CALIFORNIA'S WILDFIRE RISK AND GROWING ENERGY INSECURITY:
Policy Recommendations for Energy Resilience in Vulnerable Populations

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EXECUTIVE SUMMARY

Wildfires have become a routine feature of life in California. The state's utilities and public utilities regulator, the California Public Utilities Commission, have developed a range of policies and programs to mitigate the risks of wildfires for California residents. Pre-emptive power shutoffs form a central component of the state's wildfire threat management. Additional efforts include:

- **The creation of a notification program to notify medically vulnerable ratepayers of pending power shutoffs;**
- **The establishment of diesel-powered micro-grids to "island" selected community assets to retain power during a shutoff event;**
- **The establishment of community resource centers that offer climate control and allow for charging of cellphones and other small, electricity-dependent devices;**
- **The distribution of batteries to ratepayers; and**
- **Incentive programs that offer rebates to utility customers to offset the cost of batteries.**

None of the foregoing policy and programs effectively targets and supports the needs of medically vulnerable ratepayers, including people who rely on electricity-dependent medical devices and those who have other disabilities or conditions that place them at a higher risk of harm due to power shutoffs. The policies and programs also fail to target low- to moderate-income community members and individuals living in environmental justice communities, people for whom a power shutoff can mean the irreparable loss of foods and medicines, and the exacerbation of underlying health conditions common to individuals living in environmental justice communities. This policy brief provides a set of comprehensive equity-centered policy and program recommendations designed to remedy the shortcomings outlined above.

INTRODUCTION

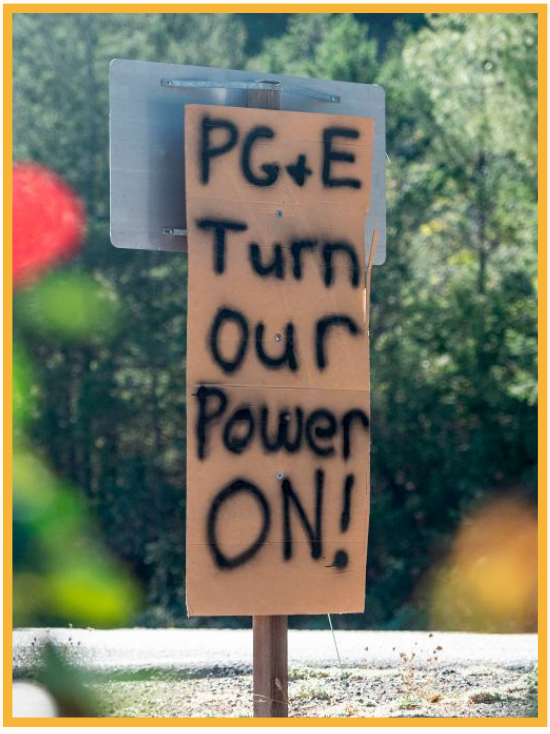
The 2020 wildfire season has already broken records with fires burning across millions of acres in the western region of the United States.[1] The devastating start to the 2020 fire season illustrates the importance of targeted utility and state-level responses to wildfires. Utilities have developed Wildfire Mitigation Plans (WMPs), which include "public safety power shutoffs" (power shutoffs)[2] among a number of other strategies that aim to reduce the risks associated with wildfires.

This brief focuses specifically on power shutoffs, a strategy used by utilities to mitigate the potential risk of wildfires in high fire-threat areas, as well as the policies enacted to increase resilience to power shutoffs. Power shutoffs disproportionately impact medically vulnerable ratepayers.[3,4] According to the U.S. Department of Health and Human Services (HHS), medically vulnerable ratepayers "rely on electricity-dependent medical equipment to live independently in their homes" and HHS has identified over 2.5 million Medicare beneficiaries who fall within this category.[5] This category of medical vulnerability can also be expanded to include individuals with mobility challenges and people who rely on refrigerated medicines.

