BPA Energy Efficiency
Custom Program Calculator Instructions

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Purpose of the Custom Program Calculator

The primary purpose of the Custom Program Calculator is to provide a single tool that can be used for submitting all required and optional data for custom program proposals as well as completed custom programs into IS2.0.

The Calculator includes four separate worksheets: "Program Information," "Measure and Project Input," "Funding Input and Summary" and "Measure List." The first three worksheets are used for input. The fourth is a reference to lookup measure numbers.

Program Information Instructions

Fill out the "Program Information" tab with specific information about the program. Refer to descriptions in column A for each requested field. If necessary, provide additional attachments with supplemental program information.

Measure and Project Input Tab Instructions

Row 1: Choose your utility from the drop-down list.
Row 5: Defines required or optional fields.
Row 7: Identifies how to complete the data entry fields dependent upon the type of custom program proposed (e.g. for an evaluated custom program, enter "multiple" into the required Site Information fields designated with an *).

Data Entry Fields: Columns B through AG are data entry fields. They are described in detail in the table below. These fields are formatted to allow utilities to copy and paste information from their database. Please note that the values input in certain fields (e.g., Yes/No) must match the type required as indicated in parentheses after each field name.

Column	Field	Definition
B	Optional: Utility Retail Rate ($/kWh)	Average retail rate for customer at project location. This rate is used to calculate the value of energy savings for the project simple payback. Format should be in $/kWh (example: $0.050 if rate is 5 cents per kilowatt hour). The system will accept three digits of precision. Each utility should define its methodology to calculate utility retail rate for the customer at the custom program project location(s).
C	Unique Site ID*	An ID that is unique to this site. Often the customer account number is used. (If multiple sites within an evaluated custom program, enter "multiple sites.")
D	Company Name*	Name of the utility's retail customer for the retail electric account applicable to this custom program measure. (If multiple sites within an evaluated custom program, enter "multiple sites.")
E, F, G, H	Facility Address, City, State, and Zip code*	The street address (not a Post Office Box), City, State, and Zip code where the program measure was installed. (If multiple sites within an evaluated custom program, enter "multiple sites.")
I	Optional: Building Name(s)	If the site has multiple buildings, use this field to indicate the specific building where the measure was installed.
J	Primary Building Use (If Res, enter "other") (use list below)*	The text must match one of the standard retail customer types for the sector of the measure. The list of customer types is provided below. For example, "Large Office" in the commercial sector. (If multiple sites with different building uses within an evaluated custom program, enter "Other.")
K	Optional: Secondary Building Use	Dropdown lists are provided. If this data is provided, the text must match one of the standard customer types for the sector of the measure provided below. For example, "Small Box Retail" in the commercial sector. This additional field has been added to collect data on secondary building uses in mixed use buildings for program and planning analysis.
L	Federal? (Yes/No)	Input "Yes" or "No" to indicate if the measure was installed at a Federal facility. This field has been added to track energy savings at Federal facilities as Federal facilities no longer receive reimbursement directly from BPA. (If evaluated custom program and if all sites are not Federal, enter "No".)
M	Actual Program Start Date (MM/DD/YYYY)	Date custom program implementation began. Typically this is the date the retail customer received authorization from the utility to begin the project or the date the utility began implementing the program. The eligible reimbursement is calculated based on the project start date.
N	Completion Date of Program (MM/DD/YYYY)	Date that the measurement and verification (M&V) of the installed custom program measure energy savings was completed. If this is a multiple-measure project, this should be the date when the M&V for all measures was completed.
O	Optional: Project Name	Name assigned to project.

