



Independent Power Production in B.C.:

An Inter-agency Guidebook for Proponents



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Important Notice and Disclaimer

Policies, legislation and regulations regarding independent power production are constantly evolving. This guidebook provides guidelines only. It is NOT comprehensive, nor is it the definitive source. Independent power production project proponents are advised to contact FrontCounter BC and provincial and federal government representatives to get up-to-date details about recent legislative, policy and other changes that may apply to their proposed projects. Because information provided in this guidebook is intended to serve as a general reference only, it should not be considered a legal interpretation. Proponents and professionals working with them should refer to relevant legislation and/or obtain legal advice if further information or clarification is required.

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Understanding Electricity - Quick Facts

Electricity is measured in watts.

One kilowatt hour (kWh) is 1,000 watt hours. A 100 watt light bulb burning for 10 hours would use 1,000 watt hours or 1 kilowatt hour.

One gigawatt hour (GWh) is one billion watt hours, the amount of electric energy needed to serve 100 residential customers for one year.

The average B.C. household uses about 11,000 kWh per year.

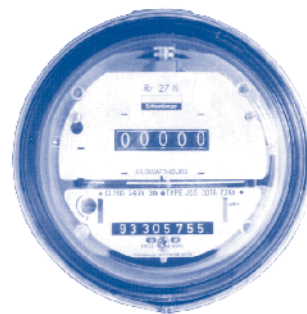
A large "big box" retail outlet consumes 3.5 GWh per year, roughly equivalent of 350 households.

A large 20-25 storey office building consumes 5 GWh a year, equal to the consumption of 500 households.

A large industrial plant, such as a pulp mill, uses 400 GWh in a year, equal to the consumption of 40,000 households.

BC Hydro serves 1.7 million customers, approximately 95% of B.C.'s population. It generates 43,000 to 54,000 gigawatt hours (GWh) of electricity per year, which is delivered through an interconnected system of 18,280 kilometres of transmission lines and 55,705 kilometres of distribution lines.

BC Hydro's energy demand is predicted to grow at a rate of 1.7% per year.



An Introduction to this Guidebook

This guidebook brings together statutory, regulatory, and procedural information from resource-based ministries and agencies involved with the review of IPP projects. Understanding the regulatory relationships between different ministries and levels of government can be overwhelming and confusing. The guidebook attempts to describe and clarify these relationships so that applicants can move forward in a coordinated and effective manner. It was for that reason that federal, provincial, local government, BC Hydro, the Independent Power Producers Association of BC, and industry representatives all actively participated in the writing of this guidebook.

The guidebook is first and foremost designed for individuals and companies interested in developing IPP projects. Notwithstanding that, the guidebook is an excellent resource for individuals, groups, and other government officials who want to better understand issues around IPP projects.

This guidebook concentrates on the approvals that proponents need from provincial and federal resource ministries. It does not explain business or financial aspects of project development; technical topics such as site selection, design, construction, or long term operation and maintenance concerns; or other requirements like taxation, safety, or employment standards. It is assumed proponents know how to manage these matters.

The guidebook has attempted to be as comprehensive as possible. It provides extensive information from all relevant federal and provincial agencies. That being said, IPPs are complex projects and requirements and regulations are constantly being updated and clarified. Consequently, the guidebook provides internet links where up-to-date information can be found.

The guidebook is not a cookbook and does not guarantee approval of a project. Rather, it is a roadmap through the myriad of regulations and requirements that must be addressed before a project could be constructed. The Province's high environmental standards and stringent requirements means that not every project will be approved. The development of an IPP is a long, expensive and complex process. Proponents should go into this process with their eyes wide open.

The guidebook is divided into several sections that provide different but important types of information.

The guidebook starts by providing the context in which it is written. Chapter 1 provides an introduction to, and overview of, the context and environment in which independent power producers are being encouraged to develop alternative energy projects.

The guide then moves into sources of information, ministries and agencies involved in IPP decision-making, and regulatory and legislative requirements. Emphasis is placed on FrontCounter BC and the role it plays in coordinating the application process. This information is provided in Chapters 2 and 3. Chapter 4 walks proponents through the six common stages that all IPP projects must go through. The chapter reviews agencies' requirements, and discusses the quality of detail proposals must possess for regulatory officials to make decisions about granting required approvals.

Chapters 5 to 7 discuss specific types of IPP projects and builds on what has been presented in Chapters 2 to 4 where foundation information was presented. These chapters are intended to provide proponents interested in specific types of projects to become more focused.

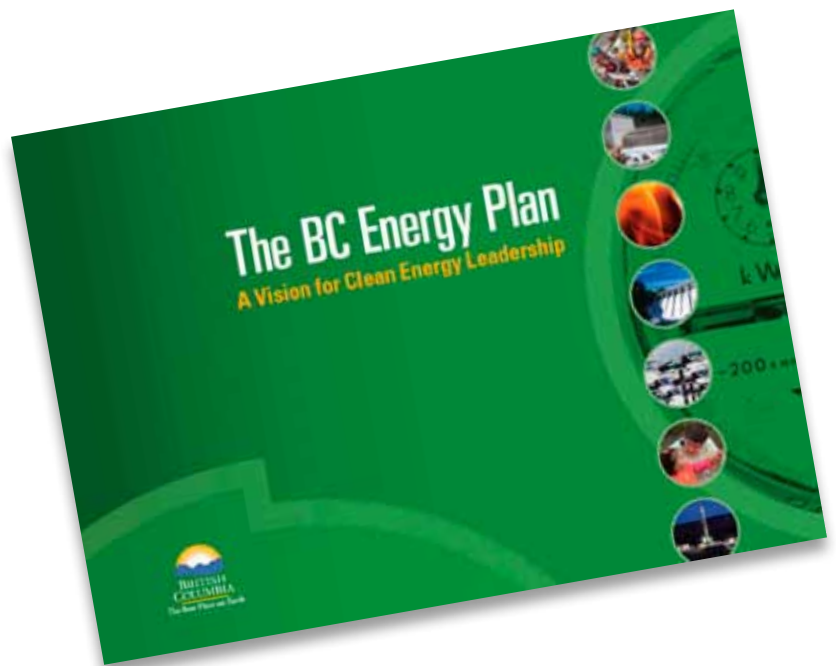
Environmental concerns are a significant factor in proponents' ability to get the approvals they require. For that reason, Chapter 8 is dedicated to explaining how both the provincial and federal Environmental Assessment processes work and ways meeting agencies' different requirements can be harmonized.

Chapter 9 discusses the importance of consulting with stakeholders in communities that may be affected by the development of independent power production projects. The chapter also discusses the role of local and regional governments.

Chapter 10 explains why First Nations must be consulted separately and how such talks are managed. The ways in which proponents can engage with First Nations are noted.

Finally, Chapter 11 provides information about supplying energy generated by independent power projects to B.C.'s grid.

This guidebook is a work in progress. As processes evolve this guidebook will be updated accordingly. The most important message that this guidebook conveys is the importance to communicate regularly with government agencies and ensure that proponents fully understand what will be required if their project is to achieve success.



Chapter 1

Introduction to Independent Power Production

1.1 B.C.'s Energy Gap

For the past half century or more, British Columbians have drawn much of the electricity needed to run their businesses and homes from large hydro dams. Typically located away from the major load centres in the province, B.C.'s hydroelectric projects generate around 90% of B.C.'s total electricity requirements.

In recent years, BC Hydro has been a net importer of electricity to meet its customers' needs. Under the *BC Energy Plan: A Vision for Clean Energy Leadership* released on February 27, 2007, the Province is committed to becoming self sufficient in electricity supply by 2016, as now legislated under the Utilities Commission Act, and to ensuring that 90% of British Columbia's electricity supply continues to come from clean or renewable resources. Under the 2007 Energy Plan, power generated by IPPs is one of the key elements to meet these goals.

Owing to B.C.'s climate and geography, the province's clean and renewable energy potential is diverse, vast and enviable. Not only can power production projects use water and wind to produce energy, they can also use biomass, waste wood, solar, tidal, geothermal and other natural resources. Independent power production projects have the potential to generate energy that meets and balances triple bottom line economic, environmental and social concerns. Getting into the independent power production business can be challenging. This guidebook is designed to explain what steps are required and what requirements must be met.

1.2 B.C.'s Energy Plan

B.C.'s 2007 Energy Plan www.energyplan.gov.bc.ca is the provincial government's strategic plan for addressing energy issues. A key goal of the BC Energy Plan is to make B.C. energy self-sufficient by 2016 – while still demonstrating responsibility and leadership for the stewardship and protection of the natural environment and climate. The Province's ambitious Energy Plan aims to put B.C. at the forefront of energy planning with aggressive targets for zero net greenhouse gas emissions from electricity generation (zero emissions from coal-fired generation), new investments in innovation, and ambitious conservation goals aimed at reducing growth in electricity demand. Ensuring British Columbians and businesses both have enough electricity is a provincial priority. Keeping electricity affordable for citizens and businesses is another goal of the Energy Plan.

While the Energy Plan sets a target for BC Hydro to meet half of its incremental resource needs through energy conservation, new supply will still be needed to ensure adequate electricity is available in the future. To accomplish this goal, the Province is encouraging private sector businesses, First Nations, and other organizations to develop new supplies of electricity – and in particular, from clean and renewable sources.

Independent power producers are being invited to develop projects that generate electricity using

- ▶ water
- ▶ wind
- ▶ biomass
- ▶ tidal and ocean
- ▶ geothermal
- ▶ solar
- ▶ natural gas, with offsets¹

Many independent power production projects are from clean, renewable sources of energy.

1. The addition of generation from fossil fuels would also need to be consistent with Government's objective to continue to have 90% of B.C.'s generation from clean and renewable resources.

1.3 Independent Power Production

Independent power producers are often established as investor or operator-owned business corporations. However, BC Hydro can also look to other independent suppliers of electricity, such as

- ▶ municipal and regional governments
- ▶ Columbia Power Corporation
- ▶ First Nations communities
- ▶ private individuals

Independent power project proponents fall into two categories:

- 1) **power producers** which generate electricity to sell to a load serving utility or to a power marketer and
- 2) **self-generators** which produce electricity primarily for their own industrial use.

Power producers need transmission lines and connections to transmission or distribution systems. Self-generators, like mines and pulp mills, would require transmission interconnections if they are unable to meet all of their demand from their own supply, or if they wish to sell power that is surplus to their use.

Broadly speaking, the main types of generation from independent power production projects are:

Water power - Waterpower projects use streams, rivers and other water sources. Project components may include a powerhouse, penstock, intakes, dams, tunnels, channels, roads, substation and the transmission line. These, and other land uses, such as quarries, construction and spoil areas, staging areas and communication sites, are necessary for the production of electricity at a site and the conveyance of the electricity to a place of use.

Wind Power - Wind power projects require wind turbines, towers, maintenance buildings, other plant facilities, roads, substation, transmission lines and buffer zones of surrounding Crown land.

Biomass Power - Biomass energy projects use the natural abundance of biomass resources, including sawmill residues, mountain pine beetle-killed timber, logging debris and agriculture and municipal wastes.

Solar Energy Power - Solar power is a renewable energy generated by converting energy from the sun into electricity and forms the basis for SolarBC's solar hot water program. This is typically pursued at small scale for self supply.

Geothermal Energy Power - Geothermal energy projects use the natural heat of the earth. This generally involves drilling deep into the ground to access hot water or steam. Geothermal resources do not include water that is less than 80 degrees Centigrade nor does it include hydrocarbons.

Tidal Energy – is the term used to describe the energy generated from power found in ocean tidal currents. The tides are created by the gravitational forces of the sun and moon, and their movement in relation to the earth. Tidal streams are currents in the ocean water column, created as the water of the ocean rises and falls with the movement of the tides. Tidal currents are strongest where the water passage is constricted, such as narrows, channels, around islands and headlands and fjords.

Ocean Energy – is the term used for energy generated from harnessing the ocean, and includes wave energy, tidal currents, temperature gradients and salinity gradients.

Natural gas fired power – is the conversion of natural gas into electricity through the use of gas fired turbines in generating stations. Particularly high efficiencies can be achieved through combining gas turbines with steam turbines in the combined cycle and through reciprocating engines and mini and macro turbines.

1.4 This Guidebook's Goals

The need for an independent power production guidebook is fuelled in large measure by the rate and magnitude of change in the industry. There has been a significant increase in the number and diversity of applications being submitted. This guidebook is designed to help proponents understand what is involved in applying for and developing an independent power production project. It will help them understand the needs of the government agencies that review project proposals and make decisions regarding permits, licences, and other types of approvals. In addition, this guidebook can serve as a resource guide for British Columbians who want to learn more about independent power production.

Determining the best, most efficient and effective way to encourage and oversee the development of environmentally sustainable projects is an evolving process. To be responsive, legislation, policies, procedures and processes are being developed and clarified. Provincial and federal agencies are working with proponents and industry organizations to streamline the approval process.

This guidebook concentrates on the approvals proponents need to get from provincial and federal resource ministries. It does not endeavour to explain business or financial aspects of project development, technical topics such as site selection, design, construction, or long term operation and maintenance concerns, nor explain other requirements like taxation, safety, or employment standards. It is assumed proponents know how to manage these matters.

This guidebook outlines much of the information proponents need to get started. But, it does not and can not provide all the answers.

Each project and situation is unique. Proponents wanting to develop independent power production projects need to contact provincial and federal officials and industry advisors to get late-breaking news and details regarding recent changes to rules, regulations, policies, procedures and processes. They then need to work with government officials and industry advisors to ensure the proposals and applications they submit meet current standards and requirements.



1.5 Glossary

Please note: The definitions and explanations provided in this Glossary are only for the clarification of the information in this Guide. If there is a conflict between these definitions and explanations and the Water Act and Land Act, the meanings in the Water Act and Land Act prevail.

Agency The provincial ministry responsible for a specific land use.

Applicant A person who has met the conditions of Chapter 4 of this Guide.

Application The documentation filed under the Water Act and Land Act in accordance with Chapter 4, Section 2 of this Guide.

Approve In reference to an application for tenure to Crown land means to issue the appropriate tenure for the use of the Crown land from the application. See “Grant”.

Buffer Area Separation between wind farm developments to prevent upwind removal of wind energy due to Wake Effect from wind turbines. As a general guide, this separation is defined as one kilometre in the prevailing wind direction, or 500 metres in the direction perpendicular to the prevailing winds, of any existing wind development tenure or wind investigative permit boundary. The buffer may be varied by MAL dependant upon terrain, geography and other environmental considerations. See Appendix 3.

In issuing Crown land tenures the province strives to make decisions that do not result in the alienation of private land activities. In cases where projects are being developed on Crown land lying adjacent to private land, proponents should recognize that future potential development on private land may affect their project and make business decisions accordingly.

For Crown lands that do not have potential for wind power development it is appropriate for an existing tenure holder to apply for a variance to reduce their buffer distances. It will be considered on a case-by-case basis, and would require discussion with all parties.

Compensation A measure to make suitable amends for an impact of a water or wind power project, which impact can not be practically mitigated. For example, a compensation measure for an impact on fish habitat may include the construction of comparable habitat at another location on the stream on which the project is situated.

Comptroller Defined in the Water Act to mean: a person employed by the government or a government corporation and designated in writing by the minister as the Comptroller of Water Rights and includes any persons designated in writing by the minister as acting, deputy or assistant comptrollers. The Comptroller has all the authority of a Regional Water Manager and Engineer, and will adjudicate applications under the Water Act for some waterpower projects.

Dam Defined in the Dam Safety Regulation to mean:

- a.** a barrier constructed across a stream, or
- b.** a barrier constructed off stream and supplied by diversion of water from a stream, for the purpose of enabling the storage or diversion of water, and includes all works which are incidental to or necessary for the barrier.

In section 2 of the Dam Safety Regulation further conditions are placed on a dam, as defined above, before the dam is subject to the regulation.

Development Plan Report submitted by the applicant at the project Development Plan stage containing technical information associated with the project. The Development Plan contains two distinct sections:

Project Definition - This section provides the definition of the project in terms of location and physical characteristics. This section adds detail to the Preliminary Project Definition, in the case of waterpower, submitted with the initial application.

Impact Assessment - This section should identify all impacts of the construction and operation of the project. Where impacts can not be fully addressed, the Development Plan should include Terms of Reference for completing the assessment.

Disallow In reference to an application for Crown land means to decline the application and not issue a Crown land tenure. See "Refuse".

Engineer Defined in the Water Act to mean: a professional engineer employed by the government or a government corporation and designated in writing by the comptroller as an engineer and includes a Regional Water Manager.

Environmental Management Plan (EMP) A document prepared by the holder of a water licence that sets out the manner in which the waterpower project must be constructed to mitigate the activities of construction on the environment.

Environmental Monitor	A person with the appropriate professional qualifications who is retained by the holder of a water licence to monitor the construction of the works and provide information and reports to the Ministry of Environment - Water Stewardship Division (MoE-WSD) on the compliance of the construction of the waterpower project with the EMP.
Extensive Use Area	A non-exclusive tenured area, outside of the Intensive Use Areas, which is required for management and control of landscape features, public access, safety and other defined rights and obligations required to protect the general public and the wind resource.
First Come First Served	An option is granted to the holder of the wind investigation phase of tenures to be the first applicant for the long-term wind project tenures over the same Crown land area.
Generating Station	Describes the dam, powerhouse, tailrace and switchyard of a waterpower project, provided the dam is close coupled to the power house; and to describe the powerhouse, tailrace and switchyard of a Generating System.
Generating System	All components of a project where the intake is separated from the powerhouse by penstock. The term includes any dam that stores water in support of the generation of electricity, provided that the dam is not close coupled to the powerhouse.
Grant	Adjudication of an application for a water licence means to issue a licence from the application. In the Guide "Grant" is used to mean "Approve" in reference to an application for Crown land.
Impact	The adverse effect of a water or wind power project on environmental and social values in the vicinity of that project, and the adverse effect on persons who hold rights under the Water Act and Land Act.
Improvements	Any physical structure on Crown land – anything made, constructed, erected, built, altered, repaired, added to, on, or under the land, and attached to it or intended to become a part of it, and also includes any clearing, excavating, digging, drilling, tunnelling, filling, grading or ditching on or under the land – and intended to enhance its value or utility or to adapt it for new or further purpose, for example, attaching permanent or semi-permanent buildings, structures, machinery or fixtures to the land.
Independent Engineer	A professional engineer who is retained by the holder of a water licence to provide information and reports to MoE-WSD on the design and construction of the works.

Intake	Any structure that takes the water from a stream and puts it into another structure that conveys the water to the place of use. The intake may impound water to create energy for the purpose of driving the water into the penstock or other conveyance structure. If the structure stores water in addition to taking water from the stream, the structure is defined as a dam. An intake may be a barrier constructed across a stream, but may not meet the other conditions necessary to be governed by the Dam Safety Regulation.
Intensive Use Area	The part of a wind farm development required after commissioning for ongoing operations, including wind turbine footings, turbine structures including air space for the propellers, transformers, electrical conditioning equipment, auxiliary buildings, transmission poles, transmission lines, buried cables, access roads and other improvements as defined in the project's Development Plan.
Interested Parties	A private individual (or a group of private individuals), government agencies, local government, and the public that have a specific interest that may be impacted by the waterpower project. Examples may be a holder of a water licence, riparian owners and a society formed under the Societies Act. First Nations may be an interested party or a party with an interest, but such interests are distinct from any Aboriginal rights and title to the land and water resource in the vicinity of the waterpower project.
Licence under the Water Act	<p>A licence issued under this or a former Act. A licence entitles its holder to do the following in a manner provided in the licence:</p> <ul style="list-style-type: none"> • divert and use beneficially, for the purpose and during, or within the time stipulated, the quantity of water specified in the licence; • store water; • construct, maintain and operate the works authorized under the licence and necessary for the proper diversion, storage, carriage, distribution and use of the water or the power produced from it; • alter or improve a stream or channel for any purpose; and • construct fences, screens and fish or game guards across streams for the purpose of conserving fish or wildlife.
Linear Components	Includes the penstock, power line, access, the intake(s) or dam(s) and any tunnels or channels associated with the project.
Megawatt(s)	1,000 kilowatts or 1,000,000 watts.

<i>Meteorological/ Anemometer Tower</i>	Vertical steel tubular or lattice tower of 10 metres or more in height and equipped with wind sensors, data logger, meteorological instruments, support cables and anchors
<i>Minister</i>	Under the Land Act, the minister is responsible for the administration of all Crown land except land specifically under the administration of another minister, branch or agency of government. The minister responsible for the Land Act is the Minister of Agriculture and Lands. ILMB has authorities under the Land Act as delegated by the minister.
<i>Mitigation</i>	A specification, step or procedure taken in the design or operation of a water or wind power project to lessen the severity of an impact by the project.
<i>Nameplate Capacity</i>	The manufacturer's rated (maximum) output of the electrical generators installed in the nacelle of each turbine.
<i>Place of use</i>	<p>In reference to the diversion and use of water, the place of use is the land to which the water licence is attached. For a waterpower project, the place of use of the water is the land on which the powerhouse is situated.</p> <p>In reference to the conveyance of electricity, the place of use is the location that is owned by the proponent where the electricity is used; or the point at which the proponents works for the conveyance of electricity connect to works owned by someone other than the proponent.</p>
<i>Powerhouse Site</i>	Crown land site on which the facility housing the turbines is located.
<i>Preliminary Project Definition</i>	A concise description of the scope of the waterpower project. This preliminary information is submitted by the applicant at the time of initial application.
<i>Project</i>	Water or wind power project. Biomass, ocean and geothermal are addressed in Chapter 7, but are not the focus of this guidebook.
<i>Proponent</i>	An applicant or holder of a water licence and Crown land tenures for a water or wind power project.
<i>Refuse</i>	In reference to the adjudication of an application for a water licence means to decline the application and not issue a water licence.

Regional Water Manager	Defined in the Water Act to mean: a person employed by the government or a government corporation and designated in writing by the minister as a regional water manager and includes a person designated in writing by the minister as an acting or assistant regional water manager. The Regional Water Manager has the authority to adjudicate the application for a licence under the Water Act for a waterpower project. The Regional Water Manager will adjudicate most water licence applications for waterpower projects. Where the Guide indicates Regional Water Manager, the Comptroller is included.
Remote Community Project	A project which would supply power to a community without access to the provincial electricity grid.
Run-of-the-River Project	A waterpower project on a stream that does not have the flow regulated by a reservoir authorized by a water licence; or a waterpower project that is on a stream that does have the flow regulated by a reservoir, but the regulation is not specifically for the beneficial use of water at the waterpower project.
Staging Area	Crown land used for construction, spoil and/or laydown-uses during the construction phase of project development.
Storage Purpose	Defined in the Water Act to mean: The collection, impounding and conservation of water. Usually a licence for storage purpose will support, or be appurtenant to, a licence that authorizes the diversion of water for a purpose such as power.
Storage Supported Water Power Project	A waterpower project that makes beneficial use of stream flow regulated by a reservoir authorized by a water licence. A waterpower project that is downstream of a storage-supported project and the downstream project benefits from the regulated flow for the storage supported project, then the downstream project is also a storage supported project.
Store	Defined in the Water Act as: in relation to water, means collect, impound and conserve.

Tenures under the Land Act

A **temporary permit** normally authorizes:

- short-term use of six months to two years; and
- low impact use such as site investigations, which require no construction or improvements.

The permit gives the holder non-exclusive use of Crown land for the duration of the permit.

A **licence** allows:

- carrying out of specified activities;
- some improvements to the land such as trails and/or the right to construct buildings; and a licence gives the holder non-exclusive access to the land.

A licence cannot be registered against the land title and does not require a survey.

A **lease** gives the tenure-holder the exclusive right to use a parcel of Crown land for a specific purpose. Leases are issued where:

- substantial improvements or investments are made in and on the land for long term facilities; and/or
- it is necessary to define specific boundaries of an activity to minimize potential conflict with other operations.

A lease can be registered against the title of land and requires a survey of the area by the applicant prior to the issuance of a lease.

A **statutory right-of-way** is normally used to authorize linear uses of Crown land, such as pipelines, transmission lines, cables for telecommunications, etc. A right-of-way can be registered against the title of land and applicants are required to complete a survey of the area prior to the issuance of the statutory right-of-way.

Wake Effect

Each wind turbine will slow down the wind behind it as it pulls energy out of the wind and converts it to electricity.

Water Licence

Licence under the Water Act.

Wind Power Turbines/Wind Turbine Generators

Electricity generating machines which consist of a generator housing (nacelle) and wind bladed rotor situated on top of a freestanding tubular steel, lattice or concrete tower.

Works Defined in the Water Act to mean:

- a) anything capable of or used for
 - i) diverting, storing, measuring, conserving, conveying, retarding, confining or using water,
 - ii) producing, measuring, transmitting or using electricity, or
 - iii) collecting, conveying or disposing of sewage or garbage or preventing or extinguishing fires;
- b) booms and piles placed in a stream;
- c) obstructions placed in or removed from streams or the banks or beds of streams; and
- d) changes in and about a stream, and includes access roads to any of them.





Chapter 2

Sources of Information and Advice

2.1 FrontCounter BC

FrontCounter BC is the B.C. government's "single window service" for citizens and businesses seeking natural resource authorizations and permits for Crown resources. It provides services on behalf of 13 provincial natural resource ministries and agencies. In addition FrontCounter BC is the independent power producers' one-stop information centre.

Proponents wanting to develop independent power production projects should make FrontCounter BC their first stop. FrontCounter BC staff can explain what's involved in getting the Provincial environmental, land and resource use approvals required to construct waterpower, wind, or other electricity generation projects in B.C. They know which provincial ministries and agencies proponents need to work with. They know what approvals, licences, permits, tenures, and reviews each ministry requires. They can also provide information regarding federal government agencies and their required approvals.

FrontCounter BC helps guide proponents through the application process by identifying and explaining what authorizations will be required, ensuring the required application forms are complete, taking payments for each application package, and then ensuring applications get to the right agencies for approval. Staff can explain what environmental impact assessment and other studies, baseline data, maps, and management, mitigation and monitoring plans are required. They can identify First Nations, community groups and other stakeholders with which proponents should consult.

FrontCounter BC liaises between proponents and agencies. Staff monitors and tracks applications. They work to facilitate timely processes, decisions and approvals.

FrontCounter BC offers independent power production proponents "one-stop" assistance and advice on getting their proposed projects approved.

FrontCounter BC's web address is
www.frontcounterbc.gov.bc.ca

Its email is FrontCounterBC@gov.bc.ca

FrontCounter BC has offices throughout B.C. To find the nearest FrontCounter BC office go to
<http://www.frontcounterbc.gov.bc.ca/contact/locations.html>
or call 1-877-855-3222

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Phone: (250) 372-2127
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Nanaimo FrontCounter BC

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Prince George FrontCounter BC

200-1488 4th Avenue
Prince George, B.C. V2L 4Y2
Phone: (250) 565-6779
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Smithers FrontCounter BC

1st Floor, 3726 Alfred Avenue
Smithers, B.C. V0J 2N0
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Surrey FrontCounter BC

Suite 200, 10428 153rd St.
Surrey, B.C. V3R 1E1
Phone: (604) 586-4400
Fax: (604) 586-4434

Victoria FrontCounter BC

Suite 301 - 710 Redbrick Street
Victoria, B.C. V8T 5J3
Phone: (250) 952-4386
Fax: (250) 952-4663

Williams Lake FrontCounter BC

#201 - 172 North 2nd Ave
Williams Lake, B.C. V2G 1Z6
Phone: (250) 398-4574
Fax: (250) 398-4836

Other offices may be opened in the future.

2.2 Provincial Ministries and Federal Departments

There are many provincial ministries, federal departments and agencies that proponents must work with. Each has their own jurisdiction, requirements and approvals and is responsible for a different aspect of a proponent's proposed independent power production project. Proponents are advised to cultivate working relationships with representatives from each agency. Proponents will have different relationships and durations of involvement with different agencies.

Provincial Ministries and Services

Provincial IPP Office

The IPP Office was established in 2008 within the Integrated Land Management Bureau. Its primary purpose is to enhance the effectiveness of ministries and agencies by coordinating the IPP portfolio province-wide in support of the BC Energy Plan (2007), greenhouse gas reduction goals and optimizing government resources. In delivering on its purpose, the IPP Office will provide the following core services:

- ▶ Standardizing, streamlining and prioritizing the IPP permitting process in consultation with regional offices and ministries/agencies.
- ▶ Supporting the success of FrontCounter BC in its role as a single entry point of contact for IPP applications and information on permitting requirements.
- ▶ Facilitating integrated regional IPP project reviews and resolution of issues.

The IPP Office can be reached by contacting the Surrey FrontCounter BC Office.

B.C. Ministry of Agriculture and Lands

The Ministry of Agriculture and Lands (MAL) www.gov.bc.ca/al is responsible for enhancing economic development and environmental sustainability of agriculture (including aquaculture) and food sectors and Crown land, while delivering safe, high-quality products for the enjoyment and well-being of British Columbians. With regards to independent power production, MAL is principally concerned with the administration of the Land Act.

Integrated Land Management Bureau

The Integrated Land Management Bureau <http://ilmbwww.gov.bc.ca/> provides services pertaining to the utilization and management of Crown Lands and natural resources. In addition ILMB provides integrated land and resource information, natural resource application and information services, and sustainable natural resource management through streamlined decision-making. ILMB helps proponents coordinate applications for required tenures, Crown land sales and grants. ILMB also helps proponents develop, present, revise, and implement land-use plans and manage species-at-risk concerns. (For more details on Old Growth Management Areas and IPP's, please see Appendix 2: Old Growth Management Areas and Independent Power Producers). ILMB can provide advice regarding B.C.'s Land Act.

ILMB is responsible for issuing various Provincial Crown land tenures under the Land Act as required for the different types of land use associated with the various stages of an independent power project. (A full explanation can be found in Chapter 3.) During the formative stages of project development, ILMB may issue an investigative permit allowing proponents to survey the land and complete geotechnical site investigations, seismic survey, drilling and other studies to determine

the best location for each component of the project. Later on, ILMB issues a general area licence of occupation for construction of the main works of the waterpower project (i.e. powerhouse, penstock, intake, road, and the transmission line). Once construction of the works is complete and legal surveys done for each component, various long-term tenures are issued for the components.

Independent power producers without Electricity Purchasing Agreements (EPAs) are eligible for different tenure terms than projects with EPAs. (See sidebar on EPAs within Chapter 3). Tenure terms for the general area licence of occupation are longer for projects with EPAs as the tenure term can match the term of the EPA, which can be up to 40 years after the Commercial Operation Date (COD). In certain circumstances, even if there is no EPA associated with the project, the proponent may be granted a general area licence of occupation for a 10 year term to provide proponents with the opportunity to bid in a BC Hydro call for power. Due diligence must be demonstrated throughout the 10 year term to prove that the proponent is working towards an EPA. (For more details about EPAs see Chapter 11.)

B.C. Ministry of Environment

The B.C. Ministry of Environment www.gov.bc.ca/env has three divisions with a direct interest in independent power production. These divisions that proponents may need to work with are described below. Together, divisional staff is responsible for explaining and enforcing B.C.'s Water Act, Water Protection Act, Environmental Management Act, Wildlife Act, and Fish Protection Act.

The Water Stewardship Division (WSD) www.env.gov.bc.ca/wsd is responsible for the Water Act and oversees the issuance of water licences and approvals. The Water Act applies to all water in a stream and/or activities in a stream. A water licence is required if water is diverted from the stream. WSD issues water licences for many purposes, including power production, water storage, and industrial and commercial use. WSD also issues approvals for (1) work in and about stream (e.g.: stream crossing or instream mitigation) and (2) short term (12 months or less) use of water from a stream. A project development plan is typically required from a proponent to provide information to assist in the adjudication of a water licence application. In addition, technical material supplied in support of a water licence application is typically expected to identify, assess and address any potential impacts from a proposed power project.

The Environmental Stewardship Division (ESD) www.env.gov.bc.ca/esd is responsible for the maintenance and restoration of the natural diversity of provincial ecosystems and fish and wildlife species and their habitat. ESD is also mandated to provide park, fish and wildlife recreation services and opportunities to British Columbians and visitors. ESD sets clear environmental standards and performance expectations, and assesses compliance through monitoring, auditing and public reporting. ESD's Fish and Wildlife Branch is responsible for the Wildlife Act and Fish Protection Act. (For additional details about ESD and its requirements see Chapter 5.) BC Parks is responsible for the Park Act. BC Parks' mission is to maintain and restore the natural diversity of provincial ecosystems and fish and wildlife species and their habitat; and to provide park, fish and wildlife recreation services and opportunities to British Columbians and visitors. Proponents whose application overlaps or is near an existing park, nature conservancy, recreation area or designated area should contact BC Parks or ESD. Changes in park boundaries will require approval through legislation. Proponents wanting access to or through park lands will require either a park use permit or a resource use permit. However, as IPPs are not considered as compatible with the objectives of established BC Parks or conservancies, a Parks Use Permit will not be issued for any components of an IPP project.

The Environmental Protection Division (EPD) www.env.gov.bc.ca/epd is responsible for the Environmental Management Act. The EPD works to prevent pollution and promote and restore environmental quality. In addition to looking after air, land and water quality and deleterious discharges, EPD designs, develops and implements legislative and regulatory guidelines, standards and instruments. Working with stakeholders and partners, the Division fulfills its environmental protection role using innovative tools and an “adaptive management framework,” meaning it sets standards and guidelines, checks for their attainment through monitoring and compliance, and adjusts requirements and guidelines as needed. Discharge permits are required.

ESD, EPD and other agencies serve in an advisory role to WSD. They help interpret guidelines and review those sections of proponent-submitted documents pertinent to the respective areas of interest and expertise. If WSD is satisfied proponents have fulfilled Water Act requirements, MOE issues a water licence, to which terms and conditions are attached.

Environmental Assessment Office

Established under the Environmental Assessment Act in 1995 and continued under the new Environmental Assessment Act (Act) in 2002, the Environmental Assessment Office (EAO) www.eao.gov.bc.ca is a neutral central provincial agency that oversees major project reviews. The EAO coordinates the assessment of proposed major projects in B.C. as required under the Environmental Assessment Act. It works with First Nations, government agencies and the public to ensure major projects are developed in a sustainable manner. The EAO reviews major projects for potentially adverse environmental, economic, social, health and heritage effects that may occur during the lifecycle of proposed projects.

In general, the Environmental Assessment includes four main elements:

1. opportunities for all interested parties, including First Nations and neighboring jurisdictions, to identify issues and provide input;
2. technical studies of the relevant environmental, economic, social, and heritage and health effects of the proposed project;
3. identification of ways to prevent or minimize undesirable effects and enhance desirable effects; and
4. consideration of the input of all interested parties in compiling the assessment findings and making recommendations about project acceptability.

The EAO is continually evaluating and refining guidance material on the EA process to ensure that it is easy for proponents to understand. The EAO provides tools to help proponents in the development of EA applications. A thorough and complete EA application must include a wide range of detailed information on a project and its potential effects. The EAO ensures that, in advance of applying for an EA certificate, proponents develop an acceptable outline of the EA application through Terms of Reference, which describes information requirements the EA application will contain. For more details on Environmental Assessment see Chapter 8.

At the conclusion of an Environmental Assessment, an EA certificate is issued by ministers if the proposed project is approved. It represents government’s approval in principle and allows a proponent to seek any other statutory authorizations needed to proceed with the project.

B.C. Ministry of Forests and Range

B.C. Ministry of Forests and Range (MFR) www.gov.bc.ca/for is responsible for managing the province's forests and range lands. Legislation under its jurisdiction includes the Forest Act, Range Act, and Forest and Range Practices Act. Under these Acts, MFR can issue approvals allowing proponents to cut, damage, destroy and remove crown timber. MFR also issues permits allowing proponents to use roads and construct project works and install infrastructure. MFR is responsible for issuing authorizations to cut crown timber, transport crown and private timber, and use forest service roads.

MFR staff are responsible for assessing the impact of independent power production projects on forest and range lands. MFR staff work with proponents to identify impacts and develop mitigation techniques or alternatives to limit or eliminate concerns including fire protection requirements. Early discussion with MFR staff is recommended to ensure concerns are identified, impacts are adequately assessed, and mitigative measures are developed during the formative stages of the project development and approval process. Proponents may engage registered professional foresters, biologists, engineers and others specialists to assist with the evaluation of impacts and development of mitigative measures. Most, if not all issues, can and should be resolved before Development Plans are submitted.

MFR permits and licences are issued by regional and district offices located throughout B.C. Typically, MFR district offices issue or approve these authorizations after proponents have obtained required land and water licences and permission to construct project works.

During the development and construction of an independent power production project, MFR issues different authorizations and permissions. Initially, MFR may issue an occupant licence to cut authorizing proponents to cut timber from crown land, if required. MFR may issue a road use permit authorizing proponents to use a Forest Service Road for industrial purposes,

construct or modify the road, and replace or install structures. Proponents are responsible for finding out who owns or has rights to use roads in the area they plan to build their project. Once approvals to build the proposed project have been secured, MFR issues a works permit to carry out works within the Forest Service Road right-of-way allowing proponents to install penstocks, transmission lines, etc., and complete other activities not directly related to the construction, modification or maintenance of the road itself.

After a forest, range or road tenure is issued, MFR staff will inspect proponents work sites and operations. All issued permits and licences are monitored to ensure proponents comply with stipulated terms and conditions. Proponents are responsible for understanding and meeting standards of practice expectations. (For more information about MFR permits see Chapter 3.)

Requirements vary from district to district, so proponents are advised to contact local MFR staff to get advice and guidance relevant to their independent power production project. Approvals required may vary, depending on the type of tenure required. (See sidebar.)

Types of Forest Tenures within B.C.

Tree Farm Licence (TFL) – An area based tenure with an allowable annual cut (AAC) issued to forest industry companies

Timber Supply Area (TSA) – An area over which tenure is granted to support volume based licences. TSAs have a determined AAC. Types of licence include the following:

- *Forest Licence (both non-replaceable and replaceable)*
- *Forestry Licence to Cut*
- *Occupant Licence to Cut*
- *Free Use Permits (e.g.: permission to cut firewood)*

Timber Licences – These area based licence are used for areas that revert to the Crown after harvesting and silviculture obligations have been met.

Woodlot Licences – These area-based tenures are used for small-scale operations on private and Crown land.

Community Forest Licences – Area based licence issued to communities.

Further information on district contact numbers, forest legislation, applicable tenures/ licences and current events can be obtained by accessing the Ministry of Forests and Range website at www.for.gov.bc.ca/mof/regdis.htm



B.C. Ministry of Transportation and Infrastructure

The B.C. Ministry of Transportation (MoT) www.gov.bc.ca/tran is responsible for building, maintaining and operating the Province's highway system and ensuring that it operates safely and efficiently and for the benefit of the general public. Under the Transportation Act or the Industrial Roads Act, MoT grants approvals required to temporarily or permanently use, impact or connect to highways, secondary roads or public rights-of-way. No work, construction or activity is allowed before a valid permit has been obtained. The Ministry has policies specific to power lines, which govern the granting of permits for them. MoT grants utilities permission to use highways and rights-of-way provided adequate controls are in place and proposed uses do not interfere with the public's use of existing highways.

MoT's prime responsibility is to ensure that public safety is not compromised. Proponents must ensure that existing highway facilities are not damaged or put at risk, other non-highway facilities are protected, and future highway development is not unduly restricted. Except where safety is concerned, the same policy, standards and procedures apply to all utilities whether they are owned by a public utility company, local government, or private individuals. Proponents use highway rights-of ways at their own risk.

MoT may issues permits allowing proponents to install equipment and facilities in highway right-of-ways where it is practical and safe to do so. Proponents are only permitted to use highway right-of-way if they comply with policy and standards established by MoT. (For more information about MoT permits see Chapter 3.)

Different districts may have different requirements for different projects. Proponents should contact local district offices for information and advice regarding their proposed projects. Permit forms and contact information are available on the MoT's website at www.th.gov.bc.ca/permits.htm The Ministry's Utilities Manual www.th.gov.bc.ca/permits/Utility%20Permit%20Manual.pdf provides general information regarding MoT permits, accommodation, coordination, design and location standards, installation and maintenance, relocation, etc. The manual is being updated to include information regarding power lines that exceed 60 kV phase to phase, so proponents should contact local MoT district staff to obtain up-to-date details.

