

CALIFORNIA POWER SHUTOFFS: DEFICIENCIES IN DATA AND REPORTING

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EXECUTIVE SUMMARY

In October 2019, Pacific Gas & Electric (PG&E) authorized power shutoffs throughout its service area. The shutoff events were widespread and impacted an estimated 1.8 million PG&E customers across California. The ongoing threat of wildfires in the state means that PG&E will continue to use electricity shutoffs to mitigate the ongoing threat posed by wildfires.

Policymakers and affected stakeholders need to understand the impacts of the shutoff events and craft solutions tailored to those impacts; however, the current data reporting requirements established by the California Public Utilities Commission (CPUC) do not provide a sufficient basis upon which to evaluate the impacts of the shutoffs.

This policy brief examines publicly available data concerning the 2019 shutoff events initiated by PG&E. This research aimed to determine the impact of the shutoffs on vulnerable populations, including

medically vulnerable people, people living in environmental justice communities, and people with low- to moderate incomes. Our analysis indicates that the reporting requirements established by the CPUC in connection with authorized shutoffs do not require sufficient reporting on equity impacts and obscure the effects of shutoff events on vulnerable populations, including medically vulnerable people, people living in environmental justice communities, and people with low- to moderate incomes.

This policy brief provides an overview of the data available in connection with the 2019 shutoff events and recommends that the CPUC modify utility reporting requirements to allow for the study of equity impacts and the design of adequate policy responses. This brief includes a request for comprehensive data regarding the scope and impact of the 2019 power shutoffs enacted by PG&E as well as recommendations concerning data available in connection with future power shutoff events.

INTRODUCTION

As the climate crisis worsens, California will face more frequent and damaging droughts that will heighten wildfire risks throughout the state.¹ Electrical infrastructure has the potential to instigate dangerous wildfires,² and demographic changes — people moving into the “wildland-urban interface area”³ — increase the risk associated with these wildfires.

In 2019, to mitigate the risks of wildfires, three of California’s investor owned utilities (IOUs) — Pacific Gas and Electric Company (PG&E),⁴ Southern California Edison (SCE),⁵ and San Diego Gas & Electric (SDG&E)⁶ — cut the supply of electricity to circuits within areas deemed to be at high risk.

This “de-energization” strategy dates back to 2007, and the California Public Utilities Commission

(CPUC) has issued a series of decisions, rulings, and guidance in connection with these power shutoffs.⁷ The CPUC and the IOUs call these “public safety power shutoffs” (PSPS), but this nomenclature obfuscates the extreme impacts and life-threatening nature of these electricity shutoff events. For the purpose of this policy brief, we jettison the phrase “public safety,” and instead use the term “power shutoffs” to refer to the electricity shutoff events of October 2019.

The following section provides an overview of the law and policy context that facilitates IOU-initiated power shutoffs in California. Given PG&E’s dominance in California’s energy landscape and the utility’s history in connection with the state’s largest wildfires, this brief focuses on the impacts of PG&E’s 2019 shutoff events.



CONTEXT AND BACKGROUND

Legal Authority

2008 marks the first year that a public utility in California applied to get legal permission to initiate a shutoff in the name of fire-prevention. That year, SDG&E requested review of the utility's "proactive de-energization measures" and asked that the shutoffs qualify for an exemption from liability under SDG&E's Tariff Rule 14.⁸

In 2012, the CPUC issued guidance to SDG&E that ultimately affirmed the utility's right to conduct power shutoffs under emergency situations when necessary to protect public safety.⁹ The CPUC's decision cited Public Utilities Code Sections 451 and 399.2(a) for authority giving electric utilities the latitude to shut off power to protect public safety.¹⁰ The decision also established factors that the CPUC can consider in reviewing whether SDG&E's decision to shut off power was reasonable.

The CPUC's analysis of reasonableness begins with the presumption that "power should remain on for public safety reasons[]" which shifts the burden to the utility to show that its shutoff was necessary to protect public safety.¹¹ The CPUC will also analyze whether the utility relied on alternatives to shutting off power, including technology that can identify electrical failures caused by downed power lines.

Further, the CPUC will evaluate whether the power shutoff was reasonable in light of the utility's analysis of available information concerning wind speed, humidity, infrastructure location, and the condition of vegetation.¹² In addition, the CPUC "may consider SDG&E's efforts to mitigate the adverse impacts on the customers and communities in areas where SDG&E shuts off power."¹³ Finally, the commission may consider any factors that relate to the reasonableness of the utility's decision.¹⁴

The decision also required SDG&E to take "appropriate and feasible steps to provide notice and mitigation to its customers whenever it shuts off power," to notify the CPUC of the shutoff within twelve hours of the event, and submit a report to the CPUC that includes:

