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Below are my comments to the Renewable Electricity Plan (REP). These comments are based on my experience as the longest running independent power producer IPP having supplied NSPI with electricity from my (1984) hydro plant for over 25 years. The comments are also based on my experience as a person with a solar home for 25 years; as the first or second person to net meter domestically over 17 years ago; and as a person involved in wind energy developments for most of the past decade.

I am of the opinion that this proposed REP will continue to leave Nova Scotia as one of the most difficult jurisdictions worldwide to be an IPP, and to have a small business selling power to the utility. It will also provide few opportunities for individual Nova Scotians to benefit from participating in renewable energy other than as a ratepayer.

The policy overall is poorly thought out and poorly developed. The Department of Energy has been and continues to be unwilling to fully adopt advanced renewable energy policies. It did not seek out the best local and international advisors to create a progressive renewable energy policy that will profoundly change the energy paradigm for the province. The mediocrity of the Wheeler process in combination with refusal by staff to seek out and embrace the best ideas brought forward by Nova Scotians and or those already in place worldwide poses a real threat to the price of electricity and to the consumer and to our energy security.

The Nova Scotia public voted for real change. It will be nothing short of tragic if the new REP continues the ignorant status quo in regards to renewables policy that has been in place in Nova Scotia for the last decade, under the new government. The change of government should not allow ill-formed staff opinions to lead the newly elected government in this Province down the path of mediocre policies. Consultation with experienced renewable energy experts should be the primary focus for amending the REP.

Alternatives to the 60MW Biomass

The Consumer Advocate's expert witness for the URB Biomass hearing states that NS could do 800MW more wind and that there is no need for the biomass project.

Or this same amount of money could be spent on using waste heat from Tuft's Cove for district heating for Burnside, Dartmouth and or Halifax and reduce the overall demand for fuel (either electric, oil or gas) and associated emissions for these areas.

Or the Biomass budget could also be devoted to developing a plan for and implementation of a massive solar rollout. A 50-year budget for biomass construction and fuel cost is about equal to what is needed in today's dollars (NPV of 50 years \$) to make a solar society if we do it now. And yet the REP claims that solar is too expensive. Instead of remaining biased against solar, the Department's REP should be laying out its strategy for 150,000 to 250,000 installs of solar hot water, solar hot air and of solar PV. As part of the REP this comprehensive solar rollout strategy would now be being reviewed and commented on and adjusted instead of being left out.

(See my attached chapter on a solar roll out at the end of this document.)

COMFIT versus a FIT for all producers:

In the last decade one aspect of the renewables plan was to let the electric municipalities develop wind. This has failed. Under the REP the new attempt is to give the electric municipalities a COMFIT, with a few scraps to private business and citizens if they can work under a CEDIF. The government should stop acting as a gatekeeper. Nova Scotia needs to immediately address its huge coal problem: it is as an economic drain, an environmental liability and an insecure energy source.

The REP should be proposing a comprehensive feed-in-tariff (FIT) with a real workable investment strategy. This means a FIT that makes it possible for as many Nova Scotians and Nova Scotia businesses as possible to be able to work in the renewables field as developers and or as owners. It is worse than expected that the Department of Energy continues to have no interest to develop a vibrant local owned small renewables sector through its policies, and uses outdated and ignorant ways of assessing best choices and best practices for renewables developments.

Model the Nova Scotia FIT on Germany's FIT, a policy that has successfully created jobs and allowed projects to get built. RFPs do not work and to date have created a mess in the Nova Scotia renewable sector by allowing the monopoly player NSPI to dominate, driving out the IPP wind sector and undermining any potential for attracting financial investment.

Under the REP, all the big action is still under RFPs with the same old rules; it is as mediocre to have the government or NSPI managing the RFPs. Why would the government continue to pursue a policy which during the last decade that has more or less slaughtered those interested to work in this field? Far better to have the Government workers and public money going to an advanced solar roll out that is investing in developing this local business sector and benefiting the maximum number of citizens.

With over fifty countries in the world having adopted FIT what are the details as to why the Department of Energy has behind closed doors determined a FIT doesn't work for Nova Scotia? These assumptions by the Department of Energy are based on unfounded

biases that are harming the public good and economic development of the Province. The presumed benefit of least cost to the ratepayer has been and continues to be shortsighted and harmful to the economy, environment and ratepayers of the province.

Cedifs

Cedifs are simply a capital device. It is important to understand how difficult it is to have local ownership in the world of finance especially for small developers. Basing a policy around use of CEDIFs is assuring only a highly restrictive financial structure will exist, and means local ownership only comes in one form for smaller projects. CEDIFs are not functional for renewable projects; they are an immature financial model.

