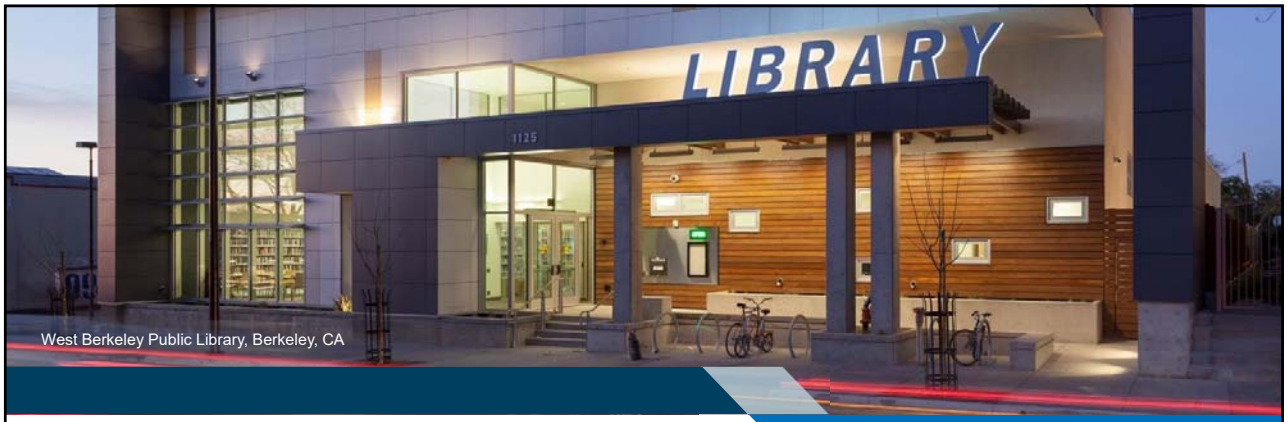



West Berkeley Public Library, Berkeley, CA

ecoedge maalka nbi new buildings institute

# Aligning Municipal Policies and Actions with Energy and Carbon Goals


## Today's Presenters

Sharon Grant

ecoedge

Rimas Gulbinas

maalka

## Agenda

1. **Making the Case for Alignment**
   - Introduction and Background
   - Overview of Current Cities Support and Impact
   - Best Practices for Benchmarking and Performance Reporting
2. **Resources**
   - Public Tools
   - Online Guides and Resources

## Learning Objectives

1. Discuss strategic approaches to data-driven decision making
2. Identify best practices for benchmarking and prioritization of municipal buildings
3. Share impacts on policies and operations of multi-year work with six cities
4. Correlate goals with performance reporting

