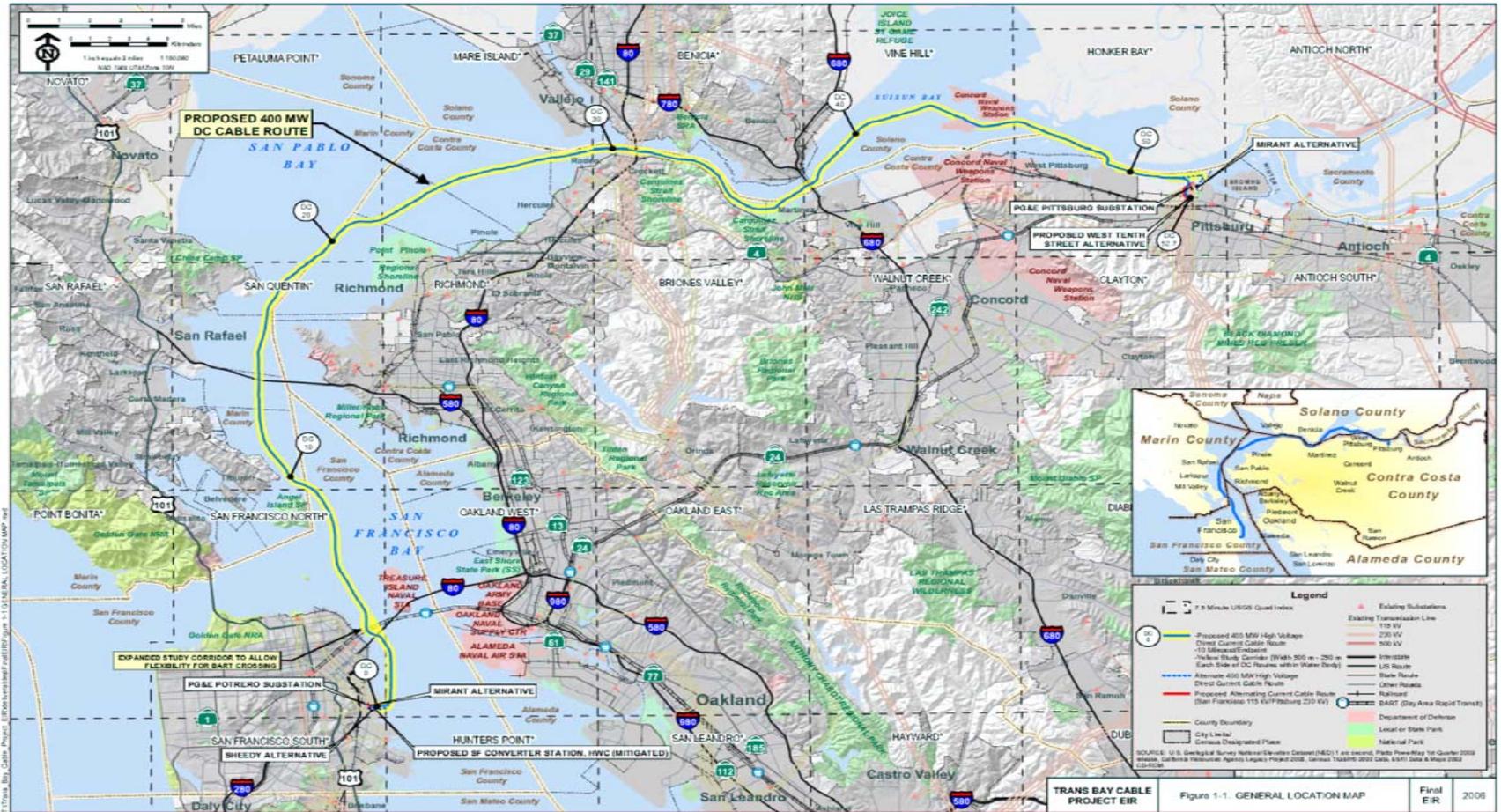


Trans Bay Cable Project

Presentation
To
Board of Governors
California Independent System Operator

April 18, 2007

A 53 Mile HVDC Cable w/Converter Stations at Both Ends Interconnecting PG&E's Pittsburg and Potrero Substations



