



LIGHTING SAVINGS CALCULATOR USER GUIDE
SMART \$AVER CUSTOM INCENTIVES
CUSTOM-TO-GO

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1. GETTING STARTED

The current version of the Custom-To-Go Lighting Savings Calculator can be downloaded from <http://duke-energy.com/CustomToGo>. It is included in the Smart Saver Custom-To-Go tool suite, which contains a number of useful tools that can help you calculate savings and incentives for various energy saving measures.

The ZIP output file from the calculator must be submitted with the Smart Saver application (Step 1) in order to receive an incentive payment. For application submissions and questions about the application process, contact us at CustomIncentives@duke-energy.com.

2. MEASURE TOOL DESCRIPTION

The Lighting Savings Calculator is a tool used to estimate savings due to the proposed installation of high-efficiency lighting equipment. The calculator compares the baseline and proposed fixtures along with overall building characteristics to determine the annual demand (kW) and energy (kWh) savings.

2.1. Appropriate Use of the Tool

The Lighting Savings Calculator can be used for facilities with the characteristics shown in Table 1.

Table 1: Lighting Savings Calculator Common Features

Description	Measure Feature
States	<ul style="list-style-type: none"> • Ohio • Indiana • Kentucky • North Carolina • South Carolina
Building Types and Operating Hours	<ul style="list-style-type: none"> • OFFICE <ol style="list-style-type: none"> 1. M-F 7a-5p, Sat 8a-noon 2. M-F 8am - 5pm 3. M-Sat 8am - 5pm • SCHOOL (K-12) <ol style="list-style-type: none"> 1. M-F 8a-5p (Traditional School Year) 2. M-F 8a-5p (Year Around) 3. M-F 7a-4p (Traditional School Year) 4. M-F 7a-4p (Year Around) • COLLEGE/UNIVERSITY <ol style="list-style-type: none"> 1. M-F 7a-7p, Sat 9a-3p 2. M-F 7am - 7pm 3. M-Sat 8am - 5pm • RETAIL/SERVICE <ol style="list-style-type: none"> 1. M-Sat 7a-7p, Sun 8a-5p 2. M-Sat 8am - 5pm 3. M-Sun 8am - 5pm 4. M-Sun 24 hrs

	<ul style="list-style-type: none"> • RESTAURANT <ol style="list-style-type: none"> 1. M-F 6a-10p, Sat 7a-7p, Sun 8a-5:30p 2. M-F 6am - 8pm, Sat-Sun 8am - 6pm 3. M-Sun 24 hrs • HOTEL/MOTEL (GUEST ROOMS) <ol style="list-style-type: none"> 1. M-Sun 24 hrs • HOTEL/MOTEL (OTHER) <ol style="list-style-type: none"> 1. M-Sun 8am - 5pm 2. M-F 8am - 5pm • MEDICAL <ol style="list-style-type: none"> 1. M-F 4a-mid, Sat 7a-7:30p, Sun 7a-7p 2. M-F 8am - 5pm 3. M-F 7am - 7pm 4. M-Sun 24 hrs • GROCERY <ol style="list-style-type: none"> 1. M-Sun 6a-10p 2. M-Sun 24 hrs 3. M-Sat 8am - 5pm • WAREHOUSE <ol style="list-style-type: none"> 1. M-F 6a-10p 2. M-F 8am - 5pm 3. M-F 24 hrs • LIGHT INDUSTRY <ol style="list-style-type: none"> 1. M-F 6a-10:30p 2. M-F 8am - 5pm 3. M-F 24 hrs • HEAVY INDUSTRY <ol style="list-style-type: none"> 1. M-F 6a-10:30p 2. M-F 8am - 5pm 3. M-F 24 hrs 4. M-Sun 24 hrs • PARKING GARAGE <ol style="list-style-type: none"> 1. M-Sun 8p-6a (Summer), M-Sun 5p-7a (Winter) 2. M-Sun 24 hrs • EXTERIOR <ol style="list-style-type: none"> 1. M-Sun 8p-6a (Summer), M-Sun 5p-7a (Winter)
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2.2. Applicable Types of Lighting Covered by the Tool

The Lighting Savings Calculator includes pre-defined fixture information for the types of fixtures described in Table 2. In addition, users can define custom fixtures for anything that is not pre-defined.

