

Submission to the Department of Energy regarding the Renewed Energy Strategy and Climate Action Plan.

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-The opinions expressed in this submission are those of the author alone and in no way represent those of his employer.

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Introduction

Thank you for the opportunity to respond to both the Renewed Energy Strategy and Climate Action Plan. I believe these strategies and plans, while well intentioned, are presented to talk about many things without actually doing much. Specific and focused plans are required.

I am very aware of the consequences of climate change, both for Nova Scotia and the world at large. The present pattern of energy use will, without immediate action in every community, change our world for the worse in dramatic and unconscionable ways. Current IPCC reports, themselves based on one or two year old research, are clear on this.

Our climate action plan must have at it's core the stated intent to bring our per capita emissions to a level that, if globally adopted, would prevent global average temperature from rising more than 2 C above pre-industrial levels. As much of the distress resulting from this increase will fall on those nations yet to profit from inexpensive energy and unrestrained greenhouse gas emissions makes inaction unethical. Despite our small population we have an obligation to act because of our relative prosperity and leading global emission levels.

Energy Costs and Energy Opportunities

As a mechanical engineer I believe that we must all be prepared to pay more for our energy. My power bill is less than my cable bill. My fuel bill, less than my municipal taxes. These costs are not in proportion to one and another considering the benefit I receive from my energy use and the unaccounted cost of that use on the world. It is difficult news to bring to the public and even more difficult to contemplate acting before others, but this is the burden that faces governments today.

Government policy must present these ugly truths and undertake corrective action. The costs of climate change are only now becoming apparent and our energy use patterns will have to change to greatly reduce carbon dioxide emissions. It is imperative to our economy that we lead in this activity and do not follow. As new energy oriented economies emerge, we must be prepared to profit from them. The choice is one of developing expertise needed in a changing world or hiring that

expertise later. To maximize the benefit from these inevitable actions, we must have local capability in energy efficiency and renewable energy. We must plan for retooling our individual, industrial and institutional infrastructure. This activity will add to our economic growth and will bring jobs, experience and capability for growth to our communities.

Greenhouse Gas Goals and Specific Actions

The targets identified in the Climate Change plan are inadequate. We must act now to reduce Nova Scotian's per capita carbon footprint. Long term reduction goals should range from 75% to 90% of our current levels. A short term goal commensurate with IPCC recommendations should be undertaken and year by year targets established, monitored and reported. Accountability, however uncomfortable to the government, elected representatives or citizenry is critical if progress is to be made. Any less is a waste of government resources.

The primary method to address energy use and carbon emission reduction must be through taxation of carbon emissions. This is best accomplished through a carbon tax paid by consumers of fuel and energy. Reductions in income tax, specifically, the basic personal exemption and perhaps the initial taxation bracket rate should be undertaken to offset the revenue gained through carbon taxation. This will assure that those least able to respond to changing costs will be provided the best opportunity to do so.

The initial rate of tax applied to carbon need not be large, but it must increase annually at an established rate to significant levels. Later increases may need to be adjusted to retain economic competitiveness at the federal level but to prevent this, Nova Scotia's plans must include a commitment to work at the inter-provincial and federal level to apply common levels of taxation across the country.

With plans for carbon taxation in place, the primary mechanism for climate change mitigation and energy planning will be driven by established market mechanisms. There will be transition expense and our government must move to support individuals and industry as they respond to higher energy costs.

Sustainable Options

Old habits die hard. It is easy to pump more gas and pour on the coal. These approaches cannot be a part of our future energy use. Efficiency, renewable energy and education are all off the shelf options available to us. In turn each of these offer immediate courses of action that will permit Nova Scotia to achieve aggressive greenhouse gas reduction targets.

As a simple first step, the government can mandate improved vehicle efficiency standards, specifically those adopted by California. These standards are attainable and are necessary to offset the considerable inertia in the North American automotive industry. Non-compliant vehicles could be permitted with a registration levy applied to fund efficiency programs.

Potential efficiency gains are all around us, in particularly in our buildings. Successful efficiency gains from existing programs need to be documented and reported to the public. Beyond that the government or an independent efficiency agency must shepherd demonstration building retrofits so that the specific experience garnered and the benefit realized can be communicated to the general public and general building community. As well, the government should plan to provide training for building trades,

suppliers and specifiers so that best practice for our region can be communicated and made available to the public for ready application. At present the efficiency minded home owner must research best practice as it applies to their situation and then convince tradesmen, contractors and inspectors to perform and approve the work.

To encourage public adoption of energy efficiency retrofits the government should develop programs that underwrite capital expenses (low interest loans, accelerated depreciation and modest grants) to encourage early adoption of efficient practices.

These same methods of demonstration, education and incentives should also be applied to small scale renewable technologies such as solar water heating, solar electricity generation, small scale hydro and wind energy generation.

To further advance small scale renewable adoption, feed in rates for specific forms of renewable electrical generation should be established. The recently approved fuel adjustment mechanism will compensate Nova Scotia Power in the event that these rates significantly impact their cost of delivery of electricity. The opportunity presented for small scale power generation in our rural communities offers a struggling sector a sustainable income source. As a method of local economic development, there are few other schemes that offer the stability inherent in small scale rural power generation.

Large scale renewable generation must be implemented as well, in particular wind generation. This is a mature technology with many proponents. At present the main barrier is the slow implementation by our power utility because of their lowest bid approach and high winner default rate. While the technology is mature, the industry is in it's infancy. As such, the marketplace stability required to support established bidders and reliable responses to low bid RFP's is not present. Here specified feed in rates for large scale projects must also be established.

Our power utility, among others, have expressed concern that these sources are too variable to be considered reliable power. My understanding is that other jurisdictions are adapting to these situations. Moreover recent modeling of regional distributed wind energy systems indicate that up to 30% of the installed wind capacity can be counted on as base load. [American Meteorological Society (2007, November 27). Connecting Wind Farms Can Make A More Reliable And Cheaper Power Source. ScienceDaily. Retrieved December 18, 2007, from <http://www.sciencedaily.com/releases/2007/11/071121144907.htm>]

Beyond that, pumped hydro storage, among other technologies, offer the ability to buffer wind energy production. Large projects of this type are in operation in our region and would be successful in Nova Scotia.

I would not recommend reliance in the short or medium term on either large scale tidal power generation or carbon sequestration. These technologies will require many years and significant research investment to bring them to maturity. Tidal power shows good regional promise and is a strong research candidate. Regardless, marine environment impact must be closely scrutinized before wide scale adoption can proceed. This will take many years to establish ecosystem baselines and track the impact of first small and then larger systems.

Other jurisdictions will , no doubt, pursue sequestration technology. Nova Scotia may wish to join with others in this research, but for the short and medium term, Nova Scotian's have many options

available that will provide more immediate benefit.

It bears emphasizing that reliance on coal fired electrical generation is unacceptable. We must switch from this technology and this means aggressively adopting wind energy (small and large scale, land and offshore). In addition, we must strengthen our provincial electrical grid and its connection to the regional electrical transmission system. This should include multiple connections. Beyond these actions and as our coal plants age, they should be replaced with alternate technologies of opportunity and failing viable options, gas power generation and sequestration of the greenhouse emissions.

Summary

Thank you for your time in reviewing my comments. In closing I must emphasize that these problems can be dealt with through tax shifting and market responses. With these basic changes, the role of government will be to pilot, demonstrate, educate and lower adoption barriers to the many mature energy efficiency and renewable energy technologies available to Nova Scotian now.