



BUILD

Building Initiative for Low-Emissions Development Program

BUILD Geographic Information System (GIS) Tool User Guide

Disclaimer: The BUILD GIS Tool is available for informational purposes only and shall not to be used for BUILD eligibility screening, determinations, or claims thereof. It has been created by the California Energy Commission (CEC) based on publicly available data. The CEC does not guarantee the accuracy of the Tool or data contained therein and is not responsible for any misuse or misrepresentation of the Tool or data contained therein. All BUILD program eligibility determinations will be made by CEC pursuant to applicable program requirements, including program guidelines.



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INTRODUCTION

The California Energy Commission (CEC) administers the [Building Initiative for Low-Emissions Development \(BUILD\) Program](#). The BUILD Program provides incentives for the deployment of near-zero-emission building technologies in low-income residential buildings that reduce greenhouse gas (GHG) emissions significantly beyond what otherwise would be expected to result from the implementation of the prescriptive standards described in California Code of Regulations, Title 24, Part 6 (California Energy Code).

BUILD encourages adoption of clean energy technologies in affordable housing developments, thereby improving access to clean energy for low-income Californians. BUILD is designed to support market transformation toward building decarbonization by reducing the up-front costs and perceived risk of adopting new technologies, in the challenging and complex affordable and low-income new housing sector.

The BUILD team developed this GIS tool to facilitate public access to BUILD program application and census tract data. The tool allows users to query metrics for existing BUILD projects and other property locations. For complete details on program eligibility, incentives, required documentation downloadable forms, and the terms and conditions of program participation, including the BUILD Program Guidelines, please consult the [BUILD webpage](#).

All potential applicants are encouraged to request technical assistance for support in submitting incentive applications and in their project design. To request technical assistance please contact the BUILD Technical Assistance Provider, the Association for Energy Affordability, at BUILD@aea.us.org. For general program questions or other issues, please contact BUILD staff at BUILD@energy.ca.gov.



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1. Summary of BUILD Application Features

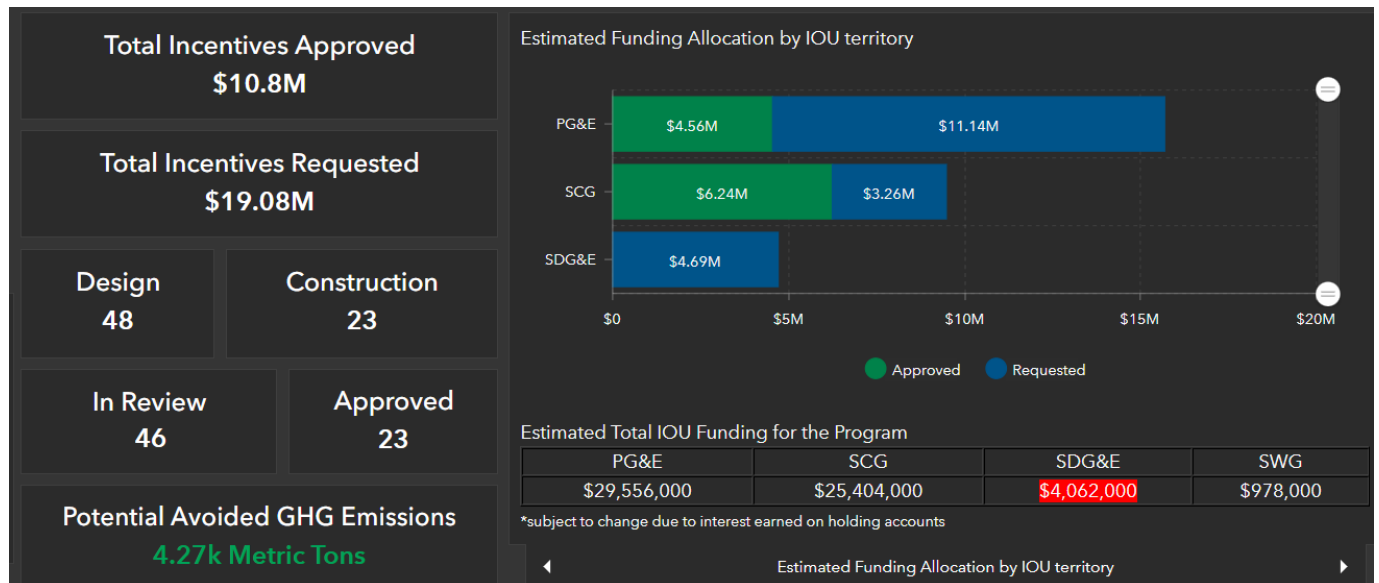
The BUILD GIS Tool has a range of features and functions to present project information, and the data visualizations help users to locate relevant project information.

1.1 Indicators and Charts

Presented below are examples of BUILD project metrics including:

- Total Incentives Approved vs Total Incentives Requested
- Application Steps (Design/Construction)
- Project Status (Under Review/Approved)
- Potential Avoided GHG Emissions

In addition, the bar/pie chart dashboards summarize statistics that indicate certain project information including: Estimated Investor-Owned Utility (IOU) funding allocation, Incentive Reservation Amounts, Potential Avoided GHG Emissions, Application Status, Eligibility, and Number of Units/Bedroom summary.





