

# Project Purpose

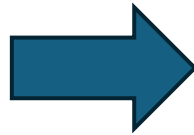
Create something useful or interesting based upon skills I learned in this class that could be applied to my current job or that could spawn an unrelated side project.

## My interests/skills

- Data analysis/modeling for transportation planning / urban planning
- Home renovation DIYer
- Strong R programming skills, average python programmer
- Creating web applications in Shiny

## Climate Tech Project

- A web application that explores and visualizes:
  - 1) sensor and home energy model data
  - 2) electric vehicle charging data




Climate Tech Ideas

Tool Info Home/DIY Solutions Large Scale Solutions

### Tool Overview

This tool presents potential climate tech solutions and that are the outcome of the Terra.Do Software Stacks for Climate Tech Course. This information is comprised of 3 components which are accessed through the webpage tabs:

- Home DIY solutions
- Larger Scale Solutions

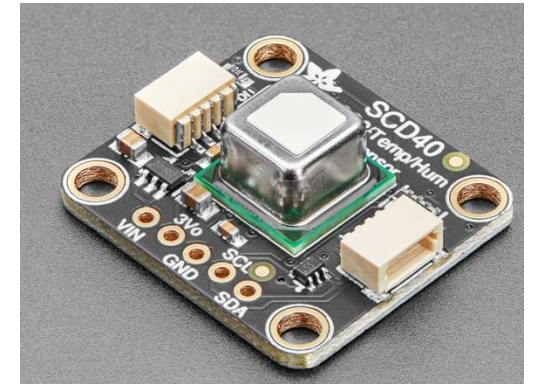
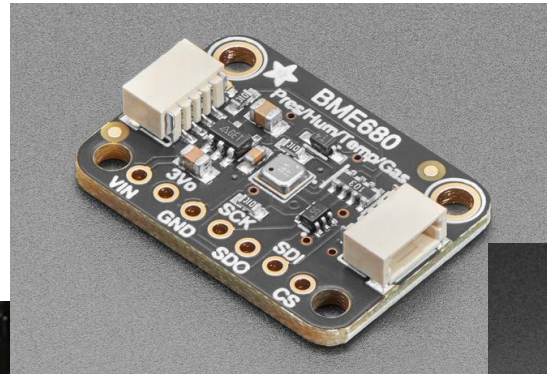
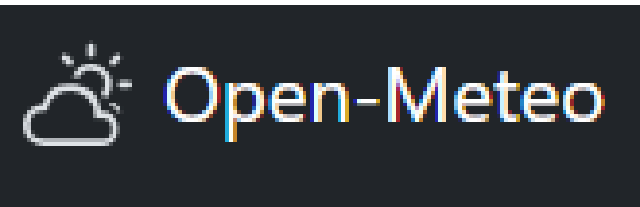


This tool was created in Shiny and the full tool code can be found on [Github](#) .  
Last Updated: 2024-02-15

# Tech Stack



# Home DIY Climate Solutions





# Home DIY Climate Solutions



# Electric Vehicle Planning

What are potential impacts of new charging stations in likely locations?

## National Electric Vehicle Infrastructure Formula Program

|                                      | FAST Act (extension) | Bipartisan Infrastructure Law (BIL) |           |           |           |           |
|--------------------------------------|----------------------|-------------------------------------|-----------|-----------|-----------|-----------|
| Fiscal year (FY)                     | 2021                 | 2022                                | 2023      | 2024      | 2025      | 2026      |
| Advance appropriation (General Fund) | ---                  | \$1.000 B                           | \$1.000 B | \$1.000 B | \$1.000 B | \$1.000 B |



CALIFORNIA  
ENERGY COMMISSION

Enter keywords, e.g. Energy Code

HOMEPROCEEDINGSRULES AND REGULATIONSPROGRAMS AND TOPICSFUNDINGDATA AND REPORTS

California Energy Commission > Programs and Topics > All Programs > National Electric Vehicle Infrastructure Program - NEVI



# National Electric Vehicle Infrastructure (NEVI) Formula Program

Caltrans and the CEC are partnering to implement the federal NEVI Formula Program, which allocates \$5 billion to the states to create a nationwide, interconnected network of DC fast chargers along the federally designated Alternative Fuel Corridors. California's share will be approximately \$384 million over 5 years.

PROCEEDING INFORMATION

Formula Program  
Docket Log (22-EVI-05) [rf](#)  
Submit e-Comment (22-EVI-05) [rf](#)

NEVI Deployment Plan  
Docket Log (22-EVI-03) [rf](#)  
Submit e-Comment (22-EVI-03) [rf](#)

- Medium and Heavy Duty Infrastructure - <https://gis.data.ca.gov/datasets/CAEnergy::medium-and-heavy-duty-infrastructure/about>
- Electric Fuel Corridor Groups (Updated December 2023) - <https://gis.data.ca.gov/datasets/CAEnergy::electric-fuel-corridor-groups-updated-december-2023/about>
- California Electric Balancing Authority Areas - <https://gis.data.ca.gov/datasets/CAEnergy::california-electric-balancing-authority-areas/about>
- DC fast charging stations that do not meet NEVI requirements but within 1-mile of a corridor - <https://gis.data.ca.gov/datasets/CAEnergy::dc-fast-charging-stations-that-do-not-meet-nevi-requirements-but-within-1-mile-of-a-corridor-updated-october-2023/about>
- Stations that meet NEVI requirements - <https://gis.data.ca.gov/datasets/CAEnergy::stations-that-meet-nevi-requirements-october-2023/about>
- Traffic Volumes AADT - [https://gis.data.ca.gov/datasets/d8833219913c44358f2a9a71bda57f76\\_0/about](https://gis.data.ca.gov/datasets/d8833219913c44358f2a9a71bda57f76_0/about)
- Commute Patterns – Census LEHD LODES – origin destination of commutes and home locations at the census tract level. - <https://lehd.ces.census.gov/data/>

# Future Work

## Home/DIY

- Connect app directly to live sensor database
- Additional user defined inputs connecting to backend data
  - Locations (lat/lng), all home energy model parameters
- Migrate the entire workflow to either all python or all R
- Integrate the sensor data directly into the home energy model

## EV analysis

- Connect all the data sources into a coherent analysis product

## **Interested in collaborating on R/Python Shiny apps for:**

- Home energy market
- Transportation electrification market
- Sauna market (custom sensors and sauna accessories)
- Others???

## **Contact Me**

- [reidhaefer.rbind.io](http://reidhaefer.rbind.io)
- <https://www.linkedin.com/in/reidhaefer/>