

ENERGY STRATEGY FOR YUKON

Independent Power Production Policy

October 2015



IMPLEMENTING THE ENERGY STRATEGY FOR YUKON

BACKGROUND

The Government of Yukon (YG) released the *Energy Strategy for Yukon* in January 2009. The strategy sets out YG's energy priorities, strategies and actions. The Independent Power Production (IPP) policy is part of the strategy's priority action to "update and develop a policy framework for electricity that emphasizes efficiency, conservation and renewable energy." The policy provides a mechanism for the purchase of electricity from independent power producers.

A discussion paper on net metering and IPP was released for public consultation between November 2009 and February 2010. Through that consultation, the public clearly indicated that there should be separate policies for net metering and IPP. Valuable input was received about proposed policy objectives, eligible energy sources, size of electricity projects, connections to the Yukon electrical grid, financial arrangements, policy framework, and roles and responsibilities.

The IPP policy is about providing opportunities for non-utility entities to generate new power that can assist the utilities in meeting the demand for affordable, reliable, flexible and clean electrical energy.

The IPP policy will look different in Yukon than it does in other jurisdictions. Yukon's electrical grids are not connected to the North American grid and are smaller than other jurisdictions' grids. The inability to export excess electricity makes it risky for the utilities and Yukon ratepayers to generate electricity in anticipation of increased demand, as this future demand may not materialize in Yukon's commodity-based economy. At the same time, Yukon is unable to import electricity when required, making growth in local generation capacity crucial to future economic and population growth.

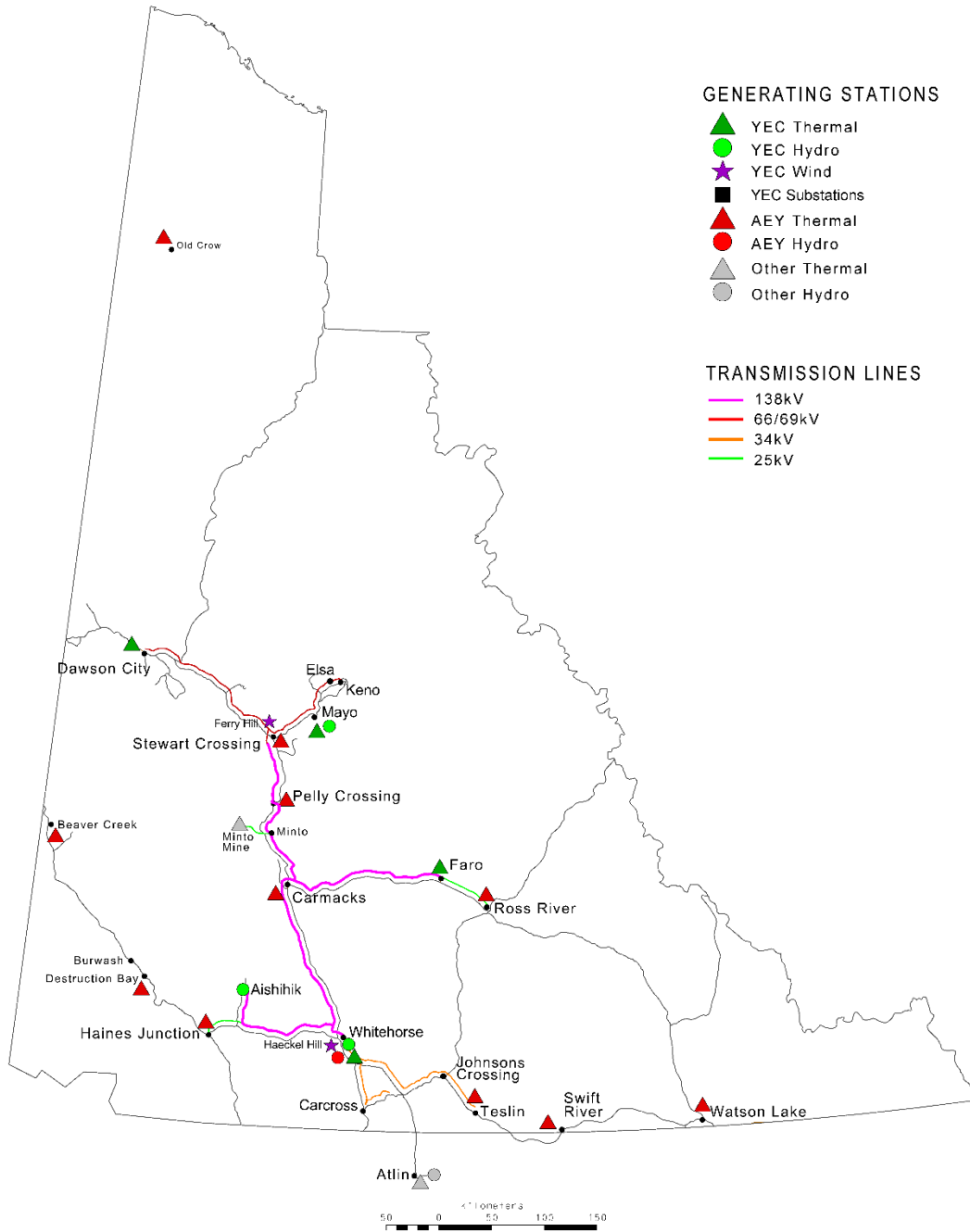
As of 2015, the electrical system in Yukon (shown in map below) is comprised of:

- 1 large hydro-based grid called the Yukon Integrated System (YIS);
- 1 medium-sized diesel-based grid serving Watson Lake; and
- Three smaller isolated communities with diesel generation (Old Crow, Beaver Creek and Destruction Bay/Burwash Landing).

The YIS had a winter peak demand of approximately 84 megawatts, as of 2015. The renewable energy capacity in the winter is 72 megawatts. To avoid the use of thermal-generated electricity, and if the residential, commercial and industrial loads continue to grow as forecast, this (hydro-based) grid will require additional renewable sources of energy.



Electrical Generation and Transmission System for Yukon



SCOPE

Application

This policy applies to independent power producers who want to generate electricity from eligible sources and sell it to a publicly owned utility, Yukon Energy Corporation (YEC) or ATCO Electric Yukon (AEY).

This policy does not apply to producers covered under the Government of Yukon's Micro-generation Policy.

Policy Goal and Objectives

The goal of this policy is to support the participation of independent power producers, including Yukon First Nations and communities, in the development and expansion of environmentally sound and affordable electrical supply options now and into the future, while respecting the integrity of the existing electrical system.

The objectives of the IPP Policy are to:

1. Increase electrical supply to meet future energy needs;
2. Strengthen energy security and affordability of Yukon's electrical system;
3. Develop local electricity resources, which are renewable and/or cleaner than diesel;
4. Encourage new, local economic opportunities;
5. Provide Yukon First Nations with opportunities to participate in the Yukon economy, obtain economic benefits, and develop economic self-reliance; and
6. Facilitate collaboration between public utilities and independent power producers, in the development of new clean energy supply projects, which best serve the long-term interests of Yukon consumers.

IPP Target

In order to meet these objectives, this policy will establish the following aspirational targets for IPP contribution to Yukon's electrical grids.

1. 10% of new electrical demand to be met by Independent Power Production; and
2. At least 50% of IPP projects to have a Yukon First Nation ownership component.

POLICY PARAMETERS

This policy establishes three separate approaches for development of IPP projects. For small, simple projects, a Standing Offer Program will be established. A Call for Power process will be established to allow the territory's energy planners to access IPPs to meet expected large-scale electrical demands. And for large-scale projects that are primarily being developed by communities, an Unsolicited Proposal process would allow an IPP to propose a generation project at any time. Details are as follows.



1. Standing Offer Program

The Standing Offer Program (SOP) encourages the development of new, small and renewable projects. The intention of the program is to streamline the process for selling electricity to YEC on the YIS and to AEY in Watson Lake, and to simplify the contracting process between IPP developers and the utilities. Details of the program will be completed by the utilities and the Yukon government within one year of the effective date of this policy.

Remote Communities and the SOP

Due to the isolated nature of the three smaller communities with diesel generation (Old Crow, Beaver Creek and Destruction Bay/Burwash Landing) and the relatively small size of the generating facilities in these communities, a cautious approach is required to ensure the safety and security of the electrical grid for all residents. For this reason, these sites are not eligible for the SOP. Potential IPPs in these communities are, however, eligible for the Unsolicited Proposal processes described below. As well, smaller systems (up to 50 kW) are eligible for the Micro-generation Production Incentive Program and proponents would be offered an incentive through that program.