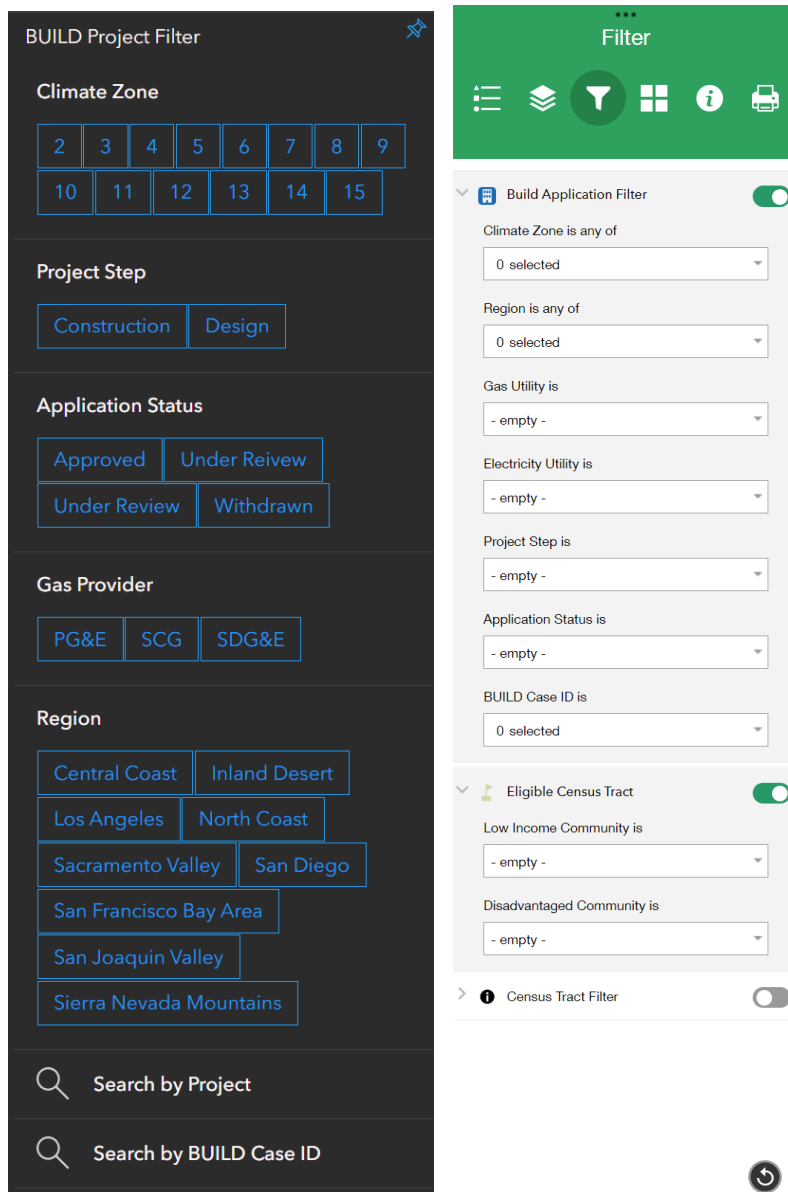
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1.2 Filter and Query Function

The BUILD GIS Tool has a variety of filters to help users interact with application data. There are two main filter widgets: The dashboard project filter and the map filter. The expandable dashboard filter on the left queries the indicators, charts, and tables while the map filter on the right controls what appears on the map.

Note: Both filters work individually, the dashboard filter doesn't make any changes to the map, and the map filter doesn't influence the indicators or charts.



