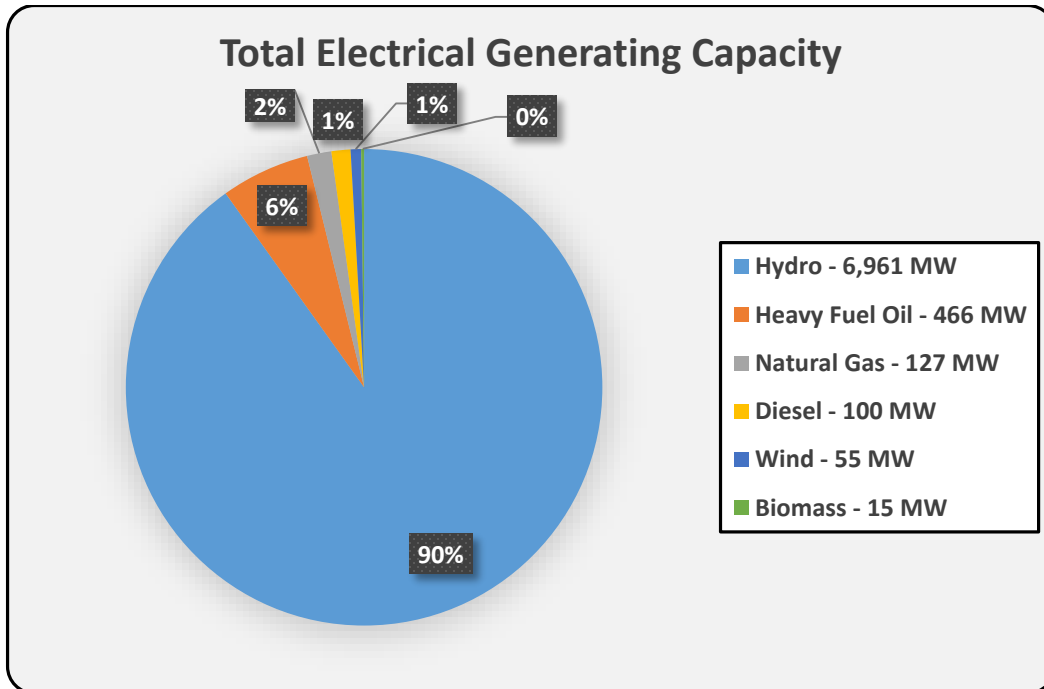


NEWFOUNDLAND & LABRADOR RENEWABLE ENERGY & COMMUNITY ENERGY OVERVIEW

A report prepared by the [People, Power, Planet Partnership \(P4\)](#)

ELECTRICITY SUPPLY MIX

Due to its abundant hydro resources, Newfoundland and Labrador (NFLD) relies heavily on hydroelectric generation to meet its electricity needs. The majority of islanders are served by a large interconnected system with approximately 1,966 megawatts (MW) of net capacity. Much of this is generated at hydro facilities as well as the Holyrood Thermal Generating Station, a heavy oil-fired plant of several hundred megawatts (NFLD Department of Natural Resources, 2015a). The Labrador system draws most its power from the 5,428 MW (Upper) Churchill Falls Generating Station, Canada's second largest hydro project after Robert-Bourassa on La Grande Rivière. NFLD's hydro capacity will soon be increased even further with two large developments of the Lower Churchill river: Muskrat Falls (in development) and Gull Island (proposed). Together, these installations will total roughly 3,000 MW (Nalcor Energy, 2015a). In addition to hydro and oil, NFLD generates electricity at four gas-fired plants and several diesel plants. In particular, remote communities along the coast rely on small diesel systems that operate independently of the main grid. In recent years, a small amount of generation has also come online from non-hydro renewable energy sources, mainly wind and biomass.



