



GUIDE

Provincial approvals for **Renewable Energy Projects**

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INTRODUCTION

1. Introduction

Ontario's green initiatives, including the Green Energy Act, 2009 (GEA) and the Renewable Energy Approval (REA), are transforming the energy landscape and strengthening the province's commitment to conservation.

These measures reflect Ontario's leadership in harvesting the benefits to the economy, public health and the environment that renewable energy projects create. The GEA and REA support energy projects that reduce our use of fossil fuels and provide clean, sustainable power today and in the future. Along with other electricity policies, they are key elements in Ontario's commitment to phase out coal-fired generation at Ontario Power Generation power plants. Using coal to generate electricity is a leading source of greenhouse gases and other

pollutants that pose both short- and long-term risks to the environment and our health.

A key goal of Ontario's approach to renewable energy project approvals is to provide certainty and clarity in the process and requirements. Ontario has made the approval process more modern and straightforward.

With the updated approach and new rules, Ontario's renewable energy capacity can grow more quickly. The renewable energy sector can create more jobs because projects are able to move forward faster. At the same time, provincial ministries carefully consider projects' potential impacts on the environment, human health and safety. The province remains committed to a strong framework of environmental and public health protection that covers renewable energy as well as other types of electricity generation.

The Green Energy Act

Introduced early in 2009, the Green Energy and Green Economy Act, 2009 paved the way for quicker development of renewable energy projects in Ontario. It triggered changes to the rules for obtaining approval for most types of projects. The Renewable Energy Approval (REA), issued by the Ministry of the Environment, is one of the approvals the provincial government uses for most renewable energy projects.

Purpose of this guide

The purpose of this guide is to explain the updated approvals process for renewable energy projects to people thinking about undertaking small-scale projects themselves and others with an interest in renewable energy in a non-technical way. Ontario's new rules for these projects go hand-in-hand with the province's other renewable energy and conservation initiatives. Information on Ontario's leadership in sustainable energy is available at the Ministry of Energy and Infrastructure's website (www.mei.gov.on.ca).

This guide outlines the new and improved process for provincial approvals. The process coordinates approvals across government ministries to encourage renewable energy while ensuring the environment, health and natural resources are protected. This guide looks mainly at the provincial rules for developing renewable energy projects that use wind, solar and bio-energy to generate electricity. As outlined in the waterpower section, all waterpower projects currently do not require an REA, and will continue to follow the requirements of the Environmental Assessment Act and other existing approval processes.

Most renewable energy projects that generate electricity are subject to the approvals described in this guide, however, there are a few exceptions (see list on page 10). Renewable energy technologies that don't generate electricity, such as geothermal heating/cooling (also known as earth energy systems) or solar thermal water or space heating are not covered here. The Ministry of Energy and Infrastructure's website (www.mei.gov.on.ca) provides information on these and other similar types of projects.

This guide provides an overview of the approvals process and requirements. Applicants and others interested in approvals are also encouraged to refer to technical guides and related regulations and requirements.

The requirements for other levels of government for a renewable energy project include federal laws and municipal building permits under the provincial Building Code Act, 1992. Conservation authorities, which manage the major watersheds in southern Ontario and parts of northern Ontario, may need to give approval for activities that may affect the control of flooding, erosion, dynamic beaches or pollution. In addition, the Ontario Energy Board, which regulates the province's electricity and natural gas sectors,

may have additional licensing, notice and/or approval requirements. This guide touches on these additional requirements but does not describe them in detail. It is the applicant's responsibility to meet all relevant requirements. Information is available on the Ontario Energy Board and Independent Electricity System Operator's websites (www.oeb.gov.on.ca and www.ieso.ca).

Structure of the guide

Renewable energy projects, like other forms of development, are subject to a regulatory and approvals process that deals with matters such as advising people living nearby and ensuring sensitive environmental areas are protected. Each type of renewable energy project – wind, solar, bio-energy (anaerobic digestion, biofuel, thermal treatment, biogas) and water – also has characteristics that can give rise to technology specific requirements. As well, some proposed project locations may have site-specific approval needs.

The guide is laid out to reflect both the overall approvals process and the differing requirements of various renewable energy technologies as follows:

Section 2 outlines the key steps applicants must take to prepare their project for approvals, what projects are exempt from the Renewable Energy Approval (REA) and what is required for a complete submission for provincial approvals.

Section 3 describes the consultation requirements for renewable energy projects and the importance of consultation to the success of a project.

Section 4 discusses project requirements related to areas of natural heritage, cultural heritage, water protection, provincial plan areas, endangered species and fish and wildlife conservation.

Sections 5, 6, 7 and 8 set out requirements based on project size and scope of wind, solar, bio-energy (anaerobic digestion, biofuel, thermal treatment, biogas) and water projects.

Section 9 provides a list of contacts for applicants and interested parties to learn more about matters surrounding renewable energy generation projects and project requirements.

OVERVIEW OF THE PROVINCIAL APPROVALS PROCESS

2. Overview of the provincial approvals process

Ontario's new approach to approving renewable energy projects offers benefits to project applicants and local communities while continuing to ensure rigorous protection of the natural environment, cultural heritage and public health and safety. This new approach and updated rules reflect changes to regulations under the Environmental Protection Act, Environmental Assessment Act and Environmental Bill of Rights, 1993 (for which the Ministry of the Environment is responsible), Planning Act (which is the responsibility of the Ministry of Municipal Affairs and Housing) and to policies and requirements set by the Ministry of Natural Resources, under various pieces of legislation. It does not, however, address requirements from the federal government or other agencies.

Those familiar with the previous provincial framework for renewable energy approvals will note the following significant differences:

- Renewable energy projects are no longer subject to the Environmental Assessment Act (except for waterpower and transition projects). However, the protections built into the Environmental Assessment process continue in the REA process
- Rules regarding setback distances from residences where people reside and other sensitive receptors, as well as environmental features, now apply consistently across the province
- Renewable energy projects are no longer subject to land use planning instruments under the Planning Act (e.g. zoning by-laws and official plans)

The Ontario Power Authority (OPA) will issue contracts under the province's new Feed In Tariff (FIT) program to purchase power at guaranteed rates over 20 years from wind, solar and bio-energy facilities. Waterpower facilities will have guaranteed rates over 40 years.

As well, the province has set-up the Renewable Energy Facilitation Office (REFO), for one-window access to help developers, communities and homeowners obtain information on creating renewable energy projects in Ontario. The REFO can help navigate through the new approvals

and FIT processes by providing access to information, connecting applicants with the appropriate resources at partner ministries, agencies and governments and setting up a coordinated meeting to discuss project requirements.

For more information, visit the REFO's website (www.ontario.ca/refo).

With the new regulatory approach to approvals, most renewable energy projects now require an REA from the Ministry of the Environment. Projects that do not need an REA are listed on the following table. These projects may still require separate provincial approvals from the Ministry of Natural Resources (www.mnr.gov.on.ca).

When a facility requires a Renewable Energy Approval, and when it does not

Certain types of projects are exempt from the need to get an REA because they are small or because they are regulated by other means.

Is a Renewable Energy Approval required?			
Yes	No	Comments	
Wind	<ul style="list-style-type: none"> Wind facilities (Class 1) with a name plate capacity greater than 3 kW 	<ul style="list-style-type: none"> Wind facilities with a name plate capacity less than or equal to 3 kW 	<ul style="list-style-type: none"> Wind facilities equal to or less than 3 kW are typically purchased at hardware and outdoor stores Class 1 turbines mounted on buildings may require building permits. For more information, contact the local municipal building department
	<ul style="list-style-type: none"> Wind facilities (Class 2) over 3 kW but less than 50 kW have fewer pre-submission requirements and do not need to meet the noise, property and road/rail setbacks 		<ul style="list-style-type: none"> Wind facilities greater than 3 kW and less than 50 kW are produced by a number of Ontario and international manufacturers for residential, commercial and agricultural applications. While they do not need to meet setbacks, they are required to adhere to a streamlined set of requirements to comply with provincial noise limits The structures supporting Class 2 wind turbines require municipal building permits under the Building Code Act, 1992

Is a Renewable Energy Approval required?