Column	Field	Definition
P	Utility-Assigned Project ID	ID assigned to the program by the utility. For a multiple-measure custom program (with multiple reference numbers), enter the same program ID for each reference number so that the measures can be grouped together in the "Funding Input and Summary" tab for program-level calculations.
Q	Resource Opportunity Type	Enter the type of project from the following 3 choices: • Retrofit • New Construction • Major Renovation
R	Optional: Process type (use list below)	For industrial projects, the type of industrial process used in the building. Eligible process types are listed below.
S	Optional: Third Party Contract Number	This is for third party use. Enter the contract number for the Third Party Program implemented with this measure.
T	Optional: Lighting Wattage Reduction (%)	This column is for lighting measures only.
U	Optional: Audit Tracking Number	For utility use.
V	Optional: Container Name	Name of associated container, if applicable.
W	Measure RefNo – Find RefNos on Measure_List tab	Measure Reference Numbers (RefNos) for Custom Programs can be found in Column A of the Measure_List tab. To find a RefNo, use the auto filtering by Column B: Resource Opportunity Type (new construction/major renovation or retrofit), then Column C: Sector, then Column D: End Use, then Column E: Category and finally Column F: Technology/Activity/ Practice. Select the appropriate RefNo in column A and copy and paste into this column. For a multiple measure project, all RefNos must have the same Resource Opportunity Type and Sector. This means that for each project the first letter and the first and second numbers must be the same. For example, all measure RefNos uploaded for a commercial retrofit would look like this: CXXXX92###.
X	Optional: Measure Name	Measure name as used by the utility/project. This field may be used to describe the measure and differentiate between measures of the same TAP installed in one project (i.e. T8 lighting and LED lighting).
Y	Estimated Measure Cost ($)	The estimated total measure cost (equipment and labor) to install the measure. This data is used to calculate the Estimated Simple Payback at the project level (see Column T of the "Funding Input and Summary" sheet). This field is required in order to calculate simple payback, which is calculated based on estimated cost, as well as savings. For evaluated custom program, measure cost should include program costs.
Z	Actual Measure Cost ($)	The final measure cost (equipment and labor) to install the measure. For evaluated custom program, measure cost should include program costs.

Column	Field	Definition
AA	**Estimated SITE Savings (kWh)**	The estimated annual SITE (not busbar) energy savings (kWh) to be achieved from the installation of this custom program measure. This data is used to calculate the Estimated Simple Payback at the project level (see Column T of the "Funding Input and Summary" sheet).
AB	**Actual SITE Savings (kWh)**	The verified annual SITE (not busbar) energy savings (kWh) achieved from the installation of this custom program measure. Note: The busbar energy savings will be calculated within the calculator.
AC	**Optional: Estimated Annual Non-Energy Benefits ($/Year)**	Enter the estimated value of non-energy benefits. These may include water savings or gas savings. This data impacts the calculation of the program-level B/C ratio (not the calculation of the BPA Reimbursement ($)).
AD	**Optional: Actual Annual Non-Energy Benefits ($/Year)**	Enter the actual value of non-energy benefits. These may include water savings or gas savings. This data impacts the calculation of the program-level B/C ratio (not the calculation of the BPA Reimbursement ($)).
AE	**Optional: Estimated Annual O&M Change ($/Year)**	This column is for reporting the estimated change in annual O&M cost (if any) resulting from the installation of this measure. If the change in O&M cost is periodic (e.g. occurs once every three years), the value entered should be an average annual amount over the pre-assigned life of the measure. A "savings" (reduction) in annual O&M cost should be reported as a negative (-) dollar amount and will be treated as a "benefit" in the B/C ratio calculation. An increase in annual O&M cost should be reported as a positive (+) dollar amount and will be treated as a "cost" in the B/C ratio calculation.
AF	**Optional: Actual Annual O&M Change ($/Year)**	This column is for reporting the actual change in annual O&M cost (if any) resulting from the installation of this measure. If the change in O&M cost is periodic (e.g. occurs once every three years), the value entered should be an average annual amount over the pre-assigned life of the measure. A "savings" (reduction) in annual O&M cost should be reported as a negative (-) dollar amount and will be treated as a "benefit" in the B/C ratio calculation. An increase in annual O&M cost should be reported as a positive (+) dollar amount and will be treated as a "cost" in the B/C ratio calculation.
AG	**Measure Based Eligible Reimbursement Rate ($/kWh)**	This column is for reporting the reimbursement rate by TAP.

Calculated Fields

Please note that the measure level calculation are performed on the Measure and Project Input tab, and the program-level calculations, which often roll-up measure level results, are done on the Funding Input and Summary tab.

