File No. 131163

Committee Item No. 4
Board Item No. ______

# COMMITTEE/BOARD OF SUPERVISORS

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**Committee:** Budget & Finance Committee **Date** February 12, 2014

**Board of Supervisors Meeting** **Date** ______

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**OTHER** **(Use back side if additional space is needed)**

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**Completed by:** Linda Wong **Date** February 7, 2014
**Completed by:** ______ **Date** ______

FILE NO. 131163 RESOLUTION NO.

[Term Sheet Endorsement - Pacific Gas and Electric Company ZA-1 Embarcadero-Potrero 230kV Transmission Project]

**Resolution endorsing the Pacific Gas and Electric Company (PG&E) ZA-1 Embarcadero-Potrero 230kV Transmission Project Revised Term Sheet among the Port Commission, Office of Economic Workforce and Development, and PG&E.**

WHEREAS, California Statutes of 1968, Chapter 1333 (the "Burton Act") and the San Francisco Charter Section B3.581 empower the San Francisco Port Commission with t...

California State University, ...

engineer in the state of California. I am a member of the following organizations: Power Engineering Society of IEEE, Eta Kappa Nu - Electrical Engineering Honor Society, Tau Beta Pi - National Engineering Honor Society, and Phi Kappa Phi - National Honor Society.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following testimony in PG&E's Embarcadero-Potrero Transmission Reliability Project proceeding:

- Chapter 4, "PG&E's Proposed Embarcadero-Potrero 230 kV Transmission Project":
  - Section E, "PG&E's Compliance With CPUC EMF Policies."
  - Attachment 4A, "EMF Design Guidelines for Electric Facilities."

(http://www.caiso.com/Documents/Decision_2011-12TransmissionPlan-Plan-MAR2012.pdf); and

WHEREAS, At its August 14, 2012 meeting, the Port Commission directed Port staff to

Elements, and have been used for [illegible]
Area Governments (ABAG).

## Academic Background

University of Utah, Salt Lake City, UT: M.S., Geology, 1993
University of California, Santa Barbara, CA: B.S., Geology, 1990
(National Merit Scholar, UC Regents' Scholar)

## Qualifications

Certified Engineering Geologist, California, No. 2017
Professional Geologist, California, No. 6522
Licensed Engineering Geologist, Washington, No. 2472
Licensed Geologist, Washington, No. 2472
Certified Geographic Information Systems (GIS) Professional (GISP), No. 00059777
Competent Person Certification (OSHA - Trenching)

## Professional History

InfraTerra, Inc., San Francisco, California, Principal Engineering Geologist, Co-Founder
Fugro Consultants, Principal Engineering Geologist, 2008 - 2011
William Lettis & Associates, Inc., Staff to Principal Engineering Geologist, 1993 - 2008

## Professional Experience

Mr. Hitchcock has been lead engineering geologist, and Task Order Manager, for providing continuing on-call geotechnical support for the California Department of Water Resources (DWR), including on-call support of dam and levee engineering for Division of Engineering since 2003. Mr. Hitchcock has provided review services for Alameda County and Cities of Vallejo, Piedmont, Orinda, Lafayette, and Pleasanton. His responsibilities have included reviews of geotechnical and environmental reports and field reviews of landslide repairs for subject properties. Much of his project experience relates to geologic and seismic hazard evaluation combined with geotechnical characterization for geographically-distributed water supply systems.

Mr. Hitchcock has managed or supported seismic reliability and site geotechnical assessments for major regional water supply systems, including:

- Landslide investigations and repairs for the CDWR South Bay Aqueduct system including two emergency landslide repairs of the Aqueduct in Milpitas and for the Del Valle pipeline in Livermore;
- Geologic and seismic studies in support of system reliability studies for major water supply systems in northern California (Sonoma County Water Agency, Contra Costa Water Agency, City of Hayward, and DWR State Water Project);

facilitate the broader redevelopment of the entire neighborhood, including the Pier 70 Waterfront Site; and

WHEREAS, Because PG&E is a regulated utility, the Project and the Hoedown Yard Purchase & Sale are subject to the review and approval of the California Public Utilities Commission ("CPUC"); and

WHEREAS, The parties acknowledge that the Revised Term Sheet is not itself a binding agreement that commits the Port, the City, OEWD, or PG&E to proceed with the approval or implementation of the Project or the Hoedown Yard Purchase & Sale, as applicable, and that the Project and the Hoedown Yard Purchase & Sale, as applicable, will be subject to public review in accordance with the processes of the Port Commission, other City departments and offices, the CPUC, and other government agencies with approval rights over the Project and the Hoedown Yard Purchase & Sale, as applicable, before any entitlements and other regulatory approvals required for the Project or the Hoedown Yard Purchase & Sale, as applicable, will be considered; now, therefore, be it

RESOLVED, That the Board of Supervisors hereby endorses the Revised Term Sheet; and, be it

FURTHER RESOLVED, That endorsement of the Revised Term Sheet does not commit the Port Commission or the City to approve final transaction documents or implementation of the Project or the Hoedown Yard Purchase & Sale, as applicable, or grant any entitlements to PG&E, nor does [illegible] Division of Safety of Dams.

**California Department of Water Resources, Del Valle Emergency Landslide Investigation and Repair.** Performed investigation of landslide triggering, landslide repair construction monitoring, and pipeline replacement and backfill monitoring. Work included geologic analysis of borehole data to identify depth and geometry of slide plane. Managed and performed interpretation of LiDAR-based topographic surveying, geologic mapping, and site inspections and monitoring during repair construction.

**Trans European Motorway (TEM), Landslide and Fault Rupture Hazard Mapping and Evaluation, Turkey.** Project manager for geologic-geotechnical mapping and evaluation of fault rupture and landslide hazards to highway viaduct, tunnel, and roadway alignment for the Trans European Motorway (TEM) that connects Istanbul and Ankara, the Turkish capitol, for the Turkish Highway Department. A 15-kilometer section of the TEM was damaged by surface fault rupture, tunnel collapse, and landslides triggered by the 1999 Izmit and Duzce earthquakes. The damaged section of the highway included an elevated concrete viaduct, large-diameter tunnel, and embankment fill sections in steep mountainous terrain crossed by numerous active faults. The study included geologic mapping, fault trench/rupture investigations, landslide evaluation, and development of recommendations for hazard mitigation. Work managed and performed by Mr. Hitchcock included detailed mapping and trenching of surface fault rupture produced by the November 1999 Düzce earthquake.

and the City, it does not necessarily set forth all of the material terms and conditions of any final transaction documents; and, be it

FURTHER RESOLVED, That the Board of Supervisors will not take any discretionary actions committing the Port to implement the Project or the City or OEWD to implement the Hoedown Yard Purchase & Sale, and the provisions of the Revised Term Sheet are not intended and will not become contractually binding on the Port and the City and OEWD unless and until the relevant bodies have reviewed and considered environmental documentation prepared in compliance with the CEQA for the Project and the Hoedown Yard Purchase & Sale, as applicable, and the Port Commission, and as applicable, the Board of Supervisors and the Mayor, have approved final transaction documents for the Project and the Hoedown Yard Purchase & Sale, as applicable.



potential geohazards for:

- PG&E West Butte Wind Project, Geohazard Site Evaluation, OR. Project manager for desktop evaluation of West Butte wind farm power generation site in Oregon. Tasks included analyses of slope, rippability, geologic conditions, and potential geologic hazards for the site area.

| Item 4<br>File 13-1163 | **Departments:**<br>Port of San Francisco<br>Office of Economic and Workforce Development (OEWD) |
|---|---|

**EXECUTIVE SUMMARY**

### Legislative Objective

Approval of the proposed resolution would endorse the proposed term sheet between the Port and Office of Economic and Workforce Development (OEWD), and Pacific Gas and Electric Company (PG&E) for the Embarcadero-Potrero 230 kilovolt (kV) Cable Project.

### Key Points

- PG&E proposes to construct a 230 kV underwater cable (Cable Project) from the Embarcadero Substation (Fremont and Folsom Streets) to the Potrero Switchyard (22nd and Illinois Streets), which will provide electricity redundancy to downtown San Francisco. The Cable Project was approved by the California Public Utilities Commission (CPUC), and CPUC completed environmental review of the project.
- Approval of the proposed term sheet between the Port, OEWD, and PG&E would set the terms of negotiations for three proposed agreements: (1) a license between the Port and PG&E to construct and operate an underwater 230 kV cable on Port property from the Embarcadero Substation to the Potrero Switchyard; (2) an option for OEWD to purchase from PG&E a land parcel located at 22nd and Illinois Streets (the Hoedown Yard), which may be transferred to a third party; and (3) an option for the City to direct PG&E to build a screen around the existing Potrero 115 kV Switchyard.
- According to the proposed resolution, the term sheet is not a binding document that commits the Port, OEWD, or PG&E to proceed with the Cable Project or the purchase of the Hoedown Yard.

### Fiscal Impact

- Under the proposed term sheet, PG&E will prepay rent of an estimated $15,275,205 to the Port for the initial 40-year term of the license. This license is for use of the Port's underwater land between Potrero Hill and the Embarcadero and underground land adjacent to 23rd Street in Potrero Hill. The rent is based on the appraised value of adjacent properties.
- Under the proposed term sheet, OEWD will have the option to purchase the Hoedown Yard from PG&E for the purchase price of approximately $8,322,942, based on the current appraised value. OEWD may transfer the option to purchase the Hoedown Yard to a private entity. The proposed resolution should be amended to (1) ensure that the City does not incur costs to exercise the purchase option of the option is transferred to a third party, as detailed in the recommendations below; and (2) specify that the Director of Real Estate,

rather than OEWD, has the option to purchase the Hoedown Yard, including transfer of the option to a private entity.

- Under the proposed term sheet, PG&E will screen the Potrero Switchyard, either by enclosing the switchyard in a building or constructing a screen around the switchyard perimeter at the City's request. If PG&E is not allowed by the CPUC to recover costs through utility rates, then the costs may be paid from infrastructure financing district (IFD) proceeds if the City forms an IFD project area that incorporates the Hoedown Yard. The proposed resolution should be amended to require the Port to submit detailed information to the Board of Supervisors on the costs of screening the Potrero Switchyard if IFD funds are used to pay the costs, and to urge the Port and PG&E to apply net sale proceeds from any PG&E land made surplus due to the screening of the switchyard to repay the IFD funds.

**Policy Consideration**

- The proposed term sheet provides for an option for the City to purchase the Hoedown Yard and then resell the Hoedown Yard to a third party. The City has not historically entered into purchase agreements with the intention of reselling the property for private development, although the former San Francisco Redevelopment Agency had such agreements. According to Port staff, net proceeds to the City for the resell of the Hoedown Yard to a third party would be used as a source of funds to redevelop property under the jurisdiction of the San Francisco Housing Authority. The proposed resolution should be amended to state that net revenues to the City from the transfer of the purchase option for the Hoedown Yard to a third party will be allocated to affordable housing projects. Endorsement of the proposed term sheet provision for the option by the City to purchase the Hoedown Yard is a policy matter for the Board of Supervisors because it provides for the City to purchase property

involve slope failure hazards, expansive soil conditions, and settlement hazards on cut/fill slopes. Seismic issues reviewed include fault rupture hazards associated with the Calaveras fault and secondary faults. Mr. Hitchcock conducted field reviews of site conditions; including inspection of trenches, test pits, and grading operations.

**Piedmont Unified School District, Geotechnical Study and Geologic Hazards Evaluation, Beach Elementary School Improvements, Piedmont, California.** Lead Certified Engineering Geologist for geotechnical field exploration and laboratory-testing program to characterize surface subsurface conditions in order to evaluate the geotechnical, geologic hazard and seismology aspects for proposed school improvements.

**Santa Clara Unified School District, Lateral Spreading Analysis, Wilcox High School, Santa Clara, California.** Lead Certified Engineering Geologist responsible for conducting geological and geotechnical peer review of earthquake-related lateral spreading hazard to school buildings.

**Ohlone College, Student Support Services Building, Science Modular Project, and Below Grade Water Intrusion (BGWI) Project, Fremont.** Mr. Hitchcock performed geologic hazards evaluation for the proposed new Student Support Services Building, Science Modular Project, and Below Grade Water Intrusion (BGWI) Project located at the Ohlone College Campus. Geologic and seismic hazards evaluated as part of these projects includes site geotechnical conditions, liquefaction hazard, fault rupture hazard, landslide hazard, and strong ground shaking. The studies included development of supplemental geotechnical recommendations, reviewed by the State of California.

**San Ramon Unified School District, New Southwest Middle School, Environmental Impact Report, Northern California.** Project manager for the preparation of the hydrology, water quality, geologic, soils, geotechnical, and seismic hazards chapters of the EIR document for San Ramon Valley Unified School District. Specific concerns expressed by the School District and the general public included: landslide and erosion hazards that might be exacerbated by the planned grading and cutting of hillsides; the proximity of the site to several known active faults; surface runoff volumes and quality will be altered by the project;

the land at the time of purchase is not less than purchase price of approximately $8,322,942; and

- Net revenues to the City from the transfer of the option to purchase the Hoedown Yard will be allocated to affordable housing projects, including the Potrero Terrace and Annex HOPE VI.

- Amend the proposed resolution to:
  - Require the Port to present detailed information to the Board of Supervisors on the costs of constructing the Potrero Switchyard screen if the proposed screen is to be funded by a future IFD project area; and
  - Urge the Port and PG&E amend the final agreement to screen the Potrero Switchyard to provide that any value from the sale of land no longer required for Potrero Switchyard purposes (net of any environmental cleanup costs), that is not owed to ratepayers and that Is not required for purposes of constructing the screen, should be used to repay all or a portion of the IFD investment in the screen of the Potrero Switchyard.
- Endorse the proposed term sheet provisions, as amended, for the license between PG&E and the Port to construct and operate the 230 kV cable under the

evaluation update for the Washington Hospital Healthcare System for the proposed expansion of the Emergency Department at the Washington Hospital, located at 2000 Mowry

## MANDATE STATEMENT

The Budget and Legislative Analyst recommended in our April 2004 *Management Audit of the Port of San Francisco* that the Board of Supervisors request the Port Commission to submit to the Board for the Board's endorsement, all development negotiation term sheets for projects with development costs greater than $10 million, and to submit the development agreements to the Board of Supervisors for approval. The Budget and Legislative Analyst's recommendation was accepted by the Board of Supervisors.

## BACKGROUND

### California Independent System Operator Transmission Plan

The California Independent System Operator (ISO) is the independent electricity grid operator, responsible for managing the transmission of electricity across California's high-voltage, long-distance power lines. The 2011/2012 ISO Transmission Plan, which is a comprehensive evaluation of the ISO transmission grid to identify system reliability and upgrade requirements, states that Pacific Gas and Electricity's (PG&E) proposed Embarcadero-Potrero 230 kV (kilovolt) Cable Project will provide electricity redundancy to downtown San Francisco and protect against the simultaneous loss of two existing electricity cables serving downtown San Francisco.

### Embarcadero-Potrero 230 KV Cable Project

PG&E has two existing 230 kV cables that comprise an electricity transmission line extending from the Embarcadero Substation (Fremont and Folsom Streets) to the Martin Substation

[illegible]

evaluated for this study by Mr. Hitchcock included fault crossings, potential slope instability and areas of significant erosion. Input for design included detailed characterization for a major direction bore undercrossing of Cache Creek.

**Southern California Gas Company, Line 1004 Directional Bore Landslide Repair.** Project manager for detailed study of the geotechnical viability of mitigation options for a pipeline impacted by coastal landslides, rerouting and landslide mitigation alternatives were fully investigated. Geologic interpretation of high-resolution, publicly available IFSAR and privately-flown LiDAR data were used to evaluate alternative routes around active and potentially active landslides. Geotechnical borings through the landslide ultimately provided sufficient information for directional drilling beneath the active landslide and replacement of the existing pipeline within the directional bore, returning it to full service.

**Southern California Gas Company, Line 6906 Liquefaction Hazard Assessment, Southern California.** Project manager for liquefaction hazard screening study of proposed gas supply pipeline 6906 in San Bernardino, California. Mr. Hitchcock performed a comprehensive review of relevant topographic, geologic and soils engineering maps and reports, aerial photographs, groundwater contour maps, the history of liquefaction in the area, and other relevant published and unpublished reports. Based on results of the liquefaction hazard screening, Mr. Hitchcock conducted quantitative liquefaction analyses of selected borings within areas of potentially moderate to high liquefaction hazard and prepared a report for review by the California Energy Commission.

**Liquefaction Susceptibility Mapping, Southern California Gas Company, Southern California.** Lead Geologist responsible for the detailed liquefaction susceptibility mapping of over fifty 1:24,000 scale, 7.5 minute quadrangles (~83,50 square km) covering Ventura, Los Angeles, and Orange counties for the Southern California Gas Company. The GIS-based mapping effort integrated layers of Quaternary geology, groundwater, and borehole data that were used to assess and delineate areas of low, moderate, high, and very high liquefaction susceptibility. The FWLA susceptibility mapping provides a much more detailed

Alternative Underground Cable Routes

PG&E studied three potential routes for laying the proposed 230 kV cable:

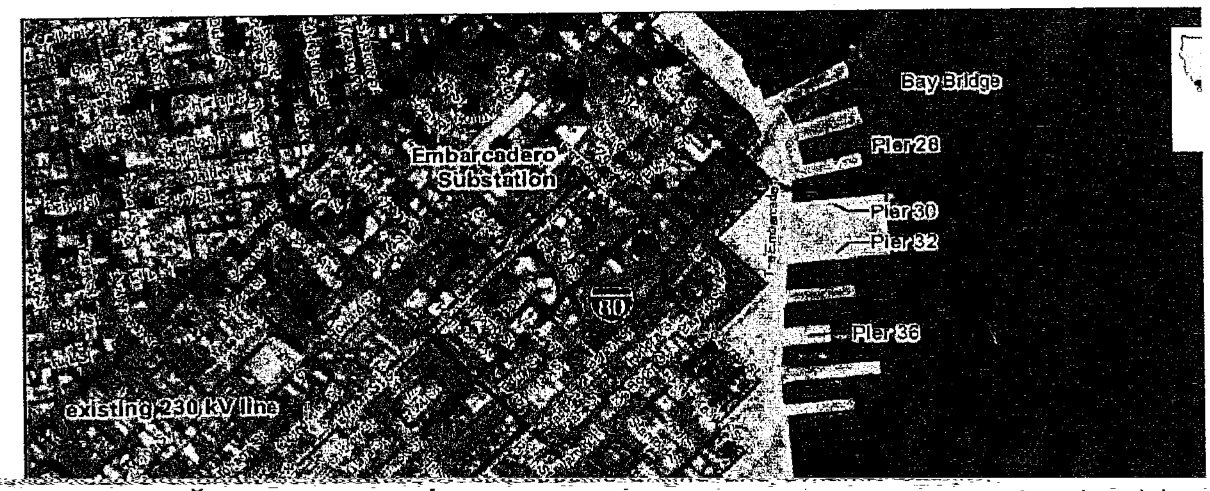
- Underground from the Embarcadero Substation, along Harrison and Bryant Streets to Henry Adams Street, 17th Street, and Tennessee Street to the Potrero Switchyard (22nd and Illinois Streets);
- Underground from the Embarcadero Substation, along Folsom and Bryant Streets to 5th Street and Minnesota Street to the Potrero Switchyard, which requires running cable under Mission Creek; or
- Under the Bay from the Embarcadero Substation to the Potrero Switchyard.

Exhibit 1 below shows the three alternative routes. PG&E has selected the third option to construct a cable route under the Bay, which is the project it proposed for approval to the California Public Utilities Commission (CPUC). The CPUC has conducted an environmental review of that proposed project.



**CHRISTOPHER HITCHCOCK, PG, CEG**

## Exhibit 1: Embarcadero-Potrero 230 kV Cable Project




analyses of key water supply facilities. The assessment was used for comprehensive risk modeling of system vulnerabilities, development of retrofit priorities, and cost-benefit assessment for preparation of a retrofit budget and application for FEMA assistance.

**Contra Costa Water District, Fault Vulnerability Assessment of Water Supply System, Northern California.** Lead engineering geologist responsible for evaluating potential fault rupture displacement of large-diameter (20" or greater) water supply pipelines across the Concord fault. Damage to the aqueducts would substantially disrupt the supply of water to a population of approximately 230,000 people.

**California Department of Water Resources, Delta Risk Management Study, Sacramento-San Joaquin Delta, California.** Source characterization study, performed under the auspices of the Delta Risk Management Study. Prepared model of seismic sources in the Delta for probabilistic evaluation of ground shaking hazard to levees. Work involved: analysis of geotechnical bore-hole data; preparation of local and regional structure contour maps to assess locations of folds and faults in the subsurface; development of balanced geologic cross-sections; characterization of blind thrust faults as seismic sources (maximum earthquake; slip rate); evaluation of uncertainty in source parameters; preparation of source parameters for inclusion in probabilistic model; and preparation of technical report.

**City of Hayward, Fault Vulnerability Assessment of Sewer and Water Main System, Northern California.** Lead engineering geologist for evaluation of fault rupture hazard to the water and sewer system within the City of Hayward. Tasks completed included compilation and review of previous subsurface trenching and mapping studies, field mapping using GPS and GIS to delineate active creeping traces of the Hayward fault, and delineations of the location, amount, and width of possible ground deformation.

**East Bay Municipal Utility District, Seismic Hazard Assessment for South Reservoir, Hayward, California.** Project manager for evaluation of seismic rupture and ground shaking hazards to South Reservoir. Work managed and performed by Mr. Hitchcock included evaluation of potential fault rupture at the reservoir, estimation of peak horizontal ground accelerations (PGA), and calculation of potential rupture offset of reservoir embankments.

**California Department of Water Resources, South Bay Aqueduct Reliability**

## DETAILS OF PROPOSED LEGISLATION

The proposed resolution would endorse the term sheet between the Port, Office of Economic and Workforce Development (OEWD), and PG&E, which sets the terms of negotiations for the following proposed agreements:

- A license between the Port and PG&E for PG&E to construct and operate an underwater 230 kV cable on Port property from the Embarcadero Substation to the Potrero Switchyard;
- An option for OEWD to purchase from PG&E a land parcel located at 22nd and Illinois Streets (the Hoedown Yard), subject to required approvals, which may be transferred to a third party, as discussed below; and
- An option for the City to direct PG&E to build a screen around the existing Potrero 115 kV Switchyard, subject to required approvals.

According to the proposed resolution, the term sheet is not a binding document that commits the Port, OEWD, or PG&E to proceed with the Cable Project, or to purchase of the Hoedown Yard. Also, the proposed term sheet does not outline all the material terms and conditions of any final transaction documents.

**Proposed Term Sheet**

Proposed License Agreement between the Port and PG&E

The Cable Project entails construction of a (a) three-mile 230 kV cable on Port property under the Bay from the Embarcadero Substation to the Potrero Switchyard; and (b) new 230 kV substation adjacent to the existing 115 kV Potrero Switchyard, and related equipment to interconnect the new substation to the existing 115 kV Potrero Switchyard.

Under the proposed term sheet, the Port and PG&E would enter into a license agreement for Port property that provides PG&E exclusive use of underwater land to lay the 230 kV cable, non-exclusive use of underwater land to access the cable, underground land for horizontal [illegible]

sponsored by the U.S. Geological Survey's National Earthquake Hazard Reduction Program (NEHRP), the National Science Foundation (NSF), and the Southern California Earthquake Center (SCEC). These studies include evaluation of fault-related deformation associated with the Monte Vista, Cascade, and Silver Creek faults in Santa Clara County. Mr. Hitchcock's liquefaction susceptibility maps have been incorporated into hazard zone maps by the California Geological Survey (CGS).

**National Science Foundation, Seismic Source characterization, San Fernando Valley, Southern California.** Principal co-investigator for a NSF-funded geomorphic study of surface deformation above active thrust faults within northern San Fernando Valley. This study applied quantitative geomorphic techniques to evaluate potential earthquake sources in the epicentral area of the 1994 Northridge earthquake and possible surface deformation from 'blind' thrust faults similar to those mapped by Mr. Hitchcock in the Santa Clara Valley.

**National Science Foundation, Liquefaction Hazard Mapping, Simi Valley, Southern California.** Principal investigator for evaluation of liquefaction hazards within Simi Valley. This National Science Foundation (NSF) funded study included detailed mapping of Quaternary geology and analyses of geotechnical borings to delineate areas of high liquefaction hazard. Products include digital (GIS) geologic and liquefaction susceptibility maps produced in cooperation with the California Geological Survey (CGS) Seismic Hazards Mapping Program. These products were incorporated into CGS's official liquefaction hazard zone maps and are being used by the City of Simi Valley and Ventura County for planning purposes.

[illegible]

**Table 1: Terms of Proposed License Granted by the Port to PG&E**

| | |
|---|---|
| **Area** | 79,200 square feet of exclusive use underwater land<br>356,400 square feet of non-exclusive use underwater land<br>435,600 square feet of underwater land<br>52,272 square feet horizontal downward drilling<br>21,120 square feet underground 23rd Street<br>508,992 square feet total |
| **Initial Term** | 40 years from approximately 2014 through 2054 |
| **Option to Renew** | 26 years from approximately 2055 through 2081 |
| **Rent Initial Term Payable by PG&E to the Port** | $15,275,205 pre-paid |
| **Rent Option Term Payable by PG&E to the Port** | - Fair market value based on third party appraisal<br>- Rent may be prepaid or paid annually as determined by PG&E |
| **Construction Period Rent** | 75% abatement of rent during first two years |
| **Deposits** | - Security deposit equal to 1/6th of the license fee in the 40th year of the term (approximately $375,000)<br>- Environmental oversight deposit of $10,000, increased by 15% every five years<br>- Environmental assurances deposit up to $6 million at the discretion of the Port |
| **Regulatory Approvals** | - California Public Utilities Commission (CPUC)<br>- California Environmental Quality Act (CEQA)<br>- San Francisco Department of Public Works (DPW) permits<br>- Port building and other permits<br>- Other State agencies, which may include State Water Resources Control Board, San Francisco Bay Conservation and Development Commission, and Regional Water Quality Control Board<br>- Army Corps of Engineers |
| **Non-exclusive License** | Port reserves the right to grant other licenses or easements except in PG&E's exclusive use zone or other Port areas described in the proposed term sheet |



comprehensive, integrated seismic hazards mapping program in Ventura County. Maps developed by Mr. Hitchcock have been incorporated into the County of Ventura's GIS database for characterization of potential seismic hazards to pipelines and associated facilities, as required by recent State legislation, and for emergency response planning.

## Professional Affiliations

*Construction Period Rent*

Under the proposed term sheet, PG&E would pay reduced rent to the Port during the two-year construction period. According to Mr. Brad Benson, Port Special Projects Manager, the proposed 75 percent reduction in rent during the construction period is a common feature of Port development leases because during the construction period, Port tenants are not realizing the revenues that will be available to tenants after projects are completed. Mr. Benson states that this leasing strategy is intended to encourage private investment in Port property that will generate future revenues enabling the payment of future Port rent.

*CPUC Environmental Impact Analysis*

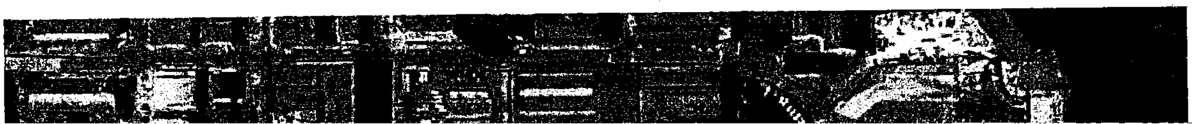
According to the CPUC's August 2013 draft "Mitigated Negative Declaration and Supporting Initial Study" of the proposed Cable Project:

> "Based on the analysis in the Initial Study, it has been determined that all project-related environmental impacts could be reduced to less than significant level with the incorporation of feasible mitigation measures. Therefore, adoption of a Mitigated Negative Declaration will satisfy the requirements of CEQA."

<u>Purchase and Sale of Hoedown Yard</u>

The proposed term sheet would grant an option to OEWD to purchase PG&E's Hoedown Yard at 22nd and Illinois Streets, adjacent to the existing 115 kV Potrero Switchyard and proposed new 230 kV Potrero Substation, as shown in Exhibit 2.

**Exhibit 2: Hoedown Yard and Potrero Switchyard**



Hitchcock, C. S., Kelson, K. I., and Thompson, S. C., 1994, Geomorphic investigations of deformation along the northeastern margin of the Santa Cruz Mountains: U.S. Geological Survey Open-File Report 94-187, 52 pages, 2 plates, scale 1:24,000.

Hitchcock, C.S., and Wills, C.J., 2000, Quaternary Geology of the San Fernando Valley, Los Angeles County, California: California Division of Mines and Geology Map Sheet 50, 1 plate (color), map scale 1:48,000.

Lee. C.-H., Manegold, W., Nishenko, S., and Hitchcock, C., 2009, Pacific Gas and Electric Natural Gas System Preparations for a Future Hayward Earthquake, 2009 TCLEE Conference, Lifeline Earthquake Engineering in a Multihazard Environment.

Wills, C.J., and Hitchcock, C.S., 1999, Late Quaternary sedimentation and liquefaction hazard in San Fernando Valley, Los Angeles County, California: Environmental and Engineering Geoscience, v. 5, no. 4, p. 419-440.

**Table 2: Terms of Proposed Option by OEWD to Purchase PG&E's Hoedown Yard**

| | |
|---|---|
| **Area** | 3.0 acres on the northeast corner of 22nd Street and Illinois Street |
| **Purchase Price** | $8,322,942, equal to $63.67 per square foot for approximately 130,720 square feet (approximately 3.0 acres) |
| **Option Period** | Prior to December 31, 2019 |
| **Transfer Rights** | The option may be transferred or assigned to another party in the City's sole discretion without payment of fees or other consideration to PG&E. |
| | - PG&E pays (a) the premium for title insurance; (b) all transfer and sales taxes; (c) one-half of escrow fees; and (d) PG&E's attorney |

## STATEMENT OF QUALIFICATIONS OF KEVIN C. KOZMINSKI

Q 1 Please state your name and business address.

