ENERGY SAVINGS FOR BUSINESS

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CES Program Motors & Drives Checklist

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Version 1.0

EMISSIONS REDUCTION ALBERTA

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INTRODUCTION

This document is intended as a guide to support the submission of accurate and complete Motors and Drives project applications. All applicants with Motors and Drives should ensure the application meets the CES 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 Motors and Drives 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

NOTCHED OR SYNCHRONOUS BELT RETROFITS

Field	What to Enter	How Data or Input Provided is Used
Quantity	Enter the number of measures being installed.	• Calculate eligible incentive. • Post-project QA/QC.
Equipment Annual Operating Hours	Enter the estimated annual hours of operation for one fixture.	• Used for estimating energy savings achieved.
Existing Motor Nameplate Picture	Upload the picture of the nameplate of the existing motor which indicates the manufacturer name and other details of the motor.	• Post-project QA/QC. • Used for estimating energy savings achieved.
Existing Motor HP	Enter the rating of the existing motor in HP.	• Post-project QA/QC. • Used for estimating energy savings achieved.
Existing Motor Efficiency	Enter the efficiency of the existing motor in percentage.	• Used for estimating energy savings achieved.
Existing Motor Age	Enter the age of the existing motor in years.	• Post-project QA/QC.
Driven Equipment Details	Select from list the equipment being driven: • Fan • Pump • Gear Box • Conveyor • Other	• Post-project QA/QC.
Approximate Length of Belt (Feet)	Enter the length of the belt in feet. In case of multiple quantities, enter the average length of all belts.	• Post-project QA/QC.
New Belt Specification Sheet	Upload the specification sheet for the measure. Indicate/circle which specific equipment is being used for project.	• 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.

PREMIUM EFFICIENT MOTORS – OPEN DRIP PROOF (ODP) / TOTALLY ENCLOSED FAN COOLED (TEFC)

Field	What to Enter	How Data or Input Provided is Used
Quantity	Enter the number of measures being installed.	• Calculate eligible incentive. • Post-project QA/QC.
Equipment Annual Operating Hours	Enter the estimated annual hours of operation for one fixture.	• Used for estimating energy savings achieved.
Existing Motor Nameplate Picture	Upload the picture of the nameplate of the existing motor which indicates the manufacturer name and other details of the motor.	• Post-project QA/QC. • Used for estimating energy savings achieved.
Existing Motor HP	Enter the rating of the existing motor in HP.	• Used for estimating energy savings achieved.
Existing Motor Efficiency	Enter the efficiency of the existing motor in percentage.	• Used for estimating energy savings achieved.
Existing Motor Age	Enter the age of the motor being replaced in years.	• Used for estimating energy savings achieved.
Is the Existing Motor Single or Dual Speed?	Select either Single Speed or Dual Speed.	• Used for estimating energy savings achieved.
Was Motor Previously Rewound?	Select either Yes or No.	• Used for estimating energy savings achieved.
Driven Equipment Details	Select from list the equipment being driven: • Fan • Pump • Gear Box • Conveyor • Other	• Post-project QA/QC.
New Motor Efficiency	Enter the efficiency of the new motor as provided in the specification sheet.	• Used for estimating energy savings achieved.

Speed of New Motor	Select from list the speed of new motor: • 1200 RPM • 1800 RPM • 3600 RPM • Combination • Other	• Post-project QA/QC.
Specification Sheet of New Motor	Upload the specification sheet for the measure. Indicate/circle which specific equipment is being used for project.	• 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.

VARIABLE FREQUENCY DRIVE (VFD)

When multiple VFDs are being installed on motors with different ratings, add a separate measure for each motor rating in the application.

VFD for Fan

- VFD for Fan – ON/OFF CONTROL
- VFD for Fan – INLET DAMPER CONTROL
- VFD for Fan – DISCHARGE DAMPER CONTROL

Field	What to Enter	How Data or Input Provided is Used
Quantity	Enter the number of measures being installed.	• Calculate eligible incentive. • Post-project QA/QC.
Fan Type	Select from list the fan type: • Axial • Centrifugal	• Post-project QA/QC.
Drive Type	Select from list the drive type: • Direct • Driven	• Post-project QA/QC.
Centrifugal Blade Type	Select from list the centrifugal blade type: • Forward Curved • Radial-Blade • Radial-Tip • Backward Inclined • Backward Curved • Airfoil • Not Applicable	• Post-project QA/QC.
Axial Blade Type	Select from list the axial blade type: • Propellor • Tube Axial • Vane Axial • Not Applicable	• Post-project QA/QC.
Existing Flow Control for Fan	Enter the existing flow control for fan.	• Used for estimating energy savings achieved.
Nameplate CFM of Fan (Optional)	If available, provide the nameplate fan flow rate in CFM.	• Post-project QA/QC.
Picture of Fan Nameplate (Optional)	If available, upload a clear picture of the nameplate of the fan which indicates the manufacturer name and other details of the fan.	• Post-project QA/QC.

Fan Manufacturer	Enter model name as indicated on specification sheet and invoice/final quote.	• Post-project QA/QC.
Fan Model	Enter model name as indicated on specification sheet and invoice/final quote.	• Post-project QA/QC.
Motor HP	Enter motor HP which should be between 1-500 hp. *Please note that the incentive is capped at $12,500.*	• Used for estimating energy savings achieved.
Equipment Annual Operating Hours (hours)	Enter the estimated annual hours of operation for one fixture.	• Used for estimating energy savings achieved.
VFD Specification Sheet	Upload the specification sheet for the measure. Indicate/circle which specific equipment is being used for project.	• 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.