Shutoffs pose life-threatening risks to medically vulnerable community members because the medical devices that keep them alive, such as ventilators, would cease to function without electricity. The California Public Utilities Commission (CPUC) has implemented a Medical Baseline (MB) program that reduces the cost of electricity for medically vulnerable ratepayers and provides them with advanced notice of power shutoffs. Unfortunately, recent reports indicate that the MB program underestimates the medically vulnerable population and have cast doubt on the program's comprehensiveness.[6]

Power shutoffs also disproportionately burden low- to moderate-income (LMI) ratepayers and those living in environmental justice communities where air pollution-related health conditions are prevalent. Power shutoffs can lead to loss of food, difficulty getting to work or school, inability to use air conditioning or space heating units, and other negative physical, emotional, and financial effects.[7] For a range of reasons, replacing spoiled food or medicine, missing work, and paying for temporary housing is more burdensome for LMI populations than for populations with a greater amount of disposable income. The loss of power and access to cooling can also exacerbate health conditions common to individuals living in environmental justice communities.[8] These effects of shutoffs are also more likely to burden households with elders, youth, and medically vulnerable people.[9]

A review of current policies and programs designed to address the impact of power shutoffs reveals a number of gaps that leave LMI and medically vulnerable ratepayers especially at risk in the face of power shutoffs. This brief provides equity-centered policy recommendations for state-wide and PG&E-specific energy resilience programs to enable them to better serve the LMI and medically vulnerable communities that need energy resilience most.



Calistoga, CA: A sign calling for PG&E to turn the power back on during a statewide blackout.

The following sections discuss Pacific Gas & Electric's (PG&E) current policies for supporting those who have lost power during utility-initiated shutoff events and California energy resilience programs more broadly. The brief addresses the following key programs designed to mitigate vulnerability to power shutoffs:

- **Medical Baseline Program:** An opt-in program that sets lower energy rates for customers with medical needs that require continuous or increased electricity, and theoretically provides advanced and repeated notice of power shutoffs.[10]
- **Resilience Zones:** Microgrids, usually in downtown locations, that are islanded from the grid and powered by a diesel generator to maintain electricity for critical infrastructure.[11]
- **Community Resource Centers:** Locations set up during power shutoffs to provide water, electricity charging stations, and in some cases, internet access, air conditioning, and cell service.[12]
- **Disability Disaster Access and Resources Program:** A collaboration between PG&E and the California Foundation for Independent Living Centers (CFILC) that provides certain customers with portable batteries, food and hotel vouchers, and other resources during a power shutoff.[13]
- **Portable Battery Program:** A PG&E program that provides low-income MB ratepayers located in High Fire-Threat Districts with batteries during power shutoffs.[14]
- **Self-Generation Incentive Program:** A ratepayer-funded program that provides rebates for eligible customers (generally those affected by power shutoffs, LMI customers, or medically vulnerable customers) to purchase energy storage systems.[15]

PG&E WILDFIRE MITIGATION PLAN

Since 2008, the CPUC has authorized California utilities to conduct preventative power shutoffs in order to reduce wildfire risk. In October 2019, for example, PG&E authorized power shutoffs that impacted an estimated 1.8 million of its customers across Northern California.[16] In recognition of the ongoing threat of wildfires in the State, the California legislature instructed the CPUC to require utilities to establish Wildfire Mitigation Plans (WMPs).[17] According to PG&E's WMP, the utility conducts several activities to reduce wildfire ignition potential: (1) enhanced vegetation management, (2) asset inspection and repair, (3) system hardening, (4) system automation, and (5) power shutoff events. PG&E's WMP also provides that the utility is "working to make PSPS de-energization events smaller, shorter and less burdensome on affected communities."[18]

The WMP does not discuss prioritizing resources for vulnerable communities. Instead, PG&E states that the utility will: (1) reduce the number of power shutoff-affected customers, (2) reduce shutoff duration, (3) reduce the frequency of shutoff events, and (4) improve community and customer coordination and support.[19] The WMP further notes that resources are to be concentrated in areas of the highest wildfire risk (the High Fire-Threat Districts, or HFTDs), not in the communities and homes of those most vulnerable to the effects of deenergization. The WMP also discusses the use of resilience zones (RZs) and community resource centers (CRCs) to reduce the number of people affected by power shutoffs and provide support for those whose power is shut off.

ENERGY RESILIENCE PROGRAMS & POLICIES

Medical Baseline Program

The Medical Baseline (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.[20] Utilities maintain their own MB programs with oversight from the CPUC. PG&E's implementation of the MB program requires customers to opt into the program, and recertify their eligibility annually.[21] Due to the COVID-19 pandemic, PG&E has allowed customers to self-certify their eligibility, rather than requiring certification from a "qualified medical practitioner,"[22] and applications for the MB program have increased significantly during the pandemic.[23]

The MB program provides a way to identify customers who are particularly vulnerable to the effects of a power shutoff and funnel targeted resources and aid to mitigate this vulnerability. PG&E allocates battery storage resources to MB customers, discussed further below, and devotes additional resources to notifying MB customers of power shutoffs, issuing notifications every hour until the MB customer confirms receipt of the notification, and conducting in-person visits if no confirmation is recorded.[24] The CPUC requires utilities to report the number of MB customers who are impacted by power shutoffs, as well as a comprehensive record of utility attempts to notify all customers, including MB customers, in advance of the power shutoff.[25]

