

**STAFF REPORT FOR CALENDAR ITEM NO.: 7
FOR THE MEETING OF: January 10, 2013**

TRANSBAY JOINT POWERS AUTHORITY

BRIEF DESCRIPTION:

Consideration of a Resolution authorizing the Executive Director to enter into negotiations with the San Francisco Public Utilities Commission (SFPUC) for a contract for SFPUC's provision of long-term electric power to the Transit Center.

SUMMARY:

The TJPA has received proposals from both Pacific Gas and Electric (PG&E) and SFPUC for long-term electric service at the Transit Center. While the two proposals offer relatively similar benefits to the TJPA regarding reliability and security, SFPUC's proposal includes initial infrastructure costs that are approximately \$650,000 less and long-term electricity rates that are 10 percent less than PG&E's. In addition, the SFPUC proposal includes potentially greater energy efficiency rebates and cleaner energy sources.

Given these benefits, TJPA Staff recommends that the Board of Directors approve the Resolution authorizing the Executive Director to enter into negotiations with SFPUC for an agreement to supply electric power to the Transit Center.

REPORT:

Background

In 2009, PG&E submitted to the TJPA a feasibility study and service options to serve the Transit Center with electric power (attached as Exhibit 1). The proposal excluded the electricity required to power the trains using the Transit Center. That service will be separately negotiated in the future among PG&E, Southern California Edison, the California High-Speed Rail Authority, and Caltrain. At that point, however, the design of the Transit Center had not progressed such that the TJPA could conclusively determine its electric power needs.

By the end of 2011, the design of the Transit Center reached the point at which the TJPA was prepared to consider its options for electric service. In November 2011, SFPUC submitted its initial proposal for electric service to the Transit Center. In response to concerns about reliability, SFPUC worked with the TJPA Staff to develop a revised proposal, which it submitted to the TJPA on March 20, 2012 (attached as Exhibit 2). Their modifications included enhancements to their typical service equipment to eliminate potential single points of failure and further improve reliability.

PG&E reviewed SFPUC's proposal and raised a number of concerns to the TJPA regarding the ability of SFPUC to serve the Transit Center long-term at the lower rate SFPUC offered, the reliability of SFPUC power, and the cost to connect the Transit Center to PG&E transmission facilities. At the request of the TJPA, SFPUC responded to the concerns raised by PG&E, demonstrating that SFPUC power would be as reliable as PG&E's, that SFPUC had ample available power to furnish to the Transit Center at the lower rate, and that the connection costs would be lower than PG&E's.

SFPUC also addressed questions about the reliability or vulnerability of its generation and transmission facilities and future costs to improve its system. SFPUC clarified that plans to improve the Hetch Hetchy generation and transmission facilities, currently being developed, would not affect the proposed rates to serve the Transit Center. In the event of any interruption in generation of Hetch Hetchy power, SFPUC would purchase power on the wholesale market to assure continuity of service.

In addition, PG&E recently indicated its willingness to approach the California Public Utilities Commission (CPUC) to apply for special, discounted rates for "high speed rail." The TJPA requested clarification of PG&E's offer to determine whether such rates would benefit the TJPA or only California High-Speed Rail, the specific rates that PG&E could offer, whether PG&E could obtain the CPUC's approval of the special rate, and whether such approval could be obtained within the next few months to allow the TJPA to finalize construction drawings for the power facilities of the Transit Center. PG&E has not responded to the TJPA's request for clarification. Accordingly, PG&E's offer is unclear at this time and does not affect the Staff's recommendation that SFPUC has submitted a more cost-effective proposal.

Physical Infrastructure and Reliability

Under both proposals, power serving the Transit Center would be transmitted to San Francisco on PG&E-owned transmission lines and distributed from PG&E substations. The PG&E and SFPUC proposals, however, rely on different physical connections to the PG&E-owned existing transmission and distribution network. The PG&E proposal would connect to the PG&E downtown network grid via three below grade vaults with provisions for an additional future vault. The SFPUC proposal, in contrast, would connect to dual 12kV radial services from the Embarcadero and Mission substations. Staff has concluded that this difference in physical infrastructure does not result in a meaningful difference in reliability. The Embarcadero and Mission substations are independently served via separate PG&E-owned transmission lines to a point on the peninsula, south of San Francisco. Any failure that affects both of SFPUC's radial feeds—cutting power to the Transit Center—would also likely interrupt service to PG&E's downtown network grid.

In addition, in March 2012, URS' security team analyzed the reliability of the SFPUC and PG&E proposals (attached as Exhibit 3). Based on the redesigned SFPUC proposal, URS' security team concluded that "the SFPUC service proposal could take slightly longer to restore from a failure, but approaches equivalent reliability to the PG&E

network service for equipment failure, man-made disaster and terrorist attack.” The restoration times for the SFPUC proposal “for threats including equipment failure, man-made disaster or random terrorist attack could be expected in the range of from one second to half an hour.” Accordingly, Staff has determined that the reliability of the two providers is equivalent.

Infrastructure Cost

PG&E’s 2009 proposal would require the TJPA to pay an estimated \$4,575,000 for infrastructure to connect the Transit Center to PG&E’s network. While the infrastructure associated with SFPUC’s proposal is more costly to construct, the SFPUC proposal ultimately results in cost savings to the TJPA. The base SFPUC connection infrastructure is approximately \$1,619,454 more costly to construct and requires an additional \$1,900,000 in design costs, in total exceeding PG&E’s proposed connection cost by \$3,519,454. However, the SFPUC proposal provides that SFPUC will reimburse the TJPA the difference between the actual costs for its infrastructure and the estimated \$4,575,000 in costs for PG&E’s network connection.

In addition, SFPUC’s proposal would save TJPA an additional \$661,124 in up-front, one-time costs, because the TJPA would not be required to pay the “Income Tax Component of Contribution” (ITCC) that the TJPA would be required to pay if it contracted with PG&E under PG&E’s 2009 proposal. The ITCC is an income tax that PG&E, as a for-profit corporation, is required to pay on certain initial infrastructure it builds for a new customer. PG&E passes this tax on to the customer as an “ITCC fee.” SFPUC, as a municipal utility, is not subject to the ITCC, and would reduce the amount of the TJPA’s share of infrastructure costs by \$661,124. Therefore, SFPUC would pay the total cost of the infrastructure above the PG&E cost minus the ITCC ($\$4,575,000 - \$661,124 = \$3,913,876$). In sum, the cost to connect the Transit Center to power under SFPUC’s proposal is not only cheaper than PG&E’s by \$661,124, but provides assurance that any cost overruns are borne by SFPUC, rather than the TJPA.

SFPUC is willing to bear this portion of the up-front cost to connect the Transit Center because SFPUC would be selling to the TJPA surplus power generated by Hetch Hetchy at retail rates. If the TJPA did not buy this power, SFPUC would be required to sell it at lower wholesale rates. SFPUC will amortize the connection cost subsidy to the TJPA and earn greater total revenues in the long term. Accordingly, SFPUC’s proposal is a “win-win” for SFPUC’s ratepayers and the TJPA.

SFPUC has indicated that PG&E’s costs for infrastructure are from 2009. If the TJPA enters into negotiations with SFPUC for a power supply contract, SFPUC would escalate the PG&E costs to reflect current costs. Accordingly, the TJPA’s cost for its share of the total cost would increase slightly from the \$3,913,876 figure stated above. Presumably, PG&E’s costs would also be higher than the costs PG&E quoted in 2009.

Cost of Power

SFPUC's proposal offers the TJPA long-term electric service rates that are 10 percent less than PG&E's rates. The rates would adjust as PG&E rates fluctuate, but would always be 10 percent less than comparable PG&E rates. As outlined in SFPUC's proposal, this differential is projected to save the TJPA \$252,852 per year compared to the amount the TJPA would pay PG&E for electric service. SFPUC can afford to supply power at rates lower than PG&E's rates because SFPUC has access to relatively inexpensive hydroelectric generation and does not add profit to the cost of its power.

Energy Efficiency

SFPUC and PG&E rely on different incentive programs for energy efficiency. Due to restrictions on PG&E's energy efficiency program imposed by the state, the maximum energy efficiency incentive PG&E could offer to the TJPA in the form of a rebate appears to be \$1,500,000. Based on the *Savings by Design* website (PG&E's energy efficiency program), this incentive would be paid in a lump sum after verification of the energy savings. SFPUC has indicated that under its own energy efficiency program, the Transit Center may qualify for energy efficiency rebates to the TJPA of up to \$2,000,000. Up to \$750,000 of this amount would be granted in an up-front payment, with the remainder coming after project construction and verification in 2017.

Environmental Concerns

SFPUC generates the majority of its electricity from the Hetch Hetchy Electric Generating Station. Some additional supply comes from small renewable energy projects. Therefore, SFPUC can offer the TJPA 100 percent greenhouse-gas-emission-free electricity.

In contrast, only a portion of PG&E electricity currently comes from greenhouse-gas-emission-free sources. In 2010, PG&E's major generation facilities included nuclear (23.8 percent), natural gas/fossil fuel plants (21.8 percent), and unidentified sources (22.9 percent). Large hydroelectric and other renewable resources made up just over 30 percent of PG&E's electricity generation portfolio.

Additional Issues Raised by PG&E

As PG&E became aware that the TJPA was considering entering into a long-term electric service agreement with SFPUC, it raised a number of questions and concerns to the TJPA regarding SFPUC's proposal. The TJPA requested that SFPUC respond to these issues, which SFPUC provided in a prompt and thorough fashion. These issues are summarized below.

