



Memorandum

TO: HONORABLE MAYOR
AND COUNCIL

FROM: Lori Mitchell
Matt Cano
Raymond Riordan

SUBJECT: ENERGY RESILIENCE
STUDY SESSION

DATE: August 23, 2019

Approved

D. D. S. L.

Date

8/23/19

OUTCOME

The City Council is informed about challenges to energy reliability and resilience and considerations for ownership and investment in local electricity infrastructure and more local control of electricity services in San José.

BACKGROUND

On August 8, 2017, City Council approved an ordinance establishing a Community Choice Aggregation (“CCA”) program to be named San José Clean Energy (“SJCE”) and amending Title 2 of the San José Municipal Code to create the Community Energy Department of the City of San José to manage the CCA.

On August 29, 2017, City Council approved a resolution adopting SJCE’s Implementation Plan and Statement of Intent and directed staff to submit this document to the California Public Utilities Commission (“CPUC”). On September 18, 2017, the Implementation Plan was submitted to the CPUC. The CPUC certified the plan on December 18, 2017.

On November 7, 2017, City Council approved an ordinance to add Title 26 to the San José Municipal Code that provides procedures for the operation and management of SJCE.

On June 12, 2019, the Rules and Open Government Committee directed Community Energy staff to hold a Council study session to inform the Council and educate the public about the serious challenges that San Jose - and other Northern California cities – face regarding maintaining electric reliability and resilience.

On June 25, 2019, City Council adopted a resolution establishing principles to guide advocacy regarding the restructuring of California’s electric power system to ensure the electric generation, transmission and distribution infrastructure serving the City of San José is safe, reliable, clean, and affordable.

ANALYSIS

Energy Availability Threat Assessment

PG&E Wildfire Mitigation Plans and Public Safety Power Shutoff Program

On October 25, 2018, the CPUC opened a Rulemaking to Implement Electric Utility Wildfire Mitigation Plans Pursuant to Senate Bill (“SB”) 901 (Dodd, 2018).¹ SB 901 requires all California electric utilities to prepare Wildfire Safety Plans on constructing, maintaining, and operating their electrical lines and equipment to minimize the risk of catastrophic wildfire. SB 901 lists 20 required elements for all Investor Owned Utility (“IOU”) Wildfire Mitigation Plans, codified in California Public Utility Code 8386 (C).

On January 17, 2019, the CPUC issued a Ruling² that provides direction to California utilities developing 2019 Wildfire Safety Plans (“WSP”). This Ruling includes a template referencing when IOUs may implement a distribution level Public Safety Power Shut-off (“PSPS”) under PU Code 8386 (C).³ The CPUC WSP and PSPS guidance applies to IOUs operating within CPUC defined High Fire Threat Districts.⁴ PG&E filed their first proposed WSP with the CPUC on February 06, 2019.⁵ PG&E filed an amended WPS with the CPUC on February 14, 2019, and a second amended WSP with the CPUC on April 25, 2019.

PG&E’s April 25, 2019, WSP included the following language regarding San Jose’s de-energization risks.

“PG&E has expanded the scope of the PSPS program to include high voltage transmission lines. If these high voltage transmission lines are de-energized during a PSPS event, the interconnected nature of the grid could result in a cascading effect that causes other transmission lines and distribution lines – potentially far from the original fire-risk areas – to be de-energized. ***Thus, distribution lines far from High Fire Threat***

¹ [CPUC Order Instituting Rulemaking to Implement Electric Utility Wildfire Mitigation Plans Pursuant to senate Bill 901 \(2018\), filed in R.18-10-007, October 25, 2019](#)

² [CPUC ALJ Ruling on Wildfire Mitigation Plan Template, and Additional Parties as Respondents, January 17, 2019](#)

³ [ibid, page 6, Attachment A](#)

⁴ [D.17-12-024, Decision Adopting Regulations to Enhance Fire Safety in the High Fire-Threat District, December 14, 2017](#)

⁵ [Pacific Gas and Electric Company’s Wildfire Mitigation Plan, filed in R.18-10-007, February 6, 2019](#)

Districts areas that triggered the PSPS event, but which rely on the de-energized lines for power, such as lines in cities like San Francisco or San José, could be de-energized. San Francisco is not in a High Fire Threat Districts areas and is highly unlikely to experience the kind of climate and weather conditions that would trigger a PSPS event. Nor does San Francisco present wildfire risk. But San Francisco could possibly be de-energized if multiple East Bay transmission lines were to be de-energized due to extreme conditions.”⁶

On May 30, 2019, the CPUC adopted D.19-05-042,⁷ which established Phase 1 Guidelines for IOU de-energization of power lines in dangerous conditions and IOU PSPS protocol. This decision approves the CPUC’s overarching WSP de-energization strategy and establishes required IOU de-energization communication and public notification guidelines. The CPUC found that PG&E filed their second WSP amendment proposing transmission level de-energization too late in the process for timely CPUC review and approval. The Decision nevertheless gives PG&E full discretion to evaluate real-time and on the ground information to determine whether to de-energize PG&E owned transmission and distribution lines as part of their wildfire management program.

PG&E distribution level outages could impact residential, commercial, and large industrial customers in San José, including SJCE customers. Transmission level outages could impact large geographic regions, including all of Silicon Valley or potentially the entire Bay Area.^{8,9} While the Decision instructs PG&E to coordinate a transmission shut-off with state and federal safety and electric reliability regulatory agencies, it still grants PG&E full discretionary authority on whether and when to de-energize and re-energize their transmission and distribution lines.¹⁰

⁶ [PG&E Amended Wildfire Mitigation Plan, April 25, 2019](#), page 20

⁷ [CPUC Decision Adopting De-Energization \(Public Safety Power Shut-Off\) Guidelines \(Phase 1 Guidelines\), May 30, 2019](#).

⁸ “On August 14, 2003, large portions of the Midwest and Northeast United States and Ontario, Canada, experienced an electric power blackout... [affecting] an estimated 50 million people in the states of Ohio, Michigan, Pennsylvania, New York, Vermont, Massachusetts, Connecticut, New Jersey and the Canadian province of Ontario. Power was not restored for 4 days in some parts of the United States. Estimates of total costs in the United States range between \$4 billion and \$10 billion... [Causes include:] FirstEnergy did not recognize or understand the deteriorating condition of its system and failed to manage adequately tree growth in its transmission rights of way.” [U.S.-Canada Power System Outage Task Force, “Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations,” April 2004](#), p. 1, 19-20.

⁹ “On the afternoon of September 8, 2011, an 11-minute system disturbance occurred in the Pacific Southwest, leading to cascading outages and leaving approximately 2.7 million customers without power.... The loss of a single 500 kilovolt (kV) transmission line initiated the event, but was not the sole cause of the widespread outages. The system is designed, and should be operated, to withstand the loss of a single line, even one as large as 500 kV.... The flow redistributions, voltage deviations, and resulting overloads had a ripple effect, as transformers, transmission lines, and generating units tripped offline, initiating automatic load shedding throughout the region in a relatively short time span.” [Federal Energy Regulatory Commission and North American Electric Reliability Corporation, “Arizona-Southern California Outages on September 8, 2011,” April 2012](#), p. 1-2.

¹⁰ [CPUC Decision Adopting De-Energization \(Public Safety Power Shut-Off\) Guidelines \(Phase 1 Guidelines\), May 30, 2019](#), p. 105-106

On June 14, 2019, the CPUC approved a Ruling to initiate Phase 2 of the R.18-10-007 IOU Wildfire Mitigation Proceeding.¹¹ Phase 2 will further develop IOU Wildfire Mitigation Plan reporting templates and evaluation metrics, and consider PG&E's April 25, 2019 Wildfire Mitigation Plans amendment. Parties are invited to file comments in the Phase 2 proceeding on August 21, 2019 and participate in proceeding workshops from September 17 through September 19, 2019. These workshops will take place during the heart of California wildfire season leaving PG&E's default but not yet approved Wildfire Mitigation Plans, which contemplates intentionally de-energizing transmission lines serving major metropolitan areas like San Francisco and San José, in place and unresolved. PG&E's proposal to de-energize the wider Bay Area is not an acceptable wildfire mitigation strategy as the unintended consequences could have catastrophic life safety and economic impacts for millions of Californians in 2019. A 2003 blackout, affecting the United States and Canada is estimated to have led to the deaths of nearly 100 people.¹²

On August 15, 2019, the California Senate Gas, Electricity and Transportation Sub-Committee held a public hearing on the risks of implementing IOU de-energization as a wildfire mitigation measure. Mayor Liccardo participated to address San José public safety and economic concerns related to PG&E de-energization plans. Staff is engaging with Governor Newsom's Office, Cal OES, and the California legislature, and participating in regulatory proceedings at the CPUC to ensure there is more public oversight and regulation of planned IOU PSPS de-energization and re-energization events when implementing IOU Wildfire Safety Management Plans.

City of San José Vulnerability Assessment-Life Safety Impacts

This City's Office of Emergency Management has developed a Power Vulnerability Plan ("PVP") as an annex to the City of San José Emergency Operations Base Plan. The PVP outlines the major risks to health and safety caused by a PG&E PSPS event and the City's response. Highlighting some of these risks, San José has 7,365 customers on a medical baseline rate. Medical baseline customers qualify for a lower rate as they have a device that uses additional electricity.

Understanding the number of medical baseline customers in San José is helpful; however, it is not a comprehensive metric of all the residents that may need assistance during a PSPS event. There are many residents that may need assistance that are not on a medical baseline rate. These needs could overrun hospitals which will be impacted by limited backup generation.

In addition to health impacts, there are major safety risks in the event of a prolonged power outage. Traffic controls will be compromised, likely leading to gridlock and potentially more accidents. Electric public transportation services will halt, potentially stranding people. Security

¹¹ [Ruling Launching Phase 2 of the Wildfire Mitigation Plan Proceeding, R.18-10-007, June 14, 2019](#)

¹² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3276729/>

systems and video surveillance equipment would be down, leading to a potential looting. There is also a potential for civil unrest if the event continues for many days.

The PVP was developed by the Office of Emergency Management following weekly meetings from May through August with key department management, three workshops with PG&E to understand and facilitate the response to a PG&E PSPS event, as well as three internal planning sessions with City departments. The City has also produced an Alternate Power Plan and a Fueling Plan. The PVP will be reviewed annually and updated as needed by the Office of Emergency Management with input from relevant departments. As a benefit for future emergencies, the PVP will also have applications during other incidents that cause power outages such as earthquakes.

City of San José Vulnerability Assessment-Economic

Per a 2013 report from the Executive Office of the President of the United States, “Economic Benefits of Increasing Electric Grid Resilience to Weather Outages”, the costs of power outages take various forms including lost output and wages, spoiled inventory, delayed production, inconvenience, and damage to the electric grid with total annual U.S. costs estimated at between \$25 to \$70 billion.^{13,14} According to a 2018 Lawrence Berkeley National Laboratory report, the total U.S. cost of sustained power interruptions is \$44 billion per year. As U.S. natural disasters and major weather events become more frequent and more destructive, this estimate represents a 25% increase since 2006.¹⁵

In 2003, large portions of the Midwest and Northeastern power grid sustained an outage that lasted almost two days and impacted more than 50 million customers throughout eight states and Canada. The U.S. DOE estimated economic losses associated with the 2003 Northeast Blackout at \$6 billion, with other estimates ranging from \$7 to \$10 billion.¹⁶ The greater San Diego region sustained economic losses in the range of \$97 - \$118 million arising from a 12 hour 2011 blackout that stemmed from work being done at a Western Arizona electric substation.¹⁷

The value of a resilient power grid to customers in its simplest form would be the avoided life safety impacts and costs associated with a grid outage. For large commercial and industrial customers, these losses can range from tens of thousands of dollars for momentary disruptions, all the way to hundreds of thousands for more prolonged outages.¹⁸

¹³ https://www.energy.gov/sites/prod/files/2013/08/f2/Grid%20Resiliency%20Report_FINAL.pdf

¹⁴ <https://fas.org/sfp/crs/misc/R42696.pdf>

¹⁵ <https://emp.lbl.gov/news/berkeley-lab-estimates-sustained-electric>

¹⁶ <https://elcon.org/wp-content/uploads/Economic20Impacts20of20August200320Blackout1.pdf>

¹⁷ <http://www.nusinstitute.org/assets/resources/pageResources/PrelimReportSDBlackoutEconImpact.pdf>

¹⁸ <https://certs.lbl.gov/sites/all/files/lbnl-6941e.pdf>

Not only is the length and severity of power outages increasing, but the value of lost economic output is increasing. A 2016 Ponemon Institute study estimates that the cost per minute of a power outage at a U.S. data center has increased from \$5,617 in 2010 to \$8,851 in 2018.¹⁹ The San José and surrounding Bay Area economies are technology focused, and the economic output lost due to a prolonged power outage will be particularly high and will only continue to increase. These costs would likely significantly increase during an extended multi-day blackout. There are also additional costs to the City and residents and businesses to prepare for a power outage and the loss in economic activity that occurs in the aftermath of a significant PG&E PSPS event.

Energy Affordability and Equity

Equity is an important lens through which to analyze the potential impacts of a grid de-energization event as disparity exists in the ability of San José residents and businesses to access resources to prepare for and recover from a PG&E PSPS event. Energy affordability itself is a significant equity issue. According to the federal Energy Information Administration in 2015, nearly one in three U.S. households experienced energy insecurity and faced challenges in paying their energy bills.²⁰

It is especially challenging to add the additional burden of potential de-energization to a population who struggles to pay their bills. Many of the City's most vulnerable residents may not be able to purchase backup generators or other solutions to ensure they have reliable power during a PG&E PSPS event. Ensuring the City's cooling / warming centers have backup power is an important equity issue. Medical baseline customers and other vulnerable residents must have adequate places to shelter in case of de-energization. An important next step is to ensure funding for temporary generators and to continue to advocate for funding to install permanent backup generation at these sites.

Local Control Analysis

There are various strategies to increase local control and reduce impacts related to the loss of power. Developing an Alternate Power Plan and a Fueling Plan to ensure critical city services can continue is an important first step in ensuring the City of San José is prepared for a large scale power outage. Additional medium-term strategies that could provide benefits in a power outage are investments in grid resiliency measures such as distributed generation resources such as solar+storage and investments in larger microgrids. These options are further defined in the following section titled Grid Resiliency. Another long-term strategy to increase local control is the formation of a public utility. There are various opportunities and challenges associated with this strategy that are detailed below and in the municipalization section.

¹⁹ https://www.vertiv.com/globalassets/documents/reports/2016-cost-of-data-center-outages-11-11_51190_1.pdf

²⁰ <https://www.eia.gov/consumption/residential/reports/2015/energybills/>

Performance of Public Utilities

Studies show that public utilities are consistently cheaper and more reliable than IOUs.²¹ The American Public Power Association estimates that residential customers of publicly owned utilities pay on average 13% less.

	Avg. Residential Cost	Avg. Commercial Cost
U.S. Public Utilities	\$.118/kWh	\$.108/kWh
U.S. Investor Owned Utilities	\$.135/kWh	\$.109/kWh
CA Public Utilities	\$.157/kWh	\$.146/kWh
CA Investor Owned Utilities	\$.19/kWh	\$.171/kWh

Public utilities that serve California consistently have retail rates below PG&E's.

	Residential Rates Compared to PG&E	Non-Residential Rates Compared to PG&E
Silicon Valley Power (City of Santa Clara)	48% Lower ²²	26%-38% Lower ²³
Sacramento Municipal Utility District ²⁴	33% (Avg.) Lower	31.1%-47.6% Lower
Alameda Municipal Power ²⁵	14.9%-31.5% Lower	11.3%-18.9% Lower
Los Angeles Department of Water and Power	31% Lower ²⁶	7-27% Lower ²⁷

Despite lower average rates, the American Public Power Association ("APPA") found that public utilities have higher reliability scores.²⁸ The APPA states, "public power significantly outperforms both cooperatives and IOUs when it comes to reliability. Public power customers experience fewer outages and are left in the dark for much shorter periods of times than other electric customers."²⁹ Customers of investor owned utilities are likely to be without power for 133 minutes per year, compared to only 59 minutes per year for public utilities. Referring to

²¹ <https://www.publicpower.org/system/files/documents/2019-Public-Power-Statistical-Report.pdf>

²² <http://www.siliconvalleypower.com/for-residents/rates>

²³ <http://www.siliconvalleypower.com/for-businesses/rates>

²⁴ <https://www.smud.org/en/Rate-Information/Compare-Rates>

²⁵ <https://www.alamedamp.com/rate-comparisons>

²⁶ http://rates.ladwp.com/UserFiles/Residential%20Power%20Comparison_July%202018.pdf

²⁷ http://rates.ladwp.com/UserFiles/Power_rates_comparison_Jan%202019.pdf

²⁸ https://c.ymcdn.com/sites/members.iamu.org/resource/resmgr/informer_2016/APPA_Pay_Report.pdf

²⁹ "Public power significantly outperforms both cooperatives and IOUs when it comes to reliability. Public power customers experience fewer outages and are left in the dark for much shorter periods of times than other electric customers."

https://cdn.ymaws.com/members.iamu.org/resource/resmgr/informer_2016/APPA_Pay_Report.pdf, page 5

National Reliability Metrics compiled by the Institute of Electronics and Electrical Engineers, Public Power customers, on average, experience 28% less power interruptions related to a major event, and these disruptions are 71% shorter in duration relative to those experienced by customers of IOUs.

Distribution rates paid by a municipal utility's customers are reinvested in local electrical infrastructure. Public utilities also return more revenues into local economies than IOUs. Public utilities return on average 27% more of their operating revenues to local economies than IOUs, contributing 5.6% of their operating revenues through Payments In Lieu of Taxes, compared to IOUs paying a median of only 4.4% of their revenues in property and other taxes, see *Attachment 2*.

Grid Resiliency

The Federal Energy Regulatory Commission offers an “understanding” of resilience to mean, “[t]he ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event.”³⁰ While analyzing future options to improve energy resiliency through increased local control and the deployment of new technologies, it is necessary to understand the existing level of energy resilience of City facilities and the power backup solutions currently deployed.

Levels of Resilience

There are three fundamental levels of electric grid infrastructure, all of which have unique technologies and energy resilience implications:

1. Onsite: Infrastructure that is located at a single building, such as a residential, commercial, or industrial building. The infrastructure is typically located “behind the meter” and operated by the retail customer only.
2. Distribution Level: Infrastructure serving multiple buildings, such as neighborhoods, commercial centers, or industrial parks. The infrastructure is typically located “in front of the meter”, usually controlled by and benefitting the utility.
3. Transmission Level: Infrastructure connecting large areas of electric demand across long distances to large scale generation resources.

³⁰ Federal Energy Regulatory Commission (FERC) (2018), Order 162 FERC ¶ 61,012, Docket RM18-1-000, Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, Docket No. AD18-7, January 8, 2018, at <https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14792904>, paragraph 23.

1. Onsite

Power backup solutions at the facility level represent the most common deployment model and come in three major types: 1. Generators 2. Fuel Cells 3. Battery Storage (often paired with onsite renewable generation from wind or solar). These solutions are typically a smaller scale than utility owned infrastructure and are located behind a retail customer's power meter, serving just that customer. They are typically owned and operated by the end use customer or 3rd parties, rather than the utility.

Generators have been the traditional backup power solution and range in scale from small portable generators deployed only for emergency backup power to large co-generation engines that will service a significant portion of a facility's load during regular operations. All fossil fuel generators produce emissions and other pollutants, although co-generation systems may use fuels produced from sources considered renewable, such as landfills, water treatment facilities, or organic waste from food processing.

Fuel cells convert natural gas or hydrogen into electricity via an electrochemical process. Fuel cells are often deployed by customers as a form of base power for standard operations that can be used as backup power in the event of a grid blackout. Fuel cells can be purchased or their energy can be contracted for under a Power Purchase Agreement ("PPA"). Fuel cells that rely on natural gas can produce greenhouse gas emissions several times greater than PG&E's current emissions factor. Bloom Energy, a leading fuel cell company, lists its emissions factor as 756 lbs of CO₂/MWh.³¹ This compares unfavorably to PG&E's 2017 emissions factor of 210 lbs of CO₂/MWh.³² Because of the significantly higher emissions factor of fuel cells – which run as base power, not backup power – any resiliency solution incorporating fuel cells must be considered carefully.

Batteries, most commonly lithium-ion, are becoming a more common solution for power backup. In addition to providing energy resilience, batteries can also help customers reduce peak demand costs, shift energy usage to lower cost times of day, participate in demand response markets, and help customers meet sustainability goals when paired with renewable generation. Traditionally, battery installations have been sized to provide only 10%-20% of total demand, however as prices continue to fall, larger configurations which can service a larger portion of building load are being deployed.

Whether using traditional diesel generators, fuel cells, or battery storage, onsite solutions allow the building to "island" and operate independently of the grid when there is a loss of grid power, but they generally provide only a portion of a building's total power, serving critical systems, such as communications, lighting, etc. Except for very remote geographies and specialized use

³¹ <https://www.bloomenergy.com/benefits/sustainability>

³² <https://www.theclimaterestory.org/our-members/cris-public-reports/>

cases, these solutions are not designed to take a building “off-grid” and permanently eliminate its connection to the grid. Going fully off-grid is often not cost effective, technically challenging, and not necessarily desirable. The vast majority of buildings with backup power solutions will island during an emergency event but still rely on grid power for some portion of their daily operations.

2. Distribution

Distribution level infrastructure refers to equipment that is traditionally owned and operated by a utility, and provides services to multiple customers or to the utility itself. A microgrid can connect buildings across an extended geographic area, allowing energy to be efficiently distributed between facilities. The US Department of Energy defines a microgrid as “a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that act as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or island mode”.³³ Microgrids usually contain generation from fossil fuel or renewable resources and in some deployments, can operate in “island mode” indefinitely. Microgrids can be deployed in a wide range of sizes and with different generation sources.

Distribution level resilience solutions can be more effective than onsite technologies alone. They integrate and coordinate resources across larger regions and groups of customers. To deploy these technologies at scale in urban and suburban environments, utilities must own and operate the infrastructure, since customers lack the regulatory authority to own distribution infrastructure.

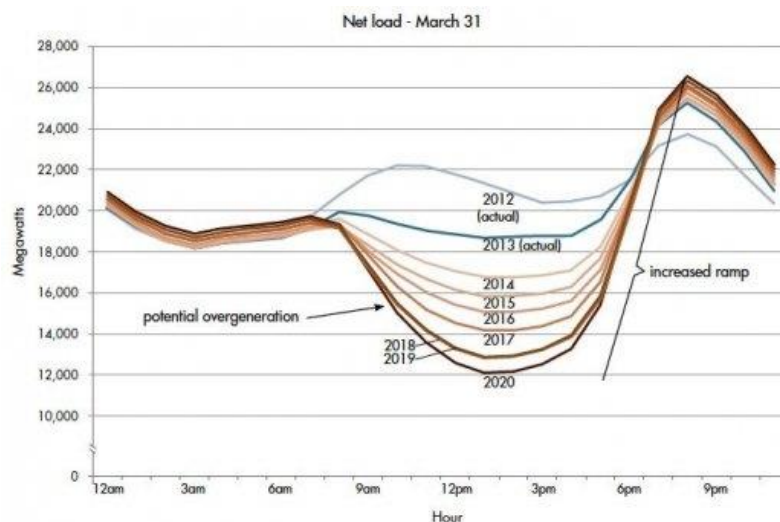
3. Transmission

De-energization of transmission infrastructure during a PG&E PSPS event could trigger an unplanned, cascading blackout, which as referenced in PG&E’s Wildfire Mitigation Plan could put urban areas such as San Francisco and San José at risk for a regional outage. The California Independent System Operator is studying different scenarios to determine how to ensure that PSPS events are controlled and contained to the intended area. Staff is engaging with California Independent System Operator and following these scenario planning exercises.

³³ <https://building-microgrid.lbl.gov/microgrid-definitions>

Utility Grid Challenges

Energy resilience solutions can also be leveraged to help solve larger grid issues that arise as California continues to move towards 100% renewable energy. As more distributed and utility scale solar generation is integrated into the California grid, a larger amount of power generation increases with sun rise and decreases sharply as the sun sets.



Graph of the “Duck Curve” from Energy.gov³⁴

The figure above shows the *net* demand for energy on the California grid when accounting for solar production. In 2012, we can see a typical load profile of morning and evening demand spikes with a relatively flat daytime period. Since then, California has continued to increase the amount of solar generation, thus decreasing the net demand during the daytime hours, as seen by the increasingly large “belly” of the duck. With such a high portion of demand being met by solar generation during daytime hours, this creates a significant grid management challenge when solar production tails off towards the evening hours, just when demand increases for the evening peak.

To manage the sharp ramp of demand in the evening, the grid relies on running expensive, polluting gas peaker plants. The U.S. Department of Energy Efficiency and Renewable Energy states that “Solar coupled with storage technologies could alleviate, and possibly eliminate, the risk of over-generation (i.e. the Duck Curve).” Storage can also provide valuable decarbonization services by helping to reduce grid constraints in urban areas and help correct for renewable generation intermittency due to weather.

³⁴ <https://www.energy.gov/eere/articles/confronting-duck-curve-how-address-over-generation-solar-energy>

Battery Energy Storage

Energy storage technologies provide the ability to control when intermittent generation resources such as wind and solar can be utilized by customers or grid operators. In addition to increasing control of renewable energy generation, energy storage provides customers with the ability to manage their power supply, providing opportunities for cost savings by minimizing load during peak pricing periods of the day. As summarized by the Department of Energy,³⁵ energy storage technologies provide multiple benefits to both the power grid and customers by:

- Improving power quality and reliable delivery of electricity
- Improved stability and reliability of transmission and distribution systems
- Improved availability and increased market value of distributed generation sources
- Improved value of renewable energy generation
- Cost reductions resultant of improved grid management efficiencies

As the applications for storage technologies increase, costs have been falling, thus creating more economic use-cases. The levelized cost of energy from battery storage, particularly lithium-ion batteries, has fallen in recent years. BloombergNEF reports that in 2019, the levelized cost of energy of lithium-ion battery storage dropped 35% since the first half of 2018 and since 2012 the levelized cost of energy of lithium-ion batteries to supply four hours of grid power has fallen by 76%.³⁶ As the economics of batteries continues to improve, they are becoming a more viable source of backup power, especially when paired with renewable generation.

The largest planned lithium-ion battery storage installation is in Moss Landing in Monterey County, where PG&E has won approval for four contracts, totaling 567.5 MW (2,270MWh) at the site of an aging natural gas plant.³⁷ Utilities, CCA's and regulators are looking at battery storage to either fully replace or run in hybrid operations with aging natural gas plants to provide grid services, such as Resource Adequacy. SJCE staff are considering opportunities to integrate battery storage with natural gas plants to meet Resource Adequacy needs. Battery storage could also be used as a dispatchable resource to help SJCE avoid price spikes, thus controlling costs for its customers.

³⁵ <https://www.energy.gov/oe/activities/technology-development/energy-storage>

³⁶ <https://about.bnef.com/blog/battery-powers-latest-plunge-costs-threatens-coal-gas/>

³⁷ <https://www.greentechmedia.com/articles/read/pges-recording-breaking-battery-proposal-wins-loses#gs.vo8t1q>

Microgrids

The Department of Energy defines microgrids as a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or “island” mode. There are a variety of microgrid configurations with different resource compositions operating at very different scales from a single facility to whole islands or urban districts. Microgrids generally share these common benefits:

- Enabling grid modernization and integration of multiple Smart Grid technologies.
- Enhancing the integration of distributed and renewable energy sources that help to reduce peak load and reduce electrical losses by locating generation near demand.
- Meeting end-user needs by ensuring energy supply for critical loads, controlling power quality and reliability at the local level, and promoting customer participation through demand side management and community involvement in electricity supply.
- Supporting the macrogrid by handling sensitive loads and the variability of renewables locally and supplying ancillary services to the bulk power system.³⁸

To showcase the potential benefits of microgrids, the California Energy Commission has dispersed a total of \$84.5 million to build 20 new microgrids throughout the state’s three IOU service territories, drawing on funding available through the ratepayer-funded Electric Program Investment Charge program. These microgrid projects focused on two proven use cases: ensuring low-carbon power delivery at critical facilities and supporting a high penetration of renewables. The Electric Program Investment Charge program has periodic solicitations for proposals for a range of energy projects, some of which may be targeted for resiliency and from which the City may be able to secure funds for its own microgrid projects.³⁹

In Borrego Springs, San Diego Gas & Electric has developed an “unbundled utility microgrid,” where the distribution assets are owned by the utility, but some or all of the distributed energy resources (solar and storage) are owned by customers. The goal of the project is to provide a proof-of-concept test as to how information technologies and distributed energy resources (solar and batteries primarily) can increase utility asset utilization and reliability.⁴⁰ The project was funded with \$4.1 million from San Diego Gas & Electric, \$7.5 million in federal funding, \$2.8 million in California Energy Commission Electric Program Investment Charge funding, and \$0.8 million from other partners.

³⁸<https://www.energy.gov/sites/prod/files/2016/06/f32/The%20US%20Department%20of%20Energy's%20Microgrid%20Initiative.pdf>

³⁹ <https://www.greentechmedia.com/articles/read/lessons-learned-from-californias-pioneering-microgrids#gs.xnpx8z>

⁴⁰ <https://building-microgrid.lbl.gov/borrego-springs>

The total microgrid installed capacity will be about 4 MW, with the main technologies being two 1.8 MW diesel generators, a large 500 kW/1500 kWh battery at the substation (which will be instrumental in achieving peak load reduction), three smaller 50 kWh batteries, six 4 kW/8 kWh home energy storage units, about 700 kW of rooftop solar PV, and 125 residential home area network systems.

The project shows the value of integrating behind the meter technologies with distribution infrastructure to create greater resiliency solutions. The Borrego Springs microgrid allows the entire substation to island if necessary, and will be a model for future project developments by San Diego Gas & Electric if proven successful. In San José, new developments represent opportunities to provide sections of the city with greater energy resilience.

City Facilities Energy Resiliency Status

Staff completed a review of the City's most critical municipal facilities that provide essential programming and services to the community. Of the more than 400 buildings and structures within the City's inventory, 129 facilities have been identified that provide critical services, of which 97 currently have back-up generators to continue essential programming during power outages, while 32 facilities do not have generators or have insufficient levels of back-up generation.

The facilities that currently have back-up emergency power include the Police facilities, City Hall, Airport, Regional Wastewater Facility, Municipal Water sites, corporation yards, radio communication facilities, and many fire stations. The critical sites that do not have permanent back-up electrical infrastructure include 11 cooling / warming centers, 5 sanitary pump stations, 2 animal care facilities, and 14 fire stations. Additionally, the operations at three fueling stations within the City, located at the Regional Wastewater Facility, Police Substation, and West Corporation Yard, are not currently connected to emergency back-up power generation.

An analysis and cost estimates have been completed for the resource needs of critical sites and operations that do not currently have permanent back-up electrical generation systems. For each cooling / warming center, a service kit consisting of a portable generator, mobile air conditioning units, lights, and plug load charging stations can cost \$175,000, compared to approximately \$1 million to install a permanent emergency back-up generator. Emergency generators for sanitary pump stations and fire stations are estimated at \$100,000 for each location, and are estimated between \$100,000 to \$500,000 for animal care sites.

To enhance fueling activities and ensure the emergency generators at priority sites are re-fueled consistently, two additional high capacity fleet fueling trucks are needed, estimated at \$175,000 each. Emergency back-up generation for the fueling islands located at the Regional Wastewater Facility, Police Substation, and West Corporation Yard are each estimated at \$100,000. The total cost range to provide backup power to all remaining critical facilities (32 of a total 129) is between \$5.2 million (temporary portable generators) and \$14.3 million (permanent solution),

with an estimated timeline of 12-18 months for completion after funding approval. The details of these needs and cost calculations are being coordinated with CalOES to request assistance for this infrastructure.

Additionally, staff has created a geographic information system (“GIS”) map identifying the City’s critical sites with and without emergency generators, with an overlapping layer showing live PG&E outage zone details. This mapping information, along with real-time coordination with affected sites, will dictate the priority route for re-fueling the generators, including those units that are fueled with propane gas.

Should a PG&E PSPS occurrence or other event cause electrical outages within the City that impact critical facilities, staff will initiate the process of activating staff to monitor the outage activities and begin scheduling and deploying staff resources to assist in the continuing operations of essential services. Proposals and plans are being developed for City Electricians and Fleet personnel to assist in delivering portable rental generation units to those critical facilities that do not currently have permanent systems, and qualified drivers will likely be dispatched in priority routes to operate four refueling trucks and re-supply the emergency generators with diesel fuel. Re-fueling activities will continue throughout the duration of the power outage event.

All backup generation currently deployed at city facilities is powered by diesel or other fossil fuels. These generators generally have high greenhouse gas and other pollutant emission profiles. The existing fossil fuel backup solutions currently deployed by the City are a key part of the city’s Power Vulnerability Plan, ensuring that critical facilities and departments remain operational during a PG&E PSPS event or other grid de-energization emergency, such as an earthquake. Staff is planning to rely on existing generator backup solutions for immediate energy resiliency needs, while developing more cost-effective, reliable, and sustainable solutions with battery storage and distribution level technologies.

Municipalization

Nationwide one in seven customers is served by a public power utility. There are over 2000 public utilities operating in almost every state to provide 49 million people with power.⁴¹ Between 2005-2017 Public utilities reduced their emissions 33% and added 2,551 MW of non-carbon emitting generation capacity, compared to a reduction of only 24% by the overall electric sector.⁴² In California, 10 million people (25% of the state), receive electricity from a public utility.⁴³ Many large cities are served by public utilities, such as: Sacramento, Los Angeles,

⁴¹ <https://www.publicpower.org/public-power/stats-and-facts>

⁴² <https://www.publicpower.org/system/files/documents/2019-Public-Power-Statistical-Report.pdf>

⁴³ https://www.cmua.org/Files/About%20CMUA/About%20CMUA_May2019.pdf

Seattle, Austin, and Orlando. CCA's also serve 25% of the load.⁴⁴ Together, Publicly Owned Utilities and CCAs serve 50% of the generation in California.⁴⁵

There have been two primary methods of municipalization of the electric distribution grid in PG&E service territory. The first primary method is targeted municipalization which is the formation of a public utility to own and operate new electric distribution infrastructure at redevelopment sites. The second primary method is full municipalization which is the formation of a public utility to acquire existing distribution infrastructure owned by an IOU.

The key difference between these two forms of municipalization is that full municipalization requires the acquisition of existing IOU distribution infrastructure. The City of San Francisco has successfully expanded its existing municipal utility to serve new developments (e.g., Hunter's Point, Candlestick Park, Treasure Island) where new electrical distribution infrastructure has been installed.

Formation of a municipal utility is a necessary step to own and operate distribution infrastructure, for both targeted municipalization of newly developed infrastructure or the acquisition of PG&E distribution assets for full municipalization. This formation can follow different models, for example, the City Council could create a new Municipal Utility Department or expand the scope of the existing Community Energy Department. It could also work with other jurisdictions to establish the formation of a new Municipal Utility District which may serve a larger geographical area than San José, similar to how Sacramento Municipal Utility District ("SMUD") is organized across the Sacramento region. Typically, revenue bonds are utilized to finance the purchase of the electrical infrastructure and are re-paid from the revenues associated with providing electric distribution service.

Targeted municipalization could also take the form of municipal partnerships with developers interested in forming microgrids, or direct investments in local battery storage or microgrids designed to ensure reliable power to critical facilities (e.g. community centers, hospitals, cooling centers, emergency shelters, sanitary pump stations for sewage removal, animal care facilities, fire stations, and public fueling stations). Some additional issues to study are the regulatory approval process for operation of assets, transfer of assets from a private partner, and interconnection to PG&E distribution or transmission lines.

Contemporary Efforts at Electric Municipalization

⁴⁴ <https://cal-cca.org/q2-2019-update/>

⁴⁵ [https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy - Electricity and Natural Gas/Renewables%20Portfolio%20Standard%20Annual%20Report%202018.pdf](https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/Renewables%20Portfolio%20Standard%20Annual%20Report%202018.pdf)

There have been several contemporary efforts to form and expand public utilities in California.^{46,47,48} San Francisco, South San Joaquin Irrigation District, and Davis are pursuing municipalization; however, they have faced significant barriers including the process to acquire assets. The main process for local authority to acquire private utility assets is eminent domain. This process typically results in a lengthy legal process. Another barrier is that the IOU typically funds political opposition. A recent example of anti-municipalization collateral is shown in *Attachment 3*. Additionally, AB1054 which was signed into law on July 12, 2019 now expands CPUC authority over utility labor contracts.

For decades, PG&E has opposed San Francisco from passing any measure that would create a pathway for full municipalization. For example, in 2002, PG&E spent over \$1 million in ad campaigns opposing the passage of Proposition D, a public power ballot measure. PG&E characterized the proposition as a “boondoggle” and “very sneaky scheme”.⁴⁹

The South San Joaquin Irrigation District submitted its first application to provide retail electric service in 2004 and is still in appeals court, as of June 26th, 2019.⁵⁰ PG&E has also invested significant funds into resisting municipalization ballot measures, spending \$11 million into opposing measures H and I in Yolo County and measure L in Sacramento. These measures would have expanded the Sacramento Municipal Utility District into Yolo County, municipalizing Yolo county’s distribution infrastructure.⁵¹ The effort was ultimately unsuccessful.

In 1923, Sacramento citizens voted to create SMUD as a community-owned, not-for-profit electric utility. According to historian Nathan Hallam, this effort aimed to take local control from a corporate utility that had been providing a substandard service. SMUD's purchase of PG&E's local electrical system was delayed for years due to political and legal issues. In March of 1946, the California Supreme Court denied PG&E's final petition to halt the sale. SMUD began operations in January of 1947. Through the years of litigation, PG&E had let its Sacramento system fall into a state of disrepair. Some equipment dated back to 1895. In the early years of operation SMUD found itself in possession of dated infrastructure and with a backlog of 3,000 applications for service.⁵²

Sacramento experienced a significant amount of growth during the first decades of operation. In the first decade, SMUD’s electric customers doubled. Peak demand increased 228%.⁵³ Today SMUD is a very successful public utility offering significantly lower rates, clean energy options, and has accelerated electric vehicle adoption and clean transportation options for the region.

⁴⁶ <https://www.ssjid.com/wp-content/uploads/Joint-Cities-Governor-Newsom.pdf>

⁴⁷ <https://www.utilitydive.com/news/pge-opposes-municipalization-in-davis-california/223231/>

⁴⁸ <https://sfwater.org/index.aspx?page=1166>

⁴⁹ <https://www.sfgate.com/politics/article/PG-E-behind-ads-hitting-public-power-measure-2762016.php>

⁵⁰ <https://www.ssjid.com/wp-content/uploads/Joint-Cities-Governor-Newsom.pdf>

⁵¹ <https://www.davisvanguard.org/2006/12/2006-the-year-in-davis-review-2/>

⁵² <https://www.smud.org/en/Corporate/About-us/Company-Information/Our-History>

⁵³ <https://ibew1245.com/chapter-42-organizing-the-sacramento-municipal-utility-district/>

Next Steps

There are many additional issues for further study.

- Staff will continue to advocate for funding for backup generation at critical facilities from both PG&E and the State.
- Legislative and Gubernatorial support is necessary to ensure San José has access to clean, reliable, and affordable electricity. Staff recommends continued engagement in the legislature to improve the viability of local control options as well as to obtain funding for backup power at critical facilities and more regulatory oversight over the PSPS program. Staff will focus the engagement based on the advocacy principles that Council approved in June.⁵⁴
- Staff will also continue to evaluate options to install microgrids at large new developments to improve resiliency. Staff will continue the initial evaluation and assessment of the opportunities and challenges of owning and operating distribution infrastructure at these sites. Staff will seek Council approval to resource this effort and take additional actions.
- Finally, SJCE will continue to look at options to incorporate storage into its resource portfolio mix and develop rates and educational materials that incentivize customers to install onsite solar resources with battery backup to improve resiliency and advance the City's Climate Smart goals.

EVALUATION AND FOLLOW-UP

This memorandum is to inform the City Council about considerations for ownership and investment in local electricity infrastructure and more local control of electricity services in San José and requires no follow-up to the City Council.

PUBLIC OUTREACH

This memorandum will be posted on the City's Council Agenda website for the August 29, 2019 Study Session.

COORDINATION

This memorandum has been coordinated with the City Attorney's Office.

⁵⁴ <http://sanjoseca.gov/DocumentCenter/View/85777>



Benefits of Public Power

Public power utilities are community-owned, locally controlled and operated on a not-for-profit basis. Each utility is a little different, depending on population, geography, structure, and the community's values and goals. This ability to tailor operations and services to the local community is the foundation of public power's success.

A public power utility provides long-term value to its community and citizens. The benefits are manifold, including (to name a few) rate stability, support for jobs, policies that are in line with community priorities, and financial support for local government functions. To examine these benefits, it is helpful to consider them in broad categories: local control, reliable customer service, affordable rates, and economic development.

Local Control

Public power is distinctly different from the investor-owned utility sector and even rural electric cooperatives because it is fully accountable to its customers. Public power is about serving the local community. Local control affords public power communities five distinct advantages: accountability and transparency in governance; financial support for the local government; more efficient municipal operations; the ability to tailor utility policies, programs and practices to serve the priorities of the local community; and the value of ownership.

Accountability and Transparency

Public power utilities are governed and regulated by the city council or county commissioners, or an independent utility board whose members may be elected or appointed by local officials. This means customers have more say in the policies and practices of the electric utility.

Citizens participate in the governance of the utility at the ballot box, and through participating in city council and utility board meetings, public hearings, citizen advisory committees, and other public forums. Utility business is conducted in the open, subject to open meetings, public records laws, and local scrutiny. Citizens have access to planning alternatives, cost estimates, performance and

other reports. Customers know how and why decisions are made.

When citizens have concerns, they can call their elected officials; in many public power towns, customers can simply speak directly to the general manager of the utility. If a citizen disapproves of the way the utility is being run, he can vote the elected officials out of office—or she can run for office herself to take on a more direct role in the future of the utility.

In contrast, customers of a private utility have little, if any, influence over or access to the company's CEO or other top officers or board members. The typical investor-owned utility has a large service territory and will likely have its headquarters located far away; board meetings are conducted in private, and decisions are made behind closed doors. While the boards of rural electric cooperatives are elected by their member-owners, turnout for electric cooperative board elections is low (even compared to off-year and municipal elections), suggesting cooperative members may feel disengaged from their utility or do not understand their rights and responsibilities in its governance.

Public power utilities also face a special kind of accountability, unparalleled in almost any other business: their friends and neighbors. In an era of globalization, public power utilities stand out in that every employee is a member of the community. From the lineworkers to the



"But it surely also helps that Norwich Public Utilities' general manager, 12 linemen and five commissioners live in the community, drive the local roads, see the overhanging branches and bump into their customers at the Norwichtown Mall. That's a rare kind of accountability."

*"The Troubling Connecticut Power Failure,"
The New York Times, November 3, 2011.*

general manager, all utility employees take pride in their work because they know their customers are their family, friends and neighbors.

Supporting Local Government

Public power utilities provide a direct benefit to their communities in the form of payments and contributions to state and local government. The total value of the contributions made by the publicly owned utilities often comes in many forms and is not always easily recognized. In addition to payments that resemble property taxes, payments in lieu of taxes, and transfers to the general fund, many utilities make in-kind contributions in the form of free or reduced-cost services provided to states and cities.

The level of support and how these benefits are returned to the community is a local decision—another advantage of local control. For example, some public power utilities make transfers to the city's general fund in an amount equal to the property taxes that would have been paid by an investor-owned utility. Others set the amount as a percentage of electric revenue or as a charge per kilowatt-hour of electricity sold. Some cities take advantage of synergies between municipal departments and use electric employees to install temporary lighting, perform electrical repairs or tree trimming services for other departments, or provide technical expertise.

Quantifying Public Power's Financial Support

Public power utilities make greater financial contributions to state and local governments than investor-owned utilities.

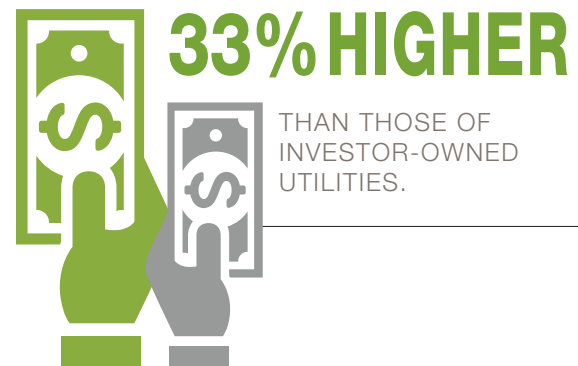
The American Public Power Association regularly analyzes payments and contributions to state and local government based on surveys of public power utilities and

data submitted by investor-owned utilities to the federal government. The results consistently show that, on average, the payments and contributions made by public power utilities are greater.

In the most recent year for which data are available, the median amount contributed by public power utilities was **5.6 percent of electric operating revenues**. Over the same period, investor-owned utilities paid a median of 4.2 percent of electric operating revenues in taxes and fees to state and local governments.

When all taxes, tax equivalents and other contributions to state and local government are considered, public power's contributions, as a percent of electric operating revenues, were **33 percent higher** than those of investor-owned utilities.³

PUBLIC POWER'S CONTRIBUTIONS TO STATE AND LOCAL GOVERNMENTS ARE



³ American Public Power Association, "Public Power Pays Back: Payments and Contributions by Public Power Utilities to State and Local Governments in 2014," March 2016.



"In the 1970s, when Massena residents sought to break away from Niagara Mohawk, the power company tossed out a trio of regular arguments against the plan. If the town stopped buying electricity from Niagara Mohawk, it would lose substantial tax revenues, electric rates would skyrocket and reliability would go "in the tank"..."

None of that happened in the utility's first quarter-century of existence... The municipally owned electric utility makes annual payments in lieu of taxes and the town lost no revenue. Electric rates have gone down and reliability is up."

"New York Anniversaries," *Public Power* magazine, November-December 2006. The article describes Massena's 25-year anniversary as a public power utility.

In-Kind Contributions

Beyond direct financial contributions, public power utilities may support their local government and community in many ways. Here are a few ways public power utilities are helping out:

- Free or discounted electricity or other services to the local government, including streetlights, municipal buildings, water or sewer treatment facilities, and traffic signals
- Installing temporary lighting for special events
- Maintaining streetlights, traffic signals, or stadium lights
- Electric repair or maintenance for other city departments
- Rewiring municipal buildings
- Tree trimming for other departments
- Reading water meters
- Putting up city signs or banners
- Providing technical expertise (e.g., engineering studies)
- Providing free building space
- Hanging banners and holiday lights
- Sharing electric department vehicles and equipment with other municipal departments

What about franchise fees?

Private utilities may pay a franchise fees to the local government in exchange for the right to operate exclusively in the community. However, these franchise fees are almost always passed on directly to the customers:

“Many years ago investor-owned utilities began to add the annual franchise fee they were required to pay the city to the rates they charged their customers in the community. Instead of treating the franchise fee as a legitimate expense, a cost of doing business in the community, the investor-owned utility simply incorporated its franchise fee into its rates and passed the costs along to ratepayers. Consumers ended up paying the investor-owned utility’s franchise fee instead of sharing in its profits. This practice of including the franchise fee in rates continues to this day in most communities.”⁴

⁴“Renegotiating a Municipal Franchise,” Paul Hughes, Environmental Services Inc., July 2002.

Efficient Operations

Public power utilities keep costs down through local scrutiny of operations. They use strategic partnerships and joint action with other public power agencies to obtain the advantages of size in wholesale supply matters without taking on the disadvantages of merging into larger, more bureaucratic institutions.

Electricity distribution, as opposed to large-scale generation and high-voltage transmission, is local, and public power utilities find that their smaller size can be an advantage in electricity distribution. A public power utility’s headquarters and operations are located near the utility’s customers. Distribution lineworkers are very familiar with the utility’s service territory—and thus likely to be more responsive to outages. Utility managers and customer service representatives are fellow citizens. Oversight is provided by a local governing body, which keeps the utility focused on reliability, price and service.

Municipal utilities can also create new efficiencies in local government. Some utility operations may overlap with other services the municipality is already providing; when these can be combined, the result is a leaner, more efficient operation that benefits everyone. For example, a city providing multiple utility services (electric, water, wastewater, natural gas, and telecommunications services) may combine billing and metering operations and share a 24-hour emergency call center. Other examples of efficiencies that may be achieved include:

- Integration of municipal operations (e.g., shared office space for multiple city services)
- Shared personnel (e.g., human resources department that serves the city and utility)
- Lower per-person administrative costs for municipal employee benefits
- Town may avoid short-term borrowing costs due to cash flow from electric revenues

Local Priorities

When the community owns the utility, the community controls the utility’s priorities. Decisions about pricing electricity, building power plants, purchasing wholesale power and service policies are made locally and reflect the values and choices of the community.

By participating in the utility governance process, citizens exercise their voice on big questions the utility may face, including:

- investments in local infrastructure—system maintenance and upgrades



- energy conservation and energy efficiency
- energy resources—renewable energy, coal, natural gas, or other sources
- environmental stewardship—pollution prevention, investing in cleaner technologies
- customer service policies—assistance to low-income customers, service extension policies
- system aesthetics and design—choosing whether to underground electric lines for community beautification or enhanced reliability
- utility finances—setting electric rates, level of financial support for the local government

Public power utilities emphasize long-term community goals and can direct utility resources accordingly, by implementing programs and timetables to achieve goals. Without local utility ownership, the community is disenfranchised, with no input on these decisions.

CASE STUDIES: Public power in action

THESE CASE STUDIES SHOW HOW LOCAL CONTROL ENABLES PUBLIC POWER UTILITIES TO ACHIEVE DIVERSE LOCAL PRIORITIES.



Emerald People's Utility District, Oregon, (20,800 customers) began its life as a public power utility in 1983, after separating from a private utility that offered poor customer service and poor reliability. The new utility created payment

assistance programs to help its customers, conservation and energy savings programs, and community outreach programs including participating in local festivals and outreach to schools. The utility has won local, state and national awards for its outstanding customer service and has been featured in two best-selling management books for excellence in customer service.



Greensburg, Kansas, (555 customers) experienced an EF-5 tornado in 2007 that destroyed 95 percent of the town. Residents decided to start over, remaking Greensburg as a sustainable, energy-efficient, “green” community. The town

of 1,400 launched the “Green in Greensburg” campaign. Citizens rebuilt the community-owned electric utility and used it to achieve the town's goal of meeting all energy needs with renewable resources. Today, Greensburg relies on wind power, the very force of nature that once devastated the town—to power its future. It is also home to the most LEED (Leadership in Energy and Environmental Design) buildings per capita in the United States and was the first city in the nation to install all LED streetlights.



