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Public Safety Power Shutoff Maps: Glossary and Sources

General Information

The Public Safety Power Shutoff Map tool enables users to display the location and severity of reported PSPS events in California by aggregating and analyzing data from numerous sources. Investor-owned utility information is paired with data about the socio-economic, environmental justice, and climate vulnerability of communities to visualize which areas of California would benefit from greater energy resilience measures as it concerns PSPS outages.

This page provides an explanation of terminology, definitions, and descriptions of the data used. For additional questions please email bkwoka@psehealthyenergy.org.

Explanation of Project Terminology

Approximate location. The approximate city, town, or census designated place of each census tract. Census tracts not falling within one of those boundaries are listed as “unincorporated county area” based on their county. Approximate location is taken from CalEnviroScreen 4.0 and used for reference purposes.

Average number of households impacted (per PSPS event). A single PSPS event spans multiple circuits and census tracts. So the total number of customers impacted per circuit were allocated to census tracts based on the percentage of a given circuit that was within a given census tract. Then all customers impacted by a single PSPS event within a census tract were totalled for that event. The average number of customers (which is typically a household or business) impacted per event was then found by averaging the totals for each individual event.

Average outage duration (hours). The average length of PSPS outages, measured in hours and weighted by the number of customers impacted. (E.g., the average duration of each PSPS outage impacting a census tract, averaged over all of the outages that census tract has experienced. In a few cases, the weather conditions surrounding PSPS events damaged power infrastructure, delaying power restoration. As those delays impact a community’s electric reliability, they are included here.)

Average outage frequency (per year). The average number of PSPS outages per year. This is calculated by taking the total number of PSPS outages, including multiple outages on the same circuit during a single PSPS event, and dividing it by the number of years the utility responsible for the event has reported on PSPS.

CalEnviroScreen score percentile. The percentile of a census tract's CalEnviroScreen 4.0 score. CalEnviroScreen is an environmental justice screening tool developed by the California Office of Environmental Health Hazard Assessment.

Disadvantaged community. Communities identified as facing particular “geographic, socioeconomic, public health, and environmental hazard” according to Senate Bill 535. For more on this, see “Disadvantaged community” below.

Percent of census tract below 2x federal poverty level. The percentage of households in each census tract living below 2x the federal poverty level. Living 1.5-2x below the federal poverty level is often used to qualify households for energy assistance and other social programs.

Percent of tract in high fire threat districts. The percent of each census tract that is within a Tier 2 or Tier 3 high fire threat district, by land area. For more on this, see “High fire threat district (HFTD)” below.

Projected number of extreme heat days. The expected number of days with temperatures above the historical average, per year, in the 2040-2060 time frame. For more on this, see the [climate change & health vulnerability indicators](#) from the California Department of Public Health CalBrace project.

Definitions & Descriptions of Data

CalEnviroScreen 4.0: Environmental justice screening tool developed by the California Office of Environmental Health Hazard Assessment to evaluate the relative vulnerability of communities and their cumulative environmental health and socioeconomic burdens. Score is calculated based on an environmental burden score and a demographic score. Census tracts are typically ranked by percentile as compared to all of the census tracts in California. Scores above the 75th percentile overall (or above the 95th percentile in tracts missing a demographic score) indicate a disadvantaged or vulnerable community. (See: [CalEnviroScreen 4.0](#) for tool and methodology.)

Disadvantaged community: A disadvantaged community is defined in [California Senate Bill 535](#) as a census tract that ranks in the top 25% most vulnerable according to CalEnviroScreen or census tracts in the top 5% of environmental burden scores if those census tracts lack a demographic score.

High fire threat district (HFTD): High-Fire Threat Districts (Tier 2 and Tier 3 of the HFTD Map) are areas where there is an increased risk of utility-associated wildfires—e.g., where a utility's electrical equipment is more likely to spark a wildfire when high wind and drought conditions coincide. For more on this, see the California Public Utilities Commission's [Fire-Threat Maps and Fire-Safety Rulemaking](#) page.

Integration Capacity Analysis Maps: Data from these maps were used to match PSPS-impacted circuits with their geographic locations. These maps, hosted by PG&E, SCE, and SDG&E, were designed to facilitate distributed energy resource adoption. As such, they include geospatial information about each utility’s distribution circuits. For more on this, see “Data Portals” on the California Public Utilities Commission’s [Distribution Planning](#) page.

Public Safety Power Shutoff (PSPS): To reduce the risk of electric equipment sparking a wildfire, utilities will temporarily turn off power to specific circuits during high fire threat weather conditions. This is known as a PSPS or “proactive de-energization.” For more on this, see the California Public Utilities Commission’s [PSPS page](#).

PSPS post event report: California’s investor-owned utilities (IOUs) are required to report on PSPS events, including which circuits were de-energized and when, how many customers of different types were impacted, and how outreach to warn customers of an impending PSPS outage progressed. These reports are available on individual utility websites and via the California Public Utilities Commission [here](#).

