



eProjectBuilder

User Guide: Analysis & Reporting Feature

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

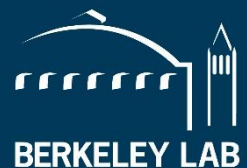


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Introduction

The Analysis & Reporting feature allows registered eProject Builder users to generate pre-set or customized reports on their portfolio of projects, and download resulting tables and graphs. There are an almost infinite number of ways you can combine data fields and generate simple reports using the Analysis & Reporting feature.

Shortcuts to Using this Feature:

- For tips on how to configure and run your own reports, see the "Report Builder" section of this document.
- To get started generating example reports quickly, see the "Report Library" section.
- To see advanced functions, view "Appendix: Advanced Functions" at the end of this document."

Note that projects must be in "Approved" status before they are available for reporting in this feature. Don't have any approved projects? Request an account for the ePB training site on the ePB website (eprojectbuilder.lbl.gov) and explore the feature with example projects!

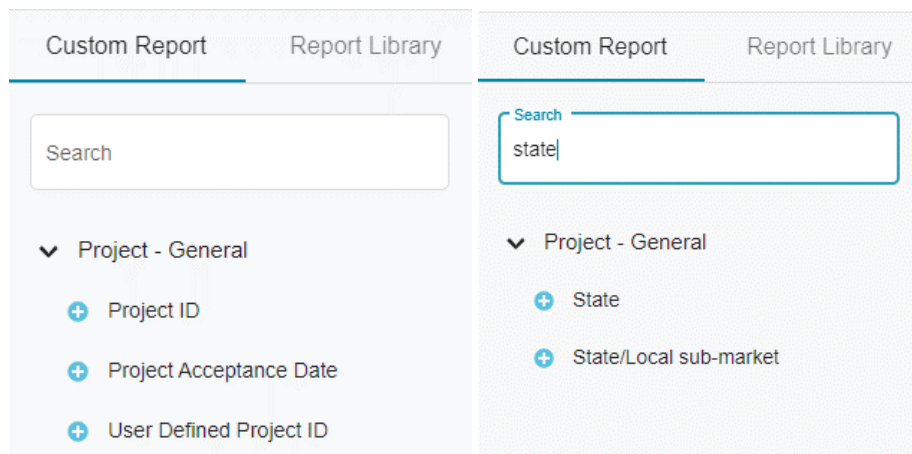
Report Builder

The Report Builder function allows you to create simple custom reports for your portfolio of projects. You can create reports that draw on almost all of the data fields available in ePB, from project contact information to guaranteed savings to M&V results. You may need to experiment a bit to achieve your desired report result.

The steps below provide information on how to create a custom report.

Step 1. Find the fields you wish to add to your report

In the "Custom Report" tab, explore the full list of fields available by expanding one of the categories or using the search box. The screenshots below show the empty search box (left side of image), and what happens when you start typing in the search box (right side of image)



- 🔍 Make sure to clear the search terms from the search box when you are done with a particular field; otherwise the list will continue to only show fields that contain the displayed search term.
- 🔍 When using the search box, note that the relevant categories are in drop-down mode (their arrows will point downwards) and only fields that contain the search term are displayed.
- 🔍 The fields you see available in the A&R feature may vary slightly depending on whether you have ePB projects only, ePX projects only, or a mix of ePB and ePX projects, as the fields for these two different project types vary.
- 🔍 Keep in mind that though the majority of ePB/ePX data fields are available in the A&R feature, not all of them are available.

Step 2. Choose the desired aggregation type

Once you have identified the first field you wish to include in your report, click the blue + button to add it to your report. Two options will appear: "Analyze By" and "Filter By."

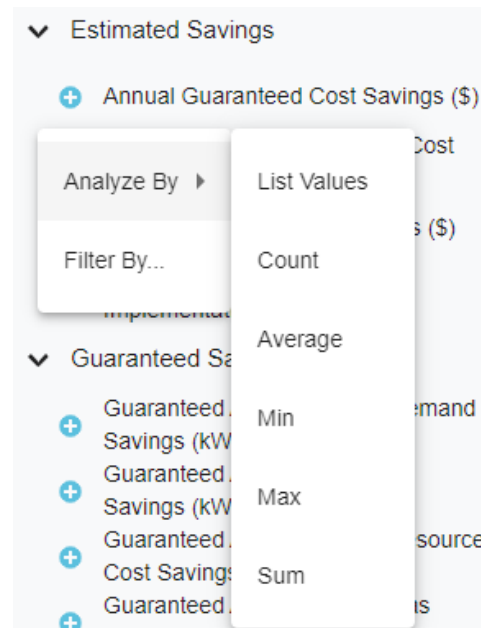
Analyze By

Hovering over the "Analyze By" option will display the different analysis types available for that field. Categorical or text fields have a more limited set of analysis options as compared to numerical fields. The screenshot below shows the "Analyze By" options for numerical fields.