Ministry of Energy, Mines and Petroleum Resources

The Ministry of Energy, Mines and Petroleum Resources (MEMPR) is tasked with managing the responsible development of British Columbia's energy, mining and petroleum resource sectors. The Ministry facilitates a climate for thriving, safe, environmentally responsible and competitive energy, mining and petroleum resource sectors. It is through these initiatives that the Ministry contributes to the economic growth and development of communities throughout British Columbia.

The Ministry develops and implements British Columbia's policies with regard to electrical power generation and transmission, including oversight of BC Hydro, the British Columbia Transmission Corporation (BCTC) and Columbia Power Corporation. It is responsible for initiatives to promote new energy technologies, energy conservation and alternative energy sources, such as bio-energy and renewables, including wind and solar power generation.

The Electricity Policy Branch (EPB) of the Electricity and Alternative Energy Division develops electricity related policies, legislation, regulations and programs. The EPB implements the electricity elements of the Province's Energy Plans and develops and implements additional electricity related initiatives to further the objectives of the Energy Plans. The EPB also oversees and develops the policy framework for major energy Crown corporations including: B.C. Hydro, BCTC, and related statutory frameworks: Hydro and Power Authority Act, the Transmission Corporation Act and the BC Hydro Public Power Legacy and Heritage Contract Act.

The EPB is also mandated with the responsibility for developing and implementing operational Crown Land tenuring policies for independent power producers' projects for wind power, ocean energy and waterpower in collaboration with the Ministry of Agriculture and Lands and Integrated Land Management Bureau. The operational policy for ocean energy projects on Crown land is currently under development. Crown land operational policies for wind power and waterpower is available at www.al.gov.bc.ca/clad/index.html.

The MEMPR website is located at www.gov.bc.ca/empr

Federal Departments and Agencies

Fisheries and Oceans Canada

Fisheries and Ocean Canada (DFO) <http://www.dfo-mpo.gc.ca/> is responsible for the proper management, conservation, and protection of fish and fish habitat. DFO is responsible for the administration and enforcement of the Fisheries Act (while Environment Canada administers the pollution sections of the Act) DFO has additional federal responsibilities under the Species at Risk Act (SARA) and Canadian Environmental Assessment Act (CEAA).

The Species at Risk Act (SARA) <http://www.dfo-mpo.gc.ca/species-especes/index-eng.htm> affords protection to those wildlife species as listed on the website. It aims to prevent or reduce the likelihood of wildlife species will become extinct or be extirpated. The Act applies to all waters in Canada as well as all Federal lands, and provides for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity. On private land, SARA prohibitions apply to aquatic species at risk, and migratory birds listed in the Migratory Birds Convention Act, 1994. Provisions in the Act cover the management of species of special concern to prevent them from becoming endangered or threatened. Under SARA, species habitat is protected. The Act requires that recovery strategies be developed and implemented for all species at risk. It is very important that proponents determine early in the project planning stage whether there are any species at risk within the entire scope of the intended project.

Independent power production proponents wanting to build projects in or near water, especially fish-bearing streams, need to work with DFO to understand what they can and can not do and prevent or mitigate impacts their project may cause. Run-of-river projects

proposed upstream of fish-bearing waters will likely have reduced information and assessment requirements from DFO.

One of DFO's key concerns is the harmful alteration, disruption or destruction (HADD) of fish habitat. Impacts caused by the construction, installation, and operation of powerhouses, intakes, turbines, tailraces and other hydro generation infrastructure have the potential to create obstructions to fish passage and impact fish and fish habitat within the project footprint, diversion reach, and downstream due to flow modifications. Impoundments, intakes, diversions, and other power production operations can alter natural flow regimes, causing insufficient flow or flow related HADD. Entrainment causing fish mortality can also be a concern. The Act prohibits the deposit of any deleterious substance in or near water frequented by fish. Water intakes must be properly designed to prevent the entrainment and killing of fish.

Independent power production projects that propose to use fish-bearing waters, especially those that will cause HADD and/or can not meet flow requirements are deemed to pose a "significant risk." These projects are more complex, difficult to mitigate, and represent greater uncertainty and risk. They require more comprehensive data collection, analyses, assessment, impact mitigation, and compensation. Obtaining permission to construct such projects takes many months. Whether authorization to proceed is granted depends on the information provided and mitigation measures proposed.

Projects which are located in non fish bearing waters can effectively mitigate impacts and meet downstream flow requirements. As a result, information and assessment requirements are less onerous and applications would be submitted to a

more streamlined and expeditious review and approval process.

The way DFO determines whether to grant approval or authorization under federal legislation is through an Environmental Assessment. To ensure projects comply with the federal Fisheries Act, DFO requires adequate hydrometric and hydrologic data, analyses and assessments of flow modifications associated with proposed waterpower projects, as well as appropriate mitigation plans that adequately address fish passage obstructions, HADDs, and other issues such as entrainment mortalities. This information must accompany applications for any and all permits, approvals or authorizations.

Where fish habitat exists within the proposed project area, diverted water should be returned to the stream upstream of anadromous salmonid, critical trout, or endangered species habitat. Projects should avoid impacts to resident fish and their habitats. Authorization permitting HADD is considered only after all other options are exhausted. Proponents are responsible for developing appropriate compensatory habitat for any authorized HADD as per the no net loss guiding principle under the DFO's Habitat Management Policy.

The need for an Authorization and CEAA review will be determined upon review of the project's Development Plan. To expedite the CEAA review process, DFO recommends proponents engage the services of qualified professionals with relevant experience to help them prepare their Development Plan and the Environmental Impact Statement (EIS) report, required applications and related documents. Proponents should undertake early consultations with First Nations, non-government organizations, and the public

once the project Environmental Management Plan (EMP) is developed. If your project requires an authorization under sections 35(2), for a HADD, or related works, DFO will be required to conduct an Environmental Assessment under CEAA prior to deciding to issue an authorization for your project. If your project is described on the Comprehensive Study List Regulations made under CEAA then it may require a Comprehensive Study level assessment under CEAA.

Under the Species at Risk Act (SARA), DFO looks after aquatic species at risk, while the Canadian Wildlife Service (CWS) addresses migratory birds. These agencies are required to protect listed species at risk, their residence and their critical habitat. Permits and licences are required under SARA. Proponents are responsible for contacting relevant agencies to determine their requirements prior to initiating any project activities. In some cases, other agencies' approvals can not be issued until the protection conditions spelled out in SARA are met. In other cases, permits allowing certain activities to proceed can be issued as long as certain conditions are met.

Transport Canada

Transport Canada (TC) www.tc.gc.ca is responsible for developing and administering policies, regulations and services for the best transportation system for Canada and Canadians — one that is safe and secure, efficient, affordable, integrated and environmentally friendly.

Independent power production projects have the potential to affect transportation systems in the air and on the water. For example, transportation systems can be affected with the construction and installation of project components where:

- ▶ equipment for tidal or wave power generation has the potential to affect navigable waters;
- ▶ intake weirs/dams and tailrace structures and any changes in water flow along diversion reaches for run-of-river hydro power generation have the potential to affect navigable waters; and
- ▶ towers for wind power generation have the potential to affect navigation in the air and on the water.

Other components associated with independent power production projects, such as bridge crossings along access roads and transmission line towers and crossings, also have the potential to affect navigation in the air and on the water.

Transport Canada's Navigable Waters Protection Division reviews independent power production project proposals to determine if they require approval under the Navigable Waters Protection Act (NWPA). Approval under the NWPA is required for any works placed on, over, under, through or across navigable waters that may result in a substantial interference to navigation. This formal approval is also required for named works under the NWPA such as bridge, boom, dam, and causeway that are proposed for a navigable waterway even if the structures do not substantially interfere with navigation. Determination of navigability is made by Transport Canada's Navigable Waters Protection Officers. The requirement for an approval under the NWPA triggers the requirement for Transport Canada, as a Responsible Authority, to conduct an Environmental Assessment under the Canadian Environmental Assessment Act (CEAA).

Transport Canada's Environmental Services is responsible for conducting the Environmental Assessment under CEAA. Independent power project proponents and regulators can gain efficiencies by ensuring that regulatory requirements specific to other federal legislation are met while the CEAA review is conducted. While completing a CEAA review, proponents and regulators can fulfill requirements specified under federal legislation such as the NWPA, Fisheries Act and SARA. Proponents' Development Plans may be expanded to include any other federal department's information requirements. Proponents who provide comprehensive information on all aspects of their proposed project and its design can substantially reduce the time of federally-mandated reviews. Proponents are advised to work with agency representatives to ensure all required information is included in their Development Plan.

Transport Canada's Aerodromes and Air Navigation Branch is responsible for the regulatory program for aerodromes and air navigation services in Canada. Among other responsibilities, this branch reviews proposed projects to determine whether lighting or marking of structures such as antennas, towers, cable crossings, and buildings is required to meet standards for air safety. In some cases, lighting and/or marking of structures required by Transport Canada for air safety purposes can cause potentially adverse effects on other valued ecosystem components such as migratory birds. In such cases, the lighting/marketing requirements and measures required to mitigate these effects will be discussed by the proponent, Transport Canada and the federal department that has raised the concern so a resolution can be reached.

Additional information is provided in subsequent chapters.

Natural Resources Canada

Natural Resources Canada (NRCan) www.nrcan.gc.ca is an economic-science based department with a mandate to develop, implement and deliver policies, programs, and science and technology for the sustainable development and responsible use of Canada's natural resources including energy, forests, and minerals and metals. NRCan develops policies and programs that enhance the contribution of the natural resources sector to the economy and improve the quality of life of all Canadians.

As a federal authority subject to the Canadian Environmental Assessment Act (CEAA), NRCan may be the responsible authority and be required to undertake an environmental assessment (EA) for projects relating to a physical work and for any proposed physical activity on the Inclusion List Regulations of the CEAA, whenever NRCan

- ▶ proposes or undertakes a project;
- ▶ grants money or any other form of financial assistance to a project (see sidebar on NRCan programs)
- ▶ grants an interest in the land to enable a project to be carried out; and
- ▶ exercises a regulatory duty in relation to a project, such as issuing a permit or licence that is included in the Law List Regulations of the CEAA.

With respect to independent power projects, two of the most common ways in which NRCan could be the responsible authority are if NRCan exercises a regulatory duty in relation to a project, or if it provides financial assistance to a project.

Should NRCan determine that it is a responsible authority for a project, it will provide additional EA guidance to proponents to ensure they meet requirements stipulated in the CEAA.

NRCan Regulatory Role

NRCan's involvement in an EA may result from the application of certain Acts under the authority of the federal Minister of Natural Resources. One Act which can trigger the CEAA is the Explosives Act which regulates the manufacturing, testing, sale, storage, transportation and importation of explosives.

NRCan can become responsible for a project if it is required to issue a licence for the manufacture and/or storage of explosives, as stipulated and described in the Explosives Act.

More information on licensing is available at the NRCan Explosives Regulatory Division's website: <http://www.nrcan-rncan.gc.ca/mms-smm/expl-expl/index-eng.htm>

NRCan PROGRAMS

NRCan administers and is party to a number of programs that provide financial support to various projects. Two key programs that provide support to renewable energy projects are listed below. Should NRCan provide financial assistance to a project it may be considered an RA pursuant to the CEAA.

The ecoENERGY for Renewable Power Program supports the production of electricity from low-impact renewable technologies such as wind, hydro, biomass, solar photovoltaics, geothermal, tidal and wave. The program provides an incentive of one cent per kilowatt-hour for up to 10 years to eligible projects constructed between April 1, 2007 and March 31, 2011. Additional information on the ecoENERGY RP Program's terms and conditions and how to apply is at www.ecoaction.gc.ca

The Technology Early Action Measures (TEAM) program is an interdepartmental technology investment program which provides support in five major priority areas including energy-efficiency technology and decentralized energy production. Projects may receive TEAM support through one of NRCan's delivery programs, which are listed at www.team.gc.ca/english/programs/nrcan.asp Additional information regarding TEAM and project eligibility criteria can be found at www.team.gc.ca.

For more information regarding NRCan's role pursuant to the Canadian Environmental Assessment Act, please contact the NRCan Environmental Assessment Group within Science and Policy Integration (EA-SPI) at: EA-SPI/EE-ISP@nrcan-rncan.gc.ca

The fax number for the Environmental Assessment Group with Science and Policy Integration (EA-SPI) is (613) 995-5719.

Other Agencies

Most independent power producers need to deal with BC Hydro and BC Transmission Corporation when it comes time to sell the power they generate. For more information about electricity sales and transmission see Chapter 11.

2.3 Industry Organizations

Independent Power Producers Associations

The Independent Power Producers Association of BC (IPPBC) www.ippbc.com represents power suppliers, power retailers and their supporting industries. The mandate of the IPPBC is to develop a viable independent power industry in British Columbia that serves the public interest by providing cost-effective electricity through the efficient and environmentally responsible development of the Province's energy resources. IPPBC's vision is to promote an open and fair market for power suppliers in British Columbia's competitive electricity industry by:

- ▶ Championing policy recommendations that are conducive to a viable market with many buyers and sellers
- ▶ Informing British Columbians of the benefits of a competitive electricity industry

IPPBC has been the voice of proponents, working with government and the public to develop the industry since 1992.

IPPBC provides guidance and advice to members, such as the guidelines below explaining the steps involved in successfully developing an independent power production business.

Three Components of Successful Projects (see also Chapter 4)

Proponents of independent power projects must meet technical, commercial, and permitting requirements to develop a project. The technical aspects include all engineering and scientific studies for the project. Commercial aspects include all evaluations to demonstrate the viability of the project to potential investors as well as bid preparation and commercial contracts for project construction. Permitting requirements must be achieved throughout the development of the project to move forward. Figure 1 shows the technical, commercial, and permitting aspects of project development in three vertical columns.

In technical terms, independent power project development typically entails:

- ▶ Concept Definition to identify a suitable site for development of a specific type of power project;
- ▶ Project Feasibility to validate the project concept and compile all background information to identify critical regulatory and financial issues;
- ▶ Preliminary Design to modify the concept design based on feedback from agency staff, stakeholders, and provide the basis for cost estimates from contractors as part of bid preparation;

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graph TD
    subgraph Technical_Aspects [Technical Aspects]
        A[Site Identification and Concept Definition] --> B[Project Feasibility]
        C[Preliminary Design] --> D[Detailed Design]
        E[Final Design] --> F[Construction]
        G[Testing/Commissioning] --> H[Monitoring and Maintenance]
    end

    subgraph Commercial_Aspects [Commercial Aspects]
        I[Concept Evaluation] --> J[Feasibility Evaluation]
        K[Preliminary Evaluation] --> L[BC Hydro Bid Submission]
        M["Energy Purchase Agreement Award with BC Hydro  
(requires BCUC S.71 Approval)"] --> N[Financial Close]
        O[Construction Contract Award] --> P[Equipment Procurement]
    end

    subgraph Permitting_Aspects [Permitting Aspects]
        Q[Application Submission and Acceptance] --> R[Dialogue and Project Definition]
        S[Preliminary Project Description/Terms of Reference (EAO)] --> T[Development Plan/EA Application Submission]
        U[Initial Project Approvals] --> V[Final Project Approvals]
        W[Approval to Operate] --> X[Monitoring]
    end

    A --> I
    I --> Q
    Q --> B
    B --> J
    J --> C
    C --> K
    K --> L
    L --> M
    M --> N
    N --> O
    O --> D
    D --> E
    E --> F
    F --> G
    G --> H
    H --> I

    Q --> R
    R --> C
    R --> S
    S --> T
    T --> U
    U --> N
    U --> V
    V --> P
    V --> W
    W --> X
    X --> Y[Operation]
    Y --> Z[Monitoring]
    Z --> Y

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The flowchart illustrates the Project Development Process, organized into three main categories: Technical Aspects, Commercial Aspects, and Permitting Aspects.

- Technical Aspects:** Includes Site Identification and Concept Definition, Project Feasibility, Preliminary Design, Detailed Design, Final Design, Construction, Testing/Commissioning, and Monitoring and Maintenance.
- Commercial Aspects:** Includes Concept Evaluation, Feasibility Evaluation, Preliminary Evaluation, BC Hydro Bid Submission, Energy Purchase Agreement Award with BC Hydro (requires BCUC S.71 Approval), Financial Close, Construction Contract Award, and Equipment Procurement.
- Permitting Aspects:** Includes Application Submission and Acceptance, Dialogue and Project Definition, Preliminary Project Description/Terms of Reference (EAO), Development Plan/EA Application Submission, Initial Project Approvals, Final Project Approvals, and Approval to Operate.

The process flows from left to right across the top row (Technical, Commercial, Permitting). Subsequent steps are connected by arrows indicating the sequence of activities, often involving feedback loops or parallel paths between the different aspects.

- ▶ Detailed Design (often by a design and/or building contractor), incorporating requirements and information from agencies and stakeholders, and supported by detailed scientific studies;
- ▶ Final Design to specific construction requirements, in accordance with all agency requirements and showing consideration of stakeholder comments;
- ▶ Construction of the project in accordance with the final design;
- ▶ Testing/Commissioning of the project to verify the performance of the project as expected;
- ▶ Maintenance and Monitoring of the facility to ensure safe and efficient operation.

In commercial terms, the development of an independent power project commonly requires repeated evaluations early in the process to verify the financial viability of the project:

- ▶ Concept Evaluation to establish concept project viability based on costs and revenues using “rules of thumb” and past experience;
- ▶ Feasibility Evaluation to estimate revenues based on typical unit costs for project components and initial resource estimates;
- ▶ Preliminary Evaluation to calculate revenues and costs based on Preliminary Design of the project, including cost estimates based on site specific project costs;
- ▶ Bid Submission of a proposal to supply electricity under contract for a specific price (almost always BC Hydro), based on the best possible revenue and cost estimates;
- ▶ Energy Contract Award to the proponent from BC Hydro, creating a legally binding agreement for the

proponent to supply energy from the project which is later evaluated by the British Columbia Utilities Commission;

- ▶ Financial Close to conclude commercial lending contracts for the project;
- ▶ Construction Contract Award from the proponent to a contractor to build the project;
- ▶ Equipment Procurement to purchase generation equipment (water turbines or wind turbines, transmission equipment, etc) for construction of the project; and
- ▶ Operation of the project to generate electricity and meet the requirements of the energy contract.

During the development process, the project must meet regulatory requirements as described in this Guidebook. In basic terms, steps involved in obtaining regulatory approvals include:

- ▶ Application Submission and Acknowledgement to state the proponents’ intent to develop an independent power project at a specific site and start the regulatory process;
- ▶ Dialogue and Project Definition to discuss the project with the agencies to confirm regulatory requirements, meet with First Nations and stakeholders to understand specific issues and opportunities, and improve the project definition as needed;
- ▶ Preliminary Project Description to get feedback from agencies regarding technical aspects of the project with respect to regulatory expectations, a step which is especially important for proponents who are not familiar with regulatory expectations;
- ▶ Development Plan submission, based on Preliminary Project Description, to fulfill regulatory requirements and

expectations;

- ▶ Initial Approvals based on the Development Plan which provide requirements and guidance for Final Design of the project;
- ▶ Final Approvals based on Final Design, which allows the project and construction to proceed;
- ▶ Approval to Operate following the construction, testing, and commissioning of the project;
- ▶ Monitoring of the site as per agency requirements to verify the impacts are as expected during the environmental reviews.

As shown by the general sequence in Figure 1, project development is very seldom a linear, straightforward process. Increasingly detailed studies are carried out to develop the project to meet correspondingly rigorous commercial and permitting requirements. Commercial requirements include the review of all revenue projections and cost information by external financiers as part of due diligence to secure project financing following the awarding of an energy contract. General permitting requirements related to initial approvals concern over-arching permits for overall project development and impacts, while later approvals relate to more specific aspects of the project and its construction. Consultation with First Nations is an important part of the review process. Information from stakeholders is considered during the development process.

A fundamental step in the development of an independent power project is the Energy Purchase Agreement contract. In virtually all cases, energy contracts are awarded to independent power producers through a BC Hydro competitive bid process. The award of the contract essentially establishes the revenue the project will generate, meaning loan terms from established

financial institutions can be finalized. Until the energy contract is awarded, it can be difficult for proponents to borrow money for development. Thus, most proponents will prioritize activities and follow a phased approach, based on a number of commercial considerations around Bid Submission and Initial Approval requirements.

For smaller projects (less than 10MW), BC Hydro has recently issued the Standing Offer Program. This program effectively eliminates the need for a competitive bid process and instead establishes a fixed price for proponents. Under this program, there are relatively short timelines for project completion, and proponents must have obtained all material permits required for the project prior to bid submission to BC Hydro, and meet all BC Hydro's terms and conditions. In this process, the awarding of an energy contract occurs after the Development Plan has been submitted and Initial Approvals obtained. As a result, proponents incur greater up-front costs for small projects but this is partially offset by the certainty of obtaining a fixed price from BC Hydro once the project is complete. (For additional details see Chapter 11.)

As a final note, some proponents may advance environmental and technical studies in the project development process depending on a number of commercial and permitting factors. For some projects, having initial approvals and detailed designs can add significant value in terms of greatly decreasing the time needed to obtain required approvals and reach operation. However, funds spent in this manner would not be recovered if the project is not successful in obtaining an energy contract.

2.4 First Nations

First Nations typically have a critical role in the review and success of any IPP proposal. The Province has made a clear commitment to meaningfully involve First Nations in the review of all IPP proposals. In addition, the provincial government and B.C.'s First Nations' organizations are working together to develop a New Relationship founded on respect, recognition and reconciliation of Aboriginal rights and title.

In 1982 existing Aboriginal and treaty rights were recognized and affirmed in Section 35(1) of the Constitution Act. The courts have clarified what Aboriginal rights and Aboriginal title mean, and how they are proved. In 2004, the Supreme Court of Canada's decisions in the Haida and Taku River cases clarified that even before Aboriginal rights and/or title are proven through a Court process, the Province has a duty to consult with First Nations when it has real or constructive knowledge of the potential existence of an Aboriginal right or title and contemplates conduct that might adversely affect it. In addition, although it is provincial authorities who are duty-bound to consult with First Nations groups, the proponent is often better placed to share information with the First Nation and to address particular First Nations' interests or concerns.

The Environmental Assessment process also provides for ongoing and meaningful consultation with First Nations on whether and how a project may affect First Nations proven or claimed rights and title. EAO provides First Nations with opportunities to review procedural orders, provide technical expertise where necessary, participate on EAO advisory working group(s) to discuss potential project impacts and mitigation, and comment on drafts of EAO assessment reports.

First Nations expressing an Aboriginal right and/or title have a reciprocal duty to identify their Aboriginal interests and concerns once they have had the opportunity to consider the information provided and must make a reasonable effort to inform the Crown about any impacts of the proposed activity on their Aboriginal interests. First Nation communities' concerns typically relate to potential impacts on claimed Aboriginal rights and title, including traditional practices and cultural resources, and environmental concerns: potential impacts on the land, air, water, forests, fish and wildlife.

Engaging with First Nations provides an opportunity to build a relationship with the community. These relationships are important factors in any project proposal and are critical to the effective exchange of information. Good working relationships can complement or expedite Environmental Assessment reviews and Crown consultation requirements. In addition, First Nation communities may know of sites that are culturally important and may require special historic or archaeological protection—information which could be invaluable in the early stages of identifying the proposed project site.

2.5 List of Resources

Additional resources that independent power producers may find helpful include the following:

1) **BCeID** www.bceid.ca

BCeID is an Online Service that makes it possible to securely use Government Online Services. BCeID means you don't have to remember a different Login ID and password for each different ministry's website. You can use one Login ID and password to sign in to any and all participating government sites and services.

There are two types of BCeID:

Basic BCeID Allows you to access Online Services that need to recognize your account when you return, but do not need to know who you are. To obtain a Basic BCeID there is no verification of your identity and registration is completed entirely online.

Business BCeID Allows you to access Online Services that require your verification of your business organization's unique identity or that you are acting in a business capacity as an authorized representative of the business. Business BCeID may be used by representatives of companies, partnerships, sole proprietorships or organizations including municipalities and not-for-profit societies. Additional accounts for employees can be created as required.

2) Identity authentication is offered through FrontCounter BC and Service BC offices throughout British Columbia.

Various mapping tools can be found at www.geobc.gov.bc.ca. The two main programs are:

a) **iMapBC** – iMap allows proponents to zoom into a particular area and put layers of data on top of it showing other land interests such as tenure applications, tenures, ownership information, etc.

b) **Integrated Land and Resource Registry (ILRR)** – The ILRR allows proponents to draw an outline around areas of interest and generate a land status report on the selected area. The status report lists the file number, tenure number, and agencies responsible for those interests.

3) Useful Websites:

Environmental Assessment Office (EAO)	www.eao.gov.bc.ca
Proponents' Guide for Environmental Assessment	http://www.tc.gc.ca/programs/environment/environmentalassessment/recent_publications.htm
EAO Energy Projects Info	www.qp.gov.bc.ca/statreg/reg/E/EnvAssess/370_2002.htm#part4
MoE – Water Stewardship – Water Power Applications	www.env.gov.bc.ca/wsd/water_rights/waterpower
ILMB – Crown Land Tenure	www.al.gov.bc.ca/clad/tenure_programs/cabinet/app_form.pdf
MOE – Water Power Application	www.env.gov.bc.ca/wsd/water_rights/licence_application
MOE-EPD Emission Permits	www.env.gov.bc.ca/epd/industrial
BC Parks- Park use permits	www.env.gov.bc.ca/bcparks/info/permit_overview.html
MOE – Landowners Consent Form	www.env.gov.bc.ca/wsd/water_rights/licence_application
Ministry of Forests and Range	www.gov.bc.ca/for
Municipal Governments	www.civicinfo.bc.ca
Fisheries and Oceans Canada (DFO)	www.dfo-mpo.gc.ca
Environment Canada	www.ec.gc.ca
Ministry of Energy, Mines and Petroleum Resources	www.gov.bc.ca/empr
BC Hydro Power Acquisition	www.bchydro.com/planning_regulatory/acquiring_power.html
BC Transmission Corporation	www.bctc.com
Columbia Power Corporation	www.columbiapower.org
MEMPR – Wind Power	www.em.gov.bc.ca/AlternativeEnergy/windpower/
MEMPR – Ocean Energy	www.em.gov.bc.ca/AlternativeEnergy/ocean_energy/
SEEDS Foundation	www.essentialtalk.com/public/sales/seeds/tidal/index.html
BC Energy Plan	www.energyplan.gov.bc.ca

MoE – Waste Management	www.env.gov.bc.ca/epd/waste_discharge_auth
Canadian Wind Energy Association	www.canwea.ca
Radio Advisory Board of Canada	www.rabc-cccr.ca
Association of Power Producers Ontario	www.appro.org
United Kingdom E-ON	www.eon-uk.com
Ministry of Energy – Alberta	www.energy.gov.ab.ca
Manitoba Energy Dev Initiative	www.gov.mb.ca/est/energy
Ontario	www.energy.gov.on.ca
Fortis BC	www.fortisbc.com
Powerex	www.powerex.com
BC Utilities Commission	www.bcuc.com



Construction and operating approvals

Works in and about a stream (intakes, diversion structures, dams, power houses, tailraces, bridges, culverts) are to be designed to accommodate the 1 in 200 year maximum daily flow.

Design criteria for dam spillway capacity and earthquake resistance are based on the Canadian Dam Association Guidelines and are usually more stringent.

A storage purpose water licence may be required in addition to the waterpower purpose water licence. Storage or storage purpose means the collection, impounding and conservation of water in a stream or water from a stream. The decision to require a storage purpose licence is made by WSD based on a number of considerations including the mean annual flow. A dam is defined as a barrier constructed across a stream or a barrier constructed off-stream and supplied by diversion of water from a stream. The B.C. Dam Safety Regulations (DSR) apply to dams which meet certain dam height and impounding volume capacity combinations as described in Section 2, DSR. The method of calculating "capable of impounding" under the DSR is different than the calculation of storage for a storage purpose licence. The B.C. Dam Safety Regulations also apply to dams that have a down stream consequence of failure classification under Schedule 1 of the DSR of low, high or very high. Contact the Dam Safety Officer at the WSD for further information on down stream consequence of failure classifications for proposed dams.

Water availability requirements:

Drainage boundaries, area and watershed characteristics of project stream.

Methodology used to estimate runoff.

Details of hydrometric and climatic stations used to provide data for the analysis of water availability.

Estimates of runoff:

One in 200 year maximum daily flow for each site i.e. diversion structure, powerhouse, bridge/pipeline crossing etc.

Mean monthly discharges plus a mean annual discharge at the proposed intake/diversion site: Seven day average low flow (average, 5, 10, 20 and 50).

Low flow for instream requirements and providing water for other licencees.

Maximum quantity of water to be diverted.

The results of the analysis of the availability of water for the project should be described and presented graphically to clarify the way the project will divert and use water as well as give an understanding of the impacts of the project.

Chapter 3

Independent Power Production Permitting Basics

3.1 Overview of Regulatory Requirements

This chapter endeavors to outline the basic provincial and federal statutes with which proponents must typically comply if they wish to use Crown resources and/or occupy Crown land. It lists the approvals proponents must typically secure if they wish to build and operate independent power production projects.

Because independent power production legislation, regulations, policies and requirements are evolving, proponents are urged to contact FrontCounter BC and agency representatives to obtain up-to-date information about requirements their project must meet. In addition to the approvals proponents must secure from provincial and federal resource ministries, they must also comply with provincial and federal legislation and regulations governing such matters as worker safety, taxation, soil conservation, land reserve, transportation, and industrial development.

Broadly speaking, proponents wanting to locate any part of their project on Crown land, including foreshore, must apply for and obtain tenure under B.C.'s Land Act. Any projects involving surface water require a water licence granted under B.C.'s Water Act. For wind power projects, proponents require land tenure and may need to mitigate their impact on aquatic and terrestrial fauna as well as avifauna (birds). Proponents wanting to generate power from biomass need approvals from the Ministry of Environment. For solar, ocean, geothermal and other projects, the Land Act and other approvals are required. Where projects impact site-specific and nearby forests and wildlife; mitigation may be required. Proponents wanting to clear trees, build roads, powerhouses, transmission lines or other works need approvals from the Ministry of Forests and Range, Ministry of Transportation and potentially DFO and Navigable Waters. Some projects will require a provincial and/or a federal Environmental Assessment.

Key points for independent power production proponents to bear in mind are:

- ▶ Most projects require land tenure, a water licence, and many other approvals. Approvals are required for preliminary site investigations, research studies, construction, permanent project works, transmission lines and access roads.
- ▶ Most projects create environmental impacts, which must be assessed and mitigated or managed as required. Impacts on fish, wildlife, migratory birds, habitat, navigable waters and air and water quality must be mitigated or managed.
- ▶ Getting permission to build an independent power production project is an iterative process. Legislative and regulatory requirements become clearer as project plans are developed. Proponents should be mindful of agencies' time horizons.
- ▶ Each agency makes its own decision and grants its own approvals. Proponents are encouraged to develop working relationships with agency representatives. Regulatory oversight occurs throughout the planning, design, construction, and operation of power generation projects.
- ▶ Provincial and federal agencies are working to harmonize their approval processes, but each agency must administer legislation for which it is responsible.
- ▶ Most independent power production projects are located in an established jurisdiction with established resource users meaning proponents will need to work with many other stakeholders.
- ▶ Most projects are located in or near First Nation traditional use areas, so proponents need to work with First Nations groups.
- ▶ Access to non-public lands is the project proponents' responsibility.
- ▶ Government consultation with affected stakeholders is a normal practice.

3.2 Provincial and Federal Legislation

Independent power production project proponents must comply with a host of provincial and federal laws, along with their associated regulations. For the current consolidation of BC Statutes and Regulations, please visit BC Laws at <http://www.bclaws.ca/>.

Provincial Legislation

Key provincial statutes proponents should be aware of include:

Provincial Acts	Description	WebLink to legislation	Provincial Agency
Environmental Management Act	The Environmental Management Act regulates the discharge of waste into the environment. The aim of the Act is to protect human health and the quality of water, land and air in British Columbia. The Act includes an authorization framework, enforcement options and uses modern environmental management tools. It enables the use of administrative penalties, informational orders and economic instruments to assist in achieving compliance.	www.bclaws.ca/Recon/document/freeside/--%20e%20--/environmental%20management%20act%20%20sbc%202003%20%20c.%2053/00_act/03053_00.htm	Ministry of Environment
Environmental Assessment Act	<p>The Environmental Assessment Act requires that certain major project proposals obtain an Environmental Assessment certificate before they can proceed. The types of projects that may be subject to the Act include energy, mining, industrial, water management, waste disposal, transportation, food processing, and tourist destination resort projects. There are three ways a project may be subject to review under the Act.</p> <ul style="list-style-type: none"> Where the size of a project meets or exceeds a threshold established in the Reviewable Projects Regulation, the project automatically becomes reviewable under the Act. If a project is not captured by the Reviewable Projects Regulation, a proponent may also apply to the executive director of EAO to have the Project designated as a reviewable project. The Minister of Environment also has the power to designate a project reviewable where the project is not captured by the Reviewable Projects Regulation but poses a risk of significant environmental effects and an Environmental Assessment is in the public interest. 	www.bclaws.ca/Recon/document/freeside/--%20e%20--/environmental%20assessment%20act%20%20sbc%202002%20%20c.%2043/00_02043_01.xml	Ministry of Environment

See Chapter 8 for further information..

Fish Protection Act	The Fish Protection Act enables the protection of fish and fish habitats. Four main objectives of the Act are to ensure sufficient water for fish; enable fish habitat to be protected and restored; improve riparian habitat protection and enhancement; and, give local governments greater powers of environmental planning. One major section of the Act prohibits construction of new dams on specified major rivers. Another part of the Act allows designation of sensitive streams and recovery plans. Such streams may have restrictions placed on new water licences or approvals, or amendments to existing ones until the stream has recovered or may require particular mitigation measures. Under the Act's Riparian Area Regulation the province can provide directives to local government for bylaws to require the protection of riparian fish habitat during their approval of residential, commercial, and industrial development. This includes residential buildings on land zoned for agricultural purposes. The Act includes provisions that specify that additional in stream assessment may be required for streams that have been designated as being sensitive to disruptions.	www.bclaws.ca/Recon/document/freeside/--%20f%20--/fish%20protection%20act%20%20sb%20c%201997%20%20c.%2021/00_97021_01.xml	Ministry of Environment
Forest Act	The Forest Act provides the authority to grant various licences to access or harvest Crown timber. It stipulates licence requirements for road use, timber marking and scaling requirements and the collection of stumpage from Crown timber. The Act includes provision for permission to be given to transport Crown and private timber within B.C.. The Act also establishes the "provincial forest" and certain IPP activities (such as a power station) have not been identified as compatible use within the provincial forest and the area of use may need to be deleted from the provincial forest by the Minister or deemed compatible by the Chief Forester.	www.bclaws.ca/Recon/document/freeside/--%20f%20--/forest%20act%20%20rsbc%201996%20%20c.%20157/00_act/96157_00.htm	Ministry of Forests and Range
Forest and Range Practices Act	The Forest and Range Practices Act outlines the planning requirements for forest tenure holders and forest practices requirements for roads, forest health and silviculture. The Act outlines requirements regarding the acquisition of authority to use forest service roads for industrial purposes. The Act identifies range planning requirements and protection of forest resource. It includes a comprehensive compliance and enforcement regime. Proponents working in or near forest and range lands may be subject to requirements identified within the Act. Note: The FRPA is results-based legislation that depends upon tenure holders to acquire the services of qualified professionals to help determine appropriate planning commitments and practices in the field. To assist with understanding linkages to the FPRA, the MFR has developed a document called: FRPA General Bulletin #16: Application of FRPA to Independent Power Producers, Mineral Interests and Other Occupiers of the Land (http://www.for.gov.bc.ca/hth/timten/FRPA_implementation/Bulletins.htm) which identifies a number of considerations, including some legally required forest practices that must be considered by IPP proponents.	www.bclaws.ca/Recon/document/freeside/--%20f%20--/forest%20and%20range%20practices%20act%20%20sb%202002%20%20c.%2069/00_02069_01.xml	Ministry of Forests and Range

Forest Recreation Regulation	The purpose of the Heritage Conservation Act is to encourage and facilitate the protection and conservation of heritage property in British Columbia. The Forest Recreation Regulation sets out procedures for establishing recreation orders to restrict or regulate public recreation use on Crown land to protect range or recreation resources, or to manage conflicting recreation uses. It also outlines the procedures an applicant must follow for submitting a proposal to construct, rehabilitate or maintain an authorized trail or recreation facility for public use. The regulation also details rules for the use of recreation sites, recreation trails and interpretive forest sites, describes provisions for recreation site and trail fees, and specifies enforcement actions for non-compliance with the recreation components of FRPA.	www.bclaws.ca/Recon/document/freeside/--%20h%20--/heritage%20conservation%20act%20%20rsbc%201996%20%20c.%20187/00_96187_01.xml	Ministry of Tourism, Culture and the Arts
Industrial Roads Act	The Industrial Roads Act includes provisions governing the use and linkage to public roads.	www.bclaws.ca/Recon/document/freeside/--%20i%20--/industrial%20roads%20act%20%20rsbc%201996%20%20c.%20189/00_96189_01.xml	Ministry of Transportation and Infrastructure
Land Act	B.C.'s Land Act is used by the government to allocate Crown Land to the public for various uses including the granting of land, and issuance of Crown land tenure in the form of permits, licences, leases and rights-of-way. The type of tenure proponents require varies, depending on the particulars of their proposed project. Initially, a short term permit or licence of occupation is required. When construction of the project is complete, tenure areas can be surveyed. After a lease or licence is issued, proponents can develop the land according to the stipulated criteria.	www.bclaws.ca/Recon/document/freeside/--%20l%20--/land%20act%20%20rsbc%201996%20%20c.%20245/00_96245_01.xml	Ministry of Agriculture and Lands
Local Government Act	The Local Government Act governs the actions of local governments, which play a central role in the lives of the people of British Columbia. The Act provides the legal framework and foundation to establish local governments, provide local governments with the powers and duties necessary for fulfilling their purposes, and the flexibility to respond to the different and changing needs of their communities. The Local Government Act enables local governments to establish Official Community Plans, Zoning Bylaws, Development Permit Areas, as well as Temporary and Commercial Use Permits. Proponents may have to apply to local governments for permits and approvals.	www.bclaws.ca/Recon/document/freeside/--%20l%20--/local%20government%20act%20%20rsbc%201996%20%20c.%20323/00_act/96323_00.htm	Ministry of Community Development
Park Act	The Park Act is designed to protect parks, nature conservancies, ecological reserves, recreation areas, and other designated areas. Parks and protected areas are managed for important conservation values and are dedicated to the preservation of natural environments for the inspiration and enjoyment of the public. The Park Act prohibits hydroelectric power generation, mining and commercial logging within these areas. The Act is relevant to proponents wanting to locate projects in or near a designated park, nature conservancy, recreation area, ecological reserve, or other area.	www.bclaws.ca/Recon/document/freeside/--%20p%20--/17_park%20act%20%20rsbc%201996%20%20c.%20344/00_96344_01.xml	Ministry of Environment
Range Act	The Range Act identifies the planning and tenuring requirements of Crown range land. If projects are located on or near lands of interest to existing range tenure holders, proponents are required to confer with these people during the consultation phases of the project's development. The Act includes compensation provisions proponents should be aware of.	www.bclaws.ca/Recon/document/freeside/--%20r%20--/range%20act%20%20rsbc%202004%20%20c.%2071/00_04071_01.xml	Ministry of Forests and Range