Where are the Public taxdollars going and the result

The NS government should assist smaller renewable projects. Why? Because it is obvious that so far the public money is going only to the large private corporate sector. In the past year some examples include \$70 million to Daewoo; an agreement (and it will have a budget) with Maine for offshore wind; an agreement with New Brunswick to have NSPI expand its grid interconnection; \$2 million to a Quebec based clean energy venture capital fund; and tens of millions of public money for the development of very nascent, highly costly private tidal test facility and projects, to name a few.

The NS government contribution to larger private players adds up to almost \$100 million in the past twelve months while none has been directed at the IPP sector to ensure a vital local development sector with Government help in renewables. It's all for big biz, despite the fact that small businesses comprise by far and large the majority of the NS business sector. It also does nothing for the citizens sector which is where all the economic verve is if it is assisted fairly.

Why does the government believe that it's okay to support large players but the small business and citizen sector have to comply with the rules of the free market? This is similar to the period during the mid-1980's, when hundreds of millions of public dollars went to the big boys at NSP to get Nova Scotia off oil for electric generation, and yet no public money was available to assist the community and small biz sector.

Assisting local developers and community developers for local developments:

The government should use all funds from the Industrial Expansion Fund for the next 5 years to invest in small renewables projects. Last year over \$222 million was spent on supporting large industrial players- what is the obstacle to using this fund. The idea in the REP draft suggests that government assist R&D for small projects with studies etc. which is totally peanuts, and fits the old model of a few R&D scraps, where the government should be a partner in small projects, not NSPI.

Or funds could be used from loan guarantees or through Nova Scotia Business Inc., both ideas put forward by Premier Darrel Dexter on March 16, 2009 when he was leader of the opposition and when he recognized that access to capital was crippling the ability of IPPs to construct projects.ⁱ

NSPI not Nova Scotian's continues to be the big winner:

Nova Scotia is very far behind in building a renewables sector. It is mostly still NSPI succeeding to make it all theirs and clean up polluting as slow as possible and on their time frame. Note the recent decision to allow NSPI four more years to clean up its mercury when they have known since 2000 that this was going to be required- this is quite likely to be the scenario for meeting GHG reduction targets.

So far NSPI has picked renewable energy projects that minimized any need to spend money on improving the transmission grid-distribution projects help with this too. The result is very real savings to NSPI not having to upgrade their system. These savings are worth potentially as much to them again as what they pay for the power.

Adopt the best by bringing it here

A FIT policy like that of Germany, should provide for open access for local projects on the distribution grid with NSPI having to pay the upgrades to accommodate the power. The right policies work, they have worked in Germany, and we want the best policies here. The Government needs to hire experts from Germany to assist with this planning as they have expertise.

In conclusion, it is inexcusable that the new Renewable Electricity Plan for Nova Scotia does not fully embrace the best opportunities for Nova Scotia to be a renewable energy society that is on par with the worlds leading jurisdictions. This plan accedes a business as usual approach that embraces nothing new to ensure the public has a green and economically green electricity system of benefit to all Nova Scotians. It is nothing short of a travesty that this policy continues the embedded mediocrity of public policy for our energy future.

Sincerely

Neal Livingston
President/Owner

ⁱ <http://www.cbc.ca/canada/nova-scotia/story/2009/03/16/wind-barnet.html>

Nova Scotia Power to invest in wind energy

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The Nova Scotia government plans to revise rules that bar Nova Scotia Power from investing in wind power companies, in hopes of helping the utility reach its green energy goals.

Currently, Nova Scotia Power is forbidden from investing in wind turbine companies, but Energy Minister Barry Barnet said the province wants that to change.

"I think there was kind of a mutual coming-of-the-minds that this is the way we can meet each other's objectives," Barnet said. "It's imbedded within the regulation and I'm not sure why it was put in there in the first place. The idea was to have the independent producers have the ability to operate separately from Nova Scotia Power."

Barnet said allowing the utility to invest in independent wind power producers will help solve two major problems: It will allow cash injections into smaller companies during the current recession and it will help Nova Scotia Power develop vendors from which to purchase green energy to meet its target.

"What we're doing right now is looking at things that we can do to adjust our policy to enable companies like Nova Scotia Power, who have a strong financial background, to invest in some of these independent power producers." Barnet said he is hopeful the utility will meet its 2010 target of having five per cent of its power generated by renewable sources.

Provincial New Democrat Leader Darrell Dexter said he isn't sold on the idea of the utility investing in other energy companies because he fears it will expand Nova Scotia Power's monopolization of the industry.

Dexter said the province could help smaller companies by offering loan guarantees or having Nova Scotia Business Incorporated, the province's private sector-led business development agency, invest in wind turbine companies.

