



Statewide  
Energy  
Efficiency  
Collaborative

SEEC Virtual Forum: Webinar 7

August 4, 2020 | 1:00 – 2:30 PM PST

## Resources for Continuing Climate Action

**I.C.L.E.I.** USA  
Local Governments for Sustainability

Google



californiaSEEC.org

# Thank you to...

*Our sponsors for making this series possible!*



*Pacific Gas and Electric Company*



SOUTHERN CALIFORNIA  
**EDISON**

Energy for What's Ahead™



Southern California Gas Company

**BAYREN**

Southern California  
REGIONAL ENERGY NETWORK



*Our promotional partners for extending our reach!*



*Clean Coalition*



**EMPOWER**  
INNOVATION



SAN DIEGO GREEN BUILDING COUNCIL



San Joaquin Valley  
**Clean Energy Organization**



**USGBC**  
CENTRAL CALIFORNIA

# Upcoming Events

Learn more and register at:

[californiaseec.org/2020-forum/](https://californiaseec.org/2020-forum/)



11th Annual Statewide Energy  
Efficiency Virtual Forum

June - November | 18 Webinars | 6 Networking Events

**8/12 – Webinar 8** Building Decarbonization Policy Tools for California Local Governments

**8/20 – Webinar 9** Maximizing Value of Resiliency Programs: Case Study & Resources

**8/25 – Networking Activity 3** Pictionary: Climate and Energy Edition!

**9/1 – Webinar 10** Building Decarbonization Full Throttle: CPUC Updates and Regional Implementation

**9/9 – Webinar 11** Not Your Grandma's Regulatory Update

**9/17 – Webinar 12** State-Administered, Utility-Supported Financing for Energy Efficiency Retrofits



# Join the SEEC Peer-to-Peer Network on LinkedIn!



*Use this group to connect with other professionals, whether it be for project support or professional development reasons!*

Find us at <https://www.linkedin.com/groups/8956010/>



## Q&A

- Submit questions for panelists through the Q&A module at any point during the webinar.
- Upvote questions that you are interested in hearing responses to.

Audio Settings ^



Chat



Raise Hand



Q&A

Leave Meeting

## Chat

- Engage in a dialogue with your peers – share resources, case studies, and best practices
- Reach out to LGC staff if you encounter technical issues or have questions about the SEEC Forum.





**Calyn Hart**

Program Officer  
*ICLEI – Local Governments for  
Sustainability USA*



**Nicole Lombardo**

Business Development &  
Partnerships  
*Google – Environmental  
Insights*

## *Introducing Today's Panelists*



# Resources for Continuing Climate Action

ICLEI-Local Governments for Sustainability USA  
Google Environmental Insights

ICLEI is the leading local government network dedicated to sustainability and climate action. For 30 years, we've represented the voice of cities and counties on the global stage.



CLIMATE SUMMIT OF LOCAL  
AND REGIONAL LEADERS

12 NOV 2017 | COP23 | BONN



# How we work

## Five Pathways

**SCALE UP**  
AND EXPAND THE MODEL OF  
**SUSTAINABLE**  
CITIES AND REGIONS

MAKE SUSTAINABILITY A  
**FUNDAMENTAL**  
PART OF ALL LOCAL AND  
GLOBAL DEVELOPMENT

TACKLE THE MOST  
**PRESSING ISSUES**  
OF OUR TIME TO PROTECT THE  
LONG-TERM INTERESTS OF  
**CITIZENS**

UNDERTAKE A  
**COLLECTIVE**  
**EFFORT**  
FOR GLOBAL CHANGE ACROSS ALL  
SECTORS AND LEVELS OF GOVERNMENT

**LOW EMISSION**  
DEVELOPMENT



**RESILIENT**  
DEVELOPMENT



**CIRCULAR**  
DEVELOPMENT



**EQUITABLE AND**  
**PEOPLE-CENTERED**  
DEVELOPMENT



**NATURE-BASED**  
DEVELOPMENT



# How we work Five Milestones



# Agenda

1. ClearPath Modules Overview
2. Google Environmental Insites Explorer
3. ClearPath + EIE Integration
4. Contribution Analysis
5. SEEC Sunsetting

# ClearPath tool

User-friendly interface with easy data entry and calculators

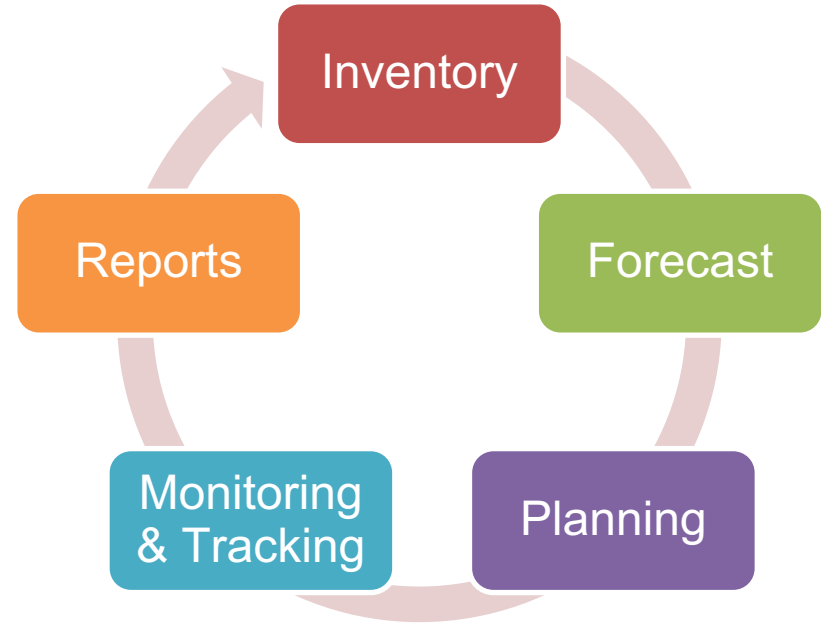
Online, "Cloud-Based" Application

Collaboration supported w/ multiple users per jurisdiction and multiple jurisdictions per user

Secure data storage with daily backups  
Remote support and training curriculum with data collection templates

Track progress over time

Constant development mode





# ClearPath Inventory Module

# Inventory Module



## Government Track

Within this track you will find the resources you need to perform a [Local Government Operations Protocol](#) compliant greenhouse gas emissions inventory and forecast.

GET STARTED



## Community-Scale Track

Within this track you will find the resources you need to perform a [US Community Protocol](#) compliant greenhouse gas emissions inventory and forecast.

GET STARTED

- Manage emissions across Local Governments and Community tracks with Protocol reporting standards

# Inventory Module

Community Scale | Inventories

[Inventories](#) [Forecasts](#) [Planning](#) [Monitoring](#) [Factor Sets](#) [Reports](#)

Jurisdiction: Mikeville ▼

## 2012 Mikeville Community-wide GHG Inventory [DEMO] [Edit Parameters](#)

Residential Energy   Commercial Energy   Industrial Energy   Transportation & Mobile Sources   Solid Waste   Water & Wastewater   AFOLU   Process & Fugitive Emissions   Upstream Impacts of Activities   Consumption Based

### Available Calculators

Pick a calculator to enter a new record.

- [Emissions from Grid Electricity](#) ?
- [Emissions from Stationary Fuel Combustion](#) ?

### Inventory Records For Residential Energy

Residential Natural Gas Consumption	<a href="#">Edit</a>   <a href="#">Delete</a>
Residential Fuel Oil Consumption	<a href="#">Edit</a>   <a href="#">Delete</a>
Test CDCMC Kerosene Entry	<a href="#">Edit</a>   <a href="#">Delete</a>
Residential Electricity Consumption	<a href="#">Edit</a>   <a href="#">Delete</a>
Marysville Test PG&E Data	<a href="#">Edit</a>   <a href="#">Delete</a>

# Basic Emissions Calculations

$$\text{Activity Data} \times \text{Emissions Factor} \\ = \text{Emissions Estimate}$$

## Activity Data

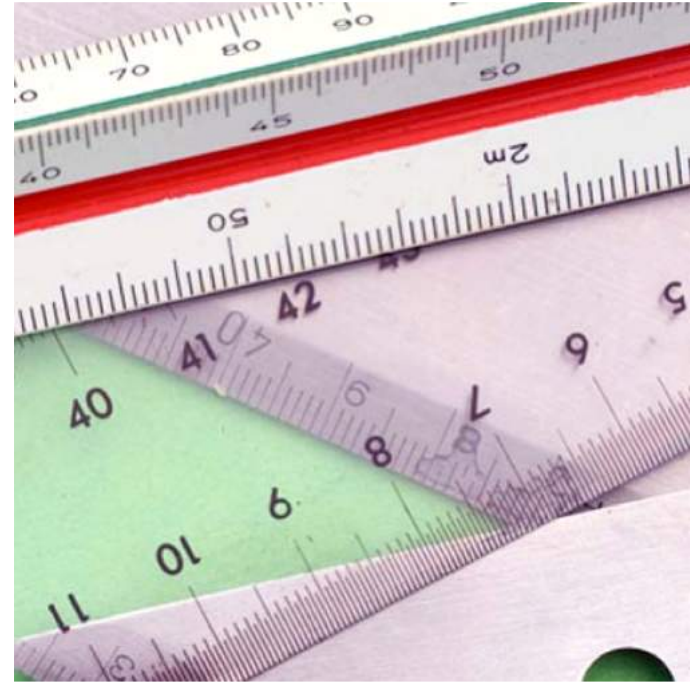
- *E.g. electricity consumption (kWh)*

## Emissions Factor

- *E.g. CO<sub>2</sub> emissions/kWh consumed*

## Electricity Emission Factor

- *630.89 lbs of CO<sub>2</sub> per MWh*





# Inventory Calculators

Linked Data  
from Factor  
Sets

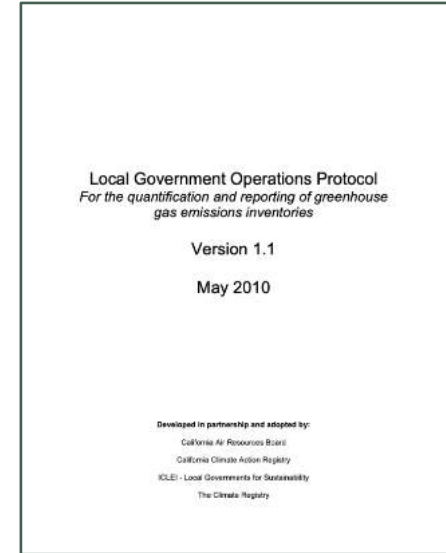
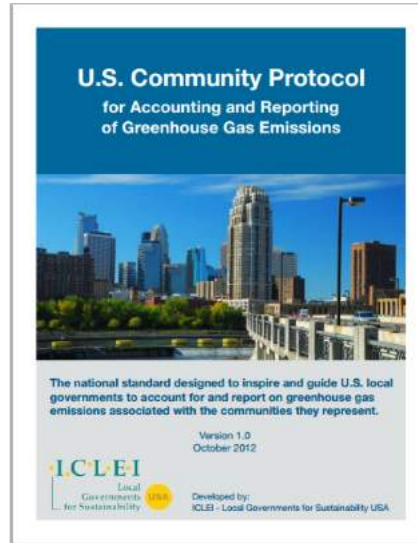
Record Inputs

Outputs  
calculated  
on-the-fly as you  
add data.

