

EXHIBIT F

SFPUC Preliminary Report of Electric Service Options (May 2019)



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,

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.

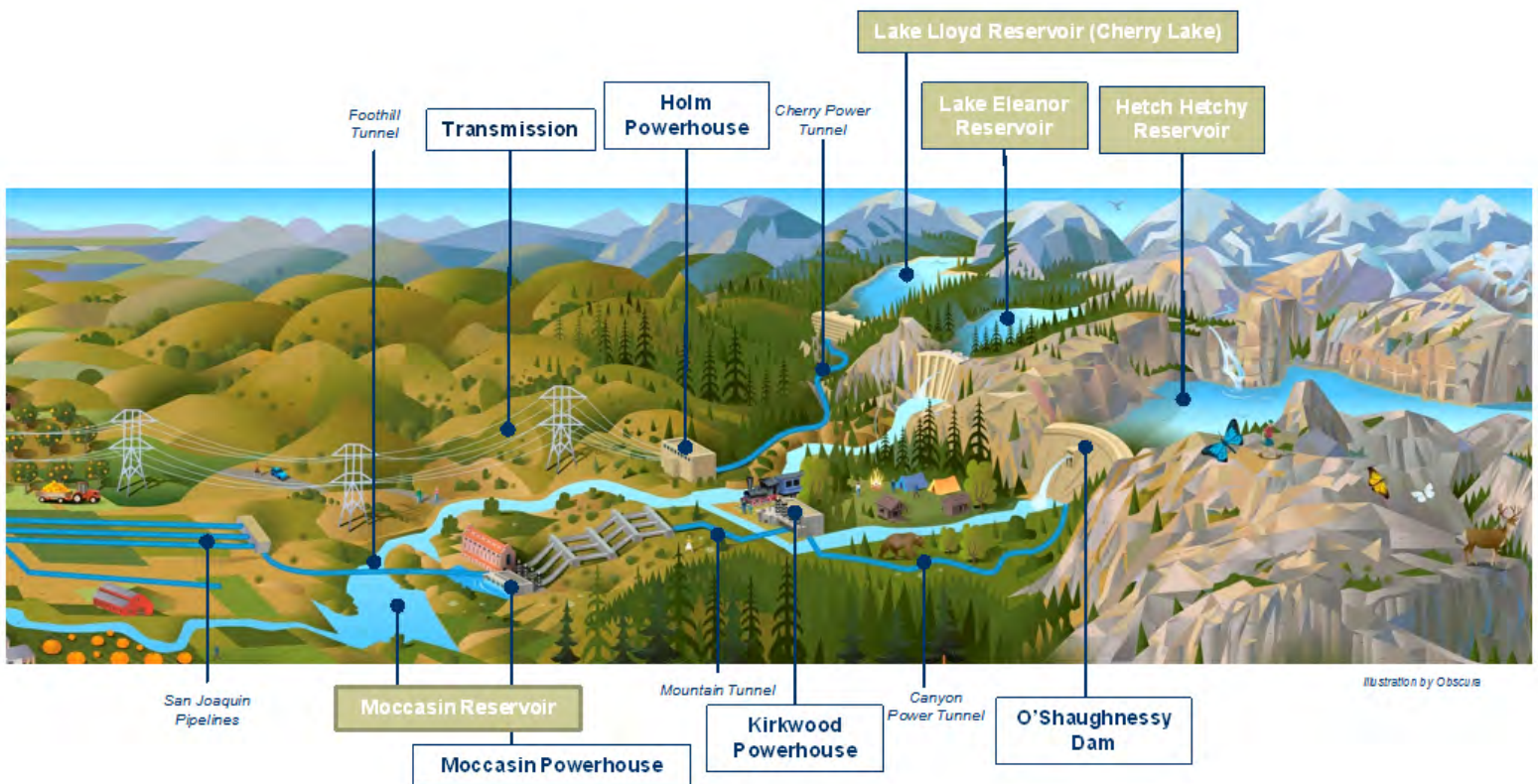
2019

- 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.

