The Big Picture

Nov. 2011

You Asked Us

There are a few questions that come up on a regular basis with regard to the work Yukon Energy is doing. This newsletter aims to answer some of those general questions, and provide some information about the work we are doing to meet the growing demand for electricity.

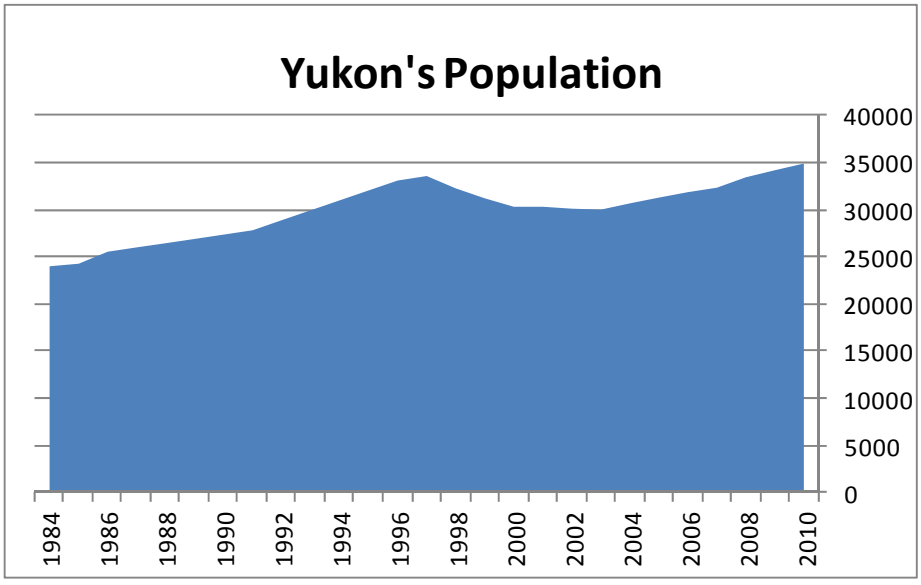
What is Yukon Energy's mandate and that of its parent company, Yukon Development Corporation?

In simple terms, Yukon Energy's mandate is to provide Yukoners with enough electricity to keep the lights on and businesses thriving. The mandate of the Yukon Development Corporation, as directed by the *Yukon Development Corporation Act*, is to participate in the economic development of Yukon by ensuring there is a continuing and adequate supply of energy in the territory in a manner consistent with sustainable development. The Act gives the Corporation the mandate to develop and promote the development of energy systems and the generation, production, transmission and distribution of energy in all its forms. The *Public Utilities Act* indicates we have an obligation to serve any customer, large or small, who is willing to pay the full cost of connecting to our grid.

Why is more energy needed now?

The last time significant capacity was added to Yukon's electrical supply was in 1985 with the addition of the Fourth Wheel (20 megawatt turbine) at Whitehorse. At that time, Yukon's population was about 25,000 people. Since then the population has grown to just over 35,000. That's a 40 percent increase!

With increased numbers of Yukoners comes a growing demand for electricity in all sectors: residential, small business, government, and industrial.



By the end of this year both Mayo B and Aishihik 3 will be in operation, providing additional renewable power to the system. But those two projects alone will not meet the projected growth over the next several years.

Diesel generation is available, but it comes with a high price tag in terms of financial cost and greenhouse gas emissions.

We are considering all possible sources of clean energy. At the same time, we recognize that one of the best options is energy conservation/efficiencies, since a megawatt saved is always preferable to a megawatt that we have to find or build. That's why energy conservation and efficiency initiatives are an integral part of our resource planning. That being said, energy conservation is only part of the solution; Yukon Energy will still need to find new generation to meet the growing demand for electricity.

Growing Communities; Growing Economy; Growing Demand for Power

Many Yukoners have made note of the fact that energy demand is growing because of new mines. However demand is growing in all sectors, including residential, commercial (small business), and government as well as industrial. The following statistics highlight the challenge Yukon Energy faces in the coming years.

- Residential and commercial demand is expected to increase at about 2.3 percent each year for the next ten years.

- Once the Aishihik third turbine and the Mayo B hydro enhancements are in operation by the end of 2011, there will be 382 gigawatt hours (GWh) per year of renewable energy available on Yukon Energy's system (one GWh is enough to supply power to about 80 non-electrically heated homes). However by 2020, commercial and residential energy demand is estimated to reach 417 GWh per year. That's in part because of community growth such as the Whistle Bend subdivision. That increase is equal to a six megawatt hydro project or a 15 megawatt wind farm.

