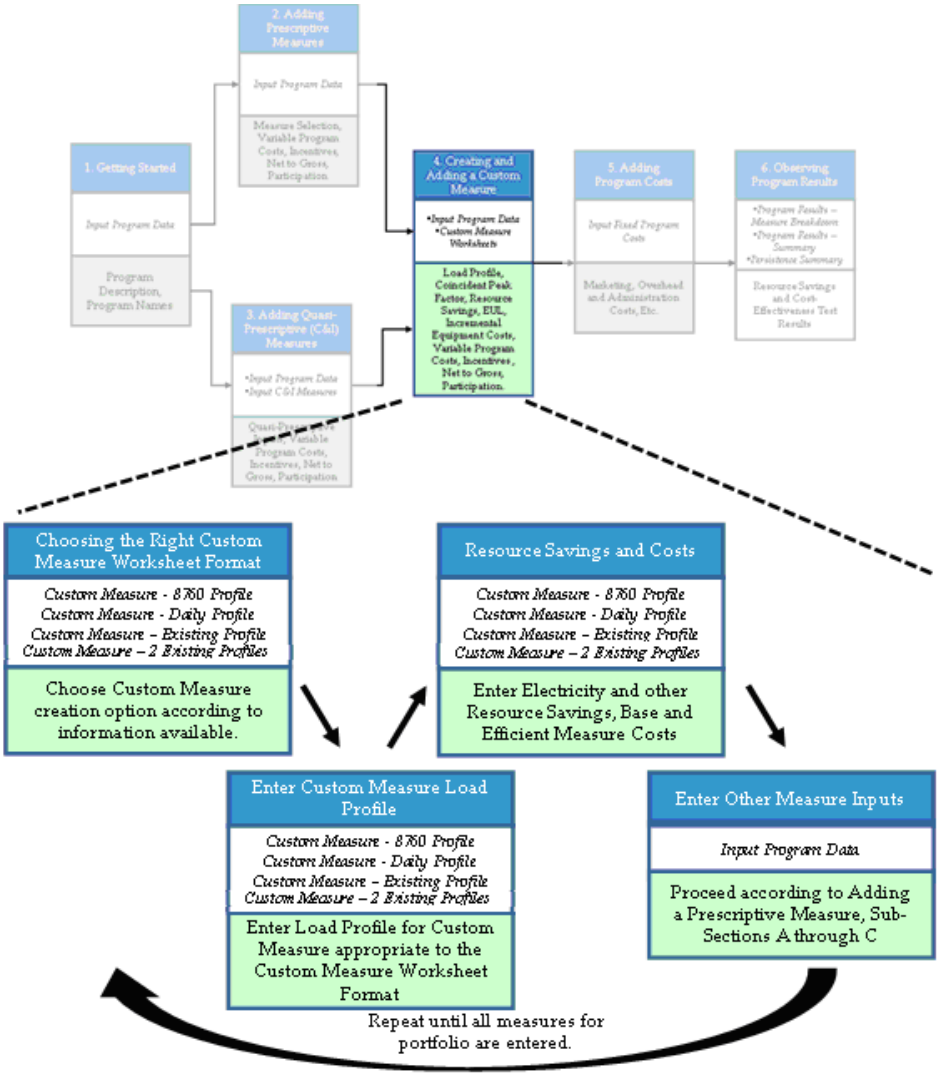
Creating, adding, evaluating or deleting Custom Measures in the Resource Planning Tool for Modeling Purposes

Creating a Custom Measure

Figure 1 illustrates the process for creating and adding a custom measure to the Resource Planning Tool for modeling.