In addition, YG is committed through this policy to work with these communities and the local electrical utility (AEY) to provide resources that will facilitate the development of community-owned IPP projects, such that these communities can develop economic and energy self-reliance, while reducing the greenhouse gas emissions from diesel generation.

Connecting the SOP Projects to the Electrical Grids

The utilities and the Yukon government will develop all required interconnection materials (i.e., interconnection standards, interconnection agreement templates and SOP pricing information) within one year of the effective date of this policy and file the interconnection standards and agreement templates with the Yukon Utilities Board (YUB) for approval at an appropriate time.

Eligible SOP Energy Sources

Eligible energy sources for SOP projects are limited to local renewable sources as discussed in the *Energy Strategy for Yukon*, which include:

- wind
- hydro
- geothermal
- biomass
- solar

New technologies will be considered when this policy is reviewed.¹ Electricity-generating technologies and energy sources must be proven to be reliable before they will be accepted for interconnection to Yukon's electrical grid.

¹ This policy will be reviewed two years from its effective date.



SOP Project Size and System-Wide Limits

SOP Projects must be between 30 kW and 1,000 kW in nameplate capacity in order to be considered.

Any renewable energy electrical generation project under 50 kW can be included in the Micro-generation Production Incentive Program if the project offsets a building's energy consumption and electricity is exported to the grid; however, proponents are required to choose between the IPP or Micro-generation policies.

System-wide limits under the SOP are set by the utilities, Yukon Development Corporation (YDC) and YG's Energy Branch to meet the policy objectives (listed above), while also observing the technical limitations of Yukon's electrical system and minimizing financial risks to Yukon's electrical customers. On the YIS, system-wide limits will be phased in over time to reflect expected increases in electrical loads over time. The following table lists the targeted final system wide limits for the SOP for both the YIS and Watson Lake grid.² These limits will be evaluated and revised every two years by the two Yukon utilities, YDC and YG's Energy Branch.

Grid	System-Wide Generation Limits
Yukon Integrated System	10,000 MWh/year
Watson Lake	2,100 MWh/year

SOP Interconnection Agreement and Agreement to Purchase Power Principles

The following principles will be used in the development of interconnection agreements and internal policy for the SOP:

1. Utilities will work with the Yukon government's Energy Branch to establish and publish a rate under the SOP for delivered energy based on current avoided costs of new supply. Accordingly, rates will be higher in the winter than in the summer. These rates will be indexed to reflect appropriate annual inflation in electrical generation costs.
2. The utilities will work with Yukon government to structure the program, such that it will not lead to higher costs for the consumer.
3. IPP rates are to provide potential proponents with pricing and market certainty for their generated power.
4. The contract term will be of a duration that enables the prospective independent power producer to access independent financial support.

² System-wide limits for the Watson Lake grid are based on approximately 10% of current peak loads. The system-wide limit for the YIS allows several small projects to be added to the hydro system without oversupplying the system.



5. The contract term will be of a duration that fits with the proposed technology's (anticipated) life expectancy, reliability and associated utility risks.
6. Independent power producers will be responsible for interconnection costs and necessary interconnection upgrades, as well as maintenance of their infrastructure.
7. Each utility will retain the right to cancel or suspend the Interconnection Agreement and the Agreement to Purchase Power, if the independent power producer no longer meets the requirements as outlined in the Agreement to Purchase Power and the Interconnection Agreement.

2. Call for Power

A Call for Power (CFP) applies to projects larger than the above system-wide limits on Yukon's Integrated System. The CFP will require government approval. The CFP process will be used by YEC to incorporate large-scale IPP projects into Yukon's electrical system. The CFP process is proposed to meet future electrical needs, and to fulfill the objectives and targets set out in the above sections.

The Agreement to Purchase Power will be negotiated by YEC and the IPP, and will require final approval by the YUB.

Connecting CFP Projects to the Electrical Grid

When YEC and/or YDC determines that there is a need for new electrical generation above and beyond the system-wide limits set in the table above, YEC may release a CFP for IPP electrical generation, consistent with the objectives of this policy. YEC will review and assess proposals, based on criteria to be developed by YEC in consultation with YG's Energy Branch.