Despite these targeted efforts to reach MB customers, uncertainty regarding the comprehensiveness of the overall coverage of the MB program has led to concerns that not all medically vulnerable customers receive the service and care they require to remain healthy during a shutoff event.[26] The enrollment and recertification processes may create barriers for medically vulnerable customers to access the cost savings associated with the MB program, take advantage of the additional back-up electricity resources made available to MB customers, and to benefit from the notifications provided by the utility prior to a shutoff event . As of 2020, PG&E has reported sharing their internal records for MB customers who had not confirmed receipt of a power shutoff notice with local and tribal emergency operations centers, but has not released a public plan to bolster the overall effectiveness of the MB program.[27]

"The Medical Baseline program provides a way to identify customers who are particularly vulnerable to the effects of a power shutoff and funnel targeted resources and aid to mitigate this vulnerability... Uncertainty regarding the comprehensiveness of the overall coverage of the MB program has led to concerns that not all medically vulnerable customers receive the service and care they require to remain healthy."

PG&E Resilience Zones

A Resilience Zone (RZ) "is a designated area where PG&E can safely provide electricity to community resources by rapidly isolating it from the wider grid and re-energizing it using temporary mobile generation at a pre-installed interconnection hub (PIH) during an outage."[28] This approach, known as a microgrid, involves installing a transformer, an isolation device, and having space for temporary generation. PG&E has reported using microgrids for most of the utility's power shutoff events, though the utility has shifted its language regarding these microgrids, more recently referred to as "islanding capabilities" in PG&E's reports to the CPUC regarding the power shutoffs of 2020, and has not significantly increased the number of customers energized by microgrids since 2019.[29]

For the October 2019 shutoff events, PG&E sectionalized and energized a RZ in Angwin. The Angwin RZ was PG&E's first pilot RZ. In this area, PG&E only energized part of the town, an area that "included the local fire department and student housing,"[30] as well as 30 households.[31] According to PG&E's reports, the utility utilizes temporary microgrids "to enable some community resources to continue serving the surrounding population" during power shutoffs.[32] Three other communities were provided limited energy access through the use of a microgrid during the October 2019 power shutoffs, in Calistoga, Placerville and Grass Valley. These communities were powered by temporary diesel generators connected directly to substations.[33]

PG&E has not devoted sufficient resources to projects that "island" communities at risk of power shutoffs, as the small number of RZs utilized in 2019 and 2020 indicate. Further, PG&E does not report incorporating any vulnerability metrics in its decision-making process on where RZs should be sited. PG&E has not publicly communicated any further plans to significantly expand use of RZs in order to improve energy security for critical infrastructure.

PG&E Community Resource Centers

PG&E provides Community Resilience Centers (CRCs) in public areas within communities affected by shutoffs. These CRCs are generally open from 8am to 8pm, and are located in parking lots of malls, churches, schools, etc.[34] These centers are designated accessible in accordance with the Americans with Disabilities Act (ADA), are staffed by PG&E employees, have water and restrooms, tables and chairs, and charging stations for cell phones and small medical devices. Some CRCs have internet access and air conditioning; midway through October 2019, PG&E began offering cell service availability as well.[35] Due to the COVID-19 pandemic, PG&E has introduced safety measures in the CRCs, such as face covering requirements, physical distancing, capacity limitations, temperature checks for indoor CRCs, "grab and go bags" of supplies, and use of "micro CRCs" in the form of smaller, open-air tents and "mobile CRCs," or vans.[36]

Prior to a shutoff, the utility establishes standing agreements with the facilities that will host a CRC during a power shutoff. The agreements include determining the hours of operation, establishing compliance with the ADA and environmentalregulations, and designing the site to host approximately 100 customers at a time (pre COVID-19 distancing requirements).[37] CRCs must remain energized during the power shutoff; therefore, depending on the size of the region that is impacted by the shutoff, CRCs may be located far away from the residents who need them and may be inaccessible to those who cannot travel that distance. Causing further difficulties, the locations of CRCs – both traditional CRCs and mobile CRCs – are not released in advance, which has caused public confusion and some anxiety, as customers are unable to adequately prepare for a power shutoff.[38] Therefore, it seems clear that CRCs are, at best, an imperfect policy tool for providing public services when the power is shut off, especially as the COVID-19 pandemic further restricts people's ability to leave their homes safely.