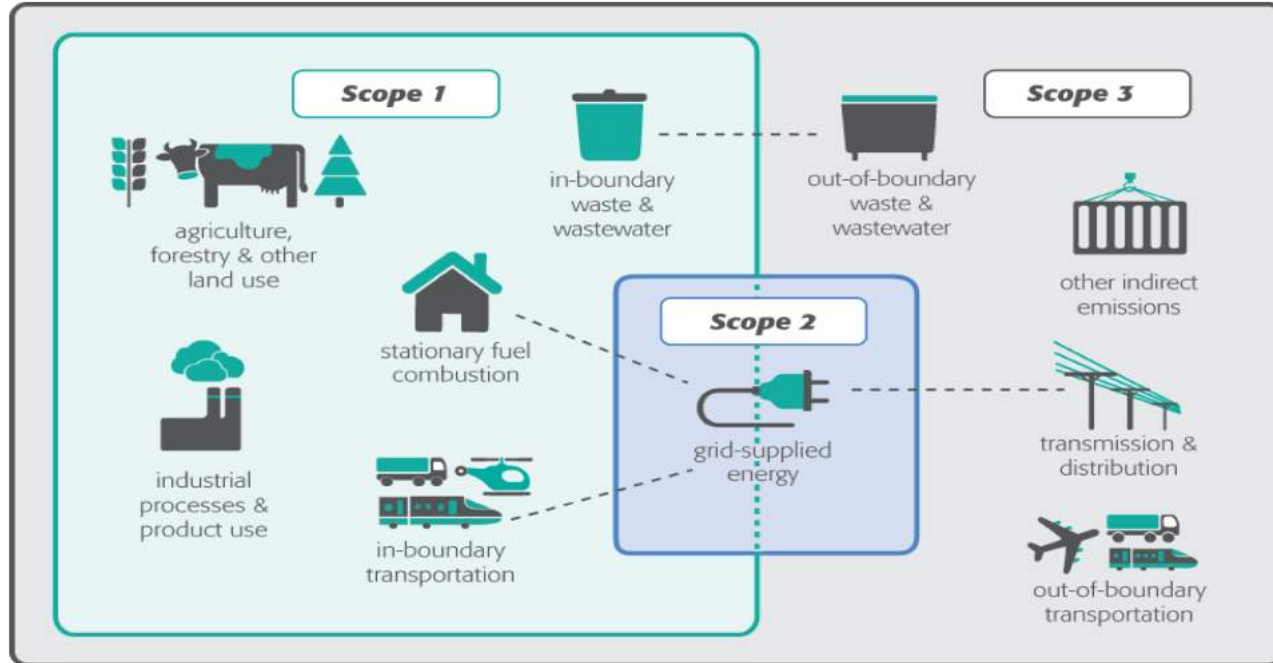
The screenshot displays the Inventory Calculator interface. The 'Name' field is 'Residential Electricity Consumption'. The 'Factor Sets' dropdown is set to 'Grid Electricity (PG&E 2013)'. The 'Inputs' section includes a table for 'Calculation Inputs' with fields for 'Is this a Direct Entry Record?' (No), 'Electricity Used' (335000 kWh), 'Number of Households' (16000), and 'Population' (83000). A red cross is overlaid on the 'Value' column header. The 'Outputs' table shows calculated values for various metrics, with 'Electricity Energy Equivalent (MMBtu)' highlighted in red. Two bar charts are visible: 'CO2e for Current Category' showing 'Residential Electricity Consumption' and 'Residential Natural Gas Consumption', and 'CO2e across all categories for current inventory' showing 'Residential Energy'.

Name	Value
Electricity Energy Equivalent (MMBtu)	114334
Energy Cost (\$)	0
CO2 (MT)	6488.4
CH4 (MT)	0.44067
N2O (MT)	0.15195
CO2e (MT)	6566.0
MMBtu per Household	7.1459
CO2e per Household (MT)	0.41037
MMBtu per Person	1.3775
CO2e per Person (MT)	0.079108
GPC Scope	Scope 2
GPC Reference Number	1.1.2
US-CP Reporting Category	Activity

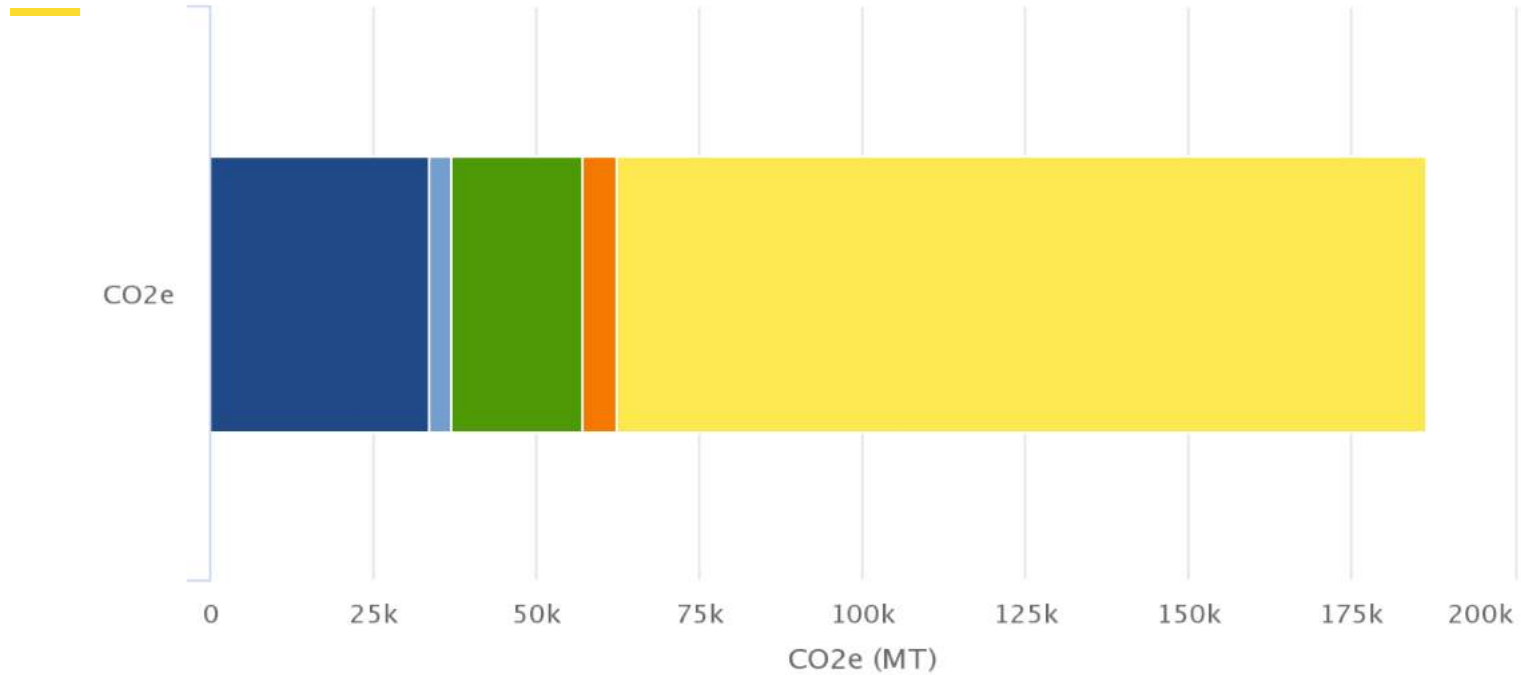
# Inventory Protocols



# Sources covered



# Inventory Module Output



- Residential Energy
- Industrial Energy
- Commercial Energy
- Water & Wastewater
- Solid Waste
- Transportation & Mobile Sources



# ClearPath Forecasting Module

# Forecasting Emissions

---



- Emissions forecast = Emissions trend Business As Usual (BAU)
- What is BAU from the local perspective?
  - $\text{Activity} * \text{Emissions Factor/Intensity} = \text{Emissions}$
- Federal and State Policy set the conditions in which local actions take place and are more likely to be changing the carbon intensity of an activity.

# ClearPath Design Solutions

- Every inventory calculator has a “forecastable output” of the primary activity data.

Outputs	
Name	Value
Energy Equivalent (MMBtu) ?	0
CO2 (MT)	0
CH4 (MT)	0
N2O (MT)	0
CO2e (MT) ?	0
Biogenic CO2 (MT) ?	0

at

- Granularity at the level of Calculators
  - Fuel Types & Options within Calculators
- New Forecasts Summarize all records along these divisions for start point values

# Summarized Inventory Outputs

Inventory Output	Starting Value		Coefficients	Growth Rates
Electricity Energy Equivalent (MMBtu)	Quantity	507421	Growth Rate	High Growth Scenario
	CO2e	16146	Carbon Intensity Factor	RPS Scenario 1
Natural Gas - Energy Equivalent (MMBtu)	Quantity	1252050	Growth Rate	Slow N Steady
	CO2e	66554		

Quantity = Primary Activity Data

CO2e = All emissions associated with that output

**Static Forecasts – Ratio of Activity : Emissions is Constant**

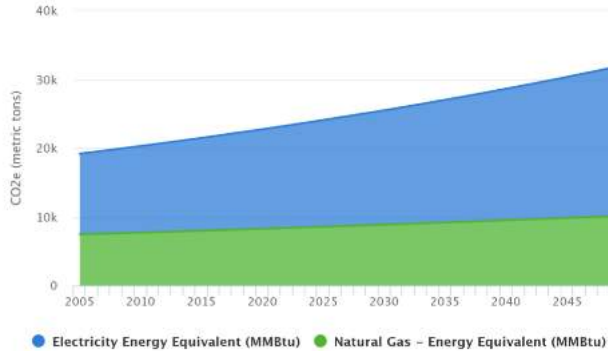
**Dynamic Forecasts – Variable Carbon Intensity**