Waverly, Iowa, (5,000 customers) citizens vowed that when an accident caused 20 gallons of transformer oil to leak into the ground, it would make sure it never happened again. The utility researched and developed a brand-new,

soy-based, biodegradable transformer oil. The new oil is environmentally friendly and is an effective replacement for mineral-based oil. After patenting the invention, Waverly sold it to Cargill, Inc. Today, the environmentally friendly transformer oil developed in a small Iowa town is marketed internationally.



Los Angeles, California, (1.4 million customers) needed new employees to support its renewable energy initiatives. The utility partnered with a local technical college, a job training center, and a local union to develop an intense,

two- to four-year training program. The partners now offer more than 50 training courses open to all local residents, offering classroom, computer-based and on-the-job training. Program graduates enter a “green jobs” pipeline, getting a job at the utility, and advancement opportunities as they progress in their careers.



Seattle, Washington, (415,000 customers) recognized a growing number of its citizens were interested in electric vehicles, but knew people were not buying EVs due to a lack of infrastructure to support them. The utility is working with

the city to install 80 charging stations on public property, and another 200 charging stations on private property.



Murfreesboro, Tennessee, (55,000 customers) wanted to revitalize its historic downtown, so the Murfreesboro Electric Department undertook a major initiative to move electric wiring underground.

Beyond the aesthetic improvements, the project facilitated repair of broken and impassable sidewalks, and restoration of crosswalks, lamp posts, and storefronts, reestablishing the downtown as the charming heart of the community.



Chattanooga, Tennessee, (174,000 customers) wanted to improve reliability and laid fiber optic cables throughout the service territory to take advantage of emerging smart grid technology. When city officials realized they could also use

the fiber to offer TV, telephone and internet service to their customers, it was like striking oil. Now the city operates one of the largest and most powerful fiber-to-the-home networks in the United States, offering the first gigabit internet speeds in the country.

Ownership

Public power communities receive another benefit: ownership itself. Ownership of the utility means local management and control over decisions involving investments, operations, maintenance, power supply choices and customer programs.

More than that, though, there are some options and choices available only to an owner—including asset leverage, equity borrowing, ratemaking authority, and control over future streams of income for the utility and the community.



“It has everything to do with the philosophy of whether the city wants to be sharecroppers or landowners. Do you want to own your home or rent?”

Ken Cotton, City Attorney, Wagner, South Dakota,
“Wagner OKs Municipal Power,” *Press & Dakotan*,
December 5, 2007.

Reliable Customer Service

Public power utilities are highly responsive to customers’ needs and concerns, typically getting high marks for customer satisfaction because their first and only purpose is to provide efficient, reliable service to the customers in their communities. Reliable customer service takes three forms for public power utilities: a focus on overall system reliability; quick restoration of power after an outage; and making excellent customer service a priority.

Reliability

Public power utilities have a strong record of focusing on core electric operations and delivering a reliable power supply. Because of their connection to customers, public power utilities are motivated to maintain the community’s assets to keep their local electric system operating continuously and efficiently. Maintaining the highest caliber of electric service is one of the core facets of a public power utility’s business model.

Reliability, from a systems engineering perspective, is the ability of an electric system to perform its functions under normal and extreme circumstances. In the United States, a typical customer expects to have power at all times. In reality, every utility experiences some power outages—not only due

to severe weather and major events, but also due to wildlife, vegetation, equipment failures, or even a car crashing into a utility pole. Realistically, a utility is able to make power available between 99.9 and 99.999 percent of the time.

There are many ways that electric utilities measure their reliability. One of the most common is the System Average Interruptible Duration Index (SAIDI), which measures the average length of time, in minutes, that each customer of a utility was without power during a year.

Recent data show that public power utilities demonstrate higher reliability than the national average.

SAIDI		
Outage duration	Public Power ⁵	National average ⁶
Average	58.49 minutes	143.1 minutes
Median	40.40 minutes	125.6 minutes
Maximum	552.84 minutes	1,015.1 minutes

The data show that, without including “major events” (such as hurricanes or winter ice storms), the average electric customer in the United States is without power for just over 2 hours and 20 minutes each year. Public power customers, on average, experienced less than one hour without power.

PUBLIC POWER CUSTOMERS ON AVERAGE EXPERIENCE
LESS THAN ONE HOUR WITHOUT POWER PER YEAR...



LESS THAN HALF OF THE NATIONAL AVERAGE.

Accountability promotes reliability

Public power utilities make business decisions every day that result in reliable electric service. The elected officials who oversee public power utilities are accountable to voters, who are also the utilities’ ratepayers. In contrast, board members of an investor-owned utility are accountable to shareholders; they are judged not on their ability to provide low-cost, reliable power or excellent service, but on their ability to maximize profits for the investor-owned utility or its holding company and to pay a quarterly dividend to shareholders.

In pursuit of short-term profits, investor-owned utilities may implement cost-cutting measures that ultimately affect reliability. For example, extensive reductions in the number of employees, maintenance expenses, or tree-trimming programs can result in longer and more frequent outages. This issue was highlighted in 2011 when Connecticut Light & Power experienced extensive outages after two storms. In an article about the outages, The New York Times reported that the utility had cut its maintenance spending by 26 percent between 2008 and 2010.⁷

Outage Restoration

Many public power utilities have outage prevention programs, the most common of which are tree-trimming services. Other outage prevention programs include wildlife management (animal/squirrel guards); routine inspection and maintenance of distribution lines; other vegetation maintenance; thermographic circuit inspections; lightning arresters; reviewing poor-performing circuits; and converting overhead wires to underground.

When an outage occurs, public power utilities restore power quickly because they are located in the community. Repair crews live in the community and have a vested interest in getting service restored quickly. They are not only accountable to local officials, but to their friends, neighbors and families.

Living in the community also means they can get to the site of the outage faster; they do not have to drive long distances to start repairing damage.

⁵ Public power numbers from 2012 calendar year. “Major events” are not excluded. Source: “Evaluation of Data Submitted in APPA’s 2013 Distribution System Reliability & Operations Survey,” American Public Power Association, March 2014.

⁶ The “National average” includes the 13-year average for more than 100 electric utilities; the most recent data year included was 2012. This data does not include outages that would be considered “major events.” The sample set included in the study comprised 145 investor-owned utilities (75% of all IOUs), 30 public power utilities (<1% of all public power), and 16 rural electric cooperatives (3% of all cooperatives). Source: “Assessing Changes in the Reliability of the U.S. Electric Power System,” Lawrence Berkeley National Laboratory, August 2015.

⁷ “The Troubling Connecticut Power Failure,” Rob Cox, *The New York Times*, November 3, 2011.

Local crews are intimately familiar with the local electric distribution system, and can identify and correct problems quickly. If they know a storm is coming, they can step up preventative measures, such as removing overhanging or loose branches and checking known problem spots.

As an entity of the local government, public power utilities also benefit by coordinating responses with other local emergency services.

“One big bonus of a city-owned system, Knight said, is that it can focus all its resources – police, emergency teams, tree trimmers and line crews – on making repairs in the city without waiting for a big power company to coordinate all their repair efforts. ‘It was like clockwork during the last hurricane.’”

Randy Knight, Assistant City Manager, Winter Park, Fla., discussing the drop in outages after the city formed its own electric utility. *Energy Central Professional*, December 2006.



Mutual aid

Just as firefighters, police officers, and other emergency responders combine forces to help rebuild cities devastated by natural disasters, lineworkers and other electric utility personnel come together in an emergency to turn the lights back on.

In the event of a major outage, public power utilities coordinate with each other for assistance through a broad network of mutual aid programs. Public power crews have responded to calls for assistance in response to all sorts of disasters: hurricanes, tornados, ice storms, severe thunderstorms and high winds.

Public power mutual aid examples include:

- In October 2012, Superstorm Sandy brought hurricane-force winds, heavy rains, snow and flooding that knocked out power in 21 states from North Carolina to Maine, and as far west as Illinois. After the storm, more than 160 public power utilities responded. More than 1,000 electric crews—with 3-4 helpers on each crew—came from

as far away as California to help rebuild the electric system in the mid-Atlantic area. Utility workers from the Midwest and South drove to storm-ravaged areas in their bucket trucks, while those from the West flew by military transport aircraft and charter planes. Helpers from 20 states spent weeks working long hours—and often sleeping in their trucks—to help rebuild devastated communities.⁸

- Crews from Naperville, Peru, and Springfield, Illinois, helped the Winnetka public power utility after severe thunderstorms knocked down utility poles and trees in 2011. Winnetka’s service was restored in 12 hours, while nearby communities went without power for as long as four days.⁹
- The Iowa Association of Municipal Utilities helped coordinate the response to the tornado destruction of electric and gas services in Mapleton, Iowa. By mid-day on the day after the tornado hit, nearly 30 electric and gas operators were helping out in Mapleton. Additional crews arrived the next day, and service was fully restored within 48 hours.¹⁰

The mutual aid network among public power utilities is strong. Public power’s commitment to serving communities extends beyond its own community, and utilities take pride in helping one another.

“Sometimes I think [municipal utilities] are worried that because of their size, the investor-owned utilities will suck up all the lineworkers and munis will be in trouble, but we haven’t found that to be the case,” said Mike Hyland, senior vice president of engineering for the American Public Power Association. After Katrina, there were so many municipal utility crews volunteering to head down to Louisiana that some had to be turned away. “It’s a really strong network, and I think there’s loyalty there and a kind of brotherhood,” he said.¹¹

And, mutual aid is provided not only to fellow public power utilities. The Indiana Municipal Electric Association (IMEA) responded to a call for assistance from the investor-owned utility, Baltimore Gas & Electric (BG&E), after Hurricane Irene caused widespread outages in the utility’s service territory. IMEA sent 31 crews from eight separate public power utilities to aid BG&E in its recovery efforts. The crews worked with BG&E to restore power for a full week.¹²

⁸ Public power utilities prepare to handle outages as hurricane season approaches,” Michael Hyland, *Public Power Chat*, May 28, 2014.

⁹ “Power to the people: How Winnetka beat its neighbors to restore electricity,” *Winnetka/Northfield TribLocal*, June 29, 2011.”

¹⁰ “Mapleton help: ‘Great testament’ to IAMU mutual aid” *Informer*, Iowa Association of Municipal Utilities, April 26, 2011.

¹¹ “Mutual Aid Before the Storm,” *Public Power*, March-April 2007.

¹² Correspondence with Leona Draper, Executive Director, Indiana Municipal Electric Association.



“Wellesley and other towns in the electric power business were beacons of light during the outages that left thousands of homes across the western suburbs in the dark last week. While Natick, Sudbury, Framingham, and other communities struggled with power failures that dragged on through the week, all the lights were back on in a matter of hours in Wellesley, Belmont, and Concord. The three towns run their own municipal electrical utilities, complete with crews ready to make repairs at a moment’s notice, in contrast to the majority of communities in the western suburbs, whose power is provided by the utility companies NStar and National Grid.”

“Municipal utilities shine in storm,” Boston Globe, on boston.com, September 4, 2011.

Customer Service

Since a public power utility’s customers are its owners, there is no conflict between the needs of customers and the needs of shareholders. The utility’s local accountability ensures it delivers excellent customer service, or unsatisfied customers can make their displeasure known at utility board or city council meetings.

Public power utilities receive high scores in residential and business customer satisfaction in the J.D. Power and Associates annual surveys for electric utilities. In 2015, Salt River Project in Phoenix, Arizona, ranked the highest in the large utility segment in its region for the 14th consecutive year, and Clark Public Utilities in Vancouver, Washington, ranked the highest in the midsize utility segment in its region for an eighth consecutive year. Other top finishers in their respective categories included the Sacramento Municipal Utility District, Colorado Springs Utilities, Seattle City Light, and Tacoma Power.¹³

Public power utilities also took home top honors for business customer satisfaction in four of the eight categories, with honors going to Omaha Public Power District in Nebraska, JEA in Jacksonville, Florida; Salt River Project and Sacramento Municipal Utility District.¹⁴

Customers in the driver’s seat

In a public power community, customers drive customer service; the utility can tailor its programs and services to the needs and desires of its customers, instead of looking only to make a profit.

For example, most public power utilities have a customer service center located in town, where customers can pay their

bills in person, discuss any questions, and learn about other utility programs. Many investor-owned utilities have eliminated their walk-in customer service centers as a strictly cost-saving measure, but when customer service, not making a profit, is the goal, service centers stay open.

Energy-efficiency programs are another example where public power’s not-for-profit, customer-focused business model shines. A for-profit utility is in the business of selling electricity to make money; spending utility money to run an energy efficiency program to help customers use less electricity does not make sense when you are answering to investors and stockholders. But because public power utilities share their community’s values and are accountable to customers, the calculation looks different: why wouldn’t you want to help your friends and neighbors save money on their monthly utility bill?

Poor service by profit-seeking companies is one of the primary drivers behind a community’s decision to consider public power. Hermiston, Oregon, formed a municipal utility in 2001 following a four-year effort that began because the incumbent investor-owned utility closed its local customer service office and citizens recognized that the company’s service levels were declining. The new public power utility, Hermiston Energy Services, offers lower rates and customers can now pay bills and address service concerns in person at the local office.

Quite simply, local control and public power’s not-for-profit business model promote outstanding customer service. A public power utility and its governing body are part of the community and can easily maintain a close relationship with utility customers. As a result, the utility can tailor its services to meet the needs of its customers and the community.

¹³ J.D. Power and Associates, 2015 Electric Utility Residential Customer Satisfaction Study, as described in J.D. Power and Associates press release, July 15, 2015.

¹⁴ J.D. Power and Associates, 2016 Electric Utility Business Customer Satisfaction Study, as described in J.D. Power and Associates press release, January 13, 2016.

"Here at MED, we often talk about being your hometown power provider. We live here with you, and of course we want to provide the most reliable service possible because we benefit from that as much as anyone else.

But hometown power means more than that to us. It also means we are always actively working in our community to improve the lives of the people around us and contribute to the traditions that make Murfreesboro such a great place to live."

Steve Sax, general manager, Murfreesboro Electric Department,
"My Hometown Power" newsletter, November 2015.



Affordable Prices

Across the country, publicly owned electric utilities continue to lead the way in providing customers with low-cost energy for homes and businesses. The most recent data from the U.S. Department of Energy show that public power customers pay less, on average, than do customers of investor-owned utilities or electric cooperatives, as they have year after year since the federal government began keeping electricity rate statistics more than 70 years ago. Public power's historically lower rates are the result of the low-cost structure central to its business model, supported by its not-for-profit status, access to tax-exempt financing, higher credit ratings, and its ability to contract for low-cost power supplies.

Lower Rates

On a national basis, average electricity rates for all investor-owned utility customers in all customer classes are **6.9 percent higher** than average rates paid by public power customers. Average electricity rates for all cooperative utility customers are **3 percent higher** than those paid by public power customers.

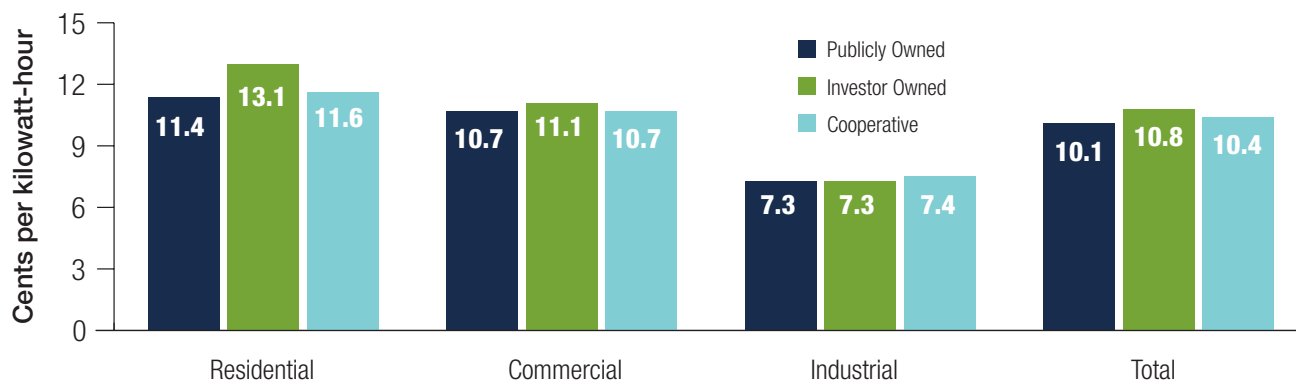
This distinction is more pronounced when looking at rates paid by residential customers. Public power residential customers paid an average of 11.4 cents per kilowatt-hour; cooperative utility customers paid an average of 11.6 cents per kilowatt-hour, and investor-owned utility customers paid an average of 13 cents per kilowatt-hour.

That difference means residential customers in cooperative utility service territories paid average rates that were 1.75 percent higher than their public power neighbors, and residential customers in investor-owned utility service territories paid average rates that were **14 percent higher** than those paid by public power customers.¹⁵

In recent years, average rates for investor-owned utility industrial customers have been lower than those of public power utilities. However, industrial customers vary greatly in size, and on average, investor-owned utilities serve significantly larger industrial customers than do public power utilities. The difference in customer size could account for the investor-owned utility's lower price for industrial customers.

¹⁵ "Public Power Costs Less," American Public Power Association 2016. Data from Energy Information Administration, Form EIA-861, "Annual Electric Utility Report" for 2014. Rates reflect both full-service (bundled) and retail choice (unbundled) sales in utilities' service territories.

Average Retail Electric Rates by Customer Class, 2014



Local regulation

Public power utilities are under more intense scrutiny than investor-owned or cooperative utilities because they are governed and regulated by their customer-owners through locally elected and appointed officials. Governance and regulation happens at city council and utility board meetings, public hearings, citizen advisory committees and other public forums; accountability is ensured at the ballot box. Business is conducted in the open and is subject to local scrutiny.

Public participation in the utility's governance, including decisions on rates, budgets, facility siting, power supply reliability, and customer service, is a core attribute of public power. If citizens feel their rates are unreasonable, they can attend public meetings held in their own town to express their discontent. In a few states, public power utilities' rates are also regulated by the state public service commission.

While public power utilities generally are regulated by a local governing body accountable to its citizens, investor-owned utilities are regulated by state and federal authorities. Investor-owned utility customers have the right to place complaints with the state public service commission, but because these customers are not owners of the utility, they have no direct relationship to utility management and cannot participate in board meetings.

Regulation for rural electric cooperatives varies across the country; they are subject to oversight from state regulatory commissions in some, but not all, states. Where they are not regulated, cooperative utility customers may find that making their voice heard is more difficult because the utility is not subject to the same sunshine laws that govern public power utilities.

Compared to customers of investor-owned utilities and even rural electric cooperatives, public power customers have more influence on rates, service and policies.

Low-Cost Structure

The biggest determinant in public power's lower rates is its not-for-profit status. Public power works for Main Street, not Wall Street.

In his comprehensive study of factors affecting performance in the U.S. electric industry, Professor John Kwoka concluded that public ownership confers both cost and price benefits. He found that the most likely reason for public power's advantages over their privately owned counterparts "appears to be that retail distribution—of electricity and perhaps other goods and services—may be performed better by enterprises closely rooted to the customer community. Such proximity may yield greater knowledge of local customer needs and a greater sense of responsibility for addressing those needs."¹⁶

Public power utilities can offer lower rates because:

- The utility does not pay dividends to often-distant shareholders.
- They are accountable to the customer-owners they serve.
- Local cost-consciousness and public scrutiny over expenditures keep the utility's budget in check.
- Administrative costs are lower, due to improved efficiencies through sharing personnel, equipment and supplies with the local government.
- Rates are set locally by citizen-controlled boards or city councils that operate publicly.
- There is no economic bias toward high-cost, capital-intensive technologies.
- They are eligible to borrow money for capital expenses using tax-exempt bonds, holding borrowing costs down.
- They consistently earn higher credit ratings from the three major credit rating companies.
- In certain parts of the country, they may have access to lower cost hydroelectric power marketed at wholesale by federal and state agencies.
- Joint action agencies give smaller utilities access to economies of scale in generating and purchasing power and other services.

Several of these topics are covered in more depth under the benefits of Local Control.

Municipal Bonds

For more than 200 years, state and local governments and governmental entities, including public power utilities, have relied on municipal bonds as a means of financing.

¹⁶ John E. Kwoka, Jr., George Washington University, "Power Structure: Ownership, Integration, and Competition in the U.S. Electricity Industry," Kluwer Academic Publishers, 1996, p. 143.

Nearly three-quarters of all core infrastructure built in the United States is financed with municipal bonds. Interest paid on these bonds has been exempt from federal tax since the inception of the federal income tax in 1913, just as federal bonds, bills, and notes are exempt from state and local taxes.

State and local governmental entities—including public power utilities—have limited means to raise funds for their communities' capital needs. The municipal bond market gives towns, counties, cities, and publicly owned utilities access to investors. Municipal bonds are ideally suited to finance capital-intensive and long-lived public infrastructure, such as the assets of a public power utility.

While the median corporate bond issue is \$210 million, the vast majority of municipal bonds, including those for public power investments, are far smaller: the median municipal bond issuance is \$7 million. Only about 5 percent of all municipal bond issuances are for \$200 million or more.

The federal tax exclusion of bond interest means municipal issuers can finance their investments affordably. Over the past 20 years, the average yield of Standard & Poor's Corporate Bond (Aaa) Index has been 130 basis points higher than that of Moody's High-Grade Municipal Bond Index. Adjusting for the cost of call provisions common in municipal bonds (but rare in corporate taxable bonds), the spread is closer to 180 basis points. The difference can save municipal bond issuers **25 percent** over the 30-year life of a project. These savings result in more critical investments in infrastructure and essential services by state and local governments and lower costs for the services they provide.

A safe investment

Investors purchase municipal bonds in part because of tax considerations, accepting a lower rate of return because the interest is exempt from federal income tax. Municipal bonds are also valued for their ability to generate a steady stream of revenue for fixed-income households. Individual households are the investors in more than 70 percent of municipal bonds. Nearly 60 percent of this household tax-exempt interest is earned by taxpayers older than 65 years. In 2012, 48 percent of all municipal bond interest paid to individuals went to households with incomes of less than \$250,000.¹⁷

Recent market performance and the “flight to quality” underscore that municipal bonds are also valued as stable

financial investments. The U.S. municipal bond market is well-established, with a robust and comprehensive federal legislative and regulatory system that protects investors. Likewise, municipal bonds are secure investment vehicles: the default rate for investment grade municipal bonds is far less than 0.1 percent, a fraction of the default rate for comparably rated corporate bonds.

Today, there are \$3.7 trillion in municipal bonds outstanding, with more than \$200 billion funding new projects every year. Close to 5 percent of those issuances (as much as \$11 billion every year) finance new investments in power generation, distribution, reliability, demand control, efficiency and emissions control: all needed to deliver safe, affordable and reliable electricity.

In addition to infrastructure for public power utilities, these bonds finance roads, bridges, sewers, hospitals, libraries, schools, town halls, police stations, and other public-purpose investments by state and local governments.



The city of Vineland, New Jersey, has operated its own electric generating plant for more than 100 years. Excess power supply produced is bid on the market, bringing in \$167 per megawatt-day at auction, while the cost has run about \$100 MW-day.

“That’s the benefit to our customer and it’s because we can finance cheaper using instruments available to us and we don’t have to pay profit to our shareholders... At the present time we have the lowest rates in New Jersey.”

Joe Isabella, director of the electric utility,
Vineland, New Jersey, January 2015.

Credit Ratings

The three largest credit rating companies acknowledge the advantages of public power’s business model and assign much higher ratings, on average, to public power than to investor-owned utilities.

Public power utilities share several fundamental, structural characteristics that contribute to these higher ratings:

- Local, autonomous ratemaking authority
- Electricity is an essential service

¹⁷ Internal Revenue Service, “Statistics of Income—2010: Individual Income Tax Returns” (2012).

- Defined service area, with near monopolistic characteristics
- Residential and commercial customer base is highly concentrated
- Public power utilities have a relative cost advantage over investor-owned utilities
- Local regulation is generally faster and more responsive to changing conditions than the lengthy process that investor-owned utilities experience before state commissions
- Customers/ratepayers are the ultimate stakeholders¹⁸

Fitch Ratings' 2016 Outlook for the public power sector assessed public power's strengths in face of challenges confronting the electric utility industry: "Municipal power utilities... are well positioned to cope with near-term challenges including recently enacted carbon regulations, persistent rate pressures and long-term threats."¹⁹

"The rationale behind these municipal acquisitions includes the economic benefits available to the acquiring city by reinvesting free cash flow back into the local system, greater local control over rates, improved reliability and benefits associated with the use of tax-exempt debt for future capital improvement compared with the existing corporate utilities' higher cost of capital."

Fitch Ratings, "Public Power Municipalization," May 25, 2005.



Access to Federal Hydro Power

Hydro power accounts for nearly 7 percent of the nation's electricity supply and is the most abundant source of renewable energy. Because the fuel (water) that turns the turbines to make electricity in a hydroelectric plant is free, the cost of operating a hydro power facility is low compared to other sources.

The federal power marketing administrations (PMAs) sell federally generated hydro power with a statutory right of first refusal granted to not-for-profit entities, including public power utilities and rural electric

cooperatives (called "preference customers"). This hydro power is sold at cost. The hydroelectric power is produced at federal dams operated by the U.S. Army Corps of Engineers and the Bureau of Reclamation.

As one of the few providers of cost-based wholesale power, the PMAs assist in keeping power rates low for millions of electricity customers.

Joint Action Agencies

Being small and focused on local customers is one of the strengths of public power—but survival often hinges on being big. Joint action agencies are the convergence of small and big for public power utilities, banding utilities together to achieve economies of scale.

Joint action agencies are typically formed under an act of the state legislature to provide wholesale power supply and services to their public power members. Like the utilities they serve, these agencies are also not-for-profit organizations.

Joint action agencies have traditionally served as vehicles to consolidate power generation or purchasing, rate negotiation, and facilities construction of many smaller utilities into a larger unit, thereby leveraging their combined size to gain added market advantage. This helps keep power rates competitive and provide an avenue for offering advanced services through the economies of joint purchasing.

The beginning of joint action

Some of the earliest joint action ventures were undertaken to battle high wholesale rates. In Florida, an investor-owned utility was selling bulk power to 10 municipal utility customers at a higher rate than it did to rural electric cooperatives, ostensibly because the co-op loads were larger. When the cities tried to negotiate a better rate, the company pursued a "divide and conquer" strategy, trying to negotiate separate power sales agreements with each of the 10 cities. But the cities stood firm as a group and negotiated rates that satisfied all. The resultant aggregate savings of \$500,000 for the 10 cities were huge at the time—it was the 1960s.

"We have learned what can be accomplished through a united effort," wrote Wallace Sturgis, the city attorney for Ocala, Fla., in 1968. "But this is just the beginning. We

¹⁸ "Rating Agency Outlook for Public Power," Fitch Ratings, webinar, March 16, 2016.

¹⁹ "2016 Outlook: U.S. Public Power and Electric Cooperative Sector," Fitch Ratings, in a press release, December 9, 2015.

must think big and from such thinking, big results will come.” Individually, municipal utilities are small, he said, “but collectively, we are large and growing larger, despite all obstacles.”²⁰

Joint action today

While power supply and the opportunity to capture the benefits of economies of scale drove creation of many joint action agencies, the agencies have evolved to provide a wide range of shared services to help public power utilities keep costs down while providing the highest level of service to their customers.

Today, many joint action agencies plan and implement energy efficiency and demand-side management programs for their members. Some agencies hire “circuit riders,” individuals who work on-site for member utilities one or two days a week, then spend another part of the week at other member utilities. For example: WPPI Energy in Sun Prairie, Wisconsin, hires energy services specialists who fulfill this role. American Municipal Power in Columbus, Ohio, has tree-trimming crews that support member needs. The arrangement enables the agency and its members to recruit and hire highly qualified personnel whom cities individually may not be able to afford.

In places where significant state-level regulation of publicly owned electric utilities remains in effect, joint action agencies like Vermont Public Power Supply Authority offer significant regulatory and legislative services to support member utilities.

Among other services, many agencies support their members in economic development, rate design, fuel purchasing, training, telecommunications, lobbying, information technology, engineering, project management, finance and equipment testing. Local public power utilities pool their resources, working together to achieve substantial savings for their communities.

Joint action agencies allow public power utilities to join forces to take advantage of economies of scale and shared services to boost efficiency. They are a lifeline for public power utilities that want to retain the benefits of owning and operating their own electric utility while not losing out on the economic advantages of a larger organization. The agencies facilitate the best of both worlds—small and large—for their members and their customers.

²⁰ “The Evolution of Joint Action,” *Public Power*, January 2014.

Local Economic Development

Public power utilities are an integral part of the economic development of their communities, working closely with new and existing businesses to provide the highest levels of reliability, customer service and development assistance. Public power utilities are local and are invested in the success of the customers and communities they serve.

A public power utility spurs development in the local economy as a local employer operating in the community, and through the benefits that the utility affords the community. In some public power communities, the utility may also directly support the town’s economic development efforts.

Hometown Jobs and Business

Public power utilities benefit their communities by providing employment opportunities for local residents. The local utility is headquartered in town and creates local jobs for customer service representatives, lineworkers, engineers, mechanics and administrators. Kids growing up in public power communities can find a career right in their hometown. Each dollar of a public power employee’s paycheck circulates through the local economy an estimated four to five times.

More than just being a local employer, public power utilities also support the local economy as a business operating in the community. Utilities may implement policies to “buy local” and support local businesses whenever practical, including purchasing materials and services from local companies and using local financial institutions for their business operations.



EVERY DOLLAR PAID TO A PUBLIC POWER
EMPLOYEE CIRCULATES THROUGH THE
LOCAL ECONOMY **4 TO 5 TIMES.**



Supporting the local economy with energy efficiency

Energy efficiency programs help customers save money on their electric bill. With rebate programs that pay customers for investing in energy efficient appliances (or for recycling older, less efficient models), utility energy efficiency programs go further in putting money back in customers pockets.

The public power utility in Waverly, Iowa, offers just such energy efficiency programs and rebates, with a twist: customers who receive energy efficiency rebates for air conditioners, heat pumps, LED light bulbs and appliance recycling are paid in Waverly Dollars – gift certificates issued by the Chamber of Commerce that can be used like cash anywhere in Waverly. Citizens can spend their Waverly Dollars when they shop, dine out, fuel up, or even to pay their utility bill.

“The energy efficiency programs are good for the local economy,” said Chris Schmidt, former chair of the utility’s board of trustees. “The majority of new appliances are purchased and installed by local dealers... Home improvements are also completed mainly through local contractors. The money stays in the community, making it a win-win situation.”

Stimulating the Economy

Public power utilities are good for the local economy. Lower electricity prices allow consumers to spend more money on other goods and services, in addition to attracting business and industry to the community. Local dollars stay at home in public power communities. They are not sent to companies and shareholders out of the city, state, or in some cases, country.

Investments made in the utility and its infrastructure also support the local economy. By meeting the interrelated needs of residential, business and industrial customers, a public power utility makes the community a more pleasant place to live and allows it to compete more successfully in attracting business and employment. For instance, utility investments to improve power quality and service reliability make the community more attractive to businesses that may locate or expand there.

The contributions utilities make to the local government, whether in the form of payments in lieu of taxes, transfers to the general fund, or other in-kind contributions to the local government, also help the community economically. Because public power utilities typically make greater financial contributions to the local government than investor-owned or cooperative utilities, these benefits may be felt more strongly in a public power town.

Direct financial contributions provide real, tangible benefits to the community, helping to pay for police officers and firefighters, teachers and schools, the municipal library and parks, road repairs, and other city services. In-kind contributions—free or discounted services provided to the local government and other operational efficiencies—save money for the local government.

The financial contributions made by public power utilities give the community a choice: to collect less in local tax revenue to support its services; or to increase the number (or improve the quality) of services it provides. The community and local economy benefit either way: from more money staying in citizens’ pockets, or from the enhanced municipal services.

Technological Leadership

Many public power utilities have taken a leadership role in preparing their communities for the future by pursuing new technologies as an integral part of community growth. They serve as information sources in a variety of technology fields such as environmental stewardship, high-speed internet capability, safety and community technology development.

Some public power communities offer telecommunications services because private companies may not offer them to smaller towns at competitive prices. Access to high-speed broadband encourages economic development.

Economic Development Programs

Public power utilities are logical partners in economic development. A locally controlled utility is part of a public service community team that cooperates on public works projects, downtown renovations, extension policies, business development, industrial parks, and energy-efficiency programs. The utility has an inherent interest in promoting the well-being and prosperity of the community.

A 2015 survey indicated that the most important thing an electric utility can do to attract business to the community is offer high reliability and competitive prices.²¹ While public power excels in both these areas, many public power utilities go beyond, working with city officials to promote economic development.

Tools that may be offered by public power utilities with their communities include:

- special economic development rates for the first few years of operation
- special connection fees or line extension rates to make extending electric service to a new business site more affordable for new businesses
- key accounts programs for large commercial, industrial and institutional customers
- additional service redundancy to enhance electric reliability
- backup generation
- rebates
- discounts and fee waivers
- tax credits/abatements
- zoning assistance
- grants
- low- or no-interest loans

Other economic development initiatives include technical consulting, infrastructure improvements, enterprise zones and tax increment finance districts, energy-efficiency programs, and account management services.

Many utilities also take advantage of strategic priorities to promote the community to businesses with similar interests. For example, a utility that invests in green energy technology can make the community more attractive to businesses that value sustainability.

Working to bring new businesses to the community is only the first step. Public power utilities work with their larger customers, offering them power quality, demand-response programs, alternative pricing structures, special communications during outages, and other customer-defined and customer-focused programs. Businesses enjoy the streamlined one-stop shopping customer service that public power towns offer through key accounts and other large customer programs.

Greenville, North Carolina, exemplifies how a public power utility can promote economic development for its hometown. The Greenville Utilities Commission has a robust program to help business customers looking to expand and to attract new businesses to Greenville. The utility meets with companies seeking to relocate to discuss their power needs (reliability, power quality and capacity), and offers innovative rate options to help startup companies. When an existing customer wanted to add a new warehouse, utility engineers showed company personnel how they could meet their electrical needs at the new warehouse without purchasing expensive new equipment.



"The big reason for doing this is local control of our destiny...Number 2, we keep all of the revenue generated from the sale of electricity locally, and 34 municipalities in South Dakota can attest to that. And No. 3, it's a lot better economic-development tool. You can offer incentives (on electric rates) to businesses. With NorthWestern, we can't do that."

Ken Cotton, City Attorney, Wagner, S.D.,
"Wagner voters to decide municipal power
proposal Tuesday," *Energy Central
Professional*, December 2, 2007.

²¹ "Building Community: Economic Development Best Practices," Greenville Utilities Commission and East Carolina University, 2016. Data from APPA Economic Development National Survey, 2015.



Forming a Public Power Utility

Public power has survived and thrived in America for well over a century. Citizen-owned public power utilities first appeared more than 130 years ago when communities created electric utilities to provide light and power to their citizens. The number of public power utilities has grown from fewer than a dozen in 1890 to more than 2,000 today.

The path to forming a new utility takes grit and determination. The process can be long, complicated and costly, and fraught with legal challenges. But the benefits of public ownership and local control are many, so communities around the country continue to investigate the public power option.

Before launching a campaign to form a new public power utility, it is useful to understand the community's rights and responsibilities in choosing its electric service provider; the steps involved in the process; and how the incumbent utility may respond.

Rights and Responsibilities

It has long been an established principle that communities have the right to form a new public power utility if they are not satisfied with the service they are receiving from a private utility. Nineteen new public power utilities have begun operation so far in the 21st century. Several more communities are waging high-profile campaigns to bring public power to their citizens.

In most states, citizens have the right to determine whether to own and operate their own public power utility or to grant an electric franchise to a private utility. This is a local rights issue. A community is within its rights to determine which public services it will provide to its citizens, whether those services include electric, water, wastewater, gas, sewer, cable or internet services.

It is the responsibility of city officials to examine the performance of the utility providing electric service to the community. An expiring franchise is a prime opportunity for the municipality to evaluate viable electric service options to promote the community's priorities, interests and economic health.



"I therefore lay down the following principle: That where a community—a city or county or district—is not satisfied with the service rendered or the rates charged by the private utility, it has the undeniable basic right, as one of its functions of government, one of its functions of home rule, to set up, after a fair referendum to its voters has been had, its own governmentally owned and operated service."

Franklin D. Roosevelt, September 21, 1932.

Steps in Forming a New Utility

Forming a new public power utility is not a quick and easy process. It takes time and money, and requires the commitment of the community and its elected officials. It requires a long-term view of solving problems, and a commitment to see it through. The process can take several years. But most communities that have gone through the process and have taken control of their electric utility agree it is worth it: they are reaping the benefits of public power every day.

There are many steps in forming a new public power utility; the number of steps and their order vary based on each community's situation, the relationship with the incumbent

private utility, state and local law, and the public's interest in the issue. Several of these steps—like the feasibility and legal analysis—are likely to proceed concurrently. Meanwhile, educating the community is likely to be an ongoing process, starting early and continuing to evolve throughout the process.

The incumbent utility serving the community is likely to feel threatened by any discussion of or attempt at creating a public power utility, and will likely invest substantial resources in a campaign to discredit public power and discourage the community from establishing a public power utility.

1. Start with a Leader

Most campaigns to form a new public power utility start with a leader—an individual or group to spearhead the effort. The leader's first step will be to start building support within the community, since the entire process will be a community-driven effort.

The person or group leading the effort should communicate the benefits of public power, and the reasons why the community should consider public power. Often, this discussion will start by focusing on the reasons the community is dissatisfied with the incumbent utility, as well as how forming a public power utility could improve the situation.

Those leading the public power initiative in your community should also be prepared to fight the misinformation about public power: the incumbent utility may attack the concept of public ownership even before the city begins the feasibility study.

2. Feasibility Study

One of the first steps in forming a new public power utility is to determine if the new utility is likely to be economically viable and has community support. Feasibility studies are designed to answer the initial question: is forming a public power utility economically feasible?

Typically, a city council (or other municipal governing body) will approve funding to hire a qualified firm to conduct the feasibility study. The study will examine the capital and operating costs for the new utility, and will factor in various alternatives for power supply. The study should also identify a range of expected savings, benefits, risks, and recommended next steps.

Often a community may conduct a preliminary feasibility study; if it shows savings, a more detailed study will follow. The second phase may also estimate property value, determine the general condition of the facilities to be acquired, and the costs of separating the new system's facilities from the remaining parts of the incumbent's system. It may also identify legal requirements to be fulfilled, and methods for valuing the utility property to be acquired.

3. Legal Analysis

Early on, there should be a review of state statutes pertaining to the formation of a public power utility to ensure there are no insurmountable legal impediments, such as a statutory ban on municipal buyouts.

State laws may vary broadly on the issue of whether and how municipalities can come to acquire, own and operate an electric utility. For example, Alaska has passed laws making the process known as municipalization easier through the quick condemnation of certain private property; while there is a legal moratorium on condemnation of an electric plant in other states, such as Oklahoma.²² There may also be a requirement to hold a citizen referendum or petition the state public service commission on establishing a public power utility.

State laws may also determine the price that a municipality must pay to acquire an electric plant. Some states have legislated what constitutes "just compensation;" others leave it to the courts, and still others let the local public utilities commission make the determination.

There should also be a review of the city or county's franchise with the incumbent utility, if one exists, to determine if an exclusive long-term franchise agreement exists (legal, valid and enforceable) that may preclude the municipality from forming a new utility, or any specific language pertaining to the acquisition of distribution facilities that serve the community.

4. Valuation

A study must be conducted to estimate the value of the electric distribution system. This valuation may already be included in a thorough feasibility study; if not, a separate follow-up study should be conducted. Any valuation should incorporate legal input as to applicable valuation methods.

As with any type of appraisal, several methodologies may be used to determine the value of the electric distribution

²² "Survey of State Municipalization Laws," Duncan & Allen, May 2012.

system facilities and property that would be acquired. The main approaches to valuing a system are:

- **Original cost less depreciation (OCLD) or “Book value”**—Value of the system is equal to the original cost of building the current system, less the accumulated depreciation of those assets. This is the valuation method used in utility ratemaking.
- **Reproduction cost less depreciation (RCLD)**—Value of the system if it were built today, using the same specifications as when it was originally constructed. Uses the original cost of the system as a base, adjusted up based on increases in the cost of utility facilities, less the accumulated depreciation of those assets. Reproduction costs include both the actual costs of building the infrastructure, as well as related essential costs including legal and engineering fees, executive and management costs and overhead.
- **Replacement cost new less depreciation (RCNLD)**—Similar to RCLD, but this approach assumes that the system were built today, it may be a better, or more efficient, system.
- **Going concern**—This income-based approach attempts to value the electric system based on estimated future earnings that would be lost if the utility were sold. “Going concern” may also be used to refer to assets of a business, such as property records, customer information records, operating records, etc. This approach may be used instead of or in addition to the other valuation methods.²³

A qualified consulting firm performing a valuation study will include a legal assessment to assess the suitability of each method and determine which is most appropriate for your community.

The valuation study will help identify the most economical option for creating a new public power utility: whether to buy or build. The city has the option of purchasing the existing electric distribution system (through voluntary agreement or condemnation), or to construct a new system. The final report should provide a range of values for the system to be acquired.

An incumbent utility will argue for the valuation method that results in the highest possible estimate, which may include not only the value of the system, but also going concern, goodwill and lost future profits (including a share

of its most expensive generating plant). This cost may be higher than the cost of building a new electric system, which is why building duplicate facilities is sometimes considered.

5. Community Education

It is vital to keep citizens informed about the proposed utility, and the benefits of public power, throughout the process. This will help you gauge the support of citizens, local officials and business leaders, and counter strong opposition from the incumbent utility.

The individual or group spearheading the effort should disseminate information about the process of forming the utility, and the benefits the community will realize if the effort is successful. Any misinformation that may be spread by the incumbent utility should not be allowed to go unchallenged.

Local officials should keep citizens involved in the process. Some communities appoint a “blue ribbon” committee of prominent citizens to guide the public power evaluation. This can be very helpful in the process as long as the task force remains public and unbiased. The committee—or any group representing or leading the initiative to form a new utility—should remain mindful of citizen needs and bring their concerns and recommendations back to the local officials.

Because the local business community plays an important role in the success or failure of a municipalization effort, involving businesses early in the process can help build support and avoid misunderstandings.

Similarly, local media should be kept informed of the issues, decisions and the process because of their important role in educating citizens.

Expect public scrutiny of the effort to increase after feasibility and other studies are completed and the campaign begins to gain traction.

6. Referendum

A referendum may be required by law to authorize the establishment of a public power utility.

If there is a preference to establish an independent board to govern the utility instead of the city council (or other local government entity), the ballot issue may be “double-barreled,” asking:

²³ “Legal Issues in Forming a Municipal System: Condemnation, Valuation, and Ouster of Existing System,” Clint Vince, Esq., and Cathy Fogel, Esq., Sullivan & Worcester, LLP, 1993.

1. Should the city (county) be authorized to establish a municipal utility?
2. Should the utility be governed by an independent utility board?

Leading up to the referendum, local officials will present findings and facts on the issue of forming a public power utility. A volunteer community group may be organized to push for the approval of the ballot issue separately.

Depending on the local issues and timing, the city council or county commission may choose to take the initiative to the ballot even if it is not required by law. The council may follow the will of the people, as expressed in the vote, in deciding whether or not to pursue forming a public power utility.

If the community votes favorably to establish a public power utility, it may enhance the marketability and value of revenue bonds.

Some communities may set an early election, after a preliminary study, to test the level of public support based on estimates of costs and benefits, before the community incurs the costs associated with completing a full feasibility study and other studies. If the early referendum passes, the city is not obligated to proceed if the completed study does not warrant it.

7. Price Negotiation and Condemnation

After the feasibility, legal and valuation studies are conducted, and after any referendum is held, the city or county should develop a negotiating strategy to make a purchase offer to the incumbent utility for the relevant parts of its facilities.

The incumbent utility will often demand an exorbitant price for its facilities, far in excess of the consultant's valuation, and will typically criticize the consultant's study as faulty, overly optimistic or biased. To counter these arguments, some cities hire two independent consulting firms to value the facilities and then compare their results.

For example, in the early 1990s, the city of Las Cruces, New Mexico, commissioned two independent valuation studies when it looked at purchasing its local electric system. The incumbent investor-owned utility was demanding \$176 to \$250 million for the system. Las Cruces commissioned two independent studies; both consulting firms told the city the system was worth about \$38 million.

If the private utility is willing to negotiate, it may be possible to get a more reasonable purchase price, and save the time and expense of a protracted legal fight. In another example, through a negotiation process in the early 1980s, an incumbent investor-owned utility agreed to sell its facilities for \$26 million to the newly formed Emerald People's Utility District. Five years earlier a feasibility study had estimated the value of the system at \$23 million.

If the incumbent refuses to sell, or insists on an unduly inflated price, the city may consider condemnation action under the municipality's right of eminent domain.

8. Public Service Commission Proceedings

In some states, the state public service commission has the authority to determine if the formation of the public power utility is in the public interest, and the price that is to be paid for the incumbent's facilities and for reintegrating the remaining system.

9. Evaluation of Financing Alternatives

As an investment, a new public power utility has tremendous payback potential, but it does take the commitment of considerable funds to acquire or establish the system and begin operations.

Local governments typically issue electric revenue bonds when they buy an electric distribution system. Bonds are repaid from future electric utility revenues over a long period (e.g., 30 years). The bonds are evaluated by a bond rating service, based on the projected net revenues of the electric system.

Unlike general obligation bonds, revenue bonds are not backed by the city or local government's ability to impose property taxes. The new electric revenue bonds should have no impact on other municipal projects and borrowing.

Municipalities are prohibited by federal tax law from using tax-exempt financing to purchase the output facilities of investor-owned utilities, unless they obtain a portion of their state's volume cap for such financing.

However, there is no such limitation on the use of tax-exempt financing for the building of a new system or for improvements to the distribution facilities once they are purchased from the private utility. The public power utility is likely to have a strong credit rating, and new capital

²² "Survey of State Municipalization Laws," Duncan & Allen, May 2012.

expenditures may be funded at a much lower cost of capital than if the system were privately owned.

The debt required for the acquisition of utility assets can be substantial, but that does not mean it is not a good investment, especially considering the benefits the utility will provide the community for many decades to come.

10. Prepare to Begin Operations

The final steps in forming a public power utility include issuing bonds for the purchase and/or construction of facilities; completing power supply and transmission arrangements; planning for the severance of the system from the incumbent utility; developing an organizational plan; setting up the new governing body and recruiting a utility manager; planning for materials, equipment, and supplies; and commencing operations.

The city may decide to contract out some of these functions to a firm experienced in electric utility operations to do the job in the short-run until the new utility is ready to run independently. The contracted electricity provider is accountable to city officials for its performance.

Incumbent Utility Responses

A for-profit electric utility will take extreme measures to stop the formation of a new public power utility, even in very small communities. The incumbent utility fears a domino effect—if one community establishes a public power utility, others may follow. This means a loss of electric load and revenue for the incumbent utility.

When you begin the process of evaluating the public power option for your community, the incumbent utility may offer deals to make the discussion go away quickly. The further you travel down the road toward public power, though, the more you can expect the incumbent utility to spread myths and misinformation, and engage in other anti-municipalization strategies.

Concessions

Faced with the possible loss of the municipal district from their customer base, the incumbent utility often responds to the competitive pressure and offers valuable concessions to the community. These may include lower rates, improved service, performance standards for reliability, investment in the community or a settlement fee.

In many cases, the concessions offered by the incumbent utility are sufficient to persuade the community to abandon efforts to form a public power utility.

Sponsored Studies

Private utilities may offer to pay for the community's feasibility study, or to conduct the study themselves.

The community should be very skeptical if the incumbent private utility offers to provide or conduct a study at little or no cost to the city. Studies sponsored by the private utility will not produce objective results; in fact, their primary purpose is to dissuade a city from forming a new public utility.

When the city, county or municipal district pays for the study, the study will be fair. Unlike the incumbent, the city does not have a vested interest in the study findings. The community is served only by learning the truth, whether or not the study shows that forming a public power utility is economically feasible. Only an unbiased study will determine what is truly in the community's best interest.

Lawsuits

You should expect the incumbent utility to take the city to court. There will be a cost in time, money and perhaps political will.

When a private utility talks about a costly legal challenge to forming a public power utility, it is really part of a public relations battle to stop the initiative. The incumbent's goal is not necessarily to win, but to exhaust city funds or intimidate city officials and civic leaders into abandoning the idea of municipalization.

If the feasibility study has been thorough and actions have been based on legal authority, the city will probably prevail. Cities often win the lawsuits, either because there is no merit to the incumbent's claim or because the utility decides to settle at the last minute rather than risk a result that sets an undesirable precedent.

Political Challenges

Once a community begins to evaluate the public power option, politics almost certainly will play a role. The pros and cons of municipalization may become the focus of political campaigns.

The incumbent utility may thrust the issue into elections by putting up candidates to run against local policymakers who support evaluating or pursuing the public power option.

Private utilities may also try to thwart the democratic process by lobbying for state or local laws or sponsoring ballot initiatives designed to stop the formation of a new public power utility.

For example, Pacific Gas & Electric Co. (PG&E) sponsored a California ballot initiative in 2010 that would have required a two-thirds majority vote before a local government could establish or expand electric delivery service or establish a Community Choice Aggregation program. The *Los Angeles Times* endorsed a “no” vote on the initiative:

“The so-called Taxpayers Right to Vote Act is really a ploy by [PG&E] to block ratepayers from forming cooperatives to purchase and distribute electricity at reduced rates. PG&E is spending its customers’ money to tell those same customers that they have to protect themselves against an imaginary power grab by local government. It is PG&E, in fact, that is trying to protect its market share by requiring a two-thirds vote to establish a new local power system.”²⁴

The initiative was defeated, with the largest percentage of “no” votes occurring in areas served by PG&E.

Public Relations Attacks

The incumbent utility will wage a major public relations battle to stop the community from forming a public power utility. The utility will use its considerable economic and political clout to sway public opinion against the formation of the new public power utility.