Jesse Duarte, St. Helena Star

Disability Disaster Access and Resources Program and Portable Battery Program

PG&E and the California Foundation for Independent Living Centers (CFILC) have collaborated to administer the the Disability Disaster Access and Resources Program (DDARP). The DDARP provides customers with access and functional needs (generally seniors or differently-abled customers) with backup portable batteries, transportation, and food, gas, and hotel vouchers.[39] The customers eligible for the DDARP are not required to be enrolled in the MB program, and the CFILC is tasked with identifying the needs of the customer and receiving applications for assistance through the DDARP.[40] The CFILC has stated that medical needs and income of applicants will be considered as part of the application process for DDARP resources.[41]

As of October 13, 2020, PG&E reports that 177 batteries have been distributed to eligible customers. For context, PG&E has committed $19 million to the PBP procurement efforts, in order to provide approximately 8,000 batteries to customers.

PG&E reports that, as of October 13, 2020, 604 backup portable batteries have been delivered to qualifying customers. In addition, PG&E has created the Portable Battery Program (PBP), which will provide no-cost backup portable batteries for eligible income-qualified customers[42] who live in HFTDs and are enrolled in the MB program.[43] As of October 13, 2020, PG&E reports that 177 batteries have been distributed to eligible customers. For context, PG&E has committed $19 million to the PBP procurement efforts, in order to provide approximately 8,000 batteries to customers.[44]

By September 2020, PG&E had not procured enough batteries to ensure that all MB customers would be secure during a power shutoff event.[45] Further, PG&E had not procured enough batteries to distribute to its income-qualified MB customers.[46] Customers dependent on larger medical devices are unlikely to benefit from these programs because the portable batteries distributed through the program are not able to provide continuous electricity access for multiple days.

As of September 2020, neither PG&E nor their community partners for the DDARP and PBP have released public details on how many customers have requested and received batteries through these programs, how distribution decisions were made, where funding for the program came from, and what the plan is for continuing procurement and distribution in the future. It is unclear whether these batteries are loaned or given to customers. The CPUC has not required PG&E to publicize details on the DDARP or PBP.[47]

An example of a portable power station used for the PBP.

The Self-Generation Incentive Program

The Self-Generation Incentive Program (SGIP) was authorized in 2001 to increase solar energy access in California; over time, the program has pivoted towards incentivizing energy storage projects.[48] This program is funded through system charges passed on to utility customers through their electricity bills. The SGIP program is currently a lottery system, with energy storage projects paired with renewables and energy storage projects located in the Los Angeles area being given priority in the lottery. The original funding of $83 million is allocated between energy storage (75%) and renewable energy generation projects (25%).[49]

In 2016, the California legislature doubled the amount utilities are authorized to collect from ratepayers, increasing program funding from its $83 million appropriation in 2008 to $166 million. As the agency charged with oversight and implementation of the SGIP, including responsibility for ensuring the equitable distribution of costs and benefits of the program, the CPUC allocated the additional $83 million in annual funding between energy storage (85%) and renewable energy generation projects (15%).[50]

The CPUC has also made efforts to ensure the inclusion of disadvantaged communities in the program through two different initiatives: the SGIP-Equity program, and the SGIP-Equity Resilience program. Both programs incentivize energy storage purchases by covering between 85% (SGIP-Equity) or 100% (SGIP-Equity Resilience) of the cost of battery storage systems.[51] In both cases, however, an upfront investment is

required before the participant can receive a rebate, which precludes those without the financial means to make that initial investment from participating in the program. Table 1 provides an overview of eligibility requirements for the SGIP-Equity and SGIP-Equity Resilience programs.

Eligibility Criteria	SGIP-Equity	SGIP-Equity Resilience

Residential[52]	• Have incentives reserved in the SASH or DAC-SASH rooftop solar programs*; **OR**
	• Are a low-income homeowner; **OR**
	• Are a low-income renter
		• Be located in a Tier 2 or Tier 3 HFTD, **OR** were subject to 2+ discrete power shutoff events prior to the date of application for SGIP incentives; **AND**
		• Meet one of the following criteria:
		  • Are eligible for, or enrolled in, the Medical Baseline program;
		  • Have notified your utility of a potentially life-threatening illness/condition if the power shuts off;
		  • Rely on electric-pump wells for water supply;
		  • Have incentives reserved in the SASH or DAC-SASH rooftop solar programs; Are a low-income homeowner; **OR**
		  • Are a low-income renter