## Leading by Example

The Role of Local Governments in Energy and Climate Leadership

West Berkeley Public Library, Berkeley, CA

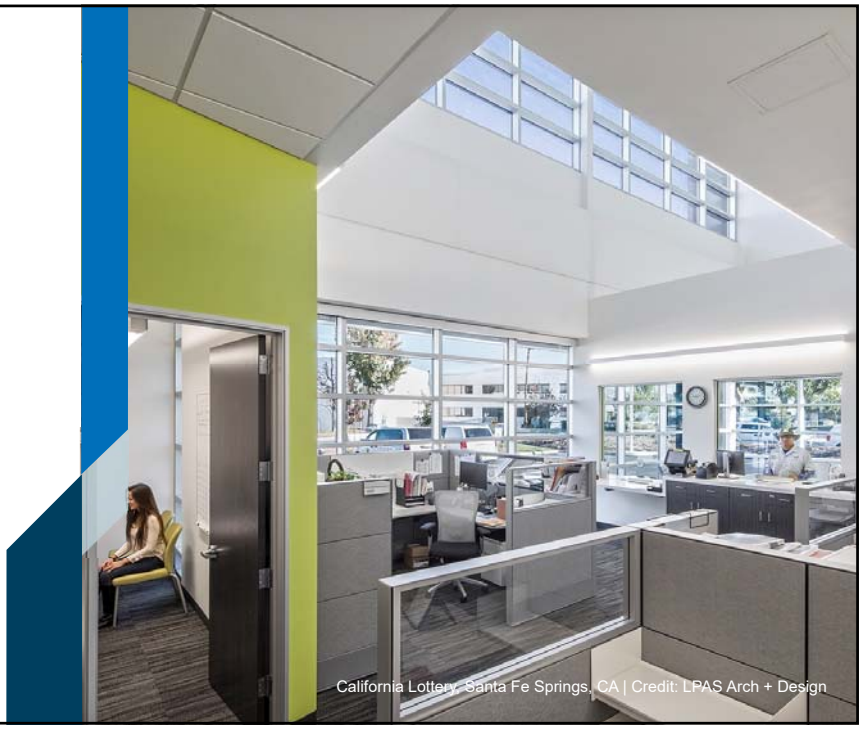
## Introduction and Background

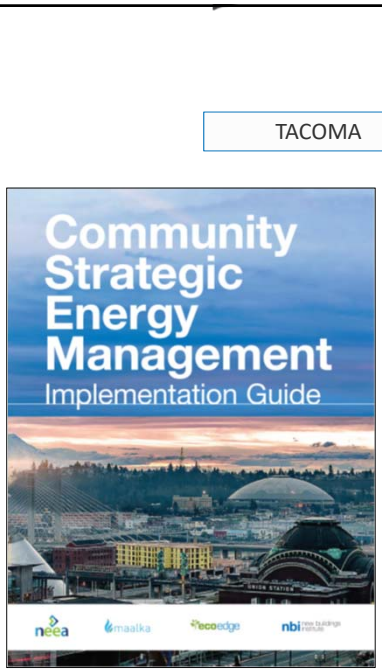
Why cities?

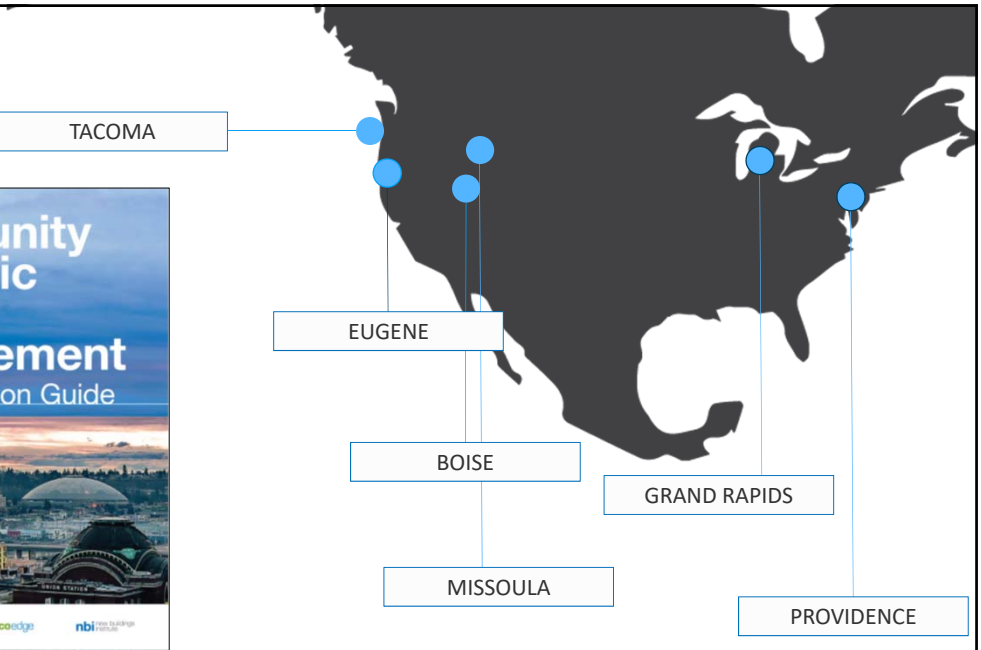
Why buildings?