A 1 My name is Kevin C. Kozminski, and my business address is Pacific Gas and Electric Company, 77 Beale Street, San Francisco, California.

Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company (PG&E).

A 2 I am a senior advising engineer in the Transmission System Asset Development Department, responsible for the implementation of transmission system reinforcement and reliability projects in the San Francisco Peninsula, South Bay and Central Coast areas.

Q 3 Please summarize your educational and professional background.

A 3 I received a bachelor of science degree in physics and a bachelor of arts degree in German Literature from Penn State University, a master's degree in electric power engineering from Rensselaer Polytechnic Institute, and a master's degree in business administration, with an emphasis in finance, from Rollins College. From 1981 to 1990, I worked for Westinghouse Electric, designing and testing large generators. I was also a member on two teams that investigated generator failures at power plants.

In 1990, I joined PG&E as an employee in the engineering and construction department responsible for the Diablo Canyon Nuclear Power Plant, working in the turbine-generator system design group. Between 1993 and 1994, I worked in PG&E's Electric Generation Planning Department as a generation planner. In that position, I performed generation adequacy studies, and I testified for PG&E in the California Energy Commission's 1994 Electricity Report Proceedings. Following that, I worked in PG&E's Transmission Planning Department from 1995 to 1998. I was responsible heavy industrial use and will need to be rezoned as a special use district to allow for mixed use development.

At the time that the Board of Supervisors approved the term sheet for the Waterfront Site project, the Port was in discussions with PG&E to acquire the Hoedown Yard, with a potential option for Forest City to acquire the Hoedown Yard from the Port as part of the Waterfront Site mixed use development. Subsequently, the Port determined that OEWD rather than the Port should acquire the option to purchase the Hoedown Yard, since the Port could not use Port

- Chapter 14, "Purpose and Need for Embarcadero-Potrero Project."

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

industrial and commercial uses but would require mitigation for construction or residential uses. PG&E has developed a Site Management Plan, approved by the San Francisco Bay Water Quality Water Control Board and filed a deed restriction limiting future uses of the site to commercial and industrial uses. According to Mr. Benson, the Site Risk Management Plan provides for construction methods to mitigate this risk to construction workers during construction on the site.

Under the proposed term sheet, if the City wants to use the Hoedown Yard for residential development, PG&E will need to agree to lift the deed restriction. The term sheet states that the City and PG&E will establish a "reasonable mechanism" to allocate the risks of existing site conditions associated with residential development of the Hoedown Yard.

Screening of Potrero Switchyard

PG&E's existing 115 kV Potrero Switchyard is adjacent to the Hoedown Yard and Pier 70. According to the September 6, 2013 Port staff memorandum to the Port Commission, Pier 70 and the surrounding area are being redeveloped from heavy industrial use to mixed use, and screening the switchyard would be more compatible with mixed use development. The proposed term sheet requires PG&E to enclose or screen, at the City's option, a substantial portion of the existing switchyard at any time within five years of designation of the City's preferred design. Screening of the switchyard may include either an enclosed building or perimeter screening, based on City preference and approval of the Port's Waterfront Design Advisory Committee.

**Appraised Value of Proposed License Granted by the Port to PG&E and the OEWD's Option to Purchase the Hoedown Yard**

Two appraisals of the Hoedown Yard were conducted by separate appraisers, one commissioned by the City's Real Estate Division and the other commissioned by PG&E.

Appraisal by Associated Right of Way Services, Inc.

The Real Estate Division selected Associated Right of Way Services, Inc. (ARWS) from their as-needed appraisers list to conduct an appraisal of the Hoedown Yard. According to the November 15, 2012 appraisal report to the Real Estate Division, the as-is value of the Hoedown Yard is $9,930,000, or approximately $76 per square foot for 130,720 square feet of land. The appraiser compared the Hoedown Yard to the sales price of other industrial properties in 2011 and 2012, which ranges from $74.51 per square foot to $87.62 per square foot. The appraised

detailed assessment and quantification of liquefaction and lateral spread hazard and computing the seismic response of high pressure pipelines by performing nonlinear soil structure interaction analysis. Monte Carlo simulations were performed to estimate the probability of failure for a repeat of the 1906 San Francisco Earthquake and a major earthquake on the Hayward Fault.

- Project Manager for fault crossing design of the new 66-inch diameter Alameda Siphon #4 and a 66-inch diameter overflow pipeline crossing the Calaveras fault for the San Francisco PUC. The project involved development of fault crossing design recommendations through detailed nonlinear analyses (using ANSYS) of the pipeline to withstand approximately 5 feet of surface offset without failure and full pressure integrity to maintain 180 million gallons per day of flow. The analysis included consideration of the nonlinear material properties of the pipeline and the surrounding soil and the expected displacement profile from a major surface rupturing event. The project also included assessment of three existing pipelines (69-inch reinforced concrete cylinder pipe, 90-inch welded steel pipe, and 96-inch pre-stressed concrete cylinder pipe) crossing the fault. The project involved detailed consideration of the location of shutoff valves (located close to the fault rupture zone) and the pipeline connection to the Coast and PG&E staff; and the Port granted PG&E's request to conduct a second appraisal, subject to appraisal instructions approved by the Port.

According to the February 8, 2013 appraisal report to PG&E, the as-is value of the Hoedown Yard is $6,405,000, or approximately $49 per square foot for 130,600 square feet. The appraised value by Tattersol & Associates is $3,525,000 or 35 percent less than the $9,930,000 appraised value by ARWS. The appraiser compared the Hoedown Yard to the sales price of other industrial properties in 2009 and 2010, which ranged from $33.28 per square foot to $99.00 per square foot. The appraised value of $49 per square foot for the Hoedown yard was based on the costs to clean up environmental contamination and the existence of an easement for railroad purposes.

Rent for Proposed License Based on Appraised Land Value

The Port does not have a standard methodology for determining rent for underwater land and does not use methodologies established by other ports. To determine the rent for the proposed license, the Port negotiated the rent per square foot with PG&E as follows:

**Exclusive use underwater land:** 50 percent of the approximate average of the two appraised values using a capitalization rate[2] of 8 percent.

**Non-exclusive use underwater land:** 25 percent of the approximate average of the two appraised values using a capitalization rate of 8 percent.

**Underground area:** $0.031562 per square foot.

According to Mr. Benson, rents for the exclusive and non-exclusive underwater land and underground areas are based on the following:

- The Port has an established policy of charging rent for underwater land based on 50 percent of appraised industrial upland value. This policy was adopted after reviewing the practice of the California State Lands Commission for renting underwater land

California Water Services Company. The elevated tanks range in capacity from 20,000 gallons to [illegible] 100 to 120 feet tall steel towers that are approximately 80 to 100 years old. The project included preliminary assessment of seismic hazards including strong ground shaking and liquefaction potential and dynamic analysis of the structure. Conceptual retrofit schemes were developed to estimate order of magnitude cost estimates for retrofit.

- Project Manager and lead engineer for the design of a 36-inch diameter pipeline crossing the Rodgers Creek fault for the Sonoma County Water Agency. The project includes geologic investigations to locate the fault and non-linear soil-structure interaction analysis to design the pipeline to withstand the imposed surface fault displacement on the order of several feet. Project ongoing.

- Project Manager and lead engineer for multi-hazard reliability assessment for Sonoma County Water Agency. The Agency supplies water to approximately 600,000 people in eight major cities and water districts in Sonoma and northern Marin County. The system includes diversion (10 conventional and 5 collector wells), transmission (83 miles of aqueduct up to 48-inch diameter), pumping (9 booster pump stations), and storage facilities (17 steel storage tanks). Developed recommendations to improve the reliability of the system subject to multiple natural hazards such as earthquake, flood, fire, landslides, liquefaction, fault rupture hazard, drought, erosion, and scour. Performed a comprehensive assessment of the system and developed prioritized recommendations for a ten year Capital Improvement Plan and developed the FEMA approved Local Hazard Mitigation Plan (LHMP). Presentation of the results of the study to various stake holders.

- Project Manager and lead engineer for Contra Costa Water District's Treated Water Reliability Improvements (TWRI) – Fault Crossings project. The District serves a population of over a quarter million people. Several of its large diameter pipelines (ranging in size from 12 inches to 42 inches) cross the Concord Fault. The Concord Fault is part of the San Andreas Fault System and can produce a surface rupturing earthquake. Developed mitigation strategies and design recommendations for pipeline fault crossings. Developed a detailed emergency response field guide to help the District's field crew to rapidly isolate damaged sections of the pipelines.

- Project Manager for the liquefaction mitigation design for Sonoma County Water Agency's collector wells and river diversion formulas to establish the initial rent. The proposed resolution should be amended to require that the license (a) specify that the City and PG&E will jointly select the appraiser; and (b) establish procedures to resolve disputed appraised values.

Purchase Price for the Proposed Option to Purchase the Hoedown Yard

The purchase price for the Hoedown Yard under the proposed option is $63.67 per square foot, which according to Mr. Benson is based on the approximate average of the two appraised values, including discounts to account for the costs to clean up environmental contamination and the existence of an easement for railroad purposes.

## FISCAL IMPACT

**Rent to the Port under the Proposed License**

Under the proposed license to be issued by the Port to PG&E, PG&E will prepay rent to the Port for the initial 40-year term, estimated to be $15,275,205 (Table 1).[3] The Port calculated the prepayment of the rent based on 3 percent per year escalation of the rent and an annual discount rate of 6.5 percent.[4] The discount rate of 6.5 percent is based on the current estimated blended average of the Port's costs of funds (bonds, loans and other payables).

**Costs to Purchase the Hoedown Yard**

Under the proposed term sheet, OEWD would have the option to purchase the Hoedown Yard for $63.67 per square foot, estimated to be $8,322,942 (Table 2) for approximately 130,720

induced lateral spread. Mitigation designs being considered include
sheet pipe walls. Project ongoing.

## Screening of the Potrero Switchyard

Under the proposed term sheet, PG&E will screen the Potrero Switchyard, either by enclosing the switchyard in a building or constructing a screen around the switchyard perimeter at the City's request. PG&E will apply to the CPUC to recover the costs of the screen through rates charged to PG&E customers.

If CPUC does not approve PG&E's application to recover costs through utility rates, then under the proposed term sheet, the costs may be paid from infrastructure financing district (IFD) proceeds generated by the Hoedown Yard if the City forms a Pier 70 IFD project area that [illegible] the Hoedown Yard and properties no longer required by the Potrero Switchyard.

vulnerability and criticality ratings through a risk evaluation matrix.

- Performed detailed seismic risk evaluation of wastewater collection system operated by the Monterey Regional Water Pollution Control Agency (MRWPCA). Detailed mapping of seismic and geologic hazards was performed to assess the vulnerability of wastewater piping and ten pump stations that serve the entire Monterey Peninsula, California.

- Seismic vulnerability assessment of three wastewater treatment plants for Tri City Services District of Clackamas County, Oregon. The plants included the Tri-City Water Pollution Control facility, the Kellogg Creek facility, and the Hoodland facility. Each facility was evaluated for life safety, public health, direct and indirect property damage, business interruption, and environmental damage potential under seismic hazards that included strong ground shaking, liquefaction, landslides, lateral spreading, and surface fault rupture. The seismic evaluation included a review of all process tanks such as clarifiers, digesters, and aeration basins; buildings, including components and non-structural elements; pump houses; and process piping. Recommendations included conceptual retrofit schemes and cost estimates of vulnerable components.

- Designed seismic retrofit of control buildings at San Geronimo and Bon Tempe Water Treatment Plants owned by the Marin Municipal Water District. Retrofit of several water tanks was also performed. The retrofit included adding flexible piping connections and anchorage of tanks.

- Performed detailed analysis to study the failure mechanism of a 1.5 million gallon steel water tank. Non-linear dynamic analysis was performed using DYNA software. The tank was located within a few hundred feet of the San Andreas Fault. Conventional AWWA analysis showed the tank to fail during a repeat of the 1906 Earthquake on the San Andreas Fault. The purpose of the analysis was to identify the failure mechanism and estimate the rate of water flowing out of the tank. The estimated flow rate was used to design a deflection wall to protect adjacent homes.

difference between the City's purchase price for the property of approximately $8.3 million and sale of the property to a third party is estimated to be between $4 ...

chlorine treatment facility, anaerobic digesters ... building structures.

- Performed detailed seismic evaluation of 47 water storage reservoirs in the city of Makkah, Saudi Arabia. The reservoirs range in size from one million cubic meters to 3,000 cubic meters. Detailed finite element analysis of several reservoirs was performed. The reservoirs included circular concrete, circular steel, and rectangular concrete. Upgrade recommendations were also developed.

- Project Manager for City of Berkeley underground fresh water reinforced concrete cistern design project. The project requires CEQA permitting, public involvement, engineering design, and preparation of plans, specifications, and construction inspection.

***Earthquake Ground Motion Criteria***

Development of site-specific ground motions using probabilistic and deterministic seismic hazard analysis for numerous sites located in areas of high, moderate, and low seismicity, including northern and southern California, Washington, Oregon, Alaska, Utah, Tennessee, Georgia, North Carolina, South Carolina, Venezuela, Chile, Papua New Guinea, Peru, Angola, and Java. Project scope includes seismic source characterization through an assessment of fault and area sources, detailed assessment of regional seismicity and tectonic setting, and development of site-specific design response spectra and spectrum compatible acceleration time histories for critical facilities ranging from petrochemical, Liquefied Natural Gas (LNG), offshore platforms, water/wastewater lifelines, and building structures. Key projects include the following:

- Probabilistic seismic hazard analysis for an 8-mile gas pipeline offshore Trinidad. The site is located in a complex tectonic environment with numerous shallow and subduction zone source zones. Strength Level Earthquake (SLE) and Ductility Level Earthquake (DLE) estimates were developed including estimates of Peak Ground Velocity (PGV) for pipeline analysis.

- Developed seismic design criteria for the Caspian Pipeline Consortium (CPC) Expansion Project tank farm site, located in the Russian Federation in the Region of Krasnodar, derevnya Yuzhnaya-Ozereevka. The site is located in the north Caucasus along the eastern margin of the tectonically active Black Sea basin and just south of the Sea of Azov. Probabilistic and deterministic seismic hazard analyses were performed to develop maximum considered earthquake (2,500 year return period) and design earthquake (two thirds of MCE) ground motions.

- Developed seismic design criteria for the Emirates National Oil Company (ENOC) Dubai refinery. The ENOC refinery is located on the northern Arabian tectonic plate on the west coast of the Oman peninsula along the Persian Gulf coast. The Arabian plate is a stable continental region with low seismic activity, especially in the vicinity of the Dubai area. The project included an assessment of ground motions from the active but more distant seismic sources such as the Zagros Collision Belt and the Makran Subduction Zone. The seismic hazard assessment included an assessment of the hazard from the historically less active but close-in sources ... which is believed to be the source of the May 2002 magnitude 5.1

depending on market conditions at the time of the sale and final zoning for the site approved by the City. Mr. Benson states that net proceeds from the sale of the Hoedown Yard to a third party would be used as a source of funds to redevelop property under the jurisdiction of the San Francisco Housing Authority – Potrero Terrace and Annex HOPE VI. Therefore, the proposed resolution should be amended to state that net revenues to the City from the transfer of the option to purchase the Hoedown Yard will be allocated to affordable housing projects, including Potrero Terrace and Annex HOPE VI.

According to Mr. Benson, the City has not historically entered into purchase agreements with the intention of reselling the property for private development, although the former San Francisco Redevelopment Agency has entered into these types of agreements. Mr. Benson states that the source of funds to purchase the Hoedown Yard, if the City exercises the option to purchase, would come from a third party buyer for the site or a City department desiring to use the site for a public purpose.

Endorsement of the proposed term sheet provision for the option by the City to purchase the Hoedown Yard is a policy matter for the Board of Supervisors because it provides for the City to purchase property with the intention of reselling the property for private development.

the value of the land at the time of purchase is not less than purchase price of approximately $8,322,942; and

e. Net revenues to the City from the transfer of the option to purchase the Hoedown Yard will be allocated to affordable housing projects, including the Potrero Terrace and Annex HOPE VI.

3. Amend the proposed resolution to:

   a. Require the Port to present detailed information to the Board of Supervisors on the costs of constructing the Potrero Switchyard screen if the proposed screen is to be funded by a future IFD project area; and

   b. Urge the Port and PG&E amend the final agreement to screen the Potrero Switchyard to provide that any value from the sale of land no longer required for Potrero Switchyard purposes (net of any environmental cleanup costs), that is not owed to ratepayers and that Is not required for purposes of constructing the screen, should be used to repay all or a portion of the IFD investment in the screen of the Potrero Switchyard.

4. Endorse the proposed term sheet provisions, as amended, for the license between PG&E and the Port to construct and operate the 230 kV cable under the Bay.

5. Endorsement of the proposed term sheet provisions for the option to purchase the Hoedown Yard, as amended, is a policy matter for the Board of Supervisors because the term sheet provides for the City to purchase property with the intention of reselling the property for private development; and

6. Endorsement of the proposed term sheet provisions for the City to request PG&E to screen the Potrero Switchyard, as amended, is a policy matter for the Board of Supervisors because construction of the screen may be funded by future IFD revenues.

- Developed site specific seismic ground motion criteria for seismic analysis of Ok Tedi Ball Mills. The site is located in Papua New Guinea, a region of very high seismicity, where an average of two earthquakes between magnitude 7.0 and 8.0 occur every year. Uniform probability response spectra with a 10% and 50% probability of exceedence in a 50 year period were developed. Site-specific acceleration time histories were also developed for the above defined probability levels.

- Developed seismic design criteria using probabilistic seismic hazard analysis procedures for the Arauco Pulp Paper plant in San José de la Mariquina near Valdivia, Chile. The site is located in one of the most tectonically active regions of the world. Numerous magnitude 8+ earthquakes have occurred along the subduction zone off the Chilean coast. The largest historically recorded magnitude 9.5 great Chilean earthquake of 1960 occurred in this region. Developed design response spectra for 50%, 10%, 5%, and 2% probability of exceedence in a 50 year period.

- Developed design response spectra for the Lewiston-Queenston steel arch bridge that spans the Niagara Gorge between the U.S. and Canada, 6 kilometers downstream from Niagara Falls. The ground motions were developed based on a project specific criterion, drawing upon elements of the U.S Federal Highway Administration, Applied Technology Council (ATC-32) and AASHTO LRFD, which included a functional level (15% probability of exceedence in 75 years) and a safety level (3% probability of exceedence in 75 years) criteria. Because the Niagara Gorge is a steep-sided valley incised into bedrock ridge top, amplification factors were developed and included in the final recommendations.

- Developed design ground motion criteria using probabilistic and deterministic seismic hazard analysis procedures. Developed site specific response spectra for various probability levels including 10% and 50% probability of exceedence in 50 years and a corresponding set of acceleration time histories for multiple facilities located in California. Some of the key projects are Los Angeles County medical center facilities in Los Angeles, High Desert Hospital in Lancaster, San Francisco International Airport's new International terminal building, Oakland City Hall (base isolation design), Channing House, Palo Alto (base isolation), and the GAP Headquarters building in San Francisco.

- Developed design ground motion criteria for Chevron Long Wharf at the Chevron Richmond Refinery. The ground motion criterion was developed for several probability levels and also for a deterministic magnitude 7.0 earthquake on the Hayward Fault located within 10 kilometers from the site. Also developed multiple sets of spectrum compatible acceleration time histories for dynamic analysis.

**MEMORANDUM**

September 6, 2013

**TO:** MEMBERS, PORT COMMISSION
Hon. Doreen Woo Ho, President
Hon. Kimberly Brandon, Vice President
Hon. Willie Adams
Hon. Leslie Katz
Hon. Mel Murphy

**FROM:** Monique Moyer
Executive Director

**SUBJECT:** Request (1) a rescission of Port Commission Resolution 12-90, (2) endorsement of the PG&E ZA-1 Embarcadero-Potrero 230kV Transmission Project Revised Term Sheet and (3) authorization to enter into a Negotiation Agreement with PG&E, all related to onshore and submerged Port land between Pier 28½ and the foot of 23rd Street and PG&E parcels Block 4110 (Lot 008A) and Block 4120 (Lot 002)

**DIRECTOR'S RECOMMENDATION:** Approve Attached Resolution

## Background

On November 13, 2012, the Port Commission approved Resolution 12-90, endorsing the ZA-1 Embarcadero-Potrero 230kV Transmission Project Term Sheet ("Original Term Sheet") between the Port and PG&E and authorizing Port staff to enter into a Negotiation Agreement with PG&E, all related to onshore and submerged Port land between Pier 28 ½ and the foot of 23rd Street and PG&E parcels Block 4110 (Lot 008A) and Block 4120 (Lot 002), commonly known as the "Hoedown Yard" (see Exhibits A and B).

Since November 13, 2012, Port staff has engaged in periodic negotiations with PG&E in concert with the Office of Mayor Ed Lee and the Office of Economic and Workforce Development. These negotiations have resulted in a revised Term Sheet between the City, acting through the Port and the Office of Economic and Workforce Development, and PG&E. This report is an amended and restated version of the November 13, 2012 staff report to the Port Commission reflecting the revised terms of the proposed Term Sheet ("Revised Term Sheet").

**THIS PRINT COVERS CALENDAR ITEM NO. 13A**

## Introduction

Pacific Gas & Electric ("PG&E") proposes to construct a new, single circuit, 230 kV transmission line between its Embarcadero Substation and its Potrero Substation to

[illegible] seismic hazard analysis was used to determine bedrock response spectrum, which was modified through detailed site response analysis. Developed multiple sets of acceleration, velocity, and displacement time histories for use in dynamic analysis of the intake and outfall structures.

- Developed seismic design criteria using probabilistic seismic hazard analysis procedures for the structural repairs of Wharves 6, 6½, and 7 at the Oakland Army Base, California. These wharves were damaged as a result of the 1989 Loma Prieta earthquake. Developed site-specific acceleration time histories in addition to the site-specific design response spectra for different probability levels.

- Development of a suite of earthquake acceleration time histories for seismic probabilistic risk analysis (PRA) using the Latin Hypercube approach for the Finnish nuclear utility TVO's Olkiluoto site. A suite of 30 time histories consisting of two horizontal and one vertical component were developed. The time histories were matched to the uniform hazard spectrum such that both the spectrum of each time history and the median and one standard deviation spectra of the suite of time histories matched a given set of constraints.

- Developed site-specific seismic hazard evaluations for Intel's microprocessor manufacturing facilities located in Santa Clara, California; Albuquerque, New Mexico; Dupont, Washington; and Hillsboro, Oregon. Performed probabilistic seismic hazard analysis to develop site dependant response spectra for different probability levels.

- Developed seismic design criteria using probabilistic seismic hazard analysis procedures for numerous sites in the eastern United States. The projects included: (1) Hospital Complex, Statesboro, Georgia for Hospital Management Associates; (2) Concourse Corporate Center III, Atlanta, Georgia for Faison Corporation; (3) Wildwood Office Building Complex, Atlanta, Georgia for Cousins Real Estate Corporation; (4) Office Building Complex in Alpharetta, Georgia for Automatic Data Processing; (5) Piedmont Center Building, Atlanta, Georgia for P.C. Operations; (6) Humanities Building, Dalton College, Dalton, Georgia for Georgia State Board of Regents; (7) Emory University Hospital Expansion, Atlanta, Georgia for Emory University Hospital, Inc.; (8) Gwinnett Marriott Expansion, Duluth, Georgia for Cornerstone Real Estate Advisors; (9) Piedmont Hospital Complex, Atlanta, Georgia for Piedmont Hospital, Inc.; (10) Promina Kennestone Hospital Women's and Children's Center and Facilities Management Plant Buildings in Marietta, Georgia for W.R. Adams, Inc.; (11) Lakeside Commons II, Atlanta, Georgia for Yarmouth Group, Inc.; (12) Academic Building, Southern College of Technology, Marietta, Georgia for University of Georgia Board of Regents; (13) Science and Allied Health Building, Kennesaw State College, Kennesaw, Georgia for the University of Georgia Board of Regents; (14) Hospital Expansion, Rome, Georgia for Columbia HCA; (15) Junior High and High School, Stone Mountain, Georgia, for the DeKalb County School District; (16) University of Georgia Campus at Athens, Georgia; (17) Lake Norman Regional Medical Center, Mooresville, North Carolina for Health Management Associates; (18) Hospital Complex, Hartsville, South Carolina for Health Management Associates, Inc.; (19) Replacement Hospital Complex, Florence, South Carolina for Quorum Health Group; (20) Vanderbilt Children's Hospital, Nashville, Tennessee.

- Developed design ground motion criteria using probabilistic and deterministic seismic hazard analysis procedures. Developed site specific response spectra for various probability levels including 10% and 50% probability of exceedence in 50 years and a corresponding set of acceleration time histories for multiple facilities located in California. Some of the key projects are Los Angeles County medical center facilities in Los Angeles, High Desert Hospital in Lancaster, San Francisco International Airport's new International terminal building, Oakland City Hall (base isolation design), Channing House, Palo Alto (base isolation), and the GAP Headquarters building in San Francisco.

- Developed seismic design criteria using probabilistic seismic hazard analysis procedures for nonlinear analysis of Pier J at the Port of Long Beach, California. Site-specific acceleration time histories were developed in addition to the site-specific design response spectra for different probability levels.

- Performed probabilistic seismic hazard analysis for the Chashma power plant site in Pakistan for Sogreah Consultants, France.

the Port Commission, and PG&E for use of Port lands by PG&E for the proposed submarine route and (ii) authorization for the Port Executive Director to enter into the negotiations agreement, as further described below, with PG&E. As further described in this report, the Revised Term Sheet contemplates:

1. a long-term, non-exclusive license to construct and operate the ZA-1 Project,

2. a transferable option for the Office of Economic and Workforce Development ("OEWD") to purchase PG&E-owned land at Illinois and 22nd Streets (see Exhibit B) subject to CPUC approval pursuant to Section 851 of the California Public Utilities Code, and

3. a requirement for PG&E to screen or otherwise enclose the Potrero Substation which is situated along Illinois Street between 22nd Street and 23rd Street (see Exhibit A), subject to review by the Waterfront Design Advisory Committee ("WDAC"), environmental review pursuant to CEQA and other required approvals.

**Project Description**

The proposed Embarcadero-Potrero cable, or ZA-1, would provide a third cable into Embarcadero Substation. Seismic risk is a key consideration in its design and routing. If approved, ZA-1 also will connect PG&E's 230 kV system in San Francisco with both the Trans Bay Cable ("TBC")[1] and PG&E's existing 115 kV systems in San Francisco, providing operational flexibility to both the 230 kV and 115kV systems. Both PG&E and

... instrumented buildings in San Jose during the 1989 Loma Prieta, 1986 Mt. Lewis, and 1984 Morgan Hill earthquakes were analyzed using MODE-ID to determine the dynamic characteristics of each building under each earthquake scenario. Variations in building period and damping ratio for different

Embarcadero Substation, where it would be installed in a reinforced underground duct bank to the substation. Both landings from the Bay to land will be accomplished through horizontal directional drilling.

## Negotiation Agreement

Port staff and representatives of PG&E have negotiated a negotiation agreement ("Negotiation Agreement"), a copy of which is on file with the Port Commission Secretary. Under the Negotiation Agreement, PG&E is responsible for obtaining all regulatory approvals for the Project and will pay expenses reasonably incurred by Port directly and solely related to the Project for, including, but not limited to, time spent on

were studied. The project was funded by California Department of Transportation (CalTrans).

- Performed a detailed system identification analysis of the Meloland Road Overcrossing using recorded acceleration along the bridge span from the 1979 Imperial Valley Earthquake. The system identification was performed using the MODE-ID system identification methodology. Detailed Fourier spectrum analysis of the recorded motion was also performed. Insights into the dynamic response of the bridge were obtained by identifying different modes of vibration, damping, mode shapes, and participation factors. The models showed excellent comparisons between the actual and predicted response of the bridge.

- A detailed three dimensional finite element analysis using the SAP90 program was performed. The analysis used free field time histories from the 1979 Imperial Valley Earthquake. The analysis model was verified by comparison of the structure's dynamic characteristics with the identified dynamic characteristics from the system identification analysis.

***Seismic Retrofit Design***

- Project manager for seismic assessment and retrofit recommendations for the Santa Clara Valley Water District's Rinconada water treatment plant control building. The control building features a four story concrete bearing wall system with significant vertical and plan irregularities. Independent technical reviewer on the seismic assessment of control building at the Penetencia water treatment plant and buildings at the Vasona pump station and meter shop. Involvement in both the planning study and design phases of the project.

- Performed seismic retrofit design of control buildings for the Marin Municipal Water District San Geronimo and Bon Tempe water treatment plants. The buildings were retrofitted to meet post-earthquake functionality requirements. Both treatment plants are located within 15 kilometers from the San Andreas Fault. Creative solutions such as tying two buildings together were used to

In establishing rent for the proposed license area, most of which is submerged land, Port staff and PG&E agreed on the following formulas:

- Exclusive use areas: 50% industrial upland value ($68.50 psf) x 8% capitalization rate
- Compatible (non-exclusive) use areas: 25% industrial upland value ($68.50 psf) x 8% capitalization rate
- Upland underground areas: $0.031562/sf, based on the rate for like property in the Hunters Point-Potrero license area
- A two year construction period rent for the same areas, reduced by 75%

The parties agreed to a prepaid rent structure for the initial forty (40) year term of the agreement utilizing a 6.5% discount rate, which is the current estimated blended average of the Port's costs of funds.