Unreimbursed Expenses

PG&E claimed that if the TJPA selects SFPUC as its provider for the Transit Center, the TJPA will be liable for unreimbursed expenses associated with the relocation of existing facilities and the design of the network system. The TJPA has evaluated this claim and determined that it is incorrect. Under PG&E's franchise agreement with the City, PG&E is responsible for all costs associated with the relocation of its existing infrastructure to accommodate City projects. Under a 2009 agreement between PG&E and the TJPA, the TJPA has already reimbursed PG&E for all contracted-for design services.

Cost of Transmission

SFPUC owns transmission infrastructure to transmit the electricity it generates at Hetch Hetchy as far as Sunol, but must rely on an Interconnection Agreement with PG&E to transmit electricity to SFPUC's customers in San Francisco and the peninsula. SFPUC must pay PG&E a fee for this transmission. SFPUC can elect to transmit electricity to the Transit Center as municipal load, for which it would pay PG&E a lower fee, or based on a wholesale distribution tariff, for which it would pay a higher fee. The TJPA believes that SFPUC has the legal ability to rely on either option. While PG&E has stated that it would contest a municipal load designation, SFPUC has indicated that it will rely on the wholesale distribution tariff and avoid such a controversy. SFPUC further indicated that this higher fee was assumed in its service proposal to the TJPA.

Generation Capacity

PG&E asserted that the electricity generated at Hetch Hetchy is or will be entirely allocated to other users, such that SFPUC will be required to purchase power at high prices to supply the Transit Center. Based on the SFPUC Annual Report, however, SFPUC has a significant reserve of its Hetch Hetchy generated power that it currently must sell at low prices on the wholesale market. SFPUC has assured the TJPA that it has sufficient power to serve the Transit Center along with current and future municipal load growth and other customers designated under federal law. SFPUC's ability to sell power to the TJPA at the retail rate would benefit San Francisco ratepayers because that power would otherwise have to be sold at the lower wholesale rate.

Potential Hetch Hetchy Retrofit Project

In addition to the questions raised by PG&E, SFPUC addressed the potential impact of future Hetch Hetchy capital programs on the costs of supplying electric power to the Transit Center and the TJPA. The TJPA Staff understands from its discussions with SFPUC that the TJPA rates would be fixed at 10 percent below PG&E's rates and would not be increased to fund any retrofitting of the Hetch Hetchy system because, according to the SFPUC, the costs of any retrofitting of Hetch Hetchy facilities would be built into

the rates to all of SFPUC's power customers. Moreover, at a price of 10 percent below PG&E rates, the TJPA would still pay a higher rate for power than most of SFPUC's existing municipal customers and much more than wholesale purchasers should SFPUC continue selling surplus power on the wholesale market. This surplus revenue from the TJPA and other similar customers is anticipated to provide the SFPUC with bonding capacity for system improvements so that the TJPA's rates would be unaffected by future system investments.

RECOMMENDATION:

The TJPA Executive Director and Staff have engaged in extensive analysis of the proposals for electric service from PG&E and SFPUC and find that the terms of the SFPUC proposal are superior to the PG&E proposal. The Staff requests that the Board authorize the Executive Director to enter into negotiations with SFPUC to draft a long-term electric service agreement for approval of the Board.

ENCLOSURES:

1. 2009 PG&E Proposal
2. 2012 SFPUC Proposal
3. 2012 URS Reliability Analysis
4. Resolution

**TRANSBAY JOINT POWERS AUTHORITY
BOARD OF DIRECTORS**

Resolution No. _____

WHEREAS, In 2009, Pacific Gas and Electric (PG&E) submitted to the TJPA a feasibility study and service options to serve the Transit Center with electric power; and

WHEREAS, In November 2011, the San Francisco Public Utilities Commission (SFPUC) submitted an initial proposal to serve the Transit Center with electric power; and

WHEREAS, On March 20, 2012, SFPUC submitted a revised proposal to serve the Transit Center based on modifications requested by the TJPA; and

WHEREAS, TJPA Staff determined that the two proposals offer comparable levels of reliability and security; and

WHEREAS, SFPUC's proposal offers considerable cost savings to TJPA, including initial infrastructure cost, annual cost of electric power, and energy efficiency incentives; and

WHEREAS, SFPUC offers electric service that is one hundred percent greenhouse gas emissions free; and

WHEREAS, The TJPA Executive Director and TJPA Staff have engaged in extensive analysis of the proposals for electric service from both PG&E and SFPUC and find that the terms of the SFPUC proposal are superior to the PG&E proposal; now, therefore, be it

RESOLVED, That the TJPA Board authorizes the Executive Director to enter into negotiations with SFPUC for a contract for SFPUC's provision of long-term electric power to the Transit Center.

I hereby certify that the foregoing resolution was adopted by the Transbay Joint Powers Authority Board of Directors at its meeting of January 10, 2013.

Secretary, Transbay Joint Powers Authority

EXHIBIT 1

Preliminary Study For New Electric Service to Transbay Transit Center

Feasibility Study & Service Options



Pacific Gas and Electric Company

March 27, 2009

Table of Contents:	Page
Introduction and scope -----	2
Electric Rule 2 -----	3 - 4
Electric Schedule E-20 -----	5
Network Grid Service -----	6
34KV Service -----	7 - 8
34/12KV Service w/Applicant Supplied Transformer Space -----	9 - 10
34/12KV Service with vault installation in Franchise Area (Service Transformer) -----	11- 12
12KV Primary Radial Service -----	13 - 14
E20S – E20P Rate Comparison -----	15
Allowances and Refundable Costs -----	16
Cost Comparison Spreadsheet -----	17

Introduction

The Transbay Joint Powers Authority has requested PG&E to evaluate options to provide electric service to the proposed new Transbay Transit Center located in downtown San Francisco. The location of the transit center is bounded to the north by Minna Street, to the east by Beale Street, to the south by Natoma Street and to the west by a new unnamed street (east of Second Street).

The preliminary estimated total demand for the transit Center is approximately 8MW based on preliminary submitted connected loads and discussions with consultants from Flack + Kurtz. This anticipated demand does not include any load for future towers.

A feasibility study and very rough costs have been requested for both primary service at 12 KV and also for secondary service at 277/480Volt (Network Grid connection).

With each primary service option, a backup service has been also requested, capable of supporting the estimated demand of the project option. Additionally, the customer is requesting an automatic transfer switch to be installed and owned by PG&E, for all primary service options.

While Electric Rule 2 of PG&E's tariffs on file with, and approved by the California Public Utilities Commission, addresses the unavailability of 12 KV in the network area of San Francisco, PG&E is willing to provide either 12KV or 34 KV as an accommodation in accordance with the Special Facilities provision of Electric Rule 2.

As provided for in Electric Rules 15 & 16, PG&E will apply allowances to certain new distribution and service facilities. However for these allowances to be granted upfront, evidence of occupancy or electric usage, satisfactory to PG&E must be provided. In accordance with these line extensions rules, the applicant will have an option of advancing all refundable costs and, if future net revenue is sufficient, will receive a refund for all these "refundable" costs. Alternatively, the applicant also has a 50% Discount Option. This option will allow the applicant to pay only 50% of the refundable costs upfront, however they will never receive any further refunds, even if future net usage exceeds the 50% Discount Option.

The following service options include PG&E's best "guess" of future allowances/refunds using anticipated future usage based on Flack + Kurtz's submitted load projections. These are assumptions only and actual allowances & refunds will vary depending on both rate schedules selected and actual usage.

A comparison of monthly energy charges for both E-20S (secondary rate schedule) and E-20P (primary rate schedule) is also included in this study.

Electric Rule 2 Excerpt

ELECTRIC RULE 2

DESCRIPTION OF SERVICE

D. GENERAL LOAD LIMITATIONS (Cont'd.)

3. THREE-PHASE SERVICE (OVER 2,000 VOLTS)

a. Following are three-phase voltages that are transformed from higher existing primary distribution voltages and provided only as isolated services for a single applicant where the applicant's demand load justifies, as determined by PG&E, the installation of the minimum size transformer bank used by PG&E:

Nominal Voltage	Minimum Size Bank Installed	Maximum Demand Load Permitted
2,400 (See Note 1)	500 kVa	5,000 kVa
4,160 (See Note 1)	500 kVa	5,000 kVa
12,000 (See Notes 1 and 2)	1,000 kVa	10,000 kVa

b. Following are the standard primary voltages, one of which may be available without transformation from existing primary distribution lines in the area:

4,160	100 kVa	4,000 kVa
12,000 (See Note 1)	500 kVa	12,000 kVa
17,200	500 kVa	15,000 kVa
20,780	500 kVa	20,000 kVa

Note 1: Not available in the network areas in portions of downtown San Francisco and Oakland.

Note 2: Not available where existing primary is 17,200 volts.

Electric Rule 2 Excerpt - Continued

SPECIAL FACILITIES

2. Special facilities are (a) facilities requested by an applicant which are in addition to or in substitution for standard facilities which PG&E would normally provide for delivery of service at one point, through one meter, at one voltage class under its tariff schedules, or (b) a pro rata portion of the facilities requested by an applicant, allocated for the sole use of such applicant, which would not normally be allocated for such sole use. Unless otherwise provided by PG&E's filed tariff schedules, special facilities will be installed, owned and maintained or allocated by PG&E as an accommodation to the applicant only if acceptable for operation by PG&E and the reliability of service to PG&E's other customers is not impaired.