Table 2: Equipment Coverage Matrix

Lamp Family	Lamp Types
Compact Fluorescent (CFL)	<ul style="list-style-type: none"> • Screw-in • 4-pin/Biax

Halogen	<ul style="list-style-type: none"> • Halogen, 45W-300W
High-Intensity Discharge (HID)	<ul style="list-style-type: none"> • Metal Halide (MH) • Pulse-start Metal Halide (PSMH) • CMH • High-Pressure Sodium (HPS) • Quartz
Incandescent	<ul style="list-style-type: none"> • Incandescent, 15W-200W
Induction	<ul style="list-style-type: none"> • Induction, 55W-165W
LED Fixture	<ul style="list-style-type: none"> • 1x4 LED • 2x2 LED • 2x4 LED • Track • Downlight • Canopy • Flood • Wall Mounted • Pole Mounted • Bollards • Other
LED Lamp	<ul style="list-style-type: none"> • A • MR • PAR • BR • R • Other
Linear Fluorescent (LFL)	<ul style="list-style-type: none"> • T5 and T5 HO • T8 and HP T8 • T12 and T12 HO

3. MEASURE TOOL USE

3.1. Select Your Service Territory

In order to properly load the correct utility program the user must first select the service territory associated with their account. To begin, select your state from the list presented in the *Select State* dialog box.



If the State of Indiana, Kentucky, or Ohio is selected the application will open the appropriate service territory version of the software.

If one of the Carolinas is selected the application needs a little more information. In these cases, a *Select Service Territory* dialog box will appear. Please either enter the service address zip code or select the Utility associated with the service account.

To return to the state selection dialog box click on the "Choose State" link.

Select Service Territory

[Choose State](#) » More Info Needed


We're going to need a little more information to customize your experience.