**Proposed Terms**

Port staff and representatives of PG&E have negotiated a Term Sheet for the project. The following are the high-level terms for the proposed non-exclusive license, which are provided in greater detail in Exhibit D:

| | |
|---|---|
| <u>License Area:</u> | 508,992 sf of underground and submerged land, generally along the route depicted in Exhibit A |
| <u>Term:</u> | 40 years, with a 2 year reduced rent construction period, and one 26 year PG&E option to renew |
| <u>Pre-Paid Rent:</u> | $14,820,258 |
| <u>Option Period Rent:</u> | Fair Market Value rent, paid either annually or prepaid (at PG&E's option), with rent determined by appraisal. If rent is prepaid for the 26 year option period, the FMV rent will be determined by appraisal, using the same formulas used to establish the initial rent, including an 8% capitalization rate and a discount rate set at the ... of the Port's future taxable and tax exempt bond interest |

Maximum Loss (PML). The scope of work included assessing geologic hazards such as liquefaction, landslides, surface fault rupture, and lateral spread, estimating earthquake ground motions with different probabilities of exceedence, and developing earthquake damage functions for building structures. Seismic hazards and building damage functions were combined together to estimate earthquake losses as a percentage of building replacement value. The loss estimates are used by lenders, insurers, reinsurers, rating agencies, and owners to evaluate their financial risk exposure. Buildings evaluated included high-rise buildings of steel and concrete construction, masonry infill buildings, unreinforced masonry buildings, buildings of light metal construction, tilt-up buildings of different ages and configurations, and wood frame structures.

- Assessment of seismic risk to Accenture facilities located in Chengdu, People's Republic of China.

***Numerical Analysis of Large Dams***

Mr. Nisar's experience includes seismic analysis of existing dams to meet safety requirements of Division of Safety of Dams (DSOD) and Federal Energy Regulatory Commission (FERC). Key projects include:

- Project Manager for the non-linear incremental thermal stress strain analysis for a 220-foot high roller compacted concrete thick arch dam in Ponce, Puerto Rico for the US Army Corps of Engineers, Jacksonville District. The dam has a total crest length of

Potrero Substation (see Exhibit A) in a building, or 2) surrounding a significant portion of the Potrero Substation with a perimeter screen. PG&E will use commercially reasonable efforts to obtain rate reimbursement and other approvals required for these improvements. The City may elect to utilize IFD proceeds from the Hoedown Yard or other nearby PG&E property to fund screening improvements not funded through utility rates.

**Option to Acquire the Hoedown Yard**

As a condition of the license, City staff has negotiated a transferable OEWD option to acquire the PG&E Hoedown Yard at Pier 70, which includes a portion of Irish Hill. A map of the Hoedown Yard is attached as Exhibit B. Current uses at the Hoedown Yard include parking, equipment storage, stockpiling and temporary storage of drilling mud, concrete, soil, sand, gravel and asphalt associated with PG&E utility projects. While these uses are important functions, they represent a fundamental land use conflict with the Port's planned development efforts at Pier 70. The Hoedown Yard is located at Illinois Street and 23rd Street. Port staff expects that 23rd Street will be a major entry to the Pier 70 Waterfront Site[2] and that relocation of the Hoedown Yard is a necessary step to attract private investment to the Waterfront Site (shown in Exhibit E).

The Original Term Sheet approved by the Port Commission contemplated that the Hoedown Yard purchase option would belong to the Port. After further consideration

**AHMED NISAR, PE**
**PRINCIPAL**

- Performed three dimensional advanced numerical analysis for the seismic evaluation of Kennedy Mines Dam, a 50-foot high multiple arch tailings dam. Site-specific estimates of ground motion developed for the site were used in the analysis. The dam was analyzed and the safety of the dam assessed under both probable maximum flood and earthquake ground motion conditions.

- Performed two dimensional advanced numerical analysis for the seismic evaluation of Bull Run Dam, a concrete arch gravity dam. Performed analysis considering the effects of fluid structure interaction using EACD2D dam analysis program.

- Performed preliminary assessment of the 319-foot high Warm Springs Dam and the 164-foot high Coyote Valley Dam for Sonoma County Water Agency. The Warm Springs Dam, an earth-fill embankment with a crest length of 3,000 feet, impounds Lake Sonoma with a gross pool of 381,000 acre-feet. The Coyote Valley Dam, an earth-fill embankment with a crest length of 3,500 feet, impounds Lake Mendocino with a gross pool of 122,400 acre-feet. An assessment of the dams was performed as part of a natural reliability improvement project for the water district.

***Investigative Studies***

- Crack investigation study for the Sonoma County Water Agency's Mirabel 3 and 4 pump stations. Two of Sonoma County Water Agency's pump stations were exhibiting cracking in the roof slab and exterior shear walls. The investigative effort included detailed three dimensional finite element modeling of the pump stations. The crack pattern and cause of cracking was accurately predicted. Work also included detailed modeling of the structures under earthquake loading.

- Investigation study for air products and chemicals generator support system. The generators were exhibiting alignment differentials of a few thousandths of an inch, causing operations shutdown of critical processes. The generators were supported on 7-foot thick concrete pads. A detailed three dimensional model of the generator support structure was developed to study the state of stress and possible cracking due to fatigue loads. A high precision survey (using Leica TPS5000 theodolite having an angular accuracy of 0.5 seconds approximately equal to 0.012 mm at a range of 5 meters) and water table data was also collected and correlation between deformations and water table fluctuations were developed. The results of the data indicated that the compressor misalignment was related to groundwater fluctuations at the site.

current or anticipated future conditions, provided that activities at the site comply with a Site Management Plan ("SMP") and land use is restricted to commercial/industrial uses through a deed restriction.

PG&E has developed and Water Board has approved a SMP for the Hoedown Yard. The SMP specifies measures to protect workers, minimize dust, prevent contamination of stormwater, and other measures to manage potential risks from soil contamination. PG&E has also filed a deed restriction limiting future uses of the site to commercial and industrial uses.

Port environmental staff has reviewed the SMP and the deed restriction and has found that Hoedown Yard site conditions are suitable for future commercial or industrial use. If the City desires to acquire the site for residential purposes, further remedial actions (such as removal or capping of arsenic-contaminated soil) would likely be required, along with approval of the Water Board to lift the residential deed restriction. The Revised Term Sheet provides that PG&E will consent to lifting the residential deed restriction subject to the parties establishing a reasonable mechanism agreeable to the City and PG&E, to allocate risks of existing site conditions associated with residential development on the Hoedown Yard..

Subject to approval by the Board of Supervisors, OEWD intends to utilize any net proceeds between the purchase price and its sale price to a third-party developer based on its rezoned value as a source of funds for the Potrero Terrace and Annex HOPE VI project, a major priority of Mayor Ed Lee. For more information about this project, see http://www.rebuildpotrero.com/.

Pursuant to the Waterfront Site Term Sheet with Forest City, Forest City will include the Hoedown Yard in the proposed Special Use District for the Waterfront Site for purposes of rezoning and design for development controls. The SUD is expected to be ready for consideration by the Planning Commission and the Board of Supervisors by mid-2016, after environmental review of the Waterfront Site mixed use development is complete, which means that the Hoedown Yard would be rezoned and ready for sale to a third-party within that timeframe, subject to required regulatory approvals.

jointly organized by Water Research Foundation formerly American Water Works Association Research Foundation, Japan Water Works Association and East Bay Municipal Utility District, Oakland, California, August 8, 2007.

Nisar, A. and Summers, P.B., "Practical Guidance for Seismic Evaluation and Retrofit of Petrochemical Facilities" First International Conference on Disaster Reduction, Davos, Switzerland, August 27 - September 1, 2006.

Nisar, A., Scawthorn, C., Stillman, C., Jasperse, J., Gur, T. and Villet, W.C.B., "Multi-hazard Reliability for a Major Water Utility Agency in the San Francisco Bay Area," 8th National Conference on Earthquake Engineering, San Francisco, California, April 2006.

Nisar, A., Honegger, D., Ameri, A., Summers, P.B., Hitchcock, C., Liu, A. and Louie, H., "Mitigation of Fault Rupture Hazard to Water Mains of a Major Metropolitan in the San Francisco Bay Area," 13th World Conference on Earthquake Engineering, Vancouver, B.C. Canada, August 2004.

Contributing author: ASCE special publication on Seismic Design and Evaluation of Petrochemical Facilities.

use areas of the City, PG&E has enclosed substations (such as the Larkin Substation or the Embarcadero Substation) which are more compatible with surrounding mixed use development than the current open air Potrero 115 kV Substation ("Potrero Substation"), located along Illinois Street between 22nd and 23rd Streets.

The Revised Term Sheet acknowledges that Plan Bay Area, the Bay Area's first combined Sustainable Communities Strategy as required under Senate Bill 375 (SB 375), focuses a significant amount of regional growth in its transit served cities, with almost 15% of that growth projected for San Francisco. The Central Waterfront area is a significant Priority Development Area where the City plans to accommodate this projected growth. City staff believe that development of the Central Waterfront will require substantial changes to the existing PG&E Potrero Substation to accommodate this planned growth.

As part of the public benefits of the ZA-1 Transmission Line, Port staff has also negotiated for PG&E to obtain the approvals for and construct screening (or otherwise

to the US, Asia, The Middle East and to Europe.

Harry has given invited presentations and seminars in Australia, Brunei, Canada, China, Hong Kong, Indonesia, India, Japan, Korea, Malaysia, New Zealand, Singapore, Sweden and the US. At present he holds three US, Canadian and International patents on cable diagnostics. A book entitled "Long-life XLPE Insulated Cables" joint with Rick Hartlein of Georgia Tech was published in 2006.

**AWARDS**

In 2005 Harry received the IEEE, ICC Distinguished Technical Service Award for his long-term involvement with the Insulated Conductors Committee and was inducted into the EIC Hall of Fame in October 2007.

"IEEE Technical Council Committee of the Year Award", Insulated Conductors Committee, Transnational Activities Committee. 2002-2003

Screen Design. Subject to force majeure events, or its failure to obtain required approvals, PG&E shall complete construction of the approved Revised Screen Design no later than five (5) years after the City presents the notice of its Preferred Screen.

Alternative Funding Approach to Potrero Substation Screen

The expense to screen the Potrero Substation is expected to be considerable, and this expense requires approval to be included in the utility rate base. If the Potrero Substation Screen cannot be funded with capital funding approved in the utility rate base, PG&E and the City will have to examine other potential funding mechanisms for this work.

To that end, the Revised Term Sheet provides for a potential infrastructure financing district ("IFD") mechanism to partially fund the City's Preferred Screen using future tax increment from the Hoedown Yard and/or the existing Potrero Substation. If the City forms a Pier 70 IFD project area that includes the Potrero Substation and the Hoedown Yard, the City will use good faith efforts, subject to applicable law and the sole and absolute discretion of the Board of Supervisors, to permit IFD proceeds from the Potrero Substation and the Hoedown Yard to finance improvements related to the Revised Screen Design that have no utility rate-based funding source. PG&E will not be subject to assessment in connection with the IFD.

## Additional Public Benefits

City staff believes that the ZA-1 project provides critical transmission reliability benefits to the City, and that the OEWD option to acquire the Hoedown Yard and the PG&E obligation to pursue screening of the Potrero Substation are major public benefits of the proposed project.

The proposed License is subject to the Port's Southern Waterfront Community Benefits [illegible] 8% of project rents to the Southern Waterfront

| | | | |
|---|---|---|---|
| 7 | Oct/2012-Jan/2013 | **Vancouver Island Submarine Cable Rejuvenation Project:** Act as EOR for BC Hydro on a 25 kV submarine cable rejuvenation project with Novinium. | Witnessed cable injection at three sites and presented a report. As EOR confirmed that all components satisfied ANSI standards. |
| 8 | Jan/2013 | **Submarine Cable Seminar for RT Casey**: The project was designed to train and inform RT Casey employees in New Orleans of the latest trends in the submarine power cable industry. | Conducted a two day seminar on the latest information available on subsea cables. |
| 9 | Nov/2010-Apr/2011 | **30 Year Condition Review of Cable 41 Sydney South to Beaconsfield West:** 330 kV SCFF Cable Condition Assessment for Transgrid, Australia. | Assessed condition of the 30 year old cable with recommendations for continued in-service life |
| 10 | Sept/2009-Jan/2011 | **Change Island Submarine Cable Replacement:** For Newfoundland Hydro - 25 kV cable terminations have been failing causing concern about remaining service life | Carried out forensic investigation and made recommendations for continued service life. |
| 11 | Aug/2009-Mar/2010 | **Underground Power Cable Gas Release Project:** Investigate recent manhole fires and explosions on CLP distribution network in Kowloon, Hong Kong. | Presented a report with reference to IEEE Standard 383, IEC 60331 and BS 6387 |
| 12 | Aug/2010-Nov/2011 | **Norwood-St Leonards-Mowbray Transmission Underground Cable:** Re-write cable specification for Transend, Tasmania, 110 | Updated cable specification, carried out plant audit and FAT |

## Recommendation and Next Steps

Port staff recommends approval of the attached resolution which approves the Term Sheet and authorizes the Executive Director to enter into the Negotiation Agreement. If the Port Commission approves the resolution, Port staff proposes the following next steps:

- Negotiate a non-exclusive license for use of submerged Port land for the ZA-1 230 kV Embarcadero-Potrero Transmission Line with PG&E consistent with the Term Sheet;

- Continue to review environmental analysis conducted by the CPUC regarding routes that involve Port property, in consultation with other City departments (underway);

- Further evaluate the development potential of the Hoedown Yard, in consultation with the City's Pier 70 development partners;

- If the CPUC process determines that the submerged alternative is the preferred project alternative, submit for Port Commission and Board of Supervisors consideration a long-term license for construction and operation of the project.

| | |
|---|---|
| Prepared by: | Brad Benson, Special Project Manager |
| For: | Monique Moyer, Executive Director<br>Tony Winnicker, Senior Advisor to Mayor Ed Lee |

Exhibits

A. PG&E Route Alternatives for Proposed ZA-1 Project
B. Hoedown Yard Map
C. PG&E Embarcadero Substation Area Map

**RECENT PUBLICATIONS**

Harry has published 55 papers on the applications of underground transmission, offshore submarine cables, distribution power cables and accessories. The following is a list of recent publications.

1. "Testing of Long AC Submarine Cables", with Anders Gustafsson, et al, CIGRE WG B1.27, January 2012. CIGRE TB 490, Published in February 2012.

2. "Submarine Cable Metallic Sheath Diagnostic", with Avaral Rao, Dave Hicks and Dave Gung, Jicable 2011 Proceedings, Paper A.7.1, Page 262, Volume 1, 19-23 June 2011.

3. "Impact of Electromagnetic Fields on Current Ratings and Systems", with Paolo Maioli, Heiner Brakelmann, Jarle Bremnes, Frederic Lesur, Josu Orella Sanez and Jacco Smit, Jicable 2011 Proceeedings, Paper B.1.1, Page 382, Volume 1, 19-23 June 2011.

4. "Improved Cooling of High Voltage Cables", with Detlef Wald, Herbert Nyffenegger, and George Anders, Jicable 2011 Proceedings, Paper C.10.4, , Page 245, Volume 2, 19-23 June 2011.

5. "Impact of Electromagnetic Fields on Current Ratings and Systems", with Paolo Maioli, Heiner Brakelmann, Jarle Bremnes, Frederic Lesur, Josu Orella Sanez and Jacco Smit, Paper 55, EMF ELF Colloquium, Paris, France March 24-25, 2011.

**PORT COMMISSION**
**CITY AND COUNTY OF SAN FRANCISCO**
**RESOLUTION NO. 13-34**

WHEREAS, California Statutes of 1968, Chapter 1333 (the "Burton Act") and the San Francisco Charter Section B3.581 empower the San Francisco Port Commission with the power and duty to use, conduct, operate, maintain, manage, regulate and control the lands within Port Commission jurisdiction; and

WHEREAS, Pacific Gas & Electric ("PG&E") proposes to construct a new, single circuit, 230 kV transmission line between its Embarcadero Substation and its Potrero Substation, along onshore and submerged land in the Port's jurisdiction generally within the area bounded by Pier 28 ½ and portions of the shoreline at the foot of 23rd Street (the "Project"), to increase reliability of electric service to downtown San Francisco and provide operational flexibility, as further described in the staff report accompanying this resolution; and

WHEREAS, At the Port Commission's August 14, 2012 meeting, an informational presentation about the Project was made by Port staff and Port staff was directed to negotiate a term sheet for use of Port lands for the Project; and

WHEREAS, At its November 13, 2012 meeting, the Port Commission approved Resolution 12-90, endorsing the ZA-1 Embarcadero-Potrero 230kV Transmission Project Term Sheet ("Original Term Sheet") between the Port and PG&E and authorizing Port staff to enter into a Negotiation Agreement with PG&E, related to onshore and submerged Port land between Pier 28 ½ and the foot of 23rd Street and PG&E parcels Block 4110 (Lot 008A) and Block 4120 (Lot 002), commonly known as the "Hoedown Yard"; and

and Electric Company, 77 Beale Street, San Francisco, California.
Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company (PG&E).
A 2 I am a senior manager in the Economic and Project Analysis Department.
Q 3 Please summarize your educational and professional background.
A 3 I received my bachelor of science degree in electrical engineering from the University of California, Berkeley, and a master of business administration degree in finance from the California State University, Hayward.

In 1985, I joined PG&E as an analyst in the Revenue Requirements Department, working on modeling and forecasting of capital expenditures, depreciation and related items for short- and long-term planning and rate cases. In 1986, I transferred to the Rates Department to work on marginal cost analysis, returning to the Revenue Requirements Department in 1987 undergo appropriate environmental review under the California Environmental Quality Act ("CEQA") and will be subject to public review in accordance with the processes of the Port Commission, other City departments and offices, the CPUC, and other government agencies with approval rights over the Project before any entitlements and other regulatory approvals required for the Project will be considered; now therefor be it

RESOLVED, That the Port Commission hereby rescinds Resolution 12-90 and its prior endorsement of the Original Term Sheet; and, be it further

RESOLVED, That the Port Commission hereby endorses the Revised Term Sheet and the Negotiation Agreement and authorizes and directs the Executive Director of the Port, or her designee, to execute the Negotiation Agreement and present the Revised Term Sheet to the Board of Supervisors for its endorsement; and, be it further

RESOLVED, That provided the Board of Supervisors endorses the Revised Term

Dr. Sullivan was a co-founder of FSC and is a recognized expert in utility business planning, research design and program evaluation. He has directed more than a dozen outage cost studies over the past 25 years. He has testified in front of the California Public Utilities Commission concerning the methods, procedures and results obtained in outage cost surveys. He has conducted outage cost surveys for Pacific Gas & Electric Company, Duke Energy, Southern Companies, Cinergy, Puget Sound Energy, Salt River Project, San Diego Gas and Electric, Mid American Energy, Alabama Power and Mississippi Power.

In addition to his work in outage cost surveying, Dr. Sullivan has published a number of authoritative reports and papers concerning outage cost estimation and the use of interruption cost measurements in utility planning and policy making. Among the works he has authored are:

- *The Outage Cost Estimation Guidebook.* (with Dennis Keane) Prepared for Electric Power Research Institute, EPRI Technical Report 106082.
- *How to Assess the Economic Consequences of Smart Grid Reliability Investments.* November 29, 2010. (with Josh Schellenberg). Prepared for National Association of Regulatory Utility Commissioners and the Illinois Commerce Commission.
- *How to Estimate the Value of Service Reliability Improvements.* July 2010. (with Josh Schellenberg, Matthew Mercurio and Joseph Eto). Conference Proceedings: 2010 IEEE Power & Energy Society General Meeting. Minneapolis, MN.
- *Estimated Value of Service Reliability for Electric Utility Customers in the United States* June 2009 (with Matthew Mercurio and Josh Schellenberg), for Lawrence Berkeley National Laboratory LBNL 2132E.
- *Reliability Worth Assessment in Electric Power Delivery Systems.* (with Chowdhury, A., Mielnik, T., Lawton, L. and Katz, A.). Presented at the IEEE Power Engineering Society Conference. Denver, CO.
- *Power Interruption Costs to Industrial and Commercial Consumers of Electricity.* (with Terry Vardell and Mark Johnson). IEEE Transactions on Industry Applications, Vol. 33.
- *Interruption Costs, Customer Satisfaction and Expectations For Service Reliability.* (with T. Vardell, N. Suddeth and A. Vogdani). IEEE Transactions on Power Systems, Vol. 11.

Dr. Sullivan is a member of the Institute of Electrical and Electronic Engineers (IEEE), the American Statistical Association, the American Sociological Association and the American Association of Public Opinion Researchers. He has worked in the power industry for more than 30 years. He holds a Ph.D. in sociology with specializations in research methods and statistics.

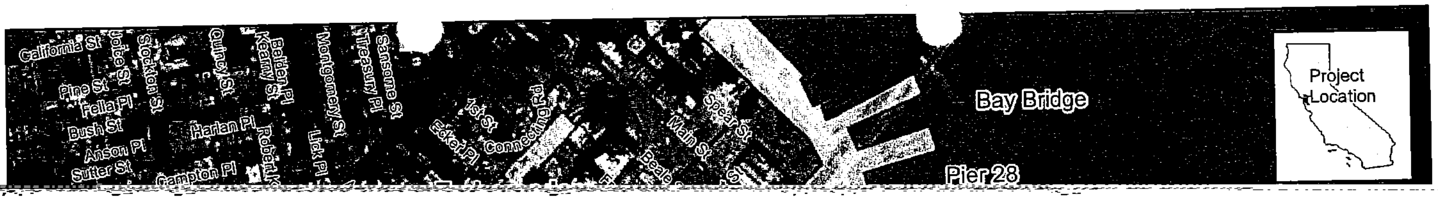
transaction with the Port, it does not necessarily set forth all of the material terms and conditions of any final transaction documents; and, be it further

RESOLVED, That the Port Commission will not take any discretionary actions committing the Port to implement the Project, and the provisions of the Revised Term Sheet are not intended and will not become contractually binding on the Port unless and until the relevant bodies have reviewed and considered environmental documentation prepared in compliance with the CEQA for the Project and the Port Commission, and as applicable, the Board of Supervisors and the Mayor, have approved final Transaction Documents for the Project.

***I hereby certify that the foregoing resolution was adopted by the Port Commission at its meeting of September 10, 2013.***

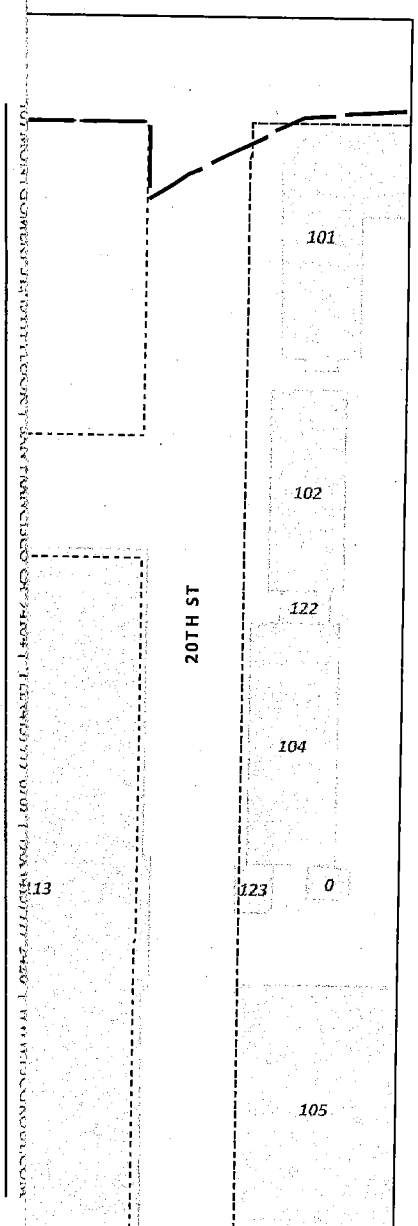
____________________________

Secretary




tailored estimates of customer interruption costs for specific banks, circuits, substations and transmission lines. The data was also incorporated into a meta-database of customer interruption costs from surveys conducted across various regions of the U.S. and analyzed. Results of the study, including interruption cost estimates and customer damage functions, were reported to PG&E and the CPUC and filed as part of its 2006 General Rate Case.

*SDG&E's Non-Core Customer Interruption Cost Study*—Directed FSC's study of non-core gas customers of the San Diego Gas and Electric Company to determine the economic costs they would experience given natural gas outages of different durations. These cost estimates were used to

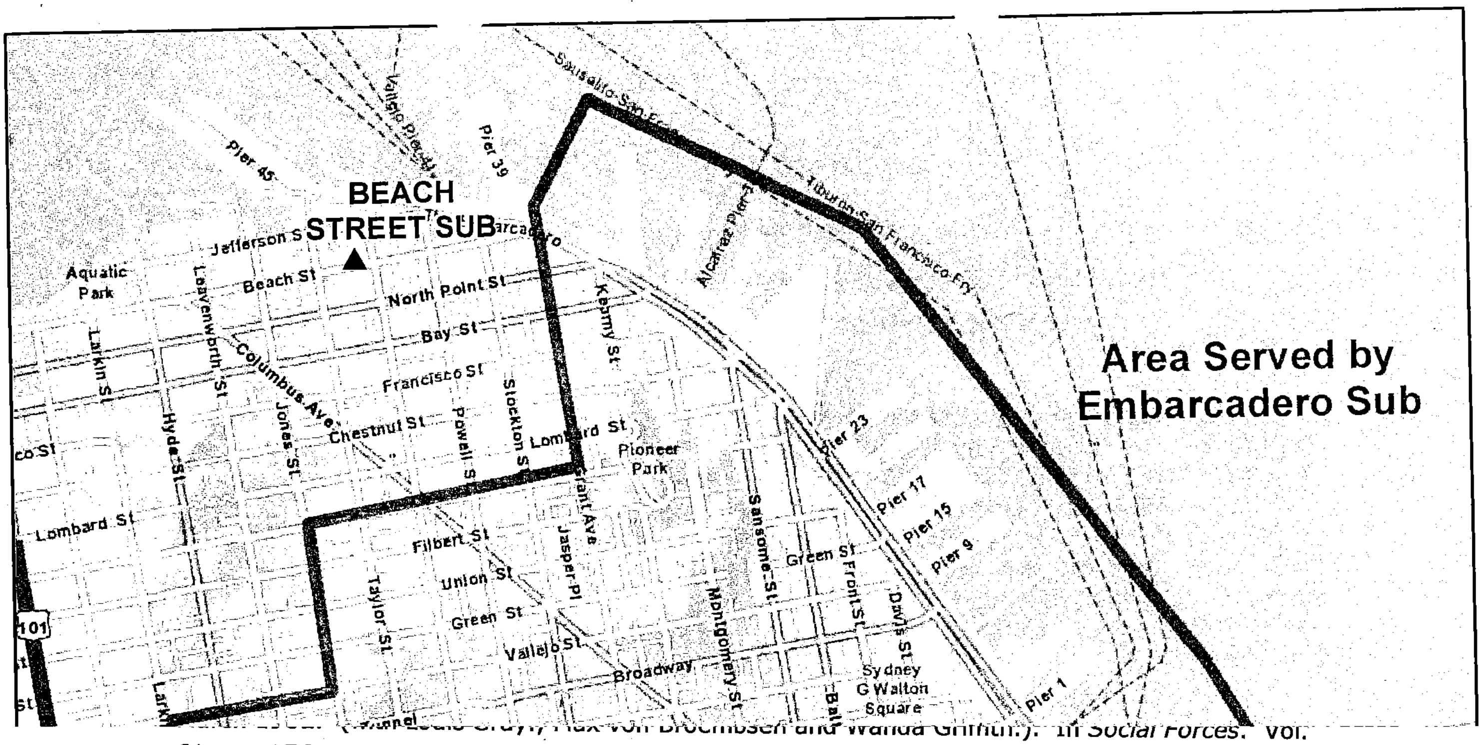



HIBIT B

)E DOWN YARD

N FRANCISCO

PORT OF SAN FRANCISCO




In *Social Forces*. Vol. 61, pp. 156-182.

*Group Differentiation: Temporal Effects of Reinforcement.* March 1982. (with Gray, L.N. and von Broembsen, M.). In *Social Psychology Quarterly*. Vol. 45 pp. 44-49.

*Issues of Design and Analysis in Evaluation Research*. August 1975. (with Duane Alwin.) In *Sociological Methods and Research*.

*Patterns of Geothermal Lease Acquisition in the Imperial Valley.* 1974. University of California Press.

### *Professional and Community Associations*

- Marketing Research and Intelligence Association (Membership Number 1602781)
- American Association of Public Opinion Researchers
- American Statistical Association
- Association of Energy Services Professionals

EXHIBIT D

TERM SHEET

PROPOSED TERMS FOR EMBARCADERO-POTRERO 230 KV TRANSMISSION PROJECT

PROPOSED OPTION TO PURCHASE THE HOEDOWN YARD

September 10, 2013

The following outline presents potential business terms for (i) one or more licenses

Attachments:

13A PGE Proposed ZA1 Embarcadero-Potrero Transmission Line .doc

Hi Linda:

Here is Resolution 12-90. It was superceded by Resolution 13-34, also attached.

Sorry for the delay in getting this to you.

Best,
Brad

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**From:** Wong, Linda (BOS)
**Sent:** Thursday, February 06, 2014 4:47 PM
**To:** Benson, Brad
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495
**Importance:** High

Hi Brad,

Just following-up on my previous email. The packet will be distributed to the Supervisors tomorrow morning...

Thanks,

Linda

---

**From:** Wong, Linda (BOS)
**Sent:** Thursday, February 06, 2014 9:45 AM
**To:** Benson, Brad
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Hi Brad,

Could you please send me Port Commission Resolution No. 12-90? We need it for the file regarding the subject matter referenced above.

Thank you in advance.

Linda

Linda Wong
Board of Supervisors
1 Dr. Carlton B. Goodlett Place, City Hall, Room 244
San Francisco, CA 94102-4689
Phone: 415.554.7719 | Fax: (415) 554-5163

| | |
|---|---|
| | would then continue in the Bay along the general alignment and several hundred feet to the west of TBC, and then return to land about 0.4 miles from Embarcadero Substation, where it would be installed in a reinforced underground duct bank to the substation. Both landings from the Bay to land will be accomplished through horizontal directional drilling ("**HDD**").<br><br>o Total distance of Submarine Route: Approximately 2.8 miles including HDDs.<br><br>o Total Distance within Bay: approximately 2.5 miles |
| 4. REQUIRED PROJECT APPROVALS: | **<u>California Public Utilities Commission ("CPUC")</u>**: Because PG&E is a regulated utility, the Project is subject to the review and approval of the CPUC ("**CPUC Project Approval**").<br><br><u>CEQA</u>: CPUC Project Approval will require the adoption, certification and/or approval by CPUC, as lead agency, of an environmental review document pursuant to the California Environmental Quality Act, California Public Resources Code Sections 21000-21178 ("**CEQA**").<br><br><u>City</u>: The Project may also require encroachment or other ministerial permits from the City and County of San Francisco Department of Public Works to install facilities for the Project within portions of City streets.<br><br><u>Port</u>. The Project may also require a Port Building Permit and encroachment permit or other ministerial permits for PG&E to install facilities within the properties and streets that are owned by Port and/or subject to Port jurisdiction.<br><br><u>Other State Agencies</u>: The Project may also require permits from the State Water Resources Control Board, San Francisco Bay Conservation and Development Commission, the Regional Water Quality Control Board, and other resource agencies.<br><br><u>Army Corps</u>: The Project may also require permits from the US Army Corps of |

agreements are, so we can schedule at next Wednesday's meeting if you like.