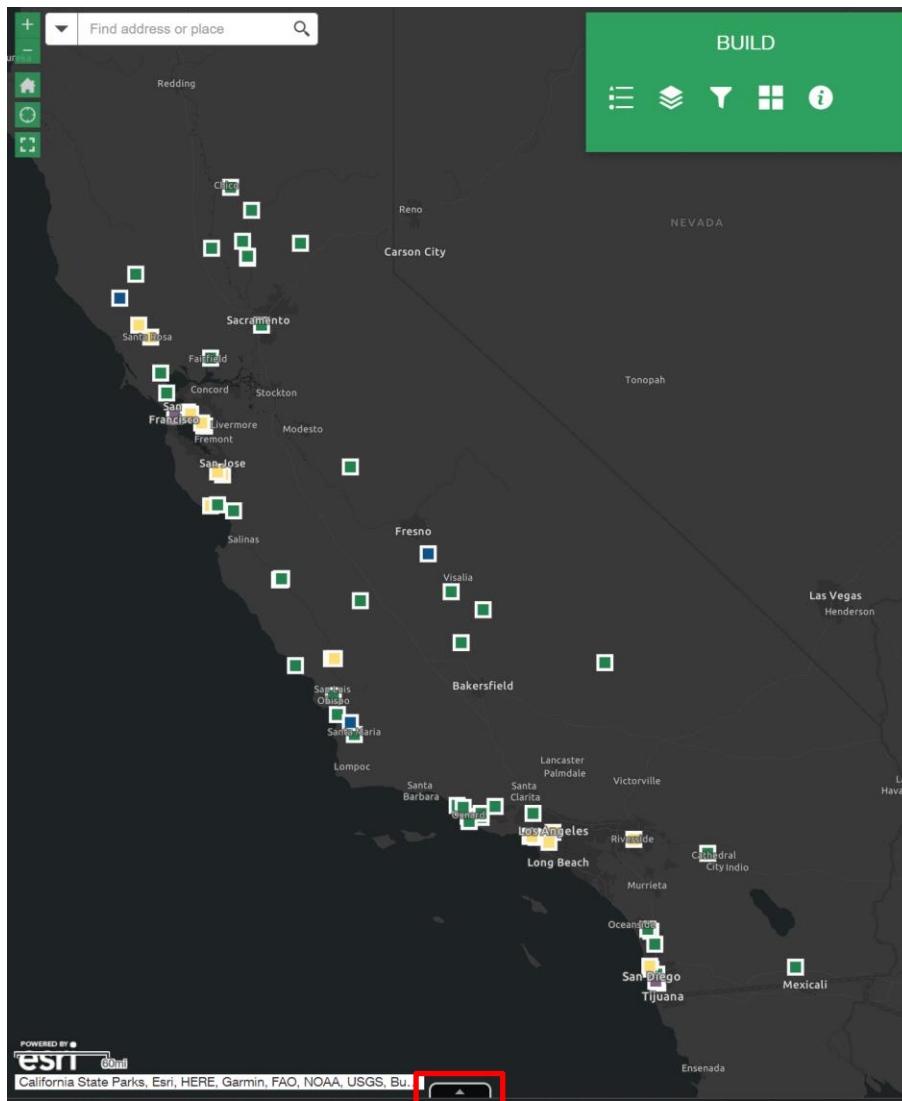


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1.3 Map and Data Extraction

The BUILD GIS dataset can be extracted to an excel spreadsheet (.csv) by using the data export function under the map. By clicking the expandable table at the bottom of the map, it reveals the map's attribute table. To export the data, click options -> export all to CSV, and the excel spreadsheet will be downloaded to your device. You can also download specific data based on the filtering results, more instructions on the filter function can be found in later sections.





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BUILD Projects

Options Filter by map extent Zoom to Clear selection Refresh

Show selected records Show related records Filter Show/Hide columns Export all to CSV

	Name	City	Zip Code	Climate Zone	Region	Low-Income Eligibility	Potential Avoided GHG Emission	Gas Utility
	Garden	Riverside	92501	10	Los Angeles	MF-Disadvantaged Community	114.40	SCG
C220245	Donner Fields Senior Apartments	Sacramento	95820	12	Sacramento Valley	MF-50% Incomes < 60% AMI	32.60	PG&E
C220246	Freedom	Watsonville	95076	3	Central Coast	MF-80% Incomes < 60% AMI		PG&E
C220255	La Avenida Apartments	Hayward	94541	4	San Francisco Bay Area	MF-80% Incomes < 60% AMI	85.27	PG&E
C220262	Kerner	San Rafael	94901	2	San Francisco Bay Area	MF-80% Incomes < 60% AMI	59.40	PG&E
C220324	Mill Street	San Luis Obispo	93401	5	Central Coast	Does Not Qualify		SCG
C220325	Vista Ballona	Los Angeles	90066	6	Los Angeles	MF-80% Incomes < 60% AMI	35.44	SCG



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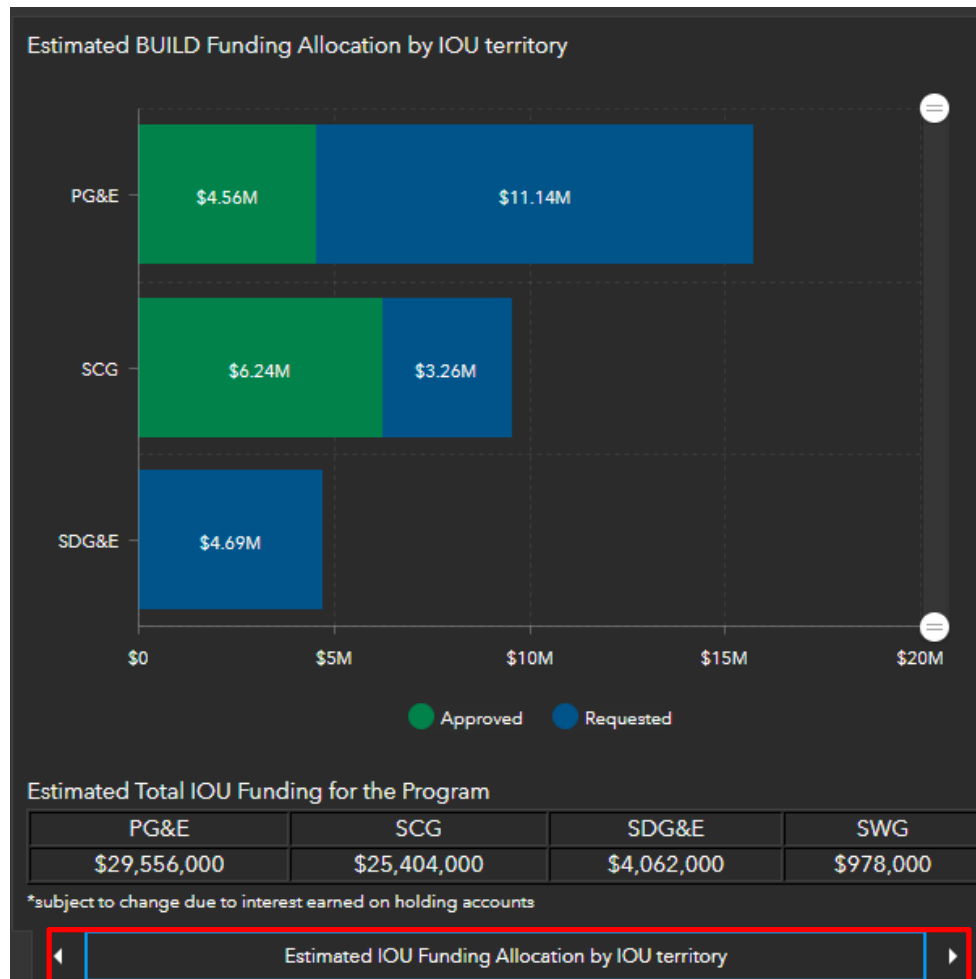
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2. BUILD Dashboard Functions

2.1 Graphs (Bar/Pie Charts)

The dashboard graphs consist of summarized BUILD project information. These graphs present relevant BUILD program statistics. In total, there are seven charts representing the Estimated Funding Allocation by IOU territory, Cumulative Incentive Reservation Amounts by Climate Zone, Cumulative Incentive Reservation Amounts by Region, Potential Avoided GHG Emission by Climate Zone, Application Status by Region, BUILD Program Low-Income Eligibility Type, Approved Number of Units by Region, and Cumulative Units/Bedrooms by Region.