- An explanation of SDG&E's decision to shut off power;
- All factors considered by SDG&E in its decision to shut off power, including wind speed, temperature, humidity, and vegetation moisture in the vicinity of the de-energized circuits;
- The time, place, and duration of the shutoff event;
- The number of affected customers, broken down by residential, medical baseline, and commercial/industrial;
- Any wind-related damage to SDG&E's overhead power-line facilities in the areas where power is shut off;
- A description of the notice to customers and any other mitigation provided by SDG&E; and
- Any other matters that SDG&E believes are relevant to the Commission's assessment of the reasonableness of SDG&E's decision to shut off power.¹⁵

In 2018, the CPUC passed a resolution extending the "de-energization reasonableness, public notification, mitigation and reporting requirements" established in its 2012 decision to all electric IOUs.¹⁶ This ensures that PG&E and SCE, which also practice power shutoffs, are subject to the same requirements as SDG&E. The 2018 decision strengthened some reporting and notification requirements from the 2012 decision, but it did not amend its reasonableness review.

As of 2020, IOU's are required to provide a report to the Director of the Safety and Enforcement Division (SED) at the CPUC not later than ten business days after the shutoff event ends. This report must include, among other requirements, an explanation of the decision to shut off power and the factors considered in the decision; the time, place, and duration of the shut-off event; the number of affected customers, including how many of the customers were part of the Medical Baseline (MB) program (an opt-in program that provides reduced electricity rates for enrolled customers with electricity-dependent medical equipment).¹⁷ The CPUC strengthened these reporting requirements through its 2018 resolution by requiring information on local community representatives contacted by the IOU prior to the shutoff event, and whether the areas affected by the shutoff were in a High Fire-Threat District (HFTD), in addition to other reporting measures.¹⁸

In September 2018, the California legislature enacted Senate Bill 901 instructing the CPUC to require IOUs to submit Wildfire Mitigation Plans and to examine existing reporting requirements for power shutoffs.¹⁹ Following the widespread power shutoffs of October of 2019, the California legislature enacted several additional laws related to power shutoffs.

Senate Bill 167 required IOUs to include protocols to mitigate the impacts of power shutoffs on MB customers in their Wildfire Mitigation Plans. It also authorized IOUs to deploy backup power sources or funding for such power sources for Medical Baseline customers.²⁰ Senate Bill 560 increased requirements for notifying customers impacted by power shutoffs.²¹ Senate Bill 70 required IOU Wildfire Mitigation Plans to include descriptions of consideration of undergrounding electrical distribution lines.²²

These efforts continued in the 2020 legislative session, with legislation introduced that would require mobile phone companies to provide seventy-two hours of backup power to cell towers during power outages;²³ and legislation that would require additional reports from IOUs to the CPUC on the condition of their equipment, and a requirement that the CPUC create procedures for cost recovery for consumers and local governments during power shutoffs.²⁴ In 2020, the CPUC also held public hearings with each of the three major IOUs regarding the execution of power shutoffs.²⁵



A Focus on PG&E

While other utilities in California have been authorized to shut off power to their customers in the name of public safety, PG&E plays an outsized role in California's energy landscape and has an especially egregious history concerning public safety. PG&E serves approximately sixteen million people in a 70,000 square mile area in central and northern California.²⁶

In 2018, PG&E's poorly maintained infrastructure was responsible for starting the Camp Fire, a massive wildfire in Paradise, California. It was the most destructive wildfire in a century, and investigators found that the source of the main fire was a worn suspension "C" hook on a PG&E transmission tower.²⁷

According to the investigative report, the hook was at least ninety-seven years old and in dire need of replacement, and PG&E had known about this for decades and done nothing. A report issued by the Butte County District Attorney stated, "through a corporate culture of elevating profits over safety by taking shortcuts in the safe delivery of an extremely dangerous product—high-voltage electricity—PG&E certainly lead otherwise good people down an ultimately destructive path."²⁸

PG&E was already serving a five-year criminal probation for a natural gas line explosion that killed 8 people in 2010²⁹ when, in June 2020, the utility pleaded guilty to 84 counts of involuntary manslaughter from in connection with the Camp Fire and paid out the maximum fine of \$3.5 million, plus \$500,000 to cover the cost of the investigation.³⁰ PG&E filed for Chapter 11 bankruptcy because of the billions in damages it faced from lawsuits over California wildfires in 2017 and 2018,³¹ and in June of 2020, PG&E emerged successfully from bankruptcy. PG&E's bankruptcy proceedings have accelerated the conversation around energy justice as it relates to power shutoffs and access.³²

Over half of PG&E's service territory lies in high HFTDs. PG&E's wildfire safety plan states that "approximately 5,500 line-miles of electric transmission and 25,500 line-miles of distribution assets lie within these HFTDs;" but, in 2019, PG&E only conducted hardening work on 171 line-miles of distribution lines.³³ PG&E has designated the use of power shutoffs as an essential strategy in the utility's plan to reduce wildfire risk, and the CPUC has institutionalized this strategy. Given this history, PG&E's infrastructure, and the ongoing threat posed by wildfires, this brief primarily addresses the reporting associated with PG&E.