	Yes	No	Comments
Wind	<ul style="list-style-type: none"> Wind facilities (Class 3) equal to or greater than 50 kW with a sound power level less than 102 dBA have to meet property and road/ rail setbacks 		<ul style="list-style-type: none"> Projects must meet additional requirements for proximity to water, noise, natural heritage and cultural heritage, depending on the location of the project
	<ul style="list-style-type: none"> Land-based wind facilities (Class 4 or 5) equal to or greater than 50 kW with a sound power level greater than or equal to 102 dBA are also subject to minimum noise setbacks 		<ul style="list-style-type: none"> The structures supporting Class 3 wind turbines require municipal building permits under the Building Code Act, 1992
Solar	<ul style="list-style-type: none"> Ground mounted solar facilities (Class 3) with a name plate greater than 10 kW 	<ul style="list-style-type: none"> Ground mounted solar less than or equal to 10 kW (Class 1) 	<ul style="list-style-type: none"> Ground mounted solar facilities may require municipal building permits. For more information, contact the local municipal building department
		<ul style="list-style-type: none"> Rooftop and wall mounted solar of any size (Class 1 or 2) 	<ul style="list-style-type: none"> Attaching of solar panels to buildings may require municipal building permits. For more information, contact the local municipal building department

Is a Renewable Energy Approval required?

Yes

No

Comments

Bio-energy

- Facilities defined in the REA regulation as an anaerobic digestion, biofuel, biogas or thermal treatment facility

- Regulated mixed anaerobic digestion facilities or anaerobic digestion facilities processing non-regulated waste on farms are subject to a Nutrient Management Strategy

- Anaerobic digestion facilities that did not require a waste certificate of approval and are already regulated by the Nutrient Management Act, 2002 must abide by the setback distances identified in minimum distance separations (MDS), which municipalities use when issuing building permits for construction. Owners/operators of anaerobic digestion facilities must also manage materials according to an approved Nutrient Management Strategy

Water

- All waterpower facilities

- Waterpower facilities are subject to the requirements of the Environmental Assessment Act [e.g. a waterpower class Environmental Assessment (EA) or an individual EA for large projects] and required MOE and Ministry of Natural Resources permits and approvals

Similarly, certain types of projects require approvals from other ministries and approving bodies:

Ministry or approving body	When an approval is required	Permit or approval required
Ministry of Natural Resources	<ul style="list-style-type: none"> ▪ All projects on Crown land <hr/> <ul style="list-style-type: none"> ▪ When a project may: <ul style="list-style-type: none"> – Kill, harm, harass, capture, take, possess, transport or collect a species listed as extirpated, endangered or threatened on the Species at Risk in Ontario List – Will damage or destroy the habitat of an endangered or threatened species on the Species at Risk in Ontario List <hr/> <ul style="list-style-type: none"> ▪ All projects involving: <ul style="list-style-type: none"> – The destruction of nests or eggs of birds protected under the FWCA – The destruction of a beaver dam, the den of a fur bearing mammal (other than a fox or skunk) – Interference with a black bear in its den 	<ul style="list-style-type: none"> ▪ Approval for work permits and/or tenure to occupy Crown land under the Public Lands Act <hr/> <ul style="list-style-type: none"> ▪ Permits under the Endangered Species Act, 2007 (ESA) <hr/> <ul style="list-style-type: none"> ▪ Approval under the Fish and Wildlife Conservation Act (FWCA)

Ministry or approving body	When an approval is required	Permit or approval required
Ministry of Natural Resources	<ul style="list-style-type: none"> ▪ Waterpower projects and some water crossings <hr/> ▪ When a project requires the removal and use of mineral aggregate material from the project location <hr/> ▪ When a facility will use more than 1,000 cubic metres of Crown or private forest resources per year <hr/> ▪ When a project requires clearing and removal of Crown timber from the project location <hr/> ▪ When a project is proposed in an area already licensed for forest activities <hr/> ▪ When a project on Crown land or within a fire region will involve the burning of debris, grass, etc. 	<ul style="list-style-type: none"> ▪ Location Approval and Plans and Specifications Approval under the Lakes and Rivers Improvement Act <hr/> ▪ Aggregate Permit (on Crown land) or license (on private land in a designated area), under the Aggregate Resources Act <hr/> ▪ Forest Resource Processing Facility License under the Crown Forest Sustainability Act, 1994 <hr/> ▪ Forest Resource License under the Crown Forest Sustainability Act, 1994 <hr/> ▪ Approval of a withdrawal of land from an area under a Forest Resource License or a Sustainable Forest License, under the Crown Forestry Sustainability Act, 1994 <hr/> ▪ Permit under the Forest Fires Prevention Act

Ministry or approving body	When an approval is required	Permit or approval required
Ministry of Transportation	<ul style="list-style-type: none"> ▪ When project is in a Permit Control Area 	<ul style="list-style-type: none"> ▪ Application for Sign Permit ▪ Application for Building and Land Use Permit/ Entrance Permit ▪ Application for Encroachment Permit
Conservation Authority	<ul style="list-style-type: none"> ▪ When the project is in an area regulated by a conservation authority under the Conservation Authorities Act and may affect the control of flooding, erosion, dynamic beaches or pollution 	<ul style="list-style-type: none"> ▪ Permit
Niagara Escarpment Commission	<ul style="list-style-type: none"> ▪ When any renewable energy project is in an area of development control under the Niagara Escarpment Planning and Development Act 	<ul style="list-style-type: none"> ▪ Niagara Escarpment Planning and Development Act Development Permit

Key steps in the process

People interested in applying for approvals to engage in a renewable energy project should be aware that they may still be subject to approval by other levels of government.

Under the new requirements, a proposed project must go through the following steps:

Step 1 – Pre-submission work

Before submitting an application for an REA to the Ministry of the Environment, the applicant must:

- Describe the facility and project location
- Assess and mitigate impacts and potential environmental effects associated with the project during:
 - Construction
 - Design and operation
 - Decommissioning
- Engage the public, municipalities and Aboriginal communities in discussions about the project
- If required, obtain a Development Permit issued by the Niagara Escarpment Commission

- Demonstrate how the project will meet setbacks depending on the class of project
- Prepare a report of the findings of any studies, along with their plans for constructing the project, operating and decommissioning the facility

This is the time to register on the Ontario Power Authority (OPA) website (www.powerauthority.on.ca) to gain access to tools and guidance on the requirements for connecting to the electricity grid and to learn about the contract rules of the FIT program. It is suggested that this may also be the time to contact your grid connection authorities (e.g., Hydro One and the Independent Electricity System Operator). The REFO can help you to make these contacts and put you in touch with the right people.

Step 2 – Optional consultation on pre-submission work

Applicants can contact the Ministry of the Environment or the Ministry of Natural Resources to clarify the requirements for their project. In most cases, a coordinated pre-meeting may be appropriate and is highly recommended where a project requires multiple approvals. The REFO can help the applicant set up this meeting. Additionally, this is a good time in the

process to consult with other approving authorities, such as the federal government and conservation authorities (see section 9 for a complete list of helpful contacts).

Step 3 – Complete submission

The applicant provides all of the required information for provincial ministry approvals. This includes an REA application form and supporting forms, diagrams, assessments and reports to the Ministry of the Environment and any documents required by the Ministry of Natural Resources' Approval and Permitting Requirements document. Note: Depending on the location and nature of a project, applicants may also need to apply to the Ministry of Transportation, the Ministry of Culture or the local conservation authority for a permit. See section 9 for contact details.

Mandatory consultation requirements must also be met for the application to be considered complete (see section 3 for more information on consultation requirements).

