Discussion Paper

Independent Power Production and Net Metering

Developing a Policy for Yukon

November 2009

Yukon
Energy, Mines and Resources

Public Consultation

The Yukon government is in the early stages of developing policies for independent power production and net metering. The government invites stakeholders, experts and members of the public to become involved in the process and provide comments.

This discussion paper has been written to provide information about this policy work, starting with a review of the government's energy policy, Yukon's electrical system and practices in other jurisdictions. This paper also proposes some possible objectives and discusses the policy issues to be addressed.

This paper is for discussion purposes only; it does not represent government policy. The information in this paper is included to stimulate discussion on a policy for Yukon.

Discussion Paper Copies
Copies of this paper can be downloaded from the Energy, Mines and Resources website at: www.emr.gov.yk.ca

Your Comments

If you would like to provide written comments, please send them to:

Email
energystrategy@gov.yk.ca

Fax
(867) 393-7061

Mail
Energy Solutions Centre (206A)
Energy, Mines and Resources
Yukon Government
Box 2703, Whitehorse, Yukon Y1A 2C6

In Person
Energy Solutions Centre
206A Lowe Street, Whitehorse

Meeting Requests

If you would like to arrange a meeting to discuss your comments, please call:

Phone
(867) 393-7062, or toll free 1-800-661-0408, ext. 7062

Please submit comments by January 29, 2010

Energy Strategy Priorities

The Yukon government released the Energy Strategy for Yukon in January 2009. The Energy Strategy sets out the government's energy policies and priorities.

In the Energy Strategy, the government committed to developing a policy that will:

- Facilitate the purchase of electricity from independent power producers.
- Allow individuals to connect renewable energy sources to the grid.

These initiatives are part of the Strategy's priority action to "update and develop a policy framework for electricity that emphasizes efficiency, conservation and renewable energy".

The new policy for independent power production and net metering is expected to contribute directly to the Energy Strategy goals to:

- Produce more energy from renewable sources; and
- Increase electricity supply.

Generating more electricity from renewable sources will reduce fossil fuel use and greenhouse gas emissions. These Energy Strategy policy commitments will be coordinated with the Climate Change Action Plan initiatives and form part of the Yukon government's response to climate change.

Copies of the Energy Strategy
For more information on the Energy Strategy or to obtain a copy, please visit the Energy, Mines and Resources website at:
www.emr.gov.yk.ca

Independent Power Production

An independent power producer (IPP) is a company or individual other than a utility that generates electricity for sale to utilities. IPPs do not own transmission facilities and are dependent on utilities to purchase and distribute the power they produce.

Net Metering

Net metering allows electricity customers to sell surplus electricity produced from small scale, renewable energy sources to the grid. Net metering customers receive a credit for the electricity they generate.

Some other terms are defined on page 16 of this discussion paper.

Electricity Generation and Distribution in Yukon

Two utilities generate and distribute electricity in Yukon.

The Yukon Energy Corporation (YEC) is a public utility under the Yukon Development Corporation that is owned by the Yukon government. YEC generates and transmits most of the electricity in the territory and distributes electricity to a limited number of customers.

The Yukon Electrical Company Limited (YECL) is a private utility that is owned by ATCO Electric Limited. YECL generates a limited amount of electricity, mostly in communities that are not connected to the electrical grid. YECL distributes electricity to the majority of Yukon customers.

Currently, no IPPs or net metering customers are connected to the grid in Yukon. While there are individuals, companies and institutions that produce their own power, only YEC and YECL generate and supply electricity for Yukon communities.

The demand for electricity has been steadily increasing during the past ten years. Yukon's electricity generating capacity is 137.3 megawatts (MW). The following tables list the capacity of the hydro, diesel and wind facilities in Yukon.

The map on the next page shows the location of the electricity generating stations and the extent of transmission and distribution lines.