3. Special facilities will be installed under the terms and conditions of a contract in the form on file with the Commission. Such contract will include, but is not limited to, the following terms and conditions:

- a. Where new facilities are to be installed for applicant's use as special facilities, the applicant shall advance to PG&E the estimated additional installed cost of the special facilities over the estimated cost of standard facilities. At PG&E's option, PG&E may finance the new facilities.

b. TYPE OF FACILITY	FINANCING	MONTHLY CHARGE
Transmission (60kv and over)	Customer PG&E	0.31% of the amount advanced 1.14% of the additional cost
Distribution	Customer PG&E	0.46% of the amount advanced 1.40% of the additional cost

- c. Where existing facilities are allocated for applicant's use as special facilities, the applicant shall pay a monthly Cost of Ownership charge. This monthly Cost of Ownership charge shall be based on the estimated installed cost of that portion of the existing facilities which is allocated to the customer.

- d. Where PG&E determines the collection of continuing monthly Cost of Ownership charges is not practicable, the applicant will be required to make an equivalent one-time payment in lieu of the monthly Cost of Ownership charges.

Electric Schedule E-20 Excerpt

APPLICABILITY:

Assignment of New Customers:

If a customer is new and PG&E believes that the customer's maximum demand will exceed 999 kilowatts PG&E will serve the customer's account under Schedule E-20.

The following defines the three voltage classes of Schedule E-20 Rates. Standard Service Voltages are listed in Rule 2.

a. **Secondary:** This is the voltage class if the service voltage is less than 2,400 volts or if the definitions of "primary" and "transmission" do not apply to the service.

b. **Primary:** This is the voltage class if the customer is served from a "single customer substation" or without transformation from PG&E's serving distribution system at one of the standard primary voltages specified in PG&E's Electric Rule 2, Section B.1.

c. **Transmission:** This is the voltage class if the customer is served without transformation at one of the standard transmission voltages specified in PG&E's Electric Rule 2, Section B.1.

Network Grid Option

This is PG&E’s standard service arrangement in portions of downtown San Francisco where network service is present. PG&E will install three 277/480 volt transformers in each of the three agreed locations. Applicant will provide space for transformer vaults and be responsible for obtaining encroachment permits from the City of San Francisco². Service will be installed in accordance with the installation and allowance provisions of Electric Rules 15 & 16 and applicant will be responsible for providing all trenching and backfilling (or paying PG&E a non-refundable cost to perform this work).

The future applicable rate schedule for this option will be E-20S.

NETWORK SERVICE (PREFERRED) - EXTEND NETWORK FEEDERS

	SCOPE DESCRIPTION	Length (ft)	Cost (\$)
1	INSTALL 1980FT OF CABLE (CABLE PULLING ONLY)	1980	
2	INSTALL TWO #7 BOXES	N/A	
3	INSTALL NETWORK TRANSFORMERS	N/A	
4	INSTALL SECONDARY CABLES	N/A	
	TOTAL		\$2,450,000

Rough Costs for this option are as follows and we have also included PG&E’s estimate to perform all trenching. The rough costs also include applicable ITCC¹ taxes. This will allow for a total cost comparison.

Installation Cost Estimate -----	\$2,989,000
Trenching Cost -----	\$1,586,000
Backup Service ³ -----	N/A
Auto Transfer Switch (includes cost-of ownership) -----	N/A
Total: -----	\$4,575,000
Amount subject to refund: -----	\$2,989,000
Projected refund based on 8 MW usage utilizing 10 year option: -----	\$1,721,036
50% Discount Option -----	\$3,080,500

¹ ITCC Tax currently at 22%. Expected to increase to 34% in January 2010.

² If sidewalk access is required

³ Built in redundancy in network design – no back up service required.

34KV Service Option

Two new 34KV circuits will be installed directly from Embarcadero Substation and terminate in 34KV switchgear on Transit property. This option will be installed as an accommodation, however, as the total cost for the first service is less than PG&E's standard service arrangement, no special facilities charges apply to the first service. Preliminary scope descriptions are as follows:

The future applicable rate schedule for this option will be E-20P.

34kv PRIMARY RADIAL SERVICE - CONNECT TRANSBAY TO EXISTING Z-3412

	SCOPE DESCRIPTION	Length (ft)	Cost (\$)
1	INSTALL ONE #7 BOX, INSTALL 3WAY SWITCH, INTERCEPT Z-3412 ON MH-7927 ON FOLSOM & FREMONT	N/A	
2	INSTALL 1 SET OF 1100EPR CABLE BETWEEN NEW SWITCH AND FREMONT/HOWARD, USE SPARE 6" DUCTLINE	1300	
3	INSTALL TWO #7 BOXES, ON HOWARD/FIRST STREET & ON MINNA/FIRST STREET	N/A	
	SUBTOTAL		\$280,000

STANDBY FEEDER: 34kv PRIMARY RADIAL SERVICE TO EXISTING Z-3411

	SCOPE DESCRIPTION	Length (ft)	Cost (\$)
1	INSTALL ONE #7 BOX, INSTALL 3WAY SWITCH, INTERCEPT Z-3411 ON MH-7927 ON FOLSOM & FREMONT	N/A	
2	INSTALL 1 SET OF 1000EPR CABLE BETWEEN NEW SWITCH AND FREMONT/HOWARD, USE SPARE 6" DUCTLINE	1300	
3	PULL IN 1 SET OF 1000EPR CABLE USING SPARE NEW 6" DUCTLINE ON HOWARD STREET BETWEEN FREMONT & FIRST ST.	500	
4	PULL IN 1 SET OF 1000EPR CABLE USING SPARE NEW 6" DUCTLINE ON FIRST STREET BETWEEN HOWARD & MINNA ST	450	
5	PULL IN 1 SET OF 1000EPR CABLE USING SPARE NEW 6" DUCTLINE ON MINNA STREET FROM FIRST STREET	400	
6	8MW PG&E SUB TRANSFORMER BANK RESERVE CAPACITY COST	COO Only	
	SUBTOTAL		\$315,000

Rough Costs for this option are as follows and we have also included PG&E's estimate to perform all trenching. The rough costs also include applicable ITCC¹ taxes. This will allow for a total cost comparison.

Installation Cost Estimate -----	\$341,600
Trenching Cost -----	\$494,100
Backup Service -----	\$1,138,543
Auto Transfer Switch (includes cost-of ownership)¹ -----	\$155,317
Total: -----	\$2,129,560
Amount subject to refund: -----	\$341,600
Maximum refund based on 10 year option selected: -----	\$341,600
50% Discount Option -----	\$1,803,443

¹ ITCC Tax currently at 22%. Expected to increase to 34% in January 2010.

34/12KV Service w/Applicant Supplied Transformer Space

Two new 34KV circuits will be installed directly from Embarcadero Substation and terminate in PG&E installed 34/12KV transformers installed on Terminal property. Space for transformers and transformer pads will be provided by applicant. Cost of the transformers will be special facilities and be subject to cost of ownership. The service will be installed as an accommodation, however as the total cost of the first service (not including transformers²) is less than PG&E's standard service arrangement, no special facilities charges apply to this first service. Preliminary scope descriptions are as follows:

The future applicable rate schedule for this option will be E-20P.

INSTALL TWO 34/12 kV TRANSFORMERS ON APPLICANT'S PREMISES Z-3412

	SCOPE DESCRIPTION	Length (ft)	Cost (\$)
1	INSTALL ONE #7 BOX, INSTALL 3WAY SWITCH, INTERCEPT Z-3412 ON MH-7927 ON FOLSOM & FREMONT	N/A	
2	INSTALL 1 SET OF 1000EPR CABLE BETWEEN NEW SWITCH AND FREMONT/HOWARD, USE SPARE 6" DUCTLINE	1300	
3	INSTALL TWO #7 BOXES, ON HOWARD/FIRST STREET & ON MINNA/FIRST STREET	N/A	
4	INSTALL ONE 34/12KV TRANSFORMER INSIDE OF BUILDING	COO Only	
	SUBTOTAL		\$280,000

STANDBY FEEDER: INSTALL TWO 34/12 kV TRANSFORMERS ON APPLICANT'S PREMISES Z-3411

	SCOPE DESCRIPTION	Length (ft)	Cost (\$)
1	INSTALL ONE #7 BOX, INSTALL 3WAY SWITCH, INTERCEPT Z-3411 ON MH-7927 ON FOLSOM & FREMONT	N/A	
2	INSTALL 1 SET OF 1000EPR CABLE BETWEEN NEW SWITCH AND FREMONT/HOWARD, USE SPARE 6" DUCTLINE	1300	
3	PULL IN 1 SET OF 1000EPR CABLE USING SPARE NEW 6" DUCTLINE ON HOWARD STREET BETWEEN FREMONT & FIRST ST.	500	
4	PULL IN 1 SET OF 1000EPR CABLE USING SPARE NEW 6" DUCTLINE ON FIRST STREET BETWEEN HOWARD & MINNA ST	450	
5	PULL IN 1 SET OF 1000EPR CABLE USING SPARE NEW 6" DUCTLINE ON MINNA STREET FROM FIRST STREET	400	
6	INSTALL ONE 34/12KV TRANSFORMER INSIDE OF BUILDING (STANDBY)	N/A	
7	8MW PG&E SUB TRANSFORMER BANK RESERVE CAPACITY COST	COO Only	
	SUBTOTAL		\$465,000

Rough Costs for this option are as follows and we have also included PG&E's estimate to perform all trenching. The rough costs also include applicable ITCC¹ taxes. This will allow for a total cost comparison.

Installation Cost Estimate: -----	\$341,600
Special Facilities for 34 KV Transformer + COO² -----	\$291,220
Trenching Cost -----	\$494,100
Backup Service -----	\$1,429,763
Auto Transfer Switch (includes cost-of ownership)¹ -----	\$155,317
Total: -----	\$2,712,000
Amount subject to refund: -----	\$341,600
Maximum refund based on 10 year option selected: -----	\$341,600
50% Discount Option -----	\$2,385,882

¹ ITCC Tax currently at 22%. Expected to increase to 34% in January 2010.

