



# Northwest Territories Energy Report

# Environmental Scan

## 5. Hydro Resources

There is tremendous opportunity for the NWT to provide clean, renewable energy to communities and industry, and potentially to other regions of Canada. With over 11,000 megawatts (MW) of hydroelectric potential, the vast majority of the NWT's world-class hydro potential has not yet been developed. The growing impacts of fossil fuel use on the environment – and the pressure of rising prices – continue to underscore the importance of developing these resources.

*Table 3*

River	Developed (MW)	Undeveloped Potential (MW)	Proposed Development (MW)
Bear	0	568	0
La Martre	0	27	13
Lockhart	0	269	0
Mackenzie	0	10,450	0
Snare	30	33	0
Snowdrift	0	1	1
Taltson	18	172	56
Yellowknife	7	0	0
Total	55	11,520	69
Slave	0	1,500	0

The hydroelectric system in place today was developed with federal and industry support. The Snare Rapids hydro facility was developed by the federal government to supply power to the Giant Gold Mine and the town of Yellowknife in 1948. The Giant Gold Mine provided funding towards the transmission line.

In the 1960's, further mining development led to the development of a hydro plant on the Taltson River to supply power to the Pine Point Cominco Mine site and the communities of Pine Point and Fort Smith, and was supported by the federal government. The commissioning of the Taltson Hydroelectric Development occurred in 1965 and now supplies power to the communities of Fort Smith, Fort Resolution, Hay River, Enterprise and the Hay River Reserve.

The proposed Taltson Hydro Expansion Project and future electricity grid connections to mining developments in the Slave Geological Province are shown in Figure 12 on page 29. The electricity system shown could be leveraged to connect the North and South Slave electricity grids. Similar work needs to be done for other potential regional electricity grid connections.

As shown in Table 3, work is also being done to develop a 1 MW mini-hydro facility to provide electricity to the Community of Łutselk'e and to assess the feasibility of a 13 MW hydro facility on the La Martre River.

# PILLAR 1

## Energy Development and Supply

This section focuses on conventional energy resource development in the NWT, namely oil, natural gas and hydro resources. A discussion on alternative energy resource development, including wind, biomass, geothermal and solar resource can be found on page 31.

The development of oil and natural gas resources is expected to play a critical role in the future of the NWT economy and the generation of revenues for northern governments. The GNWT has made a number of investments in this area, including:

- establishing the Mackenzie Valley Pipeline Office to effectively participate in the regulatory process for the MGP and prepare for project development. This has included supporting the Aboriginal Pipeline Group, examining the benefits from oil and natural gas development, and a detailed examination of the potential for NWT communities to convert from diesel to natural gas;
- investing in geosciences to enhance the knowledge and understanding of areas in the NWT with high oil and natural gas potential; and
- promoting the NWT as an area for oil and natural gas exploration.

Actions identified in the Energy Plan (2007) and the Energy Priorities Framework (2008) focused on the replacement of imported fossil fuels. An overview of the GNWT investments in this area is shown in Table 5.

Table 5

Department	Project Description	Energy Plan 2007 –2009	Energy Priorities Framework 2009 –2012	Total
Northwest Territories Hydro Corporation	Lutselk'e Mini-Hydro Facility	\$321,200	\$4,005,000	\$4,326,200
Northwest Territories Hydro Corporation	Lac La Martre Hydro	\$425,100	\$770,000	\$1,195,100
Northwest Territories Hydro Corporation	Sahtu Hydro Assessment	\$199,600	\$385,000	\$584,600
Industry, Tourism and Investment	Fort Providence Transmission Line	–	\$50,000	\$50,000
Industry, Tourism and Investment	Natural Gas Conversion	\$100,000	\$350,000	\$450,000
Northwest Territories Hydro Corporation	Taltson Hydro Expansion <sup>1</sup>	\$5,000,000	\$6,970,000	\$11,970,000
Northwest Territories Hydro Corporation	NWT Hydro Strategy	\$275,000	\$3,566,000	\$3,841,000
SUBTOTAL		\$6,320,900	\$16,096,000	\$22,416,900
Future Funding for Lutselk'e Mini-Hydro Project		–	\$7,200,000	\$7,200,000
TOTAL		\$6,320,900	\$23,296,000	\$29,616,900

<sup>1</sup>Taltson funding does not include federal contributions of over \$1 million or the investment in the NWTPC of approximately \$3.5 million. All work to date remains an asset of the GNWT.



### 2. La Martre Hydro Development

#### Project

This project started as a feasibility study for a mini-hydro development on the La Martre River to supply the community of Whatì. Led by the Tłı̨ch̨o Investment Corporation, work is currently focused on the feasibility of a larger 13 MW facility to meet the community's needs, local resource development and growing power requirements in the North Slave Region.

#### Progress to Date

To date, the GNWT, through the Northwest Territories Hydro Corporation (NT Hydro), has contributed over \$750,000 towards site/field investigations, baseline environmental data, economics and project engineering and design. Federal contributions have also been made to this project.

#### Outlook

Projects such as the proposed NICO mine, Giant Mine remediation, and local load growth in the North Slave Region will require additional hydroelectric capacity in the coming years. Work completed today will position the proposed 13 MW facility on the La Martre River to meet future growth.



*An aerial view of Whatì.*