Step 4 – Public notice to the Environmental Registry

Once an application is made for an REA, a notice of a proposal is posted on the Environmental Registry by the Ministry of the Environment so the public can review and provide comments.

- Where other permits and approvals are subject to public notice requirements, additional notices may be posted on the Environmental Registry. Ministries will coordinate timing and content of the postings

Step 5 – Decision

After considering an application for the issue or renewal of an REA and all public comments received through the Environmental Registry, the Ministry of the Environment director may do either of the following:

- Issue, renew or amend an REA
- Refuse to issue, renew or amend an REA

The director notifies the applicant of the decision and posts it on the Environmental Registry. In coordination with the REA, other provincial ministries will make a decision on any additional approvals or permits required and, where required,

will post decisions on the Environmental Registry at the same time as the Ministry of the Environment.

If a decision is made to approve the application, the applicant must get any remaining approvals necessary before starting construction. This includes, but is not limited to, a municipal building permit, the notice to proceed under the FIT contract and any federal requirements.

The complete submission

Most new renewable energy projects will require an REA from the Ministry of the Environment under the new approvals process. Depending on the project's type and location, the applicant can expect to carry out a variety of studies about environmental, archeological and heritage resources and other potential impacts of the proposed project. The complete submission provides information about the applicant and various aspects of the project, including the results of studies. The complete submission includes:

- Project description report
 - Any energy sources to be used to generate electricity at the renewable energy generation facility
- The facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity
- The class of the renewable energy generation facility, if applicable
- The activities that will be engaged in as part of the renewable energy project
- The name plate capacity of the renewable energy generation facility
- The ownership of the land on which the project is to be located
- Any negative environmental effects that may result from engaging in the project
- A map showing the project location and the land within 300 metres of the project location
- Construction plan report
 - Details of any construction or installation activities
 - The location and timing of any construction or installation activities for the duration of the construction or installation

- Any negative environmental effects that may result from construction or installation activities within a 300 metre radius of the activities
- Mitigation measures for any negative environmental effects mentioned in the above bullet point
- Consultation report
 - A summary of communication with members of the public, Aboriginal communities, and municipalities, local roads boards and local services boards
 - Evidence that the information required to be distributed to Aboriginal communities was completed
 - Any information provided by an Aboriginal community in response to a request
 - Evidence that a consultation form was distributed to municipalities and/or boards
 - The completed or partially completed consultation form, if any
- Design and operations report
 - A site plan of the project location
 - Conceptual plans, specifications and descriptions related to the design and operation of the facility
- An environmental effects monitoring plan with respect to any negative environmental effects that may result from engaging in the project
- A response plan setting out a description of the actions to be taken while engaging in the project
- Shoreline protection measures if the project is located in an area covered by the Lake Simcoe Protection Plan
- Decommissioning plan report
 - Procedures for dismantling or demolishing the facility
 - Activities related to the restoration of any land and water negatively affected by the facility
 - Procedures for managing excess materials and waste
- Additional technical reports as required, based on the type of renewable energy facility, as required by the REA regulation

Beyond these core reports, applicants must include additional studies and information in the REA application. For example, the applicant must show that impacts on archeological and heritage resources are identified, assessed and mitigated, as appropriate. Similarly, the applicant must show that the facility meets setback requirements for significant natural heritage and water features, or, if not,

document a mitigation plan. The applicant must demonstrate that the approach reduces or eliminates the negative impacts to the feature and, for significant natural heritage features, that the Ministry of Natural Resources reviewed its approach.

An applicant may also need to provide additional information for approvals and permits to the Ministry of Natural Resources related to Crown land or resource management activities, including:

- Where the project is on Crown land, information about other Crown land users and how any potential impacts identified by either the government, or users, will be addressed
- Where the project has the potential to negatively affect any species or habitat protected under the Endangered Species Act (ESA), a description of the potential negative effects and the methods proposed to avoid or eliminate the effects. If the effects cannot be avoided or eliminated, the applicant must apply for and be granted a permit under the ESA in order to proceed with the project

Other provincial ministries and agencies may also need to grant permissions for elements of renewable energy projects. For example, the Ministry of Transportation must give an





approval where access roads to a project connect to existing public roads under their jurisdiction.

Third-party hearing

A third-party (anyone other than the applicant or the issuing authority/government) seeking a hearing with respect to an REA must make a request to the Environmental Review Tribunal within 15 days of the posting of the notice of the approval on the Environmental Registry. The Tribunal, which has a regulated timeline under the Environmental Protection Act, must then hold a hearing and make a decision within six months of the request. If the Tribunal does not meet the required timeline requirement, the director's decision is confirmed. The Tribunal can adjourn the hearing should all parties agree or where it is necessary to ensure a fair and just hearing.

NOTE: Applicants may appeal an REA and some Ministry of Natural Resources decisions. See the Approvals and Permitting Requirements document (www.mnr.gov.on.ca) for more information.

CONSULTATION REQUIREMENTS

3. Consultation requirements

Most renewable energy projects must meet mandatory consultation requirements before the applicant applies for an approval. Both the applicant and the groups consulted benefit when the process is transparent. Consultation can help shape a project's design, identify any issues of concern and help build local support.

Consulting with the public

Consultation is important to the success of an applicant's project and minimum requirements are mandatory for all projects requiring an REA, except small wind projects (see page 40) and on farm bio-energy facilities (see page 58).

At an early stage of project planning, the applicant must notify landowners within 120 metres of the proposed project location and place a notice in a local newspaper.

Applicants must also hold at least two community consultation meetings at the beginning of the process, once the project concept is clear.

The first community consultation meeting takes place at the start of project planning.

At least 60 days before an REA application is made, the applicant must make available for public review any studies related to the project that have been carried out.

A final public consultation meeting is required when the applicant has gathered all of the information needed to make an REA application.





While these two meetings are the minimum requirements set out in the REA regulation, applicants are encouraged to hold additional meetings with the local community throughout the project design and study period. These additional meetings are to ensure the community understands that the requirements set out under the regulations are being met, how potential impacts will be mitigated and to raise awareness about the benefits of the project. All projects for which an REA application has been submitted will be posted

on the Environmental Registry for public comment by the Ministry of the Environment at the time of application and upon the issuance of a final decision.

Consulting with municipalities

Municipal consultation is mandatory for all projects requiring an REA, except for small wind projects (see page 40).

Consultation with the municipality (or municipalities) in which the facility would be located is required to take place at least 90 days before submitting an REA application.

The Ministry of the Environment provides applicants with a form that outlines what needs to be addressed with municipal officials. The form requests municipal feedback on matters related to:

- Municipal services and infrastructure (such as the proposed road access)
- The rehabilitation of areas disturbed and/or municipal infrastructure damaged during construction
- Emergency management procedures/safety protocols related to the ongoing management of the facility

If the applicant is not able to provide all of the required information, the complete submission must explain why. In addition, the applicant must describe and document efforts to address any issues raised during municipal consultation.

Consulting with Aboriginal communities

Aboriginal consultation is mandatory for applicants of projects requiring an REA, except for small wind projects (see page 40). The nature of the consultation will vary depending on the project.

The applicant must contact the Ministry of the Environment for a list of Aboriginal communities that must be notified regarding the proposed project. The Ministry of the Environment will give the applicant, on behalf of the Crown, a list of communities that may have a potential interest in the environmental effects of the project or Aboriginal or treaty rights that may be affected by it. If a project is to be located on Crown land, this list will reflect what was already required by the Ministry of Natural Resources as part of the site release process.

The applicant is then encouraged to draw up and carry out a consultation plan. This includes giving notice and project information to Aboriginal communities early in the planning process and making best efforts to meet with them. The applicant must document the results of all consultation they conduct. The documentation is also required to outline any potential adverse affects on Aboriginal or treaty rights identified by the community and the measures proposed to address them.



