ENERGY SAVINGS FOR BUSINESS

Investing to keep businesses competitive

An Overview of Solar PV

EMISSIONS REDUCTION ALBERTA

Agenda

- Program Overview
- Measure Categories
- Solar PV
  - Technology Overview
  - Specific Rules
  - Calculating Solar Yield
- Q&A Period

Presenters

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About ERA

MANDATE

Reduce GHG emissions and grow Alberta's economy by accelerating the development and adoption of innovative technology solutions.

VISION

Alberta has competitive industries that deliver sustainable environmental outcomes, attract investment, and are building a diversified, lower carbon economy.

STRATEGIC PRIORITIES

1. ACCELERATE TECHNOLOGY
2. DRIVE COMMERCIALIZATION
3. MAXIMIZE IMPACT

Measure Categories

- Compressed air
- Solar PV
- Lighting systems and controls
- Motors and drives
- Combined heat and power (CHP)
- Refrigeration
- Geothermal

COMING SOON

- Water heating
- HVAC
- Process heating
- Food service
- Building envelope and windows

Solar PV Eligibility

- New construction projects are eligible
- Expansion of existing PV systems are also eligible

Solar PV

- Two measure sizes with different incentives:
  - < 15 kW → $650/kW or $0.65/W
  - 15 kW to 2 MW → $500/kW or $0.50/W

- Incentives
  - Determined by the DC system size in kW
  - Capped at 25% of project costs
    - Minimum: $1,000
    - Maximum: $250,000

Requirements for Solar PV

- Project must comply with micro-generation regulation (Alberta Reg 27/2008)
- Form A must be submitted before project pre-approval with interconnection approval granted
- Interconnection approval must be obtained within one year of the Application Date
- All PV output must be used within the facility
- Contractor listed on application must be a member in good standing with Solar Alberta, Canadian Renewable Association or Electrical Contractors Association of Alberta

Requirements for Solar PV

- PV system must have
  - a minimum of 20-year power performance warranty
  - 10-year manufacturing warranty on modules
  - 10-year manufacturing warranty on inverters
  - one year workmanship warranty
- Solar Yield of PV system must be at least 75% of system design with optimal azimuth and tilt at the project location

Calculating Optimal Solar Yield

The application review team will use solar modelling software to create three scenarios.

Calculating Optimal Solar Yield

Scenario 1

Application

- Based on the parameters provided in the application:
  - Location
  - Tilt
  - Azimuth
  - Modelled System Losses
  - Module Type
  - Array Type

Calculating Optimal Solar Yield

Scenario 2

Base Case

- Uses the same parameters from the application but changing the Modelled Systems Losses at 20%

Calculating Optimal Solar Yield

Scenario 3

Optimal Case

- Uses the same parameters from the application but with the following changes:
  - Tilt set at Latitude of Site
  - Azimuth set at 180^0
  - Modelled System Losses set at 20%

Calculating Optimal Solar Yield

The Review Team checks for two things with the scenarios:

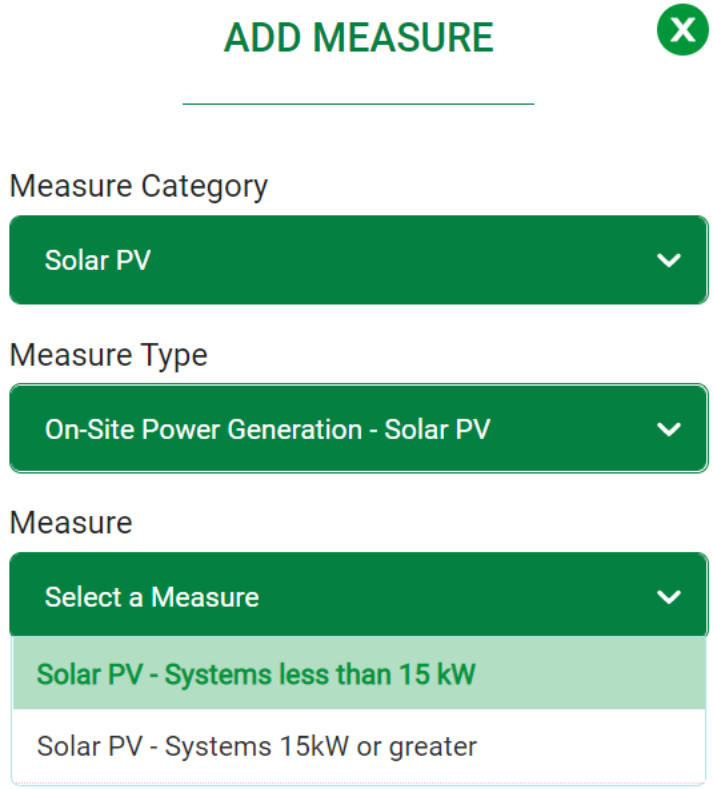
Scenario 1 aligns with the application's estimated total annual energy output

Scenario 2 is within 75% of Scenario 3

Solar PV Application

STEP 1

Select the measure size.