- With Capstone's Minto and Alexco's Bellekeno mines operating, industrial demand in 2011 is 46 GWh/year. Industrial demand is projected to increase to about 237 GWh/year in 2015, then decline to 197 GWh/year in 2020. This variability reflects the estimated in-service dates and life spans of various mines (Minto and Bellekeno operating until at least 2020, Victoria Gold's Eagle Gold project from 2013 to 2020, Carmacks Copper from 2014 to 2020, and Whitehorse Copper tailings reprocessing project from 2013 to 2018).

- Industrial demand currently represents about 12 percent of total electrical demand. This is expected to rise to 16 percent next year and may reach 40 percent of total energy demand by 2015.

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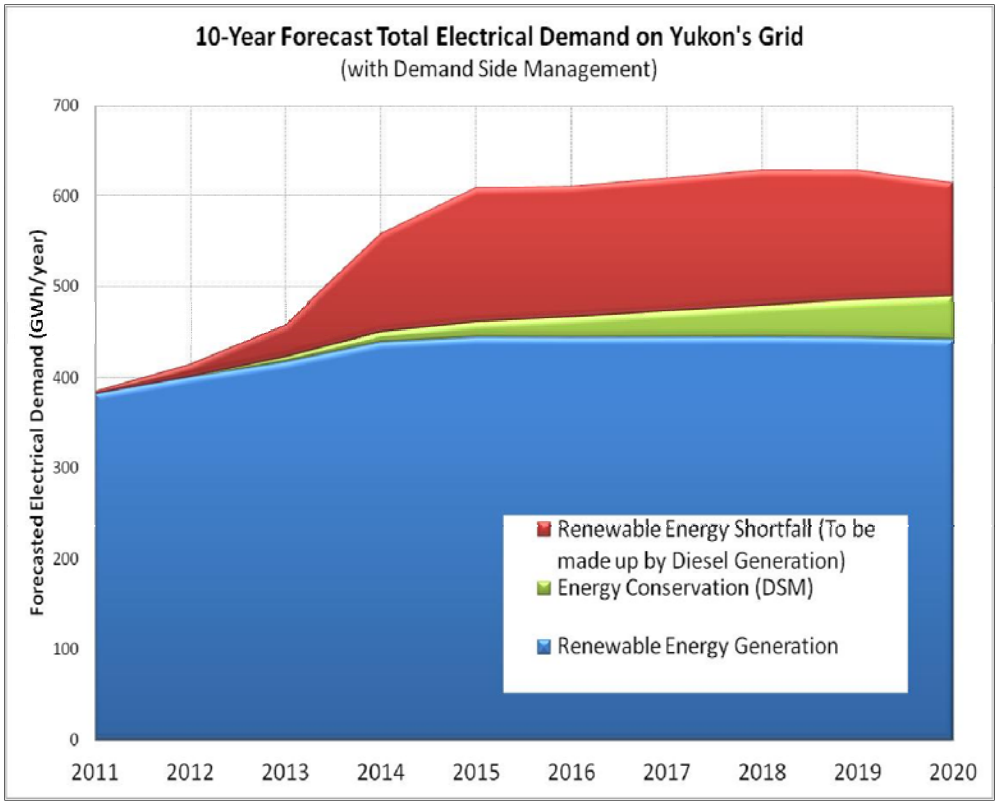


How to Make Up the Short Fall

Yukon Energy uses four main criteria when evaluating and choosing energy supply options:

- Reliable— ability to produce energy on demand, when required. This includes ensuring sufficient supply to meet peak loads, and ability to minimize the number/duration of power outages;
- Affordable—minimize power costs to customers now and into the future;
- Flexible—ability to respond to large increases or decreases to energy demand (i.e. loss of a major customer); and
- Environmentally responsible—local and global socio-economic and environmental impacts on water, air and land.

Based on these criteria, Yukon Energy is looking at a wide range of options, as listed below. A few key points to note:

- There is no totally benign/perfect solution to energy supply;
- There is no one solution: timelines, costs, acceptability, etc. dictate that there must be a mix of energy supply options to meet the future demand; and
- There are many possible options, but only some can be implemented in a shorter time frame while others take much longer.