² As an option, cost of transformers can be subject to allowance in accordance with provisions of electric rules 15/16, with no cost of ownership included. However, the customer would be billed under rate schedule E-20S if this option is selected. See Rate schedule comparison.

34/12KV Service with vault installation in Franchise Area

If space cannot be provided on transit centers property for two 34/12KV transformers, PG&E will construct a vault in the franchise area and install the 34KV transformers and extend 12KV to applicant installed 12KV switchgear on transit property. The cost of the vault will also be considered special facilities and subject to cost-of ownership. The first service will be installed as an accommodation, however as the total cost of first service (not including transformers) is less than PG&E's standard service arrangement, no special facilities charges apply to this first service. Preliminary scope descriptions are as follows:

The future applicable rate schedule for this option will be E-20P.

INSTALL TWO 34/12 kV TRANSFORMERS LOCATED IN FRANCHISE AREA Z-3412

	SCOPE DESCRIPTION	Length (ft)	Cost (\$)
1	INSTALL ONE #7 BOX, INSTALL 3WAY SWITCH, INTERCEPT Z-3412 ON MH-7927 ON FOLSOM & FREMONT	N/A	
2	INSTALL 1 SET OF 1000EPR CABLE BETWEEN NEW SWITCH AND FREMONT/HOWARD, USE SPARE 6" DUCTLINE	1300	
3	INSTALL TWO #7 BOXES, ON HOWARD/FIRST STREET & ON MINNA/FIRST STREET	N/A	
4	INSTALL ONE 10'x20'x10' VAULT ON FIRST STREET	COO Only	
5	INSTALL ONE 34/12KV TRANSFORMER IN NEW STREET VAULT	COO Only	
SUBTOTAL			\$280,000

STANDBY FEEDER: INSTALL TWO 34/12 kV TRANSFORMERS LOCATED IN FRANCHISE AREA Z-3411

	SCOPE DESCRIPTION	Length (ft)	Cost (\$)
1	INSTALL ONE #7 BOX, INSTALL 3WAY SWITCH, INTERCEPT Z-3411 ON MH-7927 ON FOLSOM & FREMONT	N/A	
2	INSTALL 1 SET OF 1000EPR CABLE BETWEEN NEW SWITCH AND FREMONT/HOWARD, USE SPARE 6" DUCTLINE	1300	
3	PULL IN 1 SET OF 1000EPR CABLE USING SPARE NEW 6" DUCTLINE ON HOWARD STREET BETWEEN FREMONT & FIRST ST.	500	
4	PULL IN 1 SET OF 1000EPR CABLE USING SPARE NEW 6" DUCTLINE ON FIRST STREET BETWEEN HOWARD & MINNA ST	450	
5	PULL IN 1 SET OF 1000EPR CABLE USING SPARE NEW 6" DUCTLINE ON MINNA STREET FROM FIRST STREET	400	
6	INSTALL ONE 10'x20'x10' VAULT ON FIRST STREET	N/A	
7	INSTALL ONE 34/12KV TRANSFORMER IN NEW STREET VAULT (STANDBY)	N/A	
8	8MW PG&E SUB TRANSFORMER BANK RESERVE CAPACITY COST	COO Only	
SUBTOTAL			\$465,000

Rough Costs for this option are as follows and we have also included PG&E's estimate to perform all trenching. The rough costs also include applicable ITCC¹ taxes. This will allow for a total cost comparison

Installation Cost Estimate: -----	\$341,600
Special Facilities for 34/12 KV Transformer + Vault + COO -----	\$485,366
Trenching Cost -----	\$494,100
Backup Service -----	\$1,623,909
Auto Transfer Switch (includes cost-of ownership)¹ -----	\$155,317
Total: -----	\$3,100,292
Amount subject to refund: -----	\$341,600
Maximum refund based on 10 year option selected: -----	\$341,600
50% Discount Option -----	\$2,774,175

¹ ITCC Tax currently at 22%. Expected to increase to 34% in January 2010.

12 KV Primary Radial Service

One new 12KV circuit will be installed directly from Embarcadero Substation and the second, backup, 12KV circuit will come from Mission Substation. Both will terminate in customer installed 12KV switchgear on Transit property. This option will be installed as an accommodation, however as the total cost for the first service is less than PG&E's standard service arrangement, no special facilities charges apply to this first service. Preliminary scope descriptions are as follows:

The future applicable rate schedule for this option will be E-20P.

12kv PRIMARY RADIAL SERVICE - ESTABLISH NEW EMBARCADERO 12KV FEEDER

ITEM	SCOPE DESCRIPTION	Length (ft)	Cost (\$)
1	EXTEND EXISTING 12KV BUS FROM 2ND FLOOR TO 3RD FLOOR AT EMBARCADERO SUBSTATION	N/A	
2	INSTALL NEW INDOOR OCB	N/A	
3	INSTALL 1100EPR CABLE FROM NEW MH-1 TO NEW MH-2 ON FREMONT/HOWARD	1300	
4	INSTALL TWO #7 BOXES, ON HOWARD/FIRST STREET & ON MINNA/FIRST STREET	N/A	
5	INSTALL NEW VAULT AUTOTRANSFER SWITCH	N/A	
SUBTOTAL			\$1,010,000

STANDBY FEEDER: 12kv PRIMARY RADIAL SERVICE - ESTABLISH NEW MISSION 12KV FEEDER

	SCOPE DESCRIPTION	Length (ft)	Cost (\$)
1	INSTALL NEW INDOOR OCB INSIDE OF MISSION SUB	N/A	
2	INSTALL 2-SETS OF 500EPR CABLE FROM MISSION OCB TO 8TH STREET & MINNA ON EXISTING 3.5" DUCTLINE (~500 ft)	1000	
3	INSTALL 2-SETS OF 500EPR CABLE FROM 8TH STREET & MINNA TO MINNA & SECOND ON EXISTING 3.5" DUCTLINE (~6500 ft)	13000	
4	INSTALL ONE #7 BOX, INSTALL 3WAY SWITCH, INTERCEPT Z-3411 ON MH-7927 ON FOLSOM & FREMONT	N/A	
5	8MW PG&E SUB TRANSFORMER BANK RESERVE CAPACITY COST	COO Only	
SUBTOTAL			\$1,950,000

Rough Costs for this option are as follows and we have also included PG&E's estimate to perform all trenching. The rough costs also include applicable ITCC¹ taxes. This will allow for a total cost comparison

Installation Cost Estimate: -----	\$1,232,200
Trenching Cost -----	\$494,100
Backup Service -----	\$4,312,837
Auto Transfer Switch (includes cost-of ownership)¹ -----	\$155,317
Total: -----	\$6,194,454
Amount subject to refund: -----	\$1,232,200
Projected refund based on 8 MW usage utilizing 10 year option: -----	\$1,226,137
50% Discount Option -----	\$5,423,037

¹ ITCC Tax currently at 22%. Expected to increase to 34% in January 2010.

E-20 Rate Comparison

The following is an annual rate comparison between an E20P rate and E20S rate with a comparable customer at 8 MW. This is provided for information only and may not reflect future actual usage of Transit Center.

	MANDATORY	**MANDATORY**
	E20P Bills	E20S Bills
January	\$189,348.98	\$200,128.07
February	\$194,382.68	\$205,879.90
March	\$183,613.28	\$194,121.11
April	\$177,964.82	\$188,119.40
May	\$268,781.49	\$274,846.07
June	\$287,813.10	\$293,612.57
July	\$310,369.39	\$316,805.62
August	\$286,371.07	\$291,626.26
September	\$315,864.41	\$322,327.14
October	\$301,339.45	\$307,308.12
November	\$200,805.23	\$213,034.55
December	\$197,298.94	\$209,101.44
12 Month Total	\$2,913,952.84	\$3,016,910.25

Allowances and Refundable Costs.

DISTRIBUTION LINE EXTENSION ALLOWANCES

1. GENERAL. PG&E will complete a Distribution Line Extension without charge provided PG&E's total estimated installed costs do not exceed the allowances from permanent, bonafide loads to be served by the Distribution Line Extension within a reasonable time, as determined by PG&E. The allowance for non-residential applicants will be applied to the combined refundable cost of the Distribution and Service Extensions.

2. BASIS OF ALLOWANCES. Allowances shall be granted to an Applicant for Permanent Service, or to an Applicant for a subdivision or development under the following conditions:

- a. PG&E is provided evidence that construction will proceed promptly and financing is adequate, and
- b. Applicant has submitted evidence of building permit(s) or fully-executed home purchase contract(s) or lease agreement(s), or
- c. Where there is equivalent evidence of occupancy or electric usage satisfactory to PG&E.

The allowances are based on a revenue-supported methodology using the following formula:

Allowance = Net Revenue divided by the Cost of Service Factor¹ where the Cost of Service Factor² is the annualized utility-financed Cost of Ownership as stated in Electric Rule 2.

The total refundable amount is subject to refund for a period of ten (10) years after the Distribution Line Extension is first ready for service - (Known as the 10-Yr Refundable Option).

In lieu of contributing the refundable amount determined for those facilities subject to refund identified in Electric Rule 15, Applicant has the option of contributing, on a non-refundable basis, fifty percent (50%) of such refundable amount – (Known as the 50% Discount Option)

For non-residential jobs, actual net revenue will be compared to estimated net revenue on an annual basis, which may result in either a refund or a deficiency billing. Whenever actual net revenue does not equal or exceed estimated net revenue, the customer is billed for the deficiency.