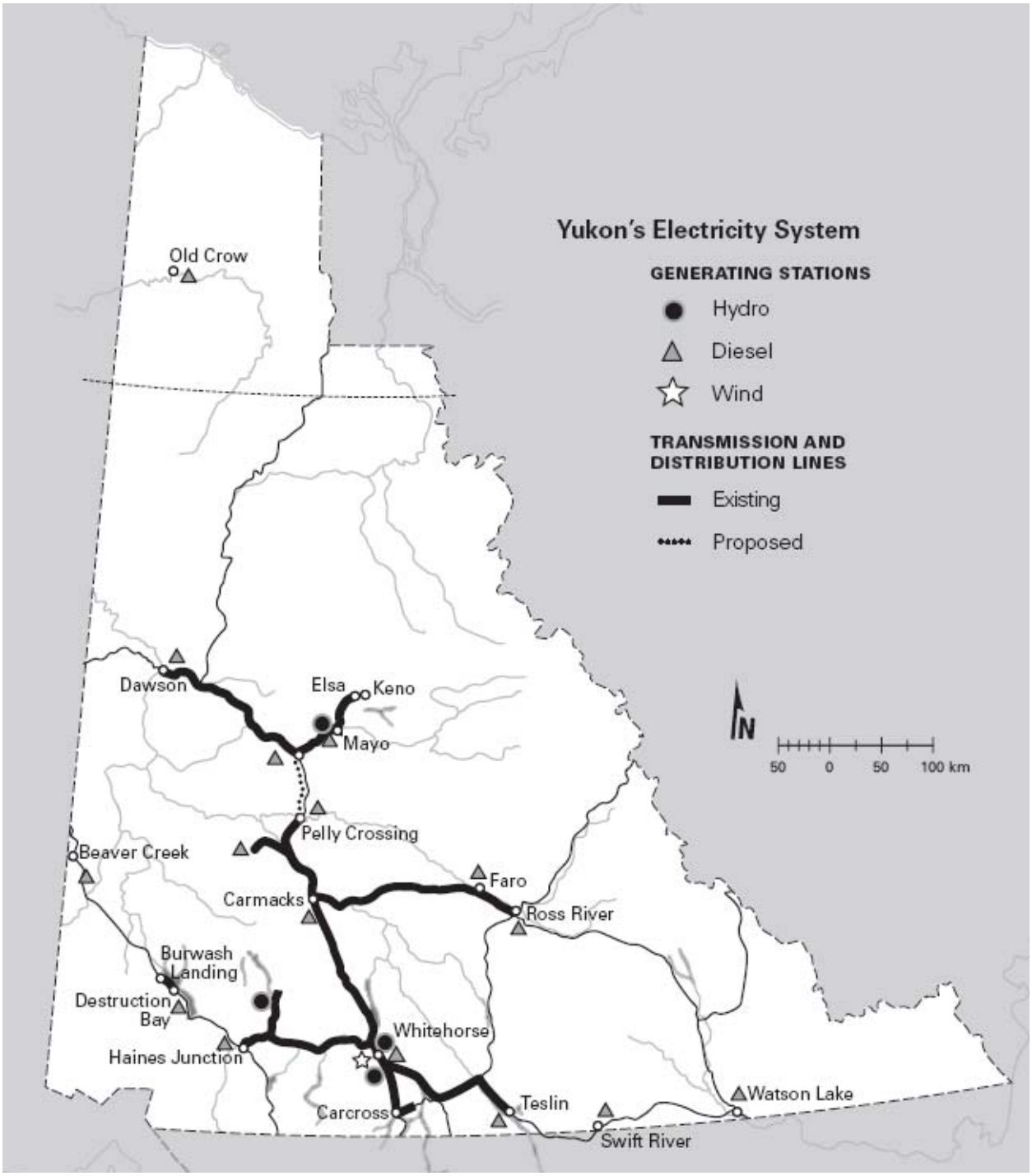
Yukon Energy Corporation		MW
Hydro	Whitehorse (WAF)*	40.0
	Aishihik	30.0
	Mayo	5.4
Diesel	Whitehorse (WAF)	25.0
	Faro (WAF)	5.4
	Dawson	6.0
	Mayo	2.0
	Minto	6.4
Wind	Haeckel Hill	0.8
Total		121