Figure 1 – Adding a Custom Measure for Modelling Purposes

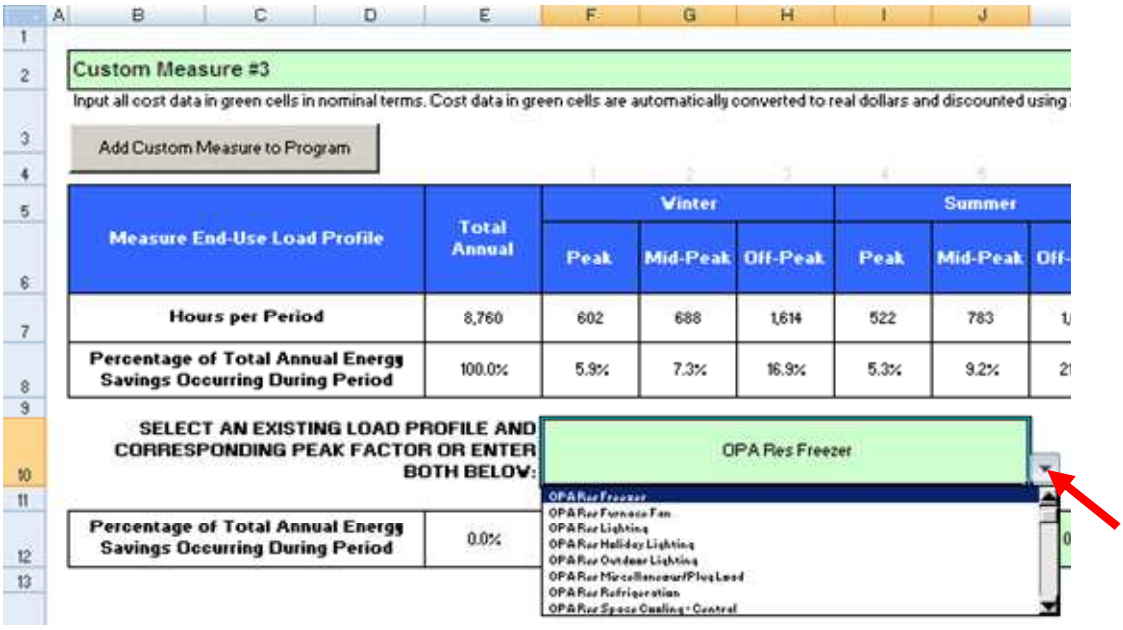


The Custom Measure-Existing Profile worksheet should be used to model custom measures.

You have two options for entering the load profile and coincident peak factor. You can either:

- select the end-use that most accurately reflects the conservation measure from the pre-existing drop-down menu (as indicated in with a red arrow), or
- enter the data manually in the strip provided below the drop-down menu.

Figure 2 - Custom Measure Existing Profile Worksheet (select from drop-down menu)



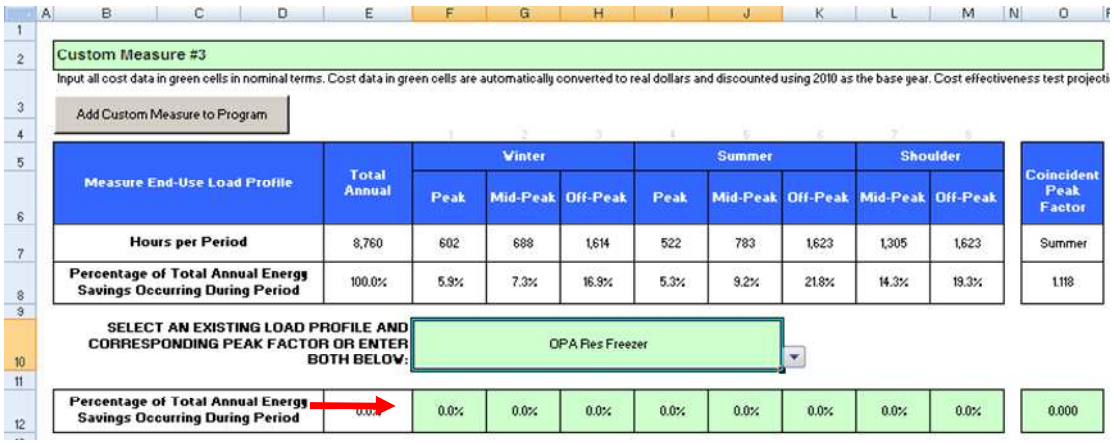
Following below are the load profiles that should be used for each end use. If these load profiles are not suitable for the specific custom measure that is being modeled, you can choose to create a unique load profile (as explained below in Figure 3). However, unless you have experience developing load profiles and coincident peak factors, it is strongly recommended that the drop-down menu be used.

End Use	Recommended Load Profile
Space Cooling	OPA Res Space Cooling – Central
Space Heating	OPA Res Space Heating – SF
Water Heating	OPA Res Water Heating
Building Envelope	Applicable Load Profile from Dropdown List or Unique Load Profile

Figure 3 illustrates the data entry requirements if the drop-down menu is not used. (Note: when you enter a value in the green cells, it automatically overrides any selection previously made using the drop-down menu.)

First you must enter values for the eight season-and-time-of use periods. The percentage values entered must add up to exactly 100 percent to be valid. Then, you must also specify an appropriate coincident peak factor.