¹ NET REVENUE: That portion of the total rate revenues that supports PG&E's Distribution Line and Service Extension costs and excludes such items as energy, transmission, Competition Transition Charge (CTC), public purpose programs, revenue cycle services revenues, and other revenues that do not support the Distribution Line and Service Extension costs.

² COST OF SERVICE FACTOR: The annualized utility-financed Cost of Ownership as stated in monthly format in Rule 2 that includes taxes, return and depreciation and is applied to the Net Revenue to determine PG&E's investment in distribution facilities.

Service Cost Comparison

Options	Base Installation - Subject to Refund	Sub Total- Subject to Refund (ITCC net) ¹	Trenching	Trenching Sub Total (ITCC net) ¹	Less Pref Option	Special Facilities	COO ²	COO ³	Special Facilities Sub Total (ITCC net) ¹	Total w/o allowance ⁴	Projected Refund - based on usage allowances ⁵
Options Network Backup	\$2,450,000 \$0	\$2,890,000 \$0	\$1,500,000 \$0	\$1,596,000 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$4,275,000 \$0	\$1,721,096 \$0
										10 YR OPTION GRAND TOTAL ¹ 50% OPTION GRAND TOTAL ¹	\$4,275,000 \$3,080,500
12 KV Backup	\$1,010,000 \$0	\$1,292,200 \$0	\$405,000 \$0	\$494,100 \$0	\$0 \$1,850,000	\$0 \$1,850,000	\$0 \$1,406,655	\$526,892	\$0 \$4,312,837	\$1,726,300 \$4,312,837	\$1,226,137 \$0
										10 YR OPTION GRAND TOTAL ¹ 50% OPTION GRAND TOTAL ¹	\$1,726,300 \$5,423,037
24 KV Backup	\$780,000 \$0	\$841,600 \$0	\$405,000 \$0	\$494,100 \$0	\$0 \$315,000	\$0 \$315,000	\$0 \$227,261	\$526,892	\$0 \$1,138,543	\$635,700 \$1,138,543	\$341,600 \$0
										10 YR OPTION GRAND TOTAL ¹ 50% OPTION GRAND TOTAL ¹	\$635,700 \$1,803,443
34.12 KV (PL) Backup	\$780,000 \$0	\$841,600 \$0	\$405,000 \$0	\$494,100 \$0	\$0 \$465,000	\$150,000 \$465,000	\$109,220 \$535,481	\$526,892	\$291,220 \$1,429,763	\$1,026,920 \$1,429,763	\$541,600 \$0
										10 YR OPTION GRAND TOTAL ¹ 50% OPTION GRAND TOTAL ¹	\$1,026,920 \$2,335,882
34.12 KV (Franchise) Backup	\$780,000 \$0	\$841,600 \$0	\$405,000 \$0	\$494,100 \$0	\$0 \$595,000	\$750,000 \$595,000	\$189,968 \$407,627	\$526,892	\$485,968 \$1,623,908	\$1,921,026 \$1,623,908	\$341,600 \$0
										10 YR OPTION GRAND TOTAL ¹ 50% OPTION GRAND TOTAL ¹	\$1,921,026 \$2,774,175

0.22 for 2009, 0.34 for 2010

¹ ITCC - Income Tax Component of Contribution

² Without allowance

³ Projected refund based on 10 Year Option Selection and estimated 8 MW demand usage

⁴ COO - Cost Of Ownership as identified in Electric Rule 21 under distribution facility customer financed

⁵ COO - Cost Of Ownership as identified in Electric Rule 21 under distribution facility PG&E financed for the 8 MW PG&E Subtransformer bank reserve capacity cost

MC 0.46 based on 2009 present worth factor
 PWF 13.07
 Preferred Option \$2,450,000

COST COMPARISON FOR PG&E ELECTRICAL SERVICE OPTIONS

1	2	3	4	5	6	7	8	9	10
SCHEME	SERVICE OPTION ¹	PG&E TOTAL COST ²	PG&E COST LESS 50% DISCOUNT ³	TTC COST	TOTAL ⁴	ADDED COSTS	SUB-TRACTIVE COSTS	COMMENTS	CONSTRUCTABILITY
A	34/12KV Service Vault Installation in Franchise Area (See page 11)	\$3,100,292	\$2,774,175	\$0	\$2,774,175	None: Baseline Design	None: Baseline Design	This option is the baseline option as documented in the 100% SD set.	Top down or bottom up
B	Network Grid Service (See page 6)	\$4,575,000	\$3,060,500			(3) Transformer Vaults (3) Main Switchboard Rooms Retail Meter Boards	12KV Primary Switchgear 12KV Distribution Substation Rooms PG&E Room Dry type power transformers Primary switchgear room Secondary tie busways	Highest reliability option. Retail tenants can be directly metered from PG&E. Less space used at ground level.	Bottom up only
C	34/12KV Service Applicant Supplied Transformer Space (See page 9)	\$2,712,000	\$2,385,882			3hr Vault within Building for 34/12KV Transformer	None: Baseline Design		Top down or bottom up
D	34KV Service (See page 7)	\$2,129,560	\$1,803,443			34KV Switchgear 34KV Meters 34/12KV Transformers (2@6MVA) 3hr Transformer Vault within Building	None: Baseline Design		Top down or bottom up
E	12KV Primary Radial Service (See page 13)	\$6,194,454	\$5,423,037	\$0	\$5,423,037	None: Baseline Design	None: Baseline Design		Top down or bottom up

NOTES

1. For page references see *Preliminary Study For New Electrical Service to Transbay Transit Center - Feasibility Study & Service Options* dated 03/27/09
2. Includes trenching by PG&E (can be provided by T/JFA)
3. Total cost less 50% of amount subject to refund
4. Total equals sum of columns 4 and 5

Transbay Transit Center
WSP Flack + Kurtz
Electric Service Options
August 7, 2008

The Transbay Transit Center is eligible for two types of electric services from PG&E:

1. Primary Service (12.47KV radial feeder with backup line)
2. Multiple Network Service Vaults (277/480V services from PGE network grid)

The general descriptions of these two types of services are summarized in the meeting minutes with F+K and TJPA dated June 25, 2008 and the meeting minutes dated July 31, 2008 with F+K and PG&E representatives.

A summary of the two options is provided as follows:

1. Initial Cost: The cost of the primary service would be greater as the primary switchgear, 12.47KV feeders, and substations would be a part of the customer's electrical construction cost.
2. Reliability: The Multiple Network Service Vaults provide a higher degree of reliability as the PG&E commercial business district network grid is considered the most reliable service available from PG&E.
3. Operation and Maintenance: The Primary Service equipment would be owned, maintained and operated by the TJPA. The Network Vault equipment would be owned, operated, and maintained by PG&E.
4. Flexibility: The primary Service provides greater flexibility as installation past the primary meter is not regulated by the rules and construction requirements of PG&E. Power transformers would be dry type, in rooms requiring 1 hour minimum fire rating.
5. Space Requirements: The primary Service system would require nominally more space than the Network Service system (this assumes that the outside wall of the train box is deeded as the property line; if not the network vaults would need to be moved to within the property line which would double the size of the vaults (additional space outside property line needed for access and ventilation subject to a revocable permit from DPW).
6. Vulnerability to Extreme Events: The Network Service Vaults would be potentially exposed to external tampering as the access to the vaults is through multiple manhole style grates at the sidewalks.
7. Base Isolation: In the event that the building is base isolated, the Primary Service option would require a flexible connection at one service point location. The Network Service Vaults would have to be "outside" of the isolated structure, with multiple flexible connections on the secondary feeders between the Network Vault and the service switchboards (this would reduce the cost advantage of the Network Vault system (see Initial Cost above).
8. Constructability/Phasing: The Primary Service would allow all equipment to be installed in rooms above grade level, consistent with the multiple "stacked plant" arrangement recommended in this Concept Validation report. The network service vaults would need to be constructed at the train mezzanine level with the Phase I build out: the constructability of this approach is not considered cost effective or possibly feasible the Concept Validation phase. PG&E expressed concern about the viability of extending incoming network

service lines to the two middle blocks along Natoma and Minna Streets given the limited availability of space from the utility relocation work.

The electric service included in the Concept Validation report is based on a Primary Service System with phased capacity. The capacity of the system could be phased to serve Phase I only (with the phase I build out) and expanded later when Phase II is built.

On August 6th, 2008, we submitted online a preliminary application for gas and electric service to Pacific Gas & Electric. PG&E has assigned the project a project manager, Sean O'Neil, smo7@pge.com, and a tracking number, 103179528. Mr. O'Neil will be issuing a letter requesting for a project security deposit that allows PG&E to officially start design.

EXHIBIT 2



Privileged and Confidential

March 20, 2012

Maria Ayerdi-Kaplan
 Executive Director
 Transbay Joint Powers Authority
 201 Mission Street, Suite 2100
 San Francisco, CA 94105

Re: Revised Proposal for Providing Electric Service
 Transbay Transit Center, San Francisco, California

Dear Maria,

The San Francisco Public Utilities Commission ("SFPUC") is pleased to submit this revised proposal to the Transbay Joint Powers Authority ("TJPA") for providing electric service to the Transbay Transit Center ("Transit Center") in San Francisco, California. This proposal outlines the rates, incentives, and delivery of electric service and incorporates the improvements to the SFPUC's service based on the various constructive meetings between our respective project teams as part of the enhanced risk and vulnerability assessment for the Transit Center.