Enter Service Address Zip Code

5-Digit Zip

-OR-

Select a Service Territory by clicking on the utility name on the left

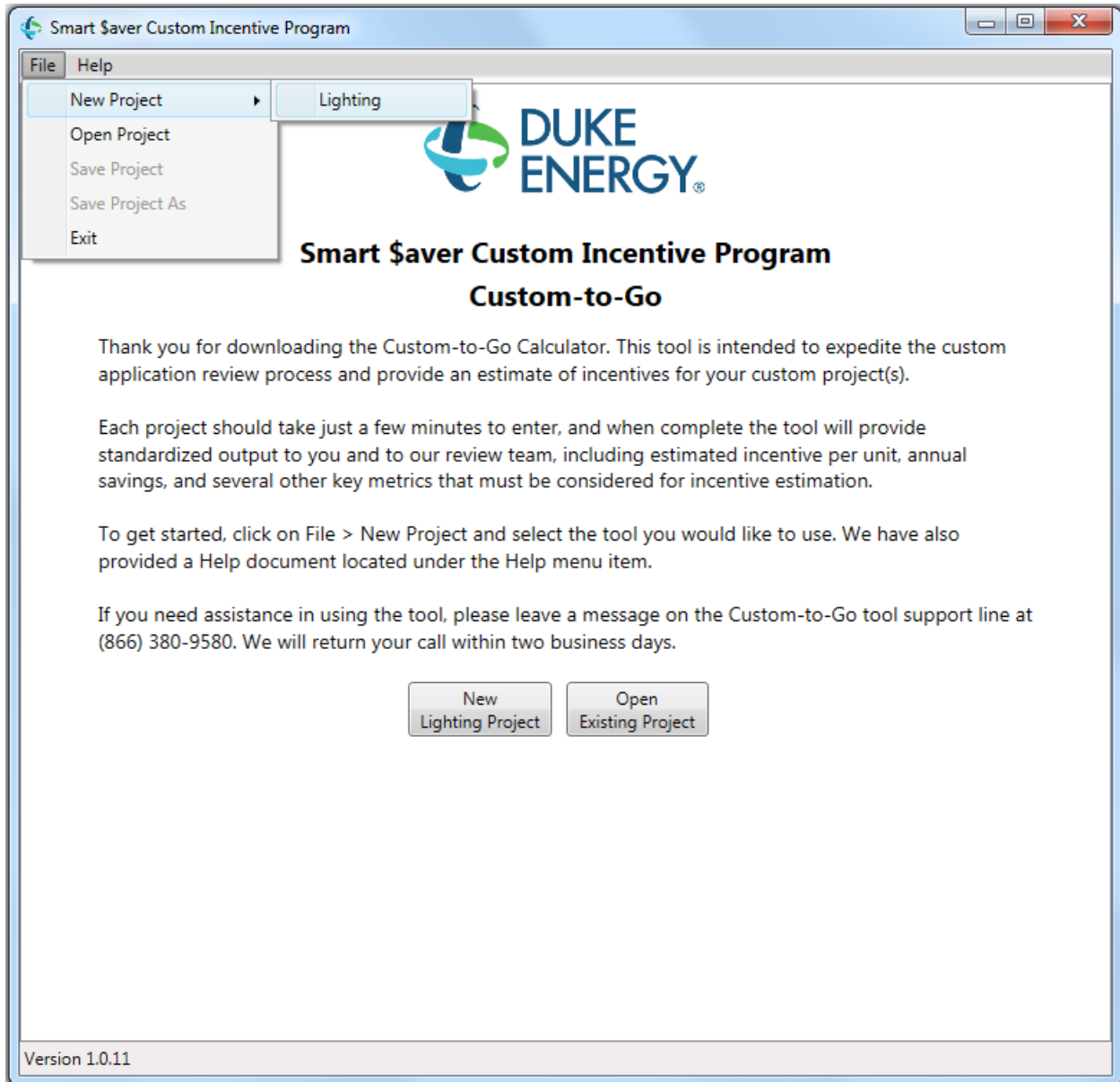


The map displays the states of North Carolina (NC) and South Carolina (SC). The service territories are color-coded: Duke Energy (blue) covers the western and central parts of NC, including Asheville, Charlotte, and Greensboro. Duke Energy Progress (green) covers the eastern and southern parts of NC and the northern part of SC, including Raleigh, Fayetteville, Myrtle Beach, and Greenville. A legend on the left shows a blue circle for Duke Energy and a green circle for Duke Energy Progress.

- Duke Energy
- Duke Energy Progress

3.2. Tool Inputs

Tool inputs are done either by selecting predefined dropdown options or entering text or numerical values as prompted by the tool. To begin using the tool, select File->New Project from the menu and select the Lighting tool option.



The input window uses a tabbed display. The first tab pertains to facility information, such as customer name and address, building type, and whether or not this is a new construction project. The second tab is used to enter the measure details. Multiple measures can be defined, each representing a unique combination of baseline and proposed fixtures. Existing measures can be edited by double-clicking on the row to be edited. The third tab displays a brief summary of the project results and allows the user to generate a detailed savings report. Refer to tables below for input details.

The screenshot shows a software window titled "Smart Saver Custom Incentive Program" with a menu bar containing "File" and "Help". Below the menu bar is a tabbed interface with three tabs: "Site", "Measures", and "Results". The "Site" tab is active, displaying a form with the following fields and values:

- Project Name: Demonstration Measure
- Duke Electric Account Number: 123-4567-43294
- Customer Name: Joe Customer
- Project Site Address: 123 4th Dt
- City: Terre Haute
- State: IN
- Zip: 47807
- Building Type: Office
- Operating Schedule: M-F 7am-5pm, Sat 8am-12pm
- Building Area (sq. ft.): 10,000
- Average Billing Rate (\$/kWh): \$0.085
- Options: Federal Owned, New Construction

At the bottom right of the form area are two buttons: "<< Back" and "Next >>". The bottom status bar of the window displays "Version 1.0.11".

