which could play a significant role in both space and water heating. In both cases there is a need for significant government involvement.

## **Conservation and Energy Efficiency**

### **Conservation**

Conservation needs to be an integral part of energy policy. Otherwise improvements in energy efficiency will be overwhelmed by increases in energy consumption. The scale of our energy consumption must be directly addressed.

Trophy homes and trophy vehicles may contribute to one's sense of status and self-image, but they are compromising the quality of life for all. The incessant advertizing of these status symbols interferes with people's freedom to think for themselves. Energy policy must give consideration to how this consumption can be discouraged. Performance standards and the advertisement industry may be places to start.

Advertisement directed to turning our children into over-consumers should be of concern to an energy policy as excessive consumerism is a large contributor to unneeded energy production and use. A conserver society should empower its citizens to make informed decisions and place responsibility for packaging in the hands of producers.

Furthermore, our dependence on food imported over vast distances that could readily be supplied by farms and processors in the Maritimes, Quebec and New England accounts for significant consumption of refined petroleum products. Minimizing food miles should be part of an energy policy which takes conservation seriously.

## **Energy Efficiency**

Energy efficiency is conservation's sibling. Its potential contribution to economic development and environmental restoration is well document. Just considering the 25% of the energy we consume as electricity, the Ganong Panel concluded that a \$690 public investment over the next 10 years would eliminate growth in electricity demand, create 30,000 jobs distributed around the province and across trades and professions, and leverage \$3 billion of private investment into New Brunswick's economy. While the Ganong Panel did not quantify how much this would reduce our environmental footprint in the province it would be unparalleled in the short-term.

Placing an overarching priority on tapping our full economic potential for energy efficiency in New Brunswick should be the priority in energy policy across all energy forms and sectors. This requires: 1) building the financial capacity of Efficiency New Brunswick to effectively deliver on this priority; and 2) enacting a regulation under the Electricity Act to require NB Power to pursue least-cost procurement of energy subject to environmental and risk provisos, which would have it make Demand Side Management the number one priority.

Given the far-reaching social, economic and environmental benefits of fully developing our energy efficiency potential, combined with the fact that it represents public investment directed at transforming our building and industrial infrastructure rather than an operating expense, the additional expenditures could be made as part of New Brunswick's capital budget, rather than from general revenues.

If directed sources of revenue are accepted by the Minister of Finance, there are a couple of options to consider. The revenue to cover the additional public investment could be built into the rate base for electricity, natural gas, and applied as a small surcharge to heating oil and bunker C. Another option would be to place a small carbon charge, and it would be tiny, on carbon where it comes into the economy as barrels of oil imported to the refinery, tonnes of coal imported to Belledune, and cubic metres of natural gas pumped out of the ground in New Brunswick or injected into natural gas pipeline laterals from Maritimes and Northeast. The size of the carbon charge would be set to generate the established revenue requirement.

## **Energy Prices**

The price/kwh or litre of fuel oil is not as relevant as the cost of the monthly power or oil bill to the bottom line of a household or company. Householders, business owners and plant managers can take steps to reduce their energy costs through conservation and energy efficiency improvements. The price of energy is what it is. Simply comparing price of energy from one

region to another doesn't reveal much, but does obscure the differences in building stock and industrial efficiency.

Energy prices will effect consumption. The relationship between price and consumption is complicated, and by itself will not lead to rapid reductions in energy use. If the price is high enough and there is a perception that the price is going to continue to rise, people and businesses will alter their energy using behaviour which will lead to limited conservation. Over the longer term as vehicles, appliances or equipment has to be replaced, price will influence purchasing choices.

Other than eliminate the declining block rate, NB Power has done little with its rate structure to encourage conservation or discourage electric heating. Conservation-based pricing (e.g. an inclining block rate) and seasonal pricing are examples of rate design that would encourage conservation and discourage electric heating. A regulation under the Electricity Act which requires least-cost procurement of electricity would orient NB Power in this direction.

### **Future Supply of Electricity**

The background paper proposes four options for future supplies of energy. These are clearly not mutually exclusive, but you could add a fifth one top the mix called fuel switching, particularly focusing on reducing our dependence on electricity for space and water heating.

We would propose a sixth overarching option for the future supply of electricity: the transformation of our electricity system to one dominated by distributed generation, largely powered by renewable resources feeding into a smart grid. In a 2002 scenario developed by energy consultant Ralph Torrie for New Brunswick to examine the feasibility of phasing out our use of oil, coal and uranium, he demonstrated that exploiting the potential for energy efficiency combined with a shift to distributed generation could reduce the demand for grid electricity by 50% - where grid electricity is what is supplied by large centralized generating systems inside and outside New Brunswick.

There is a moral imperative to shift our energy system to one that is powered by renewable resources, making a transformative option one that should be given serious consideration.

With a \$690 million public investment in energy efficiency, we eliminate any need to increase generating capacity in New Brunswick for the next decade. But there is an imperative to replace unsustainable generating capacity with more sustainable options from renewables to stationary fuel cells to distributed combined heat and power systems.

### **Natural Gas**

The current arrangement for delivering natural gas to customers is broken and needs to be fixed. For electrification to proceed in New Brunswick direct government involvement was required because the market would not deliver it on its own. The same can be said for natural gas. New Brunswick's gas grid is orphaned. A priority must be placed on negotiating and arrangement to complete the eastern end of the national natural gas grid with the federal government and

adjoining provinces. This would provide a mechanism for socializing the costs of establishing an accessible and equitable natural gas network in New Brunswick, Nova Scotia and eastern Quebec.