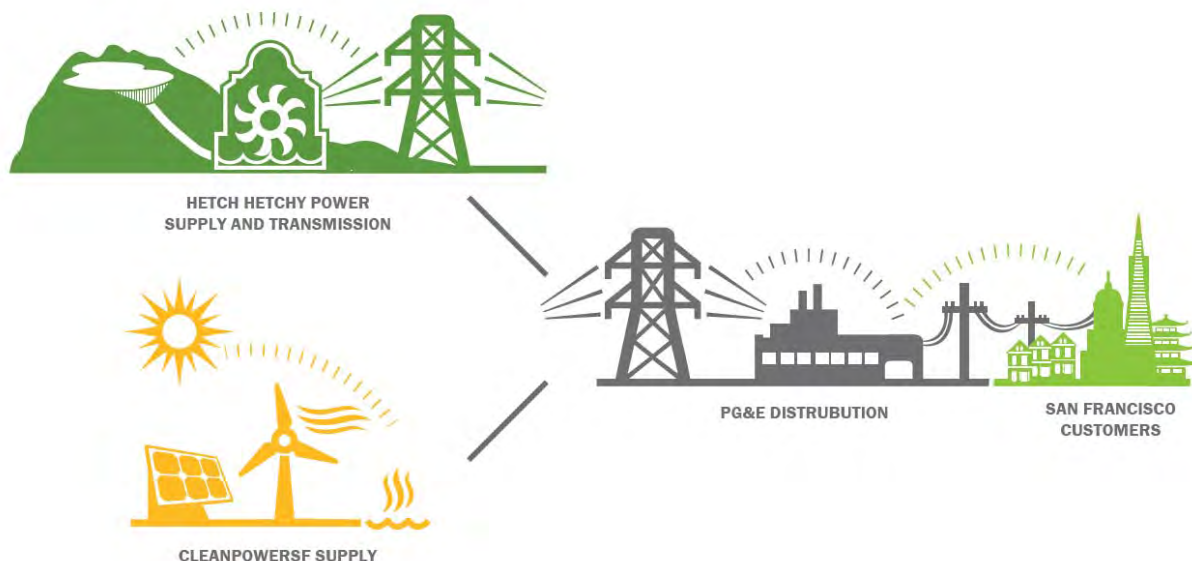
¹⁰ CleanPowerSF website, <https://www.cleanpowersf.org/>.

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.