PROTECTING CULTURAL HERITAGE AND THE NATURAL ENVIRONMENT

4. Protecting cultural heritage and the natural environment

All projects that require an REA must meet natural heritage, water and cultural heritage requirements. Applicants must also meet requirements if the project is to be in a provincial plan area (e.g. Niagara Escarpment, Oak Ridges Moraine, Lake Simcoe, etc.). In addition, applicants need to assess the impacts their projects may have on endangered species and demonstrate how these impacts will be mitigated. The extent of these requirements and how they apply will differ with the size and scope of the project.

Cultural heritage

Applicants must consider whether the renewable energy project may have an impact on cultural heritage—archaeological or heritage resources.

All applicants must determine whether the project is on a property protected through a by-law, instrument



or agreement under the Ontario Heritage Act. If so, the applicant must get authorization from the appropriate body and submit a copy of that authorization as part of their REA application.

In addition, applicants must consider whether the project may have an impact on an archaeological or heritage resource (other than a protected property). The Ministry

of Culture has identified key questions available on the ministry's website (www.culture.gov.on.ca) to guide applicants in completing this step for both archaeological and heritage resources (e.g., has the project area been subject to recent extensive and deep disturbance?). If the applicant does not find any potential impacts, a written summary of the factors supporting this conclusion are submitted with the application. If this consideration finds that impacts are possible, more detailed assessments will be required. These assessments help to ensure that impacts on archaeological or heritage resources are understood and mitigated. Applicants must submit all assessments to the Ministry of Culture and must include a copy of the Ministry of Culture's comments with their REA application.

In some cases, applicants have different requirements based on the type of renewable energy project (e.g., a wind facility with a capacity over 3 kW but less than 50 kW). They only have to carry out an archaeological assessment if the project location is:

- Identified on a municipal archaeological management plan
- Within 250 metres of a known archaeological resource
- A provincially-designated archaeological site.

Natural heritage

The Ontario government protects significant natural features, such as:

- Provincially significant wetlands, including those in coastal areas
- Areas of natural and scientific interest (ANSIs). ANSIs are areas of land and water that represent significant geological and biological features



- Significant woodlands and valleylands
- Significant habitat necessary to sustain wildlife, including birds and bats
- Provincial parks and conservation reserves

These natural features, parks and conservation reserves, are protected by a setback for all elements of a renewable energy project. For most features, and for provincial parks and conservation reserves, the setback is 120 metres with the only exception being a setback of 50 metres from earth science areas of natural and scientific interest.

If the applicant wants to locate the project within the setback, they will have to undertake a study and submit a report, as part of the application, that identifies and assesses any negative environmental effects of the project on the feature (or provincial park or conservation reserve) and identifies the mitigation measures to be undertaken to mitigate those effects.

No projects are allowed within provincially significant wetlands in southern Ontario and provincially significant coastal wetlands, even with a study. As well, no project may be allowed to be located in a provincial park or a



conservation reserve (except where permitted under the Provincial Parks and Conservation Reserves Act).

To help an applicant in protecting these features, the Ministry of Natural Resources will review material in advance of the application being submitted. The Ministry of Natural Resources also provides guidance material to help applicants determine if a feature is significant and offers information on different approaches to minimize environmental effects. Applicants must include a copy of the Ministry of Natural Resources' comments with their REA application.

Water bodies

A project must normally meet a minimum setback distance of 120 metres from any nearby water body (a water body includes a lake, a permanent or intermittent stream and a seepage area [which includes a spring]). These features are defined in O. Reg. 359/09).

If an applicant is proposing to locate the project within the minimum setback distance from a water body, a water report must be prepared and must accompany the application. That report must identify and assess any negative environmental

effects of the project on the water body and must identify mitigation measures in respect of those effects.

In general, the parts of the project related to the transmission lines and associated structures and to the roads, docks, water crossings, culverts, etc. associated with the facility may be allowed within 30 metres of a water body or within the water body itself. However, parts of the project related to the generation equipment, storage facilities and transformer stations may not.

Record, review, site investigation and assessment

The applicant must carry out a review of available records and a physical investigation of the site to determine what types of natural features and/or water bodies are within a minimum 300 metre radius of the proposed project. The applicant will also need to demonstrate they have addressed any negative environmental impacts related to the project. These procedures are also carried out to determine whether a provincial park or conservation reserve is located within the required setback distance. Once completed, an evaluation

of the significance or provincial significance of the natural features may be undertaken.

If the project will be located within the required setback distance of a provincially significant or significant natural feature or a water body or a provincial park or conservation reserve, the next step is to carry out a study and prepare a report on the potential negative environmental effects of the project and on the measures to be taken to mitigate them.

In the case of a report prepared in connection with a provincially significant or significant natural feature, a provincial park or conservation reserve, applicants must submit it to the Ministry of Natural Resources for review and include a copy of the Ministry of Natural Resources' comments with their REA application.

Provincial parks and conservation reserves

New renewable energy projects are not permitted in provincial parks or conservation reserves except:

- If it is for use by a community that is not connected to the electricity grid



- If the site was identified in a Ministry of Natural Resources land use plan before being regulated as part of a provincial park or conservation reserve
- If the electricity is to be used for provincial park or conservation reserve purposes.

Before any project is approved under one of these exceptions, the applicant must satisfy the Ministry of Natural Resources by demonstrating that there are no reasonable alternatives, the lowest cost is not the sole or overriding justification for the request and that all reasonable measures will be undertaken to minimize harmful environmental effect and protect ecological integrity.

Natural hazard lands

Renewable energy projects cannot generally be located on shoreline areas subject to hazards from flooding, erosion and/or dynamic beach action, or on hazardous sites. The project may require an approval from a conservation authority or the Ministry of Natural Resources where there is no conservation authority. For more information on restrictions and requirements, contact your local conservation authority, or where there is no conservation

authority (see section 9 for a complete list of helpful contacts), see the Ministry of Natural Resources Approval and Permitting Requirements document (www.mnr.gov.on.ca/277097.pdf).

Provincial plan areas

The Ontario government has provided protection for several areas within the province to help mitigate the pressures of development and preserve natural or cultural heritage.



These areas are covered by provincial policy plans that set out detailed limits on development of various types. While most provincial plans under the Planning Act (other than the Niagara Escarpment Plan) do not apply to renewable energy projects, the REA regulation provides certain heightened protections in provincial plan areas to maintain the intent of these plans. This section summarizes the controls over renewable energy projects in these protected areas.

Niagara Escarpment

If a project would be located within an area where a Development Permit is required, the applicant must meet the requirements of the Niagara Escarpment Planning and Development Act (www.escarpment.org) for obtaining such a permit. If a Development Permit is not issued, the applicant will not meet the REA complete submission requirements and the project cannot proceed. A Development Permit may be required for small renewable energy projects that do not require an REA.

Oak Ridges Moraine

If a proposed project will be located in the area covered by the Oak Ridges Moraine Conservation Plan (www.mah.gov.on.ca), the renewable energy facility may not include rapid

infiltration basins or rapid infiltration columns. These are prohibited by the Ministry of the Environment regulation and are generally prohibited in connection with other facilities by the Oak Ridges Moraine Conservation Plan.

Proposed projects, in the area covered by the Oak Ridges Moraine Conservation Plan, must follow the general rules set out in the REA regulation to protect provincially significant and significant natural features. In addition, the regulation sets out additional rules for certain natural features that are not covered by the general rules.

As well, the regulation sets out a unique set of rules for the protection of water bodies that apply only to projects located in the area covered by the Oak Ridges Moraine Conservation Plan.

The Greenbelt

Proposed projects in the Protected Countryside, which is described in the Greenbelt Plan (www.greenbelt.ca), must follow the general rules set out in the REA regulation to protect provincially significant and significant natural features and water bodies. In addition, the regulation sets out additional rules for certain natural features that are not covered by the general rules.