Thanks,

Jess

Jess Montejano
Legislative Aide
Office of Supervisor Mark Farrell
City Hall
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102-4689
Phone: (415) 554-7752
Fax: (415) 554-7843

**From:** Benson, Brad
**Sent:** Tuesday, February 04, 2014 2:22 PM
**To:** Wong, Linda (BOS)
**Cc:** Jones, Jermain; Montejano, Jess; Stefani, Catherine
**Subject:** Re: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

My apologies Jess and Linda. I assumed this was a Budget and Finance item due to the large fiscal impact. I will work with Supervisor Weiner's office to schedule in Land Use.

Best,
Brad

| | |
|---|---|
| | show the location of the installation of the ZA-1 Line Equipment after construction is complete, and it will be further modified from time to time as necessary to show any significant movement in the ZA-1 Line Equipment. The License will allow for slight movement of the ZA-1 Line Equipment in accordance with its design. The License Area will include certain portions of Port-owned properties and streets. The area of the License Area will be as follows:<br><br><u>Submarine section</u>: 33 feet (11 foot width for each cable) X 2.5 miles (13,200 ft.) = 435,600 sq. ft. This section will be divided into two zones: the inner "**Exclusive Zone,**" which will be 6 feet wide (1 foot width on either side of the centerline of each cable) X 13,200 ft. = 79,200 sq. ft.; and the outer "**Compatible Use Zone,**" which will be 27 feet wide (4.5 foot width extending beyond the Exclusive Zone on each side of each cable) X 13,200 ft. = 356,400 sq. ft |

City Hall
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102-4689
Phone: (415) 554-7752
Fax: (415) 554-7843

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**From:** Wong, Linda (BOS)
**Sent:** Tuesday, February 04, 2014 11:42 AM
**To:** Montejano, Jess
**Cc:** Stefani, Catherine
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Hi Jess,

Do you have the BOS file no. for the above mentioned proposed Resolution?

File no. 130495 is a Resolution that is already approved by the Board last year.

Linda

Linda Wong
Board of Supervisors
1 Dr. Carlton B. Goodlett Place, City Hall, Room 244
San Francisco, CA 94102-4689
Phone: 415.554.7719 | Fax: (415) 554-5163
Linda.Wong@sfgov.org | www.sfbos.org



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**From:** Montejano, Jess
**Sent:** Monday, February 03, 2014 11:19 AM
**To:** Campbell, Severin; Benson, Brad; Stefani, Catherine; Kelly, Margaux
**Cc:** Wong, Linda (BOS)
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Yes, my apologies – for the 12th meeting.

Thanks,

Q 5 Does this conclude your statement of qualifications?
A 5 Yes, it does.

Infra • Terra

## CHRISTOPHER HITCHCOCK, PG, CEG
## PRINCIPAL ENGINEERING GEOLOGIST

Mr. Hitchcock is a Certified Engineering Geologist (CEG) with over 20 years of expertise in geologic mapping and engineering geology, including leading major geotechnical investigations for the California Department of Water Resources, Pacific Gas & Electric Company, State of California Emergency Management Agency, Alameda County, and the Federal Veterans Administration. He has been a Principal or co-Principal Investigator on fourteen research projects sponsored by the U.S. Geological Survey's National Earthquake Hazard Reduction Program (NEHRP) and the National Science Foundation (NSF) to assess earthquake and slope stability hazards. Results of Mr. Hitchcock's geologic mapping of range-front faults including the Monte Vista and Shannon faults have been published by the USGS (Open File Report 94-187), incorporated into various city and county Seismic Safety

power and duty to use, conduct, operate, maintain, manage, regulate and control the lands within Port Commission jurisdiction; and

WHEREAS, Pacific Gas & Electric ("PG&E") proposes to construct a new, single circuit, 230 kV transmission line between its Embarcadero Substation and its Potrero Substation (the "Project"), along onshore and submerged land in the San Francisco Port Commission's ("Port") jurisdiction generally within the area bounded by Pier 28 ½ and portions of the shoreline at the foot of 23rd Street, to increase reliability of electric service to downtown San Francisco and provide operational flexibility, as further described in the Port staff's memorandum to the Port Commission dated September 6, 2013, on file with the Clerk of the Board of Supervisors in File No. 131163, which is hereby declared to be a part of this resolution as if set forth fully herein; and

WHEREAS, The Project connects the 115 and 230kV transmission systems within the City as endorsed by the Board of Supervisors in Ordinance 94-09, which directed an update to the City's Electricity Resource Plan; and

WHEREAS, The California Independent System Operator has determined that the Project is needed to address transmission system reliability in its 2011-12 Transmission System Plan, adopted in March 2012, and incorporated by reference herein

Infra • Terra

CHRISTOPHER HITCHCOCK, PG, CEG

Resolution 12-90, endorsing the ZA-1 Embarcadero-Potrero 230kV Transmission Project Term Sheet ("Original Term Sheet") between the Port and PG&E; and

WHEREAS, Port staff and City staff have negotiated revised terms to the Original Term Sheet, and the Port Commission, at its September 10, 2013 meeting, approved Resolution 13-34 endorsing revisions to the Original Term Sheet (the "Revised Term Sheet") and directed Port staff to present the Revised Term Sheet to the Board of Supervisors for endorsement, which resolution is on file with the Clerk of the Board of Supervisors in File No. 131163, which is hereby declared to be a part of this resolution as if set forth fully herein; and

WHEREAS, The Revised Term Sheet contains an option by the City, through the Office of Economic Workforce and Development ("OEWD"), to purchase from PG&E ("Hoedown Yard Purchase & Sale"), the real property commonly known as the "Hoedown Yard" (Block 4110 (Lot 008A) and Block 4120 (Lot 002)), which option is freely transferrable and assignable by the City to another party; and

WHEREAS, The Hoedown Yard Purchase & Sale will facilitate the broader redevelopment of the entire neighborhood, including the Pier 70 Waterfront Site, a 28-acre site immediately west of the Hoedown Yard, and is anticipated to generate net proceeds to facilitate the Potrero Terrace and Annex HOPE VI project; and

WHEREAS, The Revised Term Sheet provides the City with the option to request that PG&E build a screen around the existing Potrero 115kV Substation, or to rebuild that

CHRISTOPHER HITCHCOCK, PG, CEG

**PRINCIPAL ENGINEERING GEOLOGIST**

- Geotechnical siting, seismic evaluation, and landslide investigations for new proposed reservoirs (DWR Dyer Reservoir, DWR Tehachapi Afterbay, DWR Crafton Hills, and DWR Sites and Golden Gate dam sites).
- Former Deputy Contract Manager and Fugro Representative responsible for administering $25 million IDIQ contract for Dam and Levee Engineering Services for USACE South Pacific Division (5 years, Fugro JV with HDR).

Mr. Hitchcock's professional background includes the following engineering geology evaluations of site conditions for critical facilities:

**U.S. Veterans Adminstration, San Francisco Veterans Administration Medical Center, San Francisco, California.** Project manager for comprehensive slope evaluation and phased assessment of geologic and geotechnical conditions associated with slope and pavement distress observed north of Veterans Drive, opposite buildings of the San Francisco

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**Governor's Office of Emergency Services, La Conchita Slope Stabilization Project, Geological Study and Risk Assessment, Landslide Mapping, Southern California.** Project manager and lead geologist for geological characterization, including detailed mapping and subsurface exploration, of the La Conchita landslide under static and dynamic (earthquake). The La Conchita landslide is unique in that it is bisected by the active Red Mountain fault. The 2004 landslide into the community of La Conchita killed ten people and blocked the main railroad and highway access along the Ventura Coast. Mr. Hitchcock was responsible for developing GIS-based geologic and hazard maps that integrate 30-cm resolution LiDAR, geotechnical borings, and field mapping to characterize both the slide and the fault. He worked closely with A3Geo to develop an all-inclusive analysis of surface and subsurface conditions for the formulation of different hazard mitigation options. These findings will serve as the basis for formulating risk assessment of various options and associated conceptual budgets.

**Sandia National Labs, Hydrogeologic Site Characterization, Albuquerque, New Mexico.** Performed geologic mapping and hydrogeologic description of surficial deposits for use in numerical hydrologic models for remediation of Kirtland Air Force Base. Mr. Hitchcock was also responsible for the design and implementation of a drilling program to characterize near-surface deposits. The products of this study included digital (GIS) maps of surficial deposits, detailed geologic cross-sections, and three-dimensional hydrogeologic models that show near-surface flow and transport patterns.

**South Texas Power Nuclear Operating Company COL Application, Matagorda County, Texas.** Performed ground and aerial reconnaissance fieldwork as well as literature review and analysis in support of South Texas Power's Combined License. Mr. Hitchcock's work contributed to revising regional and local seismic source models critical for site design and contributed to evaluating the potential for surface rupture within the site area.

**Nuclear Waste Storage Facilities, Skull Valley, Utah and southern New Mexico.** Participated in evaluations of active faults in the vicinity of proposed private nuclear waste storage facilities in central Utah and southern New Mexico, reviewed by the Nuclear Regulatory Commission (NRC). Efforts include characterization of local and regional potential seismic sources for ground motion hazard analysis conducted in support of a site characterization study for a temporary spent-fuel storage facility. Mr. Hitchcock was responsible for calculating deterministic ground motions for multiple proposed sites, compiling and evaluating available information on possible seismic sources, and managing site-specific drilling studies that documented the presence of active fault offsets.

**Windfarm Siting Feasibility Studies, Pacific Gas & Electric Company, California.** Lead engineering geologist responsible for geotechnical evaluation of existing conditions and

nor does endorsing the Revised Term Sheet foreclose the

conducting appropriate environmental review under CEQA, and while the

certain essential terms of a proposed transaction with the Port

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Environmental Impact Report for proposed Wind Energy facility and associated powerlines.

Mr. Hitchcock's professional background includes the following professional peer review services and engineering geology for schools and hospitals:

**City of Vallejo, Hiddenbrooke Residential Development, northern California.** As City reviewer, Mr. Hitchcock performed office and field-based reviews of grading operations for the "Reflections I", "Reflections II", "The Summit", and "The Orchard" residential developments in Hiddenbrooke, Vallejo. The developments consist of single-family homes and an 18-hole golf course. Geotechnical issues involve slope failure hazards, expansive soil conditions, and settlement hazards on cut/fill slopes. Mr. Hitchcock conducted field reviews of site conditions, including inspection of backcuts, keyways, and landslide repairs during grading operations.

**City of Pleasanton, Geologic Reviews of Proposed Residential Developments, Pleasanton, California.** As City reviewer, Mr. Hitchcock performed office and field-based reviews of site conditions and grading operations for proposed residential developments along Foothill Road, Clara Lane, and Vineyard Avenue in Pleasanton. Geotechnical issues

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**PRINCIPAL ENGINEERING GEOLOGIST**

Avenue in Fremont, California. The study included review of site conditions, previous reports, and development of supplemental geotechnical recommendations.

Mr. Hitchcock's professional background includes the following route assessment and studies for existing and proposed lifelines:

**Shell, CO2 Sequestration Pilot Project, Pipeline Routing, Southern California (2012).** Project manager and lead engineering geologist for evaluation of geohazards for selection of alternative routes for high-pressure pipelines to carry $CO_2$ from refineries to injection wells. Office and field-based evaluation of routes included integration of published geologic and seismic hazard maps, interpretation of LiDAR and InSAR data, evaluation of major fault crossings, landslide inventory mapping, and interpretation of offshore bathymetric data to optimize possible pipeline routes.

**InterOil, Papua New Guinea Elk/Antelope Gas Condensate Project.** Managed and performed field- and office-based engineering geology and geotechnical studies for a proposed 120-km long LNG pipeline in the Gulf Provence of Papua New Guinea (PNG). Performed detailed desktop and field evaluation of slope stability, erosion, soft soils, liquefaction susceptibility, and fault crossings for proposed pipeline routes and directional bores under major rivers in triple-canopy rainforest based on interpretation of remote sensing data, LiDAR, and extensive helicopter and ground reconnaissance. Provided detailed GIS of geologic and seismic hazards with pipeline routing options.

**Cache Creek Casino Natural Gas Pipeline, Pipeline Corridor Geotechnical Evaluation, Northern California**. Project manager and lead engineering geologist for development of maps that identify and rank potentially significant geologic hazards along a private gas pipeline route between PG&E Line 400 and Cache Creek Casino in Capay Valley. Hazards

- Endorsement of the proposed term sheet provisions for the option to purchase the Hoedown Yard, as amended, is a policy matter for the Board of Supervisors because the term sheet provides for the City to purchase property with the intention of reselling the property for private development; and
- Endorsement of the proposed term sheet provisions for the City to request PG&E to screen the Potrero Switchyard, as amended, is a policy matter for the Board of Supervisors because construction of the screen may be funded by future IFD revenues.

(Schwerin Street and Geneva Avenue in Daly City,). Electricity generated by the Embarcadero Substation serves most of downtown San Francisco, including sections of the Embarcadero, Chinatown, North Beach, Financial District, Union Square, Mid-Market, South of Market, and Mission Bay.

According to the 2011/2012 ISO Transmission Plan, loss of these two cables or failure of the Embarcadero Substation breaker will result in the loss of electricity to the areas served by the Embarcadero Substation, and "while the likelihood of the simultaneous loss of both circuits is low, the consequences of the outage are severe..." PG&E plans to construct a 230KV transmission bus[1] at the Embarcadero Substation, with an estimated completion date by 2016.

PG&E requests to enter into a license with the Port to construct the proposed Embarcadero-Potrero 230 kV Cable Project (Cable Project) on Port property during the same general time frame in which PG&E is constructing the new Embarcadero 230KV Bus Upgrade project.

[1] Transmission buses are steel structure arrays of switches used to route power into a substation.

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# PRINCIPAL ENGINEERING GEOLOGIST

Mr. Hitchcock's professional experience includes the following engineering geologic assessment for system-wide reliability studies:

**Pacific Gas & Electric Company, System-wide Seismic Vulnerability Assessment Program, Northern California.** Project manager for ongoing assessment of landslide, fault rupture, and liquefaction hazards along high-pressure natural-gas transmission pipelines in northern California for Pacific Gas & Electric (PG&E). Ongoing responsibilities include mapping and characterization of active landslides, evaluation of liquefaction hazards at pipeline crossings of major streams and rivers, and evaluation of potential fault rupture hazards.

**Sonoma County Water Agency Water, Risk Assessment of Water Supply System, Northern California (2001-Ongoing).** Project manager and lead engineering geologist for assessment of geologic and seismic hazards to SCWA's water supply system, which includes 17 reservoirs, 9 major pipelines, and 8 pump stations. Mr. Hitchcock managed and conducted evaluation of geologic and seismic hazards to the system. Phases of study included a regional hazard analysis followed by site-specific drilling and dynamic stability

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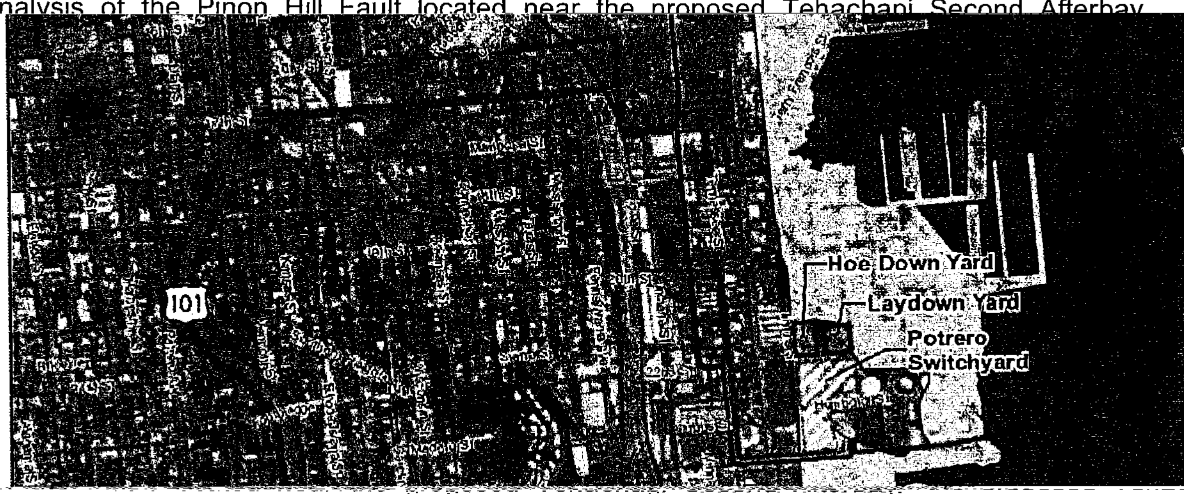
# PRINCIPAL ENGINEERING GEOLOGIST

Mr. Hitchcock's professional experience includes the following fault rupture evaluation studies:

**Pacific Gas & Electric Company, Natural Gas Pipelines L-103, L-181b, L-310, L-21A/B, L-131, L-303, and L-107 Fault Rupture Vulnerability, Northern California.** Project manager and lead seismic geologist responsible for evaluating potential fault rupture hazards along the Calaveras fault near Sunol (Lines 107 and 303), the Hayward fault in Fremont (Line 131), and San Pablo (Line 105b), the San Andreas fault near San Juan Bautista (Lines 103 and 181b) and Bitterwater (Line 310), and the Rodgers Creek fault (Lines 21A and 21B). For these major gas transmission pipeline fault crossings, Mr. Hitchcock conducted and supervised subsurface trenching to define the fault location and width, and interacted with pipeline engineers to develop appropriate rupture mitigation plans.

**California Department of Water Resources, Sites and Golden Gate Dam Sites, northern California.** Field manager for a comprehensive, three-year study of seismic hazards in the northwestern Sacramento Valley as part of the Phase II Fault and Seismic Hazards Investigation (Integrated Storage Investigations: North of Delta Offstream Storage Investigation). Evaluated strong ground shaking and potential surface fault displacements at two sites under consideration for construction of new dams in the northwestern Sacramento Valley. Work managed and performed by Mr. Hitchcock included field mapping, paleoseismic trenching, and quantitative geomorphic analyses.

**California Department of Water Resources, Tehachapi Second Afterbay Project, southern California.** Project manager and lead geologist responsible for an independent analysis of the Pinon Hill Fault located near the proposed Tehachapi Second Afterbay




project. Office and field analyses were conducted in order to provide observations and recommendations on potential surface fault rupture hazards at the Tehachapi Second Afterbay dam site from strands of the Pinon Hill Fault.

**U.S. Bureau of Reclamation, Monticello, East Park, and Stony Gorge Dams, Northern California.** Mr. Hitchcock was responsible for geomorphic assessment of Quaternary active faults in the vicinity of Monticello, East Park, and Stony Gorge Dams for the U.S. Bureau of Reclamation. This study focused on providing input to deterministic analyses of strong ground motions for the dams.

**Waste Management, Inc., Simi Landfill, Simi Valley, California.** Project manager for an evaluation of the presence or absence of faults within the proposed expansion area of the Simi Landfill. Mr. Hitchcock participated in a comprehensive field study to evaluate surface faulting hazard. Mr. Hitchcock was responsible for literature compilation and review, interpretation of aerial photographs, and field and aerial reconnaissance of the site and vicinity. Based on the findings of our study, recommendations were developed to help WMI evaluate the feasibility of expansion at the site.

**Waste Management, Inc., Bluebonnet Landfill, Houston, Texas.** In order to evaluate the presence or absence of faults within the proposed expansion area of the Bluebonnet Landfill, Mr. Hitchcock participated in a comprehensive field study to evaluate surface faulting hazard

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# PRINCIPAL ENGINEERING GEOLOGIST

Mr. Hitchcock's background includes the following peer-reviewed research:

**US Geological Survey, Paleoseismic, Geologic, and, Geomorphic Research Studies on Earthquake Hazards.** Principal or co-Principal Investigator on twelve research projects

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# PRINCIPAL ENGINEERING GEOLOGIST

**City of Hayward, Seismic Safety Element, Northern California.** Mr. Hitchcock evaluated the current state-of-knowledge of geologic and seismic hazards in the City of Hayward and updated the Safety Element for the City. The Seismic Safety Element establishes policies and programs to protect the community from risks associated with seismic hazards. As part of the update, Mr. Hitchcock reviewed existing geologic literature (e.g., consultants reports, published maps, reports) for Hayward, as well as state-of-the-art research into the seismic hazards and geology of the area. Five primary GIS-based geologic and seismic hazard maps were updated at 1:24,000-scale (covering 162 square km), including: (1) strong ground shaking, (2) fault rupture, (3) liquefaction, (4) slope instability, and (5) water inundation from tsunami or dam-failure.

**County of Ventura, Geologic Mapping, Southern California.** Project manager and lead geologist for Quaternary geologic mapping and evaluation of liquefaction hazards within Ventura County. Developed digital Quaternary geology and liquefaction susceptibility maps in close cooperation with the Geologic Survey (CGS) for the County of Ventura Resource Management Agency as part of a comprehensive, integrated seismic hazards

downward drilling to run the cable from the Bay to land, and underground land at 23rd Street. Terms of the proposed license are shown in Table 1 below:

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**PRINCIPAL ENGINEERING GEOLOGIST**



[redacted]

**PACIFIC GAS AND ELECTRIC COMPANY**
**STATEMENT OF QUALIFICATIONS OF CHAPIN F. KOCH**

Q 1 Please state your name and business address.

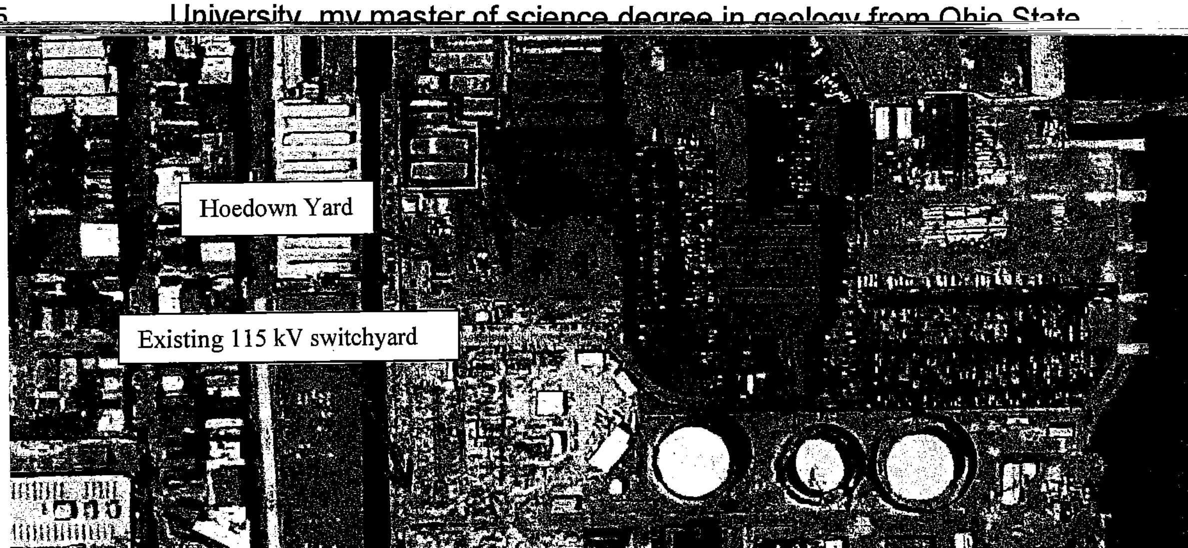
A 1 My name is Chapin F. Koch, and my business address is Pacific Gas and Electric Company, 245 Market Street, 10th Floor, San Francisco, California.

Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company (PG&E).

A 2 I am manager, Environmental for Electric Transmission Planning and Permitting. I oversee a staff of about 50 environmental planners, biologists, cultural resource specialists and environmental field specialists who obtain discretionary permits and who manage environmental compliance during and after-construction of transmission and substation facilities.

Q 3 Please summarize your educational and professional background.

A 3 I received my bachelor of science degree in geology from St. Lawrence University, my master of science degree in geology from Ohio State




University and my master of business administration from Stanford University. I started my career working for Exxon Co. USA as an exploration geologist in Houston, Texas. In 1987, I left Exxon to pursue a master's in business administration at Stanford; after graduating I joined Levine-Fricke, an engineering and science consulting firm focused on remediation and restoration of contaminated sites. I remained at Levine-Fricke for 10 years where I had become the Vice President of Strategic Planning. In 1999, I joined Essex Environmental as the Vice President of Operations. In this role, I helped a small start-up company of 20 technical personnel grow to 120 over the next several years. My job was to oversee all project activities supporting permitting and compliance of major gas and electric

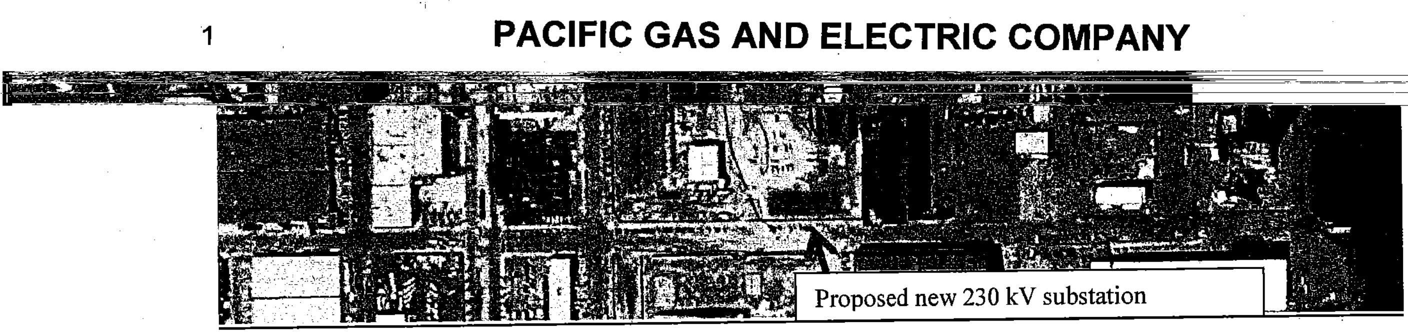
Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following testimony in PG&E's Embarcadero-Potrero Transmission Reliability Project proceeding:

- Chapter 15, "Energy Division Variance Authority for the Embarcadero-Potrero 230 kV Transmission Project."

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.




The proposed terms of the City's option to purchase the Hoedown Yard are summarized in Table 2 below.

the local utility to PG&E Energy Services. We also prepared the daily load forecast for our schedulers.

I returned to PG&E's Transmission Planning Department in 1999, performing Reliability Must-Run studies in conjunction with the California Independent System Operator Corporation to determine the generation needed in various parts of the PG&E system to ensure system reliability. In 2000, I worked for Southern California Edison Company in their Transmission Planning Department, where I performed their annual bulk system assessment and also performed generation interconnection studies.

I came back to PG&E in late 2000. Since then, I have worked in several positions related to transmission system planning and transmission project implementation. Over the last five years, my main area of responsibility has been the San Francisco Peninsula, South Bay and Central Coast areas. In 2001, I testified before the California Public Utilities Commission (CPUC or Commission) on the need for the Northeast San Jose Transmission Reinforcement Project. And I helped put together the information filed in the Proponents Environmental Assessment for the Santa Cruz 115 kilovolt Reinforcement Project, filed with the CPUC in January 2012.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following testimony in PG&E's Embarcadero-Potrero Transmission Reliability Project:

- Chapter 2, "PG&E's Existing San Francisco Transmission Systems."
  - Attachment 2A, "Length and Age Data for Underground Electric Transmission Cables in San Francisco."
- Chapter 11, "Restoration Time for Transmission Line Outages":
  - Section B, "Overview."

| | |
|---|---|
| | and (c) OEWD's attorney and consultant fees |
| **Closing Requirements** | OEWD must complete acquisition of the property within five years of exercising the option and the latter of CPUC, CEQA and other regulatory approvals |
| **Rezoning of Property** | - The City may rezone the property, which is currently zoned for heavy industrial use, to another use, including residential use. Rezoning to residential use will require the City and PG&E to determine allocation of the risks associated with residential development on the Hoedown Yard based on the existing site conditions.<br>- The purchase price is not subject to change based on rezoning of |

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# AHMED NISAR, PE
# PRINCIPAL

Mr. Nisar has 25 years of consulting experience in earthquake engineering, structural engineering and risk assessment. His project experience includes natural hazard risk and reliability assessment of lifeline systems, linear and non-linear dynamic analysis, seismic hazard analysis, retrofit design, and seismic review of structures. Mr. Nisar specializes in analysis and design of heavy civil infrastructure such as large diameter pipelines, dams, water tanks and mass concrete structures. Mr. Nisar has extensive experience with local and international codes and criteria documents applicable to seismic/structural engineering. Mr. Nisar is an experienced project manager and has demonstrated his project management skills on many large multi-disciplinary infrastructure projects. Many of these projects have required sophisticated numerical analyses, multiple of subject matter experts and presentations to a range of stakeholders and technical advisory panels.