Non-Residential[53]	• Be located in a disadvantaged community or low-income community **AND**
	• Be one of the following:
	  • Local governmental agency;
	  • State governmental agency;
	  • Educational institution;
	  • Non-profit organization; **OR**
	  • Small business
		• Be located in a Tier 2 or Tier 3 HFTD, **OR** were subject to 2+ discrete power shutoff events prior to the date of application for SGIP incentives; **AND**
		• Provide either critical facilities or critical infrastructure to at least one community that is:
		  • Located in a disadvantaged community or low-income community **AND**
		  • At least partially located in a Tier 2 or Tier 3 HFTD **OR** has customers whose electricity was shut off 2+ times during a power shutoff event

initiative for energy justice

Table 1: Eligibility criteria for the SGIP-Equity and SGIP-Equity Resilience programs, based on the applicant's status as a residential or non-residential customer. The Single-Family Affordable Solar Homes (SASH) Program is part of the California Solar Initiative, providing solar incentives on qualifying affordable single-family housing. The Disadvantaged Communities (DAC) SASH Program provides similar incentives for single-family homes located in the top 25 percent most disadvantaged communities according to the CalEnviroScreen tool, which measures vulnerability to environmental injustice.

In May 2020, applications opened for funding through the SGIP-Equity and SGIP-Equity Resilience programs. As of July 7, 2020, PG&E's portions of the SGIP-Equity and SGIP-Equity Resilience incentives were fully subscribed. The CPUC has provided SGIP Eligibility Maps for residential[54] and non-residential[55] applications. The residential maps show: (1) areas that have experienced two or more PSPS events, (2) High Fire-Threat Districts (Tiers 2 and 3), and (3) census tracts with a presumed resale restriction. For privacy reasons, these maps do not show the other criteria for eligibility, including a customer's medical needs, their water source, any specific resale restrictions on individual homes, or participation in low-income solar programs.

POLICY RECOMMENDATIONS:

This brief highlights some of the gaps that exist in the efforts to increase resilience in the context of wildfire mitigation. With the devastation of the 2020 fire season already evident, policymakers and utilities have an opportunity to do better. The following policy recommendations will help to address the needs of the most vulnerable ratepayers and make existing policies more accessible and just.

- **Auto-Enroll and Auto-Renew Medical Baseline Program Ratepayers:** The Medical Baseline program does not currently capture the full picture of medically vulnerable ratepayers, as customers must opt-in, renew their application annually, and submit a new application every two years if their condition is not deemed permanent by their medical practitioner. The opt-in requirement presents a barrier to ratepayers who are unfamiliar with different utility programs and do not speak English fluently. The renewal requirements require recertification every two years by a licensed medical practitioner, a process which has been waived during the COVID-19 pandemic.

  Recommendation: PG&E should work with medical practitioners, insurance companies, and government officials to auto-enroll customers into the Medical Baseline program and continue their current practice of auto-renewing membership in the program.

- **Site Resilience Zones with equity and vulnerability considerations:** RZs are being treated as pilot tests for electric grid islanding instead of being utilized as a method to enhance the security of vulnerable communities and populations. PG&E has not included the decision-making process for where to locate RZs, or its plan for expanding use of microgrids as an energy resilience strategy, in its reports to the CPUC.

  Recommendation: RZs should be sited to prioritize the greatest number of residents they can serve, especially those residents with vulnerability concerns (including medically vulnerable residents, people living in environmental justice communities, and LMI residents).

- **Run Resilience Zones on renewable energy:** RZs are currently powered by diesel generators, which pose a safety and health risk to operators, and increase greenhouse gas emissions.

  Recommendation: RZs should be powered by renewable energy sources, not diesel generators, and should be expanded in number and scope to increase energy security during power shutoffs.

- **Prioritize vulnerable communities for SGIP enrollment:** While SGIP technologies will be helpful anywhere, they will be most beneficial in communities that are most likely to experience shutoffs and be most negatively impacted by those shutoffs.

  Recommendation: The CPUC should direct SGIP funding towards those ratepayers where the SGIP program can have the greatest positive impact (including medically vulnerable residents, people living in environmental justice communities, and LMI residents).

- **Prioritize CRCs based on medical vulnerability and LMI status:** Those with LMI status, medical vulnerability, and living in environmental justice communities will be most negatively impacted by a power shutoff, and might not have the ability to travel to a CRC that is located far from their home.