Impacts of the October 2019 Power Shutoffs

PG&E authorized four power shutoff events in October of 2019, which affected a total of 1,893,528 customers.³⁴ Of those, approximately 60,000 customers did not receive a direct notification of their power being shut off.³⁵ The power shutoffs were widespread and left some customers without electricity for days.³⁶

Power outages disproportionately impact low-income households and can be life-threatening for individuals who are dependent on life-sustaining medical equipment that must be powered by electricity.³⁷ Utilities reduce the physical scope of power shutoffs by breaking up the distribution grid into smaller pieces, some of which are able to maintain power during a power shutoff event. According to PG&E's 2020 Wildfire Safety Plan, PG&E is prioritizing reducing power shutoff impacts for "communities forecast to be most frequently affected by PSPS events," rather than mitigating impacts to the most vulnerable communities forecasted to be affected.³⁸

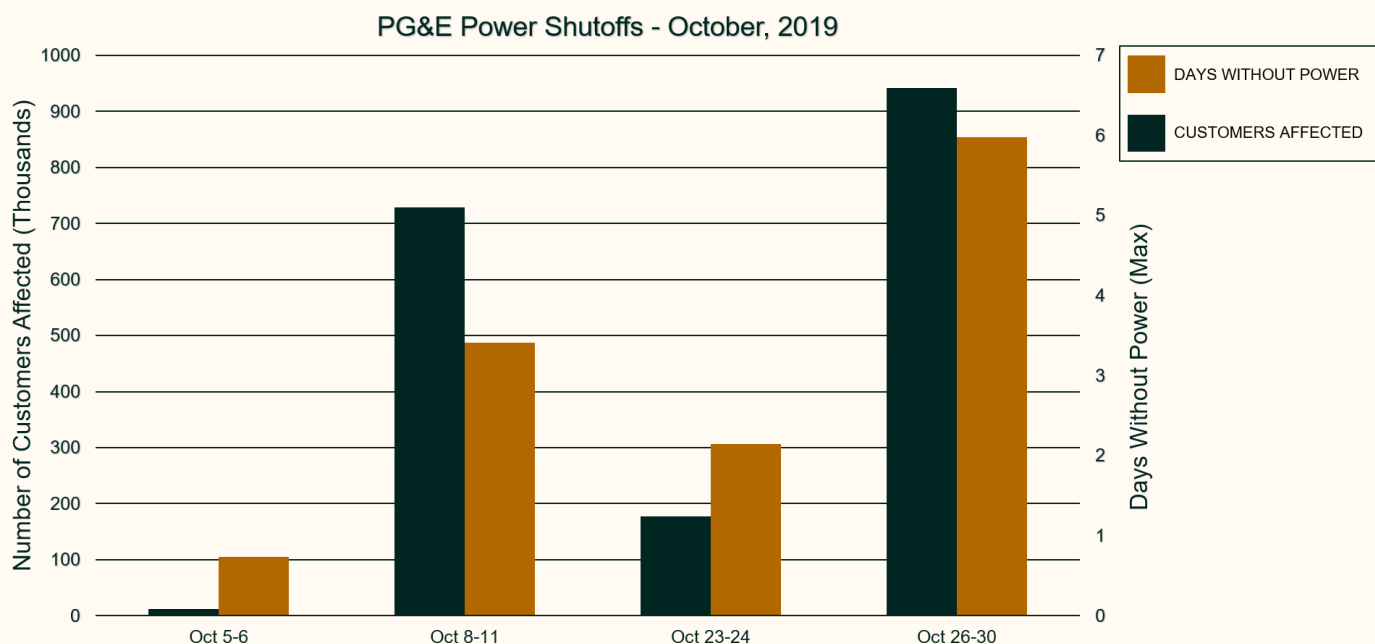


Figure 1: The number of customers affected (in the thousands) and the maximum number of days a circuit was de-energized for each of the four major power shutoff events conducted by PG&E in October 2019. Data is from the CPUC's Utility De-Energization Post Event Reports.³⁹

To support affected customers during the 2019 power shutoffs, PG&E operated Community Resource Centers (CRCs) at various locations across the state to provide water, electricity charging stations, and, in some cases, internet access, air conditioning, and cell service.⁴⁰ In addition, PG&E piloted four Resilience Zones during the October 2019 PSPS events. In a Resilience Zone, a microgrid in a downtown center is islanded, powered by a diesel generator to maintain electricity access for critical infrastructure.⁴¹ The four Resilience Zones utilized during the October 2019 power shutoffs were located in Angwin, Calistoga, Placerville, and Grass Valley; in each of these cities, a microgrid was created by sectionalizing the grid and utilizing mobile diesel generators at local substations.⁴²

The utility has also increased the use of state programs such as the Self-Generation Incentive Program (SGIP) and increased the quality and granularity of its data portals in order to accurately reflect potential solar and battery energy storage project sites. None of the foregoing efforts has sufficiently incorporated equity and medical vulnerability assessments to prioritize access. SGIP datasets do not indicate whether participants in the program are low-income, medically vulnerable, or disproportionately affected by the power shutoffs, only that they qualify for the SGIP program. Further, PG&E has not released any plans to expand the

Resilience Zone projects in order to protect critical infrastructure, nor has the utility indicated an interest in powering the existing Resilience Zones with renewable energy sources instead of diesel.