# Public Buildings Portfolio Planning

A Replicable Framework for Municipal Strategic Energy Planning


California Lottery, Santa Fe Springs, CA | Credit: LPAS Arch + Design



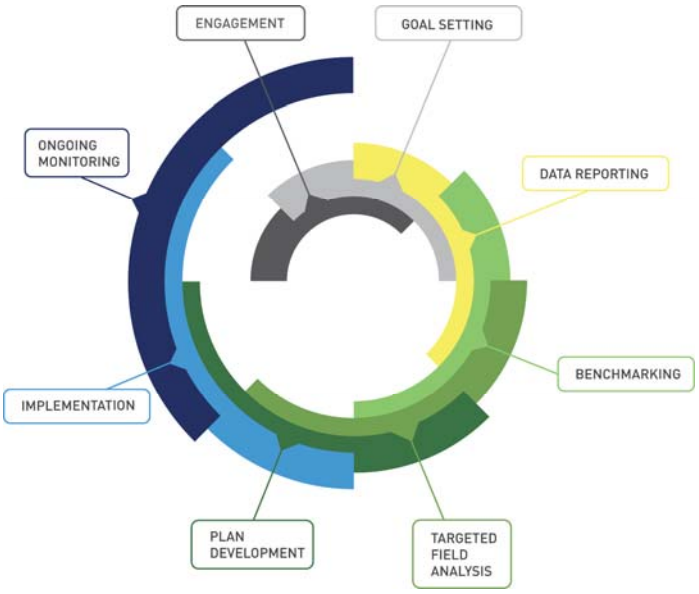




LINK: https://newbuildings.org/resource/community-strategic-energy-management-implementation-guide/

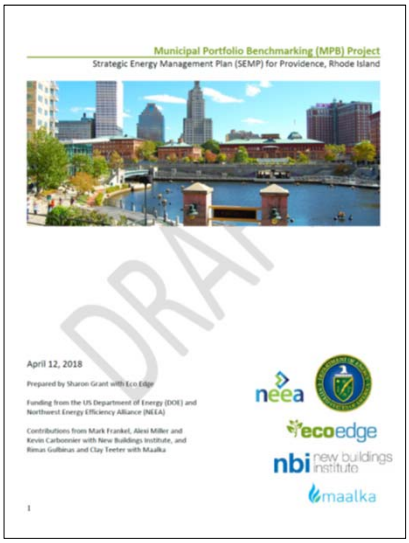
## Typical City Struggles

- The path towards achieving carbon emission reduction goals is not clearly defined
- Departments tend to operate in silos
- Decision maker drivers are not well understood
- Data is scattered and not clean
- Presentation of data doesn't tell the story effectively
- Budgets are based on lowest first cost not ROI

## The Solution for Cities



## Define a Path



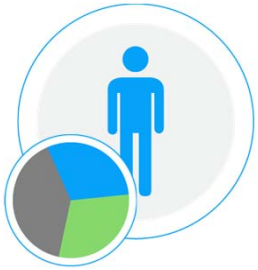

- Establish a clear baseline
- Define SMART goals
- Track performance
- Document in a SEMP

## Engage the Right Team

- Empower the energy champion
- Ensure cross-departmental representation on an energy team
- View utilities as partners
- Meet regularly
- Present to City Council
- Consider a citizen advisory group

## Understand Drivers

- Who established carbon emission reduction targets?
- What motivated them?
- Do they understand the significance of buildings?
- How can you create opportunities to educate them?