Column	Field	Definition
A	Technology/Activity/Practice (TAP)	Technology/Activity/Practice is displayed based upon the RefNo entered in column W.
Estimated Calculations		
AH	Present Value of O&M Change	This formula uses the Present Value (PV) function in Excel with a 5% Discount Rate, the Measure Life (BB), and the Estimated Annual O&M Change (AE). [Note: Formula includes a (-1) multiplier.]
AI	Estimated – Total Costs	Sum of Estimated Measure Costs (Y) and Present Value of Estimated Annual O&M Change (AH), if O&M change is a positive value.
Actual Calculations		
AJ	Actual - B/C Ratio (Measure Level)	Total PV of Benefits (AP) / Total Costs (AQ).
AK	Calculated Reimbursement ($)	Calculated BPA reimbursement at the measure level (before project-cost caps). Equal to the Measure Based Eligible Reimbursement Rate (AG) multiplied by the Actual – Busbar kWh Savings (AL).
AL	Actual - Busbar kWh Savings	Total savings at busbar. Equal to the Actual Site kWh Savings (AB) multiplied times the Busbar factor. [Note: the Busbar Factor is 1.09056.]
AM	Present Value of Energy Savings	Avoided Cost per kWh Saved (AS) x Busbar kWh Savings (AL).
AN	Present Value of Non-Energy Benefits	This formula uses the Present Value (PV) function in Excel with a 5% Discount Rate, the Measure Life (BD), and the Annual Non-Energy Benefits (AD). [Note: formula includes a (-1) multiplier as part of the PV formula in excel.]
AO	Present Value of O&M Change	This formula uses the Present Value (PV) function in Excel with a 5% Discount Rate, the Measure Life (BD), and the Annual O&M Change (AF). [Note: Formula includes a (-1) multiplier.]
AP	Actual - Total Present Value of Benefits	Equal to Present Value of Energy Savings (AM) + Present Value of Non-Energy Benefits (AN) + Present Value of O&M Change (AO). If the Annual O&M Change (AF) is less than $0, then the Present Value of O&M Change (AO) is changed from a negative value to a positive value and is added to the total. [Note: If a measure reduces O&M costs, then the Present Value of O&M Change is treated as a "benefit."]
AQ	Actual - Total Costs	Equal to Actual Measure Cost (Z) + Present Value of O&M Change (AO). However, if the Annual O&M Change (AF) is less than $0, then the Total Costs (AQ) is simply = Actual Measure Cost (Z). [Note: If a measure increases O&M costs, then the Present Value of O&M Change is treated as a "cost."]
AR	Annual Energy Cost Savings	Equal to Actual SITE Savings (kWh) (AB) x avoided cost/kWh (AS).
AS	Avoided Cost per kWh Saved	Avoided cost per kWh saved.
AT	Simple payback calc	Dollar value of the savings. Used in calculating project simple payback.

Column	Field	Definition
Data Pulled from Measure Identifier		
AX	**Sector**	Pulled from column C of "Measure_List."
AY	**End Use**	Pulled from column D of "Measure_List."
AZ	**Category**	Pulled from column E of "Measure_List."
BA	**Technology/ Activity/ Practice**	Pulled from column F of "Measure_List."
BB	**Lost Opportunity Type**	Pulled from column B of "Measure_List."
BC	**Default Load Shape**	Pulled from column G of "Measure_List."
BD	**Default Measure Life**	Pulled from column H of "Measure_List."
Error Fields		
BI	**Refno Check 1 = Error**	Displays if an invalid measure RefNo (Column W) has been entered.
BJ	**Sector Check 1 = Error**	Displays if the sector of the selected measure RefNo does not match the sector of other measures within the project.
BK	**Resource Opp Check 1 = Error**	Displays if the sector of the selected measure RefNo does not match the resource opportunity type of other measures within the project.
BL	**Project Start Date 1 = Error**	Displays if the project start date (M) has not been entered for the measure.
BM	**Different Date 1 = Error**	Displays if the project start date (M) varies for measures within a single project.
BN	**Sector or Date Error**	Displays if sector or project start date is not applicable to the non-standard agreement. Column AG will show "NA" if incorrect sector or date is entered.
BO	**Zero Savings or Cost Warning**	Displays if Estimated Measure Cost ($), Actual Measure Cost ($), Estimated SITE Savings (kWh), or Actual SITE Savings (kWh) are zero for the measure.