Possible analysis you can apply to a field includes:

- List Values: Lists the value entries for a given field for each project in your portfolio.
- Count: Counts the number of (populated) values for a given field in your portfolio.
- Average: Averages the values for your portfolio for a given field.*
- Min: Reports the minimum value of a field for your portfolio.*
- Max: Reports the maximum value of a field for your portfolio.*
- Sum: Sums the values for your portfolio for a given field.*

*Available for numerical fields only.



Fields that are associated with a performance year (e.g. estimated annual cost savings) also have a "List Values by Performance Year" option, which performs the same function as the "List Values" option but also adds the Performance Year field into the report.

Filter By

You can apply a filter to your report by clicking the “Filter By” option on a given field. You can apply filters to all field types – whether categorical, text, or numerical.

This function will filter your report results by the conditions that you have applied in the filter. The two screenshots below show examples of filtering for a categorical field (Project Agreement Type) as well as a numerical field (Total Project Implementation Price – excluding financing).

Filter by Project Agreement Type

IS ▾

- Guaranteed Savings
- Build-own-operate/Chauffage
- Shared Savings
- Direct-Funded
- Design/build/fee-for-service/fixed price
- PPA
- UESC
- ESAs
- Other

✓ OK ✕ Cancel

Filter by Total Project Implem. Price (excl. financing)

> ▾ 1,000,000

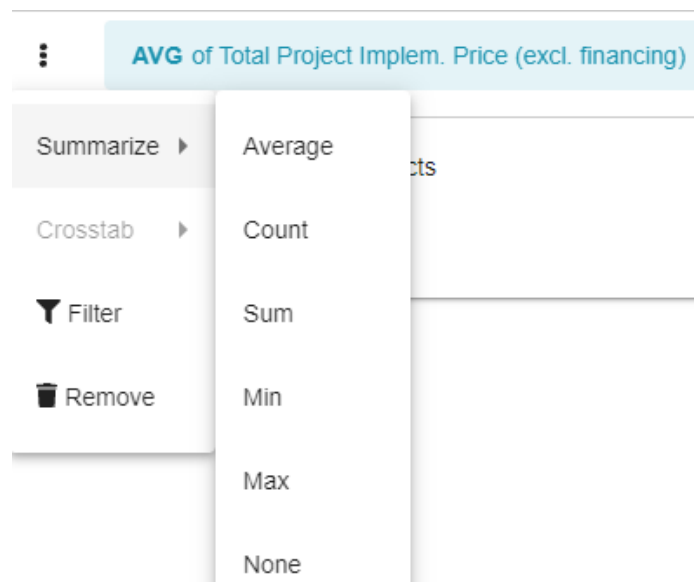
✓ OK ✕ Cancel

Step 3. Ensure the report is configured as desired in the Report Builder

Once you have chosen the fields for your report and have applied the appropriate analysis and/or filters, all fields will appear in the Report Builder, with the relevant filters or analysis indicated in the field name (see the screenshot below, which shows the relevant report fields, as well as any applied analysis and a filter applied to the “project agreement type” field).

⋮	ECM Tech. Category	
⋮	AVG of Total Project Implem. Price (excl. financing)	
⋮	AVG of Proj. Estim. Energy Savings Total	
⋮	Project Agreement Type	IS Guaranteed Savings, UESC

If you wish to make changes to the analysis (e.g. switch from 'average' to 'sum') or revise or remove a filter, click the action menu (three dots) to the left of the field in the Report Builder and make the desired revisions. See the screenshot below, which displays the options from the action menu. You can revise the analysis type, apply a filter, or remove the field from the Report Builder. Additionally, in some instances you can apply a crosstab (see Appendix: Advanced Features for more information on this functionality).