While the SFPUC believes that its original proposal is a reliable means of providing service, it is committed to its partnership with TJPA in addressing the issues of the enhanced risk and vulnerability assessment as it relates to the electric service to the Transit Center. The SFPUC will include as part of its proposal the installation of two primary services from different substations in two physically separate locations within the Transit Center, two ways of switching between the two power sources, and redundant transformers at each utility vault.

In summary, SFPUC's November 10, 2011 proposal provided TJPA an estimated \$661,124 in capital or first cost savings with the following additional benefits:

- Upfront cost that are no more than Pacific Gas and Electric Co.'s ("PG&E") actual costs for electric service through a "network option",
- Eliminated PG&E's income tax component of contribution ("ITCC") fee,
- Greater energy efficiency rebates,
- Reimbursement to TJPA for the design or construction costs related to implementing SFPUC power as detailed herein,
- Ten percent ("10%") discount of operational costs compared with PG&E, and
- 100% greenhouse gas ("GHG") free electricity.

With the addition of the improvements to SFPUC's service to address the findings and requirements of the enhanced risk and vulnerability assessment for the Transit Center, SFPUC's revised proposal provides TJPA estimated capital or first cost savings of \$1,505,110 with the same additional benefits

Edwin M. Lee
 Mayor

Anson Moran
 President

Art Torres
 Vice President

Ann Moller Caen
 Commissioner

Francesca Vietor
 Commissioner

Vince Courtney
 Commissioner

Ed Harrington
 General Manager



listed above. With the proposed energy efficiency investment and SFPUC electric rates, TJPA will realize \$929,681 in annual operating cost savings.

The SFPUC is the City and County of San Francisco's ("the City") municipal power provider and is responsible for providing clean, GHG-free electricity to critical City loads, such as San Francisco General Hospital, Muni Railway, Laguna Honda Hospital, and the San Francisco International Airport. The SFPUC has and continues to provide reliable, low-cost, and green hydro-electric power since 1937 to its customers.

The SFPUC's proposal to TJPA for providing electric service to the Transit Center is described in the following sections.

The SFPUC's Electric Service Maintains TJPA's Design While Providing Flexibility for Load Growth and Redundancy for Added Reliability

A. Service from Two Separate Sources of Power

The SFPUC proposes to provide electricity to the Transit Center using two new separate 12-kilovolt ("kV") electric circuits. The first circuit would connect to Pacific Gas and Electric Company's ("PG&E") Embarcadero Substation located on Folsom Street and Beale Street. The second circuit would connect to PG&E's Mission Substation located on Mission Street and 8th Street. The SFPUC would install, operate, and maintain the two circuits from the substations to the Transit Center. Each 12-kV circuit will have the dedicated capacity to supply the Transit Center's projected electric load at full build-out reserved exclusively for TJPA.

The SFPUC's proposal is identical to one of five options that PG&E had identified as feasible in its March 27, 2009 report entitled "Preliminary Study for New Electric Service to Transbay Transit Center – Feasibility Study & Service Options" ("PG&E Report"). The option of serving the Transit Center with two separate 12-kV primary radial connections from the Embarcadero and Mission substations was identified as feasible and reliable by PG&E.

B. Two Primary Switchgear Units at Two Locations

The SFPUC proposes to install and own two 12-kV switchgear units at two different locations within the Transit Center. Each 12-kV switchgear unit will be sized and capable of serving the Transit Center's projected electric load at full build out.

As discussed with TJPA and its consultants, the first switchgear unit will be installed at the northwest corner of the Transit Center near the intersection of 2nd Street and Minna Street. The second switchgear unit will be installed at the southern end of the Transit Center near the intersection of 1st Street and Natoma Street.

C. Two Ways of Switching Between Two Primary Switchgear Units

Operationally, the electric load within the Transit Center will be split and served by the two switchgear units. A percentage of the electric load will be served by the first switchgear and the balance of the load by the second switchgear.

SFPUC will provide two ways to switch from one electric service to the other in order to reduce any service interruption as a result of planned maintenance or unplanned outages. An automatic transfer switch will be installed in proximity to each primary switchgear unit to increase reliability by having redundant sources. Additionally, a manual switch or tie breaker will be installed between Utility Vault No. 4 along Minna Street and Utility Vault No. 6 along Natoma Street. This will provide the ability to power the entire Transit Center in the event of a transfer switch failure or to most of the Transit Center in the event of a duct bank or utility vault failure. The addition of the bus tie breaker provides for switching to the unaffected source and restore power to the un-faulted sections of the Transit Center.

Together, the automatic switches and tie breaker provide redundancy to the source and the switching between sources.

D. Redundant Transformers with Each Utility Vault

Electricity from the primary 12-kV switchgear units would then be conveyed to redundant transformers that will be installed in several utility vaults throughout the Transit Center. Each transformer will be connected directly to TJPA's 480-Volt bus duct and/or switchgear, thereby eliminating the proposed 480-Volt transfer switches that were in the utility vault. As part of its proposal, the SFPUC will own the transformers, interrupters, and service entrance conductors up to TJPA's bus duct and/or secondary 480-Volt switchgear.

Comparison of Cost and Savings

Table 1 shows a comparison of cost and savings between the network and the two 12-kV service options. The total capital or first cost for the network option is \$4,575,000 and \$6,194,454 for the two 12-kV option. These costs were provided in the 2009 PG&E Report and included both refundable and non-refundable components, as well as an ITCC fee of 22 percent.

Although the cost of the SFPUC's proposed electric service is more than the "network option", as a partner with the SFPUC, TJPA would pay no more than it would have paid for the network connection option, after taking the refunds and allowances available. Additionally, TJPA's contribution is further decreased due to the reduction in capital costs through the avoidance of PG&E's ITCC fee estimated at \$661,124 and the potential of a deficiency assessment should actual electric use be less than the requested service.

In consultation with TJPA project staff, the cost estimates provided in the 2009 PG&E Report will form the basis of cost sharing between TJPA and SFPUC. The adjustment of the 2009 costs will be determined from the actual cost to be provided by PG&E for providing the dual 12-kV option. The difference between PG&E's 2009 estimated costs and PG&E's actual costs will be the basis for the adjustment to upfront capital costs.

Table 1
Transbay Transit Center
Cost and Savings Comparison
Between Network and Two 12-kV Electric Service

Schedule	Description	PG&E Network Option	SFPUC Two 12-kV Option
Infrastructure Cost			
Jun 1, 2012	SFPUC Pays PG&E for Two 12-kV Service		\$6,194,454
Jun 1, 2012	TJPA Capital Cost for Network Service	\$4,575,000	\$4,575,000
Jun 1, 2012	Less Up-Front Allowance ¹	(\$150,780)	(\$150,780)
Jun 1, 2012	Less Up-Front Refundable Amount ² Using 50% Discount Option	(\$1,419,110)	(\$1,419,110)
Jun 1, 2012	Net Total Capital Costs	\$3,005,110	\$3,005,110
Jun 1, 2012	Less PG&E's 22% ITCC ³ Fee		\$661,124
Jun 1, 2012	Net TJPA Costs	\$3,005,110	\$2,343,986
Redesign Cost			
Aug 1, 2012	TJPA Pays PCPA for Redesign		(\$400,000)
Aug 1, 2012	TJPA Pays AECOM for Redesign		(\$300,000)
Sep 1, 2012	SFPUC Reimburses TJPA for Redesign		\$700,000
Mar 1, 2014	TJPA Pays Webcor for Construction		(\$850,000)
Apr 1, 2014	SFPUC Reimburses TJPA for Construction		\$850,000
Apr 1, 2014	SFPUC Provides for Service Improvements		(\$350,000)
Apr 1, 2014	Net TJPA Costs	\$3,005,110	\$1,993,986
Energy Efficiency Incentives/Rebates			
Aug 1, 2012	50% of Design Team Incentives	(\$750,000)	(\$750,000)
Oct 1, 2017	Balance of Design Team Incentives after Verification of Measures	(\$750,000)	(\$750,000)
Oct 1, 2017	Innovative Incentives after Verification of Measures		(\$500,000)
Oct 1, 2017	Total Available Energy Efficiency Incentives	(\$1,500,000)	(\$2,000,000)
Total Cost to TJPA		\$1,505,110	\$0
Annual Energy Costs		PG&E E-20S Rate	SFPUC Rate
	Baseline Energy Projections (22,817,588 kWh/year)	\$2,528,521	\$2,275,669
Annual Energy Savings to TJPA at Baseline			\$252,852
	Energy Projections with SFPUC Incentives (16,130,710 kWh/year)		\$1,598,840
Annual Energy Savings to TJPA with SFPUC Energy Efficiency Incentives			\$929,6819

Notes:

¹ Allowance is the up-front credit towards construction based on the first year energy use per PG&E Rule 15 C.2. For the Transit Center, the first year energy use is estimated to be 1,948,229 kilowatt hours ("kWh"), based on the "Proposed Energy Projections" in WSP Flack + Kurtz's Energy Analysis Report.

² Refundable amount is the amount, before allowances, that PG&E estimates to install the distribution extension and non-residential service facilities. The refundable amount does not include excavation, conduits, and protective substructures. Based on the 2009 PG&E Report, the Net Refundable Amount estimated to be \$2,838,220. Using the 50 percent discount option, the net refundable amount is \$1,419,110.

³ PG&E's income tax component of contribution ("ITCC") at 22 percent ("22 %") in 2009.

The estimates provided in the PG&E Report for capital or first costs, including ITCC fees, were prepared in March 2009 and would be subject to an adjustment to reflect present day costs by PG&E. The estimates for the allowances and refundable costs are also subject to a present day adjustment and will vary based on the actual electric usage at the facility.