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Transportation Act	The Transportation Act includes provisions governing the use and linkage to public roads.	www.bclaws.ca/Recon/document/freeside/--%20t%20--/transportation%20act%20%20sbc%202004%20%20c.%2044/00_04044_01.xml	Ministry of Transportation and Infrastructure
Water Act	The Water Act vests ownership of the water in streams in B.C. in the provincial government. The Water Act regulates the diversion, use and storage of water from streams, as well as changes (works and activities) in and about streams for which an approval is required unless otherwise covered by the Water Regulation. (Under the Water Act, springs, lakes, swamps and other surface water sources are defined as streams.) The direct collection and use of rain water or the use of ground water is not licensed under the Water Act. However, ground water well drilling and related activities are regulated under the Act and the Ground Water Protection Regulation. A water licence provides for the diversion and use or storage of a designated quantity of water for a specific purpose and permission to construct associated project components such as a powerhouse, penstock, intake structures, transmission lines, roadways and construction staging areas and to undertake changes in a stream. Approval is required if the project will cause changes in or about a stream. Works defined as dams are regulated under the Dam Safety Regulation.	www.bclaws.ca/Recon/document/freeside/--%20w%20--/water%20act%20%20sbc%201996%20%20c.%20483/00_96483_01.xml	Ministry of Environment
Water Protection Act	Under the Water Protection Act the vesting of the property rights in ground water in the provincial government is confirmed. Also, the Act prevents the removal of water in bulk (greater than 20 litre containers) from the Province and prevents the large scale transfer of water between major watersheds within B.C..	www.bclaws.ca/Recon/document/freeside/--%20w%20--/water%20protection%20act%20%20sbc%201996%20%20c.%20484/00_96484_01.xml	Ministry of Environment
Wildfire Act	The Wildfire Act and Wildfire Regulation come into force if construction work occurs within 1 km of forest land or grassland. The act and regulation require that fire control equipment and trained personnel be on site and steps are taken to abate fire hazards, cease work if weather conditions are adverse, and get permission to burn wood waste, fire hazards and debris. Proponents may be held responsible for the costs of failing to control a fire caused by an industrial activity.	www.bclaws.ca/Recon/document/freeside/--%20w%20--/wildfire%20act%20%20sbc%202004%20%20c.%2031/00_04031_01.xml	Ministry of Forests and Range
Wildlife Act	The Wildlife Act is administered by Wildlife Management Programs within MOE-ESD. Wildlife Management staff seek to maintain and manage wildlife, habitat and sustainable uses by balancing human use of wildlife with conservation. Conservation lands (please see http://www.env.gov.bc.ca/bcparks/conserves/cons_lands/cons_lands.html#wma) for wildlife and fish give priority to the conservation of wildlife, fish and their habitat, while often providing for other resource uses. Of particular interest to proponents are Wildlife Management Areas (WMA) which are lands designated under the Act where conservation and management of wildlife, fish and their habitats is the priority for management. The Ministry of Environment must provide consent for use of land or resources in the WMA. Proponents may be requested to avoid the WMA or mitigate for any impacts or the ESD Regional Manager may prohibit access to a WMA by issuing an Order as allowed under the Act.	www.bclaws.ca/Recon/document/freeside/--%20w%20--/wildlife%20act%20%20sbc%201996%20%20c.%20488/00_96488_01.xml	Ministry of Environment

Federal Legislation

Federal legislation with which independent power production project proponents must typically comply includes:

Federal Acts	Description	WebLink to legislation	Federal Agency
Canadian Environmental Assessment Act (CEAA)	The <i>Canadian Environmental Assessment Act</i> ensures that the environmental effects of projects are carefully reviewed before federal authorities take action in connection with them so that projects do not cause significant adverse environmental effects; encourages federal authorities to take actions that promote sustainable development; promotes cooperation and coordinated action between federal and provincial governments on Environmental Assessments; promotes communication and coordination between federal authorities and Aboriginal peoples; ensures that development in Canada or on federal lands does not cause significant adverse environmental effects in areas surrounding the project; ensures that there is an opportunity for public participation in the Environmental Assessment process.	laws.justice.gc.ca/en/showtdm/cs/C-15.2	Environment Canada
Fisheries Act	The <i>Fisheries Act</i> is administered jointly by Fisheries and Oceans Canada (DFO) and Environment Canada (EC), the purpose of this Act is to conserve and protect Canada's fisheries resources, including fish habitat. (Responsibility for the administration and enforcement of the habitat provisions of the Fisheries Act is assigned to the DFO Habitat Management Program, while Environment Canada is responsible for those provisions concerned with protecting those values from the deposit of deleterious substances.) The Act applies to fisheries and fish habitat within Canada, which may be found in ditches, channelized streams, creeks, rivers, marshes, lakes, estuaries, coastal waters and marine offshore areas, as well as in seasonally wetted fish habitat such as shorelines, stream banks, floodplains, intermittent tributaries and wetlands. The Act establishes numerous specific requirements concerning the management and conservation of fish and fish habitat. In general terms, the Act establishes four overarching requirements and prohibitions: <ul style="list-style-type: none"> • prohibits the killing of fish by means other than fishing; • prohibits the harmful alteration, disruption or destruction (HADD) of fish habitat; • prohibits the deposit of deleterious substances into waters frequented by fish, and; • requires the provision of sufficient flows below obstructions for the descent and safety of fish. DFO reviews projects to evaluate the potential impact to fish and fish habitat. The project proponent is responsible for avoiding the HADD. In certain circumstances, DFO may issue authorizations to enable a HADD to proceed provided that appropriate mitigation measures are in place and habitat compensation is provided. Authorizations will trigger a concurrent Environmental Assessment under CEAA. The Act contains provisions for stiff fines and imprisonment for offences.	laws.justice.gc.ca/en/showtdm/cs/F-14	Fisheries and Oceans Canada, Environment Canada

Migratory Birds Convention Act	The <i>Migratory Birds Convention Act</i> prohibits the unauthorized taking or killing of migratory birds, their nests and eggs, and the deposition of harmful substances in areas frequented by migratory birds. In general, the Environmental Assessment (EA) report should consider impacts to migratory birds and their habitats, and propose measures to mitigate adverse environmental effects. Project-related impacts have the potential to occur during construction, operation, and/or decommissioning.	laws.justice.gc.ca/en/showtdm/cs/M-7.01 Environment Canada
Navigable Waters Protection Act	The <i>Navigable Waters Protection Act's</i> primary purpose remains the protection of the public right of navigation. The Act is applied to many types of projects in all navigable waterways and coastal areas across Canada. An NWPA Approval is required for any works placed on, over, under, through or across navigable waters that may result in a substantial interference to navigation. The potential to affect navigation on waterways can occur through the placement of project components such as intake diversion weirs/dams (including inflatable or fixed weirs) and tailrace structures in navigable waters, or through changes to water flow along diversion reaches that are sited in navigable waters. Bridge crossings along access roads and transmission line crossings also have the potential to affect navigation.	laws.justice.gc.ca/en/showtdm/cs/N-22 Transport Canada
Species at Risk Act (SARA)	The <i>Species at Risk Act</i> (SARA) is designed to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened. Under SARA, habitat requirements and anticipated level of harm to species at risk must be considered before authorization to construct and operate an independent power production project can be granted. As a rule, federal authorities will not authorize the harming or killing of listed species at risk or the damage or destruction of critical habitat or species' residences.	laws.justice.gc.ca/en/showtdm/cs/S-15.3 Environment Canada



Understanding Crown Land Tenures

There are many forms of Crown Land tenure government can grant independent power producers. Different tenures are granted at different times for different purposes, as explained below or online at http://www.al.gov.bc.ca/clad/leg_policies/policies/Crown_land_allocation.pdf. Further information on Crown Land Policies is available from FrontCounter BC or at www.al.gov.bc.ca/clad/land_prog_services/policies.html

Investigative Use Permit

During the preliminary phase of an independent power project, an investigative permit allows proponents to access Crown land and begin studying the area in which they plan to build their project. The permit allows proponents to access Crown land but does not allow the construction of any improvements on the land. Investigative Use Permits are usually for a two year term.

Temporary Permit

Temporary permits grant the right to carry out specified activity(s) for a short term. They are issued for one-time events, sustained or repeated Crown land usage, where a business is better served by a permit than a licence of occupation.

Works Permit

Works permits may be issued for the construction of a road, non-commercial airstrip, bridge, or trail. Works permits do not entitle holders to deny to other people the right to use the road, non-commercial airstrip, bridge or trail.

Licence of Occupation

A licence of occupation may be issued where minimum improvements are proposed. A licence of occupation may also be issued where it is in the best interest of the Crown to allow high demand areas or parcels to be used by a variety of users.

Lease

A lease should be issued where long term tenure is required, where substantial improvements are proposed, and/or where definite boundaries are required in order to avoid land use and property conflicts.

Right of Way

A statutory right of way is normally granted to authorize linear uses of Crown land for transportation, communication, energy production and utility developments (e.g. roads, power lines, cable telecommunications, oil and gas pipelines etc.). Applicants must pay for a legal survey to define the tenured area. A Right of Way may be issued for a term consistent with the terms of the Electricity Purchase Agreement.

Easement

An easement is a right to do something, or to prevent something from being done, on one parcel of land (the "servient tenement") which benefits another parcel of land (the "dominant tenement").

3.3 Commonly Required Approvals

Depending on the scope and nature of a proposed independent power production project, a number of provincial, federal, regional and local agency authorizations may be required. At different times during the development of an independent power production project different approvals are required. Some approvals can be obtained concurrently, which expedites the approval process. (Additional information on concurrent approvals such as the EAO Certificate is provided in later chapters.)

To make it clear which approvals should be sought in what order, required approvals, licences and permits are sorted into the three phases associated with project development:

1. pre-construction
2. construction
3. post-construction

Licences, permits and approvals that proponents typically require and the order in which they are required are outlined below.

1. Pre-construction Approvals

Before any work can begin, proponents typically need to get two key approvals:

- 1) Crown land tenures - If the proponent requires the use of any Crown land in connection with the project then the proponent must apply for the appropriate form of Crown land tenure. This applies even if the proposed use of the Crown land is merely to conduct studies or other investigations in advance of construction. A Crown land tenure may also be required to provide the proponent with an interest in land as required to support the issuance of a water licence.
- 2) Water Licences - These are required from the Ministry of Environment's Water Stewardship Division if water is being used or diverted for power generation purposes.

Forms of Crown Land Allocation procedure:

http://www.al.gov.bc.ca/clad/land_prog_services/programs.html

Application Requirements for a Water Licence:

www.env.gov.bc.ca/wsd/water_rights/licence_application/cabinet/app_requirements_water.pdf.

Investigative use permits are required as the preliminary step for wind power and ocean energy projects however they are not currently required for waterpower projects. Proponents of waterpower projects at the pre-construction stage will usually apply for a general area Licence of Occupation in order to be able to apply for a water licence. Proponents are also encouraged to apply for an investigative use permit at the same time as the general area licence.

2. Project Construction Approvals

A Land Act tenure is required to allow for improvements to be constructed on the Crown land base. Tenure types include a Licence of Occupation, General Licence of Occupation, Lease, and Rights of Way.

Once proponents have decided to proceed with the development of a project, a General Area Licence of Occupation may be issued for projects having an electricity purchase agreement (EPA) for the term of the EPA or, if no EPA exists, for 10 years. The area encompassed by the licence should account for the footprint of all improvements (powerhouse, penstock, intakes, etc.) as well as the land required for staging, and the location, construction and installation of improvements.

Tenure holders of a general area licence may request separate tenures be issued for various improvements at any time during the term of the general area licence to reduce the footprint of the general area licence tenure. If multiple tenures are requested, the general area licence should be amended to exclude these areas. After construction is complete, the size of the general area tenure licence should be reduced to eliminate additional land which is not required for future expansion.

The following is a very brief summary of some of the different types of approvals which become relevant at the construction stage, including the different types of Crown land tenures noted in the introduction to this section.

What Difference Does an Electricity Purchase Agreement Make?

Independent power production project proponents may need, at some point, to negotiate and secure a power sales contract. Most such contracts are with BC Hydro. They're called Electricity Purchase Agreements (EPA). Proponents may proceed with efforts to secure all the project construction related approvals they require, regardless of whether they have an EPA or not.

For proponents that have already secured an EPA, the General Area Licence of Occupation remains the same. The duration of the licence may be the same as the term of the EPA and has the same expiry date. In addition, the licence requires that all project works and improvements be constructed by the commercial operation date specified in the electricity purchase agreement. The Development Plan must detail these dates and actions being taken to meet EPA deadlines and it remains in full force and effect in subsequent tenures.

Proponents who have not secured an EPA, are required throughout the duration of the term of the tenure to annually demonstrate due diligence in the pursuit of an EPA, participation in a standing offer program, or some other power sales opportunity. The General Area Licence of Occupation is for 10 years. The Development Plan must detail efforts being made to secure an electricity buyer, a condition that remains in full force and effect in subsequent tenures.

A **Provincial Environmental Assessment Review** is required if the proposed project will generate 50 megawatts or more of electricity. Transmission lines that are 500 kilovolts or higher and 40 kilometres or more in length on a new right of way also require an Environmental Assessment review.

An **Environmental Assessment Certificate** is issued following successful completion of a B.C. Environmental Assessment review. Provincial approvals for project development cannot be issued before completion of the EA certificate for applications going through the EAO approval process.

A **Federal Environmental Assessment** of the project is required if it requires a regulatory decision, such as an issuance of a Fisheries Act authorization or Navigable Waters Protection Act approval. The project receives federal funding (ecoENERGY), if it occurs on federal lands (e.g.: an Indian Reserve), or is proposed by the federal government.

An **Authorization under the Fisheries Act** is required from Fisheries and Oceans Canada if the project or works will result in the harmful alteration, disruption or destruction of fish habitat, or will result in killing fish. For more information about provincial and federal Environmental Assessment Review processes see Chapter 8.

A **Water Approval** from the Ministry of Environment's Water Stewardship Division may be required for work in or about a stream. More than one approval may be required.

A **Mineral Reserve** from the Ministry of Energy, Mines and Petroleum Resources is required if proponents want to prevent mining claims from being staked in or near their project. If claims have already been staked, proponents must consult claim holders, regardless of whether claims are active or inactive. This should be obtained

early in the process.

A **Leave to Commence Construction** is required as a condition of the water licence from the Ministry of Environment's Water Stewardship Division. If construction activities include a dam, which falls under the Dam Safety Regulation, there are specific Dam Submission guidelines which must be met as per the regulation.

An **Approval**, prior to construction, from Transport Canada is required for any work built or placed in, on, over, under, through or across any navigable water.

An **Occupant Licence to Cut (OLTC)** from the Ministry of Forests and Range is required if the project involves the harvesting or cutting of timber on Crown land (to clear land, build or modify any roads/trails, or construct improvements such as buildings or other facilities). An OLTC also proves proponents have the authority to occupy the land on which they're working.

A **Road Use Permit** from the Ministry of Forests and Range is required for industrial use of a forest service road. Road Use Permits (RUP) are only issued for forest service roads licenced for industrial use.

A **Works Permit** from the Ministry of Forests and Range is required for carrying out works within a Forest Service Road right-of-way (70 m), such as clearing for transmission lines, installation of penstocks for waterpower projects or road realignment and widening for safety reasons.

For forest roads other than forest service roads, Road Permits (RP) are issued to forest industrial users, which are always forest tenure holders.

A **Third Party Road Use Agreement** with current road users and permit holders is required to spell out details regarding use requirements, road sharing, and maintenance

costs. Road Use Agreements are between Road Permittees and third party industrial users. There is little or no MFR involvement in these agreements. Road maintenance agreements can be entered into with nonindustrial users of a forest service road, such as a local ski club.

A **Highway Access Permit** from the Ministry of Transportation and Infrastructure is required if roadways or driveways required to access IPP works connect to provincial highways or other secondary roads.

A **Works Permit** from the Ministry of Transportation and Infrastructure is required if construction or works will impact any highways or secondary roads.

A **Road Statutory Right-of-Way** is issued by ILMB for roads that need to be constructed in and around the worksite. The maximum term is 10 years with an expiry date identical to that of the general area licence.

A **Road Works Permit** may be issued by ILMB for roads and roadwork. The maximum term for a works permit is two years. Although works permits can be issued, a licence or statutory right-of-way is preferable.

A **Road Licence of Occupation** may be issued instead of a works permit. It, too, has a maximum term of 10 years and the same expiry date as the general area licence.

A **Statutory Right of Way** is normally issued by ILMB to authorize linear uses of Crown land for transportation, communication, energy production and utility developments. Tenure holders are granted a legal right of passage over specified land for specified purposes. Rights of way for IPP projects without an Electricity Purchase agreement are generally issued for a maximum of 10 years, otherwise the term is generally consistent with the energy purchase agreement. They do not generally confer the right to exclusive use of the area. Applicants are required to pay

for a legal survey to define the tenured area and the survey is registered in the Land Title Office.

A **Powerhouse Licence of Occupation** may be provided for powerhouse sites. Such licences are only good for 10 years and their expiry date is identical to that of the general area licence. Alternatively, a **Powerhouse Lease** may be issued for powerhouse sites if long term tenure is required, where substantial improvements are proposed, and/or where definite boundaries are required in order to avoid land use and property conflicts. Proponents must pay to have the land in question surveyed. Such leases give holders the right to modify the land and/or construct improvements as specified. Subject to certain reservations and exceptions, lease holders are granted the right to exclusive use and enjoyment of the area.

A **Linear Components Licence of Occupation** may be issued for linear components such as penstocks, with or without the intake. They may also be issued for the intake site. The maximum term is 10 years and the expiry date must match the general area licence. Once the area is surveyed, separate longer term tenures will be issued.

An **Intake Structure Licence of Occupation** may be issued for the intake site if not already included with the tenure for the penstock. The maximum term is 10 years and the expiry date is identical to that of the general area licence.

A **Communications Site Licence of Occupation** may be issued for communication sites, in addition to a general area licence of occupation. Maximum tenure is 10 years and the expiry date is the same as the general area licence.

If material is needed to construct a project, a **Quarry Licence of Occupation** for aggregate purposes is issued separately from and in addition to a General Area-Licence of Occupation. Tenure terms are defined by the province's Aggregate and Quarry Materials policy.

Gravel use is subject to royalty payments if:

- i) gravel is removed from a quarry;
- ii) gravel is used in the production of concrete; and
- iii) gravel is moved from its original position and used in another location in the tenure area.

Gravel use is not subject to royalty payments in the following circumstances:

- i) gravel used to build and maintain public roads; and
- ii) gravel located immediately beneath the tenured area of the intake, penstock, powerhouse, not used in concrete production and ultimately used in the same position (i.e. penstock bedding).

An **Archaeological or Heritage Site Conservation Permit** is issued from the Ministry of Tourism, Culture and the Arts if a project is located at or near an archaeological or historic site.

An **Archaeological Overview Assessment** may be required if First Nation rights or title issues exist at or in the vicinity of the proposed project.

Approval from Indian and Northern Affairs Canada for construction of any works on or over an Indian Reserve.

Re-zoning from local or regional government authorities may be required, subject to Sec. 121 of the Utilities Commission Act, if the project involves the use of land for a purpose that differs from current local zoning on that property.

A **Building Permit** and **Set Back Requirements** from local government.

A **Right-of-Way** is required from ILMB for transmission lines that cross Crown land. If transmission lines cross private land, it is up to the proponent to work with the private land owners to secure access.

A **Land Tenure** is required for wind turbine installations meeting Set Back Requirements in the Crown Land Tenuring Policy.

A **Permit** is required from the Ministry of Transportation if transmission lines are to be installed along a pre-existing highway corridor.

An **Easement** or **Statutory Right of Way** will be required from private property owners if project works or transmission lines will cross or physically affect their properties. Agreements with property owners for such purposes will be detailed, in writing, and registered in the Land Titles Registry Office against the properties concerned.

A **Park Use Permit** or **Resource Use Permit** is required if projects are in, near or any aspect of their works (roads, transmission lines, etc.) pass through a park, nature conservancy, recreation area or designated area.

Clearance from Transport Canada's Aerodromes and Air Navigation Branch is required to confirm that Aeronautical Obstruction Clearance requirements concerning air safety, lighting and/or markings have been fulfilled.

Permission to Commence Operations if a condition of the water licence, is required from Water Stewardship Division to operate a completed power generation works.

3. Post Construction Requirements

Once the main components of an independent power production project are constructed and the land area improvements are situated on has been surveyed, specific long term tenures are issued as required.

A long term **Crown Land Lease** is required for the various works of each project on the Crown land they occupy.

A **Powerhouse Lease** from ILMB is issued for the land on which the powerhouse is constructed.

An **Intake Structure Lease** is issued by ILMB for the intake structure. Structures must be legally surveyed, at applicants' expense, to define tenured areas. The maximum term for such leases is 10 years with the expiry date matching that of the general area licence. Longer term tenures will be issued once the area is surveyed.

A **Right-of-Way** is issued by ILMB for penstocks and transmission lines that permanently occupy Crown land.

A Licence is issued by ILMB for roads that permanently cross Crown land.

Submission of annual **Operational & Environmental Monitoring Program (OEMP)** reports may be specified as a condition of the water licence granted by WSD.

A **Disposal at Sea** permit from Environment Canada for disposal of approved materials and potentially for trenching of undersea transmission cables for cable approaches.

A **Soil Removal Permit** from the B.C. Agricultural Land Commission if the site is within the Agricultural Land Reserve.

A **Mineral Reserve** from the Ministry of Energy, Mines and Petroleum Resources if proponents want to prevent mining claims from being staked in or near their project. If claims have already been staked, proponents must consult claim holders, regardless of whether claims are active or inactive.

A **Waste Discharge Permit** from the Ministry of Environment if wastes are to be discharged.

Decommissioning Responsibilities

Independent power production projects are expected to have a life span of 10 to 50 years. If a project is not completed, is shut down, or needs, at the end of its life, to be decommissioned, proponents are legally liable and responsible for site remediation. In the event that any tenures are not renewed, the site must be decommissioned by the tenure holder as per the terms and conditions of the tenure document, unless different arrangements are negotiated with the Crown. The length of time required to complete the decommissioning is project specific.

Decommissioning of authorized instream works under the Water Act will require approval of the Water Act engineer or a dam safety officer, if a dam is involved.



Chapter 4

Stages in Successful Project Development

Although each independent power production project is unique, the process involved in developing a project and obtaining all the approvals required is similar for all projects. The following Stages in Project Development are intended to provide proponents with an overview of how the application process proceeds and what specific requirements are expected at each stage. Subsequent chapters discuss specific types of independent power production projects. The six stages below are common to every application process.

Stage 1	<i>Project Site Identification and Application Preparation</i>
Stage 2	<i>Application Submission and Acknowledgement</i>
Stage 3	<i>Dialogue And Project Description</i>
Stage 4	<i>Completion And Submission of Development Plan</i>
Stage 5	<i>Initial Authorizations</i>
Stage 6	<i>Final Decisions Approvals and Authorizations</i>

These stages have been developed in a way that acknowledges the uncertainty both independent power project proponents and regulatory agencies must manage. Because of the uncertainty associated with independent power project development – including technical and financial concerns as well as regulatory requirements – proponents often opt to invest relatively small amounts of time and money during the preliminary conceptual phase of a project's development process. From a business point of view, it makes sense to wait until early studies demonstrate the project is viable before investing the substantial funds required to gather all the data required by approving agencies. On the other hand, regulatory

agencies need fairly detailed information to adjudicate applications. Statutory decision makers tasked with issuing approvals need to be able to determine whether proponents of a specific project will be able to fulfill all the obligations stipulated in all the applicable legislation. The uncertainty which characterizes the independent power project approval process leads to a situation in which both proponents and regulatory agencies need to work together to identify issues during the formative stages of the project development process. They can then study and discuss how best to manage these issues as the project proposal makes its way through the approval process.

Applying for and obtaining all the approvals required to build and operate an independent power production project is an iterative process. Each stage is meant to build on the previous stage. Checklists developed by regulatory agencies aim to maintain consistency, improve overall review efficiency, and provide for quality assurance. The application process begins with initial applications, proceeds to a Project Description, and culminates with submission of a Development Plan. If approved, required approvals will be issued by regulatory agencies which have jurisdiction over the many different aspects of an independent power production project.

Stages outlined below are meant to serve as a guideline only. Specific stages and requirements can vary depending on the type of project being proposed, the region in which it is located, affected species and the type of impacts, and other project-specific details.

4.0 Project Stages

NOTE: The CEAA process can occur between Stages 2 through 5. However, proponents are encouraged to apply as early as possible.

REMEMBER: that a single project may have several triggers for federal Environmental Assessment and that the triggers may rest with separate federal departments making them Responsible Authorities. The federal coordination regulations ensure that a single federal EA is done to address all of the federal EA requirements.

4.1 Project Site Identification and Application Preparation

Goal

Following the identification of a viable project site, the proponents' goal is to prepare an application for a land tenure and, if necessary, a water licence. (If Crown land is not being used, proponents should secure ownership of required private lands or agreement to use them.)

Comments

This is the beginning stage, in which proponents determine whether they are interested in developing an independent power production project.

What's Involved

- ▶ Read this guidebook.
- ▶ Evaluate the project's viability, including conceptual, technical and financial aspects.
- ▶ Develop an independent power production project concept plan, complete with feasibility and financing assessments.
- ▶ Consider potential environmental, social and permitting aspects of the project.
- ▶ Contact FrontCounter BC with any general questions.
- ▶ Collect information regarding application forms and supplementary information as necessary.
- ▶ Determine which agencies you need to contact if you proceed.
- ▶ Identify agency representatives and other stakeholders to liaise with.

Upshot

Proponents decide whether or not to apply for required approvals with an understanding of most critical issues entailed in the development of their envisioned project.

4.2 Application Submission and Acknowledgement

Goal

The goal of this stage is to provide FrontCounter BC with a straightforward application so that your interest in developing an independent power production project can be formally acknowledged.

Comments

This is the beginning step in which proponents determine whether or not they are interested in starting down that potentially lengthy and expensive process to take an independent power production project from concept to operation. This stage is all about getting the process going.

Submitting an application to FrontCounter BC triggers the creation of a Land Act file number and a Water Act file number (as required). It is important to remember that at this stage not all agencies will open a file. For example, provincial and federal agencies which may require that an Environmental Assessment be conducted will not open a file at this point. Transport Canada will open a file when it receives the preliminary referral from FrontCounter BC and a request for information is sent to Navigable Waters Protection Division. Based on the information provided, DFO may initiate a review under the Fisheries Act.

At this stage in the submission process, it is important that proponents understand which issues are critical to the development of a specific project and ensure these issues are identified in their application. Proponents are also encouraged to review legal requirements for applications. For example, the Water Regulation identifies what must be included in a water licence application. While it is prudent to undertake some work related to these issues before submitting an application, extensive work beyond identifying potential issues often has limited benefit at this point in the process. However, proponents must keep in mind that more complete information presented at the beginning of the application process will expedite receipt of the Acknowledged Statement of Intent.

Application packages should include:

- Completed application forms
- Certificate of incorporation
- Title certificates and legal plans
- Project Scope (preliminary project definition)
 - Sections the project scope should include are an Executive Summary, Proponent Identification, Project Concept, Capacity of Project, Linkages with other Projects, Market for Electricity, and Schedule for Completion of Project and addressing any impacts
- Application fees

What's Involved

- ▶ Submission of a land and/or water (if required) application(s) to FrontCounter BC.
- ▶ FrontCounter BC checks application to ensure it meets specified quality standards and provides sufficient detail. Staff check with land and water officers to ensure application is complete and acceptable.
- ▶ FrontCounter BC completes preliminary status report, noting known show stoppers or conflicts.
- ▶ After full status completed, notification or "heads up" referrals including application documents and Project Scope are forwarded to relevant federal and provincial regulatory agencies, third parties and First Nations, as required.
- ▶ Applications are forwarded to the Integrated Land Management Bureau (ILMB) for permission to use Crown land and the Ministry of Environment's Water Stewardship Division, if water is involved. Submission of these applications initiates the adjudication process and assists in the establishing of priority dates.
- ▶ Applicants are expected to provide the necessary information as outlined in the application form.
- ▶ Applications must provide basic information and requirements as defined by agency policies (the application fee, legal plans, maps, a Certificate of Incorporation). Details regarding these requirements are available at FrontCounter BC's website.
- ▶ At this point, applicants are not likely to apply to FrontCounter BC or other agencies for the approvals

though it is recommended that discussions with these agencies take place to begin the mitigation of any possible concerns. Proponents are advised to contact the FrontCounter BC staff to confirm the completeness of their application so agencies receiving ‘heads-up’ referrals can flag potential issues.

- ▶ Upon receiving notification of the water licence application from FrontCounter BC, agencies, First Nations and third parties may respond with approval requirements, information, concerns or requests for more information. (For example, Fisheries and Oceans Canada sends a letter to proponents which includes guidance and a short “Project Review Information Requirements” form which outline basic application information required for federal approvals.)

What happens

- ▶ FrontCounter BC reviews applications for completeness.
- ▶ FrontCounter BC enters details regarding application proposal into the Crown Land database.
- ▶ FrontCounter BC sends applications out for preliminary referrals to advise agencies and First Nations with interests in the area that an application has been received.
- ▶ Relevant regulatory agencies review the Application and provide brief initial comments, to assist proponent in meeting objectives for legislative requirements.
- ▶ Agencies, third parties and First Nations send comments back to FrontCounter BC
- ▶ FrontCounter BC collects all referral agency comments and forwards them to proponents.
- ▶ Proponents are instructed to stake and advertise and contact existing tenure holders/applicants if required.

Upshot

At this point there are no approvals or permits from provincial agencies. It is clearly stated in the acceptance letter that it serves ONLY as confirmation of acceptance of the application package and does not imply a water licence or a land tenure will be offered. It also does not give any authorization to occupy or use Crown land under application.

A Note about Environmental Assessments

(see Chapter 8 for further information):

Although the B.C. Environmental Assessment and/or the Federal Environmental Assessment processes may not be required at this stage, proponents may determine whether an Environmental Assessment is likely to be needed through consultation with federal agencies and the provincial Environmental Assessment Office.

Note: The B.C. Environmental Assessment process is not “triggered” in the same way that the federal process is. Whether or not an EAC will be required for the project is determined first by reference to the Reviewable Projects Regulation.

Information on the Environmental Assessment processes and requirements can be obtained from:

1. **CEAA** www.ceaa-acee.gc.ca
2. **EAO** <http://www.eao.gov.bc.ca/FAQ.html>

Within the Federal CEAA Review Process, the completed Project Description, along with Federal information requirements, are submitted to Federal agencies for CEAA review.

Changing Plans

Development of an independent power production project can at times require plan changes. Provisions exist that allow proponents to modify their plans as they discover and surmount challenges or find better ways of managing their projects.

Proponents are encouraged to do careful research, including preliminary studies and assessments, to determine how much land they need for their project before applying for tenure because revisions and amendments are costly, time consuming, and confusing for stakeholders involved.

Application revisions fall into two categories: minor and major.

For minor application revisions (pre-tenure) that involve minor adjustments to the proposed works within the general area there is no fee. Changes related to tenure, insurance, security and bonds, legal description, and minor extensions to the term of the disposition to meet survey requirements are considered as a minor amendment with an associated charge as stated in the Crown land fee regulation.

Major application revisions are those that require new referrals to agencies and consultation with First Nations. Major revisions require a new application and payment of specified fees. Examples of major revisions would be the addition of new land, adding another powerhouse or moving the transmission line to the other side of the creek. Additions of new land outside of the original general area require a re-status to check for existing tenure holders and potential land interest conflicts.

Proponents requesting an application revision should submit a letter to FrontCounter BC summarizing why changes are needed, a new project description and summary, revised shapefiles (a set of files that contain a set of points, arcs, or polygons (or features) that hold tabular data and a spatial location), and revised application forms.

4.3 Dialogue and Project Description

Goal

The goal is to provide proponents with the opportunity to discuss their project with agencies, refine their project plans, and reach a common understanding of the Project Description prior to formal submission of their Development Plan.

Comments

Proponents sometimes submit incomplete Development Plans without adequate information and detail. In order for statutory decision makers to review Development Plans in a timely, efficient manner, precise information is required. It is in proponents' and approving agencies' best interests that proponents' Development Plans meet agencies' quality standards.

Asking proponents to submit, revise, and resubmit their Development Plans repeatedly is inefficient and costly. Agencies can not make decisions and meet their statutory obligations if the information provided is inadequate or inaccurate. Also, as analysis progresses, it may prove necessary to request additional information. On the other hand, if reviewing agencies keep asking for additional information, proponents may need to spend significant time and money to collect missing information. Some agencies have developed checklists for 'Preliminary Project Descriptions' to allow for expedient agency review and to provide proponents with early identification of priority issues to be addressed in the Development Plan. Proponents are not required to submit a Preliminary Project Description, but are strongly encouraged to do so.

In addition, proponents with atypical or complex projects are strongly encouraged to contact and work with agency personnel throughout the process of gathering the required data and preparing their Development Plan. Discussion with officials gives proponents the opportunity to ensure that they are collecting all the necessary information for their Development Plan to address the requirements of all the agencies which grant approvals. However, proponents must be aware that staff from agencies without decision-making responsibility can not provide requirements which may subsequently fetter decision-makers. It is important for both parties to maintain neutrality in dealing with applications so there is no sense of a foregone conclusion based on what is discussed. In such situations, advice provided by advisory agencies is presented in the form of recommendations rather than requirements.

Ongoing dialogue enables proponents to seek clarification regarding the specific information agencies require. Through Development Plan checklists and discussions with agencies, proponents can plan their data collection efficiently, saving time and money. Through dialogue, decision makers and proponents can identify and discuss what is needed to complete and present a comprehensive Development Plan. When proponents submit their Development Plan, they can be confident that agencies will not reject their plan because inadequate information and detail were submitted.

Roundtable Process

Proponents can create a Roundtable and invite regulatory agency representatives to attend all-party meetings. All-party meetings foster improved communication and collaboration. If an application is not put into abeyance, FrontCounter BC may request a roundtable meeting with proponents and agencies involved in the referral and approval granting process. Roundtable forums enable proponents to meet the agency contacts, discuss the project and lay a solid foundation for the drafting of their Development Plan. However, agency participation in any given Roundtable Process is dependent on staff capacity, and some agencies may choose to not participate unless information requested in the Preliminary Project Description is provided.

Each agency may seek slightly different information in the Preliminary Project Description, but it will generally include details (including maps) regarding land requirements, access routes, requirements for project construction & operation; general information on environmental & social values in the project area (e.g. historic sites, biology, ecology, hydrology & geomorphology), and the likely project-related effects on these environmental and social values. Different information is needed by federal and provincial governments to determine if an EA is required. In order to determine if an EA is required under CEAA, a proponent should refer to the Project Description Guide: British Columbia to determine federal roles under the CEAA. (CEAA Agency, 2007).

Proponents that are proposing projects that are reviewable under the B.C. Environmental Assessment Act (see Chapter 8) and meet the thresholds in the Reviewable Projects Regulation need to contact the Environmental Assessment Office.

Preliminary Project Descriptions should expand upon those items required for the accepted Application Package and include:

- Proponent (company) information.
- A project overview explaining the type of project envisioned and potential power the project will generate.
- Details regarding land requirements, access routes, project construction requirements and plans, works to be constructed, transmission lines, etc.
- Maps, plans and drawings with sufficient detail to meet agencies' quality standards.
- General information on the biology and ecology, hydrology and geomorphology of the area.
- Current site uses including details about existing flora, fauna, people, historic sites, and other industries.
- Possible environmental and social impacts and risks and potential mitigative measures (Note: One of the CEAA triggers is if there will be federal permits or authorizations required for the project. This question may not be readily answered without more detailed fish habitat impact assessment information).
- Federal involvement due to land ownership or use, and regulatory requirements (summary of potential permits, licences, authorizations etc.).
- Additional information that explains the proposal and its merits.
- Matters of potential relevance to federal authorities (e.g. First Nations issues, public concerns, controversy, uncertainty).

What's Involved

Proponents are advised to:

- ▶ Complete a Preliminary Project Description to define the technical aspects of the project with sufficient clarity to allow technical specialists to understand the scope and detail of studies needed to meet legislative requirements. This will include gathering and analysis of scientific and technical data related to the proposed project and impacts.
- ▶ Consider initiating discussions with First Nations who assert Aboriginal rights or title to the project area.
- ▶ Consult with stakeholders to identify additional

critical issues and discuss potential concerns.

- ▶ Review Development Plan Checklists, and define terms of reference for the Development Plan that meet the specific objectives outlined on agency checklists.
- ▶ Identify opportunities to incorporate “best practices” into the Development Plan.
- ▶ Identify preliminary ideas and commitments for preventing, mitigating or compensating for project impacts.
- ▶ Meet with agencies to discuss questions or concerns around checklist requirements.
- ▶ If it is expected that the project will trigger a federal Environmental Assessment review, initiate discussions with relevant agencies.
- ▶ Convene multi-agency round table, if desired, to harmonize and expedite approval process.

Upon receipt of and in response to proponents’ Project Description, government agencies commit to:

- ▶ respond in a timely manner
- ▶ clarify data requirements

Upshots

- ▶ Proponents and regulatory agencies can jointly define project parameters and processes.
- ▶ Checklists are discussed with agency representatives and issues can be identified and resolved before studies begin.
- ▶ Agency representatives will provide, to the extent possible, substantive comments regarding all legislated requirements.
- ▶ Proponents can identify all the technical information and data they must collect for the Development Plan.
- ▶ Proponents will know they are collecting all necessary data required for their Development Plan.
- ▶ Proponents will know what kind of First Nations, public and stakeholder input they must solicit and be able to develop measures for addressing others’ concerns.
- ▶ Proponents will be able to prepare a Development Plan, confident that it meets agency requirements.

4.4 Completion and Submission of Development Plan

Goal

The aim of this stage is to write and submit a complete Development Plan that will be the basis for final adjudication of initial approvals.

Comments

The completed Development Plan is submitted. The Development Plan must identify, assess and address all impacts and contain all information requested in relevant checklists. All questions should be answered and all information should be provided. The Plan must describe how the proposed project will meet legislated requirements. Proponents must address, to the extent practicable, concerns raised during the dialogue and project description process. Regulatory agencies should not need to request additional studies.

Development Plan

The Development Plan is one of the most important documents associated with the independent power project application process as various agencies use the information in the Development Plan as the basis for their individual adjudication. The stages outlined herein are designed so that proponents can gather and present their plans and accompanying data in a logical, progressively detailed manner. Each stage is designed to contribute to the creation of a factual, comprehensive Development Plan. Information provided in the Preliminary Project Description can be used in the final Development Plan.

From both provincial and federal government agencies’ perspective, a Development Plan is a complete plan. A Development Plan does not contain questions such as “what type of invertebrate studies are required?” or loose ends such as “an archaeological study can be done if needed.” It is expected that such issues have been identified and addressed prior to submitting the Development Plan and Environmental Impact Statement. A thorough Development Plan and Environmental Impact Statement describe a project in sufficient detail that regulatory agencies can concentrate on evaluating the proposed project.

As part of the streamlining process, each agency that reviews the Development Plan aims to provide a checklist of objectives and information requirements that proponents can use to guide the preparation of their Development Plan. These checklists are meant to flag issues relating to the location, design, construction, modification, operation and maintenance, and de-commissioning of independent power production projects. While the intent and objectives of the checklists are not negotiable, information requirements around each of those objectives may be discussed with agencies during stage 3. Proponents are responsible for contacting local agency representatives to confirm that the checklists are suitable for their project, and to the extent practical, discuss changes to their information requirements that will increase overall efficiencies in preparation of the Development Plan and still allow government agencies to adjudicate their application.

Project Description and Draft Development Plan Quality Standards

The Project Description and Dialogue stage is meant to pave the way for the Development Plan. The Development Plan should include an overview of the project, details of the project location, and detailed information of all project activities relating to the construction, operation, and decommissioning phases. While no two projects are identical, all Development Plans should include the following information:

1. Project Description, including all components and phases of the development and estimated power production capacity.
2. Environmental Impact Assessment.
3. Information that addresses relevant legislation.
4. Project Construction Plan.
5. Operation Phase and Monitoring Plan.
6. Summary Report.

Each of the above components is expected to be thorough and address the legislated requirements agency decision makers must consider. Information is substantiated through technical studies with scientific data and expert opinion.

An important feature of this stage is that information provided in the Development Plan allows provincial agencies to make adjudication decisions. If a federal Environmental Assessment is triggered, then in most cases the same information provided to provincial agencies can be used for the federal process. In some instances however, CEAA might require additional information which is not generally required by provincial agencies.

Provincial decision makers adjudicate applications based on the information submitted from all agencies and First Nations. Permitting or authorizations under the different Acts are adjudicated independently of each other and can be at different times. There may be overlaps and there is input by the different agencies into each other's adjudication processes.

What's Involved

- ▶ A Development Plan containing all required information is submitted to FrontCounter BC.
- ▶ FrontCounter BC refers copies of the Development Plan to all relevant agencies and First Nations. If the project is on or near First Nations traditional territory, proponents are encouraged to engage with First Nations to discuss potential impacts on Aboriginal interests.
- ▶ The Development Plan contains the information required by federal departments to determine if CEAA review is triggered www.ceaa-acee.gc.ca.
- ▶ The Development Plan must provide adequate information for provincial statutory decision makers to adjudicate the application.
- ▶ Proponents may be required to advertise their project publicly.
- ▶ Agencies review the Development Plan, discuss concerns they have with the Development Plan, and may ask proponents to develop additional preventative, mitigative or compensatory plans and/or provide supplementary information and detail.
- ▶ Proponents gather requested information and formulate preventative, mitigative or compensatory plans.

