

Government of Newfoundland and Labrador

Energy Plan Discussion Paper

Submission by:

***PROFESSIONAL ENGINEERS AND GEOSCIENTISTS
NEWFOUNDLAND AND LABRADOR***

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PEGNL believes it is very important to contribute to the discussion on the development of the proposed provincial Energy Plan in the areas of engineering and geoscience.

Our engineers and geoscientists have developed considerable expertise in the oil and gas and electrical energy sectors. They look forward to contributing to the discussion on energy issues and also to expanding work in the energy field.

In developing this comprehensive Energy Plan Discussion Paper, we believe that the Government of Newfoundland and Labrador is providing a “foundation for the prudent development and management of the province’s energy sector,” and we wholeheartedly support the endeavour.

We also support the idea of Newfoundland and Labrador Hydro expanding its role, particularly in the alternative energy sector, and taking an equity position in oil and gas.

It should be noted, however, that although it seems, on the surface, that an equity position in oil and gas development is attractive, it does have potential risks as well as potential benefits. We encourage a thorough review before embarking on this route.

It is clear that, with respect to any major new or alternative developments, we would have to link to the national grid. Newfoundland and Labrador Hydro would be involved in bringing them on

line and will need expertise to develop the alternative energy. It goes without saying that any link to the grid should be subject to engineering and economic studies to ensure that it is in the best interests of the province. We support the government's investigation into such links.

A major theme of the Discussion Paper is sustainability. We interpret that to mean continuing to build a province that maintains and improves on its social, environmental and economic well-being in a deliberate and stable way. It recognizes that these three elements of social, environmental and economic well-being are closely inter-related and improving one without the others is not viable over time.

We also recognize that those who practice engineering and geoscience within the province are very important contributors to the sustainability of the province, particularly in the energy sector. They make important contributions through industry, government and academia; on the supply side of the energy sector and on the end use side; and within the oil and gas industry as well as the renewable side.

In fact, many of those participating in this discussion paper, both in its preparation and in the response, are engineers and geoscientists. Our point in stating this is to highlight that the development of a sustainable province, and a sustainable energy sector, is dependent in a significant measure on sustainable engineering and geoscience professions in the province. Only then can we properly develop and manage a sustainable energy sector here.

As part of maintaining a sustainable resource of engineers and geoscientists, Canada and other industrialized countries have long recognized the importance of licensing professions, including engineering and geoscience, in the best interests of society, to ensure that an important measure of public safety and welfare is met by regulating these areas of expertise.

In fact, it is the law in all Canadian provinces that engineering work should be the responsibility of registered professional engineers. The same is true for geoscience practice which is now regulated in nine Canadian provinces, including the Province of Newfoundland and Labrador.

Most organizations in the energy sectors employ professional engineers and professional geoscientists at various levels of responsibility, including senior management.

I. The Role of PEGNL

As background, we offer the following descriptions of the roles of professional regulatory bodies as they apply to engineering and geoscience Associations, and in particular, the role of PEGNL.

PEGNL and our provincial counterparts across Canada exist for the specific purpose of ensuring that public safety and welfare are protected in the practice of these professions. We therefore have the privilege and responsibility to regulate those individuals who practice within our jurisdiction.

PEGNL ensures that those given the right of using the designation “professional engineer” or “professional geoscientist” meet specific criteria in terms of both formal education and experience.

In addition to certification, professional associations also discipline members who violate standards of professional practice that includes malpractice in both technical and non-technical areas. Others, who are not qualified to practice and attempt to do so, are notified, and brought to court if necessary, to stop them from practicing.

In Newfoundland and Labrador, the Engineers and Geoscientists Act regulates the practices of engineering and geoscience [see the Appendix for the definitions of these practices.]

II. Energy Plan

We want to compliment the Minister and the provincial government for developing this comprehensive Discussion Paper on the proposed Energy Plan.

We all appreciate the value of planning for the future. It is apparent that a lot of thought has gone into this Paper, with a lot of issues addressed and questions raised.

The most important issues for PEGNL are:

- Growth, or what we call the sustainability, of the professions;
- The environment; and
- Local Benefits.

a. Growth of the professions

To the greatest extent possible, we would like to see the capacity of the engineering and geoscience professions growing in all disciplinary areas to allow us to undertake new research, design and development. Technology transfer is the vehicle through which sustainability is assured. For example, previous hydroelectric developments engaged provincial engineers and geoscientists who acquired considerable knowledge and skills in this area. A similar growth of expertise has occurred in engineering for the oil and gas industry.