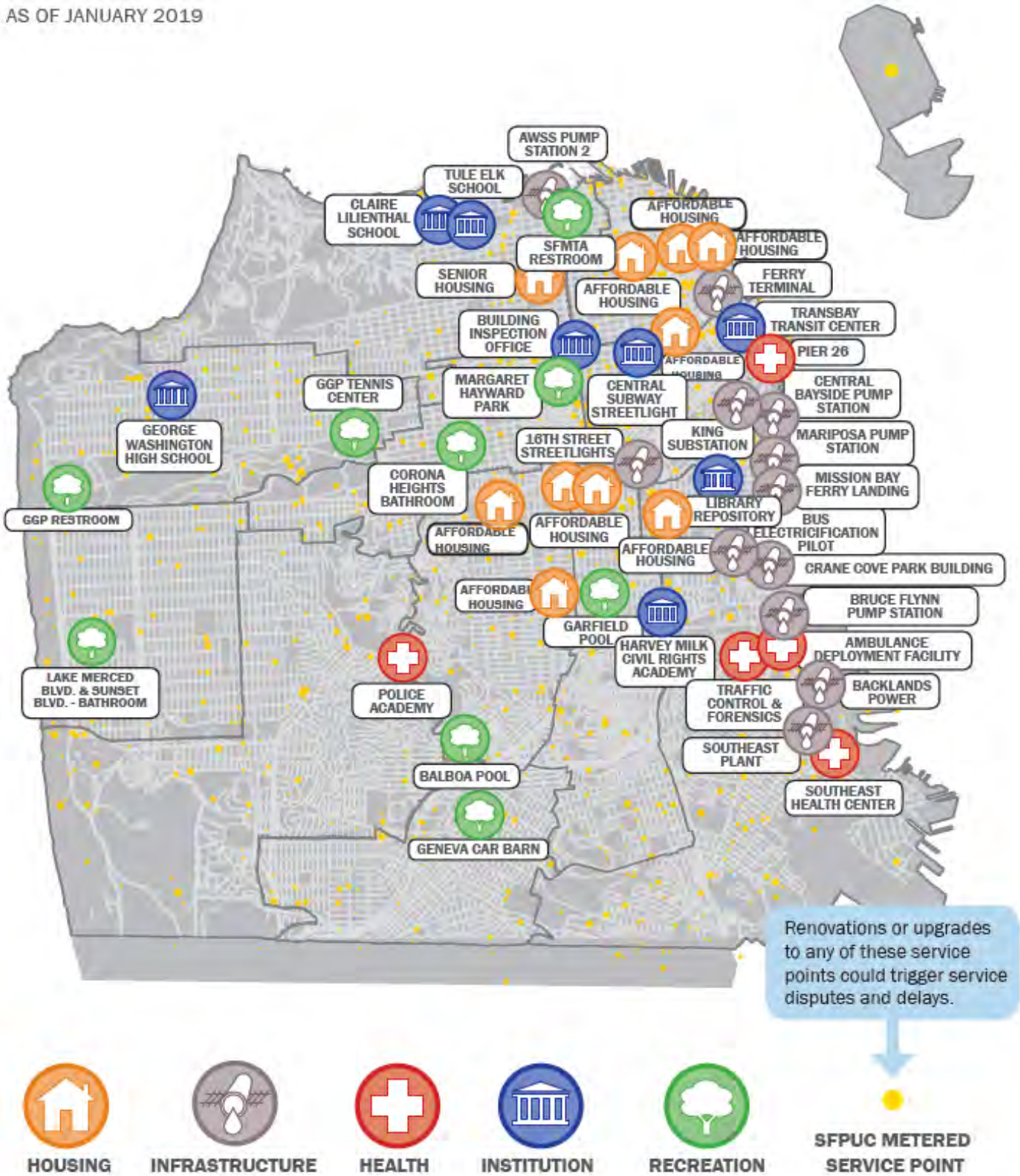
¹² "2017 San Francisco Geographic Greenhouse Gas Emissions Inventory at a Glance," San Francisco Department of Environment, Climate Program, V1.0, published April 2019, https://sfenvironment.org/sites/default/files/fliers/files/sfe_cc_2017_community_inventory_report.pdf.

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.



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.

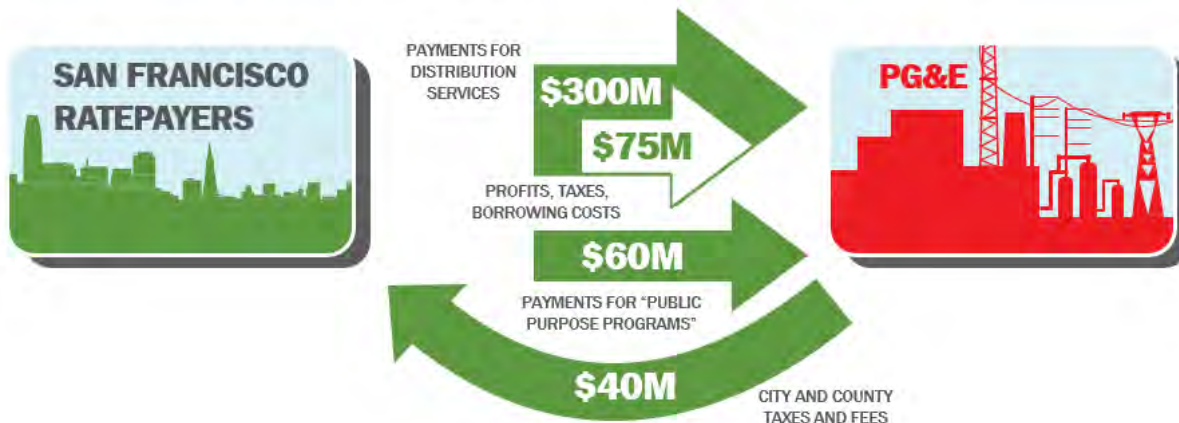
In essence, the City is paying PG&E to build and upgrade its system, and then PG&E charges service fees for the City to use that system. Those funds currently flow to PG&E for it to spend across its Central and Northern California service territory, and for PG&E to pay shareholder dividends and bondholder 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>