- ▶ Proponents work with agency representatives to devise mutually agreeable solutions to issues and concerns raised and supplemental work required.
- ▶ Proponents submit a Summary Report documenting that they have addressed all agencies' concerns and requests.

Upshots

- ▶ The Development Plan is referred to provincial regulatory agencies for review.
- ▶ Proponents whose Development Plan falls short are asked to provide additional information by way of a Summary Report.
- ▶ Proponents whose Development Plan is approved proceed to Stage 5, at which point they will begin receiving required approvals.
- ▶ Development Plan referred to federal agencies through the CEAA Agency, for review under federal regulatory processes.

4.5 Initial Authorizations

Goal

The goal of this stage is to secure provincial authorizations and initiate the federal Environmental Assessment review (CEAA), if required.

Comments

This stage marks the formal separation of provincial and federal approval processes. At this stage provincial agencies are able to offer tenures, permits and other authorizations.

The CEAA review will result in a federal decision. Federal "approvals" can be provided for projects that were subjected to a *Fisheries Act* review, for instance, and which did not trigger CEAA. *Species at Risk Act* (SARA) issues are addressed through the *Fisheries Act* (although would likely be CEAA too) and SARA may be significant enough to cause the project to be rejected.

Projects being reviewed by the B.C. Environmental Assessment Office will require certification before provincial agencies will finalize any authorizations.

Following issuance of land tenures, proponents can begin working with other provincial agencies to obtain their permits.

What's Involved

Different agencies adjudicate applications for access to Crown land and other resource uses.

- ▶ ILMB decides on the type, term and conditions of tenure to grant and issue a tenure under the *Land Act* and a Licence of Occupation.
- ▶ WSD issues a water licence allowing the use or diversion of water or approval for other works near waterways, as and if required.

Upshots

- ▶ Permits, licence or tenures may be issued.
- ▶ Proponents continue to work with other provincial agencies such as Ministry of Forests and Range and Ministry of Transportation and Infrastructure to finalize their information needs for approvals being sought in stage 6.
- ▶ The CEAA review process begins.

4.6 Final Approvals

Goal

The goal of this stage is to finalize and secure all outstanding approvals and regulatory requirements relating to the construction, operation and monitoring of the proposed independent power production project.

Comments

In this final stage, proponents receive all remaining provincial and federal approvals. They must fulfill all conditions specified under any existing tenures, licences and/or approvals received in Stage 5.

What's Involved

- ▶ Appointment of professional engineers, biologists, foresters, etc.
- ▶ Water Stewardship Division issues Leave to Commence Construction and Operation.
- ▶ Ministry of Forests and Range (MFR) issues road use permit to allow use of the forest service road, and/or works permit allowing proponents to carry out activities within the 70 metre road right-of-way.
- ▶ MFR issues cutting permits, Occupant Licence to Cut.
- ▶ Ministry of Transportation issues highway access permit and approval to use highways and roads.
- ▶ Ministry of Tourism, Culture and the Arts issues an archaeological or heritage site conservation permit.
- ▶ Fisheries and Oceans Canada (DFO) issues Letter of Advice or Authorization under the Fisheries Act.
- ▶ Environment Canada confirms the project is SARA compliant.
- ▶ DFO issues an authorization or notification if works will harm, alter, disrupt or destroy fish habitat or deposit or discharge substances deleterious to fish.
- ▶ Transport Canada issues an Approval under the Navigable Waters Protection Act if navigable waters will be affected.
- ▶ Local government authorities rezone land if project involves land use different than current zoning allows (See Chapter 9).
- ▶ Local government authorities issue building permit and specify set back requirements.
- ▶ Projects must be built and operated according to all terms and conditions specified in approvals granted by regulatory agencies.
- ▶ Amendments and refinements may be made with agencies.
- ▶ Agencies inspect works site and works at periodic intervals.
- ▶ When works completed, according to specifications, new tenures issued.
- ▶ Compliance monitoring requires ongoing collection and regular submission of data.
- ▶ Once construction is complete, components are surveyed and tenured separately.
- ▶ Leases are issued for powerhouses.
- ▶ Rights-of-way are issued for penstocks and transmission lines.
- ▶ Licences are issued for permanent roadways.
- ▶ Proponents are responsible for collecting operational and compliance monitoring data and regularly submitting reports to agencies with jurisdiction over their project.

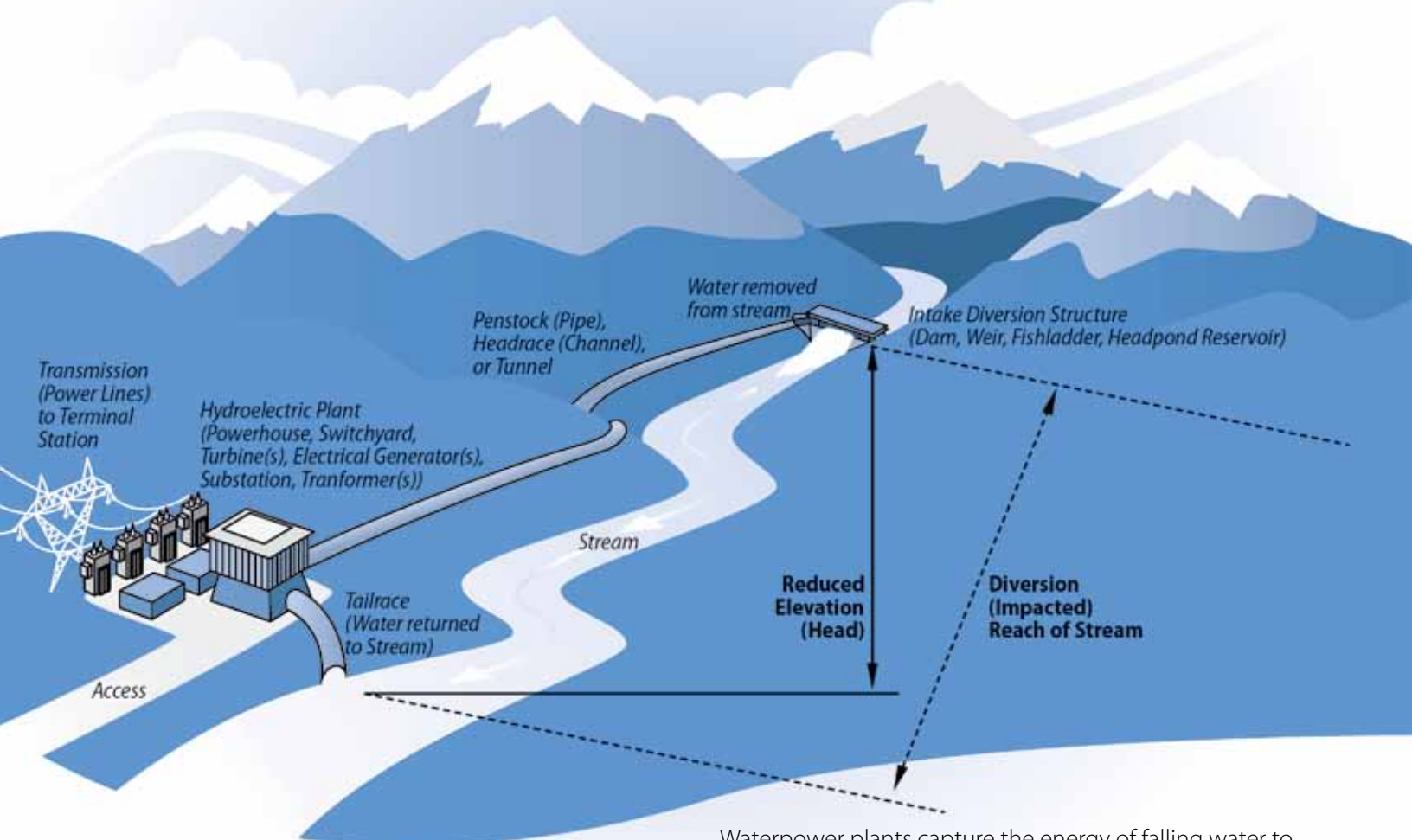
Tenure Amendments: For amendments to existing tenures that require a change in tenure purpose wording, a reduction in area, or a rearrangement of works within the existing general area, fees are charged. If a tenure amendment involves new land, a new application is required along with an application fee. How the land is going to be used determines what type of application and fee will be required. When new land is applied for the application goes through the standard processes of referral, statusing, and advertising.

Upshot

- ▶ All required permissions are granted. Proponents have all the approvals needed to construct and operate an independent power production project.

Chapter 5 Water Power

Of the renewable energy sources that generate electricity, water (hydro) power is one of the most important in B.C. The following sketch shows the typical layout of a waterpower project.



Waterpower plants capture the energy of falling water to generate electricity. A turbine converts the kinetic energy of falling water into mechanical energy. Then a generator converts the mechanical energy from the turbine into electrical energy. Water is removed from a stream and transported through a pipe, or penstock, then pushes against and turns blades in a turbine to spin a generator to produce electricity. The water is returned to the stream via a tailrace. The electricity produced may be delivered to the provincial electrical grid (distribution) system via a transmission (power) line, or sent to the facilities of a self-generator.

Waterpower projects may be on Crown land, private land or a combination of Crown and private lands.

Key legislation with which most waterpower projects must comply, provincially and federally, is as follows:

Provincial Legislation

- Land Act
- Water Act
- Forest Act
- Forest and Range Practices Act
- Highway Act
- Environmental Assessment Act
- Water Protection Act
- Wildlife Act
- Fish Protection Act
- Parks Act
- Heritage Conservation Act

Federal Legislation

- Fisheries Act
- Navigable Waters Protection Act
- Canadian Environmental Assessment Act
- Species at Risk Act
- National Energy Board Act
- Migratory Birds Convention Act

Readers are referred to Chapter 2 to find the most recent links to agency web sites.

Working with FrontCounter BC

FrontCounter BC is the provincial agency that accepts most of the applications to access provincial natural resources. To access Crown resources (such as Crown land, water in a stream, timber), proponents are required to submit a number of applications to different agencies via FrontCounter BC. Location, size and impacts of proposed projects determine what applications need to be submitted. Land and water applications are available from the FrontCounter BC website - www.frontcounterbc.gov.bc.ca.

Working with the Integrated Land Management Bureau

Access to Crown land requires a land tenure under the Land Act. The Integrated Land Management Bureau (ILMB) adjudicates these Land Act applications.

Over the course of a waterpower project development, the ILMB issues different types of land tenure (for more details about different types of tenure, please refer to the sidebar in Chapter 3). An explanation of specific terms and types of tenure specific to waterpower is available at www.env.gov.bc.ca/wsd/water_rights/waterpower/index.html.)

Applicants often submit two Land Act applications at the same time – one for an investigative permit and the other for a licence of occupation. The investigative permit and the licence of occupation applications cover a large area. While an investigative permit is adequate to carry out research to determine the parameters of a project, the licence is required for the proponent to apply for a water licence. Once the improvements are constructed within the licence of occupation and surveyed, longer term tenures are issued for the surveyed components.

A licence or permit is recommended to conduct geotechnical site investigations over a large area at the initial stages of a proposal. Such investigations enable proponents to determine how much land is needed for project components and facilitate tenuring for a smaller area.

The Land Act does not permit transfer/assignment (change of applicant) of Land Act Applications. Water Act application transfers are permitted once the Crown tenure or private land change in ownership has been confirmed.

A general area licence of occupation is needed to construct the main works of the waterpower project (i.e. powerhouse, penstock, intake, road, and the transmission line). Note: The Water Act requires substantial interest in the powerhouse site. A Land Act Licence of Occupation tenure will satisfy this requirement.

Once construction of the works has been completed and legal surveys have been completed for each component, various long-term tenures will be issued for the components. For example, the powerhouse area will be converted to a lease. The penstock will be converted to a right-of-way. The transmission line will be converted to a right-of-way. The road will be converted to a licence.

ILMB applications for general area licences of occupation for waterpower projects do not fall under a specific timeline for authorization. If a project triggers the need for an Environmental Assessment by the Environmental Assessment Office, and the proponent elects concurrent permitting, ILMB has 60 days to adjudicate a Land Act tenure once the EAO Certificate is issued. For projects that do not go through the Environmental Assessment Office, ILMB authorizations are issued once adjudicators are satisfied concerns raised by all agencies and First Nations groups have been addressed and all requirements have been met. Separate tenure applications associated with a waterpower IPP project but not part of the main works covered by the general area licence of occupation fall under ILMB's regular adjudication process. Examples of tenure applications that fall under ILMB's general review process include borrow pits and construction camps.

Working with the Ministry of Environment

Water Stewardship Division

Access to use water from a stream in British Columbia will require a water licence under the Water Act.

Water licences and approvals are issued by the Water Stewardship Division (WSD) of the Ministry of Environment.

The Water Act vests ownership of the water in streams in B.C. in the provincial Crown/government. The Water Act regulates the diversion, use and storage of water from streams, as well as changes (works and activities) in and about streams for which an approval is required unless otherwise covered by the Water Regulation. (Under the Water Act, springs, lakes, swamps and other surface water sources are defined as streams.) The direct collection and use of rain water or the use of ground water is not licensed under the Water Act. However, ground water well drilling and related activities are regulated under the Act and the Ground Water Protection Regulation.

Water licence applications are adjudicated on “a first in line first to right” principle. WSD and ILMB will accept overlapping waterpower applications (e.g. same stream and Crown land). Note: The same Water Act priority date may be used for both water and land applications.

Water licence applications are date-stamped on receipt by FrontCounter BC. If a water licence application is complete, the date of receipt is key to the Regional Water Manager or Comptroller’s determination of the priority date for any licence granted from that application. In the case of competing water licence applications on the same stream, the order of receipt determines which proponent is first-in-line and which is second-in-line for the purposes of their relative priority on the stream concerned.

Under the Water Act, the diversion and use of water from a stream for power production requires a water licence. The water licence specifies the conditions or terms governing the right to the use of water. These conditions include statements concerning:

1. The source of the water supply (which stream the water comes from).
2. The point of diversion from the stream (location of intake to penstock and must include Latitude/ Longitude coordinates).
3. The date of priority of the licence.
4. The purpose for which the water is to be used (to generate power).
5. The maximum quantity of water that can be diverted from the stream, including into storage, for power purposes.
6. The period of the year that the water can be used.
7. The land to which the licence is appurtenant (the location of the power house).
8. The works associated with the project (intakes, penstocks, dams, power houses, transmission lines, access roads).
9. Conditions associated with construction of the project (design criteria, engineering drawings, environmental protection plans, operating criteria, etc.).
10. Any requirements (flow gauging) to protect other users of the water in the stream (other water licence holders, recreational users, fish and/or wildlife) including setting any releases required for such purposes.
11. The anticipated date for completion (beneficial use) of the project.
12. The expiry date, which is 40 years from issuance of the water licence.

Water IPPs and storage supported waterpower projects that generate electricity for sale are classified by WSD as general waterpower projects under the Water Act and the Water Regulation. Waterpower water licences are limited to a 40 year period. Application fees are based on generation capacity of the proposed project and the amount of any water that will be stored. Annual water rental fees are collected based on reported energy production.

The storage of water (i.e. flood surcharge, active, in-active, and dead) to support a general waterpower project may require a storage purpose water licence. There is an extra water licence application fee and annual rental fee for storage purpose. Dam safety regulations must be obeyed where applicable. Many proponents feel that their project does not involve a dam; however, this is often not correct and they should consult the Ministry of Environment, Water Stewardship Division for clarification. All applicants are encouraged to review the Dam Safety Regulations for clarifications www.qp.gov.bc.ca/statreg/reg/w/water/44_2000.htm. Water licence applicants must have substantial interest in the land (also known as a place of use) on which the powerhouse is located. A water licence does not authorize licencees to enter onto or use Crown lands or privately owned lands. Please see 3.1 Overview of Regulatory Requirements and 5.4 Completion and Submission of Development Plan for clarification.

Under the Water Act, only qualified persons can acquire a water licence. In most cases, to be qualified, the person must be an owner of land with possession of or a substantial interest in the land to be used for the project at the time of issuance of the licence. This may involve becoming the owner of the private land on which the power house is to be located or, in the case of provincial Crown land, acquiring through ILMB, a tenure under the Land Act, such as a Licence of Occupation and eventually a lease of Crown land for the power house site. If the land ownership requirement to qualify to acquire a water licence is met and the water licence application is to be granted, a permit authorizing the occupation of Crown land may also at times be issued under the Water Act.

If private or First Nations' lands are to be used to satisfy the land ownership requirement to qualify to acquire a water licence, a written agreement is required from the landowners, including in the case of reserve lands the requisite authority under the Indian Act and from the First Nation Band Council. (Note: A Canadian Environmental Assessment Act (CEAA) Environmental Assessment may be triggered if federal Crown land is required.)

Adjudication of water licence applications is based on information supplied by applicants, government agencies (federal, provincial and local), First Nations, and third parties (landowners, other water licence holders, recreation groups, and environmental groups) regarding impacts of the proposed project. Several agencies require specific information to comment on a particular project and requirements to satisfy their concerns. The onus is on the project proponents to identify, assess and address all impacts with the third party interest. Public safety and protection of the environment, other water users, and Aboriginal rights and title interests are major concerns that must be addressed, as appropriate.

Proponents requiring permission to temporarily use water or disturb a stream during the construction process may apply to WSD for an approval. Under the Water Act, a Section 8 Approval is a permit issued to authorize short term (less than one year e.g. dust control, camp use during construction) use of water from a stream. A Section 9 Approval may authorize specific changes in and about streams, such as the installation of road crossings or any in stream fish mitigation work. Proponents are encouraged to ensure that other agencies' legislative approval processes are met (e.g. Fisheries Act).

Water Act application revisions are permitted once any Land Act changes have been accepted. Extra application fees may be required depending on revisions, such as an increase of over 20 MW capacity storage.

Environmental Stewardship Division

With respect to independent waterpower projects, the Ministry of Environment's (MOE) Environmental Stewardship Division (ESD) uses established guidelines, reviews proposed power project developments, and informs decision-making agencies such as MOE's Water Stewardship Division (Water Act), Ministry of Agriculture and Lands, (Land Act) and Fisheries and Oceans Canada (Fisheries Act) of the ecological consequences of changes to land and water use that will occur as a result of proposed waterpower projects. ESD conducts ongoing compliance and operational monitoring of waterpower projects and delivers reports to local partners in decision-making agencies.

The primary reference outlining information required by ESD to assess biological impacts related to proposals for hydroelectric facilities is: "Guidelines for the collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower projects in British Columbia" by Hatfield et al. (2007). However, proponents are directed to the checklist at the end of this chapter as some methods for information required by ESD are found in other documents which supersede Hatfield et al. (2007). These guidelines focus on impact assessment and permitting as these are directly related to the mandate and regulatory responsibilities of MOE in granting a water licence and managing the province's fish and wildlife resources. ESD's guidelines describe basic information requirements to assess the ecological impacts of independent power production projects located on B.C. streams, and are briefly summarized below, but proponents are directed to visit the MOE website for the latest iteration www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf.

Every proposed waterpower project has its own specific challenges, such as scant existing data, difficult access to study sites, or difficult sampling conditions. Because of site-specific challenges and variability, it is not easy to assign a single set of methods as best for all conditions. A prescriptive approach is avoided in ESD's guidelines. Instead, the focus is on deliverables for decision making. ESD's guidelines recommend information to be submitted in order to allow risks to ecological values to be interpreted and described. To achieve these deliverables, recommended best practices are indicated, and references regarding existing data collection and analysis are provided, but study design, data collection, and analysis are left to the

discretion of professionals conducting the work. Successful impact assessment rests heavily on the professionals involved. MOE expects that studies will be conducted using various recommended assessment methods, unless scientifically-defensible reasons are presented by a certified professional with sufficient experience in instream flow assessment and fish habitat analysis. Reasons for varying from recommended methods must be documented and supported by a convincing, factual argument explaining why alternative methods were adopted, plus references to supporting literature.

Instream flow assessment is a complex, multi-disciplinary process of data collection and analysis, including biological and hydrological data. Interpretation of such data is prone to value-based judgments. Professionals are encouraged to use scientifically-supported justifications for any subjectivity and maintain ongoing awareness of academic research and best practices described in publications of independent organizations such as the Instream Flow Council www.instreamflowcouncil.org

The ESD's guidelines recommend that information be submitted in two documents as summarized in the checklist provided at the end of this chapter. The guidelines also describe information that should be presented in an operational and compliance monitoring program (associated with water licensing), including recommended means of data submission and archiving.

Environmental Protection Division

The Environmental Protection Division (EPD) may also review documents submitted in support of a water licence, and provide technical advice to WSD regarding impacts to air, land and water quality, and any deleterious discharges during project construction or operation. Such advice is typically provided to WSD regarding the development plan and construction monitoring program, but may also inform the Office of Environmental Monitoring and Prediction (OEMP).

Working with the Ministry of Forests and Range

Since most waterpower projects require the removal of Crown timber, they fall under the jurisdiction of the Ministry of Forests and Range (MFR). The Forest Act www.qp.gov.bc.ca/statreg/stat/F/96157_00.htm, Range Act, and the Forest and Range Practices Act www.qp.gov.bc.ca/statreg/stat/F/02069_01.htm and associated regulations specify terms under which permission can be granted to allow proponents to cut, damage, destroy and remove Crown timber. The use of forest service and other roads is administered through these Acts and overseen by MFR, as is the modification of forest roads to construct and install project works, components and infrastructure such as bridges and culverts.

Proponents may need to obtain:

- ▶ **Occupant Licence to Cut** which authorizes the holder to cut timber from Crown land with specific conditions.
- ▶ **Road Use Permit** which authorizes the holder to use a Forest Service Road for industrial purposes, construct/modify the road, including the replacement and installation of structures.
- ▶ **Works Permit** which allows the holder to carry out works within a Forest Service Road right-of-way to install penstocks, transmission lines or undertake other project-related activities.
- ▶ **Third Party Road Use Agreement** which allows the holder to use the road in situations where an industrial user already has a Road Permit for Non-Forest Service Roads.

In accordance with the Ministry of Forests and Range's mandate, the impacts of water projects on the forest and range land base must be assessed. MFR staff work with proponents to identify those impacts and develop mitigation techniques or alternatives to limit or eliminate any concerns. Early discussions are recommended to ensure concerns are identified during the conceptual or preliminary planning phases of the application, impacts are adequately assessed and mitigation plans formulated. Most, if not all issues, can and should be resolved before the submission of the Development Plan. Proponents may wish to hire professional foresters, biologists, engineers and others to evaluate and mitigate impacts and ensure all requirements are considered and met.

MFR permits and licences are issued by District Offices located throughout B.C. Typically, MFR issues its authorizations after proponents have obtained required land and water licences and permission to construct project works.

Once a forest, range or road tenure is issued for development activity, the forest service inspects these operations to ensure proponents

Instream Flow Data Collection and Flow Management

The Ministry of Environment has developed guidelines for the collection, analysis, and presentation of data for water licence applications and approvals associated with small hydro power projects. These data standards are an integral part of the Instream Flow Guidelines for B.C. Details are available at [http://archive.ilmb.gov.bc.ca/risc/pubs/aquatic/Documents on assessment methods and in-stream flow thresholds that proponents are advised to refer to are](http://archive.ilmb.gov.bc.ca/risc/pubs/aquatic/Documents%20on%20assessment%20methods%20and%20in-stream%20flow%20thresholds%20that%20proponents%20are%20advised%20to%20refer%20to%20are):

- "Assessment Methods for Aquatic Habitat and Instream Characteristics in Support of Applications to Dam, Divert, or Extract Water from Streams in British Columbia". Lewis et al. (2004)
- "Instream Flow Thresholds for Fish and Fish Habitat as Guidelines for Reviewing Proposed Water Uses". Hatfield et al. (2003)

Instream Flow Guidelines provide direction on data collection and its presentation. Included recommendations cover:

1. Description of the proposed project;
2. Description of the natural hydrology, geomorphology, and biology in the watershed;
3. Assessment of how the hydrology, geomorphology, and biology will be affected by the proposed project; and
4. Description of other land and water uses in the area that may interact with the project.

Further information on how to conduct a detailed flow assessment can be found at the Instream Flow Council's site: www.instreamflowcouncil.org

Timing windows for instream works can be found at: http://www.env.gov.bc.ca/wsd/water_rights/licence_application/section9/index.html They are located within "Water Act Section 9 Notifications" for each Provincial region.

comply with applicable legislation and regulations. In addition, all issued permits and licences are monitored to ensure compliance with the licence documents. It is extremely important that applicants fully understand the standards of practice and obligations required of them when carrying out operations for the proposed project.

Working with the Ministry of Transportation and Infrastructure

As the agency responsible for building, maintaining and operating the Province's highway system and ensuring that it operates safely and efficiently and for the benefit of the general public, the Ministry of Transportation and Infrastructure (MoT) issues permits granting proponents permission to conduct work on and around B.C. highways and rights-of-way. No work or activity is allowed on or near a highway or highway right of way until obtaining a valid permit is secured.

Under the Transportation Act of B.C. - www.qp.gov.bc.ca/statreg/stat/T/04044_01.htm specific policies govern the construction of power. Permits must be obtained from MoT District office for the connection of any new roads, temporary or permanent, or public rights of way. Permit forms process and district contact information are available on the MoT's website at www.th.gov.bc.ca/tran.

The Ministry's primary concern is public safety, so proponents are advised to ensure their activities and installations will not compromise or jeopardize it. They should ensure existing highway facilities will not be damaged or put at risk, other non-highway facilities are protected, and future highway development will not be unduly restricted.

The Ministry does not distinguish between types of utilities or the ownership of those utilities. Except where safety is concerned, the same policy, standards and procedures apply to all utilities whether they are owned by a public utility company, local government, or private individuals. MoT permits utility owners to install equipment and facilities in highway right-of-ways where it is practical and safe to do so, recognizing that the use of highway right-of-way provides a substantial benefit to the utilities themselves and to the general public. MoT accepts no responsibility for loss or damage to utility facilities in the highway right-of-way or for any third party liability related to those facilities.

MoT's Utilities Manual is available at: www.th.gov.bc.ca/permits. It provides general information regarding MoT permits, accommodation, coordination, design and location standards, installation and maintenance, relocation, etc. However, specific requirements may vary from district to district and project to project. Because regulations and policies are updated from time to time, proponents should contact their local MoT district staff to obtain up-to-date details.

Working with the Environmental Assessment Office (EAO) and the Canadian Environmental Assessment Office (CEAA)

Proponents are encouraged to review Chapter 8 to determine whether or not their project triggers EAO or CEAA reviews.

Under the Environmental Assessment Act of B.C. www.qp.gov.bc.ca/statreg/waterpower projects with a nameplate capacity of 50 megawatts or greater or a transmission line 500 kV or higher and 40 kilometres in length or greater are reviewable by the Environmental Assessment Office (EAO) www.eao.gov.bc.ca. As there are multiple factors that affect whether or not a project will go through the EAO, the onus is on proponents to contact the EAO to determine whether their project is reviewable or not. If a power project is being reviewed under this Act then no provincial developmental approvals can be granted until the EAO certificate has been issued. Investigative permits supporting project design may be issued during the review process.

As discussed in Chapter 8, CEAA has its own set of review triggers. Proponents are encouraged to review the CEAA website to determine whether or not their project will trigger a CEAA review.

Working with Fisheries and Oceans Canada

Fisheries and Oceans Canada (DFO) is responsible for the management, conservation, and protection of fish and fish habitat, which it does through administration of the Fisheries Act. The most relevant sections of the Fisheries Act that pertain to flow management and waterpower generation include:

- ▶ Fish Passage (sec 20)
 - Reduced depths
 - Increased velocities
 - Change in migration cues
 - Loss of floodplain access
 - Physical barrier (i.e. dam/weir structure)
- ▶ Flows (sec 22)
 - Sufficient flows for safe descent of fish at structures
 - Flows for upstream and downstream migration of fish during construction
 - Sufficient flows at structures to protect spawning grounds and ova
- ▶ Mortality (sec 32)
 - Stranding of fish or eggs
 - Super saturation of oxygen
- ▶ Fish Habitat (sec 35)
 - Change in channel forming processes (e.g. erosion/deposition)
 - Loss of groundwater inputs and supporting habitats (e.g. upwelling areas, hyporheic zone, etc.)
 - Reduction in wetted area
 - Alteration of riparian cover
 - Direct infilling or dewatering of fish habitat

The footprints and impacts associated with construction, installation, and operation of powerhouses, intakes, turbines, tailraces and other hydro generation infrastructure have the potential to create obstructions to fish passage or a harmful alteration, disruption or destruction (HADD) of fish habitat. In addition impoundments, intakes, diversions and operating requirements of the facility which alter natural flow regimes can result in a flow related HADD or insufficient flows for protection of various fish life stages. Where

waterpower generation facilities are located in fish bearing waters entrainment leading to fish mortality may also become an issue (and is prohibited under the Act), and if impacts can not be mitigated, authorization under the Fisheries Act would be required for impacts deemed acceptable.

DFO's preference in the assessment and review of any project proposal is to avoid the harmful alteration, disruption or destruction (HADD) of fish habitat. This can be done most effectively by locating hydro power projects on portions of streams which are not fish bearing and by designing and operating facilities in a manner that will provide sufficient flows in all downstream fish bearing sections for all fish life history stages.

If a waterpower project requires an authorization permitting the destruction of fish or HADD of fish habitat, DFO is required to conduct an Environmental Assessment under CEAA prior to granting an authorization. www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/ceaa-lcee_e.asp (For more information on CEAA see Chapter 8.) In order for DFO to complete this assessment and make a determination respecting an authorization, a proponent must provide an Environmental Impact Statement (EIS) report that meets the CEAA requirements. As part of the EIS, proponents may be required to submit additional information such as details of proposed fish habitat compensation. DFO has produced guidelines on preparing the EIS report which if followed will expedite the CEAA review process. Proponents are advised to initiate their EIS at the same time they begin work on their Development Plan and are encouraged to contact and work with federal authorities in stages 2 and 3 of the project development process outlined later in this chapter.

Projects that are proposed in fish bearing waters which will impact fish and fish habitat directly, and can not meet downstream flow requirements for fish represent significant risks. These projects, which are often more complex, difficult to mitigate, and represent greater uncertainty and risk, require more comprehensive data

collection, analyses, assessment, impact mitigation and compensation. Time lines from project proposal to potential authorization will increase where such impacts are likely and will depend on the nature and magnitude of the potential impacts, adequacy of the information provided, sufficiency of mitigation proposed, and adequacy of compensation. Approval from DFO and other federal agencies participating in the Fisheries Act or CEEA reviews of such projects may be very lengthy (months to years in many cases).

Projects proposed for sites located in non fish bearing waters or which can meet any downstream flow requirements in fish bearing sections are considered lower risk. These projects and associated impacts can typically be effectively mitigated. As a result, information and assessment requirements are less onerous and applicants can expect reduced data requirements and faster environmental reviews. However, any relevant regulatory requirements identified in the review process must still be addressed.

In order to conduct an EIS and ensure compliance with the Fisheries Act, DFO requires adequate hydrometric and hydrologic data, analyses and assessments of flow modifications associated with proposed waterpower projects, as well as appropriate mitigation plans that adequately address fish passage obstructions, physical HADDs or potential mortality due to entrainment. This information must accompany applications for any and all permits, approvals or authorizations under the Fisheries Act. The guidance provided to the proponent at the application stage, in the form of DFO's Letter to IPP Proponents and associated Guidelines details DFO's information requirements.

See:

1. Sidebars on "Operational Statements" and "Common Fisheries Related Impacts and Concerns" (below).
2. *"Environmental Impact Statement Guidelines for Screening Level Review under the CEEA for Independent Small Hydro Power Project in B.C.": DFO and TC, March 2007.*
3. B.C. Instream Flow Guidelines for Fish (attach B.C. MOE WSD link to Guidelines (Instream Flow Thresholds, Lewis et al. 2004; Assessment Methods, Lewis et al. 2004) . Authorization under the Fisheries Act is required for a HADD and is considered only after all other options are exhausted. Proponents are responsible for developing appropriate compensatory habitat for any Authorized HADD as per DFO's Policy for the Management of Fish Habitat.

Under the Species at Risk Act, DFO is legally required to protect listed aquatic species at risk, their residence and their critical habitat. DFO cannot issue an authorization unless all requirements under SARA Sec. 73 have been met. Proponents are encouraged to become familiar with this legislation to determine their legal obligations and the information required to satisfy SARA as part of their EIS.

Fish-stream Crossings

The Forest Practices Code of British Columbia Fish-stream Crossing Guidebook is the standard DFO applies to fish-stream crossings for forestry and other industry sectors as it reduces the high potential for unauthorized HADD of fish habitat. The Guidebook can be found at: www.for.gov.bc.ca/tasb/legsregs/fpc/FPCGUIDE/Guidetoc.htm. Within this document is a decision making matrix for selecting acceptable new and replacement stream crossing structures. The Guidebook explains the DFO's review process including which types of structures would be subject to either agency review and/or DFO Authorization.

DFO's Pacific Region Operating Statements

DFO also has Regional Operational Statements (OSs) for the Pacific Region that are designed to provide IPP proponents with advice on conducting low risk activities in a manner that will not result in a HADD. By following the recommended mitigation measures in the OSs neither a review by DFO nor a HADD Authorization will be required. The OSs and related notification protocols can be found at www-heb.pac.dfo-mpo.gc.ca/decisionsupport/os/operational_statements_e.htm

Common Fisheries Related Impacts

The Fisheries and Oceans Canada primary requirements and concerns related to small hydro projects are summarized below.

- i. Sufficient residual flows must be released at the dam/weir intake in order to avoid direct and indirect impacts to fish or fish habitat within the diversion reach and downstream of the tailrace. In addition, for projects on a tributary, flow analysis must be conducted to address potential changes/impacts at the confluence of the stream with the downstream river.
- ii. Optimally, the intake and tailrace should be located upstream of fish populations.
- iii. Where fish habitat exists within the proposed project area, diverted water should be returned to the stream upstream of anadromous salmonid, critical trout or endangered species habitat. In addition, the project should avoid impacts to resident fish and their habitats. Less detailed studies and project review is more likely in less sensitive receiving waters. In instances where an authorization will be issued, additional monitoring will be required.
- iv. Dams and weirs should be designed to allow the passage of gravel and large woody debris to maintain downstream reaches. DFO recommends that either an Inflatable Flexible Membrane Dam (IFMD or rubber dam) or Collapsible Gate type weir be used for intake/discharge control. Examples of structures previously found to be suitable for similar projects include the Bridgestone Rubber Dam or the Obermeyer Spillway Gages. Coanda type screens have generally been found acceptable and should be considered. The use of these brand names does not imply that DFO endorses these products. Other types of intake/discharge control structures will require technical justification to ensure that all facets of the operation of the spillway control device will meet or exceed the required objectives and that impacts to fish habitat will be properly mitigated.
- v. Inter-basin transfer of water is unlikely to be approved (i.e.: water must not be transferred from one watershed to another watershed) for a variety of biological reasons.
- vi. There shall be no sudden cessation in flows resulting in river stage drop within the diversion reach and downstream from the tailrace during operation or emergency shutdown. To assist in achieving this objective, DFO requires the installation and operation of by-pass valves or other flow by-pass structures for each turbine within the power plant.
- vii. The project developer should take all measures to ensure protection of fish from entrainment. Fish screening, other engineered designs or other mitigative features must be part of the project design. Other options to avoid or mitigate potential fish entrainment will only be considered if technical justification is provided to demonstrate that fish screening will not work. The project application should include technical data for DFO to determine whether a Fisheries Act Section 32 (killing of fish) authorization is required.
- viii. The project application should describe how expected impacts to fish and fish habitat will be mitigated during the construction period and the project's subsequent operation. Applications should cover issues relating to land clearing, slope stability, sediment transport and erosion control, stream crossings, blasting in and near stream channels, fish passage and migration obstructions, intake screening and fish entrainment, and total dissolved gas pressure in release waters which can seriously impact fish (gas bubble disease).

Working with Transport Canada

Transport Canada (TC) is responsible for developing and administering policies, regulations and services for the best transportation system for Canada and Canadians — one that is safe and secure, efficient, affordable, integrated and environmentally friendly. TC's Navigable Waters Protection Division (NWP) reviews independent power production project proposals to determine if they require approval under the Navigable Waters Protection Act (NWP)

Navigable Waters

Run of river hydroelectric projects have the potential to affect navigation on waterways through the placement of project components such as intake diversion weirs/dams (including inflatable or fixed weirs) and tailrace structures in navigable waters, or through changes to water flow along diversion reaches that are sited in navigable waters. Bridge crossings along access roads and transmission line crossings associated with independent power production projects also have the potential to affect navigation.

Approval under Sections 5(1) or 6(4) of the NWP is required for any works placed on, over, under, through or across navigable waters that may result in a substantial interference to navigation. This formal approval is also required for named works under the NWP such as bridge, boom, dam, and causeway that are proposed for a navigable waterway even if the structures do not substantially interfere with navigation. NWP approval for named works or other activities is not required for watercourses deemed non-navigable by a Navigable Waters Protection Officer.

Determination of navigability is made by Transport Canada's Navigable Waters Protection (NWP) Officers. Classification of what is deemed navigable is changing with the expanding boundaries of recreational boating/kayaking. An NWP officer responsible for the project review uses waterway characteristics, public and user input, and case law to make a determination on navigability.

To assist NWP Officers in the determination of navigability, Transport Canada has produced a guideline document titled 'Navigational Impact Assessment for Privately Owned Hydro Electric Facilities' <http://www.tc.gc.ca/eng/pacific/marine-nwpp-ipp-1320.htm>. This document is intended

for use by proponents to assess navigability, determine navigation impacts, attempt to mitigate those impacts, and report on the results in the application they submit to the NWP officer for review.

The requirement for an Approval under Section 5(1) or 6(4) of the NWP triggers the requirement for Transport Canada, as a Responsible Authority, to conduct an Environmental Assessment under the Canadian Environmental Assessment Act. Although NWP determines the requirement for Approvals under the NWP, Transport Canada Environmental Services is responsible for conducting the Environmental Assessment under CEAA.

Effects of the project on navigation are taken into consideration as part of the Environmental Assessment when the effects are indirect, that is, when the effect is a change in water flow along a diversion reach attributable to the project that affects navigation. Although direct effects on navigation are not considered in the Environmental Assessment itself, any measures necessary to mitigate direct effects on navigation are included as conditions of Transport Canada's NWP Approval. TC Environmental Services also ensures the Environmental Assessment includes other factors that are required under CEAA such as the current use of lands and resources for traditional purposes by Aboriginal persons, effects of accidents and malfunctions, effects of the environment on the project, and cumulative effects.

Independent power project proponents and regulators can gain efficiencies by ensuring that regulatory requirements specific to other federal legislation are met while the CEAA review is conducted. While completing a CEAA review, proponents and regulators can fulfill requirements specified under federal legislation such as the NWP, Fisheries Act and SARA. Proponents' Development Plans may be expanded to include any other federal department's information requirements. Proponents who provide comprehensive information on all aspects of their proposed project and its design can substantially reduce the time of federally-mandated reviews. Proponents are advised to work with agency representatives to ensure all required information is included in their Development Plan.

For more information related to requirements for NWP reviews, the Transport Canada Navigable Waters Protection

Division may be reached at 604 775-8867 or you may visit the Navigable Waters Protection Division website at:
<http://www.tc.gc.ca/marinesafety/oep/nwpp/menu.htm>.

Questions related to the Environmental Assessment of Run of River Hydro Projects can be directed to the Regional Manager of Environmental Services 604 666-5370.

More information is available at

Transport Canada Navigable Waters Protection Division
www.tc.gc.ca/pacific/marine/nwpp/menu.htm

Navigation Impact Assessment Requirements for
 Privately Operated Hydro Electric Facilities
<http://www.tc.gc.ca/eng/pacific/marine-nwpp-ipp-1320.htm>

Transport Canada Environmental Service
<http://www.tc.gc.ca/programs/environment/environmentalassessment/ea.htm>
 604 666-5370

Transport Canada's Proponents' Guide for
 Environmental Assessment
http://www.tc.gc.ca/programs/environment/environmentalassessment/proponents_section.htm

Air Safety

Transport Canada's Aerodromes and Air Navigation Branch is responsible for the regulatory program for aerodromes and air navigation services in Canada. Among other responsibilities, this branch of Transport Canada reviews proposed projects to determine whether lighting or marking of structures such as antennas, towers, cable crossings, and buildings is required to meet standards for air safety.