## Explore New Financing Mechanisms

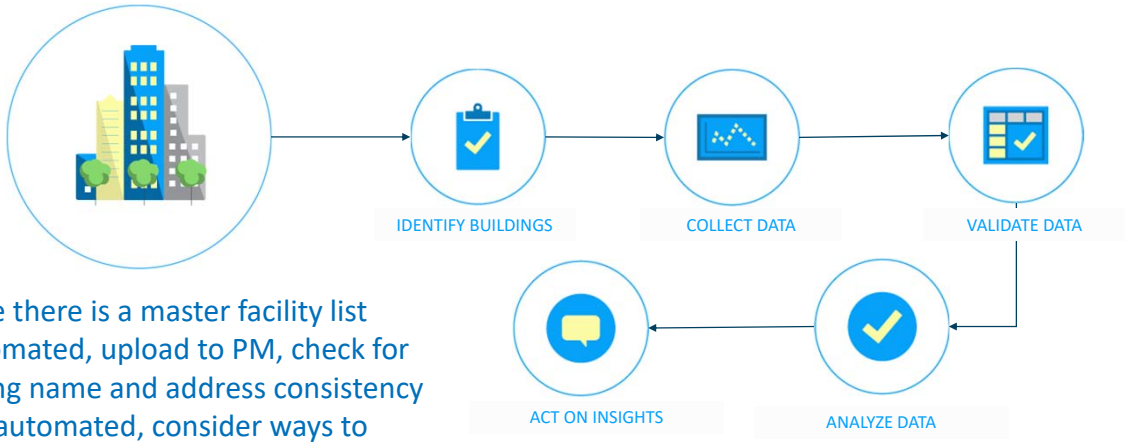
- Enable long-term energy planning with a sustainable funding stream
- Help achieve carbon emission reduction targets
- Reinvest savings to create a virtuous circle
- Empower those that know the most about their buildings to identify opportunities
- Expedite approval processes for energy upgrades – remove red tape

## Developing an Energy Reinvestment Fund

- Start with seed funding
- Develop a strategy for sustained funding
- Determine how the fund will be managed
- Establish criteria for selecting projects
- Measure and track the results


LINK: https://betterbuildingssolutioncenter.energy.gov/solution-roundup/green-revolving-funds

## Streamlining Data Collection & Cleansing

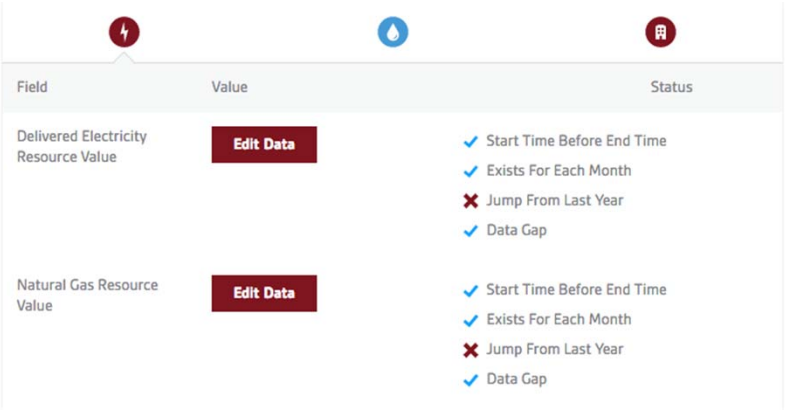



- Ensure there is a master facility list
- If automated, upload to PM, check for building name and address consistency
- If not automated, consider ways to consolidate data streams
- Run data through Maalka's "data cleansing" tool

# Data Cleansing

Data Quality must be analyzed at various resolutions and should be continuously monitored.