More recently, our members have developed expertise in other sectors, such as wind power, and we would like to see that continue.

b. The Environment

The protection of the environment is of paramount importance to our professions and the principles of sustainable development should be applied to the greatest extent possible.

The introduction of renewable energy sources to reduce hydrocarbons used at Holyrood, for example, would be a benefit. Moving from non-renewable towards renewable energy resources is something we should strive towards in our own energy use. However, whatever energy resources we develop, we should do so in an environmentally-responsible manner.

c. Local Benefits

We would encourage the provincial government to continue to make every effort to maximize benefits in Newfoundland and Labrador.

The employment of resident engineers and geoscientists will contribute to the continuing growth of expertise in our professions. Similarly, it will stimulate the development of other engineering- and geoscience-related businesses and occupations.

Additional revenues derived from royalties will assist the economy and allow for development in non-related areas. An improved economy helps everyone, including engineers and geoscientists.

With regard to the preceding issues, we offer the following in relation to some of the questions raised in the Discussion Paper.

a. Energy Plan Objectives

PEGNL supports the objectives outlined in the Discussion Paper, in particular, Objective 4 and the reference to exporting “professional services.”

“To develop a provincial energy industry that is globally competitive and of world-class quality, so that we become significant exporters of both energy products and professional services.”

To be sustainable, we need to develop experts, invest in them and ensure we have the capacity to employ them at fair and competitive salaries, in both the private and public sectors.

Developments to date, to some extent supported by government policy, have contributed to the growth of expertise.

While some people know of the outstanding skills here, others – both here and elsewhere – are still not aware of our high level of engineering, geoscience and technological expertise. We hear of skilled engineers moving away after being offered salary packages above and beyond what can be offered here. This depletes our professional base.

With regard to education, PEGNL has tracked MUN engineering graduates from 1974 to 1999. Forty-nine percent of these graduates have left the province.

We would like to see our young engineers given challenging and rewarding opportunities here, rather than exporting them, while engineers from elsewhere are working on projects being carried out in Newfoundland and Labrador.

No province keeps all of its graduates, but relative to the time and money invested in their education, the loss of these graduates is a provincial resource ‘giveaway’ that is not being addressed.

We note that we have developed significant human resources in the engineering and geoscience sectors that do contribute to the energy sector, and are world class. The key to the future is to continue to develop this expertise, and keeping it here is dependent on a vibrant energy sector. We also note the experience with the oil industry, as Hibernia and other offshore developments

have progressed. We have improved our local expertise in this area, but we can do better. We must learn from both our successes and failures and continue to build this local expertise.

b. Security of Supply

With regard to small domestic demand, we believe that there is still great value in developing new energy supplies, for both future provincial and North American demand. This raises the issue of the need for and viability of an Island connection with the mainland. We must continue to get the best engineering advice as we deal with the issue of an Island connection to Labrador.

These new developments often have less environmental impact too, including the prospect of reducing energy output and emissions from the oil-fired generating station at Holyrood. In this regard, we endorse the recent announcement to burn cleaner fuel at Holyrood in order to reduce emissions and assist Hydro in its environmental compliance requirements.

c. Electricity

There are many small rivers in Labrador and on the Island, with undeveloped potential for hydro-electric development.

PEGNL believes that the blanket moratorium on small hydro developments should be lifted, with the private and public sectors looking into new developments but ensuring environmental conditions are met. It is unreasonable to disallow one energy source from competing with others on an equal technical, environmental and economic basis.

As society's values regarding the environment have changed, so have the practices with respect to energy development. In many cases, engineers and geoscientists have led these changes. The environmental practices on past hydroelectric projects were a reflection of society's values at those times. Today's standards are significantly different. Two examples of recent hydroelectric projects that were done with today's environmental standards as top priorities are the Rose Blanche Hydroelectric Project and the Granite Canal Hydroelectric Project.

In fact, PEGNL and others have recognized both these projects with environmental awards. These hydroelectric projects are an important component of a sustainable society.

In the event that natural gas is brought onshore, electricity can be generated by the more environmentally-friendly gas-generated power, rather than oil-fired generation.

PEGNL supports the development of the **Lower Churchill** at the earliest opportunity, including managing it from within the province and, in particular, ensuring that both public and private sectors participate.