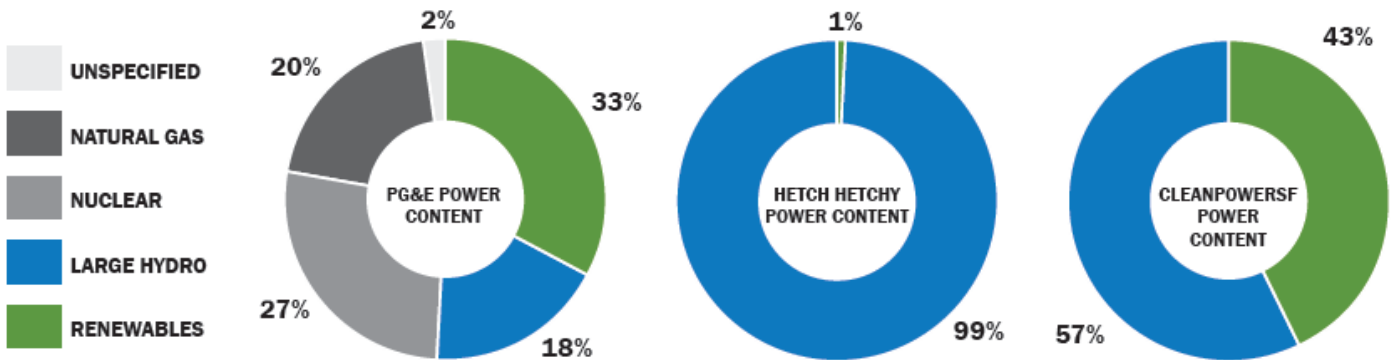
CleanPowerSF 2017 <https://www.cleanpowersf.org/s/eiqdmqkor48lcbicj0nay0cgvgbzlf>

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

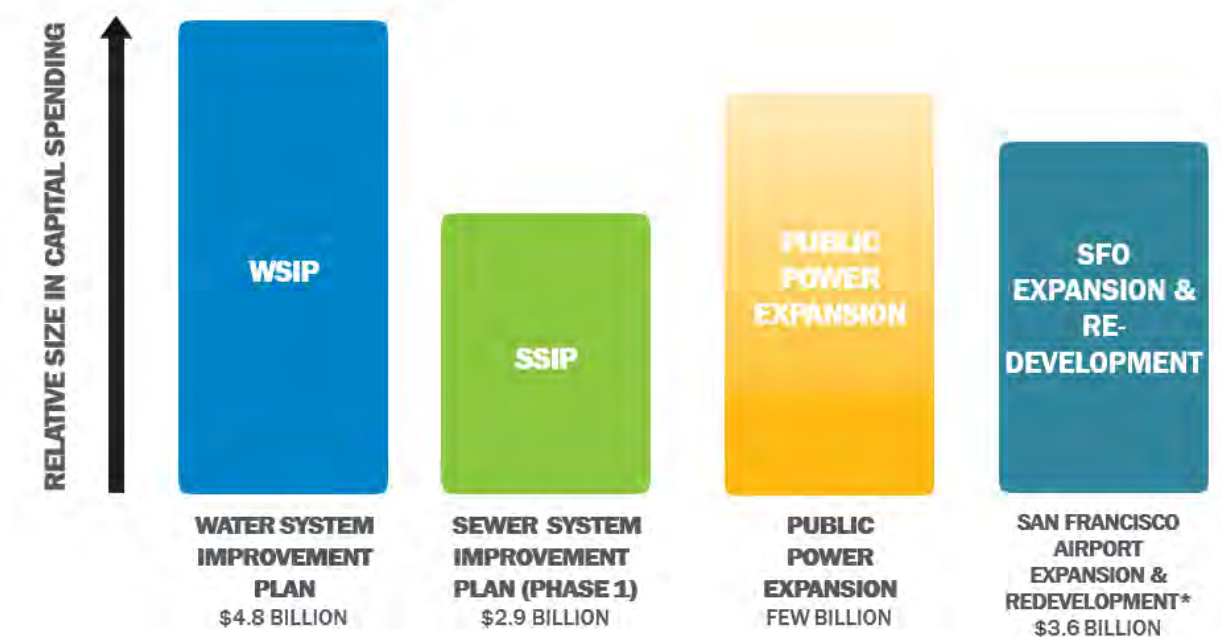
Under this option, the City would purchase PG&E's physical assets in and near San Francisco that are necessary for the City to expand its existing publicly-owned utility service to all of San Francisco, while enabling the City to provide clean, safe, reliable, affordable and sustainable service for all 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.