Solar PV Application

STEP 2

Provide the required information.

For the panel specification sheet, please indicate which specific panel and wattage output.

Quantity

Enter here

Is it Retrofit or New Construction?

Retrofit | New Construction

Status of Interconnection Application

Select from list

Interconnection Form A Application

Select from computer (or) Drag and Drop documents to upload. Acceptable file types: .JPEG, .PNG, .PDF, .Docx, .xlsx

Latitude

Enter here

Longitude

Enter here

DC System Size (kW)

Enter here

Module Type

Select from list

Array Type

Select from list

Modelled Total System Losses (%)

Enter here

Tilt (deg)

Enter here

Azimuth (deg)

Enter here

Total Annual AC Energy (kWh)

Calculated value

Panel Specification Sheet

Select from computer (or) Drag and Drop documents to upload. Acceptable file types: .JPEG, .PNG, .PDF, .Docx, .xlsx

Inverter Specification Sheet

Select from computer (or) Drag and Drop documents to upload. Acceptable file types: .JPEG, .PNG, .PDF, .Docx, .xlsx

Applicant Comments

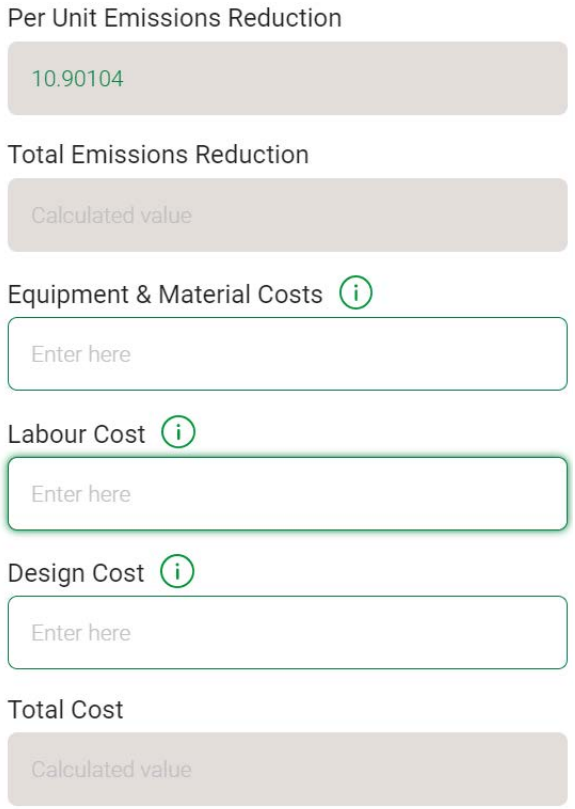
Type here

Solar PV Application

STEP 3

The emissions reduction estimates are automatically calculated. They will be compared to the cost quote(s) in the application.

NOTE: the labour costs should include installation costs. The design costs should include all other costs.