Reference Fields

Primary Building Use
Anchor Retail
Assembly
Big Box Retail
Dairy
High End Retail
Hospital
Industrial Facility
K-12 School
Large Office
Lodging
Medium Office
MiniMart
Multifamily
Non building measure
Non building measure (Motors)
Other
OtherHealth
Potato/Onion Shed
Restaurant
Small Box Retail
Small Office
Supermarket
University
Warehouse
Winery

Secondary Building Use
Anchor Retail
Assembly
Big Box Retail
High End Retail
Hospital
K-12 School
Large Office
Lodging
Medium Office
MiniMart
Multifamily
Non building measure
Other
OtherHealth
Restaurant
Small Box Retail
Small Office
Supermarket
University
Warehouse

Process Type
Chemical Processing
Cold Storage
Data Center
Food Processing
Generic Plant with One Shift
Generic Plant with Three Shifts
Generic Plant with Two Shifts
Lumber and Wood Products
Mining
Municipal Water
All Non-DSI Industrial
Non-DSI Primary Metals
Petroleum Refining
Primary Aluminum Smelting
Pulp and Paper
Transportation
Waste Water

Funding Input and Summary tab Instructions

The "Funding Input and Summary" tab rolls up measure-level data from the "Measure and Project Input" tab to project level data. The main purpose of the tab is to identify the funding source used for each program.

Column	Field	Definition
Input Fields		
A	**Utility-Assigned Project ID**	Populated from column P in "Measure and Project Input" tab. Utility-assigned Project ID is used to sum all measures/values from the "Measure and Project Input" tab for a single project.
B	**Project Name**	Populated from column O in "Measure and Project Input" tab, if filled in.
C	**Reportable to BPA (Yes/No)**	Indicate whether or not the project is reportable to BPA. Refer to the Implementation Manual for definitions of reportable projects.
D	**Percentage EEI Funding**	Enter the percentage of the total available BPA reimbursement that you are requesting in EEI from BPA. The percentage entered in this cell will calculate the Requested BPA Reimbursement – EEI in column T. Changing this percentage will change the amount of EEI you receive from BPA. The user may input the required precision to achieve the resulting reimbursement requested (i.e., can input multiple digits after the decimal to conduct the calculation). Percentage of EEI is now required to determine the funding source of the project.
E	**Total Project Payment to End User**	Required for all industrial projects and for all projects after February 1, 2013 when you request a reimbursement amount from BPA that is less than the maximum BPA reimbursement. Check Column G to determine whether or not this is required. Enter total payment to the end user. This field is required for industrial projects to ensure that 100% of the EEI reimbursement is passed through to the end user, per the Implementation Manual requirement. For evaluated custom programs, include program costs in payments to end user.
Calaculated Fields		
G	**Total payment to end user (Column E) required?**	Calculated field: This column will show "Required" if the total payment to end user is required for the project.
I	**Any Errors?**	Will display whether any errors are occurring in columns AH through AU. If "Yes," check AH – AU to identify the source of the error.
J	**Percentage of funds not requested from BPA**	Percentage of funds not requested through EEI. Equal to 100% minus Percentage EEI Funding (column D).
K	**Total Actual Site Savings (kWh)**	Sum of total savings for all measures in a project. Sum of Actual Site savings ("Measure and Project Input" column AB).
K	**Total Actual Site Savings (kWh)**	Sum of total savings for all measures in a project. Sum of Actual Site savings ("Measure and Project Input" column AB).
L	**Total Actual Project Busbar Savings (kWh)**	Sum of total savings at busbar for all measures in a project. Sum of Actual – Busbar kWh Savings ("Measure and Project Input" column AL).
M	**EEI Funded Savings**	EEI-funded savings. Equal to Total Actual Project Busbar Savings (L) minus the Self-funded Savings (N).
N	**Self-funded Savings**	Self-funded savings. Equal to Total Actual Project Busbar Savings (L) times the Self-funding allocated kWh (%) (O).