Both use Compound Annual Growth Rates to represent change

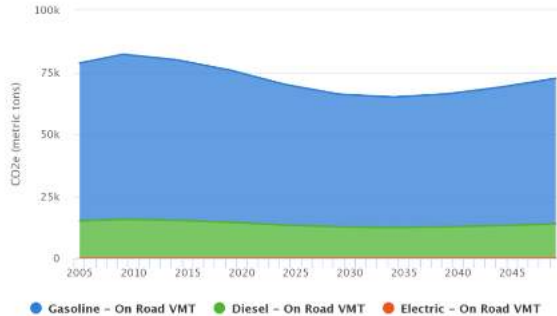


# BAU Forecast

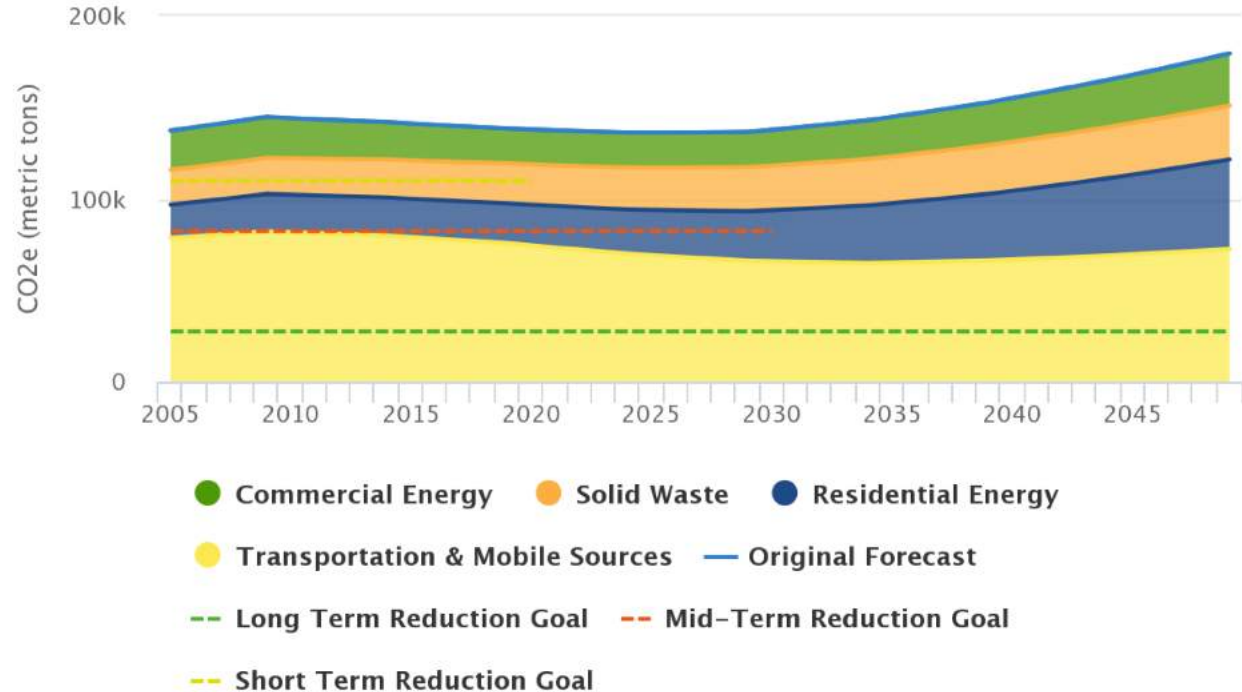
Projected CO2e values



Projected CO2e values



## Projected CO2e Values With Reductions Applied



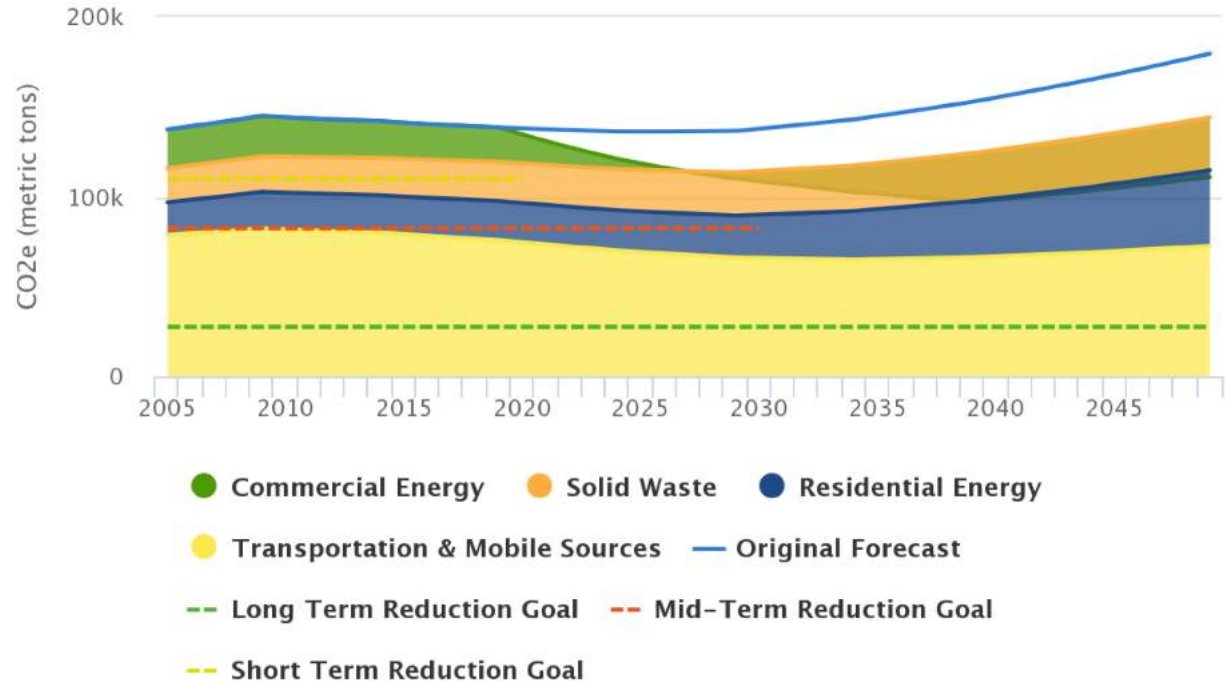


# ClearPath Planning Module

# Planning Module

## Developing CAP strategies

Projected CO<sub>2</sub>e Values With Reductions Applied



# Bottom-up strategies

## Specific strategies for each sector

E.g. LED lights, Solar panel installation, Bike Infrastructure etc.

### Available Calculators

Pick a calculator to enter a new record.

- [User Defined Residential Energy](#) ⓘ
- [Increased Residential Solar Photovoltaic](#) ⓘ
- [Increased Commercial Solar Photovoltaic](#) ⓘ
- [Residential Energy Efficiency Education](#) ⓘ
- [Low Flow Faucets](#) ⓘ
- [User Defined Commercial Energy](#) ⓘ
- [Increased Residential Solar Thermal](#) ⓘ
- [Low Flow Showerheads](#) ⓘ
- [Low Income Weatherization Programs](#) ⓘ

### Filter Calculators

#### Categories

- [Deselect All](#)
- Commercial Energy
- Consumption Based
- Industrial Energy
- Residential Energy
- Solid Waste
- Transportation
- Transportation & Mobile Sources
- Upstream Impacts of Activities

# High-level plan calculators

---

- Create and save different versions for each sector
  - E.g. high efficiency case; high renewables case
- Should apply only one copy for each sector at a time in a scenario
  - Otherwise, reductions may be overestimated

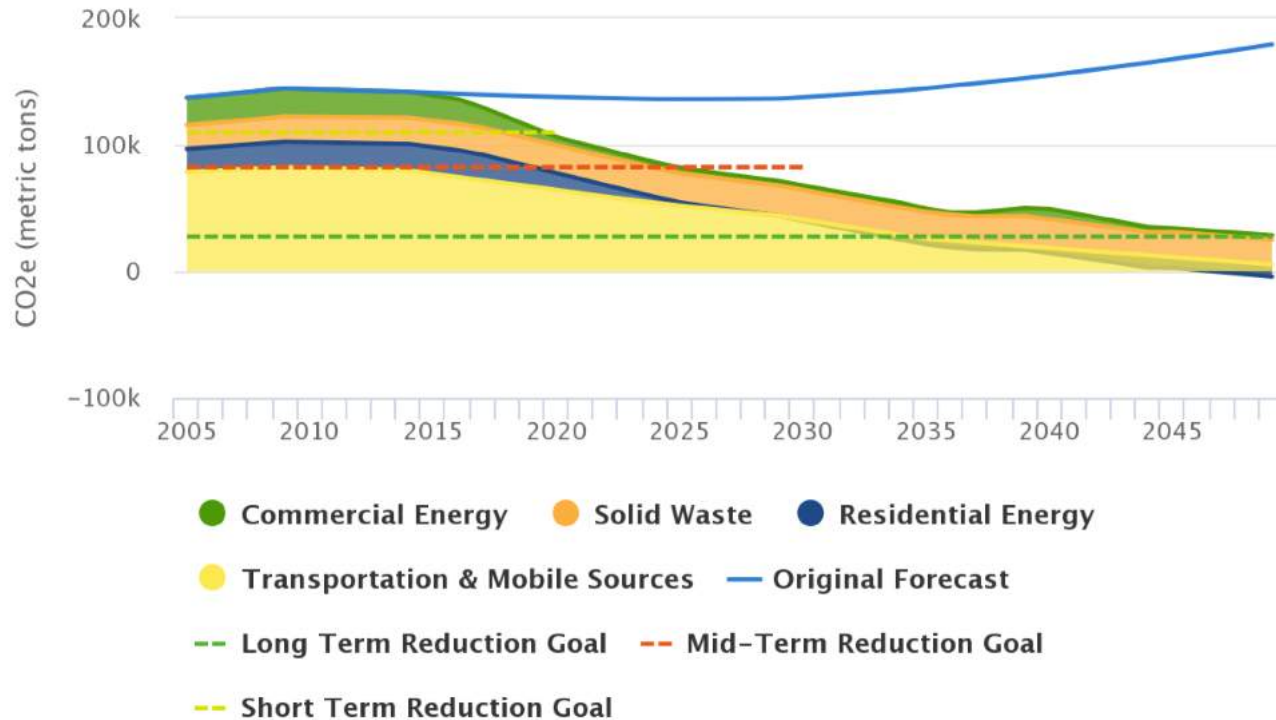
# Planning Calculators

---

- Calculators have one or more outputs that connect to forecast series of Primary Activity Data
  - Ex. Energy Equivalent MMBtu – Natural Gas
- Outputs from calculator record are subtracted from forecast total each year there is an additional reduction (as specified in Plan)
- Clearpath compares planning scenarios with your reduction targets

# Planning Module

## Projected CO2e Values With Reductions Applied





# ClearPath Monitoring Module



# What the Monitoring Module Does

---



- Use monitoring records to track implementation of climate action plan measures.
- Use reports to view progress on all measures, and to help visualize and understand inventory changes.

# Monitoring Records



	Value	Units
<b>Implementation Status</b>		
The inputs in the section will allow you to record details about the state of progress for this measure in a way that allows easy reporting of the status of all the measures in your plan.		
Project Status <a href="#">?</a>	<input type="text"/>	
Point Person <a href="#">?</a>	<input type="text"/>	
Next Steps <a href="#">?</a>	<input type="text"/>	

<b>Financing</b>		
The inputs in this section will allow you to record details about how this action was financed and the total cost of the action. Cost data provided here will be used in the calculation of the cost effectiveness output below.		
Capital Cost <a href="#">?</a>	<input type="text"/>	\$ <input type="text"/>
O&M Cost	<input type="text"/>	\$ / Year <input type="text"/>
Cost Savings <a href="#">?</a>	<input type="text"/>	\$ / Year <input type="text"/>
Financing Type <a href="#">?</a>	<input type="text"/>	
Financing Source <a href="#">?</a>	<input type="text"/>	

Keeping track of individual measures

# Monitoring Records

## Impacts Achieved

Use this section to provide the energy savings achieved through this action. Note that the impacts recorded should represent the annual reduction in energy use for the calendar year specified above.

Fuel Type (press ctrl for multiple) ?	<div data-bbox="865 456 1271 595"><ul style="list-style-type: none"><li>Electricity</li><li>Natural Gas</li><li>LPG</li><li>Propane</li></ul></div>	
---------------------------------------	---	--

## Evaluation Details

Finally, use the inputs in this section to provide as much information as possible about the approach used to evaluate the impact of this action.

Savings Evaluation Approach ?	<div data-bbox="865 813 1271 857"><input type="text"/></div>	
Impact Study Notes ?	<div data-bbox="865 884 1535 988"><input type="text"/></div>	

# Monitoring Records

- Main outputs:
  - CO2 reduced
  - Fuel reduced
  - Cost Effectiveness

## Outputs

Name
Electricity Saved (MMBtu)
Electricity CO2e Reduced
Natural Gas Saved (MMBtu)
Natural Gas CO2e Reduced
Propane Saved (MMBtu)
Propane CO2e Reduced
LPG Saved (MMBtu)
LPG CO2e Reduced
Butane Saved (MMBtu)
Butane CO2e Reduced
Kerosene Saved (MMBtu)
Kerosene CO2e Reduced
Gasoline Saved (MMBtu)
Gasoline CO2e Reduced
Fuel Oil #2 Saved (MMBtu)
Fuel Oil #2 CO2e Reduced
Fuel Oil #5 Saved (MMBtu)
Fuel Oil #5 CO2e Reduced
Fuel Oil #6 Saved (MMBtu)
Fuel Oil # 6 CO2e Reduced
Wood Saved (MMBtu)
Wood CO2e Reduced
Cost Effectiveness (MTCO2e Reduced / \$)

# Monitoring Reports

[Home](#)[About SEEC](#)[Factor Sets](#)[Inventories](#)[Forecasts](#)[Planning](#)[Monitoring](#)[Reports](#)

## Inventory Reports

Use this page to open reports, advanced charts, and lists of coefficients used for calculating totals.