  Recommendation: Medically vulnerable, LMI individuals, and environmental justice communities should be prioritized when considering the location and distribution of CRCs. CRC locations should be publicized well in advance of fire season, and should, as much as possible, remain consistent over the years.

- **Increase DDARP and PBP Oversight and Mandate Detailed Reporting:** The DDARP and PBP provide battery storage to vulnerable populations with no public oversight or transparency. These programs are partnerships between community organizations and PG&E, and do not report the number of batteries procured, where those batteries are being allocated, and how the program interacts with the SGIP.

  Recommendation: The programs should be subject to increased public oversight and transparency by the CPUC, with clear equity benchmarks—such as LMI status or whether the recipient lives within an environmental justice community—included in reporting requirements. Other IOUs with similar battery-provision programs should be subject to the same equity requirements.

- **Restructure SGIP Rebate to eliminate upfront payment by LMI Ratepayers:** The current rebate system benefits ratepayers who already have the financial ability to pay for the SGIP technologies upfront, but this system places an unreasonable burden on LMI ratepayers. LMI ratepayers often lack the savings to finance the purchase and installation of SGIP technologies and are likely to be underrepresented in the SGIP program.

  Recommendation: The upfront payment should be eliminated for LMI ratepayers, with energy storage systems provided at low- or no-cost to the communities most vulnerable to energy insecurity.

- **Track enrollments in SGIP:** Without information on which customers are taking advantage of SGIP funding, it is unclear whether low-income, minority, environmental justice, or medically vulnerable populations are being adequately served by the program. Currently, SGIP reporting does not include information on which eligibility requirements the recipient met. This makes it difficult to determine whether the funding is being allocated in an equitable way.

  Recommendation: The CPUC should track and release demographic and eligibility data concerning SGIP enrollment.

CONCLUSION

California's wildfires have now become a routine aspect of life in the state. The state's policymakers and utilities must take deliberate steps to ensure that the state's most vulnerable residents—medically vulnerable residents, low-income residents, and people living in environmental justice communities—have access to resources designed to mitigate their vulnerability in the face of wildfire-related, utility-initiated power shutoffs.

This brief offers a set of policy and program changes to enhance the identification of medically vulnerable residents and increase access to resilient power systems in the populations that need it most. These energy justice-focused recommendations also provide a framework for equity-centered energy decision making in the state as the deeply inequitable climate crisis unfolds.

San Francisco, CA — Protesters hold signs as they block the main entrance to the Pacific Gas and Electric (PG&E) headquarters.

ENDNOTES

1. Consider This. “What’s Driving California’s Biggest-Ever Wildfire Season.” National Public Radio, September 7, 2020. https://www.npr.org/2020/09/04/909668879/whats-driving-california-s-biggest-ever-wildfire-season.

2. 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 initiated by investor-owned utilities.

3. Molinari, Noelle Angelique M., Bei Chen, Nevin Krishna, and Thomas Morris. “Who’s at Risk When the Power Goes Out? The At-Home Electricity-Dependent Population in the United States, 2012:” Journal of Public Health Management and Practice 23, no. 2 (2017): 152–59. https://doi.org/10.1097/PHH.0000000000000345.

4. DeSalvo, Karen, Nicole Lurie, Kristen Finne, Chris Worrall, Alina Bogdanov, Ayame Dinkler, Sarah Babcock, and Jeffrey Kelman. “Using Medicare Data to Identify Individuals Who Are Electricity Dependent to Improve Disaster Preparedness and Response.” American Journal of Public Health 104, no. 7 (July 2014): 1160–64. https://doi.org/10.2105/AJPH.2014.302009.

5. U.S. Department of Health & Human Services. 2020. “HHS EmPOWER Map 3.0.” Electricity-Dependent Medicare Population by Selected Region. https://empowermap.hhs.gov/.

6. Halstead, Richard. “In outage aftermath, Marin officials work to document medically frail,” Marin Independent Journal, October 19, 2019, https://www.marinij.com/2019/10/19/in-outage-aftermath-marin-officials-work-to-document-medically-frail/.

7. Wong-Parodi, Gabrielle. “When Climate Change Adaptation Becomes a ‘Looming Threat’ to Society: Exploring Views and Responses to California Wildfires and Public Safety Power Shutoffs.” Energy Research & Social Science 70 (December 2020): 101757. https://doi.org/10.1016/j.erss.2020.101757.

8. Natalie R. Sampson et al., “Staying Cool in a Changing Climate: Reaching Vulnerable Populations during Heat Events,” Global Environmental Change 23, no. 2 (2013): pp. 475-484, https://doi.org/10.1016/j.gloenvcha.2012.12.011.