The incumbent may use mailers, bill stuffers, newspaper editorials, television, radio, internet ads and videos, and presentations by company officials filled with messages aimed at confusing the issues, creating fear, and spreading misinformation. They may hire a professional PR firm and give it a large budget. Incumbent utilities will strive to create doubt about the formation of a public power utility—whether it can be done and how successful it will be.

Responding to attacks

To respond effectively to these tactics, local officials, citizens, and business leaders who support public power need a well-coordinated public education campaign to set the record straight.

Local officials are most successful when they pay attention to citizens’ concerns, document the legal and economic feasibility, and explain the advantages clearly and succinctly.

The educational campaign is strengthened by encouraging support from community groups, speaking at community events, and keeping the local media well informed.

Citizen education is vital throughout the process of establishing a public power utility. Local leaders should start early and explain why the city is considering public power in a way that has meaning for local residents and businesses.

Although there will be times when it is necessary to respond to the incumbent’s attacks on the public power proposal, it is best to stay with positive messages about the formation of the new utility. In other words, do not let the private utility take the fight to its hill. Stay on message.

City officials, rather than outside hired guns, have more credibility with citizens because they have the community’s best interest at heart. Local elected and appointed officials, as well as local business leaders, should be prepared to respond to false charges against public power.

Citizen support groups can help, particularly if the city is prohibited from doing more than presenting findings and facts. Local citizens may form a committee to actively promote a ballot initiative and help educate the community on the benefits of public power. Citizen groups like “Pull the Plug” in Las Cruces, New Mexico, “CLUB” (Coalition for Lower Utility Bills) in San Francisco and “Citizens for Power Options,” in Casselberry, Florida, made sure fellow citizens were well informed about the public power option.

Keep the media informed on your goals and the process. Sit down with editorial boards of local newspapers to explain what you are trying to do and answer questions. The private utility is likely to step up its advertising in the local newspaper. If allowed by state and local law, the city should counter by placing educational ads in local newspapers. Social media can also be a powerful tool for countering attacks by well-heeled investor-owned utility seeking to derail an effort to form a public power utility.



“PG&E [Pacific Gas & Electric] spent more than \$10 million to defeat the ballot initiative [to allow the Sacramento Municipal Utility District to serve customers in Yolo County]. The utility had estimated that it could lose about \$43 million annually in gross profit margin if the measure succeeded.”

“Voters Nix SMUD Takeover of Yolo County Customers,”
Dow Jones Newswires, November 8, 2006.

²⁴ “On June 8,” Editorial, *Los Angeles Times*, June 6, 2010.



Successful Public Power Campaigns

Despite all the hurdles, many initiatives to form a new public power utility succeed. When a community decides to take control of its energy future and examines public power, it can deliver long-term benefits to its citizens.

Learn from the experiences of other communities that have gone through the process, and the elements that are necessary to lead a successful public power campaign.

Keys to Success

While every municipalization campaign is different, initiatives that result in formation of a new public power utility generally share these elements:

- The city has the legal basis to form the public power system;
- An economic feasibility study shows there would be sufficient savings from the public power operation when compared with continued service from the incumbent utility;
- The community has the political will to see the project through;
- Policymakers and citizens are well informed and understand the benefits of public power;
- The business community or several of its most influential leaders support the effort;
- The city can put together the financial resources for each phase in the process of starting the utility, possibly with the backing of an interested party such as a local industry or a potential attractive wholesale power supplier; and

- The cooperation of the incumbent utility, or failing that, the community resolve to do what it takes to establish the public power utility.

Keeping all key players informed throughout the process is vital. Make citizen education a priority. Involve local businesses and influential members of the community in the conversation. Start early to explain why your community should consider the public power option and do so in a way that resonates with local residents and businesses. Be transparent, and keep the media informed of your goals and process.

Rocking the Boat

You do not have to be completely sold on forming a new public power utility before starting a conversation. Conducting a feasibility study with a qualified, experienced firm will help answer any questions or doubts you may have. Sometimes just going through the evaluation process can improve your community's situation. Public power initiatives often bear fruit even when they do not result in the creation of new utilities, so do not be afraid to rock the boat.

Many communities drop efforts to form a public power utility because the incumbent utility responds to the competitive threat and offers valuable concessions. These may include lower rates, improved service, and higher standards for reliability. Importantly, citizens see that they have negotiating power and alternatives to the incumbent utility.

There are many examples of public power initiatives that did not result in the formation of a new utility, but

nonetheless brought important benefits to the community. Here are a few:



Casselberry wins “favored” status

After two years of failing to negotiate a renewal of its franchise agreement with Progress Energy, the City Council of Casselberry, Florida, voted to begin buyout proceedings in April 2013. The investor-owned utility finally was motivated to make a better deal. In August 2013, the city accepted a new agreement that included a 6 percent franchise fee (the highest in the state); reimbursement of \$1.75 million in expenses incurred while the franchise agreement was in dispute; and a “favored nation” clause entitling the city to a better deal if the utility gives a better one to any other municipality. Casselberry also secured a mandate for a reliability study every five years to evaluate the utility’s service. Progress Energy is required to rectify any identified reliability problems.



Wichita gets rate relief

Faced with rate hikes on top of already high electric rates, Wichita, Kansas, began looking at the public power option. In February 2001, the city released a municipalization feasibility study showing it could save as much as \$654 million in electricity costs over the next 20 years. The feasibility study gave Wichita the leverage it needed: six months later, \$28 million in electric rate relief was headed for Wichita. The rate cut ordered by the Kansas Corporation Commission gave electric utility customers in the city about 85 percent of the rate relief that a consultant’s study said the city could achieve if it were to take over the power system.



Minneapolis scores two clean energy partners

Minneapolis wanted the two investor-owned utilities serving the city, Xcel and CenterPoint, to support the city’s clean energy goals. With both franchise agreements due to expire at the end of 2014, community leaders recognized that to get the investor-owned utilities on board, “the city [was] going to need some leverage and some real power,” according to John Farrell, leader of the group Minneapolis Energy Options. “We [did not] think [the city was] going to have any real power unless they start talking about municipalization.”³³ The strategy worked.

With the leverage provided by evaluating its public power option, Minneapolis forged a strategic partnership with its two incumbent utilities to reduce greenhouse gas emissions 30 percent by 2025, and 80 percent by 2050.

Successful Public Power Initiatives

A total of 50 public power utilities were formed in the last 30 years. Here is a brief summary of how five of these utilities were formed.

JEFFERSON COUNTY, WASHINGTON (2013)	18,000 customers
WINTER PARK, FLORIDA (2005)	13,750 customers
HERMISTON, OREGON (2001)	4,900 customers
LONG ISLAND POWER AUTHORITY (1998)	1,035,000 customers
CLYDE, OHIO, LIGHT AND POWER (1989)	2,600 customers



Jefferson County negotiates a purchase of the electric system

In November 2008, Jefferson County, Washington, voted 54-46 percent in favor of authorizing the public utility district to become an electric utility. Under state law, public utility districts have the right to use eminent domain to acquire private electric utilities, but Jefferson County’s PUD commissioners were determined to try to negotiate a purchase first, even though Puget Sound Energy was opposed to selling the system.

The first meeting after the vote brought together Puget Sound President and CEO Steve Reynolds and PUD Commissioner Wayne King. When Reynolds started to discuss the cost of a potential condemnation suit, King responded “We had hoped we could sit down and talk about this over a cup of coffee.”

This initial conversation set the tone for the negotiations; a year later, the two sides agreed to a purchase price of \$103 million for the electric system in east Jefferson County. The commission felt the negotiated terms would provide customers a smoother, more efficient and potentially lower transfer cost than if they pursued condemnation.

³³ “Leverage: How a municipalization threat created a unique energy partnership in Minneapolis,” Utility Dive, October 23, 2014.

The new public power utility is bringing more jobs to the county. The PUD already employed eight people to operate its water and sewer systems; operating the electric utility requires another 20-30 full-time employees, including lineworkers, engineers, and office staff. The PUD is committed to running the new utility strictly with its own employees.

Commissioner Barney Burke said, “One thing almost everyone in Jefferson County can agree on is the need for more family-wage jobs.” The new utility jobs boost the local economy by adding such jobs. This economic advantage is boosted by the PUD’s commitment to purchase supplies locally whenever possible. Local hiring also means faster response times in case of an outage, as lineworkers will no longer be based in another county.³⁴



Winter Park chooses to focus on reliability

Winter Park, Florida, formed a public power utility in 2005 after a six-year struggle to take over the electric distribution system. Winter Park’s effort was sparked by persistent problems with Florida Power Corp. City leaders were barraged with complaints about outages. The private utility’s franchise was nearing expiration. The franchise agreement included a clause allowing the city to buy the distribution system at the end of that period. In 2003, residents turned out in droves and voted overwhelmingly—by 69 percent—in favor of the city’s plan to form a municipal electric utility.

The utility began operations in 2005. The city contracted with ENCO Utility Services Inc. of California to operate the utility under a 12-year contract and committed to use all of the revenues from its electricity sales—except for a contribution it has agreed to make to the city’s general fund—for capital improvements. The city committed to undertake a strong program to improve the reliability of electric service, in part by putting a significant portion of the power lines underground.



Hermiston takes control to improve rates, customer service

Hermiston, Oregon, formed a municipal utility in 2001 following a four-year effort that began after the investor-owned utility closed its local customer service

office and citizens experienced a decline in service. Citizens approved a plan to take over the electric distribution system. The investor-owned utility fought Hermiston’s condemnation proceeding, but a court ruled in favor of the city. Subsequently, the utility agreed to sell the system to the city for \$8 million, about twice book value.

The switchover on October 1, 2001, went smoothly for customers and the local newspaper, East Oregonian, which had opposed the formation of the city-owned utility, reversed its stance after the new utility started operations.

Hermiston Energy Services reduced customers’ rates in its first year of operation and the utility’s average rates for both residential and commercial customers remain well below the average rates that its former investor-owned utility charges its customers in Oregon.



Long Island forms one of the largest public power utilities

Long Island Power Authority (LIPA) replaced the investor-owned Long Island Lighting Co. in Nassau and Suffolk counties in New York and now serves well over a million customers. In May 1998, after LIPA purchased the investor-owned utility’s transmission and distribution system, it reduced electric rates across the board by an average of 20 percent.

In addition, LIPA put special attention on the distribution system’s safety and reliability. Employee morale improved dramatically with LIPA’s fresh start due to its nonprofit, public-service outlook and its new emphasis on safety.

LIPA has a special relationship with its business and industrial customers, taking an active role in business and civic organizations. LIPA provides qualified businesses with the opportunity to obtain rate incentives and energy efficiency audits. More than 300 companies have taken advantage of LIPA’s economic development program, creating nearly 50,000 jobs.



Clyde constructs its own distribution system

When Clyde, Ohio, decided to pursue formation of a municipal utility, the initiative was entirely supported by Whirlpool, the town’s largest employer. Citizens of the town of 6,000 voted “yes” in a

³⁴ “Jefferson PUD Electric Service Backgrounder,” May 3, 2010; and “Jefferson PUD Frequently Asked Questions,” January 16, 2012.

referendum and the town borrowed \$11 million to install its own poles, wires, transformers and electric meters to compete head-on with the incumbent utility, Toledo Edison.

Five years after the municipal utility began operations, its electric rates were 30 percent lower than those of the investor-owned utility, and most people in town (except Toledo Edison's employees) had switched to public power. The town succeeded in doing exactly what Toledo Edison said it never could: it created a fully functioning public power utility with significantly lower rates.

Clyde's success has also benefited its neighboring communities that are still served by Toledo Edison. Losing Clyde's customer base motivated the investor-owned utility to do some belt-tightening to ensure it retained its other customers. As cited in 1994 comments to the Federal Energy Regulatory Commission:

"Since losing Clyde [Ohio] retail load, Toledo Edison has entered into dozens of new incentive 'contract' arrangements with many of its industrial, commercial, schools and other governmental customers, providing rate discounts to retain load and encourage new load growth. Since losing Clyde, Toledo Edison has also cut its dividend, cut its internal costs, frozen executive salaries, foregone pre-approved retail rate increases, frozen base rates, implemented new marketing programs, reduced debt, written down or off assets, and announced a general creed that it would do whatever possible to avoid ever again losing a customer due to high rates. These are the appropriate ways to respond to competition..."³⁵

³⁵ FERC Docket RM 94-7-000

COMMISSION RECOMMENDATION/INPUT

No commission recommendation or input is associated with this action.

CEQA

Not a Project, File No. PP17-008, General Procedure & Policy Making resulting in no changes to the physical environment.

/s/
LORI MITCHELL
Director, Community Energy

/s/
MATT CANO
Director, Public Works

/s/
RAYMOND RIORDAN
Director, Office of Emergency Management

For questions please contact Lori Mitchell, Director of Community Energy, at (408) 535-4880.

Attachment 1 - Benefits of Public Power, Forming a Public Utility & Successful Public Power Campaigns (Sections from APPA Guide)
Attachment 2 - Public Power Pays Back (APPA)
Attachment 3 - Anti-Municipalization Poster
Attachment 4 - San Francisco Municipalization Study
Attachment 5 - Letter from Central Valley Mayors on Municipalization
Attachment 6 - Governor Newsom's Strike Force Report
Attachment 7 – Valley Clean Energy FAQ on Public Power

Public Power Pays Back

Payments and Contributions by Public Power Utilities to
State and Local Governments in 2016

5.6%

**PUBLIC POWER UTILITIES
GIVE BACK 5.6% OF
ELECTRIC OPERATING
REVENUES TO THEIR
COMMUNITIES**



Public Power Pays Back

Payments and Contributions by Public Power Utilities to State and Local Governments in 2016

Prepared by
Paul Zummo, Director, Policy Research and Analysis
American Public Power Association

PUBLISHED MARCH 2018



The American Public Power Association is the voice of not-for-profit, community-owned utilities that power 2,000 towns and cities nationwide. We represent public power before the federal government to protect the interests of the more than 49 million people that public power utilities serve, and the 93,000 people they employ. More at www.PublicPower.org.

© 2018 American Public Power Association
www.PublicPower.org
Contact MediaRelations@PublicPower.org or 202.467.2900

Executive Summary

Public power utilities provide affordable, reliable electricity to the customers they serve. These community-owned utilities are not beholden to any shareholders and are driven only by the mission to serve customers and the community.

In addition to affordable electricity, public power utilities provide a direct benefit to their communities in the form of payments and contributions to state and local government. These contributions come in many forms — property-like taxes, payments in lieu of taxes, transfers to the general fund, and free or reduced cost services provided to states and cities. The total value of these contributions is not always recognized.

In 2016, public power utilities contributed **5.6 percent of electric operating revenues** back to the communities they serve, according to an American Public Power Association study of 188 public power utilities.

In comparison, investor-owned utilities paid a median of 4.4 percent of electric operating revenues in taxes and fees to state and local governments in 2016.

When all 2016 taxes, tax equivalents, and other contributions to state and local government are considered, the contribution of public power utilities — as a percentage of electric operating revenues — is 27 percent higher than that of investor-owned utilities.

Many communities are not fully aware of the total value of contributions made by their public power utilities. Some utilities do not quantify all their payments and contributions. The Association conducted a detailed survey of public power utilities to get a more accurate estimate. This report presents the results of this survey, which focuses on the “rate” and “type” of payments and contributions made by public power utilities.

The report includes:

- Summaries by revenue size, class, and region of the country for public power and investor-owned utilities
- Common types of payments and contributions
- Typical methods used by utilities to calculate the amount of payments in lieu of taxes or transfers to the city general fund

Use caution in making direct comparisons with our previous reports (published every two years), as the utilities included in each report can change from year to year.

Payment and Contribution Rates by Revenue Class

Net payments and contributions as a percent of electric operating revenue are summarized for public power utilities in seven revenue classes. Medians by revenue class range from 4.5 percent to 14.5 percent, as compared to the national median of 5.6 percent.

The median is defined as the value where 50 percent of the utilities had greater payment and contribution rates, and 50 percent contributed less.

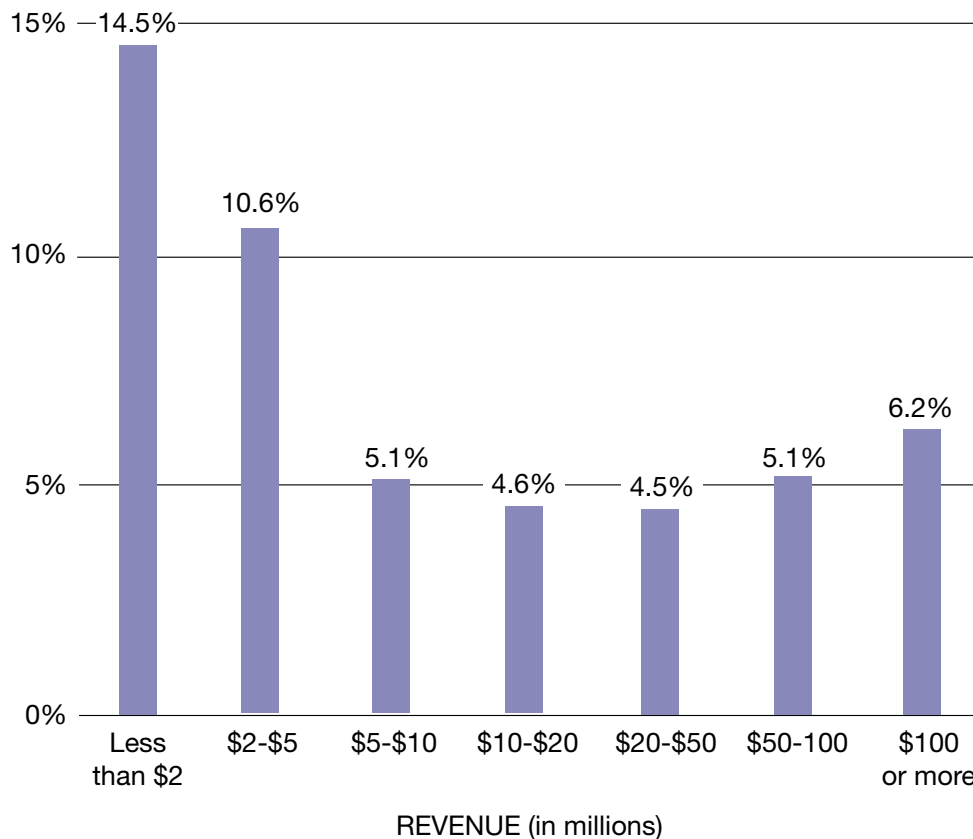
Quartiles are another common tool used in analysis. By definition, half of utilities fall between the first and third quartiles. For example, 50 percent of the 188 utilities in this report made payments and contributions between 3.2 percent and 8.9 percent of electric operating revenue.

Table 1

Net Payments and Contributions by Public Power Utilities as Percent of Electric Operating Revenue, 2016

Revenue (in millions)	Number of Utilities	Median	First Quartile	Third Quartile
Less than \$2	13	14.5	7.1	22.4
\$2 - \$5	18	10.6	4.6	21.0
\$5 - \$10	16	5.1	2.9	8.5
\$10 - \$20	29	4.6	3.5	5.9
\$20 - \$50	48	4.5	2.9	6.6
\$50 - \$100	30	5.1	2.9	7.7
\$100 or more	32	6.2	5.4	8.7
TOTAL	188	5.6	3.2	8.9

Figure 1. Median Net Payments and Contributions by Public Power Utilities as Percent of Electric Operating Revenue, 2016



Payment and Contribution Rates by Region

Regional variations in median net payments and contributions range from 2.8 percent in the Northeast to 12.6 percent in the West South Central. Regions are defined in Appendix 2.

Table 2
Net Payments and Contributions by Public Power Utilities as Percent of Electric Operating Revenue, 2016

Region	Number of Utilities	Median	First Quartile	Third Quartile
Northeast	12	2.8	1.2	5.0
Atlantic	19	6.6	2.9	11.5
East North Central	29	3.4	1.7	4.6
East South Central	22	6.0	5.5	6.3
West North Central	49	4.7	3.5	7.3
West South Central	36	12.6	7.7	21.8
Mountain	7	5.7	*	*
Pacific Northwest	9	6.6	5.0	9.7
Pacific Southwest	5	9.4	*	*
TOTAL	188	5.6	3.2	8.9

* Quartiles not provided for fewer than 9 responses.

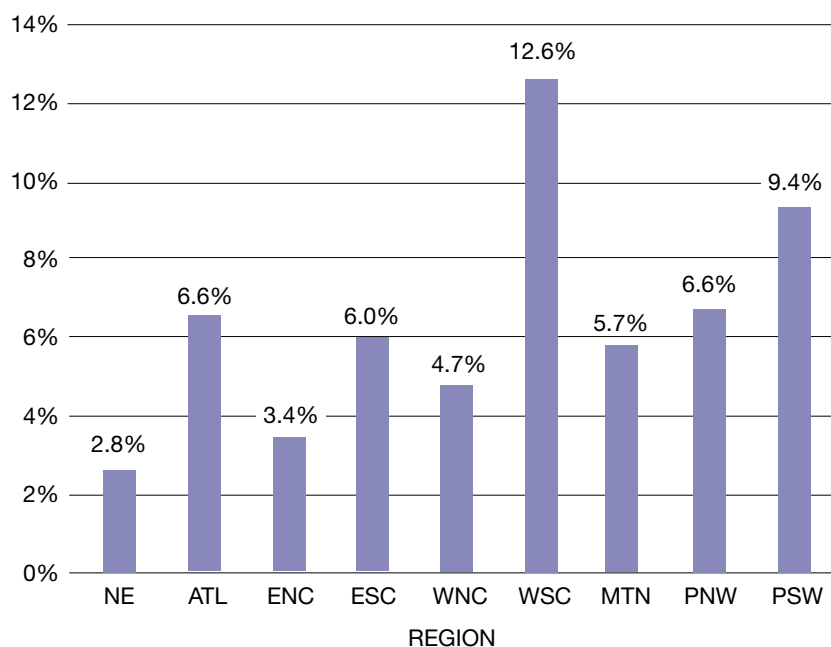
In 2016, investor-owned distribution utilities paid a median of 4.4 percent of electric operating revenues in taxes and fees to state and local governments. Utilities in the middle 50 percent of contributions made payments ranging from 3.2 to 7.2 percent. In comparison, public power utilities paid a median of 5.6 percent in net payments and contributions as a percent of electric operating revenue, with a middle range of 3.2 to 8.9 percent.

In this study, most IOUs (95 percent) had more than \$100 million in operating revenues while most public power systems had less than \$100 million (83 percent).

The median percent of taxes paid by IOUs and tax payments and contributions by publicly owned systems as a percentage of electric operating revenue varies by utility size.

	Investor-Owned	Public Power
Large Utilities (over \$100 million)	4.6%	6.2%
Small Utilities (under \$100 million)	3.9%	5.2%

Figure 2. Median Net Payments and Contributions by Public Power Utilities, as percent of Electric Operating Revenue, 2016



The median rate for investor-owned systems was the largest in the Northeast and Pacific Northwest, and smallest in the East South Central and Pacific Southwest. Table 3 presents data grouped by geographic region for investor-owned utilities.

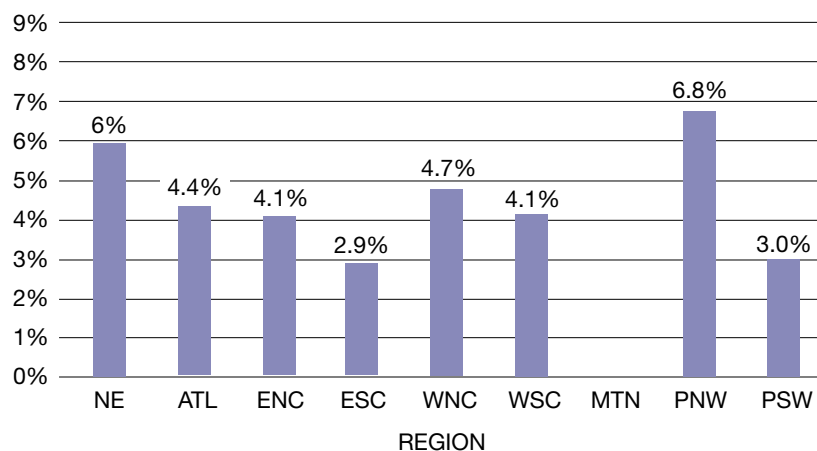
Table 3

Net Taxes of Investor-Owned Utilities, as Percent of Electric Operating Revenue, 2016

Region	Number of Utilities	Median	First Quartile	Third Quartile
Northeast	23	6.0%	5.2%	8.9%
Atlantic	17	4.4%	3.5%	7.4%
East North Central	24	4.1%	3.4%	5.0%
East South Central	7	2.9%	*	*
West North Central	15	4.7%	3.9%	7.4%
West South Central	11	4.1%	3.1%	5.7%
Mountain	2	n/a	n/a	n/a
Pacific Northwest	6	6.8%	*	*
Pacific Southwest	8	3.0%	*	*
Total	114	4.4%	3.2%	7.2%

* Quartiles not provided for fewer than 9 responses.

Figure 3. Median Taxes of Investor-Owned Utilities, as Percent of Electric Operating Revenue, 2016



Summary of Payments and Contributions

The study is based on a survey the Association sent to all publicly owned utilities. The next two sections of the report summarize results for 171 public power utilities that completed the survey.

The summaries exclude 17 Tennessee Valley Authority distribution utilities that completed the survey, because these utilities' payments and contributions are limited under the terms of their wholesale power contract with TVA.

The 171 utilities made a total of just under \$1.1 billion in total payments and contributions to state and local government in 2016. Payments in lieu of taxes were the largest share of payments and contributions, followed by other taxes and fees.

Table 4
Net Payments and Contributions to State and Local Government

	Amount (in Millions)	Percent of Total
Payments in Lieu of Taxes	\$631.9	59.3%
Other Taxes and Fees	\$220.8	20.7%
Gross Receipts Tax	\$162.2	15.2%
Free or Reduced Cost Electric Services	\$42.1	4.0%
Use of Employees	\$7.2	0.7%
Other, including Equipment and Materials	\$1.5	0.1%
Total	\$1,065.7	100.0%
Less: Services and Contributions RECEIVED by the Utility FROM the Municipality	<u>\$9.1¹</u>	
Net Payments & Contributions	\$1,056.6	

The number of utilities making each type of payment or contribution is detailed in Table 5.

Table 5
Types of Payments and Contributions, 2016

	Percentage of Utilities Surveyed	Number of Utilities
I. Payments and Contributions Provided		
Payments in Lieu of Taxes	79.5%	136
Taxes and Fees	42.7%	73
Gross Receipts Tax	22.2%	38
State Public Utility Assessments	18.1%	31
Franchise Fees	13.5%	23
Property Taxes	16.4%	28
Other	11.7%	20
Free or Reduced Cost Electric Service	42.7%	73
Streetlighting	38.0%	65
Lighting for Municipal Buildings	23.4%	40
Traffic Signals	15.8%	27
Recreational Facilities	14.0%	24
Water or Sewer Treatment Facilities	11.7%	20
Water Pumping	10.5%	18
Other	12.9%	22
Use of Employees	43.9%	75
Installation of Temporary Lighting	24.6%	42
Putting Up City Signs and Banners	22.2%	38
Electrical Repair for Other Departments	14.0%	24
Traffic Signal Maintenance	11.7%	20
Tree Trimming for Other Departments	15.8%	27
Other Services	12.9%	22
Non-Utility Locates	3.5%	6
Technical Expertise	4.1%	7
Rewiring Municipal Buildings	2.9%	5
Reading Water Meters	6.4%	11
Other Resources	24.0%	41
Use of Vehicles and Equipment	18.1%	31
Use of Materials and Supplies	7.0%	12
Other	9.4%	16
II. Services and Contributions Received		
Free or Reduced Cost Service	23.4%	40
Use of Vehicles and Equipment	12.9%	22
Use of Materials and Supplies	7.0%	12
Use of Employees	2.9%	5
	17.0%	29

¹ The 171 utilities received \$9.1 million in contributions and services from the municipality. This amount does not include any contributions or services for which the city has been reimbursed, either through direct billing or a transfer of funds. Free or reduced cost office space and water are the major services provided, while operations and maintenance, legal services, information technology services, engineering services and financial service employees are the predominant type of employee contributions received by the utility. The \$9.1 million in free or reduced cost contributions and services provided by the municipality to the utility is subtracted from the \$1,065.7 million in payments and contributions from the utility to state and local government. **The result is \$1,056.6 million in net payments and contributions by the 171 utilities in 2016.**

Methods Used to Determine Payments in Lieu of Taxes

Payments in lieu of taxes are generally thought of as payments to local government. However, some utilities make payments in lieu of taxes to the state government.

Of the 171 utilities defined earlier, over 79 percent (136 utilities) made payments in lieu of taxes, also called transfers to the general fund. The median transfer as a percent of electric operating revenue was 4.1 percent.

The most common method used to determine the amount of payments in lieu of taxes was percent of gross electric operating revenue, as shown in Table 6.

Table 6

Methods Used to Calculate Payments in Lieu of Taxes

	Percentage of Utilities	Number of Utilities
Percent of Gross Electric Operating Revenue	26%	35
Assessment of Electric Utility and City Budgets	18%	25
Flat Amount Paid Annually	13%	18
Property Tax Equivalent	10%	13
Charge per Kilowatt-hour Sold	10%	13
Percent of Net Utility Plant in Service	2%	3
Percent of Income, (Net, Operating or Total)	2%	3
Other/Did not Indicate	19%	26

The category “assessment of electric utility and city budgets” includes utilities whose payments are set by the city council, the mayor, or a utility commission, and utilities that make payments on an as-needed basis. The most common responses in the “other” category are utilities whose payments are based on more than one criterion.

Tennessee Valley Authority distribution utilities are not included in the data above. State law determines the payments in lieu of taxes for utilities in the state of Tennessee. The calculation is composed of two parts — percentage of three-year average operating revenue less power cost, and property tax rate applied to net utility plant.

APPENDIX 1

METHODOLOGY AND DATA SOURCES FOR STUDY

Study results for publicly owned utilities were calculated from two sources: data collected on the American Public Power Association's "2016 Survey of Local Publicly Owned Electric Utilities Tax Payments and Contributions to State and Local Government," and data submitted by public power utilities to the Department of Energy's Energy Information Administration on Form EIA-861, "Annual Electric Utility Report."

A total of 188 utilities completed the 2016 survey. Form EIA-861 provided information on electric operating revenue. Payments and contributions for TVA distributors include an amount equal to 5 percent of the estimated cost of power purchased from TVA — this payment is made by TVA — plus any payments in lieu of taxes or contributions made by the distribution utility. TVA's wholesale power contracts with municipalities limit payments in lieu of taxes to an amount not exceeding the state and local taxes that the system would pay if privately owned.

Study results for investor-owned systems were calculated from data submitted on the 2016 Federal Energy Regulatory Commission Form 1, "Annual Report of Major Electric Utilities, Licensees and Others."

The report includes only distribution utilities that are defined here as those with approximately 50 percent or more of their total kilowatt-hour sales going to retail customers. The investor-owned systems included in the study provide 95 percent of all full-service kilowatt-hour sales to investor-owned utility customers, and the public power utilities included in the study provide 25 percent of all kilowatt-hour sales to public power customers.

Public power's payments and contributions to state and local governments include taxes and fees such as gross receipts taxes, property taxes (generally on property outside the city limits), franchise fees, payments to state public utility commissions, environmental fees, and licenses. Also included are payments in lieu of taxes or transfers to the general fund and the value of services such as free or reduced cost electricity, the use of electric department employees, and the use of electric department materials and equipment. Federal taxes, social security taxes, similar contributions to state unemployment insurance, and other payroll taxes are excluded.

The value of free or reduced cost services contributed by the local government to the utility is deducted from total payments and contributions to arrive at net contributions. The net amount is then divided by electric utility revenue.

Net taxes for investor-owned utilities include state and local taxes and fees as reported on pages 262-263 of FERC Form 1. Federal taxes, social security taxes, similar contributions to state unemployment insurance, and other payroll taxes are excluded.

APPENDIX 2

REGIONS

The regions specified in Table 2 and Table 3 comprise the states shown below. Hawaii is not included in any of the nine regions, but is included in national totals and in summaries by revenue class.

Northeast	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont
Atlantic	Washington, D.C., Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia
East North Central	Illinois, Indiana, Michigan, Ohio, and Wisconsin
East South Central	Alabama, Kentucky, Mississippi, and Tennessee
West North Central	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota
West South Central	Arkansas, Louisiana, Oklahoma, and Texas
Mountain	Colorado, Montana, New Mexico, Utah, and Wyoming
Pacific Northwest	Alaska, Idaho, Oregon, and Washington
Pacific Southwest	Arizona, California, and Nevada



2451 Crystal Drive
Suite 1000
Arlington, Virginia
22202-4803

THE ANATOMY OF A DISASTER IN THE MAKING

MUNICIPALIZATION HURTS CALIFORNIA

Past failed California energy policies, like deregulation twenty years ago, were built upon false assumptions. Today, full-scale electricity municipalization is being pushed as a cure for what ails California. The truth is it's an unrealistic plan that will dramatically hurt California in a variety of ways. It's a \$70+ billion boondoggle being sold as something that can be accomplished at a fraction of that cost. That's as wrong now as deregulation back then. Here are the other ways it's wrong:

HARMFUL TO WILDFIRE VICTIMS

- > A smaller utility will not be able to absorb costs from catastrophic events, or even modest-sized events
- > Insurance costs would be greater and offer less coverage
- > Smaller POU's are more likely to face bankruptcy for fires in their service area

HARMFUL TO WORKERS

- > It would destroy the retirement plans of many workers
- > Many people would lose their pension if they lose their jobs
- > They will lose job mobility; forced to live in high housing cost areas
- > They will lose advancement opportunities
- > They will lose bargaining power by being in smaller units

HARMFUL TO STATE GOVERNMENT

- > Right now PG&E can mass mobilize a huge workforce in emergencies (e.g. 5,000 people after Carr wildfire)
- > A large IOU is necessary to implement policy for reliability, renewables, transportation electrification
- > Municipalization is effectively another kind of deregulation — the POU would not be regulated by the State
- > State will lose corporate income tax currently paid by IOU

HARMFUL TO RATEPAYERS

- > Will raise the cost to rural residential customers who pay the same residential rate as urban customers even though they are much more expensive to serve
- > Lost economy of scale therefore higher costs
- > The threat of municipalization will destabilize PG&E's bankruptcy proceeding
- > Wealthy communities will drive up the costs of poorer communities
- > Cherry-picking low risk areas will leave high risk areas with higher costs

BAD FOR CITIES

- > It will be really expensive — city has to pay book value of distribution assets (not market capitalization which is a lot less)
- > Those distribution assets are currently pledged collateral for PG&E's debtor in possession financing that the PUC approved
- > Those assets would be further encumbered by all of the other liabilities, including liabilities to fire victims
- > Inverse condemnation will apply to cities, risking city bankruptcy
- > Qualified employees will be scarce in high housing cost cities
- > Urban infrastructure is more expensive to maintain
- > Cities will lose property tax and franchise fees currently paid by IOU
- > Cities can make very bad, very expensive mistakes — e.g. SMUD Rancho Seco

ON THE FRONT LINES WE SEE MUNICIPALIZATION'S HARMS CLEARLY



**STAND WITH THE
HARDWORKING
MEN AND WOMEN
OF LABOR...**

**...STOP THE NEXT
MAJOR CALIFORNIA
DISASTER: FULL SCALE
MUNICIPALIZATION
OF ELECTRICITY**



San Francisco Water Power Sewer

Operator of the Hetch Hetchy Regional Water System

May 13, 2019

525 Golden Gate Avenue, 13th Floor

San Francisco, CA 94102

T 415.554.3155

F 415.554.3161

TTY 415.554.3488

Mayor London N. Breed
City Hall, Room 200
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102

Dear Mayor Breed,

By this letter, I am delivering the San Francisco Public Utilities Commission's ("SFPUC") preliminary study of the public power options that the City will consider in light of Pacific Gas & Electric Company ("PG&E") filing for bankruptcy protection. This report represents the first step toward exploring the potential acquisition of PG&E assets needed for the City to provide electric service to all of San Francisco.

As you know, the SFPUC owns and operates transmission and distribution assets within and outside of San Francisco but relies on PG&E for delivery to most of its customers in San Francisco for both Hetch Hetchy Power and CleanPowerSF. The report identifies and describes three options the City can consider to ensure San Francisco customers with clean, safe, reliable, and affordable power:

- **Limited Independence**
- **Targeted Investment for More Independence**
- **Acquire PG&E Assets for Full Independence**

While any sort of acquisition of PG&E property would be a lengthy process, the preliminary report shows that public ownership of San Francisco's electric grid has the potential for significant long-term benefits relative to investment costs and risks. Initial research shows total Power independence would make meeting the City's goal of being 100 percent carbon neutral by 2030 much less difficult. It would also lead to more stable rates and more transparency for customers. Additionally, PG&E's existing workforce would be welcomed into SFPUC's community-owned public service culture, where safety and efficiency are priorities.

The next phase of the analysis will go deeper. The City will examine the impact of acquiring PG&E distribution assets on affordability, safety, reliability, workforce, environmental justice, neighborhood revitalization, and community engagement. This analysis will also include the impact of San Francisco's departure from the larger PG&E system on other ratepayers across California.

Sincerely,

A handwritten signature in dark ink, appearing to read "Harlan L. Kelly, Jr.", written in a cursive style.

Harlan L. Kelly, Jr.
General Manager, San Francisco Public Utilities Commission

London N. Breed
Mayor

Ann Moller Caen
President

Francesca Vietor
Vice President

Anson Moran
Commissioner

Sophie Maxwell
Commissioner

Tim Paulson
Commissioner

Harlan L. Kelly, Jr.
General Manager

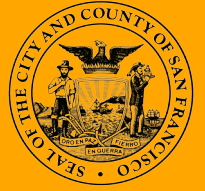
Services of the San Francisco Public Utilities Commission

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.





San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission



Preliminary Report on Electric Service Options

May 2019



PURPOSE AND METHODS USED

This report is focused on fact-finding, to lay the foundation for future decisions on whether to move forward with the further evaluations that would be needed prior to the investment of significant public funds. The information and fact-finding in this report is drawn from the SFPUC's own internal records and from publicly-available documents. As noted in the report, this information has been used to develop preliminary estimates of the potential benefits, costs, risk, and scope of the electric service options. Where possible, footnotes in the report provide references to source materials and the basis for staff estimates. Appendix D, Appendix E, and Appendix F to this report provide additional specifics and a broader set of reference materials. While preliminary, staff believes that the information provided identifies the key considerations in planning a path forward, evaluates these considerations with cost and benefit estimates where possible, and serves as a useful guide for policy makers to move forward on the next steps to be taken. Finally, the information in this report and the preliminary estimates provided do not consider future local, regional and state-wide decisions regarding cost responsibility for PG&E's outstanding and unfunded liabilities, including liabilities and claims related to wildfire hazards, both existing and future.

EXECUTIVE SUMMARY

City staff has prepared a preliminary report on electric service options for San Francisco in response to Mayor's Breed request on January 14, 2019 and the Board of Supervisors Resolution approved on April 9, 2019^[1]. These electric service options include purchasing electric assets in and around San Francisco that are currently owned and operated by PG&E. Purchasing PG&E's electric assets would provide the City with full power independence.

The City has a century-long history of providing greenhouse gas-free power to City facilities, buildings, residents, and businesses. The City now has an opportunity to increase its power independence considering PG&E's filing for bankruptcy protection and ongoing concerns with PG&E's operational safety and reliability.

This preliminary report explores the different levels of power independence the City can pursue. The City has already started taking a more aggressive approach in building its own electric distribution systems. This is based on the San Francisco Public Utilities Commission ("SFPUC") Power Enterprise's 2016 Business Plan and has been enabled by the passage of Proposition A in June 2018 which authorized the SFPUC to issue bonds for clean power facilities. This report demonstrates that further public investment in San Francisco's electric grid is worthy of further evaluation because it has the potential for significant long-term benefits relative to investment costs and risks. The preliminary findings support acquisition of PG&E electric assets serving San Francisco due to likely outcomes such as durable and long-term cost savings; timely and cost-efficient modernization of the electrical grid; and meeting the City's priorities on affordability, clean energy, safety, reliability, workforce development and equity. The City has the ability and intention to undertake such acquisition work with maximum community engagement and accountability.

Based on the report's preliminary findings, City staff should and will continue to analyze and study the implications of obtaining full power independence by purchasing PG&E's electric assets serving San Francisco.

^[1] A copy of Mayor Breed's Letter and the Board of Supervisors Resolution No. 174-19 are attached as Appendix A and Appendix B.

TIMELINE OF RELEVANT EVENTS REFERENCED IN THE REPORT

1913

12/13 The Raker Act requires San Francisco to produce and distribute hydropower.

1940

4/22 U.S Supreme Court rules that the City cannot sell Hetch Hetchy Power to PG&E.

1945-2015

The City uses an Interconnection Agreement to deliver power and is subject to limits on which customers to serve imposed by PG&E

2001

4/6 Pacific Gas and Electric Company files for bankruptcy. (PG&E bankruptcy #1)

2005

7/1 PG&E files an application at FERC to unilaterally terminate the Interconnection Agreement ten years early.

2008

11/8 Prop H, a measure to impose new renewable requirements & explore municipalization, is defeated.

2013

11/27 The City applies for PG&E's Wholesale Distribution Tariff (WDT) in anticipation of expiration of 1987 Interconnection Agreement.

Interconnection Agreement/Wholesale Distribution Tariff (WDT) Related (including FERC processes)

Laws, Rulings, & Propositions

PG&E

**City and County of San Francisco/
San Francisco Public Utilities Commission**

1925-45

PG&E refuses to deliver Hetch Hetchy Power to City customers. The City agrees to sell power to PG&E while working to find alternatives.

1945

3/5 PG&E finally agrees to deliver Hetch Hetchy Power to certain City customers, establishing the first Interconnection Agreement.

1990s

Federal and State laws change to require open, fair access to private utilities' transmission and distribution.

2003

7/8 Several PG&E affiliate companies file for bankruptcy. (PG&E bankruptcy #2)

12/20

A fire erupts at PG&E's substation on Mission Street affecting 100,000 customers. The CPUC concluded that the outage could have been avoided if PG&E had heeded its recommendations after a 1996 fire at the same substation.

2006

5/15 Hunters Point power plant permanently shuts down.

2011

2/28 Potrero power plant permanently shuts down.

2014

3/13 PG&E responds that approximately 25% of the City's load is not eligible for service under the Wholesale Distribution Tariff because it did not qualify for grandfathered service under section 212(h) of the Federal Power Act.

10/7

The City files a complaint against PG&E at FERC contending that all of its load is eligible for grandfathering.

12/23

PG&E files a notice of termination of the 1987 Interconnection Agreement and files a series of replacement agreements.

2015

- 1/13** San Francisco files a protest at FERC alleging that PG&E's proposed replacement agreements had not been shown to be just and reasonable.
- 3/31** FERC issues an order setting the Oct. 2014 complaint for hearing and settlement judge procedures.
- 5/20** The City issues its first Power Revenue Bonds, rated A+ by Standard and Poors
- 7/1** Effective start date of PG&E's replacement agreements.

2017

- 4/21** A fire erupts at PG&E's substation on Larkin Street affecting 95,000 customers. PG&E's delayed response to the fire raises questions about its safety culture.

2018

- 4/5** SF files a protest with FERC about PG&E requiring the City to pay for PG&E's common facilities.
- 6/5** Prop A, a measure for the SFPUC to issue revenue bonds for new power facilities, passes.
- 6/13** A Board of Supervisors hearing is held to discuss PG&E's role in delaying and obstructing service provision.
- 7/10** Board of Supervisors Resolution No. 227-18 is urges PG&E to work with the SFPUC to serve City customers efficiently and reaffirming that the SFPUC is the electric provider to City projects.
- 11/15** S&P upgrades SFPUC Power's credit rating to AA.

Interconnection Agreement/Wholesale Distribution Tariff Related (including FERC processes)

Laws, Rulings, & Propositions

PG&E

**City and County of San Francisco/
San Francisco Public Utilities Commission**

2016

- 5/1** The City launches CleanPowerSF, San Francisco's Community Choice Aggregation program.
- 5/18 - 5/23** The City and PG&E participate in a hearing at FERC.
- 11/15** FERC issued an initial decision. A final decision has not been issued yet.

2017-18

- 1/2017 - 12/2018** Both parties participated in FERC settlement discussions. A settlement agreement was filed at FERC.

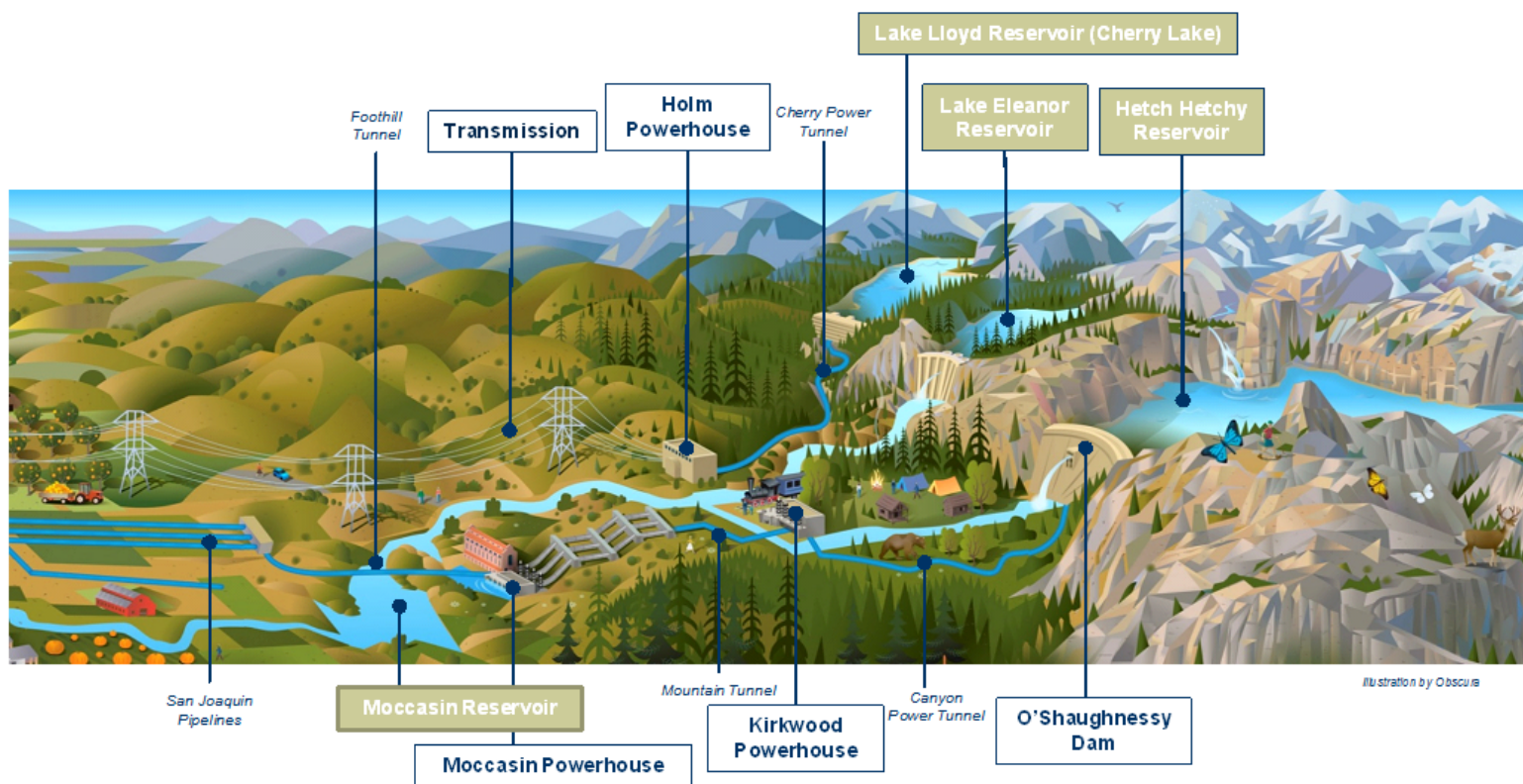
2019

- 1/8** S&P downgrades PG&E's credit rating to B.
- 1/14** Mayor Breed directs the SFPUC to evaluate all options to ensure a dependable grid for a long time.
- 1/28** The City files a formal complaint with FERC about PG&E requiring primary service for all service requests.
- 1/29** PG&E Corporation and its primary subsidiary, Pacific Gas & Electric Company file for bankruptcy. (PG&E Bankruptcy #3)
- 3/14** Mayor Breed and City Attorney Herrera notify PG&E that the City may make a formal offer to PG&E to purchase its assets in San Francisco.

I. PROVISION OF POWER IN SAN FRANCISCO

Over 100 years of San Francisco's Public Power Services

Pacific Gas and Electric Company ("PG&E") and San Francisco both provide electric service within the City and County of San Francisco ("City"). PG&E does so pursuant to a franchise agreement with the City. The City provides service under authority granted it in the State of California Constitution¹, the Federal Raker Act of 1913², and the San Francisco Charter.³ The Raker Act granted to San Francisco the right to construct a water storage and conveyance system, and the obligation to construct a hydroelectric generation system, in Yosemite National Park and Stanislaus National Forest. This system, known as the Hetch Hetchy Water and Power Project, is operated by the San Francisco Public Utilities Commission ("SFPUC")⁴, a department of the City and County of San Francisco. Wholesale and retail power services are provided by the SFPUC's Hetch Hetchy Power Enterprise, San Francisco's century-old public power retail electric utility. The SFPUC owns and operates its own, green-house gas free hydroelectric generation and other local renewable generation, and delivers these supplies to meet Hetch Hetchy Power's customer needs. The SFPUC's goal for Hetch Hetchy Power is and has always been to provide clean, safe, reliable, and affordable electric service while preserving the ability to operate, maintain, repair, and improve SFPUC-owned facilities.



¹ State of California Constitution, Article XI, § 9.

² Federal Raker Act of 1913, Pub. L. No 63-41, 38 Stat.242.

³ San Francisco Charter §§ 4.112, 8B.120-127, 16.101.

⁴ SFPUC Power Enterprise Hetch Hetchy Power System, <https://sfwater.org/index.aspx?page=1241>.

With the ongoing construction of the Hetch Hetchy Water and Power Project, and electric generation dating back as early as 1918, San Francisco set itself on a trajectory of measured independence from PG&E. Since the early part of the 20th century, the City has owned, operated and maintained generation and transmission facilities, and some distribution facilities. For decades, San Francisco purchased distribution services from PG&E pursuant to a series of bilateral agreements that allowed the City to deliver power to its numerous individual customers scattered throughout the City. These agreements with PG&E to purchase distribution services mitigated the need for the City to invest in its own comprehensive distribution facilities. The last of these agreements expired June 30, 2015.

