ENERGY STRATEGY FOR YUKON

Independent Power Production Policy

May 20, 2014

Yukon
Energy, Mines and Resources

IMPLEMENTING THE ENERGY STRATEGY FOR YUKON

BACKGROUND

The Government of Yukon released the *Energy Strategy for Yukon* in January 2009. The strategy sets out government'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 facilitates purchase of electricity from independent power producers, and calls for the replacement of imported diesel fuel with Yukon's oil and gas resources.

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

IPP is not about privatizing public utility assets; it 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.

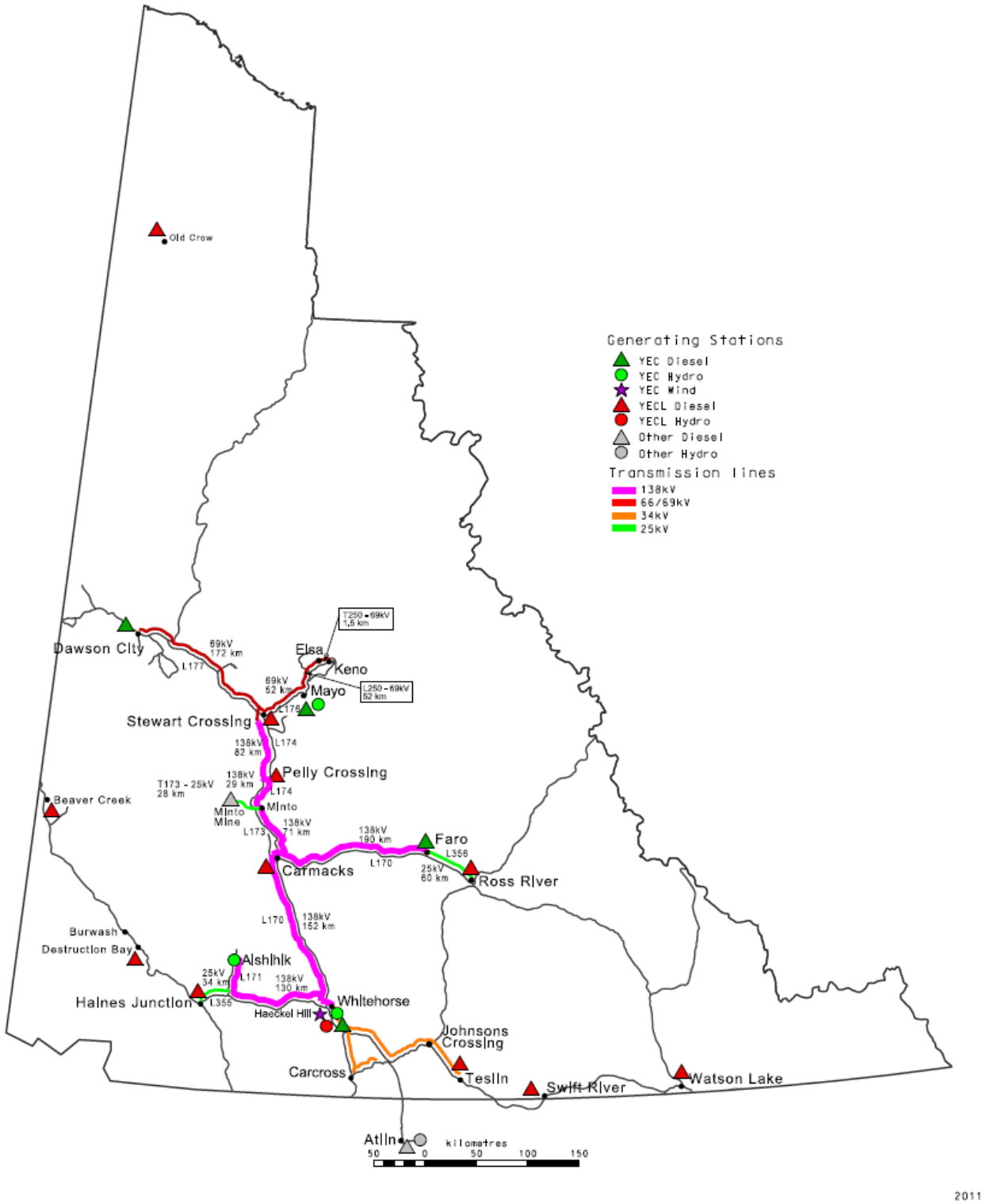
IPP will look different in Yukon than it does in other jurisdictions. The Yukon's electrical grids are not connected to the North American grid and are smaller than other jurisdictions' grids. The inability to export excess electricity makes it risky for the utilities and Yukon ratepayers to generate 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 2012, the electrical grid in Yukon (shown in the following map) is composed of:

- 1 larger hydro-based grid called the Yukon Integrated System;
- 1 medium-sized diesel-based grid serving Watson Lake; and
- Four smaller isolated sites with diesel generation (Old Crow, Beaver Creek, Destruction Bay - Burwash Landing, and Swift River).