## Academic Background

M.S., University of California at Berkeley, Berkeley, California, 1988.
B.S., Civil Engineering, University of Engineering and Technology, Lahore, Pakistan, 1986

## Professional Training

ATC-20 Post Earthquake Safety Evaluation and Buildings

## Professional History

InfraTerra, Inc., San Francisco, California, 2011 – Present
MMI Engineering, a Geosyntec Company, Oakland Creek, Associate, 2001 - 2011
URS/Dames & Moore, San Francisco, California 1989 - 2001
Putterman/Davis, San Francisco, California 1988 - 1989
Nisar-ul-Haq Associates, Multan, Pakistan 1986 - 1987

## Professional Experience

Mr. Nisar's professional background includes the following:

***Infrastructure Systems Reliability***

Multihazard reliability assessment of large geographically dispersed infrastructure systems such as water transmission and distribution. Broad expertise and understanding of system operations, geographical distribution of multiple hazards and their interaction with a correspondingly distributed system of source, storage, treatment, and pumping facilities interconnected with pipelines. Managed integrated system reliability studies for numerous water and wastewater systems and helped clients develop long term capital improvement programs. Key projects include:

- Project Manager and Technical Lead for seismic reliability assessment of two underground 230 kV High Pressure Fluid Fill pipelines for the Pacific Gas & Electric Company. Each line is more than 7 miles long and traverses a rage of subsurface conditions consisting of areas of high liquefaction and lateral spread hazard. Reliability assessment was performed through

should acquire the option to purchase the Hoedown Yard, since the Port could not use Port funds to acquire non-trust properties for non-trust uses.

*Transferable Option to Purchase the Hoedown Yard*

Under the proposed term sheet, OEWD may transfer the option to purchase the Hoedown Yard to a private entity. According to Mr. Benson, the intent of the transferable option to purchase the Hoedown Yard is to:

(1) Promote a change in use for the property, which is currently used by PG&E for parking, equipment storage, and temporary storage of drilling mud, concrete, soil, asphalt and other materials for utility purchases; and

(2) Generate net proceeds for the Potrero Terrace and Annex HOPE VI project.

Mr. Benson states that a commercial or residential use of the Hoedown Yard would be more compatible with the Waterfront Site mixed use development than PG&E's current use of the property.

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Ranges Tunnel portal. The project also included a structural assessment of the tunnel portal, a 10.5-foot diameter 50-foot long pipe, and an 80-foot tall tunnel overflow shaft subjected to close to 1.0g of peak ground acceleration.

- Project Manager for nonlinear analysis of 78-inch diameter 30-foot high drain intake riser pipe for the San Pablo Reservoir, East Bay Municipal Utility District (EBMUD). The work was performed to assess the adequacy of the intake pipe to support a new 55 kip heavy valve without failure. The reservoir is located less than 2 kilometers from the Hayward fault, a major seismic source in the San Francisco Bay Area.

- Project Manager and Technical Lead for the seismic reliability assessment of water transmission system serving central Seattle for an M6.7 earthquake on the Seattle fault, a major seismic source that runs through central Seattle and is believed to have produced a Magnitude 7.0 or greater earthquake in about 900 A.D that resulted in a 22-foot vertical offset. Other significant seismic source for the Seattle area is the offshore Cascadia Subduction Zone considered capable of producing an earthquake as large as Magnitude 9.0. A detailed non-linear soil structure interaction analysis was performed for the 42-inch 430 pipeline to study its seismic response from transient ground deformations resulting from travelling wave effects and general incoherency in ground motions as well as the dynamic response of the pipeline within the Ship Canal. The ship canal is a 920-feet long tunnel connected to two 60-feet tall vertical shafts on either side.

environmental contamination and the existence of an easement for railroad purposes.

<u>Appraisal by Tattersol & Associates</u>

According to the September 6, 2013 Port staff memorandum to the Port Commission, the ARWS appraisal indicated industrial land values that exceeded the expectations of both Port

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- Project Manager for mitigation of a 48-inch pipeline vulnerable to damage from liquefaction induced lateral spread hazard at a major river crossing for the Sonoma County Water Agency. Mitigation options being considered include both open trench and trenchless methods. Project ongoing.

- Project Manager and lead engineer for the reliability assessment and retrofit design of City of Hayward's water and sewer pipelines crossing the Hayward Fault. The Hayward Fault is a major fault that runs through the City of Hayward. The fault is capable of producing an earthquake of magnitude greater than 7.0 with associated surface fault displacements on the order of 5 to 6 feet. A detailed mitigation methodology was developed that consisted of a combination of pipeline replacement, bypass, and isolation for over 70 water and sewer pipelines totaling over 2 miles in length. The seismic reliability assessment included detailed mapping of the Hayward fault through a detailed review of aerial photographs, fault trenching studies, and field reconnaissance using hand-held PDA and GIS systems. Pipeline replacement included new pipeline design with specialized high strength steel pipe with welded joints. Isolation was recommended for redundant pipelines and bypassing of key distribution lines was achieved with specialized potable water flexible hoses. The project also included the design of the deployment and retrieval system for the flexible hose, identification of existing or new isolation valves and new fire hydrants, and the development of detailed emergency response plans.

- Seismic and structural evaluation and development of design and retrofit standards for Marin Municipal Water District's Backbone Water Distribution System. The system includes 16 steel tanks ranging in capacity from 0.2 to 5 million gallons, two water treatment facilities, and a reclamation plant. Reviewed the seismic performance of tanks in accordance with AWWA D-100 for welded tanks and the Modified Manos approach using site-specific ground motion criteria. The system also included several pump stations and water reservoirs. GIS mapping of various geotechnical and geologic hazards was also performed. Retrofit prioritization using the vulnerability and criticality of each facility was established and seismic retrofit of key components of the system performed.

- Performed seismic vulnerability assessment of City of Salem, Oregon water and wastewater distribution system. The fresh water system consisted of 14 water storage reservoirs (both steel and concrete) with up to 10 million gallons capacity, 22 water pump stations, a SCADA communications facility, one water treatment facility, and fresh water wells. The wastewater system consisted of 30 sewage lift stations and 3 diversion structures. Established seismic retrofit priorities and cost estimates using seismic [illegible]

[illegible] property or the date when the title is transferred to the City.

Under the proposed term sheet, OEWD must exercise the option to purchase the Hoedown Yard by December 31, 2019, which is approximately six years. Upon exercising the option, the City may complete the acquisition within five years following the later of CPUC, CEQA and other regulatory approvals. Therefore, because the title to the Hoedown Yard may not be transferred to the City for up to 10 years or more, during which time the value of the property could decrease, the proposed resolution should be amended to specify that the City will not enter into a purchase agreement for the Hoedown Yard unless (1) the City has identified a third party buyer willing to pay the full purchase price for the property on an "as-is" basis and accept any remaining environmental liabilities associated with the property; or 2) a City department proposes a public use for the site, has an identified funding source and a plan to use the site in a manner that conforms to regulatory requirements for the site, and has determined that the value of the land at the time of purchase is not less than purchase price of approximately $8,322,942.

[3] The prepaid rent includes construction period rent in year one and year two of approximately $185,000 per year, and annual rent beginning in year three of approximately $773,200.
[4] The discount rate is the rate used to calculate the present value of future payments.

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- Performed seismic and structural evaluation and development of retrofit concepts for 39 water storage reservoirs, ranging in size from 5000 to 1,500,000 gallons capacity, located throughout the State of California for the Southern California Water Company. The reservoirs consist of both above ground and underground steel and concrete tanks. The evaluation was performed using AWWA D-100 and AWWA D-103 procedures for steel tanks and AWWA D-110 for prestressed concrete tanks.

- Performed seismic vulnerability assessment of Eugene/Springfield Water Pollution Control Facility (WPCF), Eugene, Oregon. The WPCF has a hydraulic flow capacity of 175 mgd. Various components included in the assessment included: a pre-treatment facility (105 mgd), primary and secondary clarifiers (approx. 1.5MG each), aeration basins with both coarse air and fine bubble diffusers, a

includes the Hoedown Yard and ...

According to Mr. Benson, the Port does not have estimates at this time of the costs to screen the Potrero Switchyard or potential IFD revenues from the Hoedown Yard to pay for these costs.

According to Mr. Benson, enclosure of the existing Potrero Switchyard in a new building would likely make available for sale additional PG&E-owned land currently occupied by the Potrero Switchyard. According to Mr. Benson, the sale of such land, net of any environmental cleanup costs, would typically generate proceeds that are divided between ratepayers (because the site is a regulated utility asset) and PG&E shareholders.

The proposed resolution should be amended to:

- Require the Port to present detailed information to the Board of Supervisors on the costs of constructing the Potrero Switchyard screen if the proposed screen is to be funded by a future IFD project area; and
- Urge the Port and PG&E amend the final agreement to screen the Potrero Switchyard to provide that any value from the sale of land no longer required for Potrero Switchyard purposes (net of any environmental cleanup costs), that is not owed to ratepayers and that Is not required for purposes of constructing the screen, should be used to repay all or a portion of the IFD investment in the screen of the Potrero Switchyard.

## POLICY CONSIDERATON

### Use of Hoedown Yard Sales Proceeds for Public Housing

According to the September 6, 2013 Port staff memorandum to the Port Commission, OEWD will either sell the option to purchase the Hoedown Yard to a third party , or purchase and then resell the Hoedown Yard to a third party if OEWD exercises the option to purchase the property. A City department could also indicate its interest in purchasing the site for a public purpose.

The Hoedown Yard will be included in the rezoned Waterfront Site special use district (discussed above), which is expected to be submitted to the Board of Supervisors for approval in 2016. According to Mr. Benson, if the property is rezoned for mixed use development, the

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# AHMED NISAR, PE
# PRINCIPAL

zone. Consideration was given to incompleteness of historic record, mislocation of earthquakes, and duplicate reporting of events. Developed design response spectra for Operating Basis Earthquake (OBE) and Safe Shutdown Earthquake (SSE) design as per the requirements of NFPA 59A.

- Developed seismic design criteria using probabilistic seismic hazard analysis procedures for an LNG facility located in West Africa. The site is located in an area of relatively low seismic activity in a remote part of the world without a comprehensive network of seismographic stations. A detailed assessment of the historic seismicity using many different seismicity catalogs was performed to develop the seismic source model. Important seismic sources were characterized through consideration of seismicity distribution and tectonic and geologic setting. Developed design response spectra for Operating Basis Earthquake (OBE) and Safe Shutdown Earthquake (SSE) design as per the requirements of NFPA 59A.

- Performed an independent technical review of the seismic design criteria for offshore platform sites at Piltun, Lunskoye, and Terminal Loading Unit (TLU). The two platforms are located east of the northern Sakhalin Island and the TLU is located along the southern coast. Performed an assessment of the approach and the evaluation used by the design consultant to develop the seismic design response spectra. Provided comments to Shell International Exploration and Production, Inc. and Shell Energy Investment Company (SEIC) Ltd. Major seismic sources such as the Piltun, and the Vodopadniy Brook Fault Zone were considered to assess the design consultant's recommendations. Deterministic assessment of likely ground motions from the May 25, 1995 magnitude 7.1 Neftegorsk earthquake were also performed for this review.

- Developed design ground motion criteria for Chevron's offshore platform (LL652) in Lake Maricabo, Venezuela. The ground motion criterion was developed for several probability levels based on API RP2A requirements. Spectrum compatible acceleration time histories for dynamic analysis were also developed.

- Developed site-specific seismic ground

property is transferred to a third party that assumes all environmental liabilities associated with the property under an "as-is" sale; or (2) a City department proposes a public use for the site, has an identified funding source and a plan to use the site in a manner that conforms to regulatory requirements for the site, and has determined that

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- Developed detailed seismic design criteria for the intake and outlet structures at the Potrero power plant in San Francisco. The site ... from shallow bedrock to deep Bay Mud deposits. Probabilistic

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1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102-4689

Subject: PG&E ZA-1 Embarcadero-Potrero 230kV Transmission Project Revised Term Sheet

Dear Ms. Calvillo:

Attached please find an original and four copies of a proposed resolution for Board of Supervisors approval, endorsing the PG&E ZA-1 Embarcadero-Potrero 230kV Transmission Project Revised Term Sheet and authorizing the Port Executive Director to enter into a Negotiation Agreement with PG&E and the City and County of San Francisco operating by and through the San Francisco Port Commission ("Agreement") for related onshore and submerged Port land between Pier 28½ and the foot of 23rd Street and PG&E parcels Block 4110 (Lot 008A) and Block 4120 (Lot 002).

Attached you will also find the following supporting documents:

1. Four copies of the Port Commission Staff Report and companion Resolution No. 13-34 endorsing the Revised Term Sheet (attached to the Staff Report);

2. Four copies of an excerpt to the California Independent System Operator's ("CAISO") 2011-12 Transmission Plan, approved March 2012, which provides CAISO's determination for the Project; and

3. Four Copies Pacific Gas and Electric Company's Prepared Testimony for the Embarcadero-Potrero 230 kV Transmission Project (Public Version), Volume 1, to the California Public Utilities Commission.

You may contact me at 415-290-0561 for further information. Thank you for your consideration.

Sincerely,

Brad Benson

Brad Benson, Director Special Projects
Port of San Francisco

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# AHMED NISAR, PE
# PRINCIPAL

- Performed site-specific seismic hazard evaluations for Eastman Chemical Company facilities in Columbia, South Carolina; Batesville, Arkansas; and Kingsport, Tennessee. Recommendations for design ground response spectra were developed.

***Special Studies and Research***

- Project Manager of probabilistic coastal flood risk study for a major development near the eastern bank of the Hudson River, Manhattan, New York. The study considers hurricanes, tides, sea level rise, nor'easter, wind generated waves, and freshwater flow in the Hudson, in a consistent probabilistic framework. Flood estimates were developed for 100 and 500 year return periods for the next century. A fully probabilistic treatment of hurricanes was included by considering genesis point simulation and probabilistic assessment of hurricane parameters such as maximum wind speed, radius to maximum wind, forward velocity, pressure deficit, and heading. Using importance sampling, more than 10,000 synthetic storms were developed and used to compute storm surge using SLOSH, specialized hydrodynamic analysis software. Verification of storm surge was performed using ADCIRC software.

- Project Manager for nonlinear soil-structure interaction analysis of two miles of 115kV high voltage transmission cable and a ductbank for Pacific Gas & Electric Company. The underground ductbank traverses complex geotechnical conditions consisting of Young Bay Mud overlying dense soils. The ductbank is located less than 2-miles from the Hayward Fault.

- Project Manager and technical lead [illegible]

[illegible] this staff report shows the service area of the existing Embarcadero Substation that will benefit from this reliability improvement.

One of the proposed routes for the proposed project contemplates transmission line installation along submerged land in the Port's jurisdiction, subject to the Port's proprietary approval. On August 14, 2012, Port staff and representatives of PG&E delivered an informational presentation to the Port Commission describing the proposed project. On November 13, 2012, the Port Commission approved Resolution 12-90, endorsing the ZA-1 Embarcadero-Potrero 230kV Transmission Project Original Term Sheet between the Port and PG&E. Exhibit A to this staff report shows the proposed route for the submarine alternative for the project along Port submerged land. Subsequent to the Port Commission's approval of Resolution 12-90, PG&E submitted an application to the California Public Utilities Commission ("CPUC") to commence a public process to review the cost-effectiveness and environmental impacts of the submarine route, subject to other required proprietary and regulatory approvals, including approval by the Federal Energy Regulatory Commission ("FERC") and the California Independent System Operator ("CAISO").

In August 2013, the CPUC published a Draft Mitigated Negative Declaration and Supporting Initial Study ("Draft MND") for the ZA-1 Project to obtain public comment on its environmental analysis. Port staff circulated the Draft MND for comment to sister City departments. The timeline for public comment on the Draft MND requires that written comments are <u>received</u> by the CPUC no later than 5:00 PM September 16, 2013 at the following address:

Billie Blanchard
California Public Utilities Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 935
San Francisco, CA 94104-2920

- Project Manager and technical lead for nonlinear incremental thermal stress-strain analysis (NISA) for mass concrete elements of

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# AHMED NISAR, PE
# PRINCIPAL

vibration modes within the earthquake and from one earthquake to the other were studied. The results were presented to NSF and BSSC.

- Performed system identification using MODE-ID for a three story instrumented parking structure using ground motions obtained during the 1994 Northridge Earthquake. Created a detailed three dimensional SAP90 model of the structure and calibrated the finite element model with the dynamic characteristics obtained from a system identification study. The project was funded by CDMG.

- Performed independent static and dynamic earthquake, wind, tornado, and tornado missile analysis of the special shield doors on the primary confinement barrier for the vitrification cell at the West Valley Nuclear facility. The analysis verified that the design met DOE and site-specific SAR requirements as well as identified margins of safety in the design. Certain elements of the design required strengthening as a result of this analysis and mitigation schemes were developed for this purpose.

- Performed independent static and dynamic analyses of double walled stainless steel piping systems and pipe supports in underground trenches. Used CESAR II and SAP90 programs to independently verify piping design performed by EBASCO and to establish margins of safety under extreme environmental loading (multiple levels) of the Design Basis Earthquake for a high level nuclear waste transfer system located at West Valley, New York.

- Calibration of a detailed three dimensional SAP90 model of the Great Western Bank and the Town Park Towers building to the dynamic properties obtained under the 1989 Loma Prieta Earthquake, 1986 Mt. Lewis Earthquake, and 1984 Morgan Hill Earthquake using the system identification methodology of MODE-ID. The project was funded by CDMG.

- Performed a detailed study of the dynamic response of Meloland Road Overcrossing using the data obtained from full-scale dynamic testing of the bridge. The dynamic testing was performed by quick release of an inclined jack using 72 kip and 140 kip loads. The free vibration response of the bridge was recorded by thirteen accelerometers located along the bridge span and at the abutments. Recorded data was analyzed using MODE-ID system identification procedures, a state of the art methodology developed at CalTech by Professor James L. Beck. The methodology uses time-dependent measurements of acceleration, velocity, or displacement histories at various locations of a structure to estimate dynamic properties of the structure through an algorithm. Detailed assessment of the predominant frequencies of vibration and damping characteristics of the bridge

providing operational flexibility to both the 230 kV and ...

City staff consider the Embarcadero-Potrero 230 kV Transmission Project a high priority because of the impact that outages would have on downtown San Francisco.

The project will involve both transmission line work and substation work. Three major elements are:

- Construct an approximately 3-mile, 230 kV submarine cable between the Embarcadero and Potrero Substations;

- Terminate the new cable into a 230 kV bus (to be upgraded as part of a separate reliability project that is underway) at the Embarcadero Substation; and

- Construct a new 230 kV switchyard adjacent to the Potrero Substation, terminate the new cable there, and interconnect the new 230 kV and existing 115 kV switchyards at Potrero Substation via two new 230/115 kV transformers.

The submarine cable route would run in a reinforced underground duct bank about 2 city blocks along the TBC alignment as it exits the Potrero Switchyard and enters the Bay. It would then continue in the Bay along the general alignment and several hundred feet to the west of the TBC, and then return to land 2-3 city blocks from the

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[1] On August 7, 2007, by Resolution 414-07, the San Francisco Board of Supervisors approved a 66 year license for the construction and operation of the Trans Bay Cable on Port submerged land.

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# AHMED NISAR, PE
# PRINCIPAL

meet the performance requirements with a low construction cost. The retrofit also included non-structural elements, components, and equipment.

- Project Manager of seismic retrofit design of three key buildings located in Milpitas, California for Lifescan Corporation. The buildings were retrofitted to meet performance standards of business continuity following a major earthquake.

- Project Manager of seismic retrofit design of three municipal service center buildings for the City of Palo Alto. The buildings were retrofitted to meet a short time occupancy performance standard.

- Project engineer for seismic retrofit design of a two story multi-use wood frame building in Monterey and parking structures for the California State Universities in San Francisco, Fullerton, and San Jose.

***Seismic Risk Analysis***

- Performed structural/seismic assessment of several hundred buildings

the Project by Port staff, the services of real estate and economic consultants, and legal services. PG&E will also pay the Port's costs for legal services associated with the Project that were incurred prior to the execution of the Negotiating Agreement.

## Appraisals

To calculate the value of the license area, and for purposes of the option to acquire the Hoedown Yard (discussed below), Port staff commissioned an appraisal through the Department of Real Estate's ("DRE") as-needed appraiser pool. The City selected Associated Right of Way Services, Inc. to conduct the appraisal, and PG&E concurred with the selection. This appraisal indicated industrial land values that exceeded the expectations of both Port and PG&E staff. PG&E requested the Port's authorization to conduct a second appraisal, which Port staff granted, and PG&E conducted its own appraisal, subject to appraisal instructions approved by the Port, utilizing David Tattersol & Associates, an appraiser also listed in DRE's as-needed pool.

In both instances, appraisal instructions were to determine:

(a) the fee simple value of the Site assuming raw clean undeveloped land subject only to current zoning (M-2) i.e. market value; and

(b) the fee simple value of the Site "AS-IS" with all faults using assumptions as to the cost of compliance with the Site Management Plan and any other documents provided … that affect value.

The conclusions of these appraisals were presented in a November 23, 2012 final appraisal report by Associated Right of Way Services, Inc. and a February 13, 2013 final appraisal report by David Tattersol & Associates, done in compliance with Standards Rule 2-2(b) of the Uniform Standards of Professional Appraisal Practice (USPAP). The average of the land value indicated by these two appraisals is $68.50 per square foot which affects both the submerged license area and the Hoedown Yard.

The approach to establishing rent for the submerged license area is based on industrial upland values. The process for valuing the Hoedown Yard requires the same analysis. City staff and PG&E representatives therefore agreed to use a single appraisal (using rates.

OEWD Option: Transferable option to OEWD to purchase PG&E Hoedown Yard near Pier 70 (see Exhibit B) at $63.67/sf for 130,600 sf of industrial land at Illinois and 22nd Street, totaling approximately $8,315,302, subject to CPUC approval by Section 851 approval

Potrero Substation Screen: Within 10 years after executing the ZA-1 License, the City may designate its preference ("Preferred Screen") for 1) enclosing the

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# AHMED NISAR, PE
# PRINCIPAL

## Professional Affiliations

Member EERI (Earthquake Engineering and Research Institute)

Member SEAONC (Structural Engineering Association of Northern California)

Member ASCE (American Society of Civil Engineers)

Member AWWA (American Water Works Association)

Member USSD (United States Society of Dams)

Member ACWA (Association of California Water Agencies)

## Publications

A. Nisar, A. Nervik, A. Li, "Fault Crossing Design of 66-inch Pipeline, San Francisco Hetch-Hetchy Water System", American Society of Civil Engineers, Pipelines 2013 Conference, Fort Worth, Texas, June 23 – 26, 2013.

Nisar, A., Vossoughi, F. and Alpdogan, C., "Design Considerations for Mass Concrete Elements of Flood Gates for New Orleans Hurricane Protection Project," Solutions to Coastal Disasters Conference organized by the Coasts, Oceans, Ports and Rivers Institute (COPRI) of the American Society of Civil Engineers (ASCE) to be held in Anchorage, Alaska, June 26-29, 2011.

Guisbert, S., Zekkos, D. and Nisar, A., "Time vs. Frequency domain ground motion modification: Effects on site response analyses and seismic displacements," Ninth U.S. National and Tenth Canadian Conference on Earthquake Engineering, Toronto, Canada, 2010.

Nisar, A., Lee, D., Doumbalski, N. and Fieberling, E., "Seismic Response of San Pablo Reservoir Drain Intake," 6th U.S. – Japan Workshop on Water System Seismic Practices, Water Research Foundation, Taipei, Taiwan, October 14-16, 2009.

Nisar, A. "Seismic Design Criteria for the Maleo Producer, Madura Straits," Offshore Technology Conference, Houston, Texas, May 2008.

Nisar, A., Dollar, D., Jacob, P., Chu, D., Logie, C. and Li, G., "Nonlinear Incremental Thermal Stress Strain Analysis for Portugues Dam; An RCC Gravity Arch Dam," 28th United States Society of Dams Annual Meeting and Conference, Portland, Oregon, April 2008.

Nervik, A., Nisar, A., Christensen, A., Li, A. and Mueller, C., "Numerical Simulation of Buried Pipe Response to Strong Ground Shaking and Fault Rupture," The Northern California Pipe User's Group 16th Annual Sharing Technologies Seminar, Berkeley, CA, February 21, 2008.

Nisar, A. and Doumbalski, N., "Fault Crossing Design of a Critical Large Diameter Pipeline," 5th Water System Seismic Conference

Port staff concluded that it would be best for another City department to acquire the option under the agreement, because the Port should not utilize its proceeds to acquire non-trust property with the intention of developing it for non-trust purposes. OEWD agreed to take the option in the Port's stead.

The proposed OEWD option to purchase the Hoedown Yard is transferable, allowing the City to transfer this purchase right to another private entity. Since the Hoedown Yard is an asset of a regulated utility, PG&E's sale of the Hoedown Yard is subject to CPUC approval pursuant to Section 851 of the California Public Utilities Code.

Not unlike the surrounding Pier 70 area, the Hoedown Yard contains known contamination. PG&E has completed site investigation and a human health risk assessment. The findings of this assessment indicate that arsenic is present in soil within an approximately 20,000 sf (by approx. 5 ft. deep) area in the northwest corner of the site at concentrations that pose a potential human health risk to future construction workers (not to current or future commercial/industrial workers). All other contaminants

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# AHMED NISAR, PE
# PRINCIPAL


Contributing author: Reliability and Restoration of Water Supply Systems for Fire Suppression and Drinking Following Earthquakes, a publication of National Institute of Standards and Technology (NIST).

Hilmy, S., Werner, S.D., Nisar, A., Beck, J.L., "Analysis of Strong-Motion Records from a Parking Structure During the 17 January 1994 Northridge Earthquake," California Divisions of Mines and Geology Office of Strong Motion Studies, CSMIP/00-04 (OSMS 00-06), March 2000.

Nisar, A. and Golesorkhi, R., "Development of Vertical Design Response Spectrum in the Near-Field," 5th International Conference on Seismic Zonation, Nice France, Oct. 1995.

Adib, A., Villet, W.C.B. and Nisar, A., "Prestressed Concrete Piles Under Seismic Loading: Case History," 3rd International Conference on Recent Advances in Geotechnical, Earthquake Engineering and Soil Dynamics, St. Louis, MO, Apr. 1995.

Nisar, A., Werner, S.D., Beck, J.L., "Use of System Identification of Recorded Building Motions from Loma Prieta Earthquake to Assess UBC Seismic Design Provisions," Proc. 10th World Earthquake Engineering Conference, Madrid, Spain, Aug 1992.

Werner, S.D., Beck, J.L. and Nisar, A., "Analysis of Building Records from 1989 Loma Prieta, 1984 Morgan Hill, and 1986 Mt. Lewis Earthquakes," Proceedings of ASCE Structural Congress, San Antonio TX, Apr. 1992.

Werner, S.D., Nisar, A., Beck, J.L., "Use of Strong Motion Records to Assess Seismic Response Characteristics and UBC Seismic Design Provisions for Buildings - Performance of Man-Made Structures," NEHRP Report on Congress on the Loma Prieta, CA Earthquake (in preparation).

Werner, S. D., Beck, J.L. and Nisar, A., "Full Scale Dynamic Tests and Seismic Excitation of a Bridge Structure," Proc. 4th U.S. National Earthquake Engineering Conference, Palm Springs, CA, May 1990.

## HARRY ORTON PEng.

PRINCIPAL ELECTRICAL ENGINEER AND OWNER ORTON CONSULTING ENGINEERS INTERNATIONAL LTD.

### EDUCATION

Master of Applied Science, Electrical Engineering, University of British Columbia, Vancouver, Canada, 1969.

Bachelor of Engineering (Honours), Electrical Engineering, University of New South Wales, Australia, 1966

### PROFESSIONAL AFFILIATIONS

Harry is very active in the IEEE, Insulated Conductors Committee (ICC) as past-Chairman of Task Group A2D on the Characteristics of Semiconductive Shields, Chairman of the Submarine Cable Working Group C11D, past Chairman of Task Group F10D on Cable Accessory Diagnostics, Chairman of the Networking Luncheon and immediate past Chairman of the Transnational Subcommittee on Underground Cables.

Harry is on the International Scientific and Technical Committees of Jicable (Paris) and the Asian based CMD (Conference on Monitoring and Diagnostics). He is a member of CIGRE based in Paris and is the Convener of Working Group B1.23 on the mitigation of EMF's from underground power cables, a member of Working Group B1.27 on the Testing of Long AC Submarine Cables and a member of Working Group B1.40 on a Guide for Offshore Submarine Cables.

Harry is a member of the Vancouver Board of Trade, the Hong Kong Canada Business Association and is a Registered Professional Engineer in the Province of British Columbia, Canada.

### SUMMARY OF EXPERIENCE

After graduation in 1969, Harry worked at BC Hydro as an Electrical Research Engineer where he helped build one of the largest utility-based research centres in North America. For over twenty years he worked as a specialist in the field of underground and submarine power transmission and distribution cables and accessories. He progressed to the level of section supervisor in charge of Insulation Studies and then to Manager of Technical Activities. He has been a project manager on Canadian Electricity Association (CEA, Montreal) and Electric Power Research Institute (EPRI in Palo Alto, California) underground cable research projects from 1977 to 1995 and was Chairman of the Cable Failure Task Force from 1987 until 1993.

In 1994 he went into his own consulting engineering business as an underground power cable specialist. He is now Principal and owner of Orton Consulting Engineers International Ltd. based in Vancouver and affiliated with the International Consulting Engineers. Contract work takes him

Based on preliminary analysis – subject to change depending on market factors and site specific development risks – Port staff estimates that the difference between the as-is purchase price of the Hoedown Yard and its future rezoned value for commercial office use is $4-$7 million. The City and Forest City will continue to examine the highest and best use of the Hoedown Yard during development of the SUD and associated environmental review.

## Potrero Substation Screening

As evidenced by the Pier 70 Waterfront Site proposed development and evolving plans to redevelop the adjacent former Potrero Power Plant site, the Central Waterfront, south of Mission Bay and east of the I-280 freeway (the "Central Waterfront"), is undergoing a significant change of use from heavy industrial uses to mixed use areas that include continuing heavy industrial operations (such as the Pier 70 Shipyard). In most mixed

"Review of Metro Vancouver 230 kV Transmission Supply Development", Consulting Engineers of BC, Award of Merit, Category 4 - Soft Engineering, with John Woodcock, Sandwell Engineering, 2003.