PG&E has begun to collaborate with the California Foundation for Independent Living Centers (CFILC), the utility's primary partner in identifying and working with medically vulnerable customers, to create the Disability Disaster Access & Resources (DDAR) program. This program aims to provide certain MB customers with portable batteries in order to provide backup power for medical devices. As of September 2020, PG&E had not released public details on how battery resources will be distributed through this program, and the CPUC has not required PG&E to make decisions concerning distribution public.⁴³

PG&E has indicated that it will continue to utilize shutoff events in order to reduce the risk of wildfire in the foreseeable future; however, the utility, and the CPUC, have failed to adequately identify and protect customers that would be disproportionately affected by power shutoffs. As COVID-19 continues to affect the United States, disproportionately affecting Black, Indigenous, Pacific Islander, Asian, and Latinx people⁴⁴ and those who face long-term exposure to air pollution,⁴⁵ the importance of clean energy access in the home will be even more crucial.

UNDERSTANDING THE OCTOBER 2019 SHUTOFFS

Our team aimed to perform an analysis of the October 2019 shutoff impacts using publicly-available power shutoff data, medical vulnerability data, and environmental justice data. However, the inadequacy of the available data sets makes such analysis unworkable. The data released by PG&E and the CPUC on the power shutoff events has not been conducive to an in-depth analysis of impacts on medically vulnerable populations and environmental justice communities.

The IOUs have chosen to structure their reports of power shutoffs using the circuit as the unit of analysis, a method which makes it difficult for researchers to study the effects of power shutoffs. For example, electrical circuits are not confined to a particular census tract or zip code, and therefore the

customers associated with a particular circuit cannot be spatially located in a predefined boundary.

While the CPUC has criticized the IOUs for their general handling of the power shutoff events of October 2019, PG&E was specifically critiqued for not providing GIS shapefiles depicting shutoff information to public safety partners.⁴⁶ We extend this critique by criticizing the CPUC for not requiring publicly available data on customers affected by the power shutoffs using a unit of analysis that is useful to third party actors, such as research groups and citizen-led groups. The following section discusses the populations that are most vulnerable to shutoffs, and which should be identifiable in the shutoff data reported by utilities.

VULNERABLE POPULATIONS

Environmental Justice Communities

Environmental justice communities are “communities that are most affected by many sources of pollution, and where people are often especially vulnerable to pollution’s effects.”⁴⁷ Notably, these communities are often low-income, so increased costs associated with shutoffs (replacing spoiled food, for example) are significantly more burdensome on these households than higher-income households.

The state of California has developed an environmental justice mapping tool available online, called CalEnviroScreen (abbreviated here as CES). CES combines environmental and demographic

indicators into a CES Score. The areas of the state that have the highest CES Score are along the interior of the state, where agriculture dominates the economy, and within urban areas, where pollution and demographic vulnerability are high. Figure 2 on the following page shows the extent of the power shutoff events for the month of October, with the CRCs and Resilience Zones marked for context, overlaid on top of the CES index by census tract. As indicated, the overlay does not yield information granular enough to pinpoint the effects of the shutoff events.