Figure 3 - Custom Measure Existing Profile Worksheet (manual entry)

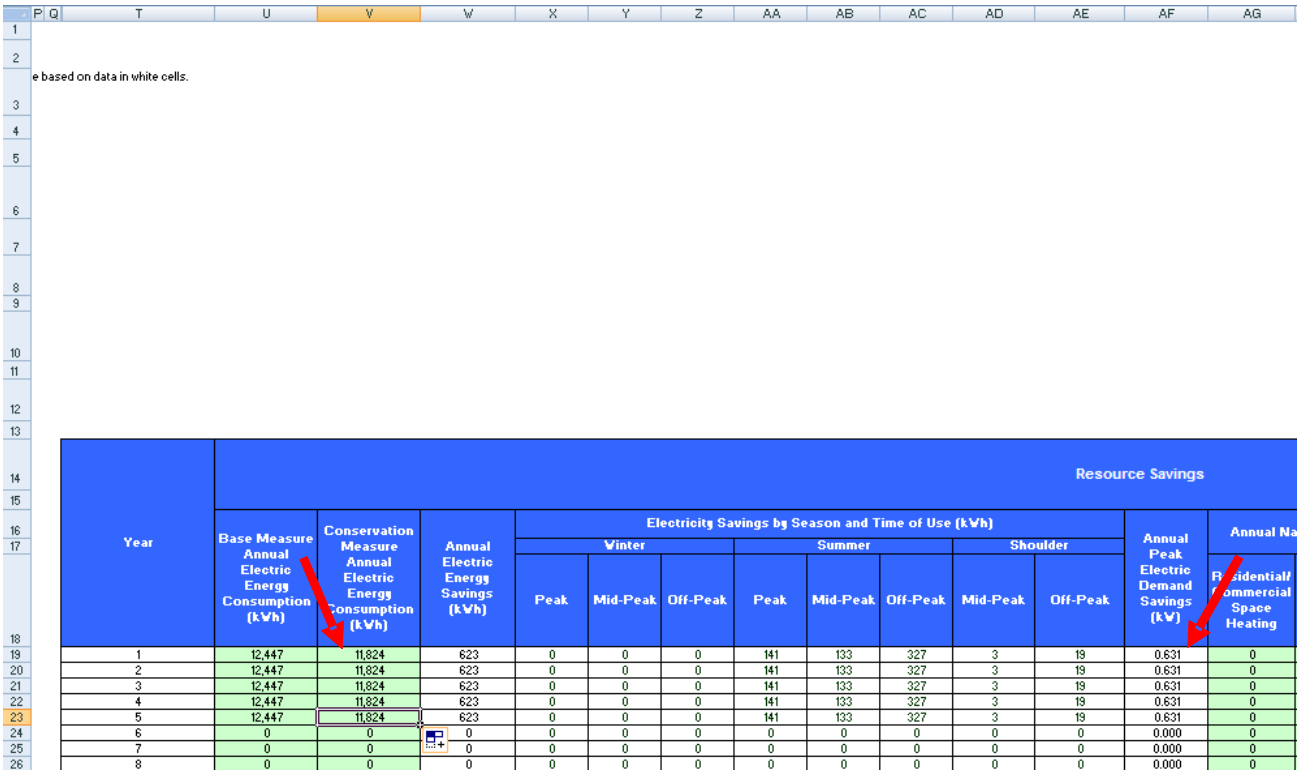


Next, the annual electricity consumption of both the base and the conservation measure must be entered in kilowatt-hours (kWh) for each year that the conservation measure is expected to deliver resource savings. These must be input into columns U and V, as indicated by red arrows in Figure 4, below.

You must enter a nominal amount under “base measure energy consumption” (kWh) even if the proposed custom measure is expected to generate zero energy savings (e.g., home energy audit). More specifically, it is suggested that users specify base measure energy consumption of 0.00000001 kWh per year for a custom measure expected to achieve zero actual resource savings. This specification will not have a material impact on the projected resource savings of a program, and it is necessary to ensure the proper functioning of Resource Planning Tool output calculations.

The cells must be filled in for every year of expected useful life (EUL) that is anticipated of the measure. For example, a measure with a five-year EUL would have consumption input in both columns for years one through five.

Figure 4 - Input Electricity Consumption (Custom Measure – Existing Profile)



e based on data in white cells.