"I think it should be absolutely the last option that they proceed with," Dexter said. "The problem is access to capital in what is a very, very tight credit market given all the economic turmoil that's going on. The best thing is to try and support those people who are out there trying to promote the use of wind power and other renewables, by making sure they have access to capital."

Dexter said the regulations banning Nova Scotia Power from investing in smaller energy companies were established to allow smaller power producers to get a toe-hold in the province, and giving the utility the right to buy up those smaller companies now, would defeat that goal.

**An Action Plan for Renewable Energy
and Energy Efficiency Policy and Programs,
to Maximize the Benefits to Nova Scotian's**

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Thirty years into my career in renewable energy in Nova Scotia has recently led me to understand some simple steps we can take to transform Nova Scotia away from being one of Canada's leading air polluters from its coal fired pollution emissions, to become a leading renewable energy and energy efficiency jurisdiction. This can take place in the next 5 years. Ensuring that the economic and energy savings benefits are spread widely is the societal goal. This means that the savings will go directly into your pocket short and long term.

It's hard to imagine in the past, when we were not a wealthy society how public infrastructure came into being. How was it that water supplies got built, or roads, telephone and electricity reached almost everywhere, and repair persons have been there ever since to maintain these things.

We can transform Nova Scotia into a solar society in several quick steps, that could change the way we use energy within 5 years by about 30%, and proceed from there to 50% or more by 2020. These steps will lower your home and work place hot water and heating costs, and at the same time result in more comfortable homes and workplaces. Every home and building becomes a solar building.

We can make high paying jobs, both short and long term while doing this. A high wage jurisdiction with jobs available will make the economy boom, and since we are installing these technologies everywhere in the province, the jobs will be spread throughout the Province, helping to revitalize rural areas. The work force to install these units can be trained in a short time period, using local skilled labour and attracting people to move to, or back to, Nova Scotia, from other parts of Canada.

This plan assumes that we will continue to re-lamp, insulate and upgrade our housing and work places, during this same period, to improve energy efficiency and conservation.

Germany in 2008 has more than 230,000 jobs in renewable energy, and this number increases every year. Renewables are the new industrial revolution. In the 1980's many Nova Scotians took steps that were on the cutting edge of energy solutions globally through the installation of renewables. We were set to become a leading jurisdiction, but unfortunately since then these efforts have become seriously sidelined and marginalized, from lack of policy development by Government.

To achieve our goals of significantly reducing dependency on fossil fuels, we can use available technology and first make use of those technologies that have the quickest payback periods. We start out using technologies with less than 10 year pay backs, with a long operating life, and low installation and maintenance costs. The work force once done with installing these solar hot water, and solar thermal systems, would then proceed to installing Photo-Voltaic (PV) which are solar panels that generate electricity, in years 5-10 of this program, by which time these PV costs should have come down to make them cost effective.

The reason we install massively, almost everywhere is that we want the lowest possible costs per unit installed and the maximum economic and social benefits, from proven technologies. It is a plan for all of Nova Scotia, that can be copied elsewhere in Canada. It is a bulk buy guaranteed by the Province.

The program to do this transformation should be run through Government programs, by the utility, installed by private contractors, with checks and balances to ensure quality work and high standards are met. These technologies would go on, and into your home, office, and workplace. They would be paid for by you with support in the form of low interest or no interest loans over five to ten years depending on your income level. Your energy bills will not be different than what you would be paying, but then would decline over time, making a buffer against rising energy costs, and stabilizing or lowering your power and heating costs.

Nova Scotia has about 1/33rd of the country's population, but is one of the top five CO₂ emitters because of the coal fired power plants, which generate most of our electricity. The goal of this energy plan is to shut down as many of these coal fired power plants as we can, as quickly as possible.

The greatest benefit besides the energy saved, is that the savings go right into your pocket. There will be economic spin-offs, direct and indirect. The indirect ones interest me a huge amount, as a successful society, both the public, and the government sector, values its arts, its environment, and its culture, and is a vibrant modern society.

ROLLING OUT THE PLAN: PHASE ONE:

Solar Hot Water:

First, install solar hot water on all homes and buildings. The products we use must be made in Nova Scotia as we already have one of the worlds leading manufacturers of solar hot water Thermo-Dynamics. If you want to compete in this market set up here, or in the Atlantic Region.

Your single largest energy cost after heating your home is hot water heating. Solar hot water can lower you hot water heating costs by 30-40%. I have had solar hot water on my home since 1986. It paid for itself years ago. The payback was 7-10 years. The savings continue to go directly in my pocket.

Solar Thermal:

These panels normally get set up on a wall facing the south or south-west of your house. One panel can heat 1000 square feet. The panel size is less than 4x8 feet.