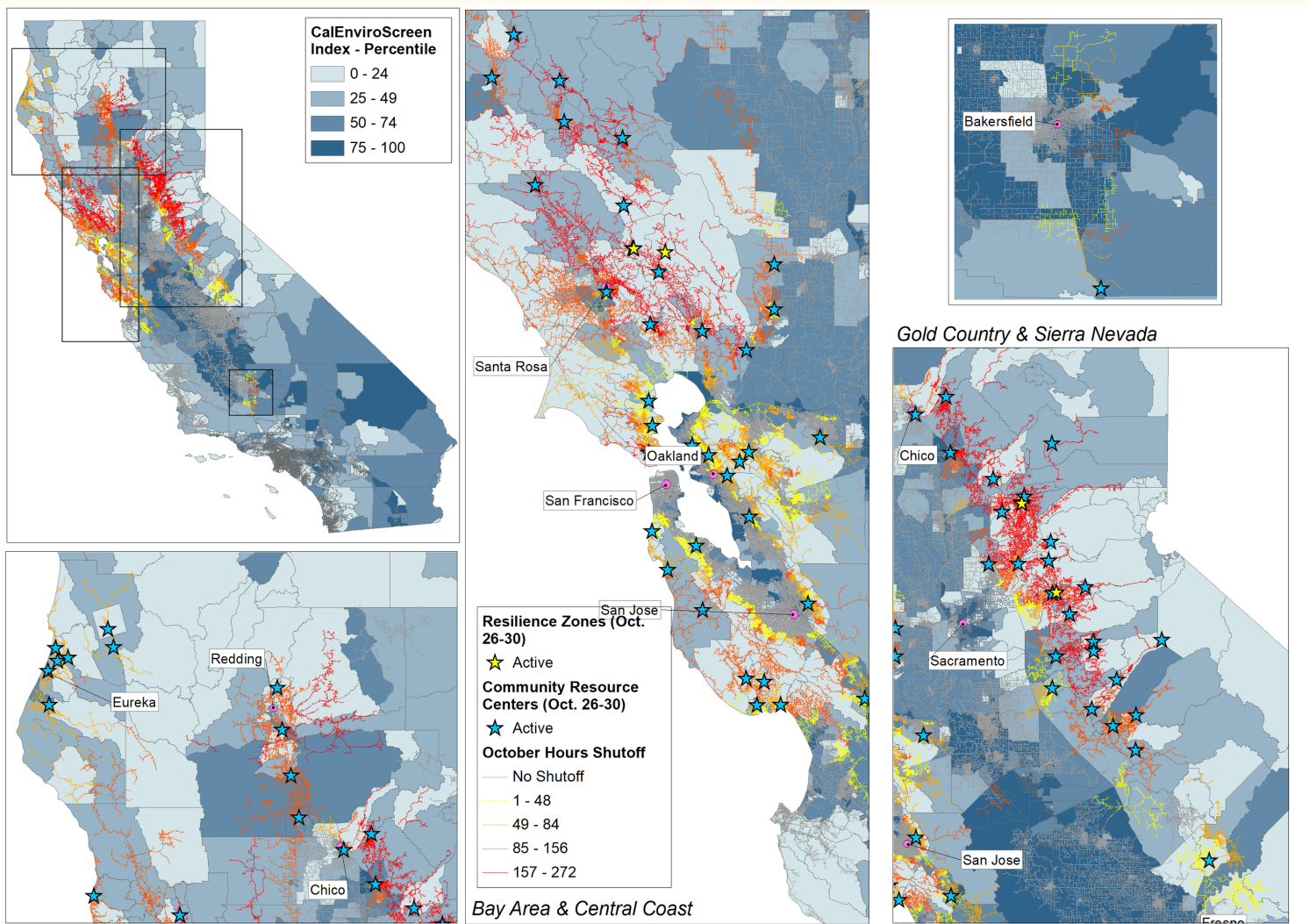


Figure 2: CalEnviroScreen Index Percentile for California census tracts. The power shutoffs in October 2019 are shown, color-coded by total length of de-energization across the four power shutoffs during this time period. As many circuits cross census tract boundaries, it is difficult to run a spatial regression to study the correlation between environmental injustice and energy security.

Medically Vulnerable Populations

Medically vulnerable communities are communities with a high number of individuals who “rely on electricity-dependent medical equipment to live independently in their homes.”⁴⁸ Shutoffs are life-threatening to medically vulnerable community members because the medical devices that keep them alive would cease to function without electricity. There are two main methods for identifying medically vulnerable people in California.

The first way to identify medically vulnerable populations is through the CPUC Medical Baseline (MB) program. Certain data on the number of MB

customers affected by a power shutoff of a particular circuit is available through the shutoff reports submitted to the CPUC. Because the Medical Baseline program is opt-in, there are likely many customers who would qualify for the program, but are not enrolled. The MB program was instituted by the Warren-Miller Energy Lifeline Act of 1976, which set lower energy rates for customers with medical needs that required continuous or increased electricity.⁴⁹ PG&E’s implementation of the MB program requires customers to opt into the program, and additionally requires customers to annually recertify their eligibility for the program. Due to the COVID-19 pandemic, PG&E has allowed customers



to self-certify their eligibility,⁵⁰ and applications for the MB program have increased significantly during the pandemic.⁵¹

The second method of identifying medically vulnerable people is through the Department of Health & Human Services (HHS), which uses Medicare data to map medically vulnerable populations by zip code. This data set necessarily excludes customers who lack insurance or who purchase electricity-dependent medical equipment through private insurance, so it, too, is under-inclusive.

The HHS emPOWER Map, updated monthly, displays “the total number of at-risk electricity-dependent Medicare beneficiaries in a geographic area,” at the state, county, and zip-code level.⁵² The emPOWER dataset can be requested by public health authorities in the event of an incident, emergency, or disaster. However, power shutoffs are not considered emergencies; a local official would have to declare a local health emergency in order to request this dataset for their own use. PG&E has not announced its intention to partner with health officials in order to utilize this dataset.