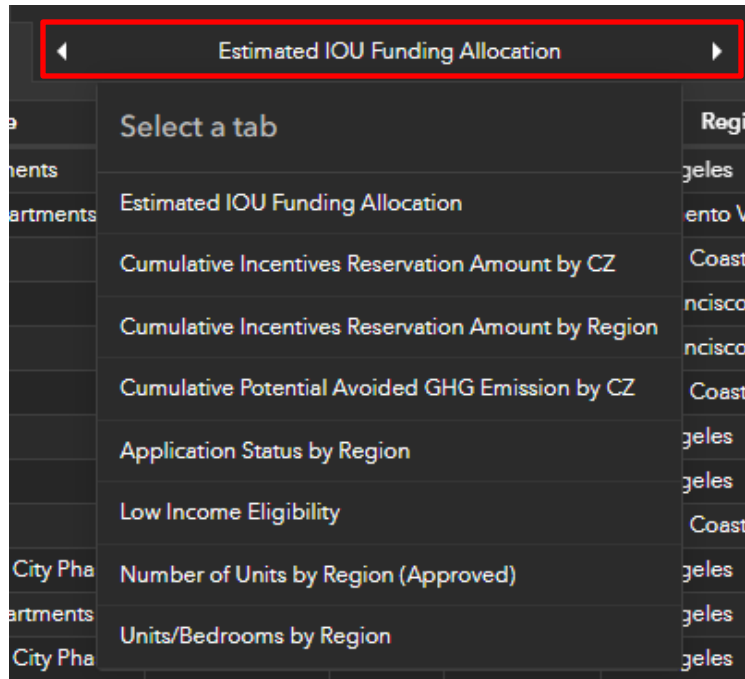
To toggle between graphs, click the left/right arrow under the graphs or use the drop-down menu to select a chart.



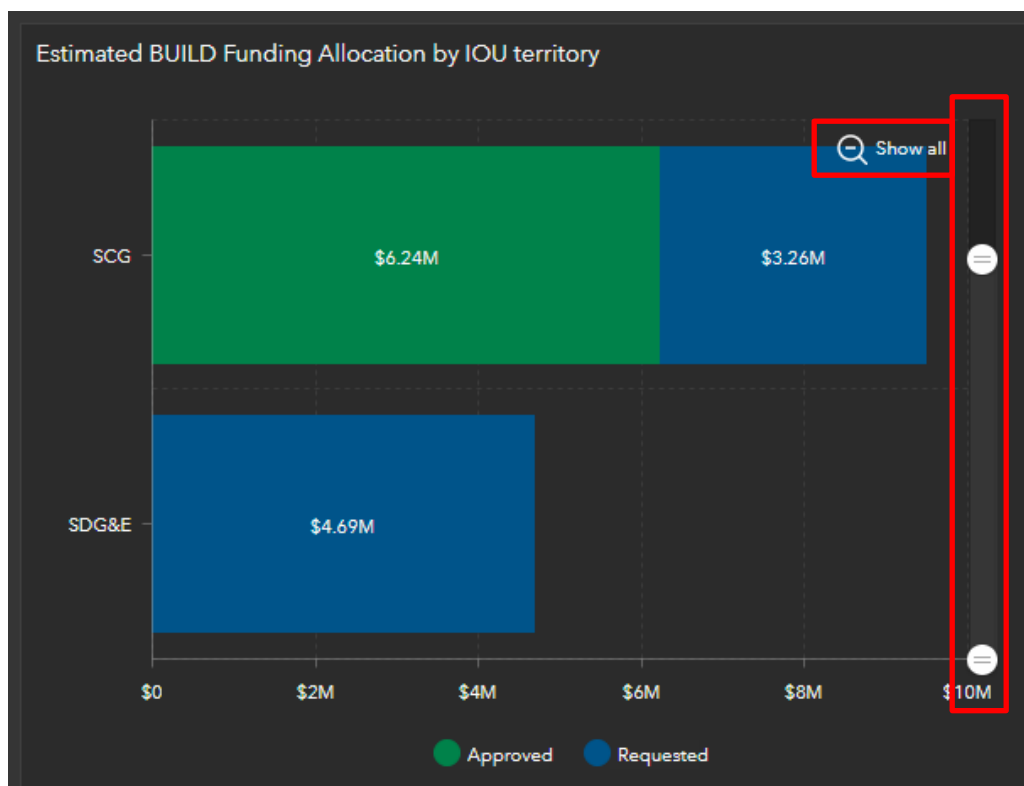


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The scroll bar on the right can help to focus on specific rows of data by narrowing down the chart. This feature will be useful for users with small window/screen size. The show all button allows user to return to the original look of the chart.





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Expandable Filter for Indicators and Graphs

BUILD Project Filter

Climate Zone

2 3 4 5 6 7 8
9 10 11 12 13 14
15

Project Step

Construction Design

Application Status

Approved Under Reivew
Under Review Withdrawn

Gas Provider

PG&E SCG SDG&E

Region

Central Coast Inland Desert
Los Angeles North Coast
Sacramento Valley San Diego
San Francisco Bay Area
San Joaquin Valley
Sierra Nevada Mountains

Search by Project

Search by BUILD Case ID

The expandable filter on the left side of the dashboard provides a range of query functions to our dataset. There are seven filters that users can toggle and filter information by including:

- Climate Zone
- Project Step
- Application Status
- Gas Provider
- Regions
- Search by Project
- Search by BUILD Case ID

By applying the filters, the indicators, charts, and attribute table will change accordingly. To return to the original look, undo the filters or refresh the application.

Note the filters can only present data that exists. For example, if there are no projects within Climate Zone #1, then there will not be a filter for that Climate Zone.