Name	Description	Inventory	Actions
Inventory By Scope	CO2e by scope for the selected inventory year.	1990 Start	<a href="#">View</a>   <a href="#">Export as CSV</a>
Inventory By Activity / Source	CO2e by activity and source for the selected inventory year.	1990 Start	<a href="#">View</a>   <a href="#">Export as CSV</a>
Inventory By Sector	CO2e by sector for the selected inventory year.	1990 Start	<a href="#">View</a>   <a href="#">Export as CSV</a>
Detailed Report	Details of inventory records for selected inventory year.	1990 Start	<a href="#">View</a>   <a href="#">Export as CSV</a>
Inventory Comparison By Activity/Source	Comparison of CO2e by activity/source and year over all official inventories		<a href="#">View</a>   <a href="#">Export as CSV</a>
Inventory Comparison By Sector	Comparison of CO2e by sector and year over all official inventories		<a href="#">View</a>   <a href="#">Export as CSV</a>

## Monitoring Reports

Name	Description	Planning Scenario	Actions
Implementation Progress	Comparison of Implementation of Monitoring Records to linked Reduction Measure Records	Select Planning Scenario...	<a href="#">View</a>   <a href="#">Export as CSV</a>
Implementation Efficacy	Comparison of CO2e reductions of Monitoring Records to linked Reduction Measure Records	Select Planning Scenario...	<a href="#">View</a>   <a href="#">Export as CSV</a>
Implementation Details	Detailed export of monitoring records		<a href="#">View</a>   <a href="#">Export as CSV</a>
Implementation Status	Export of status fields from monitoring records		<a href="#">View</a>   <a href="#">Export as CSV</a>
Projected to Actual Details	Comparison of all official inventories to the forecast, summarized by field.	Select Planning Scenario...	<a href="#">View</a>   <a href="#">Export as CSV</a>
Projected to Actual Summary	Comparison of a single inventory to projected total for the same calendar year, summarized by sector.	Select Planning Scenario... Select Inventory...	<a href="#">View</a>   <a href="#">Export as CSV</a>
Indicator Report	Comparison of indicators by year across reporting tags		<a href="#">View</a>   <a href="#">Export as CSV</a>

# Implementation Progress Report



## Implementation Progress

Comparison of Implementation of Monitoring Records to linked Reduction Measure Records

		2014	2015
Title 24 Residential / Quantity of New or Renovated Building Space per year	Planned	8000000.0	8000000.0
	Achieved	10000.0	15000.0
	Impact Gap	-7990000.0	-7985000.0

		2014	2016
Title 24 Commercial / Quantity of New or Renovated Building Space per year	Planned	15000000.0	15000000.0
	Achieved	1500000.0	0.0
	Impact Gap	-13500000.0	-15000000.0

		2016
Residential PV / Increased Solar Capacity	Planned	200.0
	Achieved	200.0
	Impact Gap	0.0

Implementation indicator—e.g. square footage, PV kW capacity

# Implementation Efficacy Report



## Implementation Efficacy

Comparison of CO2e reductions of Monitoring Records to linked Reduction Measure Records

		2014	2016
Title 24 Commercial / Annual Electric Savings (MMBtu / Year) - Usage	Planned	90077.0	90077.0
	Achieved	3412.0	170600.0
	Impact Gap	-86665.0	80523.0
		2014	2016
Title 24 Commercial / Annual Electric Savings (MMBtu / Year) - CO2e	Planned	2670.1446664879795	2435.238689453699
	Achieved	0.091441	5.0
	Impact Gap	-2670.0532254879795	-2430.238689453699
		2014	2016
Title 24 Commercial / Annual Gas Savings (MMBtu / Year) - Usage	Planned	27000.0	27000.0
	Achieved	11000.0	10000.0
	Impact Gap	-16000.0	-17000.0
		2014	2016
Title 24 Commercial / Annual Gas Savings (MMBtu / Year) - CO2e	Planned	1435.1991412208909	1435.1991412208906
	Achieved	588.0	534.0
	Impact Gap	-847.1991412208909	-901.1991412208906

Emissions result—CO2e reduction

# Indicators Report

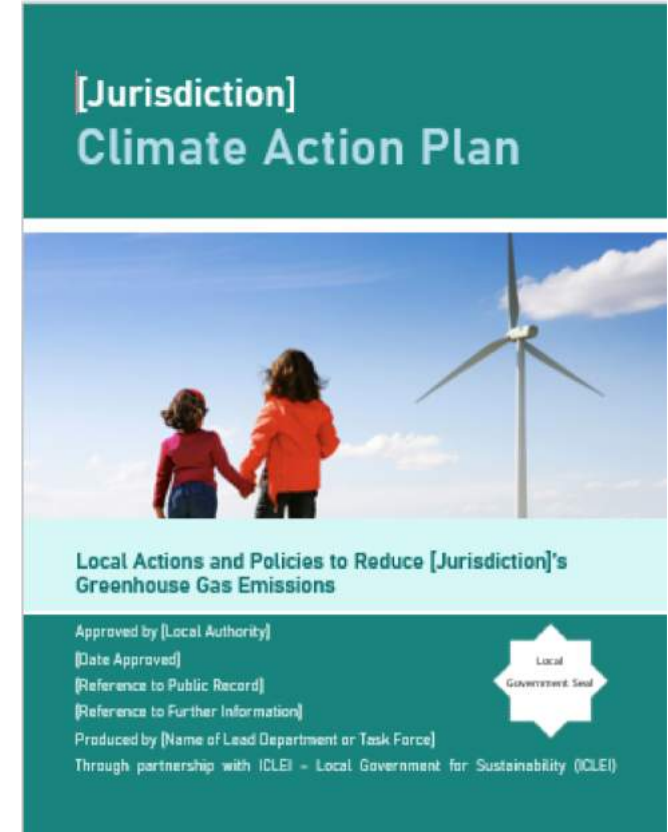
Record Name	Scope	Output Name	2005	2010
Residential electricity 92116		MMBtu per Household	3.0	4.0
Residential electricity 92116		CO2e per Household (MT)	0.22371	0.29523
Residential electricity 92116		MMBtu per Person	0.85324	0.66595
Residential electricity 92116		CO2e per Person (MT)	0.055928	0.056166
Residential electricity 92116		MMBtu per Household	3.0	3.0
Residential electricity 92116		CO2e per Household (MT)	0.22785	0.1696
Residential electricity 92116		MMBtu per Person	0.63993	0.0
Residential electricity 92116		CO2e per Person (MT)	0.056962	0.0

Changes in key indicators between inventories.



# Reports

- Inventory Reports
- Monitoring Reports
- Forecasting and Planning Exports



# Nicole Lombardo



An aerial, high-angle photograph of a dense urban area, likely Paris, showing a complex grid of streets, numerous buildings, and a river winding through the center. The image is used as a background for a title card.

Google

# Environmental Insights Explorer

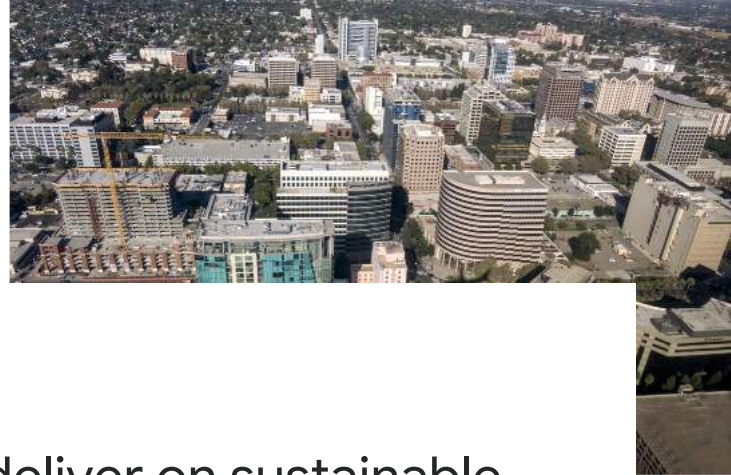
Fighting climate change with new data

At Google, we strive to build sustainability into **everything** we do

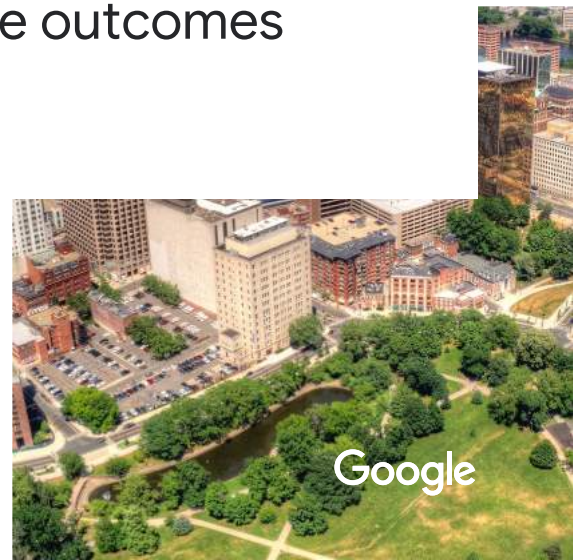
An aerial photograph of a river delta, likely the Amazon, showing intricate water channels and sediment patterns. The water is a vibrant turquoise color, contrasting with the brownish-green land. A white rectangular box is overlaid on the left side of the image, containing text.

## Our mission

Catalyze positive social and environmental impact at scale using Geo's understanding of the real world



Help deliver on sustainable and equitable outcomes



Data access is limited and costly



**Data**



**Time**



**Expertise**



**Resources**



# Measure, plan, and act to reduce emissions.

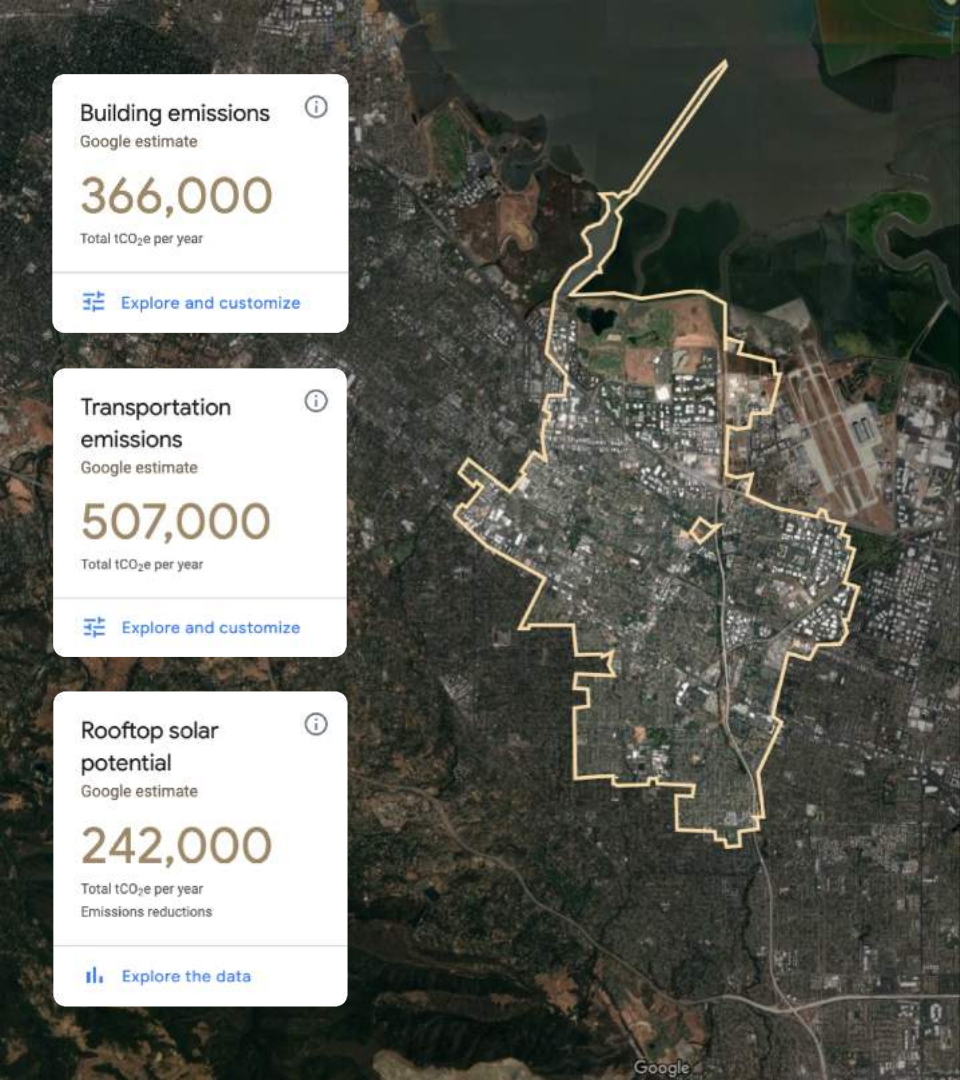
## Explore data to take informed action.