Step 4. Run report

Click the "Run Report" button to generate a table with your results.

Run Report

The image on the next page shows an example of how analysis results display on screen.

ECM Tech. Category	AVG of Total Project Implem. Price (excl. financing)	AVG of Proj. Estim. Energy Savings Total
Electric Motors and Drives	\$11,780,919.34	60,591
Renewable Energy Systems	\$8,267,615.00	48,724
Appliance/Plug load reductions	\$7,777,013.90	59,865
Heating, Ventilating, and Air Conditioning	\$8,065,512.06	29,906
Building Automation Systems/Energy Management Control Systems	\$10,508,708.18	58,044
Commissioning	\$13,358,538.56	20,726
Future/Other ECMs	\$5,978,967.48	35,319
Chilled Water, Hot Water, and Steam Distribution Systems	\$13,358,538.56	20,726

After generating your report in a table format, you can choose to convert your results into a plot by clicking "Plot." Choose the desired plot type (bar, pie, scatter, line, and area), as shown in the first screenshot on the next page.

Next, identify the fields from your report that should appear along the X and Y axes. You can choose multiple X axis fields, if desired. The report will then generate. The second screenshot on the next page shows an example of field selections and the resulting plot.

Table
Plot

Bar Chart
 Pie Chart
 Scatter Plot
 Line Chart
 Area Chart

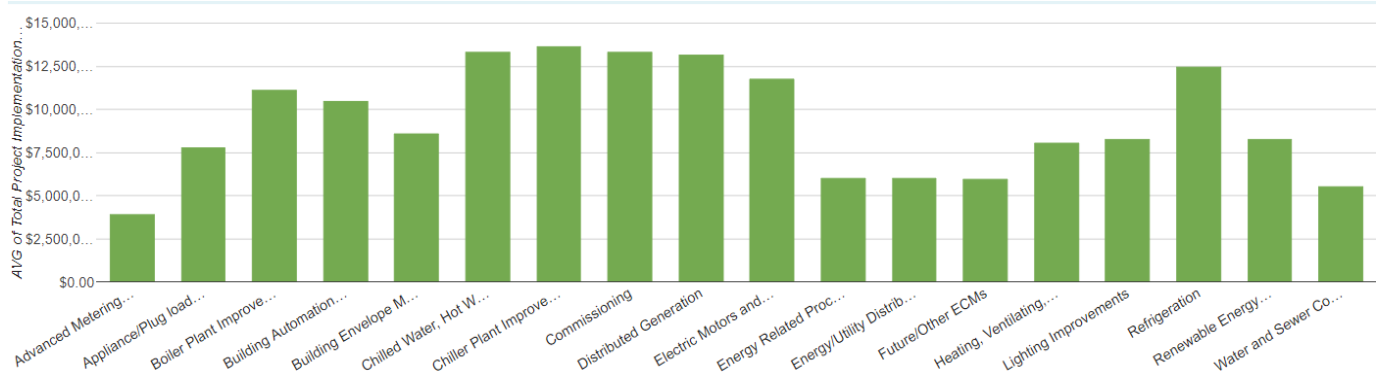
X Axis

Y Axis

Plot Type
 Bar Chart

X Axis
 ECM Technology Category/Project Measures

Y Axis
 AVG of Total Project Implementation Price/Cost (\$)



Step 5. Export report

Export your report results by clicking the “Export Results” button. You can download your table results into an .xls or .csv file, or download your plot as a .png file. Note that in order to download a .png file, you first must create a plot for your report.

[Export Results](#)

Step 6. Save report

You may save any custom report you create in the Report Builder so that it appears in the Report Library (explained in greater detail in the next section). This allows you to generate the same report in the future – populated with the latest data from your portfolio of projects. To save a report, click the “Save Report” button.

[Save Report](#)

This will prompt you to provide a report name and description. (See screenshot below).

Report Name and Description

Name

Description

Average implementation price and average total energy savings ECM technology category.

✓ OK
✕ Cancel

Your saved report will be available in the A&R module the next time you log in to the system. You can access these reports by clicking the "Report Library" tab and looking under the "My Saved Reports" section.

Report Library

The Report Library provides an easy introduction to the Analysis & Reporting feature. It contains a number of pre-configured sample reports that you can choose from under the "Standardized Reports" section. To run a report, simply click the "+" sign next to the report name and choose "Run this report."