PG&E's cooperation with the City to serve City facilities has diminished over time, while Federal laws establishing open access to distribution services provided a right to access another utility's distribution grid for eligible entities, like San Francisco.⁵ Beginning in the 2000's, the City pursued relief from the Federal Energy Regulatory Commission, as PG&E attempted to abrogate its agreements with San Francisco and unreasonably withhold tariffed distribution service from the City.⁶ Continued reliance on purchasing distribution service from PG&E has grown increasingly untenable and unnecessarily expensive.

Over this same time period, San Francisco policy makers have renewed the City's preference that electric service be provided to City projects and new developments by the City's public utility, Hetch Hetchy Power, when feasible.⁷ The SFPUC Power Enterprise Business Plan identified that strategic investment in distribution is an important initiative for the SFPUC to ensure ongoing access to distribution services for its customers, and to secure service for new Hetch Hetchy customers.⁸ Hetch Hetchy Power has worked with customers, departments, and developers, partnering to invest in distribution facilities and distributed energy resources. These investments have furthered the City's independence from PG&E's grid.

SFPUC POWER ENTERPRISE

- Operates San Francisco's publicly-owned, retail electric utility, Hetch Hetchy Power, serving 150 MW of retail electric customers, billing over 3,500 customer accounts, including essential services at San Francisco International Airport, municipal transit, public schools and recreation facilities, police and fire services, public hospitals, water and wastewater treatment.
- Part of a department of the City and County of San Francisco.
- Operates 385 MW of hydro generation, 9 MW of solar generation, and over 160 miles of transmission and distribution lines.
- Overseen by a Commission (SFPUC) appointed by the Mayor and approved by the Board of Supervisors.
- Employs 120-180 union workers, including engineers, financial and utility analysts, line workers, electricians, and technicians.
- Operates CleanPowerSF, San Francisco's Community Choice Aggregation program, which serves over 360,000 accounts with more affordable and cleaner power supply than PG&E.
- Funds all costs associated with operating and maintaining streetlights in San Francisco.

⁵ Federal Power Act. 16 U.S. Code §824k(h).

⁶ Complaints filed at FERC under Docket Nos. EL05-133-000 (2005), EL15-3-000, and EL19-38.

⁷ San Francisco Administrative Code Section 99: Public Power in New City Developments.

⁸ Power Enterprise Business Plan 2016, <https://view.joomag.com/sfpuc-power-business-plan-power-enterprise-business-plan-2016/0284568001455122944?page=2>.

In June, 2018, San Francisco voters overwhelmingly (77.2% approval) approved Proposition A, delegating to the Board of Supervisors approval of revenue bond financing “...for facilities needed to produce and deliver clean power when approved by ordinance receiving a two-thirds vote of the Board of Supervisors.”⁹ This new authority furthers the continued strategic investment in distribution, and distributed, grid-dependent energy resources and innovations, as envisioned in the 2016 Power Enterprise Business Plan.

In May 2016, the SFPUC launched CleanPowerSF¹⁰, San Francisco’s Community Choice Aggregation program. This initiative furthered San Francisco’s independence from PG&E as San Francisco enrolled businesses and residences in its cleaner, more affordable electricity supply. Under this State-law enabled program, San Franciscans receiving electric services from PG&E could be provided with more clean power choices identified and obtained by the City, while remaining PG&E distribution customers. CleanPowerSF’s energy supplies have a significantly higher renewable content and lower carbon content than PG&E’s energy supplies.

CleanPowerSF and Hetch Hetchy Power together supply nearly 80% of San Francisco’s electricity needs today.¹¹ Both Hetch Hetchy Power and CleanPowerSF continue to support valuable City and community goals for climate action, sustainability, accountability, local investment, and equity.

SAN FRANCISCO'S INCREASING POWER INDEPENDENCE OVER TIME		
1918	Early Intake Powerhouse starts operation.	Reducing reliance on PG&E for supply and transmission
1925	Moccasin Powerhouse starts operation (and is reconstructed in 1969).	
1960	Holm Powerhouse starts operation.	
1969	Kirkwood Powerhouse starts operation; transmission lines to Newark completed.	
1997	SFPUC assumes responsibility for all electric service on Treasure and Yerba Buena Islands.	Reducing reliance on PG&E for distribution
2007	SFPUC invests in distribution to serve the homes and businesses at “The Shipyard,” a development at the former Hunter’s Point Shipyard.	
2010-2015	SFPUC takes responsibility for scheduling and balancing its supplies to match its demands and managing supply market risks.	Eliminating reliance on PG&E for supply balancing services and market risk protection
2016	SFPUC invests in distribution to serve Transbay Transit Center and begins construction of the Bay Corridor Transmission and Distribution project.	Reducing reliance on PG&E for distribution
2016	SFPUC launches CleanPowerSF, offering San Francisco residents and businesses a choice of affordable, cleaner energy supplies.	Reducing reliance on PG&E for supply

⁹ Proposition A: San Francisco Revenue Bonds for Power Facilities Excluding Fossil Fuels and Nuclear Energy Charter Amendment. Approved on June 5, 2018.

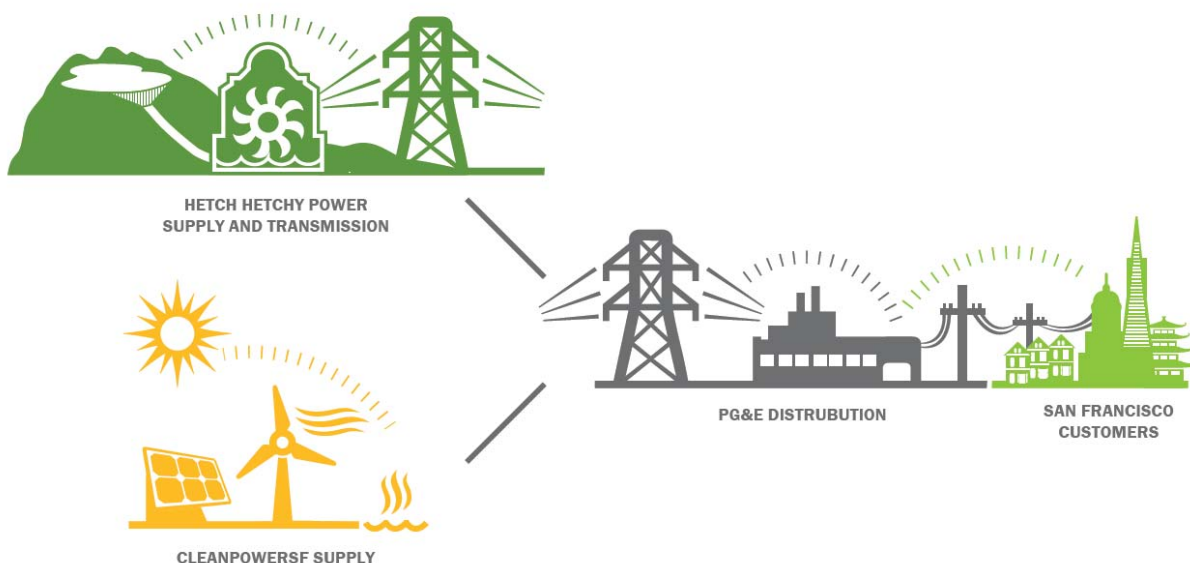
¹⁰ CleanPowerSF website, <https://www.cleanpowersf.org/>.

¹¹ Estimate of supply share is based on projected results of CleanPowerSF’s April 2019 enrollment, currently underway.

Our City's and our community's reduced reliance on PG&E electric supplies in favor of supplies from Hetch Hetchy Power and CleanPowerSF are significant contributors to San Francisco climate milestones. Since 1990, San Francisco has reduced citywide emissions 36 percent, while the population has grown 22 percent and the local economy 166 percent.¹²

Reliance on PG&E Distribution Services has been Expensive and Compromised Climate Goals

While San Francisco has been investing to reduce its reliance on PG&E's distribution system, it still heavily relies on PG&E distribution infrastructure for delivery of the clean power San Francisco generates and purchases for its customers. These are customers that PG&E, as a for-profit corporation, would like to continue to serve and from whom they would like to continue to collect revenue.¹³



This overlap of San Francisco's public and PG&E's for-profit power service is unique. No place else in California or nationally is there a patchwork of distribution facilities so intermeshed between a public utility and a private one. Typically, electric utility service territories are geographically defined and exclusive, like those of Sacramento Municipal Utility District or Los Angeles Department of Water and Power. While service on the edge of the geographic territories may be contested as communities grow, such disputes are generally resolved with one or the other utility providing the service, and not both.

¹² "2017 San Francisco Geographic Greenhouse Gas Emissions Inventory at a Glance," San Francisco Department of Environment, Climate Program, V1.0, published April 2019,

https://sfenvironment.org/sites/default/files/fliers/files/sfe_cc_2017_community_inventory_report.pdf.

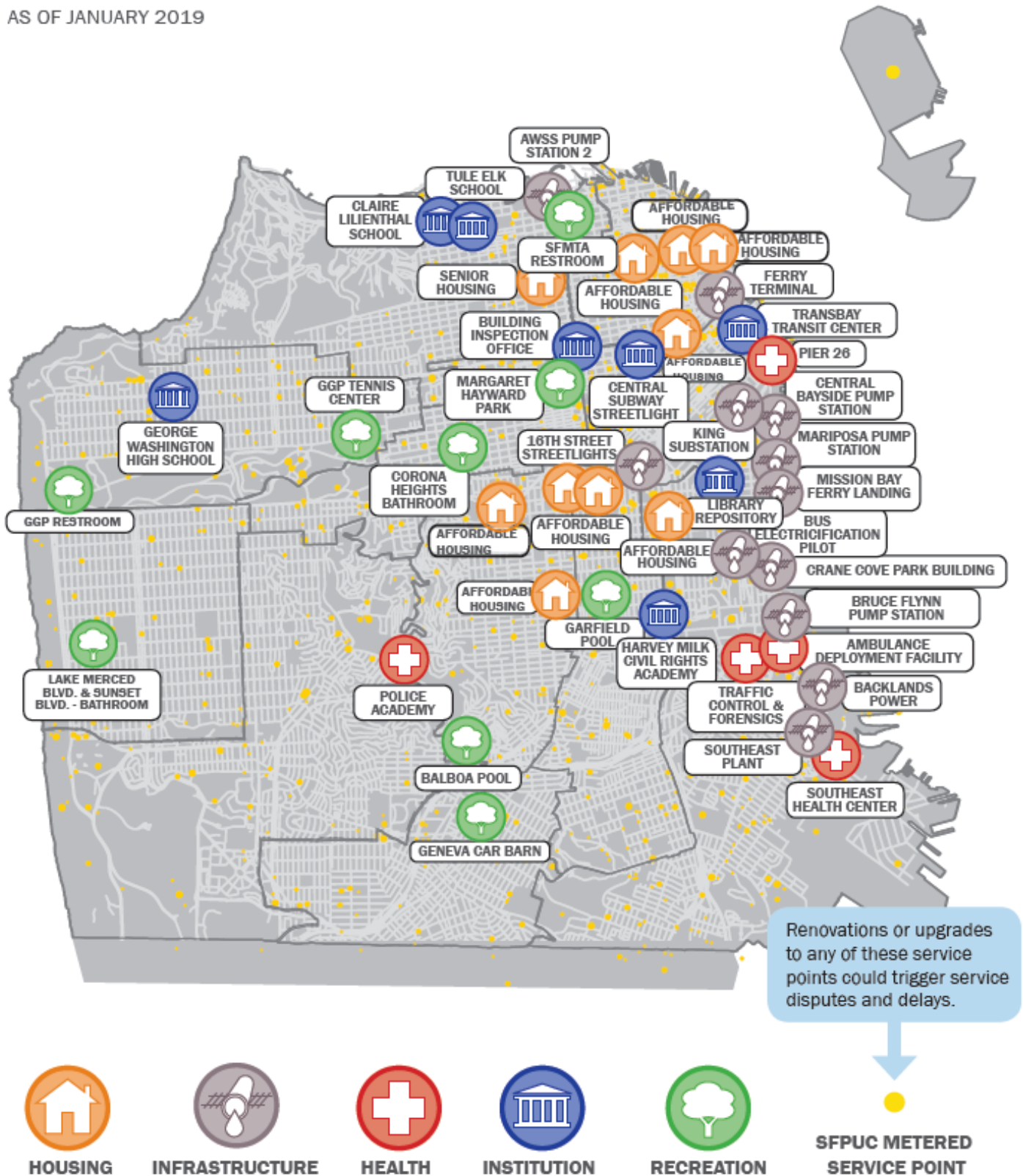
¹³ Per California Public Utilities Commission regulations, PG&E's rates are set to allow it to earn profits based only on its net capital investment in electric infrastructure (its "rate base") and most of those profits come from PG&E's investment in distribution facilities. PG&E's current investment (rate base) is about 55% in distribution facilities, 24% in transmission facilities, and 21% in generation (supply) facilities (shares of total are for 2016). See <http://www.cpuc.ca.gov/General.aspx?id=12092>.

San Francisco's reliance on PG&E to deliver power to many of San Francisco's Hetch Hetchy Power customers has become highly problematic, notwithstanding the fact that the terms and conditions of the delivery service are established in a Federally-regulated, open-access, tariff. Because PG&E is a direct competitor in serving San Francisco customers, its strategy has been to leverage its ownership of assets to impose unnecessary and expensive requirements on the City. PG&E's efforts to impede and complicate City electric service increased in 2015 upon the expiration of a seventy-year-old interconnection agreement which had limited the customers the City could serve. PG&E's actions result in significant delays and excessive costs to important City projects, ranging from over twelve months of unnecessary closure of a public pool, to slowing the pace of construction of new affordable housing, to delaying the installation of employee restrooms on City bus routes, and preventing electric service for electric vehicle charging stations in a City parking lot. PG&E's behavior results in lost electric revenues for the City; endangerment or loss of grants for important City projects; delays in critical services such as affordable housing; and, additional costs and loss of space for the installation of unnecessary electrical equipment. In a quarterly report to the Board of Supervisors in January 2019, the SFPUC reported thirty delayed projects (with many more at risk of being delayed), 5.7 million pounds of carbon dioxide emissions, and \$8 million in additional project costs, borne largely by taxpayers, caused by PG&E.¹⁴ The conditions PG&E is seeking to impose do not improve reliability nor safety.

The map on the following page shows the 53 actively contested Hetch Hetchy Power customer sites where PG&E has imposed requirements, unnecessary for safe and reliable distribution service. Each site is labeled to indicate the type of service the customer is providing, or attempting to provide, at the site. "Housing" indicates an affordable housing site; "Infrastructure" indicates a water, wastewater, or transportation facility; "Health" indicates public safety or medical services are provided at the site; "Institution" denotes a site where a school, community center, or other City service is provided; and "Recreation" indicates services like a swimming pool or services associated with a park are at the site. Many of these delayed projects are for health and safety renovations as well as accessibility accommodations for older City facilities that are in urgent need of updates.

¹⁴ San Francisco Board of Supervisors Quarterly Report, Status of Applications to PG&E for Electric Service, dated January 25, 2019.

AS OF JANUARY 2019



The figure below helps illustrate the requirements PG&E is trying to impose on the City when it purchases PG&E distribution services. A restroom was to be constructed at the end of a bus route for the exclusive use of transit employees. PG&E tried to require San Francisco to install electrical equipment seven times the size of the restroom itself at a cost 10 times greater than the bathroom construction costs. The electrical equipment PG&E was requiring, appropriate for a facility like San Francisco General Hospital, would have operated a hand dryer and two light bulbs (one interior and one exterior).



The costs and delays to City projects also force more reliance on PG&E's less-clean energy supplies and diminish use of publicly owned clean energy in San Francisco.

San Francisco has, as mentioned above, sought redress from the Federal Energy Regulatory Commission through its formal complaint process.

The Directive to Explore Expansion of Public Power Infrastructure

Against this background of PG&E denying or delaying City service, causing economic and climate harm, PG&E has been cited with alarming safety violations across its larger service territory. Governor Newsom's Strike Force Report released in April 2019, provides a sobering summary.

PG&E's decision to voluntarily seek the protection of a chapter 11 bankruptcy court punctuates more than two decades of mismanagement, misconduct, and failed efforts to improve its safety culture. Prior to its filing, PG&E already was on criminal probation, having been convicted of five felony counts for safety violations in connection with the San Bruno gas explosion in 2010. That explosion resulted in eight deaths, approximately 58 injuries and 38 homes destroyed. PG&E was also convicted of obstruction of justice, fined over \$4.6 million, and sentenced to substantial community service as a result of the same incident... Despite repeated assurances from management that the

company would change, PG&E has failed to implement the fundamental management and cultural reforms to prioritize safety and reliable service.¹⁵

While large parts of PG&E's service territory have experienced catastrophic wildfires linked to PG&E's operations, San Francisco has experienced less devastating substation fires and numerous underground electric vault explosions, causing injuries, requiring evacuations and/or extended shelter in place requirements, property damage and outages.¹⁶

On January 14, 2019, Mayor Breed asked the SFPUC to evaluate all options to ensure a safe, reliable grid to meet the City's climate goals and ensure affordable rates. The Board of Supervisors also approved a resolution on April 9, 2019 requesting the SFPUC to report on options for improving electric service in San Francisco through acquisition, construction, or completion of the City's own electric system.¹⁷

PG&E will present its own re-organization that allows it to emerge from bankruptcy, and the California Public Utilities Commission ("CPUC") and California state lawmakers are also considering restructuring alternatives that could include transfer of all or parts of PG&E to local, public ownership. Mayor Breed's and the Board of Supervisors' requests for SFPUC's analysis recognizes it is important for San Francisco to be proactive in preparing for potential opportunities in changing its historical reliance on PG&E. Through a letter from Mayor Breed and City Attorney Herrera, the City has informed PG&E that it may choose to make a formal offer to acquire PG&E's electric distribution facilities within the coming months as part of PG&E's bankruptcy protection process.¹⁸

The City's Options

This report identifies and describes three options for the path forward for providing affordable, dependable and clean electric service to San Francisco. The options discussed in this report are only regarding electric services.

- 1. Limited Independence** – The City would continue fighting for fair treatment and reasonable service from PG&E for both its Hetch Hetchy Power utility and CleanPowerSF Community Choice program. The Hetch Hetchy Power utility will grow its customer base through transfers of PG&E customers that choose to become customers of Hetch Hetchy Power, but will be at risk of customer loss to the extent PG&E is able to continue imposing requirements that impact the City's ability to serve

¹⁵ "Wildfires and Climate Change: California's Energy Future," A Report from Governor Newsom's Strike Force, April 12, 2019, pp. 44-45: <https://www.gov.ca.gov/wp-content/uploads/2019/04/Wildfires-and-Climate-Change-California%E2%80%99s-Energy-Future.pdf>.

¹⁶ For example, the September 28, 2015 transformer explosion at 269 Coleridge which sent two neighbors to the hospital with burns; the August 21, 2016 manhole cover blown off a PG&E vault in San Francisco's Financial District (near 350 Bush); the August 19, 2005 PG&E transformer explosion that blew a manhole cover 30 feet into the air and burned a 40-year old woman on her face and neck; the March 2005 fire at a PG&E substation at Eighth and Mission streets that knocked out power to 25,000 customers, and the fire at the same substation that left more than 100,000 residents and stores without power the weekend before Christmas in 2003.

¹⁷ A copy of Mayor Breed's Letter and the Board of Supervisors Resolution No. 174-19 are attached as Appendix A and Appendix B.

¹⁸ Mayor London N. Breed and City Attorney Dennis J. Herrera's Letter to PG&E. March 14, 2019. See Appendix C.

customers. City grid-dependent climate actions are compromised under this scenario. The City's heavy reliance on PG&E will continue to put City projects, such as affordable housing developments and school renovations, at risk of experiencing major delays and increased costs imposed by PG&E. CleanPowerSF customers will continue to rely on PG&E for service quality and on state regulation for affordability for PG&E's delivery of CleanPowerSF supplies.

- 2. Targeted Investment for More Independence** – Power Enterprise's 2016 Business Plan proposed targeted investment in electric distribution infrastructure as the City-owned grid is rebuilt in redevelopment areas and modernized in locations across San Francisco. The City has been actively pursuing targeted investments. The 2018 passage of Proposition A enables the City to significantly accelerate those efforts and the resulting cost savings, rate reductions, and climate benefits for San Franciscans. However, targeted investment is limited in its reach, and even with the financing advantages of Proposition A, the pace of investment and benefits received remains heavily impacted by PG&E. CleanPowerSF customers will continue to pay for distribution services from PG&E and will be reliant on PG&E for service quality and on state regulation to ensure affordability. For Hetchy Hetchy Power customers, the City will continue to fight for fair treatment from PG&E for interconnections to PG&E-owned facilities. City grid-dependent climate action gains will also continue to be challenged as PG&E will continue to control most of San Francisco's electric grid.
- 3. Acquire PG&E Assets for Full Independence** – The City can completely remove its reliance on PG&E for local electricity services through purchasing PG&E's electric delivery assets and maintenance inventories in and near San Francisco, and operating them as a public, not for profit service. The City will pay PG&E a fair price for the assets that reflects asset condition. In this option, the City will also offer jobs to PG&E's union and other employees who currently operate the grid. The City will expand the Hetch Hetchy Power publicly-owned utility service to all of San Francisco, to provide clean, safe, reliable, affordable and sustainable service to all customers. The City will be responsible for upgrading and modernizing PG&E's electric facilities in San Francisco that are aging or unable to support new supply and distribution grid technologies, and will be able to better control the pace and priority of those improvements.

The CleanPowerSF customer base, workforce, and supply commitments will be integrated into the Hetch Hetchy Power public utility, with service quality and affordability held accountable by San Franciscans through their local elected officials. Power independence for San Francisco will eliminate the need to fight for fair treatment from PG&E. City projects will no longer be affected by PG&E's requirements and delays. The City will also be well positioned to meet its climate goals – through both supply- and grid-dependent actions – and efforts towards other critical priorities will be supported and advanced through comprehensive, local oversight of all electric services.

Pursuing this option requires the City to undertake analyses to determine whether the acquisition is feasible, including whether it would benefit City taxpayers and electric customers over the long term, produce a fair price to PG&E, and be fair to PG&E's employees and its ratepayers outside of San Francisco.

Size and scope, measured in the number of accounts, demand and annual revenue opportunities, vary considerably across these options. The differences in the capital expenditures associated with each option also help illustrate the magnitude of the opportunities and quantify the dollars at risk. The table below summarizes key metrics and provides preliminary estimates for those metrics.

HETCH HETCHY POWER COMPARATIVE STATISTICS*

(Preliminary Staff Estimates)

STATISTIC	LIMITED INDEPENDENCE	MORE INDEPENDENCE	FULL INDEPENDENCE
Accounts	3,500	7,000	400,000
Megawatts of peak electric usage	150 MW	300 MW	1,000 MW
Estimate of revenues from electricity sales (all estimates exclude supply revenues currently managed by CleanPowerSF)	\$100 million/yr	\$220 million/yr	\$500-\$700 million/yr
San Francisco Capital Expenditures	\$25-\$100 million varies annually	\$10-300 million per investment	Dependent on Fair Market Value analysis; could be a few billion dollars initially

*An annotated version of this table is provided in Appendix D.

The City's spending needs are significant and increasing across all options, but across the options, revenues to support those investments increase, as does the City's independence from PG&E. Perhaps most impactful to San Franciscans in the long term are the differences among the options in the amount of decision making authority and accountability that rests with the City, as discussed in further detail later in this report.

II. OPTION ONE: LIMITED INDEPENDENCE

The City and all San Francisco residents and businesses will continue to rely upon PG&E for distribution grid services. Under this approach, the City will continue fighting for fair treatment and service from PG&E, both for its Hetch Hetchy Power customers and its CleanPowerSF customers. The Hetch Hetchy customer base may continue to grow as customers choose to become customers of Hetch Hetchy Power. The City pays PG&E for the City's use of PG&E distribution service to meet the needs of the City's Hetch Hetchy Power customers, while CleanPowerSF customers pay PG&E directly for distribution service. All of these payments flow to PG&E for its system-wide spending needs and may or may not flow back to San Francisco in the form of local grid investments and upgrades.

The benefits of continuing with this approach are limited, with the main benefit being the avoidance of the large capital expense associated with Option 3. For the customers served by Hetch Hetchy Power,

FERC action on San Francisco's October 2014 and 2019 complaints could help reduce unnecessary costs and delays. Such action would have to be joined with a fundamental change at PG&E that results in the company providing wholesale distribution service as a reasonable partner that follows its own tariff. Were those two actions taken, continued reliance on PG&E distribution service to meet San Francisco's goals for much of the existing Hetch Hetchy Power customer base could be an effective approach.

For the foreseeable future, however, it appears that the continued reliance option will include ongoing costs and compromise to the City's critical public services and goals.

Ongoing Costs

The City's current reliance on PG&E for distribution service for the City's Hetch Hetchy Power customers continues to create major delays and cost increases to City projects. As referenced above, the existing identified disputes are estimated to cost the City approximately \$8 million. The total costs of relying on PG&E for electric distribution go well beyond these identified barriers to connection imposed by PG&E.

Overall, staff estimate that the City has paid and will continue to pay anywhere from \$25-\$100 million to PG&E each year. This includes (i) wholesale distribution services used by the City to serve its Hetch Hetchy Power customers, and (ii) payments to PG&E to build out and maintain its own facilities in San Francisco when needed to serve Hetch Hetchy Power customers. The elements of this estimate include:¹⁹

- Approximately \$10 million per year for electrical distribution service for Hetch Hetchy Power customers based on metered usage of the PG&E grid and rates set by the Federal Energy Regulatory Commission.²⁰
- Maintenance fees, for specific PG&E-owned facilities, which are paid to PG&E in perpetuity.
- Additional payments for PG&E to build out and maintain grid facilities with case-by-case service requests (e.g., shutdowns, relocations, upgrades, and new services). As the City continues to renovate outdated City facilities and develop new facilities, the City anticipates it will need to continue making significant payments to PG&E to upgrade its distribution system so that the City can continue to serve its Hetch Hetchy Power customers with distribution service purchased from PG&E.

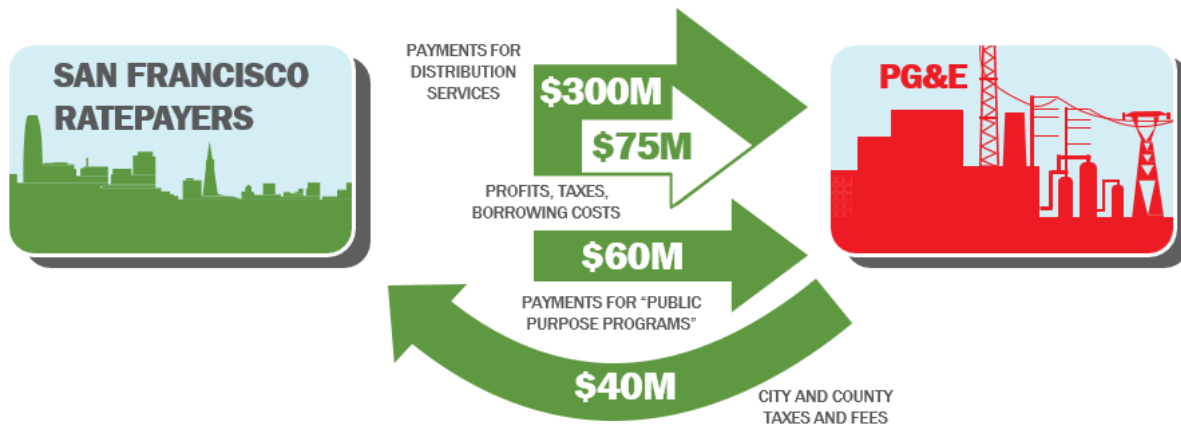
In essence, the City is paying PG&E to build and upgrade its system, and then PG&E charges service fees for the City to use that system. Those funds currently flow to PG&E for it to spend across its Central and Northern California service territory, and for PG&E to pay shareholder dividends and bondholder interest payments. If, instead, the City invested in electric facilities it would own, the payments to PG&E could be re-invested to maintain and improve the electric system in San Francisco; since the City has no shareholder costs and lower borrowing costs, funding would be available for other City initiatives and to improve service affordability.

¹⁹ See Appendix D for more information on the basis of this estimate.

²⁰ SFPUC pays PG&E's wholesale distribution rate of \$10-\$18/MWh (depending on service voltage), with approximately 600,000 MWh delivered over PG&E's distribution system annually.

This rationale applies not only to the City’s payments to PG&E for its wholesale distribution services, but also to San Francisco residents and businesses more broadly, almost all of whom pay PG&E directly for electricity deliveries using PG&E’s facilities. Staff estimates show that currently, roughly \$300 million per year²¹ flows from San Francisco to PG&E through PG&E’s bills for electric distribution services to Hetch Hetchy customers, CleanPowerSF customers,²² direct access customers in San Francisco, and PG&E’s remaining bundled customers.

YEARLY FUNDS FLOW FROM SAN FRANCISCO TO PG&E FOR ELECTRIC DISTRIBUTION – INITIAL SFPUC STAFF ESTIMATES*



*An annotated version of this diagram is provided in Appendix E.

About \$75 million (25% of 300 million)²³ of that total covers San Francisco’s share of PG&E’s shareholder profits (currently authorized at 10.25% per year), federal and state income taxes, and borrowing costs.

An estimated additional \$60 million per year, paid by San Francisco residents and businesses receiving a PG&E electric bill, funds PG&E-administered public purpose programs throughout its service territory.²⁴ These programs cover a wide variety of energy efficiency, low-income, research and development and other community benefits programs. While extensive, these programs are often not tailored to San Francisco-specific building stock or demographic characteristics.²⁵ Although local governments like San Francisco have historically worked with PG&E to design local energy efficiency programs to serve small

²¹ See Appendix E.

²² CleanPowerSF customers pay nearly \$200 million/yr for PG&E distribution services. See Appendix E.

²³ See Appendix E. Note also, most of PG&E’s profits are recovered through distribution rates. In 2016, PG&E’s total rate base was 55% distribution, 24% transmission, and 21% generation, see <http://www.cpuc.ca.gov/General.aspx?id=12092>.

²⁴ See Appendix E.

²⁵ For example, many of PG&E’s energy efficiency programs are targeted at inland and warmer climate zone electric usage such as air conditioning or pool pump applications, which have little penetration within San Francisco.

and hard-to-reach commercial and residential customers, PG&E has recently cutback on those and denied funding to local programs like San Francisco's.²⁶

In return, PG&E makes payments to the City and County of San Francisco for property taxes, franchise fees and business taxes, and has historically made charitable contributions to San Francisco-based organizations. Staff estimates these payments to be on the order of \$40 million per year.²⁷

Compromise of City's Climate Goals

THE CITY'S CLIMATE ACTION GOALS	
Metric	Goal/Target
Electric Supply: City-wide	100% GHG-free by 2030 (Adopted in BoS Resolution 349-11)
GHG Emissions: City-wide (includes electricity, transportation, & natural gas uses)	Net-zero emissions by 2050 (Announced by Mayor Farrell on April 19, 2018)

Historically and today, the City's reliance on PG&E compromises the City's achievement of its critical climate goals, given both PG&E's electricity supply content and its grid management practices. The City has a goal of using 100% GHG-free electricity supplies by 2030 without using nuclear sources, a goal more ambitious than the State's target that PG&E must follow. Both Hetch Hetchy Power and CleanPowerSF are on track to meet this goal, while PG&E's power mix includes nuclear sources and other sources that are not GHG-free. A comparison of the power content for 2017 is shown on the next page using the method established by the California Energy Commission.²⁸ Under the continued reliance scenario, roughly 20% of San Francisco residents and businesses who do not receive supply from Hetch Hetchy or CleanPowerSF are on a slower track to meet San Francisco's goal.^{29 30}

²⁶ See City and County of San Francisco Protest of PG&E Advice Letter 4011-G/5375-E, PG&E's 2019 Energy Efficiency Annual Budget Advice Letter in Compliance with Decisions 15-10-028 and 18-05-041 (Oct. 4, 2018), p. 4 (San Francisco's 2019 energy efficiency program budget was reduced by 30%.)

²⁷ See Appendix E. Note, the staff preliminary estimate of \$40 million/yr includes components that are associated with PG&E's corporate overhead and with PG&E's gas, electric transmission, and electric supply units, so is overstated when compared to the \$360 million in funds for electric distribution services and programs flowing from San Francisco to PG&E.

²⁸ PG&E 2017 https://www.pge.com/pge_global/common/pdfs/your-account/your-bill/understand-your-bill/bill-inserts/2018/10-18_PowerContent.pdf

Hetch Hetchy Power 2017 <https://www.sfwater.org/modules/showdocument.aspx?documentid=13205>

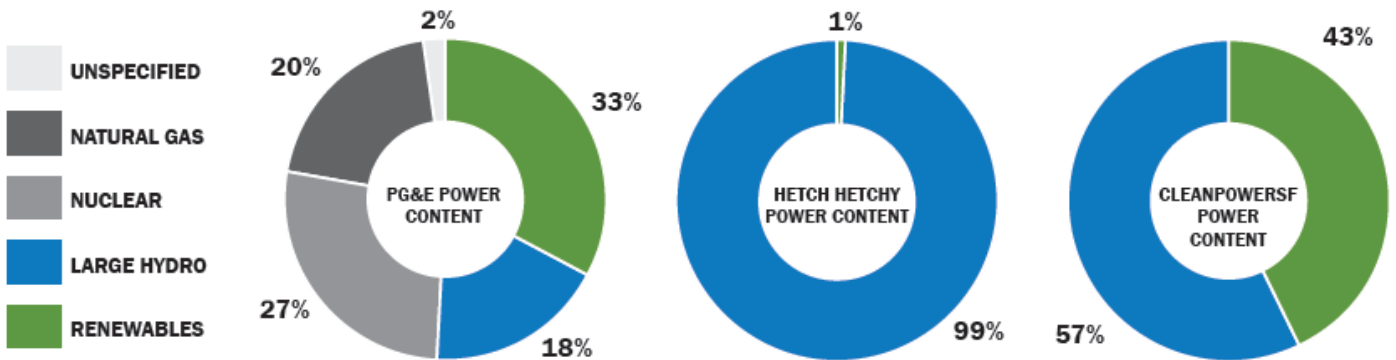
CleanPowerSF 2017 <https://www.cleanpowersf.org/s/eigdmqkor48lcbici0nay0cgvgbzlf>

The intermittency of some renewable supplies is balanced with system power.

²⁹ The 20% estimate includes supplies that are available to some commercial customers from third-party suppliers.

2017 PG&E AND SAN FRANCISCO POWER CONTENTS

(data from the California Energy Commission website)



While San Francisco's supply-dependent climate initiatives can continue to be implemented under this approach, distributed, grid-dependent initiatives will continue to be compromised. Grid-dependent initiatives require PG&E to be a willing and reasonable partner, prepared to implement services at a commercially reasonable pace. For example, connecting electric vehicles charging infrastructure to PG&E's grid has been delayed and burdened by unnecessary costs; Hetch Hetchy Power rooftop solar system sizes have been limited to the customer demand on-site, notwithstanding the City's interest in exporting excess production to share within the Hetch Hetchy Power customer base.

Hetch Hetchy Power customers continue to experience delays, unnecessary requirements and out right refusal of service by PG&E when requesting connection of solar, storage, electric-vehicle charging, and other grid-connected assets. PG&E's constraints often create cost and administrative burdens making the pursuit of innovative programs and technologies less feasible.

Compromise of City's Affordable Housing Goals

Other City-wide initiatives for affordable housing and economic development are also threatened by PG&E requirements that cause delay and increase costs for new developments. In some cases, PG&E's requirements have forced affordable housing developments to use generators for temporary construction power, which increases costs as well as air and noise pollution. Local communities in San Francisco face the consequences of PG&E's requirements as renovations to schools, parks, and other community facilities continue to be delayed.

III. OPTION TWO: TARGETED INVESTMENT FOR MORE INDEPENDENCE

Under this option, the City will continue its current path of making strategic, targeted investments in San Francisco's grid, both by building its own distribution infrastructure and, subject to PG&E's cooperation, by acquiring specific, self-contained PG&E-owned distribution facilities.

³⁰ Under California Energy Commission reporting rules, unspecified sources are those that cannot be tracked back to a specific source of fuel for electricity generation.

SFPUC Has Made Targeted Investments

SFPUC has already started making targeted investments in new grid infrastructure in redevelopment areas. Projects completed and currently under construction will result in City-owned distribution facilities sufficient to serve about 10% of San Francisco's total needs. The table below provides examples of these investments.³¹

EXAMPLES OF TARGETED INVESTMENTS (NEW PUBLICLY-OWNED GRID INFRASTRUCTURE)

Project Name	MW	Description
Treasure Island	8-12 MW	As Treasure Island is being redeveloped, the SFPUC, in partnership with developers, is building new electric distribution infrastructure at both Yerba Buena Island and Treasure Island.
Transbay Transit Center	8 MW	The SFPUC has installed electric distribution infrastructure to serve the new modern regional transit hub.
Better Market Street	TBD	As Market Street is being revitalized, the SFPUC will install underground distribution infrastructure for future developments along Market Street.
Hunter's Point Shipyard (Phase 1)	3 MW	SFPUC has installed electric distribution infrastructure to serve the residential community located along the southeastern waterfront of San Francisco.
Pier 70	15-22 MW	As Pier 70 is being redeveloped, the SFPUC, in partnership with developers, is building new electric distribution infrastructure that will serve new residential, commercial, and retail space.
Southeast Wastewater Treatment Plant	12 MW	The SFPUC is installing electric distribution infrastructure to ensure electric reliability to San Francisco's largest wastewater facility that is currently undergoing construction for operational improvements and upgrades.
Bay Corridor Transmission & Distribution (BCTD) (Pier 70 and the Southeast Wastewater Treatment plant will be served by BCTD)	60-75 MW	The SFPUC is currently developing this electric distribution project that will serve customers along the southeast bayside of San Francisco.

The City will continue to identify and pursue opportunities for investments in coordination with planned redevelopment, growth and expansion in San Francisco. This type of targeted investment aligns with Chapter 99 of the San Francisco Administrative Code which mandates new City development projects to receive electric service from Hetch Hetchy Power when feasible.

As San Francisco's grid infrastructure is rebuilt, modernized, and expanded, the City will also evaluate purchasing particular portions of PG&E's existing grid infrastructure. These types of investments are only feasible if PG&E is willing to work cooperatively with the City.

Targeted investment is beneficial to the City for the long term as it reduces the amount of on-going service and facility-specific maintenance fee payments to PG&E and, at those locations, should reduce

³¹ Size estimates are at full build out and are based on current estimates. Taken together, the investments listed will serve approximately 100 MW of customer demand, or about 10% of San Francisco's current total demand.

disputes with PG&E. Essential-service City departments will also have more reliable electric service as the City would be modernizing the grid infrastructure. Enabled by the passing of Proposition A in 2018, the City is now well-positioned to efficiently finance these local investments over the long-term at a relatively low cost, and to accelerate the pace of these investments.

Hardships with PG&E Remain with Targeted Investments

Generally, targeted investments in San Francisco's grid can be capital intensive and have long lead times and build out periods before revenue growth is fully realized. This process also requires a large amount of coordination with developers. Power Enterprise's 2016 Business Plan estimated about ten years would be needed to grow Hetch Hetchy Power's customer base from 150 MW currently to 300 MW using the targeted investment strategy.

Most importantly, all the challenges associated with having limited independence will remain as the City will continue to depend on PG&E for service delivery to the majority of Hetch Hetchy Power customers and all CleanPowerSF customers. City projects will continue to see higher costs and delays due to unresolved disputes with PG&E. As the City may need to upgrade existing PG&E grid infrastructure to accommodate the targeted investments, the City may still encounter the delays and arbitrary requirements, when making the initial grid-connection with PG&E. Once targeted investments are constructed, however, the City will control the interconnection of customers to the City-owned portion of the grid. Partnering and incentivizing climate -friendly, grid-connected innovations with developers will be easier.

IV. OPTION THREE: ACQUIRE PG&E ASSETS FOR FULL INDEPENDENCE

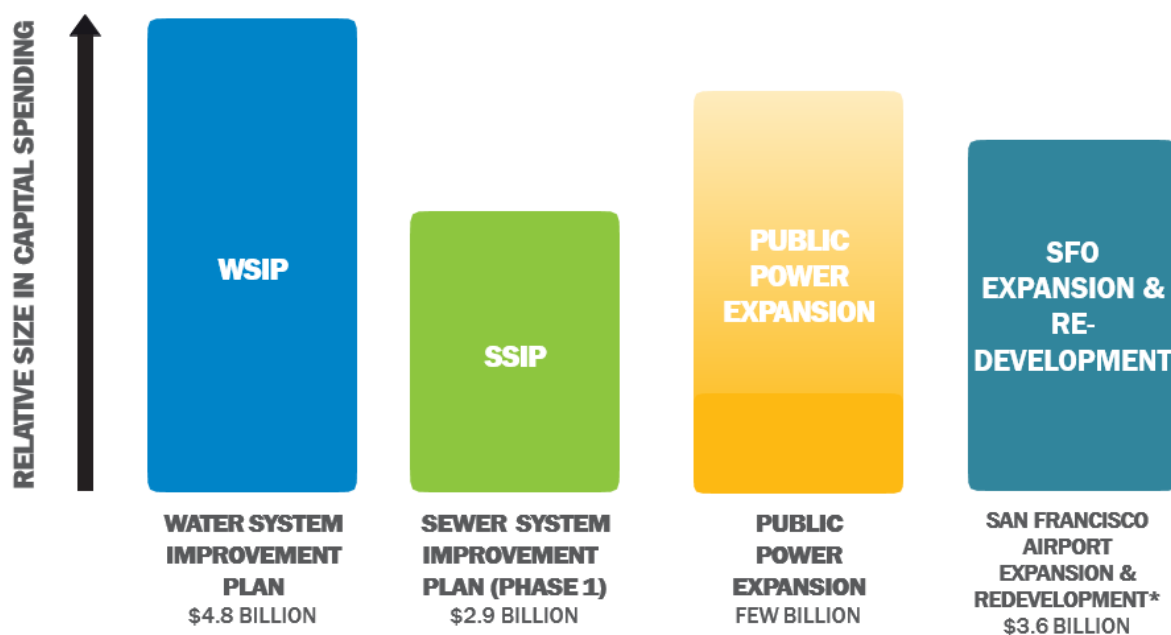
Under this option, the City would purchase PG&E's physical assets in and near San Francisco that are necessary for the City to expand its existing publicly-owned utility service to all of San Francisco, while enabling the City to provide clean, safe, reliable, affordable and sustainable service for all customers. Such assets would likely include PG&E's maintenance inventories, yards, and related equipment as well as PG&E's interconnections from the distribution grid to PG&E-owned transmission lines. The full set of PG&E assets to be included in the purchase will be determined to ensure that San Francisco's grid can be operated safely and reliably over the long term.

The costs of acquiring the PG&E assets to expand public power for full power independence, and the potential for reductions in operating costs compared to PG&E's, are necessarily only broad estimates at this time. With that said, it is likely that the fair market value is in the range of a few billion dollars. This estimate is based on an estimate of PG&E's current, unrecovered investment in distribution facilities in San Francisco (the current book value, represented by rate base). The estimate also includes adjustments for conservatism, additional facilities not covered in PG&E's distribution accounts, the City's start up and transition/scale-up costs, costs to fund the investments needed to separate PG&E's remaining system from the assets that are acquired, and to cover any stranded costs that may be required to avoid harm to PG&E's remaining ratepayers.

These assets would then be owned and operated by the City. The large capital investments needed to acquire PG&E assets would be revenue bond-funded by the SFPUC using its borrowing authority to prioritize direct investment in the modernization of electric infrastructure in San Francisco. The SFPUC's

reputation and access to the bond markets for the Water and Wastewater enterprises gives the Power Enterprise an advantage in accessing bond markets. While the required capital needed to acquire the assets would be significant – currently estimated to be in the neighborhood of a few billion dollars – it is comparable to capital outlays required by other significant utility system improvements and largescale services successfully implemented by the City. SFPUC’s nearly completed Water System Improvement Plan and its Sewer System Improvement Plan currently underway are two such examples of SFPUC programs. The San Francisco Airport Redevelopment and Expansion is an additional City department project with a similar capital outlay. The size of these projects relative to the capital that may be needed for public power expansion is shown in the graphic below.³²

CAPITAL SPENDING COMPARISON



*This includes San Francisco Airport’s terminal redevelopment and groundside projects.

The acquisition of such assets would be an expansion of the power services the City already provides through the SFPUC Power Enterprise, although the size, scale and cost of the transmission and distribution assets to be acquired from PG&E would be significant. As noted in the first section of this report, the SFPUC Power Enterprise, through Hetch Hetchy Power and CleanPowerSF, has a track record of safe, reliable, affordable and sustainable service. Together, they already meet nearly 80% of the City’s overall electric supply needs³³ (including balancing, market settlements, and meeting resource adequacy requirements). Hetch Hetchy Power already owns and operates transmission assets as well as some small distribution systems. The SFPUC has years of experience working with billing systems and ensuring

³²Staff’s preliminary findings are detailed further in Appendix D. WSIP and SSIP capital spending numbers can be found on the SFPUC website (<https://sfwater.org/>) and the SFO Expansion & Redevelopment capital spending can be found on the Capital Planning website (<http://onesanfrancisco.org/the-plan/transportation-enhancement-projects>).

³³ This includes balancing, market settlements, and meeting resource adequacy requirements.

quality customer care. Also, the safety and reliability issues related to Hetch Hetchy Power customers being interspersed along PG&E's grid will be eliminated. The City is currently reviewing the details of how such a substantial expansion would be managed as part of its study of the feasibility of this option.

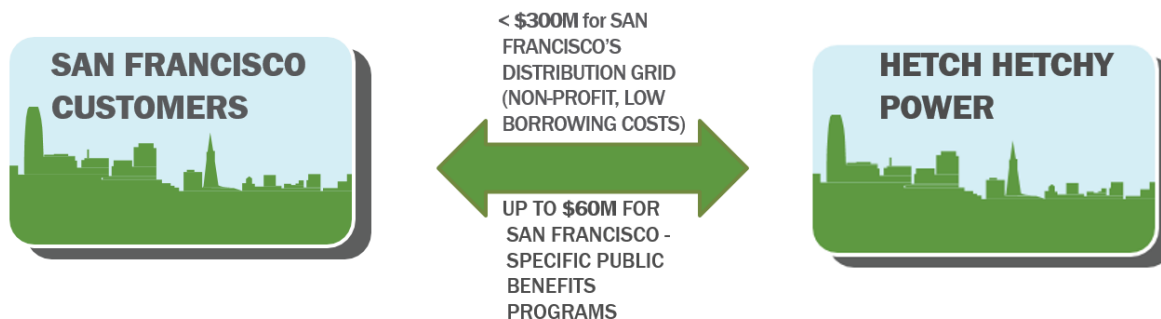
Long Term Durable Cost Savings

Acquiring PG&E's assets for full power independence requires the highest up-front capital need and will be time, staff, and resource intensive. At the same time, staff's initial analysis suggests that this option would likely result in the greatest long-term benefits including net cost savings:

- Acquisition of PG&E assets would eliminate the roadblocks, delays, and costs that the City faces currently when working with PG&E on service requests. The significant current staff resources and time spent on filing complaints with FERC and on disputes with PG&E would be directed to other purposes.
- Funding needs of approximately \$75 million for shareholder profits, taxes and borrowing costs will be significantly reduced.³⁴
- Additional savings are possible through higher operating efficiencies and lower compensation levels for executive management.
- Instead of about \$300 million (staff's preliminary estimate) in payments from San Francisco to PG&E to build, operate and upgrade its system throughout California, these funds could be re-invested in San Francisco to operate, maintain and improve a City-owned electric system or to provide better service or lower rates for San Franciscans.

As described earlier, removing reliance on PG&E would lead to reductions in funds flowing from PG&E to San Francisco. Such revenue includes PG&E's payments to San Francisco for property taxes, franchise fees, business taxes (gross receipts and payroll taxes), and charitable contributions. Staff estimates that these receipts do not exceed \$40 million per year.³⁵

YEARLY FUNDS FLOW FROM SAN FRANCISCO CUSTOMERS TO HETCH HETCHY POWER – INITIAL STAFF ESTIMATES



³⁴ The savings estimate of \$35 million/yr is based on PG&E's current CPUC-authorized cost of capital of 10%/year (including income tax multipliers, per PG&E's General Rate Case 2020-2022, Exhibit 10 workpapers) compared to the SFPUC's current cost of borrowing of about 5%/year (interest rate assumption used in the SFPUC's Ten Year Financial Plan, March 2019). These savings are approximate as the cost of borrowing for this transaction will vary from SFPUC's current costs based on the structure and bond rating of the transaction.

³⁵ See footnote 27, above, regarding the staff estimate of \$40 million/yr.

Transparency, Accountability, and Local Control

Due to local public oversight, City control over San Francisco's grid increases public transparency and accountability driving safe, reliable, and affordable service. Decisions would be made in public rather than in closed-door board meetings. Management, control and cost of electric services provided to San Francisco would shift away from PG&E executives and board members answerable to large investors. Instead, management and control would be provided by San Francisco policy and decision makers accountable to ratepayers and voters. The California Public Utilities Commission would no longer have oversight, and state laws which establish reliability regulations and renewable content minimums would continue to apply. The table below summarizes how transparency and accountability come into play for all three options.

CONSIDERATIONS FOR SAN FRANCISCO'S ELECTRIC GRID AND RELATED CLIMATE ACTION GOALS

GRID CONSIDERATION	LIMITED INDEPENDENCE	MORE INDEPENDENCE	FULL INDEPENDENCE
Public Funds Flow To PG&E to Build Out Its Grid in San Francisco	Yes	Yes With some reductions	No Funds are used only for public ownership and investment in San Francisco's Grid
Use of Public Funds for Unnecessary Grid Facilities	In some cases	In some cases	None
Decision Making and Grid Control	PG&E	PG&E	San Francisco
Oversight, Accountability and Rate Setting	California Public Utilities Commission	California Public Utilities Commission	San Francisco voters, Board of Supervisors, Mayor
Achievement of San Francisco's climate action goals	Subject to PG&E cooperation	Subject to PG&E cooperation	Driven by San Francisco
CleanPowerSF	Continues	Continues	Fully integrated

A March 2019 poll found that nearly 70 percent of San Francisco voters support the City in acquiring PG&E's electrical system serving the City and are in favor of the SFPUC delivering public power.³⁶ The reasons cited by poll respondents include more affordable rates, increased accountability, and better service. Many residents also noted SFPUC's 100-year history of providing greenhouse gas-free electricity as an additional reason for their support.