Expanding data access to more cities this year.

 [Request a city](#)

In partnership with the [Global Covenant of Mayors for Climate & Energy](#)





**Building emissions** ⓘ  
Google estimate

**366,000**  
Total tCO<sub>2</sub>e per year

[Explore and customize](#)

**Transportation emissions** ⓘ  
Google estimate

**507,000**  
Total tCO<sub>2</sub>e per year

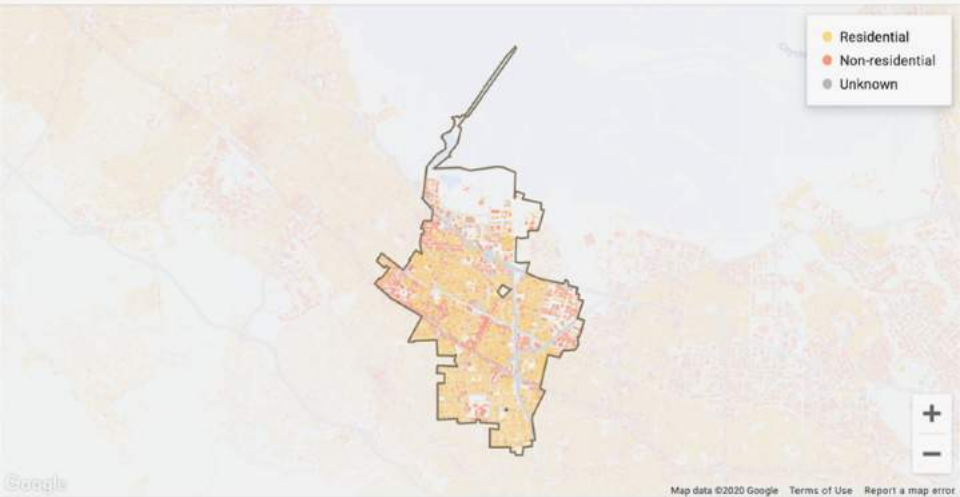
[Explore and customize](#)

**Rooftop solar potential** ⓘ  
Google estimate

**242,000**  
Total tCO<sub>2</sub>e per year  
Emissions reductions

[Explore the data](#)

- 01 Estimate building emissions
- 02 Measure annual transit activity
- 03 Identify CO<sub>2</sub> reduction opportunities
- 04 Capture air quality measurements



- Residential
- Non-residential
- Unknown

+  
-

## Building emissions

Google estimate

366,000

Total tCO<sub>2</sub>e per year

**Source:**  
Google Maps, based on size of buildings mapped within the platform.

**Time period:**  
Annual value based on surveyed buildings in 2018.

**Key assumptions:**  
Regionally estimated electricity and fuel consumption from the Climate Action for Urban Sustainability (CURB) tool are applied to mapped size by building type. Grid emissions factors are sourced from CURB or country-specific values where available..

### % of total building emissions



### % of total measured area

8,100,000 m<sup>2</sup> | 17,700 total buildings



## Building emissions

Google Maps data can estimate how much energy buildings use and the resulting emissions



Map data ©2020 Google Terms of Use Report a map error

## Transportation emissions

Google estimate

# 507,000

Total tCO<sub>2</sub>e per year

**Source:** Google Maps uses aggregated location information from user trips to infer traffic, mode of travel, busyness, and total distances driven in a city. These are combined with an estimate of the types of vehicles and average fuel consumption of each mode.

**Time period:**  
Total trips for year 2018.

**Key assumptions:**  
Regionally estimated average fuel consumption and emissions from the Climate Action for Urban Sustainability (CURB) tool applied to all trips for each mode.

### % of total transportation emissions



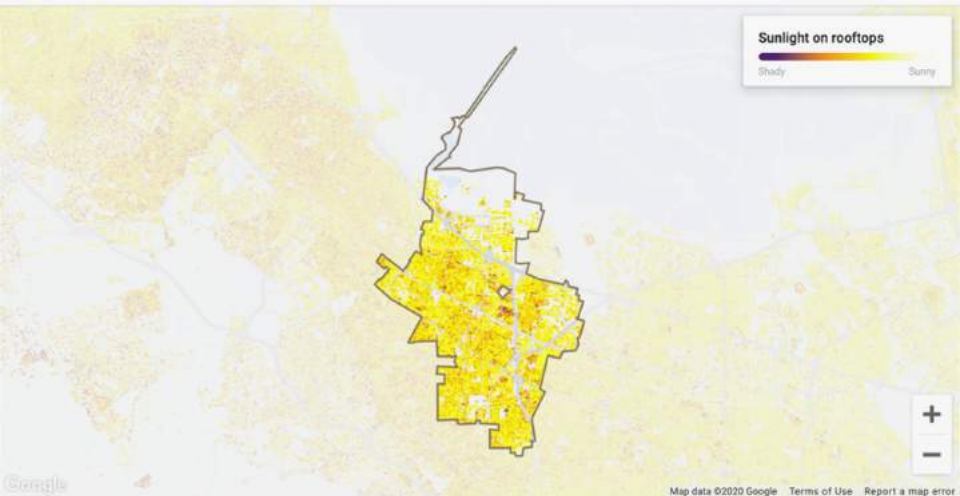
### % of total vehicle kilometers traveled

1,860,000,000 total kilometers



## Transportation emissions

Location data from Google Maps can be used to measure annual transit activity, infer traffic modes, and estimate emissions



## Rooftop solar potential

Google estimate

# 242,000

Total tCO<sub>2</sub>e per year

### Source:

Based on 98% data coverage over buildings in this geographic area. All estimates are based on buildings viable for solar panels.

### Time period:

Annual value based on surveyed buildings in March 2018.

### Key assumptions:

Included panels receive at least 75% of the maximum annual sun in the city. For Mountain View, the average value of the threshold is 1247.8 kWh/kW.

## Existing solar arrays

# 1,003

Solar arrays

# 6%

Of total potential

## Energy offset

High resolution imagery and AI can accurately estimate the total rooftop solar potential to determine if renewable energy is a viable solution



### **Measure**

Estimate your city's greenhouse gas (GHG) emissions



### **Plan**

Run scenarios based on granular levels of data and adjustable inputs



### **Act**

Inform mitigation goals and identify reduction opportunities



### **Track**

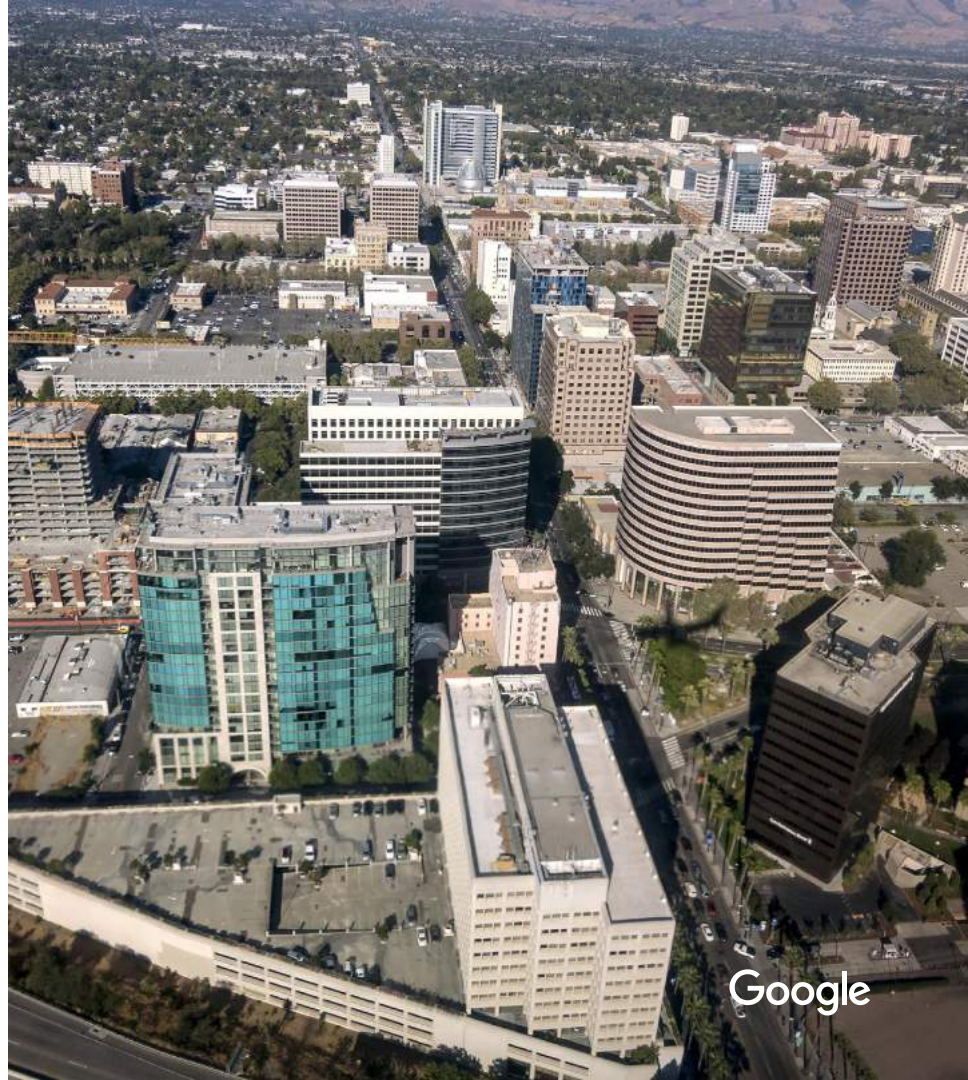
Monitor progress in meeting climate protection goals



Measure + Plan + Act: Renewable energy

## San Jose, California

San Jose set targets to be the world's first Gigawatt solar city based on Google's Project Sunroof data

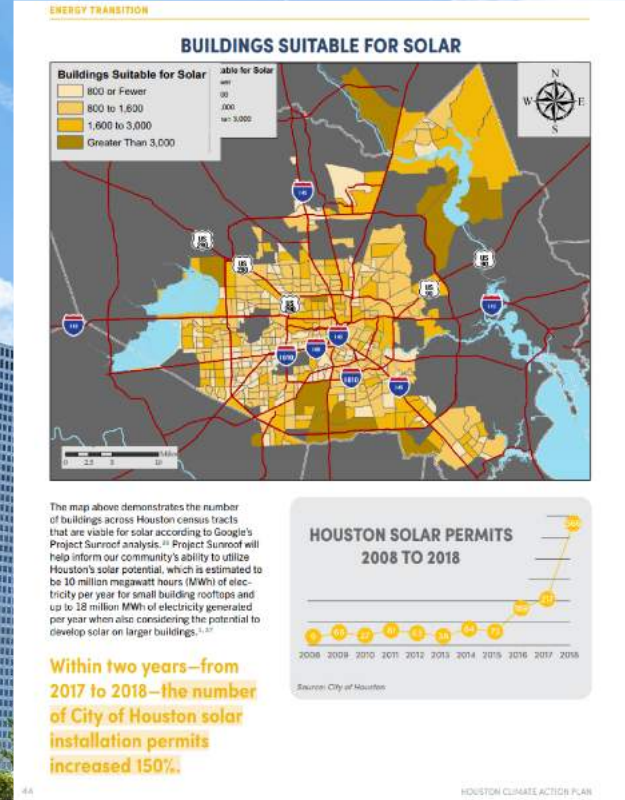




Measure + Plan + Act: Renewable energy

## 📍 Houston, Texas

EIE solar data used for city-wide solar technical assessment to design proposed 5M MWh target in plan.