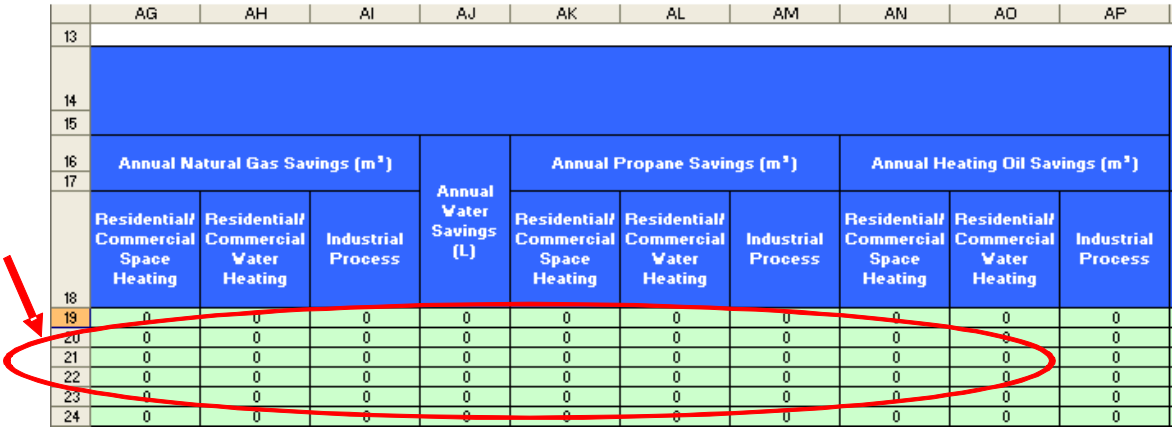
Year	Resource Savings													
	Base Measure Annual Electric Energy Consumption (kWh)	Conservation Measure Annual Electric Energy Consumption (kWh)	Annual Electric Energy Savings (kWh)	Electricity Savings by Season and Time of Use (kWh)								Annual Peak Electric Demand Savings (kW)	Annual Na
				Winter			Summer			Shoulder			
				Peak	Mid-Peak	Off-Peak	Peak	Mid-Peak	Off-Peak	Mid-Peak	Off-Peak		Residential/ Commercial Space Heating
1	12,447	11,824	623	0	0	0	141	133	327	3	19	0.631	0
2	12,447	11,824	623	0	0	0	141	133	327	3	19	0.631	0
3	12,447	11,824	623	0	0	0	141	133	327	3	19	0.631	0
4	12,447	11,824	623	0	0	0	141	133	327	3	19	0.631	0
5	12,447	11,824	623	0	0	0	141	133	327	3	19	0.631	0
6	0	0	0	0	0	0	0	0	0	0	0	0.000	0
7	0	0	0	0	0	0	0	0	0	0	0	0.000	0
8	0	0	0	0	0	0	0	0	0	0	0	0.000	0

Note: The value in cell W19 is the first year energy savings in kWh. The value in cell AF19 is the first year peak demand reduction. These two values will be used to determine the incentive payment ($0.10 for every first year kWh saved or $800 for every first year peak demand reduction).

Enter Other Resource Savings and Costs

You must now input all other resource savings associated with the custom measure, as indicated by the red arrow and oval in Figure 5. In particular, you may (but are not required to) enter values for savings associated with natural gas, water, propane and heating oil. As with electricity savings, these resource savings must then be included for each year of the measure's effective useful life. Increased resource consumption should be specified with negative values as in the case of Electrically Commutated Motors, (ECM) for example, which save electricity but increase natural gas consumption.

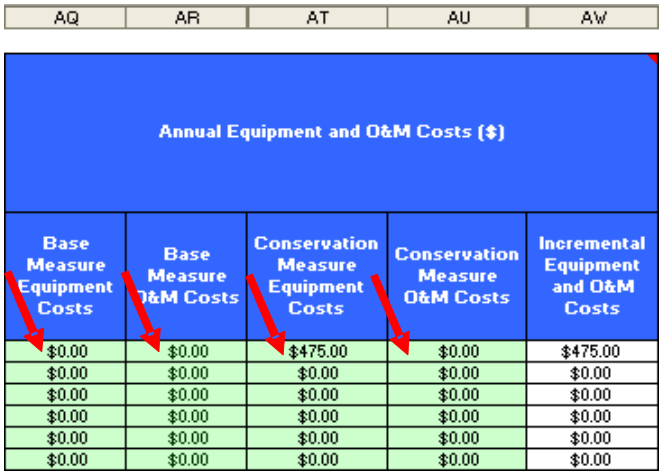
Figure 5 - Input Other Resource Savings



	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP
13										
14										
15										
16	Annual Natural Gas Savings (m³)			Annual Water Savings (L)	Annual Propane Savings (m³)			Annual Heating Oil Savings (m³)		
17										
18	Residential/ Commercial Space Heating	Residential/ Commercial Water Heating	Industrial Process		Residential/ Commercial Space Heating	Residential/ Commercial Water Heating	Industrial Process	Residential/ Commercial Space Heating	Residential/ Commercial Water Heating	Industrial Process
19	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0

Having entered all other resource savings, now you must enter the annual base and conservation measure costs, which consist of equipment costs and operations and maintenance (O&M) costs. These data input requirements are indicated by the red arrows in Figure 6.