³⁶ Public poll findings. <https://sfmayor.org/node/18282>.

The SFPUC process for rate setting, as a public entity, is more transparent and provides increased opportunity for civic engagement and oversight by local customers. Pursuant to Section 8B.125 of the City Charter, the SFPUC conducts a transparent, public rate setting process, guided by principles set in a publicly-vetted rates policy, with multiple well-publicized opportunities for the public to comment. The agency conducts an independent cost of service study at least every 5 years. This study informs a rate plan proposed by SFPUC staff to the Rate Fairness Board. The Rate Fairness Board, comprised of SFPUC customers and other appointees, conducts public hearings to review the proposed rate plans, providing recommendations to ensure affordability, stability, and fairness.³⁷ The Rate Fairness Board advises the SFPUC Commission on the proposal. The SFPUC Commission, after a 30-day notice period, considers the proposed rate plan and Rate Fairness Board advice in a public hearing. Once the SFPUC Commission adopts a rate plan, the rate plan is referred to the Board of Supervisors, who may reject the rates within 30 days. Typically, hearings and associated public comment opportunities are conducted at City Hall. A large service expansion may require changes to the rate-setting process, an issue that will be considered further as the City continues its analysis.

In contrast, PG&E's electric rates and terms of service are subject to approval by the California Public Utilities Commission ("CPUC"). Rates are set for PG&E's entire system, with bill impacts variable across the wide range of climate zones and usage patterns within PG&E's broad service territory. Over time, the CPUC's rate setting proceedings have become numerous³⁸, complex and time consuming, with many proceedings running for several months or years. The number of proceedings running concurrently but on different time schedules results in multiple rate changes each year (up and sometimes down). Intervention by stakeholders often requires engagement of legal and technical advisors and review and assessment of hundreds of pages of documentation. While ratepayer advocacy groups, and often, the City, actively participate in these proceedings to represent the interests of residential customers and small businesses, their staffing and funding levels are far below those available to PG&E.

As described above, electric customers in San Francisco send about \$60 million per year to PG&E to fund "public purpose programs." Public power expansion provides the opportunity for the City to significantly increase its own program offerings, and to align those programs with San Francisco's legislative priorities and policies, such as the GHG target of net zero emissions by 2050 and electrification of transportation. Neither of these goals is likely to succeed without significant implementation of distribution-grid-based solutions (see examples in the sidebar below). Additionally, programs designed by the City would better reflect the desires of San Franciscans, as community engagement and feedback will be paramount in the development of new programs or policies. This is mandated by SFPUC's "Good Neighbor" policies, which have been implemented across the Water, Power and Wastewater Enterprises.

As the City continues to redevelop and refresh its built environment, San Francisco's electric infrastructure will need to undergo expansion and modernization. Removing our reliance on PG&E gives the City the opportunity to control how San Francisco's grid is modernized and built out to take advantage of rapid program and technology innovation.

³⁷ Rate Fairness Board website. <https://sfwater.org/index.aspx?page=120>.

³⁸ PG&E listed 14 CPUC proceedings related to its electric businesses as currently active in a PG&E 3rd Quarter Earnings Release and Conference Call. PG&E lists many more CPUC proceedings in its website index <https://pgera.azurewebsites.net/Regulation/search>.

Climate Action and Support to City Priorities

Public power expansion will also help the City meet its aggressive climate action goals. Reaching the City's goal of 100% greenhouse- gas-free ("GHG-free") electricity supplies by 2030 is more difficult if PG&E continues to maintain and own San Francisco's electric distribution grid. According to their most recent Integrated Resource Plan filings, Hetch Hetchy Power supplies are 100% GHG-free³⁹ and CleanPowerSF supplies are at least 80% GHG-free for its "Green" product and 100% GHG-free for its "SuperGreen" product,⁴⁰ With full independence from PG&E, Hetch Hetchy Power and CleanPowerSF supplies will extend to reach all San Francisco residents and businesses, and both have a track record and plans to continue to be cleaner than PG&E's standard supply content. Beyond supply content, however, grid control can accelerate the efficient use and distribution of those supplies. Without PG&E delays and technical requirements, the City can more quickly support solar, storage, electric-vehicle charging, and other grid-connected assets and initiatives. Moreover, local decision making on grid modernization will help to ensure that the climate action strategies and customer programs that are most relevant and applicable to San Francisco's characteristics are what is funded with dollars from San Francisco customers. See the sidebar with further examples.

SUSTAINABILITY BENEFITS OF LOCAL GRID CONTROL

- **Sharing of City-owned GHG-free power across SF**
- **Flexibility for installation of electric vehicle charging stations**
- **Integration of energy storage solutions**
- **Building-to-building energy management**
- **Expanded shoreside power to reduce cruise ship emissions**

In addition to supporting achievement of the City's climate action goals, removing reliance on PG&E means that other City-wide initiatives will no longer be subject to PG&E's delays and requirements and the resulting impacts on the City's provision of essential services. The City will be able to move affordable housing projects more quickly, as PG&E has made the process for requesting both temporary construction power and permanent power for these new developments very challenging. Schools, parks, and recreation centers will no longer have to install expensive oversized equipment that is not necessary for reliability or safety.

Potential Rate Reductions for Customers

While further analysis is needed, in particular with regard to a purchase price that PG&E would accept, expansion of public power across San Francisco offers the potential for significant cost savings for

³⁹ Hetch Hetchy Power's 2018 Integrated Resource Plan Compliance Filing.

⁴⁰ CleanPowerSF's 2018 Integrated Resource Plan Compliance Filing,
<https://sfwater.org/Modules/ShowDocument.aspx?documentid=12815>.

customers. As shown in the table below,⁴¹ PG&E's rates are high relative to other utilities in California, and the largest public power utilities in California have consistently reported rates much lower than PG&E's rates. Nationally, PG&E's rates are amongst the highest of its for-profit peer utilities. At first look, it is likely that PG&E's rates are high both because of profits and income taxes included in rates, and because its operating costs exceed the norm. This likely leaves room for operating cost reductions, with no loss in service quality. If PG&E's cost structure and rates were reduced to match those of its California peers, rate reductions of up to 25% could be achievable. Expected and actual rate reductions will depend on many factors, including the purchase price of the assets, related up-front costs such as separation and transition costs, and allocation of potential savings to provision of service improvements and rate reductions.

PG&E's rates have increased more than 7% per year on average from 2014-2018, and its most recent rate increase request shows costs increasing at that pace or faster through 2022.⁴²

Removing reliance on PG&E and having power independence would likely improve energy rate stability, protecting San Franciscans from rate volatility caused by future poor performance by PG&E, repeat PG&E bankruptcy proceedings, and rate-setting processes at the California Public Utilities Commission that allow for multiple changes per year. In addition, with the ability to set our own rates, SFPUC could develop more responsive rate designs that meet the unique affordability needs of San Franciscans, particularly those that may be low-income or energy burdened but do not qualify for existing PG&E discount programs.

The following table shows comparative statistics as reported for by the United States Energy Information Administration for 2017 for California's six largest utilities (three privately-owned and three publicly owned) and also for three other nearby publicly-owned utilities (Modesto Irrigation District, Turlock Irrigation District, and the City of Palo Alto), in terms of size measured by sales in MWh, number of accounts, and annual sales revenues in dollars. From these data, EIA also reports revenues in \$/kWh, which also translates to rates charged to customers in \$/kWh. The utilities are ranked here by sales revenues. For this sample, PG&E and SDG&E have the highest rates, while all of the others have rates that are substantially lower, even though most are significantly smaller.

⁴¹ Administration (EIA) data sets available at the following webpage:

<https://www.eia.gov/electricity/data.php#sales>.

⁴² See PG&E's Annual Electric True Up (AET) filings with the CPUC for year-over-year rate increases. See PG&E's recent General Rate Case filings, Application A.18-12-009) for proposed rate increases 2020-2022, available here: <https://pgera.azurewebsites.net/Regulation/search>. See for example Testimony Chapter 1, Table 2-2, pages 2-7.

CALIFORNIA UTILITY EXAMPLES (FROM US EIA 2017 DATA)

Utility Name	Ownership	Sales	Customer	Revenues	2017 Revenues \$/kWh*
		Million MWh	Count	Billion Dollars/yr	
Pacific Gas & Electric Co. (PG&E)	Shareholders	82.6	5,500,000	\$14.5	\$0.18
Southern California Edison Co.	Shareholders	84.3	5,000,000	\$11.5	\$0.14
Los Angeles Department of Water & Power	Public	22.7	1,400,000	\$3.6	\$0.16
San Diego Gas & Electric Co.	Shareholders	19.0	1,400,000	\$3.5	\$0.18
Sacramento Municipal Utility District	Public	10.8	600,000	\$1.4	\$0.13
City of Santa Clara (Silicon Valley Power)	Public	3.5	55,000	\$0.4	\$0.11
Modesto Irrigation District	Public	2.6	120,000	\$0.4	\$0.15
Turlock Irrigation District	Public	2.0	100,000	\$0.3	\$0.15
City of Palo Alto (<i>roughly the same MWh/yr as HHP today</i>)	Public	0.9	30,000	\$0.1	\$0.11

Applying the same metrics to Hetch Hetchy Power, under the expanded, "full independence" scenario, places it as the sixth largest electric utility serving California customers.

Hetch Hetchy Power "Full Independence" Scenario	Public	5.7	320,000	0.5-0.7	TBD**
--	--------	-----	---------	---------	-------

*For 2017: PG&E average revenue (rate) is \$0.18/kWh (bundled and delivery-only sales combined), \$0.20/kWh (bundled only). Across California utilities reporting (shareholder and public) California average bundled revenue (rate), excluding PG&E is \$0.15/kWh (weighted by volume). Potential savings should PG&E rates drop to California peer averages is 25%, using bundled sales only for peer-to-peer comparisons.

**The additional revenues for Hetch Hetchy Power under the "full independence" scenario are preliminary staff estimates and exclude supply revenues collected by CleanPowerSF for power supplies. See Appendix D notes for further detail.

Workforce Opportunities

Public power expansion will also create unique opportunities for the City in labor and workforce development. The City will need additional resources to help operate and maintain the acquired electrical infrastructure and to administer San Francisco-specific customer and community benefits programs. As part of the acquisition process, PG&E's existing workforce serving San Francisco would be a valuable resource to the City. Recruiting PG&E workers with knowledge of San Francisco's electric system and customer base can help to ensure a smooth transition with long-term safety and service reliability in mind. Such migrations of the workforce are commonplace in mergers of companies and public services, or other municipalization processes.

The City would seek to offer attractive compensation packages to these employees. Moreover, the work culture at the SFPUC strives to empower workers to share insights on safety concerns and efficiency

improvements. The SFPUC “community-owned” public service culture values and welcomes workforce input.

In a full power independence scenario, infrastructure projects required to maintain or upgrade the electric system will trigger San Francisco’s local hire policies, and further contribute to workforce development and employment opportunities for residents of San Francisco. The SFPUC complies with these policies and also offers innovative programs to ensure that infrastructure projects are platforms for career development and pathways for the long term economic stability of the City’s residents, including those traditionally marginalized.⁴³

Service with Attention to Equity

The City will evaluate the equity implications of a power independence business scenario. The evaluation will attempt to:

- 1) Understand any possible disproportionate impacts to communities and residents of San Francisco, and to ratepayers across the broader state, that could arise from the transfer of PG&E electric system assets to the City, and;
- 2) Factor into the overall analysis the benefits of scaling the robust community benefits and environmental justice programming for which SFPUC has a record of success.

The SFPUC understands that retail electricity service providers are entrusted with a service critical to basic human well-being, and that residents deserve equal and high-quality service regardless of their neighborhood, income, culture or race. An equity framework serves as a critical tool for evaluating potentially disproportionate impacts across a service area.

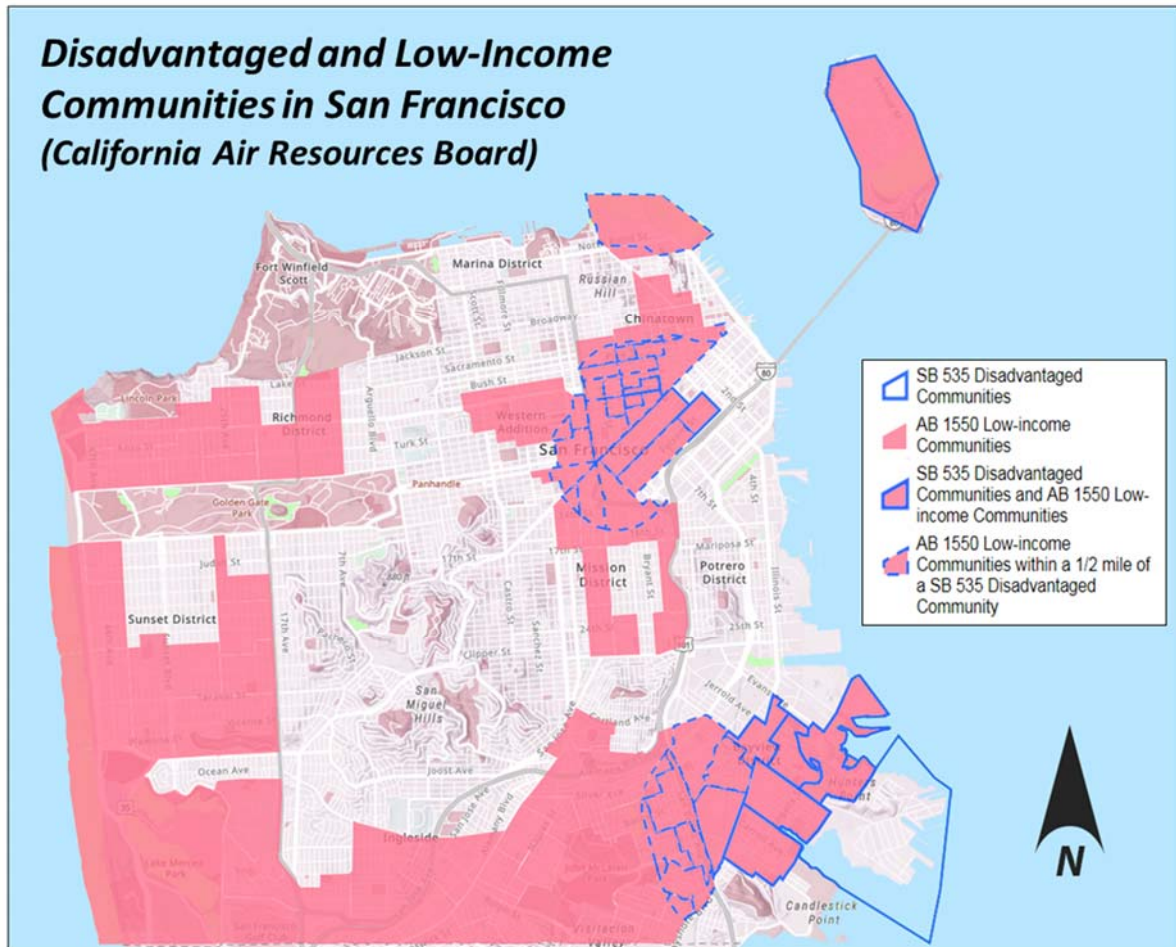
The City believes in the fair treatment of people of all races, cultures, and incomes and that no one group of people should bear a disproportionate share of negative environmental or economic consequences resulting from electrical operations, programs, or policies. To that end, the City is committed to preventing, mitigating, and lessening disproportionate impacts of activities on communities impacted by electrical operations. The City understands that policies and programs that focus on the needs of the most vulnerable ultimately benefit all people and that considering issues of equity makes great business sense.

This concept of equity is enforced and applied at the SFPUC directly through its Environmental Justice Policy (Resolution No. 09-0170) and Community Benefits Policy (Resolution No. 11-0008).⁴⁴ Additionally, the SFPUC has applied federal and local disadvantaged communities definitions⁴⁵ which provides a framework for evaluating the equity implications of business scenarios discussed in this analysis.

⁴³ Office of Employment and Workforce Development 2017-28 Annual Report. San Francisco’s Project Labor Agreement further supports these career pathways.

⁴⁴ SFPUC Environmental Justice Policy. <https://sfwater.org/modules/showdocument.aspx?documentid=3686>. SFPUC Community Benefits Policy. <https://sfwater.org/modules/showdocument.aspx?documentid=3676>.

⁴⁵ California Air Resources Board’s map which identifies Disadvantaged Communities (as defined by SB 535), Low-Income Communities (as defined by AB 1550), and an additional layer that includes Low-Income Communities that



*State Designated Disadvantaged and Low- Income Communities in San Francisco (taken from the California Air Resources Board website).

Equity Goals & Process

Whenever the SFPUC engages in new service delivery, it strives to develop an understanding of the equity implications with the intention to inform future decision making and proceedings. As the first step in examining the equity implications of a power independence scenario, the City identified and is exploring the following areas of assessment:

1. Equity Focused Governance & Policy
2. Affordability
3. Workforce
4. Asset Management
5. Neighborhood Revitalization
6. Environmental Impacts & Climate Resilience

are also within 1/2 mile of a Disadvantaged Community.

(<https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm>).

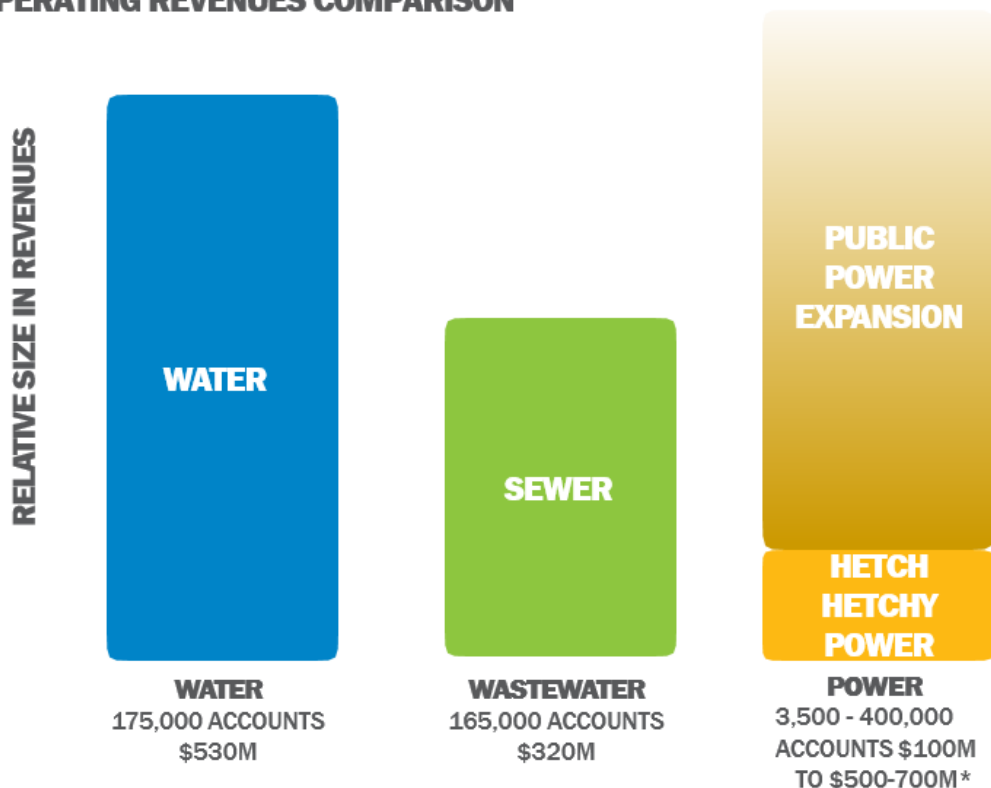
7. Customer & Community Programs
8. SFPUC Community Investments vs. PG&E Charitable Giving
9. Community Engagement

Further equity analysis will (i) identify any potential disproportionate negative environmental or economic consequences, (ii) evaluate the SFPUC's track record for equity programming, and (iii) highlight opportunities for continuous improvement around equity within our electric service and across the agency.

Public Power Expansion/Full Independence Comes with Risks

Purchasing the electric distribution in San Francisco is a large and complex undertaking. Successful transition of the on-going operations and maintenance responsibilities currently provided by PG&E is critical to the health and well-being of San Francisco businesses, residents, and economy. The expansion would represent significant revenue (and cost) growth for Hetch Hetchy Power.

OPERATING REVENUES COMPARISON



*See Appendix D for detail.

The transition from PG&E to City control would likely take many years and the full benefits will not be realized until the transition is complete. There are significant risks and key analytical questions that must be answered to evaluate the ability and efficacy of the City moving forward on this path:

- *Condition of Assets and Costs to Upgrade and Maintain Them* – The condition of PG&E assets to be acquired is largely unknown. Estimates of a fair purchase price and the costs of needed

improvements and modernization are currently uncertain. Prior to finalizing the purchase price, the acquisition process would include a thorough asset condition assessment and best practices review by outside experts. Near-term maintenance and upgrade needs would likely impact the purchase price. With PG&E's cooperation, these assessments could be comprehensive and move quickly. Moreover, whether future upgrades are built and operated by PG&E or built and operated by San Francisco, San Francisco residents and businesses will bear the costs of future grid improvements.

- *Specification of Assets* – It is not yet known which specific assets have the highest benefit relative to cost, and whether the physical separation of specific assets from PG&E's system is technically feasible and affordable while ensuring safe and reliable service. Moreover, the impacts on PG&E's remaining customers because of separation would need to be considered. These elements require further engineering study.
- *Workforce* – Electric utilities across the nation are facing a shortage in skilled professional and craft workers. The City would face similar challenges in recruitment and retention to meet the needs of public power expansion. New job classifications would need to be created to meet staffing needs. Existing classifications would need to be re-assessed to ensure that the City stays competitive in the job market while maintaining fair hiring processes. The City would require additional analytical and human resources support to ensure these change processes were appropriately implemented and to ensure a smooth transition and attractive compensation packages for employees that transfer from PG&E.
- *Costs and Rates* – Although preliminary analysis suggests net cost savings and the ability to reduce rates for San Francisco customers, such analysis is not yet complete. The City needs to complete this work rigorously. The cost of acquiring, updating, operating, and maintaining the assets over the long term needs to be determined to identify whether the acquisition makes sense from a financial and risk perspective. In turn, the likely cost of service needs to be evaluated under a range of future scenarios so that San Franciscans can reliably expect rates to be affordable.
- *Operational Systems and Technologies* – Expanding Hetch Hetchy Power's service to all of San Francisco would require integration of PG&E's operational systems. This would be a large undertaking as the City and PG&E rely on different types of systems and technologies, such as the software used to process energy data, deploy work crews, and perform billing operations. Systems would need to be re-evaluated and re-scoped in areas such as energy forecasting; meter data management; energy scheduling and settlements; monitoring and controlling the distribution system for safety, security and reliability; dispatching; customer support and billing; and procurement.
- *Organizational Capacity* – Expansion of SFPUC's power operations would have an impact on the SFPUC as well as other City departments that work with the SFPUC on issues such as budgets, funding, legal, and human resources issues. The City would need to engage in careful analysis and planning to identify potential adverse effects, understand impacts, and ensure adequate investments and operational steps to readiness.

- *Emergency Response* – With more distribution assets under management, SFPUC Power would need to have greater capability to respond to outages and other power-related disturbances. Outages and emergencies have a significant impact on reliability, and on health and safety. It is critical that the SFPUC engage the needed planning, organizational, equipment, and training resources to respond effectively on a consistent basis. A robust 24/7 control center for monitoring, operating, and controlling the power system to provide high quality, reliable service to the City’s residents and businesses would likely be required. The City would also need to update and expand its regional, state, and national mutual aid agreements.
- *Equity* - The City is also assessing the equity implications of purchasing PG&E assets to ensure that no one group of people bears a disproportionate share of the potential benefits, or the negative environmental or economic consequences resulting from the operation of the larger system. This sentiment is reflected in SFPUC’s record of making business decisions to invest in the needs of all San Franciscans, particularly the City’s most vulnerable or impacted communities. The City needs to be prepared to address any possible disproportionate impacts to communities and residents of San Francisco that could arise from the potential exit of PG&E’s electric services in the City.

Below is a summary of initial findings that have been presented throughout the report.

Power Independence: Considerations and Initial Fact Finding

Power Independence: Qualitative Considerations Identified to Date	Initial Staff Fact Finding and Preliminary Estimates of Potential Benefits and Costs
1. The SFPUC is not-for-profit and benefits from low borrowing costs.	Potential for \$35 million/year in savings if PG&E profits and borrowing costs are reduced by half through substitution of the SFPUC’s lower cost of capital.
2. Even beyond profits and borrowing costs, other elements of PG&E’s cost structure are well above the norm, indicating significant potential for rate reductions through public ownership and operation.	Rate reductions of about 25% are achieved if PG&E’s full service revenues (and rates) are reduced to California peer averages.
3. The SFPUC’s ongoing costs for PG&E wholesale delivery services will be substantially reduced.	San Francisco currently pays PG&E \$10 million/year in distribution service fees to PG&E, and is likely to pay \$25-\$100 million/year in excess facilities costs (with significant annual variability) for customer interconnections in San Francisco.
4. San Francisco’s public power revenues collected from customers are reinvested locally	Up to about \$60 million/year redirected to local investment, pending further review of PG&E program spending and City ability to substitute comparable programs.
5. San Francisco as a public power provider is accountable to its local residents and businesses.	Improvement in our ability to meet our local sustainability goals while providing safe and reliable service, through local decision making and local accountability.
6. San Francisco is well-positioned for success as this	The SFPUC and Power Enterprise, through Hetch Hetchy

acquisition is an <u>expansion</u> of its existing public power service.	Power and CleanPowerSF, have a track record of safe, reliable, affordable and sustainable service.
7. An expansion of this scale brings risks relating to workforce needs, operating system needs, regulatory obligations, emergency response, and potential for adverse impacts across other city departments and agencies	<i>No initial staff estimate at this time</i> The City will review the impact of an acquisition on municipal services and develop detailed transition plans prior to a final purchase commitment.
8. Costs will be incurred to upgrade and modernize San Francisco's grid over the long term	<i>No initial staff estimate at this time</i> Needs further assessment of PG&E's assets and their modernization needs going forward; purchase price will vary with asset condition. Whether built and operated by PG&E or built and operated by San Francisco, San Francisco residents and businesses will bear the costs of future grid improvements.
9. Separation of PG&E assets acquired from PG&E's system needs to be technically feasible and affordable, and have impacts on PG&E's remaining customers that can be addressed	<i>No initial staff estimate at this time</i> Needs further engineering study to optimize assets to be acquired for highest benefit relative to cost (including system separation costs) while ensuring safe and reliable service.
10. Payments received by San Francisco from PG&E's property taxes, franchise fees, gross receipts and payroll taxes, and charitable contributions will be reduced	Loss of up to \$40 million per year currently paid by PG&E to San Francisco for these purposes (includes portions tied to gas services). Actual revenue loss needs further assessment of extent of reductions specific to the assets to be acquired and replacement of funds from other sources.
The considerations above are relative to the limited independence scenario, where San Francisco continues to make substantial payments to PG&E for use of PG&E-owned grid facilities in San Francisco.	Nearly \$360 million per year flowing from San Francisco's PG&E customers to PG&E, with additional City costs for service connections, construction of unneeded facilities, and continued service disputes with PG&E.

Recommended Next Step: Continue to Evaluate Public Power Expansion

Acquiring PG&E's electric delivery facilities in San Francisco provides the most assurance of durable, long term costs savings; timely and cost efficient modernization of the grid as the City improves its existing and new facilities; and alignment of expenditure of funds customers are paying for electric service with San Francisco priorities on affordability, clean energy, safety, reliability, workforce development and equity, with maximum community engagement and accountability. It also comes with risks, and demonstrating feasibility and the expectation of long-term success requires further review and analysis. Before offering a fair price for a specific set of PG&E delivery assets, the City will assess which assets to purchase, the current condition and modernization needs of those assets, system severance costs, start-up costs, and ongoing operating and maintenance costs, while preparing a full identification of the risks and mitigation strategies to reduce those risks. The City will also need to assess its readiness for expansion and develop a transition plan for providing electric service throughout the City to all customers.

V. CONCLUSION

San Francisco must have a safe and dependable power grid as a world economic leader and home to nearly 900,000 people. The City should not tolerate unnecessary impediments to meeting our City's goals. Mayor Breed observed that recent wildfire tragedies and PG&E's declaration of bankruptcy raise serious concerns about the safe and reliable delivery of essential services to San Francisco businesses and residents.⁴⁶ As stated in Governor Newsom's Strike Force Report released in April 2019, "PG&E's decision to voluntarily seek the protection of a chapter 11 bankruptcy court punctuates more than two decades of mismanagement, misconduct, and failed efforts to improve its safety culture."⁴⁷

The City and County of San Francisco has been delivering safe, affordable, and reliable 100% GHG free power for over 100 years via the SFPUC. Our struggle to increase our power independence from PG&E has lasted just as long. Because PG&E acts as a corporate competitor in serving San Francisco customers, its strategy has been to leverage its ownership of assets to deny the City's right to serve customers or impose requirements on the City to make City service more expensive and difficult. Our historical reliance on PG&E-owned assets has been untenably costly to our delivery of services and to climate action. Unnecessary delays and requirements imposed by PG&E are costing the City millions that could otherwise be invested in delivering public programs. Annual transfers from the City to PG&E are in the tens of millions of dollars, a significant portion of which buttress PG&E's shareholder profits. San Francisco's reliance on PG&E means longer usage of non-GHG-free power sources and slower implementation of innovative grid initiatives such as solar and electric vehicle charging installations.

The City has and will continue to seek to remedy this situation and increase our independence from PG&E through targeted investments, launch of new programs that support clean power, and regulatory and legal recourse. However, today the City is faced with a unique and historic opportunity to change the dynamic that it has struggled with for many years. The City's desire to exercise control over electric service to improve reliability, affordability, and sustainability – coupled with PG&E's financial uncertainty – provides an opportunity to expand public power for full independence and remove the cost and resource burdens of reliance on PG&E.

The transition from PG&E to City control would likely take several years and the full benefits would not be realized until the transition is complete. There are significant risks and key analytical questions that must be answered to evaluate the ability and efficacy of the City moving forward on this path. These include which specific PG&E assets would be acquired and their condition, challenges in workforce recruitment and retention, and assuring that rates for customers would be affordable and stable. Moreover, the City must address equity considerations and any possible disproportionate impacts to communities and residents that could arise from the potential exit of PG&E's electric services in the City.

This preliminary report demonstrates that public ownership of San Francisco's electric grid has the potential for significant long-term benefits relative to investment costs and risks. Initial analysis suggests

⁴⁶ Letter to General Manager Harlan L. Kelly, Jr. of the San Francisco Public Utilities Commission, January 14, 2019 – please see Appendix A.

⁴⁷ "Wildfires and Climate Change: California's Energy Future," A Report from Governor Newsom's Strike Force, April 12, 2019, pp. 44-45: <https://www.gov.ca.gov/wp-content/uploads/2019/04/Wildfires-and-Climate-Change-California%E2%80%99s-Energy-Future.pdf>.

likely net cost savings over the long term as well as rate stability and affordability, and possibly even rate reductions for customers. Reaching the City's goal of 100% greenhouse- gas-free electricity supplies by 2030, as well as other critical City goals on affordable housing, are much more likely without PG&E ownership of San Francisco's electric distribution assets. PG&E's existing workforce would be welcomed into SFPUC's "community-owned" public service culture where insights on safety and efficiency are encouraged and utilized. Local hiring and new career opportunities for traditionally marginalized communities would also be increased.

Policy-makers and technical experts throughout San Francisco City government are actively focused, cooperating and coordinating to make further progress on understanding the costs and feasibility of acquiring PG&E's electric distribution facilities that serve San Francisco. Our guideposts remain the best interests of City taxpayers and electric customers, climate progress, and equity impacts. This report has presented fact-finding thus far and the historical context in order to lay the foundation for future decisions and possible investment of significant public funds.

Appendix A – Mayor Breed’s Letter to the SFPUC

OFFICE OF THE MAYOR
SAN FRANCISCO



LONDON N. BREED
MAYOR

January 14, 2019

Harlan L. Kelly Jr., General Manager
San Francisco Public Utilities Commission
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102

General Manager Kelly,

Over the past several years, a series of troubling issues have raised significant questions about the future of Pacific Gas & Electric (PG&E). The recent tragedies of the Northern California wildfires, departures of PG&E’s Chief Executive Officer and senior executives, and the company’s movement towards bankruptcy raise serious concerns about their ability to safely and reliably deliver services essential to the people of San Francisco.

The City, through the San Francisco Public Utilities Commission (SFPUC), has a proven 100-year track record of responsibly managing a large-scale power system that delivers clean Hetch Hetchy power. Yet, we rely on PG&E infrastructure to transmit and distribute energy to our customers. We must also work with PG&E to transmit and distribute energy available through our CleanPowerSF program, which by next April is set to have more than 360,000 accounts enrolled throughout San Francisco.

San Francisco will not continue to be a global economic leader without a dependable and clean power grid. We also need a dependable grid to meet our City’s aggressive climate goals, which include transitioning our buildings and transportation sectors off dirty fossil fuels. I believe San Franciscans share these views as evident by their approval of Proposition A in June 2018. This measure now allows the SFPUC to issue revenue bonds for facilities to produce and deliver clean power, creating thousands of well-paying union jobs in the process.

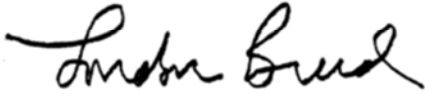
With these considerations in mind, I am requesting that the SFPUC prepare for the potential ramifications of PG&E’s current instability by performing a detailed analysis of the current health of the electrical network and a robust feasibility study on the various potential outcomes, along with engaging with the appropriate state legislative and regulatory bodies. The analysis should evaluate all options, including the possibility of acquiring or building electrical infrastructure assets.

Within the next three months, I request that the agency issue a preliminary report on its findings along with a timeline for completing the more detailed analysis and recommendations. I look forward to seeing the results of this work and collaborating with the SFPUC, the City Attorney’s

1 DR. CARLTON B. GOODLETT PLACE, ROOM 200
SAN FRANCISCO, CALIFORNIA 94102-4681
TELEPHONE: (415) 554-6141

Office, and our Board of Supervisors on this critical and urgent issue.

Sincerely,

A handwritten signature in black ink, appearing to read "London Breed". The signature is fluid and cursive, with the first name "London" and last name "Breed" clearly distinguishable.

London N. Breed
Mayor

Appendix B – San Francisco Board of Supervisors Resolution No. 174-19

FILE NO. 190367

RESOLUTION NO. 174-19

1 [Requesting the San Francisco Public Utilities Commission to Report on Options for Improving
2 Electric Service through Acquisition, Construction, or Completion of Public Utility]

3 **Resolution determining that the public interest and necessity require changing the**
4 **electric service provided in San Francisco; and requesting a report from the San**
5 **Francisco Public Utilities Commission, under Charter, Section 16.101, on options for**
6 **improving electric service in San Francisco through acquisition, construction or**
7 **completion of public utility or utilities.**

8
9 WHEREAS, The Board of Supervisors seeks to ensure reliable, safe, affordable, clean
10 electric service to all customers in San Francisco from a utility that is responsive to the needs
11 of its customers; and

12 WHEREAS, Pacific Gas & Electric Company's (PG&E) history raises questions about
13 whether the utility has the ability and commitment to provide such service; recent examples
14 that cause concern include the following:

- 15
16 i. PG&E's safety violations in its electric and gas operations have caused
17 significant suffering, loss of life, and damage to property;
18 ii. PG&E's repeated failure to meet the obligations and manage the risks of its
19 business while remaining financially healthy, as demonstrated by PG&E's
20 current voluntary bankruptcy, its voluntary bankruptcy in 2001, and the
21 bankruptcies of several affiliates in 2003;
22 iii. PG&E's failure to provide safe and reliable electric service in San Francisco over
23 many years, including a major power outage in December 1998, three fires at
24 the Mission Substation between 1996 and 2003, and several incidents of
25 underground explosions throughout the City;

- 1 iv. PG&E's primary focus on financial performance and public image and its failure
2 to develop an effective safety culture, as found in two reports prepared for the
3 California Public Utilities Commission;
- 4 v. PG&E's retail rate increases that make its electric service among the most
5 expensive in the nation, with more increases expected as a result of the
6 bankruptcy; and
- 7 vi. PG&E's consistent use of its monopoly status to delay, prevent, and increase
8 the cost of the wholesale service it is required to provide to the City under a tariff
9 approved by the Federal Energy Regulatory Commission, resulting in service
10 delays and increased costs to critical City facilities—including public schools,
11 affordable housing, health care facilities, streetlights and traffic controls, the
12 Port, and basic city infrastructure—and the disruption of services provided to the
13 public; and

14

15 WHEREAS, Article XI, Section 9 of the California Constitution grants cities the right to
16 supply electricity if they choose to do so; and

17 WHEREAS, The City has been operating an electric utility since 1918, and has
18 considered several times expanding service to all customers in San Francisco, as envisioned
19 by the Raker Act (Pub. L. No 41, 38 Stat. 242 1913), which granted the City the right to
20 develop the Hetch Hetchy clean water and hydropower resources for the benefit of the people
21 of San Francisco; and

22 WHEREAS, For more than 100 years, San Francisco has been producing 100%
23 greenhouse gas-free electricity to power our essential city services: hospitals, parks, schools,
24 airport, public housing, and other city properties; and

25

1 WHEREAS, In 2016, despite years of opposition funded by PG&E, San Francisco
2 launched CleanPowerSF, to provide clean renewable energy to residents and businesses,
3 another incremental step toward energy independence; and

4 WHEREAS, According to climate scientists, we must take immediate steps to make the
5 difference between catastrophe and a clean new future and cut carbon pollution in half within
6 11 years; and

7 WHEREAS, The electric power sector is the largest contributor to U.S. global warming
8 emissions and currently accounts for approximately one-third of the nation's total emissions.
9 Natural gas, while producing lower emissions than coal or oil when used, nonetheless
10 generates high levels of air pollution and other environmental impacts through extraction and
11 production; and

12 WHEREAS, In a January 14, 2019 letter, on file with the Clerk of the Board of
13 Supervisors in File No. 190367, Mayor Breed asked the San Francisco Public Utilities
14 Commission (SFPUC) to evaluate in a preliminary report all options for changing how electric
15 service is provided to ensure a safe, clean and dependable power grid; and

16 WHEREAS, Section 16.101 of the Charter states: "It is the declared purpose and
17 intention of the people of the City and County, when public interest and necessity demand,
18 that public utilities shall be gradually acquired and ultimately owned by the City and County.
19 Whenever the Board of Supervisors, as provided in Sections 9.106, 9.107 and 9.108 of this
20 Charter, shall determine that the public interest or necessity demands the acquisition,
21 construction or completion of any public utility or utilities by the City and County, or whenever
22 the electors shall petition the Board of Supervisors, as provided in Sections 9.110 and 14.101
23 of this Charter, for the acquisition of any public utility or utilities, the Supervisors must procure
24 a report from the Public Utilities Commission thereon"; now, therefore, be it
25

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

RESOLVED, That the Board of Supervisors determines that the public interest and necessity require changing the electric service provided in San Francisco, and these changes may include the acquisition of PG&E's electrical system serving San Francisco, construction of new facilities by the City, or completion of the City's own electric system; and, be it

FURTHER RESOLVED, That the Board of Supervisors requests a report from the SFPUC within 45 days of this Resolution to help City policymakers and the public understand and evaluate the City's options.



City and County of San Francisco

**Tails
Resolution**

City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

File Number: 190367

Date Passed: April 09, 2019

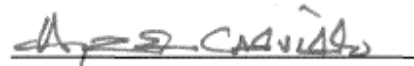
Resolution determining that the public interest and necessity require changing the electric service provided in San Francisco; and requesting a report from the San Francisco Public Utilities Commission, under Charter, Section 16.101, on options for improving electric service in San Francisco through acquisition, construction or completion of public utility or utilities.

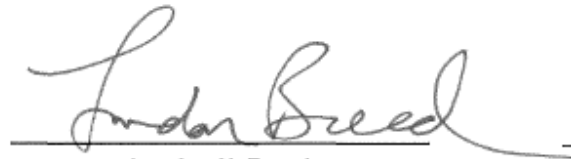
April 09, 2019 Board of Supervisors - ADOPTED

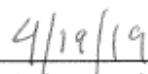
Ayes: 10 - Brown, Fewer, Haney, Mandelman, Peskin, Ronen, Safai, Stefani,
Walton and Yee
Absent: 1 - Mar

File No. 190367

I hereby certify that the foregoing
Resolution was ADOPTED on 4/9/2019 by
the Board of Supervisors of the City and
County of San Francisco.


Angela Calvillo
Clerk of the Board


London N. Breed
Mayor


Date Approved

Appendix C – Mayor Breed’s and City Attorney Herrera’s Letter to PG&E

OFFICE OF THE MAYOR
SAN FRANCISCO



OFFICE OF THE CITY ATTORNEY
SAN FRANCISCO

LONDON N. BREED
MAYOR

DENNIS J. HERRERA
CITY ATTORNEY

March 14, 2019

VIA ELECTRONIC MAIL AND USPS

John R. Simon
Interim Chief Executive Officer
PG&E Corporation
77 Beale Street, P.O. Box 770000
San Francisco, CA 94177

Jason P. Wells
Senior Vice-President and Chief Financial Officer
PG&E Corporation
77 Beale Street, P.O. Box 770000
San Francisco, CA 94177

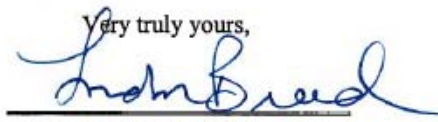
Dear Mr. Simon and Mr. Wells,

The City and County of San Francisco (the "City") has initiated work to evaluate the cost and feasibility of acquiring PG&E's electric distribution facilities that serve San Francisco. While you have probably heard public reports about this effort, we write you directly to underscore the seriousness of our purpose and facilitate lines of communication going forward.

The analysis the City is undertaking will enable us to make an initial determination whether such an acquisition is feasible, including whether it would benefit City taxpayers and electric customers, produce a fair price to PG&E for these assets, and advantage PG&E's employees and its ratepayers outside of San Francisco. We will work with the City's Board of Supervisors and Public Utilities Commission to evaluate these factors. If we determine the acquisition is feasible, we intend for the City to make a formal offer to PG&E within the coming months as part of the bankruptcy process.

Please contact us if you would like to discuss this matter.

Very truly yours,


London N. Breed, Mayor


Dennis J. Herrera, City Attorney

cc: Janet C. Loduca, Senior Vice-President and Interim General Counsel, PG&E Corporation
Members, Board of Supervisors
Members, Public Utilities Commission
Harlan Kelly, General Manager, Public Utilities Commission

1 DR. CARLTON B. GOODLETT PLACE, ROOM 200
SAN FRANCISCO, CALIFORNIA 94102-4681
TELEPHONE: (415)554-6141

Appendix D – Annotated Hetch Hetchy Power Comparative Statistics Table

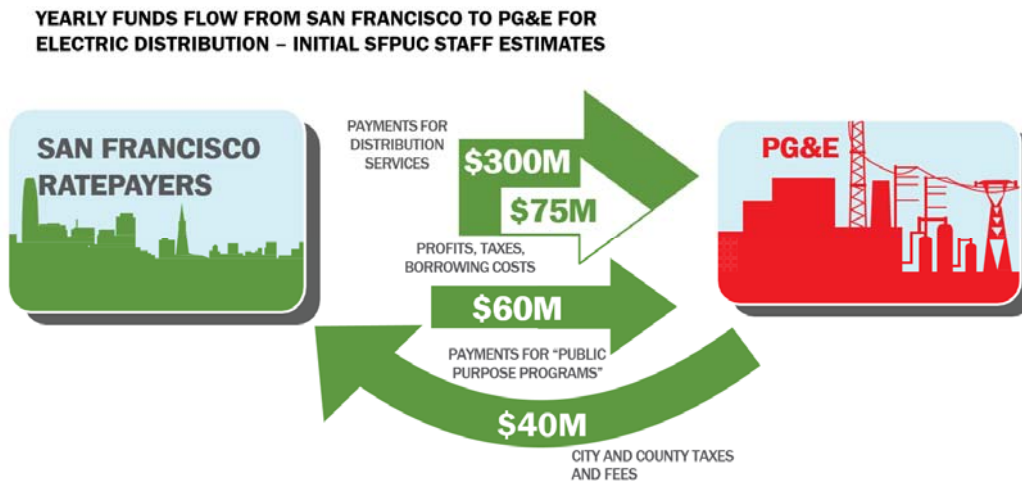
Hetch Hetchy Power Comparative Statistics ¹ (Preliminary Staff Estimates)			
Statistic	Limited Independence	More Independence	Full Independence
Accounts	3,500 ²	7,000 ³	400,000 ⁴
Megawatts of peak electric usage	150 MW ⁵	300 MW ⁶	1,000 MW ⁷
Estimate of revenues from electricity sales (all estimates exclude CleanPowerSF supply revenues)	\$110 million/yr ⁸	\$220 million/yr ⁹	\$500-\$750 million/yr ¹⁰
Capital Spending Requirement¹¹	\$25-\$100 million, varies annually ¹²	\$10-\$300 million per investment	Dependent on Fair Market Value analysis; could be a few billion dollars initially

1. CleanPowerSF electricity supply statistics are excluded and are the same across all three options.
2. San Francisco Public Utilities Commission Comprehensive Annual Financial Report, Fiscal Year 2018, p. 224.
3. Varies with customer type added through different types of targeted investment. +3,500 assumes customer mix added through targeted investments roughly matches Hetch Hetchy Power's current customer mix. Numbers are approximate.
4. 2015 CleanPowerSF Business Plan, rounded up to 400,000 accounts.
5. Rough estimate of Hetch Hetchy Power annual retail peak demand (1,000,000 MWh/yr, 67% load factor, includes SFO and other retail customers outside of SF).
6. Assumes Hetch Hetchy Power load doubles (e.g. per 2016 Business Plan goals).
7. Rough estimate of entire San Francisco and San Francisco International Airport annual peak demand (5,700,000 MWh/yr, 65% load factor).
8. SFPUC Fiscal Year 2018 Comprehensive Annual Report ("CAFR"), p. 233, sum of General Fund, Enterprise, Non-city agency totals in \$. This total represents Hetch Hetchy Power revenues from its current full-service sales of about 1,000,000 MWh/yr, which includes about 330,000 MWh per year in sales and deliveries to the San Francisco International Airport ("SFO") and other municipal facilities that do not require use of PG&E-owned distribution facilities for deliveries, and about 20,000 MWh/yr in sales to other municipal facilities outside of San Francisco city boundaries where Hetch Hetchy Power relies on PG&E-owned distribution facilities for deliveries.
9. Assumes Hetch Hetchy Power full-service load doubles (e.g. per 2016 Business Plan goals). Revenue increase would likely be higher as most load would be at retail and enterprise rates, with relatively little addition of volumes at Municipal Use rates.
10. Rough estimate of total Hetch Hetchy Power revenues after adding PG&E existing retail load in San Francisco. Assumes that direct access ("DA") and community choice aggregation supplies continue to be supplied by current DA electric service providers and CleanPowerSF (post April 2019 enrollment), i.e., supply revenues for those loads are excluded from the total revenues shown. 1) 4.7 million MWh/yr new transmission and distribution loads at approx. \$0.10/kWh = \$470 million/yr + 500,000 MWh/yr new supply loads at approx. \$0.10/kWh = \$50 million/yr + \$110 million/yr in current HHP revenue = \$630 million/yr. 2) Assuming that San Francisco charges approximately the same rates as PG&E does currently, staff estimates San Francisco retail payments to PG&E in 2018 of \$300 million in distribution revenues + \$60 million in public purpose program revenues + \$100

million in transmission revenues + \$110 million/yr in current Hetch Hetchy Power revenues = \$570 million/yr, + \$50 million/yr to replace bundled supply needs = \$620 million. Range reflects +/- 15-20% uncertainty. Note also, these estimates do not include and are fully independent of any local, regional, or state-wide resolution of PG&E's outstanding liabilities and its resulting bankruptcy proceeding that may occur in the future, particularly related to damages owed and other costs related to California's recent and future wildfire and similar hazards.

11. Whether owned by PG&E or publicly-owned by San Francisco, San Francisco's existing grid infrastructure will require upgrades, improvements and modernization. These costs have not been estimated.
12. Annual costs for "limited independence" are site-specific, vary year-over-year, and are difficult to predict given uncertainty regarding PG&E's future requirements for configuration of interconnection facilities to be owned by PG&E. 2016 Business Plan estimated \$200-\$700 million (maximum) over 10 years (mid-range, \$50 million/yr on average), based on typical interconnections, appropriately sized for load and service voltage. High end of range assumes PG&E's requirements exceed technical needs by 2 times in some years. Note, actual results would likely vary within this range year over year (individual year totals are not predictable). See also, SFPUC quarterly reports to the Board of Supervisors showing a snap shot of costs of \$8 million + for services currently under dispute: Status of Applications to PG&E for Electric Service, dated January 25, 2019.

Appendix E: Estimated Annual Funds Flow from San Francisco to PG&E for Electric Distribution and Public Purpose Programs



Preliminary estimate of \$300 million/yr in distribution service payments is based on application of PG&E’s system average bundled distribution rates of \$56/MWh as of January 1, 2019 (See PG&E [Advice Letter 5429-E](#)) to estimate of PG&E retail distribution sales volumes in San Francisco (4,700 GWh/yr, see Appendix C-1) in San Francisco, plus Hetch Hetchy Power distribution payments to PG&E of approximately \$10 million/yr, rounded up to \$300 million/yr.

Note, CleanPowerSF customers pay nearly \$200 million/yr for PG&E distribution services. This estimate is based on PG&E’s system-average bundled retail distribution rate (\$56/MWh as of January 1, 2019 (as referenced above), and estimate of customer usage of 3.2 million MWh/yr, upon completion of CleanPowerSF’s April 2019 enrollments.

