

# What do all those terms mean?

*Yukon Energy has started working with Yukoners to chart the course for the territory's electricity future in the short to medium term. The 2016 Resource Plan will cover electricity needs over the next 20 years. To help you get involved in the planning, we have prepared a series of articles that will provide you with a baseline of knowledge about electricity in our territory. This is the fourth in the series.*

When it comes to electricity, things can start to get technical pretty quickly. Terms such as gigawatts, megawatt hours, capacity, dispatchable generation... it's enough to make your head spin. Here is a summary of some of the most commonly used terms and what they mean.

 **Energy:** the amount of electricity used over a period of time. It is usually measured in kilowatt-hours (kWh) for residential usage or gigawatt-hours (GWh) for regional/territorial usage. The average Yukon home uses 12,000 kilowatt-hours or more in one year; Yukon-wide that number is more than 400 gigawatt-hours per year.



**Capacity:** the amount of electricity that is available at any given time. It is measured in:

- watts,
- kilowatts (one thousand watts),
- megawatts (one million watts),
- or gigawatts (one billion watts).

Yukon Energy is mandated to ensure it can provide Yukoners with enough electricity 365 days of the year, every year. That means it must build more power generation than is usually needed, so it is ready for those rare occasions when "back-up" electricity is required. That could be because of a problem with a hydro plant or transmission line, or because of extreme cold or drought conditions.

So far this year, the highest demand was on a cold January day when Yukon Energy generated 83.69 megawatts to meet the power needs. The Corporation has the capacity to generate about 130 megawatts at any given time. In the summer up to 92 megawatts can be produced from hydro and wind, with the rest coming from thermal back-up (diesel and liquefied natural gas). However, in winter we have less water available to us at our Whitehorse facility, so our ability to generate with hydro drops to about 72 megawatts or less.



**Dispatchable generation:** sources of electricity that are available on demand. Here in Yukon, thermal power (diesel or liquefied natural gas – LNG) can be dispatched at the request of power grid operators – that is, they can be turned on, off or adjust their power output on demand.



**Intermittent energy:** any source of energy that is not continuously available due to some factor outside of our direct control (i.e. the wind not blowing or the sun not shining). LNG and diesel are at present the only reliable back-up power sources available to us, although we are looking at ways of storing renewable energy, including pumped storage.



**Pumped Storage:** a process where water flows from an upper reservoir, is used for hydro generation, and is stored in a lower reservoir until it is needed again for power production. It is then pumped back to the upper reservoir and the process begins again.



**Demand Side Management (DSM):** using incentives, rate structures and/or codes and standards to encourage customers to reduce the amount of electricity they use. The concept is that if consumers use less electricity, the utilities won't have to build as much new generation. Yukon Energy and ATCO Electric Yukon operate a DSM program called inCharge, with rebates and electricity savings kits. DSM is environmentally and socially friendly and is quite often less expensive than new generation sources. Visit [www.incharge.ca](http://www.incharge.ca) to learn more.



**Independent Power Production (IPP):** A method by which an energy producer can generate electricity for sale to utilities. The Yukon government is expected to release its Independent Power Production Policy shortly.



**Secondary sales:** at some times of the year, Yukon Energy has the ability to produce more electricity than we need for our customers. To take advantage of the economic and environmental benefits of this surplus power, the Corporation developed a Secondary Sales Program. This program gives eligible Yukon businesses the option of using hydro power to heat their facilities instead of diesel fuel or propane, both of which are more expensive and produce GHG emissions. There are some stipulations: the business' existing heating system must be maintained and fully operational so that it can be re-activated on 24-hours' notice. A second electrically fired heating system must be added in order to use the secondary sales electricity as a heating source. The business must also be located in an area that is served by hydro-generated power. The Secondary Sales Program has helped the Canada Games Centre and the Whitehorse hospital save \$100,000 a year on their heating bills.



**Micro-generators:** electricity consumers who own small, renewable energy generators such as wind or solar. If they generate more than they need for their own use, they can feed the excess back into the Yukon grid and receive a credit.

For more in this series, visit [yukonenergy.ca](http://yukonenergy.ca)