Figure 6 - Input Annual Equipment and O&M Costs for the Base and Conservation Measure

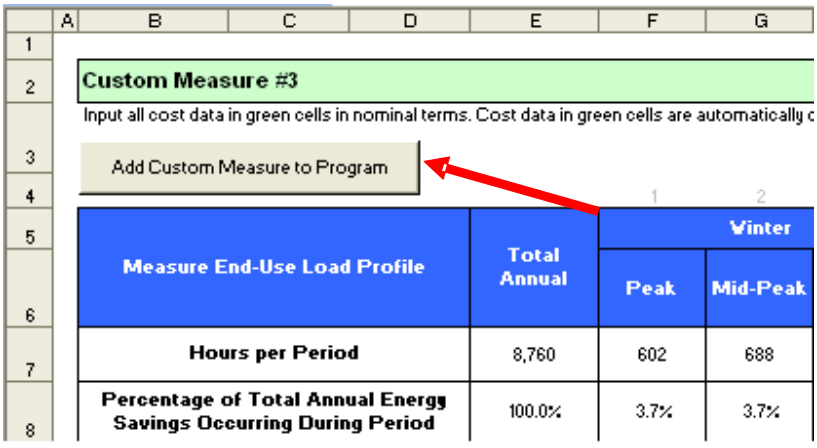


AQ	AR	AT	AU	AW
Annual Equipment and O&M Costs ($)				
Base Measure Equipment Costs	Base Measure O&M Costs	Conservation Measure Equipment Costs	Conservation Measure O&M Costs	Incremental Equipment and O&M Costs
$0.00	$0.00	$475.00	$0.00	$475.00
$0.00	$0.00	$0.00	$0.00	$0.00
$0.00	$0.00	$0.00	$0.00	$0.00
$0.00	$0.00	$0.00	$0.00	$0.00
$0.00	$0.00	$0.00	$0.00	$0.00
$0.00	$0.00	$0.00	$0.00	$0.00

Enter All Other Measure Inputs

Next, you must specify a name for the custom measure by typing it into the cell indicated by the red arrow in Figure 7.

Figure 7 – Naming a Custom Measure

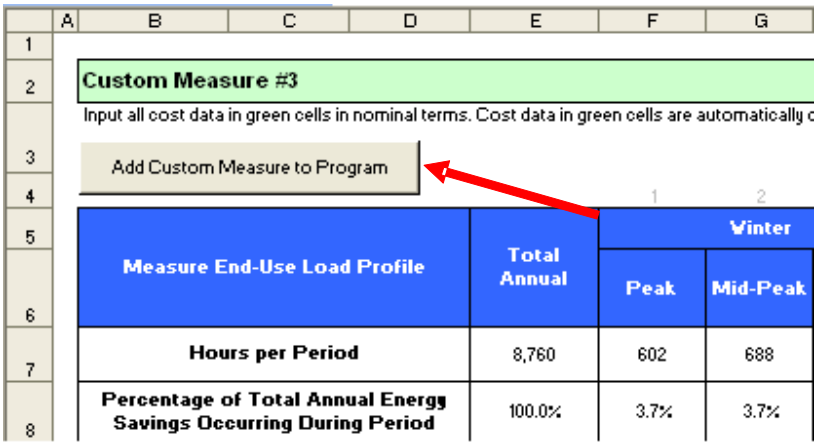


	A	B	C	D	E	F	G
1							
2		Custom Measure #3					
3		Input all cost data in green cells in nominal terms. Cost data in green cells are automatically c					
4		Add Custom Measure to Program					
5						1	2
6		Measure End-Use Load Profile			Total Annual	Winter Peak	Winter Mid-Peak
7		Hours per Period			8,760	602	688
8		Percentage of Total Annual Energy Savings Occurring During Period			100.0%	3.7%	3.7%

Adding a Custom Measure

The final step for creating a custom measure is taken by clicking on the "Add Custom Measure to Program" button. This button is located at the top left of the worksheet, just below the measure name, as indicated by the red arrow in Figure 8.