Preliminary estimate of \$75 million/yr in shareholder profits, income taxes and borrowing costs is based on PG&E’s initial 2020-2022 General Rate Case (GRC) Phase 1 filing, showing profits, taxes and borrowing costs of nearly 30% of total distribution costs; 25% is used for conservatism. See PG&E Application A.18-12-009, available here: <https://pgera.azurewebsites.net/Regulation/search>. See, for example, Testimony Chapter 1, Table 2-2, p 2-7, Summary of Proposed Increase Over 2019, Distribution, and Application Exhibit C, Table 1, Results of Operations at Proposed Rates, Electric Distribution.

Preliminary estimate of \$60 million/yr in public purpose program costs is the average of filed 2014 – 2019 PG&E Public Purpose Program system-average rates of \$0.0125/kWh (taken from PG&E’s advice letters showing changes in unbundled rates) multiplied by estimate of PG&E’s retail sales of 4,700 GWh in San Francisco (bundled, CCA and DA loads), rounded to \$60 million/yr.

Preliminary estimate of \$40 million/yr in PG&E payments to San Francisco for property taxes, franchise fees and business taxes:

- Property taxes \$30 million/yr:
https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20180416_pge_increases

[property tax and franchise fees payments to cities counties this year](#). PG&E paid San Francisco \$14,353,617 in property taxes for Jan 1 – June 30, 2018.

- Franchise fees \$3.5 million/yr:
<https://sfcontroller.org/sites/default/files/Documents/Auditing/BOS%20PGE%20Report%2011.16.16.pdf> p.7.
- Business taxes \$5.6 million/yr:
PG&E General Rate Case 2020-2022, PG&E work papers to PG&E Exhibit 10, page 16-51, and 13-72.

Excluded from this \$40 million total is \$5 million in community benefits/grants/etc. to San Francisco organizations as PG&E has put its giving for 2019 on hold. See https://www.pge.com/pge_global/common/pdfs/residential/in-your-community/pge-gives-back/giving-locally/Community-Investment-Program-Grantees.pdf and https://www.pge.com/en_US/residential/in-your-community/pge-gives-back/giving-locally/giving-locally.page.

The staff preliminary estimate of \$40 million/yr per year includes components that are associated with PG&E's corporate overhead and with PG&E's gas, electric transmission, and electric supply units, so is overstated when compared to the \$360 million in funds for electric distribution services and programs flowing from San Francisco to PG&E.

Appendix F – Reference List

Below is a list of supporting materials that informed parts of the report.

1. The SFPUC's Quarterly Reports to the Board of Supervisors on the Status of Applications to PG&E for Electric Service, dated [November 7, 2018](#) and [January 25, 2019](#).
2. Energy Information Administration (EIA) public data, including statistics that allow for comparisons across investor-owned and publicly-owned utilities in California and nationwide (e.g., sales in MWh, revenues in \$, customers served, revenues per MWh sold, etc.). See, e.g., the EIA data sets available at the following webpage: <https://www.eia.gov/electricity/data.php#sales>
3. American Public Power Association resources, reports, publications and other materials regarding the characteristics of public power utilities vs. investor-owned utilities, utility best practices, etc. See, e.g., the following webpages:
 - a. <https://www.publicpower.org/municipalization>
 - b. <https://www.publicpower.org/topic/community>
 - c. <https://www.publicpower.org/municipalization-resources>
 - d. https://www.publicpower.org/system/files/documents/municipalization-benefits_of_public_power.pdf
4. The SFPUC's 2016 Power Enterprise Business Plan, which SFPUC staff presented to the Commission in two workshops on [April 28, 2015](#) and [July 28, 2015](#). (<https://view.joomag.com/sfpuc-power-business-plan-power-enterprise-business-plan-2016/0284568001455122944?page=2>)
5. The SFPUC's 2016 CleanPowerSF Business Plan, which is available at the following webpage: <https://sfpuc.sharefile.com/d-s552e27241344572b>
6. The SFPUC Power Enterprise's internal records regarding its spending for PG&E services and related equipment, and other SFPUC public reports (e.g., the SFPUC's Comprehensive Annual Financial Reports, available on the SFPUC website here: <https://www.sfwater.org/index.aspx?page=346>
7. California Energy Commission ("CEC") resources providing electricity statistics for California, power content labels, etc. See, e.g., the following CEC webpages:
 - a. <http://www.ecdms.energy.ca.gov/>
 - b. https://www.energy.ca.gov/almanac/electricity_data/
8. PG&E's financial reports, available on PG&E's website here: <http://investor.pgecorp.com/financials/annual-reports-and-proxy-statements/default.aspx>
9. PG&E's regulatory filings with the California Public Utilities Commission ("CPUC") (e.g. PG&E's recent General Rate Case filings, under application A.18-12-009). PG&E's CPUC regulatory filings are available on PG&E's website here: <https://pgera.azurewebsites.net/Regulation/search>
10. SFPUC's Comprehensive Annual Financial Report: <https://sfwater.org/index.aspx?page=346>
11. Governor Newsom's Strike Force Report: <https://www.gov.ca.gov/wp-content/uploads/2019/04/Wildfires-and-Climate-Change-California%E2%80%99s-Energy-Future.pdf>
12. Northstar Report on PG&E's Safety Culture: <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M277/K012/277012719.PDF>
13. Press Release about Poll: <https://sfmayor.org/node/18282>
14. Exponent Outage Investigation for PG&E Larkin Substation (for the CPUC): http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/Electric_Safety_and_Reliability/Attachment%203%20-%20Exponent%20Report%20Larkin%20Outage%20-%20Redacted%20Version.pdf
15. California Public Utilities Commission Investigation on PG&E Mission Substation: <http://docs.cpuc.ca.gov/published/Report/40886.PDF>
16. Hetch Hetchy Power Integrated Resource Plan Filing: <https://efiling.energy.ca.gov/getdocument.aspx?tn=227180-2>
17. CleanPowerSF Integrated Resource Plan Filing: <https://sfwater.org/Modules/ShowDocument.aspx?documentid=12815appe>

18. "Preliminary Municipalization Feasibility Study" RW Beck for Boulder, Colorado. October 2005.
https://www-static.bouldercolorado.gov/docs/energy_future_2005_Preliminary_feasibility_study_from_RWBeck-1-201306061215.pdf
19. "An Analysis of Municipalization and Related Utility Practices." Synapse Energy Economics, Inc. 2017.
<https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/An%20Analysis%20of%20Municipalization%20and%20Related%20Utility%20Practices.pdf>
20. "South San Joaquin Irrigation District Retail Electric Financial Analysis." MRW & Associates, 2016.
<https://www.ssjid.com/wp-content/uploads/2019/02/2016-MRW-Financial-Analysis.pdf>



San Francisco Water Power Sewer

Services of the San Francisco Public Utilities Commission



@sfwater

525 Golden Gate Avenue
San Francisco, CA 94102-3220

sfwater.org

May 2019



June 26, 2019

The Honorable Gavin Newsom
Governor of California
1303 10th Street, Suite 1173
Sacramento, CA 95814

Re: South San Joaquin Irrigation District's Retail Electric Project

Dear Governor Newsom,

As elected leadership representing the Cities of Manteca, Ripon, and Escalon, we implore your immediate attention to an ongoing, decades-long municipalization effort that we believe offers a partial solution to the situation that California is now grappling with in the wake of Pacific Gas & Electric's (PG&E) wildfire liabilities, felony convictions, and now bankruptcy.

The South San Joaquin Irrigation District (SSJID) has fought to provide retail electric service to the communities of Manteca, Ripon, and Escalon since 2004. SSJID's municipalization effort aims to supplant PG&E as the local electric utility and replace it with a transparent, responsive, safe, economical, and locally accountable utility that understands the needs and values of our communities. PG&E has thwarted this project since its inception by engaging in disruptive public relations campaigns, propping up local citizen resistance groups, and by injecting opposition into local approval processes for SSJID to exercise its latent power granted under the California Water Code to provide retail electric service to our region.

In December 2014, with the support of our communities, SSJID finally received local approval from the San Joaquin County Local Agency Formation Commission (SJLAFCo) to provide retail electric service. SJLAFCo's approval included an endorsement of the financial feasibility of SSJID's retail electric project, certification of a project specific CEQA document, and economic protections for customers and the local economy upon transition of electric service from PG&E to SSJID.

Interestingly, at the 2014 LAFCo hearing, PG&E touted its' financial stability, responsiveness to disasters and safety record as reasons why our region shouldn't rely on SSJID's ability to provide public power, even after the events that transpired in San Bruno. More recent news regarding bankruptcy filings, PG&E's culpability in starting wildfires including the 2018 Camp Fire, infractions of California Public Utilities Commission directives, and inability to promote safety among its workforce, all suggest that our region made the right call in authorizing SSJID's retail electric project.

Our region has long-experienced dissatisfaction with PG&E's substandard service. Recent examples include an unexpected, year-long, public road closure due to delays in PG&E's ability to complete the relocation of

P.O. Box 747, Ripon, CA 95366-0747 (Mailing)
11011 E. Highway 120, Manteca, CA 95336-9750
(209) 249-4600

Attachment 5 - Letter from Central Valley Mayors on Municipalization

SSJID's Retail Electric Project

June 26, 2019

Page 2

a gas main in the City of Manteca; delays in street light energizing in new home subdivisions aimed at meeting California's housing crisis; and delays in providing temporary power to support construction of a new, large-scale resort employer committed to the Central Valley. And now, our residents and businesses are being told that their power may be shut off for up to 5 days at a time during the hottest part of summer, prompting significant public health and safety concerns in our communities. The lack of service to our customers and communities continues, with "bankruptcy" now used by PG&E as the scapegoat for poor service.

SSJID has completed all of the necessary work to prepare for condemnation and subsequent operation of PG&E's system within its service territory. SSJID has developed a detailed inventory and valuation of the relevant portion of the PG&E system, formulated a business plan, engineered a separation plan that maintains service for PG&E customers that would remain were SSJID to take over service within District boundaries, made an offer of purchase to PG&E, and initiated a condemnation action to purchase PG&E assets when the company indicated its assets were not for sale. Even with local approvals, PG&E filed suit against SJLAFCo's decision, and was successful in stalling SSJID's condemnation action. Both lawsuits are on appeal now, but we believe the current situation with PG&E presents an opportunity for SSJID's project to move forward.

The concept of municipalizing specific PG&E-served areas that are ready and willing to shoulder the responsibility of serving their own communities while meeting California's renewable energy and climate goals, should be given strong consideration as a solution to the current PG&E problem. Municipalization provides an opportunity to generate capital to address wildfire liabilities through sale of PG&E assets, makes PG&E more efficient for remaining utility customers by incrementally reducing PG&E's size, and incentivizes a reorganized PG&E (or its successor) to develop and implement a proper corporate culture that prioritizes safety and capital improvement to avoid future catastrophes.

Our local communities offer their support of SSJID's retail electric project and its commitment to providing our communities with safe, reliable, transparent, and locally accountable power. We respectfully request the opportunity to meet with you to discuss the merits of SSJID's project. Furthermore, we request your consideration of the benefits this municipalization effort provides not only for our communities in the Central Valley, but also as part of a global solution to the PG&E problem.

Should you be willing to meet with us on this important project, please reach out to Peter Rietkerk, SSJID General Manager, at prietkerk@ssjid.com, to coordinate such a meeting.

We thank you in advance for this opportunity.

Respectfully,



Robert Swift
Mayor, City of Escalon



Benjamin J. Cantu
Mayor, City of Manteca



Leo Zuber
Mayor, City of Ripon



Wildfires and Climate Change: California's Energy Future

A Report from Governor Newsom's Strike Force

April 12, 2019

Executive Summary

Climate change has created a new wildfire reality for California. The state's fire season is now almost year round. More than 25 million acres of California wildlands are classified as under very high or extreme fire threat. Approximately 25 percent of the state's population – 11 million people – lives in that high-risk area.

Wildfires are not only more frequent but far more devastating. **Fifteen of the 20 most destructive wildfires in the state's history have occurred since 2000; ten of the most destructive fires have occurred since 2015.** The results are visible to all: lives lost, grave fire damage to homes and communities, rising gas and electricity rates, pressure on the home insurance market, and the threat of insolvency for California's utilities. The largest investor-owned utility in the state has filed for bankruptcy protection and two other major investor-owned utilities in southern California have had their credit ratings downgraded. Financial experts have opined that these utilities are likely one major fire away from bankruptcy. Making matters worse, this year has all the conditions for devastating fires, with a very wet season leading to high vegetation density. During fire season, that vegetation dries out and becomes fuel.

Since the first days of his administration, the Governor has taken decisive action to strengthen California's emergency preparedness and response capabilities to mitigate wildfires and build community resilience. In response to instability in the energy sector and to PG&E's decision to file for bankruptcy, the Governor created a strike force to coordinate the state's efforts relating to the safety, reliability, and affordability of energy, as well as to continue progress to achieve the state's climate commitments. As part of these efforts, sixty days ago, the Governor directed the strike force to develop a comprehensive roadmap to address the issues of wildfires, climate change, and the state's energy sector. That roadmap is attached.

The strike force report sets out steps the state must take to reduce the incidence and severity of wildfires, including the significant wildfire mitigation and resiliency efforts the Governor has already proposed. It renews the state's commitment to clean energy. It outlines actions to hold the state's utilities accountable for their behavior and potential changes to stabilize California's utilities to meet the energy needs of customers and the economy.

It is imperative that utilities not put profits ahead of safety and service. That is why the state has and will continue to advocate in PG&E's bankruptcy proceeding for fair treatment of fire victims, for California consumers, and for California policies and values.

Preventing and Responding to Catastrophic Wildfires

The report begins by setting out steps that the administration, the CPUC, local communities, and utilities must take to reduce the incidence and severity of wildfires and to step up both community resilience and the state's response capabilities. To accomplish this, it is critical that the state:

Wildfires and Climate Change: California's Energy Future

- **Expand fire prevention activity** by improving forest and vegetation management, accelerating fuel reduction projects on both public and private land, training the workforce needed to scale up these projects, investing in new technologies to model and monitor fire risk, and strengthening utility oversight so that they invest more in safety.
- **Make communities more resilient** by considering updating codes that govern defensible space, encouraging cost-effective hardening of homes, strengthening evacuation, encouraging other emergency planning, and improving land use practices to reduce the damage to life and property from wildfires.
- **Invest in fire suppression and response** by investing in new fire engines and aircraft, re-deploying National Guard personnel from the border to support fire suppression initiatives, purchasing detection cameras to provide advanced data to firefighters, and investing in a statewide mutual aid system to pre-position resources in high-risk areas.
- **Call on the Federal Government to Better Manage Federal Forest Land.** As the owner of 57 percent of California's forestland, the federal government must also do its fair share to reduce fire risk. Specifically, the Governor has joined the governors of Washington and Oregon to call for the federal government to double the investment in managing federal forestlands in our states due to the high risk of wildfires.

Renewing California's Commitment to Clean Energy

Given that climate change is a core driver of heightened wildfire risk, California must continue its transition to clean energy. California has established ambitious greenhouse gas reduction targets and the utility sector has been critical to the significant progress our state has made. But, an unstable energy market presents new risks, and temperatures keep rising. Any solution must adapt to the changing market landscape while maintaining the state's commitment to mitigating climate change. To do this, the state should consider:

- **Evaluating state-level resource backstop options** to reduce gaps and inefficiencies that can result from an increasingly fragmented energy market – including the option of creating a state power procurement entity.
- **Increasing transparency and reliability protections for customers** by establishing standards to make energy provider information more transparent and facilitate statewide planning.

Allocating Responsibility for Wildfire Costs

An honest assessment of the realities of current and future climate change tells us that no matter how committed we are to preventing and fighting fires and to reducing carbon emissions over the long-term, the state will experience further fire damage in the coming years. If we continue on our current legal and regulatory path, we will get similar results – more deadly and destructive fires that put utilities near insolvency. That is unacceptable for fire victims and utility customers and is incompatible with an economy that requires safe, reliable, and affordable power. Any real plan must allocate costs resulting from wildfires in a manner that shares the burden broadly among stakeholders,

Wildfires and Climate Change: California's Energy Future

including utilities (ratepayers and investors), insurance companies, local governments, and attorneys. Taxpayers have substantially increased their contribution to mitigating fire risk and fighting fires when they ignite.

Any successful approach for allocating responsibility for wildfire costs should be based on the following principles: (1) maintaining safe and affordable power, (2) holding utilities accountable to prioritize safety, (3) treating wildfire victims fairly, (4) requiring equitable stakeholder contributions, (5) reducing overall costs from wildfire damage, (6) promoting California's clean energy goals, and (7) recognizing the contribution of California taxpayers.

The strike force has identified the following three concepts for evaluation against these principles:

- A **liquidity-only fund** that would provide liquidity for utilities to pay wildfire damage claims pending CPUC determination of cost recovery potentially coupled with modification of cost recovery standards.
- Adopting a **fault-based standard** that would modify California's strict liability standard to one based on fault to balance the need for public improvements with private harm to individuals.
- Creation of a **catastrophic wildfire fund** coupled with a revised cost recovery standard to spread the cost of catastrophic wildfires more broadly among stakeholders.

These concepts should be publicly debated, as each has impacts, tradeoffs, and consequences that must be addressed. Some concepts rely on voluntary contributions from utility investors, who in exchange will demand more clarity in the regulatory standard for cost recovery from ratepayers.

The choices are difficult, the future is uncertain and the solutions are imperfect. But legislative action is necessary for the stability of the state's energy market to meet the needs of Californians, and to achieve the state's clean energy goals.

Under the status quo, all parties lose – wildfire victims, energy consumers, and Californians committed to addressing climate change. Victims face a great deal of uncertainty and diminished ability to be compensated for their losses and harm. Customers face rising rates and instability. California's ability to achieve its climate goals is frustrated. Utility vendors and employees face uncertainty and likely significant losses. The bottom line is that utilities either in or on the verge of bankruptcy are not good for Californians, for economic growth, or for the state's future.

Strengthening Utility Market Regulation

Utilities must be active participants in the quest for safe, reliable, and affordable power. This report recommends strengthening utility regulation by reforming the California Public Utilities Commission (CPUC) to:

Wildfires and Climate Change: California's Energy Future

- **Expand safety expertise** by improving the CPUC's ability to review wildfire mitigation plans, conduct inspections and audits, and enforce safety standards at investor-owned utilities.
- **Clarify cost recovery standards** by setting clear guidelines in statute for when the CPUC can pass on the costs of claims from wildfire damage to ratepayers.
- **Improve decision-making** by overhauling procedures, delegating more decisions to technical staff so that judges and commissioners focus on core questions of rate-setting, and improving enforcement.
- **Review high-risk industry regulatory models** and explore options for incorporating the latest climate impact research, in concert with the Governor's Office of Planning & Research, as well as academic and industry experts in risk reduction.

Holding PG&E Accountable for Safety

PG&E is a textbook example of what happens when a utility does not invest in safety after numerous deadly reminders to do so over many years. Even today, PG&E is taking advantage of the bankruptcy process to promote the interests of investors over fire victims and other stakeholders. California will advocate for fair treatment of victims and employees, as well as to uphold the state's clean energy commitments in the bankruptcy process. The state will:

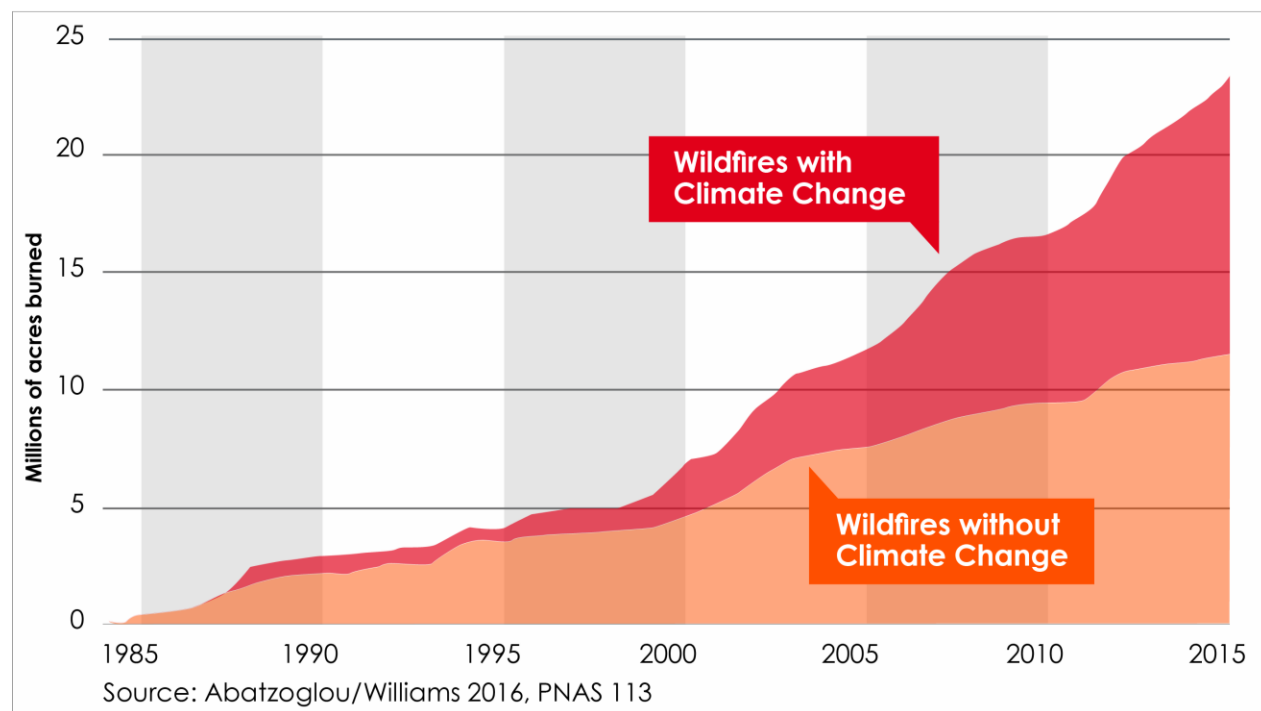
- **Monitor – and intervene – in the bankruptcy proceedings** to protect California's interests. PG&E is a private entity, but its misconduct has had grave consequences for the state and its people.
- **Evaluate options to satisfy wildfire claims** from the last two years so fire victims are treated fairly.
- **Demand that a reorganized PG&E serve the public interest.** After years of mismanagement and safety failures, no options can be taken off the table to reform PG&E, including municipalization of all or a portion of PG&E's operations; division of PG&E's service territories into smaller, regional markets; refocusing PG&E's operations on transmission and distribution; or reorganization of PG&E as a new company structured to meet its obligations to California.

The status quo is unsustainable. A better future is possible – one grounded in clear rules, effective regulation, and a new emphasis on safety so every Californian can access safe, reliable, affordable power. As the climate changes and risks rise, California must once more lead the way.

Introduction

California faces a dramatic increase in the number and severity of wildfires. Fifteen of the 20 most destructive wildfires in the state's history have occurred since 2000; ten of the most destructive fires have occurred since 2015.¹ While wildfires are a natural part of California's ecology, the fire season is getting longer every year—with most counties now experiencing fire season from mid-May to mid-December and several counties facing fire danger year-round.² Warmer temperatures, variable snowpack, and earlier snowmelt caused by climate change make for longer and more intense dry seasons, leaving forests more susceptible to severe fire.

Figure-01³



At the same time that our climate is changing and fueling the devastating force of wildfires, increased development in the wildland-urban interface (WUI) has placed more

¹ See generally, CAL FIRE, *Top 20 Most Destructive California Wildfires*, (Mar. 2019), http://www.fire.ca.gov/communications/downloads/fact_sheets/Top20_Destruction.pdf (last visited Apr. 10, 2019) ("Top 20 Most Destructive California Wildfires").

² See generally, CAL FIRE, *2018 Fire Season Incident Information*, http://cdfdata.fire.ca.gov/incidents/incidents_seasondeclarations?year=2018 (last visited Apr. 10, 2019).

³ Eberhard Faust & Markus Steuer, *CLIMATE CHANGE INCREASES WILDFIRE RISK IN CALIFORNIA* | MUNICH RE MUNICHRE.COM (2019), <https://www.munichre.com/topics-online/en/climate-change-and-natural-disasters/climate-change/climate-change-has-increased-wildfire-risk.html> (last visited Apr 11, 2019) ("Climate Changes Increases Wildfire Risk").

Wildfires and Climate Change: California's Energy Future

residents in the potential path of destruction. Today, approximately 25 percent of the state's population (over 11 million people) lives in high fire-risk areas, including the WUI.⁴

The combination of more powerful wildfires and more Californians living in their paths has resulted in enormous, incomprehensible loss. Last year, 85 people died in the Camp Fire alone and 19,000 homes and other structures were damaged or destroyed.⁵ According to data from Butte County, more than 60 percent of those victims were over 60 years old.⁶ Paradise and other towns were devastated. The Camp Fire was only one of approximately 7,600 wildfires in 2018. Damage estimates for the 2018 wildfire season are staggering, with insured losses alone exceeding \$12 billion.⁷ Thousands of Californians who lost their homes, and their livelihoods in these fires, are still without permanent homes and struggling to rebuild their lives.

The damages caused by wildfires are unsustainable for the directly impacted victims, for the state, which is spending hundreds of millions of dollars to respond, and for local communities trying to rebuild. In response to climate change and heightened wildfire threat, California is expanding resilience efforts through increased investments in fire mitigation and response, community hardening, and emergency preparedness.

California's electric utilities must be part of the solution to this problem. In the past four years, equipment owned by California's three largest investor-owned utilities sparked more than 2,000 fires.⁸ Utility-caused fires tend to spread quickly and be among the most destructive. Hundreds of thousands of miles of electrical transmission and distribution lines snake across the California landscape, often igniting fires during extreme wind events and in remote areas, making early detection and fire suppression extremely challenging. Longer fire seasons make utility-caused fires even more likely. Hardening the electrical grid is thus a critical component to overall wildfire risk management.⁹ Our utilities—public and private—must make needed investments to reduce the risk of utility-ignited fires and, with the new reality of climate change, must do so now.

At the same time, the current system for allocating costs associated with catastrophic wildfires—often caused by utility infrastructure, but exacerbated by drought, climate change, land-use policies, and a lack of forest management—is untenable both for

⁴ LEVENTHAL CENTER FOR ADVANCED URBANISM, *Cataloguing the Interface: Wildfire and Urban Development in California*, (Spring 2018), <http://lcau.mit.edu/project/cataloguing-interface-wildfire-and-urban-development-california> (last visited Apr. 10, 2019).

⁴ Top 20 Most Destructive California Wildfires.

⁵ Cal Fire, *Top 20*.

⁶ *Los Angeles Times*, *Many victims of California's worst wildfire were elderly and died in or near their homes, new data show*, (Dec. 13, 2018) (archived from the original on Dec. 14, 2018).

⁷ CAL. DEP'T. INSUR., *CALIFORNIA DEPARTMENT OF INSURANCE INSURED LOSSES FROM THE 2018 CALIFORNIA WILDFIRES*, (Jan., 28, 2019), <http://www.insurance.ca.gov/0400-news/0100-press-releases/2019/upload/nr14-2019Insured-Losses-2018-Wildfires.pdf> (last visited Apr. 10, 2019).

⁸ Carolyn Kousky, et. al., *Wildfire Costs In California: The Role of Electric Utilities* Wharton Risk Management and Decision Processes Center (Sept. 2018), riskcenter.wharton.upenn.edu/wp-content/uploads/2018/08/Wildfire-Cost-in-CA-Role-of-Utilities-1.pdf (last visited Apr. 10, 2019).

⁹ Measures commonly used to harden the electrical grid include using insulated electrical lines in high-risk areas, replacing wood poles with steel, installing specialized monitoring equipment, and using new technologies that can reduce sparks or undergrounding lines when necessary in extreme high-fire areas.

Wildfires and Climate Change: California's Energy Future

utility customers and for our economy. Multi-billion dollar wildfire liabilities over the last several years have crippled the financial health of our privately and publicly owned electric utilities. Pacific Gas & Electric Company (PG&E) filed for bankruptcy in the face of massive potential liability for wildfire damages. Other investor-owned and public utilities have experienced recent credit ratings downgrades, with San Diego Gas & Electric (SDG&E) and Southern California Edison Company (SCE) now precipitously hovering just above junk status. Utilities rely on credit to finance ongoing infrastructure investments, including fire mitigation. As utilities' credit ratings deteriorate, their borrowing costs increase and those costs for capital necessary to make essential safety improvements are passed directly to customers. These downgrades, and the prospect of additional utility bankruptcy filings, directly impact Californians' access to safe, reliable and affordable electricity.

In his State of the State Address, the Governor directed a strike force to develop a comprehensive strategy, within 60 days, to address the destabilizing effect of catastrophic wildfires on the state's electric utilities. He charged the strike force with developing a strategy to ensure California's "continued access to safe affordable power" and to "seek justice for fire victims, fairness for employees and protection for consumers."¹⁰

As the Governor stated, the crisis confronting California's electric utilities comes "at a time when the entire energy market is evolving" and is exacerbated by "regulations and insurance practices created decades ago [that] didn't anticipate these changes." The Governor recognized the need to "map out longer-term strategies, not just for the utilities' future, but for California's future, to ensure that the cost of climate change doesn't fall on those least able to afford it."

The Governor directed his strike force to develop a comprehensive strategy that achieves the following objectives:

1. Assure access to safe, reliable and affordable power for all Californians.
2. Reduce the severity of wildfires through continued investments in fire mitigation, vegetation management and other strategies to reduce fuels.
3. Develop and implement technologies to more quickly identify and respond to wildfires.
4. Reduce the number of utility-sparked wildfires through smart investments in increased safety, prevention, grid-hardening, and vegetation management around electrical lines.
5. Facilitate fair and prompt treatment for wildfire victims and allocate the burden of wildfire damage responsibly and fairly across all stakeholders.
6. Ensure that California continues to make progress toward its clean energy goals.

¹⁰ OFFICE OF GOV. GAVIN NEWSOM, *Governor Newsom Delivers State of the State Address*, (Feb. 12, 2019), <https://www.gov.ca.gov/2019/02/12/state-of-the-state-address/> (last visited Apr. 10, 2019).

Wildfires and Climate Change: California's Energy Future

7. Provide sufficient certainty to investors and credit ratings agencies to avoid downgrades of utilities that could cause further bankruptcies and/or drive up borrowing costs, each of which raises prices for utility customers.
8. Hold utilities accountable for improving safety and preventing wildfires and for damages if their misconduct causes a wildfire.
9. Avoid a band-aid approach and instead set a path for the energy market of the future.
10. PG&E serves 40 percent of California electricity customers and has an egregious safety record. The state must hold PG&E accountable and demand systemic reforms and a commitment to safety.

This Report provides a roadmap to confront the challenges of catastrophic wildfires:

- Part 1: Catastrophic Wildfire Prevention and Emergency Response
- Part 2: Mitigating Climate Change through Clean Energy Policies
- Part 3: Fair Allocation of Catastrophic Wildfire Damages
- Part 4: A More Effective CPUC with the Tools to Manage a Changing Utility Market
- Part 5: Holding PG&E Accountable & Building a Utility that Prioritizes Safety

It will take a comprehensive approach to mitigate and prepare for wildfires, as well as to advance our climate goals. That said, the most vexing public policy challenge addressed in this Report is the equitable distribution of wildfire liability. The Report sets forth three concepts to address this central question--the imminent wildfire liability issues facing California's utilities--each as described further in Part 3:

- **Concept 1:** Liquidity-Only Fund. This concept would create a fund to provide liquidity for utilities to pay wildfire damage claims pending CPUC determination of whether or not those claims are appropriate for cost recovery and may be coupled with modification of cost recovery standards.
- **Concept 2:** Changing Strict Liability to a Fault-Based Standard. This concept would involve modification of California's strict liability standard under inverse condemnation to one based on fault to balance the need for public improvements with private harm to individuals.
- **Concept 3:** Wildfire Fund. This concept would create a wildfire fund coupled with a revised cost recovery standard to spread the cost of catastrophic wildfires more broadly among stakeholders.

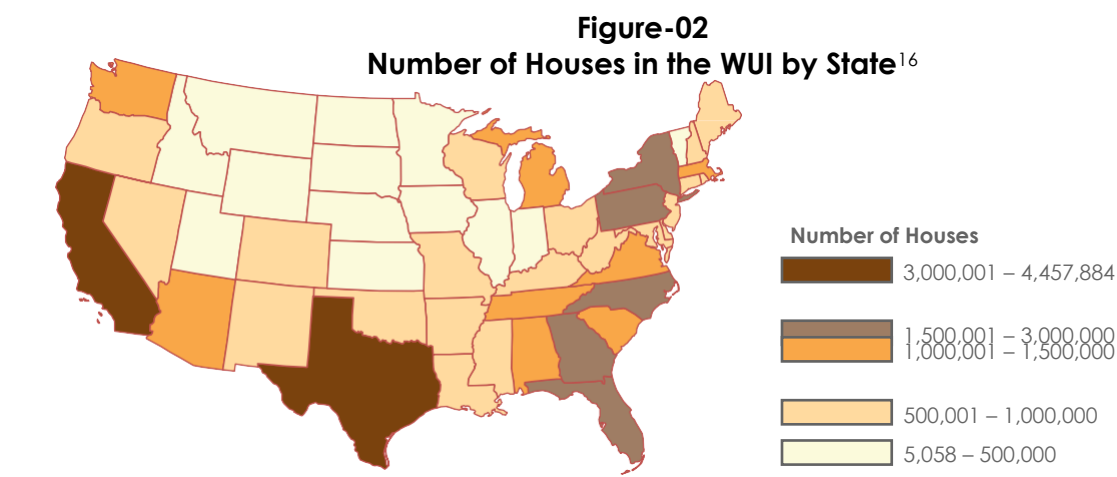
California needs to think creatively to find new ways to apportion the cost of catastrophic wildfires—ones that treat victims fairly and compassionately, that are sustainable for consumers, and that spread the burden equitably.

Part 1: Catastrophic Wildfire Prevention and Response

Catastrophic wildfires pose an urgent threat to lives, property, and resources in California. The 2017 and 2018 wildfire seasons were the most destructive in California's history.¹¹ More than 9,000 wildfires ignited across California in 2017 and 7,571 wildfires ignited in 2018, burning more than 2.8 million acres combined.¹² These fires caused the loss of 139 lives and destroyed tens of thousands of homes and businesses.¹³ They also poisoned the air across vast swaths of the state and harmed public health.¹⁴ Additionally, catastrophic wildfires compounded the challenge of reducing our greenhouse gas emissions by emitting millions of carbon particles into the air.¹⁵

Climate change, widespread tree mortality, weak utility infrastructure, and the proliferation of homes in the WUI magnify the wildfire threat and place substantially more people and property at risk than ever before.

Today, as illustrated in Figure-02 below, California's WUI is home to approximately 4.5 million homes and 11 million people.



¹¹ CAL FIRE, Incident Information as of Jan. 24, 2018, http://cdfdata.fire.ca.gov/incidents/incidents_stats?year=2017 (last visited Apr. 10, 2019).

¹²Id.

¹³ CAL FIRE, *Top 20 Most Destructive California Wildfires*, (Mar. 14, 2019), http://www.fire.ca.gov/communications/downloads/fact_sheets/Top20_Destruction.pdf (last visited Apr. 10, 2019); CAL FIRE, *Top 20 Deadliest California Wildfires*, (Feb. 19, 2019), http://calfire.ca.gov/communications/downloads/fact_sheets/Top20_Deadliest.pdf (last visited Apr. 10, 2019); CAL FIRE, *Top 20 Largest California Wildfires*, (Mar. 14, 2019), http://www.fire.ca.gov/communications/downloads/fact_sheets/Top20_Acres.pdf (last visited Apr. 10, 2019).

¹⁴ STATE OF CALIFORNIA GOVERNOR'S OFFICE OF PLANNING AND RESEARCH, et al., *California's Fourth Climate Change Assessment: Statewide Summary Report* at 38, <http://www.climateassessment.ca.gov/state/docs/20190116-StatewideSummary.pdf> (last visited Apr. 10, 2019).

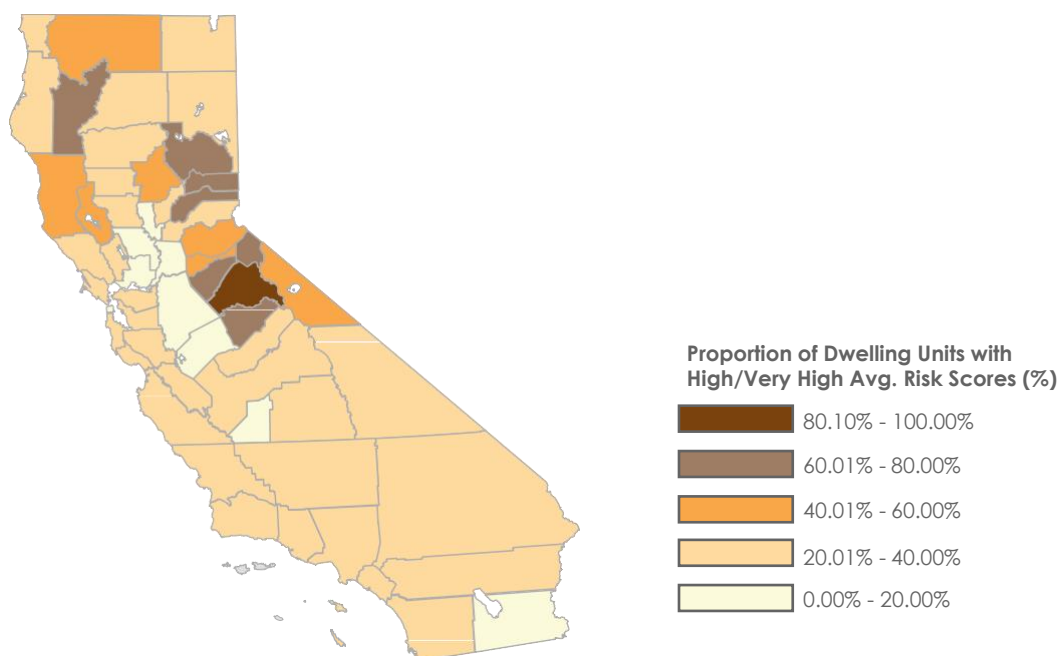
¹⁵ CALIFORNIA DEPARTMENT OF INSURANCE, *New Analysis Shows 2018 California Wildfires Emitted as Much Carbon Dioxide as an Entire Year's Worth of Electricity* (Nov. 30, 2018), <https://www.doi.gov/pressreleases/new-analysis-shows-2018-california-wildfires-emitted-much-carbon-dioxide-entire-years> (last visited Apr. 10, 2019) ("Fourth Climate Assessment").

¹⁶ CAL. DEP'T. INSUR., *The Availability and Affordability of Coverage for Wildfire Loss in Residential Property Insurance in the Wildland-Urban Interface and Other High-Risk Areas of California: CDI Summary and Proposed Solutions*, (Dec. 2017), <http://www.insurance.ca.gov/0400-news/0100-press-releases/2018/upload/nr002-2018AvailabilityandAffordabilityofWildfireCoverage.pdf> (last visited Apr. 10, 2019).

Wildfires and Climate Change: California's Energy Future

More than 25 million acres of California wildlands are now classified as under very high or extreme fire threat, extending that risk to over half the state--a high-risk area that will likely grow over time.¹⁷ Decades of fire suppression have disrupted natural fire cycles and added to increased wildfire risk.

Figure-03
Proportion of Dwelling Units with High / Very High Average Risk Scores¹⁸



The state's major study on climate impacts, the Fourth Climate Assessment, projects that California's wildfire burn area likely will increase by 77 percent by the end of the century.¹⁹ The growing risk of catastrophic wildfires has created an imperative for the state to act urgently and swiftly to expand preemptive fire prevention and bolster wildfire response efforts to help protect vulnerable communities and reduce the severity of wildfires in our state.

All levels of government, communities, utilities, and residents must share in this responsibility in order to better defend California from this devastating threat.

¹⁷ See CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION, *Community Wildfire Prevention & Mitigation Report* (Feb. 22, 2019), <http://www.fire.ca.gov/downloads/45-Day%20Report-FINAL.pdf> (last visited Apr. 10, 2019).

¹⁸ *Ibid.*

¹⁹ Fourth Climate Assessment at 9.

Wildfire Reduction and Mitigation Action Plan

Recognizing the need for urgent action, the Newsom administration has placed a high priority on fire prevention and recovery measures, as well as on identifying ways the state can become more resilient in the face of future fires.

On January 9, the Governor issued Executive Order N-05-19, directing CAL FIRE to recommend immediate, medium and long-term actions to help prevent destructive wildfires. With an emphasis on taking immediate actions to protect vulnerable populations, and recognizing a backlog in fuels management, the Executive Order called for a strategic approach to focus actions on California's most vulnerable communities to realize the greatest returns on reducing risk to life and property in the most fire-prone areas of the state.

To further augment fire prevention, the Governor signed a General Order in February rescinding previous authorization for California National Guard operations at the U.S.-Mexico border and redeploying personnel to prepare for the upcoming fire season by supporting CAL FIRE in fire prevention and fire suppression efforts.

The state needs to continue to build on this work with a focus on four specific areas:

11. General Prevention and Fire Suppression
12. Building Safer Utilities
13. Emergency Response
14. Land Use, Building Codes and Community Resilience

General Prevention and Fire Suppression

In response to Executive Order N-05-19, CAL FIRE released the Community Wildfire Prevention and Mitigation Report (CAL FIRE Report) on March 5. The CAL FIRE Report outlined a suite of actions to substantially reduce wildfire risk to 200 of California's most vulnerable communities this fire season.

On March 22, the Governor, citing the extreme peril posed by wildfire risk, issued an Emergency Proclamation directing CAL FIRE to immediately implement 35 emergency projects identified to protect lives and property. CAL FIRE will utilize existing funding totaling \$30 million from the Forest Health and Fire Prevention Program to immediately execute the priority fuel reduction projects.

The proclamation suspends certain requirements and regulations. To ensure environmental protection, CAL FIRE requested input from regulatory agencies, and will employ a set of best management practices designed to identify and avoid sensitive natural and archaeological resources.

As discussed below, the state has numerous new initiatives to prevent and suppress fires.

Wildfires and Climate Change: California's Energy Future

Improving Vegetation Management and Forest Health

After decades of disinvestment, the state has committed hundreds of millions of dollars in recent years to improve the health and resiliency of the state's forests.

Despite these increases, much work remains to be done. Over the next five years, the state will commit over \$1 billion for critical fuel reduction projects, to support prescribed fire crews, forest thinning, and other forest health projects. In addition, the Governor redeployed the National Guard to support fire prevention efforts and is proposing to expand the California Conservation Corps to focus on forest management.

Since 2010, California has nearly doubled the number of acres treated annually by fuel reduction, and has tripled the number of acres treated by prescribed burning. However, these efforts—less than 33,000 treated acres in 2017-18—are dwarfed by the number of acres that require attention. California's Forest Carbon Plan sets a goal of treating 500,000 acres of private land every year.

As the owner of 57 percent of California's forestland, the federal government must do its fair share to reduce fire risk. Specifically, the Governor has joined the governors of Washington and Oregon to call for the federal government to double the investment in managing federal forestlands in our states due to the high-risk of wildfires.²⁰

Support for Regional Projects

In March 2019, the California Natural Resources Agency and Department of Conservation announced the award of \$20 million in block grants for regional projects to improve forest health and increase fire resiliency. The Regional Forest and Fire Capacity Program helps communities prioritize, develop and implement projects that strengthen fire resiliency.

Suppression

In recent years, the state has added additional year-round fire engines and firefighters to address longer, more severe fire seasons. The state has also launched a major initiative to replace Vietnam War-era helicopters with new state-of-the-art helicopters with enhanced firefighting capabilities. The Governor's Budget proposes to further expand the state's firefighting surge capacity by adding additional crews and engines. The Budget also includes funding to operate C-130 federal air-tankers.

To spur engagement from innovators in fire safety technologies and more effectively fight fires, Governor Newsom signed Executive Order N-04-19 to modernize the state contracting process for goods and technology systems. The "Innovation Procurement Sprint" will enable CAL FIRE to identify solutions to more effectively detect wildfire starts and predict the path of wildfires.

²⁰ Letter from Gov. Gavin Newsom to Pres. Donald J. Trump (Jan. 8, 2019), <https://www.gov.ca.gov/wp-content/uploads/2019/01/1.8.19-Joint-Letter.pdf>

Figure-04
Additional Recommendations on Prevention²¹

Implement Additional Recommendations from the Community Wildfire Prevention and Mitigation Report: The strike force recommends that the following additional actions from the CAL FIRE Report be considered and, when appropriate, expedited.

A. Create Incentives for Fuel Reduction on Private Lands

- Small non-industrial private landowners make up approximately 25 percent of California's forestland owners and managers, almost twice as much as private industrial forestlands. These private landowners may not have the resources to actively manage their forests and are subject to the same fire risk as other Californians.
- The Board of Forestry and Fire Protection should consider changes in regulations, through an emergency rule-making process as needed, to encourage private landowners to engage in fuel reduction projects.

B. Develop Methodology to Better Assess At-Risk Communities

- The methodology used to identify priority projects provides a robust assessment of near-term projects that can be implemented before the 2019 fire season. This methodology should serve as the basis for ongoing assessment methods to evaluate short- and long-term wildfire risk reduction strategies across the state, with specific attention to identifying vulnerable communities noting that long-term planning and decision-making efforts to reduce wildfire risk require consideration of additional factors, including more robust integration of climate risk factors into fire vulnerability assessments.
- The Forest Management Task Force should establish an interagency team with experience in spatial analysis, technology support, environmental management, public health, climate change, and social vulnerability to develop the methodology enhancements needed to inform the long-term planning needs of both state and local agencies.

C. Jumpstart Workforce Development for Forestry and Fuel Work

- The California Natural Resources Agency should identify specific opportunities to develop and encourage workforce training programs.
- The goal should be to increase the number of properly trained and compensated personnel, with an emphasis on providing opportunities for local residents, available to perform fuel reduction and forest management and restoration work in the private sector. These training programs should be implemented before the end of 2019.

D. Develop a Mobile Data Collection Tool for Project Reporting

- The California Natural Resources Agency should procure a mobile fuel reduction data collection application to be used by all land management departments and agencies to increase accuracy and ease of data collection in the field.

²¹ See CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION, *Community Wildfire Prevention & Mitigation Report* (Feb. 22, 2019), <http://www.fire.ca.gov/downloads/45-Day%20Report-FINAL.pdf> (last visited Apr. 10, 2019).

Wildfires and Climate Change: California's Energy Future

E. Develop a Scientific Research Plan for Wildfire Management and Mitigation, with Funding Recommendation

- The Forest Management Task Force should develop a research plan with prioritized funding.
- Topics that should be considered include:
 - Leverage the Governor's Request for Innovative Ideas (RFI2).
 - Best management practices in the face of a changing climate and developing an understanding of forest health and resilience.
 - Use of LIDAR, satellite, and other imagery and elevation data collection, processing and analysis for incorporation into state management plans and emergency response.
 - Funding for collaborative research to address the full range of wildfire-related topics. Important research investments could include both basic and applied research as well as social science to better understand social vulnerability, human behavior, land use, and policies that support resilience in communities that coexist with fire and mitigate impacts on life and property.
 - Research and development on new WUI building test standards in future research programs including the use of damage inspection reports from recent fires.

F. Develop Models and Best Management Practices for Evacuation Planning

- CAL FIRE and the Governor's Office of Emergency Services (Cal OES) and the Standardized Emergency Management System Advisory Committee should develop robust local evacuation planning models for high or very high Fire Hazard Severity Zones based upon best practices from within California.

Explore Public Private Partnerships and Capital Investment in Forest Waste Management

Businesses: Public-private partnerships that find secondary uses for forest waste and increase fuel reduction can be a constructive part of the solution. Fostering innovation and entrepreneurship, these could include biomass facilities, especially those that use the energy on-site or as an "alternate fuel" for electric vehicles, cross-laminated timber using beetle kill wood, wood chips or pellets, or composting practices for soil restoration.

Expanding small scale businesses around forest waste, like micro-mills or carpentry using "Alpine Blue" (beetle kill) wood, will help scale-up forest treatment on small, private land. The strike force recommends that the Natural Resources Agency explore how best to facilitate these types of partnerships, recognizing the critical role they play in both forest management and community economic development.

Building Safer Utilities

The state's most destructive wildfires have been sparked by utilities. Electrical fires tend to ignite during extreme wind events in remote areas with limited access for first responders. To reduce the overall risk of catastrophic wildfires for vulnerable communities, public and private utilities must make needed investments in grid hardening, vegetation management, and fire detection technologies.

Wildfires and Climate Change: California's Energy Future

Current Process for Utility Safety Investment

Regulatory review of safety investments follows the same general approach as discussed in Part 4 of this Report. Historically, this meant that investment in fire safety and mitigation was driven largely by the utilities. The California Public Utilities Commission (CPUC) adopted safety regulations for overhead electrical systems in Rule 35 of CPUC General Order 95. Utilities were required to comply with those regulations but set their own priorities for safety investment.

This largely utility-defined fire mitigation program resulted in inconsistencies in investment among the state's investor-owned utilities. SDG&E engaged in a robust fire mitigation and safety program after experiencing devastating fires in its service territory in 2007 and has become a recognized leader in wildfire safety.

More recently, SCE implemented a wildfire safety program designed to mitigate the challenges of wildfires, including the development of operational practices and inspections, vegetation management activities, and community outreach.

PG&E has begun to implement wildfire safety measures, but its efforts lag behind the other IOUs, which is particularly troubling given that it serves 40 percent of California's utility customers and many counties in high-risk areas.

CPUC and Wildfire Mitigation Plans

As the scale of utility-sparked wildfires increased, the CPUC, through statutory changes and on its own initiative, increased oversight of utility wildfire mitigation efforts. Each IOU is now required to prepare and submit a wildfire mitigation plan (WMP) annually to the CPUC for review and approval.²² The CPUC, in consultation with CAL FIRE, will evaluate the WMPs.²³ As part of this process, the CPUC held a public workshop and two days of technical workshops on wildfire mitigation. A comparison of the WMPs submitted by PG&E, SCE and SDG&E is attached as [Annex A](#) to this Report. The CPUC expects to approve the WMPs in May 2019 and thereafter oversee compliance with the WMPs. The CPUC intends to develop and refine the content of and process for review and implementation of wildfire mitigation plans to be filed in future years.

While substantial efforts are underway to build safer utilities, the strike force has identified areas for immediate improvement.