Reports of the MB program undercounting the medically vulnerable population affected by power shutoffs have cast doubt on the comprehensiveness of the MB program.⁵³ These doubts are reinforced by Figures 3 and 4, showing the MB customers affected by the two largest power shutoff events (October 8-11 and 26-30) compared with the utility customers in the same area that appear in the emPOWER dataset.

Our analysis reveals a significantly higher number of medically vulnerable customers impacted by the shutoff events than suggested by the MB data. In some zip codes, the number of MB customers affected by a power shutoff event are much lower than the emPOWER dataset indicates should be included. A more rigorous analysis could be conducted if the circuit shutoff data was released at the zip-code level.

The maps produced as part of this analysis were constructed using ArcGIS. Most of the ArcMap layers are either constructed from data files available to the public (such as the emPOWER dataset, the locations of CRCs and RZs) or directly provided as shapefiles (such as the CalEnviroScreen data and the PG&E circuit files).

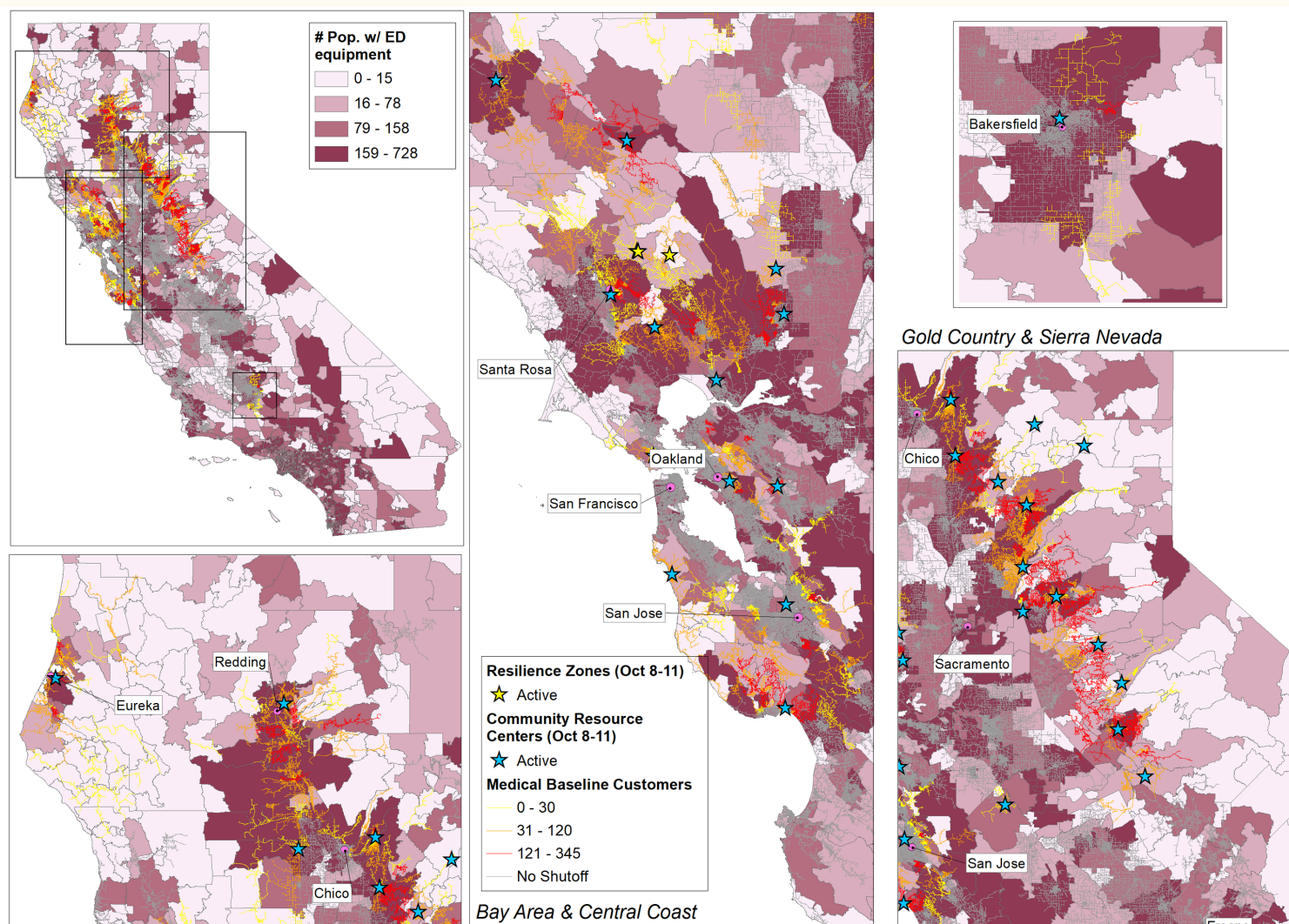


Figure 3: The number of people in a zip code who have purchased electricity-dependent medical equipment through Medicaid/Medicare, as reported by the HHS emPOWER database. The October 8-11 power shutoff is shown, color-coded by the number of MB customers affected during the power shutoff. As many circuits cross zip code boundaries, it is difficult to run a spatial regression to study the correlation between medical vulnerability and energy security.