Utility: The entity responsible for electricity service in a given service territory. Roughly 90 percent of California residents are served by an investor-owned utility, though three of these—Pacific Gas & Electric, SoCal Edison, and San Diego Gas & Electric—cover the majority of the state. The rest of the state is served by rural electric co-ops and municipal, publicly-owned utilities (POUs), the largest of which is the Los Angeles Department of Water and Power (LADWP). IOUs are required to report specific information, such as details surrounding PSPS events, to the California Public Utilities Commission.

Data Sources

1. **Data:** CPUC PSPS Event Rollup

Source: California Public Utilities Commission

Available at:

<https://www.cpuc.ca.gov/consumer-support/pssp/utility-company-pssp-reports-post-event-and-post-season>

Most recent download: January 2023

Notes: This rollup is a collection of circuit, duration, and impacted customer data collected from utility post-event reports. The file is missing a few start/end times, which have been filled in via individual post event reports or electronic data requests. If data was missing in the rollup but the PSPS event had no customer impact, it was not included in the final tool.

2. **Data:** PSPS Post Season Reports 2021

Source: California Public Utilities Commission

Available at:

<https://www.cpuc.ca.gov/consumer-support/pssp/utility-company-pssp-reports-post-event-and-post-season/pssp-post-season-reports-pge-2021>

Most recent download: December 2022

Notes: These reports and associated PSPS Data By Census Tract (Geospatial) and PSPS Data by Census Tract (Non-Spatial) files are also available from each investor-owned utility.

3. **Data:** PG&E PPS Post Event Reports

Source: Pacific Gas & Electric Company

Available at:

https://www.pge.com/en_US/residential/outages/public-safety-power-shutoff/psps-reports.page

Most recent download: December 2022

Notes: Many of these reports are also available from the CPUC [here](#) and [here](#).

4. **Data:** Additional PG&E PPS Data

Source: Pacific Gas & Electric Company via electronic data request

Available at: email ElectricDataRequests@pge.com

Date obtained: October 2022

5. **Data:** SCE PPS Post Event Reports

Source: Southern California Edison

Available at: <http://on.sce.com/PSPSpостeventreports>

Notes: The main SCE PPS page is <https://www.sce.com/wildfire/psps>.

6. **Data:** SDG&E PPS Post Event Reports

Source: San Diego Gas & Electric Company

Available at: <https://www.sdge.com/wildfire-safety/psps-more-info>

7. **Data:** PacifiCorp PPS Post Event Reports

Source: Pacific Power

Available at:

<https://www.pacificpower.net/outages-safety/wildfire-safety/public-safety-power-shutoff.html>

8. **Data:** PG&E Integration Capacity Analysis Data

Source: Pacific Gas & Electric Company

Available at:

https://www.pge.com/en_US/for-our-business-partners/distribution-resource-planning/distribution-resource-planning-data-portal.page

Most recent download: September 2022

Notes: Used to locate circuits from the PPS Post Event Reports

9. **Data:** SCE Integration Capacity Analysis Data

Source: Southern California Edison

Available at: <https://drpep.sce.com/drpep/>

Most recent download: September 2022

Notes: Used to locate circuits from the PSPS Post Event Reports

10. **Data:** SDG&E Integration Capacity Analysis Data

Source: San Diego Gas & Electric Company

Available at:

<https://www.sdge.com/more-information/customer-generation/enhanced-integration-capacity-analysis-ica>

Most recent download: September 2022

Notes: Used to locate circuits from the PSPS Post Event Reports

11. **Data:** Electric Load Serving Entities: IOU & POU

Source: California Energy Commission

Available at:

<https://cecgis-caenergy.opendata.arcgis.com/datasets/electric-load-serving-entities-iou-pou/explore?location=37.059572%2C-119.273187%2C7.01>

Most recent download: September 2022

12. **Data:** Fire-Threat Maps & the High Fire-Threat Districts (HFTD)

Source: California Public Utilities Commission

Available at:

<https://www.cpuc.ca.gov/industries-and-topics/wildfires/fire-threat-maps-and-fire-safety-rulemaking>

Most recent download: September 2022

13. **Data:** Projected number of extreme heat days 2040-2060

Source: Climate Change & Health Vulnerability Indicators for California (CCHVIs) from the California Department of Public Health CalBrace Project

Available at: <https://skylab.cdph.ca.gov/CCHVIZ/>

Date obtained: November 2022

14. **Data:** CalEnviroScreen 4.0

Source: California Office Environmental Health Hazard Assessment

Available at: <https://oehha.ca.gov/calenviroscreen/sb535>

Most recent download: September 2022

15. **Data:** Median Household Income in the past 12 months (in 2019 inflation-adjusted dollars)

Source: IPUMS NHGIS, University of Minnesota

Available at: <https://data2.nhgis.org/>

Most recent download: December 2022

16. **Data:** Ratio of Income to Poverty Level in the Past 12 Months (via 2019 American Community Survey: 5-Year Data [2015-2019, Block Groups & Larger Areas])

Source: IPUMS NHGIS, University of Minnesota

Available at: <https://data2.nhgis.org/>

Most recent download: December 2022

17. **Data:** 2019 census tract boundaries

Source: U.S. Census Bureau TIGER/Line Shapefiles

Available at:

<https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.2019.html>

Most recent download: April 2022

Notes: Used the 2010 census tract boundaries to match with CalEnviroScreen 4.0 and projected extreme heat data.