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ESB Small Producers Energy Efficiency Deployment (SPEED) CHP Checklist

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Version 1.0

EMISSIONS REDUCTION ALBERTA

Table of Contents

INTRODUCTION

This document is intended as a guide to support the submission of accurate and complete CHP project applications. All applicants with CHP should ensure the application meets the SPEED Eligibility Requirements set out in the Participant Terms and Conditions, Contractor Code of Conduct and Eligible Measures List. The applicant must submit the requested documentation and answer the questions contained within this document.

This checklist includes guidance for what needs to be entered in each input field at Step 4 and Step 5 of the Application process. Step 5 specifically describes which documents need to be uploaded and their purpose.

GUIDANCE ON APPLICATIONS

The following sections provide guidance on CHP applications, ensuring that they are complete, accurate and comprehensive.

The applicant and/or contractor will also need to provide the following information in Step 4 and Step 5 of the application submission, as further described in the tables below.

STEP 4 OF PRE-PROJECT APPLICATION

ON-SITE POWER GENERATION – CHP

- CHP systems 150 kW to 4 MWe
    - System efficiency 50% to less than 60%
    - System utilization factor must be 75% or greater
- CHP systems 150 kW to 4 MWe
    - System efficiency 60% or more
    - System utilization factor must be 85% or greater
- CHP systems smaller than 150 kW
    - System efficiency 50% to less than 60%
    - System utilization factor must be 65% or greater
- CHP systems smaller than 150 kW
    - System efficiency 60% or more
    - System utilization factor must be 65% or greater

Please note that Fuel Cells are not eligible.

Application Tip: *Please complete the Overall CHP System Efficiency and Utilization Factor calculation outlined in the table below before you select the measure as these two parameters determine the category.*

Field	What to Enter	How Data or Input Provided is Used
Quantity	Enter the number of measures being installed. For CHP, this should be "1". If more than 1 system is being installed, we suggest submitting a second application.	• Calculate eligible incentive. • Post-project QA/QC.
Is it Retrofit or New Construction?	Select if the building/facility is being retrofitted with CHP or whether it is a new construction building or construction.	• Post-project QA/QC.
Prime Mover	Select from the list prime mover type: • Internal Combustion Engine • Turbine Driven	• Post-project QA/QC.
Status of Interconnection Application	Select from the list the status of Interconnection Application: • Not Applied • Applied • Approved	• Post-project QA/QC.

Interconnection Form A Application	Upload both the interconnection application and the supporting documents including the single line diagram if all the documents can be combined. If they cannot be combined, upload the supporting documents in Step 5 (see below).	• Confirmation that application has been submitted.
Use of Thermal Energy	Select from the list the use of thermal energy generated: • Hot Water • Space Heating • Process Heating • Combination	• Calculate eligible incentive. • Post-project QA/QC.
Engineering Firm	Enter the name of the Engineering Firm responsible for the approval of the system design.	• Post-project QA/QC.
Engineer Name	Enter the name of the Engineer. *The engineer will need to be a professional engineer licensed to practise in Alberta.*	• Post-project QA/QC.
Building Type	Select from the list the building type: • Office • Private School • Retail • Theater • Warehouse • Private Healthcare • Industrial • Other	• Calculate eligible incentive. • Post-project QA/QC.
Facility Area (Sq Ft)	Enter the facility area in square feet.	• Calculate eligible incentive. • Post-project QA/QC.
Facility Annual Hours of Operation	Enter the facility annual hours of operation. *Please note that this is not the estimated annual hours of operation for the CHP system itself.*	• Calculate eligible incentive. • Post-project QA/QC.
Annualized Electric Energy Load Profile	Upload a document showing the estimated monthly, daily, or hourly electricity load for the building/facility.	• Calculate eligible incentive. • Post-project QA/QC.

Annualized Thermal Energy Load Profile	Upload a document showing the estimated monthly, daily, or hourly thermal load for the building/facility.	• Calculate eligible incentive. • Post-project QA/QC.
CHP Project Description	Please describe your CHP system and include location within the facility, any civil or structural (such as concrete pad) undertaken, intertie locations for electrical and thermal points, and description of waste heat rejection equipment like radiators.	• Post-project QA/QC.
CHP Electrical Rated Capacity (kW)	Please enter the size of the CHP system in kW.	• Calculate eligible incentive. • Post-project QA/QC.
CHP Usable Thermal Rated Capacity (MMBtu/h)	Please enter the capacity of the CHP system in MMBtu/h that is usable within the facility	• Calculate eligible incentive. • Post-project QA/QC.
Single Line Electrical Drawing	Please upload the single line electrical diagram.	• Post-project QA/QC.
P&ID Drawing	Please upload the P&ID (piping and instrumentation diagram) drawing.	• Post-project QA/QC.
Annual Electrical Energy Output (kWh)	Please enter the estimated annual electrical energy output of the CHP system in kWh.	• Calculate eligible incentive. • Post-project QA/QC.
Usable Annual Thermal Energy Output (MMBtu)	Please enter the estimated annual thermal energy used within the facility from the CHP system in MMBtu.	• Calculate eligible incentive. • Post-project QA/QC.
System Annual Operating Hours	Enter the estimated hours the CHP system runs for each year.	• Calculate eligible incentive. • Post-project QA/QC.
Gen Set Specification Sheet	Upload the specification sheet for the CHP. Indicate/circle which specific equipment is being used for project (as applicable).	• Post-project QA/QC.
Heat Recovery Specification Sheet	Upload the specification sheet for the CHP. Indicate/circle which specific equipment is being used for project (as applicable).	• Post-project QA/QC.
Is Overall CHP System Efficiency over 60%?	Select either “Yes” and “No”.	• Calculate eligible incentive. • Post-project QA/QC.
Overall CHP System Efficiency	This is a calculated value and is intended to estimate the annualized system operating	• Calculate eligible incentive. • Post-project QA/QC.