Recommendations

Establish a More Rigorous WMP Process: The WMP requirements should be revised to include a section on long-term fire management and a process to ensure faster compliance with the proposed plan. WMPs should also include specific performance-based risk mitigation metrics that are independently and scientifically verified as well as

²² Cal. P.U.C. § 8386.

²³ The IOUs that are required to submit WMPs are PG&E, SCE, SDG&E, Liberty Utilities/CalPeco Electric, Bear Valley Electric Service, and Pacific Power.

Wildfires and Climate Change: California's Energy Future

cost-effective. Further, to hold IOUs accountable, California should consider putting in place an auditing system tied to financial incentives.

- **Safety Incentives:** Consider other CPUC reforms to better align IOU incentives with safety, including:
 - Adjust the allowed return on equity (ROE) based on wildfire safety performance
 - Align compensation and stock options of executives with wildfire safety performance
 - Make Board composition contingent on wildfire safety performance
 - Require Board-level reporting to CPUC on wildfire safety issues
- **Invest in Technology and Innovation:** New technologies, including weather stations, drones, and artificial intelligence have tremendous potential as tools to more effectively prevent, detect and respond to wildfires. The CPUC convened the state's first Wildfire Technology Innovation Summit in March 2019 to gather national and international thought leaders and practitioners from state and local governments, academia, industry and other areas to inform and collaborate as to innovative technological solutions to wildfire risk, including:
 - Statewide deployment of weather stations and cameras paired with meteorology and fire behavior modeling
 - Artificial Intelligence-based visual recognition technology to analyze satellite imagery to determine fuel conditions and vegetation risks in proximity to utility lines
 - Fire modeling tools to support all fire departments and emergency responders across the state
 - Machine learning and automation inspections for increased safety assurance and regulatory compliance
 - Widespread adoption of aerial patrols, LIDAR and advanced imaging for vegetation management and utility infrastructure inspections
- **Update Models to Reflect Climate Change:** Climate change has rendered many assumptions about California's climate outdated. Historical records for humidity, wind, rain, and temperature are regularly broken. CPUC regulations—such as General Order 95 governing electrical lines—are premised on historical climate trends which may no longer be accurate. The state should work with experts to update their models on climate change, using the existing Adaptation Clearinghouse and Climate Assessment process as a central location for data, maps, and information. The state should also facilitate cross-learning with utilities, which often make capital investments in physical infrastructure over decades.
- **More Cost-Effective Financing for Wildfire Mitigation Safety Investments:** A critical element of mitigating utility-sparked wildfires is substantial and immediate investment in electrical grid safety. The state may be able to mitigate the rate impact of this investment by offering a lower cost financing alternative through a dedicated rate

Wildfires and Climate Change: California's Energy Future

stream. Where IOUs fall behind on making needed investments, a reduced return on equity for this deferred maintenance can further reduce ratepayer impact.

Emergency Response

In a matter of hours, 52,000 people from rural Paradise and surrounding communities evacuated onto roads built for a fraction of that capacity and converged on Chico, overwhelming the recovery system. The scale and speed of catastrophic, wind-driven wildfires, like the Camp Fire, incapacitate existing emergency response systems, local infrastructure and planned recovery efforts. Many California communities designed their fire emergency response and recovery systems decades ago, using old technology and outdated fire modelling. A clear overhaul of the California emergency response systems and the underlying infrastructure is needed.

The lack of broadband in rural communities and access to cell service make it difficult to communicate clear emergency evacuation orders to residents or locate residents who are in trouble. Roads in rural counties were often designed around old gold-rush tracks that were not designed to accommodate the number of residents using those roads, the ability of emergency vehicles to access the roads, or the need for defensible space. Evacuation plans assume that residents can evacuate and do not identify safe havens and shelter-in-place options for residents.

The state should partner with local government to encourage updates to local emergency plans, to increase resident awareness of those plans, and to otherwise improve emergency prevention and response efforts. Further, the state should encourage local governments to adopt recently issued guidelines to improve communications during an emergency.

On February 13, the Governor signed AB 72 (Assembly Committee on Budget, Chapter 1, Statutes of 2019), which appropriated \$50 million for an emergency preparedness campaign focused primarily on California's most vulnerable populations, including the elderly, disabled, and those in disadvantaged communities. The California for All Emergency Preparedness Campaign—a joint initiative between California Volunteers and Cal OES—will augment the efforts of first responders by ensuring at least one million of the most vulnerable Californians are connected to culturally and linguistically competent support.

The Emergency Preparedness Campaign will provide:

- \$24.25 million in grants to community-based organizations across the state to prepare residents for natural disasters through education and other resources designed to bolster resiliency.
- \$12.6 million to support community efforts to build resiliency and respond to disasters by dispatching expert disaster teams to key regions and expanding citizen emergency response teams (CERT).
- \$13.15 million to assist community groups in the development of a linguistically and culturally appropriate public awareness and outreach campaign, directed specifically at the most vulnerable California communities.

Wildfires and Climate Change: California's Energy Future

Recommendations

- **Governor's Emergency Preparedness Summit:** By the end of June 2019, Cal OES, in partnership with the League of California Cities and the California State Association of Counties, will convene first responders, government agencies, local governments, community residents, and technical experts to develop plans for the state's emergency preparedness. The summit will highlight best practices of local communities, share resources that have worked around the world, and develop the networks necessary for ongoing preparedness improvements.
- **Develop Models and Best Management Practices for Evacuation Planning:** Cal OES, in collaboration with CAL FIRE, the Standardized Emergency Management System Advisory Committee, and local governments should develop evacuation planning models for high or very high Fire Hazard Severity Zones based upon best practices. These models can be a tool for local governments to use when developing location specific evacuation plans. Cal OES should consider how adoption of these models can be incorporated into County Operational Area plans of jurisdictions that also receive FEMA program grant dollars.
- **Develop Methodology to Better Assess Communities At-Risk:** The Forest Management Task Force should establish an interagency team with experience in spatial analysis, technology support, environmental management, public health, climate change, and social vulnerability to develop methodology improvements to inform the long-term planning needs of both state and local agencies.

Land Use, Building Codes, and Community Resilience

According to the Fourth Climate Assessment, the average area burned statewide will increase by an estimated 77 percent by 2100. At the same time, the housing affordability crisis is forcing more Californians to move farther from urban areas, and often into high-risk areas. An additional outcome of these land use patterns is the year-by-year increase in driving, or "vehicle miles traveled" (VMT), which in turn increases carbon emissions and vehicle pollution across the states. California's housing affordability crisis is increasingly fueling the dangers of climate change and wildfire. Reducing fire risk to these areas will require changes in how higher-risk areas are designed, planned, built, served by utilities, and allowed to grow, and will require people across the state to participate in the solution.

The Governor has made housing production and affordability a key priority. California already has strong standards to reduce VMT. The strike force recommends that at the state and regional level, governments and planners incorporate CAL FIRE's fire risk projections and the fire projection information in the Adaptation Clearinghouse and Fourth Climate Assessment into short-term and long-term planning, and begin to de-prioritize new development in areas of the most extreme fire risk. In turn, more urban and lower-risk regions in the state must prioritize increasing infill development and overall housing production.

California has made progress in developing and adopting stringent wildland building codes. Since 2008, new construction in California's wildlands must use ember-resistant building materials. For homes built before the 2008 standards, CAL FIRE is working to

Wildfires and Climate Change: California's Energy Future

develop a list of low-cost retrofit steps homeowners can take. In addition, the Office of the State Fire Marshal (OSFM) maintains an advisory committee of fire and building officials that continuously considers building code updates to improve fire safety. Most recently, OSFM advanced building code changes including sealing of garage door gaps, sealing skylights and safety improvements to outbuildings.

Developing new housing in Very High Fire Hazard Severity Zones presents challenges. Since 2015, CAL FIRE has assisted local governments in land use planning. CAL FIRE is working to identify subdivisions at significant fire risk without secondary evacuation routes and to make recommendations to improve access.

Homeowners are encouraged to actively maintain defensible space, which is defined as a minimum 100-foot area around a home. Maintenance is an ongoing task. California inspected more than 217,600 homes for defensible space compliance in 2017-2018 alone.

It is critical that roads and other infrastructure be more fire defensible and evacuation ready for the populations in the WUI. All levels of government must establish clear contingency plans with local communities to identify and create temporary refuge areas and shelter-in-place procedures to help fire evacuees survive when unable to escape a wildfire.

Cal OES, in coordination with local communities and the Standardized Emergency Management System Advisory Committee, should consider developing local evacuation planning models for high or very high fire hazard severity zones based on best practices in California.

Recommendations

- **Prioritize Building In Less Fire-Prone Areas:** The strike force recommends that at the regional level, governments and planners incorporate CAL FIRE's fire risk projections and the fire projection information in the Adaptation Clearinghouse and Fourth Climate Assessment into short- and long-term planning, and consider how to encourage more urban and lower-risk regions in the state to provide an alternative for those otherwise shut out of the state's housing market.
- **Local General Planning:** The strike force recommends that the safety element of local general plans be strengthened in high-risk areas, specifically for local governments to include fire risk projections into general and specific plans, including through zoning and design standards. Additionally, OPR should prioritize providing technical assistance support to these communities, many of which are rural and lack planning resources.
- **Cost-Effective Home Retrofits:** While California has stringent building standards and requirements for defensible space, the intensity of the wildfire threat in California now warrants higher levels of fortitude.
 - CAL FIRE should consider options to encourage cost-effective home hardening to create fire resistant structures within the WUI and with a focus on vulnerable communities.

Wildfires and Climate Change: California's Energy Future

- The Forest Management Task Force should work with the Department of Insurance to seek input from the insurance industry on potential rebates or incentives for homeowners.
- CAL FIRE and the Department of Housing and Community Development should develop a list of low-cost retrofits that provide comprehensive fire risk reduction to protect structures from fires spreading from adjacent structures or vegetation and to prevent vegetation from spreading fires to adjacent structures.
- Consideration should be given to implementing a funding mechanism to assist individuals with cost-effective home retrofits. The model used by the California Earthquake Authority provides an example of such a mechanism.
- **Defensible Space and Forest and Rangeland Protection:** Compliance and enforcement is key to ensure that defensible space standards are met. CAL FIRE should review and make recommendations to increase defensible space.

Part 2: Mitigating Climate Change through Clean Energy Policies

California's recent experience with catastrophic wildfires confirms the critical importance of climate change mitigation efforts. As discussed in Part 1 of this report, the devastating impacts of climate change, predicted for years, are now a reality. As the state moves quickly to respond to these impacts and become more resilient, we must remain focused on addressing climate change through clean energy policy.

The state's IOUs have played a significant role in moving California away from fossil fuels—from enabling the renewable energy markets to mature with continuing decreasing costs to carrying out energy efficiency mandates and demand response and storage programs. While other retail providers have entered the energy market and helped advance clean energy, IOUs still play a critical role in the state's efforts to address climate change. To continue the state's progress in reducing greenhouse gas emissions in the energy sector, California needs investment-worthy IOUs.

California's efforts to mitigate and adapt to climate change must remain an overarching priority for the state and for the IOUs. Action must be taken to facilitate progress toward a 100 percent clean energy grid. We also must ensure that the state's current system of oversight keeps up with the evolving energy market so that reliability, affordability, and continued progress toward California's climate goals is not compromised.

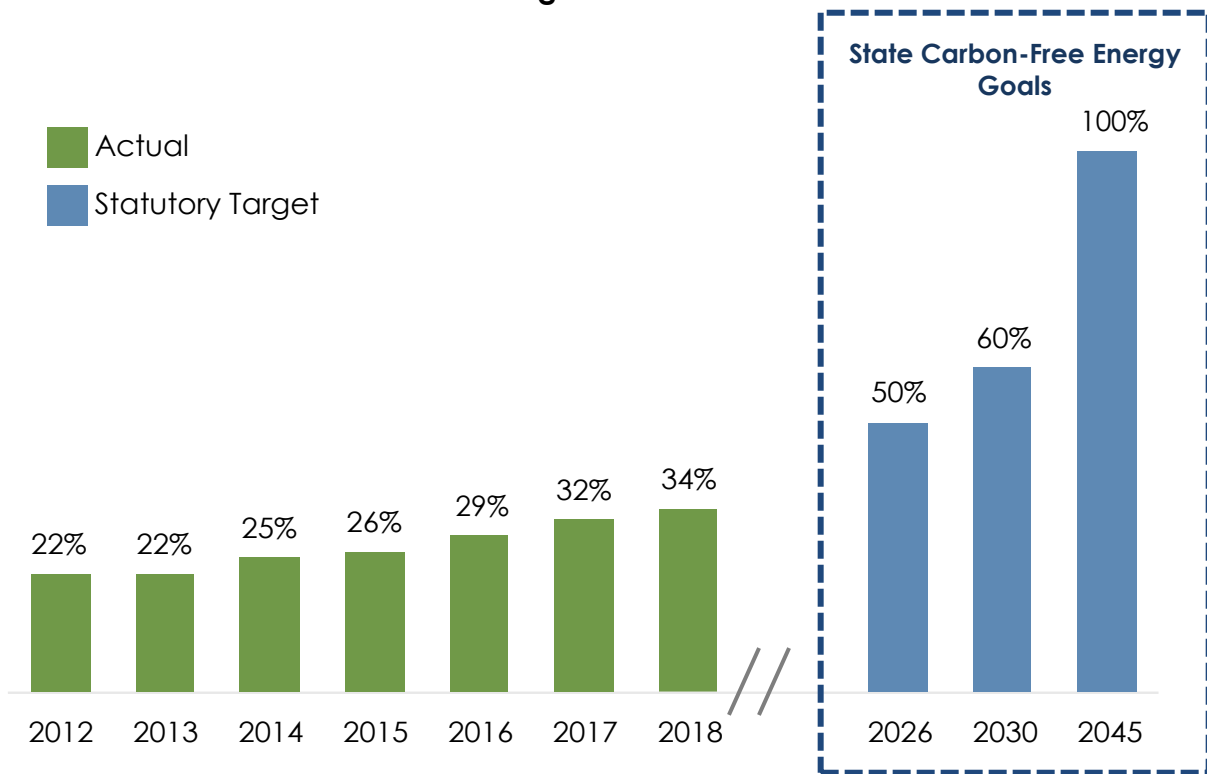
While working to increase carbon-free energy resources, utilities are also improving wildfire prevention and safety planning practices. Investments in safety at a level necessary to stay ahead of volatile climate conditions come at a cost, and this cost is being incurred at a time when maintaining low electricity rates is vital to meeting California's climate goals, as the next steps in carbon reduction involve electrifying the transportation and building sectors of the economy.

Safety investments have many benefits. A modern transmission and distribution system will create high-quality jobs and long-term economic stability, in addition to making us more resilient to the impacts of climate change and protecting the millions of residents living in fire-prone areas.

Renewable Energy Development

California has made extraordinary progress in meeting its energy sector climate goals. The state is a leader in replacing conventional forms of electric generation with cleaner sources using wind, solar, and other renewable resources instead of fossil fuels. Currently approximately 34 percent of retail electric sales are served by renewable resources and over 55 percent of sales are covered by carbon-free resources, including hydroelectric and nuclear energy. Figure-05 illustrates the progress toward renewable and carbon-free energy development.

Figure-05



California's renewable energy industry is a powerful economic force in the state. Wind and solar energy projects brought over \$70 billion in capital investments to California, establishing the state as a leader in renewable generation and spurring broader innovations.²⁴ Future electrification of buildings and transportation offers even more benefits, as those sectors represent the most cost-effective opportunities to decarbonize.²⁵

Over \$22 billion in clean technology venture capital funding was invested in California from 2007 to 2017.²⁶ One 2015 study shows that from 2003-2014, approximately 52,000 jobs were created in California due to the construction of renewable energy facilities.²⁷ The construction of those facilities also created and facilitated a number of indirect jobs and opportunities. In total, approximately 130,000 jobs were created. The study also projected that increasing California's renewable portfolio standard to 50 percent could

²⁴ AMERICAN WIND ENERGY ASSOCIATION, *Wind Energy in California*, <https://www.awea.org/Awea/media/Resources/StateFactSheets/California.pdf> (last visited Apr. 10, 2019); SOLAR ENERGY INDUSTRIES ASSOCIATION, *Solar State By State*, <https://www.seia.org/states-map> (last visited Apr. 10, 2019).

²⁵ California Energy Commission, *Deep Decarbonization in a High Renewables Future*, (June 2018), https://www.ethree.com/wp-content/uploads/2018/06/Deep_Decarbonization_in_a_High_Renewables_Future_CEC-500-2018-012-1.pdf (last visited Apr. 10, 2019).

²⁶ NEXT 10, 2018 California Green Innovation Index (10th Ed.), (2016) (<https://www.next10.org/sites/default/files/2018-ca-green-innovation-index.pdf> (last visited Apr. 10, 2019)).

Wildfires and Climate Change: California's Energy Future

²⁷ UC BERKELEY LABOR CENTR., INST. FOR RESEARCH ON LABOR AND EMPLOY'T., *Job Impacts of California's Existing and Proposed Renewables Portfolio Standard*, (Aug. 2015), laborcenter.berkeley.edu/pdf/2015/job-impacts-ca-rps.pdf (last visited Apr. 10, 2019).

Wildfires and Climate Change: California's Energy Future

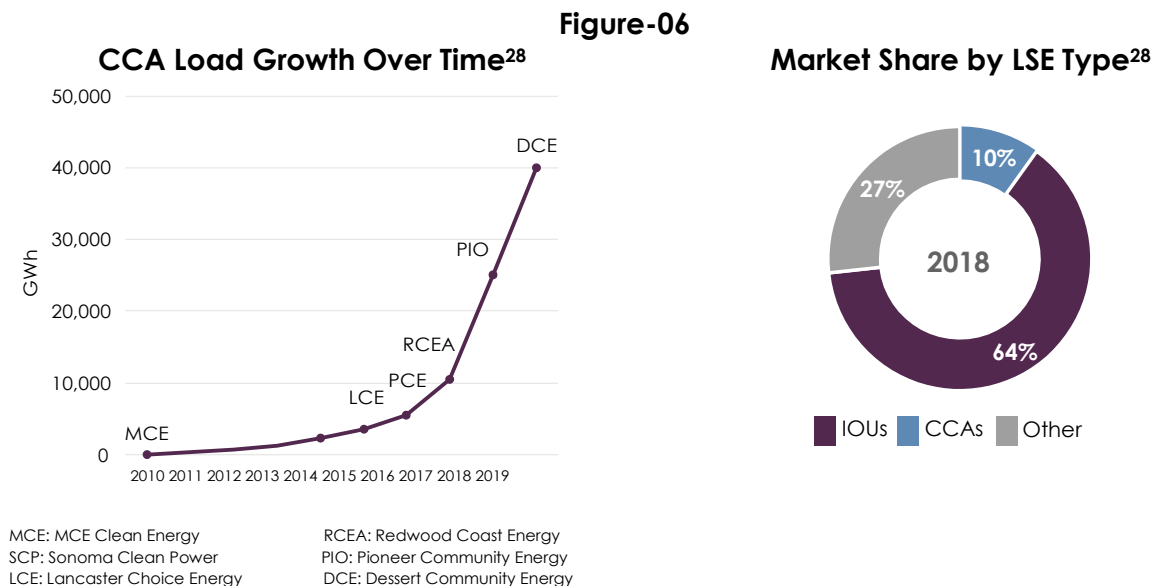
create an additional 354,000 to 429,000 direct jobs from the construction of new renewable generation, and hundreds of thousands of indirect jobs and opportunities.

Today, we have both a challenge and an opportunity: a challenge to continue progress toward 100 percent carbon-free energy generation and an opportunity to transform the state's economy. During this transition period, we need to make sure we have effective tools and protections to manage costs to consumers, ensure reliability, and reduce risks.

Challenges in the Evolving Electric Sector

Maintaining Reliability with Less Centralized Control

As more IOU customers install rooftop solar and storage, migrate to community choice aggregators (CCAs) and purchase energy from energy service providers (ESPs), IOUs are focusing on providing electric transmission and distribution service. New CCAs and ESPs are entering the market, acquiring energy in the wholesale market from electric generating companies, and selling energy to customers at retail. As a result, IOUs increasingly are becoming "poles and wires"—companies that are responsible for constructing, maintaining, and operating the facilities over which electric energy is delivered to customers. Figure-06 illustrates the CCA load growth over time.



Between rooftop solar, Community Choice Aggregators (CCAs) and Direct Access providers (ESPs), as much as 85% of Investor Owned Utility (IOU) retail electric load will be effectively unbundled and served by a non-IOU source or provider by the middle of the 2020s".

The IOUs deliver electricity and perform other important functions, such as metering and billing (including collecting fees from consumers to fund certain public-interest programs). CCAs typically do not have credit ratings which can limit their ability to

²⁸ See UCLA Luskin Center for Innovation's The Growth in Community Choice Aggregation, dated July 2018. CCA annual load data from each CCA's respective implementation plan. "Other" category represents the difference between the California Energy Commission's statewide load estimation and the IOU and CCA loads.

Wildfires and Climate Change: California's Energy Future

obtain the financing necessary to enter into long-term contracts at the scale needed to achieve a zero-carbon grid by 2045 and to meet Resource Adequacy (RA) requirements.

Meeting Provider of Last Resort (POLR) Obligations

Customers who choose not to obtain retail service from a CCA or an ESP, or who may be subject to a failure by a CCA or ESP to provide service, currently are protected by the requirement that an IOU must step in to provide energy under the IOUs' POLR obligation.²⁹ If IOUs become primarily "poles and wires" businesses, it raises the question as to whether the IOUs should continue to provide POLR service or whether another entity should assume this responsibility.

Avoiding Significant Rate Increases and Addressing the Need for Investment

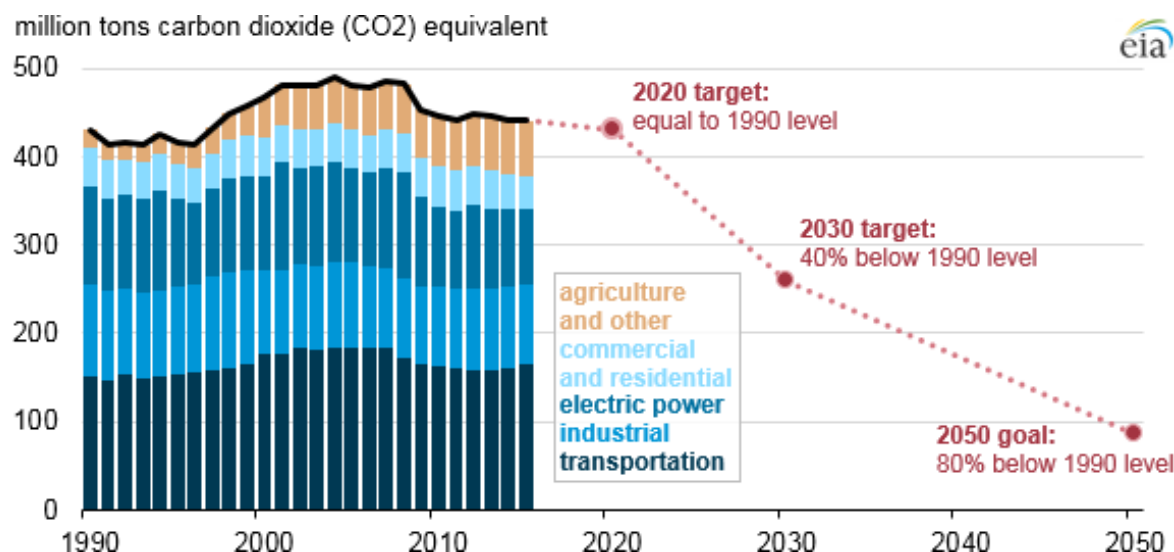
Major investments will be needed in the electric transmission and distribution system in California to make the system less susceptible to wildfires, to otherwise modernize it, and to accommodate changes in generation and demand. It will be important to have financially strong utilities so they can attract the capital necessary to make these investments at low rates (since the cost of capital is passed along to consumers). Keeping capital costs down is particularly important in light of potential increases in other costs, including the cost of large wildfire liabilities.

Continuing Progress in Reducing Certain Carbon Emissions

As shown in Figure-07 below, California has made significant progress in reducing carbon emissions. In the energy sector, the IOUs have been instrumental in reducing carbon emissions. Their long-term contracts for renewable energy resources have driven prices down as new technologies have been deployed at commercial scale. Some CCAs have more aggressive renewable targets than the IOUs, and benefit from the early IOU renewables projects because they are benefitting from today's lower solar and wind energy prices. New CCAs are required to collect an adjustment charge from their customers to reflect the cost of older, long-term contracts that IOUs entered into on their behalf.

²⁹ The IOUs have a duty to provide distribution service on a non-discriminatory basis to the customers in their service territory. This currently includes the POLR obligation to sell energy at retail to those customers who opt out of obtaining service from a CCA. This POLR obligation also would extend to any situation in which a CCA or ESP were to cease providing service for some reason such as in the case of a bankruptcy.

Figure-07
California Greenhouse Gas Emissions by Sector³⁰



Distributed Resources

California utilities provide a means to implement various Distributed Energy Resources (DER) initiatives throughout the state.³¹ California has experienced phenomenal growth in electric generation by customers on a distributed basis (in contrast to obtaining energy from large, central generating stations), particularly in the form of rooftop solar generation. In the future, it is expected that more customers will install battery storage on a distributed basis.

Many of these programs grew as a result of state mandates carried out by IOUs. Few of the programs (with the notable exception of net energy metering) directly involve CCAs, ESPs or publicly-owned utilities (POUs). Additionally, the California Independent System Operator (CAISO) has developed an innovative mechanism to allow distributed resources to join together and bid into the wholesale market, providing revenue for distributed resources as well as a benefit to the electrical system. Distributed resources, however, contribute to the fragmentation of the energy supply, and need to be managed to ensure they continue to benefit the electricity system.

Adapting to Intermittent Electric Generation

Today, almost two-thirds of California's renewable energy generation capacity is from intermittent sources such as wind and solar. The output from these sources vary

³⁰ See U.S. Energy Information Administration, based on California Air Resources Board data.

³¹ Those initiatives include (i) providing rebates to customers that install self-generation facilities or storage; (ii) these are funded by a charge that the IOUs collect from their consumers; mandating that IOUs (and to a lesser extent CCAs and POU) directly procure battery storage technologies that connect at the distribution grid level; and (iii) developing pilot projects to test the ability of DER to offset the need to build new distribution lines; and developing programs within the RPS that target distributed solar resources.

Wildfires and Climate Change: California's Energy Future

depending on the weather, season, and time of day. This imposes challenges on electric grid operations. Generation output from wind and solar sources is not controlled by the grid operator and can increase or decline rapidly, which requires adjustments in generation from other sources (or adjustments in demand) to keep supply in balance with demand. In particular, large amounts of low-cost solar electric generation during the middle of the day has created a situation where on some days there can be an overproduction of electricity and on many days generation from other sources must ramp up rapidly in the afternoon.

Overproduction can be a good problem to have since that energy, coupled with the right policies, can be harnessed to electrify other parts of the economy, such as transportation and buildings. A diverse portfolio of renewable resources and policies, including time-of-use rates, demand response programs, storage, energy efficiency, increased regional coordination, and electric vehicle charging, will continue to be critical to reduce the need for the carbon-intensive resources generally used to meet the afternoon ramp and overnight demand.

Reliability

Several factors, including flat demand for electricity and growth in renewable energy generation, have contributed to substantial retirements of fossil-fueled electric generation (mainly natural gas). Stricter environmental standards have accelerated this trend. Yet flexible resources continue to be needed in the near term to quickly ramp up as solar generation resources go off-line or load increases, and during extended cloudy periods. Over the long-term, it will be critical to ensure that cost-effective clean energy resources are available for reliability and other grid services.

Resource Adequacy Requirements

California has responded to energy shortages in the past by requiring that load-serving entities (LSEs) contract to purchase sufficient electric generation (or distributed resources or storage) to meet their forecasted peak demand plus a pre-set reserve margin. Several factors caused some LSEs to experience difficulty meeting their RA requirements.³² Some LSEs have had to obtain temporary waivers from the CPUC and others have been penalized. Additionally, IOUs have taken on procurement of some resources needed for reliability that other LSEs may not want to procure. In some cases, the CPUC required IOUs to enter into long-term contracts needed for reliability, including contracts for battery storage. This option is less effective as IOUs have fewer and fewer retail customers.

Maintaining Public Purpose Programs; Promoting Energy Efficiency and Demand Response.

California has been a leader in energy efficiency, with electricity use per capita remaining virtually flat over the past four decades despite substantial economic growth

³² Challenges in the RA market include (i) a growing number of LSE competing to buy the same existing resources, (ii) a shrinking pool of resources LSE can procure as the planned retirement dates of older natural gas plants approach, and (iii) the inability/unwillingness of LSEs to enter into long-term contracts for some needed resources.

Wildfires and Climate Change: California's Energy Future

during that period.³³ The state has had success with programs that align the incentives of utilities and consumers in using less energy, including programs providing financial incentives or rebates, incorporating efficiency requirements in various codes and standards, and providing education and technical assistance.

Demand response programs, which provide incentives for customers to adjust their consumption during certain periods, have also been successful. Similarly, time-of-use rates provide incentives for customers to adjust their energy use to optimize renewable resources. New demand response programs are being developed that can increase loads at times when there is an abundance of solar generation.

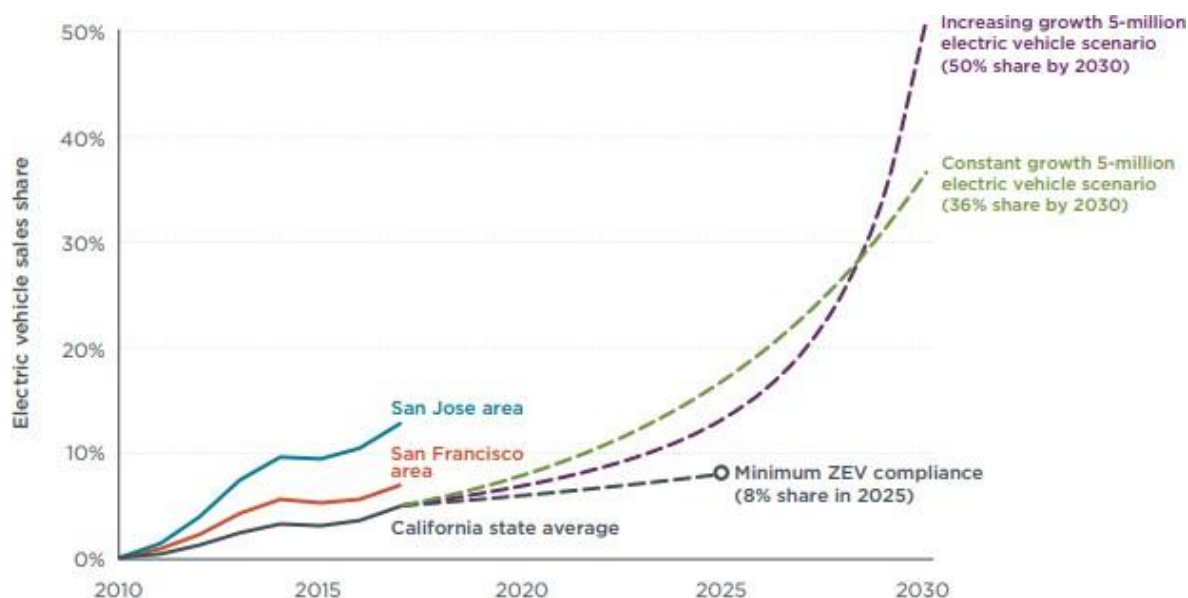
California has relied on the IOUs to implement public-purpose programs to fund energy efficiency and demand response, as well as reducing rates for low-income customers and renewable energy incentives. If the IOUs become "poles and wires" companies, it will be important to ensure that this change does not threaten these public-purpose programs.

Electric Vehicle Integration

A critical component of California's efforts to meet its goals to reduce carbon emissions is to replace vehicles that use gasoline or diesel fuel with electric vehicles or hydrogen vehicles. The CPUC and other agencies in California support this effort by promoting deployment of charging stations, providing rate incentives (encouraging charging at off-peak hours), and other programs. Growth in vehicle electrification will result in increases in electric consumption over time and further increase the dependence of Californians on the electrical grid and the utilities that own and operate it. Over half of California's greenhouse gas emissions are from the transportation sector. Thus, the success of transportation electrification programs is essential to meeting the state's climate goals, and will depend on electricity being clean and available, and a less expensive option to fuel vehicles than gasoline. This provides one justification, among many, for efforts to minimize increases to electric rates. Figure-08 illustrates the California vehicle forecast.

³³ Energy efficiency helps to reduce the need for electric generation, including from sources that emit carbon and other greenhouse gases. Targeted energy efficiency, as well as programs such as demand response and time-of-use pricing, to reduce energy use at periods of high prices or demand, contributes to a more reliable electric grid with less need for physical improvements to the grid.

Figure-08
California Electric Vehicle Adoption Forecast³⁴



Recommendations

- Evaluate Resource Adequacy Back-Stop Options Through the Legislative Process:** Procurement by the IOUs, under supervision by the CPUC, has been effective over time. But as the state transitions to more LSEs, gaps and inefficiencies could emerge. To manage this transition, new procurement support models, including a new state procurement entity that could enter into long-term contracts, provide credit support or otherwise facilitate purchases of electric energy, should be explored. Procurement support could have a number of benefits, including providing back stop resource adequacy procurement and ancillary services needed to support reliability. To maintain cost-effectiveness and achieve rate benefits, it will be important to continue to focus on procurement through integrated resource planning or a similar framework. In addition, the POLR obligation discussed above and the responsibility for implementing public purpose programs could also be examined.
- Increase Transparency for Load-Serving Entities and State Coordination of Procurement:** Customers in California should have access to complete and accurate information about the energy they are procuring, regardless of whether the procurement is from an IOU, POU, CCA, or ESP. This should include transparent information about prices, compliance with resource adequacy requirements, and the sources of energy being procured (including reliance on renewable energy sources). To the extent that customers have a choice regarding their retail electric provider, transparency is required so that they are able to make informed choices. Of course, transparency also is required for the appropriate government agencies to

³⁴ See International Council on Clean Transportation, May 2018 Briefing.

Wildfires and Climate Change: California's Energy Future

ensure compliance with applicable RPS, resource adequacy, and other requirements. Additionally, new programs or legislation may be needed for coordination of purchasing by CCAs and ESPs to ensure they continue to meet California's standards for integrated resource planning, resource adequacy, clean energy progress, consumer protection, and hedging risk.

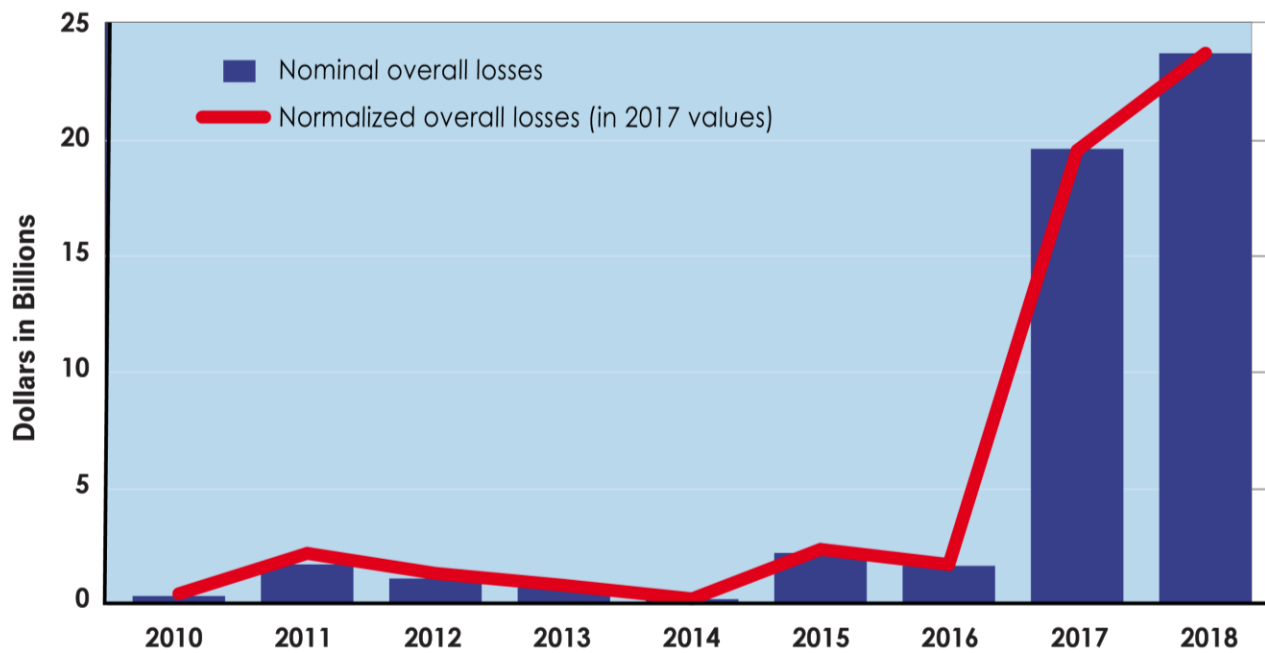
- **Addressing Variability in Generation and Consumption:** Addressing variability in electric generation and consumption will require efforts on a number of fronts. The afternoon ramp—the period when solar and wind energy decline and demand goes up—is increasing. Traditionally, flexible resources, such as natural gas-fired generators, have been used to provide a reserve margin, to ensure that generation and consumption stay in balance, and to provide other ancillary services needed for reliability. In the near term, a limited number of natural gas resources are still needed. In the longer term, more innovative solutions will be required. Further progress in time-of-use rates, demand response programs, storage, energy efficiency, increased regional coordination, and electric vehicle charging can help to ensure that demand at any given moment is at a level that can be accommodated by the amount of available electric generation. Proper infrastructure and incentives can be developed to facilitate and encourage integration of electric vehicles into the electric system in a manner that can enhance reliability and reduce costs. The strike force recommends that the CPUC use its Integrated Resource Planning process and other related proceedings to address these issues.

Part 3: Fair Allocation of Catastrophic Wildfire Damages

Climate change, forest management practices, and real estate development patterns in the WUI have dramatically increased the risk and magnitude of wildfire damage. All stakeholders, public and private, must invest in mitigation, suppression and emergency response to reduce the incidence of catastrophic fire and to protect lives and property. At the same time, communities need electricity—including communities in remote, high fire-risk areas. As long as electrical lines run through tinder-dry forests, California can mitigate but not eliminate utility-sparked fires. California also must support wildfire victims and communities as they work to rebuild. These often competing imperatives require a new policy framework to responsibly and fairly allocate the cost of wildfire damage in an era of climate change. No single stakeholder created this crisis, and no single stakeholder should bear its full cost.

Developing workable solutions to equitably share the burden of compensating victims for wildfire damages is made more challenging by uncertainty regarding the future effects of climate change and the efficacy of mitigation efforts. The staggering wildfire damages of 2017 and 2018 highlight the potential severity of wildfires in the future.

Figure-09
Wildfire Damages³⁵



We do not know whether this magnitude of damage is a new normal, or if recent years were aberrational. Experts consulted by the strike force believe climate change, development patterns, deferred utility equipment maintenance, and other factors suggest much heightened risk going forward but predicting how much risk and how

³⁵ Climate Changes Increases Wildfire Risk

Wildfires and Climate Change: California's Energy Future

consistently is more difficult. There is also uncertainty about the level of success we can expect in reducing the frequency and severity of wildfires.

Another challenge to a durable solution is that liability for wildfires ignited by utility equipment is governed by California's inverse condemnation law, which holds a utility strictly liable for wildfire damages if the utility's equipment ignites a wildfire, even if the utility's design and maintenance of infrastructure were not unreasonable or negligent. While a utility faces strict liability for all damages caused by its equipment, it can recover those costs through rates only by proving to the CPUC that its conduct was prudent. This regime—strict liability for wildfire damage coupled with uncertain ability to recover those damages in rates—increases the risk of bankrupt utilities, which in turn drives up costs for consumers, threatens fair recoveries for fire victims, undermines the state's ability to mitigate and adapt to climate change, and creates uncertainty for utility employees and contractors.

Under the status quo, all parties lose – wildfire victims, energy consumers, and Californians committed to addressing climate change. Victims face a great deal of uncertainty and diminished ability to be compensated for their losses and harm. Customers face rising rates and instability. California's ability to achieve its climate goals is frustrated. Utility vendors and employees face uncertainty and likely significant losses. Bottom line --- utilities in or on the verge of bankruptcy are not good for Californians, for economic growth or for the state's future.

Strike Force Deliberations

The strike force has identified and intensively researched several approaches to address wildfire liabilities. Each of the approaches evaluated by the strike force has benefits and tradeoffs.

Much work remains to be done to evaluate these concepts and determine which alternative or combination of alternatives will best support safe, reliable, and affordable energy for Californians, further clean energy goals, and enable fair treatment for wildfire victims. The strike force recommends that the Commission on Catastrophic Wildfire Cost and Recovery (SB 901 Commission) jointly appointed by the Governor and the Legislature, evaluate these concepts and report back to the Governor and the Legislature on its findings.

Principles Underlying a New Approach to Stabilizing and Sharing Costs

California's approach to wildfire mitigation must be grounded in principles that further the imperative to provide safe, reliable, and affordable power on a sustainable basis. To that end, the strike force has identified the following principles against which any proposal must be measured:

1. *Maintaining Safe, Reliable, and Affordable Power.* California residents and businesses require a safe and reliable electrical system, the achievement of which requires ongoing investment in new equipment, systems, and workforce. At the same time, steep rate increases would have adverse consequences for consumers, businesses, and California's climate goals. Thus, rate increases must be mitigated.

Wildfires and Climate Change: California's Energy Future

2. *Hold Utilities Accountable to Prioritize Safety.* Any changes in the liability rules should provide incentives for utilities and their management to prioritize and invest in safety and impose penalties for failure to do so. Any changes also must continue to hold a utility's shareholders—not its customers—responsible for failures to operate safely.
3. *Treat Wildfire Victims Fairly.* California wildfire victims deserve fair disposition of their claims so that they can move forward with their lives.
4. *Require Equitable Stakeholder Contributions.* The burdens of wildfire damages brought on by climate change are too great to be borne by any one stakeholder. A fair distribution of the burden requires utilities (ratepayers and investors), insurance companies, local governments, and attorneys representing victims to contribute.
5. *Reduce Overall Costs.* We must reduce wildfire damages as well as the financial claims that arise from them. This means prioritizing and paying for safety. It also means structuring the process by which claims are made and paid to assure the highest proportion of resources to pay for the actual losses victims suffer. And it means not creating a "free rider" problem or creating incentives for people not to act responsibly (e.g. by not properly insuring property against the risk of fire damages).
6. *Promote California's Clean Energy Goals.* Any solution must be consistent with California's long-term climate and clean energy goals and minimize the risk that wildfire liabilities will prevent utilities from having the resources to advance those goals, both in the near-term and over time.
7. *Recognize the Contribution of Taxpayers.* As described elsewhere, taxpayers have substantially increased their contribution to mitigating fire risk and fighting fires when they ignite. Any consideration of a fair burden of costs must recognize the substantial contribution the state and its taxpayers have already made and are continuing to make.

Current Framework for Allocating Costs of Utility-Caused Wildfires

In California, when a utility's equipment causes a wildfire, the utility may be held liable to pay for damages through (1) inverse condemnation lawsuits for property damages³⁶ brought by property owners or insurance companies (which seek compensation for payments they make to insured property owners); (2) tort lawsuits by a harmed party; and/or (3) recovery of fire suppression costs from third parties.³⁷ California's application

³⁶ Inverse condemnation is limited to property damage caused by utility equipment, so not all utility wildfire liabilities are actionable under inverse condemnation. For example, wildfire liabilities caused by a utility company employee, rather than utility equipment, are not recoverable under inverse condemnation. In practice, litigation pursuing subrogation recovery will include multiple liability theories, including inverse condemnation, some of which apply a strict liability standard and some of which apply other standards, such as negligence.

³⁷ When a utility is found to be a cause of a wildfire, the utility can be required to pay for three primary types of losses: (i) property damage and damages for personal injury, death, and related impacts, (ii) suppression expenditures incurred by government entities, including Cal FIRE and the United States Forest Service, and (iii) other economic and natural resource damages. The first two categories are direct costs (e.g. damage to structures, fire-fighting expenditures, injury and mortality) and are well defined, whereas the third category represents indirect damages (e.g. business interruption, temporary housing costs).

Wildfires and Climate Change: California's Energy Future

of inverse condemnation to utilities places 100 percent of the cost of wildfire property damage on a utility if its equipment caused the fire—regardless of fault and without consideration of the contributing role of climate change, forest management, land-use policies and other factors.

California is unique in extending the concept of inverse condemnation to IOUs.³⁸ Nonetheless, California courts have reasoned that “the nature of the California regulatory scheme demonstrates that the state generally expects a public utility to conduct its affairs more like a governmental entity than a private corporation.”³⁹ The primary purpose of inverse condemnation is to spread costs to relieve individuals from bearing a disproportionate share of the economic burden of a governmental action.

Inverse condemnation claims have two unique features that create challenges for California's IOUs:

1. *Fault is Irrelevant.* In an inverse condemnation claim, the plaintiff need not allege or prove that the utility behaved unreasonably or negligently. An entity may be held strictly liable for damages so long as the plaintiff proves that the utility was a substantial cause of such damage—even if it was only one of several concurrent causes.
2. *Attorney's Fees and Expenses are Part of the Claim.* The California Code of Civil Procedure provides that in any inverse condemnation proceeding the plaintiff is entitled to recover the reasonable costs, disbursements, and expenses, including reasonable attorney's fees and expert costs.⁴⁰ These costs can be substantial.

The combination of strict liability and statutory attorney's fees exposes California utilities to significant potential liabilities.

Insurance companies play an important role in the practical application of inverse condemnation to utilities in California. Insurance companies write insurance and collect premiums to cover property owners for fire losses. In the event of a fire, the insurance company pays an insured property owner's claim and absorbs the loss. If the fire was ignited by a utility's equipment, the insurance company seeks reimbursement from the utility for the damage claim it paid to homeowners, typically through an inverse

³⁸ Only Florida and Alabama have applied the doctrine of inverse condemnation to utility companies and only Alabama has extended the doctrine to privately-owned utilities. Similar to California, under Alabama law, a non-governmental entity can be subject to a claim for inverse condemnation. As such, in *Schultz v. SE. Supply Header, LLC*, No. CA 09-0055-KD-C, 2009 WL 3075671 (S.D. Ala. Aug. 20, 2009), the property owners' claim for inverse condemnation against the private utility company did not fail by virtue of the utility company's non-governmental status. In that case, the property owners gave the utility company a permanent easement to their property for the installation of a natural gas pipeline to run underground, but in the process of construction, the utility company flooded the property and caused the property owners' septic system to malfunction, reducing the property to a swamp. Since the utility company was expressly authorized to exercise the power of eminent domain for installation of the natural gas pipelines, the property owners could avail themselves of the remedy of inverse condemnation for damage of the property by the company.

³⁹ *Barham v. Southern California Edison Company*, 74 Cal. App. 4th 744, 753 (1999).

⁴⁰ CA Civ. Pro. Code § 1036 (2017).

Wildfires and Climate Change: California's Energy Future

condemnation claim.⁴¹ These claims from the insurance company are known as subrogation claims.⁴²

Cost Recovery and Wildfire Damages

While a public utility found liable under inverse condemnation spreads the costs by using its rate-setting power to pass the costs to customers, investor-owned utilities can recover inverse condemnation damages in rates only if the CPUC separately determines that they may do so. California law requires that any rates charged by a utility must be “just and reasonable”.⁴³ A utility may pass through and recover non-routine costs as a result of third-party litigation or inverse condemnation only if the IOU demonstrates to the CPUC that it acted reasonably and prudently (i.e., met a “prudent manager” standard).⁴⁴

To meet this prudent manager standard in the context of extraordinary wildfire expenses, the CPUC requires that a utility affirmatively prove that it: (1) behaved reasonably and prudently in managing its facilities before and during the fire and (2) behaved reasonably and prudently in settling any litigation claims, if applicable. The CPUC has wide latitude as to the applicable evidentiary standard—typically applying a preponderance of the evidence standard—which generally requires evidence that “when weighed with that opposed to it, has more convincing force and greater probability of truth.”⁴⁵

Recent Application of Utility Wildfire Cost Recovery Standards

In October 2007, three large wildfires occurred in the service area of SDG&E. The ignition of those fires was attributed to the company's equipment. After 7 years of litigation, SDG&E settled legal claims for \$2.4 billion in costs and legal fees to resolve third-party damages arising from the fires. After collecting from other responsible parties and under liability insurance policies, SDG&E sought recovery from ratepayers for the remaining

⁴¹ Inverse condemnation is limited to property damage caused by utility equipment, so not all utility wildfire liabilities are actionable under inverse condemnation. For example, wildfire liabilities caused by a utility company employee, rather than utility equipment, are not recoverable under inverse condemnation. In practice, litigation pursuing subrogation recovery will include multiple liability theories, including inverse condemnation, some of which apply a strict liability standard and some of which apply other standards, such as negligence.

⁴² Generally, insurance company subrogation recoveries are not 100 percent reimbursement for claims paid to property owners. Limited public information suggests that subrogation settlements equal about 50 percent of the claim. Specifically, SCE's general auditor stated that wildfire subrogation claims have in the past settled at “historical levels” of “around 50 percent” at a meeting of the Commission on Catastrophic Wildfire Cost and Recovery on April 3, 2019.

⁴³ CAL. P.U.C. § 451.

⁴⁴ The prudent manager standard means that “at a particular time any of the practices, methods, and acts engaged in by a utility follow the exercise of reasonable judgment in light of facts known or which should have been known at the time the decision was made.” The prudent manager standard is a standard of care that demonstrates all actions were well planned and properly supervised and all necessary records are retained. See *In re: San Diego Gas & Electric Co.*, Order Denying Application for Decision 17-11-033 at p.5 (Cal. Pu. Util. Comm'n) (Nov. 30, 2017).

⁴⁵ Decision Implementing a Safety Enhancement Plan and Approval Process, Decision 14-06-007 [D.14-06-007]

Wildfires and Climate Change: California's Energy Future

\$379 million in damages it had paid. In October 2017, the CPUC denied SDG&E's request, ruling that the utility had not met required standards of prudence.⁴⁶

The CPUC decision in the San Diego case was the first time a utility had incurred costs that exceeded its insurance coverage. The decision raised concerns in the capital markets that investors in California utilities were more exposed to wildfire liabilities than previously thought.