Yukon Electrical Company Ltd.		MW
Hydro	Fish Lake	1.3
Diesel	Carmacks (WAF)	1.6
	Haines Junction (WAF)	1.8
	Teslin (WAF)	1.5
	Ross River (WAF)	1.0
	Watson Lake	5.0
	Beaver Creek	0.9
	Destruction Bay	0.7
	Old Crow	1.1
	Pelly Crossing	1.0
	Stewart Crossing	0.2
	Swift River	0.2
Total		16.3

**WAF is the Whitehorse-Aishihik-Faro grid*

Source: YEC and YECL in the *Energy Strategy for Yukon, 2009*

Yukon's Electricity System



Independent Power and Net Metering in Canada

Most provinces have already developed IPP and net metering legislation, policies or programs. The territories are considering independent power production. Some examples of other policies and programs are listed below.

Jurisdiction	Independent Power Production	Net Metering
British Columbia	▪ Standing Offer Program ▪ Clean Power Request for Proposals	▪ Net Metering Program and Rate
Alberta	▪ Independent and Small Power Regulation ▪ Small Power Research and Development Act	▪ Micro-Generation Regulation
Saskatchewan	▪ Small Power Producers Policy	▪ Net Metering Policy and Program
Manitoba	▪ Independent Power Producer Program	▪ Net Metering Policy
Ontario	▪ Standing Offer Program ▪ Feed-in Tariff Program	▪ Net Metering Regulation ▪ Feed-in Tariff Program
Quebec	▪ Request for Wind Power Proposals	▪ Net Metering Program
New Brunswick	▪ Electricity from Renewable Resources Regulation ▪ Request for Wind Power Proposals	▪ Net Metering Program
Newfoundland	▪ Energy Strategy commitment	▪ None
Northwest Territories	▪ Currently considering independent power production	▪ Pilot projects and interconnection standards
Nova Scotia	▪ Renewable Energy Standard Regulations ▪ Call for Renewable Energy Project	▪ Net Metering Program
Nunavut	▪ Energy Strategy commitment	▪ None
Prince Edward Island	▪ Renewable Energy Act ▪ Minimum Purchase Price Regulations	▪ Net Metering System Regulations
Yukon	▪ Energy Strategy commitment	▪ Energy Strategy commitment

Proposed Policy Objectives

Why is the government planning to develop IPP and net metering policies? These policies are an important part of the government's efforts to improve the efficiency and reliability of Yukon's electricity system, and to increase electricity supply and manage demand.

The Energy Strategy states that policies are needed to facilitate the purchase of electricity from IPPs and allow individuals to connect renewable energy sources to the grid. The Strategy also states that these policies need to emphasize efficiency, conservation and renewable energy. Independent power production will facilitate distributed generation by expanding electricity production in a greater number of locations throughout the territory. Net metering will facilitate demand management, which is another electricity priority in the Energy Strategy.

The policy development process provides an opportunity to consider the full range of objectives that are to be met by the proposed policy. Here are some proposed objectives for an IPP and net metering policy.

Increase electrical supply to meet future energy needs

- Incrementally add clean and renewable energy to meet the growing demand
- Enable partnerships with the others, including the private sector, communities and First Nations on new electricity projects

Strengthen energy security and reliability of Yukon's electrical system

- Promote a diversified mix of electricity sources
- Improve transmission efficiency by producing power locally where possible

Develop local electricity resources that are cleaner or renewable

- Improve the economic feasibility of small, renewable energy systems for electricity
- Replace diesel with cleaner or renewable electricity sources

Facilitate economic development

- Encourage private and local investment in electricity infrastructure development
- Take advantage of new economic opportunities that are created by encouraging small, privately-owned electricity projects

Do you have any comments on the policy objectives?

Policy Issues

The government is consulting on a policy for independent power production and net metering. An important part of the consultation is to seek input on the policy issues to be addressed. The following questions point to some of the key policy issues.

- What sources of energy should be eligible for IPP and net metering?
- What is an appropriate size of electricity projects?
- What is the process for connecting to the grid?
- What kind of financial arrangements or incentives are required?
- What policy or regulatory framework should be established?
- What are the roles and responsibilities for the government and others?

You are invited to comment on these questions, or any other issues that you think should be addressed in a policy for IPP and net metering.

