



Energy for the Future

Energy Planning for the Northwest Territories



June 2006

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Message from the Ministers

The development of energy resources in the Northwest Territories (NWT) will play a critical role in our economy for decades to come. This development will also provide an economic base and the future revenues required for our government, and emerging Aboriginal governments, to deliver services to NWT residents.

Stewardship of our natural environment is close to the heart of many NWT residents. The warm winters we have experienced during the past several years have heightened awareness of the growing impacts of climate change and the global need to reduce greenhouse gas emissions.

A comprehensive NWT Energy Plan will provide the policy framework to guide and support future decisions regarding energy. This discussion paper highlights the key issues that need to be addressed in a comprehensive NWT Energy Plan.

This approach should result in energy development and management that ensures sound environmental management and leaves a lasting legacy of clean, affordable energy for the benefit of all residents of the NWT.

We welcome your comments and assistance as we develop an Energy Plan for the NWT.

Brendan Bell.
Minister of Industry, Tourism and Investment

J. Michael Miltenberger.
Minister of Environment and Natural Resources

Energy for the Future

Introduction

This booklet provides an overview of the discussion paper titled **Energy for the Future**. A pdf version of this document can be found at (www.nwtenergyplanning.ca). Through this Discussion Paper we will:

- identify issues for discussion;
- define a policy framework to guide GNWT decisions with respect to the development, generation and use of energy resources in the NWT; and,
- propose strategic directions and actions that will support this policy framework.

The following is a brief review of the current energy market and environment in the international, national and domestic context.

Background

The increasing focus on energy issues in the NWT mirrors those at the national and international level and is due to a number of factors, including:

- the escalation of oil and natural gas prices;
- diminishing conventional natural gas production in the U.S. lower 48 states and the Western Canada Sedimentary Basin;
- reliance on oil imports and concerns with security of supply;
- the impacts of fossil fuels on the environment; and
- the recognition that emerging technologies and renewable energy forms will play a more significant role in meeting future energy requirements.

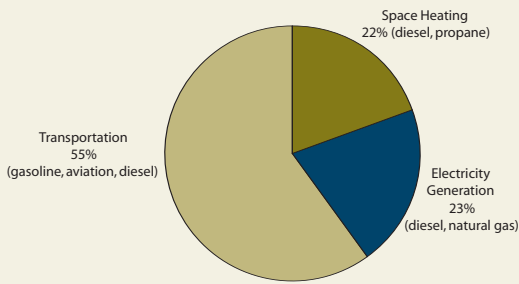
Energy Use in the NWT

A brief examination of energy use in the NWT identifies areas that hold the greatest potential for reducing the environmental and/or economic costs associated with energy in the NWT.

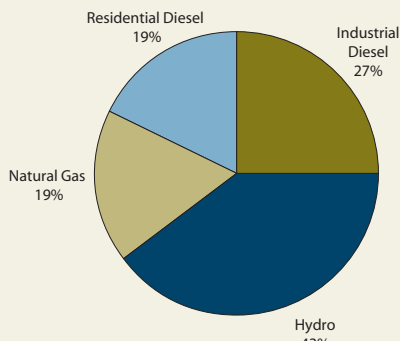
In terms of the high cost of energy in the north, and the environmental impacts of burning fossil fuels, it appears that there are few opportunities for reducing transportation fuel usage. As the chart on page 4 demonstrates, the NWT consumes nearly 416 million litres of fuel, 55% of which is used for transportation.

The GNWT is testing the suitability of hybrid vehicles and promoting anti-idling campaigns.

NWT Fuel Consumption by Sector
(2004/05 - 415,574,000 estimated litres)



2004/05 Electricity Generation



Charts based on 2004/05

Department of Finance taxation data.

However, the potential for reducing the use of transportation fuel is constrained by current technology. The development of highway infrastructure would likely have the greatest impact in terms of reducing energy costs, and the overall cost of living in many NWT communities.

Hydroelectricity already provides electricity for 75% of NWT residents' power. However, hydro use is only 43% of overall electricity production when diesel generation for remote mine sites is included (see charts on left).

Fuel imported for space heating (more than 91 million litres) and diesel imported for electricity generation, present the greatest opportunities to reduce the environmental and economic costs of burning fossil fuels.



Costs of Energy in the NWT

In the NWT, where we import large quantities of fossil fuels to meet our energy requirements, rising prices may spur development but they also impact our cost of living. In the past year, NWT residents paid 20% more for their oil and gas. Fuel and power is often the single largest operating expense for businesses, especially in our more northern communities, where imported fossil fuels are used almost exclusively to meet energy needs.

In terms of electricity, the most significant factor, by a wide margin, is the lack of economies of scale. The large capital and operating costs of providing electricity are spread across vast distances to a small population base. The cost of the fuel makes up only 25 to 35% of the overall cost structure of providing electricity in remote communities. The remainder is made up of capital, transmission, distribution and overhead costs. In many communities, a 20% increase in the price of diesel would only translate into a 5% impact on the price of power. For residential customers outside of Yellowknife, the first 700-kilowatt hours of such an increase would be funded through the Territorial Power Subsidy Program.

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NWT Energy Resources

The development of the Mackenzie Valley Pipeline will provide the necessary backbone infrastructure to significantly spur natural gas exploration. There is also the existing oil pipeline from Norman Wells. With 447 million cubic meters (2.8 billion barrels) of estimated oil reserves, over 60 trillion cubic feet of estimated natural gas reserves and over 10,000 megawatts of potential hydroelectric power, it is conceivable that the NWT could become energy self-sufficient and a major energy supplier to southern markets.