RELEVANT EXPERIENCE

**Orton Consulting Engineers International Ltd., Vancouver, B. C. Canada.**
Principal Electrical Engineer. 1994-Present:

- Developed submarine and underground cable specifications for clients according to international standards published by AEIC, ANSI, IEEE, IEC and ICEA.
- Contributed to international standards on testing and EMF mitigation of underground and submarine cables for IEEE and guides for CIGRE.
- Carried out cable manufacturing plant audits and inspections.
- Presented training seminars on LV, MV, HV and EHV underground and submarine cables to clients worldwide.
- Provided expert witness services for mediation and litigation situations.
- Provided witnessing services for power cable manufacture and testing in cable manufacturing plants located in Malaysia, China, Japan, Scandinavia and Europe.
- Worked with diagnostic providers to assess underground and submarine power cable condition to determine replacement criteria.
- Witnessed onsite testing of newly installed and in-service power cables.
- Provided consulting services in laboratories for cable condition assessment.
- Made comparisons between cable supplier's bids to determine the best supplier in response to RFP's.
- Conducted site inspections to assess transmission and distribution cable remaining life and maintenance requirements.
- Carried out forensic investigations on LV, MV HV and EHV ac and dc cables and their accessories to determine route cause of failures and to make recommendations to prevent further failures.

negotiated for PG&E to obtain the approvals for and construct screening (or otherwise enclose) the Potrero Substation, subject to review by the Waterfront Design Advisory Committee, environmental review pursuant to CEQA and other required approvals. As a condition to and additional consideration for the License, PG&E will either enclose a substantial portion of the existing Potrero Substation within a building or construct a screen around the perimeter of the Potrero Substation (either, a "Screen").

Potrero Substation Screening Approach and Approvals

Within 10 years after executing the ZA-1 license, the City may provide notice designating its preference ("Preferred Screen") for 1) enclosing the Potrero Substation in a building, or 2) surrounding a significant portion of the Potrero Substation with a perimeter screen.

- Following the notice of the City's Preferred Screen, PG&E will initiate applications for required regulatory approvals to construct the Preferred Screen, including applications required for rate-reimbursement and compliance with CEQA. The project description and conceptual design for the Preferred Screen will include architectural and aesthetic qualities consistent with PG&E's customary protocols for screening dense urban substation facilities.

- PG&E will (i) present to the Port's Waterfront Design Advisory Committee ("WDAC") PG&E's proposed design for the Preferred Screen, (ii) incorporate into its proposed Screen design WDAC's recommendations to the extent they would not materially adversely impact the operation of the Potrero Switchyard ("Revised Screen Design"), and (iii) obtain confirmation from WDAC that the Revised Screen Design has adequately addressed WDAC's prior recommendations.

PROFESSIONAL DEVELOPMENT

Partial List of Main Projects as an Underground Cable Specialist

| No. | Date | Projects | Position/Duties |
|---|---|---|---|
| 1 | June/2012-Current | **Embarcadero Potrero Submarine Cable Project**: The project is a 230 kV XLPE subsea cable in the downtown core of San Francisco interconnecting the city to PG&E's network via a submarine cable located in the Bay. | Consulting services on the cable specification, bid evaluation, plant inspection and installation. |
| 2 | Feb/2012-Current | **Bell Island Project**: The project is a 25 kV submarine cable failure investigation for Newfoundland Power. | Forensic evaluation and recommendation on cable replacement. |
| 3 | July/2011-Current | **HVDC Directlink**: The project is a ±80 kV dc condition assessment investigation for APA in Australia. | Consulting services and condition assessment |
| 4 | June/2012--Current | **Woolner Substation Cables**: The project is a new installation of 66 kV XLPE insulated cable for Darwin Power and Water, Australia. | Updated specification, plant audits in Korea and Malaysia, plant inspection and testing, site inspection |
| 5 | Feb/2010-Current | **LIRC Expert Retention Consulting:** Provide expert consulting services for NUSCO and Nexans on the 145 kV XLPE submarine cable failure in Long Island Sound. | Attend litigation meetings, forensic analysis and edit reports on the cable failure. |
| 6 | Nov/2012-Current | **RailCorp Power Cable Specifications**: This project will update their existing 5 to 66 kV power cable specifications and bring them into line with international standards. | Review exiting client specifications and make recommendations for updates. |

obtain all other required approvals to commence construction of the Revised

| | | | |
|---|---|---|---|
| | | kV XLPE power cable and accessories, witness cable manufacture and FAT at LS Cables. | LS Cables in Korea. |
| 13 | Oct/2010-Jan/2011 | **Churchill Falls Generating Station Cables:** Condition assessment of 245 kV SCFF generator cables on Units 5, 6 and 7 for NALCOR Energy. | Provided replacement criteria for generator cables based upon DGA analysis. |
| 14 | April/2008-Jun/2008 | **HVDC Submarine Cable Site Location:** Provide consulting services to PLN Indonesian on the location of the ±500 kV HVDC submarine cable between Sumatra and Java | Carried out site inspections and presented a report recommending cable location and necessary |

Policy. As such, Port staff will set aside [illegible]% of project rents to the Southern Waterfront Community Benefit Fund ("Fund"), or $665,224. The Fund is used to pay for open space and related public improvements in the Southern Waterfront.

**Project Schedule**

PG&E is pursuing the following Project schedule:

1. Initiate CPUC Application — November 2012
2. CPUC CEQA Review — November 2012 – November 2013
3. Resource agency permits — December 2013 – January 2014
4. Onshore cable installation — December 2013 – May 2015
5. Offshore cable installation — May 2015 – November 2015
6. Operation — December 2015

## PACIFIC GAS AND ELECTRIC COMPANY
## STATEMENT OF QUALIFICATIONS OF RICHARD A. PATTERSON

Q 1 Please state your name and business address.

A 1 My name is Richard A. Patterson, and my business address is Pacific Gas

D. Revised Term Sheet

E. Pier 70 Waterfront Site Conceptual Land Use Plan

FSC

FREEMAN, SULLIVAN & CO.

A MEMBER OF THE FSC GROUP

101 Montgomery St., 15th Floor
San Francisco, CA 94104
Tel (415) 777-0707
Fax (415) 777-2420

**Michael J. Sullivan, Ph.D. – Chairman and Principal Consultant**

***Professional Profile***

WHEREAS, Port staff and City staff have negotiat[illegible] Sheet, as described in both the staff report and Exhibit C accompanying this resolution ("Revised Term Sheet"); and

WHEREAS, Port staff and PG&E have also negotiated the terms of a negotiation agreement ("Negotiation Agreement") on file with the Port Commission Secretary, which among other things, provides for reimbursement by PG&E to Port of Port's costs associated with the Project, as further described in the staff report accompanying this resolution and the Negotiation Agreement; and

WHEREAS, Because PG&E is a regulated utility, the Project is subject to the review and approval of the California Public Utilities Commission ("CPUC"); and

WHEREAS, The parties acknowledge that the Revised Term Sheet is not itself a binding agreement that commits the Port or PG&E to proceed with the approval or implementation of the Project and that the Project will first

RESOLVED, That provided the Board of Supervisors endorses the Revised Term Sheet, the Port Commission authorizes the Executive Director to work with PG&E to negotiate the terms and conditions of any license and related documents (collectively, "Transaction Documents") for use of Port lands for the Project based on the terms of the Revised Term Sheet, with the understanding that the final terms and conditions of the Transaction Documents negotiated between Port staff and PG&E will be subject to the approval of the Port Commission and as applicable, the Board of Supervisors and the Mayor; and, be it further

RESOLVED, That the Port Commission authorizes the Executive Director to enter into any additions, amendments or other modifications to the Negotiation Agreement that the Executive Director, in consultation with the City Attorney, determines are in the best interests of the City, do not materially decrease the benefits or otherwise materially increase the obligations or liabilities of the City or Port, and are necessary or advisable to complete the transactions which the Revised Term Sheet and the Negotiation Agreement contemplate and effectuate the purpose and intent of this resolution, such determination to be conclusively evidenced by the execution and delivery by the Executive Director of such additions, amendments or other modifications to the Negotiation Agreement; and be it further

RESOLVED, That endorsement of the Revised Term Sheet and entering into the Negotiation Agreement does not commit the Port Commission or the City to approve final Transaction Documents or implementation of the Project or grant any entitlements to PG&E, nor does endorsing the Revised Term Sheet or executing the Negotiation Agreement foreclose the possibility of considering alternatives to the proposal, mitigation measures or deciding not to grant entitlement or approve or implement the Project, after conducting appropriate environmental review under CEQA, and while the Revised Term Sheet identifies certain essential terms of a proposed

### Education

Ph.D. Washington State University, *Sociology–Research Methods and Statistics*, Pullman, WA (1984)

B.A. University of California, *Political Science*, Riverside, CA (1973)

### Relevant Project Experience

*2012 Value of Service Study—PG&E*—Dr. Sullivan directed PG&E's 2012 Customer Value of Service Study. PG&E was ordered by the CPUC to study the cost of service interruptions for its electricity customers and to measure their willingness to pay for service reliability. FSC was retained by PG&E to carry out this study and report the results to PG&E and the CPUC. To complete this work, FSC surveyed all of PG&E's rate classes and gathered information about outage costs using industry standard measurement protocols. Results were filed with the CPUC and were used by PG&E in transmission and distribution planning and evaluation of smart grid initiatives.

*2012 Value of Service Study—Southern Company*—Dr. Sullivan directed Southern Company's 2012 Customer Value of Service Study. Southern Company was ordered by the Georgia Public Utilities Commission to study the cost of service interruptions for its electricity customers and to measure their willingness to pay for service reliability. FSC was retained by Southern Company to carry out this study and report the results to Southern Company and the Georgia PUC.

*Southern Company—Power Quality and Value of Service Customer Needs Assessment (2007)*. In establish an appropriate level of investment in their gas distribution system and were filed with the California Public Utilities Commission.

*U.S. Department of Energy, Meta Analysis of Value of Service Studies*—Directed FSC's meta-analysis of value of service studies carried out by utilities between 1987 and 2002. In this project, FSC researchers obtained survey responses from major utilities and other entities in the United States that had conducted customer interruption cost surveys between 1987 and 2002; estimated customer damage functions describing the relationships between outage costs experienced by customers and outage characteristics (i.e., type, duration, time of day and season), and customer characteristics (i.e., customer type, geographical location, size and business activities).

*Cinergy's Customer Value of Service Studies*—Directed FSC's survey of 200 of the largest and most sensitive customers of Cinergy as well as 400 of their small and medium-sized commercial and industrial customers to determine their satisfaction with service, cost of interruptions and expectations for service reliability. Cinergy uses these costs estimates in targeted marketing and in evaluating transmission and distribution reliability investments.

*Customer Value of Service Study—Duke Power Company, System Planning Department, Charlotte, North Carolina*—Duke Power Company uses customer interruption costs in a number of reliability planning applications to represent the economic benefits obtained from decision alternatives. Directed FSC's survey of 1,500 residential and 1,250 small and medium-sized commercial and industrial customers of Duke Power Company to update Duke Power's interruption costs in 1997.

*Sacramento Municipal Utility District's Power Quality Surveys*—Directed FSC's on-site interviews with selected large commercial and industrial customers to identify causes and costs of power


quality problems for purposes of evaluating the economic benefits associated with enhanced transmission services.

*Duke Power's Customer Value of Service Study*—Directed FSC's survey of 210 of the largest and most sensitive customers of Duke Power Company, 1,250 of its small and medium-sized commercial and industrial customers, and 1,500 of its residential customers to determine their satisfaction with service reliability, costs of interruption and expectations for service reliability. In addition, FSC developed a circuit level interruption cost data base for the utility, which contained estimated costs for different kinds of service interruptions for all of the transmission and distribution circuits on the Duke Power System. The study was jointly funded by Duke Power and the Electric Power Research Institute.

*PG&E's Agricultural Value of Service Survey*—Directed FSC's design and management of a combined

*Evaluation of Impacts of Energy Scorecard—Salt River Project*—Dr. Sullivan is assisting SRP in the design and execution of an evaluation of a pilot study of its Energy Scorecard Service. This service is a home energy report similar to the product offered by OPOWER except that it will be transmitted to customers solely through electronic means.

*Design of Commercial and Industrial Dynamic Pricing Pilot—HECO*—In 2011, Dr. Sullivan directed the design of a Commercial and Industrial Dynamic Pricing Pilot for HECO. The pilot is intended to assess the usefulness of dynamic pricing in meeting short and long term capacity requirements arising out of the increasing installation of renewable resources on the island of Oahu.

*Evaluation of Impacts of Smart Phone Controllable Thermostat—PG&E*—Dr. Sullivan is one of three senior consultants from FSC working with PG&E, Honeywell and OPOWER to design and carry out a pilot study of the use of a new smart phone enabled programmable thermostat.

*Evaluation of Smart Meter Enabled Rates and Technologies—KCP&L*—Dr. Sullivan is directing FSC's effort to evaluate the impacts of time of use rates in combination with in home displays, programmable communicating thermostats and home area networks.

*Ancillary Services Pilot—Phase I for Pacific Gas and Electric Company and Lawrence Berkeley National Laboratory*—In the summer of 2009, Dr. Sullivan designed and directed a pilot study of the ability of PG&E's 130,000 customer air conditioner direct control program to provide 10-minute reserve in the CAISO ancillary services market. The results of this effort were published in a report to the California Public Utilities Commission entitled: 2009 SmartAC Ancillary Services Pilot available from the California Public Utilities Commission.

*Ancillary Services Pilot Phase II—Pacific Gas and Electric Company and Lawrence Berkeley National Laboratory*—Dr. Sullivan is currently leading a project to develop statistical algorithms for predicting the load impacts of PG&E's SmartAC customer load control program on a day ahead and 10-minute ahead basis for purposes of bidding in the California ancillary services market.

*Design of Information Feedback Pilot—Electric Power Research Institute*—Dr. Sullivan and Dr. George are assisting Centerpoint (under contract with EPRI) in developing a pilot study of the use of in home display devices to foster energy efficiency on the part of residential customers.

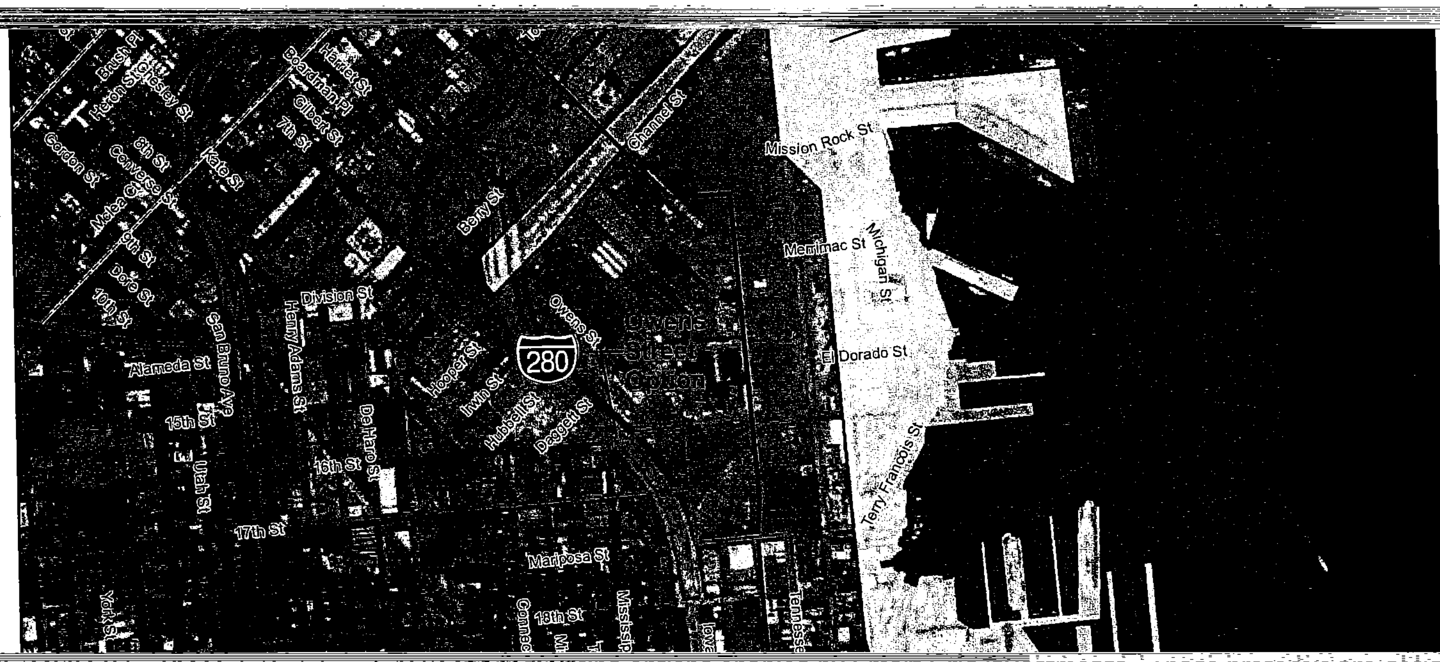
*Design of Information Feedback Pilot—Central Maine Power*—Dr. Sullivan and Dr. George were retained by Central Maine Power to design an information feedback pilot intended to test the impacts of different feedback strategies on customer electricity consumption

*Design of Information Feedback Pilot—Philadelphia Electric Company*—Dr. Sullivan and Dr. George have been retained by Philadelphia Electric Company to design a pilot project to develop an effective combination of marketing strategy, pricing and technology to be used in conjunction with the deployment of its AMI system.

*Design of Pricing and Information Feedback Pilot—Sacramento Municipal Utility District*—Dr. Sullivan and Dr. George are assisting SMUD in designing the Customer Behavior Study (CBS) to be implemented in the context of its Smart Grid Investment Grant.

*Smart Grid Investment Grant Technical Advisory Group (TAG)—Lawrence Berkeley National Laboratory and the U.S. Department of Energy (DOE)*—Dr. Sullivan and Dr. George are key members of a technical advisory group that offers assistance to utilities that are carrying out Customer Behavior Studies (CBS) in conjunction with the Smart Grid Investment Grants.

*Electric Power Research Institute Protocols for Designing Information Feedback and Pricing Trials*—Dr. Sullivan and Dr. George worked with EPRI to develop protocols and guidelines for the design of customer feedback experiments appropriate for examining the impacts of information feedback and




guide the design of customer trials that will clearly establish causality between program treatments and changes in consumer behavior. Another objective is to establish a common set of outputs that will support comparisons of impacts and data pooling across various utility trials. The results of the effort were published in: *Guidelines for Designing Effective Information Feedback Pilots: Research Protocols* (2010) – publically available on the EPRI website.

*Understanding the Impact of Lifestyles and Perceptions on DR Behavior*—Dr. Sullivan led a team of experts that investigated how customer lifestyles and perceptions influence energy use and how such information can be used to improve DR program effectiveness. The results of the project have been provided in draft form to the California Demand Response Measurement and Evaluation Committed.

*California Investor-Owned Utility Consortium, Demand Response Load Impact Protocols Development*—Dr. Sullivan worked with the FSC experts to develop a comprehensive set of protocols and guidance for estimating the load impacts of DR resources for the three California investor-owned utilities: Pacific Gas & Electric, San Diego Gas & Electric and Southern California Edison. The final product was a set of protocols and guidance for planning and conducting load impact evaluations of DR programs and time-varying pricing, which encompassed both ex post evaluation and ex ante estimation.

*Lawrence Berkeley National Laboratory, Demand Response Valuation—Phase I*—Directed FSC's assistance in scoping out a robust demand response benefit-cost valuation framework tailored to California.

*Lawrence Berkeley National Laboratory, Incentives and Rate Design for Efficiency and Demand Response—Phase I*—Directed FSC's assistance in identifying and developing alternative incentives and other markets, and b) could be used or improved relative to future energy efficiency initiatives within California. The paper was developed for CIEE and subsequently distributed to the various stakeholders within California's energy efficiency arena.

*Large West Coast Utility, Solar Power Demand Study*—Directed FSC's client to assess the impact, feasibility and market potential for a proposed solar program designed to increase solar presence in local communities and provide additional solar educational resources.

## Employment History

| | |
|---|---|
| 1984–Present | Founder, *Freeman, Sullivan & Co. (FSC)*, San Francisco, CA |
| 1984–1991 | Operations Coordinator for Load Management, Rate Department, *PG&E*, San Francisco, CA |
| 1984, 1988 | Lecturer, Haas *School of Business Administration; University of California, Berkeley*, CA |
| 1980–1981 | Vice President, *Kendall Associates*, San Francisco, CA |
| 1979–1980 | Program Coordinator, *Seattle Energy Office, Executive Department*, City of Seattle, WA |
| 1978–1979 | Associate Senior Scientist, *Kendall Associates*, San Francisco, CA |
| 1974–1978 | Survey Project Manager and Teaching Assistant, Joint Appointment in the *Social Research Center and Sociology Department at Washington State University*, Pullman, WA |
| 1972–1973 | Research Associate, *Office of Public Affairs, University of California*, Riverside, CA |

## Awards

- Highest Honors, College of Letters and Sciences, U.C. Riverside (1973)
- National Science Foundation Summer Fellowship in Research (1972)
- Associate Editor, Western Sociological Review (1975–1978)

## Publications

*2012 Evaluation of Southern California Edison's 10/10 Program. March 19, 2013. (with Josh Schellenberg, Stephen George and Sam Holmberg).*

*Neighbor Comparisons Programs Save Energy, but What Drives Savings.* Chicago, 2013. (with Brian Smith and Candice Churchwell). Presented at Proceedings of the International Energy Program Evaluation Conference.

*Using Residential AC Load Control in Grid Operations: PG&E's Ancillary Services Pilot.* (with Josh Bode, Bashar Kellow, Sarah Woehleke and Joseph Eto). IEEE Transactions on the Smart Grid. (Forthcoming 2013).

*Incorporating Residential AC Load Control Into Ancillary Services Markets: Measurement and Settlement*. (with Josh Bode, Dries Berghman and Joseph Eto). Energy Policy (Forthcoming 2013).

*Electric Vehicle Forecast for a Large West Coast Utility,* July 2011. (with Josh Schellenberg). Proceedings of the IEEE Power & Energy Society General Meeting 2011.

*Experimentation and the Evaluation of Energy Efficiency Programs: Will the Twain Meet?* May 2011. (with Edward Vine, Carl Blumstein, Loren Lutzenhiser and Bill Miller). Presented at IEPEC.

*Assessing Energy Savings Attributable to Home Energy Reports.* May 2011. (with Brian Smith). Presented at IEPEC.

*How to Assess the Economic Consequences of Smart Grid Reliability Investments*. November 2010. (with Josh Schellenberg). Report to the National Association of Regulatory Utility Commissioners.

*Smart Grid Economics: The Cost Benefit Analysis*. April 2011. (with Josh Schellenberg). In Renew Grid.

*How to Estimate the Value of Service Reliability Improvements.* July 2010. (with Josh Schellenberg, Matthew Mercurio and Joseph Eto). Conference Proceedings: 2010 IEEE Power & Energy Society General Meeting. Minneapolis, MN.

*Guidelines for Designing Effective Energy Information Feedback Pilots: Research Protocols.* April 2010. (with Stephen George). Prepared for Electric Power Research Institute. EPRI Report 1020855.

*Estimated Value of Service Reliability for Electricity Customers in the United States,* (with Matthew Mercurio and Josh Schellenberg), Office of Electricity Delivery and Reliability, US Department of Energy, LBNL 2132E, June 2009.

*Using Experiments to Foster Innovation and Improve the Effectiveness of Energy Efficiency Programs.* March 2009. Prepared for California Institute for Energy and Environment and the California Public Utilities Commission's Energy Division.

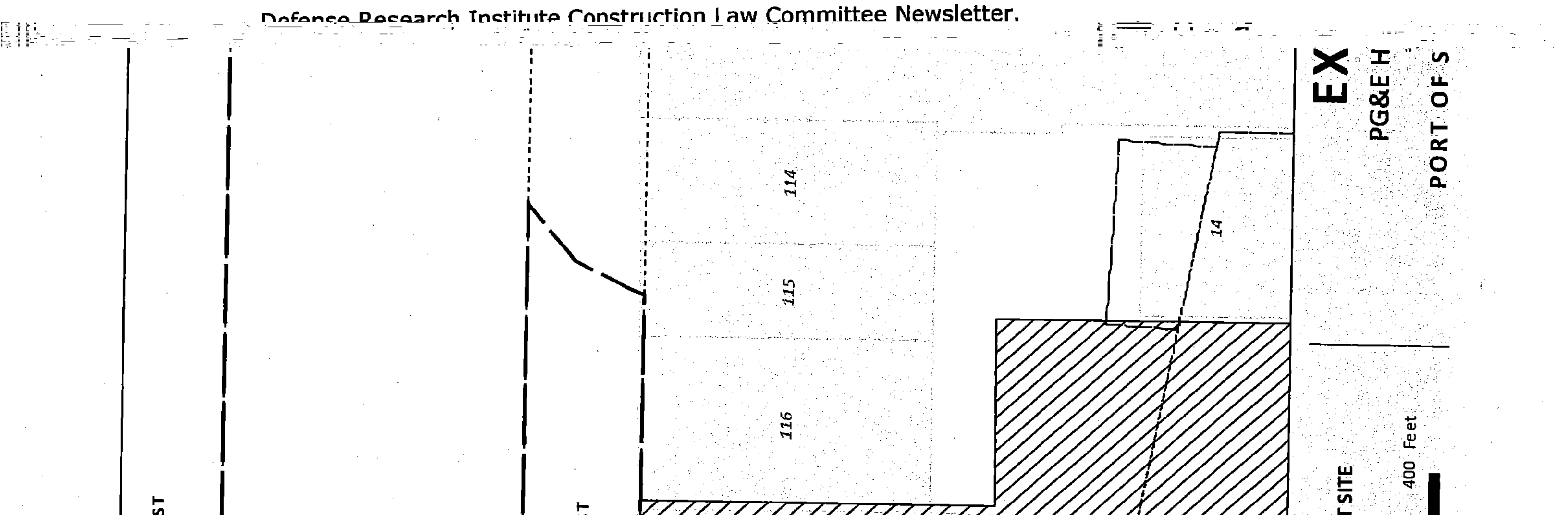
*Behavioral Assumptions Underlying Energy Efficiency Programs for Businesses*. January 2009. Prepared for CIEE Behavior and Energy Program and California Institute for Energy and Environment.

*A Framework and Review of Customer Outage Costs: Integration and Analysis of Electric Utility Outage Cost Surveys*. 2004. (with Leora Lawton, Ph.D., Kent Van Liere, Ph.D., Aaron Katz and Joseph Eto). Prepared for Energy Storage Program, Office of Electric Transmission and Distribution, U.S. Department of Energy, LBNL-54365.

*Reliability Worth Assessment in Electric Power Delivery Systems*. June 6–8, 2004. (with Ali Chowdhury, A., Tom Meilnik., Leora Lawton and Aaron Katz.). Presented at the IEEE Power Engineering Society Conference. Denver, CO.

*The Numbers Game: Statistics in Construction Defect Litigation*. Fall 2003. (with Jill Lifter). Prepared for Association of Defense Counsel of Northern California and Nevada. Defense Comment, Vol. 18, No. 3.

*The Use of Statistics in Construction Defect Defense*. Spring 2003. Prepared for The Critical Path, Defense Research Institute Construction Law Committee Newsletter.



*Power Interruption Costs to Industrial and Commercial Consumers of Electricity*. May 1996. (with Terry Vardell and Mark Johnson). Prepared for Conference Record, IEEE and Commercial Power Systems Technical Conference.

*Interruption Costs, Customer Satisfaction and Expectations For Service Reliability*. May 1996. (with T. Vardell, N. Suddeth and A. Vogdani). Prepared for IEEE Transactions on Power Systems, Vol. 11.

*Outage Cost Estimation Guidebook.* December 1995. (with Dennis Keane.). Prepared for Electric Power Research Institute Final Report of Project 2878-04. EPRI Technical Report 106082.

*Can Dispatchable Pricing Options Be Used To Delay Distribution Investments? Some Empirical Evidence*. May 1994. (with Keane, D. and Cruz, R.). In *Proceedings Load Management: Dynamic DSM Options For the Future.* Prepared for Electric Power Research Institute.

*Reliability Service Options at PG&E*. 1993. (with Dennis Keane.) In *Service Opportunities For Electric Utilities: Creating Differentiated Products.* Schmuel Oren and Stephen Smith, Eds. Prepared for Kluwer Academic Publishers.

*Controlling Non-Response and Item Non-Response Bias Using Computer Assisted Telephone Interviewing Techniques*. June 1991. Prepared for Sawtooth Software Conference Proceedings. Reprinted in Quirk's Market Research Quarterly. April 1992.

*Good Organizational Reasons for Bad Evaluation Research*. September 1989. (with Michael Hennessey.). Prepared for Evaluation Practice. Vol. 10, No. 4, pp. 41-50.

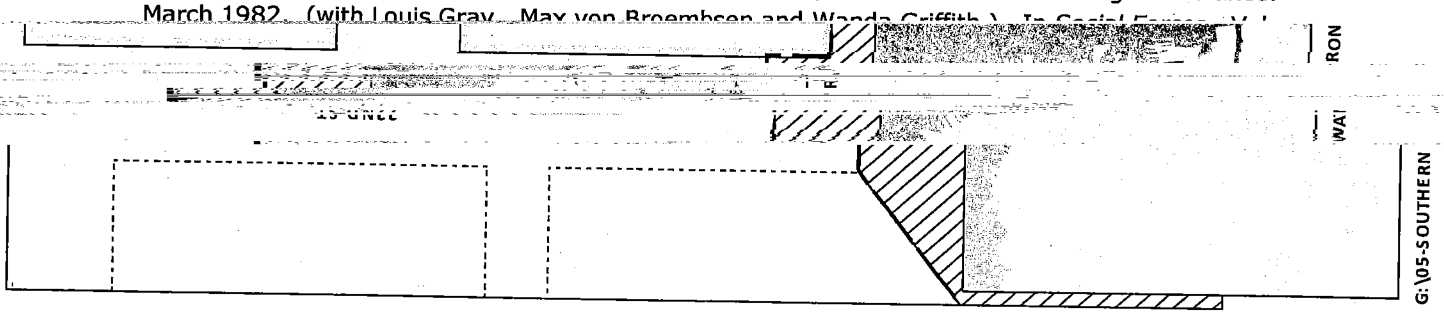
*Implementing Dispatchable Load Management Projects*. April 1988. (with Michael Hennessey.) Prepared for Public Utilities Fortnightly.