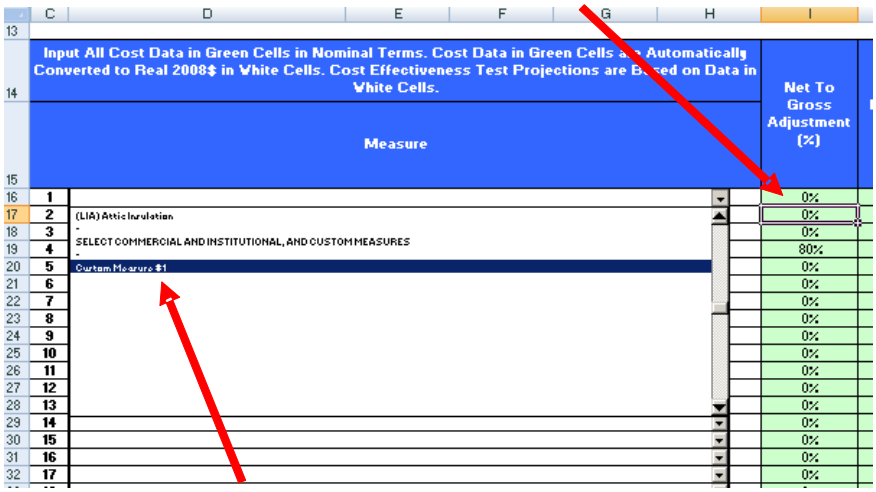
Figure 8 – Creating a Custom Measure



Evaluating a Custom Measure

To evaluate the custom measure, you will start by selecting your newly-created measure from the drop-down menu located in the "Input Program Data" worksheet. Note that all the custom measures you create will appear at the bottom of the drop-down list, as shown in Figure 9.

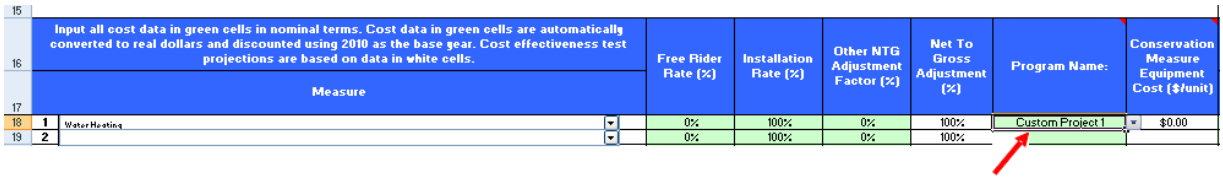
Figure 9 – Select Custom Measure from Input Program Data Worksheet



In the "Input Program Data" worksheet, you will need to name each custom program **(see Figure 10).** This name is selected from the drop-down list available in Column M. The program name should be in the same row as the selected custom measure.

Figure 10 - Enter Program Names

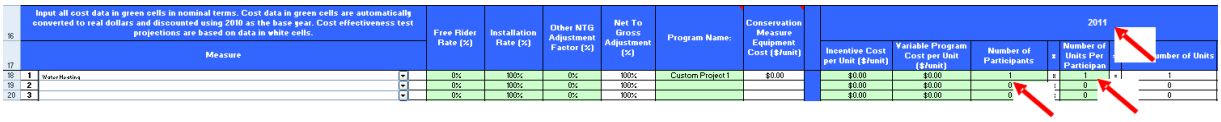
Figure 11 – Select Program Name for Custom Measure



		Input all cost data in green cells in nominal terms. Cost data in green cells are automatically converted to real dollars and discounted using 2010 as the base year. Cost effectiveness test projections are based on data in white cells.	Free Rider Rate (%)	Installation Rate (%)	Other NTG Adjustment Factor (%)	Net To Gross Adjustment (%)	Program Name:	Conservation Measure Equipment Cost ($/unit)
		Measure						
1	1	Water Heating	0%	100%	0%	100%	Custom Project 1	$0.00
2	2		0%	100%	0%	100%		

You should indicate that the number of participants and the number of units per participant in the designated year are 1 and 1, respectively. For example, in Figure 12 below, the designated year is 2011.