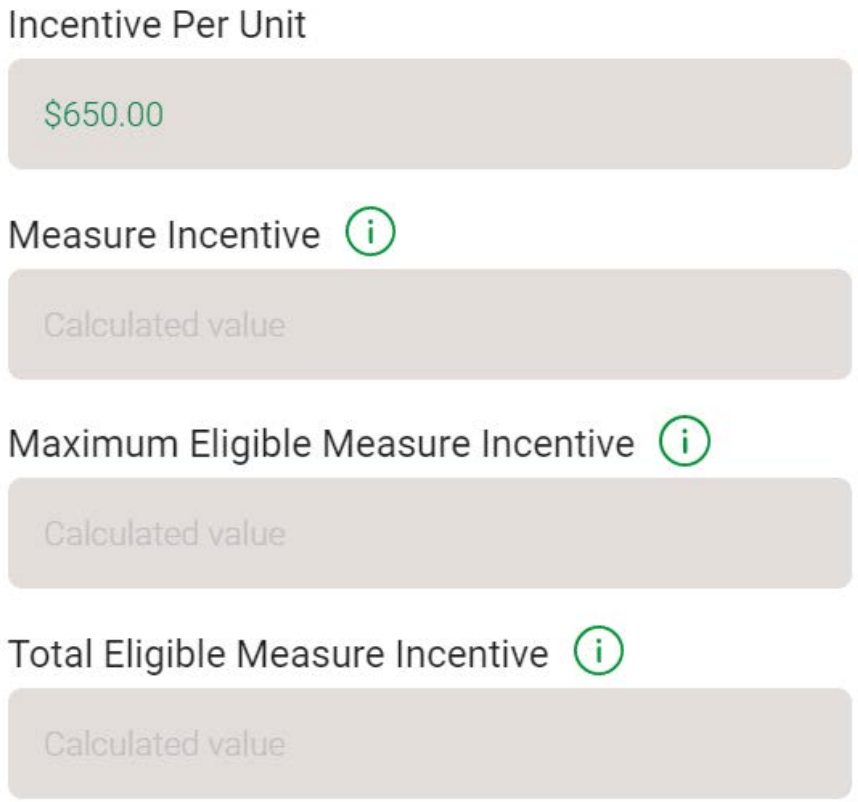


Solar PV Application

STEP 4

Review the calculated values.

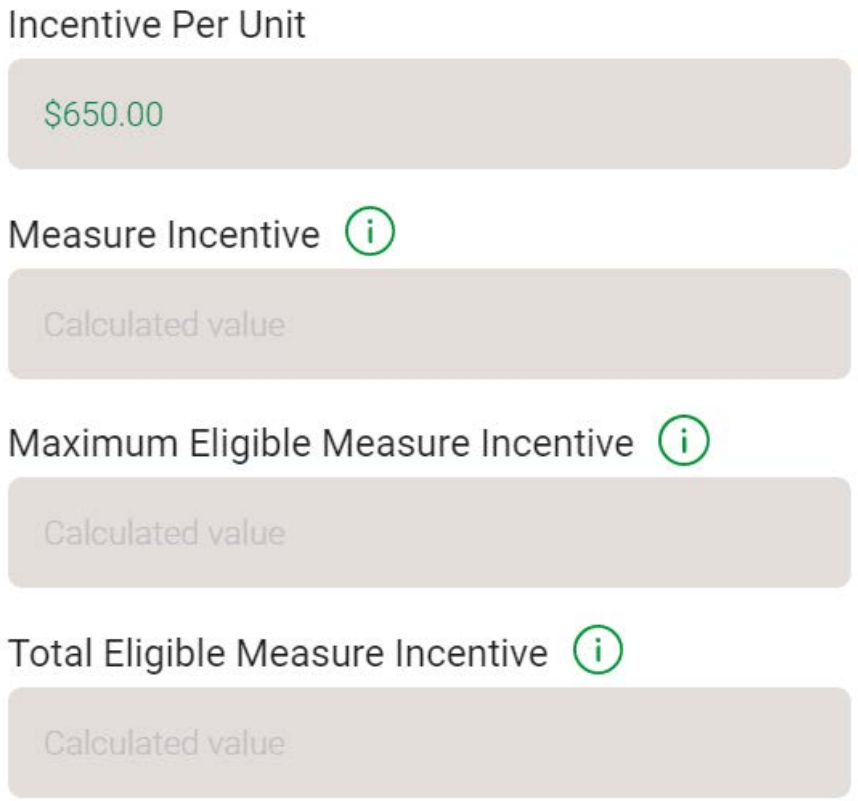
NOTE: the total incentive per project will be capped at $250,000 at the review stage.