Eligible Energy Sources
The policy will need to identify what energy sources are eligible for IPP and net metering. Another consideration is whether the policy will identify priority energy sources for IPP and net metering.

Most IPP policies and programs in other jurisdictions promote clean, renewable or alternate sources of electricity. Net metering is often limited to renewable or alternate energy.

Increasing the supply of renewable energy is a top priority for the Yukon government. There is a great opportunity to use more renewable energy in communities that rely on diesel for electricity. Renewable sources of electricity could also be added to the grid to increase the capacity to meet the growing demand.

Clean, renewable and alternate energy sources would likely include hydro, wind, biomass and geothermal. Natural gas could be considered a clean energy source if it is replacing diesel. Combined heat and power (cogeneration) could also be an eligible energy source as it improves efficiency by making use of waste heat.

Do you have any comments on the eligible energy sources and what should be considered clean and renewable energy?

Size of Electricity Projects

Independent power production and net metering is generally targeted towards smaller projects that are distributed throughout the electrical system.

Existing electricity policies and processes were originally established to regulate utilities and large electricity projects. Other jurisdictions have developed IPP and net metering policies to establish a more streamlined process that is appropriate for small projects to be undertaken by proponents that are not regulated utilities.

IPP projects are typically small relative to the total generation capacity of the entire system. For example, IPP projects in British Columbia can generate anywhere from 500 kilowatts to 10 megawatts. Net metering customers have much smaller systems that contribute less electricity to the grid than IPPs. A net metering project in British Columbia can generate up to 50 kilowatts.

There are a couple of possible approaches to the capacity issue. One is to consider a minimum and maximum size for each IPP and net metering project. In Yukon, this might be in the range of 500 kilowatts for IPP projects and 10 kilowatts for net metering.

Another possible approach is to consider an upper limit for all of the IPP and net metering projects combined, which is an option for phasing in the implementation. A system-wide limit for Yukon could initially be set at 5 megawatts for IPP projects and 500 kilowatts for net metering.

Do you have any comments on the size of electricity projects?

Connecting to the Grid

The IPP and net metering policy will need to establish a process for connecting to the electrical grid. The policy will also need to address off-grid power needs for communities and industrial projects such as mines.

A well-defined and streamlined process can help to facilitate the development of IPP and net metering projects. Policies, programs and interconnection agreements and standards are used to establish a streamlined approval process for independent power production and net metering. Ideally, the process will consider what is the most efficient and effective approach for ensuring that all of the necessary regulatory approvals and permits are obtained for each project.

Connecting electricity generation projects to the grid is an important feature of any IPP or net metering policy or program. IPPs and net metering customers are often responsible for generating electricity and connecting to the grid according to certain standards.

Safety and reliability are key issues for connecting to the grid. National standards and codes have been developed by the Canadian Standards Association for small grid connected systems. Provincial utilities such as BC Hydro, SaskPower and Manitoba Hydro have also developed connection requirements and guidelines. Interconnection agreements between utilities and IPPs or net metering customers establish the requirements that must be met to ensure the safety and security of the electrical systems.

The government is considering how an IPP and net metering policy will establish a streamlined process, connection standards and interconnection agreements for Yukon.

Do you have any comments on the grid connection process?

Financial Arrangements

The government is considering what policies or programs could facilitate independent power production and net metering in the territory. This will involve detailed analysis of the economic and financial implications of the policies and programs. The economic feasibility of IPP and net metering will determine the number of projects that are developed.

IPPs usually need to be able to enter into long-term contracts or standing offer agreements for the sale of their electricity. The contracts specify a base price per kilowatt hour. The price might be variable to reflect the location, availability or source of the power supply. Some jurisdictions offer a higher price for electricity that is supplied during peak times.

A net metering rate is needed for net metering projects. Net metering customers are typically paid the retail rate or another amount that reflects the value of the power that is exported to the grid. In Yukon, a rate that is based on the avoided cost of power would be lower on the grid and higher in off-grid communities.

Some consumers in other jurisdictions can choose to purchase electricity from clean and renewable sources. For example, Bullfrog Power sells electricity to consumers in British Columbia, Alberta and Ontario. Their electricity is generated from wind and hydro facilities that have been certified as having a low environmental impact.