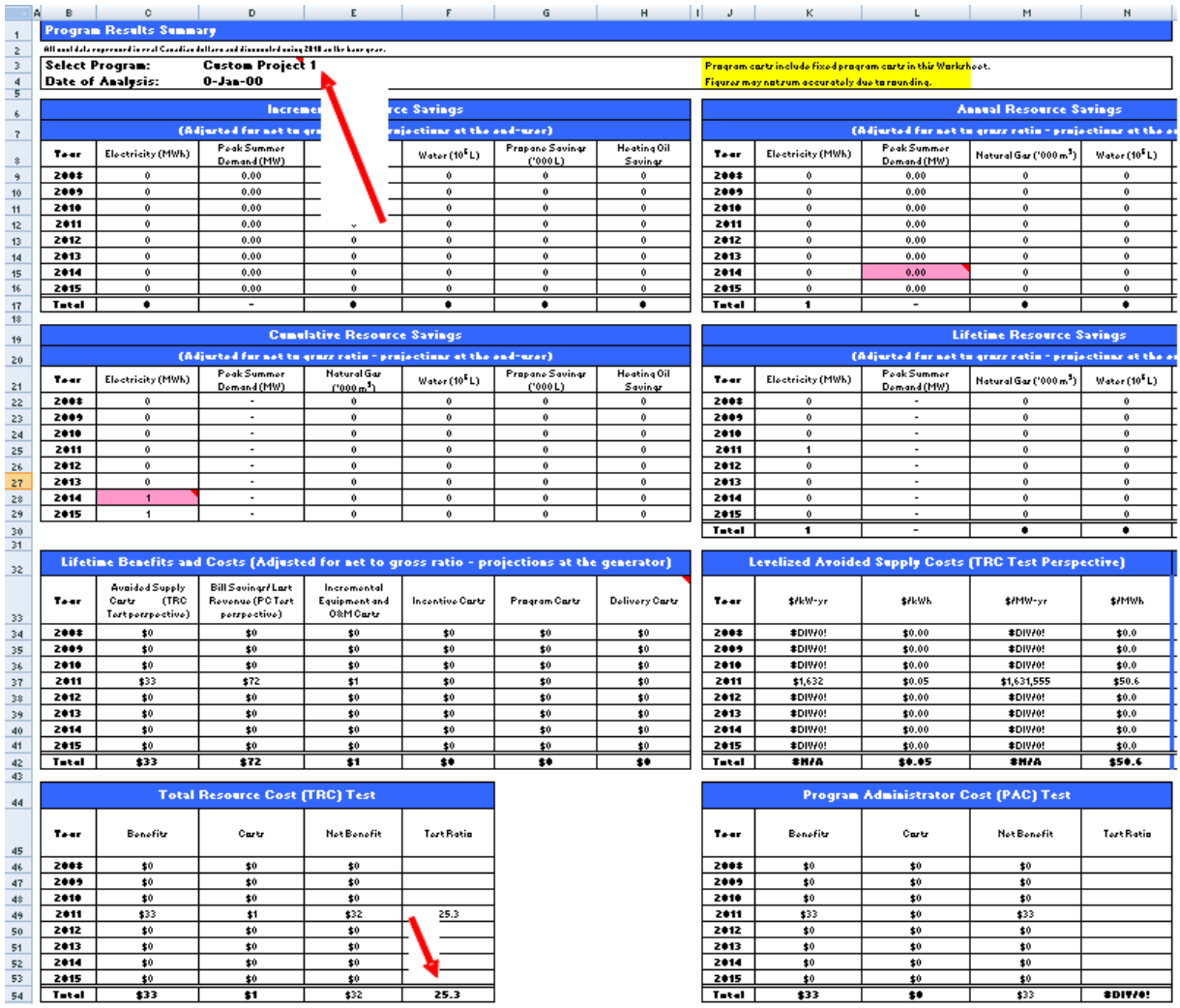
Figure 12 – Select Number of Participants and the Number of Units per Participant for Custom Measure in Designated Year



		Input all cost data in green cells in nominal terms. Cost data in green cells are automatically converted to real dollars and discounted using 2010 as the base year. Cost effectiveness test projections are based on data in white cells.	Free Rider Rate (%)	Installation Rate (%)	Other NTG Adjustment Factor (%)	Net To Gross Adjustment (%)	Program Name:	Conservation Measure Equipment Cost ($/unit)	2011				
		Measure							Incentive Cost per Unit ($/unit)	Variable Program Cost per Unit ($/unit)	Number of Participants	Number of Units Per Participan	Number of Units
1	1	Water Heating	0%	100%	0%	100%	Custom Project 1	$0.00	$0.00	$0.00	1	1	1
2	2		0%	100%	0%	100%			$0.00	$0.00	0	0	0
3	3		0%	100%	0%	100%			$0.00	$0.00	0	0	0

At this point, you have finished all of the data entry required. The custom measure's TRC can be evaluated by going to the "Program Results – Summary" worksheet. In Cell D3, the program name associated with the custom measure should be selected. The TRC for the custom measure can be found by looking at the value in Cell F54 (please see Figure 13).

Figure 13 – Viewing TRC Results of Custom Measure



Program Results Summary

All cost data expressed in real Canadian dollars and discounted using 2008 as the base year.

Select Program: Custom Project 1
Date of Analysis: 0-Jan-00

Program costs include fixed program costs in this Worksheet.
Figures may not sum accurately due to rounding.