Far North of Ontario

Projects proposed in the Far North of Ontario may have additional considerations or requirements associated with the Far North Land Use Planning Initiative. See the Ministry of Natural Resources website (www.mnr.gov.on.ca) for more information.

Lake Simcoe

If the proposed project will be located in the Lake Simcoe watershed, as described in the Lake Simcoe Protection Plan (www.ene.gov.on.ca), the Ministry of the Environment regulation requires that the application for the proposed project include, as part of the Design and Operations Report, a description of whether the project will require the alteration of the shore of Lake Simcoe or certain other specified water bodies, how the project will impact these shorelines, how the project will be engaged in to maintain the contour of these shorelines and certain other specified matters.

Endangered species

The Endangered Species Act, 2007 provides a strong framework for the protection and recovery of Ontario's species at risk and their habitats.

All applicants of renewable energy projects must assess whether species protected under the Endangered Species Act, 2007 or their habitat are present in or near the proposed site. Where they are present, the applicant must assess the potential negative effect of the project on the species or habitat. This should be done in consultation with the district office of the Ministry of Natural Resources. The ministry's Approvals and Permitting Requirements document (www.mnr.gov.on.ca/277097.pdf) provides more information on how to determine if species at risk are present and when the species and habitat protection provisions of the act apply.

If potential harm to species or habitat is identified, the applicant must look at changes to the project. All reasonable alternatives must be considered and documented in the complete submission. If it is not possible to avoid the project's impacts through an alternative, the applicant must seek authorization under the Endangered Species Act, 2007. Authorization is given through one of two permits:

-
- An Overall Benefit Permit if the applicant can show that they can offset the negative effects of the project by taking additional actions that will result in an overall benefit to each individual species affected within a reasonable time
 - A Significant Social or Economic Benefit Permit if the applicant can show that the project will result in a significant social or economic benefit to Ontario

If protected species or protected habitat is present but the applicant has determined that the project will not have an adverse effect, the complete submission must provide enough information to satisfy the Ministry of Natural Resources of that conclusion.

A close-up photograph of a colorful pinwheel spinning against a clear blue sky. The pinwheel has four blades in shades of yellow, orange, red, and pink. The center is a wooden dowel with a small wooden cap. The motion is blurred, suggesting a breeze. A semi-transparent grey horizontal band is overlaid across the middle of the image.

WIND

What is **WIND** power?



Wind facilities rely on the force of wind to generate electricity. In Ontario, large wind facilities generally use turbines with 3 blades to convert wind power into electrical power. Wind speed increases with height above the ground, so wind turbines are usually mounted on tall towers.

As the wind blows over the blades, the rotor spins on its horizontal axis inside a housing at the top of the tower (nacelle) causing a generator to rotate and produce electricity. This electricity is sent through cables to the electricity grid system for distribution and use.

The power and energy output of a wind turbine increases dramatically as the wind speed increases, so power generation is most cost-effective in the windiest areas. Turbines are often clustered together into “wind farms” in such areas. The total cost of delivering the power can vary greatly depending on the proximity of available transmission lines which rules out many remote areas of high wind.

In Ontario, wind is often created because of the different rates at which land and water absorb the heat of the sun. Land heats up much more quickly than water and the air over it rises because of the warmth. Cooler air over nearby water is then pulled toward the land, creating an on-shore breeze. Conversely, land cools more quickly than water so at night the breeze often reverses to off-shore. A substantial area in Ontario is bordered by the Great Lakes, with their huge expanses of water, so these effects help to provide many wind-rich sites. Because these are near existing transmission and distribution systems, they can be very effective in helping to meet Ontario’s energy needs at a reasonable cost.

WIND FACILITY

requirements



5. Wind facility requirements

Classes of wind turbine projects

For the purposes of the REA, wind facilities are categorized by class, based on the project's electrical power output (kW or MW) and turbine sound power level ("loudness"). The provincial requirements vary with the wind facility class:

- **Class 1 wind** facilities generating less than or equal to 3 kW and do not require an REA. The structures supporting free-standing and building-mounted wind turbines may require municipal building permits. For further information, contact the local building department. These turbines typically generate enough energy to power your dishwasher or fridge
- **Class 2 wind** facilities generating over 3 kW but less than 50 kW. These facilities require an REA, however, the requirements are simplified and there are no mandatory setbacks. These facilities are sometimes called "small



wind” and could support a small group of households or supplement a small commercial operation

- **Class 3 wind** facilities are 50kW and over but are “quieter” and have streamlined requirements. These facilities must meet property and road setbacks but not noise setbacks
- **Class 4 wind** facilities are 50 kW and over and are subject to all REA requirements, including property, road and noise setbacks
- **Class 5 wind** are offshore facilities of various size and configuration. These projects may be subject to Class 4 requirements with additional coastal/natural study requirements

Noise setbacks and the noise matrix

Wind turbines that have a name plate capacity of greater than or equal to 50 kW, that are not located within direct contact with surface water or have a sound power level that is greater than or equal to 102 dBA must meet setbacks based on the wind turbine noise matrix. These setbacks vary with the

number of turbines in a facility and their sound power level (“loudness”). Applicants have the option of conducting a noise study to come closer than the setback identified in the matrix up to a minimum setback of 550 metres.

In all cases, the project needs to demonstrate that the facility, as designed, does not exceed a 40 decibel noise level (approximately the noise level in a quiet office or library).

Where roadway noise exceeds 40 dBA, a noise study can be done to determine the appropriate distance.

Property, road and railway setbacks

All turbines 50kW and over must be set back the height of the tower from properties where the land owner is not involved in the project or has not entered into an agreement to allow the turbine to be located closer. This can be reduced to a distance equal to the blade length plus 10 metres where the applicant satisfies the ministry that there are no surrounding land use concerns. These facilities must also be set back a distance equal to blade length plus 10 metres from the right of way for roads and railways.



Conditions of approval

It is expected that several standard conditions of approval will be used in wind facilities requiring an REA. These could include shut-down provisions for high wind, icing or other events seen as posing safety risks, as well as requirements for applicants to properly maintain and operate their equipment.

One-window approval and coordinated review

Various ministries will coordinate the review of REA applications and other permits and approvals, and will share information to ensure each application is complete and adequately satisfies regulatory and/or legislative requirements. The REFO can act as the applicant's guide through the entire process, should the applicant ask for support.

Federal focus

Applicants are advised to contact the following federal government departments about their wind facilities:

- Canadian Broadcasting Corporation (CBC): Requires applicants to comply with Radio Advisory Board of Canada (RABC) and Canadian Wind Energy Association (CanWEA) guidelines and to notify CBC of any proposed wind facilities by emailing eoliennes_windturbines@cbc.ca.
- Royal Canadian Mounted Police (RCMP): Requires all applicants with potential wind facilities to contact the RCMP Mobile Communications Services at 613-949-4519 or windfarm_coordinator@rcmp-grc.gc.ca.
- Transport Canada: Obstacles such as wind turbines, or any other tall tower, must be assessed for lighting and marking requirements in accordance with Canadian Aviation Regulations. Transport

Canada also requires applicants to complete an Aeronautical Obstruction Clearance Form (www.tc.gc.ca). Also, any projects near an airport that may potentially attract birds requires the applicant to contact Transport Canada, Aerodromes and Air Navigation Ontario Region at 416-952-1623 or by email at aerodromes.ontario@tc.gc.ca. A federal environmental assessment under the Canadian Environmental Assessment Act is not triggered by the Canadian Aviation Regulations.

- Fisheries and Oceans Canada (DFO): Initial requests for review of projects in or around water that may affect fish and fish habitat are first referred to the local conservation authority. Projects requiring additional review, Fisheries Act authorization and/or assessment under Canadian Environmental Assessment Agency (CEAA) or Species at Risk Act (SARA) are forwarded to DFO. In cases where there is no conservation authority, the local Ministry of

Federal focus

Natural Resources (MNR) district office is the first point of contact for the review of projects in and around water that may affect fish and fish habitat. For any offshore wind facilities, or wind facilities that may impact (directly or through ancillary projects such as water crossings) fish and fish habitat or aquatic species at risk, contact the local conservation authority or local Ministry of Natural Resources district office. Contact information for DFO offices can be found on DFO's website (www.dfo-mpo.gc.ca).