The financial arrangements should reflect the costs of producing the electricity and the value of the power. The arrangements could also consider environmental benefits such as lowering greenhouse gas emissions. Some governments help reduce the cost to ratepayers and provide an incentive to power producers by investing in new electricity generation projects or offering a rate subsidy for IPPs or net metering customers.

Do you have any comments on financial arrangements for IPP and net metering?

Policy Framework

What is the most efficient and effective way to facilitate independent power production and net metering? This question should guide the development of a new electricity policy framework for Yukon.

Other jurisdictions have established legislation, regulations, policies and programs to facilitate, administer and regulate independent power production and net metering. Specific terms and conditions are often addressed in agreements between utilities and IPPs or net metering customers.

Yukon's existing legislative and policy framework will shape any independent power production and net metering policies for the territory. A 'made in Yukon' approach to the policy development will be essential.

Some of the key legislation for IPP and net metering includes the *Public Utilities Act*, the *Waters Act,* and the *Yukon Environmental and Socio-economic Assessment Act*. First Nations Final Agreements contain provisions for electricity production that will also contribute to the development of an IPP policy for Yukon.

Independent power production and net metering could be addressed in a single policy, or in separate ones. The policy options include legislation, regulations, orders-in-council, policies, programs and/or agreements.

Do you have any comments on a policy framework for Yukon?

Roles and Responsibilities

The policy to be developed will need to clarify roles and responsibilities for the Yukon government, Yukon Utilities Board, the utilities, IPPs and net metering customers.

In other jurisdictions:

- The policy direction is usually set by provincial/territorial governments.
- Utilities boards tend to be responsible for approving rate structures.
- Utilities often implement IPP and net metering programs.
- First Nations, municipalities, businesses and industries could be independent power producers.
- Net metering is typically limited to households and small businesses.

The Yukon government is taking a lead role in the development of an IPP and metering policy. However, the government will not necessarily have a lead role in the policy implementation. Yukon's policy will need to specify who will be responsible for implementing independent power production and net metering.

Do you have any comments on roles and responsibilities?

Glossary

Demand Management
Demand management policies and programs influence patterns of energy consumption, including the timing and level of energy demand. Some demand management actions shift energy use from peak times to periods when less energy is required.

Distributed Generation
Generation of electricity by small power plants located near the electrical loads they serve. Distributed generation usually refers to clean and renewable energy sources that are small enough to be connected to local distribution systems instead of larger transmission lines.

Electrical Grid
A network of power lines used to deliver electricity.

Feed-in Tariff Program
A feed-in tariff is a financial incentive that is designed to encourage the supply of renewable energy. These programs often require utilities to purchase a certain amount of electricity from renewable sources. The rates, which are usually set by the government, can vary according to the source of energy and the policy priorities.

Independent Power Production
An independent power producer (IPP) is a company or individual other than a utility that generates electricity for sale to utilities. IPPs do not own transmission facilities and are dependent on utilities to purchase and distribute the power they produce.

Net Metering
Net metering allows electricity customers to sell surplus electricity produced from small scale, renewable energy sources to the grid. Net metering customers receive a credit for the electricity they generate.

Standing Offer Program
Standing offer programs offer small electricity generators a standard pricing regime and a streamlined process for providing power to the grid. Standing offer programs are usually implemented to expand the supply of renewable energy.

Next Steps

The Yukon government will be consulting on the policy issues related to independent power production and net metering until January 29, 2010.

After the public consultation, the government will prepare a summary of the comments that were received. A summary of what we heard will be posted on the Energy, Mines and Resources website at: www.emr.gov.yk.ca

In addition to the consultation summary, the government would also like to facilitate the sharing of public submissions on independent power production and net metering. Please let us know if you would like your comments to be shared with other members of the public. Public submissions will be posted on the Energy, Mines and Resources website.

☐ Yes, please include my comments in the consultation summary document

☐ Yes, please share my submission with other members of the public

All of the public comments are important and will be carefully considered during the development of an IPP and net metering policy for Yukon.

Additional Comments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