To initiate TC's air safety review, proponents should complete and submit the "Aeronautical Obstruction Clearance Form" available at www.tc.gc.ca/CivilAviation/Regserv/Affairs/cars/Part6/Standards/Standard621.htm along with a 50,000:1 scale map indicating where potential obstructions and other works will be located. TC reviews proponents' plans, determines lighting and/or marking requirements, and forwards its decision to applicants.

Once received, a review by the Aerodromes and Air Navigation Branch will be initiated to determine any lighting and/or marking requirements. These requirements, once established, are then forwarded to the proponent. Proponents should be prepared to make arrangements to discuss lighting and marking options with Transport Canada officials so that details of potential effects on air safety and proposed marking and lighting strategies may be included in the project Development Plan.

In some cases, lighting and/or marking of structures required by Transport Canada for air safety purposes can cause potentially adverse effects on other valued ecosystem components such as migratory birds. In such cases, the lighting/marketing requirements and measures required to mitigate these effects will be discussed by the proponent, Transport Canada and the federal department that has raised the concern so a resolution can be reached.

5.0 Project Stages

The following stages present information and requirements unique, or important, to water projects. The stages follow the outline presented in Chapter 4.

NOTE: The CEAA process can occur between Stages 2 through 5. However, proponents are encouraged to apply as early as possible.

REMEMBER: that a single project may have several triggers for federal Environmental Assessment and that the triggers may rest with separate federal departments making them Responsible Authorities. The federal coordination regulations ensure that a single federal EA is done to address all of the federal EA requirements.

5.1 Project Site Identification and Application Preparation

Goal

Following the identification of a viable project site, a proponents' goal is to prepare an application for a water licence and Crown land tenure or access to private land. (If Crown land is not being used, proponents should secure ownership of impacted private lands or agreement to use them).

Comments

This is the beginning stage in which proponents determine whether they are interested in developing an independent power production project, which can be a long, complex process.

What's Involved

- ▶ Read this guidebook.
- ▶ Evaluate the project's viability, including conceptual, technical and financial aspects.
- ▶ Develop an independent power production project scope (previously known as preliminary project definition) plan, complete with feasibility and financing assessments.
- ▶ Consider potential environmental, social and permitting aspects of the project.
- ▶ DFO's preference in the assessment and review of any project proposal is to ensure the proponent avoids the harmful alteration, disruption or destruction (HADD) of fish habitat. This can be done most effectively by locating hydro power projects on portions of streams which are not fish-bearing and by designing and operating facilities in a manner that will provide sufficient flows in all downstream fish bearing sections for all fish life history stages.
- ▶ Contact FrontCounter BC with any general questions.
- ▶ Collect information regarding application forms and supplementary information as necessary (including but not limited to Fish Databases, existing water use or rights and First Nation Territory).
- ▶ Identify First Nation interest in proposed project site.
- ▶ Determine which agencies, First Nation and other stakeholder representatives to liaise with.

Upshot

Proponents decide whether or not to apply for required approvals with an understanding of most critical issues and timetable entailed in the development of their envisioned project.

5.2 Application Submission and Acknowledgement

Goal

The goal of this stage is to provide FrontCounter BC with a straightforward application(s) so that your interest in developing an independent power production project can be formally acknowledged.

Comments

This stage is all about getting the process going. Submitting an application to FrontCounter BC will trigger the creation of a *Water Act* file number and a *Land Act* file number (if required). Notification of the application will be sent to other government agencies, provincial, federal and local, as well as First Nations and third parties.

At this stage in the approval process, it is important that proponents understand which issues are critical to the development of a specific project and ensure these issues are identified in their application. While it is prudent to undertake some work related to these issues before submitting an application, extensive work beyond identifying potential issues and a strategy to address them, often has limited benefit at this point in the process. However, proponents must keep in mind that more complete information presented at the beginning of the application process will ensure that fewer changes will be required before the application can be accepted.

The two most important first approvals that waterpower project proponents need are land tenure if on Crown land, and a water licence. Under the *Water Act*, to qualify to acquire a water licence, persons must be an owner of land with possession of or a substantial interest in the land to be used for the project at the time the licence is issued. In order to secure the required interest in land, this may involve becoming the owner of the private land on which the power house is to be located or, in the case of provincial Crown land, applying for a tenure under the *Land Act*, such as applying for a Licence of Occupation and eventually a lease of Crown land for the power house site. In the case of provincial Crown land, the proponent should ensure that his/her application for Crown land under the *Land Act* for a Licence of Occupation tenure has been filed when applying for a water licence. Once

the adjudication of these two applications is complete, the water licence can be issued if the *Land Act* tenure has been issued.

Application packages should include:

- Completed application forms:
 - Water Power Application. www.env.gov.bc.ca/wsd/water_rights/waterpower/cabinet/wpp_cl.pdf
 - Crown Land Tenure www.al.gov.bc.ca/clad/tenure_programs/cabinet/app_form.pdf
- Certificate of incorporation.
- Title certificates and legal plans.
- Application fees.

What's Involved

- ▶ Submission of a land and water application (as required) to FrontCounter BC.
- ▶ FrontCounter BC checks application to ensure it meets specified quality standards and provides sufficient detail. Staff check with land and water officers to ensure application is complete and acceptable.
- ▶ FrontCounter BC completes preliminary status report, noting known show stoppers or conflicts.
- ▶ After full status completed, heads up referral (notification), including application documents and Project Scope are forwarded to relevant agencies, First Nations and third parties as required.
- ▶ Applications are forwarded to the Integrated Land Management Bureau (ILMB) for permission to use Crown land and the Ministry of Environment's Water Stewardship Division for use of water from a stream. Submission of these applications initiates the adjudication process and assists in the establishing of priority dates. Note that a development plan is required to complete a successful adjudication process.
- ▶ Applicants are expected to provide the necessary information as outlined in the application form.
- ▶ At this point, applicants are not likely to be applying to the FrontCounter BC or other agencies for further approvals, although other permits, approvals and authorizations under federal legislation are often

required. It is recommended that discussions with these agencies take place early in the process to begin the mitigation of any possible concerns. Proponents are advised to contact the FrontCounter BC staff to confirm the completeness of their application so agencies receiving 'heads-up' referrals can flag potential issues.

- ▶ Upon receiving notification of the water licence application from FrontCounter BC, agencies, First Nations and third parties may respond with approval requirements, information, concerns or requests for more information. (For example, DFO sends a letter to proponents which includes guidance and a short "Project Review Information Requirements" form which outline basic application information required for federal approvals).
- ▶ This information may also trigger the Canadian Environmental Assessment Review process.

Although the Canadian and B.C. Environmental Assessment processes may not be required at this stage if sufficient data has not yet been provided to federal agencies, proponents may determine whether an Environmental Assessment is likely to be needed through consultation with the B.C. Environmental Assessment Office and federal agencies. Information on Environmental Assessment processes and requirements can be obtained from:

1. CEAA www.ceaa-acee.gc.ca/010/index_e.htm
2. CEAA Project Description Template http://www.ceaa.gc.ca/013/0002/ops_ppd_e.htm
3. EAO <http://www.eao.gov.bc.ca/FAQ.html>

If a power project is reviewed under this Act then no provincial developmental approvals can be granted until the EAO certificate has been issued. However, a preliminary Crown land tenure, such as an Investigative Permit, may still be issued.

What happens

- ▶ FrontCounter BC reviews applications for completeness.
- ▶ FrontCounter BC enters details regarding the application proposal into the the Crown Land database.
- ▶ FrontCounter BC sends applications out for preliminary referrals (heads up) to advise agencies and First Nations with interests in the area that an application has been received.
- ▶ Relevant regulatory agencies review the Application and provide brief initial comments, to assist the proponent in meeting objectives for legislative requirements.
- ▶ Agencies send comments back to FrontCounter BC.
- ▶ FrontCounter BC collects all referral agency and First Nation comments and forwards them to proponents.
- ▶ Proponents are instructed to advertise their project and contact existing tenure holders/applicants if required.

Upshot

Some applicants may chose to hold applications at this stage. Note that the review of water licence applications may be held up until further information on which to adjudicate the application is provided. However, if applications are outstanding for some time without diligent action on the part of applicants, applicants may be required to provide essential information within particular timelines or risk their applications being dismissed for failure to meet those requirements. This step may be considered if the initial applicant has not diligently pursued its application and another applicant has come forward with an application, as well as a completed development plan, and is prepared to proceed in a timely and substantive manner.

5.3 Dialogue and Project Description

Goal

The goal is to provide proponents with the opportunity to discuss their project with agencies and refine their project plans, prior to formal submission of their Development Plan.

Comments

In part because independent power production is an evolving industry, proponents sometimes submit incomplete Development Plans without adequate information and detail. In order for statutory decision makers to review Development Plans in a timely, efficient manner, very precise information is required. It is in proponents and approving agencies best interests that the Development Plan meets federal and provincial information requirements and quality standards.

Proponents submitting, revising, and resubmitting their Development Plan over and over again is inefficient and costly for all involved. Agencies can not make decisions and meet their statutory obligations if the information provided is inadequate or inaccurate. On the other hand, if reviewing agencies continue to request additional information, proponents are encouraged to spend the time and money (which may be significant) to collect the required information. In order to ensure that Development Plans can be adjudicated expediently, without being returned to proponents, some agencies have developed checklists for 'Preliminary Project Descriptions'. Proponents are strongly encouraged to follow them.

In addition, proponents are strongly encouraged to contact and work with agency personnel throughout the process of data gathering and preparation of their Development Plan. Ongoing dialogue with officials gives proponents many opportunities to ensure that they are collecting all the information they need and that their Development Plan will address all the requirements of all the agencies which grant approvals. However, proponents are advised that staff from agencies without decision-making responsibility can not provide requirements which may subsequently fetter decision-makers. In such situations, advice provided by advisory agencies will be presented in the form of recommendations rather than requirements.

Ongoing dialogue enables proponents to seek clarification regarding the specific information agencies require and to begin identification of issues and mitigation measures for project design. Through Development Plan checklists and discussions with agencies, proponents can plan their data collection efficiently, saving time and money. Through dialogue, decision makers and proponents can identify and discuss what is needed to complete and present a comprehensive Development Plan.

Roundtable Process

Proponents can create a Roundtable and invite regulatory agency representatives to attend all-party meetings. All-party meetings foster improved communication and collaboration. If an application is not put into abeyance, FrontCounter BC may request a roundtable meeting with proponents and agencies involved in the referral and approval granting process. Roundtable forums enable proponents to meet the agency contacts, discuss the project and lay a solid foundation for the drafting of their Development Plan. However, agency participation in any given Roundtable Process is dependent on staff capacity and may not negate the need for direct dialogue with legal authorities.

What's Involved

Proponents are advised to:

- ▶ Review Development Plan Checklists and Federal and Provincial guidelines and review procedures and requirements.
- ▶ Meet with agencies to discuss questions or concerns around checklist requirements.
- ▶ Initiate discussions with First Nations that have an interest in the project, potential opportunities, impacts, and the project review process.
- ▶ Visit the site and ground truth their proposal.
- ▶ Define the technical aspects of the project with sufficient clarity to allow technical specialists to understand the scope and detail of studies needed to meet legislative requirements.
- ▶ If the project includes a dam under the Dam Safety Regulation, refer to the "Plan Submission Requirements for the Construction and

Rehabilitation of Dams”.

- ▶ Conduct site assessment and initiate required studies.
- ▶ Identify environmental, social and other impacts of proposed project.
- ▶ Consult with stakeholders to identify additional critical issues and discuss potential concerns.
- ▶ Define terms of reference for the Development Plan that meets the specific objectives outlined on agency checklists and regulatory review processes.
- ▶ Gather and analyze scientific and technical data related to proposed project and impacts.
- ▶ Identify preliminary ideas and commitments for preventing, mitigating or compensating for project impacts.
- ▶ Identify opportunities to incorporate “best practices” into Development Plan (such as DFO Operational Statements and B.C. Standards and Best Practices for Instream Works, March 2004).
- ▶ If it is expected that the project will trigger a federal Environmental Assessment review, initiate discussions with relevant agencies.
- ▶ Convene multi-agency round table, if desired, to harmonize and expedite approval process.
- ▶ Keep agencies informed of progress.

Upshot

- ▶ Proponents and regulatory agencies can jointly define project parameters and processes.
- ▶ Checklists are discussed with agency representatives and issues can be identified and as much as possible, resolved before studies begin.
- ▶ Agency representatives will provide, to the extent possible, substantive comments regarding all legislated requirements.
- ▶ Proponents can identify the technical information they must collect.
- ▶ Proponents will know they are collecting all necessary data required for their Development Plan and both the federal and provincial project review processes.
- ▶ Proponents will know what kind of public and stakeholder input they must solicit and be able to develop measures for addressing others’ concerns.
- ▶ Proponents will be able to prepare a Development Plan, confident that it meets agency requirements.

The onus is on the proponent to identify, assess and address all impacts related to the project.

Draft project development plans can be reviewed by WSD and ILMB staff prior to submission to FrontCounter BC.

5.4 Completion and Submission of Development Plan

Goal

The aim of this stage is to write and submit a comprehensive Development Plan that will be the basis for final adjudication.

Comments

The completed Development Plan is submitted to FrontCounter BC.

The Development Plan must identify, assess and address all impacts and contain all information requested in relevant checklists. All questions should be answered and all information should be provided. The Plan must describe how the proposed project will meet legislative requirements. Proponents must address, to the extent practicable, concerns raised during the dialogue and project description process.

The Development Plan should include an overview of the project, details of the project location, and detailed information on all project activities relating to the construction, operation, and decommissioning phases. The Development Plan must provide adequate information for provincial and federal statutory decision makers to adjudicate the application.

While no two projects are identical, all Development Plans should include the following information:

- 1) *Project Description, including all components and phases of the development and estimated power production capacity.*
- 2) *Environmental Impact Assessment.*
- 3) *Information that addresses relevant legislation.*
- 4) *Project Construction Plan.*
- 5) *Operation Phase and Monitoring Plan.*
- 6) *Summary Report.*

Each of the above components is expected to be thorough and address the legislated requirements agency decision makers must consider and information is substantiated through technical studies with scientific data and expert opinion.

An important feature of this stage is that information provided in the Development Plan may allow provincial

agencies to make adjudication decisions. If a federal Environmental Assessment is triggered, in most cases, the same information provided to provincial agencies can be used for the federal process. CEAA, however, requires additional information such as cumulative effects which is not required by provincial agencies.

Provincial decision makers adjudicate applications based on the information submitted from all agencies and First Nations. Permitting or authorizations under the different Acts are adjudicated independently of each other and can be at different times. There may be overlaps and there is input by the different agencies into each other's adjudication processes.

Power projects falling within the thresholds of the Reviewable Projects Regulation generally require an EAO Certificate. Provincial resource decision making processes will not occur until completion of the EAO process.

Each of the above components is expected to be thorough and address the legislative requirements agency decision makers must consider. All information is to be substantiated through technical studies supported by scientific data and expert opinion.

WSD has a sample development plan template – located at www.env.gov.bc.ca/wsd/water_rights/waterpower/cabinet/dp.pdf

Questions regarding the template should be directed to the Water Stewardship Division.

FrontCounter BC will:

1. Accept project development plans.
2. Refer plans to relevant agencies, third parties and First Nations for review and final comments.
3. Coordinate responses with proponents and agencies. Additional preventative, mitigative or compensatory plans and/or supplementary information and detail maybe required based on the information provided in the submitted development plan.
4. Forward any proponent prepared summary report to decision-making agencies.

Upon receipt of and in response to proponents' Development Plans, government agencies commit to:

- ▶ respond in a timely manner.
- ▶ clarify any outstanding data requirements.

What's Involved

- ▶ A Development Plan containing all required information is submitted.
- ▶ FrontCounter BC refers copies of the Development Plan to all relevant agencies and First Nations. If the project is on or near First Nations traditional territory, proponents are encouraged to engage with First Nations to avoid infringement on Aboriginal interest and rights.
- ▶ The Development Plan contains the information required by federal departments to determine if CEAA review is triggered www.ceaa-acee.gc.ca/010/index_e.htm.
- ▶ Development Plan contains all the information required for reviews under the *Fisheries Act* and CEAA then the Development Plan can form the basis for federal approval.
- ▶ The Development Plan must provide adequate information for provincial statutory decision makers to adjudicate the application.
- ▶ Proponents may be required to advertise their project publicly.
- ▶ Agencies review the Development Plan.
- ▶ Agencies raise and discuss concerns they have with the Development Plan.
- ▶ Agencies may ask proponents to develop additional preventative, mitigative or compensatory plans and/or provide supplementary information and detail.
- ▶ Proponents gather requested information and formulate preventative, mitigative or compensatory plans.
- ▶ Proponents work with agency representatives to clarify and discuss supplemental information requirements and devise mutually agreeable solutions to issues and concerns raised.
- ▶ Both parties must maintain neutrality in dealing with applications so there is no sense of a foregone conclusion based on what is discussed.
- ▶ Proponents submit a Summary Report documenting that they have addressed all agencies' concerns and requests.

Upshot

- ▶ The Development Plan is referred to provincial regulatory agencies for review and adjudication if required.
- ▶ Proponents whose Development Plan falls short are asked to provide additional information by way of a Summary Report.

Works in and about a stream (intakes, diversion structures, dams, power houses, tailraces, bridges, culverts) are to be designed to accommodate the 1 in 200 year maximum daily flow. Design criteria for dam spillway capacity and earthquake resistance are based on the Canadian Dam Association Guidelines and are usually more stringent.

A storage purpose water licence may be required in addition to the waterpower purpose water licence. Storage or storage purpose means the collection, impounding and conservation of water in a stream or water from a stream. The decision to require a storage purpose licence is made by WSD based on a number of considerations including the mean annual flow. A dam is defined as a barrier constructed across a stream or a barrier constructed off-stream and supplied by diversion of water from a stream. Applicants should contact WSD to confirm if their proposed structures are considered to be a dam. The B.C. Dam Safety Regulations (DSR) apply to dams which meet certain dam height and impounding volume capacity combinations as described in Section 2, DSR. The method of calculating "capable of impounding" under the DSR is different than the calculation of storage for a storage purpose licence. The B.C. Dam Safety Regulations also apply to dams that have a down stream consequence of failure classification under Schedule 1 of the DSR of low, high or very high. Contact the Dam Safety Officer at the WSD for further information on down stream consequence of failure classifications for proposed dams.

Water availability requirements include:

Drainage boundaries, area and watershed characteristics of project stream.

Methodology used to estimate runoff.

Details of hydrometric and climatic stations used to provide data for the analysis of water availability.

Estimates of runoff include:

1 in 200 year maximum daily flow for each site i.e. diversion structure, powerhouse, bridge/pipeline crossing etc.

Mean monthly discharges plus a mean annual discharge at the proposed intake/diversion site.

7 day average low flow (average, 5, 10, 20 and 50).

Low flow for instream requirements and providing water for other licencees.

Maximum quantity of water to be diverted.

The results of the analysis of the availability of water for the project should be described and presented graphically to clarify the way the project will divert and use water as well as give an understanding of the impacts of the project.

5.5 Initial Authorizations

Goal

The goal of this stage is to secure provincial authorizations and finalize the federal Environmental Assessment review (CEAA), if required. Provincial authorizations are subject to an EAO certification if the project triggered an EAO review.

Comments

This is the beginning of the provincial tenuring and authorization process. The first approvals that must be secured are land tenures from the Integrated Land Management Bureau, if Crown land is required, and a water licence from the Ministry of Environment's Water Stewardship Division.

Crown land tenure offers allow up to 60 days for acceptance. A draft water licence may be available during this period for review by the proponent. These documents are available directly from ILMB and WSD. (Note: A water licence can not be issued until the land tenure/ownership has been confirmed).

The water licence may contain extra clauses/conditions related to:

- ▶ construction of the project (independent engineer, environmental monitor, construction environmental monitoring plan, stages for leave to construct and operate).
- ▶ operating the project (operation parameters, maintenance and surveillance plans, emergency preparedness plan).
- ▶ long term monitoring requirements.

What's Involved

- ▶ ILMB determines the type, term and conditions of tenure to grant and issues a licence of occupation.

- ▶ WSD issues a water licence allowing the use or diversion of water, with appropriate conditions.
- ▶ WSD may issue a water approval for work in streams not directly associated with any water licence.
- ▶ ILMB and WSD confirm that land tenure and a water licence can be issued and terms and conditions of those licences are finalized.
- ▶ ILMB contacts WSD to coordinate issuance of approvals. Water licences can not be issued until land tenure has been issued.

Upshot

- ▶ *Land Act* and *Water Act* tenures may be issued.
- ▶ Proponents continue to work with other provincial agencies such as Ministry of Forests and Range and Ministry of Transportation and Infrastructure to finalize their information needs for approvals being sought in stage 6.

5.6 Final Approvals

Goal

The goal of this stage is to finalize and secure all outstanding approvals relating to the construction, operation and monitoring of the proposed independent power production project.

Comments

In this final stage, proponents receive all remaining provincial and federal approvals. They must fulfill all conditions specified under the Land Tenure or Water Licence approvals received in stage 5.

What's Involved

- ▶ Fisheries and Oceans Canada issues Letter of Advice or Authorization under the *Fisheries Act* (as part of the federal authorization, DFO will require a letter of credit and a compensation monitoring program).
- ▶ Environment Canada confirms the project is SARA compliant.
- ▶ CEAA requirements are met and associated approvals are issued.
- ▶ Transport Canada issues an Approval under the *Navigable Waters Protection Act* if navigable waters will be affected.
- ▶ Appointment of professional engineers, biologists, foresters, etc.
- ▶ Water Stewardship Division issues Leave to Commence Construction and Operation.
- ▶ Ministry of Forests and Range (MFR) issues road use permit to allow use of the forest service road, and/or works permit allowing proponents to carry out activities within the 70 m road right-of-way.
- ▶ MFR issues cutting permits, Occupant Licence to Cut.
- ▶ Ministry of Transportation and Infrastructure issues highway access permit and approval to use highways and roads.
- ▶ Ministry of Tourism, Culture and the Arts issues an archaeological or heritage site conservation permit.
- ▶ Local or regional government authorities may rezone the property if the project involves the use of land for a purpose that differs from current local zoning (See Chapter 9).

- ▶ Local government authorities issue building permit and specify set back requirements.
- ▶ Projects must be built and operated according to all terms and conditions specified in approvals granted by regulatory agencies.
- ▶ Amendments and refinements may be made with agencies.
- ▶ Agencies inspect works site and works at periodic intervals.
- ▶ When works completed, according to specifications, new approvals issued.
- ▶ Compliance monitoring requires ongoing collection and regular submission of data.
- ▶ Once construction is complete, components are surveyed and tenured separately.
- ▶ Leases are issued for powerhouses.
- ▶ Rights-of-way are issued for penstocks and transmission lines.
- ▶ Licences are issued for permanent roadways.
- ▶ Proponents are responsible for collecting operational and compliance monitoring data and regularly submitting reports to agencies with jurisdiction over their project.

Upshot

- ▶ All required permissions are granted. Proponents have all the approvals needed to construct and operate an independent power production project.

Once construction of the works has been completed and legal surveys have been completed for each component, various long-term *Land Act* tenures will be issued for the components. For example, the powerhouse area may be converted to a lease. The penstock may be converted to a right-of-way. The transmission line may be converted to a right-of-way. The road will be converted to a licence.

Proponents with all approvals relating to the construction, operation and monitoring of the proposed independent power production project may undertake the work.

Different authorizations may be changed or issued during the construction period to accommodate unexpected site and/or weather conditions.

Tenure Amendments

For amendments to existing Land Act tenures that require a change in tenure purpose wording, a reduction in area, or a rearrangement of works within the existing general area, fees are charged. If a tenure amendment involves new land, a new application is required along with an application fee. How the land is going to be used determines what type of application and fee will be required. When new land is applied for the application goes through the standard processes of referral, statusing, and advertising.

Increased water requirements will require a new water licence application once a water licence is issued.

Following issuance of land tenure, if required, and water licence, proponents can finalize the permitting processes with other provincial agencies to obtain their permits.

Projects must be built and operated according to all terms and conditions specified in approvals granted by regulatory agencies.

MOE ESD- Region 2 Information Requirements for WPP Applications (June 8, 2007)

Preliminary Project Description (PPD) Stage

1. Project Overview	MOE-ESD interests	Relevant guideline
1. Regional map (1: 250,000) showing location of project watershed and distance from nearest community.	Proposed project location	n/a
2. Watershed overview: a) stream name (gazetted &/or local) and SISS watershed code; b) drainage area & stream order (1:20,000) at intake & powerhouse; c) general description of surface materials and topography; d) hypsometry and elevation(s) at proposed point(s) of diversion; e) glacial and lake coverage; f) TRIM & NTS map number(s) for project location; g) forest cover type(s); h) proposed project footprint at appropriate scale for relevant detail.	Proposed project watershed	n/a
3. Topographic maps (on 1:20,000 TRIM base) showing: a) all streams & tributaries, affected and identification of any fisheries-sensitive watersheds or temperature-sensitive streams; b) all points of diversion; c) watershed boundaries to 3rd order; d) existing roads and trails; e) all physical infrastructure required for project construction, operation and maintenance (e.g. dam, diversion weir, penstock, powerhouse, tailrace, transmission corridor, roads).	Proposed project footprint, and potential or cumulative effects	Standards for Fish & Fish Habitat Maps V3.0 (RIC, 2001)
4. Describe proposed infrastructure: a) dam structure (type and height), diversion weir, provision for throughput of sediment and LWD past dam, fish passage past dam; b) construction timing; c) impact area; d) project lifespan.	Proposed project details	Plan Submission Requirements for the Construction and Rehabilitation of Dams (for dams under the Dam Safety Regulation)
5. Describe other industrial activities in watershed (e.g. forestry, mining, other hydroelectric power generation facilities).	Cumulative effects	n/a

2. Biological/Ecological Information	MOE-ESD interests	Relevant guideline
<p>6. Compile and map (at appropriate scales) known information (with reference sources) on resident and anadromous fish:</p> <ul style="list-style-type: none"> a) utilization; b) species presence; c) distribution; d) known upstream distribution limit(s) by species, with confirmed and suspected fish migration barriers/obstacles. 	Fish presence/absence in the diversion reach	Province of B.C. (1997), FPC (1998), RISC (2004), Hatfield <i>et al.</i> (2007).
<p>7. Compile and map (at appropriate scales, and as per MOE guidelines, listed at www.sccp.ca) known information within the watershed on:</p> <ul style="list-style-type: none"> a) red and blue listed animals; b) red and blue listed plants and plant communities; c) COSEWIC & SARA listed species; d) regionally significant species (see Region 2 list: Mike Willcox). 	Species presence/absence in (or adjacent to) the diversion reach and associated infrastructure	Step 1 of "Working Draft Guidelines for Dealing with Development Effects on Species and Ecosystems at Risk" (Anon, July 2006)
<p>8. Compile and map (at appropriate scales) known information on:</p> <ul style="list-style-type: none"> a) Wildlife Habitat areas (WHAs): www.env.gov.bc.ca/wld/identified/index.html; b) Ungulate Winter Ranges (UWR) and other habitats required under the <i>Wildlife Act</i> and <i>Forest and Range Practices Act</i> (see Region 2 list); c) Special Resource Management Zones (SRMZ). 	Habitat extent adjacent to the diversion reach and associated infrastructure	WHAs: contact MOE-ESD Regional staff UWRs: contact MAL (Miki Shoji) for ftp site.
<p>9. Summarize fish stocks and ecotypes in project area; consider the likelihood that stocks are migratory and utilize areas downstream or upstream of the Project.</p>	Likelihood of healthy fish stocks in diversion reach; adfluvial stock	RISC (2001), Hatfield <i>et al.</i> (2007)
<p>10. Compile any existing baseflow water chemistry data with emphasis on: low-level macro-nutrient parameters (N, P); alkalinity (mg/L CaCO₃); electrical conductivity (µS/cm); known TDS; pH; water temperatures (single point sample or continuous sampling).</p>	Likelihood of high fish abundance in diversion reach; potential basis for compensation	RISC (1997b), Table 3 of Lewis <i>et al.</i> (2004)

3. Hydrological Information	MOE-ESD interests	Relevant guideline
11. Preliminary regional analysis to estimate: <ul style="list-style-type: none"> a) mean annual discharge (MAD); b) mean monthly discharges (MMD); c) 7-day average low flow (mean annual, 5, 20 & 50 years); d) 200-year instantaneous peak flow; e) flow exceedence curves for each month and determine 80% exceedence flow in cms and %MAD; f) elevations and relative catchments of intake and powerhouse; g) candidate long-term WSC hydrometric stations in the area of interest showing stations selected for regional hydrology analysis; h) maximum proposed quantity of water to be diverted. 	Sensitivity of low flows where expressed as a proportion of mean annual flows. Likelihood of significant changes to hydrology resulting from project operation (e.g. Likelihood of altered flow regime: rain, snow or rain-on-snow dominated)	LWBC (2005), RISC (1998)
12. Channel confinement, geology and stream type. One may use large scale air photos or maps to determine the likelihood of the diversion reach containing off-channel habitats in braided sections, fish barriers (partial or complete), or narrow canyonized sections.	Are sections of the diversion reach likely to be particularly sensitive to reduced flow	Stream width is narrower than usual if $\text{width} < 6 * (\text{mad})^{0.5}$
13. Ecoregion, ecoregion & ecoprovince of diversion reach: support for proposed unit runoff, seasonal flow regime & fish productivity.	Does regional (modeled) data support proposed onsite info	EcoProvince web link
4. Geomorphology Information	MOE-ESD interests	Relevant guideline
14. Length of erodible channel in diversion reach as a proportion of total diversion reach.	Likelihood of channel changing as a result of flow diversion	MOF/MOE (1996) [CAP Guide], Lewis <i>et al</i> , 2004.
15. Gradient of diversion reach, and presence of features that may affect sediment transport (e.g. significant changes in channel gradient, lakes, waterfalls).	Likelihood of channel changes as a result of flow diversion	MOF/MOELP (1996), Lewis <i>et al</i> , 2004.
5. Proposed Outline for Development Plan	MOE-ESD interests	Relevant guideline
16. Acknowledge MOE information needs for Development Plan.	Assurance that MOE information needs	As described in
17. Provide strategy for data collection and analysis, such as sample locations, methods and timing.	will be met	guidelines noted above.

Development Plan (DP) Template- (Section 1) Biology/ecology, hydrology & geomorphology

1. Biological Information	MOE-ESD interests	Relevant guideline
<p>1. Written report: methods & results of field sampling and discussion of project related impacts to fish and fish habitat, including:</p> <ul style="list-style-type: none"> a) completed fish collection forms & site cards per RISC standards; b) photos of sampling locations, important stream features (e.g. barriers) and representative fish species; c) site & fish data annotated on 1:20,000 TRIM (RISC standards). <p>AND Completion of a non-fish bearing status report if non-fish bearing status is being proposed.</p>	<p>Fish bearing status</p> <p>Identification of all fish species downstream, upstream and within the diversion reach</p>	<p>Province of B.C. (1997), FPC (1998), RIC (2001), RISC (2006), Hatfield <i>et al.</i> (2007)</p>
<p>2. Fish life-history periodicity tables including:</p> <ul style="list-style-type: none"> a) critical timing of life stages by species in the watershed; b) habitat preferences; c) ecological flows (e.g. substrate flushing, channel forming, pre-spawn holding, juvenile & adult rearing, off-channel links, spawning/passage). 	<p>Limiting and critical factors for each species by month and life history stage. Adoption of highest flow requirement</p>	<p>Hatfield <i>et al.</i> (2007)</p>
<p>3. Fish abundance by species in diversion reach.</p>	<p>Understanding of population structure & abundance to compare in a BACI analysis</p>	<p>RIC (2001); Hatfield <i>et al.</i> (2007)</p>
<p>4. Mesohabitat classification for fish- proportions of diversion reach within each mesohabitat at base flow.</p>	<p>Interpretation of PHabSim results, and population changes resulting from habitat changes</p>	<p>Johnson & Slaney (1996); Lewis <i>et al.</i> (2004)</p>
<p>5. Consideration of how project construction and operation will affect fish populations and their instream and riparian habitats.</p>	<p>Maintenance of fish populations (and other species) and habitats</p>	<p>None</p>
<p>6. Water chemistry data with emphasis on nitrogen (total N, ammonia, nitrate, nitrite), phosphorus (total P, total dissolved P, ortho-P), chlorophyll a, alkalinity, electrical (specific) conductivity, total dissolved solids (TDS), non-filterable residue (NFR), turbidity, pH, water temperature and total gas pressure. All data must meet appropriate QA/QC requirements and water chemistry analyses must be conducted at CAEL-certified laboratories.</p>	<p>Interpretation of fish species information and benthic macroinvertebrate community data</p>	<p>RISC (1997); Lewis <i>et al.</i> (2004); Hatfield <i>et al.</i> (2007)</p>
<p>7. Assessment of the benthic macroinvertebrate community using BC MoE adopted Canadian Aquatic Biomonitoring Network (CABIN) approved field sampling and analysis protocols within the diversion reach to assess stream ecosystem integrity and serve as a meaningful baseline for post-diversion.</p>	<p>Maintenance of stream ecosystem integrity in the diversion reach</p>	<p>Hatfield <i>et al.</i> (2007)</p>

8. Presence/absence assessment on red and blue listed animals, plants and plant communities, COSEWIC & SARA listed species and regionally significant species as identified in the PPD.	Prioritization and development of a strategy to maintain biodiversity for protected species	Step 2 of Working Draft Guidelines (Anon, July 2006)
9. Consideration of how project construction and operation will affect identified red and blue listed animals, plants and plant communities, COSEWIC & SARA listed species and regionally significant species.	As above	Step 3 of Working Draft Guidelines (Anon, July 2006)
10. Summary of projected impacts to red & blue listed animals, plants and plant communities, COSEWIC & SARA listed species, and regionally significant species.	As above	Working Draft Guidelines (Anon, July 2006)
11. Consideration of how project construction and operation will affect identified WHAs, UWRs, SRMZs and other habitats required under the <i>Wildlife Act</i> . Include a detailed proposal of construction activities (timing and duration), and cumulative impacts (e.g. how the project will affect wildlife migration, seasonal movements or undisturbed access to seasonal foods for grizzly bears & ungulates).	As above	As identified under PPD, requires hiring a suitably qualified wildlife biologist..