The NWT also has a variety of renewable energy supply options that could meet some of our energy needs such as wind, solar, biomass and geothermal.

Greenhouse Gas Emissions

Greenhouse gas emissions produced in the NWT continue to rise. In the NWT, emissions grew by more than 60% between 1996 and 2001. Greenhouse gas emissions produced in southern jurisdictions also have a great impact in the NWT. Climate change in the NWT is widely recognized and addressing these impacts must be a high priority.

Role of Government

The Department of Environment and Natural Resources promotes and supports the sustainable use and development of natural resources, including energy, and the protection of the environment.

The Department of Industry, Tourism and Investment promotes and supports the sustainable development and use of resources and is responsible for over-all coordination of energy planning and policy development.

The GNWT currently owns the Northwest Territories Power Corporation (NTPC), which provides electrical generation and distribution services to 28 communities through the operation of 20 isolated diesel plants, one natural-gas-fired plant and six hydro plants. NTPC also provides electrical power on a wholesale basis to Northland Utilities Limited (NUL), which serves as the electric distributor in Hay River and Yellowknife and runs diesel gensets in Trout Lake, Kakisa and Wekweti.

The Petroleum Products Division of the Department of Public Works and Services is responsible for purchasing, transporting, and storing the annual requirements for petroleum products in fifteen NWT communities.

Historically in the NWT, the government has had to assume a substantial role in providing energy services to northern communities.

Policy Questions

A number of questions need to be considered in developing a policy framework to guide the creation of a comprehensive NWT Energy Plan. These include:

- How do we manage energy development decisions to meet our commitments to environmental stewardship, now and in the future?
- What is the most effective way to provide residents of the Northwest Territories with equitable access to affordable power?
- What role should governments play in the energy sector, recognizing the unique nature of the NWT environment?
- How do we foster an energy sector that is efficient and effective while maintaining public accountability and transparency?

Proposed Policy Framework

An initial examination of these issues resulted in the following proposed Policy Framework with the following Policy Statement and Principles:

“The GNWT supports an efficient and effective energy sector that provides reliable and affordable energy to all residents and businesses of the Northwest Territories. Consistent with the GNWT Sustainable Development Policy, the GNWT encourages and supports development that demonstrates a strong commitment to protecting the natural environment and directly contributes to a lasting legacy of affordable energy for all residents.”

Principles

1. The GNWT encourages Aboriginal equity positions in energy development projects and will work in partnership with all stakeholders towards sustainable energy solutions for the benefit of all residents.
2. The GNWT will ensure energy development and management decisions support the high quality of the natural environment and biodiversity of ecosystems, recognizing the absolute importance of the long-term protection of these natural systems to economic, social and cultural well-being of NWT residents.
3. The GNWT, using available fiscal and regulatory tools, will promote the use of renewable energy for industrial developments that contribute to a lasting legacy of affordable and sustainable energy for the benefit of all residents.
4. The GNWT will ensure affordable energy is available for all NWT residents and small businesses at comparable prices.
5. The GNWT will ensure regulatory processes related to the provision of energy services for NWT consumers are simply structured and as efficient as possible, while maintaining transparency and accountability.
6. The GNWT will maintain a direct role in the provision of energy services for NWT communities.



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Proposed Strategic Actions

A Focus on Energy Conservation, Efficiency, and Communities

Develop an on-going Energy Conservation Action Plan that provides for a wide range of energy efficiency and conservation measures to assist residents in dealing with the high cost of energy in NWT. The Action Plan will also provide support for local initiatives identified through Community Energy Planning.

B Address Impacts of Climate Change: NWT Greenhouse Gas Strategy

In addition to energy conservation and efficiency programs, develop plans and actions aimed at mitigating and adapting to the impacts of climate change.

A revised Greenhouse Gas Strategy will be developed.

C Lead in Efforts to Reduce Diesel Use in favour of Natural Gas, small-scale Hydro, and Other Alternative Solutions

Lead pilot projects to develop alternative energy solutions that provide long-term economic benefits and reduce emissions. There are a number of potential energy sources including small-scale hydro, combined heat/power systems, and renewable energy sources such as biomass (wood), wind, solar, and geothermal energy.

D Simplify the Regulatory (Rate-Setting) System

Examine the opportunities to simplify the regulatory process for electricity pricing and the Public Utilities Board process.

E Plan for Continued Public Ownership in NWT Energy Sector

Maintain a direct role in the NWT energy sector with a view to securing industrial customers, and lowering energy prices for NWT residents.

F Develop a NWT Hydroelectric Development Strategy

Hydroelectric power is the key to long-term energy planning for a sustainable energy future for the NWT. **Hydroelectric power is renewable, insulated from international fuel price increases, and emission free.**

As the GNWT moves forward with the development of a comprehensive Energy Plan, there will be many opportunities for consultation and discussion with stakeholders, including a proposed Conference on Integrated Community Sustainability Planning in the fall of 2006. The NWT Energy Plan will be a living document, reflecting improvements and revisions based on input from residents and stakeholders.



*Taltson Hydroelectric Facility –
a legacy of renewable power resulting from a successful
collaboration between government and industry.*

You can access a full pdf version of the **Energy for the Future** working document at: www.nwtenergyplanning.ca or we will provide a printed copy on request.

*We welcome your comments and
suggestions on this proposed plan.*

Please forward your comments to:

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