	efficiency. This is not intended to reflect the peak design efficiency. The calculation is as follows in the row below:	
What to Enter: Overall CHP System Efficiency Calculation Numerator: The sum of the annual electrical energy produced by the CHP system plus the sum of the annual usable thermal energy transferred to the facility. *During the review process, the provided load profiles and building/facility information is reviewed to understand the energy requirements for the facility. Note: thermal energy transferred to the facility does not include waste heat rejected outdoors.* Denominator: The annual input fuel energy into the CHP system plus input electrical energy for parasitic loads *During the review process, the information provided regarding the CHP electrical and thermal capacity, the energy output and the operating hours of the CHP system are checked.* The annualized overall CHP system operating efficiency is the numerator divided by the denominator.		
Is CHP System Utilization Factor over 85%?	Select either “Yes” or “No”.	• Calculate eligible incentive. • Post-project QA/QC.
System Utilization Factor	This is a calculated value. The calculation is as follows: Numerator: The annual hours at any load that the CHP system runs. Denominator: 8760 The System Utilization Factor is the numerator divided by the denominator.	• Calculate eligible incentive. • Post-project QA/QC.
Equipment & Material Costs	Enter equipment and material costs as indicated on the invoice / final quote.	• Calculate eligible incentive. • Post-project QA/QC.
Labour Cost	Enter labour costs as indicated on the invoice / final quote.	• Calculate eligible incentive. • Post-project QA/QC.
Design Cost	Enter design costs and include all other costs as indicated on the invoice / final quote.	• Calculate eligible incentive. • Post-project QA/QC.

STEP 5 OF PRE-PROJECT APPLICATION: CHP MEASURE

Field	What to Enter	How Data or Input Provided is Used
Cost Quote	Quote or invoice should be itemized to include quantity, brand, model numbers for equipment, applicant name, contractor name, facility address and date (Sample quote provided in the Appendix). Costs should be indicated separately for: • Equipment and Material • Labour • Design and Others • Taxes	• Cross-reference against provided costs. • Calculate incentive cap. • Post-project QA/QC.
Electricity Bill for Facility	Upload the most recent electricity bill available for the facility.	• Ascertain rate class.

POST-PROJECT APPLICATION

Note that for the post-project application, you will be required to confirm that no changes were made from the pre-project application, unless an Application Change Approval Notice was issued by ERA.
In terms of documents required, you will need to provide evidence of the following:

- Interconnection Agreement Approval
- Electrical and Installation Permits
- Invoice for Project Costs
- Proof of Payment for Project Costs
- Post-Project Photo
- Conditions stated in the Notice of Pre-Approval

Participants may be subject to a QA/QC check and may be asked for additional documentation or to facilitate a site visit.

APPENDIX

SAMPLE INVOICE/FINAL QUOTE

Quotes should be itemized to include quantity, brand, model numbers for equipment, applicant name, contractor name, facility address and date. Costs should be indicated separately for:

- Equipment and Material
- Labour
- Design and Others
- Taxes

A sample quote is provided below:

Company Logo

Company Address:	xxxx
Website:	xxxx
Phone:	xxxx

	PROJECT NAME: XXXX	**Project Start Date:**	xxxx
		Project Completion Date:	xxxx
Applicant Company:	xxxx		
Applicant Name:	xxxx	**Quote #:**	xxxx
Facility Address:	xxxx	**Date:**	xxxx
Phone:	xxxx		

Measure #1			
Fixture Description	LITHONIA CPANL 2X4 40/50/60LM 40K M2	**DLC**	PMS5PPS6
Measure Description	LED 2x4 Recessed Light Fixture - 4,500 – 5,999 Lumen Output	**QTY**	63
Measure Equipment/Material Costs			$ 6,538.71
Measure Labour Costs			$ 13,251.74
Measure Design/Other Costs			$ -
		Measure Total Costs	$ 19,790.45

Measure #2			
Motor Description	ILA7080-H Siemens Semiotics 10 hp		
Measure Description	Premium efficient motor –ODP-10 hp	**QTY**	1
Measure Equipment/Material Costs			$ 934.10
Measure Labour Costs			$ 123.11
Measure Design/Other Costs			$ 50.00
		Measure Total Costs	$ 1,107.21

Measure #3			
Sensor Description	Occupancy Sensor		
Measure Description	Fixture Mounted Sensor	**QTY**	305
Measure Equipment/Material Costs			$ 15,250.00
Measure Labour Costs			$ -
Measure Design/Other Costs			$ -
		Measure Total Costs	$ 15,250.00

Total		
Total Equipment/Material Costs		$ 22,722.81
Total Labour Costs		$ 13,374.85
Total Design/Other Costs		$ 50.00
	Total Project Cost	$ 36,147.66
	GST	$ 1,807.38
	Total Cost w/ GST	$ 37,955.04