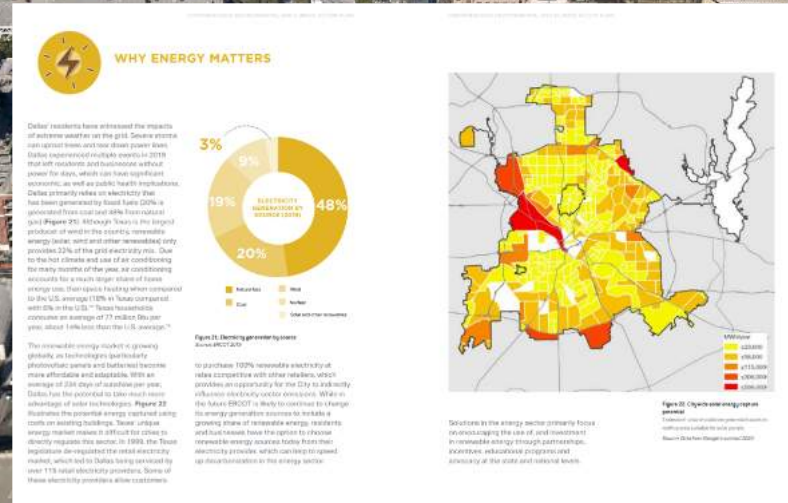
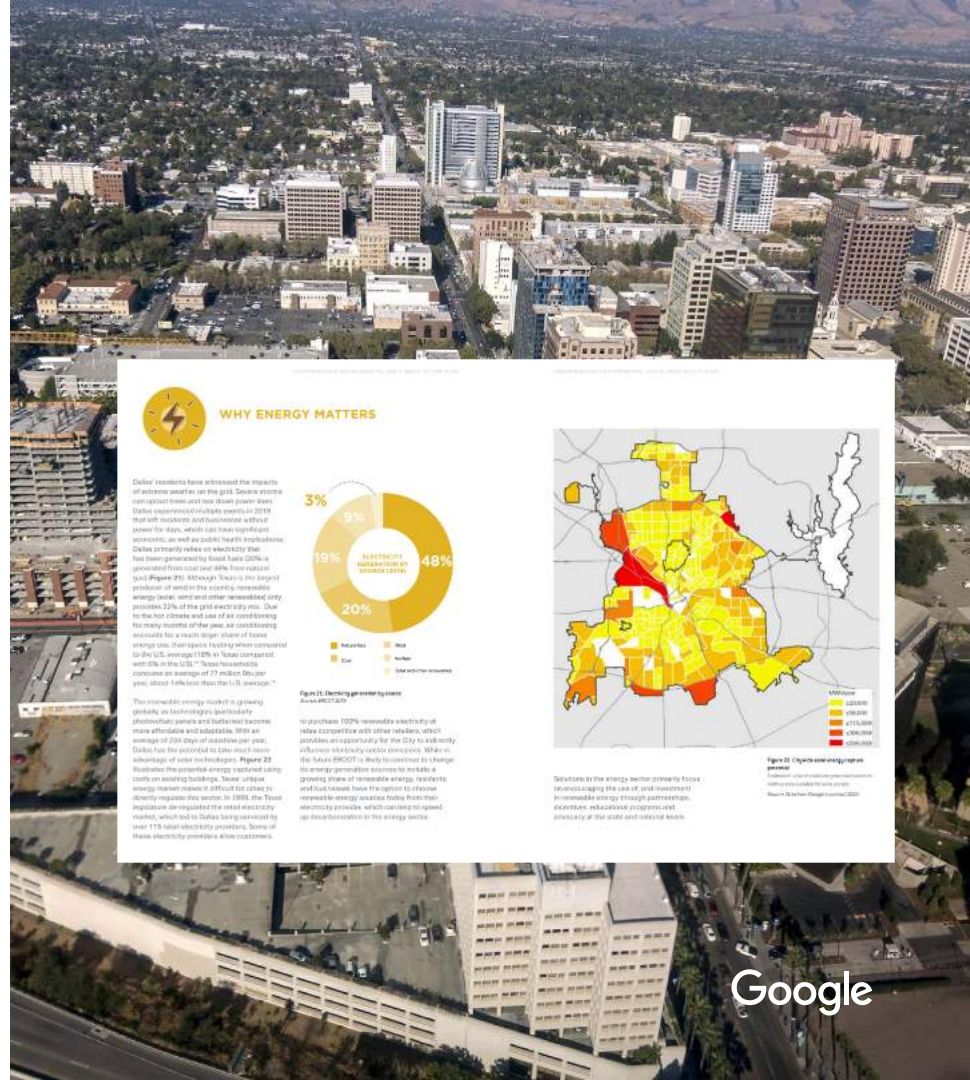




## Measure + Plan + Act: Renewable energy

### Dallas, Texas

EIE data used to show city-wide solar technical potential to build confidence in the city's ambition to be powered from 100% renewable sources.



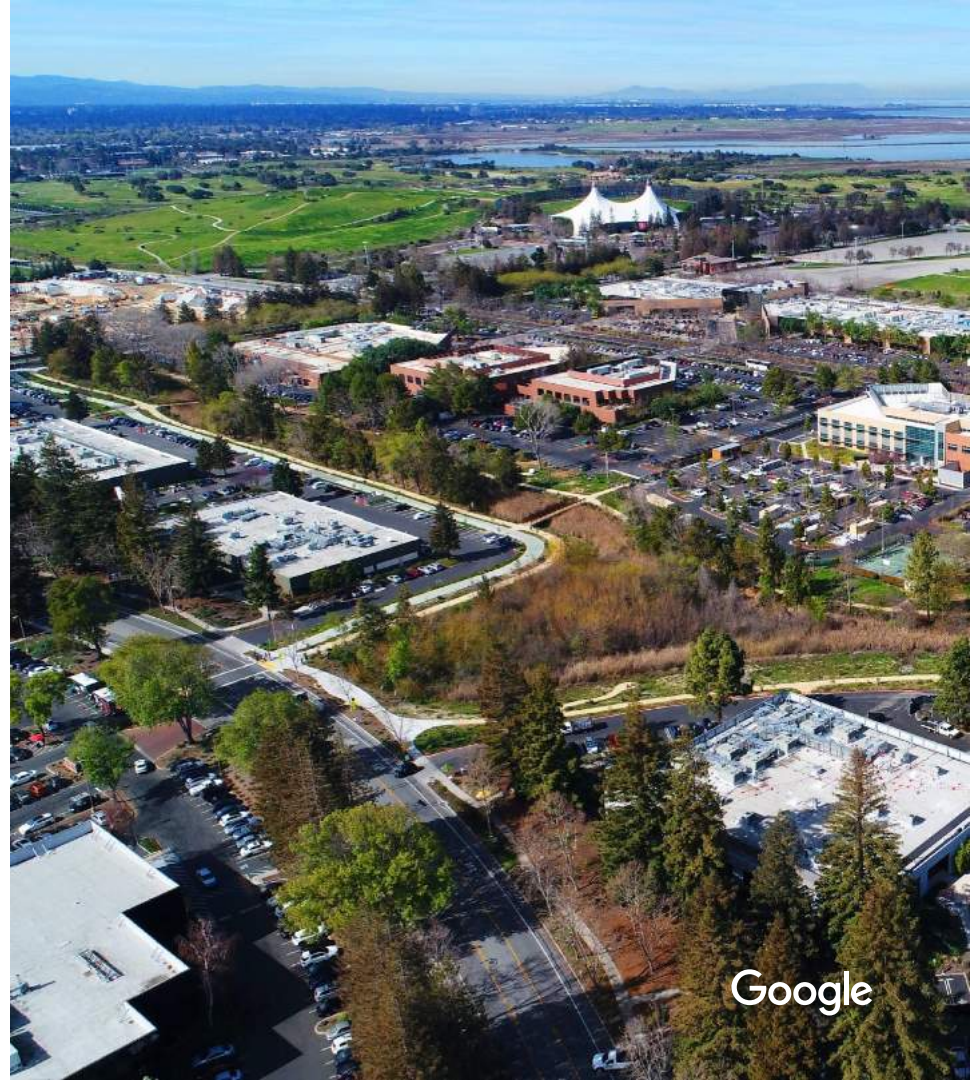




Measure: GHG emissions

## Mountain View, California

Mountain View plans to create parallel GHG inventory using EIE transport data for VMT and leveraging multi-modal data for planning purposes





Measure + Plan + Act + Track: GHG emissions

## 📍 Edmonton, Alberta

Through a partnership with the City of Edmonton and [MyHeat](#), EIE data is being used to: (1) indicate thermal efficiency of local building stock, encouraging consumers to save energy; and (2) provide estimates of the electricity that could be generated from rooftop installations.



Google

# 1,000+

Additional cities  
targeted with  
access in 2020

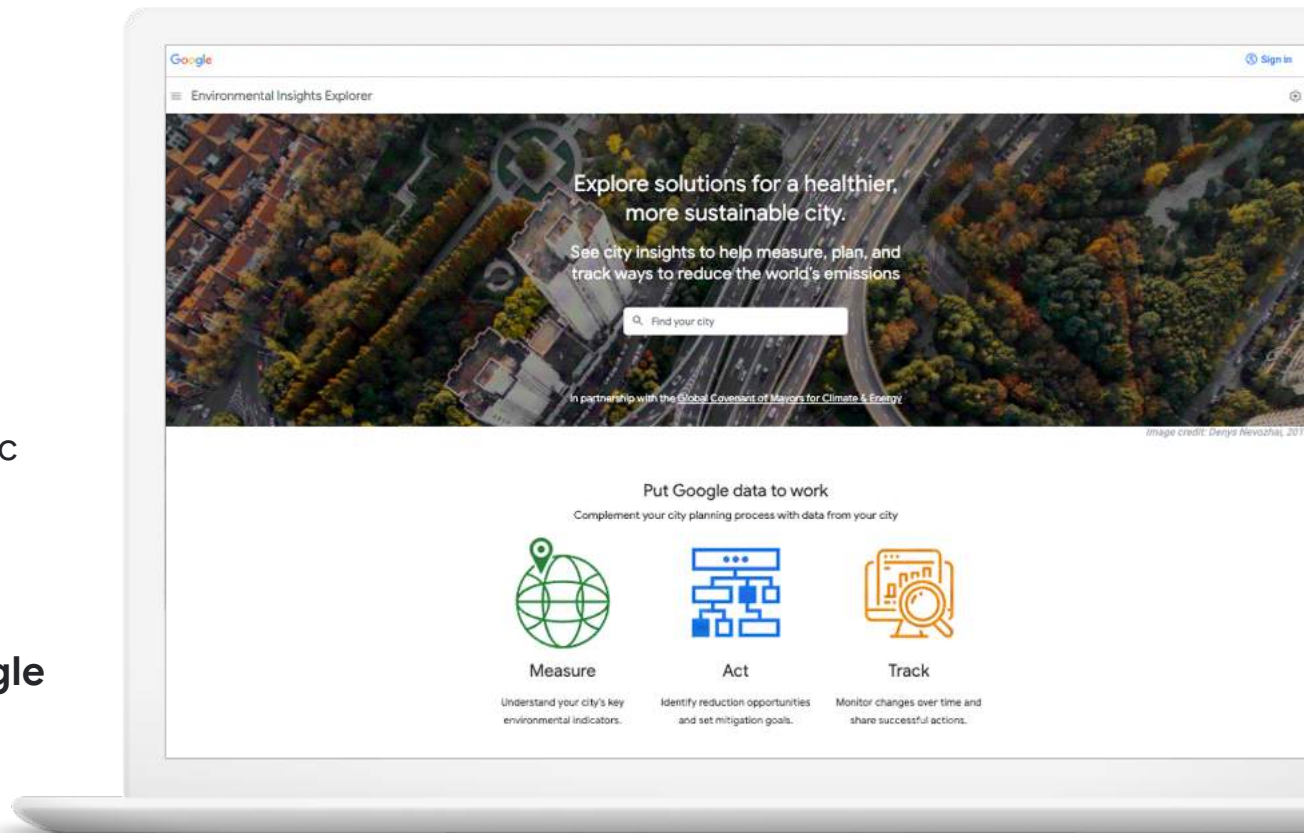


## Insights Workspace

- 01 Test drive EIE data
- 02 Incorporate data into planning efforts
- 03 Share data across departments and the public

Sign up to request data:

[insights.sustainability.google](https://insights.sustainability.google)



EIE aims to lighten the burden of data collection associated with developing GHG inventories and local sustainability policy.