Table 3 – Site/Facility Inputs

Input Name	Description / Purpose
Project Name	Enter a descriptive name for the lighting project.
Duke Electric Account Number	Enter the customer’s Duke Energy electric account number.
Customer Name	Enter the name of company or facility.
Project Site Address	Enter the address of the facility.
State	Select state from pull down.
Building Type	Select building type from pull down.
Operating Schedule	Select operating schedule from pull down. Note that the options vary depending on building type.

Duke Energy Smart Saver Lighting Instructions

Building Area (sq. ft.)	Enter square footage of the facility. Do not enter decimals (whole numbers only).
Average Billing Rate (\$/kWh)	This displays the default billing rate based on location and building type. If you know the actual average billing rate for the customer, check the Override box and enter a new value.
Federal Owned	Check this box if the facility is owned by a federal agency.
New Construction	Check this box if this is a new construction project.

Table 4 – Measure Inputs

Input Name	Description / Purpose
Anticipated Installation Date	Enter the anticipated installation date for the new lighting equipment.
Add Measure	Click this button to add a new row to the table of measures.
Edit Measure	Click this button to edit the selected row from the table above. You can also edit by double-clicking on a row in the table.
Remove Measure	Click this button to remove the selected row from the table.

The screenshot shows a software window titled "Measure Details" with two main sections: "Baseline/Existing Equipment" and "Proposed Equipment".

Baseline/Existing Equipment:

- Exterior:
- Application: High Bay (dropdown)
- Number of Fixtures: 100
- Lamp Family: HID (dropdown)
- Lamp Type: MH (dropdown)
- Lamps per Fixture: 1 (dropdown)
- Ballast Factor Range: N/A
- Watts per Lamp (Nominal): 250 (dropdown)
- Input Watts per Fixture: 295
- Mean Lumens per Fixture: 13,325

Proposed Equipment:

- Manufacturer: GE
- Model: PSMH200-1Q
- Total Cost of All Fixtures: \$5,300
- Number of Fixtures: 100
- Lamp Family: HID (dropdown)
- Lamp Type: PSMH (dropdown)
- Lamps per Fixture: 1 (dropdown)
- Ballast Factor Range: N/A
- Watts per Lamp (Nominal): 200 (dropdown)
- Input Watts per Fixture: 232
- Mean Lumens per Fixture: 14,250

Buttons: Save, Cancel

Table 5 – Measure Detail Inputs

Input Name	Description / Purpose
Exterior	Check this box if the fixtures are located in an exterior location.
Space Type	Select the type of space where the fixtures are being installed. This input only applies to New Construction projects.
Total Baseline Cost	Enter the cost to install standard efficiency lighting as required by state and local building codes. Enter the full cost for a complete installation of all fixtures on this measure, including material, tax, and external labor. This input only applies to New Construction projects.
Area Served (sq. ft.)	Enter the square footage being served by the fixtures. Do not enter decimals (whole numbers only). This input only applies to New Construction projects.
Application	Select the application for the fixture. If none of the available options is applicable, please select 'Other'.
Manufacturer	Enter the manufacturer of the proposed fixture.
Model	Enter the model number of the proposed fixture.