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2.2 Table

The attribute table under the indicators and graphs present all active BUILD project information. The indicators and charts are dependent on this table. There are 17 fields presented on the Table including:

BUILD Case ID	Project Name	City	Zip Code	Climate Zone	Region
C220244	Mulberry Garden Apartments	Riverside	92501	10	Los Angeles
C220245	Donner Fields Senior Apartments	Sacramento	95820	12	Sacramento Valley
C220246	Freedom	Watsonville	95076	3	Central Coast
C220255	La Avenida Apartments	Hayward	94541	4	San Francisco
C220262	Kerner	San Rafael	94901	2	San Francisco
C220324	Mill Street	San Luis Obispo	93401	5	Central Coast
C220325	Vista Ballona	Los Angeles	90066	6	Los Angeles
C220327	Pacific Landing	Santa Monica	90405	6	Los Angeles
C220338	Centennial Square	Santa Maria	93454	5	Central Coast
C220365	Cypress Place at Garden City Phase II	Oxnard	93033	6	Los Angeles
C220366	Rancho Sierra Senior Apartments	Camarillo	93012	6	Los Angeles
C220383	Cypress Place at Garden City Phase II	Oxnard	93033	6	Los Angeles
C220387	East Sixth Street	Oxnard	93030	6	Los Angeles
C220392	Valley View Terrace	Selma	93662	13	San Joaquin Valley

Column Name	Description
BUILD Case ID	The unique BUILD project identification number
Project Name	The name of the project/development
City	The city where the project is located
Zip Code	The zip code where the project is located
Climate Zone	The climate zone (#1-16) where the project is located based on CA Energy Code
Region	<p>The region where the project is located based on CA climate change assessment</p> <ul style="list-style-type: none"> • Central Coast • Inland Desert • Los Angeles • North Coast • Sacramento Valley



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	<ul style="list-style-type: none"> • San Diego • San Francisco Bay Area • San Joaquin Valley • Sierra Nevada Mountains
Incentive Reservation Amount	The total incentive reservation amount for the project
Potential Avoided GHG Emission	The total potential avoided GHG emissions of the project in Metric Tons (MT CO ₂ e)
Gas Utility	The project’s gas utility provider
Electric Utility	The project’s electric utility provider
Project Step	The current phase of the BUILD project (Design/Construction/Completed)
Application Status	The status of the project (Under Review/Approved)
Low-Income Type	<p>The qualification criteria of the project</p> <ul style="list-style-type: none"> • Single Family (SF)-low incomes with resale or equity sharing agreement. • Multifamily (MF)-50% Incomes < 60% Area Median Income (AMI) and deed restricted. • MF-80% Incomes < 60% AMI and deed restricted. • MF-Disadvantaged Community and deed restricted.
New Building Type	The project’s building type as either new construction, reuse, or refurbishment
Home Type	<p>The type of home to be constructed:</p> <ul style="list-style-type: none"> • Single Family (SF) • Multifamily (MF low/mid/high rise) • Mixed-use
Number of Units	The total number of units the project will provide
Number of Bedrooms	The total number of bedrooms the project will provide

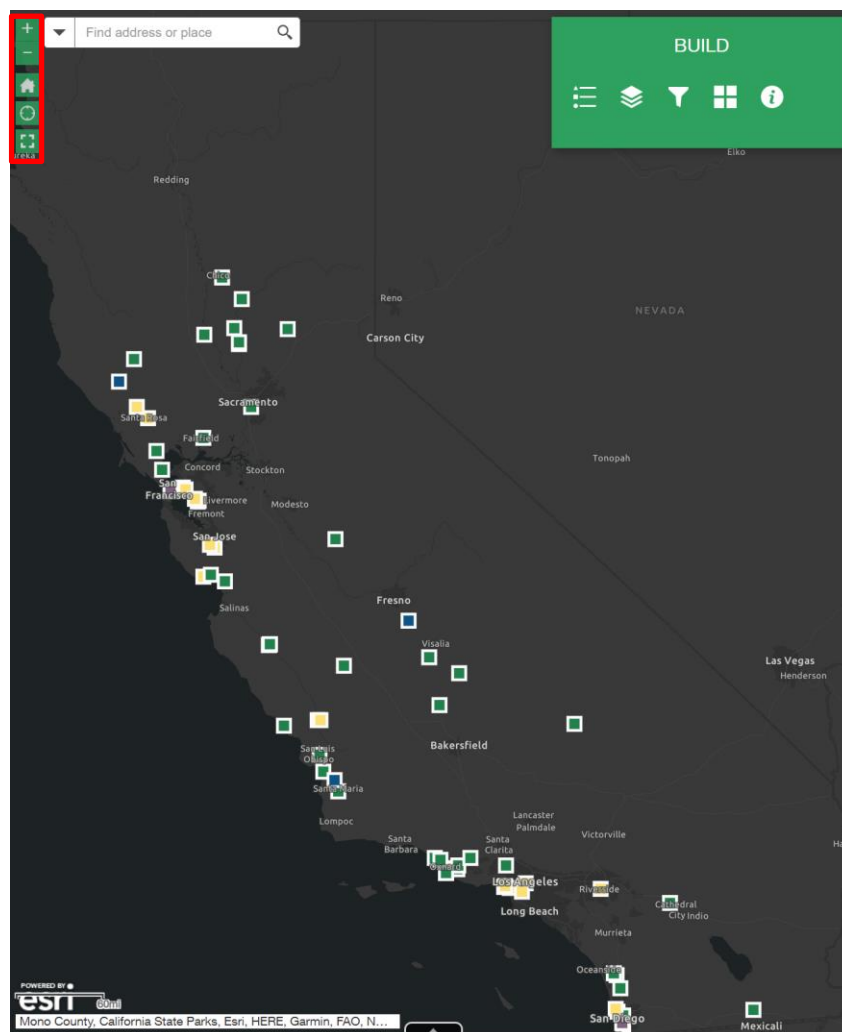


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The map provides the project locations and, if applicable, the census tract eligibility for the BUILD program. In addition to current BUILD applications the map can provide census tract eligibility for prospective applicants. Instructions on how to search the map are in Sections 2.2.3 and 2.2.4. The base layers of the map are developed separately from the indicators and charts on the left side, so any filters applied on the left will not change what appears on the map, and the map filters don't make changes to the indicators/charts.