A data integration with the **ICLEI's ClearPath** tool makes Google data available for those cities that want to build a comprehensive community-scale inventory.





Google

**Thank you**

[insights.sustainability.google](https://insights.sustainability.google)

Nicole Lombardo  
Business Development  
[nlombardo@google.com](mailto:nlombardo@google.com)

# ClearPath + EIE data integration

[HOME](#)[ABOUT ICLEI](#)[GOVERNMENT TRACK](#)[COMMUNITY-SCALE TRACK](#)[SIGN OUT](#)

Signed in as admin eli.yewdall@iclei.org

New inventory data is available for your community from Google Environmental Insights Explorer (EIE). If you accept this data, a new community inventory for 2018 will be created. Any existing inventories will not be affected. [Click here to accept data.](#)

Jurisdiction: Mikeville ▼

Welcome to ClearPath, the new emissions management software suite from ICLEI-USA. Within this set of tools you will be able to manage energy and greenhouse gas emissions at both the local government operation and community scales.

**To start**, select either the Government Operations or Community track by clicking the bar above. For more information on how to use each of the ClearPath Modules, please download and read the User Guides below

## User Guides

[Inventory, Forecast and Planning User Guide](#)

[Monitoring Module User Guide](#)

## Other Resources

[Government Buildings And Fleets Bulk Data Upload Template](#)

[Existing Inventory GPC Conversion Guide](#)

# ClearPath + EIE data integration

## Inventories

New Inventory

Name	Status	Official	Year
2013 Example			2013
2018 Inventory using Google EIE data	In Progress		2018
new	In Progress		2018
test inventory	In Progress		2013



## Available Calculators

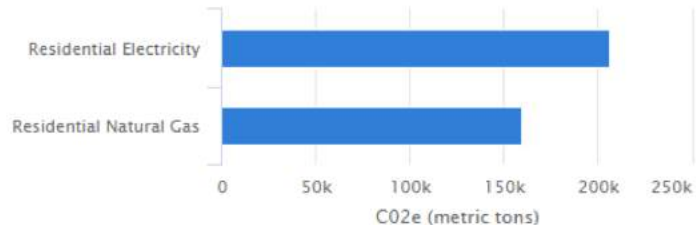
Pick a calculator to enter a new record.

- [Emissions from Grid Electricity](#) ⓘ
- [Emissions from Stationary Fuel Combustion](#) ⓘ
- [Notation Keys for Residential Energy](#) ⓘ

## Inventory Records For Residential Energy

Residential Electricity	<a href="#">Edit</a>   <a href="#">Delete</a>
Residential Natural Gas	<a href="#">Edit</a>   <a href="#">Delete</a>

## CO<sub>2</sub>e By Record



## Available Calculators

Pick a calculator to enter a new record.

- [Active Transportation \(indicator only\)](#) ?
- [On Road Transportation](#) ?
- [Emissions from Public Transit](#) ?
- [Aviation Travel](#) ?
- [Rail Transportation](#) ?
- [Water Transportation](#) ?
- [Emissions from Off Road Vehicles](#) ?
- [Notation Keys for Transportation](#) ?

## Inventory Records For Transportation & Mobile Sources

On Road vehicles - cross boundary outbound	<a href="#">Edit</a>   <a href="#">Delete</a>
Walking - cross boundary inbound	<a href="#">Edit</a>   <a href="#">Delete</a>
Walking - cross boundary outbound	<a href="#">Edit</a>   <a href="#">Delete</a>
Bicycling - cross boundary outbound	<a href="#">Edit</a>   <a href="#">Delete</a>
Bicycling - in boundary	<a href="#">Edit</a>   <a href="#">Delete</a>
Rail - cross boundary outbound	<a href="#">Edit</a>   <a href="#">Delete</a>
Rail - in boundary	<a href="#">Edit</a>   <a href="#">Delete</a>
Bus VMT - cross boundary outbound	<a href="#">Edit</a>   <a href="#">Delete</a>
Bus VMT - in boundary	<a href="#">Edit</a>   <a href="#">Delete</a>
Subway - cross boundary inbound	<a href="#">Edit</a>   <a href="#">Delete</a>
Subway - cross boundary outbound	<a href="#">Edit</a>   <a href="#">Delete</a>
Subway - in boundary	<a href="#">Edit</a>   <a href="#">Delete</a>
Bus VMT - cross boundary inbound	<a href="#">Edit</a>   <a href="#">Delete</a>
On Road Vehicles - cross boundary inbound	<a href="#">Edit</a>   <a href="#">Delete</a>
Rail - cross boundary inbound	<a href="#">Edit</a>   <a href="#">Delete</a>
On Road Vehicles - within boundary	<a href="#">Edit</a>   <a href="#">Delete</a>
Walking - within boundary	<a href="#">Edit</a>   <a href="#">Delete</a>
Bicycling - cross boundary inbound	<a href="#">Edit</a>   <a href="#">Delete</a>

## Input Data

Use the following fields to complete the record

VMT [?](#)

Annual VMT [v](#)

Percent Motorcycles [?](#)

% [v](#)

Percent Passenger Vehicles [?](#)

% [v](#)

Percent Light Trucks [?](#)

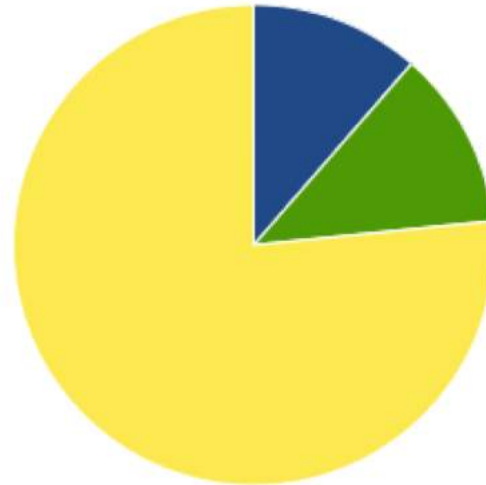
% [v](#)

Percent Heavy Trucks [?](#)

% [v](#)

# ClearPath + EIE data integration

## CO2e By Category



- Residential Energy
- Commercial Energy
- Transportation & Mobile Sources



# Contribution Analysis

# Measurement of emissions is great, but...



- What is driving the total emission changes?
  - Cleaner Grid?
  - More Efficient Vehicles?
  - Local Action?
- Can we better understand inventories to help us develop more effective and efficient climate policies?
- Can we show we are making progress even if total emissions are increasing?

# Contribution Analysis tool

---



Contribution analysis identifies how various factors contribute to changes in emissions seen between two GHG inventories. These factors may include:

- External factors such as weather and population growth
- Changes in emissions factors
- Impact of state or federal policy and programs
- **Impact of local policy and programs**

By isolating external factors, the framework should support more informed target-setting, policy-making, and communications

# Model Inputs



Sector		Inputs needed
General Info		Population, number of households, per capita GDP, commercial building ft <sup>2</sup> or total employment within jurisdiction
Inventory	Residential Electricity	Total emissions, total kWh usage, monthly kWh data
	Commercial Electricity	Total emissions, total kWh usage, monthly kWh data
	Residential Natural Gas	Total emissions, total therms usage, monthly therms data
	Commercial Natural Gas	Total emissions, total therms usage, monthly therms data
	On-Road Transportation	Total on-road emissions, total on-road vehicle miles traveled (VMT) or total gallons of fuel
	Solid Waste	Total landfill disposal, waste composition breakdown for each inventory year*
	Other Sectors*	Residential/commercial fuel use (propane, heating oil), industrial electricity/natural gas, off-road transportation, wastewater treatment
Daily weather input		Daily min, max, and average temperatures

\* Optional data



# Program Inputs (Optional)

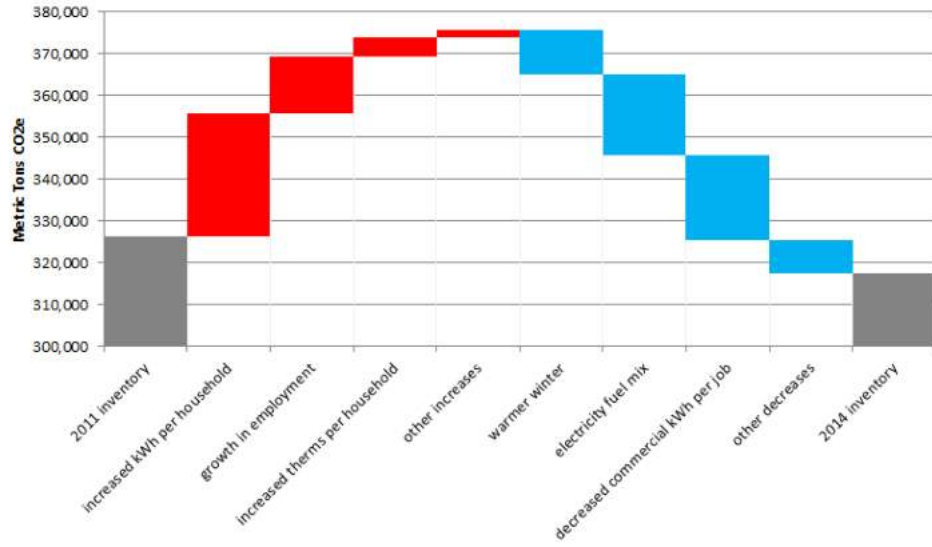
Program Inputs		Aspen	
This tab is optional. Enter the name for each program, and enter either activity reductions OR emissions reductions, depending on the data. Reductions should be entered as a positive number.			
<b>Residential Electricity Programs-kWh reduction</b>			
Program Name			
kWh savings in Year 2 compared to Year 1			
Data source			
<b>Residential Electricity Programs--Emissions reduction already calculated</b>			
Program Name			
Emissions Reduction (MTCO2e)			
Data Source			
<b>Commercial Electricity Programs--kWh reduction</b>			
Program Name			
kWh savings in Year 2 compared to Year 1			
Data source			
<b>Commercial Electricity Programs--Emissions reduction already calculated</b>			
Program Name			
Emissions Reduction (MTCO2e)			
Data Source			

- Either emissions data or activity data is acceptable

# Visuals

## Visual Outputs

### Quick summary: Three largest increases and decreases



[View chart data](#)