Total Cost of All Fixtures	Enter the full measure cost for a complete installation of all fixtures on this measure, including material, tax, and external labor.
Number of Fixtures	Enter the number of baseline and proposed fixtures.
Lamp Family	Select the lamp family (HID, CFL, etc.) for the baseline and proposed fixtures. If none of the available options is applicable, you can type in a custom value.
Lamp Type	Select the lamp type for the baseline and proposed fixtures. The options will depend on the selected lamp family. If none of the available options is applicable, you can type in a custom value.
Lamps per Fixture	Select the number of lamps per fixture for the baseline and proposed fixtures. If none of the available options is applicable, you can type in a custom value.
Ballast Factor Range	Select the ballast factor for the baseline and proposed fixtures. This input is only applicable to linear fluorescent fixtures. The available options are: <ul style="list-style-type: none"> • Low (< 0.85) • Normal (>=0.85, <= 0.95) • High (>= 0.96)
Power Source	Select whether or not the proposed LED lamp will be powered by an existing fluorescent ballast. If the ballast will be removed, select “Line Voltage”. This input is only applicable to LED tube replacements.
Watts per Lamp (Nominal)	Select the watts per lamp for the baseline and proposed fixtures. The options will depend on the selected lamp family. If none of the available options is applicable, you can type in a custom value. This input does not apply to LED Fixture measures.
Input Watts per Fixture	If a standard fixture has been configured using the drop-down selections, the predefined input watts will be displayed. If custom values have been used for one or more inputs, you will need to enter the input watts per fixture. This input does not apply to LED Lamp measures.
Mean Lumens per Fixture	If a standard fixture has been configured using the drop-down selections, the predefined mean lumens will be displayed. If custom values have been used for one or more inputs, you will need to enter the mean lumens per fixture. For LED Lamp measures, enter the mean lumens per lamp.

Once all information is entered, press the “Save” button on the Measure Details window to save your measure. Once all measures have been added, press the “Next” button on the bottom right corner of the Measures tab. The tool will then calculate savings based on the information entered and display a brief summary of the results. To view a full report, press the “PDF Report” button. This will generate a PDF report suitable for viewing on screen or printing along with a ZIP file containing additional detail that Duke Energy will require to process your incentive application.

3.3. Tool Outputs – Savings Summary

The following table describes the tool outputs.

DUKE ENERGY®
Smart Saver Custom Incentive Program
Custom-to-Go

Project Summary

Total Estimated Incentives	\$2,095
Estimated Annual Electric Bill Reduction	\$1,504

	Demand (kW)	Energy Usage (kWh)
Site Baseline	29.50	82,836
Code Baseline	-	-
Proposed	23.20	65,146
Savings — Site Baseline	6.30	17,690
Savings — Code Baseline	-	-
Estimated Incentive	\$945	\$1,150

Next Steps

The data entry portion is now complete and estimates of annual savings and incentives are provided on the screen above. The next steps in securing a final incentive offer, prior to executing your project, are as follows:

1. When you click the "PDF Report" button below a detailed PDF report will be created for your records along with a ZIP file for use by Duke Energy personnel. Please e-mail a copy of both files to CustomIncentives@duke-energy.com with your application. Before closing this project, we recommend saving your data to a .CTG file, using the File menu, for future use.
2. If changes are desired at this time, you may edit, add or delete measures by clicking the "Back" button and making the

Version 1.0.11

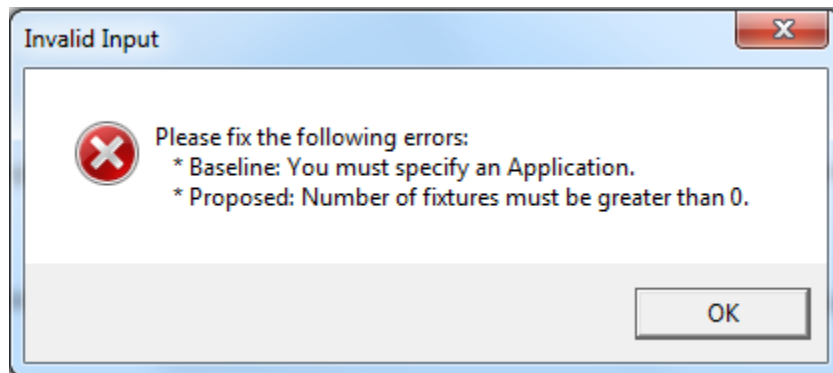
Table 6- Measure Energy Savings and Incentive

Name	Description / Purpose
Site Baseline, kW	Estimated monthly maximum peak demand of the existing lighting equipment (retrofit projects only)
Code Baseline, kW	Estimated monthly maximum peak demand of code compliant lighting equipment (new construction projects only)