Draft agreements to purchase power from potential producers who have submitted successful proposals will be brought forward to the YUB by YEC for approval.

Eligible CFP Energy Sources

Eligible energy sources for CFP projects are limited to clean energy sources as discussed in the *Energy Strategy for Yukon*, which include:

- wind
- hydro
- geothermal
- biomass
- solar
- natural gas

CFP Project Size and Technology Limitations

No limitations on either project size or technology will be set on CFP type projects. These parameters will be established by YEC in consultation with YG and YDC at the time in which the process is developed, based on the current needs of the territorial electrical system and this IPP policy.

CFP Interconnection Agreement and Agreement to Purchase Power Principles

The Agreement to Purchase Power under a CFP will be developed for each individual call. The following principles will be used by YEC in the development of power purchase agreements under a CFP:



1. IPP rates are to provide potential proponents with pricing and market certainty for their generated power.
2. The contract term will be of a duration that enables the prospective independent power producer to access independent financial support.
3. The contract term will be of a duration that fits the proposed technology's anticipated life expectancy, reliability and associated utility risks.
4. In evaluating projects, preference will be given to those projects which include First Nation ownership (see definitions below).
5. The independent power producer will be responsible for interconnection costs and necessary interconnection upgrades, as well as maintenance of its electrical infrastructure.
6. Each utility will retain the right to cancel or suspend the Interconnection Agreement and the Agreement to Purchase Power if the independent power producer no longer meets the requirements as outlined in the Agreement to Purchase Power and the Interconnection Agreement.

3. Unsolicited Proposals

Unsolicited proposals can be submitted to the utilities or YG's Energy Branch at any time for projects larger than the SOP system-wide limits (on the YIS or in Watson Lake), or any systems installed in the three smaller isolated communities (Old Crow, Beaver Creek and Destruction Bay/Burwash Landing). Eligibility of proposals will be assessed based on current energy needs in the territory, as well as the principles established through this policy. The utilities will negotiate power purchase agreements with IPP proponents to enable project development(s), should they be in the best interest of the territory. YG's Energy Branch will offer support to IPPs in navigating the power purchase agreement development process.

Eligible Unsolicited Proposal Energy Sources

Eligible energy sources for unsolicited proposal projects are limited to clean energy sources as discussed in the *Energy Strategy for Yukon*, which include:

- wind
- hydro
- geothermal
- biomass
- solar
- natural gas

ROLES AND RESPONSIBILITIES

An Implementation Plan accompanies this policy.

Joint Responsibilities of the Government of Yukon and the Utilities

1. Implement, maintain and communicate this policy.
2. Evaluate this policy two years from its effective date.
3. Develop the SOP (including the rates to be paid), technical interconnection standards, and interconnection agreement templates for SOP projects.



Government of Yukon

1. Ensure this policy is consistent with the *Energy Strategy for Yukon*, the *Climate Change Action Plan*, the *Water Strategy* and other government priorities and trade agreements.
2. Meet obligations under First Nation Final Agreements and ensure that this policy is consistent with those obligations.
3. Facilitate First Nation economic development through risk sharing on projects with First Nation IPPs.
4. Encourage IPP proponents to partner with Yukon First Nations and/or Yukon First Nation development corporations and Yukon businesses.
5. Provide access to YG's best management practice guidelines.

Utilities (Yukon Energy Corporation/ATCO Electric Yukon)

1. Determine whether SOP applicants meet YUB approved interconnection standards and are therefore eligible to participate in the program.
2. Develop and manage the Request for Proposal process for CFP projects. Develop interconnection standards and Agreements to Purchase Power for CFP projects.
3. Meet utilities' commitments within interconnection agreements.
4. Provide the public with annual, hourly energy demand data that could be used in assessing the viability of and need for proposed IPP projects in the territory.
5. Establish a 'wheeling' policy between ATCO Energy Yukon and YEC establishing rules governing transmission of IPP power over AEY's grid infrastructure for sale to YEC.

Yukon Utilities Board

1. Review CFP and Unsolicited Proposal projects per the *Public Utilities Act*, and if approved, include in electrical rates.