Analysis and Reporting

Custom Report | **Report Library**

Standardized Reports

- Project Name, Award Date, Performance Period
- State - Mv Option Crosstab
- Standardized Report 4
- Count of ECM Tech Category - Pie Chart
- Average Escalation Rate by Project
- Standardized Report 3
- State, City, Project, Delivery and Guar Savings
- Project Agreement Type - Pie Chart
- Min, Max, Average Implementation - Market Segment

Custom Report Builder

Export Results

Project Name, Award Date, Performance Period Prebuilt ePB Query...

Table Plot

Project Name	Project Award Date	Performance Period	Project Interest Rate	ESCO Company Name
Test Project #1	2017-09-30	5	4.00%	P1 ESCO Institution
Test Project #2	2017-09-30	21	4.00%	P1 ESCO Institution
Test Project #3	2017-09-30	16	3.14%	P1 ESCO Institution
Test Project #4	2017-09-30	18	4.83%	P1 ESCO Institution

The Standardized Reports also contain the option to "Edit as New Report." This enables you to start with a pre-configured report and customize it for your own needs. Starting with a standardized report and then adding customizations can be a helpful way to become acquainted with the capabilities of the Analysis & Reporting feature can do. You can save an edited report as described in the previous section.

The Report Library also contains a "My Saved Reports" section, which contains all of your custom saved reports – whether you built it from scratch as a custom report, or chose to edit a standardized report.

Please see the appendix for information about more advanced functions.

Appendix: Advanced Functions

The new ePB Analysis and Reporting feature has two advanced functions, which are summarized below.

1. Calculated Field: This functionality allows you to create a custom calculated field based on other ePB fields. This could be helpful if you wish to analyze your project savings relative to baseline, or savings per square foot, as an example.

To use this feature:

1. Make sure that you have added the fields you want to use to calculate your new, custom field to the Report Builder. For example, in order to create a new field that captured the guaranteed cost savings per square foot, two fields must be added to the Report Builder from the list of fields: (1) Total guaranteed cost savings, and (2) total floor area of project.
2. Click the “Add a Calculated Field” button. This will prompt a pop up window to appear. (See screenshot below).

3. Choose the relevant fields from the dropdown list. (The dropdown list is populated with every field that has been added to the Report Builder).
4. Apply the appropriate operation (in this case, division). In the example above, total project guaranteed cost savings has been divided by square footage.
5. Give your new field a name. In this example, the new field is named “Guaranteed Cost Savings per Square Foot.”
6. Click the “OK” button.

7. Observe that your new field has been included in your report.

⋮	Total Floor Area of project
⋮	Total Guaranteed Cost Savings
⋮	📊 Guaranteed Cost Savings per Square Foot

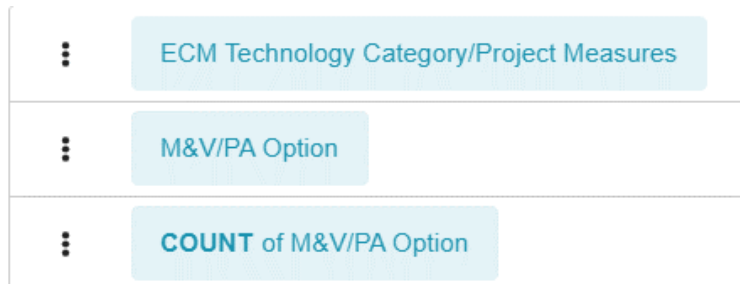
- 🔍 The relevant fields must first be included in the Report Builder before they are available in the dropdown list on the "Add a Calculated Field" pop up window.
- 🔍 If you do not have data for any projects in a field you try to perform an operation on, the new field will not work and/or the results may not be accurate. It is recommended that you first choose "List Values" to see whether you have data for the fields you are including in your new calculated field.

2. "Crosstab" functionality: There may be instances where you want a more complex than is described in the "Report Builder" section above. For example, you may wish to view a count of M&V Option by ECM technology category in a table format. In order for an ePB field to display horizontally across various columns at the top of a table (rather than just appear vertically), you must use the "Crosstab" functionality. The crosstab functionality generally works best when you wish to examine two categorical variables.