In late 2017, shortly after the CPUC's decision in the San Diego fires, California suffered one of its worst wildfire seasons on record. Combined, these events created uncertainty in the capital markets regarding the safety of investing in California utilities.

Senate Bill 901 (Dodd, Chapter 626, Statutes of 2018) (SB 901)

After the utility market destabilization, California enacted SB 901, which requires the CPUC to consider "conduct of the electric grid and relevant information submitted into the commission record" when determining whether a utility is permitted to recover costs related to wildfires. The statute outlines 12 categories of information for consideration, which are set forth on [Annex B](#). SB 901 also incorporated a "stress test" that provided the CPUC additional flexibility to allow utilities to recover their costs in respect of wildfire liabilities from ratepayers where the denial of cost recovery could negatively impact the IOUs' financial condition.

In a cost recovery action, the CPUC must first find that utility equipment ignited the wildfire. Then the CPUC must determine whether the utility acted prudently both in the behavior causing the wildfire and in the settlement of any claims. If it acted prudently, the utility may recover the costs by charging higher rates to customers. If it did not act prudently, the utility would be required to bear those costs itself, in effect by reducing the returns paid to its equity investors. SB 901 attempted to provide the CPUC guidance on application of the cost recovery rules that would create more certainty around cost recovery.

After passage of SB 901, the credit rating agencies (Moody's, Standard & Poor's and Fitch) immediately began to downgrade California's three large IOUs, opining that the measure failed to adequately address the risks to the utilities' financial health posed by inverse condemnation. Two months later, the Camp Fire occurred. Two months after that, PG&E stated its intention to seek chapter 11 bankruptcy protection.

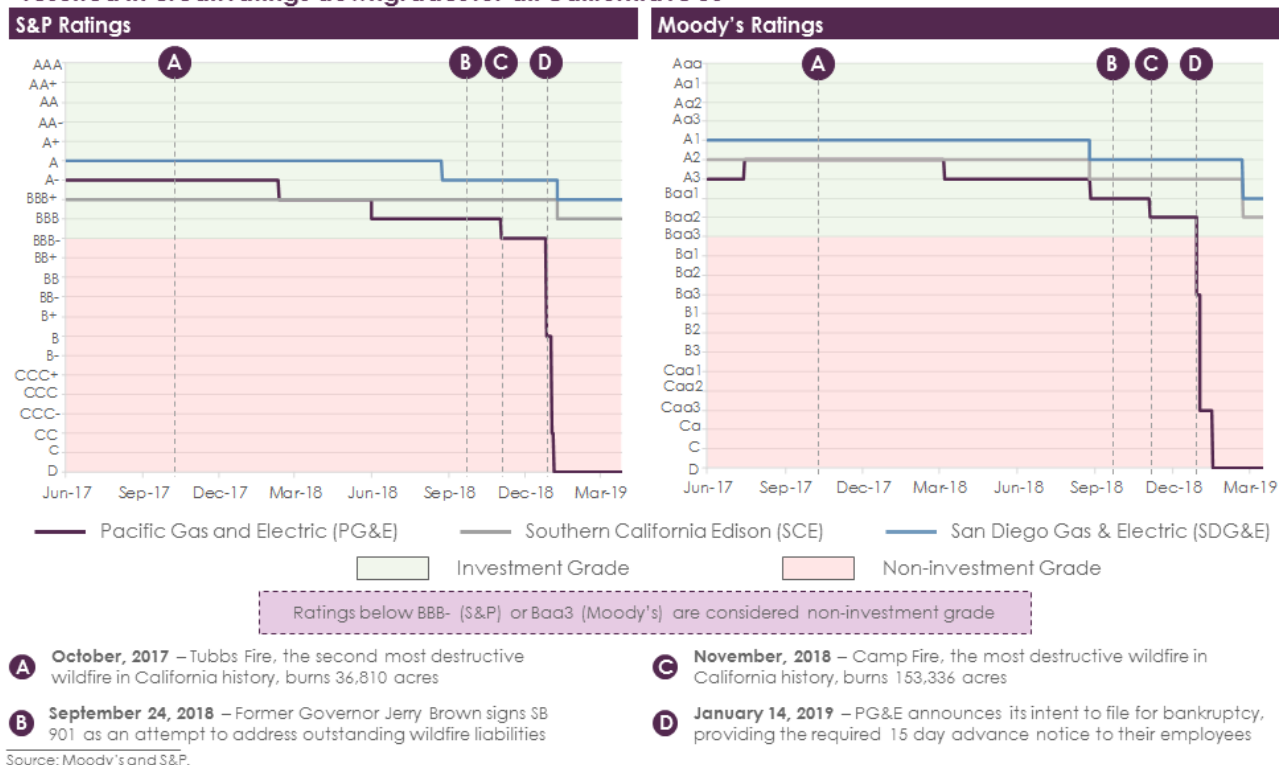
The rating agencies followed with an additional series of downgrades that now leave SCE and SDG&E with close to non-investment grade ratings.

⁴⁶ See Order Denying Application [D. 17-11-033] (Cal. Pu. Util. Comm'n) (Nov. 30, 2017); Order Denying Rehearing of Decision (D.) 17-11-033 [D. 18-07-025] (Cal. Pub. Util. Comm'n) (July 12, 2018); Order Denying Writ for Review, No. D074417, Cal. Ct. of Appeal, 4th District, Div. 1 (Nov. 13, 2018)

Wildfires and Climate Change: California's Energy Future

Figure-10

Increasing wildfire risk coupled with uncertainty surrounding cost recovery for wildfire liabilities has resulted in credit ratings downgrades for all California IOUs



Ratings downgrades increase utilities' cost of capital (including capital raised for investment in fire mitigation and safety) and those additional costs are generally passed on to consumers.

The capital markets concluded that too much uncertainty regarding cost recovery remained following passage of SB 901. Their key concerns were that it left the CPUC with extensive discretion to determine whether catastrophic wildfire damages could be passed through to the ratepayers.⁴⁷ In addition, investors raised concerns that SB 901 did not address the significant time period between the occurrence of a catastrophic wildfire, the payment of damages arising from that wildfire, and the CPUC's final

⁴⁷ California's cost recovery process contrasts with the framework employed for federally-regulated transmission rates by the Federal Energy Regulatory Commission (FERC). Pursuant to section 205 of the Federal Power Act (FPA), public utility rates for transmission services in interstate commerce must be "just and reasonable," which includes a requirement that the utility is prudent in incurring costs. This statutory standard is similar to the standard in the California Public Utilities Code, however, FERC applies the standard differently than the CPUC applies its similar statutory standard. In practice, FERC generally presumes that a utility's expenditures have been prudent unless a third party raises a formal complaint that casts a serious doubt on the utility's prudence, in which case the utility has the burden to prove that its conduct and expenditures were prudent. FERC will consider a utility's conduct prudent if the utility acted as any other reasonable utility in its position would have acted, given the same circumstances and the same facts known to the company at the time. FERC precedent in evaluating the prudence standard affords considerable latitude as FERC, in reviewing a decision, does not look for a single correct result or require the evaluation of every possible alternative. Thus, the FERC standard is far more predictable.

Wildfires and Climate Change: California's Energy Future

determination of whether those payments can be recovered in rates. Under current timelines, a utility does not file an application for cost recovery until after it resolves all litigated claims, which in the case of San Diego took more than seven years from the time of the fires. The CPUC's cost recovery process can take 18 months to two years. This time lag creates financial stress on a utility which may need to raise additional capital to pay billions of dollars of wildfire claims without knowing whether it will be able to recover the costs of that capital in future rate increases. This can lead to lower credit ratings, higher borrowing costs and, therefore, higher rates paid by utility customers. Ultimately, as we have seen with PG&E, it can lead a utility to seek protection under the federal bankruptcy laws.

Consideration of Insurance Impacts

Before discussing potential concepts, it is important to consider the current impact of climate change and catastrophic wildfire damage on the availability and affordability of insurance and the risk that any proposed changes to liability for wildfire damage could exacerbate those impacts.

Insurance pricing and availability is responsive to a very basic principle: as risk increases, the cost of insurance increases and the availability of insurance coverage decreases. With record high losses from catastrophic wildfires, insurers are responding by filing for rate increases and retrenching their coverage eligibility standards. According to the California Department of Insurance (CDI), many regions of the state face insurance availability and affordability constraints. This is evidenced by increasing non-renewals and significant insurance premium increases in the areas of the state affected by wildfires. Investments that increase resiliency to climate-related catastrophes will add stability to insurance options. Without affordable insurance, regions throughout the state will find homes decreasing in value.

Current Trends in Insurance Availability and Affordability

Insurance rates are principally based on recent loss experience. According to CDI, in California, the loss experience resulting from catastrophes is not loaded directly into the rates but instead placed in a catastrophe load that is an average of at least 20 years of catastrophe experience. Despite that fact, rates are beginning to increase.

According to the CDI:

- Carriers have submitted applications to CDI for over 100 rate increases for homeowners insurance in the last two years, more than double the filings in the previous two years;
- Homeowners in areas with heightened wildfire risk are receiving double-digit rate increases;

Wildfires and Climate Change: California's Energy Future

- There has been a significant uptick in policy counts at the California Fair Access to Insurance Requirements Plan (FAIR Plan)⁴⁸ for homes located in areas of high wildfire risk, by 50 percent in the last five years (from 22,000 policies for homes with wildfire risk exposures to 33,000 such policies), although the FAIR Plan only insures about 130,000 homes in total out of approximately 13 million residences in the state;
- The number of homeowners who have purchased insurance from surplus lines insurers has also increased, though the total remains fewer than 60,000 statewide. Surplus lines coverage is available only to consumers who cannot find coverage with an admitted insurer. The rates are not regulated nor is the coverage backed by the California Insurance Guarantee Association; and
- Consumer complaints about non-renewals in high risk counties have also doubled in the last two years.

According to CDI, the overall number of adverse actions that are reflected in available data are relatively low compared to the California homeowners' insurance market as a whole. After two consecutive years of massive homeowners insurance loss ratios of insurers—201 percent in 2017 and 170 percent in 2018—there is a sense of urgency about the decreasing availability and affordability in 2019, especially for regions with high wildfire risk.

The strike force recommends that the Governor and Legislature, in consultation with the Insurance Commissioner, consider the following:

- Should all insurers be obligated to offer insurance to homeowners living in the WUI if the insured conducts specific wildfire mitigation?
- Should all insurers be obligated to offer reduced rates for those homeowners and communities that implement prescribed wildfire mitigation measures?
- Should insurers be obligated to offer consumers who are ineligible for a homeowners' policy either a "difference in conditions" policy or a "premises liability policy" as complementary coverage for a FAIR Plan fire policy?
- The California Insurance Guarantee Association policy limits have not been increased for at least two decades. Is it time to increase the current limit of \$500,000 to recognize current construction costs?

Concepts for a Solution

The strike force heard from experts and stakeholders about alternative approaches. Based on this input, research and evaluation of the strengths and weaknesses of alternative approaches, we identified three concepts for consideration:

- **Concept 1:** Liquidity-Only Fund. This concept would create a fund to provide liquidity for utilities to pay wildfire damage claims pending CPUC determination of

⁴⁸ The FAIR Plan was created in July 1968 as an insurance pool established to assure the availability of basic property insurance to people who own insurable property in the State of California and who, beyond their control, have been unable to obtain insurance in the voluntary insurance market. See <https://www.cfpnet.com>.

Wildfires and Climate Change: California's Energy Future

whether or not those claims are appropriate for cost recovery and may be coupled with modification of cost recovery standards.

- **Concept 2:** Changing Strict Liability to a Fault-Based Standard. This concept would involve modification of California's strict liability standard under inverse condemnation to one based on fault to balance the need for public improvements with private harm to individuals.
- **Concept 3:** Wildfire Fund. This concept would create a wildfire fund coupled with a revised cost recovery standard to spread the cost of catastrophic wildfires more broadly among stakeholders.

Given the inherent uncertainty we face and the number of foundational policy questions that must be addressed, the strike force recommends that the Commission on Catastrophic Wildfire Cost and Recovery, the Legislature, and the Governor's strike force continue working over the next two months to develop a solution for consideration by the Governor and the Legislature that most effectively addresses wildfire liability consistent with the principles that the strike force has outlined.

Each of the three concepts requires statutory changes to clarify the prudent manager standard and the requisite burden of proof related to when an IOU is permitted to recover costs and expenses of wildfires from its customers. To achieve a result that meets the principles outlined in this Report, utilities will have to make significant contributions to the benefit of ratepayers.

Concepts 1 and 3 rely on voluntary contributions from utility investors to different extents. The larger the contribution required, the more clarity utility investors will demand in the regulatory standard for cost recovery from ratepayers.

Concept 1: Liquidity-Only Fund

The liquidity-only fund involves a modest modification to the current SB 901 framework to address the delay between when a utility pays wildfire claims and when the CPUC makes its rate recovery determination. This concept would create a fund to provide bridge financing for utilities to pay wildfire liability claims pending the CPUC's decision on cost recovery under a modified standard. The liquidity-only fund does not reduce the burden on utility customers or re-distribute the costs of wildfires among stakeholders. As such, it does not address certain principles set forth above. In combination with changes to the CPUC cost recovery process, a liquidity-only fund could stabilize the credit ratings of utilities.

The liquidity-only fund could be capitalized by utility investors and ratepayers, potentially through a continuation and securitization of the Department of Water Resources (DWR) charge implemented during the power crisis in 2001 and expected to be fully repaid before the end of 2020. All or a portion of that securitization charge could be extended and dedicated to the liquidity-only fund.

The fund would then be available to provide funds for utilities to pay claims after a determination of cause and before a determination of cost recovery. When the CPUC makes a cost recovery determination, the fund then works as follows:

Wildfires and Climate Change: California's Energy Future

- If the CPUC determines that the utility met the cost recovery standard and therefore can recover the costs in rates, then the utility would charge the ratepayers and reimburse the fund for the amounts drawn.
- If the CPUC determines that the utility did not meet the cost recovery standard and therefore cannot recover costs in rates, then the utility would be required to repay the amounts drawn from the fund such that ratepayers would not bear the cost of such amounts.

This concept does not shield utility customers from uncapped liability for wildfire damages. In fact, if cost recovery changes increase the certainty that utilities can recover damages from their customers, ratepayers will pay more.

Further Research.

Several questions and policy considerations must be addressed to evaluate the liquidity-only fund and the impact it would have on reducing and socializing costs, and its ultimate impact on consumers:

- Can the fund provide sufficient liquidity to pay claims in a timely manner while allowing the CPUC to evaluate wildfires?
- Can this concept, in combination with necessary changes in the CPUC rate recovery process, provide enough certainty to the capital markets to stabilize ratings and the perception of a utility's credit quality?
- How durable can the liquidity fund be while the utilities address their safety deficiencies?
- How much can we expect from this simplified solution if we don't address the factors that turn massive wildfires into massive damage claims?
- What does this option mean for rates and affordability?
- What shareholder contribution, if any, would be required to capitalize the fund?

Concept 2: Changing Strict Liability to a Fault-Based Standard

A second concept is to change California's strict liability standard to one based on fault. Applying a fault-based standard—utilities pay for damage if caused by their misconduct—would balance the need for public improvements (i.e. an electrical distribution system) with the private harm to individuals occasioned by those improvements. This change would impact only claims for property damage, since California already applies a negligence standard to personal injury, wrongful death, and other tort claims.

Moving to a fault-based standard would shift the risk of property loss to insurance companies and uninsured or underinsured property owners in cases where the utility was not a bad actor. Where the utility acted negligently, recklessly, or with intentional misconduct, it would still be responsible for paying damages, including possible punitive damages.

Wildfires and Climate Change: California's Energy Future

As with Concepts 1 and 3, a solution that changed to a fault-based liability standard would be accompanied with modifications to clarify the prudent manager standard and the requisite burden of proof related to when an IOU is permitted to recover costs and expenses of wildfires from its consumers.

Shifting more of the direct financial burden of wildfires to insurance companies may also affect the cost and availability of property insurance in the WUI. Whether a reform of inverse condemnation would affect the cost and availability of insurance is unclear. If such an impact occurred, a variety of policy responses might be considered, including creating a catastrophic pooled insurance fund or reforms to the FAIR Plan, which provides last-resort fire insurance when homeowners or dwelling coverage is unavailable in the voluntary market of admitted insurers.⁴⁹ Admitted insurers are obligated to share in any losses suffered by the FAIR Plan.

Further Research.

Several questions and policy considerations must be addressed to evaluate the impact moving to a fault-based system would have on reducing and spreading costs, and its ultimate impact on consumers:

- How much would moving to a fault-based system reduce the settlements that utilities pay for wildfire claims?
- Would availability and affordability of property insurance in the state, particularly in the WUI be affected? If so, are there policy options to mitigate that impact?
- Would this approach yield certainty in the needed timeline given the potential legal risks and challenges?

Concept 3: Wildfire Fund

A third concept is to establish a well-capitalized wildfire fund that would create a buffer to absorb a significant portion of the wildfire liability costs that might otherwise be passed on to ratepayers under existing law and regulation while providing time for mitigation efforts to be advanced. The wildfire fund would also provide the utilities a source of immediate funding for the claims asserted against them for catastrophic wildfire damages and ensures prompt payment of those claims.

This concept could accomplish each of these objectives if utility shareholders were prepared to make a substantial contribution to the fund's claims-paying resources and if insurers were willing to accept a cap on their subrogation claims (their claims for reimbursement from the utilities of the payments to their insurance policyholders). If the wildfire fund is not sufficiently capitalized and/or the other stakeholders are not willing to

⁴⁹ The Commission on Catastrophic Wildfire Cost and Recovery is tasked with, among other matters, evaluating the impact of wildfire damage on insurance availability and affordability. The Commission is expected to deliver its report by July 1.

Wildfires and Climate Change: California's Energy Future

compromise their claims, then the wildfire fund will be exhausted more quickly and ratepayers will be responsible for costs thereafter.

The CPUC would retain jurisdiction to impose penalties on utilities that fail to prudently manage their wildfire risks, and those penalties would be paid to the fund to enhance its claims paying resources. Like the liquidity-only fund, an extended DWR charge could be dedicated to support the claims paying resources of the wildfire fund.

The following are reasonable elements of a wildfire fund that, depending on additional research, analysis, and development, may warrant consideration in the future.

3. **Pooled Capital:** The wildfire fund would include pooled capital from all IOUs including each of SDG&E, SCE and PG&E and be accessible by each of those utilities to pay catastrophic wildfire claims. Municipally owned utilities may participate at their option.
4. **Only Catastrophic Fires:** The fund would be limited to paying claims of utility-caused catastrophic wildfire liabilities only (as such fires would be defined in legislation establishing the fund). Smaller utility-caused fires and the first-dollar costs of catastrophic wildfires would be paid by a utility's commercial liability insurance policy and/or self-insurance reserve.
5. **Claims Administration Trust.** A wildfire fund could use a trust for the administration of claims. The trust could pay all subrogation claims to insurance companies and reimburse utilities for the costs of judgments on or settlements of uninsured and underinsured victims' claims. All insurance companies writing insurance in the state could be required to agree that subrogation claims arising out of catastrophic wildfire claims will be asserted against the trust. A potentially valuable feature of the wildfire fund could be that subrogation claims will receive settlements at a stated percentage of the validated amount of their claim. Utilities could be responsible for litigating or settling claims brought by uninsured and underinsured victims. They could then seek reimbursement from the trust for the settlement amounts or final judgments. The reimbursement process could provide incentives for the utilities to settle promptly with victims, while also ensuring that they settle for fair, but not excessive, amounts.
6. **Automatic Access to the Fund.** A utility could seek to pay wildfire claims from the fund upon determination that the fire was a catastrophic utility-caused wildfire without pre-determination by the CPUC whether or not the utility acted prudently, reasonably, or without negligence.
7. **Penalties to Discourage Behavior by Fund Participants that Violates Regulatory Requirements or is Imprudent:** Regulatory reforms could incorporate penalties that would create disincentives for negligent or unreasonable behavior by fund participants. Penalties could be paid into the fund to further extend claims paying capacity.

Wildfires and Climate Change: California's Energy Future

Further Research.

- How large would the fund need to be to be durable over the anticipated period of time necessary for utilities to make material progress in containing catastrophic wildfire risk?
- How can we design a fund that provides the proper incentives for utilities to invest in prevention to reduce wildfire damages and claims and for property owners to protect themselves by purchasing adequate insurance?
- After emerging from bankruptcy and providing for adequate compensation to its pre-petition wildfire victims, how will PG&E raise the necessary capital to make its contribution to the fund?
- How much time will it take to form and capitalize a wildfire fund? How should liability for wildfires that may occur in 2019 prior to the fund's formation be treated? Can the fund be established before PG&E emerges from bankruptcy?
- Capping subrogation claims moves the upper range of risk from the utility to the insurers, who will pass it on to customers. What would be the long-term impact on the availability of insurance?
- Would the subrogation cap apply to both property claims and casualty claims, which are different rights under the law?
- Should insurers or insureds contribute to fund capitalization?

Part 4: A More Effective CPUC with the Tools to Manage a Changing Utility Market

California's changing energy market and the need to mitigate and adapt to climate change require a state utility regulator that is effective in today's reality.

The CPUC has a long history as a regulator of rates. It manages complex, participatory, and time-consuming proceedings to set energy rates for the state's utilities. Its structure and deliberative processes flow from the California Constitution, which authorizes the CPUC to fix rates and charges and allows utilities to raise rates or charges if justified.⁵⁰ The CPUC has an imperative to balance the financial health of utilities and the need to keep rates as low as possible.

The current structure of the CPUC does not align with California's need for a regulator that can effectively address wildfire safety and can be nimble in today's changing energy market. The CPUC has assumed a greater role in safety regulation, as well as in protecting consumers. However, its structure has not fundamentally changed. Further, its other obligations, including regulation of some transportation industries, telecommunications, and other industries has grown as the demands on the Commission as the state's regulator of utilities have increased and become more complicated.

The Commission needs to strengthen its efforts as an evaluator of risk reduction and as a key line of defense to prevent wildfires caused by utility infrastructure. It must also be more nimble and provide necessary certainty more quickly than it does today in light of the changing energy market and heightened fire risk. Implementing a comprehensive strategy to improve safety, keep costs down and reach California's clean energy goals requires a regulator that applies and enforces regulation in a predictable, timely, and fair way.

The Current CPUC Process

The CPUC has three primary roles: quasi-legislative, rate-setting, and adjudicatory disputes. Under current law and practice, the CPUC uses different processes depending on the role it is performing. All types of proceedings are record based and governed by either an Assigned Commissioner or an Administrative Law Judge (ALJ). All involve extensive consultation and public input.

The CPUC typically addresses policy issues and capital expenditures in separate proceedings. For example, the issue of wildfire mitigation is being handled in two separate proceedings in front of the CPUC--one specific to the WMPs and the second as part of the general rate case (GRC). As wildfires become more frequent and larger, and as the state's energy market changes, the CPUC needs a decision-making process that is responsive to these developments.

⁵⁰ Article XII Public Utilities, CAL. CONS. [SECTION 1 - SEC. 9].

Wildfires and Climate Change: California's Energy Future

IOUs file GRCs with the CPUC every three years for prospective costs. Between GRC proceedings, the IOUs often file for approval for recovery of unexpected costs incurred. Except for certain minor matters, a highly structured legal process applies to decisions on these filings. The process insures that the filing party and opposing parties have an ability to be heard, including by submitting pleadings and testimony. The testimony and filings are important because the Commission must base its decisions on evidence in the record. The process provides other parties the ability to present views that are contrary to those of the IOUs. While it has value, the existing process can be time-consuming.⁵¹

If the Assigned Commissioner is not the presiding officer, the statutory structure of the CPUC's decision-making process often leaves ALJs with more control over the timing of the process than the Commissioners. That can lead to delays in proceedings even when the Commissioners wish to prioritize the decision-making.

In its rate-setting mode, the CPUC faces a difficult balancing act. On the one hand, the CPUC wants the IOUs to make appropriate investments and expenditures so they can provide safe and reliable service to their customers. On the other hand, an IOU's only source of income is its customers. Consumers have an interest in avoiding unnecessary costs and investments and keeping borrowing costs down. IOUs operate their business by collecting a return on investment, but the investments and the return are closely regulated by the CPUC. When the IOUs are financially healthy, utility customers benefit from lower cost of capital. When utilities are financially unhealthy, the inverse occurs as evidenced today in the case of PG&E.

In rate-setting and cost recovery cases, the burden falls on the utility to prove that its requests or its past actions were reasonable or prudent. In some instances, the utility may face difficulty proving that past actions meet this burden, which can create financial uncertainty for the utility. To avoid this, utilities may elect not to make expenditures unless the cost recovery was pre-approved by the CPUC.

The CPUC sometimes is tasked with new responsibilities that fall outside its traditional function of ensuring that rates are just and reasonable. After the San Bruno and Aliso Canyon events, safety has become a much more significant issue for the CPUC. The recent expansion of the Commission's role into reviewing WMPs under SB 901, as described above, is a further example of the CPUC's expanded role.

The CPUC's statutory and Constitutional responsibilities go beyond the rate-making cases. In developing and overseeing clean energy programs and in its role in

⁵¹ As an example, SCE filed its most recent GRC on September 1, 2016, and it is still pending today, more than 2 years later. See *In re: San Diego Gas & Electric Co.*, Test Year 2018 General Rate Case Application of So. Cal. Edison Co A 16-09-001 (Cal. Pu. Util. Comm'n) (Sept. 1, 2016); When SDG&E filed to recover its third-party damage claims in connection with its 2007 wildfires, it took 2 years for the CPUC to issue its decision denying recovery, and it took 6 months for the CPUC to issue its rehearing order after SDG&E filed its rehearing request. See Application of San Diego Gas & Elec. Co. (U 902 E) for Authorization to Recover Costs Related to the 2007 Southern California Wildfires Recorded in the Wildfire Expense Memorandum Account, *In re: San Diego Gas & Electric Co.*, Decision Denying Application, A 17-11-033 (Cal. Pu. Util. Comm'n) (Dec. 6, 2017); *In re: San Diego Gas & Electric Co.*, Order Denying Rehearing of Decision 17-11-033 (Cal. Pu. Util. Comm'n) (Jul. 13, 2018).

Wildfires and Climate Change: California's Energy Future

developing and enforcing safety regulations, the CPUC can also be a policy-setting body and a quasi-judicial body. At times, the ALJ-led process the CPUC utilizes does not lend itself to public accessibility or speedy development of new policies. This may contrast with the public's expectation that the Commissioners be the ultimate decision makers who should be held accountable for the timing of developing new rules and programs.

While there is merit in existing CPUC processes, the lack of flexibility and inefficiency frustrates the ability of the CPUC to effectively regulate utilities in a way that best meets the needs of Californians from a safety and financial standpoint. To more effectively meet the state's needs in today's environment, the CPUC must be reformed. The recommendations set forth below represent near-term steps that can be taken to improve CPUC efficiency and effectiveness. Longer-term, the state should evaluate a more comprehensive overhaul of the CPUC in an effort to better serve the changing needs of California.

Recommendations

- **Expand Safety Expertise:** Provide resources to the CPUC for meaningful review of WMPs or alternatively create a wildfire safety division in another agency. The CPUC must—on a priority basis—develop appropriate processes and expertise to handle matters involving safety. This should cover the CPUC's responsibilities for setting safety standards, conducting inspections and audits, and enforcing the standards. A good starting point would be to look at safety-related programs used by regulators in other industry sectors that involve high risks to property and human health and safety, such as the nuclear, aviation, and refinery industries. While the 2016 reforms made a small step toward an increased focus on safety, more is needed. Building the CPUC's capabilities related to safety may require organizational changes, budget increases, and a concerted effort to hire, contract for, or obtain through cooperative efforts with other agencies, the expertise needed to handle these new responsibilities. If experts are not available, then the CPUC should consider entering into grants or contracts with universities or consulting firms that could conduct research and develop standards and training programs to create the necessary expertise.
- **Overhaul Decision-Making Processes.** The CPUC should overhaul and reform its procedures to implement safety related initiatives and requirements more efficiently. Given the potentially large financial implications of such determinations as related to wildfire-related costs, it is particularly important that the CPUC put in place a process that is both timely and fair, while maintaining public input and transparency as appropriate. To achieve this goal, the strike force recommends that the Legislature consider directing the CPUC to do the following:
 - Streamline procedural designations for simpler cases. Many proceedings that could be quasi-legislative are currently subject to full rate-setting procedures.
 - Increase authority to delegate lower-level decisions to technical staff to free up time for administrative law judges and commissioners to focus on traditional rate-setting matters.
 - Eliminate unnecessary steps in proceedings and provide Commissioners with discretion to shorten timelines.

Wildfires and Climate Change: California's Energy Future

- Streamline enforcement procedures and increase enforcement authority, including delegating more enforcement authority to the Commission's safety division staff.
- **Review of High-Risk Industry Regulatory Models.** The Governor's Office of Planning and Research, in consultation with experts from academia, industry, and other research institutions, should review models of agencies that regulate high-risk industries, such as nuclear power and refineries, and summarize best practices that could be applied to the CPUC. These practices could include structural or procedural models and necessary expertise.
- **Industry Best Practices.** The CPUC should develop and adopt industry best practices for utilities as a resource. It should regularly monitor and update those practices to reflect learning, changing technology, and the latest assessment of climate change.

Part 5: Holding PG&E Accountable and Building a Utility that Prioritizes Safety

On January 29, PG&E filed voluntary chapter 11 petitions in the United States Bankruptcy Court for the Northern District of California--PG&E's second bankruptcy filing in the last 18 years.⁵² PG&E attributed its chapter 11 filing to claims resulting from the 2018 wildfires, including the Camp Fire which PG&E has since stated was likely ignited by its equipment.⁵³ PG&E justified the filing, in part, by citing the need to provide fair compensation for fire victims. Yet consistent with its historic culture, PG&E failed to honor scheduled settlement payments to victims of the Butte Fire in the days leading up to its bankruptcy. PG&E's willingness to use the bankruptcy process to the advantage of its investors, and at the expense of Californians, cannot be repeated.

PG&E's decision to voluntarily seek the protection of a chapter 11 bankruptcy court punctuates more than two decades of mismanagement, misconduct, and failed efforts to improve its safety culture. Prior to its filing, PG&E already was on criminal probation, having been convicted of five felony counts for safety violations in connection with the San Bruno gas explosion in 2010. That explosion resulted in eight deaths, approximately 58 injuries and 38 homes destroyed.⁵⁴ PG&E was also convicted of obstruction of justice, fined over \$4.6 million, and sentenced to substantial community service as a result of the same incident.

In addition to the incidents described above, PG&E has been investigated in connection with or settled claims related to numerous wildfires and explosions in the last 25 years including:

- The Trauner Fire (1994)
- The Pendola Fire (1999)
- The Sims Fire (2004)
- Fred's Fire (2004)
- The Rancho Codova gas explosion (2008)
- The 2009 San Francisco electrical explosion
- The 2014 Carmel gas explosion
- The Butte Fire (2015)
- Numerous electrical and substation fires (e.g. 1996, 1999, 2003).

⁵² PG&E previously filed for bankruptcy in 2001 in an effort to undermine the jurisdiction of the CPUC. That multi-year bankruptcy resulted in substantial rate increases for PG&E customers.

⁵³ PG&E, *PG&E Publicly Releases Supplemental Report on Electric Incidents Near the Camp Fire*, (Dec. 11, 2018)

https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20181211_pge_publicly_releases_supplemental_report_on_electric_incidents_near_the_camp_fire (last visited Apr. 10, 2019).

⁵⁴ See CAL. PUB. UTILITIES COMM., *The San Bruno Catastrophe and Its Aftermath*, (May 2012).

https://www.in.gov/iurc/files/Zeller_-_San_Bruno_Catastrophe_Aftermath.pdf (last visited Apr. 10, 2019).

Wildfires and Climate Change: California's Energy Future

Despite repeated assurances from management that the company would change, PG&E has failed to implement the fundamental management and cultural reforms to prioritize safety and reliable service.

Californians deserve better, and we will demand better. The state simply will not accept a situation where 40 percent of Californians are served by a company that cannot be trusted to provide safe and affordable power. PG&E must be radically restructured and transformed into a responsible and accountable utility.

PG&E's bankruptcy proceedings will have direct and profound impacts on the people of California. The state must participate in the proceedings to protect its interests, including those of wildfire victims who have claims against the company that must be resolved fairly and equitably, PG&E employees who are vital to maintain energy delivery and protect the safety of communities, and the company's customers who deserve clean, safe, reliable, and affordable energy. We expect and demand that PG&E will, as it is obligated to do, comply with state law, including CPUC safety directives and renewable energy mandates.

Recommendations

PG&E's stakeholders have the primary responsibility for filing a plan of reorganization or otherwise formulating an exit from chapter 11. For a plan of reorganization to be confirmed in the bankruptcy proceedings, it must meet the criteria set forth in the Bankruptcy Code, including that the plan be feasible and that PG&E be in compliance with law. To meet those standards, PG&E will have to demonstrate that it has sufficient funds available to make fund distributions provided under the plan and comply with its WMP and demonstrate that it is in compliance with state and federal laws, rules and regulations, including laws and regulations related to clean energy. Given the importance of PG&E to California, the state must work to assure that any resolution of that proceeding achieves the near, medium and long-term goals of the state and its people over opportunistic investors.

The strike force recommends that the state actively monitor and evaluate the PG&E bankruptcy proceeding to assure that the state's interests are being protected. Where appropriate and necessary, the state should participate in the bankruptcy proceedings and be heard on particular issues of interest to California. The strike force specifically recommends the following:

- **Evaluate Any Proposals to Satisfy 2017-2018 Wildfire Claims.** PG&E must satisfy the claims against it from the 2017-2018 wildfires. To that end, the state should evaluate the structure and amount of any trust or other mechanism to satisfy those claims to assure victims are fully and fairly treated. In addition, the state must evaluate any plan of reorganization to assess whether provisions of that plan could disadvantage existing and future wildfire victims.
- **Assure that PG&E Treats Its Employees Fairly.** PG&E's employees are a critical part of the future of the company and must be treated fairly in the bankruptcy proceeding. The state should monitor the bankruptcy proceedings to assure that employees are treated fairly.

Wildfires and Climate Change: California's Energy Future

- **Require that PG&E's Investors Contribute to a Solution.** Part 3 of this report identified certain conceptual approaches to the wildfire liability framework applicable to IOUs. While PG&E would be a beneficiary of any of those constructs, PG&E's investors must contribute to any solution adopted by the state to address wildfire liabilities in a way that benefits consumers. Those contributions could take a variety of forms, including investing in wildfire mitigation and safety or providing funding for other solutions.
- **Require PG&E Meet Conditions to Participate in Changes to the Wildfire Liability Structure for IOUs.** PG&E must meet conditions to participate in any approach to address wildfire liabilities, including fully remaking its corporate and safety culture and prioritizing governance that recognizes the public trust placed in PG&E.
- **Assure That PG&E Meets Its Obligations to Decommission Diablo Canyon.** PG&E must move forward with plans to safely and expeditiously decommission the Diablo Canyon Nuclear Power Plant. Trust funds and other moneys collected by consumers must not be diverted from that effort and additional funds must be provided by PG&E as needed. The state should evaluate the filings in the PG&E bankruptcy proceeding including the plan to assure that such filings require PG&E to meet its obligations with regard to Diablo Canyon.
- **Evaluate the Impact of PG&E Bankruptcy on Clean Energy Goals.** PG&E is party to numerous power purchase agreements that could be impacted by the chapter 11. The state should evaluate the impact of any decisions made by PG&E in its chapter 11 with regard to those agreements in light of California's clean energy goals.
- **Assure Plan is Compliant with Law and Feasible.** The state should evaluate any plan of reorganization to assure that the emerging company will be in compliance with law and that the plan will be feasible.
- **Continue Appropriate Regulatory Oversight.** Although PG&E is in chapter 11, the CPUC also has a substantial say in the future of PG&E (as it does for all IOUs). For example, the CPUC has the power to review PG&E's WMP and its compliance with that plan, as well as to review PG&E's safety culture assessment. The CPUC also has the authority to impose substantial penalties on PG&E for failure to comply with applicable regulations. Moreover, through the rate-setting function, the CPUC may provide incentives for PG&E to make prudent expenditures on, and investments in, safety. This can include actions, such as adjusting the allowed return on equity, that directly affect investors and management. The CPUC should continue to provide appropriate regulatory oversight.

While regrettable, the company's chapter 11 filing offers an opportunity to build a new, responsible, and accountable utility for Northern California.

Given the long history of safety failures and the critical interests at stake, the state can take no options off the table, including municipalization of all or a portion of PG&E's operations; division of PG&E's service territories into smaller, regional markets; refocusing PG&E's operations on transmission and distribution; or reorganization of PG&E as a new company structured to meet its obligations to California..

Conclusion

Catastrophic wildfires present tremendous challenges for California. The Governor's strike force makes numerous recommendations throughout this report to address those challenges. The strike force recommended immediate next steps are below.

Figure-11

Next Steps	
Catastrophic Wildfire Prevention and Response	<ul style="list-style-type: none"> ✓ Publicize the Ready, Set, Go app – Wildfire prevention depends on each of us. To help educate property owners and residents in areas most at risk, CALFIRE has developed an app called "Ready, Set, Go!" that breaks down actions needed to be ready for wildfire. CALFIRE should work with leaders in vulnerable communities on outreach and provide technical assistance. Every Californian should download the Ready Set Go App.
	<ul style="list-style-type: none"> ✓ Monitor and assess mitigation efforts – CALFIRE is pursuing a number of aggressive wildfire mitigation efforts, including distributing local community grants for mitigation. Metrics will be developed to measure the effectiveness of these programs and the community reach for local grant recipients.
	<ul style="list-style-type: none"> ✓ Convene Governor's 2019 Emergency Preparedness Summit – The Governor's Office of Emergency Services will, by June 2019, convene first responders, government agencies, local governments, community residents, and technical experts to develop plans for the state's emergency preparedness. The summit will highlight best practices of local communities, share resources that have worked, and develop the networks necessary for ongoing preparedness improvements.
	<ul style="list-style-type: none"> ✓ Prepare for state response to utilities reducing fire risks – Utilities are reportedly considering expanded de-energization of specific areas during high-risk periods to reduce the risk of wildfires. OES and the CPUC will lead an effort to assess utility plans to de-energize and will work with utilities, local governments, first responders, critical providers, businesses and residents to manage the potential of de-energization.
	pursue necessary resources for wildfire prevention and response.
Mitigating Climate Change through Clean Energy Policies	<ul style="list-style-type: none"> ✓ Work with the Legislature, Cal ISO, and the CPUC on a legislative and regulatory agenda to ensure that California simultaneously addresses the impacts of climate change, including increased wildfires, and the root causes of climate change. Such work must include review of emissions from the electricity and transportation sectors. We must plan for a multi-year reform agenda, working in collaboration with the Legislature.

Wildfires and Climate Change: California's Energy Future

	<ul style="list-style-type: none"> ✓ Convene academics, private foundations, stakeholders, and government to assist in the development of a multi-year agenda to ensure that California simultaneously addresses the impacts of climate change.
Fair Allocation of Catastrophic Wildfire Damage	<ul style="list-style-type: none"> ✓ Significant policy development work, legal analysis, and financial simulations have all informed the liability concepts included in the report. However, additional analysis is needed. Request the SB 901 commission to review and analyze major liability concepts presented in report and solicit public comment regarding the different options. ✓ Direct the Governor's Strike Force to continue its work developing these options for consideration by the Governor and the Legislature by no later than this summer. ✓ Request the Department of Insurance to monitor, study, and issue recommendations to maintain an accessible and affordable insurance market throughout the state.
Increasing Capacity of the CPUC with the Tools to Effectively Manage a Changing Utility Market	<ul style="list-style-type: none"> ✓ Focus on building internal CPUC capacity to evaluate and help strengthen the IOU's wildfire mitigation plans immediately. ✓ Direct the CPUC to immediately assess regulatory and legislative changes to make their proceedings more expeditious. Identify and draft regulations and legislation needed to expedite their administrative proceedings. Such proposals should be reviewed with stakeholders and pursued as soon as possible.
Accountable by Building a Utility that Prioritizes Safety	<ul style="list-style-type: none"> ✓ Push for Safety Changes. The CPUC should continue to provide appropriate regulatory oversight on utility safety. The CPUC has the power to review PG&E's wildfire mitigation plan and its compliance with that plan, as well as to review PG&E's safety culture assessment. The CPUC also has the authority to impose substantial penalties on PG&E for failure to comply with applicable regulations. These tools should be actively used to help create the safest utility possible. ✓ Actively Monitor and Appear in the Bankruptcy Proceedings. The state will actively monitor the PG&E bankruptcy proceedings to assure that California's interests are being protected. Where appropriate and necessary, the state will participate in the bankruptcy proceedings and be heard on particular issues of interest to California, including fair treatment of fire victims and employees, issues relating to safety, and factors affecting the state's progress to achieve climate commitments. ✓ Require PG&E's investors to contribute to any solution adopted by the state to address wildfire victim claims. Those contributions could take a variety of forms including investing in wildfire mitigation and safety or providing funding for the wildfire fund.

Wildfires and Climate Change: California's Energy Future

Wildfires have always plagued California. Climate change has made--and will continue to make--the fires hotter, bigger, more frequent, and more destructive. The costs of these fires is unbearable. The loss of human life, property, economic opportunities, community life, exacerbated by the costs to rebuild communities – cannot be sustained.

Yet, we know we cannot avoid all fire risks. This level of disaster touches every Californian. All Californians must share in the responsibility to mitigate wildfires. Paying for the costs of wildfires is also a problem that requires shared responsibility and shared sacrifice. All stakeholders must come together to address the cumulative liability of uncontrolled fires. The status quo is not an option. Doing nothing is unacceptable.

Annex A

Comparison of Wildfire Mitigation Plans

Estimated 2019 Costs (\$ in millions)

PG&E	SCE	SDG&E
O&M: \$849	O&M: \$507	O&M: \$24
Capital: \$1,623	Capital: \$1,027	Capital: \$178
Total: \$2,472	Total: \$1,535	Total: \$202

Plan Priorities

PG&E	SCE	SDG&E
<ul style="list-style-type: none"> Vegetation Management & Enhanced Inspections Wildfire Response System Hardening Situational Monitoring Operational Practices (e.g., de-energization) Tech Research / Development 	<ul style="list-style-type: none"> Ignition Reduction in High-Risk Areas Fire Suppression System Hardening Communication 	<ul style="list-style-type: none"> Ignition Reduction in High-Risk Areas Fire Suppression Wildfire safety and recovery

High-Risk Exposure (% of Service Territory)

PG&E	SCE	SDG&E
52%	35%	54% ⁵⁵

System Hardening (Est. 2019 % of Circuit Miles Hardened in High-Risk Threat District)

PG&E	SCE	SDG&E
0.6%	0.5%	N/A ⁵⁶

Vegetation Management (Est. 2019 removals / % of total trees)

PG&E	SCE	SDG&E
375,000 trees (0.375%)	7,500 trees (0.500%)	9,000 trees (1.935%)

⁵⁵ Percentage of SDG&E's overhead circuit miles that reside in High Fire Threat Districts. Percentage of Service Territory figures were not available.

⁵⁶ SDG&E uses an execution metric which expects that 90-100 percent of its system will be hardened by the end of 2019. This includes system miles hardened and percentage of poles replaced

Wildfires and Climate Change: California's Energy Future

Weather Stations in High-Risk Threat District

PG&E	SCE	SDG&E
2019 Install: 400 (1.10 per 100 mi ²)	2019 Install: 315 (1.70 per 100 mi ²)	N/A
Cumulative: 600 (1.65 per 100 mi ²)	Cumulative ⁵⁷ : 440 (2.38 per 100 mi ²)	Cumulative: 175 (6.21 per 100 mi ²)

Cameras in High-Risk Threat District

PG&E	SCE	SDG&E
2019 Install: 71 (0.20 per 100 mi ²)	2019 Install: 62 (0.34 per 100 mi ²)	N/A
Cumulative: 79 (0.22 per 100 mi ²)	Cumulative ⁵⁸ : 160 (0.87 per 100 mi ²)	Cumulative: 107 (3.79 per 100 mi ²)

De-Energization

PG&E	SCE	SDG&E
<ul style="list-style-type: none"> PG&E has implemented the Wildlife Reclosing Disable program to manage circuit breakers if necessary PG&E targets an increase in its Public Safety Power Shutoff program from ~7,000 mi of lines to ~25,000 mi of lines in 2019 	<ul style="list-style-type: none"> SCE has broadly outlined its plans to install additional remote automatic reclosers SCE will conduct Public Safety Power Shutoffs based on the judgement of the incident management team and has a contingency operating plan in place 	<ul style="list-style-type: none"> SDG&E has deployed overhead distribution reclosers focusing on High-Risk Threat Districts To determine whether to employ a Power Shutoff, SDG&E considers multiple variables such as weather conditions, vegetation, field observations, flying debris, expected duration of conditions and location of existing fires/wildfire activity

⁵⁷ Weather stations reflect 2018 + 2019E installations.

⁵⁸ Cameras reflect 2018-2020E installations.

Annex B

SB 901 Factors

1. The nature and severity of the conduct of the electric grid and its officers, employees, contractors, and other entities with which the electric grid forms a contractual relationship, including systemic corporate defects.
2. Whether the electric grid disregarded indicators of wildfire risk.
3. Whether the electric grid failed to design its assets in a reasonable manner.
4. Whether the electric grid failed to operate its assets in a reasonable manner.
5. Whether the electric grid failed to maintain its assets in a reasonable manner.
6. Whether the electric grid's practices to monitor, predict, and anticipate wildfires, and to operate its facilities in a reasonable manner based on information gained from its monitoring and predicting of wildfires, were reasonable.
7. The extent to which the costs and expenses were in part caused by circumstances beyond the electric grid's control.
8. Whether extreme climate conditions at the location of the wildfire's ignition, including humidity, temperature, or winds occurring during the wildfire, contributed to the fire's ignition or exacerbated the extent of the damages. The electric grid shall provide the CPUC with specific evidence and data demonstrating the impact of climate conditions on the severity of the wildfire.
9. The electric grid's compliance with regulations, laws, CPUC orders, and its wildfire mitigation plans prepared pursuant to Section 8386 of the PUC, including its history of compliance.
10. Official findings of state, local, or federal government offices summarizing statutory, regulatory, or ordinance violations by any actor that contributed to the extent of the damages.
11. Whether the costs and expenses were caused by a single violation or multiple violations of relevant rules.
12. Other factors the CPUC finds necessary to evaluate the reasonableness of the costs and expenses, including factors traditionally relied upon by the CPUC in its decisions.



Date: August 12, 2019

Frequently Asked Questions

What does “public power” mean?

VCE’s board is studying the potential acquisition of PG&E’s local electric distribution facilities in Yolo County as a way to provide safer, cleaner, more reliable, and affordable electricity service to its customers. Such an acquisition, in which a community manages both distribution and generation of its power supply, is commonly known as “public power.”

Why is VCE looking into it at this time?

PG&E’s safety failures and subsequent bankruptcy filing provide a unique opportunity to explore new options for VCE’s electricity program, in order to foster optimal safety, cost control, and many other customer benefits. As stated in the Governor’s April 12, 2019 Energy Strike Force report, “After years of mismanagement and safety failures, no options can be taken off the table to reform PG&E, including municipalization of all or a portion of PG&E’s operations...” The PG&E bankruptcy affords an ideal opportunity to determine whether a public power electric service approach might provide greater control, benefits and safeguards to our communities. The VCE Board believes that performing the due diligence on this opportunity for expanded local control is a responsible step for our communities.

Is public power a proven model?

Publicly owned power systems have been successfully operating in California and across the nation for decades. Nationally, there are thousands of public power systems that have added resilience to the grid and cost savings for their customers. Closer to home, publicly owned systems include Redding, Roseville, Lodi, Healdsburg, Ukiah, Biggs, Gridley, and SMUD, which are just a few examples of proven, locally accountable and responsive public power organizations. There are currently 54 publicly owned power systems in California serving almost a third of Californians.

VCE will evaluate the benefits and risks of public ownership, governance and operation of power distribution facilities. Studies show that these public power entities are able to provide both better reliability and substantial cost savings for their local customers.

Are other CCA programs considering this option?

Other cities and public agencies including San Francisco and South San Joaquin Irrigation District (SSJID) in the greater Manteca/Ripon/Escalon area are conducting similar investigations.

What stage are we at now?

VCE is in preliminary exploration stages, working with energy experts to guide fact-finding and further identify local distribution ownership benefits and challenges. We will be issuing news releases, creating a dedicated page on our website, and providing regular updates at VCE’s public Board meetings to allow our customers and community members to track our progress.

What are the advantages?

The objectives of all public power systems are the same: advancing system safety, enhancing equipment standards, protecting our environment, and promoting rate stability to benefit all power customers. This is possible by eliminating PG&E's profit motive, which otherwise diverts millions of dollars every year away from our communities into shareholders' accounts. VCE believes these profits are much more productive when reinvested to benefit local electricity reliability and cost savings for customers.

What are the risks?

There are significant operational and financial risks in owning and controlling the local distribution system—these include safety concerns, climate impacts, cyber-security, and system outage considerations. Ultimately, a new distribution utility could work with community advisors, other public utilities and industry experts to develop and implement a robust risk management approach specifically tailored to address these business operational risks and exposures. A key opportunity to reduce risk is to eliminate profit diverted to PG&E stockholders and redeploy these funds that currently leave the system to advance local maintenance, safety investments and more responsible management practices. There are literally thousands of existing state- and nation-wide public power utilities demonstrating the practicality and success of publicly owned power facilities.

Could a local Public Power Program make us safer?

A local public power system would face the same natural disaster and climate risks that confront PG&E. Our focus, however, would be on risk reduction through aggressive maintenance and responsible tree trimming standards, utilizing higher quality equipment with responsive safety mechanisms, and by listening and responding to our customers in hazard-prone areas to help prevent disasters before they occur. Our goal would be to respond more swiftly and effectively when they do occur. These are all hallmarks of existing public power systems which we would seek to emulate.

What happens next?

VCE's exploratory process will weigh the expected costs and benefits of public power and assess potential risk associated with community ownership of the local distribution system. If supported by the local feasibility analysis and due diligence, a proposal to acquire PG&E's local electricity distribution system and associated infrastructure will be submitted for consideration by the Bankruptcy Court. If ultimately accepted, funds paid would be used to help offset PG&E's debt obligations associated with the wildfires caused by PG&E, along with its other financial obligations. It is expected that this process would play out over the next year or two.