The Yukon Integrated System had a winter peak demand of approximately 81 megawatts as of 2012. The renewable energy capacity in the winter is 72 megawatts. To avoid the use of diesel-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 public utility (i.e., interconnect with either the Yukon Energy Corporation or the Yukon Electrical Company Limited systems).

This policy does not apply to customers covered under the Government of Yukon's Microgeneration Policy.

Policy Goal and Objectives

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

The objectives of the IPP Policy are to:

a. Increase electrical supply to meet future energy needs;
b. Strengthen energy security and future affordability of Yukon's electrical system;
c. Develop local electricity resources, which are renewable and/or cleaner than diesel; and
d. Encourage new, local economic opportunities.

POLICY PARAMETERS

Size of Electricity Projects

Size limits of electricity projects are set to meet the policy objectives (listed above) within the context of the Yukon electrical system, which is isolated and has relatively small load capacities. This reflects technical limitations of Yukon's electrical system and minimizes financial risk to Yukon's electrical customers. IPP projects will be divided into two tiers.

Tier 1

Tier 1 is for smaller projects that will fall under a Standing Offer Program envelope (see Connection to the Electrical Grid section below). The following table lists the system-wide limits for both hydro and diesel grids. [1] The system-wide limits are set for infrastructure and economic reasons and may be reconsidered in future.

Grid	**System-Wide Capacity Limit**	**System-Wide Generation Limits**
Yukon Integrated System	2 MW	14,000 MWh/year
Watson Lake	300kW	2,100 MWh/year

Due to the isolated nature of the four smaller sites with diesel generation (Old Crow, Beaver Creek, Destruction Bay/Burwash Landing and Swift River) and the relatively small size of the generating facilities in these communities, a conservative, cautious approach is required to ensuring the safety and security of the electrical grid for all residents. For this reason, these sites are not eligible for the Tier 1 Standing Offer Program. Potential IPPs in these communities are, however, eligible for Tier 2 of this policy.

Tier 2

Tier 2 applies to projects larger than the above system-wide limits and any systems installed in the four smaller isolated communities (Old Crow, Beaver Creek, Destruction Bay/Burwash Landing and Swift River). Tier 2 projects will be assessed on a case-by-case basis by the utilities and an Agreement to Purchase Power will require approval by the Yukon Utilities Board.

Those projects under 50 kW could fall under the Microgeneration Policy if they offset a building's energy consumption and export electricity; however, proponents would be required to choose between the two policies (i.e., IPP or microgeneration).

Connection to the Electrical Grid

Tier 1

For Tier 1 projects, the utilities will develop a Standing Offer Program within nine months of the effective date of this policy and file it with the Yukon Utilities Board for approval. Interconnection standards and interconnection agreement templates will also be developed by the utilities and referenced in the Standing Offer Program.

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

With Yukon Utilities Board approval of the Standing Offer Program, Tier 1 projects can be processed by the utilities without having to return to the Yukon Utilities Board for each application up to the system-wide limits established by this policy.

Tier 2

When the utilities and/or Yukon government determine there is a need for new electrical generation over the system-wide limits set in the table above, they may release a Request for Proposal for IPP electrical generation, consistent with the objectives of this policy. The utilities will review the proposals submitted as per the Request for Proposal process and criteria to be developed by the utilities.

When no Request for Proposal process is underway, unsolicited proposals may be submitted to the utilities at the discretion of the independent power producer.

Draft agreements to purchase power from potential producers who have submitted successful proposals will be brought forward to the Yukon Utilities Board by the relevant utility for approval.

Eligible Energy Sources

Tier 1

Eligible energy sources for Tier 1 projects are limited to local renewable sources as discussed in the *Energy Strategy for Yukon*, which generally include:

- wind
- hydro
- geothermal
- biomass
- solar

Tier 2

Eligible energy sources for Tier 2 projects are limited to local renewable or diesel off-setting sources as discussed in the *Energy Strategy for Yukon*, which generally include:

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

New technologies will be considered as part of the review of this policy.[2] Electricity-generating technologies and energy sources must be proven to be reliable before they will be accepted for interconnection to Yukon's electrical grid.

[2] This policy will be reviewed two years from the date of the Yukon Utilities Board approval of the Tier 1 Standing Offer Program.

Interconnection Agreement and Agreement to Purchase Power Principles

The following principles will be used by the utilities in the development of draft interconnection agreements for Tier 1:

1. IPP rates offered for energy delivered will guarantee the currently understood avoided costs of new supply given below:

Zone	Avoided Costs of New Supply
Small diesel rate zone	$0.30/kWh
Large diesel rate zone	$0.30/kWh
Old Crow rate zone	$0.64/kWh
Hydro rate zone	$0.21/kWh

   These rates will be updated every three years and posted publicly to reflect changes in the avoided cost of new generation.

