



Énergie NB Power

Embedded Generation Program Information
Package

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Purpose

This document's purpose is to orient project applicants on the requirements to participate in NB Power's Embedded Generation Program. You can also find information on our website at: <https://www.nbpower.com/en/products-services/embedded-generation/>

***** It is important to note that any conflicting information between this document and the regulation will result in the regulation being the prevailing authority.*****

LORESS

The Provincial Regulation to which this program adheres to is called "Locally Owned Renewable Energy Projects that are Small Scale" hereinafter called "LORESS". The regulation can be on the Provincial government website: <http://laws.gnb.ca/en/ShowPdf/cr/2015-60.pdf>

The LORESS regulation is comprised of three components:

1. Distributed Generation (Component -3- in the regulation)
 - This component is reserved for all projects that are interconnected through the Net Metering and Embedded Generation programs. These projects are assessed on a case by case basis. **The remainder of this document refers to the interconnection of Embedded Generation Projects only.**
2. Aboriginal Businesses (Component -1- in the regulation)
 - This component is reserved for Aboriginal Businesses who wish to interconnect renewable energy projects. These projects will be approved by a procurement process.
3. Local Entities (Component -2- in the regulation)
 - This component is reserved for Local Entities who wish to interconnect renewable energy projects. These projects will be approved by a procurement process.

Embedded Generation Program

The Embedded Generation Program allows locally owned renewable sourced electricity generation to be interconnected to NB Power's distribution system. This energy is to be sold back to NB Power. To qualify for this program, applicants must meet the following criteria for local ownership and renewable resources:

Local Ownership

- A local entity,

- An Aboriginal Business,
- An individual who is a resident of the Province,
- A sole proprietorship, the proprietor of which is a resident of the province
- A corporation as defined in the Business Corporations Act and in which a majority of the voting shares is beneficially owned or controlled, directly or indirectly, by one or more individuals who are residents of the Province.

Renewable Sources

- Solar
- Wind
- Hydro
- Ocean
- Biogas
- Biomass
- Landfill Gas

NB Power re-established the capacity limit for the program in 2016 to a total of 20MW of embedded generation.

Development of Project

Applicants may choose to develop their project alone, or in partnership as long as they adhere to the provincial regulation criteria for local ownership and renewable sources. Applicants will be responsible to build all infrastructure required to connect to NB Power's distribution system in addition to any costs associated with the development of this project.

NB Power will require landline phone service at the site to collect the production data for electricity produced by the project. The costs of providing the phone line will be the responsibility of the applicant.

The applicant should budget a minimum of approximately \$30,000 for the interconnection of the generator. However, if there is a need to complete extra work in order to interconnect the project, the applicant will be responsible to cover these costs.

The project must meet NB Power's Technical Specification for Independent Power Producers. This Specification is available here: <https://www.nbpower.com/en/products-services/embedded-generation/additional-resources/>

Available Distributed Generation Capacity on the Distribution System

NB Power's distribution system is a dynamic model that frequently changes to ensure efficient and safe operation. Some high level information on substation distributed generation (DG) capacities is available on our website and will be refreshed from time to time.

Please be advised that the values found at the following link are determined at the substation. The interconnection capacity will be impacted as the interconnection point is moved downstream on the distribution line.

Confirmation of available capacity

NB Power will provide a general capacity assessment of a specific location for a project proponent. This assessment will help applicants identify the best sites to develop their project. Please note, distributed generation (DG) capacities for specific locations is unknown.

Applicants will be required to pay a fee of \$500 for this assessment. **Interconnection cost estimates, and confirmation of project provisional approval are only made after the "Embedded Generation Interconnection Application" has been completed in the next section of this document.**

A developer may request a general capacity assessment by filling out this form:

<https://www.nbpower.com/media/206162/embedded-generation-general-capacity-assessment-may-2016.pdf>

NB Power will send a letter to confirm the outcome of the assessment.

Fees paid for this assessment are not refundable. See page 10, Appendix 'B' for an example of this form and the fees associated with completing the General Capacity Assessment.