<u>Near-term Options (available no later than 2017)</u>

- Energy Conservation and Efficiencies (DSM) - GWh/yr to be determined
- Diesel generation - more than 300 GWh/yr
- Hydro enhancements (Marsh Lake Enhanced Storage, Gladstone Diversion, Mayo B and Mayo Lake Enhanced Storage) - up to 75 GWh/yr
- Thermal (Waste-to-Energy, Wood Biomass, and Liquefied Natural Gas) - up to 200 GWh/yr
- Wind (Ferry Hill or Mt. Sumanik) - up to 50 GWh/yr

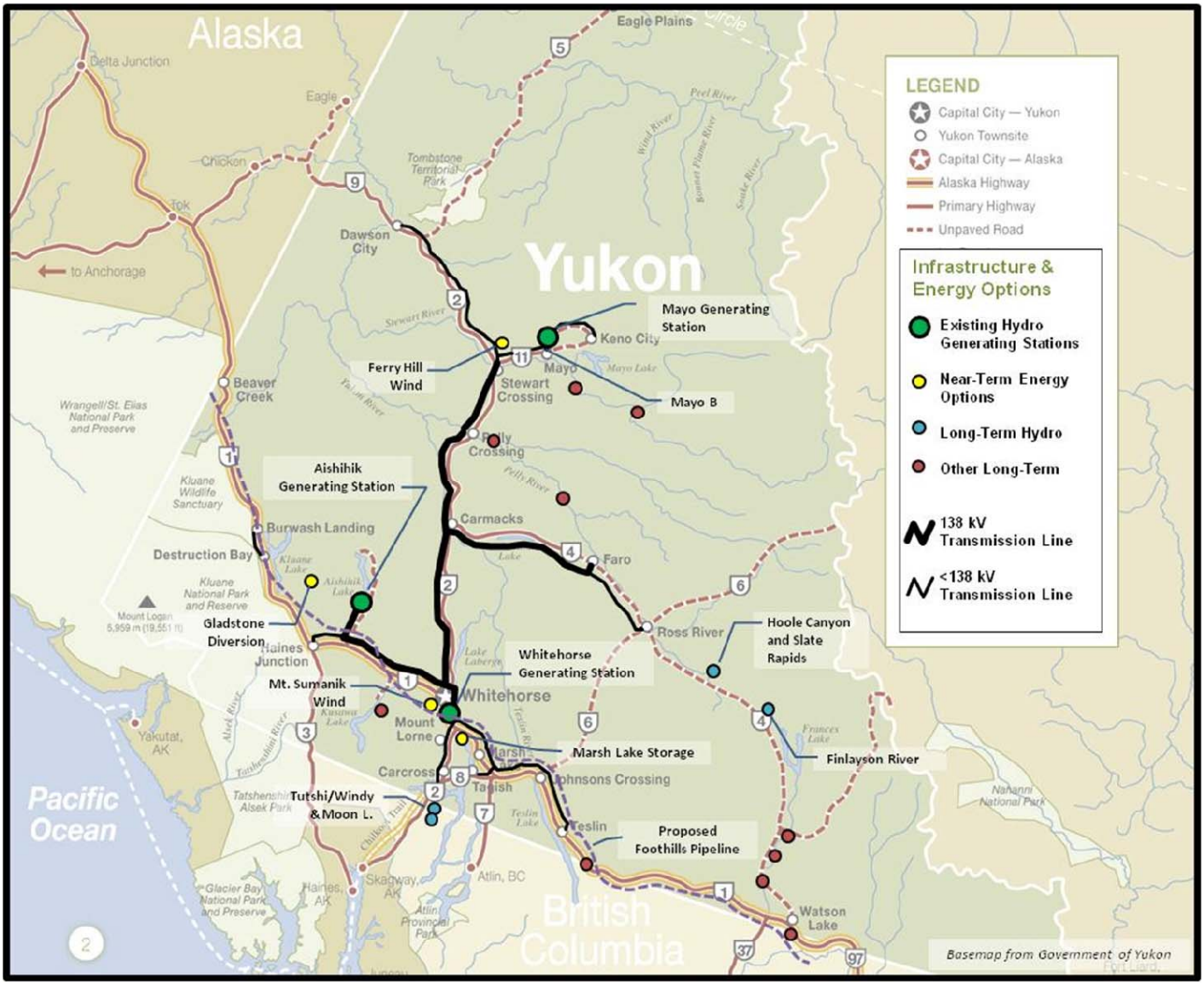
<u>Long-term Hydro Options (to potentially start before 2021)</u>

- Small hydro of less than 10 MW (Moon Lake, Tutshi/Windy Arm) - up to 65 GWh/yr
- Medium hydro of between 10 and 60 MW (Upper Pelly) - up to 450 GWh/yr

<u>Other Long-term Options (require technology, information, external action to be potentially available before 2021)</u>

- Large hydro of more than 60 MW - up to 1800 GWh/yr
- Geothermal - GWH/yr to be determined
- Solar - GWh/yr to be determined
- Pipeline/Natural Gas - more than 300 GWh/yr
- Grid connection (B.C. or Alaska) - GWh/yr to be determined

See next page for a map showing potential energy options.



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