2. Hydrological Information	MOE-ESD interests	Relevant guideline
12. At least one year on-site continuous hydrometric data, including: <ul style="list-style-type: none"> a) a description of the monitoring site and equipment used; b) a minimum of 10 discharge measurements, well-distributed in the range of expected post-diversion flows, along with site photos at high & low flow limits of discharge measurements; c) chronological record of site visits with copies of original gauging notes and level check notes; d) chronological summary of gauge level checks indicating all applicable gauge corrections; e) fully documented methods: rating curve generation & flow sets; f) rating curve & regression ANOVA, including error analysis. 	Assurance that the professional has undertaken due diligence and followed RISC hydrometric standards for the collection and documentation of onsite hydrometric data	LWBC (2005), RISC (1998). An updated RISC hydrometric manual will be published and available by April 2009 at http://ilmbwww.gov.bc.ca/risc/pubs/aquatic/
13. Regional Analysis, including: <ul style="list-style-type: none"> a) map of candidate long-term WSC stations in the area of interest showing stations selected for regional analysis; b) a regional station table summarizing key basin characteristics and flow statistics for regional WSC stations; c) description of criteria employed to select candidate stations for regional analysis; d) description of the methodology used in regional analysis; e) discussion of error analysis. 	Assurance that the professional has undertaken due diligence and followed best practices for the regional analysis	LWBC (2005)

<p>14. Discharge estimates, integrating onsite data & regional analysis:</p> <ul style="list-style-type: none"> a) plot of collected on-site daily data at intake (extrapolated to intake, if need be), superimposed on concurrent WSC daily flow; b) regression analysis quantitatively defines relation between data collected on-site and data collected at relevant WSC station(s); c) stream flow estimates at intake: MAD and MMD, 7-day average low flow and peak flows (mean annual, 5, 20, 50 years for both); d) formal comparison of the various unit runoff values derived; e) flow duration curves: mean annual and monthly flow duration curves (both natural and diverted plant flow should be identified) with an explanation of any correction factors; f) summary table and plot of mean monthly flows for the 5-, 10- and 20-year dry and wet Return periods; g) discussion and quantitative estimates of error and bias. 	<p>Assurance that the professional has undertaken due diligence and followed best practices in the development of the stream flow estimates</p>	<p>LWBC (2005)</p>
<p>15. If local inflow to the diversion section exceeds 10% of MAD at the intake, an additional time series of baseline and post-project flow conditions should be calculated at the powerhouse.</p>	<p>Hydrologic effects of tributaries on stream flow in the diversion reach</p>	<p>n/a</p>
3. Geomorphology information in the diversion reach	MOE-ESD interests	Relevant guideline
<p>16. Likelihood of flow diversion and dam operation (i.e. reduced or altered substrate/sediment and LWD throughput) resulting in:</p> <ul style="list-style-type: none"> a) changes in channel stability (lateral and vertical) within the diversion reach; b) changes in stream geomorphology, quantified as proportions of the various mesohabitats in the diversion reach. 	<p>Minimizing the likelihood of impacts on key habitats for species of concern (e.g. sufficiency of residual flows given the reduced wetted width)</p>	<p>MOF/MOE (1996) [CAP Guide], Requires hiring a suitably qualified fluvial geomorphologist.</p>
<p>17. Terrain Stability as function of projected land use. Identify:</p> <ul style="list-style-type: none"> a) social, environmental & economic values at risk of damage from landslides and sedimentation (i.e. important downstream habitats for species of concern, recreational fishing areas, road crossings); b) modifications to road sections affected by works that will be required to prevent landslides; c) existing drainage systems and location of drainage divides; d) probability assessment of dam being over-topped by landslide, using a probabilistic assessment, not qualitative rating. 	<p>Minimizing the likelihood of impacts to important habitats for species of concern</p>	<p>Requires hiring a suitably qualified terrain stability expert.</p>
4. Recreational info for the diversion reach and adjacent areas	MOE-ESD interests	Relevant guideline
<p>18. Describe impacts on fishing or hunting activities in the diversion reach , or adjacent to the project area during or post construction.</p>	<p>Minimizing impacts to fishing and hunting activities</p>	<p>None</p>

DP Template- (Section 2) Instream flows (this section must integrate all information from DP Section 1)

5. Instream Flow Assessment	MOE-ESD interests	Relevant guideline
<p>19. Based on steps from Section 4.1.1.10 of Lewis <i>et al.</i> (2004):</p> <ul style="list-style-type: none"> a) Identify the species of concern (there may be more than one). b) Identify all limiting life stage(s) for the species of concern. c) Identify habitat parameters critical to species of interest. d) Identify the most important habitats for the species of concern by month and highest flow requirement. e) Identify critical time periods for species & life history of interest. f) Calculate habitat quantity for the life stage/species of concern in the reaches/mesohabitats of importance during the critical period. There may be multiple critical periods ("habitat bottlenecks"). g) Calculate and plot flow exceedence curves by month for two flow states (natural baseline and post-Project). h) Calculate the duration and magnitude of low flows by season under baseline and post-Project conditions. i) Calculate physical habitat as a function of daily flow for each day in the critical period, using the historic flow record under baseline and post-Project conditions. Also consider a comparison of over-wintering habitat requirements versus that of summer habitat. j) Compare baseline to post-Project conditions (tables, graphs). k) Use site-specific data, scientific literature & professional opinion to interpret biological significance of estimated changes in habitat. <p>Implicit in steps a) to k) are the following requirements (#20-26):</p>	<p>Rationalized minimum instream flows for each week and month; contrast of residual daily flows after diversion and with natural inflows; overlay results on log10 scale.</p> <p>The analysis must be done for an average year, a drought year (i.e. year has a 7-day low flow with a return period >10 years), and a wet year (i.e. year includes a flood with a return period > 10 years), with specific time benchmarks (e.g. 1976 as a wet year). Provide clear indication of periods & water year types that no diversions will occur</p>	Lewis <i>et al.</i> (2004)
<p>20. Establish at least five permanent surveyed cross-sections in the diversion reach (at locations deemed by a Professional Biologist to be limiting for fish population maintenance at the proposed instream flows) with at least three discharge measurements per cross-section (spread evenly amongst the range of expected post-diversion flows).</p>	<p>Post-project audit to confirm if the habitat-flow analysis requires further refinement</p>	None
<p>21. Photographs at several locations within the diversion reach (including the five cross-sections) at a known discharge, preferably near the lowest instream flow proposed by the proponent.</p>	<p>Supports lack of onsite agency inspection and as a quick perception check</p>	None

22. Analysis of changes in hydraulic properties at the cross-sections as a function of stream flow. Methods of analysis may be simple (e.g. Riffle Analysis with approved HSI curves, at-a-station hydraulic geometry) or detailed (PHabSim) but must follow standard protocol.	Empirical basis specific to diversion reach conditions to determine IFRs	Instream Flow Council (2004)
23. Proposed instream flows tabulated on a monthly (or bi-weekly, if appropriate) basis, expressed in three flow metrics: flow (l/s or m ³ /s), as a percentage of mean annual discharge (i.e. %MAD) and as the return period of an equivalent 7-day low flow. Proposed instream flows must also be shown graphically, overlaying fish periodicity and residual flows, completed for average, drought and wet years.	Graphical aid to reviewers (and public), supported by the IFR analysis	None
24. Discussion and professional assessment of how proposed instream flows will affect ecological function via five components: a) Flushing Flows and channel maintenance; b) Flood Pulse; c) Connectivity, both within the mainstem and to tributaries & off-channel areas (e.g. sidechannels & wetlands); d) Source of fish behavioural cues; e) Passage and spawning flows.	Likelihood of decreased fish habitat diversity & connectivity; increased frazil ice formation; increased variation in water temperature in diversion reach	Lewis <i>et al.</i> (2004), Hatfield <i>et al.</i> (2007)
25. Consideration of how the maximum quantity of water to be diverted will affect post-diversion sediment transport. Specifically, how will the frequency of channel-forming flows be affected by the proposed maximum flow diversion?	Post-diversion frequency of channel-forming flows (e.g. flows >400%MAD) versus pre-diversion	None
26. Discussion and professional assessment of how proposed instream flows will affect: a) fish periodicity, abundance & distribution; b) abundance & distribution of other species in the Project Area; c) mesohabitat (proportions & proper function) for fish; d) stream channel stability (lateral and vertical).	Integrated effect of proposed flow diversion on biota and associated habitat in Project Area.	None

DP Template- (Section 3) Impact assessment, construction and operational monitoring programs
(this section must integrate all information from DP Sections 1&2)

6. Impact Assessment & Proposed Mitigation/Compensation	MOE-ESD interests	Relevant guideline
<p>27. This should include, but is not limited to, the following sections: instream flow for fish, wildlife and habitat required for non-fish species, instream flow for recreation, flood control, water quality (BC approved water quality guidelines should be consulted), bridges and ferries, roads (e.g. construction timing, maintenance), transmission lines (e.g. location, length, footprint), Crown owned resources, existing rights (e.g. land tenures), First Nations, aesthetic values, mineral claims, navigation issues, hazard to public, hazard to environment, public access. Ensure that footprints of all infrastructure required for project construction & operation are considered. Note that these components (and others) may also need to be considered in an environment assessment under B.C. EAA and a Cumulative Effects Assessment (CEA) under Federal legislation.</p>	<p>To understand potential impacts and allow formation of appropriate mitigation and compensation plans to ensure 'no net loss' of habitat</p>	<p>BC approved water quality guidelines http://www.env.gov.bc.ca/wat/wq/wq_guidelines.html#approved</p>
<p>28. Each section should include:</p> <ul style="list-style-type: none"> a) Concise statement of impact; b) Proposed mitigation or compensation of impact; c) Summary of data on which impact assessment is based, & where a copy of data may be obtained; d) Standards for the collection of data used to assess impacts; e) Terms of reference for additional studies if the proponent is unable to fully assess the impact; f) Sections absent of impacts should still be included, with an explanation justifying of the absence of impacts. 	<p>Professional reliance: encouraging the proponent to undertake due diligence and to restrict provision of technical opinion to qualified professionals</p>	<p>RISC (1997a), RISC (1997b), RISC (1998a)</p>
7. Monitoring Program	MOE-ESD interests	Relevant guideline
<p>29. Construction Monitoring Program, including measurement of:</p> <ul style="list-style-type: none"> a) water quality (e.g. suspended sediment, water temperature); b) sediment mobilization on roads and at stream crossings; c) disturbance to wildlife migration, bird nesting, etc. 	<p>Assurance that environmental impacts during construction will be negligible</p>	<p>RISC (1998a)</p>

<p>30. Operational Monitoring Program suitable to quantify project impacts on biota and associated habitat. This could include:</p> <ul style="list-style-type: none"> a) monitoring of flows to ensure sufficient water to maintain fish passage and populations, especially in low flows; b) compensation monitoring – compliance & effectiveness; c) monitoring to ensure that screening of water intake is effective in preventing entrainment of fish in penstock; d) monitoring to ensure that post-construction sediment and erosion control measures are effective; e) compliance monitoring of instream flows: installation of pressure transducer in diversion reach, and development of rating curve to convert to stream flow. Data to be submitted to WSD & ESD annually, and monitored continuously by proponent such that any deficiencies in the instream flow are identified, acknowledged and resolved. 	<p>Effectiveness monitoring aims to verify that anticipated impacts are reasonably similar to pre-development predictions.</p> <p>Compliance monitoring aims to verify that terms & conditions of approvals (e.g. <i>Water Act</i>, <i>Fisheries Act</i>) are being met.</p> <p>Monitoring is a requisite component of adaptive management</p>	Hatfield <i>et al.</i> (2007)
<p>31. The operational monitoring program must include pre-diversion collection and analysis of fish species presence and abundance data, and baseline data for critical ecosystem components (e.g. benthic macroinvertebrate community assessment using CABIN protocols), and habitat likely to be impacted by the proposed project. These may include seasonal impacts to critical terrestrial species (e.g. ungulate feeding, grizzly bear migration) or stream components such as water temperature.</p>	As above	Hatfield et al. (2007); CABIN (2008)

8. Operational Plans	MOE-ESD interests	Relevant guideline
<p>32. An Operational Management Plan to ensure:</p> <ul style="list-style-type: none"> a) passage of sediment and LWD past the diversion dam; b) appropriate ramping rates: general and daily operations, maintenance and emergency operations including fish salvage; c) prevention of fish injury and/or mortality at intake (e.g. screens). 	<p>Assurance that regular facility operations do not contribute to unforeseen and avoidable environmental impacts</p>	<p>Incomplete; use relevant literature and see Cathcarte (2005) for ramping</p>



Land Allocation Processes

The Province reserves the right to allocate land for wind power sites through a range of processes.

- *Under the First Come First Served approach ILMB accepts and processes applications on a first come first served basis. ILMB will not accept competing applications for wind power project while an application is being adjudicated. This approach is applied during the initial phases of a wind power project's development.*
- *As knowledge of wind resources increases, the Province may identify areas where wind energy will be marketed using a planned disposition approach. This usually involves allocating opportunities through a competitive process.*
- *Bonus Bid is a system ILMB uses to allocate known sites and sites where there is known demand (e.g. adjacent to existing wind farms).*
- *ILMB does not accept overlapping wind power project investigative permits (with the exception of Remote Community or Small Scale Projects within an investigative permit area).*
- *ILMB accepts non-wind power applications within the investigative permit area if non-wind applications are deemed to be for a compatible land-use.*

Chapter 6

Wind Power

Wind power is an important source of clean energy that independent power producers can harness. It has the potential to help meet B.C.'s future energy needs.

The Integrated Land Management Bureau is generally the lead agency for the regulatory review of Crown land wind power project proposals below 50 megawatts (MW). The Environmental Assessment Office (EAO) leads the review for projects of 50MW and greater. For details see Chapter 8 and the EAO website at www.eao.gov.bc.ca.

Over the course of a wind power project, ILMB issues a variety of tenures. Wind power projects are developed in two phases:

- 1) The project monitoring and investigation phase.
- 2) The project development and operation phase.

Readers are referred to Chapter 2 to find the most recent links to agency web sites.

Wind Power Issues

Potential Environmental Impacts to Evaluate and Address

A major management concern with wind farm projects is the mortality of resident and especially migratory birds and bats. In coastal regions, the potential mortality of marbled murrelets is a major concern while in the interior sandhill cranes and rare bats are example species of concern.

The siting of wind farms and associated infrastructure (transmission lines and access roads) in sensitive ecosystems (e.g., alpine and wetlands) is also a significant management issue, as is the fragmentation of Ungulate Winter Ranges and Wildlife Habitat Areas.

Other management concerns that the Ministry of Environment's (MOE) Environmental Stewardship Division (ESD) address include:

- Direct bird mortality/electrocution from striking transmission lines.
- Clearing of vegetation during the bird nesting season.
- Habitat loss and fragmentation of wildlife habitat, especially for red/blue and SARA listed wildlife.
- Disturbance of wildlife from construction activities (e.g., blasting during eagle/heron nesting season leading to nest abandonment).
- Destruction of red/blue and SARA listed plant species and plant associations.
- Increased access by public to wilderness areas, potentially resulting in increased hunting/poaching activity, and disturbance to wildlife.
- Increased access leading to perturbations to sensitive ecosystems (especially bogs) and increased sediment and erosion from off-road use of 4 X 4s, ATVs and dirt bikes.
- Loss of riparian vegetation and fish habitat from construction of stream crossing for access roads and transmission lines.
- Potential changes to hydrologic regime when building wind farms and associated roads on sheet bogs.
- Potential exposure of metal leaching and acid rock drainage.
- Visual impacts to nearby parks and protected areas.
- Various construction impacts such as fuel spills

The Stages of Project Development described in Chapter 4 can be applied to wind power projects. Unlike waterpower projects, Stages 5 and 6 are combined as there is not the same need for post construction monitoring. Wind power projects are also unique in that proponents are issued a licence of occupation to construct a meteorological tower to collect data early in the process.

The following sections outline the steps proponents should follow when developing wind power projects. Specific details regarding terms and conditions related to wind power tenures can be found in the wind power policy at www.em.gov.bc.ca/alternativeenergy/windpower/windpolicy_07.pdf.

6.0 Project Stages

The following stages present information and requirements unique, or important, to wind power projects. The stages follow the outline presented in Chapter 4.

Note: The CEAA process can occur between Stages 2 through 5. However, proponents are encouraged to apply as early as possible.

Remember: a single project may have several triggers for federal Environmental Assessment and the triggers may rest with separate federal departments making them Responsible Authorities. The federal coordination regulations ensure that a single federal EA is done to address all of the federal EA requirements.

6.1 Project Site Identification and Application Preparation

Goal

Following the identification of a site for wind data collection, a proponent's goal is to prepare an application for land tenure. (If Crown land is not being used, proponents should secure use or ownership of required private lands.)

Comments

This is the beginning step in which proponents determine whether they are interested in undertaking to develop an independent power production project, which can be a long, complex process.

What's Involved

- ▶ Read this guidebook.
- ▶ Evaluate the project's viability, including conceptual, technical and financial aspects.
- ▶ Develop an independent power production project concept plan, complete with feasibility and financing assessments.
- ▶ Prior to drafting an application it is advisable that applicants search the Integrated Land and Resource Registry (ILRR) to ensure that the subject land is actually available for tenuring. Applicants should identify if the subject Crown land is available for tenuring over the entire project area, also noting buffers from other wind tenures. This step will also provide an indication of potential land use conflicts and user groups.
- ▶ Consider potential environmental, social and permitting aspects of the project.
- ▶ Contact FrontCounter BC with any general questions.
- ▶ Collect information regarding application forms and supplementary information as necessary.
- ▶ Determine which agencies you will need to contact if you proceed.
- ▶ Identify agency representatives and other stakeholders to liaise with.
- ▶ Identify First Nations with interests in the project area and consider how they may be engaged.

6.2 Application Submission and Acknowledgement *Investigation and Monitoring Phase*

Goal

The goal of this step is to provide FrontCounter BC with a straightforward application so that an applicant's interest in assessing wind power potential can be formally acknowledged.

Applications must include:

- An investigative use permit (Land Act) to secure a study area of up to 5000 hectares.
- A licence of occupation for specific wind data gathering sites.

Further details are described in the requirements for Project Description on the website at www.al.gov.bc.ca/clad/tenure_programs/programs/windpower/index.html.

Comments

This step ensures that an applicant's interest in the land is secured. Submitting an application to FrontCounter BC triggers the creation of Land Act file numbers. These initial applications are referred to agencies for comment. Because applications for wind power tenures are relatively new to many agencies and communities, proponent engagement of affected parties is highly recommended and will decrease project review timelines.

As mentioned above, wind power projects require data collection through a meteorological tower. At this stage proponents must apply for a licence for a meteorological tower.

Application packages should include:

- Completed application forms.
- Certificate of incorporation.
- Title certificates and legal plans.
- Shape files for proposed sites.
- Application fees.

For details on fees see Pricing Policy information at www.al.gov.bc.ca/clad/land_prog_services/policies.html

ILMB requires information regarding the installation of meteorological towers, including:

- Is timber being removed?
- Are new roads proposed?
- Proposed tower height.
- Guy wire location.
- Land required per tower (should be less than 1 hectare).
- Method of tower installation (i.e., helicopter or truck).

What's Involved

- ▶ Submission of a Land Act application(s) to FrontCounter BC.
- ▶ FrontCounter BC checks application to ensure it meets specified quality standards and provides sufficient detail.
- ▶ FrontCounter BC completes preliminary land status report, noting land use conflicts
- ▶ After a land status is completed, referrals are forwarded to relevant federal and provincial regulatory agencies and First Nations, as required
- ▶ Applications are forwarded to the ILMB for permission to use Crown land. This step initiates the adjudication process.
- ▶ In order to complete a timely adjudication, applicants must submit a completed application form, as well as supply any information that is required in the Land Use Operational Policy for Wind Power Projects and outlined in this document.
- ▶ At this point, applicants are not likely to be applying to the Ministry of Forests and Range, the Ministry of Transportation or other agencies for approvals though it is recommended that discussions with these agencies takes place to begin the mitigation of any possible concerns.

Although the Canadian and B.C. Environmental Assessment processes may not be triggered at this stage if sufficient data has not yet been provided to federal agencies, proponents may determine whether an Environmental Assessment is likely to be triggered through consultation with the B.C. Environmental Assessment Office and federal agencies. Information on Environmental Assessment processes and requirements can be obtained from:

1. CEAA www.ceaa-acee.gc.ca/010/index_e.htm
2. CEAA Project Description Template http://www.ceaa.gc.ca/013/0002/ops_ppd_e.htm
3. EAO <http://www.eao.gov.bc.ca/FAQ.html>

If a power project is reviewed under this Act then no provincial developmental approvals can be granted until the EAO certificate has been issued. However, a preliminary Crown land tenure, such as an Investigative Permit, may still be issued.

What happens

- ▶ Proponents are advised to engage with First Nations that have an interest in the project area.
- ▶ FrontCounter BC reviews applications for completeness.
- ▶ FrontCounter BC enters details regarding application proposal into Integrated Land and Resource Registry.
- ▶ FrontCounter BC sends applications out for referral to provincial and federal agencies and First Nations with interests in the area the project will be located.
- ▶ The proponent is instructed to advertise their land interests in a local newspaper.
- ▶ A Land File number is created.
- ▶ Relevant regulatory agencies review the Application and provide comments.
- ▶ Agencies send comments back to FrontCounter BC.
- ▶ ILMB consults with First Nations.
- ▶ FrontCounter BC collects all agency and public comments.
- ▶ ILMB makes a decision to allow, modify or disallow the application(s).

Upshot

ILMB may disallow applications, modify them, or issue investigative permits or licences to allow the proponent to collect wind data. With a licence of occupation for a meteorological tower, applicants may then proceed to obtain any additional approvals if they are required (i.e. cutting permits, road use permits, etc.)

Investigative permits and licences of occupation issued for wind data gathering have a two year term. A subsequent investigative permit (for 1 or 2 years) may be offered at the discretion of ILMB, providing the proponent has demonstrated diligent use. Projects proceeding through an Environmental Assessment Act review may be provided extensions to coincide with the Environmental Assessment Office project review schedule.

A note about Environmental Assessments (see Chapter 8 for further information):

Although the B.C. Environmental Assessment and/or the Canadian Federal Environmental Assessment processes may not be required at this stage, proponents may determine whether an Environmental Assessment is likely to be needed through consultation with federal agencies and the provincial Environmental Assessment Office.

Note: The B.C. Environmental Assessment process is not “triggered” in the same way that the federal process is. Whether or not an EAC will be required for the project is determined first by reference to the Reviewable Projects Regulation.

Information on the Environmental Assessment Office processes and requirements can be obtained from:

1. CEAA www.ceaa-acee.gc.ca/010/index_e.htm
2. EAO <http://www.eao.gov.bc.ca/FAQ.html>

The Federal CEAA Review Process

- ▶ The completed Project Description- along with federal information requirements are submitted to federal agencies for CEAA review.
- ▶ Federal agencies start the CEAA review process.

Basic information about CEAA Reviews can be found at <http://www.ceaa.gc.ca/default.asp?lang=En&n=B053F859-1>

Project Description guidelines are available at: http://www.ceaa.gc.ca/Content/D/A/C/DACB19EE-468E-422F-8EF6-29A6D84695FC/Project_Description_Guide_under_CEAA_BC_e.pdf

Ministry of Forests and Range Required Approvals

If timber from Crown land will be cut during the development of the project, an Occupant Licence to Cut is required from the Ministry of Forests and Range (MFR). This applies to all Land Act tenures issued for access to Crown land.

Further, if the development of the project requires the use of a Forest Service Road, a Road Use Permit is required from MFR. In addition if any additional activity is required within the 70m road right of way of the forest service road, a works permit granting permission to carry out additional work is required.

If access to the project site requires the use of an industrial forest road where a forest licensee holds a Road Permit, the proponent is required to enter into a Third Party Agreement with the Permit Holder that identifies shared responsibilities for road maintenance, road safety concerns, and other necessary works to the road.

Federal Requirements

Fisheries and Oceans Canada

Fisheries and Ocean Canada (DFO) www.dfo-mpo.gc.ca/oceans-habitat/index_e.asp is responsible for the management, conservation, and protection of fish and fish habitat. DFO is responsible for the administration and enforcement of the Fisheries Act (while Environment Canada administers the pollution sections of the Act) DFO has additional federal responsibilities under the Canadian Environmental Assessment Act (CEAA) and Species at Risk Act (SARA).

Independent power production proponents wanting to build projects in or near water, especially fish-bearing streams, need to work with DFO to understand what they can and can not do and prevent or mitigate impacts their project may cause. Wind farm infrastructure (e.g. roads and transmission corridors) may be proposed near or within marine waters and wetlands, and therefore will require stream crossing authorization from DFO.

One of DFO's key concerns is the harmful alteration, disruption or destruction (HADD) of fish habitat. Impacts caused by the construction, installation, and operation of hydro generation infrastructure have the potential to create obstructions to fish passage and impact fish and fish habitat within the project footprint, diversion reach, and downstream due to flow modifications. Power production operations can alter natural flow regimes, causing insufficient flow or flow related HADD. The Act prohibits the deposit of any deleterious substance in or near water frequented by fish. Any related infrastructure must be properly designed to prevent the entrainment and killing of fish.

Wind power production projects that may potentially impact fish-bearing waters, especially those that will cause HADD and/or influence flow requirements are deemed to pose a "significant risk." These projects are more complex, difficult to mitigate, and represent greater uncertainty and risk. They require more comprehensive data collection, analyses, assessment, impact mitigation, and compensation. Obtaining permission to construct such projects takes many months. Whether authorization to proceed is granted depends on the information

provided and mitigation measures proposed.

Projects which are located in non fish bearing waters can effectively mitigate impacts and meet downstream flow requirements. As a result, information and assessment requirements are less onerous and applications would be submitted to a more streamlined and expeditious review and approval process.

The way DFO determines whether to grant approval or authorization under federal legislation is through an Environmental Assessment. To ensure projects comply with the federal Fisheries Act, DFO requires adequate hydrometric and hydrologic data, analyses and assessments of flow modifications associated with proposed waterpower projects, as well as appropriate mitigation plans that adequately address fish passage obstructions, HADDs, and other issues such as entrainment mortalities. This information must accompany applications for any and all permits, approvals or authorizations.

Ideally, wind power projects should avoid impacts to resident fish and their habitats. Authorization permitting HADD is considered only after all other options are exhausted. Proponents are responsible for developing appropriate compensatory habitat for any authorized HADD as per the no net loss guiding principle under the DFO's Habitat Management Policy.

The need for an Authorization and CEAA review will be determined upon review of the project's Development Plan. To expedite the CEAA review process, DFO recommends proponents engage the services of qualified professionals with relevant experience to help them prepare their Development Plan and the Environmental Impact Statement (EIS) report, required applications and related documents. Proponents should undertake early consultations with First Nations, non-government organizations, and the public once the project Environmental Management Plan (EMP) is developed. If your project requires an authorization under sections 35(2), for a HADD, or 32, for destruction of fish, DFO will be required to conduct an Environmental Assessment under CEAA prior to deciding to issue an authorization for your project. If your project is described on the Comprehensive Study List Regulations made

under CEAA then it may require a Comprehensive Study level assessment under CEAA.

The Species at Risk Act (SARA) www.dfo-mpo.gc.ca/species-especes/home_e.asp affords protection to those wildlife species. It aims to prevent or reduce the likelihood that wildlife species will become extinct or be extirpated. The Act applies to all waters in Canada as well as all Federal lands, and provides for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity. On private land, SARA prohibitions apply to aquatic species at risk, and migratory birds listed in the Migratory Birds Convention Act, 1994. Provisions in the Act cover the management of species of special concern to prevent them from becoming endangered or threatened. Under SARA, species habitat is protected. The Act requires that recovery strategies be developed and implemented for all species at risk. It is very important that proponents determine early in the project planning stage whether there are any Species at risk within the entire scope of the intended project.

Under the SARA, DFO looks after aquatic species at risk, while the Canadian Wildlife Service addresses migratory birds. These agencies are required to protect listed species at risk, their residence and their critical habitat. Permits and licences are required under SARA. Proponents are responsible for contacting relevant agencies to determine their requirements prior to initiating any project activities. In some cases, other agencies' approvals can not be issued until the protection conditions spelled out in SARA are met. In other cases, permits allowing certain activities to proceed can be issued as long as certain conditions are met.

Transport Canada

Navigable Waters

Transport Canada (TC) is responsible for developing and administering policies, regulations and services for the best transportation system for Canada and Canadians — one that is safe and secure, efficient, affordable, integrated and environmentally friendly. TC's Navigable Waters Protection Division reviews independent power production project proposals to determine if they require approval under the Navigable Waters Protection Act (NWPA).

Wind power projects have the potential to affect navigation on waterways through the placement of project components such as towers in navigable waters. The installation of measuring devices (e.g. anemometers), bridges along access roads, and cable or transmission line crossings associated with wind power projects also have the potential to affect navigation.

Approval under the NWPA is required for any works placed on, over, under, through or across navigable waters that may result in a substantial interference to navigation. Formal approval is required for named works under the NWPA such as bridge, boom, dam, and causeway that are proposed for a navigable waterway even if the structures do not substantially interfere with navigation. NWPA approval for named works or other activities is not required for watercourses deemed non-navigable by a Navigable Waters Protection (NWP) Officer.

Determination of navigability is made by NWP Officers. Classification on what is deemed navigable is changing with the expanding boundaries of recreational boating and kayaking. NWP Officers responsible for project reviews use waterway characteristics, public and user input, and case law to make a determination on navigability.

More information is available at Transport Canada Navigable Waters Protection Division <http://www.tc.gc.ca/marinesafety/oep/nwpp/menu.htm> or from TC's Navigable Waters Protection Division (604) 775-8867.

The requirement for an Approval under the NWPA triggers the requirement for Transport Canada, as a responsible authority, to conduct an Environmental Assessment under

the Canadian Environmental Assessment Act (CEAA). Although, Transport Canada's Navigable Waters Protection Division determines the requirement for Approvals under the NWPA, Transport Canada's Environmental Services is responsible for conducting the Environmental Assessment under CEAA.

Effects of the project on navigation are taken into consideration as part of the Environmental Assessment even when effects are indirect, that is, when the effect is a change in water flow along a diversion reach attributable to the project affects navigation. Although direct effects on navigation are not considered in the Environmental Assessment itself, any measures necessary to mitigate direct effects on navigation are included as conditions of TC's NWPA Approval. TC Environmental Services ensures the Environmental Assessment includes other factors that are required under CEAA such as the current use of lands and resources for traditional purposes by Aboriginal persons, effects of accidents and malfunctions, effects of the environment on the project, and cumulative effects.

Independent power project proponents and regulators can gain efficiencies by ensuring that regulatory requirements specific to other federal legislation are met while the CEAA review is conducted. While completing a CEAA review, proponents and regulators can fulfill requirements specified under federal legislation such as the NWPA, Fisheries Act and SARA. Proponents' Development Plans may be expanded to include any other federal department's information requirements. Proponents who provide comprehensive information on all aspects of their proposed project and its design can substantially reduce the time of federally-mandated reviews. Proponents are advised to work with agency representatives to ensure all required information is included in their Development Plan.

Questions related to the Environmental Assessment of wind power projects can be directed to the Regional Manager of Environmental Services (604) 666-5370.

Air Safety

Transport Canada's Aerodromes and Air Navigation Branch is responsible for the regulatory program for aerodromes and air navigation services in Canada. Among other responsibilities, this branch of Transport Canada reviews proposed projects to determine whether lighting or marking of structures such as antennas, towers, cable crossings, and buildings is required to meet standards for air safety.

To initiate TC's air safety review, proponents should complete and submit the "Aeronautical Obstruction Clearance Form" available at www.tc.gc.ca/CivilAviation/Regserv/Affairs/cars/Part6/Standards/Standard621.htm along with a 50,000:1 scale map indicating where potential obstructions and other works will be located. TC reviews proponents' plans, determines lighting and/or marking requirements, and forwards its decision to applicants.

Once received, a review by the Aerodromes and Air Navigation Branch will be initiated to determine any lighting and/or marking requirements. These requirements, once established, are then forwarded to the proponent. Proponents should be prepared to make arrangements to discuss lighting and marking options with Transport Canada officials so that details of potential effects on air safety and proposed marking and lighting strategies may be included in the project Development Plan

In some cases, lighting and/or marking of structures required by Transport Canada for air safety purposes can cause potentially adverse effects on other valued ecosystem components such as migratory birds. In such cases, the lighting/marketing requirements and measures required to mitigate these effects will be discussed by the proponent, Transport Canada and the federal department that has raised the concern so a resolution can be reached.

For further information about lighting and marking requirements you may contact the Aerodromes and Air Navigation Branch at 604 666-7562. More information is available at Canadian Aviation Regulations www.tc.gc.ca/CivilAviation/Regserv/Affairs/cars/Part6/Standards/Standard621.htm or the Transport Canada Aerodromes & Air Navigation Branch www.tc.gc.ca/CivilAviation/AerodromeAirNav/menu.htm



6.3 Dialogue and Project Description

Goal

The goal is to discuss a project, reach a common understanding of the Project Definition, and determine the regulatory path along which a wind power development will proceed. With this established, applicants can focus their information gathering needs.

Comments

An applicant's key first discussion with agencies regarding development phase activities is to determine the regulatory processes that will be implemented. Small wind power projects will generally be adjudicated by ILMB, but also reviewed by other agencies. Generally wind power projects having a power plant facility with a rated nameplate capacity of ≥ 50 megawatts of electricity will proceed to the provincial Environmental Assessment process. Where this is the case the documents generated from the Environmental Assessment process may be sufficient to address ILMB's Development Plan requirements, thereby streamlining the documentation process. Applicants are advised to liaise with ILMB and the EAO to establish the needs of each agency and begin thinking of how to best collate them.

See Chapter 8 for further information on the Environmental Assessment Office's process and additional considerations.

Where projects do not proceed to the provincial Environmental Assessment process, application must be made for the development area. A general area licence should be requested pursuant to the Land Act through FrontCounter BC. With this process initiated, a Development Plan is required.

Development Plans contain two distinct sections:

- A) Project Definition** - This section provides the definition of the project in terms of location and physical characteristics, timing, buffer area, intensive and extensive use areas, nature and siting of improvements, plus particulars regarding construction, targeted production levels, public access and safety, site security, reclamation and decommissioning strategies and similar matters reasonably required by the province.
- B) Impact Assessment** - This section identifies all impacts of the construction and operation of the project. Where impacts cannot be fully addressed, the Development Plan should include Terms of Reference for completing the assessment.

The exact content of a Development Plan must be determined in discussion with ILMB and other review agencies. Applicants may find it beneficial to participate in a multi-agency 'roundtable' meeting to gather concerns and information needs from the relevant groups. These all-party meetings foster improved communication and collaboration. Roundtable forums enable proponents to meet the agency contacts, discuss the project and lay a solid foundation for the drafting of their Development Plan. However, agency participation in any given roundtable process is dependent on staff capacity.

In order for decision makers to review Development Plans in a timely, efficient manner, very precise information is required. It is in proponents and approving agencies best interests that proponents' Development Plans meet agencies' quality standards.

Ongoing dialogue enables proponents to seek clarification regarding the specific information agencies require. Through Development Plan discussions with agencies, proponents can plan their data collection efficiently, saving time and money. Through dialogue, decision makers and proponents can identify and discuss what is needed to complete and present a comprehensive Development Plan. When proponents submit their Development Plan, they can then be

confident that agencies will not reject their plan because inadequate information and detail were submitted.

Proponents must also be aware that the Canadian Environmental Assessment Agency (CEAA) may have a regulatory role in wind power developments at this stage. Discussions with the CEAA are advisable and should be initiated prior to drafting the Development Plan. There may be time and cost savings if both provincial and federal government's information needs can be captured and documented in a common report for use by both levels of government.

What's Involved

Proponents are advised to:

- ▶ Meet with agencies to discuss Development Plan information needs.
- ▶ Engage with First Nations that have an interest in the project area.
- ▶ Visit the site and ground truth their proposal.
- ▶ Conduct site assessment and initiate required studies.
- ▶ Identify environmental, social and other impacts of proposed project.
- ▶ Consult with stakeholders to identify issues and discuss potential concerns.
- ▶ Gather and analyze scientific and technical data related to the proposed project.
- ▶ Identify preliminary ideas and commitments for preventing, mitigating or compensating for project impacts.
- ▶ Identify opportunities to incorporate "best practices" into Development Plan.
- ▶ Convene multi-agency round table to harmonize and expedite approval process, if desired.
- ▶ Keep agencies informed of progress. Development Plans can be iterative, but agencies may not respond to every iteration.
- ▶ Continued engagement with CEAA, as required.

Upshots

- ▶ Proponents and regulatory agencies can jointly define project parameters and processes.
- ▶ Agency representatives will provide, to the extent possible, substantive comments regarding all legislated requirements.
- ▶ Proponents can identify the technical information they must collect.
- ▶ Proponents will know they are collecting all necessary data required for their Development Plan.
- ▶ Proponents will know what kind of public and stakeholder input they must solicit and be able to develop measures for addressing others' concerns.
- ▶ Proponents will be able to prepare a Development Plan, confident that it meets agency requirements.

Siting of Wind Turbines

Operating wind power turbines create sound. Rotating blades create a swishing sound and mechanical components of the turbine produce a whine or hum. If loud enough, the sound may be described as unwanted noise, which can be a nuisance and, in extreme cases, a human health issue. As such, projects must be sited at locations where the wind turbine sound level will not exceed a maximum of 40 dB(A-weighting) on the outside of an existing permanently-occupied residence or the closest boundary of existing, undeveloped parcels zoned residential. Wind turbine locations can be determined through modeling, using a methodology which satisfies the ISO 9613-2 standard "Acoustics Attenuation of sound during propagation outdoors - Part 2: General method of calculation".

The sound power level or acoustic power radiated by the wind turbines is to be supplied by the turbine manufacturer. Modeling utilizes the wind speed at which the sound power level has become constant. Application of the sound level requirement is limited to residences and undeveloped residential parcels in existence at the time of application for Land Act tenure to construct a wind farm. Worst case scenarios are to be modeled, in which each property line or existing residence is portrayed as being directly downwind from each turbine. Site specific characteristics, such as topography, are to be incorporated into the model. Because modeling is based on assumptions which may not accurately portray the characteristics of specific sites or meteorological conditions may predict a sound level that is only marginally quieter than the acceptable level, proponents should conduct a risk assessment to determine the potential impact on project viability of unacceptable sound levels from turbines.



6.4 Project Development Phase *Initial Provincial Authorizations*

Goal

The aim of this step is to submit (1) an application for a general area licence of occupation (Land Act), and (2) a comprehensive Development Plan that will be the basis for final adjudication by ILMB.

Comments

In order to gain access to Crown land for development phase construction activities, an application for Land Act tenure is required. This tenure will likely be for a general area licence of occupation, which will include most, if not all, project components. All proponents are required to prepare a Development Plan to support their tenure application. The Development Plan will also become an integral part of the tenure agreement. As such, it becomes part of the legal contract between the tenure holder and the province. Failure to comply with an approved Development Plan constitutes a default which if not addressed, may lead to termination of the tenure agreement. A Development Plan is one of the principle ways in which ILMB assesses diligent use.

An important feature of this step is that information provided in the Development Plan allows provincial agencies to make decisions. The Development Plan must identify, assess and address all impacts and contain all information requested by agencies. The Plan must describe how the proposed project will meet legislated requirements. Proponents must address, to the extent practical, concerns raised during the previous stages. Regulatory agencies should not need to request additional studies at this point.

What's Involved

- ▶ Prior to ground based studies, proponents may require an investigative permit (Land Act). A Licence of Occupation is required for wind or geotechnical data for potential turbine installation sites.
- ▶ An application for a general area licence of occupation (Land Act) is submitted to FrontCounter BC for the development area.

- ▶ A Development Plan containing all required information is submitted.
- ▶ The Development Plan is referred to all relevant stakeholders, including First Nations.
- ▶ The Development Plan must provide adequate information for provincial decision makers to adjudicate the application.
- ▶ Proponents are required to advertise and stake their project publicly.
- ▶ Agencies review the Development Plan.
- ▶ Agencies raise and discuss concerns they have with Development Plan.
- ▶ Agencies ask proponents to develop additional preventative, mitigative or compensatory plans and/or provide supplementary information and detail.
- ▶ Proponents gather requested information and formulate preventative, mitigative or compensatory plans.
- ▶ Proponents work with agency representatives to devise mutually agreeable solutions to issues and concerns raised and supplemental work required.
- ▶ Consultation with First Nations is completed and the outcomes documented.
- ▶ ILMB will make a decision to disallow, modify or allow the land tenure application (Note: this is generally preceded by a decision by the Environmental Assessment Office, if that process is initiated. See Chapter 8 for more information on the EAO process.
- ▶ A general area licence of occupation may be issued, subject to conditions.

Upon receipt of a proponent's Development Plan, government agencies commit to:

- ▶ Respond in a timely manner.
- ▶ Clarify data requirements.

Upshots

- ▶ The Development Plan is referred to provincial agencies for review.
- ▶ Proponents whose Development Plan falls short are asked to provide additional information.
- ▶ Proponents whose Development Plan is acceptable can be issued a general area licence of occupation.

6.5 Additional Authorizations and Final Approvals

Goal

The goal of this step is to complete the Land Act tenuring but may include modifications to the project. During this stage, all approvals and permits must be put in place.

Comments

If Land Act tenure has been offered to the applicant, subsequent permits and approvals from other agencies may be obtained (e.g. cutting permits to remove Crown timber). Generally these must be in place before construction begins.

As a project is constructed, the general area licence may require modification to reduce its size to the extent that is actually required for operations. This may occur after project components are installed and surveyed. At this time project components can be 'broken' into individual tenures and new land rental rates applied.

During construction, project modifications may occur due to unforeseen circumstances. Although it is hoped that projects are well-planned and modifications are minor, it is likely that revised plans will require an amendment to the Development Plan.

Tenure holders may request amendments to the Development Plan. ILMB must consider, but not necessarily approve, them. Amendments that are anticipated include: changes to tenure boundaries, expansion or reduction in area, change in timing of construction and development, tenure term or tenure purpose, a significant alteration of site improvements or layout of structure on the tenure area such as adding structures to the site not approved in the current plan. ILMB may request, from time to time, amendments to the Development Plan where in the reasonable opinion of ILMB, such amendments are required for environmental, safety, land use or other similar reasons in the public interest. ILMB, from time to time, may request consolidation of amendments to the Development Plan.

What's Involved

- ▶ Issuance of any final approvals and permits from agencies. Some examples include:
- ▶ MFR issues road use permit to allow use of the forest service road, and/or works permit allowing proponents to carry out activities within the 70 m road right-of-way.
- ▶ MFR issues cutting permits, Occupant Licence to Cut.
- ▶ Ministry of Transportation issues highway access permit and approval to use highways and roads.
- ▶ Ministry of Tourism, Culture and the Arts issues an archaeological or heritage site conservation permit
- ▶ Environment Canada confirms the project is SARA compliant.
- ▶ Final Land Act tenures on completion of survey of project components.
- ▶ Project construction and Development Plan modifications, as required.
- ▶ Projects must be built and operated according to all terms and conditions specified in approvals granted by regulatory agencies and outlined in the Development Plan.
- ▶ Amendments and refinements may be made with agencies.
- ▶ Agencies inspect worksites at periodic intervals.
- ▶ Proponents may be responsible for collecting operational and compliance monitoring data and regularly submitting reports to agencies.
- ▶ Proponents continue to work with provincial agencies such as Ministry of Forests and Range and Ministry of Transportation to finalize their information needs for approvals.

Upshots

- ▶ All required permissions are granted. Proponents have all the approvals needed to construct and operate an independent power production project.



Chapter 7

Other Renewable Electricity Alternatives

The *BC Energy Plan: A Vision for Clean Energy Leadership* (The Energy Plan) puts British Columbia at the forefront of environmental and economic leadership by focusing on the Province's key natural strengths and competitive advantages of clean and renewable sources of energy. British Columbia has significant potential to develop clean and renewable electricity through licensable and environmentally and socially responsible projects – like water, wind, geothermal and ocean – to contribute to meeting the Province's future demand for electricity.

Renewable energy production results in low or no emissions of greenhouse gases. Since the sources are renewable, managed properly, these projects do not deplete the Earth's resources. However, no energy resource is completely benign, and the environmental aspects can vary from resource to resource. All forms of power production – including clean and renewable electricity – have their benefits and their limitations.

Government's goal is to encourage a diverse mix of resource developments that represent a variety of technologies (The Energy Plan, 2007). Some resource technologies such as large and small hydro, thermal power, wind and geothermal provide well established, commercially available sources of electricity. Other emerging technologies that are not widely used and are primarily in the early stages of development are ocean wave and tidal power, solar, hydrogen and advanced coal technologies. Bio-energy is a growing opportunity for British Columbia to turn adversity into opportunity by recovering maximum value from forests and creating new economic opportunities from mountain pine beetle infestation. The recently released "B.C. Bioenergy Strategy: Growing Our Natural Energy Advantage" (available at www.energyplan.gov.bc.ca/bioenergy) includes the target for B.C. biofuel production to meet 50 percent or more of the province's renewable fuel requirements by 2020, which supports the reduction of greenhouse gas emissions from transportation.

7.1 Biomass and Bioenergy

The Mountain Pine Beetle (MPB) has infested over 8 million hectares of B.C.'s forest. The MPB is forecast to destroy about 80 per cent of the merchantable pine in central and southern B.C. over the next five years. Through the Mountain Pine Beetle Action Plan, the provincial government is hoping to harvest some of the timber being killed—while it is still merchantable.

The province's total inventory of merchantable mature lodgepole pine is approximately 1.8 billion cubic metres. Dead timber remains commercially valuable for 5-18 years depending on local conditions. That means the window of opportunity for salvaging decaying pine trees is narrow and immediate.

Some dead pine trees can be used to make lumber. Some can be used to make other forest products such as oriented strand board. Other possibilities include wood pellet production, or wood-fired electricity generation.

As part of the B.C. government's Mountain Pine Beetle Action Plan, the government is exploring ways to utilize the damaged timber and make it available for biomass facilities.