Topics of Discussion

- Project Summary and Status
- The Change to HVDC PLUS Converter Technology
- Next Steps
- Appendices
 - Summary of Trans Bay Cable Project
 - Further Information on HVDC PLUS Converter Technology
 - Why the Trans Bay Cable Project is Important to San Francisco
 - Trends in Commodity and EPC Contract Prices
 - Assuring the Schedule and Reliability of the Trans Bay Cable Project

Project Summary and Status

Trans Bay Cable Project - Summary

- Being Developed by Babcock & Brown in Cooperation with the City of Pittsburg as a Critical Component of the Long Term Reliability Solution for San Francisco's Electric Infrastructure
- The Trans Bay Cable Project is the only Project That can be Placed in Service Prior to the Summer, 2010 CAISO Need Date to Prevent Load Shedding, as Determined by the CAISO SF Action Plan Update of February 15, 2007
 - Selection of the Project followed a multiyear Stakeholder process where all alternatives were considered
- City of Pittsburg's Municipal Utility will Eventually Own the Project
 - B&B developing the Project and will provide the financing
 - Ownership of the assets to be transferred to Pittsburg at COD
 - Transmission Rights to be transferred to the California Independent System Operator ("California ISO") at COD
- 400 MW of Delivered Capacity, +/- 200 kV HVDC Transmission Voltage
 - Daily/Hourly power transfers between PG&E's Pittsburg and San Francisco substations to be controlled by the California ISO
- Approx. \$400 Million (net) Project
 - Rate principles have been approved by FERC and include return of and on capital and all ongoing expenses
- Two (2) Construction Contracts
 - Demolition and remediation for site prep: [URS]
 - EPC Contract for Technology: Siemens and Prysmian

Trans Bay Cable Project – Key Milestones

Considerable progress has been made, development of the Project is nearly complete

- Development Agreements Executed with City of Pittsburg – January, 2004
- Project Introduced to California ISO's SF Stakeholder Group – February, 2004
- Federal Energy Regulatory Authority FERC Approval of TBC Rate Principals – July, 2005
- California ISO Approval of TBC Project (Reliability) Need – September, 2005
- Draft Environmental Impact Report (DEIR) Issuance – May, 2006*
- City of Pittsburg Certification of Final EIR – November, 2006*
- City of Pittsburg Addendum of Final EIR – January, 2007*
- Discretionary Acts (Permits, State Easements, etc.) Complete – [April 30, 2007 → June 30, 2007 due to San Francisco Approval Delay]
- Close Financing and Notice to Proceed to Contractors – [June, 2007]
 - Demolition, site prep and remediation contractor
 - Siemens/Prysmian
- Commercial Operation of Line – [March, 2010]

* See <http://www.ci.pittsburg.ca.us>

Discretionary Permits and Approvals Status

- All Discretionary Permits and Approvals Have Been Received, Except for San Francisco Board of Supervisors Approvals and the BCDC Approval (Which by Law Must be the Last Discretionary Permit).
 - Upon receipt of the San Francisco and BCDC approvals, Trans Bay Cable will be poised to finalize construction finance, issue a Notice To Proceed to the Construction Contractors, complete final design, obtain building and other construction related permits, and commence construction
- San Francisco has requested that the CAISO Board of Governors grant an extension to TBC so that it can complete its review of the Project
- TBC is requesting a resolution from the CAISO Board of Governors approving an extension of time to receive the final discretionary development permits (SF and BCDC). See Next Steps.
- The delay may not impact the commercial operation date of the project, based on information available at the time of preparing this presentation. More information will be available during the presentation on April 18 and an appropriate resolution will be proposed.