*Surveying U.S. Teenager's Attitudes About, & Experiences With, Violence.* Fall 2003. (David Musick., Charles DiSogra and Catherine Coffey.). In *Social Insight*. Vol. 8, pp. 52-59.

*The Development of Social Power Structures in Small Groups*. August 1983. Ph.D. Dissertation.

*Can You Create Structural Differentiation in Social Power Structures in the Laboratory?* December 1978. (with Louis Gray). In *Social Psychology.*

*Social Matching Over Multiple Reinforcement Domains: An Explanation of Local Exchange Imbalance.* March 1982. (with Louis Gray, Max von Broembsen and Wanda Griffith.). In Social F...



- Defense Research Institute
- Institute of Electrical and Electronic Engineers

# PACIFIC GAS AND ELECTRIC COMPANY
# STATEMENT OF QUALIFICATIONS OF MANHO YEUNG

Q 1 Please state your name and business address.

A 1 My name is Manho Yeung, and my business address is Pacific Gas and Electric Company, 77 Beale Street, San Francisco, California.

Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company (PG&E).

A 2 My current position at PG&E is the senior director of System Planning and Reliability. In this capacity, I am responsible for PG&E's electric system planning, asset management and reliability. This position includes both electric transmission and distribution facilities.

Q 3 Please summarize your educational and professional background.

A 3 I received a bachelor of science degree in electrical engineering from the Georgia Institute of Technology in 1980. I received a master of science


degree in electrical engineering from the Santa Clara University in 1986. I have been employed by PG&E since 1980 and have over 30 years of electric power system planning, engineering and energy policy experience.

I started my career with PG&E in 1980 and worked in PG&E's Electric Transmission Planning Department between 1980 and 1987 as a transmission planning engineer responsible for local transmission expansion projects. Between 1988 and 1992, I worked in PG&E's Electric Generation Planning Department as a senior electric generation planner. In that position, I managed PG&E's participation and testified for PG&E as its principle generation planner in the California Energy Commission's

Electric Transmission and Distribution Engineering Department. In that position, I was responsible for PG&E's electric transmission grid expansion plan, electric transmission capacity project implementation and electric transmission interconnection planning matters.

In 2006, I started an assignment in PG&E's Energy Procurement organization as its director of System Integration Policy and Planning. In that position, I was responsible for PG&E's wholesale electric market issues and integrating supply-side, demand-side and transmission resources into PG&E's long-term procurement planning process. This assignment was refocused between April 2007 and December 2008 as PG&E's director of Integrated Resource Planning responsible for long term energy procurement plan and resource planning matters.

In January 2009, I started an assignment in PG&E's Electric Operations organization as its director of Electric Transmission Planning and Asset Strategy. In that position, I was responsible for PG&E's electric transmission planning and asset management. In November 2009, that position was expanded to director of Electric Planning, Strategy and Engineering with additional responsibilities in electric distribution planning, electric transmission line engineering and electric substation engineering. In November 2010, that position was changed to director of Electric Planning and Strategy and director of Engineering, Protection and Automation with responsibilities in electric distribution planning removed and automation added.

In October 2011, I started my current assignment as PG&E's senior director of System Planning and Reliability.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following testimony in PG&E's Embarcadero-Potrero Transmission Reliability Project:

- Chapter 1, "Introduction."

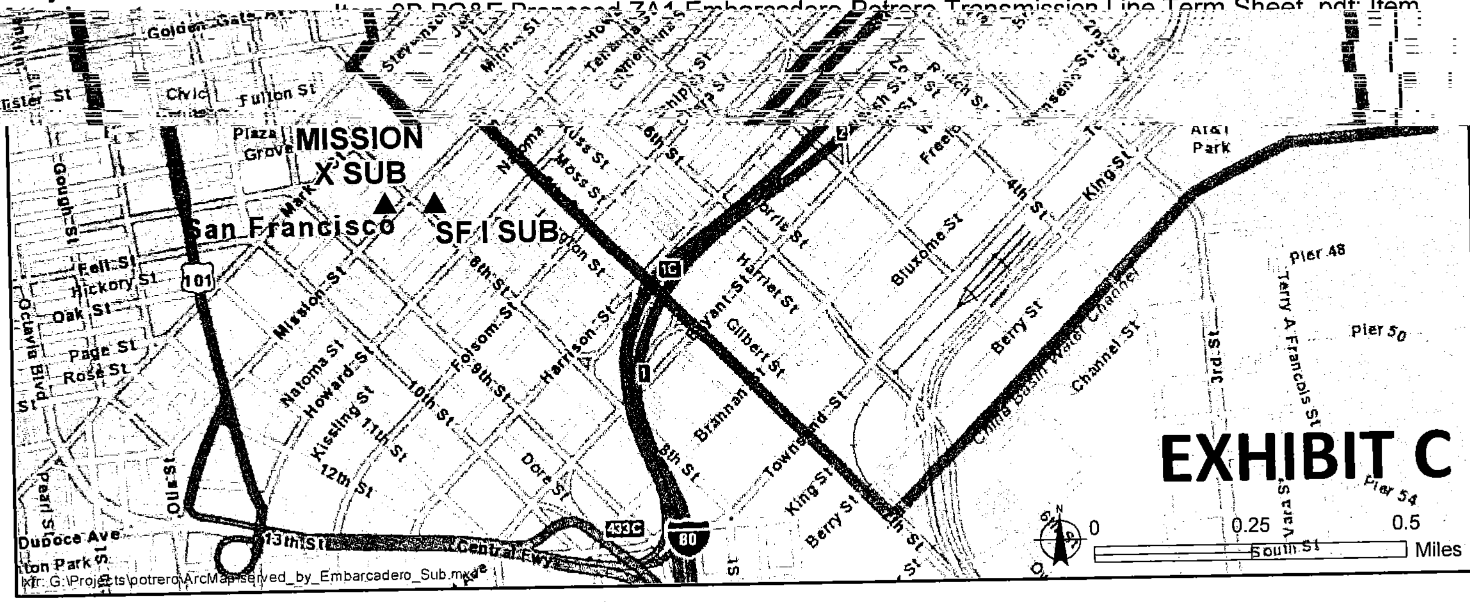
Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

## Wong, Linda (BOS)

**From:** Benson, Brad
**Sent:** Thursday, February 06, 2014 4:54 PM
**To:** Wong, Linda (BOS)
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Item 9B PG&E Proposed ZA1 Embarcadero Potrero Transmission Line Term Sheet .pdf; Item



**Please complete a Board of Supervisors Customer Service Satisfaction form by clicking here.**

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**From:** Benson, Brad
**Sent:** Wednesday, February 05, 2014 9:44 AM
**To:** Montejano, Jess; Wong, Linda (BOS)
**Cc:** Jones, Jermain; Stefani, Catherine; Campbell, Severin; Cruz, Nate; Sandler, Rona; Park, Grace
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Hi Jess:

Thank you for the update. Yes, next Wednesday will be fine for scheduling ZA-1 Term Sheet reso.

Best,
Brad

---

**From:** Montejano, Jess
**Sent:** Wednesday, February 05, 2014 9:34 AM
**To:** Benson, Brad; Wong, Linda (BOS)
**Cc:** Jones, Jermain; Stefani, Catherine
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Brad –

President Chiu is actually re-assigning the item to be heard in Budget and Finance today because most of these term

(collectively, the "License") by THE CITY AND COUNTY OF SAN FRANCISCO (the "**City**") ACTING THROUGH THE SAN FRANCISCO PORT COMMISSION (the "**Port**") to PACIFIC GAS AND ELECTRIC COMPANY ("**PG&E**"), a subsidiary of PG&E Corporation, regarding a license (the "**License**") for the development and construction of the proposed Embarcadero-Potrero 230 KV Transmission Project (the "**Project**") and obligating PG&E to screen the Potrero Switchyard, and (ii) an agreement ("**Option Agreement**") between the City, acting through the OFFICE OF WORKFORCE AND DEVELOPMENT ("**OEWD**") and PG&E, granting OEWD an option to purchase the Hoedown Yard from PG&E.

This Term Sheet is not intended to be, and will not become, contractually binding unless and until environmental review has been completed in compliance with the California Environmental Quality Act and the parties are able and willing to execute and deliver a mutually acceptable License, Option Agreement, and related transaction documents. In addition, under San Francisco Charter, no officer or employee of the City has authority to commit the City to the transactions contemplated herein unless and until the San Francisco Port Commission has approved the transaction with respect to the Project and the San Francisco Board of Supervisors has approved the License and the Option Agreement.

| **SECTION AND TITLE** | **BASIC TERMS AND CONDITIONS** |
|---|---|
| **PROPOSED LICENSE TERMS** | |
| 1. LICENSEE: | Pacific Gas and Electric Company, a subsidiary of PG&E Corporation ("**PG&E**") |
| 2. PROJECT DESCRIPTION: | New, single circuit, 230 kV transmission line between PG&E's Embarcadero Substation and its Potrero Substation (the "**ZA-1 Line**") to increase reliability of electric service to downtown San Francisco and provide operational flexibility. The project will involve both transmission line work and substation work. Three major elements are:<br><br>o Construct an approximately 3.5-mile, 230 kV submarine and underground cable route (for three cables) between PG&E's Embarcadero and Potrero Substations. |

Sent from my iPhone

On Feb 4, 2014, at 2:10 PM, "Wong, Linda (BOS)" <linda.wong@sfgov.org> wrote:

The item was assigned to Land Use Committee. Please see attached master report.

Thank you.

---

**From:** Benson, Brad
**Sent:** Tuesday, February 04, 2014 1:35 PM
**To:** Jones, Jermain
**Cc:** Montejano, Jess; Wong, Linda (BOS); Stefani, Catherine
**Subject:** Re: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Thank you.

Sent from my iPhone

On Feb 4, 2014, at 1:33 PM, "Jones, Jermain" <jermain.jones@sfgov.org> wrote:

Brad,

The file number is 131163.

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**From:** Benson, Brad
**Sent:** Tuesday, February 04, 2014 1:28 PM
**To:** Montejano, Jess; Wong, Linda (BOS)
**Cc:** Stefani, Catherine; Jones, Jermain
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Hi Jess & Linda:

I do not have a file number. Jermain helped me introduce this as a Port item late last year. Jermain – what is the file number on the PG&E ZA-1 item – do you know?

Thank you.

Best,
Brad

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**From:** Montejano, Jess
**Sent:** Tuesday, February 04, 2014 11:58 AM
**To:** Wong, Linda (BOS); Benson, Brad
**Cc:** Stefani, Catherine
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Brad –

What's the file number for your item – the one you gave was for a past resolution?
Thanks.

Thanks,

Jess

Jess Montejano
Legislative Aide
Office of Supervisor Mark Farrell
City Hall

| | |
|---|---|
| | **Army Corps**. The Project may also require permits from the US Army Corps of Engineers ("**USACE**") |
| 5. PERMITTED USE: | o To install, maintain, operate, repair and replace, at Licensee's sole expense and risk, the ZA-1 Line, including, transmission line, ductwork, conduit, anchoring foundations and related equipment (collectively the "**ZA-1 Line Equipment**"), in the License Area (as defined below).<br>o Licensee will have the right to access the areas owned and controlled by Port around and adjacent to the License Area for purposes of performing installation, maintenance, and replacement of the ZA-1 Line Equipment in the License Area.<br>o Licensee will have the right to license with third parties, including any PG&E affiliates, for the unused capacity of the ZA-1 Line subject to valid license approvals as may be necessary from Port and the CPUC, which approval shall not be unreasonably conditioned, withheld or delayed. The parties agree that it will be reasonable for Port to withhold its approval if Port does not receive at least 50% of revenues received by PG&E for licensing any unused capacity of the ZA-1 Line. |
| 6. LICENSE AREA: | The License Area is generally as depicted in **Exhibit A** attached hereto; the description of the License Area will be more specifically determined and engineered and attached to the License. The License Area will be modified to |

San Francisco, CA 94102-4689
Phone: (415) 554-7752
Fax: (415) 554-7843

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**From:** Campbell, Severin
**Sent:** Monday, February 03, 2014 11:19 AM
**To:** Montejano, Jess; Benson, Brad; Stefani, Catherine; Kelly, Margaux
**Cc:** Wong, Linda (BOS)
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Hello Jess

I assume that you mean the Feb. 12th meeting.

Severin Campbell
Budget & Legislative Analyst's Office
(415) 553-4647

---

**From:** Montejano, Jess
**Sent:** Monday, February 03, 2014 11:17 AM
**To:** Benson, Brad; Stefani, Catherine; Kelly, Margaux
**Cc:** Campbell, Severin; Wong, Linda (BOS)
**Subject:** RE: Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Brad –

Sorry for the delay in getting back to you here. Unfortunately, it's too late to be heard

| | |
|---|---|
| | HDD portions: 33 feet (11 foot width for each cable) X 0.3 miles (1,584 sq. ft.) = 52,272 sq. ft.<br>23rd St: 20 feet X 0.2 miles (1,056 sq. ft.) = 21,120 sq. ft.<br>**Total**: 508,992 square feet |
| 7. COMMENCEMENT OF LICENSE TERM: | Ninety (90) days following issuance by the CPUC of a Notice to Proceed with construction on Port jurisdictional land ("**Commencement Date**"). On or prior to the Commencement Date, PG&E shall deliver to Port(a) the Environmental Oversight Deposit, (b)if applicable, the Environmental Assurances Deposit; (c) the Security Deposit; and (d) the first installment of the Initial Term License Fee. |
| 8. TERM: | 40 years (the "**Initial Term**") with one option to renew for 26 years (the "**Renewal Term**"). |
| 9. LICENSE FEE DURING INITIAL TERM: | A one-time license fee for the Initial Term (the "**Initial Term License Fee**") will be paid in two installments. The first installment shall be due and payable to Port on or before the Commencement Date. The second installment shall be due and payable to Port upon and as a condition precedent to commencement of construction of the ZA-1 Line Equipment. Each installment shall be in the amount of 50% of the Initial Term License Fee. The Initial Term License Fee will be an amount equal to the present value as of the Commencement Date, discounted at 6.5%, of the following hypothetical stream of payments:<br>A. An annual payment made on the Commencement Date and each anniversary of the Commencement Date, in an amount of equal to $217,008.00 (based $2.74/sq. ft.) for the Submarine Portion, Exclusive Zone ("**Submarine Portion Exclusive Zone Basic Annual Pay Rate**"). For |

**Cc:** Campbell, Severin
**Subject:** Port-PG&E ZA-1 Term Sheet Scheduling - File 13-0495

Hi Catherine, Margaux and Jess:

I have been working with Severin Campbell on the Budget Analyst's report on the proposed term sheet between the Port and PG&E for the ZA-1 transmission line between Embarcadero and Potrero. I plan to have final comments to Severin today on the report.

I am e-mailing to see if there is room on either next Wednesday's Budget and Finance calendar or the following week. Also, I am working on revisions to the resolution endorsing the term sheet to respond to Budget Analyst recommendations. Do I need to introduce a substitute resolution or can the Committee make the proposed amendments without delaying the item in Committee?

Thank you for your consideration.

Best,
Brad

Brad Benson
Port of San Francisco
Pier 1 The Embarcadero SF CA 94111
office: 415-274-0498 cell: 415-819-1759

<131163.pdf>

**MEMORANDUM**

November 8, 2012

**TO:** MEMBERS, PORT COMMISSION
Hon. Doreen Woo Ho, President
Hon. Kimberly Brandon, Vice President
Hon. Willie Adams
Hon. Leslie Katz

**FROM:** Monique Moyer
Executive Director

**SUBJECT:** Request approval of the PG&E ZA-1 Embarcadero-Potrero 230kV Transmission Project Term Sheet and authorization to enter into a Negotiation Agreement with PG&E, all related to onshore and submerged Port land between Pier 28 ½ and the foot of 23rd Street and PG&E parcels Block 4110 (Lot 008A) and Block 4120 (Lot 002)

**DIRECTOR'S RECOMMENDATION:** Approve Attached Resolution

## Introduction

Pacific Gas & Electric ("PG&E") proposes to construct a new, single circuit, 230 kV transmission line between its Embarcadero Substation and its Potrero Substation to increase reliability of electric service to downtown San Francisco and provide operational flexibility ("ZA-1Project"). One of the proposed routes for the proposed project contemplates transmission line installation along submerged land in the Port's jurisdiction, subject to the Port's proprietary approval. On August 14, 2012, Port staff and representatives of PG&E delivered an informational presentation to the Port Commission describing the proposed project. Exhibits A and B to this staff report show the existing map of the Embarcadero and Potrero Substations, and the proposed route for the submarine alternative for the project along Port submerged land.

The attached resolution requests (i) approval of a term sheet attached as Exhibit C to this staff report ("Term Sheet") outlining the basic terms between the City and County, acting through the Port Commission, and PG&E for use of Port lands by PG&E for the proposed submarine route and (ii) authorization of the Port Executive Director to enter into the negotiations agreement, as further described below, with PG&E. If the Port Commission approves the resolution, PG&E will submit an application to the California Public Utilities Commission ("CPUC") to commence a public process to review the cost-effectiveness and environmental impacts of the submarine route, subject to other required proprietary and regulatory approvals, including approval by the Federal Energy Regulatory Commission ("FERC") and the California Independent System Operator ("CAISO").

As further described in this report, the Term Sheet contemplates a long-term, non-exclusive license to construct and operate the ZA-1 Project and a Port option to purchase PG&E-owned land at Illinois and 22nd Streets.

**Project Description**

The proposed Embarcadero-Potrero cable, also referred to as ZA-1, would provide a third cable into Embarcadero Substation. Seismic risk is a key consideration in its design and routing. If approved, ZA-1 also will connect PG&E's 230 kV system in San Francisco with both the Trans Bay Cable ("TBC")[1] and PG&E's existing 115 kV systems in San Francisco, providing operational flexibility to both the 230 kV and 115kV systems. Both PG&E and City staff consider the Embarcadero-Potrero 230 kV Transmission Project a high priority because of the impact that outages would have on downtown San Francisco.

The project will involve both transmission line work and substation work. Three major elements are:

- Construct an approximately 3-mile, 230 kV submarine and/or underground cable between the Embarcadero and Potrero Substations;
- Terminate the new cable into a 230 kV bus (to be upgraded as part of a separate reliability project that is underway) at the Embarcadero Substation; and
- Construct a new 230 kV switchyard at Potrero Substation, terminate the new cable there, and interconnect the new 230 kV and existing 115 kV switchyards at Potrero Substation via two new 230/115 kV transformers.

The submarine cable route would run in a reinforced underground duct bank about 2 city blocks along the TBC alignment as it exits the Potrero Switchyard and enters the Bay. It would then continue in the Bay along the general alignment and several hundred feet to the west of the TBC, and then return to land 2-3 city blocks from Embarcadero Substation, where it would be installed in a reinforced underground duct bank to the substation. Both landings from the Bay to land will be accomplished through horizontal directional drilling.

**Negotiation Agreement**

Port staff and representatives of PG&E have negotiated a negotiation agreement ("Negotiation Agreement"), a copy of which is on file with the Port Commission

---

[1] On August 7, 2007, by Resolution 414-07, the San Francisco Board of Supervisors approved a 66 year license for the construction and operation of the Trans Bay Cable on Port submerged land.

Secretary. Under the Negotiation Agreement, PG&E is responsible for obtaining all regulatory approvals for the Project and will pay expenses reasonably incurred by Port directly and solely related to the Project for, including, but not limited to, time spent on the Project by Port staff, the services of real estate and economic consultants, and legal services. PG&E will also pay Port's costs for legal services associated with the Project that were incurred prior to the execution of the Negotiating Agreement.

**Appraisal**

To calculate the value of the license area, and for purposes of the option to acquire the Hoedown Yard, Port staff commissioned an appraisal through the Department of Real Estate's as-need appraiser pool. The City selected Associated Right of Way Services, Inc. to conduct the appraisal, and PG&E concurred with the selection. Appraisal instructions were to determine:

(a) the fee simple value of the Site assuming raw clean undeveloped land subject only to current zoning (M-2) i.e. market value; and

(b) the fee simple value of the Site "AS-IS" with all faults using assumptions as to the cost of compliance with the Site Management Plan and any other documents provided ... that affect value.

The conclusions of this appraisal will be presented in a November 23, 2012 final appraisal report, done in compliance with Standards Rule 2-2(b) of the Uniform Standards of Professional Appraisal Practice (USPAP).

The approach to establishing rent for the submerged license area is based on industrial upland values. The process for valuing the Hoedown Yard requires the same analysis. City staff and PG&E representatives therefore agreed to use a single appraisal (using the same set of comparable land values) for purposes of valuing both the submerged license area and the Hoedown Yard.

For purposes of the Term Sheet negotiation, City staff and representatives of PG&E assume a potential range of land value $50-75 per square foot, which has been used to calculate the indicated range of rent for the submerged license area and the range of option sales prices for the Hoedown Yard. The appraisal will be finalized on November 23, 2012. Any modifications to industrial upland land value in the final appraisal will be reflected in the Term Sheet. Prices will be indexed annually by 3% until the parties enter any final transaction.

**Proposed Terms**

Port staff and representatives of PG&E have negotiated a Term Sheet for the project. The following are the high-level terms for the proposed non-exclusive license, which are provided in greater detail in Exhibit C:

<u>License Area:</u> 508,992 s.f. of underground and submerged land, generally along the route depicted in Exhibit B

| | |
|---|---|
| Term: | 40 years, with a 4 year reduced rent construction period, and one 26 year option to renew |
| Annual Rent: | \$583,248 - \$872,328 annually in 2012 dollars (depending on the final appraised value of industrial land), subject to increases |
| Port Option: | Purchase PG&E Hoedown Yard near Pier 70 at Fair Market Value assuming current industrial M-2 zoning, estimated at \$6.5 - \$9.8 million |

**Option to Acquire the Hoedown Yard**

As a condition of the license, Port staff has negotiated a transferable Port option to acquire the PG&E Hoedown Yard at Pier 70. A map of the Hoedown Yard is attached as Exhibit D. Current uses at the Hoedown Yard include recycling of excavated soils from PG&E trenching projects. While this use is an important function, it represents a fundamental land use conflict with the Port's planned development efforts at Pier 70. The Hoedown Yard is located at Illinois Street and 23rd Street. Port staff expects that 23rd Street will be a major entry to the Pier 70 Waterfront Site[2] and that relocation of the Hoedown Yard is a necessary step to attract private investment to the Waterfront Site.

The proposed Port option to purchase the Hoedown Yard is transferable, allowing the Port to transfer this purchase right to another entity, if the Port Commission so desires. As negotiations related to the Project continue, Port staff will work to evaluate potential relocation options on Port land for Hoedown Yard activities.

Not unlike the surrounding Pier 70 area, the Hoedown Yard has known contamination. PG&E has completed site investigation and human health risk assessment. The findings of this assessment indicate that arsenic is present in soil within in an approximately 20,000 sq. ft. (by approx. 5 ft. deep) area in the northwest corner of the site at concentrations that pose a potential human health risk to future construction workers (not to current or future commercial/industrial workers). All other contaminants investigated are at concentrations below levels of concern.

The San Francisco Bay Regional Water Quality Control Board ("Water Board") has approved these investigations and agrees that no remediation is warranted under current or anticipated future conditions, provided that activities at the site comply with a Site Management Plan ("SMP") and land use is restricted to commercial/industrial uses through a deed restriction.

PG&E has developed and Water Board has approved a SMP for the Hoedown Yard. The SMP specifies measures to protect workers, minimize dust, prevent contamination of stormwater, and other measures to manage potential risks from soil contamination. PG&E has also filed a deed restriction limiting future uses of the site to commercial and industrial uses.

[2] City staff is currently negotiating the development of the 25 acre Pier 70 Waterfront Site with Forest City California, Inc.

Port environmental staff has reviewed the SMP and the deed restriction and has found that Hoedown Yard site conditions are suitable for future commercial or industrial use. If the Port Commission desires to acquire the site for residential purposes, further remedial actions (such as removal or capping of arsenic-contaminated soil) would likely be required. Port staff will continue to monitor site conditions and regulatory restrictions related to the Hoedown Yard as the proposed ZA-1 project negotiation proceeds.

Port Commission acquisition of the Hoedown Yard would be subject to review under the California Environmental Quality Act, and approval by the Mayor and the Board of Supervisors.

**Additional Public Benefits**

City staff believes that the ZA-1 project provides critical transmission reliability benefits to the City.

The proposed License is subject to the Port's Southern Waterfront Community Benefits Policy. As such, Port staff will set aside 8% of project rents to the Southern Waterfront Community Benefit Fund ("Fund"), or $46,700 - $69,800 annually for years (depending on the final license rent. The Fund is used to pay for open space and related public improvements in the Southern Waterfront.

**Project Schedule**

PG&E is pursuing the following Project schedule:

| | | |
|---|---|---|
| 1. | Initiate CPUC Application | November 2012 |
| 2. | CPUC CEQA Review | November 2012 – November 2013 |
| 3. | Resource agency permits | December 2013 – January 2014 |
| 4. | Onshore cable installation | December 2013 – May 2015 |
| 5. | Offshore cable installation | May 2015 – November 2015 |
| 6. | Operation | December 2015 |

**Recommendation and Next Steps**

Port staff recommends approval of the attached resolution which approves the Term Sheet and authorizes the Executive Director to enter into the Negotiation Agreement. If the Port Commission approves the resolution, Port staff proposes the following next steps:

- Negotiate a non-exclusive license for use of submerged Port land for the ZA-1 230 kV Embarcadero-Potrero Transmission Line with PG&E consistent with the Term Sheet;

- Review and comment on environmental analysis conducted by the CPUC regarding routes that involve Port property, in consultation with other City departments;
- Further evaluate the development potential of the Hoedown Yard, in consultation with the Port's Pier 70 development partners;
- Examine potential locations on Port property that may be suitable for the PG&E operations currently conducted at the Hoedown Yard; and
- If the CPUC process determines that the submerged alternative is the preferred project alternative, submit for Port Commission and Board of Supervisors consideration a long-term license for construction and operation of the project.

Prepared by: Brad Benson, Special Project Manager

For: Monique Moyer, Executive Director
Byron Rhett, Deputy Director
Planning & Development

Exhibits

A. PG&E Embarcadero Substation Area Map
B. PG&E Route Alternatives for Proposed ZA-1 Project
C. Term Sheet
D. Hoedown Yard Map

**Exhibit A: PG&E Embarcadero Substation Area Map**

## Exhibit B: PG&E Route Alternatives for Proposed ZA-1 Project

# Exhibit C: Term Sheet

## Exhibit D: Hoedown Yard Map

**PORT COMMISSION**
**CITY AND COUNTY OF SAN FRANCISCO**
**RESOLUTION NO. 12-90**

WHEREAS, California Statutes of 1968, Chapter 1333 (the "Burton Act") and the San Francisco Charter Section B3.581 empower the San Francisco Port Commission with the power and duty to use, conduct, operate, maintain, manage, regulate and control the lands within Port Commission jurisdiction; and

WHEREAS, Pacific Gas & Electric ("PG&E") proposes to construct a new, single circuit, 230 kV transmission line between its Embarcadero Substation and its Potrero Substation, along onshore and submerged land in the Port's jurisdiction generally within the area bounded by Pier 28 ½ and portions of the shoreline at the foot of 23rd Street (the "Project"), to increase reliability of electric service to downtown San Francisco and provide operational flexibility, as further described in the staff report accompanying this resolution; and

WHEREAS, At the Port Commission's August 14, 2012 meeting, an informational presentation about the Project was made by Port staff and Port staff was directed to negotiate a term sheet for use of Port lands for the Project; and

WHEREAS, Port staff and PG&E have negotiated a term sheet, attached as Exhibit C to the staff report accompanying this resolution (the "Term Sheet"), which Term Sheet sets forth the essential terms upon which Port and PG&E will negotiate to reach agreement on the final transaction documents; and

WHEREAS, Port staff and PG&E have also negotiated the terms of a negotiation agreement ("Negotiation Agreement") on file with the Port Commission Secretary, which among other things, provides for reimbursement by PG&E to Port of Port's costs associated with the Project, as further described in the staff report accompanying this resolution and the Negotiation Agreement; and

WHEREAS, Because PG&E is a regulated utility, the Project is subject to the review and approval of the California Public Utilities Commission ("CPUC"); and

WHEREAS, The parties acknowledge that the Term Sheet is not itself a binding agreement that commits the Port or PG&E to proceed with the approval or implementation of the Project and that the Project will first undergo appropriate environmental review under the California Environmental Quality Act ("CEQA") and will be subject to public review in accordance with the processes of the Port Commission, other City departments and offices, the CPUC, and other government agencies with approval rights over the Project before any entitlements and other regulatory approvals required for the Project will be considered; and now for be it

RESOLVED, That the Port Commission hereby approves the Term Sheet and the Negotiation Agreement and authorizes and directs the Executive Director of the Port, or her designee, to execute the Negotiation Agreement and work with PG&E to negotiate the terms and conditions of any license and related documents ("Transaction Documents") for use of Port lands for the Project, with the understanding that the final terms and conditions of the Transaction Documents negotiated between Port staff and PG&E will be subject to the approval of the Port Commission and as applicable, the Board of Supervisors and the Mayor; and, be it further

RESOLVED, That the Port Commission authorizes the Executive Director to enter into any additions, amendments or other modifications to the Term Sheet and the Negotiation Agreement that the Executive Director, in consultation with the City Attorney, determines are in the best interests of the City, do not materially decrease the benefits or otherwise materially increase the obligations or liabilities of the City or Port, and are necessary or advisable to complete the transactions which the Term Sheet and the Negotiation Agreement contemplate and effectuate the purpose and intent of this resolution, such determination to be conclusively evidenced by the execution and delivery by the Executive Director of such additions, amendments or other modifications to the Term Sheet or Negotiation Agreement; and be it further

RESOLVED, That approval of the Term Sheet and entering into the Negotiation Agreement does not commit the Port Commission or the City to approval of final Transaction Documents or implementation of the Project or grant any entitlements to PG&E, nor does approving the Term Sheet or executing the Negotiation Agreement foreclose the possibility of considering alternatives to the proposal, mitigation measures or deciding not to grant entitlement or approve or implement the Project, after conducting appropriate environmental review under CEQA, and while the Term Sheet identifies certain essential terms of a proposed transaction with the Port, it does not necessarily set forth all of the material terms and conditions of any final transaction documents; and, be it further

RESOLVED, That the Port Commission will not take any discretionary actions committing the Port to implement the Project, and the provisions of the Term Sheet are not intended and will not become contractually binding on the Port unless and until the relevant bodies have reviewed and considered environmental documentation prepared in compliance with the CEQA for the Project and the Port Commission, and as applicable, the Board of Supervisors and the Mayor, have approved final Transaction Documents for the Project.