Embedded Generation Interconnection Application

Once the applicant has confirmed the project can interconnect to the distribution system at the location proposed, they can complete an "Embedded Generation Interconnection Application" form in order to make a formal application for interconnection.

NB Power will complete an in depth system impact study to ensure the generator can be interconnected at the mutually agreed interconnection point.

NB Power will confirm by letter the outcome of the study. The applicant will have 30 days from the date of the letter to notify NB Power in writing of their intention to move forward with the project. The applicant will then have 60 days to complete the requirements to execute a Power Purchase Agreement (PPA). **NB Power will not reserve capacity on the distribution system until all PPA requirements are met and the PPA is signed by both parties.**

It's important to note that while the PPA is signed by both parties, it is not a final approval to interconnect and operate. Technical details may not be finalized when the PPA is signed, therefore final approval will be given by NB Power Distribution Engineering and Distribution Operations.

If the applicant misses deadlines, the project may be removed from the project list at NB Power's discretion and re-application will be necessary.

NB Power will appoint an Administrator to the applicant's project. The Administrator will be the main point of contact during the enrollment and operational phases of the project.

The fees paid for the Interconnection Application are not refundable. Please see Page 11 Appendix 'C' for an example of the form and the fees associated to complete the Interconnection Application System Impact Assessment.

Interconnection Specifications

Once the project is approved, the applicant's project will require meeting the NB Power Technical Specification for Independent Power Producers. This specification can be found here: <https://www.nbpower.com/en/products-services/embedded-generation/additional-resources/>

The project will also have to meet the New Brunswick Department of Public Safety –Technical Inspection Services requirements. The applicant's electrical contractor should inquire as to what is needed before starting the project.

Power Purchase Agreement

The project applicant and NB Power will execute an Embedded Generation Power Purchase Agreement. The objective is to have a long term agreement between 20 and 25 years. NB Power has predefined the terms and rates for the Power Purchase Agreement. A draft Power Purchase Agreement will be shared with the project applicant once a project receives provisional approval.

Final Approval for Interconnection

NB Power will only grant Final Approval for interconnection once all technical and administrative requirements have been met as deemed by the NB Power Engineer and Administrator. This approval must be given in writing, and NB Power must be a witness to the first attempt to interconnect.

Operating Agreement

An Operating Agreement will be signed by both parties once the Final Approval for Interconnection is complete. This agreement outlines the processes and procedures to take place during start-up, operation and shutdown of the applicant’s generator.

Payment for Generator Output

Payment for Generator Output, measurement of output, frequency for the collection of billing determinants and payment will be as outlined in the Power Purchase Agreement.

Possible Generation Export to the Transmission System

It is possible that the project will export production to the transmission system during the life of the project. If this happens, the proponent will be responsible for:

- Project metering upgrades.
- Distribution system upgrades.
- Substation metering upgrades.
- Possible communication and telemetry upgrades (SCADA.)
- Other related materials and labor costs to accommodate generator for export to transmission system.

Once export to the transmission system is anticipated, no additional embedded generation projects will be allowed on the affected substation. NB Power does not guarantee that loads on the substation will not change (up or down.) This may relate to customer changes or to system reliability and maintenance.

Payment for export to the transmission system will be based on 90% of NB Power’s avoided cost, which varies hourly and is dependent on both pricing of fuel and the electricity market. Annual average rates of 5 cents/kWh or less should be anticipated.

Appendix A - Project Proponent Checklist

Local Ownership

- Local Ownership requirements are met as per the LORESS Regulation.

Source

- Source of energy is renewable meets the requirements of the LORESS Regulation.

Project

- Project meets municipal, provincial, and federal regulations.
- Capacity Assessment has been completed by NB Power (optional step).
- Assure Project will meet all technical specifications as per NB Power requirements.
- Interconnection Application has been submitted to NB Power.
- Interconnection Application has been approved by NB Power.

Within 30 days of above step...

- Sent written notice of intent to move forward.