- Data Quality for Individual Meters
  - e.g. Check for gaps in each electricity meter
  - Could be indicative billing errors or data entry errors
- Data Quality for Aggregated Fuel Types
  - e.g. Check for jumps in monthly whole building electricity
  - Could be indicative of billing errors
- Data Quality for Aggregate Energy
  - e.g. Check for missing months in whole building and/or portfolio energy

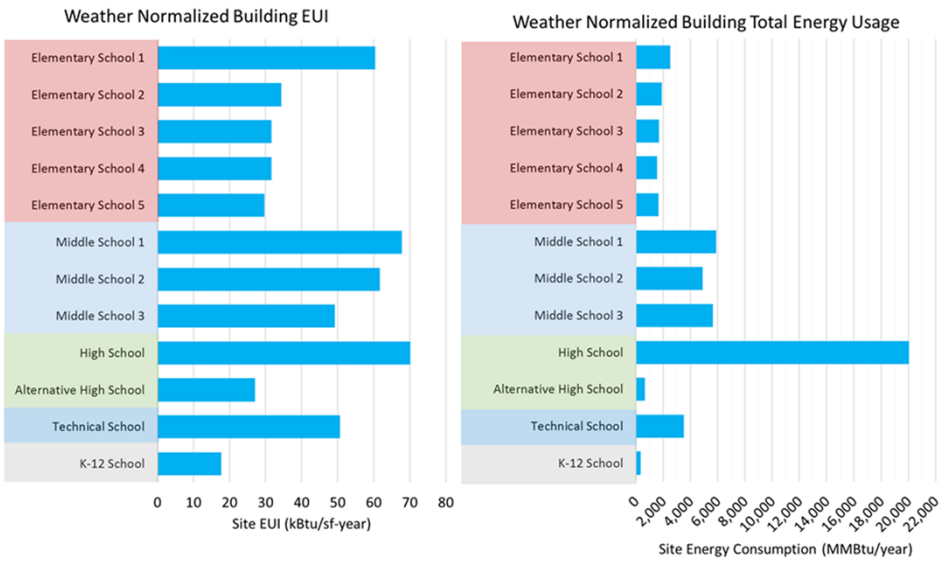



# Tell the Story

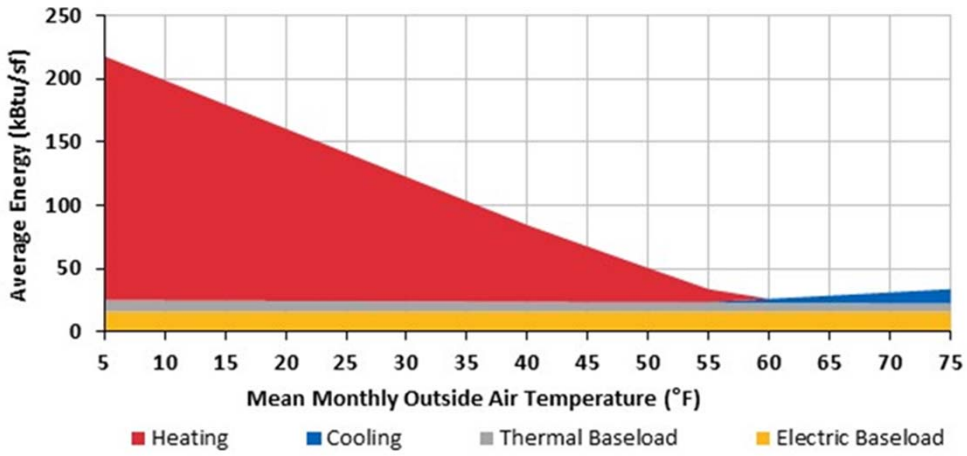
The goal is “data-based decision making”

- Conduct virtual energy audits
- Make relevant comparisons
- Track the impact of energy upgrades
- Share success stories
- Show progress on a trajectory towards targets