We continue to support Newfoundland and Labrador Hydro's desire to have strong expertise within their organization, but believe it is essential to use the private sector in the planning, design and construction of projects in order to ensure diversity. While Newfoundland and Labrador Hydro has experts in both engineering and construction, we need to start developing new people to ensure continuity.

d. Alternative Energy and Energy Conservation

PEGNL believes that many of the alternatives cited in the Discussion Paper have huge potential for Newfoundland and Labrador, particularly wind power. There are associated issues [e.g. limited capacity, economics, etc.] but PEGNL believes it is important to start a project and deal with the issues. We have the necessary professional skills and they can be enhanced.

We have seen that wind energy has become an important energy source around the world and, with the continued improvement in technology, it has become more cost-effective. PEGNL believes that it is important for government to take on a larger wind project so that we can better understand the challenges involved and confirm the energy cost implications for a Newfoundland-based project.

The development of wind energy in Newfoundland and Labrador, using local expertise, will help promote the continued growth of expertise in this sector.

Other alternatives, such as tidal energy, biomass, peat, and solar, need ongoing assessment. This means encouraging more Research and Development for future opportunities for both the province and our professions.

e. Oil and Gas

Our oil and gas industry has become viable and productive. Hibernia, Terra Nova and White Rose have been important for developing expertise in our professions and this expertise has been recognized around the world, and also exported.

For example, when Terra Nova had significant problems with their FPSO turret, it was local engineering expertise that supplied the solutions.

We particularly wish to congratulate Husky Energy and Aker Maritime Kiewit Contractors [AMKC] on their recent successes with the White Rose Development.

Husky Energy made strong commitments in their White Rose Development Plan and they made every effort to meet or exceed those goals. Their co-operation and commitment to the Province appeared to be genuine and positive.

We believe that they have set a benchmark for local benefits, including engineering, which must be maintained. Future developments should operate in the same manner, with the Engineering and Project Management personnel located here. The provincial government should move ahead as soon as possible on these developments, but not at the expense of reduced local benefits.

In addition, we support government's interest in bringing gas onshore for processing here, if it is economic to do so, instead of liquifying or compressing it for shipment elsewhere. If there are issues involved, let them be addressed by local engineers.

There are significant benefits to using local expertise: utilizing capacity; and ensuring continuity, for example.

In the late '90s, PEGNL, the provincial government and oil industry representatives participated in the Offshore Petroleum Engineering Task Force. This was a working group that provided a good forum for exchanging information. Unfortunately, the Task Force ceased to function in recent times and was disbanded by the Department of Natural Resources about a year ago. It was not replaced by another linkage which has caused frustration among the professions.

We understand from the Minister's NOIA presentation that he plans to form an Advisory Committee on Oil and Gas. We believe that participation by the engineering and geoscience professions in that Committee may be a satisfactory replacement for the former Offshore Petroleum Engineering Task Force.

III. Conclusion

In conclusion, we believe that the engagement of engineers and geoscientists of Newfoundland & Labrador in all energy-related projects will significantly contribute to the continued growth of Newfoundland and Labrador society and also ensure the growth of the engineering and geoscience professions. Such a contribution will help the Government of Newfoundland and Labrador successfully realize the vision outlined in the Energy Plan Discussion Paper.

APPENDIX: Definitions of the practices of engineering and geoscience

APPENDIX

The practices of engineering and geoscience as defined in the Engineers and Geoscientists Act

“The practice of engineering means reporting on, advising on, evaluating, designing, preparing plans and specifications for or directing the construction, technical inspection, maintenance or operation of a structure, work or process

- (i) that is aimed at the discovery, except by the practice of geoscience, development or utilization of matter, materials or energy or is designed for the use and convenience of human beings, and
- (ii) that requires in the reporting, advising, evaluating, designing, preparation or direction the professional applications of the principles of mathematics, chemistry, physics or a related applied subject,

And includes providing educational instruction on the matters contained in this paragraph to a student at an educational institution, but excludes practicing as a natural scientist.

The practice of geoscience means the reporting on, advising on, evaluating, interpreting, processing, geological and geophysical surveying, exploring, classifying reserves or examining activities related to the earth sciences or engineering – geology

- (i) that is aimed at the discovery or development of oil, natural gas, coal, metallic or non metallic minerals or precious stones, water or other natural resources or that is aimed at the investigation of geoscientific conditions, and
- (ii) that requires in the reporting, advising, evaluating, interpreting, processing, geoscientific surveying, exploring, reserve classifying, or examining the professional application of mathematics, chemistry or physics through the application of the principles of geoscience,

And includes providing educational instruction on the matters contained in this paragraph to a student at an educational institution.”