Sources: Newfoundland & Labrador Hydro, 2015; Canadian Wind Energy Association, 2015

Over 90% of the province's electricity is supplied by Newfoundland and Labrador Hydro (Hydro), a provincial crown corporation and the fourth largest utility in Canada (Newfoundland and Labrador Hydro, 2015a). Hydro is a subsidiary of Nalcor Energy, created by the province in

2007 for the purpose of managing its energy assets. While Hydro is the main supplier, investor-owned but publicly regulated Newfoundland Power plays the primary retailer, responsible for the transmission and distribution system throughout the island (Newfoundland Power, 2015). Given its relatively small population and vast hydro resources, NFLD produces more electricity than it consumes. The vast bulk of generation from Upper Churchill Falls is sold to Hydro Québec for an extremely low flat rate of \$2/MWh, which Hydro-Québec then sells to US markets at a much higher rate. This controversial deal made several decades ago in 1969, and set to expire several decades from now in 2041, has been a continued source of controversy between the two provinces and a hindrance to NFLD's ability to economically benefit from its surplus hydro resources (Yakabuski, 2013). Without acceptable terms to transmit its power from the Lower Churchill developments, NFLD aims to export 20% of the power from Muskrat Falls to Nova Scotia, and potentially beyond, via the [Maritime Link](#), a 170-km subsea transmission cable that will run under Cabot strait (NFLD Department of Natural Resources, 2015b). The Ontario Ministry of Energy has also been in talks with Nalcor Energy to explore opportunities for importing hydroelectricity from the Gull island facility in central Labrador, that once constructed, will be 2,250 MW in capacity (Ontario Ministry of Energy, 2015).

NON-RENEWABLE ELECTRICITY

Existing & Future Development

In the most recent [progress report of NFLD's 2007 Energy Plan](#), the the adoption of wind power is focused on lessening remote coastal communities' reliance on diesel. To support this mandate, in June 2011, the NFLD government launched the *Coastal Labrador Wind Monitoring Program* as part of its ongoing *Coastal Labrador Alternative Energy Study*, which also looked at the feasibility of integrating small-scale hydro projects and energy efficiency measures to offset diesel consumption (NFLD Department of Natural Resources, 2015c). Perhaps NFLD's most innovative and best known remote renewable energy project is the wind-hydrogen-diesel project on Ramea Island, located off the south coast of Newfoundland. Commissioned by Nalcor in 2012, the Ramea project is one of the first projects in the world to integrate generation from wind, hydrogen and diesel in an isolated electrical system or 'microgrid' (Nalcor Energy, 2015b).

Commercial wind energy development in NFLD consists of the St. Lawrence and Fermeuse wind projects located on the Burin and Avalon peninsulas, respectively. Both wind farms are 27 MW in capacity and were financed through 20-year PPAs with Hydro (Newfoundland and Labrador Hydro, 2015b). The island's only cogeneration biomass plant, located at the Kruger Inc. paper mill in city of Corner Brook, is also privately owned and operated. The cogeneration unit burns paper mill waste to produce electricity and the steam used in the papermaking process. Kruger has a 20-year power purchase agreement (PPA) with Hydro to sell the electricity (Kruger Energy, n.d.)

Policy Mechanisms

The NFLD government announced a [Net Metering Policy Framework](#) in July, 2015, establishing the policy parameters for major utilities and the Board of Commissioners of Public Utilities to develop and implement a program for utility customers. Like other net metering programs across Canada, it will allow customers to generate electricity from small-scale renewable systems (< 100 kW) to offset their own consumption and sell surplus power to the utility.

Another recent policy development has been the establishment of the Biogas Electricity Pilot Program. Under the program, NLH will purchase electricity from biogas program 2MW or less. A maximum of 5 MW of biogas will be contracted out on a first-come-first-serve basis. The price per kWh will be equal to 90% of NLH's avoided marginal cost prior to Muskrat Falls entering into commercial service. After Muskrat Falls enters into commercial service, the price per kWh indexed to the market process minus NLH's associated transmission costs.

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