Yukon Development Corporation

1. Assist YG and the utilities in the implementation of this policy, including setting system wide limits for the SOP and parameters for the CFP.

Independent Power Producer

1. Enter into an interconnection agreement and an Agreement to Purchase Power with the appropriate utility prior to connection to the electrical grid.
2. Be responsible for obtaining all permits and paying associated costs.
3. Be responsible for initiating all environmental and/or regulatory obligations related to its project.
4. Make available the electrical generation project for inspection by the utilities or the applicable government agency, as per the interconnection agreement and Agreement to Purchase Power.
5. Develop a business case and conduct project analysis, including review and screening, permitting, licensing and meeting land tenure requirements.
6. Be responsible for costs associated with project feasibility assessments.
7. Be responsible for securing technical, legal and financial advice.



8. Meet requirements of the interconnection agreement.
9. Be responsible for addressing requirements of the First Nation land claim agreements, including appropriate consultation.



DEFINITIONS

Agreement to Purchase Power – An agreement between the prospective independent power producer and a utility for the purchase of power from the independent power producer by the utility.

ATCO Electrical Yukon – A private investor-owned utility, and member of the ATCO Group of Companies.

Biomass (energy) – Energy harnessed through combustion of organic matter, including wood and agricultural waste.

Call for Power – A process to permit independent power producers to generate and contribute power to the grid, meeting expected larger-scale electrical demand.

First Nation Ownership – Part or complete ownership of an IPP project by a Yukon First Nation government, a Yukon First Nation development corporation, or other agencies of a Yukon First Nation that are at least 50% owned and controlled by a Yukon First Nation(s).

Geothermal (energy) – Energy derived from geothermal resources, which are steam, water, or vapour (greater than 80° C) and all substances dissolved in the steam, water or vapour.

Hydro (energy) – Potential or kinetic energy of water.

Independent Power Producer – An agency or individual other than a public utility (as defined by the *Public Utilities Act*) who generates electricity to sell (to the utilities). An independent power producer does not own transmission facilities and is dependent on the utilities to purchase and distribute the power it produces.

Kilowatt (kW) – A unit of electric power. One kilowatt is equal to 1,000 watts (W):

Kilowatt hour (kWh) – A unit of energy equivalent to one kilowatt (1 kW) of power expended for one hour of time.

Nameplate capacity – The power output of an electrical generation plant under ideal conditions, usually expressed in kilowatts (kW) or megawatts (MW).

Public Utility – As defined by the *Public Utilities Act and Regulations* (i.e., YEC and/or AEY).

Solar energy – Radiant light or heat from the sun. This is used to generate electricity by converting the light or heat using photovoltaics and solar thermal technologies.

Standing Offer Program – A program that enables Yukon public utilities (i.e., YEC, AEY) to purchase electricity from independent power producers.



Thermal generation – Refers to the process of generating electricity from heat. There are four thermal energy fuels: coal, natural gas, diesel, wood waste and geo-thermal. In Yukon this refers to diesel and natural gas exclusively.

Utility – See Public Utility (i.e., YEC and/or AEY)

Wind energy – Kinetic energy of wind. Electricity is produced from a system of airfoils or blades that spin a drive shaft to capture the energy.

Yukon Energy Corporation – A publicly-owned electrical utility that is the main generator and transmitter of electrical energy in Yukon.

(Yukon Government) Energy Branch – A branch of YG’s Department of Energy, Mines and Resources. The Energy Branch’s mandate is to facilitate the coordinated, effective and collaborative delivery of energy policy, projects and programs to promote a secure Yukon energy sector that is environmentally, economically and socially responsible.

Yukon Integrated System – The integrated Whitehorse-Aishihik-Faro and Mayo-Dawson electrical grids which are owned by YEC.

Yukon Utilities Board –The board gets its mandate from the *Public Utilities Act*. It fixes rates, standards, classifications, regulations, practices, measurements or services to be observed, provided or followed by a public utility.

ACRONYMS

AEY – ATCO Electrical Yukon

CFP – Call for Power

IPP – Independent Power Production

SOP – Standing Offer Program

YEC – Yukon Energy Corporation

YG – Government of Yukon

YIS – Yukon Integrated System

YUB – Yukon Utilities Board

YDC – Yukon Development Corporation

