An Action Plan for Renewable Energy and Energy Efficiency Policy and Programs, to Maximize the Benefits to Nova Scotians

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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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