Based on the electric service option provided, the utility will provide an allowance for the applicant to recover some of the refundable costs associated with the service. For the allowances to be granted upfront, evidence of occupancy or electric usage must be provided. In accordance with the line extension rules, TJPA will have an option of advancing all refundable costs (10 year refundable option) and, if future energy use is sufficient, will receive a refund over time for some of these "refundable" costs.

Under the 10-year refundable option, TJPA's total capital service installation cost is \$4,575,000. Using the projected energy use data provided by TJPA, the estimated refund of \$1,097,630 would be available over the first four years of operation and result in a net cost to TJPA of \$3,477,370. TJPA would be subject to a deficiency charge should the actual energy used be less than the projected energy use data provided by TJPA at the time the project was engineered by SFPUC.

Alternatively, TJPA could use the 50 percent discount option, which allows for payment of only 50 percent of the refundable cost upfront to the utility, with the understanding that no further refunds would be available and that any deficiency charge would be assessed at 50 percent of the allowance provided.

For the purposes of the calculations provided in Table 1, TJPA elected to use the 50 percent discount option. Under the 50 percent discount option, TJPA's total capital service installation cost is \$3,005,110.

Reliability of Service

As discussed, SFPUC's transmission consultant, Flynn Resources Consultants ("Flynn"), addressed the reliability of providing service through a dual 12-kV radial system by noting that each substation has the capability to supply the full power to the Transit Center under various outage scenarios. Additionally, the SFPUC's proposed service is connected to the same substations that provide service to the downtown's network system.

SFPUC's proposed electric service is typical for facilities in San Francisco and throughout California that are critical and require a very reliable service level. Most loads served at distribution voltages are served through radial circuits with one or two primary circuits from one or two substations. In some cases, these loads can be served from a second source, from the same or different substation, with some manual or automatic switching.

The SFPUC reliably serves several critical facilities in San Francisco that have a similar service like the San Francisco International Airport, San Francisco General Hospital, Laguna Honda Hospital, Oceanside Water Pollution Control

Plant, Moscone Convention Center, and the City's Department of Emergency Management Operations Center.

While most loads served at distribution voltages are served through one radial circuit, the SFPUC service to the Transit Center will have two distinct radial circuits from two independent substations for further reliability.

Each 12-kV circuit would have the capacity to provide for the Transit Center's entire projected electric needs, which includes service to the bus ramps, and provide for any future growth. Additionally, having separate and independent sources of electricity from two independent substations, with the ability to transfer load between the two sources provides redundancy and allows the Transit Center's full load to be served even upon the loss of an entire substation.

Reliability of Service Restoration - The SFPUC Guarantees Electric Service Support and Emergency Response on a "24/7/365" Basis

To ensure that electric service to the Transit Center is as reliable as possible, the SFPUC will provide the same emergency outage response that it provides all its customers. The SFPUC will provide the Transit Center with staff to respond on a 24-hours per day, 7-days per week, and 365 days per year basis. Additionally, the SFPUC will have in its inventory a stock of key replacement parts and equipment as needed.

In the event of a City-wide outage, restoration of service to customers is provided by utilities on a non-discriminatory basis. Outages and supply disruptions that are due to emergency conditions are monitored and managed through the City's Department of Emergency Management ("DEM"). The DEM will implement the City's Emergency Response Plan to assess the situation, determine the response, and allocate resources. The DEM will establish and direct the restoration priority of utility services with the SFPUC as its designated Incident Commander for water and other utilities.

The SFPUC Provides Green, Clean Energy Plus Savings Through Competitive Electric Rates

The SFPUC will provide the same clean Hetch Hetchy generation that all existing Municipal customers share at competitive rates.

The SFPUC's electric service to TJPA will be 100% greenhouse-gas free through the use of its hydroelectric Hetch Hetchy system in the Sierra Nevada and the photovoltaic project at the Sunset Reservoir in San Francisco. In 2011, the California Legislature passed, and the Governor signed, SB X1-2 which requires the SFPUC to purchase renewable power should it need to supplement its existing resources.

WSP Flack + Kurtz's Energy Analysis Report, dated December 20, 2010, estimated the Transit Center's annual energy costs to be \$ 2.5 million under the Baseline Scenario and \$1.8 million under the Proposed Scenario that includes all proposed energy efficiency measures. The estimated energy costs are based on PG&E's retail and commercial rates. For retail customers within

the Transit Center, the SFPUC will individually meter¹ and directly bill the retail customer at rates that are 10% less than PG&E's existing small commercial rates. For the Transit Center itself, the SFPUC will provide service at rates that are 10% less than PG&E's large commercial rates.

The SFPUC's Energy Efficiency Incentives Surpass Those Offered Through Savings by Design

The State of California's *Savings by Design* program incentives and design assistance to encourage and promote maximum energy efficiency in new commercial buildings. The SFPUC will provide comparable or better services and offerings than are available to the Transit Center through *Savings by Design*.

The owner incentives provided through the *Savings by Design* are capped at \$500,000 per project. There are mechanisms to evaluate a project in phases to allow for higher incentives. Design team incentives also apply. The Transit Center is a showcase of innovative design elements that go far in reducing its environmental footprint; a goal that is shared by the SFPUC as reflected in one of its adopted Guiding Principles. The Transit Center incorporates natural ventilation, an open design to allow for maximum daylight, and a rooftop garden that serves a dual purpose as an open public space and in maintaining the building's temperature at a comfortable level. However, these innovations also pose challenges in receiving credit through the *Savings by Design* program. Since the SFPUC is not bound by the same limitations, we are prepared to provide incentives that surpass the maximum offered by *Savings by Design*. In partnering with the SFPUC, we are offering TJPA design assistance and energy efficiency incentives.

Based on meetings between our respective project staff and evaluation of the energy savings as modeled in EnergyPro model, our preliminary estimate shows that the Transit Center may qualify for energy efficiency incentives of up to \$2,000,000.

The SFPUC Will Be Responsive To TJPA to Meet Its Current Design and Construction Schedule

The SFPUC project team has been working TJPA and will continue to do so through the preparation of final design drawings, into construction, and commissioning of the Transit Center. It is our understanding that the 100% construction design documents are being prepared for completion by March 2012.

The SFPUC staff is committed to assist TJPA in meeting all deadlines related to electric infrastructure and electric service provision as scheduled, and to reimburse TJPA for integrating in its design SFPUC's electric service requirements. This includes both design and construction fees. In consultation with TJPA project staff, the design costs for electric service requirements will

¹ Per SFPUC *Rules & Regulations*, retail customers within the Transit Center will be individually metered and billed directly by SFPUC. The Transit Center common area load will be metered and billed to TJPA by the SFPUC at adopted rates.

be initially paid by TJPA and reimbursed by SFPUC through a credit against the total capital service installation costs.

After TJPA has reviewed our proposal, I look forward to hearing from you and working towards our final agreement.

If you have any questions regarding this matter, please give me a call at (415) 554-2483.

Sincerely,

A handwritten signature in black ink, appearing to be 'B. Hale', with a long horizontal flourish extending to the right.

Barbara Hale
Assistant General Manager, Power Enterprise
San Francisco Public Utilities Commission

cc: Robert Beck, Transbay Joint Powers Authority
Ed Harrington, San Francisco Public Utilities Commission
Guy Hollins, Transbay Joint Powers Authority
Samuel Laraño, San Francisco Public Utilities Commission
Mark O'Dell, Transbay Joint Powers Authority
Todd Rydstrom, San Francisco Public Utilities Commission

Appendix A

Table A-1 shows a comparison of cost between the network grid option and a dual 12-kV primary radial service proposed by PG&E Report.

Table A-1 Comparison of Cost Between Network and Dual 12-kV Option Based on PG&E's March 2009 "Feasibility Study and Service Options"			
Item Description		Network Option	Dual 12-kV Option
1	Electric Service		
2	Trenching (Non-Refundable ¹)	\$1,586,000	\$494,000
3	Service Installation ² (Refundable ³)	\$2,989,000	\$1,232,000
4	Back-Up Service ⁴		\$4,312,837
5	Switchgear ⁵		\$0
6	Auto Transfer Switch		\$155,317
7	Total ⁶	\$4,575,000	\$6,194,454
8	Amount Subject to Refund	\$2,989,000	\$1,232,200

Notes:

- ¹ Non-Refundable amount is the estimated value of excavation, conduit and protective structures required for distribution line extension (PG&E Rule 15 D.6.b). Trenching between vaults and switchgear by TJPA and not included by PG&E.
- ² Includes transformers, conduits, interrupters, and network protectors.
- ³ Refundable amount is the amount, before allowances, that PG&E estimates to install the distribution extension and non-residential service facilities. The refundable amount does not include excavation, conduits, and protective substructures.
- ⁴ Special Facilities cost for second 12-kV service.
- ⁵ Cost of network or 12-kV switchgear was excluded from PG&E report.
- ⁶ Includes PG&E cost-of-ownership. Cost includes 22 percent ("22 %") of the income tax component of contribution ("ITCC") for PG&E in 2009.

Table A-2 shows TJPA's estimated cost and ownership responsibility associated with the network option and the corresponding estimated allowance and refundable amounts based on the PG&E Report.