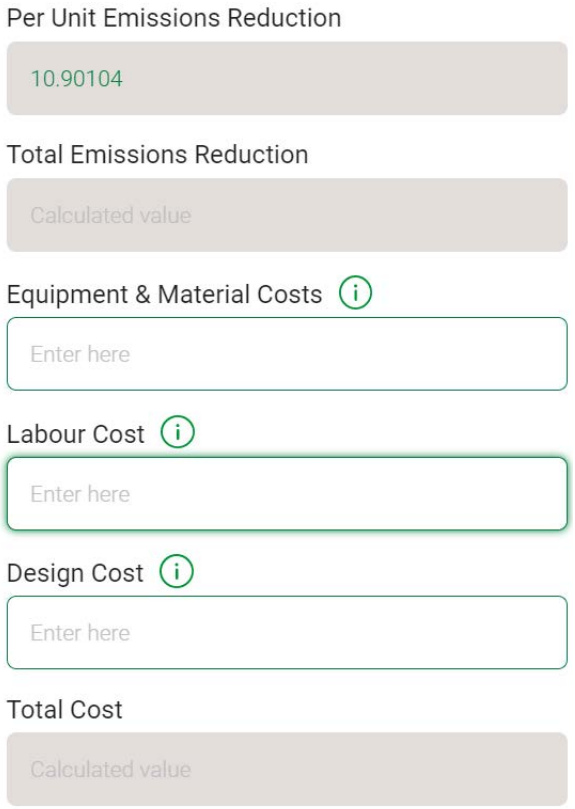
Allocating Eligible Expenses for Incentive Calculations

The Maximum Eligible Measure Incentive is 25% of the project costs.

If a project requires splitting costs between measures, please provide an estimate (see next slides).



Example of Project Cost Allocation



A farm is installing two solar PV projects: a system that is 10 kW and a system that is 20 kW.

The project has the following costs:

- Equipment Cost for 10 kW Project - $15,000
  - Potential incentive: $15,000 x 0.25 = $3,750
- Equipment Cost for 20 kW Project - $25,000
  - Potential incentive: $25,000 x 0.25 = $6,250
- Labour Cost for Installing Both Projects - $10,000
- Design Cost for Both Projects - $3,000

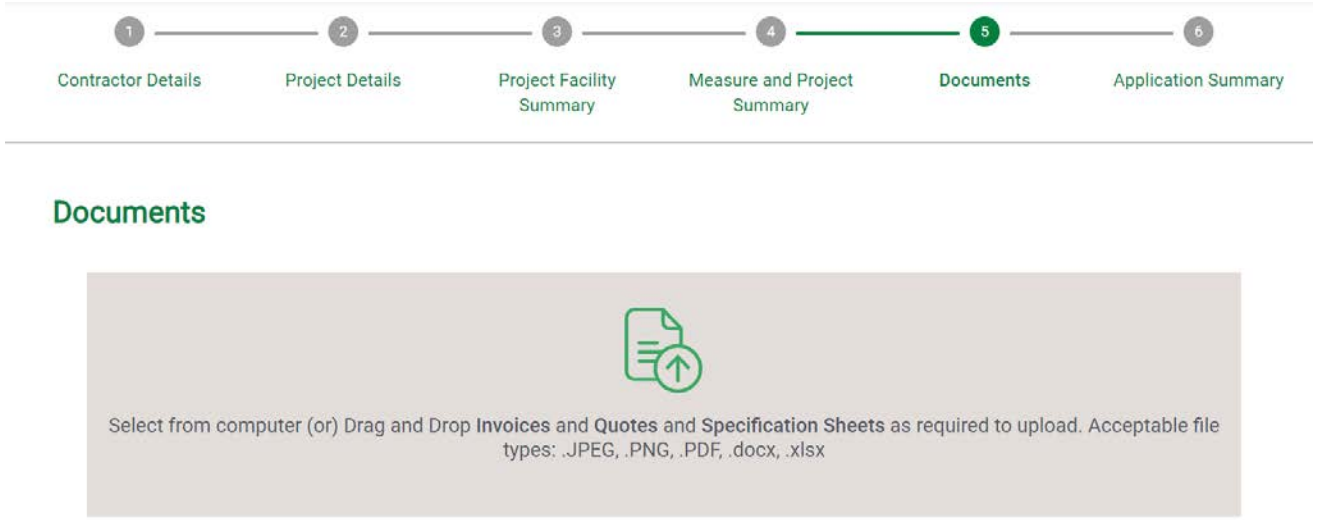
Example of Project Cost Allocation

The Labour and Design Costs must be split between the two measures using an estimated allocation. In this example, the labour costs are split 40/60 and the design costs are split 50/50.

	10 kW Project	20 kW Project
Equipment & Material Costs	$15,000	$25,000
Labour Cost	$4,000 (40%)	$6,000(60%)
Design Cost	$1,500 (50%)	$1,500 (50%)
Total Measure Cost	$20,500	$32,500
Eligible Measure Incentive	$5,125	$8,125

Adding Cost Estimates to Your Application

If allocating project costs between measures, please provide a document with the allocation descriptions in step 5 of the Pre-Project Application.



Support Team

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By chat on the ERA website and program portal

Thank you. See you next time.