The "+/-" button on the map helps to zoom in/out, the home icon, or "Default extent," returns the map to the original extent, the "My Location" button identifies the user's current approximate location, and the "Full Screen" button allows users to extend the map to the entire window.





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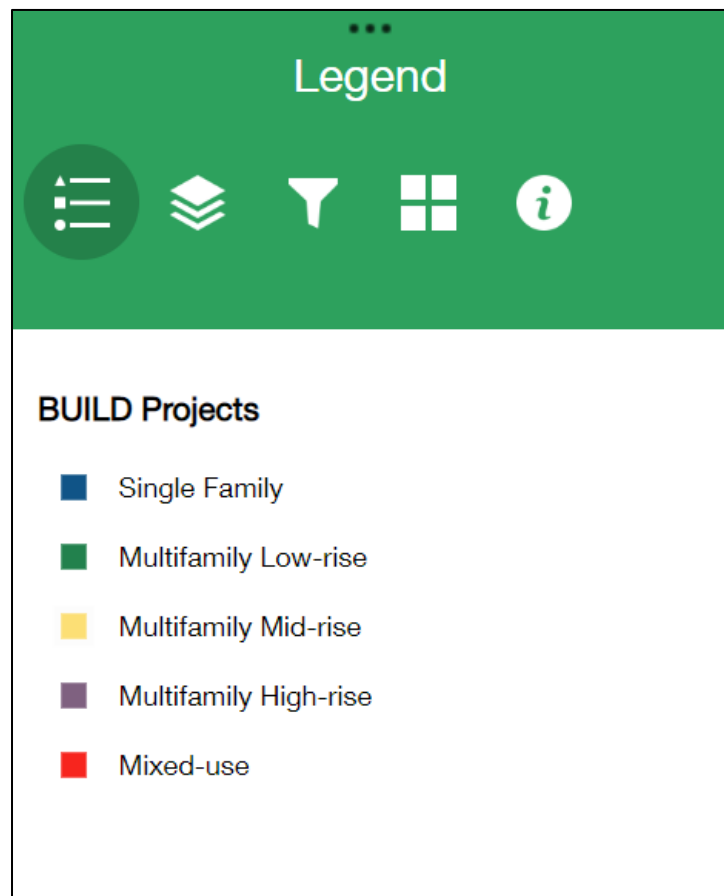
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2.2.1 Legend

The legend shows the BUILD project symbols based on the home type:

- Single Family (Blue)
- Multifamily Low-rise (Green)
- Multifamily Mid-rise (Yellow)
- Multifamily High-rise (Purple)
- Mixed-use (Red)

Each project is represented on the BUILD GIS map by a square with the corresponding home type color and a white border.



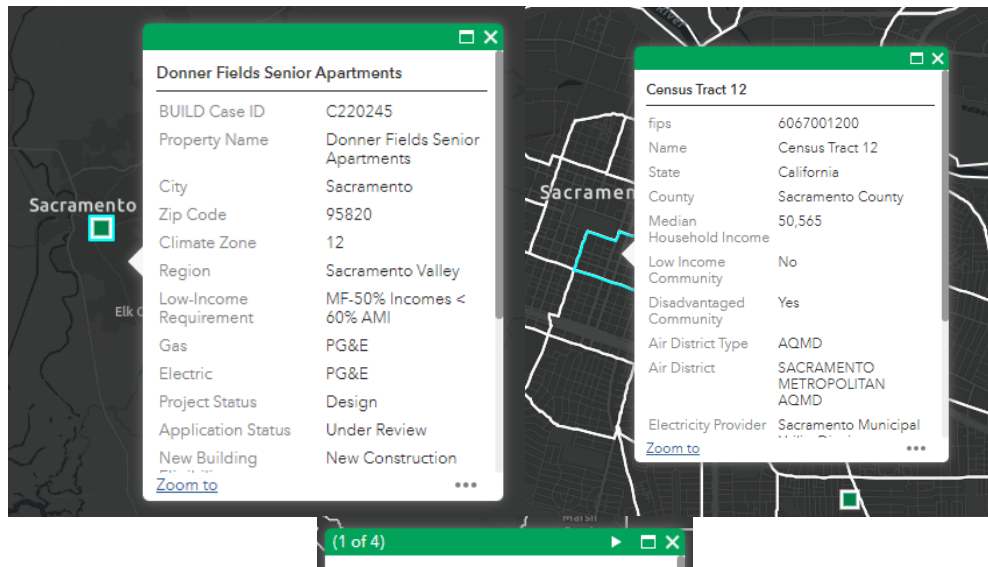


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2.2.2 Metric Pop-ups

The pop-ups show important information regarding a property's location and census tract information. Clicking the BUILD project symbol on the map launches a pop-up window that presents project information. For users interested in census tract information, the census tract layer shows up on scale less than 1":20miles.



If there is multiple information at a specific location (for example: two projects at the same location, two census tract very close to each other), the play button on top helps to swap among different projects or census tracts . Users can also zoom to the project location or view the project/census tract in the attribute table.