2. IPP rates are to provide potential proponents with certainty with respect to pricing and markets for their generated power.
3. The contract term will be of a duration that enables the prospective independent power producer to access independent financial support.
4. The contract term will be of a duration that fits with the proposed technology's (anticipated) life expectancy, reliability and associated utility risks.
5. The prospective independent power producer will be responsible for the interconnection costs and necessary interconnection upgrades, as well as the 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 and the Interconnection Agreement.

The Agreement to Purchase Power for Tier 2 will be negotiated on a case-by-case basis. The following principles will be used by the utilities in the development of power purchase agreements under Tier 2:

1. IPP rates are to provide potential proponents with certainty with respect to pricing and markets 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. The independent power producer will be responsible for the interconnection costs and necessary interconnection upgrades, as well as the maintenance of its electrical infrastructure.
5. 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.

ROLES AND RESPONSIBILITIES

Joint Responsibilities of the Government of Yukon and the Utilities (Yukon Energy Corporation/Yukon Electrical Company Limited)

1. Implement, maintain and communicate this policy.
2. Evaluate this policy two years from the date of approval of the Standing Offer Program by the Yukon Utilities Board.

Government of Yukon

1. Ensure this policy is consistent with the *Energy Strategy for Yukon*, the *Climate Change Action Plan*, and other government priorities and trade agreements.
2. Meet obligations under First Nation Final Agreements, and ensure this policy is consistent with those obligations.
3. Encourage IPP proponents to partner with Yukon First Nations and/or Yukon First Nation Development Corporations, and Yukon businesses on IPP projects.
4. Designate Tier 2 projects to be regulated under the *Public Utilities Act* where appropriate.
5. Give direction to the Yukon Utilities Board to set a process to review and issue a Board Order with respect to the Standing Offer Program to be filed by the utilities within nine months following Yukon government approval of this policy.
6. Provide access to Government of Yukon's best management practice guidelines.

Utilities (YEC/YECL)

1. Develop Standing Offer Program, technical interconnection standards, and interconnection agreement templates for Tier 1 projects and file with the Yukon Utilities Board within nine months following approval of this policy. Obtain Yukon Utilities Board approval of the Standing Offer Program.
2. Determine whether Standing Offer Program applicants meet Yukon Utilities Board approved interconnection standards and are therefore eligible to participate in the program.
3. Develop and manage the Request for Proposal process for Tier 2 projects. Develop interconnection standards and Agreements to Purchase Power for Tier 2 projects.
4. Meet utilities' commitments within interconnection agreements.

Yukon Utilities Board

1. Review and determine by Board Order the Standing Offer Program package filed by the utilities for Tier 1 projects per the *Public Utilities Act* for inclusion into future electrical rates and consider an appeal process under the Standing Offer Program.
2. Review Tier 2 projects per the *Public Utilities Act*, and if approved, include in electrical rates.

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 pay associated costs.
3. Be responsible for initiating and funding all environmental and/or regulatory Tier 2 project hearings 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 its own technical, legal and financial advice.
8. Meet requirements of interconnection agreement.

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. It requires Yukon Utilities Board approval.

Avoided costs of new supply – The cost of the next incremental unit of electricity for a utility that is adding capacity. This method of calculation is applicable to the cost of any increase in purchased capacity or services and generally reflects current market prices.

Best management practices – The non-prescriptive recommendations for techniques that can reduce the time, intensity or duration of impacts to the environment and people, while making best use of resources.

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

Geothermal (energy) – Energy derived from geothermal resources, which are steam, water, vapour (greater than 80º C) and all substances dissolved in the steam, water or vapour. These resources occur naturally at great depths (>1 km) in the earth and range in temperature from 50°C to 200°C (Holroyd and Dagg, 2011).

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.

Public Utility – As defined by the *Public Utilities Act* and Regulations.

Rate Schedule – The tariff structure (including Terms and Conditions of Service) for each customer class. It is approved by the Yukon Utilities Board**.**

Request for Proposals – A request for proposals is an invitation to submit proposals on a specific commodity or service. The Request for Proposal process gives transparency and accountability to the procurement process.

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 Yukon Utilities Board approved program that provides a process for the utilities to purchase electricity from Tier 1 projects.

Tier 1 projects – Smaller IPP projects capped by system-wide limits, as defined in this policy, that are eligible to apply to the Standing Offer Program.

Tier 2 projects – Projects larger than the system-wide limits set under the Tier 1 Standing Offer Program and any systems installed in the four small isolated communities (Old Crow, Beaver Creek, Destruction Bay/Burwash Landing and Swift River).

Utility – See Public Utility.

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

Yukon Interconnected System – The interconnected Whitehorse-Aishihik-Faro and Mayo-Dawson electrical grids which are owned by the Yukon Energy Corporation.