Column	Field	Definition
O	**Self-funding Allocated kWh (%)**	Percent of total kWh allocated to self-funding. Refer to Funding Sources and Savings Allocation in the Implementation Manual for the calculation methodology.
P	**Non-Reportable Savings**	Non BPA-funded activities that are indicated as non-reportable in column B. Equal to Total Actual Project Busbar Savings (L) if C = "Yes". Customers are allowed, but not required, to include non-reportable savings to BPA.
Q	**Sum of Present Value of Project Benefits ($)**	Sum of present value of project benefits for all measures for the project. Equal to the sum of "Measure and Project Input" Actual – Total Present Value of Benefits (AP) for all measures in project.
R	**Sum of Project Costs ($)**	Sum of measure costs for project. Equal to the sum of "Measure and Project Input" Actual Measure Cost (Z) for all measures in project.
S	**Sum of Total Project Costs ($)**	Sum of total measure costs for project, including O&M costs if applicable. Equal to the sum of "Measure and Project Input" Actual - Total Costs (AQ) for all measures in project.
T	**Project B/C Ratio**	Benefit cost ratio. Equal to the Sum of Present Value of Project Benefits (Q) divided by the Sum of Total Project Costs (S).
U	**Project Cost Cap ($)**	Cap for project reimbursement based on custom project caps. Typically 70%; see the Custom Programs and Projects section of the EE Implementation Manual for project cost cap requirements.
V	**Sum of Measure Level Reimbursement ($)**	Equal to the sum of "Measure and Project Input" Calculated Reimbursement (AK) for all measures in a project.
W	**Maximum Project BPA Reimbursement ($)**	Maximum eligible BPA reimbursement. Equal to the lesser of Sum of Measure Level Reimbursement (V) and Project Cost Cap (U).
X	**Requested BPA Reimbursement EEI ($)**	Total requested BPA reimbursement. Equal to Maximum Project BPA Reimbursement multiplied times the minimum of 100% or Percentage EEI Funding (D).
Y	**Adjusted Project BPA Reimbursement ($)**	The adjusted BPA reimbursement. For programs where Total Payment to End User is required (E), equal to the lesser of the Total Payment to End User (E) or the Requested BPA Reimbursement – EEI (X). For projects where Total Payment to End User is NOT required (E), equal to the Requested BPA Reimbursement – EEI (X).
Z	**Estimated Simple Payback (years)**	Estimated project simple payback. Equal to the sum of estimated total costs divided by the estimated savings times the retail rate.
AA	**Actual Simple Payback (years)**	Actual project simple payback. Equal to the sum of actual total costs divided by the actual savings times the retail rate.

Column	Field	Definition
Errors		
AH	**Error: Requested EEI Percentage Exceeds 100% or is less than 0%**	Displays if D > 100%, or less than 0%.
AI	**Must insert payment to End User**	Displays if G = "Required" and E (Total Project Payment to End User) is blank.
AJ	**Invalid Refno in Measure Input Tab**	Displays if an invalid Refno has been entered in the Measure and Project Input tab for one or more measures within a project (Check Measure and Project Input Errors to identify which measure).
AK	**Must input "Reportable" or "EEI %"**	Displays if non-reportable (C) has been left blank or Percentage EEI Funding (D) has been left blank.
AL	**Utility Retail Rate is required**	Displays if the Utility Retail Rate (Measure and Project Input B) is not entered.
AM	**Measure Refnos do not match Resource Opportunity Type**	Displays if the Resource Opportunity Type of one or more of the measure Refnos (from Measure List B) do not match the Resource Opportunity Type for the project (Measure and Project Input Q). (Check Measure and Project Input Errors to identify which measure).
AO	**Must Enter Project Start Date for Each Measure within Project**	Displays if the project start date (Measure and Project Input M) has not been entered for a measure within that project. (Check Measure and Project Input Errors to identify which measure).
AP	**Project Dates Differ within Single Project in Measure Input Tab**	Displays if the project start date (Measure and Project Input M) and completion date of project (Measure and Project Input N) vary for measures within a single project. (Check Measure and Project Input Errors to identify which measure).
AQ	**Must Enter Actual Measure Cost in Measure Input Tab**	Displays if actual measure cost (Measure and Project Input AQ) has not been entered.
AR	**Must Enter Actual Measure Savings in Measure Input Tab**	Displays if actual measure cost (Measure and Project Input AL) has not been entered.
AS	**Duplicate Project ID**	Displays if a duplicate utility-assigned project ID appears within the calculator.
AT	**Project is Reportable and Less than 0.5 B/C Ratio**	Displays if project has a B/C ratio less than 0.5, and is labeled as reportable. If this error is shown, simplified B/C ratio (column F) is required.
AU	**Dates or Sector Chosen Not Applicable**	ONLY APPLICABLE TO OPTION 2 UTILITIES. Displays whether project start day or sector is not applicable to a utility's non-standard agreement.

Measure List Instructions

The "Measure_List" tab includes all measure reference numbers for all sectors, end uses, categories, and technology/activity/practice (TAP). The measure list for Custom Programs is identical to the measure list for Custom Projects, except for the following measures which are only applicable to custom programs:

1. CWBWB82101 – Commercial, whole building, meter level system improvements, energy management systems controls
2. CWBWB92101 – Residential, whole building, meter level system improvements, behavioral
3. RWBWB81001 – Commercial, whole building, meter level system improvements, energy management systems controls
4. RWBWB91001 – Residential, whole building, meter level system improvements, behavioral