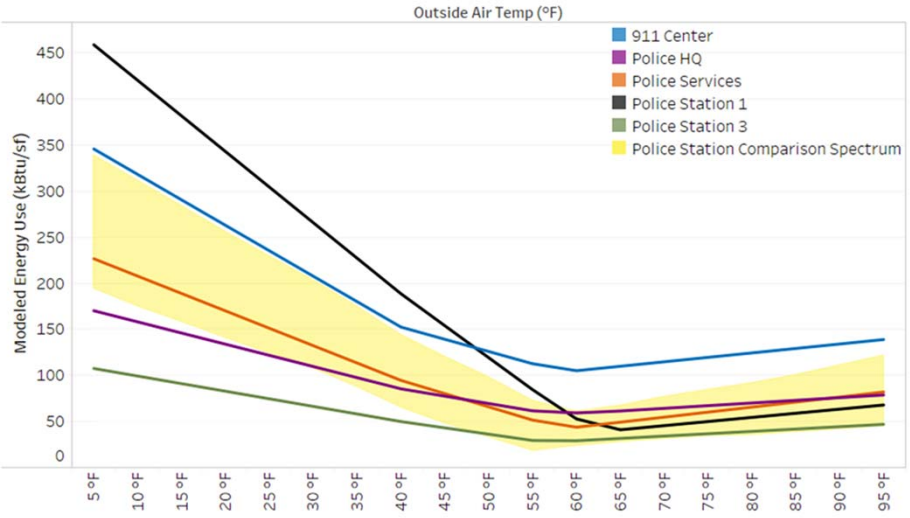
# Energy Intensity and Consumption Comparisons



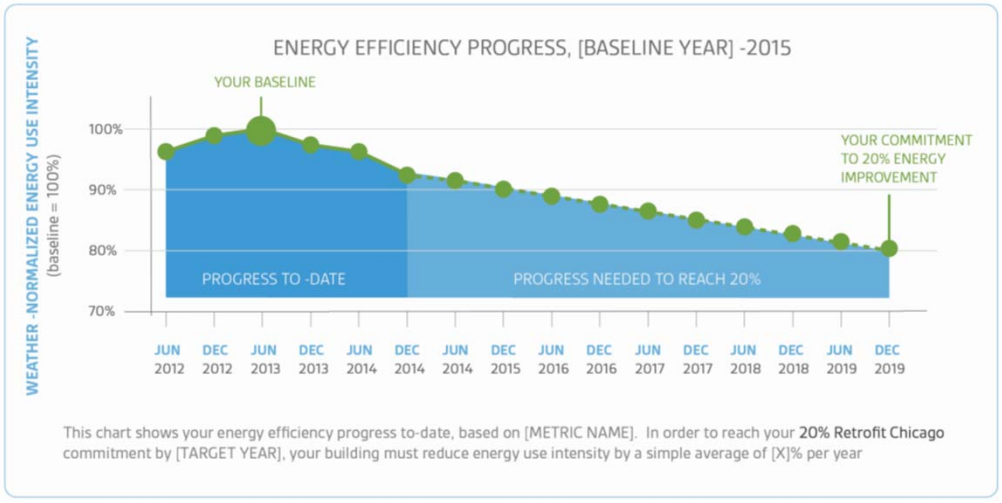

# FirstView® Diagnostics



# Comparison Spectrums of Similar Buildings



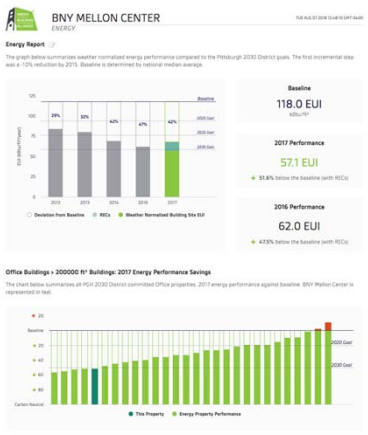

# Progress on a Trajectory



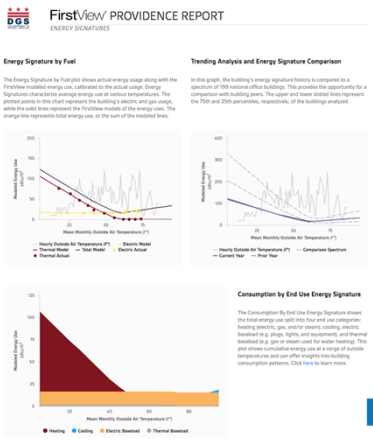

maalka

# Correlate Goals to Performance Reporting

Assessing performance from the perspective of Long Term Strategic Goals and Building Operations