- Environment Canada: Applicants with land-based and offshore wind facility proposals must contact Environment Canada if the proposed facility has the potential to impact migratory birds in any way. Applicants with proposed land-based and offshore wind facilities that are situated within 80 km of a national weather radar station (http://weatheroffice.gc.ca/radar/index_e.html) must contact Environment

Canada, due to potential interference with weather radar signals and their ability to detect severe weather detection. Applicants of offshore wind facilities must contact Environment Canada if the proposed facility has the potential to affect water quality in any way. In addition, Environment Canada holds information that may be of use to the province and applicants in assessing the existing environment and/or its effects on the facility, including climatological records, weather forecasts, ice cover and water level and flow data. Contact the manager, Environmental Assessment Section at 905-336-4953, or EA-EE.ontario@ec.gc.ca.

- Parks Canada: If all or part of a proposed wind facility would occur on or over federal land owned by Parks Canada, or if it has the potential to affect a national park, national park reserve, national historic site, historic canal or national marine conservation area, the applicant is advised to

Federal focus

contact the office administering the park(s) or site(s) in question. Contact information for national parks offices, national historic sites, and national marine conservation areas can be found on Parks Canada's website (www.pc.gc.ca).

- Natural Resources Canada (NRCan) seeks to enhance the responsible development and use of Canada's natural resources and the competitiveness of Canada's natural resources products. NRCan is an established leader in science and technology in the fields of energy, forests, and minerals and metals and uses expertise in earth sciences to build and maintain an up-to-date knowledge base of Canada's landmass. As such, NRCan has an interest in projects related to natural resource development and often develops programs to assist (through funding) in the research and development of energy, forestry and mining initiatives. Visit NRCan's website

(www.nrcan-rncan.gc.ca) for information on programs that may apply to wind projects.

- Canadian Environmental Assessment Agency (CEAA): The Canadian Environmental Assessment Act (CEAA) may apply to wind projects if federal authorities are contemplating certain action or decisions in relation to a project that would enable it to proceed in whole or in part. A federal environmental assessment may be required when a federal authority is the proponent of the project; provides financial assistance to the proponent; sells, leases or otherwise disposes of federal lands; or issues a permit, licence or any other approval as prescribed in the Law List Regulations. For more information visit the Canadian Environmental Assessment Agency's website (www.ceaa-acee.gc.ca) or contact the Agency's Ontario Region Office at ceaa.ontario@ceaa-acee.gc.ca or 416-952-1576.

SOLAR

What is **SOLAR** power?




While all renewable energy is ultimately created by the sun, only solar power depends directly on sunlight to generate electricity.

The most common form of solar system for electricity generation in use today is the photovoltaic

cell. Systems of this type are called “solar PV.” A solar PV panel consists of several layers. The top one is glass which protects the PV cell from the weather and has a special coating to reduce reflected light from the panel. Inside the cell is a grid made of material, usually a metal, that conducts electricity. Openings in the grid let sunlight reach the semiconductor layer underneath.

It’s in the semiconductor layer that electricity is actually generated. Sunlight is made up of packets of energy called photons, which creates an electric current when it strikes the specially-prepared semiconductor layer. The metal grid gathers and transmits the flow of electricity.

The amount of energy a solar PV panel generates depends on the amount of sunlight that shines on it, therefore, location and orientation are very important. Since the sun moves across the sky throughout the day and is further above the horizon in summer than winter, panels should be tilted to maximize their exposure to sunlight. Stationary panels should face south, and in southern Ontario, the best angle of tilt is approximately 45 degrees. Some facilities use equipment that changes the angle of tilt of the panels to follow the sun throughout the day.



SOLAR FACILITY

requirements

6. Solar facility requirements

Classes of solar facilities

For the purposes of the REA, solar facilities are categorized by class:

- **Class 1 solar** facilities generate over 10 kW and are mounted on a roof or wall. Those proposing to engage in these projects are exempt from requiring an REA or Certificate of Approval. Facilities mounted on buildings may require a municipal building permit. For further information, contact the local building department.
- **Class 2 solar** facilities generate equal to or less than 10 kW and are sometimes called “micro solar”. Those proposing to engage in these projects do not require an REA or a Certificate of Approval.
- **Class 3 solar** facilities are ground mounted and generate over 10 kW. These facilities require an REA and must conduct a noise study.

Applicants should check with their municipal building department about whether a building permit is required.

Noise requirements

Applicants for Class 3 solar facilities must submit a noise study as part of their application for an REA. This noise study assesses the potential impacts at nearby noise receptors (e.g. residence) due to sound emitted by the solar facility’s electrical equipment (e.g. inverters, transformers). The application and noise study submitted is required to demonstrate that the facility, as designed, does not exceed a 40 decibel noise level (approximately the noise level experienced in a quiet office or library). The review engineer will assess the information submitted by the applicant to determine acceptable distance from the solar facility to the nearest residence or other receptor.

Prime Agricultural Land

There are restrictions within the Feed in Tariff contract for locating a solar facility on prime agricultural land. For more information on these restrictions, visit the REFO’s website (www.ontario.ca/refo).

One-window approval and coordinated review

Various ministries will coordinate the review of the complete submission and will share information to ensure each application is complete and adequately satisfies any regulatory and/or legislative requirements. The REFO can act as the applicant's guide through the entire process, should the applicant ask for support.

Federal focus

Applicants are advised to contact the following federal government departments about their solar energy projects:

- Fisheries and Oceans Canada (DFO): Initial requests for review of projects in or around water that may affect fish and fish habitat are first referred to the local conservation authority. Projects requiring additional review, Fisheries Act authorization and/or assessment under Canadian Environmental Assessment Agency (CEAA) or Species at Risk Act (SARA) are forwarded to DFO. In cases where there is no conservation authority, the local Ministry of Natural Resources (MNR) district office is the first point of contact for the review of projects in and around water that may affect fish and fish habitat. Contact information for DFO offices can be found on DFO's website (www.dfo.mpo.gc.ca).
- Environment Canada: Applicants with solar facilities that have potential to impact migratory birds and/or their habitat should contact the manager, Environmental Assessment Section, at 905-336-4953, or EA-EE.ontario@ec.gc.ca.
- Parks Canada: If all or part of a proposed solar facility occurs on or over federal land owned by Parks Canada, or if it has the potential to affect a national park, national park reserve, national historic site, historic canal or national marine conservation area, the applicant is advised to contact the office administering the park(s) or site(s) in question. Contact information for national parks offices, national historic sites, and national marine conservation areas can be found on Parks Canada's website (www.pc.gc.ca).

Federal focus

- Natural Resources Canada (NRCan) seeks to enhance the responsible development and use of Canada's natural resources and the competitiveness of Canada's natural resources products. NRCan is an established leader in science and technology in the fields of energy, forests, and minerals and metals and uses expertise in earth sciences to build and maintain an up-to-date knowledge base of Canada's landmass. As such, NRCan has an interest in projects related to natural resource development and often develops programs to assist (through funding) in the research and development of energy, forestry and mining initiatives. Visit NRCan's website (www.nrcan-rncan.gc.ca) for information on programs that may apply to solar projects.
- Canadian Environmental Assessment Agency (CEAA): The Canadian Environmental Assessment Act (CEAA) may apply to solar projects if federal

authorities are contemplating certain action or decisions in relation to a project that would enable it to proceed in whole or in part. A federal environmental assessment may be required when a federal authority is the proponent of the project; provides financial assistance to the proponent; sells, leases or otherwise disposes of federal lands; or issues a permit, licence or any other approval as prescribed in the Law List Regulations. For more information visit the Canadian Environmental Assessment Agency's website (www.ceaa-acee.gc.ca) or contact the Agency's Ontario Region Office at ceaa.ontario@ceaa-acee.gc.ca or 416-952-1576.