The B.C. Ministry of Forests and Range (MFR) has created a website <http://www.for.gov.bc.ca/hth/timten/bioenergy/index.htm> to provide independent power producers with basic information about the pine beetle infestation, B.C.'s forest tenure system, maps, and the potential availability of biomass that may be suitable for alternative energy production. The Ministry is developing guidelines governing the development and operation of waste wood biomass energy production projects. Proponents interested in using dead pine trees to generate electricity are advised to contact staff in MFR district offices.

Calls for Power

BC Hydro is conducting a two-phase call for power to utilize wood infected by the mountain pine beetle as well as other wood fibre fuel sources (See Chapter 11). The Bioenergy Call will help B.C. become electricity self-sufficient as outlined in the 2007 Energy Plan, and allow BC Hydro to secure firm, clean energy.

Biomass and Bio-energy IPPs typically will involve the use of timber or the by-products of timber processing facilities. There are several potential sources of timber and timber byproducts available for generating electricity from provincial Crown land.

Potential Sources of Biofuel

Project proponents requiring the use of wood biomass will require a steady supply of fibre for their operations. Independent power producers may obtain fibre from several sources including (1) purchase agreements for existing byproducts from wood processing facilities, (2) private sources, (3) waste from existing logging operations, and (4) access to standing timber.

Pine Beetle Stands

Mountain Pine Beetle killed timber may be a viable source of fibre supply for biomass energy production projects. While many trees are dying as a result of the pine beetle infestation, it may take several years to harvest these stands. Many trees in a stand may have value as sawlogs while others in the same stand may no longer be suitable for making lumber and so may be left standing. Where markets do not exist to utilize waste wood materials, they may be piled at the side of a road to be burned at a later date to reduce fire hazards and make reforestation easier. The moisture content of these trees reaches equilibrium with the local climate within a few years of death and after doing so becomes a comparatively efficient source of energy. This situation may present a new low cost biofuel source for independent power producers.

Currently the Ministry is analyzing the situation to determine the available timber supply for beetle killed wood in various regions throughout the province. This analysis will identify where the timber is located and allow proponents to assess and determine the economics

of these biomass supplies. The ministry's analysis and determination of available supply is expected to be completed in 2008/09.

Mill Residues

Independent power producers will need to secure fibre supply arrangements with the mill owners or forest tenure holders to access this opportunity. The following forms of mill residues are available:

- Hog fuel consisting of bark and damaged pieces of wood.
- Chips (though most is currently sold to pulp and paper mills).
- Sawdust and shavings from sawmills and planer mills, some of which is currently used for energy production or engineered wood products.

Roadside Accumulations

During logging operations, licencees often pull an entire tree to the roadside so they can recover the portion of the tree that can be used by the mills they supply. When demand for low quality material is less than the supply, large piles of residual or waste biomass may result. Since these piles present a fire hazard and occupy land to be reforested, they are often burned. Securing access to these piles through fibre supply arrangements with the existing forest tenure holder may provide a source of biomass material for independent power production projects.

Proponents will need to meet certain requirements when transporting beetle-killed waste wood to project facilities. This includes scaling the material, confirming that stumpage has been paid to the Crown, and securing permits authorizing the transportation of the material to a power generation facility.

Once arrangements have been negotiated with local forest tenure holders, consultation with local MFR District offices is essential to allow waste wood materials to be moved from the roadside to the generation facility. Agency staff is available to assist with the identification of tenure holders throughout the province. Work continues to ensure proper documentation and permissions are developed to authorize these activities.

Standing Timber

Access to standing timber on Crown Land requires that independent power producers obtain a forest harvesting tenure or enter into a fibre supply agreement with an existing forest tenure holder. The potential for securing a harvesting tenure on Crown Land only exists in management units with an unallocated Annual Allowable Cut (AAC). Currently, very few areas of the province have unallocated AAC. To find out more about the status of unallocated AAC in areas that are being considered, proponents should contact the Regional Executive Director at the appropriate Regional Office.

Currently, MFR is exploring several options and models to identify available wood fibre for use by the energy industry. MFR is working closely with BC Hydro on its Bioenergy Call. An evaluation is underway to assess where significant volumes of dead pine that could be used as fuel may be available, how much is available, and how long it is likely to remain merchantable. Once results of this research are known, they can be used to determine the location and design of tenure opportunities or bioenergy production projects.

Refer to the Timber Tenures Section website at www.for.gov.bc.ca/hth/timten/

Stages in Successful Project Completion

Proponents wanting to use biomass to generate energy should follow the general stages outlined in Chapter 4 of this Guidebook. Following the suggestions below will help ensure the successful implementation of biomass/bio-energy power production projects.

Stage 1: Project Identification

For Phase 1 proposals, ensure that sufficient fuel supply has been identified for the proposal. This may be in the form of already available fibre or ongoing agreements with processing facilities to obtain the required supply.

For Phase 2 proposals, initial consultation with the Ministry of Forests and Range (MFR) is necessary to ensure that available fuel/timber is identified. Forest Regional and District offices can work with proponents at this early stage to determine the location and available volume of timber. Proponents should discuss purchase agreements with local processing facilities to ensure a reliable source of fibre for their proposed project.

Note; the MFR is determining the location of available timber supply and available volumes. This work continues and expected to be in place before the mid-2008 Phase 2 Bio-energy Call.

Based on the information gathered at this stage, proponents can determine the economic viability of a biomass proposal and whether or not to proceed to submitting an application.

Stage 2: Application, Preliminary Project Description

This step involves submitting an application to FrontCounter BC, which will formally acknowledge proponents' intent to develop an independent power production project.

Confirmation of fuel supply sources, locations and amounts must be included in applications or the preliminary project descriptions. For Phase 2 projects, proponent must identify locations and volumes of Crown land timber on maps after determining available timber supply options with the MFR. At this stage proponents should also negotiate appropriate licence agreements authorizing the removal of Crown timber from the provincial forest.

Remaining elements identified in Chapter 4 apply to biomass/bioenergy projects.

Stage 3: Dialogue and Project Definition

At this stage, proponents have an opportunity to discuss their project plans with provincial and federal agency representatives, to refine the

project plans, mitigate impacts, determine which forest tenure is appropriate, and finalize the content of the Development Plan.

Biomass projects which require the harvesting or removal of timber from Crown land are required to comply with provincial forest legislation to ensure conditions of the licence agreement are met and forest values are protected. Methods of harvesting, road construction, mitigation/protection of forest values form an integral part of the submitted Development Plan for Phase 2 projects. Communication with MFR staff is essential at this stage.

All other elements of Step 3 as outlined in Chapter 4 are required.

Stage 4: Completion and Submission of Development Plan

The Development Plan outlines the sources of fuel for biomass projects and required supply levels. Commitments for purchasing wood biomass or for harvesting opportunities have been finalized. At this stage, proponents should have entered enter a long term harvesting licence for Phase 2 projects. For proposed projects to proceed, approval may be subject to the successful adjudication of Lands Officers.

Mitigation of forest resource impacts must be confirmed and verified by MFR staff, as detailed in the submitted Development Plan. Details of proposed forest tenures are discussed at this stage and may include harvesting, road construction/maintenance/deactivation, silviculture obligations and the protection of forest resource values.

Stage 5: Initial Provincial Authorizations

It is expected that long term forest tenure agreements to harvest Crown timber will be approved at this stage. These agreements specify requirements and conditions for harvesting Crown timber and provide the authority to grant specific harvest authorities.

The MFR is developing appropriate tenure options for biomass/bioenergy projects. Details will be made available once decisions have been finalized. Proponents should contact MFR staff for additional information.

Stage 6: Final Provincial and Federal Approvals

The elements listed in Chapter 4 apply to biomass projects.

Additional Information

Independent power production proponents accessing timber from Crown Land must comply with all existing Higher Level Plan objectives including requirements concerning bio-diversity, visual management, protection of wildlife habitat, riparian management, soil protection and reforestation requirements. All forest tenure holders are required to meet the approved land use objectives across the province.

An Information Guide for potential proponents has been prepared by the Ministry of Energy, Mines and Petroleum Resources and the Ministry of Forests and Range. This guide provides additional information on types of biomass/bioenergy facilities and recommendations on successful project implementation. The guide and additional information is available at energyplan.gov.bc.ca/bioenergy/

The Ministry of Forests and Range is continuing to assess the availability of fibre supply for bioenergy use. Once this analysis is complete, a clearer picture of supply options will be known and independent power producers will be able to determine the viability of proposed projects.

Tenures Branch	www.for.gov.bc.ca/hth/
NIR Region	www.for.gov.bc.ca/rni/
SIR Region	www.for.gov.bc.ca/rsi/
CFR Region	www.for.gov.bc.ca/rco/

7.2 Ocean Energy

British Columbia has significant ocean energy potential. Over 6000 megawatts (MW) of wave energy and over 2000 MW of tidal energy development opportunities alone have been identified to date. Worldwide ocean energy potential (wave, tidal, marine currents, thermal and salinity gradients) is estimated at 10 – 20 terawatts (TW), which is two to four times the existing electricity consumption of the world.

Ocean energy power projects using modern technologies have only recently begun to appear as demonstration and pilot initiatives around the world. The ocean energy sector is at the early stages of development relative to wind and waterpower. Some projects are within a few years of commercial production, particularly in Europe. In general, the leading countries in terms of ocean energy research and development have established policies to regulate and promote non-hydro renewable energy in a consistent and coordinated manner.

There is a growing interest in developing British Columbia's ocean energy potential, and the Ministry of Energy, Mines and Petroleum Resources and the Ministry of Agriculture and Lands are in the process of developing a Crown land use operational policy for ocean energy projects. In the interim, an Ocean Energy Project Application Directive has been released to provide direction to provincial officials and proponents for administration of ocean energy applications and replacements to access, investigate and potentially develop ocean energy sites on Crown land.

To view the policy directive, click on **Ocean Energy Project Application Directive** at <http://www.empr.gov.bc.ca/EAED/AEPB/AEPS/Pages/OceanEnergy.aspx>

To view a discussion paper on the tenuring of provincial Crown land for ocean energy projects, click on **Ocean Energy on Crown Land in British Columbia Discussion Paper** at <http://www.empr.gov.bc.ca/EAED/AEPB/AEPS/Documents/Ocean%20Energy%20on%20Crown%20Land%20in%20British%20Columbia%20Discussion%20Paper.pdf>

The Crown land use operational policy for ocean energy projects will provide provincial officials and proponents with direction for administration of ocean energy applications to access, investigate and develop ocean energy sites on Crown land, upland and submerged. There is recognition that increased certainty can be provided by having an ocean energy Crown land policy so that industry knows what is expected and required. There is an important balance to be struck between having a stable and consistent policy regime and one that is responsive to the evolving needs of the sector and the public.

Please check the Ministry of Energy, Mines and Petroleum Resources website for updates on the development of the Crown land use operational policy for ocean energy projects.

7.3 Geothermal

Geothermal energy has not yet been developed at a large scale in B.C., but there is ongoing exploration to prove the commercial viability of the resource. Geothermal energy may be exploited where heat concentrated near the earth's surface is recoverable in the form of natural hot water or steam. Geothermal resources can be used to generate electricity for:

- residential heating and cooling;
- groundwater heat pumps
- greenhouse heating
- industrial process heating
- aquaculture
- swimming pool heating and
- hot spring spas

The Geothermal Resources Act defines a geothermal resource as the earth's natural heat and all substances that get added value from it, including steam; water; water vapour; and all substances dissolved in the steam, water, or water vapour obtained from well, but does not include water at less than 80 degrees centigrade at the surface or hydrocarbons.

The Ministry of Energy, Mines and Petroleum Resources, Titles Division issues and administers geothermal rights and regulates exploration and drilling activities, and collects and accounts for the revenues associated with the rights. The Titles Division is also the contact for exploration and drilling activities. For more information how rights are issued, location of geothermal resources and regulation of activities, refer to the Geothermal Rights in British Columbia pamphlet located at www.em.gov.bc.ca/Geothermal/GeothermalRights.htm

Geothermal rights and authorizations for geophysical work, test holes or wells:

Titles Division
Ministry of Energy and Mines
PO Box 9326, Stn Prov Gov't
Victoria, B.C. V8W 9N3
Phone: 250 952-0335

Land Tenure and Water Licences:

Land and Water British Columbia Inc.
5th Floor 609 Broughton St
PO Box 9475 Stn Prov Govt
Victoria B.C. Canada V8W 9W6

Tel: 250 952-6246
Fax 250 952-6237



Chapter 8

Environmental Assessment

Environmental Assessment provides a framework to address a broad range of potential environmental, economic, social, and heritage and health, effects of proposed major projects through a single, integrated process, ensuring the issues and concerns of First Nations, the public and other interested parties are considered together. Through the process of Environmental Assessment, potential effects of a proposed project are identified and evaluated early, providing the opportunity for a project to be modified before irreversible project design and construction decisions are made.

8.1 B.C.'s Environmental Assessment Process

The British Columbia Environmental Assessment Act (Act) requires that certain major project proposals obtain an Environmental Assessment certificate before they can proceed. The Act applies to public and private sector projects whether located on public (Crown) land or private lands. Reviews are directed by the Environmental Assessment Office (EAO) a neutral agency created under the Act.

- 1) There are three ways a project may be subject to review under the Act. Where the size of a project meets or exceeds a threshold established in the Reviewable Projects Regulation, the project automatically becomes reviewable under the Act. For power projects the thresholds are:

Power Plants

- A new facility with a rated nameplate capacity of 50 megawatts or more of electricity that is (1) a hydroelectric power plant, (2) a thermal electric power plant, or (3) another power plant.
- Modification of an existing facility that results in the facility having a rated nameplate capacity that has increased by more than 50 MW of electricity.
- Dismantling or abandonment of an existing dam facility associated with an existing hydroelectric power plant of any size, if the dam is or was permitted under the Water Act to impound more than 10 million cubic metres of water.

Electric Transmission Lines

- A new electric transmission line of 500 kV or higher and 40 kilometres in length or greater on a new right of way.

- 2) Secondly, if a project is not captured by the Reviewable Projects Regulation, a proponent may apply to the executive director of the EAO to have the project designated as a reviewable project.
- 3) Finally, the Minister of Environment has the power to designate a project reviewable where the project is not captured by the Reviewable Projects Regulation but poses a risk of significant adverse effects and an Environmental Assessment is in the public interest.

If a project is reviewable, EAO then selects the appropriate review path under section 10 of the Act. The review path most frequently selected by EAO requires that a project undergo an Environmental Assessment and receive an Environmental Assessment certificate before the proponent can obtain any other approvals or permits required to construct and operate the project. In exceptional cases, where



a reviewable project presents little risk of significant adverse effects, the executive director may order that an Environmental Assessment and Environmental Assessment certificate are not required. In these cases, the proponent must still obtain all other necessary permits and approvals.

When EAO leads the review of a project, the Environmental Assessment process consists of two stages: the pre-application stage and the application review stage.

At pre-application, EAO issues a legal order (Section 11 Order) as early as practicable to outline the review procedure for both the pre-application and application review stages. The order usually identifies the physical facilities and activities that comprise the project (project scope) and sets out a general procedure to identify the issues to be addressed in the proponent's application. The order may specify consultation with other parties such as government agencies, First Nations and the public and the means by which they are to receive notice of key steps in the review, access to information, and opportunities to participate. The order may also provide for technical working groups to advise the EAO on issues during the course of the review. The goal at the pre-application stage is to thoroughly scope the project and potential issues so that a proponent develops an application for an environmental assessment certificate (Application) that is as complete as possible.

During pre-application, EAO gives proponents the flexibility to develop terms of reference for their Environmental Assessment application, subject to government sign-off. The terms of reference identify the studies, consultations, analysis, and other information required in the Application and is first developed in draft form for review by federal, provincial and local government and First Nations. EAO may also invite public comment on the draft terms of reference. EAO will approve the terms of reference once satisfied they are complete.

The Application review stage begins when a proponent submits its Application to the EAO after gathering and preparing the information specified by the terms of reference. EAO must then evaluate the Application to verify that it contains the information specified by the

terms of reference and provides the basis for a proper assessment of the project. If information is missing, the EAO returns the Application to the proponent for upgrading. If all information is present the EAO will accept the Application for formal review.

The EAO must complete the formal review of the Application within legislated time limits (180 days) and in accordance with any steps prescribed in the procedural order (Section 11 Order). The application review stage includes public comment on the Application, First Nations consultation, federal, provincial and local government review of the Application and drafting of an assessment report for Ministers. During application review, the EAO may request additional information from a proponent, for example, to fully assess an impact or establish confidence in proposed mitigation measures.

During the Application review stage (and during pre-application), EAO creates technical advisory committees of federal, provincial, local government and First Nation government representatives to focus on the specific issues raised by a project. Membership on advisory committees is tailored to specific review needs.

EAO has the option, during an assessment, to seek Ministerial direction when policy uncertainties are delaying project reviews, and where only political direction can provide the policy clarification and certainty necessary to guide the remainder of the assessment. EAO will conclude a review when it is satisfied that all potential impacts have been identified and measures proposed to avoid, reduce or mitigate these impacts to an acceptable level.

EAO then finalizes an Environmental Assessment report along with any recommendations and reasons for the recommendations and refers the Application to Ministers for a decision. To provide balance to the assessment process, the Act mandates the EAO to design and lead environmental reviews but assigns the power to approve or reject a project to the ministerial level. The decision-making process involves two ministers: the Minister of Environment and the minister responsible for the sector within which the project originates (the "Responsible Minister").

Ministers have up to 45 days to decide whether to grant an Environmental Assessment certificate, refuse to grant an Environmental Assessment certificate, or order further assessment. If ministers approve an application, the Environmental Assessment certificate issued to a proponent will include conditions for compliance reporting and other follow-up measures. The Act provides for sanctions, remedies and penalties if a proponent fails to carry out a project in accordance with the conditions in an Environmental Assessment certificate or fails to comply with other requirements of the legislation.

Key features of B.C.'s Environmental Assessment process

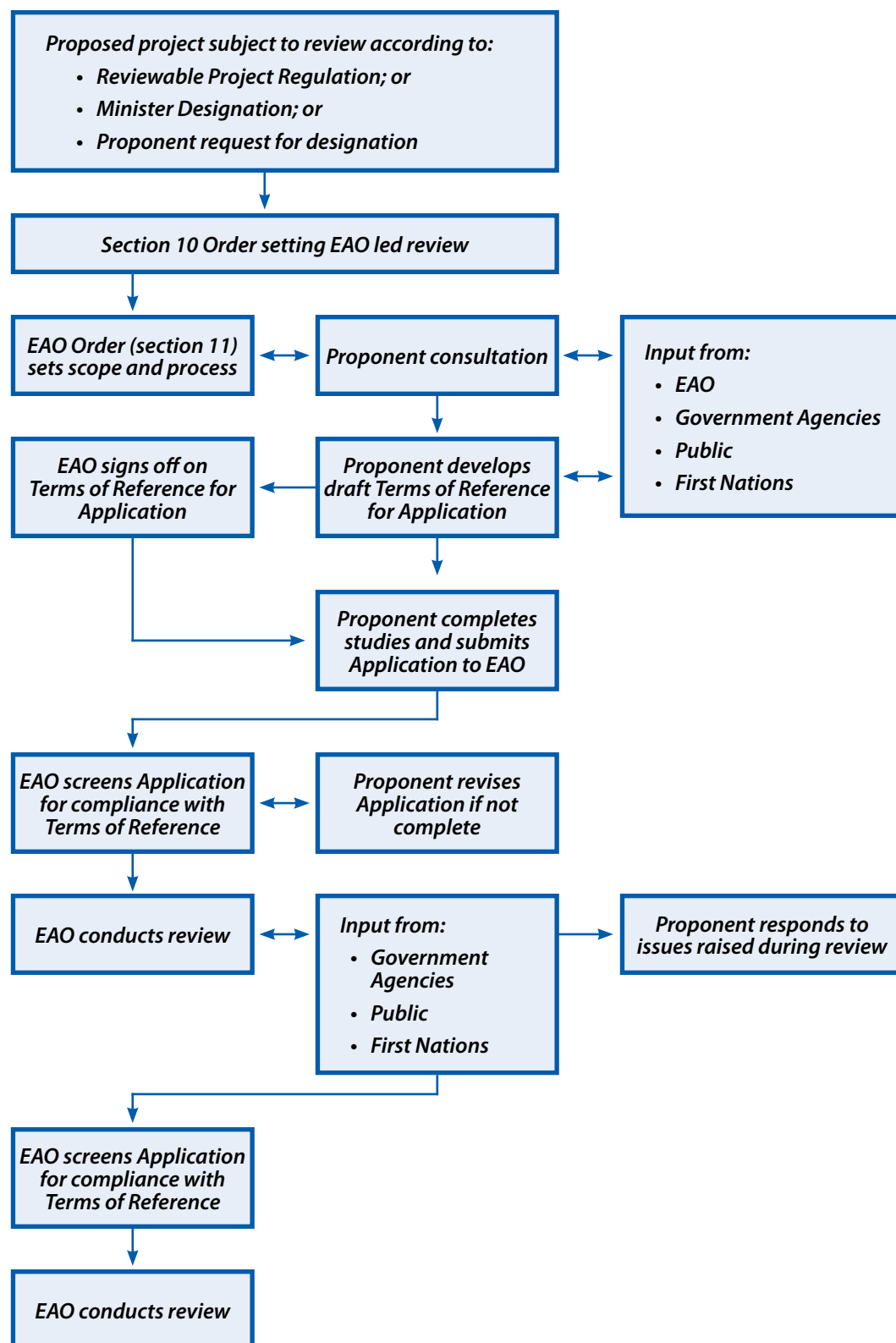
The key features of the Environmental Assessment process are:

- **First Nation Participation** – The Environmental Assessment process provides for ongoing and meaningful consultation with First Nations on whether and how a project may affect First Nations proven or claimed rights and title. This may include accommodation of impacts to First Nations' asserted rights and title interests where appropriate. EAO's engagement with First Nations is guided by applicable policy and common law requirements and the principles of The New Relationship. EAO provides First Nations with opportunities to review procedural orders, participate on EAO advisory working group(s) to discuss potential project impacts and mitigation, and comment on drafts of EAO assessment reports. In addition, EAO does provide some financial support for First Nations to participate in the Environmental Assessment process.
- **Harmonization of Federal and Provincial Processes** – A federal/provincial agreement on Environmental Assessment harmonization was approved by the former Minister of Sustainable Resource Management and the federal Minister of Environment in March 2004. This agreement has reduced the overlap and duplication of federal and provincial Environmental Assessment processes. One of B.C.'s main goals is to ensure harmonized reviews meet our provincial timelines. Co-operative review arrangements with federal Environmental Assessment procedures are implemented when possible.
- **Clear Process Accountability** – EAO determines the scope of the review and manages the assessment process.
- **Flexible Procedures** – EAO can tailor each Environmental Assessment review process to the specific project.
- **Concurrent Permitting** – The proponent can request that provincial agencies work on any additional permits that may be required (e.g. waste permit, land tenure, water licence) while the Environmental Assessment review is taking place. Regulatory agencies must make decisions on permits, licences and other approvals within 60 days of the Ministers' Environmental Assessment certificate decision.
- **Transparency** – High standards of openness and transparency, with meaningful public involvement and a neutrally administered review process.
- **Access to information** - The Public Consultation Policy Regulation (B.C. Reg 373/2002) ensures that minimum standards of notification, access to information and consultation are maintained. Access to information is provided through the "project information centre" (formerly called the "project registry"). EAO's electronic Project Information Centre (ePIC), available online at www.eao.gov.bc.ca, is the primary means for making information available to the public, interest groups, stakeholders and others.
- **Project Termination** - Ministers may make an early decision to terminate a review and reject a project where it is clear that a project is not able to satisfy key government requirements.

Proponents are expected to undertake early and ongoing consultation with federal, provincial and local governments, First Nations and the general public. Additional information on provincial EA reviews and advice to proponents is available at EAO's electronic Project Information Centre (ePIC).

Details of the provincial Environmental Assessment process are graphically presented in Figure 2.

Figure 2 : Environmental Assessment Certificate Process



8.2 Canada's Environmental Assessment Process

Much like the provincial government, the federal government uses Environmental Assessments (EA) to ensure that adverse environmental effects of proposed projects are minimized and managed. The purposes of federal EAs are to identify possible environmental effects, propose measures to mitigate adverse effects, and predict whether there will be significant adverse environmental effects, even after the mitigation is implemented. The *Canadian Environmental Assessment Act* (CEAA) governs projects in which the Government of Canada has decision-making authority, whether as a proponent, land manager, funding agency, or regulator. Under CEAA, responsible authorities must protect the environment and human health, apply the precautionary principle, consider the environmental effects of proposed projects before allowing projects to proceed, and only grant permits after all significant adverse environmental effects have been addressed.

The CEAA sets out responsibilities and procedures for conducting EAs. Regulations, established under CEAA, specify what is and is not permissible. Regulations of particular relevance to proponents are:

- Inclusion List Regulations — These regulations prescribe the physical activities and classes of physical activities (not relating to physical works) that may require an Environmental Assessment before a federal authority initiates or funds them, grants land, or issues regulatory approvals that allow activities to proceed.
- Exclusion List Regulations — These regulations specify projects involving physical works with insignificant environmental effects that are exempt from Environmental Assessment under the CEAA.
- Comprehensive Study List Regulations — These regulations list projects or classes of projects that must undergo a comprehensive EA study because these projects may have the potential for significant adverse environmental effects.
- Law List Regulations — These regulations identify federal statutory and regulatory approvals that may trigger the requirement to conduct an EA. Under the CEAA, an EA may be required whenever a federal authority is asked to provide a licence, permit, certificate or other regulatory authorization prescribed in these regulations.

The need for a federal EA comes into play whenever a federal agency's specified decision-making responsibility is "triggered." Triggers are defined as powers, duties or functions such as issuing permits, granting approvals, or providing funding that obligate federal agencies to require an EA.

Federal actions that may trigger a federal EA include:

- Proposing a project.
- Providing financial assistance to a proponent to enable a project to be carried out.
- Selling, leasing, or otherwise transferring control or administration of federal land to enable an project to be developed.
- Providing a licence, permit or an approval that enables a project to proceed.
- Independent power production events which can trigger an EA include:
- *Fisheries Act* authorization to harm, alter, disrupt or destroy fish habitat (HADD).
- *Fisheries Act* authorization to kill fish by means other than fishing.
- *Navigable Waters Protection Act* Approval for works that may result in a substantial interference to navigation.
- EcoEnergy funding provided by Natural Resources Canada.

EAs should be initiated as early as possible so mitigative measure can be incorporated into project design plans. For projects requiring only a CEAA review (i.e. no B.C. EA review is required), a responsible authority will coordinate the CEAA review. The harmonized provincial/federal review is led by EAO, however, CEAA coordinates the federal aspect across the different responsible authorities and federal authorities. The agency provides single window service and information regarding federal EA processes,

provides advisory support, and coordinates EA processes with other jurisdictions. Proponents are encouraged to provide as much detail as early as possible so EAs can be initiated—and concluded—in a timely manner.

The main steps in a CEAA-coordinated EA process include:

1. Determining whether a federal Environmental Assessment is required.
2. Identifying and coordinating those federal departments which are responsible for the EA and/or contributing expert information.
3. Coordinating all the parties involved in the EA process and providing guidance for submitted Project applications.
4. Identifying criteria and details EAs must include, such as the scope of the proposed project, factors that must be considered and time lines.
5. Analyzing proposed projects, identify potential environmental impacts, specifying mitigative measures, and preparing a written EA report.
6. Reviewing the EA report for adequacy and accuracy.
7. Making a decision, based on the report's findings, about whether proposed projects should be allowed to proceed.
8. Ensuring mitigation measures are incorporated into project design plans and implemented.
9. Issuing appropriate permits or approvals.
10. Implementing mitigation and follow-up programs to ensure EAs are accurate and mitigative measures are effective.

The information in the following URL can be used to illustrate the steps in the CEAA process.

Federal CEAA Process

www.ceaa-acee.gc.ca/010/basics_e.htm

Factors federal authorities may consider include

- Environmental effects.
- Significance of effects.
- Public comments.
- Mitigation measures.
- The impact of accidents and malfunctions.
- Effects of the environment on the project.
- Alternative means of carrying out the project.
- Capacity of renewable resources to sustain future generations.
- Cumulative effects.



EA levels

Depending on how significant a project's environmental impact is likely to be, federal authorities may require proponents to provide different levels of detail in the EA information they provide. A screening level review is conducted for projects that are not on the Comprehensive Study List regulation, have not been previously assessed; and have not been referred directly to a mediation or panel review. On the other hand, a "comprehensive study" is required for projects that may have the potential for significant adverse effects on the environment. A panel review may be conducted for projects with likely adverse environmental effects or where public concerns warrant that level of review. EA levels are explained in detail below.

Screening

Almost all federal EAs are screenings. Screening takes a systematic approach to documenting the environmental effects of a proposed project and determining the need to eliminate or minimize adverse effects or modify the project plan. Screenings vary in time, length and depth of analysis, depending on the proposed project, existing environment, and anticipated environmental effects. Some screenings require only a brief report or analysis. Others require background studies. In some cases, federal authorities will prepare Environmental Assessment reports. In other cases, project proponents are tasked with researching, preparing and submitting EA data and reports. Responsible authorities then determine the significance of the environmental effects of the project, which in turn determine whether projects can proceed. If a federal authority cannot decide whether a project should be permitted, it can forward the proposal to a review panel.

Comprehensive Study

Large projects that may result in significant adverse environmental effects or generate public concern require a comprehensive study. Examples of independent power projects that may require a comprehensive study include:

- The proposed construction, decommissioning or abandonment of a hydroelectric generating station with a production capacity of 200 MW or more.
- The proposed expansion of a hydroelectric generating station that would result in an increase in production capacity of 50 per cent or more and 200 MW or more.
- The proposed construction, decommissioning or abandonment of a tidal power electrical generating station with a production capacity of 5 megawatts or more, or the expansion of a tidal power station that would increase production capacity by more than 35%.
- The proposed construction of an electrical transmission line that (1) has a voltage of 345 kV or (2) is 75 kilometres or more long on a new right of way.



When a comprehensive study has been completed, the federal Minister of the Environment issues a decision. The statement summarizes the Minister's opinion about the significance of the environmental effects of the project and sets out any mitigation or follow-up requirements considered appropriate. After a decision statement has been issued, the Minister refers the project proposal back to the responsible authority.

Review Panel

If federal authorities cannot decide whether a project should be permitted, a review panel comprised of experts, selected on the basis of their knowledge and expertise, is appointed by the federal Minister of the Environment. Review panels are appointed to review and assess, in an impartial and objective manner, projects expected to cause adverse environmental effects. Review panels may also be appointed in cases where public concerns warrant doing so. Projects may be referred by the responsible authority to the Minister of the Environment for assessment by a review panel. Only the Minister of the Environment may order a review panel assessment. Panels submit their recommendations to the Minister and responsible authority.

Mediation is a voluntary process of negotiation in which an independent and impartial mediator helps disputing parties resolve their differences. In unusual circumstances, the Minister of Environment may appoint a mediator.

For more information, visit the CEEA's website at www.ceaa-acee.gc.ca/index_e.htm

or contact the Canadian Environmental Assessment Agency's

B.C. Regional Office at:

757 West Hastings Street, Suite 320

Vancouver, B.C. V6C 1A1

Tel.: 604 666-2431, Fax: 604 666-6990

E-mail: ceaa.pacific@ceaa-acee.gc.ca

Chapter 9

Community Stakeholder Engagement

9.1 Understanding Consultation's Benefits

Throughout this guidebook there are references to the need to consult with provincial and federal agency representatives, First Nations, local governments, the public and other stakeholders. You might have heard that consultation can help independent power project proponents' projects receive required approvals quickly and efficiently. Or you may have heard it can result in project proposals being disallowed or slowed down for years. So what exactly is consultation and what does it mean to you? This chapter outlines what consultation is, why it is done, who does it, and its impact on independent power project proponents' proposals and projects.

The Crown's duty to consult with First Nations flows from the constitutional protection of Aboriginal and treaty rights in Section 35 of the Constitution Act, 1982. Consultation with First Nations is discussed separately in Chapter 10.

While independent power projects vary in size, cost, social, economic and environmental impact, a constant is that everyone has an opinion about them. There are individuals and groups of people who will be directly impacted (positively or negatively) by a project. There will also be individuals who will not be directly impacted but who chose to exercise their right to express an opinion. All of these individuals or groups are referred to as stakeholders. Examples of stakeholders include individuals, the public at large, federal agencies, other provincial agencies, local governments, industry associations, and community groups. What differentiates these stakeholders is the extent to which they are consulted with and the way in which that consultation occurs.

Every stakeholder looks at independent power production projects from their own perspective. Sometimes consultation with stakeholders can be difficult and proponents need to be prepared to respond to different views and concerns that may be raised. Government agencies engaged in consultation recognize that every group and individual has something valuable to say. By considering all perspectives and opinions the province can make the best possible decision. It does not serve anyone's interest to ignore negative or critical comments as doing so often only escalates tensions and delays the adjudication process. The need to listen to all stakeholders' perspectives stems from the fact that government agencies are responsible for managing publicly-owned Crown resources in a responsible manner. Consequently, the public has the right to comment on the use of Crown resources. Considering all parties perspectives is important because of B.C.'s legal and social framework.

What is Consultation?

There are as many definitions of consultation as there are reasons why independent power production proponents need to engage in it. For the purposes of this guidebook, consultation is seen to be communication between two or more parties with the goal of sharing information related to an independent power production project and the environmental, social or economic impacts it may have. Consultation is meant to help government agencies make decisions about whether proposed projects should be approved, and if so, under what terms and conditions.

Effective consultation has the following characteristics:

- It enables all stakeholders to make known their views and work together to ensure concerns are addressed.
- Consultation is no guarantee that consensus will be reached. An inclusive, transparent process will help smooth the path for a project's development and build people's confidence in and support for the project and its proponents.
- Agreement and consensus, although desirable, are not required. Consultation entails listening and understanding, but does not require agreement.
- Consultation processes must be authentic. Decisions cannot have already been made.
- Parties engaged in consultation must provide enough information to facilitate informed discussion.
- Sufficient time must be allocated so that all parties can express their views.
- Proponents should leave themselves enough time and flexibility to address stakeholders concerns, which may mean modifying their original plans.

The following principles should underpin meaningful consultation.

- The timing of the consultation should be such that it has the best prospect of improving the proposal.
- It should be clear who is being consulted, about what questions, over what timeframe, and for what purpose.
- Consultation documents should be understandable to stakeholders. They should be simple and concise, yet not gloss over or leave out important technical or other details.
- Consultation should not be seen as a burdensome obligation but a positive process that can contribute significantly to decision-making.

Why Consult?

Independent power production is growing in B.C. and some British Columbians may be unfamiliar with independent power projects. Time and effort are required to explain what independent power production entails. Consultation is critical. Proponents are advised to consult early and continuously with provincial, federal and local governments as they develop their project plans. Proponents are also strongly advised to consult with community stakeholders to ensure their projects are understood, permitted and supported.

Consultation occurs for many reasons, including:

- **Local democracy.** Information and consultation play a key role in preserving and strengthening local democracy.
- **Ideas and innovation.** If consultees are given adequate information and encouraged to become involved in the decision-making process at an early stage, a number of options may emerge from the collective local expertise that are fresh, innovative, practical, and actually improve a project's design.
- **Cost efficiency.** An effective consultation exercise can produce significant financial savings.
- **Problem prevention.** Consultation highlights potential problems early on so that proponents can address them early on in the development process.
- **Trust building.** Consultation that engages stakeholders builds trust. It improves stakeholder awareness and understanding and gives

proponents an opportunity to correct false assumptions and misinformation

- **Transparency and accountability.** Publicly explaining the details of a proposed independent power production project demonstrates respect and responsibility.
- **Communication.** Providing information to people affected by a decision can increase the likelihood of project approval and successful construction and operation.
- **Risk management.** If stakeholders understand the details of a proposed project and the benefits (and impacts) it will have, there is likely to be less antagonism and less risk of litigation.

How Does Consultation Occur?

Provincially, consultation is initiated through FrontCounter BC. When an independent power production project application is received, FrontCounter BC puts together a package and sends that package out to a predetermined list of agencies, First Nations, and local governments. FrontCounter BC staff use maps to determine which First Nation traditional territories the application may fall in and which First Nations groups should be consulted. Applicants are required to advertise their project in local papers. Advertising in local papers is a mechanism used to consult with the public. FrontCounter BC staff can provide details on which stakeholders should be consulted.

The list of stakeholders that FrontCounter BC identifies is usually complete. However, throughout the consultation process new stakeholders may be identified and packages may be sent to them. This is most likely to occur when the location of the project is "stated." Stating is a process by which all interests on the land are identified through various sources of information. Stating is a detailed and complex process and FrontCounter BC has dedicated stating staff.

Several consultation phases may be required. When an independent power production project proposal is first submitted, the application is basic and contains only some details. This basic package is referred to stakeholders so they know a project is being considered. Formal comments are requested later on when the final Development Plan is submitted. When the Development

Plan is sent out, stakeholders are asked to comment. Their comments are put on file and shared with proponents.

Scanned copies of applications are put on a website <http://arfd.gov.bc.ca/ApplicationPosting/index.jsp>. By posting applications on the internet, individuals and groups can learn about potential applications in their geographical area or area of interest. This allows the public or any interested group to study the complete application package. The only information that is not put on the website is information that is proprietary and protected by the Freedom of Information Act.

Who Consults with Whom?

As mentioned above, FrontCounter BC sends out initial referral packages to key stakeholders. Those stakeholders that are government agencies may have a statutory obligation to consult with a subset of stakeholders. For example, FrontCounter BC will send a referral package to the Ministry of Forests and Range. The MFR may choose to send a copy of the application package to forestry companies that have cutting permits in the area. Through their own consultation individual agencies will be in a better position to provide responses back to FrontCounter BC.

How Does Consultation Impact Decisions?

Consultation is at the heart of statutory decision makers' decision-making process. It is through consultation that statutory decision makers get all the information they need to make an informed decision.

Statutory decision makers review consultation process comments carefully before making their final decisions. Each stakeholder that submits comments has a role to play in the decision making process. Each regulatory authority may consider an independent power production project proponents' proposal from a different perspective and in light of their own mandate. ILMB looks to other provincial agencies to provide expert advice in their areas of expertise. For example, ILMB looks to the Ministry of Environment for expert advice on the impact a project might have on the environment; it looks to the Ministry of Forests and Range for comments on a project's potential impact on logging; and the Ministry of Transportation is asked about impacts on local

transportation. Local governments provide comments on land use, while the public makes ILMB aware of issues it may not have considered.

Consultation provides all stakeholders with an opportunity to comment on a project in an informed and meaningful way. Provincial agencies consider such comments to be essential to sound decision making.

When is Consultation Concluded?

Formal consultation is over when statutory decision makers offer a licence or permit to a proponent. Proponents are encouraged to keep stakeholders informed throughout the development and construction of a project as new issues may arise, requiring further consultation. Similarly, if a proponent applies for an amendment, a "new" phase of consultation may be required.

Early, ongoing consultation that takes community and other stakeholders concerns and interests into consideration is likely to make building and operating an independent power production project easier over the long term.

9.2 Liaising with Local Governments

Local governments, including regional districts, have a significant interest in the development of independent power production projects within their boundaries. Rural land use planning within B.C.'s electoral areas is a responsibility delegated to regional districts. Regional districts function as advocates for rural communities to ensure development is achieved in manner which is respectful of the local area, surrounding land uses, and provides benefits to the community. While independent power production projects serve B.C.'s power needs, this must be balanced with impacts in rural areas.

Under the Local Government Act and Community Charter, proponents may need to apply to local governments for permits and approvals. The Act provides the legal framework and foundation to establish local governments, provide local governments with the powers and duties necessary for fulfilling their purposes, and the flexibility to respond to the different and changing needs of their communities. The Act enables local governments to establish Official Community Plans, Zoning Bylaws, Development Permit Areas, as well as Temporary and Commercial Use Permits.

After an application has been received by the Integrated Land Management Bureau (or FrontCounter BC) referrals are forwarded to local governments for comment and recommendation. Depending on the scope and scale of the referral, the local government may be forwarded two types of referral requests: Preliminary Referrals or Referral Requests and Development Plans.

A **Preliminary Referral** is the first opportunity local governments have to provide comment on independent power production project proposals. Local governments are able to provide comments and recommendations; however, due to the limited detail provided by applicants in preliminary referrals, comments and recommendations are usually general. Local governments are able to identify potential stakeholders and request that information be made available to those groups and individuals. Detailed response comments may be deferred until referral requests or development plans are forwarded to local government representatives.