Permits and Discretionary Approvals Status, cont'd

Federal Permits

Item No.	Permit Description	Discretionary (vs Administrative or Ministerial)	Status	Comments
1.	U.S. Army Corps of Engineers Section 10/404	No	To be Received by April 30, 07	On Schedule

Permits and Discretionary Approvals Status, cont'd

State Permits

Item No.	Permit Description	Discretionary (vs Administrative or Ministerial)	Status	Comments
1.	Draft, Final and Addendum Environmental Impact Report	Yes	Received	
2.	Environmental Impact Report Mitigation & Monitoring Plan	Yes	Received	
3.	San Francisco Bay Regional Water Quality Control Board Section 401 Certification	No	Received	
4.	BCDC	Yes	Originally to be approved by April 30, 07	Delayed to [June, 2007] due to San Francisco delay in consideration of its discretionary approvals.*
5.	San Francisco Bay Regional Water Quality Control Board Approval of Remedial Action Plan for HWC site in SF	No	To be approved by May 30, 07	On Schedule
6.	California Department of Toxic Substance control (DTSC) Remedial Action Plan for West Tenth Street Site in Pittsburg	No	To be approved by May 30, 07	On Schedule
7.	California Department of Toxic Substance Control (DTSC) Voluntary Cleanup Agreement	No	Received	
8.	BART Permit	No	To be approved by May 30, 07	On Schedule
9.	California Department of Transportation (CALTRANS) Encroachment Permit	No	Received	
10.	California State Lands Lease Agreement	Yes	Received	

Permits and Discretionary Approvals Status, cont'd

Local Permits

Item No.	Permit Description	Discretionary (vs Administrative or Ministerial)	Status	Comments
1.	City of Martinez Conditional Use Permit	Yes	Received	
2.	Port of San Francisco Construction License Agreement	Yes	Received	
3.	Port of San Francisco Operation License Agreement	Yes	Received	
4.	Port of San Francisco CEQA Approval	Yes	Received	
5.	San Francisco Board of Supervisors Approval of Construction & Operation License Agreement	Yes	Originally to be approved April 17, 07	Delayed until [June, 07]*
6.	San Francisco Board of Supervisors Approval of Major Encroachment Permit	Yes	Originally to be approved April 17, 07	Delayed until [June, 07]*
7.	San Rafael Lease Agreement	Yes	Received	
8.	Pittsburg Tenth Street Overlay District Zoning Text Amendment	Yes	Received	

*Based on information available at the time of preparation of this presentation.

More information will be available during the presentation on April 18.

Permits and Discretionary Approvals Status, cont'd

Construction Permits

Item No.	Permit Description	Discretionary (vs Administrative or Ministerial)	Status	Comments
1.	Building Permits Pittsburg and San Francisco	No	Construction Contractor Responsibility	After Financing
2.	Temporary Construction Permit	No	Construction Contractor Responsibility	After Financing
3.	Excavation and Site Grading Permit	No	Construction Contractor Responsibility	After Financing
4.	National Pollutant Discharge Elimination System (NPDES) Permit in Pittsburg & San Francisco	No	Construction Contractor Responsibility	After Financing
5.	Various Electrical, Mechanical, Plumbing, etc. Permits Pittsburg & San Francisco	No	Construction Contractor Responsibility	After Financing
6.	Fire Protection Permits	No	Construction Contractor Responsibility	After Financing
7.	Encroachment Permit to occupy Street	No	Construction Contractor Responsibility	After Financing

Status of Other Contracts and Agreements

- All Contracts and agreements are on track to be completed to support a financial closing and Notice to Proceed to Contractors in June, 2007
- Land: Full Site Control for Converter Stations has been Obtained
 - Two Tenant Termination Agreements are being finalized
- Cable Easements: Most of the Cable Route Rights Have Been Obtained
 - Land Cable Easements with One Counterparty are being finalized
 - SF Port Licenses need SF Board of Supervisors approval, as presented above
- Business Structure: All Necessary Agreements with City of Pittsburg and Pittsburg Power Company Have Been Completed.
- Construction and Operation & Maintenance:
 - EPC Contract with Siemens/Prysmian Consortium, Site Prep and Remediation Contract with URS, O&M Contract with Cross Sound Cable Company and Owner's Engineer with Energy Initiatives Group are Being Finalized
 - Project Labor Agreements complete
 - Interconnection and Special Facilities Agreements complete with PG&E and filed at FERC for approval
- FERC have approved the Letter Agreement between TBC and PPC, the Project's Rate Principals, the Transmission Control Agreement, and the Special Cost Allocation Tariff Amendment
- CAISO have approved the need for the Project, the TCA, the Special Cost Allocation Tariff Amendment, and conditionally approved TBC's PTO Tariff Application