BIO-ENERGY

What is **BIO-ENERGY** power?



Energy is stored in organic matter, whether it's wood for a fireplace or food to power human activity. Bio-energy is the term used to refer to energy produced from living or recently living plants or animals. Sources for bio-energy generation can include agricultural residues, food-

processing by-products, animal manure, waste wood, wood chips and bark and even kitchen waste.

The energy in organic matter can be tapped to produce electricity either by burning the raw material or by first turning it into biogas that is then burned. Either way, the heat of combustion drives a turbine or engine to generate electricity. The heat can also be used directly for space heating, as in a combined heat and power facility. Ontario's forest industry has lengthy experience with bio-energy, as many companies use wood residues to fuel generators and provide steam for processing plants.

The carbon dioxide released when organic matter is burned has been absorbed from the atmosphere recently, so there is no net increase in carbon dioxide, making it a carbon neutral source of energy. Producing bio-energy to create power instead of simply disposing of organic matter can also significantly reduce the risk of contaminating surface and groundwater and promote waste diversion from landfills.

BIO-ENERGY POWER FACILITY

requirements



7. Bio-energy facility requirements

Types of bio-energy projects

- **Thermal treatment** facilities generate electricity through the burning of wood or other solid biomass material
- **Anaerobic digester** facilities use bacteria to convert solid and liquid bio-energy into a biogas that is similar to natural gas, which is then combusted to generate electricity
- **Biofuel** facilities use the combustion of biomass-based liquid fuels, such as bio-diesel, to generate electricity
- **Biogas** facilities combust gases such as captured methane gases generated from landfills to generate electricity





License to use forest resources

Applicants of all proposed bio-energy projects that will use more than 1,000 cubic metres of private or Crown forest resources annually must obtain a Forest Resource Processing Facility License from the Ministry of Natural Resources (MNR). To obtain a license, an applicant needs to submit an application to MNR as part of their complete submission with a business plan showing their ability to finance, operate and manage the facility and an analysis of the source, species, and volume of the forest resources that will supply the facility.

Bio-energy

There are all kinds of material that come from organic matter, but to qualify as renewable, bio-energy facilities must use biomass, biofuel or biogas as defined under the Electricity Act, 1998 and O. Reg. 160/99 under that act.

Classes of anaerobic digestion facilities

Anaerobic digestion facilities are separated into classes, with varying provincial requirements depending on the facility location (e.g., on a farm), feedstock material (e.g. agricultural wastes), and size (e.g., greater or less than 500 kW).

Setbacks, best management practices and studies

Most farm-based anaerobic digestion facilities have to meet a setback of 250 metres from buildings used by people, such as a residence. In some cases, facilities can implement a set of best management practices to mitigate impacts to

reduce a setback to 125 metres. Large industrial facilities will have to submit studies identifying noise, odour and pollutant impacts and how these impacts will be addressed.

Nutrient Management Strategy exemption

Anaerobic digestion facilities that are located on a farm and are already subject to an approved Nutrient Management Strategy under the Nutrient Management Act, 2002 and would not have required a waste Certificate of Approval are exempt from obtaining an REA.

One-window approval and coordinated review

Various ministries will coordinate the review of the complete submission and will share information to ensure each application is complete and adequately satisfies any regulatory or legislative requirements. The REFO can act as the applicant's guide through the entire process, should the applicant ask for support.

Federal focus

Applicants are advised to contact the following federal government departments about their bio-energy projects:

- Fisheries and Oceans Canada (DFO): Initial requests for review of projects in or around water that may affect fish and fish habitat are first referred to the local conservation authority. Projects requiring additional review, Fisheries Act authorization and/or assessment under Canadian Environmental Assessment Agency (CEAA) or Species at Risk Act (SARA) are forwarded to DFO. In cases where there is no conservation authority, the local Ministry of Natural Resources (MNR) district office is the first point of contact for the review of projects in and around water that may affect fish and fish habitat. For bio-energy facilities that may impact (directly or through ancillary projects such as water crossings) fish and fish habitat or aquatic species at risk, contact the local conservation authority or local Ministry of Natural Resources district office. Contact information for DFO offices can be found on DFO's website (www.dfo-mpo.gc.ca).
- Environment Canada: Applicants with bio-energy facilities that have potential to impact migratory birds and/or their habitat should contact the manager, Environmental Assessment Section, at 905-336-4953, or EA-EE.ontario@ec.gc.ca.
- Parks Canada: If all or part of a proposed bio-energy facility would occur on or over federal land owned by Parks Canada, or if it has the potential to affect a national park, national park reserve, national historic site, historic canal or national marine conservation area, the applicant is advised to contact the office administering the park(s) or site(s) in question. Contact information for national parks offices, national historic sites, and national marine conservation areas can be found on Parks Canada's website (www.pc.gc.ca).

Federal focus

- Natural Resources Canada (NRCan) seeks to enhance the responsible development and use of Canada's natural resources and the competitiveness of Canada's natural resources products. NRCan is an established leader in science and technology in the fields of energy, forests, and minerals and metals and uses expertise in earth sciences to build and maintain an up-to-date knowledge base of Canada's landmass. As such, NRCan has an interest in projects related to natural resource development and often develops programs to assist (through funding) in the research and development of energy, forestry and mining initiatives. Visit NRCan's website (www.nrcan-rncan.gc.ca) for information on programs that may apply to bio-energy projects.
- Canadian Environmental Assessment Agency (CEAA): The Canadian Environmental Assessment Act (CEAA) may apply to bio-energy projects if

federal authorities are contemplating certain action or decisions in relation to a project that would enable it to proceed in whole or in part. A federal environmental assessment may be required when a federal authority is the proponent of the project; provides financial assistance to the proponent; sells, leases or otherwise disposes of federal lands; or issues a permit, licence or any other approval as prescribed in the Law List Regulations. For more information visit the Canadian Environmental Assessment Agency's website (www.ceaa-acee.gc.ca) or contact the Agency's Ontario Region Office at ceaa.ontario@ceaa-acee.gc.ca or 416-952-1576.

A blue-tinted photograph of a waterfall. The water is captured in a long-exposure style, creating a soft, ethereal flow. The word "WATER" is overlaid in large, white, bold, sans-serif capital letters on the left side of the image. The background shows the waterfall cascading over rocks, with mist or spray at the base. The overall color palette is various shades of blue, from deep navy to light cyan.

WATER

What is **WATER** power?



People have been harnessing the energy of moving water for centuries to power machinery by spinning a waterwheel. In the 19th century, that same principle was used to spin a turbine and generate electricity from waterpower. Ontario, with its abundant lakes and rivers, quickly became a world leader in waterpower production.

Two different approaches are used to produce electricity from waterpower. A project can include a dam to hold back the waters of a river, creating a reservoir of stored water. This allows the facility to alter its power output to help meet changing demand through the day and over the year. Most large waterpower facilities use dams and reservoirs. The second approach is run-of-river. In this approach, the facility depends on the flow of the river itself for its output.

The size of waterpower projects can vary dramatically based on the water supply and the amount of electricity needed.

The size categories range from “micro” and “mini,” which are generally stand-alone, to small and large:

- “Micro” installations are 100 kW or less and typically supply enough electricity for a few homes
- “Mini” installations are 100 kW to 1 MW and typically supply electricity for a small factory or an isolated community
- Small installations are 1 MW to 30 MW and are typically connected to the province-wide power grid
- Large installations are over 30 MW and are connected to the grid or power large industrial loads.

Waterpower is an extremely efficient source of energy. According to the Canadian Hydropower Association, modern waterpower plants can convert up to 90 per cent of the available energy into electricity.