Upon NB Power sharing a Power Purchase Agreement

- Executed Embedded Generation Power Purchase Agreement with NB Power.


Project Building, Commissioning, and Execution


- Meet all requirements and milestones as required in Power Purchase Agreement.
- First connection and synchronization must be witnessed by NB Power Engineer.
- Operating Agreement.

Appendix B - General Capacity Assessment Request

 Énergie NB Power			
Embedded Generation General Capacity Assessment Request			
Project Developer Information		Mailing Address	
Applicant	Company Name:	Address:	
	Primary Contact:	City:	Postal Code:
	Daytime Phone:	Site Location (fill out known information)	
	Fax:	Civic Address:	
	E-Mail:	Latitude:	Longitude:
		PID#:	NB Power Pole #:
Project Information			
Project	Developer:	Engineering Consultant:	
	Contractor:		
Generator Information			
Generator	1.	Generating Source: <input type="checkbox"/> Wind <input type="checkbox"/> Biogas <input type="checkbox"/> Solar <input type="checkbox"/> Biomass <input type="checkbox"/> Hydro <input type="checkbox"/> Other If other Please specify: _____	
	2.	Number of Generating Units: _____	
	3.	Generator Size: _____ <input type="checkbox"/> Watts <input type="checkbox"/> kW <input type="checkbox"/> MW	
	4.	Total Project Capacity: _____ <input type="checkbox"/> kW <input type="checkbox"/> MW	
Inverter Information (if applicable)			
Inverter	1.	Rated Capacity/Unit: _____ <input type="checkbox"/> Watts <input type="checkbox"/> kW # Units: _____ Total Capacity: _____ kW	
	2.	Manufacturer:	
	3.	Model:	
	4.	Output Voltage (V):	
Additional Information (Please enclose a copy of the following items with your application)			
Additional	1. SITE LOCATION MAP including topographical details and proximity to NB Power's distribution system, 2. PAYMENT: Cheque in the amount of \$500 (Non Refundable).		
	Mailing Address: NB Power, Renewable Energy Specialist, PO Box 2000, 515 King Street, Fredericton NB, E3B 4X1		
Applicant Signature			
Submission	_____ Applicant Signature Date		
	The proponent provides this statement to NB Power knowing that NB Power will rely on this information. All statements are true or believed to be true and are not intentionally misleading. In signing this form the proponent understands that the assessment is for assessing capacity of generation interconnection. The outcome of this assessment does not imply approval is granted. (rev 2015/11/30)		
Assessment Details: Internal Use Only			
Internal Use Only	1.	Point of Interconnection: Line _____ Section: _____ Pole: _____	
	2.	Capacity allowed: _____ <input type="checkbox"/> kW <input type="checkbox"/> MW	
	3.	Distribution System Upgrades Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	4.	Distribution Planning Consulted: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	5.	Distribution Planning Feedback: _____	
	6.	Letter Sent to Proponent: <input type="checkbox"/> Yes <input type="checkbox"/> No	
	7.	Cheque Deposited: <input type="checkbox"/> Yes <input type="checkbox"/> No	