2030 Districts Performance Tracking - ZeroTool




New Buildings Institute – First View Analysis

# Impact


San Diego. Credit: Fortune Builders

## Impacts, Successes, Lessons Learned

- Mobilize a robust cross-departmental energy team and engage decision makers at a high level
- Facilitate greater alignment between facilities and RCM/EM
- Create SMART goals
- Produce regular performance reporting of successes
- Build net zero municipal building as an example to the community
- Add FTE
- Save Energy and $

## Resources

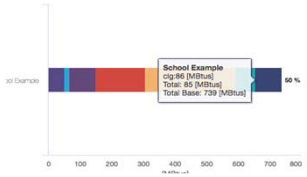
San Diego. Credit: Fortune Builders

# Open Tools | Leverage Powerful Public Toolkit

## CODES ASSESSMENT

PURPOSE: The Code Assessment Tool enables municipalities to understand how the adoption of various building energy codes and improvement strategies would impact the energy-use of buildings across their portfolio.

LINK: https://codes.maalka.com




## DATA VALIDATION

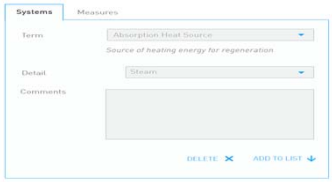
PURPOSE: The Data Validation Tool allows users to easily import their EPA Portfolio Manager data and identify data anomalies across their building portfolio. Use the tool as first step to improving data quality before engaging in data analysis.

LINK: https://dataquality.maalka.com/

## BUILDING LIFECYCLE

PURPOSE: The Building Life Cycle Tool guides users in the collection of the most important building systems and energy efficiency measures information in a standardized format. The data can be used to jumpstart building energy audits.

LINK: https://lifecycle.maalka.com/

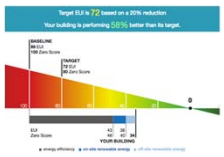



# Open Tools | Leverage Powerful Public Toolkit

## EUI BENCHMARK

PURPOSE: The Zero Tool was built for Architecture2030 and is used to compare building energy-use intensity with similar building types across the country, based on location and building characteristics.

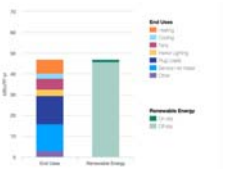
LINK: https://zerotool.org/zerotool/



## NET ZERO CALCULATOR

PURPOSE: The Energy Calculator was built for Architecture2030. The Energy Calculator estimates the potential offset of on-site solar and RECs required for your building to achieve zero-net-carbon.

LINK: https://zero-code.org/energy-calculator/



## TEMPERATURE SENSITIVITY

PURPOSE: The Temperature Sensitivity Tool helps users understand how their building energy-use varies with temperature, which can be used to normalize for weather and measure changes to energy-use over time.

LINK: https://sensitivity.maalka.com/


Maalka will continue to expand open toolkits for organizations

# Some Links and Resources

NBI, EcoEdge, Maalka, NEEA: "Community SEM Implementation Guide". https://newbuildings.org/resource/community-strategic-energy-management-implementation-guide/

Maalka: "Open Source Tools for Community SEM" . https://maalka.com/tools

Institute for Market Transformation: "City Energy Project"https://www.cityenergyproject.org/

Bloomberg: "American Cities". https://www.bloomberg.org/program/founders-projects/american-cities-initiative/

2030 Districts: https://www.2030districts.org/

ACEEE: "Building Benchmarking, Rating, and Transparency". http://database.aceee.org/city/benchmarking-disclosure

Department of Energy: "Better Buildings Challenge". https://betterbuildingssolutioncenter.energy.gov/alliance/about

Energy Innovation Center, San Diego, CA | Credit: NBI

# Discussion

# Thank You!

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