VFD for Pump

- VFD for Pump – THROTTLE VALVE
- VFD for Pump – RECIRCULATION

Field	What to Enter	How Data or Input Provided is Used
Quantity	Enter the number of measures being installed.	• Calculate eligible incentive. • Post-project QA/QC.
Motor HP	Enter motor HP which should be between 1-500 hp. *Please note that the incentive is capped at $12,500.*	• Used for estimating energy savings achieved.
Equipment Annual Operating Hours (hours)	Enter the estimated annual hours of operation for one fixture.	• Used for estimating energy savings achieved.
VFD Specification Sheet	Upload the specification sheet for the measure.	• Post-project QA/QC.

	Indicate/circle which specific equipment is being used for project.	
Pump Type	Select from list the pump type: • Centrifugal • Axial • Mixed Flow	• Post-project QA/QC.
Drive Type - VFD for Pump	Select from list the drive type: • Direct • Driven	• Post-project QA/QC.
Existing Flow Control for Pump	Select from list the existing flow control for pump: • Throttling Valve • Recirculation • Bypass • On/Off • None	• Post-project QA/QC.
Is the System Closed Loop or Open Loop?	Select Closed Loop or Open Loop.	• Used for estimating energy savings achieved.
Pump Rated GPM	Enter rated GPM for pump.	• Used for estimating energy savings achieved.
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.

VFD for Industrial Applications

- VFD for Industrial Applications

Field	What to Enter	How Data or Input Provided is Used
Quantity	Enter the number of measures being installed.	• Calculate eligible incentive. • Post-project QA/QC.
Motor HP	Enter motor hp which should be between 1-500 hp. *Please note that the incentive is capped at $12,500.*	• Used for estimating energy savings achieved.

Equipment Annual Operating Hours (hours)	Enter the estimated annual hours of operation for one fixture.	• Used for estimating energy savings achieved.
VFD Specification Sheet	Upload the specification sheet for the measure. Indicate/circle which specific equipment is being used for project.	• Post-project QA/QC.
Driven Equipment Details	Select from list the equipment being driven: • Fan • Pump • Gear Box • Conveyor • Other	• 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.

ELECTRONICALLY COMMUTATED MOTOR (ECM)

Please add a measure for each ECM that is installed.

ECM for Fan-Powered VAV Box

- This measure is for a new VAV box that contains an ECM within it.

Field	What to Enter	How Data or Input Provided is Used
Quantity	Enter the number of measures being installed.	• Calculate eligible incentive. • Post-project QA/QC.
VAV Box CFM	Enter the nameplate fan flow rate in CFM.	• Post-project QA/QC.
VAV Box Manufacturer	Enter model name as indicated on specification sheet and invoice/final quote.	• Post-project QA/QC.
VAV Box Model	Enter model name as indicated on specification sheet and invoice/final quote.	• Post-project QA/QC.
Motor HP	Enter motor HP	• Used for estimating energy savings achieved.
Equipment Annual Operating Hours (hours)	Enter the estimated annual hours of operation	• Used for estimating energy savings achieved.
VAV Box Specification Sheet	Upload the specification sheet for the measure. Indicate/circle which specific equipment is being used for project. Please ensure the specification sheet confirms the ECM is included.	• 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.

VFD for HVAC Applications (Existing VAV Unit)

- This measure is for an existing VAV box where a new ECM is being installed where previously an ECM was not installed.

Field	What to Enter	How Data or Input Provided is Used
Quantity	Enter the number of measures being installed.	• Calculate eligible incentive. • Post-project QA/QC.
VAV Box CFM	Enter the nameplate fan flow rate in CFM.	• Post-project QA/QC.
VAV Box Manufacturer	Enter model name as indicated on specification sheet and invoice/final quote.	• Post-project QA/QC.
VAV Box Model	Enter model name as indicated on specification sheet and invoice/final quote.	• Post-project QA/QC.
Motor HP	Enter motor HP	• Used for estimating energy savings achieved.
Equipment Annual Operating Hours (hours)	Enter the estimated annual hours of operation	• Used for estimating energy savings achieved.
ECM Motor Specification Sheet	Upload the specification sheet for the measure. • Indicate/circle which specific equipment is being used for project.	• 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.

ECM for Replacement of Circulator Pumps and Motors

- This measure is for installation of new circulator pump system that contains an ECM within it.

Field	What to Enter	How Data or Input Provided is Used
Quantity	Enter the number of measures being installed.	• Calculate eligible incentive. • Post-project QA/QC.
Circulator Pump Capacity	Enter the pump capacity in GPM	• Post-project QA/QC.
Circulator Pump Manufacturer	Enter model name as indicated on specification sheet and invoice/final quote.	Post-project QA/QC.
Circulator Pump Model	Enter model name as indicated on specification sheet and invoice/final quote.	Post-project QA/QC.
Motor HP	Enter motor HP	Used for estimating energy savings achieved.
Equipment Annual Operating Hours (hours)	Enter the estimated annual hours of operation	• Used for estimating energy savings achieved.
Circulator Pump Specification Sheet	Upload the specification sheet for the measure. Indicate/circle which specific equipment is being used for project. Please ensure the specification sheet confirms the ECM is included.	• 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.

STEP 5 OF PRE-PROJECT APPLICATION: ALL MEASURES

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 eligible incentive. • 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:

- Invoice for Project Costs
- Proof of Payment for Project Costs
- Conditions stated in the Notice of Pre-Approval

Participant may be subject to a QA/QC check and asked for additional documentation 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, and
- 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