Table A-2		
Calculation of Capital - Network Option		
<i>Based on PG&E's March 2009 "Feasibility Study and Service Options"</i>		
Item Description		Network Option
1	Service Installation	
2	Trenching (Non-Refundable ¹)	\$1,586,000
3	Service Installation ² (Refundable ³)	\$2,989,000
4	Total Service Installation Costs ⁴	\$4,575,000
5	Refundable Amount	
6	Amount Subject to Refund	\$2,989,000
7	Up-Front Allowance ⁵	\$150,780
8	Net Refundable Amount	\$2,838,220
9	Refundable Comparison	
10	10 Year Refundable Option	
11	Total Capital Service Installation Costs	\$4,575,000
12	Minus Estimated Refunds ⁶	\$1,097,630
13	Net Cost Based on 10-Yr Refundable Option	\$3,477,370
14	50% Discount Option	
15	Non-Refundable (Trenching)	\$1,586,000
16	Up-Front Refundable Amount ⁷	\$1,419,110
17	Total Capital Cost Based on 50% Discount Option	\$3,005,110

Notes:

- 1 Non-Refundable amount is the estimated value of excavation, conduit and protective structures required for distribution line extension (PG&E Rule 15 D.6.b).
- 2 Includes transformers, conduits, interrupters, and network protectors.
- 3 Refundable amount is the amount, before allowances, that PG&E estimates to install the distribution extension and non-residential service facilities. The refundable amount does not include excavation, conduits, and protective substructures.
- 4 PG&E's income tax component of contribution ("ITCC") at 22 percent ("22 %") in 2009.
- 5 Allowance is the up-front credit towards construction based on the first year energy use (PG&E Rule 15 C.2). For the Transit Center, the 1st year energy use was estimated to be 1,948,229 kWh.
- 6 Based on energy projections from "Proposed Energy Projections" in WSPFK Energy Analysis Report.
- 7 One-half of the Net Refundable Amount estimated to be \$2,838,220.

EXHIBIT 3



March 29, 2012

Ms. Maria Ayerdi-Kaplan, Esq.
Executive Director
Transbay Joint Powers Authority
201 Mission St., Suite 2100
San Francisco, CA 94105

RE: Additional Opinion of Reliability of the Proposed Electrical Service Alternates for the Transbay Transit Center Project.

Dear Maria:

This letter is a written update of progress regarding your request to provide an additional opinion of reliability of the proposed electrical service alternates for the Transbay Transit Center project. URS' Lead Senior Project Electrical Engineer, Mick Wolford, PE, RCDD, ESS, working closely with WSP Flack+Kurtz' Caroline Fenlon-Harding, PE, analyzed the two alternatives under evaluation.

The first alternate and basis of design is for service from the PG&E network grid via three below grade vaults with provisions for an additional future vault. The second alternate is to receive dual 12kV service from SFPUC terminating within the transit center in two physically-separated units of switchgear.

Representatives from URS and WSP Flack+Kurtz (WSPF+K) met with project representatives including Walter Melville, an Electrical Engineer from San Francisco Public Utilities Commission (SFPUC), on 1/19/2012, 1/27/2012, and 2/22/2012 to discuss reliability improvements to the SFPUC proposed service. URS and WSPF+K conducted multiple follow up meetings to discuss the modifications without SFPUC representatives present to influence the discussion.

Executive Summary

With upgrades recently provided by SFPUC, it is our opinion that the SFPUC service proposal could take slightly longer to restore from a failure, but approaches equivalent reliability to the PG&E network service for equipment failure, man-made disaster and terrorist attack. This opinion assumes that issues such as electrical protection and coordination of the SFPUC 12kV system, which need to be specifically designed and detailed, will allow for proper operation during localized faults.

Transbay Transit Center electrical switchboard modifications are recommended to fully glean the potential benefits of the SFPUC system. It is anticipated that selection of SFPUC as the electric utility provider will cause relatively minor electrical system and electric room space allocation design modifications for WSPF+K and PCP based on preliminary reviews to date. Some of these modifications would be recommended for the PG&E network service as well.

Background

Two alternatives are presently being considered. The first alternate and basis of design was for service from the PG&E network grid via three below grade vaults with provisions for an additional future vault. The second alternate is to receive dual 12kV radial service from SFPUC.



Denise Sines
March 29, 2012
Page 2 of 4

URS and WSPF+K reviewed both proposals. Following review of the initial SFPUC proposed service configuration, several single points of failure were identified. The SFPUC proposed service did not appear to be as reliable as the PG&E proposed service. Denise Sines of URS issued a letter documenting concerns with the proposed SFPUC service configuration. These concerns were relayed to SFPUC by WSPF+K and a revised design proposal was requested and delivered on January 19, 2012.

The revised 1/19/2012 design from SFPUC exhibited several improvements in reliability and resistance to disruption. To address potential utility supply interruption of the incoming services, SFPUC had added automatic transfer switches and separated the locations of the two supply feeders in order to prevent simultaneous disruption during an accident or malicious event inside the building. However, redundant transformers were not included and multiple, single points-of-failure existed in the SFPUC design.

In comparison, the PG&E network design includes multiple supply feeders and redundant transformers in each vault that are designed to automatically transfer the load for a feeder or transformer failure with only minimal or no outage. Consequently, the revised 1/19/2012 SFPUC design did not equal the apparent reliability of the PG&E network service design.

At a meeting on January 27, 2012, URS and WSPF+K suggested further modifications to the revised 1/19/2012 SFPUC design including provisions to add transformer redundancy to the design. SFPUC seemed receptive to considering proposed modifications. However, they were not prepared to confirm that increased redundancy could be added without cost impacts. SFPUC engineering personnel were informed during the meeting and a subsequent 2/22/2012 meeting that their proposed system still did not appear equivalent to the PG&E network option.

On 3/5/2012, SFPUC issued a revised one line diagram and on 3/20/2012, a revised letter proposal. SFPUC engineering personnel were responsive to addressing the majority of concerns vetted in the prior meetings and remedied all transformer redundancy deficiencies discussed in the 1/27/2012 meeting. The SFPUC 3/5/2012 design includes a redundant transformer in each vault and a tie switch between both transfer buses. With the redundant transformers and final configuration modifications this system would be highly reliable, and would be expected to provide commensurate reliability to the PG&E network option.

During and following the meetings, Bob Beck and Mark O'Dell challenged URS and WSPF+K to consider each system option from viewpoints of reliability during normal equipment failure and man-made disaster or terrorist event. The PG&E and revised SFPUC proposals were reviewed accordingly.

- Offsite Utility Outages. Both proposed systems would be very reliable in addressing offsite utility outages. Both systems have at least a normal and backup supply.
- Normal Equipment Failure. The PG&E network option would be expected to have slightly shorter restoration time for a normal equipment or transformer failure due to its intentional configuration to mitigate these failures automatically and nearly instantaneously. However, the proposed SFPUC 3/5/2012 system design likely could be restored from most equipment failure by knowledgeable facilities electrical personnel in less than half an hour. Although frequency of



Denise Sines
March 29, 2012
Page 3 of 4

unplanned equipment failure is impossible to accurately predict, failure would not be expected more than once every five years during the first 30 years of the facility lifetime.

- Man-made disaster or terrorist event in random locations. The PG&E network option would also be expected to have slightly higher reliability for a malicious act performed in a random location targeting civilians, not the utility system. This is primarily because the SFPUC 3/5/2012 system design has additional points of vulnerability to a random location malicious act due to more equipment in the building and more single-points-of-failure.
- Man-made disaster or terrorist event targeting the electrical system. Both systems would experience an outage of similar length for a malicious act performed in strategic locations within the facility. The SFPUC system design has additional points of vulnerability in the building that, if strategically attacked, would cause more widespread outages.

The conclusion of this analysis is that the proposed SFPUC 3/5/2012 system design, if properly protected and coordinated, would provide comparable reliability to the PG&E network option for threats including offsite utility outages, normal equipment failure, man-made disasters or random terrorist events. For a strategic attack on the electrical system, the SFPUC system could experience a more widespread outage.

Bob Beck and Mark O'Dell also challenged WSPF+K and URS to suggest electrical upgrades to improve the reliability of the SFPUC proposal to an equivalency with the PG&E network option. Many of the URS and WSPF+K proposed modifications have been implemented in four revisions to the original SFPUC proposal. Those revisions include: physical separation of the two incoming feeders; automatic transfer to the backup feeder for loss of the primary feeder, installation of redundant transformers in each transformer vault, elimination of 480V transfer switches, and means for restoration from transfer switch failure. Additional minor modifications are required for the SFPUC 3/5/2012 proposed design to be considered equivalent to the PG&E network option. These modifications are as follows:

- Reduction of SFPUC equipment within the building and single points-of-failure. SFPUC engineering personnel are unable to further reduce equipment within the building and single points of failure including transfer switches and transfer buses. However, SFPUC has included a tie breaker between transfer buses in the latest design which will improve restoration time from a non-shorting transfer switch failure.
- Installation of automatic transfer controls on the building main switchboards. The WSPF+K proposed switchboard modifications include manual control for transfer to alternate source. These modifications enable manual restoration by knowledgeable facilities personnel from most utility outages in ten to thirty minutes. However, the network option is designed to restore in less than a second from a utility outage, automatically, without facilities personnel intervention. For the SFPUC option to restore from certain failures instantaneously, automatic transfer controls would be required on the building main switchboards. This enhancement would add more cost to the building electrical distribution system and would need to be closely coordinated with the optimized SFPUC service design.

The conclusion of this analysis is that the proposed SFPUC 3/5/2012 system design, if properly protected and coordinated, could provide slightly longer restoration time but comparable reliability to the PG&E network option for threats including offsite utility outages, normal equipment failure, man-made disasters



Denise Sines
March 29, 2012
Page 4 of 4

or random terrorist events. Restoration times for threats including equipment failure, man-made disaster and random terrorist attack could be expected in the range of from one second to half an hour depending on failure location and installed switchboard controls.

Respectfully,

A handwritten signature in cursive script that reads "Denise Sines".

Denise Sines
Senior Program Manager
URS Corporation
849 International Drive, Suite 320
Linthicum, MD 21090