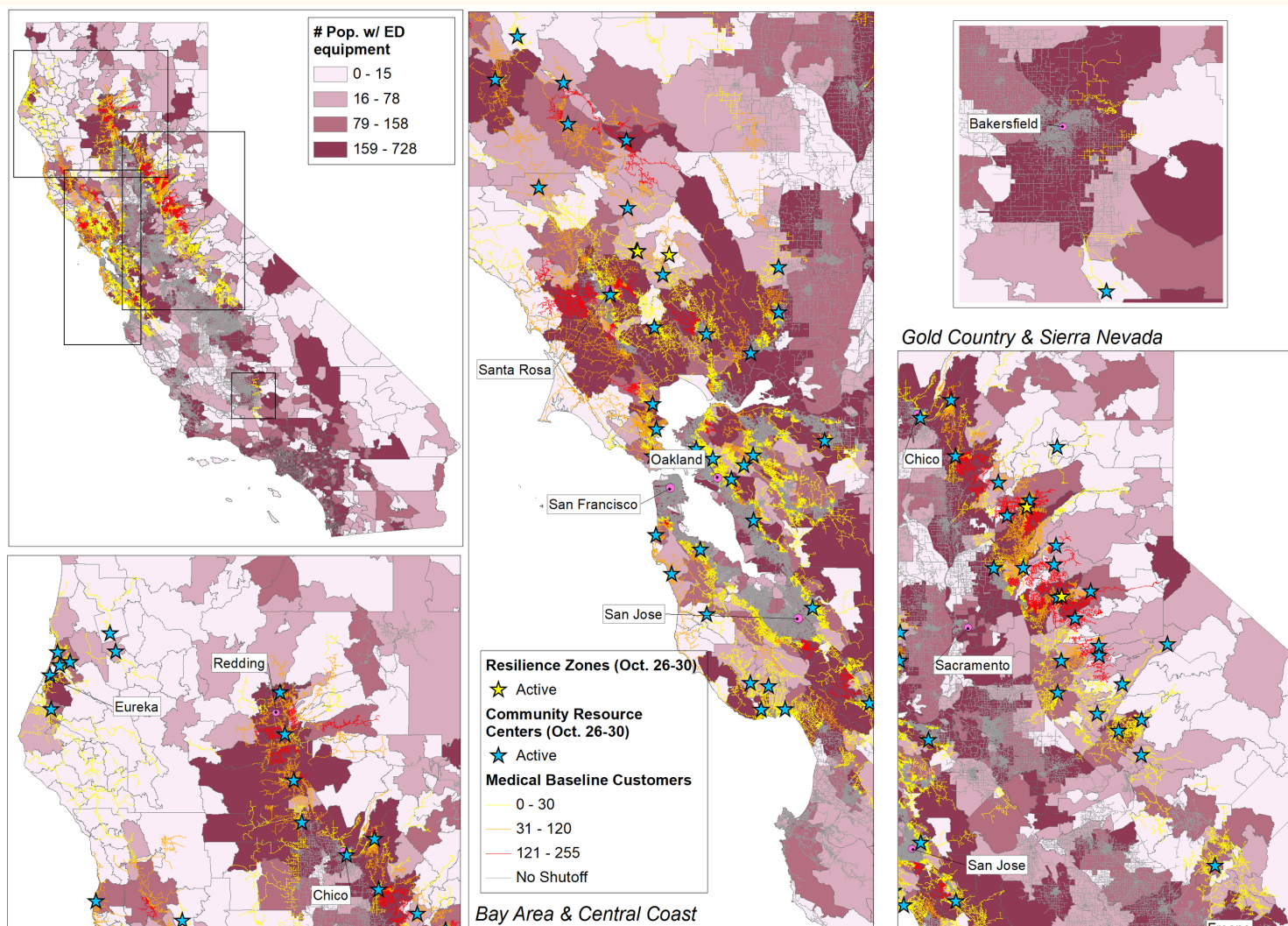


Figure 4: The number of people in a zip code who have purchased electricity-dependent medical equipment through Medicaid/Medicare, as reported by the HHS emPOWER database. The October 26-30 power shutoff is shown, color-coded by the number of MB customers affected during the power shutoff. As many circuits cross zip code boundaries, it is difficult to run a spatial regression to study the correlation between medical vulnerability and energy security.

OVERVIEW OF DATA REQUESTS

A review of the data reported by PG&E and required by the CPUC reveals significant gaps in our ability to determine the extent to which IOU-initiated shutoff events impact environmental justice communities and medically vulnerable populations.

