

Cal-Adapt Analytics Engine

Actionable science, data and tools for the energy sector

CONTACT:

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<https://analytics.cal-adapt.org>



What is Cal-Adapt?

Cal-Adapt is a statewide resource that equips researchers, communities, and decision makers with credible science and tools to understand and respond to intensifying climate impacts. This benefits practitioners in the energy sector as well as ratepayers and other climate data users.

What is the Analytics Engine?

The Analytics Engine (AE), one of Cal-Adapt's flagship products, is a CPUC-recommended source for vetted climate data, simulations, analysis, and technical guidance. It includes:

- Curated data from CA Climate Assessments
- Tools and methods co-produced with users
- Scalable, cloud-based compute environment

Our team



How we work:

- Co-production: Direct engagement with energy sector organizations and California state agencies to build products that respond directly to user needs.
- Modern, agile software development practices.
- Decision-focused products designed to meet the pace and scale of accelerating climate change.

Our data

- **Downscaled climate model simulations**
 - High spatial resolutions for targeted analysis
 - Derived metrics such as Effective Temperature for energy applications
 - Pre-loaded spatial regions including watersheds and utility service territories
- **Additional Datasets:**
 - Historical Reanalysis data (ERA5)
 - Historical Weather Station observation data
 - Renewable energy generation data

Our products

- Open source software to fetch and transform the data: [climakitae](#)
- Tutorials for data access and analysis: [cae-notebooks](#)
- Cloud-based JupyterHub computing platform to perform analysis without downloading large datasets
- Peer-reviewed guidance to inform end-users

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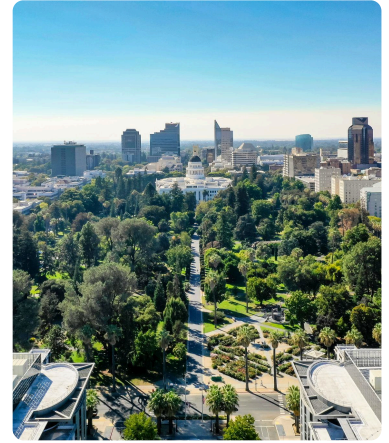
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Climate profiles for the future

- 8760-style, annualized climate profiles for present-day & future simulations
- Includes industry-standard Typical Meteorological Year (TMY) format
- Over 7000 downloads since launch in November 2025
- Energy sector utilities and consulting firms have found these profiles valuable for their work

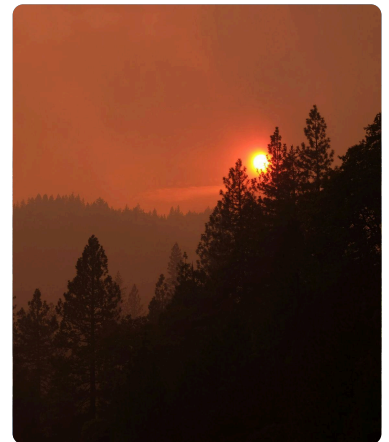
"We use TMYs for our System Planning team to use in long-term load growth. Here we use the Cal-Adapt AE notebook for this since AE is well-suited to point-specific analysis." (IOU)



Customizable climate vulnerability assessment

- CA rules require Investor Owned Utilities (IOUs) to complete Climate Adaptation and Vulnerability Assessments (CAVAs)
- AE has targeted tools and metrics designed for CAVA analysis including return values, heat index, and likely seasonal occurrence

"I install and use the climakitae and climakitaegui packages to do all analyses on the data. We have been using AE for pulling and aggregating data, calculating return values/other threshold-based analyses, load profiles, degree days, and quick summaries of data." (IOU)



Global Warming Level (GWL) framework

- AE helps IOUs meet a new requirement to employ GWLs in their CAVAs
- 1 IOU has completed recent CAVA with GWLs using AE software, tools, and guidance

"The climakitae tools and Cal-Adapt team have been essential in allowing us to comply with the CPUC requirement to adopt the GWL framework. These tools provide straightforward access to high resolution climate projections for any GWL needed, which has allowed us to focus on applying the climate data to understanding the potential climate exposure of our assets and operations." (IOU)