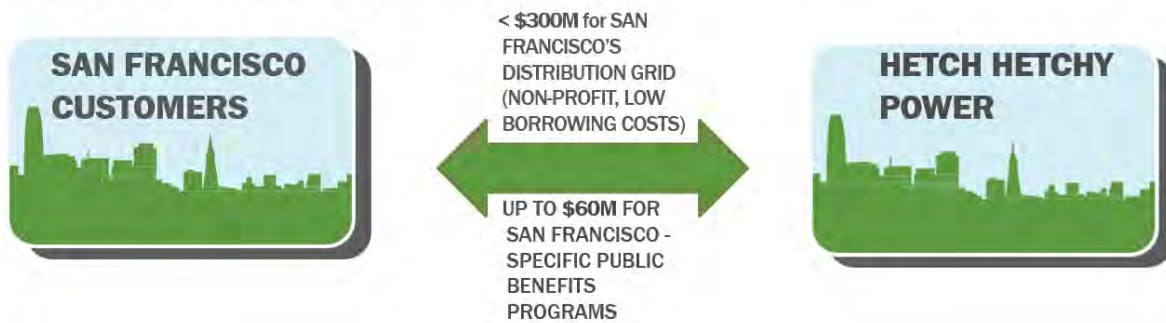
Long Term Durable Cost Savings

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.

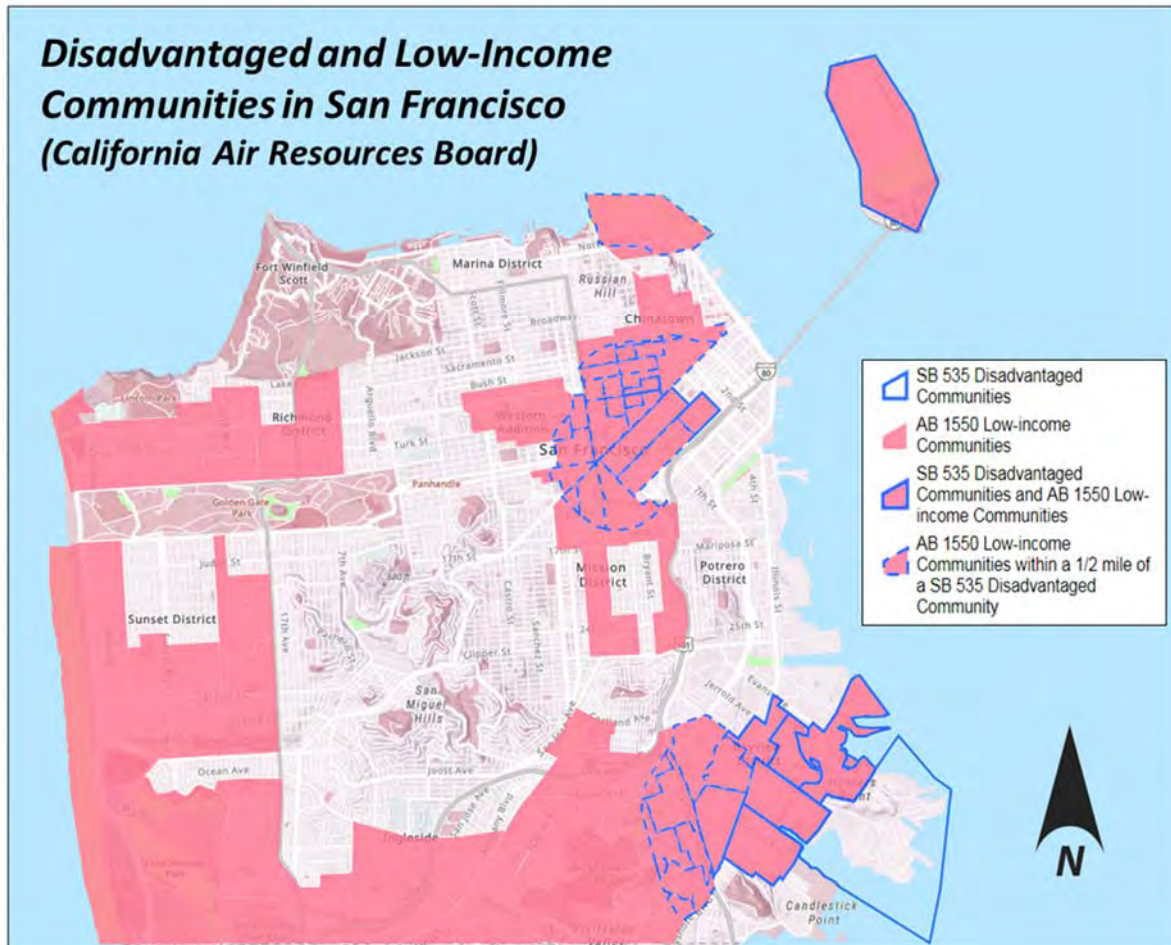
The City believes in the fair treatment of people of all races, cultures, and incomes and that no one group of people should bear a disproportionate share of negative environmental or economic consequences resulting from electrical operations, programs, or policies. To that end, the City is committed 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>).