The following discussion provides a detailed overview of data needed to fully analyze the impacts of PG&E's 2019 shutoff events and future shutoff events.

Data Requests

- **Adequacy of Shutoff Data:** We request comprehensive shutoff data in connection with the October 2019 shutoff events, and request that the CPUC require adequate IOU shutoff reporting for future events. We recommend that the CPUC require the utilities to release shutoff data in a unit of measurement that is consistent with the CES and emPOWER data sets. An acceptable unit of measurement would be at the zip-code, census tract, or census block level of analysis. Circuit-level data is not comparable to other data sources (emPOWER, CES, census, which is all zip-code or census tract). This precludes a comparative analysis by researchers or community-led organizations.
- **Circuit Sectionalization:** We request information concerning sectionalization of electricity circuits. In particular, we request information on where sectionalization of circuits occurred during the October 2019 shutoff events, and how the utility made decisions concerning sectionalization.
- **SGIP Accessibility:** We request zip-code level and census block level data concerning enrollment in the ratepayer funded SGIP programs. This data will show whether these programs adequately provide coverage to medically vulnerable people and people residing in environmental justice communities.
- **DDAR Program:** We request zip-code level and census block level data on the DDAR program run by PG&E and the CFILC. Currently, there is no public accounting mechanism to ensure that this program is benefitting the most vulnerable in California, and no information concerning how the program will intersect with the SGIP.

Additional Data-Related Recommendations

- **Medical Baseline Data:** We recommend that the CPUC commission a study to investigate the coverage provided by the medical baseline program. Our research indicates that the program is under enrolled, when compared to the emPOWER data set, which does not include medically vulnerable individuals covered by private insurance.
- **Community Assessment:** We recommend that the CPUC survey impacted ratepayers immediately after power shutoffs to assess immediate needs and impacts. Neither the Commission nor PG&E has assessed the overall impact of shutoffs, but such information could aid policymakers in crafting a responsive shutoff policy.

CONCLUSION

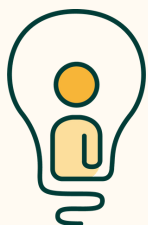
In light of the ongoing threat of wildfires facing California, PG&E will continue to see power shutoffs as a viable mechanism to mitigate its risk. These shutoffs have devastating consequences for medically vulnerable populations and low-income communities, but the data released by PG&E does not allow for a proper accounting of the shutoffs' most serious impacts. The CPUC must act in the public interest to require that PG&E and the state's remaining IOU's release data in a form that is legible to researchers and community advocates. This increased transparency will allow for the assessment of the full scope of prior and ongoing harms to the state's most vulnerable ratepayers.



ENDNOTES

Acknowledgements

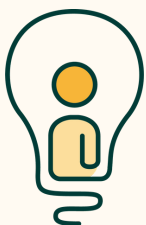
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9. California Public Utilities Commission, "Decision 12-04-024," April 26, 2012, https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/165063.PDF.
10. Section 451 states that every "public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities, including telephone facilities, as defined in Section 54.1 of the Civil Code, as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public". Section 399.2(a) states that "(1) It is the policy of this state, and the intent of the Legislature, to reaffirm that each electrical corporation shall continue to operate its electric distribution grid in its service territory and shall do so in a safe, reliable, efficient, and cost-effective manner. (2) In furtherance of this policy, it is the intent of the Legislature that each electrical corporation shall continue to be responsible for operating its own electric distribution grid including, but not limited to, owning, controlling, operating, managing, maintaining, planning, engineering, designing, and constructing its own electric distribution grid, emergency response and restoration, service connections, service turnons and turnoffs, and service inquiries relating to the operation of its electric distribution grid, subject to the commission's authority."
11. California Public Utilities Commission, "Decision 12-04-024," April 26, 2012, 30, https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/165063.PDF.
12. Ibid, 30.
13. Ibid, 31.
14. Ibid, 32.
15. Ibid, 33.
16. California Public Utilities Commission, "ESRB-8," July 12, 2018, <https://docs.cpuc.ca.gov/publisheddocs/published/g000/m218/k186/218186823.pdf>.
17. Other reporting requirements include a description of wind related damage to infrastructure; accounts of notice provided to customers; which local community representatives were contacted and the date of contact; the HFTD classification of the de-energized area; explanations of why customers were not provided with notice 2 hours in advance of the



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power shutoff, if applicable; a summary of the number and nature of complaints received and the claims filed against the utility as a result of the power shutoff; the steps taken to restore power; and the address, location, assistance available, and days/hours of all community assistance locations. California Public Utilities Commission, "ESRB-8," July 12, 2018, <https://docs.cpuc.ca.gov/publisheddocs/published/g000/m218/k186/218186823.pdf>.

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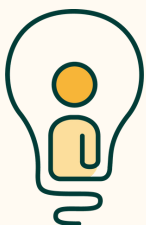
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