Incremental Resource Savings
(Adjusted for net to gross ratio - projections at the end-user)

Year	Electricity (MWh)	Peak Summer Demand (MW)		Water (10^3 L)	Propane Savings ('000 L)	Heating Oil Savings
2008	0	0.00		0	0	0
2009	0	0.00		0	0	0
2010	0	0.00		0	0	0
2011	0	0.00		0	0	0
2012	0	0.00	0	0	0	0
2013	0	0.00	0	0	0	0
2014	0	0.00	0	0	0	0
2015	0	0.00	0	0	0	0
Total	•	-	•	•	•	•

Annual Resource Savings
(Adjusted for net to gross ratio - projections at the end-user)

Year	Electricity (MWh)	Peak Summer Demand (MW)	Natural Gas ('000 m^3)	Water (10^3 L)
2008	0	0.00	0	0
2009	0	0.00	0	0
2010	0	0.00	0	0
2011	0	0.00	0	0
2012	0	0.00	0	0
2013	0	0.00	0	0
2014	0	0.00	0	0
2015	0	0.00	0	0
Total	1	-	•	•

Cumulative Resource Savings
(Adjusted for net to gross ratio - projections at the end-user)

Year	Electricity (MWh)	Peak Summer Demand (MW)	Natural Gas ('000 m^3)	Water (10^3 L)	Propane Savings ('000 L)	Heating Oil Savings
2008	0	-	0	0	0	0
2009	0	-	0	0	0	0
2010	0	-	0	0	0	0
2011	0	-	0	0	0	0
2012	0	-	0	0	0	0
2013	0	-	0	0	0	0
2014	1	-	0	0	0	0
2015	1	-	0	0	0	0

Lifetime Resource Savings
(Adjusted for net to gross ratio - projections at the end-user)

Year	Electricity (MWh)	Peak Summer Demand (MW)	Natural Gas ('000 m^3)	Water (10^3 L)
2008	0	-	0	0
2009	0	-	0	0
2010	0	-	0	0
2011	1	-	0	0
2012	0	-	0	0
2013	0	-	0	0
2014	0	-	0	0
2015	0	-	0	0
Total	1	-	•	•

Lifetime Benefits and Costs (Adjusted for net to gross ratio - projections at the generator)

Year	Avoided Supply Costs (TRC Test perspective)	Bill Savings/Lost Revenue (PC Test perspective)	Incremental Equipment and O&M Costs	Incentive Costs	Program Costs	Delivery Costs
2008	$0	$0	$0	$0	$0	$0
2009	$0	$0	$0	$0	$0	$0
2010	$0	$0	$0	$0	$0	$0
2011	$33	$72	$1	$0	$0	$0
2012	$0	$0	$0	$0	$0	$0
2013	$0	$0	$0	$0	$0	$0
2014	$0	$0	$0	$0	$0	$0
2015	$0	$0	$0	$0	$0	$0
Total	$33	$72	$1	$0	$0	$0

Levelized Avoided Supply Costs (TRC Test Perspective)

Year	$/kW-yr	$/kWh	$/MW-yr	$/MWh
2008	$DIV/0!	$0.00	$DIV/0!	$0.0
2009	$DIV/0!	$0.00	$DIV/0!	$0.0
2010	$DIV/0!	$0.00	$DIV/0!	$0.0
2011	$1,632	$0.05	$1,631,555	$50.6
2012	$DIV/0!	$0.00	$DIV/0!	$0.0
2013	$DIV/0!	$0.00	$DIV/0!	$0.0
2014	$DIV/0!	$0.00	$DIV/0!	$0.0
2015	$DIV/0!	$0.00	$DIV/0!	$0.0
Total	$N/A	$0.05	$N/A	$50.6

Total Resource Cost (TRC) Test

Year	Benefits	Costs	Net Benefit	Test Ratio
2008	$0	$0	$0	
2009	$0	$0	$0	
2010	$0	$0	$0	
2011	$33	$1	$32	25.3
2012	$0	$0	$0	
2013	$0	$0	$0	
2014	$0	$0	$0	
2015	$0	$0	$0	
Total	$33	$1	$32	25.3

Program Administrator Cost (PAC) Test

Year	Benefits	Costs	Net Benefit	Test Ratio
2008	$0	$0	$0	
2009	$0	$0	$0	
2010	$0	$0	$0	
2011	$33	$0	$33	
2012	$0	$0	$0	
2013	$0	$0	$0	
2014	$0	$0	$0	
2015	$0	$0	$0	
Total	$33	$0	$33	$DIV/0!

Deleting a Custom Measure

You may delete previously created custom measures by clicking on the "*All Measures Detail*" worksheet, scrolling to the bottom, selecting the custom measure that you wish to

delete and clicking on the “Delete Selected Commercial & Institutional or Custom Measure” button, as shown by the red arrows in Figure 14.

This will remove the measure from the “All Measures Detail” worksheet and, more importantly, from the drop-down menu in the “Input Program Data” worksheet.

Remember: Before clicking on the “Delete Selected Commercial & Institutional or Custom Measure” button, you must select the cell with the name of the measure that is being deleted.

Figure 14 – Deleting a Custom Measure