9. Ghanem, Dana Abi, Sarah Mander, and Clair Gough. “‘I Think We Need to Get a Better Generator’: Household Resilience to Disruption to Power Supply during Storm Events.” Energy Policy 92 (May 2016): 171–80. https://doi.org/10.1016/j.enpol.2016.02.003.

10. California Public Utilities Commission, “History of Residential Rate Design in California,” https://docs.cpuc.ca.gov/PublishedDocs/PUBLISHED/FINAL_DECISION/169782-01.htm.

11. Ibid.

12. PG&E Public Safety Power Shutoff Reports for: Oct. 5-6, 2019; Oct. 9-12, 2019; Oct. 23-24, 2019; Oct. 26 and 29, 2019. Accessed at: https://www.cpuc.ca.gov/deenergization/.

13. PG&E External Communications. “PG&E, CFILC Announce Program to Support Vulnerable Customers in Preparation for Public Safety Power Shutoff Events,” April 29, 2020. https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20200429_pge_cfilc_announce_program_to_support_vulnerable_customers_in_preparation_for_public_safety_power_shutoff_events.

14. CPUC PSPS Public Briefings, PG&E, August 13, 2020.

15. California Public Utilities Commission. “Decision 19-09-027,” September 18, 2019. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M313/K975/313975481.PDF.

16. Bigue, Christa. “County of San Mateo Readies for PG&E Power Shut Off Due to Extreme Weather, Fire Danger.” County of San Mateo - County Manager’s Office (blog), October 9, 2019. https://cmo.smcgov.org/blog/2019-10-09/county-san-mateo-readies-pge-power-shut-due-extreme-weather-fire-danger.

17. “Senate Bill No 901,” California Legislative Information, September 21, 2018, https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB901.

18. PG&E 2020 Wildfire Safety Plan, Executive Summary, pg 13, https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/2020-Wildfire-Safety-Plan.pdf.

19. PG&E 2020 Wildfire Safety Plan, Executive

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Summary, pg 15, https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/2020-Wildfire-Safety-Plan.pdf.

20. California Public Utilities Commission, "History of Residential Rate Design in California," https://docs.cpuc.ca.gov/PublishedDocs/PUBLISHED/FINAL_DECISION/169782-01.htm.

21. In the application process, the required certification by a medical practitioner is categorized as either permanent or not permanent. Customers with "permanent" categorization are required to complete a renewal application for the MB program every two years; this renewal application does not require further certification by a medical practitioner, but is instead a self-certification. Customers with "non-permanent" categorization are required to complete a self-certified renewal application after one year, and a new application for the MB program after two years. This new application must include certification by a medical practitioner. PG&E. 2020. "Medical Baseline Program Application." Accessed November 9, 2020. https://www.pge.com/en_US/residential/save-energy-money/help-paying-your-bill/longer-term-assistance/medical-condition-related/medical-baseline-allowance/medical-baseline-covid19.page.

22. "Medical Baseline Program Overview," PG&E, 2020, https://www.pge.com/en_US/residential/save-energy-money/help-paying-your-bill/longer-term-assistance/medical-condition-related/medical-baseline-allowance/medical-baseline-allowance.page.

23. CPUC PSPS Public Briefings, PG&E, August 13, 2020.

24. PG&E Public Safety Power Shutoff Reports for: Sep. 27-29, 2020. Accessed at: https://www.cpuc.ca.gov/deenergization/.

25. California Public Utilities Commission. 2018. "ESRB-8." https://docs.cpuc.ca.gov/publisheddocs/published/g000/m218/k186/218186823.pdf.

26. Sotolongo, Marisa, Cecelia Bolon, and Shalanda H. Baker. 2020. "California Power Shutoffs: Deficiencies in Data and Reporting.", pg. 9. Initiative for Energy Justice. https://iejusa.org/wp-content/uploads/2020/10/V3.3-Policy-Brief-CA-Shutoffs-Data-Brief.pdf.

27. PG&E Public Safety Power Shutoff Reports for: Sep. 27-29, 2020. Accessed at: https://www.cpuc.ca.gov/deenergization/.

28. PG&E Public Safety Power Shutoff Reports for: Oct. 9-12, 2019, pg 20. Accessed at: https://www.cpuc.ca.gov/deenergization/.

29. See PG&E Public Safety Power Shutoff Reports for: Oct. 26-30, 2019 (4,860 customers energized using microgrids); Sep. 7-10, 2020 (~8,000 customers energized); and Sep. 27-29, 2020 (~4,300 customers energized). Accessed at: https://www.cpuc.ca.gov/deenergization/.