Appendix C - Embedded Generation Interconnection

 Énergie NB Power			
Embedded Generation Interconnection Application			
Applicant Information			
Applicant	Company Name:	Address:	
	Primary Contact:	City:	Postal Code:
	Daytime Phone:	Developer Information (Project Partner) if applicable	
	Fax:	Company Name	
	E-Mail:	Primary Contact:	
		Daytime Phone:	
Project Information			
Project	Electrical Contractor:	Engineering Consultant:	
	Primary Contact:	Proposed In-Service Date:	
Local Ownership Declaration			
Local Ownership	<p>This application is made and entered into this ___ day of _____, 20__ by _____, for the locally owned entity called _____ (hereinafter called 'The Proponent'). The Proponent declares that it is a local entity with the intent to install and interconnect a generator to the NB Power distribution system.</p> <p>The proponent proposing the project is: (Check which one applies)</p> <p><input type="checkbox"/> Local Entity</p> <p><input type="checkbox"/> An Aboriginal Business</p> <p><input type="checkbox"/> An individual who is a resident of the province of New-Brunswick</p> <p><input type="checkbox"/> A sole proprietorship, the proprietor of which is a resident of the province of New-Brunswick</p> <p><input type="checkbox"/> A corporation as defined in the <i>Business Corporations Act</i> and in which a majority of the voting shares is beneficially owned or controlled, directly or indirectly by one or more individuals who are residents of the province of New-Brunswick</p>		
	Applicant _____	Signature _____	Date _____
Fee for Application			
Fee Statement	<p>The Proponent will include a non refundable payment of \$10,000 to cover the costs of completing the system impact assessment, engineering design work and administrative costs. This payment <u>will not</u> be covering any distribution system upgrades, interconnection material and labor costs for connecting the generator to the distribution system.</p>		

 Énergie NB Power	
Embedded Generation Interconnection Application	
Generator Information	
Generator	1. Rated KVA:
	2. Nameplate Capacity (kW):
	3. Rated Power Factor:
	4. Rated Voltage at Generator (V):
	5. Generator Connection: <input type="checkbox"/> Delta <input type="checkbox"/> Wye <input type="checkbox"/> Grounded Wye
	6. Generator Type <input type="checkbox"/> Synchronous <input type="checkbox"/> Induction <input type="checkbox"/> Other If other please explain: _____
	7. Synchronizing Method: <input type="checkbox"/> Automatic <input type="checkbox"/> Manual
	8. Manufacturer:
	9. Model:
	10. Energy Source: <input type="checkbox"/> Biogas <input type="checkbox"/> Biomass <input type="checkbox"/> Solar <input type="checkbox"/> Wind <input type="checkbox"/> Hydro <input type="checkbox"/> Other If other please explain: _____
Inverter Information (if applicable)	
Inverter	1. Rated Capacity (kW):
	2. Manufacturer:
	3. Model:
Additional Information	
Please enclose a copy of the following information with your application:	
Additional	1. One-Line Diagram : Showing protection equipment, breakers/fuses, transformers, generators, and load equipment
	2. Site Location Map : Including topographical details, buildings, and proximity to NB Power's overhead and underground conductors, and utility easements.
	3. Manufacturer's Technical Specifications for: Generator Impedance Inverter (Inverter Type, Output Voltage) Unit Transformer (Rated KVA, Winding Config (Delta, Wye)) Generator Protection Interconnection Protection
Submission Information	
Submission	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Applicant Signature Date
	The customer provides this statement to NB Power knowing that NB Power will rely on this information. All statements are true or believed to be true and are not intentionally misleading. Connection cannot be made until agreement between parties is signed and all terms and conditions of the contract are met.
Assessment Details: Internal Use Only	
Internal Use Only	1. Point of Interconnection assessed: Line _____ Section: _____ Pole: _____
	2. Capacity allowed: _____ <input type="checkbox"/> kW <input type="checkbox"/> MW
	3. Distribution System Upgrades Required: <input type="checkbox"/> Yes <input type="checkbox"/> No
	4. Distribution Planning Consulted: <input type="checkbox"/> Yes <input type="checkbox"/> No
	5. Distribution Planning Feedback: _____
	6. Letter Sent to Proponent: <input type="checkbox"/> Yes <input type="checkbox"/> No
	7. Payment Deposited: <input type="checkbox"/> Yes <input type="checkbox"/> No

Appendix D – Weblinks

NB Power's Embedded Generation Program

www.nbpower.com/embeddedgeneration

Locally Owned Renewable Energy Projects that are Small Scale

<http://laws.gnb.ca/en/ShowPdf/cr/2015-60.pdf>

New Brunswick Developer's Guide to Renewable Energy

<http://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/Publications/DeveloperGuideRenewableEnergy.pdf>

New Brunswick Renewable Energy Resource Maps

http://www2.gnb.ca/content/gnb/en/departments/energy/resource_maps.html