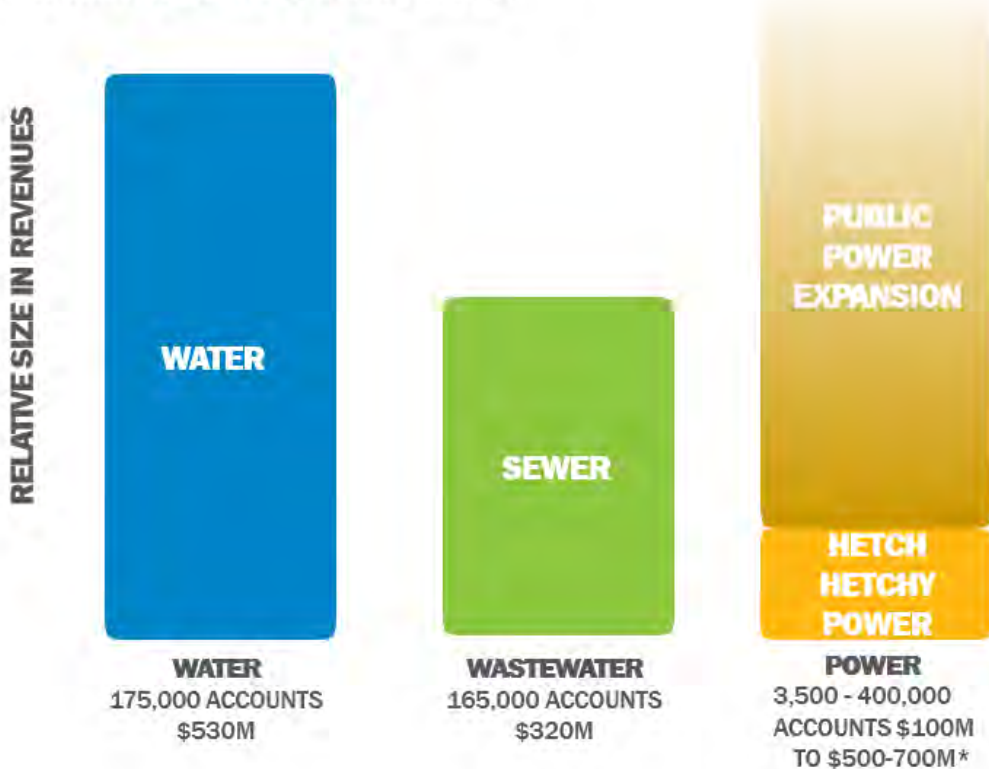
7. Customer & Community Programs
8. SFPUC Community Investments vs. PG&E Charitable Giving
9. Community Engagement

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 expansion 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

No initial staff estimate at this time
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

No initial staff estimate at this time
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

No initial staff estimate at this time
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.