WATERPOWER FACILITY

◆ requirements



8. Waterpower facility requirements

The approach to the environmental review of waterpower facilities was streamlined in 2008 with the introduction of the Class Environmental Assessment for Waterpower Projects (Class EA). Waterpower facilities do not require a Renewable Energy Approval. Waterpower facilities are unique by comparison to other types of renewable energy generation facilities as they have site-specific engineering considerations. The current rules for waterpower facilities are customized with clear requirements for considering environmental impacts and working with communities to design better projects in cooperation with government.

The Class EA for Waterpower Projects (October 2008) is the source document for understanding the rules governing the development of waterpower facilities.

Waterpower facilities must also obtain the existing permits and approvals required from the Ministry of the Environment and Ministry of Natural Resources.

The Ministries of the Environment and Natural Resources in consultation with the federal government, will continue to work with the waterpower sector to align approval processes and, where appropriate, reduce the regulatory burden and further streamline approvals processes.

General Information

The Class EA for Waterpower Projects was developed by the Ontario Waterpower Association (OWA). It was approved by the Minister of the Environment and the Lieutenant Governor in Council in 2008.

The Class EA requires applicants to consider the positive and negative potential effects of a proposed project, and the significance of each potential level of effect. Common and/or important issues identified in the Class EA involve fish and fish habitat, water levels and flows, and competing or complementary interests of nearby land owners, water-resource users and water-related natural resource users.

The Class EA only applies to waterpower projects less than 200 megawatts. Projects 200 megawatts or more are subject to an individual EA.

Ontario Waterpower Association (OWA)

The OWA is responsible for:

- Providing education and best practice guidance to applicants
- Reporting to the Ministry of the Environment on the application of the Class EA on an annual basis
- Overseeing requests to alter the Class EA process

For more information about the Class EA for Waterpower Projects, visit the OWA website (www.owa.ca).



Federal focus

Applicants are advised to contact the following federal government departments about their waterpower projects:

- Transport Canada: Requires applicants with facilities that will affect a navigable waterway to submit a Navigable Water Protection Act (NWPA) application. For information about the NWPA and to obtain the NWPA application and accompanying guide, please visit the Transport Canada Ontario Region website (www.tc.gc.ca/eng/ontario/menu.htm). To ask questions, contact the Navigable Waters Protection Program of TC Marine Safety at 1-866-821-6631 or NWPOntario@tc.gc.ca. Please note that certain approvals under the Navigable Waters Protection Act trigger the requirement for a federal environment assessment under the Canadian Environmental Assessment Act.
- Fisheries and Oceans Canada (DFO): Initial requests for review of projects in or around water that may affect fish and fish habitat are first referred to the local conservation authority. Projects requiring additional review, Fisheries Act authorization and/or assessment under Canadian Environmental Assessment Agency (CEAA) or Species at Risk Act (SARA) are forwarded to DFO. In cases where there is no conservation authority, the local Ministry of Natural Resources (MNR) district office is the first point of contact for the review of projects in and around water that may affect fish and fish habitat. For waterpower facilities that may impact (directly or through ancillary projects such as water crossings) fish and fish habitat or aquatic species at risk, contact the local conservation authority or local Ministry of Natural Resources district office. Contact information for DFO offices can be found on DFO's website (www.dfo-mpo.gc.ca).

Federal focus

- Environment Canada: Has an interest in waterpower facilities that have potential to affect the quality of Canadian fisheries waters, or that may affect migratory birds. Environment Canada also has an interest in waterpower facilities that may affect flows and levels at the Canada-U.S. border of international boundary waters, as Environment Canada provides advice to the Department of Foreign Affairs and International Trade about potential approval requirements for such facilities under the International Boundary Waters Treaty Act. In addition, Environment Canada has information that may be of use to the province and applicants in assessing the existing environment and/or its effects on the facility. This information includes climatological records, weather forecasts and water level and flow data. Contact the manager, Environmental Assessment Section, at 905-336-4953, or EA-EE.ontario@ec.gc.ca.
- Parks Canada: If all or part of a proposed waterpower facility would occur on or over federal land owned by Parks Canada, or if it has the potential to affect a national park, national park reserve, national historic site, historic canal or national marine conservation area, the applicant is advised to contact the office administering the park(s) or site(s) in question. Contact information for national parks offices, national historic sites, and national marine conservation areas can be found on Parks Canada's website (www.pc.gc.ca).
- Natural Resources Canada (NRCan) seeks to enhance the responsible development and use of Canada's natural resources and the competitiveness of Canada's natural resources products. NRCan is an established leader in science and technology in the fields of energy, forests, and minerals and metals and uses expertise in earth sciences to build and maintain an up-to-date knowledge base of Canada's

Federal focus

landmass. As such, NRCan has an interest in projects related to natural resource development and often develops programs to assist (through funding) in the research and development of energy, forestry and mining initiatives. Visit NRCan's website (www.nrcan-ncan.gc.ca) for information on programs that may apply to waterpower projects.

- Canadian Environmental Assessment Agency (CEAA): The Canadian Environmental Assessment Act (CEAA) may apply to waterpower projects if federal authorities are contemplating certain action or decisions in relation to a project that would enable it to proceed in whole or in part. A federal environmental assessment may be required when a federal authority is the proponent of the project; provides financial assistance to the proponent; sells, leases or otherwise disposes of federal lands; or issues a permit, licence or any other approval as prescribed in the Law List Regulations. There

may be an opportunity to coordinate federal and provincial environmental assessment processes. For more information visit the Canadian Environmental Assessment Agency's website (www.ceaa-acee.gc.ca) or contact the Agency's Ontario Region Office at ceaa.ontario@ceaa-acee.gc.ca or 416-952-1576.

HELPFUL CONTACTS

9. Helpful contacts

Renewable Energy Facilitation Office

Ministry of Energy and Infrastructure

Ph: 1-877-440-REFO (7336)

(416) 212-6582

Fax: (416) 314-2175

REFO@ontario.ca

Renewable Energy Team

Environmental Assessment and Approval Branch

Ministry of the Environment

Ph: 1-800-461-6290

(416) 314-8001

Fax: (416) 314-8452

EAABgen.moe@ontario.ca

Renewable Energy Program

(for policy development and

Crown Land Site Release information)

Ministry of Natural Resources

Ph: (705) 755-5041

Fax: (705) 755-1206

renewable.mnr@ontario.ca

Ministry of Natural Resources

Regional and District Offices

(for project development/review information)

Please visit www.mnr.gov.on.ca or call

1-800-667-1940 for office contacts and locations

Ministry of Transportation

Corridor Management and Property Section

301 St. Paul Street

St. Catharines, ON

L2R 7R4

Ph: 905-704-2250

www.mto.gov.on.ca

Conservation authorities

(for information and contact details for all of Ontario's conservation authorities)

Conservation Ontario

Ph: (905) 895-0716

Fax: (905) 895-0751

info@conservationontario.ca

www.conservation-ontario.on.ca

Canadian Broadcasting Corporation

(for wind projects)

eoliennes_windturbines@cbc.ca

Royal Canadian Mounted Police

(for wind projects)

RCMP Mobile Communications Services

Ph: (613) 949-4519

windfarm_coordinator@rcmp-grc.gc.ca

Transport Canada

Aerodromes and Air Navigation Ontario Region

Ph: (416) 952-1623

aerodromes.ontario@tc.gc.ca

Fisheries and Oceans Canada

Ph: (613) 993-0999

info@dfo-mpo.gc.ca

Environment Canada

Environment Assessment Section

Ph: (905) 336-4953

EA-EE.ontario@ec.gc.ca

Parks Canada

Ph: 1-888-773-8888

Natural Resources Canada

Ph: (613) 995-0947

Canadian Environmental Assessment Agency Ontario Region Office

Ph: (416) 952-1576

ceaa.ontario@ceaa-acee.gc.ca