There are several models on the market, my favourite is Cansolair from Newfoundland. I put one on my home in late 2007, and when the sun is out it heats extremely well. Lowering one's heating costs with a 7- 10 year payback, and likely less. The savings go directly into your pockets, and reduce fossil fuel use.

Solar Housing:

Every new home and building should be regulated to be a passive or active solar home. I built my solar home in 1986, and I cannot figure out why this has not been part of the building code for the last 25 years. Saving 40% per year on heating costs makes this an obvious choice, especially as it is no more expensive to build a solar home.

Load Demand Control:

Ever spent time in Europe and Scandinavia?

In Norway and Switzerland and other countries controlling the electrical load, that is how much you are using at home or your building, and time of day use, have almost always been part of how the electrical system works.

In the old days in Norway, you had a meter above your electric stove, with a needle pointing to red, orange, and green. If the needle pointed to the red you were paying double for your power. When cooking you would flick the switch and it would turn off your water heater.

Modern technology means that these things happen automatically, at certain times of time of day when electrical demand is highest. If you are cooking your water heater is automatically turned off, and your dryer would be too. It is just the matter of installing these control boxes in our home and buildings. The

important function they provide is to lower the total energy use in the Province, which is especially important at times of peak demand, so that coal plant doesn't get turned on.

Limits on power use can be implemented. In former times an electrical service in a home was 60 amps, then it went to 100, and then 200. My home and farm runs within 100 amps, and so could all homes.

How many of you have clothes drying racks at home ?

In my home we hardly ever use our dryer. I saw an old drying rack in England, made drawing of it, and had one built. We could use this design and send one to every home, with instructions explaining how much money you will save by using it every year. We can have them built in Nova Scotia out of local wood.

The better off you are, has tended to mean the more energy you use, at home, with your car, motorized gadgets and recreational toys. It's time to shift this paradigm. We can live very well efficiently.

Nova Scotia has based its economy around cheap energy. Places that have high energy costs, usually have the most prosperous economies because efficiency drives overall wealth creation, and the highest average and minimum wages.

Maintenance Infrastructure:

Concurrent with the setting up of several hundred thousand solar installations, this energy plan also trains a workforce to be the long term permanent maintenance personnel. This is the same as the phone repair, or cable Tv repair crews that service the province every day.

System monitoring would be done through remote monitoring equipment, that can call out to the repair department when faults occur with the equipment, just in case the homeowner or building owner didn't notice.

PHASE TWO:

Photovoltaic – Solar Electric Panels:

Part two of the energy plan will take place in years 5-10, and will be to install PV / Photo-Voltaic panels to generate electricity, just as widely as solar hot water and thermal on homes and buildings. Presently PV costs are too high to roll out a program with 20 years or longer pay back periods. But by 2015 these costs will be more affordable. Once our trained work force is finishing up with the 2010-2015 installations, we will transition them for the next 5 years to installing PV.

In the 2010-2015 time period, we negotiate and establish PV manufacturing in Nova Scotia for the 100,000's of installations that will go in on roofs in the 2015-2020 time period. If there is a cost effective way to get this done faster with proven technology then we can roll out into PV faster than these dates. Local manufacturing content would be a requirement.

High-Speed Rail:

Concurrent with our Nova Scotia solar energy plan, would be the high speed rail project, from one end of the province to another, built as 100 year infrastructure. Sydney to Halifax in two hours, and on to Yarmouth in another 2 hours, with trains organized for commuter schedules in the Halifax region. We would also build out the system so that Montreal is 6 hours from Halifax.

The cost to the user would have to be more attractive than using their car, and the system would not be unlike having a province wide urban subway system - above ground. It would transform how we work, and how we move around the province, The benefits would be enormous with the revitalization of small towns and cities. Both cargo and people are transported reducing road traffic.

Siemens, one manufacturer, claims that its monorail system can be installed and built in two years, constructed along and between existing highways. Many countries worldwide are installing high-speed rail, if we are the first in Canada, we reap the technology benefits. Bombardier in Quebec is also a player in the high speed rail market.

We would not build more divided 4 lane highways, instead we would transfer the funds for these new highways into high speed rail.

Wind:

Commercial scale wind power does have an important role to play in turning off and down the large scale polluting coal fired power plants, with their emissions of heavy metals, like Mercury, sulphur and nitrous oxides ,volatile organic compounds, and many other pollutants beyond CO2.

Wind energy is big business, and it is not nearly as simple as the solar solution to spread the benefits widely to Nova Scotian's. We can get the right policy, but it seems that it will take a change of government provincially to achieve this.

In conclusion:

If we mandate these changes with a non-negotiable time line attached, like we did in Nova Scotia with recycling, we achieve amazing results quickly, because the need for change is urgent, and the benefits from acting now is enormous.

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