### Unconventional Gas

The development of unconventional sources of gas such as shale gas carries considerable risks with it.

- Due to the density of shale plays, its development can rapidly industrialize rural communities destroying their quality of life and harming other economic actors.
- Due to the extreme drilling depths proper casing and cementing poses a much greater challenge, as does repeated hydrofracking to the integrity of the cement job creating greater risks of water contamination from leakage through the vertical borehole.
- Due to the use of hazardous chemicals in the fracking fluid, large volumes of which are retained underground, there are long-term risks associated with these contaminants migrating toward aquifers.
- Due to the fracking technology large volumes of liquid hazardous wastes are generated which carry with them the risks of leaks into the aquifer from storage pits and spills from handling and transport.
- Due to the fracking technology, natural gas must be dried in condensers to remove the water which leads to the emission of volatile organic pollutants into the local airshed.
- Due to the fracking technology large volumes of water are required, placing demands on water supplies which may be unsustainable in some regions.
- Due to the potency of methane as a greenhouse gas the production of shale gas can significantly add to our burden of greenhouse gas emissions.

Given these risks, not only do we need a comprehensive regulatory structure, but we need a planning process which ensures local communities have the authority to determine where shale gas development occurs, if at all, at what pace, and on what scale. This is clearly not contemplated at this time, but must be a pre-requisite to development.

Given the risks involved, the question of who benefits needs to be a central pre-occupation of provincial energy policy. Many New Brunswickers feel it is inappropriate, given the risks, for shale gas to be treated as an export commodity. If shale gas is developed, how does New Brunswick ensure that it is treated as strategic resource for New Brunswick in plotting its energy future? It is a public resource whose use should benefit the New Brunswick public.

The pace of any future shale gas development should match New Brunswick's ability to use the natural gas. As Sable Island gas becomes exhausted, shale gas could be developed to meet New



Brunswick demand once comprehensive and effective regulatory and planning structures are in place.

### **Transmission of Gas and Electricity**

Gas and electricity transmission corridors fragment the landscape effectively diminishing the functionality of wildlife habitat. The establishment of new transmission corridors must take a landscape perspective which considers the existing fragmentation caused by roads, forestry operations, agriculture, and tree plantations.

### **Petroleum Products**

As much as our way of life and economy have come to depend on electricity, it just as much depends on oil. While the electricity system can be transformed to become sustainable, the production and use of petroleum products cannot. The only sustainable policy option is to reduce our dependence on them. This clearly has huge implications for New Brunswick as we consume almost twice as much energy in the form of oil as we do electricity. Thus, our energy policy must substantially address the phase out of oil.

Fuel switching can replace oil's role in producing heat and steam, so energy policy needs to contemplate measures which will achieve this goal. However, reducing its use in transportation poses a much greater policy challenge – one that can be partly addressed by a shift in infrastructure. Private vehicles account for about 50% of transportation-related greenhouse gas emissions, while freight accounts for approximately one third.

### **Passenger Transportation**

The infrastructure for a comprehensive, convenient and affordable public transportation system does not exist in the province. Our freedom of mobility is largely limited to private vehicles outside of the major cities. Peak oil is propelling gasoline and diesel prices into the stratosphere. That will slowly put upward pressure on the fleet of private vehicle's fuel efficiency, but will have little effect on the miles driven because there is no alternative.

New Brunswick will have to shift its capital spending priorities for transportation from road building to establishing the needed public transportation infrastructure. This is an undertaking of a scale which lends itself to Maritime cooperation, perhaps coordinated by a Maritime Transportation Authority created by the three provincial governments.

With respect to municipal transit systems, the Province needs to become directly involved in developing them into a convenient alternative to driving.

### **Freight Transportation**

A shift in modality from road to rail and water will result in significant reduction in diesel use and the related greenhouse gas emission. While the province has a number of policy measures it could use to encourage such a modal shift, this too would be best addressed through regional

cooperation and engagement with the federal government. As mentioned earlier, other policies which encourage more local food consumption, will reduce the demand for freight transportation.

### **Regulatory Structure for Electricity**

The EUB Act does not direct the Board to apply a conservation test to NB Power's rates or rate structure. This should be rectified. Nor does the EUB Act provide for intervenor funding – which it should. Non-profit and citizen intervenors are unable to introduce evidence for the Board to consider because, unlike corporate intervenors, they lack the means to hire expert witnesses. Intervenor funding would make that possible.

### **| Energy's Role in Economic Development**

Most energy megaprojects are the most expensive form of job creation one could contemplate. The one exception is energy efficiency.

According to the Ganong panel, a \$690 public investment over the next 10 years would create 30,000 jobs distributed around the province and across trades and professions, and leverage \$3 billion of private investment into New Brunswick's economy. This also has the consequence of reducing the flow of capital from New Brunswick to pay for imported energy, as it effectively shrinks demand.

The other obvious role energy could play in economic development is through fuel switching to wood, wood pellets, and wood wastes to fuel heat systems and combined heat and power systems. This would replace fuels whose purchase transfers wealth out of New Brunswick to energy exporting countries to fuels whose purchase retains the wealth here while building a supply chain from fuel provision to manufacturing and service. By promoting local ownership, the development of other forms of renewable energy will also maximize the local benefits of those energy developments and democratize energy rather than privatize our renewable resources.