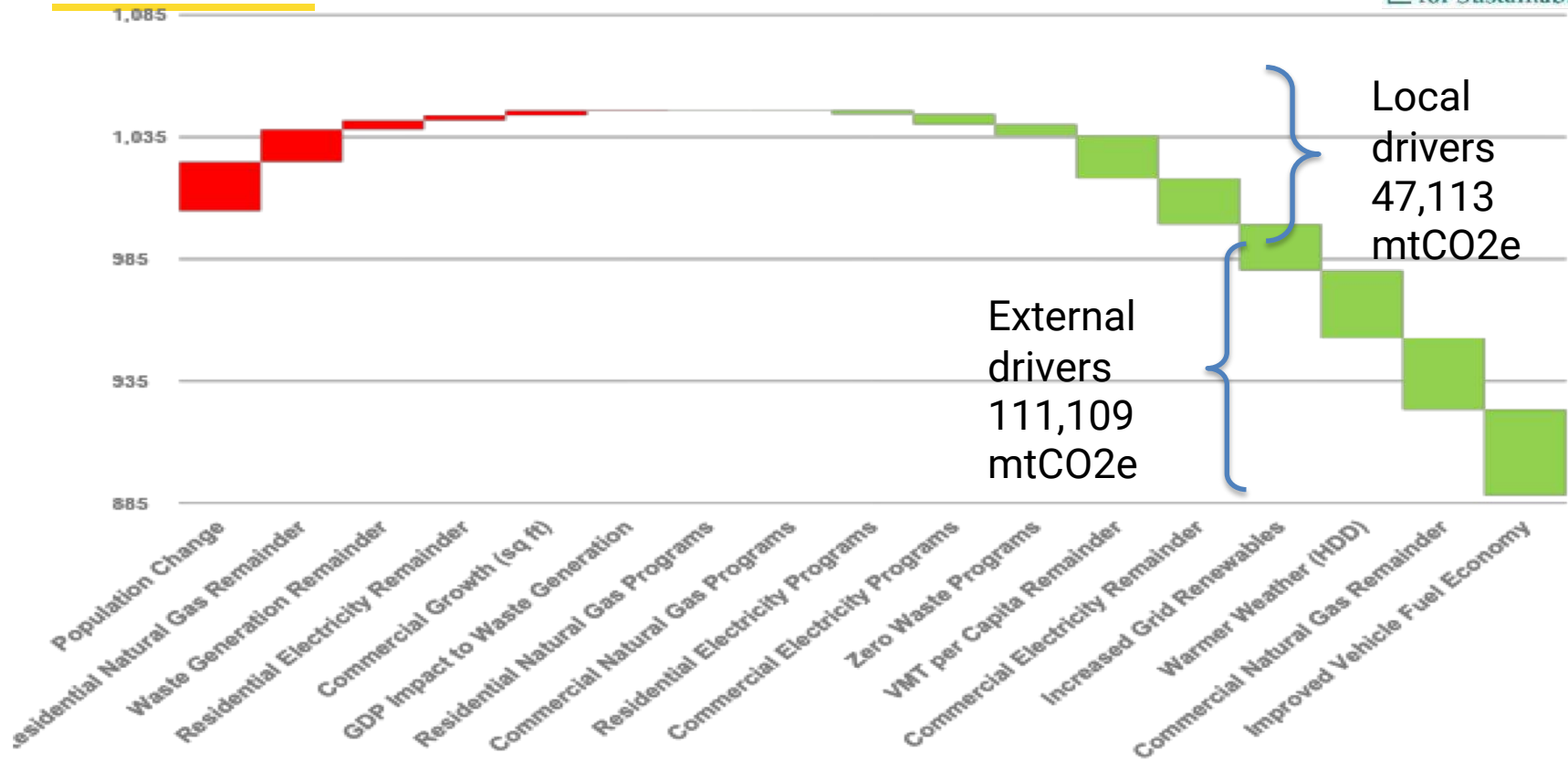
Update All Charts

X-axis labels

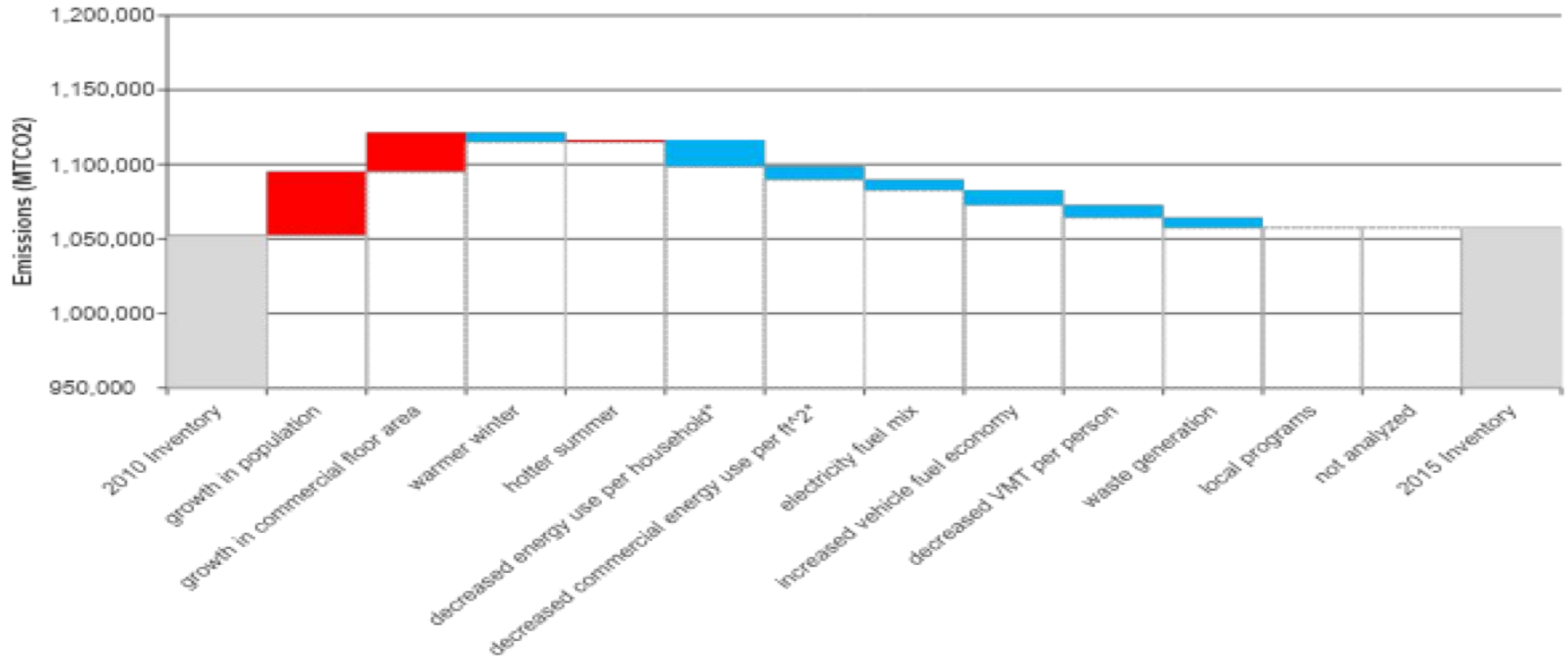
Defaults

- Several different visual options: top drivers, detailed summary, quick summary, sector breakdowns
- Red for emissions increase, blue for emissions decrease

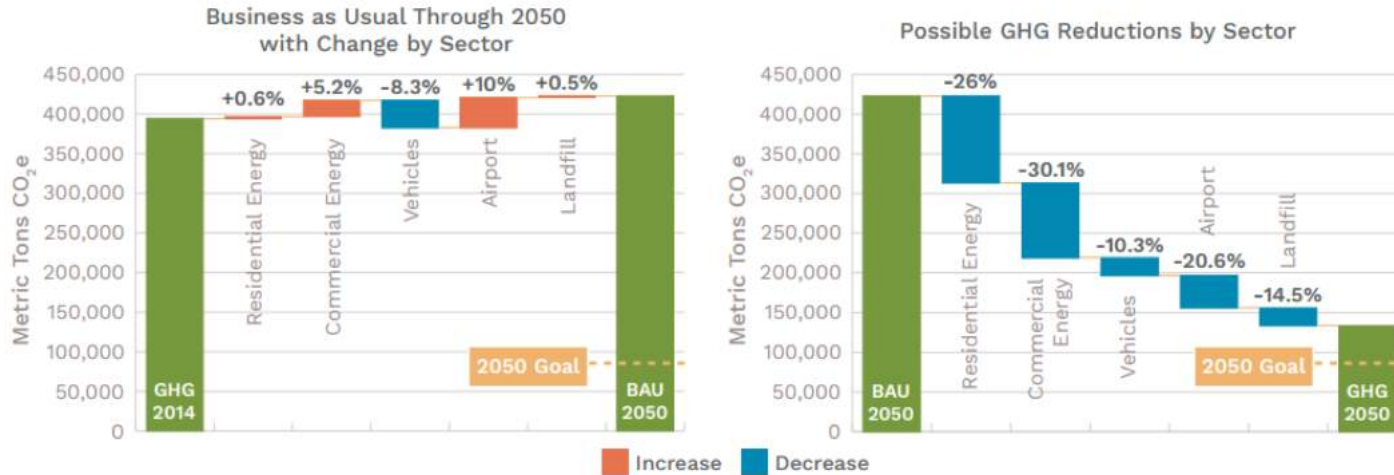
# Santa Monica: Analysis 2011-2015



# Hayward: Analysis 2010-2015



# Aspen: Visualizing Data in CAP



**Figure 2.** Community-wide GHGs are likely to grow between now and 2050 if the current level of climate action in Aspen continues. On the other hand, if efforts increase dramatically and all objectives in the GHG Reduction Toolkit are achieved, Aspen could get very close to reaching its 2050 goal.

- Wedges are net changes by sector and do not go deeper into contribution analysis
- Aligned with GHG Reduction Toolkit for CAP implementation

## The key findings from this analysis are:

- 1. Both a cleaner electric grid and energy efficiency have important roles to play to offset growth and reduce emissions from commercial and residential electricity.** State-level policies advancing renewable energy, combined with local, utility, business and individual action for energy efficiency can overcome growth and drive significant emissions reductions.
- 2. State energy efficiency policies have a noticeable effect on changes in commercial energy usage.** Local governments in states with a high energy efficiency policy score<sup>1</sup> show per-employee energy use decreasing more rapidly than those in lower-scoring states. This relationship was not found for residential energy use; more research is needed to determine why not.
- 3. Both more efficient vehicles and reduced vehicle miles per person have important roles to play to offset growth and reduce emissions from on-road transportation.** In a majority of communities analyzed, improvements in vehicle fuel efficiency and reductions in vehicle miles per person are sufficient together to reduce emissions despite population growth.
- 4. Transportation emissions are more challenging than electricity emissions and more work is needed.** While the overall trend is in the right direction, transportation emissions are not decreasing as rapidly as those from electricity, and emissions are still increasing for 37% of communities. More work is needed to address both vehicle miles per person and vehicle fuel efficiency or fuel switching.



# SEEC Sunsetting: What Now?

# SEEC Sunsetting



Based on a 2018 decision from the California Public Utilities Commission, which requires the IOUs to adhere to a more stringent total cost recovery test, the IOUs will no longer provide SEEC financial support after 2020.



# ICLEI Membership



Continue ClearPath access with additional benefits through [ICLEI Membership \(California\)](#)

1. Traditional ICLEI Membership
  1. Cities/Counties

Membership Dues for Cities or Counties

Population	Dues
1 - 50,000	\$600
50,001 - 100,000	\$1,200
100,001 - 200,000	\$1,750
200,001 - 300,000	\$2,250
300,001 - 500,000	\$2,750
500,001 - 750,000	\$3,500
750,001 - 1,000,000	\$4,500
1,000,001 - 2,000,000	\$5,750
2,000,001 - 4,000,000	\$7,000
> 4,00,000	\$8,000

1. Regional Affiliate ([intake form](#))
  1. Potential Regional Affiliates: councils of government; air quality districts; larger counties; nonprofits, Regional Energy Networks, and Beacon champions are potential partners – please contact Angie Fyfe to discuss partnerships.

Dues for Regional Affiliates

Operating Budget	Dues
< \$750,000	\$2,500
\$750,000 - \$1.5M	\$3,000
\$1.5M - \$3M	\$4,000
\$3M - \$5M	\$5,500
\$5M - \$7.5M	\$6,500
\$7.5M - \$10M	\$8,000
> \$10M	\$9,500

Contact Kale Roberts at [Kale.Roberts@iclei.org](mailto:Kale.Roberts@iclei.org) to discuss joining ICLEI



# Questions & Answers

# Thank you!



Calyn Hart  
ICLEI USA  
[calyn.hart@iclei.org](mailto:calyn.hart@iclei.org)



Nicole Lombardo  
Google Environmental Insights  
[nlombardo@google.com](mailto:nlombardo@google.com)

# Thank you to...

*Our sponsors for making this series possible!*



*Pacific Gas and Electric Company*



SOUTHERN CALIFORNIA  
**EDISON**

Energy for What's Ahead™



Southern California Gas Company

**BAYREN**

Southern California  
REGIONAL ENERGY NETWORK



*Our promotional partners for extending our reach!*



*Clean Coalition*



**EMPOWER**  
INNOVATION



SAN DIEGO  
GREEN BUILDING  
COUNCIL



San Joaquin Valley  
**Clean Energy Organization**



**USGBC**  
CENTRAL CALIFORNIA