Referral Requests and **Development Plans** provide much greater detail about proposed projects than Preliminary Referrals. Local governments are able to identify stakeholders and provide comments and recommendations with regards to specific aspects of proposed project.

Proponents must recognize that each local community is unique and a project specific review and identification of challenges and opportunities is essential. Local governments have different responses depending upon the local community, the type of production facility, required infrastructure, employment potential, etc. In general, proposals located in remote areas require management of new spur roads leading from forest service roads to proposal areas, as new roads may provide new points of access for illegal dumping and other unregulated activities in fringe areas. Particular attention should be given to potential downstream impacts and long term monitoring and mitigation plans.

The level of detail included in Development Plans is critical for local governments providing comments and recommendations. Development Plans need to address the impacts of the proposal including all ancillary projects. The Development Plan should include identification and explanation of the supportive infrastructure (i.e. transmission and/or communication towers, waste treatment facilities, diversion structures, concrete batch plants, work camps, etc) and neighbouring power projects.

Under the Utilities Commission Act, nothing in or done under the Local Government Act supersedes or impairs a power conferred on the commission or an authorization granted to a public utility. An authorization is defined in the Utilities Commission Act to be a certificate of public convenience and necessity, an exemption under section 88 of that Act, or an exemption under section 22 of the Act where the IPP meets prescribed conditions, including the existence of a energy supply contract with BC Hydro, Powerex or Fortis BC, location entirely on Crown land and the possession of specified federal and provincial approvals.

A **Temporary Commercial/Industrial Permit** (TCIP) may be required for projects not directly related to the product or commodity provided by a public service, the production, generation, storage, transmission, sale, delivery or provision of electricity. A TCIP authorizes a temporary commercial or industrial use that is not otherwise permitted in a zoning bylaw, without the need for a zoning amendment. TCIPs are only issued if provisions are made for them in the local Official Community Plan or Zoning Bylaw. TCIPs are generally issued for short-term projects or transitional uses for a maximum of two years, under the Local Government Act. Applicants should go to the website of their local government. An example from the Fraser Valley Regional District can be found at: <http://www.fvrd.bc.ca/InsidetheFVRD/DevelopmentApprovals/Pages/TemporaryIndustrialPermit.aspx>

Development Permit Areas may be established by Official Community Plans for the protection of the natural environment, its ecosystems and biological diversity, protection of development from hazardous conditions as well as other reasons listed in the Local Government Act. A Development Permit is required before lands within a Development Permit Area are subdivided; buildings or structures are constructed, added to or altered; or the land is altered. Applicants should go to the website of their local government. An example from the Fraser Valley Regional District can be found at: <http://www.fvrd.bc.ca/InsidetheFVRD/DevelopmentApprovals/Pages/DevelopmentPermit.aspx>

Building Permits are legislated under the Community Charter. Local Government's building bylaws specify when a building permit is required. Applicants should go to the website of their local government. An example from the Fraser Valley Regional District can be found at: <http://www.fvrd.bc.ca/Services/BuildingPermitInspection/Pages/default.aspx>

Referral of independent power production proposals to local governments provides the Province (ILMB, FrontCounter BC and other agencies) and proponents with local knowledge of the project area, and more importantly, assistance with the identification and notification of local stakeholders. By identifying local stakeholders early, during the preliminary referral process, it is possible to foster early and ongoing consultation with various groups and individuals with interests in specific proposals.

Local governments may request that proponents present their proposals to local Councils and Boards. These presentations are a first step towards building relationships with local governments and area residents. Depending upon the scope and scale of the proposal, it may also be beneficial for project proponents to host public information meetings. Local governments may be able to assist proponents by identifying local stakeholders and providing contact information for groups and individual property owners.

For additional information about Opportunities for Local Government and Public Participation in Provincial Regulatory Processes for Independent Power Producers' Projects go to <http://www.empr.gov.bc.ca/EAED/AEPB/AEPS/Documents/MiniGuide.pdf>



Chapter 10

Consulting with First Nations

This chapter provides general background information to provide a better understanding of the context within which the Province carries out consultation with First Nations. Under the Federal CEEA process, Federal agencies also consult with First Nations. However, Federal Agencies follow their own processes. This chapter makes no claim as to represent any requirements for federal processes regarding First Nation consultation.

Chapter 10 is intended only as a general overview guide. Legal requirements of First Nation consultation are complex and vary depending on the particular circumstances of each case. This chapter makes no claim as to address legal requirements for individual cases. Rather, this chapter aims to provide the reader with an overview of the general framework within which the Province carries out First Nation consultation, and to put it in the context of an IPP application.

Legal Framework

Constitutional Protection of Aboriginal Rights and Title

In 1982 existing Aboriginal and treaty rights were recognized and affirmed in Section 35(1) of the Constitution Act, 1982. Court decisions have clarified the nature of these rights and the level of protection that section 35 provides. In short, government activities cannot infringe on Aboriginal rights unless there is proper justification in accordance with legal criteria that have been developed by the Courts.

Section 35(1) of the Constitution Act, 1982 provides general protection but does not define or set out particular Aboriginal rights. The courts have established tests for proving Aboriginal rights. Aboriginal rights, which have been recognized in several cases across Canada, are distinct from treaty rights, which flow from particular treaties with various Aboriginal peoples.

The courts have clarified that an Aboriginal right is a modern practice, tradition or custom that has a reasonable degree of connection with the practices, traditions or custom that existed prior to European contact. Activities that qualify as an Aboriginal right may vary from group to group depending on the customs that formed an important part of their cultures pre-contact.¹ Examples of Aboriginal rights may include the right to hunt or fish for sustenance, social, spiritual and ceremonial purposes.

In addition, the 1997 Supreme Court of Canada decision in *Delgamuukw* clarified that Aboriginal title is a distinct type of Aboriginal right. The content of Aboriginal title and the test for establishing it are different than the content and test for establishing other types of Aboriginal rights. For example, Aboriginal title, if proven, confers a right on the First Nation to exclusively use and occupy the land for a variety of purposes. By contrast, a proven Aboriginal right typically confers a non-exclusive right to carry out a particular activity in a specified area.

Duties owed to First Nation prior to proof of Aboriginal rights or title

In 2004, the Supreme Court of Canada's decisions in the *Haida* and *Taku River* cases clarified that even before Aboriginal rights and/or title are proven through a Court process, the Province has a duty to consult with First Nations when it has real or constructive knowledge of the potential existence of an Aboriginal right or title and contemplates conduct that might adversely affect it.²

1. See *Mitchell v. M.N.R.*, 2001 SCC 33; *R. v. Sappier*, 2006 SCC 54

2. *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73; *Taku River Tlingit First Nation v. British Columbia (Project Assessment Director)*, 2004 SCC 74.

Trigger of Duty: The Court held that the duty to consult is triggered when the Crown:

1. Has real or constructive knowledge of the potential existence of Aboriginal rights or title; and
2. Is contemplating conduct that might adversely affect such rights or title.

³Court cases, including *Haida*, have clarified that the threshold for establishing the above two requirements is low.

Scope of Duty: Where a duty to consult is triggered, the requirements for fulfilling the duty will vary from case to case. The scope of consultation and accommodation (if any) required in any particular case is proportionate to:

1. A preliminary assessment of the strength of the First Nation's claim supporting the existence of the right or title; and
2. The seriousness of the potential adverse effects upon the right or title claimed.⁴

The court in the *Haida* decision applied the concept of a spectrum of "low" to "high" to indicate what might be required in particular circumstances:

At one end of the spectrum lie cases where the claim to title is weak, the Aboriginal right limited, or the potential for infringement minor. In such cases, the only duty on the Crown may be to give notice, disclose information, and discuss any issues raised in response to the notice. "[C]onsultation' in its least technical definition is talking together for mutual understanding": T. Isaac and A. Knox, "The Crown's Duty to Consult Aboriginal People" (2003), 41 Alta. L. Rev. 49, at p. 61.

At the other end of the spectrum lie cases where a strong prima facie case for the claim is established, the right and potential infringement is of high significance to the Aboriginal peoples, and the risk of non-compensable damage is high. In such cases deep consultation, aimed at finding a satisfactory interim solution, may be required. While precise requirements will vary with the circumstances, the consultation required at this stage may entail the opportunity to make submissions for consideration, formal participation in the decision-making process, and provision of written reasons to show that Aboriginal concerns were considered and to reveal the impact they had on the decision. This list is neither exhaustive, nor mandatory for every case. The government may wish to adopt dispute resolution procedures like mediation or administrative regimes with impartial decision-makers in complex or difficult cases.

Between these two extremes of the spectrum just described, will lie other situations. Every case must be approached individually. Each must also be approached flexibly, since the level of consultation required may change as the process goes on and new information comes to light. The controlling question in all situations is what is required to maintain the honour of the Crown and to effect reconciliation between the Crown and the Aboriginal peoples with respect to the interests at stake. Pending settlement, the Crown is bound by its honour to balance societal and Aboriginal interests in making decisions that may affect Aboriginal claims. The Crown may be required to make decisions in the face of disagreement as to the adequacy of its response to Aboriginal concerns. Balance and compromise will then be necessary.⁵

3. *Ibid*, at para. 35; *Taku*, *supra* note 2, para. 25

4. *Haida*, *supra*, note 2 at para. 39

5. *Ibid*, at para. 43-45

Duty to Accommodate: The court also discussed the duty to accommodate and clarified that this duty may be revealed once consultations are underway. The Court discussed what the duty to accommodate may require in different circumstances:

When the consultation process suggests amendment of Crown policy, we arrive at the stage of accommodation. Thus the effect of good faith consultation may be to reveal a duty to accommodate. Where a strong prima facie case exists for the claim, and the consequences of the government's proposed decision may adversely affect it in a significant way, addressing the Aboriginal concerns may require taking steps to avoid irreparable harm or to minimize the effects of infringement, pending final resolution of the underlying claim. Accommodation is achieved through consultation, as this Court recognized in R. v. Marshall, [1999] 3 S.C.R. 533, at para. 22: "... the process of accommodation of the treaty right may best be resolved by consultation and negotiation".

This process does not give Aboriginal groups a veto over what can be done with land pending final proof of the claim. The Aboriginal "consent" spoken of in Delgamuukw is appropriate only in cases of established rights, and then by no means in every case. Rather, what is required is a process of balancing interests, of give and take.

This flows from the meaning of "accommodate". The terms "accommodate" and "accommodation" have been defined as to "adapt, harmonize, reconcile" . . . "an adjustment or adaptation to suit a special or different purpose . . . a convenient arrangement; a settlement or compromise": The Concise Oxford Dictionary of Current English 9th ed. 1995) at p. 9. The accommodation that may result from pre-proof consultation is just this -- seeking compromise in an attempt to harmonize conflicting interests and move further down the path of reconciliation. A commitment to the process does not require a duty to agree. But it does require good faith efforts to understand each other's concerns and move to address them.⁶

The following list provides an overview of the types of questions that staff may consider in assessing the scope of the government's duties. While all of these questions may not be asked or answered, they present a range of questions that are reflective of the types of issues that staff must consider. The following list is by no means exhaustive or complete.

- What activities were (are) practiced by First Nations in the project area and in adjacent areas (currently and in the past)?
- How regularly did they (do they) practice those activities?
- How important are these activities to First Nations and why are they important?
- Are there archaeological sites in the area? What types of historical activities are suggested by these archaeological sites?
- Are there any existing or past First Nation settlement or village sites in or near the project area?
- How far away is the project area from existing Indian reserves or First Nation communities?
- Is the project area subject to a specific claim? If so, what is the nature and status of that claim?
- Has a First Nation continuously used the area since 1846?
- If use has not been continuous, what are the reasons for this? How long was the project area used / not used by the impacted First Nations(s)?
- Is the project area subject to overlapping claims by other First Nations?
- Is there evidence that the area was used by other First Nations, either historically or at present?
- Is there evidence of substantial First Nation connection to the land?
- How may the project impact Aboriginal interest?
- Will the project interfere with Aboriginal activities?
- How will the project interfere with those activities?
- Can those activities be practiced in adjacent areas?
- What is the nature/extent of interference of the project, with these activities?
- What is the present extent of pre-existing development in the project area?
- What can be done to avoid or reduce the interference or impacts?

6. *Haida*, supra note 2 at para. 47-49.

- What are First Nation suggestions for mitigation/accommodation?
- Are potential impacts on Aboriginal activities unreasonable?
- Will the potential impacts impose undue hardship on the First Nation?
- Will the potential impacts prevent First Nations the preferred means of exercising the right?
- Are the impacts to the land irreparable?
- Will the project result in long-term leases/tenures?
- Is the First Nation involved in treaty negotiations or other government-to-government negotiations?

Role of First Nations: The First Nation expressing an Aboriginal Interest has a reciprocal duty to identify their Aboriginal interests and concerns once they have had the opportunity to consider the information provided. The First Nation must make a reasonable effort to inform the Crown about any impacts of the proposed activity on their Aboriginal interests. The courts have said that First Nations do not have the right to frustrate or veto Crown activities by refusing to participate in consultations, or by imposing unreasonable conditions. However, First Nations are entitled to a process of consultation that is separate and distinct from stakeholder processes.⁷

Role of Third Parties: The Supreme Court of Canada clarified that the legal duty to consult and accommodate, if appropriate, belongs to the Crown and not third parties or non-governmental actors. Although third parties may take on important roles in consultation processes and can legally be delegated authority to carry out “procedural aspects of consultation”⁸, the overall legal obligation for ensuring that consultation and accommodation (where appropriate) requirements are met rests with the Crown. Government maintains oversight over consultations carried out by third parties, and retains responsibility and liability for ensuring that applicable duties are met.

7. *Haida*, supra note 2 at para. 42; see also *Halfway River First Nation v. British Columbia (Minister of Forests)*, 1999 BCCA 470; *Heiltsuk Tribal Council v. British Columbia (Minister of Sustainable Resource Management)*, 2003 BCSC 1422.

8. *Haida*, supra note 2 at para. 53

Treaty rights

Independent power production proponents should be aware of any treaties that affect a particular project area and the First Nations involved. A treaty is a negotiated agreement that sets out the rights, responsibilities and relationships of First Nations and the federal and provincial governments. Like Aboriginal rights, treaty rights are also recognized and affirmed under section 35(1) of the Constitution Act, 1982.

The Supreme Court of Canada concluded in the *Mikisew* decision that the Crown has similar consultation obligations with respect to treaty rights as it does for Aboriginal rights. The court applied the *Haida* consultation principles to Treaty 8 rights and confirmed that the honour of the Crown requires the Crown to consult meaningfully with Aboriginal groups on government decisions that may adversely affect treaty rights.⁹

Within Canada, B.C. is unique because most of the province is not covered by treaties with First Nation groups. However, there are a number of existing treaties such as Treaty No. 8, the Douglas Treaties and the Nisga’a Final Agreement. Proponents should also take care to be aware of treaty negotiations within the B.C. Treaty Process.

Existing Treaties:

Treaty No. 8 (1899) affects those lands within the Peace-Liard region of northeastern British Columbia. Treaty 8 extends beyond B.C. and includes First Nation communities in Alberta, Saskatchewan and the Northwest Territories. There are nine Treaty 8 communities with traditional territories in British Columbia: Doig River, Fort Nelson, Halfway River, Prophet River, Saulteau, West Moberly, Blueberry River, McLeod Lake, and the Dene Tha’ First Nations.

Between 1850 and 1854, fourteen treaties were made by Governor James Douglas with First Nations on Vancouver Island near Sooke, Saanich, Victoria, Metchosin, Nanaimo and Port Hardy. Present day community names of the First Nation Douglas Treaty signatories are Esquimalt, Songhees, Becher Bay, Sooke, Malahat, Tsawout, Tsartlip,

9. *Mikisew Cree First Nation v. Canada (Minister of Canadian Heritage)*, [2005] SCC 69 (“Mikisew”).

Pauqhachin, Tseycum, Snuneymuxw, Nanoose and Kwakiutl First Nations. The Nisga'a Treaty, which came into effect in 2000, covers land north of Prince Rupert.

Negotiations under the B.C. Treaty process:

In 2007, Final Agreements with both the Tsawwassen First Nation and the Maa-nulth First Nations were ratified by those First Nations and provincial treaty settlement legislation was passed. These agreements will take effect when federal treaty settlement legislation is enacted. There are several other treaties at various stages of negotiation in B.C..

Proponents are encouraged to visit the Ministry of Aboriginal Relations and Reconciliation's website <http://www.treaties.gov.bc.ca/> as well as the B.C. Treaty Commission's website www.bctreaty.net/ to obtain information about the status of ongoing treaty negotiations within the current B.C. treaty process.

For an overview of major court cases, decisions and their implications, please go to www.gov.bc.ca/arr/treaty/landmark_cases.html. Be aware that this list is not exhaustive and that new court decisions are also considered in decision making processes.

For an overview of legislation passed in Canada and British Columbia since 1763, the following link is recommended. <http://www.gov.bc.ca/arr/treaty/legislation.html>

Policy Framework: British Columbia's New Relationship With First Nations

The provincial government and B.C.'s First Nations' organizations are working together to develop a New Relationship founded on respect, recognition and reconciliation of Aboriginal rights and title.

In March 2005, the Province began meetings with representatives of the First Nations Summit, the Union of BC Indian Chiefs and the B.C. Assembly of First Nations. The goal was to develop new approaches for consultation and accommodation and a vision for a New Relationship to deal with Aboriginal concerns based on openness, transparency and collaboration, thus reducing uncertainty, litigation and conflict for all British Columbians.

A five-page document outlining the vision and principles of the New Relationship was developed as a result of these meetings. It broaches the topic of a new government-to-government relationship with First Nations, including new processes and structures for coordination and working together to make decisions about the use of land and resources.

The Province's New Relationship web site, and the New Relationship Document can be found at the following links:

www.gov.bc.ca/arr/newrelationship/default.html

www.gov.bc.ca/arr/newrelationship/down/new_relationship.pdf

How IPP Proponents Can Assist in the Consultation Process

The proponent is often better placed to share information with the First Nation and to address particular First Nations' interests or concerns. The proponent can assist the process by exploring how they can contribute, develop business partnerships, and work towards information sharing and possible benefits and employment opportunities for First Nations.

Although it is provincial authorities who are duty-bound to consult with First Nations groups, independent power production project proponents have a vested interest in how those consultations progress. Proponents are encouraged to initiate and maintain good working relations with First Nations groups regardless of the provincial consultation process.

Although the duty to consult does not legally extend to IPP applicants, there are two key reasons for engaging directly with First Nations. First, engaging with First Nations provides an opportunity to build a relationship with the community. These relationships are important factors in any project proposal and are critical to the effective exchange of information. Good working relationships can

complement or expedite Environmental Assessment reviews and Crown consultation requirements. In addition, First Nation communities may know of sites that are culturally important and may require special historic or archaeological protection—information which could be invaluable in the early stages of identifying the proposed project site. Second, the province may delegate aspects of the consultation process to proponents. Where this is the case, it becomes a requirement of the application, although the Province remains responsible for the overall consultation process. A party must remain communicative about consultation activities and outcomes.

Independent power production proponents are advised to determine early which First Nations may have interests in the region in which they wish to build a power production project. More importantly, they are advised to engage early with potentially affected First Nations to begin building relationships and informing communities of their proposed project. To determine which First Nation communities may be affected, consultation areas may be queried through any FrontCounter BC location <http://www.frontcounterbc.gov.bc.ca/contact/locations.html>

It is generally advisable that proponents contact First Nation community offices and ask who they should arrange to meet with to discuss their project. Note that some First Nations have resource experts who can review and assess project proposals, but consultations must still occur with the leadership of the community. Initial conversations with First Nations may also reveal that discussions with other groups (Tribal Associations, community leaders, etc.) are advisable. FrontCounter BC, the Integrated Land Management Bureau, and Ministry of Forests and Range staff can assist in identifying which groups should be contacted.

Every First Nation has unique concerns. To understand the concerns of a particular community, it is best to speak to them directly. Generally, First Nation communities are interested in becoming familiar with a proponent, obtaining details about the proposed project, and learning of economic opportunities. First Nation communities' concerns typically relate to potential impacts on claimed Aboriginal rights and title, including, traditional practices and cultural resources,

and environmental concerns: potential impacts on the land, air, water, forests, fish and wildlife. First Nations may request specific information from proponents. Studies they may request include archaeological assessments, traditional use studies (TUS), cultural impact assessments, site impact assessments and mitigation planning. Some of these studies may also be required by the Province in support of applications for permits and approvals, so dialogue and coordination may be warranted to ensure that all parties' requests and requirements are addressed.

The length of time required for consultations between the Province and First Nations will vary in each case, and may range from several months to several years. When FrontCounter BC initially refers a project application to a First Nation, it asks that comments be provided within 45 days. In many circumstances, consultation is expected to take longer as issues are identified and discussed. The Province cannot impose unreasonable timelines on First Nations.

If subsequent authorizations not included in the initial referral to First Nations are requested, additional consultation may be needed in relation to those requests. This will extend consultation timelines.

If proponents are actively engaged with First Nations, consultation timelines may be shorter.

Although many proponents have considerable experience and expertise with First Nations engagement, the points below may be of assistance. Applicants who want assistance with First Nation engagement are advised to seek input from provincial staff or specialized consultants as early as possible in the process.

- Prior to beginning discussions with First Nations, take appropriate steps to identify all of the First Nation groups that have a legitimate interest in the land in question.
- Ensure that all First Nations with interests in an area are provided the opportunity for engagement. It is generally unwise to engage with one First Nation community and leave another out, unless they have provided that direction.
- Early engagement and relationship building with First Nations is an important factor in gaining support from the First Nations for your project.
- First Nations may not want to divulge information about important cultural and spiritual sites, which may be confidential. Proponents will need to be respectful and sensitive to their concerns, and mindful of the importance of building trust.
- It is often important for First Nations to visit proposed sites. Site tours are a good opportunity to share information, build relationships and discuss land use and other issues.
- Proponents may wish to include government representatives or decision-makers in their meetings with First Nations. Often government staff have existing relationships with First Nations and can facilitate discussions.

In Conclusion

First Nations typically have a critical role in the review and success of any IPP proposal. The Province has made a clear commitment to meaningfully involve First Nations in the review of all IPP proposals. This commitment stems from both legal and policy requirements. Proponents also have an important role to play in achieving successful outcomes.





Chapter 11

Connecting with B.C.'s Power Grid and Selling Electricity

Electricity produced by independent power producers can be used in a number of ways. The simplest way is to use the electricity on site or in the community where it has been generated. Many pulp and paper mills generate their own electricity and more and more of B.C.'s remote communities are generating their own renewable electricity to offset their dependence on diesel power generation. While on-site and off-grid generation are increasing in B.C., the bulk of the new private power generation in the province is focused on selling electricity that is generated to utilities, such as BC Hydro, after connecting to the electrical distribution or transmission system.

While it may sound straightforward, connecting to the power grid and selling electricity can be a complicated process. Electrical utilities, particularly the transmission and distribution arms, must ensure that the stability of the power grid is not threatened, that production is reliable, and that the power purchased is appropriately priced. These conditions of sale and service are managed through detailed agreements to ensure the rights of buyers and sellers of electricity are protected.

The following sections in this chapter provide an overview of how electricity is most likely to be purchased in B.C. and the processes involved in connecting to the power grid. It is important to note that policies, procedures and standards often change. Independent power production proponents should contact parties involved in power purchasing and interconnection to obtain up-to-date and detailed information before proceeding with project development.

11.1 Selling Energy

Obtaining Electricity Purchase Agreements

To sell some or all of the energy they generate, independent power project developers need to obtain a power sales contract, commonly called an Electricity Purchase Agreement (EPA). EPA terms vary depending on what characteristics are most important to the purchasing utility. Most EPAs for renewable and other forms of electricity include specific details about:

Term – How long the agreement will last.

Regulatory Review – If the utility is regulated, the EPA between the parties is likely subject to regulatory review.

Construction and Operation – Cost responsibilities, standards of construction, changes in design, and monitoring.

Purchase and Delivery Obligations – When power sales and purchasing will begin, dealing with delays and delivery shortfalls, addressing outages in transmission or distribution.

Price and Payment Terms – How much will be paid for the electricity generated and when these payments will be made.

Environmental Attributes – Addresses the ownership of any additional rights or value associated with generating clean or renewable electricity and the standards, audits or certification that are required.

Administration of the Agreement – How the agreement will be administered. May include dealing with assignment of the agreement, dispute resolution, confidentiality and force majeure.

Termination – The circumstances under which either party may terminate the agreement and the steps, notices and payments that may be required.

To obtain an EPA from a utility, independent power producers usually need to participate in a competitive process, like a call for tenders or request for proposal process, or apply under a specific program run by the utility that continually offers contracts under defined terms and conditions. Few jurisdictions and utilities guarantee that power purchase agreements will always be available.

BC Hydro

BC Hydro, a provincial crown corporation, is the main and largest long term purchaser of electricity generated by independent power producers in B.C.. Under the direction of the 2002 and 2007 BC Energy Plan and in concert with maintaining and expanding its existing generation and reducing electricity consumption through conservation programs, BC Hydro plans to purchase enough energy by 2016 to be self sufficient, even in low water years.

The two principal means by which BC Hydro will purchase power are through:

- 1) competitive acquisition processes, and
- 2) a standing offer program

1) Competitive Acquisition Processes

BC Hydro has run a variety of Request for Proposals (RFP) and Call for Tenders (CFT) processes to secure EPAs with private power developers. RFPs and CFTs are competitive processes to choose specific project proposals from a pool of applicants. The winners of these competitive processes receive an EPA with BC Hydro and proceed to construct their project, provided they have secured all the required permits and licenses. Since 1988, BC Hydro has held various competitive acquisition processes for electricity. Details on some previous and current calls for power and requests for proposals can be found on BC Hydro's website at www.bchydro.com/planning_regulatory/acquiring_power.html

BC Hydro has developed three new competitive acquisition processes designed to attract bids from independent power producers.

Clean Power Call – BC Hydro accepted proposals for the 2008 Clean Power Call on November 26, 2008 and will be awarding contracts by spring 2009. The Clean Power Call is open to all clean or renewable energy projects that generate a minimum of 25GWh of energy a year. Some of the Key aspects of the Clean Power Call are:

- The call is for “clean” or renewable energy as defined by provincial guidelines. They should use renewable resources and proven technologies.
- The acquisition target is 5,000 GWh per year of seasonal and hourly firm energy.
- The call can accommodate larger projects with extended in-service dates of 2016 or earlier, offering developers a longer period of time to build complicated projects.

Information on draft terms and conditions and a list of bidders is available on the BC hydro website at www.bchydro.com/cleanpowercall

Bio-Energy RFP - Guided by the policy actions of the 2007 BC Energy Plan, (released February 27, 2007), and the 2008 Bioenergy Strategy (released on January 31, 2008). BC Hydro is conducting a two-phase call for power to utilize wood infected by the mountain pine beetle as well as other underutilized wood fibre resources. The Bio-Energy Call will help B.C. become electricity self-sufficient as outlined in the 2007 BC Energy Plan, and allow BC Hydro to secure firm, clean energy.

- Phase I is for projects that are immediately viable and do not need new tenure from the Ministry of Forests and Range. A RFP for phase 1 was issued February 6, 2008.
- Phase II will be informed by the ongoing biomass inventory and forest tenure analysis being completed by the Ministry of Forests and Range.

Details on both phases of the RFP are available on the BC Hydro website at www.bchydro.com/bioenergycall

Non-Integrated Area (NIA) Diesel Displacement Program – When appropriate, BC Hydro will initiate a competitive process to procure privately produced renewable power to service communities in non-integrated areas, which are beyond the reach of the provincial integrated transmission and distribution system. Adding privately produced renewable power in these remote communities helps displace dependence on expensive diesel generated electricity, improve reliability of supply, and reduce emissions.

At present, no specific acquisition processes have been announced for procuring additional privately produced power for non-integrated areas in the near future. However, opportunities for area specific calls are being considered as part of community energy planning in some communities.

2) Standard Offer Program for Awarding Electricity Purchasing Agreement

While BC Hydro uses periodic competitive processes to secure electricity generated by private power projects, many developers cannot manage the significant administrative burdens and costs involved in preparing a successful bid. To reduce these barriers and encourage successful smaller project development, BC Hydro has initiated a program, detailed below, that offer developers a long term, reliable opportunity to sell their power.

Standing Offer Program – As directed by the provincial government in its 2007 Energy Plan, BC Hydro is implementing a Standing Offer Program to reduce the administrative burden for small project proponents wanting to bid into BC Hydro calls. In general, a standing offer process sets certain criteria for participation and makes a commitment that any proposed project which meets those criteria will receive the terms set out in the standard offer. Listed below are a number of key elements of the Standing Offer Program:

- The program will be reviewed after two years by the BC Utilities Commission.
- All energy from the project is sold to BC Hydro for a predetermined price during the EPA term.
- Terms of agreement can vary from 20 to 40 years.
- The project must have a nameplate capacity greater than 0.05 MW but no larger than 10 MW.
- The call is for “clean or renewable” energy, as defined by the province or co-generation with an overall efficiency of 80%.
- All proven technologies are eligible to participate in the program, if they are clean, renewable or co-generation with an overall efficiency of 80%.
- Transmission and distribution system upgrade costs are borne by BC Hydro, subject to a cap.

Further details regarding BC Hydro's Standing Offer Program and EPA criteria can be found at http://www.bchydro.com/planning_regulatory/acquiring_power/standing_offer_program.html

Sales to Other Utilities

Besides BC Hydro, there are other utility companies in the province which may purchase power from independent power project developers. Fortis BC, for example, is a major service provider in the Southern Interior and Kootenay regions, servicing communities such as Osoyoos, Penticton, Kelowna, Summerland, Nelson, Trail and others.

Sales to Non-Utility Buyers

Instead of selling it to a utility, independent power producers may sell the electricity they generate to a specific industrial power consumer or a power marketer within B.C. or outside of the province.

Selling power directly to a buyer within B.C. is possible, but it may be subject to regulation by the B.C. Utilities Commission (BCUC), as outlined under the definition of ‘public utility’ in the Utilities Commission Act. While they are generally considered utilities under the Act, independent power producers and industries with excess electrical generating capacity to sell commonly receive exemptions from the regulatory impact of various sections of the Act when they sell power to regulated utilities or a limited number of customers in close proximity to the generator. This guidebook is not intended to address the details or responsibilities involved in creating regulated stand alone utilities. It is recommended that proponents undertake detailed research on this matter, and contact BCUC before considering a project that may be subject to their regulatory oversight.

Independent power producers may also sell their power to power marketers, who then sell that power within or outside of the Province. Selling to a power marketer may also be subject to regulation by the BCUC, unless that marketer is a subsidiary of a utility. An example of a power marketer, that independent power producers could sell electricity to, and remain exempt from certain sections of the Utility Commission Act, is Powerex (www.powerex.com).

com), a subsidiary of BC Hydro, which trades electricity throughout the Western Electricity Coordinating Council service territory, which extends from Canada to Mexico and encompasses British Columbia and Alberta, 14 western U.S. states, and the northern portion of Baja California Mexico. When dealing with a power marketer, pricing may be limited to spot market rates, unless longer term sales contracts can be negotiated with a specific buyer.

Project developers can also consider selling directly to other jurisdictions, such as utilities or customers in Alberta or the United States. To sell into the United States, developers need to obtain necessary Canadian and American approvals for exporting and importing power and secure transmission services on both sides of the border. This guidebook is not intended to address inter-jurisdictional power sales, which can be very complicated. Considerable research on permits, transmission and other service contracts is recommended before proponents consider a project based on an export model.

11.2 Transmitting Electricity

Transmission and Distribution Systems

To sell the power generated by a private power project, proponents need to deliver electricity generated at their facility to a point of sale, commonly known as the Point of Interconnection (POI). This may require construction of a private power line to the POI, where the privately owned power line will interconnect with a low voltage distribution line or a high voltage transmission line operated by the utility buying the power, or by a utility that will take that power to the ultimate buyer.

With very few exceptions, the majority of the transmission and distribution system in B.C. is operated by either BC Hydro or the British Columbia Transmission Corporation (BCTC), both of which are Crown corporations. Some smaller utilities, like FortisBC, also have the ability to transmit and distribute electricity within their service areas.

In B.C. most of the power produced by independent power producers is sold to BC Hydro. As a result, these kinds of projects are either connected to:

BC Hydro's Distribution System – BC Hydro administers the distribution system of power lines which take power from the main sub-stations on the transmission system and distribute that electricity via power lines of 35 kV or less to the majority of residential and commercial electricity users. Those projects that connect to the distribution system are often termed D-connected projects.

BC Hydro's Transmission System – The BC Transmission Corporation is responsible for operating and maintaining BC Hydro's high voltage electricity transmission lines that transmit power from the large, and often distant, hydro stations and other generators to the industrial hubs and cities where it is used. The BCTC managed transmission lines have voltages higher than 60 kV and up to 500kV. Independent power projects that connect to the transmission system are often termed T-Connected projects.

In most instances, there is little opportunity to choose between connecting to the distribution system or to the transmission system. The interconnection choice is often determined by the size of the generator, the distance to suitable interconnection locations, and cost.

Electrical transmission and distribution systems are very sensitive and complicated to administer, so the process of adding additional sources of generation to such systems is not a simple matter. Whenever a new generator, be it privately owned or public, is connected to the grid,

certain technical and legal requirements need to be met to ensure the interconnection is safe and does not have unintended impacts on the larger system. The details of how a new generator is interconnected to the electricity grid are addressed in the Interconnection Agreements between the proponent and BC Hydro or BCTC.

Interconnection Processes

Before proponents can obtain approval to connect to the transmission or distribution system, they must first meet certain transmission or distribution interconnection requirements. The first step in meeting these requirements is to submit an interconnection application to BCTC (transmission system > 60 kv) or BC Hydro (distribution system <35 kv) followed by completion of a number of feasibility and technical studies. These studies analyze the impact of adding new or additional generation to the system, identify any modifications or additions to facilities required to allow the generated electricity to flow through the grid to customers, estimate the cost of new facilities and system reinforcements, and set project requirements to ensure safe and reliable operations. Once studies are complete, a site specific document is produced outlining the project interconnection requirements and the utility and the project developer can enter into an Interconnection Agreement that outlines the rights and responsibilities of each party.

Depending on the utility involved, and the location of the project, the details of what studies are needed, who will complete and pay for those studies, and who will pay for facilities improvements will differ. Outlined below are the most common interconnection processes in B.C. involving BC Hydro and the BC Transmission Corporation. (Additional contact information is provided at the end of each section so proponents can seek out more information.)

Transmission System Interconnection Processes

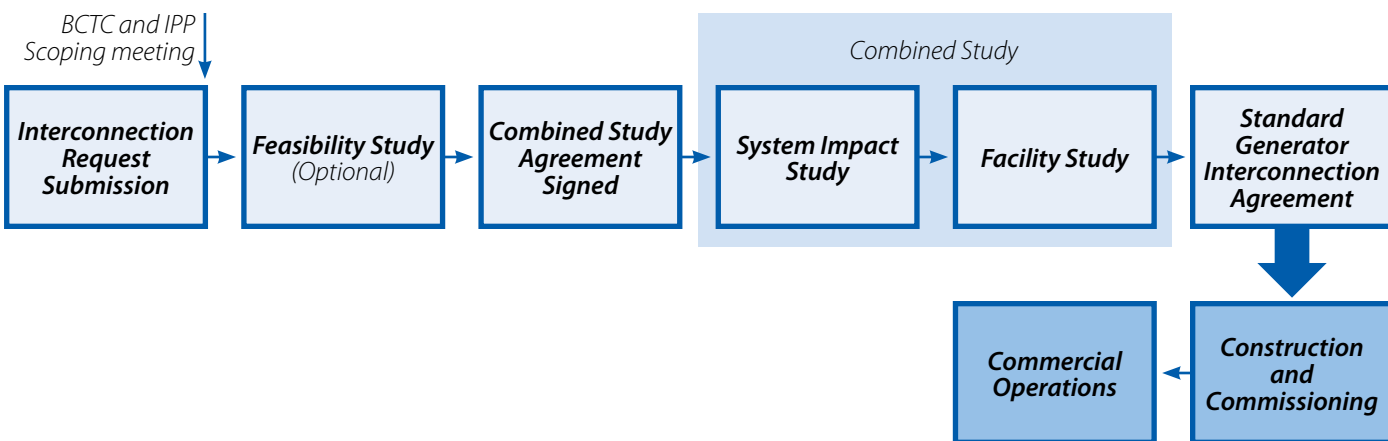
BCTC uses two complementary processes, approved by a BCUC tariff, to address interconnection with their transmission system. These two processes are explained below:

Standard Generator Interconnection Procedure

The Standard Generator Interconnection Procedure (SGIP) is a step-by-step process that BCTC follows to review interconnection requests. Under the SGIP, BCTC manages the timely and orderly analysis of interconnection for all power generation projects connecting to the BCTC transmission system. All SGIP applicants are placed in an Interconnection Request Queue, and the process is continuous from start to finish, as long as key information and financial commitments are met by the interconnection applicant. Should the applicant not meet a requirement of the SGIP process, they are removed from the process and have to reapply for a spot at the end of the queue.

The SGIP process is outlined in the diagram below.

Figure 3: Standard Generator Interconnection Procedure (SGIP) Process



The SGIP process can take a significant amount of time to complete, depending on the particulars of the interconnection situation. After submitting the interconnection request, attending an initial information meeting and completing the Feasibility Study (45 days), the System Impact Study (90 days), and an Interconnection Facilities Study (90-180 days), the entire SGIP process can take up to one year to complete.

Competitive Electricity Acquisition Process ("CEAP")

The CEAP interconnection tariff is used to coordinate BCTC's review and study of independent power project proposals that have been submitted into BC Hydro's competitive electricity acquisition processes, such as the Clean Power Call. The CEAP ensures that all projects are studied under the same conditions and retain the same position in the interconnection queue. This means that when all of BCTC's feasibility and technical study results are incorporated into the bid evaluation process, all the bidders are on equal footing. When successful bidders have been selected, they enter into the SGIP process to complete the remaining interconnection studies.

All the costs involved in studying the interconnection through the SGIP and CEAP processes are borne by applicants. Responsibility for the cost of upgrades to the transmission system are determined by the EPA used for each call and the Open Access Transmission Tariff (OATT) rules.

Independent power projects developers interested in connecting to a transmission line are strongly encouraged to contact BCTC and review the most up-to-date information on the process.

BCTC Market Operations - Interconnections
Suite 1100, Four Bentall Centre
1055 Dunsmuir
P.O. Box 49260
Vancouver, B.C. V7X 1V5
Phone: 604 699-7381
Fax: 604 699-7539

E-mail: bctc.interconnection@bctc.com

See www.bctc.com/generator_interconnection/ for more information on BCTC transmission system interconnection requirements.

Distribution System Interconnection Process

Proponents of proposed independent power projects wanting to connect to BC Hydro distribution lines (35kv or less) do not follow the SGIP process used by BCTC. Instead, they submit a Generator Interconnection Preliminary Application to BC Hydro's Generator Interconnection and Transmission Services (GITS) group, who guide them through the following steps :

1. Customer Inquiry / Initial Meeting – Recommended
2. Interconnection Application Submission - Required
3. Preliminary Study – Optional
4. Impact/Design Study – Required
5. Finalization of Interconnection Agreement

The process involved in finalizing an Interconnection Agreement can take up to a year to complete, depending on the complexity of the situation and whether or not the applicant waives the need for a preliminary study. When all the steps involved in reaching an Interconnection Agreement are considered, the total cost of the studies can range between \$35,000 and \$100,000 to complete.

Similar to interconnection to the BCTC system, the applicant bears all the costs involved in studying the interconnection. The detail of how the responsibilities for costs of upgrades to the distribution/transmission system are shared between the proponent and BC Hydro is determined by BC Hydro for each particular call.

For more information on the process for interconnecting projects of 35kV or less to BC Hydro's distribution system, please contact:

BC Hydro
Generator Interconnection and Transmission Services
333 Dunsmuir Street, 10th Floor
Vancouver, B.C. V6B 5R3
Phone: 604 623-4138 or 604 623-3755
Fax: 604 623-4335

E-mail: gen.connections@bchydro.com

See http://www.bchydro.com/planning_regulatory/acquiring_power/generator_interconnections.html for more information on BC Hydro distribution system interconnection requirements.