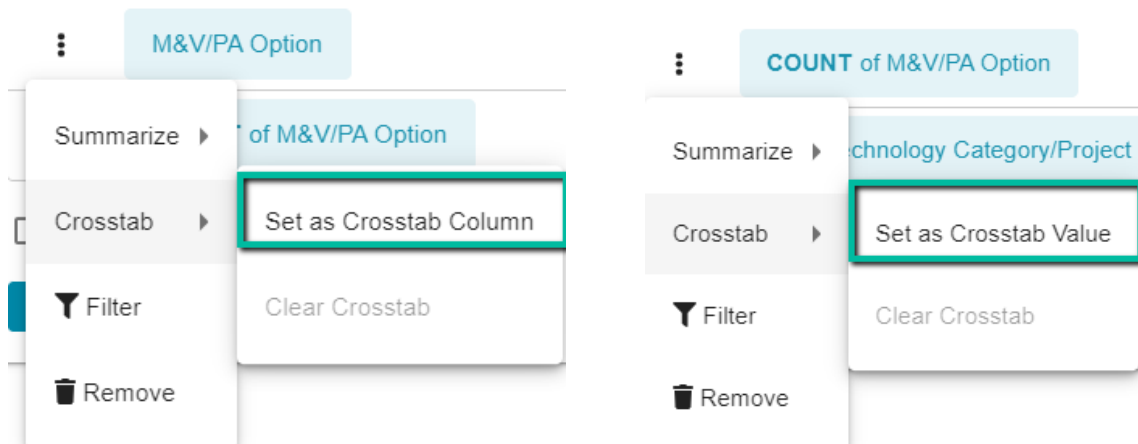
To use this functionality:

1. Identify which fields are relevant for your report.
2. Identify which field you would like to display as rows, and which field you want to display as columns. In this example, imagine you want to list "ECM Technology Category" as rows on the left-hand side of the table, and "M&V/PA Option" across the top as columns.
3. To obtain the desired format:
 - Choose "ECM Technology Category" from the fields list and select "List Values." This will ensure that this field will display vertically as rows within a single column on the left-hand side of the table.
 - Choose "M&V/PA Option" from the fields list and select "List Values."
 - Choose "M&V/PA Option" from the fields list and select "Count."

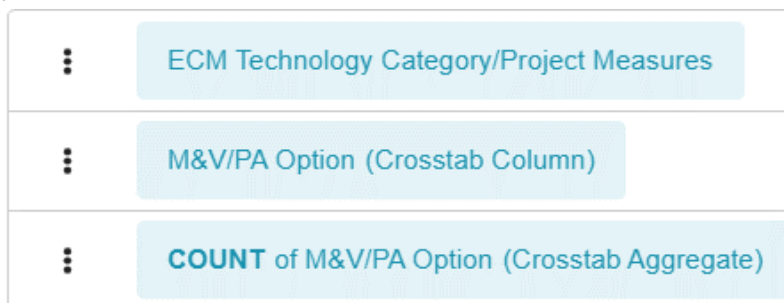
The screenshot below shows two “M&V/PA Option” fields with different aggregation types in the Report Builder.



4. Because the “M&V/PA Option” field has been added to the Report Builder twice (once as “List Values” and once as “Count” as the analysis type), the Crosstab functionality is now available on the action menu.
5. For the “M&V/PA Option” field that has “list values” as the analysis type, choose “Set as crosstab column.” For the “M&V/PA Option” field that has “count” as the analysis type, choose “Set as crosstab value.” See the screenshot below.



The fields in the Report Builder will now indicate which fields have the crosstab applied. See the screenshot below.



6. Now that you have set up your crosstab, click "Run Report." You can see that the table below now shows the ECM Technology category options on the left-hand side, the M&V Options across the top row, and a count of each incidence/combination of these within the body of the table.

ECM Technology Category/Project Measures	Option A	Option B	Option C	Option D	RCx	O&M	O&M and RCx	Other
Boiler Plant Improvements	4	3		3				
Chiller Plant Improvements		2			7		2	
Building Automation Systems/Energy ...			6					
Heating, Ventilating, and Air Condition...			6			1		
Lighting Improvements		1		4				
Building Envelope Modifications	4							
Chilled Water, Hot Water, and Steam ...					5			
Electric Motors and Drives	5							