***I hereby certify that the foregoing resolution was adopted by the Port Commission at its meeting of November 13, 2012.***

________________________

Secretary

**MEMORANDUM**

September 6, 2013

**TO:** MEMBERS, PORT COMMISSION
Hon. Doreen Woo Ho, President
Hon. Kimberly Brandon, Vice President
Hon. Willie Adams
Hon. Leslie Katz
Hon. Mel Murphy

**FROM:** Monique Moyer
Executive Director

**SUBJECT:** Request (1) a rescission of Port Commission Resolution 12-90, (2) endorsement of the PG&E ZA-1 Embarcadero-Potrero 230kV Transmission Project Revised Term Sheet and (3) authorization to enter into a Negotiation Agreement with PG&E, all related to onshore and submerged Port land between Pier 28½ and the foot of 23rd Street and PG&E parcels Block 4110 (Lot 008A) and Block 4120 (Lot 002)

**DIRECTOR'S RECOMMENDATION:** Approve Attached Resolution

**Background**

On November 13, 2012, the Port Commission approved Resolution 12-90, endorsing the ZA-1 Embarcadero-Potrero 230kV Transmission Project Term Sheet ("Original Term Sheet") between the Port and PG&E and authorizing Port staff to enter into a Negotiation Agreement with PG&E, all related to onshore and submerged Port land between Pier 28 ½ and the foot of 23rd Street and PG&E parcels Block 4110 (Lot 008A) and Block 4120 (Lot 002), commonly known as the "Hoedown Yard" (see Exhibits A and B).

Since November 13, 2012, Port staff has engaged in periodic negotiations with PG&E in concert with the Office of Mayor Ed Lee and the Office of Economic and Workforce Development. These negotiations have resulted in a revised Term Sheet between the City, acting through the Port and the Office of Economic and Workforce Development, and PG&E. This report is an amended and restated version of the November 13, 2012 staff report to the Port Commission reflecting the revised terms of the proposed Term Sheet ("Revised Term Sheet").

**THIS PRINT COVERS CALENDAR ITEM NO. 13A**

## Introduction

Pacific Gas & Electric ("PG&E") proposes to construct a new, single circuit, 230 kV transmission line between its Embarcadero Substation and its Potrero Substation to increase reliability of electric service to downtown San Francisco and provide operational flexibility ("ZA-1 Project"). Exhibit C to this staff report shows the service area of the existing Embarcadero Substation that will benefit from this reliability improvement.

One of the proposed routes for the proposed project contemplates transmission line installation along submerged land in the Port's jurisdiction, subject to the Port's proprietary approval. On August 14, 2012, Port staff and representatives of PG&E delivered an informational presentation to the Port Commission describing the proposed project. On November 13, 2012, the Port Commission approved Resolution 12-90, endorsing the ZA-1 Embarcadero-Potrero 230kV Transmission Project Original Term Sheet between the Port and PG&E. Exhibit A to this staff report shows the proposed route for the submarine alternative for the project along Port submerged land. Subsequent to the Port Commission's approval of Resolution 12-90, PG&E submitted an application to the California Public Utilities Commission ("CPUC") to commence a public process to review the cost-effectiveness and environmental impacts of the submarine route, subject to other required proprietary and regulatory approvals, including approval by the Federal Energy Regulatory Commission ("FERC") and the California Independent System Operator ("CAISO").

In August 2013, the CPUC published a Draft Mitigated Negative Declaration and Supporting Initial Study ("Draft MND") for the ZA-1 Project to obtain public comment on its environmental analysis. Port staff circulated the Draft MND for comment to sister City departments. The timeline for public comment on the Draft MND requires that written comments are received by the CPUC no later than 5:00 PM September 16, 2013 at the following address:

Billie Blanchard
California Public Utilities Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 935
San Francisco, CA 94104-3002
embarcaderopotrero@aspeneg.com

A copy of the Draft MND can be found at:

http://www.cpuc.ca.gov/Environment/info/aspen/embarc-potrero/dmnd/Embarcadero-Potrero_230_kV_Transmission_Project_Draft_MND-IS.pdf

City staff has reviewed the Draft MND and based on initial review do not intend to submit comments.

Port staff requests (i) endorsement of a Revised Term Sheet attached as Exhibit D to this staff report outlining the basic terms between the City and County, acting through the Port Commission, and PG&E for use of Port lands by PG&E for the proposed submarine route and (ii) authorization for the Port Executive Director to enter into the negotiations agreement, as further described below, with PG&E. As further described in this report, the Revised Term Sheet contemplates:

1. a long-term, non-exclusive license to construct and operate the ZA-1 Project,

2. a transferable option for the Office of Economic and Workforce Development ("OEWD") to purchase PG&E-owned land at Illinois and 22nd Streets (see Exhibit B) subject to CPUC approval pursuant to Section 851 of the California Public Utilities Code, and

3. a requirement for PG&E to screen or otherwise enclose the Potrero Substation which is situated along Illinois Street between 22nd Street and 23rd Street (see Exhibit A), subject to review by the Waterfront Design Advisory Committee ("WDAC"), environmental review pursuant to CEQA and other required approvals.

**Project Description**

The proposed Embarcadero-Potrero cable, or ZA-1, would provide a third cable into Embarcadero Substation. Seismic risk is a key consideration in its design and routing. If approved, ZA-1 also will connect PG&E's 230 kV system in San Francisco with both the Trans Bay Cable ("TBC")[1] and PG&E's existing 115 kV systems in San Francisco, providing operational flexibility to both the 230 kV and 115kV systems. Both PG&E and City staff consider the Embarcadero-Potrero 230 kV Transmission Project a high priority because of the impact that outages would have on downtown San Francisco.

The project will involve both transmission line work and substation work. Three major elements are:

- Construct an approximately 3-mile, 230 kV submarine cable between the Embarcadero and Potrero Substations;

- Terminate the new cable into a 230 kV bus (to be upgraded as part of a separate reliability project that is underway) at the Embarcadero Substation; and

- Construct a new 230 kV switchyard adjacent to the Potrero Substation, terminate the new cable there, and interconnect the new 230 kV and existing 115 kV switchyards at Potrero Substation via two new 230/115 kV transformers.

The submarine cable route would run in a reinforced underground duct bank about 2 city blocks along the TBC alignment as it exits the Potrero Switchyard and enters the Bay. It would then continue in the Bay along the general alignment and several hundred feet to the west of the TBC, and then return to land 2-3 city blocks from the

[1] On August 7, 2007, by Resolution 414-07, the San Francisco Board of Supervisors approved a 66 year license for the construction and operation of the Trans Bay Cable on Port submerged land.

Embarcadero Substation, where it would be installed in a reinforced underground duct bank to the substation. Both landings from the Bay to land will be accomplished through horizontal directional drilling.

**Negotiation Agreement**

Port staff and representatives of PG&E have negotiated a negotiation agreement ("Negotiation Agreement"), a copy of which is on file with the Port Commission Secretary. Under the Negotiation Agreement, PG&E is responsible for obtaining all regulatory approvals for the Project and will pay expenses reasonably incurred by Port directly and solely related to the Project for, including, but not limited to, time spent on the Project by Port staff, the services of real estate and economic consultants, and legal services. PG&E will also pay the Port's costs for legal services associated with the Project that were incurred prior to the execution of the Negotiating Agreement.

**Appraisals**

To calculate the value of the license area, and for purposes of the option to acquire the Hoedown Yard (discussed below), Port staff commissioned an appraisal through the Department of Real Estate's ("DRE") as-needed appraiser pool. The City selected Associated Right of Way Services, Inc. to conduct the appraisal, and PG&E concurred with the selection. This appraisal indicated industrial land values that exceeded the expectations of both Port and PG&E staff. PG&E requested the Port's authorization to conduct a second appraisal, which Port staff granted, and PG&E conducted its own appraisal, subject to appraisal instructions approved by the Port, utilizing David Tattersol & Associates, an appraiser also listed in DRE's as-needed pool.

In both instances, appraisal instructions were to determine:

(a) the fee simple value of the Site assuming raw clean undeveloped land subject only to current zoning (M-2) i.e. market value; and

(b) the fee simple value of the Site "AS-IS" with all faults using assumptions as to the cost of compliance with the Site Management Plan and any other documents provided ... that affect value.

The conclusions of these appraisals were presented in a November 23, 2012 final appraisal report by Associated Right of Way Services, Inc. and a February 13, 2013 final appraisal report by David Tattersol & Associates, done in compliance with Standards Rule 2-2(b) of the Uniform Standards of Professional Appraisal Practice (USPAP). The average of the land value indicated by these two appraisals is $68.50 per square foot which affects both the submerged license area and the Hoedown Yard.

The approach to establishing rent for the submerged license area is based on industrial upland values. The process for valuing the Hoedown Yard requires the same analysis. City staff and PG&E representatives therefore agreed to use a single appraisal (using the same set of comparable land values of $68.50 psf) for purposes of valuing both the submerged license area and the Hoedown Yard.

In establishing rent for the proposed license area, most of which is submerged land, Port staff and PG&E agreed on the following formulas:

- Exclusive use areas: 50% industrial upland value ($68.50 psf) x 8% capitalization rate
- Compatible (non-exclusive) use areas: 25% industrial upland value ($68.50 psf) x 8% capitalization rate
- Upland underground areas: $0.031562/sf, based on the rate for like property in the Hunters Point-Potrero license area
- A two year construction period rent for the same areas, reduced by 75%

The parties agreed to a prepaid rent structure for the initial forty (40) year term of the agreement utilizing a 6.5% discount rate, which is the current estimated blended average of the Port's costs of funds.

**Proposed Terms**

Port staff and representatives of PG&E have negotiated a Term Sheet for the project. The following are the high-level terms for the proposed non-exclusive license, which are provided in greater detail in Exhibit D:

| | |
|---|---|
| License Area: | 508,992 sf of underground and submerged land, generally along the route depicted in Exhibit A |
| Term: | 40 years, with a 2 year reduced rent construction period, and one 26 year PG&E option to renew |
| Pre-Paid Rent: | $14,820,258 |
| Option Period Rent: | Fair Market Value rent, paid either annually or prepaid (at PG&E's option), with rent determined by appraisal. If rent is prepaid for the 26 year option period, the FMV rent will be determined by appraisal, using the same formulas used to establish the initial rent, including an 8% capitalization rate and a discount rate set at the average of the Port's future taxable and tax-exempt bond interest rates. |
| OEWD Option: | Transferable option to OEWD to purchase PG&E Hoedown Yard near Pier 70 (see Exhibit B) at $63.67/sf for 130,600 sf of industrial land at Illinois and 22nd Street, totaling approximately $8,315,302, subject to CPUC approval by Section 851 approval |
| Potrero Substation Screen: | Within 10 years after executing the ZA-1 License, the City may designate its preference ("Preferred Screen") for 1) enclosing the |

Potrero Substation (see Exhibit A) in a building, or 2) surrounding a significant portion of the Potrero Substation with a perimeter screen. PG&E will use commercially reasonable efforts to obtain rate reimbursement and other approvals required for these improvements. The City may elect to utilize IFD proceeds from the Hoedown Yard or other nearby PG&E property to fund screening improvements not funded through utility rates.

**Option to Acquire the Hoedown Yard**

As a condition of the license, City staff has negotiated a transferable OEWD option to acquire the PG&E Hoedown Yard at Pier 70, which includes a portion of Irish Hill. A map of the Hoedown Yard is attached as Exhibit B. Current uses at the Hoedown Yard include parking, equipment storage, stockpiling and temporary storage of drilling mud, concrete, soil, sand, gravel and asphalt associated with PG&E utility projects. While these uses are important functions, they represent a fundamental land use conflict with the Port's planned development efforts at Pier 70. The Hoedown Yard is located at Illinois Street and 23rd Street. Port staff expects that 23rd Street will be a major entry to the Pier 70 Waterfront Site[2] and that relocation of the Hoedown Yard is a necessary step to attract private investment to the Waterfront Site (shown in Exhibit E).

The Original Term Sheet approved by the Port Commission contemplated that the Hoedown Yard purchase option would belong to the Port. After further consideration, Port staff concluded that it would be best for another City department to acquire the option under the agreement, because the Port should not utilize its proceeds to acquire non-trust property with the intention of developing it for non-trust purposes. OEWD agreed to take the option in the Port's stead.

The proposed OEWD option to purchase the Hoedown Yard is transferable, allowing the City to transfer this purchase right to another private entity. Since the Hoedown Yard is an asset of a regulated utility, PG&E's sale of the Hoedown Yard is subject to CPUC approval pursuant to Section 851 of the California Public Utilities Code.

Not unlike the surrounding Pier 70 area, the Hoedown Yard contains known contamination. PG&E has completed site investigation and a human health risk assessment. The findings of this assessment indicate that arsenic is present in soil within an approximately 20,000 sf (by approx. 5 ft. deep) area in the northwest corner of the site at concentrations that pose a potential human health risk to future construction workers (not to current or future commercial/industrial workers). All other contaminants investigated are at concentrations below levels of concern.

The San Francisco Bay Regional Water Quality Control Board ("Water Board") has approved these investigations and agrees that no remediation is warranted under

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[2] On May 28, 2013, the Port Commission approved Resolution 13-20 endorsing a Term Sheet between the Port and Forest City Development California, Inc. ("Forest City") for the mixed-use development of the Pier 70 Waterfront Site, bordered generally by 20th Street, Michigan Street, 22nd Street, and the San Francisco Bay, shown in Exhibit E. The Term Sheet was subsequently endorsed by the Board of Supervisors on June 11, 2013.

current or anticipated future conditions, provided that activities at the site comply with a Site Management Plan ("SMP") and land use is restricted to commercial/industrial uses through a deed restriction.

PG&E has developed and Water Board has approved a SMP for the Hoedown Yard. The SMP specifies measures to protect workers, minimize dust, prevent contamination of stormwater, and other measures to manage potential risks from soil contamination. PG&E has also filed a deed restriction limiting future uses of the site to commercial and industrial uses.

Port environmental staff has reviewed the SMP and the deed restriction and has found that Hoedown Yard site conditions are suitable for future commercial or industrial use. If the City desires to acquire the site for residential purposes, further remedial actions (such as removal or capping of arsenic-contaminated soil) would likely be required, along with approval of the Water Board to lift the residential deed restriction. The Revised Term Sheet provides that PG&E will consent to lifting the residential deed restriction subject to the parties establishing a reasonable mechanism agreeable to the City and PG&E, to allocate risks of existing site conditions associated with residential development on the Hoedown Yard..

Subject to approval by the Board of Supervisors, OEWD intends to utilize any net proceeds between the purchase price and its sale price to a third-party developer based on its rezoned value as a source of funds for the Potrero Terrace and Annex HOPE VI project, a major priority of Mayor Ed Lee. For more information about this project, see http://www.rebuildpotrero.com/.

Pursuant to the Waterfront Site Term Sheet with Forest City, Forest City will include the Hoedown Yard in the proposed Special Use District for the Waterfront Site for purposes of rezoning and design for development controls. The SUD is expected to be ready for consideration by the Planning Commission and the Board of Supervisors by mid-2016, after environmental review of the Waterfront Site mixed use development is complete, which means that the Hoedown Yard would be rezoned and ready for sale to a third-party within that timeframe, subject to required regulatory approvals.

Based on preliminary analysis – subject to change depending on market factors and site specific development risks – Port staff estimates that the difference between the as-is purchase price of the Hoedown Yard and its future rezoned value for commercial office use is $4-$7 million. The City and Forest City will continue to examine the highest and best use of the Hoedown Yard during development of the SUD and associated environmental review.

**Potrero Substation Screening**

As evidenced by the Pier 70 Waterfront Site proposed development and evolving plans to redevelop the adjacent former Potrero Power Plant site, the Central Waterfront, south of Mission Bay and east of the I-280 freeway (the "Central Waterfront"), is undergoing a significant change of use from heavy industrial uses to mixed use areas that include continuing heavy industrial operations (such as the Pier 70 Shipyard). In most mixed use areas of the City, PG&E has enclosed substations (such as the Larkin Substation or the Embarcadero Substation) which are more compatible with surrounding mixed use development than the current open air Potrero 115 kV Substation ("Potrero Substation"), located along Illinois Street between 22nd and 23rd Streets.

The Revised Term Sheet acknowledges that Plan Bay Area, the Bay Area's first combined Sustainable Communities Strategy as required under Senate Bill 375 (SB 375), focuses a significant amount of regional growth in its transit served cities, with almost 15% of that growth projected for San Francisco. The Central Waterfront area is a significant Priority Development Area where the City plans to accommodate this projected growth. City staff believe that development of the Central Waterfront will require substantial changes to the existing PG&E Potrero Substation to accommodate this planned growth.

As part of the public benefits of the ZA-1 Transmission Line, Port staff has also negotiated for PG&E to obtain the approvals for and construct screening (or otherwise enclose) the Potrero Substation, subject to review by the Waterfront Design Advisory Committee, environmental review pursuant to CEQA and other required approvals. As a condition to and additional consideration for the License, PG&E will either enclose a substantial portion of the existing Potrero Substation within a building or construct a screen around the perimeter of the Potrero Substation (either, a "Screen").

<u>Potrero Substation Screening Approach and Approvals</u>

Within 10 years after executing the ZA-1 license, the City may provide notice designating its preference ("Preferred Screen") for 1) enclosing the Potrero Substation in a building, or 2) surrounding a significant portion of the Potrero Substation with a perimeter screen.

- Following the notice of the City's Preferred Screen, PG&E will initiate applications for required regulatory approvals to construct the Preferred Screen, including applications required for rate-reimbursement and compliance with CEQA. The project description and conceptual design for the Preferred Screen will include architectural and aesthetic qualities consistent with PG&E's customary protocols for screening dense urban substation facilities.

- PG&E will (i) present to the Port's Waterfront Design Advisory Committee ("WDAC") PG&E's proposed design for the Preferred Screen, (ii) incorporate into its proposed Screen design WDAC's recommendations to the extent they would not materially adversely impact the operation of the Potrero Switchyard ("Revised Screen Design"), and (iii) obtain confirmation from WDAC that the Revised Screen Design has adequately addressed WDAC's prior recommendations.

- Following confirmation from WDAC that the Revised Screen Design has adequately addressed WDAC's prior recommendations, PG&E will use commercially reasonable efforts to (i) obtain any necessary governmental approvals to commence construction of the Revised Screen Design and (ii) obtain all other required approvals to commence construction of the Revised

Screen Design. Subject to force majeure events, or its failure to obtain required approvals, PG&E shall complete construction of the approved Revised Screen Design no later than five (5) years after the City presents the notice of its Preferred Screen.

Alternative Funding Approach to Potrero Substation Screen

The expense to screen the Potrero Substation is expected to be considerable, and this expense requires approval to be included in the utility rate base. If the Potrero Substation Screen cannot be funded with capital funding approved in the utility rate base, PG&E and the City will have to examine other potential funding mechanisms for this work.

To that end, the Revised Term Sheet provides for a potential infrastructure financing district ("IFD") mechanism to partially fund the City's Preferred Screen using future tax increment from the Hoedown Yard and/or the existing Potrero Substation. If the City forms a Pier 70 IFD project area that includes the Potrero Substation and the Hoedown Yard, the City will use good faith efforts, subject to applicable law and the sole and absolute discretion of the Board of Supervisors, to permit IFD proceeds from the Potrero Substation and the Hoedown Yard to finance improvements related to the Revised Screen Design that have no utility rate-based funding source. PG&E will not be subject to assessment in connection with the IFD.

**Additional Public Benefits**

City staff believes that the ZA-1 project provides critical transmission reliability benefits to the City, and that the OEWD option to acquire the Hoedown Yard and the PG&E obligation to pursue screening of the Potrero Substation are major public benefits of the proposed project.

The proposed License is subject to the Port's Southern Waterfront Community Benefits Policy. As such, Port staff will set aside 8% of project rents to the Southern Waterfront Community Benefit Fund ("Fund"), or $665,224. The Fund is used to pay for open space and related public improvements in the Southern Waterfront.

**Project Schedule**

PG&E is pursuing the following Project schedule:

| | | |
|---|---|---|
| 1. | Initiate CPUC Application | November 2012 |
| 2. | CPUC CEQA Review | November 2012 – November 2013 |
| 3. | Resource agency permits | December 2013 – January 2014 |
| 4. | Onshore cable installation | December 2013 – May 2015 |
| 5. | Offshore cable installation | May 2015 – November 2015 |
| 6. | Operation | December 2015 |

## Recommendation and Next Steps

Port staff recommends approval of the attached resolution which approves the Term Sheet and authorizes the Executive Director to enter into the Negotiation Agreement. If the Port Commission approves the resolution, Port staff proposes the following next steps:

- Negotiate a non-exclusive license for use of submerged Port land for the ZA-1 230 kV Embarcadero-Potrero Transmission Line with PG&E consistent with the Term Sheet;

- Continue to review environmental analysis conducted by the CPUC regarding routes that involve Port property, in consultation with other City departments (underway);

- Further evaluate the development potential of the Hoedown Yard, in consultation with the City's Pier 70 development partners;

- If the CPUC process determines that the submerged alternative is the preferred project alternative, submit for Port Commission and Board of Supervisors consideration a long-term license for construction and operation of the project.

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|---|---|
| Prepared by: | Brad Benson, Special Project Manager |
| For: | Monique Moyer, Executive Director<br>Tony Winnicker, Senior Advisor to Mayor Ed Lee |

Exhibits

A. PG&E Route Alternatives for Proposed ZA-1 Project
B. Hoedown Yard Map
C. PG&E Embarcadero Substation Area Map
D. Revised Term Sheet
E. Pier 70 Waterfront Site Conceptual Land Use Plan

**PORT COMMISSION**
**CITY AND COUNTY OF SAN FRANCISCO**
**RESOLUTION NO. 13-34**

WHEREAS, California Statutes of 1968, Chapter 1333 (the "Burton Act") and the San Francisco Charter Section B3.581 empower the San Francisco Port Commission with the power and duty to use, conduct, operate, maintain, manage, regulate and control the lands within Port Commission jurisdiction; and

WHEREAS, Pacific Gas & Electric ("PG&E") proposes to construct a new, single circuit, 230 kV transmission line between its Embarcadero Substation and its Potrero Substation, along onshore and submerged land in the Port's jurisdiction generally within the area bounded by Pier 28 ½ and portions of the shoreline at the foot of 23rd Street (the "Project"), to increase reliability of electric service to downtown San Francisco and provide operational flexibility, as further described in the staff report accompanying this resolution; and

WHEREAS, At the Port Commission's August 14, 2012 meeting, an informational presentation about the Project was made by Port staff and Port staff was directed to negotiate a term sheet for use of Port lands for the Project; and

WHEREAS, At its November 13, 2012 meeting, the Port Commission approved Resolution 12-90, endorsing the ZA-1 Embarcadero-Potrero 230kV Transmission Project Term Sheet ("Original Term Sheet") between the Port and PG&E and authorizing Port staff to enter into a Negotiation Agreement with PG&E, related to onshore and submerged Port land between Pier 28 ½ and the foot of 23rd Street and PG&E parcels Block 4110 (Lot 008A) and Block 4120 (Lot 002), commonly known as the "Hoedown Yard"; and

WHEREAS, Port staff and City staff have negotiated revised terms to the Original Term Sheet, as described in both the staff report and Exhibit C accompanying this resolution ("Revised Term Sheet"); and

WHEREAS, Port staff and PG&E have also negotiated the terms of a negotiation agreement ("Negotiation Agreement") on file with the Port Commission Secretary, which among other things, provides for reimbursement by PG&E to Port of Port's costs associated with the Project, as further described in the staff report accompanying this resolution and the Negotiation Agreement; and

WHEREAS, Because PG&E is a regulated utility, the Project is subject to the review and approval of the California Public Utilities Commission ("CPUC"); and

WHEREAS, The parties acknowledge that the Revised Term Sheet is not itself a binding agreement that commits the Port or PG&E to proceed with the approval or implementation of the Project and that the Project will first undergo appropriate environmental review under the California Environmental Quality Act ("CEQA") and will be subject to public review in accordance with the processes of the Port Commission, other City departments and offices, the CPUC, and other government agencies with approval rights over the Project before any entitlements and other regulatory approvals required for the Project will be considered; now therefor be it

RESOLVED, That the Port Commission hereby rescinds Resolution 12-90 and its prior endorsement of the Original Term Sheet; and, be it further

RESOLVED, That the Port Commission hereby endorses the Revised Term Sheet and the Negotiation Agreement and authorizes and directs the Executive Director of the Port, or her designee, to execute the Negotiation Agreement and present the Revised Term Sheet to the Board of Supervisors for its endorsement; and, be it further

RESOLVED, That provided the Board of Supervisors endorses the Revised Term Sheet, the Port Commission authorizes the Executive Director to work with PG&E to negotiate the terms and conditions of any license and related documents (collectively, "Transaction Documents") for use of Port lands for the Project based on the terms of the Revised Term Sheet, with the understanding that the final terms and conditions of the Transaction Documents negotiated between Port staff and PG&E will be subject to the approval of the Port Commission and as applicable, the Board of Supervisors and the Mayor; and, be it further

RESOLVED, That the Port Commission authorizes the Executive Director to enter into any additions, amendments or other modifications to the Negotiation Agreement that the Executive Director, in consultation with the City Attorney, determines are in the best interests of the City, do not materially decrease the benefits or otherwise materially increase the obligations or liabilities of the City or Port, and are necessary or advisable to complete the transactions which the Revised Term Sheet and the Negotiation Agreement contemplate and effectuate the purpose and intent of this resolution, such determination to be conclusively evidenced by the execution and delivery by the Executive Director of such additions, amendments or other modifications to the Negotiation Agreement; and be it further

RESOLVED, That endorsement of the Revised Term Sheet and entering into the Negotiation Agreement does not commit the Port Commission or the City to approve final Transaction Documents or implementation of the Project or grant any entitlements to PG&E, nor does endorsing the Revised Term Sheet or executing the Negotiation Agreement foreclose the possibility of considering alternatives to the proposal, mitigation measures or deciding not to grant entitlement or approve or implement the Project, after conducting appropriate environmental review under CEQA, and while the Revised Term Sheet identifies certain essential terms of a proposed transaction with the Port, it does not necessarily set forth all of the material terms and conditions of any final transaction documents; and, be it further

RESOLVED, That the Port Commission will not take any discretionary actions committing the Port to implement the Project, and the provisions of the Revised Term Sheet are not intended and will not become contractually binding on the Port unless and until the relevant bodies have reviewed and considered environmental documentation prepared in compliance with the CEQA for the Project and the Port Commission, and as applicable, the Board of Supervisors and the Mayor, have approved final Transaction Documents for the Project.

***I hereby certify that the foregoing resolution was adopted by the Port Commission at its meeting of September 10, 2013.***

________________________

Secretary

BOARD of SUPERVISORS

City Hall
Dr. Carlton B. Goodlett Place, Room 244
San Francisco 94102-4689
Tel. No. 554-5184
Fax No. 554-5163
TDD/TTY No. 554-5227

# MEMORANDUM

TO: Monica Nutter, Director, Department of the Environment
John Rahaim, Director, Planning Department
Todd Rufo, Director, Office of Economic and Workforce Development
John Updike, Director, Real Estate
Harlan Kelly, General Manager, Public Utilities Commission

FROM: Andrea Ausberry, Clerk, Land Use and Economic Development Committee
Board of Supervisors

DATE: December 30, 2013

SUBJECT: LEGISLATION INTRODUCED

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The Board of Supervisors' Land Use and Economic Development Committee has received the following proposed legislation, introduced by the Port Commission on December 10, 2013:

**File No. 131163**

**Resolution endorsing the Pacific Gas and Electric Company (PG&E) ZA-1 Embarcadero-Potrero 230kV Transmission project revised term sheet among the Port Commission, Office of Economic Workforce and Development, and PG&E.**

If you have any additional comments or reports to be included with the file, please forward them to me at the Board of Supervisors, City Hall, Room 244, 1 Dr. Carlton B. Goodlett Place, San Francisco, CA 94102.

c:

Monica Fish, Department of Environment
Scott Sanchez, Zoning Administrator
Sarah Jones, Acting Environmental Review Officer
AnMarie Rodgers, Legislative Affairs
Monica Pereira, Environmental Planning
Nannie Turrell, Environmental Planning
Juliet Ellis, Public Utilities Commission
Donna Hood, Public Utilities Commission

old/New Chair to Clerk
Primary Sponsor
Leg. Dep
COB

President, District 3
BOARD of SUPERVISORS

City Hall
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco 94102-4689
Tel. No. 554-7450
Fax No. 554-7454
TDD/TTY No. 544-5227

DAVID CHIU
邱信福
市参事會主席

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## PRESIDENTIAL ACTION

Date: 2/5/2014

To: Angela Calvillo, Clerk of the Board of Supervisors

Madam Clerk,

Pursuant to Board Rules, I am hereby:

☐ Waiving 30-Day Rule (Board Rule No. 3.23)

File No. ________ ________ (Primary Sponsor)

☒ Transferring (Board Rule No. 3.3)

File No. 131163 Department (Primary Sponsor)

From: Land Use & Economic Development Committee

To: Budget & Finance Committee

☐ Assigning Temporary Committee Appointment (Board Rule No. 3.1)

Supervisor ________

Replacing Supervisor ________

For: ________ (Date), ________ (Committee) Meeting

David Chiu

David Chiu, President
Board of Supervisors