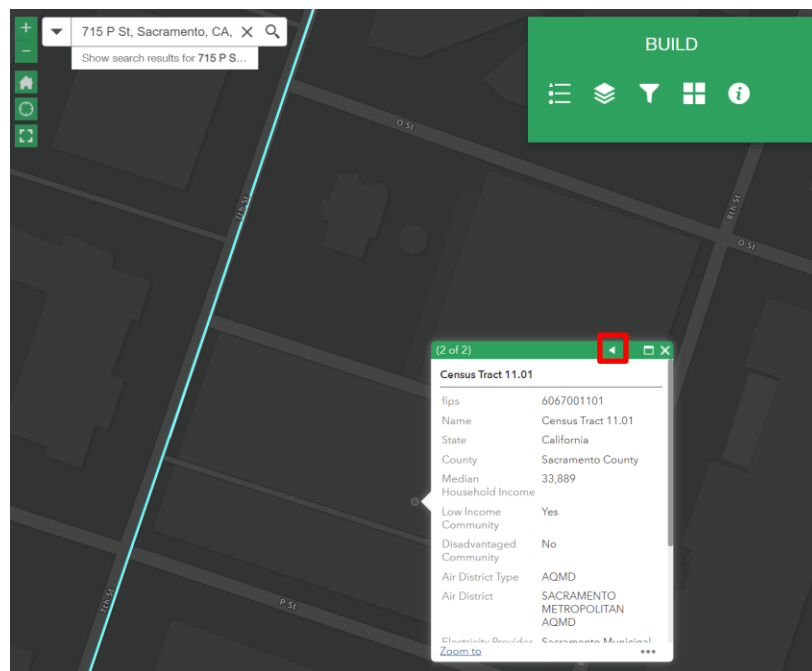
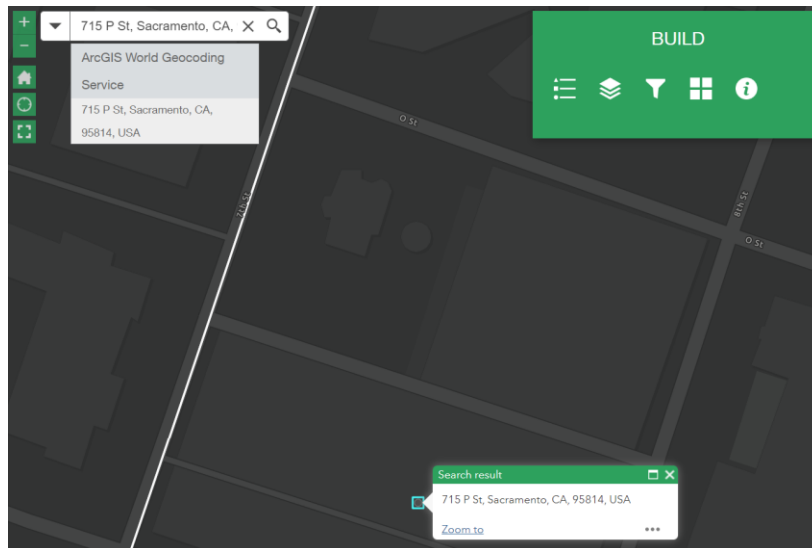


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2.2.3 Location (non-project)

For users interested in census tract information not related to a specific BUILD project, type the address in the search bar, the map will be directed to the search result. To access the pop-up information for the census tract, click on the background, or click on the address point and the play button.



The Census Tract layer consists of the following information:



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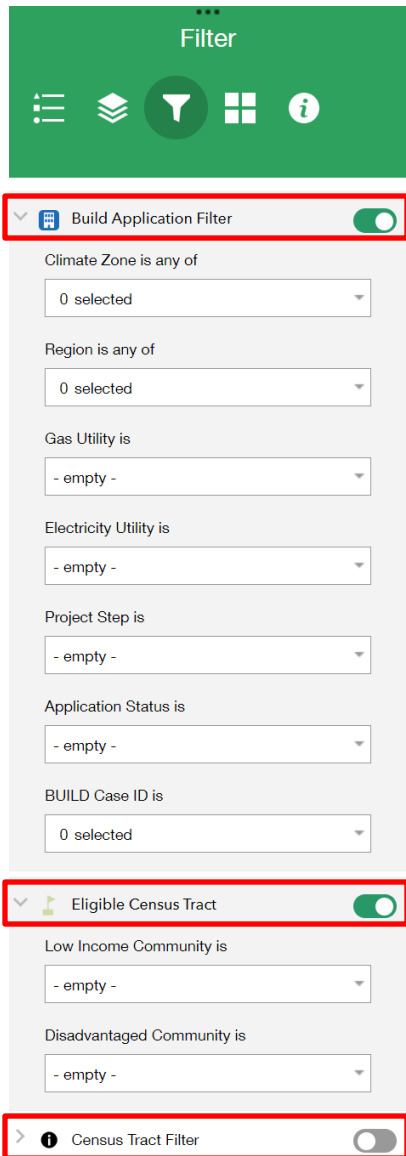
Column Name	Description
Fips	The unique identification number of the census tract
Name	The name of the census tract
State	The state of the census tract
County	The county of the census tract
Median Household Income	The 5-year estimate of median household income according to American-Community Survey (ACS)
Low Income Community	Indicates whether the census tract is within a low-income community area as defined by the Department of Housing and Urban Development (HUD) .
Disadvantaged Community	Indicates whether the census tract is within a disadvantaged community area as defined by Senate Bill 535 .
Air District Type	The type of air district of the census tract
Air District	The name of the air district for this census tract
Electricity Provider	The name of the electricity provider
Electricity Provider Type	The type of the electricity provider
Building Climate Zone	The climate zone where the census tract is located
Gas Provider	The name of the gas provider
Gas Provider Type	The type of the gas provider



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2.2.4 Map Filter



The map filter is designed to help users query projects based on spatial information. There are three filters developed for different purposes:

- BUILD Application Filter – Intended to query BUILD project information, including climate zone, region, gas and electricity utility, project and application status, and BUILD case ID.
- Eligible Census Tract – Intended to query eligible census tracts based on the low-income and disadvantaged community status.
- Census Tract Filter – Intended to query census tract information based on air district type, electricity provider, gas provider, and climate zone.