30. PG&E Public Safety Power Shutoff Reports for: Oct. 9-12, 2019, pg 21. Accessed at: https://www.cpuc.ca.gov/deenergization/.

31. PG&E Public Safety Power Shutoff Reports for: Oct. 23-24, 2019, pg 26. Accessed at: https://www.cpuc.ca.gov/deenergization/.

32. PG&E Public Safety Power Shutoff Reports for: Sept. 27-29, 2020, pg 59. Accessed at: https://www.cpuc.ca.gov/deenergization/.

33. Balaraman, Kavya. "PG&E Is Betting Heavily on Microgrids. But Can It Move Away from Fossil Fuels?" Utility Dive, January 28, 2020. https://www.utilitydive.com/news/pge-microgrid-public-safety-shutoffs-offers-distributed-energy-request-fossil-fuel-reliance/571017/.

34. PG&E Public Safety Power Shutoff Reports for: Oct. 9-12, 2019, pg 23. Accessed at: https://www.cpuc.ca.gov/deenergization/.

35. PG&E Public Safety Power Shutoff Reports for: Oct. 23-24, 2019, pg 22. Accessed at: https://www.cpuc.ca.gov/deenergization/.

36. PG&E Public Safety Power Shutoff Reports for: Sept. 27-29, 2020, pg 52. Accessed at: https://www.cpuc.ca.gov/deenergization/.

37. Ibid.

38. CPUC PSPS Public Briefings, PG&E, August 13, 2020.

39. PG&E Public Safety Power Shutoff Reports for: Sept. 27-29, 2020, pg 43. Accessed at: https://www.cpuc.ca.gov/deenergization/.

40. Disability Disaster Access & Resources, California

www.iejusa.org

360 Huntington Ave
Boston, MA
p: 617-373-4070

Foundation for Independent Living Centers. 2020. "Power Safety Shutoff Resources Application." 2020. https://disabilitydisasteraccess.org/power-safety-shutoff-resources-application/.

41. Ibid.

42. According to PG&E, income-qualified means that the customer is enrolled in California Alternate Rates for Energy (CARE) or Family Electric Rate Assistance (FERA) programs.

43. PG&E External Communications. "PG&E Launches Portable Battery Program for Income Qualifying Customers," September 23, 2020. https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20200923_pge_launches_portable_battery_program_for_income_qualifying_customers.

44. Ibid.

45. CPUC PSPS Public Briefings, PG&E, August 13, 2020.

46. CPUC PSPS Public Briefings, PG&E, August 13, 2020.

47. CPUC PSPS Public Briefings, PG&E, August 13, 2020.

48. In 2006, with the creation of the California Solar Initiative, which was designed to support rooftop solar adoption, the SGIP ceased supporting solar PV technologies, and moved toward storage. See CPUC, "About the Self-Generation Incentive Program". https://www.cpuc.ca.gov/General.aspx?id=11430.

49. California Public Utilities Commission. "Decision 16-06-055," July 1, 2016. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M163/K928/163928075.PDF.

50. California Public Utilities Commission. "Decision 17-04-017," April 13, 2017. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M183/K843/183843620.PDF; California Public Utilities Commission. "Decision 19-09-027."

51. California Public Utilities Commission. "Decision 19-09-027."

52. PG&E. 2020. "Discover the Self-Generation Incentive Program for Residential Customers." 2020. https://www.pge.com/en_US/residential/save-energy-money/savings-solutions-and-rebates/understand-the-solar-process.page.

53. PG&E. 2020. "Discover the Self-Generation Incentive Program for Non-Residential Customers." 2020. https://www.pge.com/en_US/small-medium-business/energy-alternatives/private-solar/understand-the-solar-process.page?WT.mc_id=Vanity_sgip.

54. California Public Utilities Commission. "Self-Generation Incentive Program - Residential Eligibility." August 2020. https://capuc.maps.arcgis.com/home/webmap/viewer.html?webmap=951707c35bcf430688aa710f771c063c. Accessed at: https://www.cpuc.ca.gov/sgipinfo/.

55. California Public Utilities Commission. "Self-Generation Incentive Program - Non-Residential Eligibility." August 2020. https://capuc.maps.arcgis.com/home/webmap/viewer.html?webmap=dddcf3c4d64e48cbaa0886aba2fc20ac. Accessed at: https://www.cpuc.ca.gov/sgipinfo/.

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