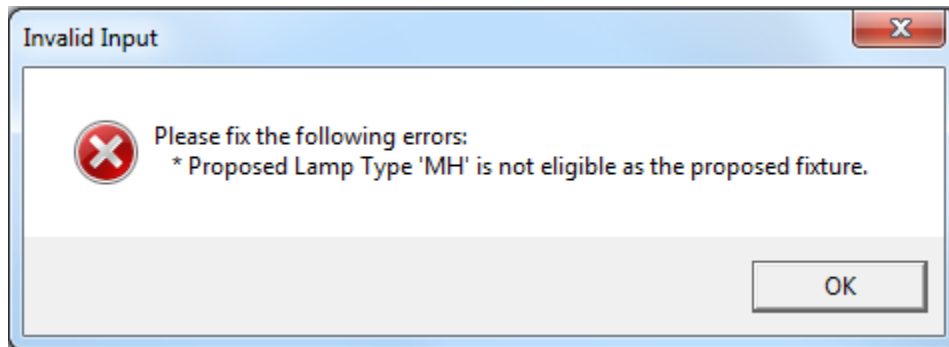
Proposed, kW	Estimated monthly maximum peak demand of the proposed lighting equipment
Customer Baseline, kWh	Estimated annual energy use of the existing lighting equipment (retrofit projects only)
Code Baseline, kWh	Estimated annual energy use of code compliant lighting equipment (new construction projects only)
Proposed, kWh	Estimated annual energy use of the proposed lighting equipment
Savings – Site Baseline	Estimated peak demand and annual energy use savings, relative to the Site Baseline values, for the selected measures (retrofit projects only)
Savings – Code Baseline	Estimated peak demand and annual energy use savings, relative to the Code Baseline values, for the selected measures (new construction projects only)
Estimated Incentive	Estimated incentive from peak demand and annual energy use savings that can be obtained for installation of the proposed lighting equipment
Total Estimated Incentives	Estimated incentive for the full project
Estimated Annual Electric Bill Reduction	Estimated reduction in the customer’s annual electric bill due to the annual energy use savings.

3.4. Tool Outputs – Notes and Error Messages

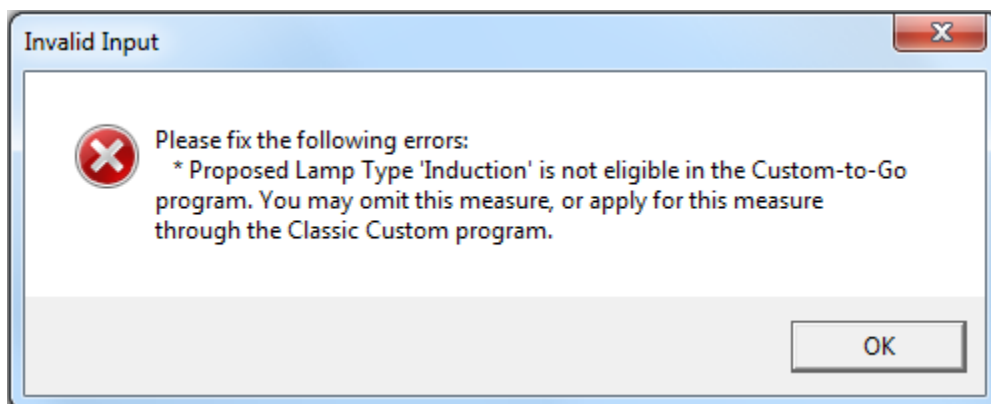
While using the Lighting Savings Calculator, you may see one of the following error messages:



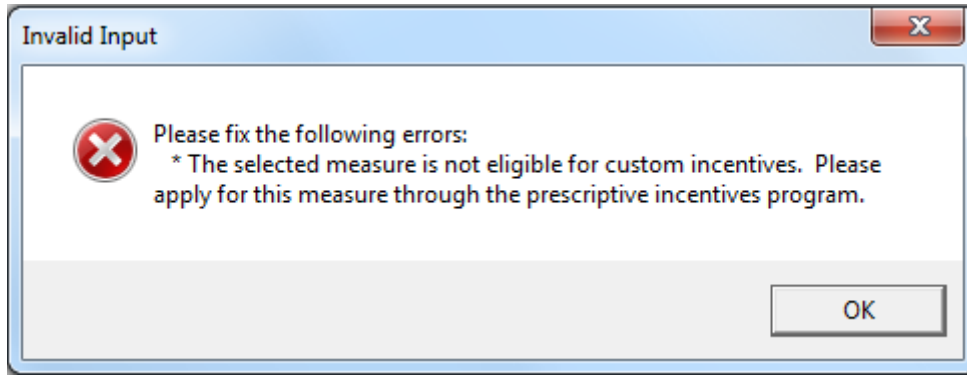
This indicates that you have not made a selection or entered an appropriate value in one or more required fields. Please review your inputs and make sure that you have entered appropriate values in the indicated input fields.



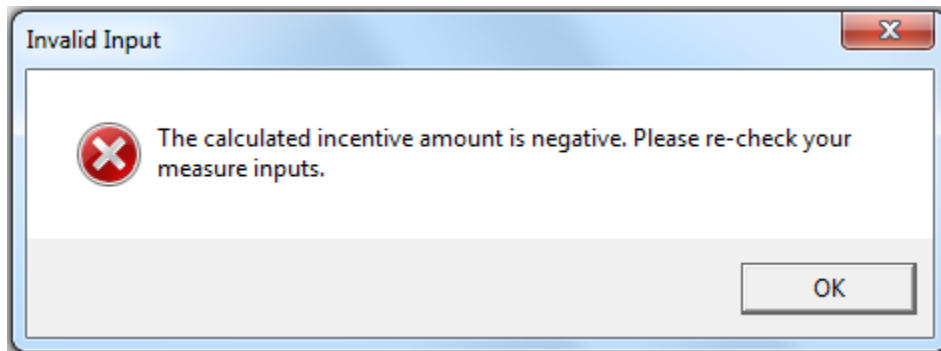
This indicates that the proposed fixture is not eligible for incentives and may only be used as a baseline fixture.



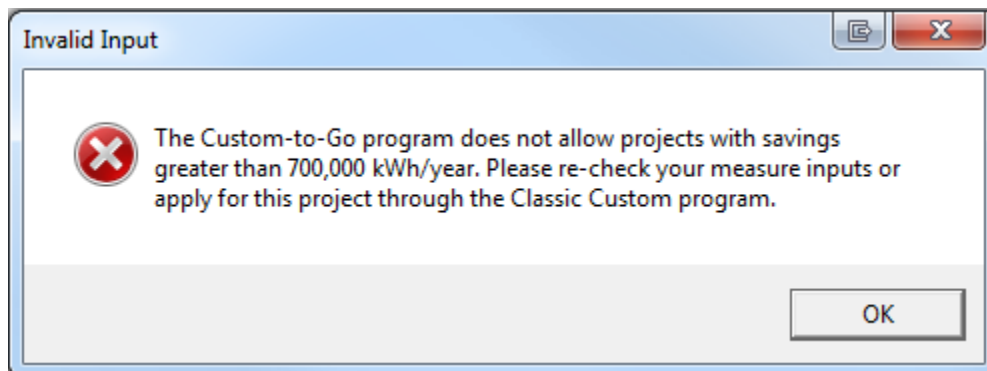
This indicates that the proposed fixture is only eligible for incentives through the Classic Custom program. Please submit an application to the Classic Custom program for this measure.



This indicates that the proposed retrofit qualifies for incentives through the prescriptive incentives program. Measures that qualify through the prescriptive program cannot apply for incentives through the custom incentives program (classic custom or custom-to-go).



This indicates that your lighting project will result in negative savings and incentives. Please review your measure inputs and ensure that all inputs are correct. You will not be able to generate a report for a project that has negative savings.



This indicates that the proposed project exceeds the upper limit of the Custom-to-Go program and is only eligible for incentives through the Classic Custom program. Please submit an application to the Classic Custom program for this project.