The map filters can be turned on/off using the button next to each filter’s name. The filters can be reset back to the original look using the reset button at the bottom.



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2.2.5 Layer List

There are 9 active layers being used for the BUILD GIS Tool (2 layers are managed by BUILD staff, 3 layers are managed by CEC GIS team, and 4 layers are managed by other state agencies) including:

1. [BUILD Projects](#) – Managed by BUILD staff.
2. [California Natural Gas Service Area CEC](#) – Managed by the CEC’s GIS team, the layer is shared publicly.
3. [California Building Climate Zones](#) – Managed by CEC’s GIS team, Building Climate Zones of California or California Climate Zone Descriptions for New Buildings - California is divided into 16 climatic boundaries or climate zones, which is incorporated into the Energy Efficiency Standards (Energy Code). Each climate zone has a unique climatic condition that dictates which minimum efficiency requirements are needed for that specific climate zone.
4. [CA. 4th Climate Change Assessment Regions](#) – Managed by California Nature, this layer is derived from the 4th California Climate Assessment regions and enhanced using the California County Boundaries dataset (version 19.1) maintained by the California Department of Forestry and Fire Protection's Fire Resource Assessment Program, and the 3 Nautical Mile marine boundary for California sourced from the California Department of Fish and Wildlife.
5. Legislative Layers

These layers are managed by the California Department of Education, the legislative districts contain the geographically defined territories used for representation in the California State Assembly, California State Senate, and the U.S. House of Representatives from California. These layers include the:

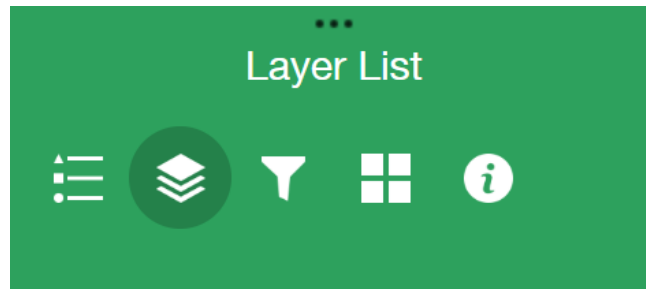
- [California Assembly Districts](#)
 - [California Senate Districts](#)
 - [US Congressional Districts in California](#)
6. [CA County Boundary](#) – Managed by the CEC’s GIS team.
 7. [BUILD-related Census Tract Information](#) – Managed by BUILD staff, updated based on U.S. Census American Community Survey (ACS) data and U.S. Department of Housing and Urban Development (HUD) income publications. This feature layer is based on census tract polygons and implanted with additional sources to provide a snapshot of a location’s Low-Income Residential Housing Income Limit Requirements for a Multifamily Project. The dataset is based on Senate Bill (SB) 535 (2012) disadvantaged communities (DAC) and income data from the ACS 5-year estimates. The low-income communities were identified by using the income limits from HUD. .

Users can turn on/off the layers by checking/unchecking the box next to each layer.



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Layers



- BUILD Projects ...
- California Natural Gas Service Area - NaturalGasServiceArea CEC ...
- California Building Climate Zones ...
- Ca. 4th Climate Change Assessment Regions ...
- California Assembly Districts ...
- California Senate Districts ...
- US Congressional Districts in California ...
- CA County Boundary ...
- BUILD Gensus Tract Eligibility ...

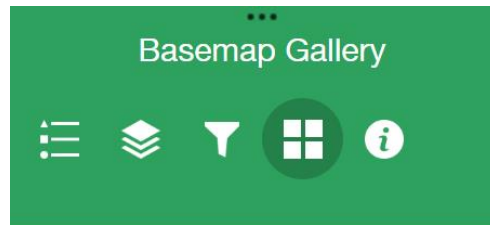


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2.2.6 Base Map

The default base map of the BUILD application is a Dark Gray Canvas. The Base Map widget allows the user to change the background map for different visualizations. The Environmental Systems Research Institute (ESRI) provides a wide range of base maps that display terrain, satellite, and topography.



Charted Territory Map



Colored Pencil Map



Community Map



Dark Gray Canvas



Enhanced Contrast Dark



Enhanced Contrast Map



Firefly Imagery Hybrid



Human Geography Dark



Human



Imagery



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2.3 Miscellaneous Tool Functions

Additional features of the BUILD GIS Tool include embedded hyperlinks, screen auto sizing, source sharing capabilities, designed to improve the user experience.

2.3.1 Header

The header of the GIS tool provides hyperlinks to the CEC home page and BUILD website. The CEC logo links to the CEC home page, and the program title links to the BUILD website.



2.3.2 Screen Size

The BUILD GIS Tool allows access from different device types.

- For PC users, the minimum suggested resolution is 1400 x 900 pixels, a window smaller than this size might cause some tools to not function properly, and the text/graphs might be compressed, making it difficult to read.

Portions of the BUILD GIS Tool are not suitable for smaller screen sizes, the indicators and graphs are removed for smaller windows/screens.

- For Tablet/Phone users with screen resolution lower than 1280 x 800 pixels, only the map will be visible to prevent text from being compressed. Users can still view the map, use the filters, and extract the data, but will not be able to access the dashboard indicators and graphs.



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2.3.3 Sharing

To share the application, use the share button at the top right corner. Users can copy the URL, save the QR code, or share via other social media applications including email, facebook, twitter, linkedin, etc.