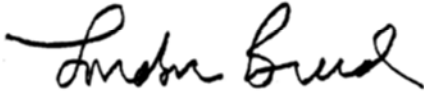
With these considerations in mind, I am requesting that the SFPUC prepare for the potential ramifications of PG&E’s current instability by performing a detailed analysis of the current health of the electrical network and a robust feasibility study on the various potential outcomes, along with engaging 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 written in a cursive, flowing style.

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

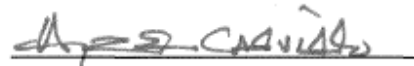
Resolution determining that the public interest and necessity require changing the electric service provided in San Francisco; and requesting a report from the San Francisco Public Utilities Commission, under Charter, Section 16.101, on options for improving electric service in San Francisco through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

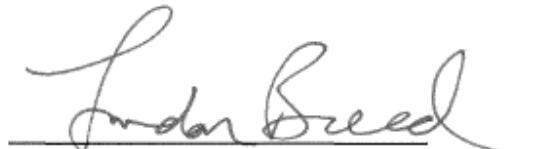
April 09, 2019 Board of Supervisors - ADOPTED

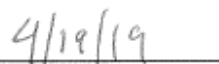
Ayes: 10 - Brown, Fewer, Haney, Mandelman, Peskin, Ronen, Safai, Stefani,
Walton and Yee
Absent: 1 - Mar

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,

A handwritten signature in black ink, appearing to read "London N. Breed".

London N. Breed, Mayor

A handwritten signature in black ink, appearing to read "Dennis J. Herrera".

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

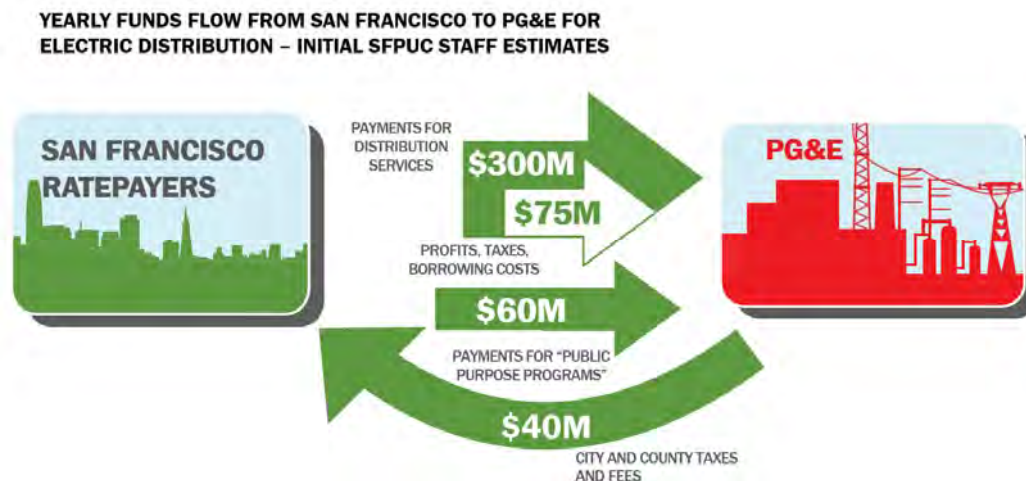
Hetch Hetchy Power Comparative Statistics¹ (Preliminary Staff Estimates)			
Statistic	Limited Independence	More Independence	Full Independence
Accounts	3,500 ²	7,000 ³	400,000 ⁴
Megawatts of peak electric usage	150 MW ⁵	300 MW ⁶	1,000 MW ⁷
Estimate of revenues from electricity sales (all estimates exclude 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.loomag.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