The Change to HVDC Plus Converter Technology

The Basis for Change to HVDC Plus Converter Technology

- Reduced Environmental Impact of HVDC PLUS Technology
- Availability of the HVDC Plus Technology
- System Benefits of VSC Technology
- Overall Cost Benefits to the Project
- Assured Project Schedule, Performance and Reliability

Project Cost Impacts of HVDC Plus Technology

In Part Due to the Use of HVDC Plus Technology, TBC's Cost Increases are Far Lower Than Have Occurred on Other Transmission Line and Large Infrastructure Projects (See Appendix)

	<u>Original Cost Estimate</u>	<u>Current</u>
Cost Components (\$MM)		
Construction Costs	\$200	\$317
Non-Construction Costs*	\$103	\$123
Total Capital Cost Estimate	\$303	\$440
Estimated Value of Included VAR Support	N/A	~\$40
Net		~\$400

*Interconnection Costs, Land Costs During Construction, Mitigations, Development Costs, Financing Fees and Costs, Project and Construction Management, Reserves and Contingency, Startup Costs, etc.

Next Steps

Next Steps

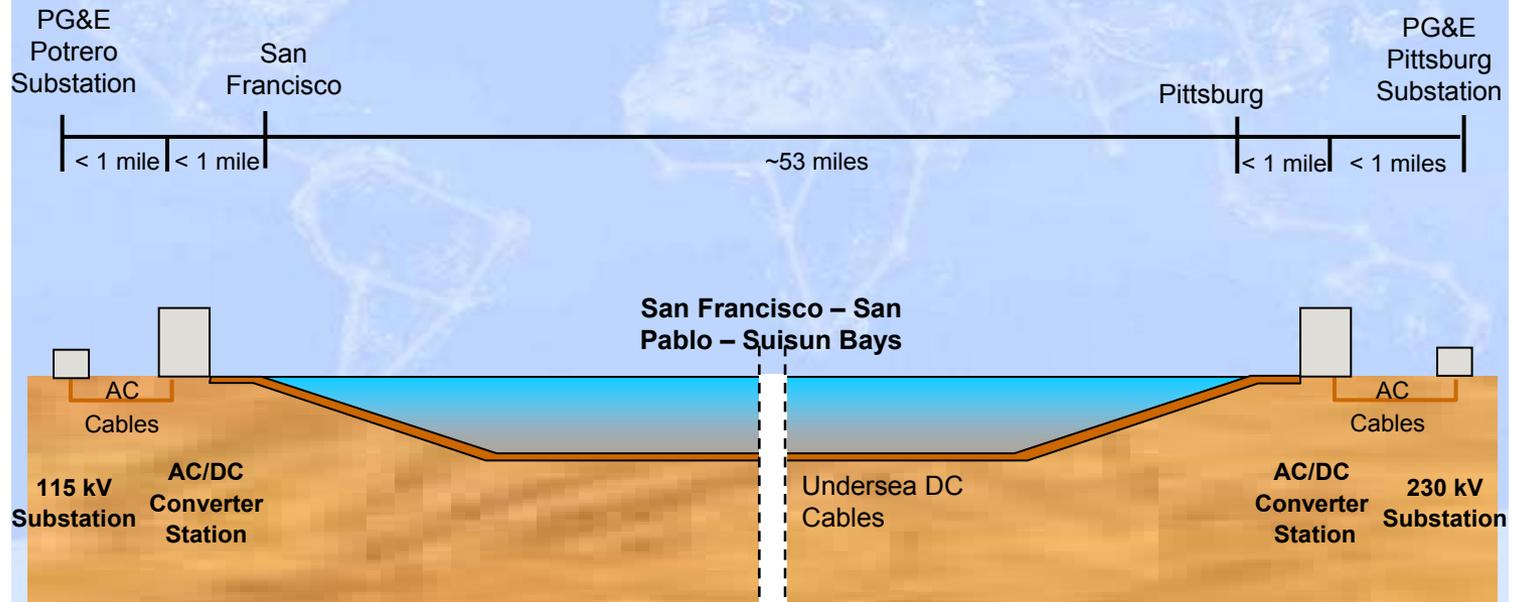
- Requested/Suggested Board of Governors Resolution
 - Approval of an extension of time until [June 30, 2007] under CAISO Board of Governor's resolution dated September 8, 2005 to receive the final discretionary development approvals from the San Francisco Board of Supervisors and the BCDC. [Suggested draft wording to be supplied on or before April 18.]

Appendices

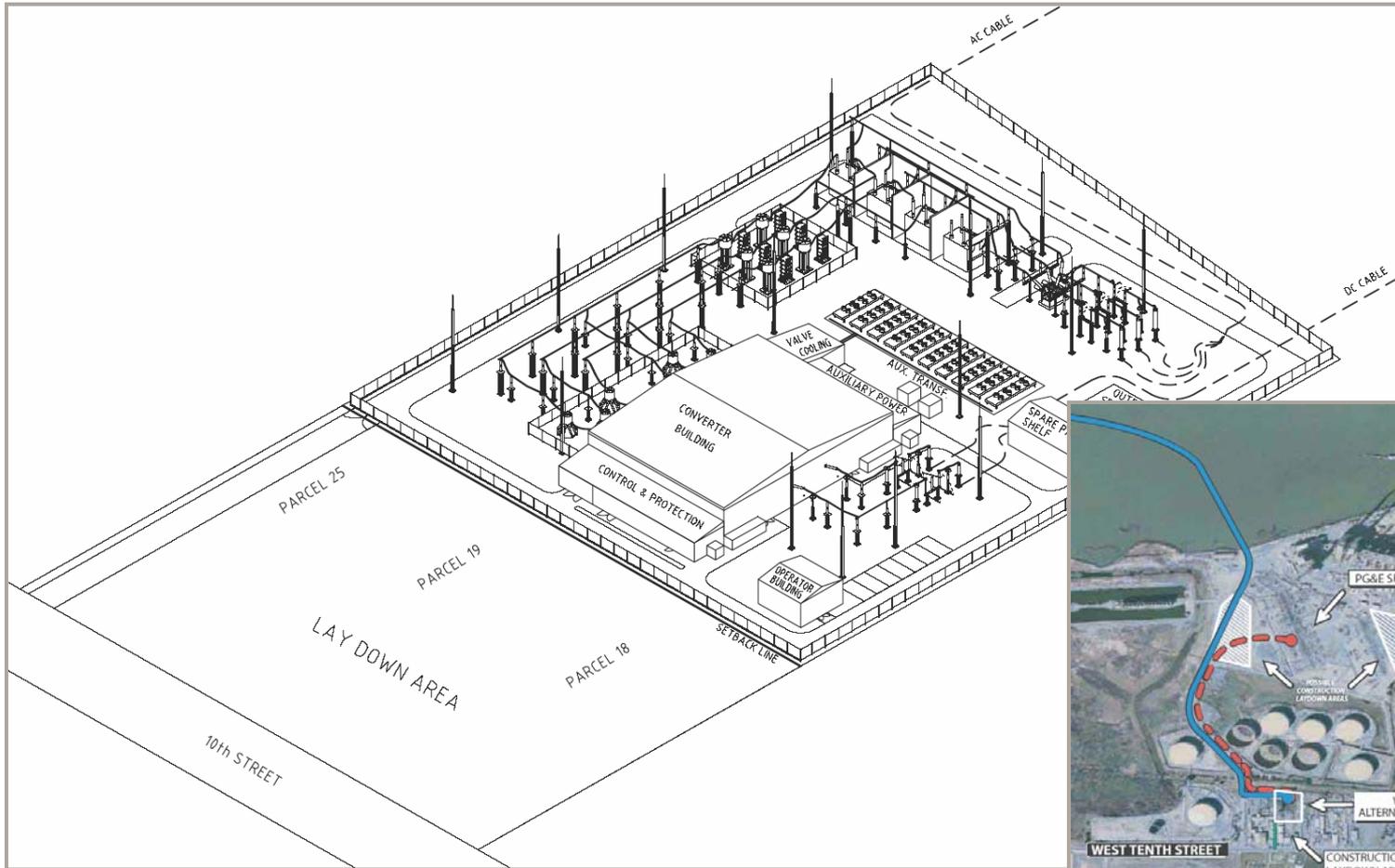
Summary of Trans Bay Cable Project

Trans Bay Cable Project - Cable Interconnections

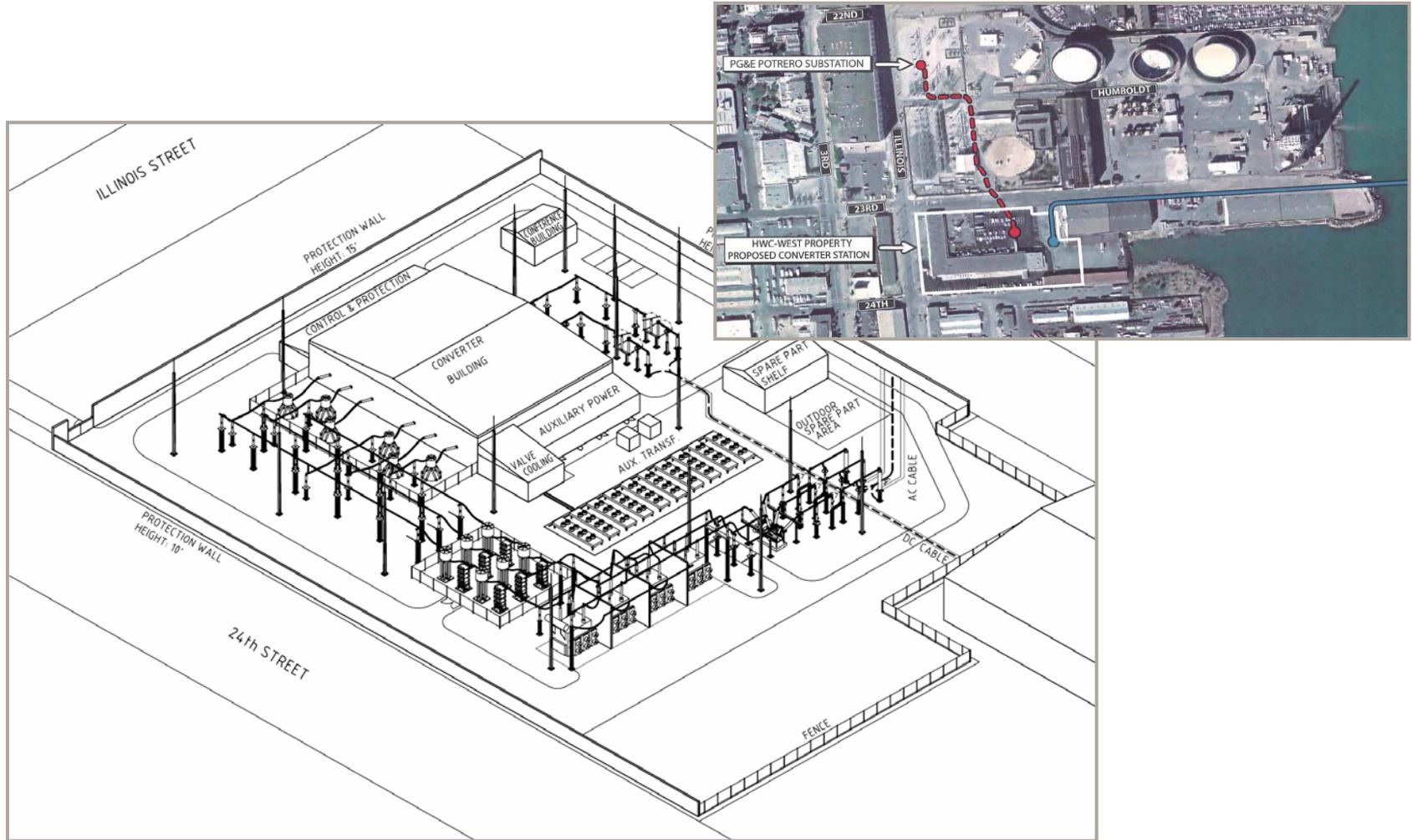
- Converter: Modular Multilevel HVDC PLUS Converter
- Rated Power: 400MW @ AC Terminal Receiving End
- DC Voltage: ± 200 kV
- Submarine Cable: XLPE (Extruded Insulation)



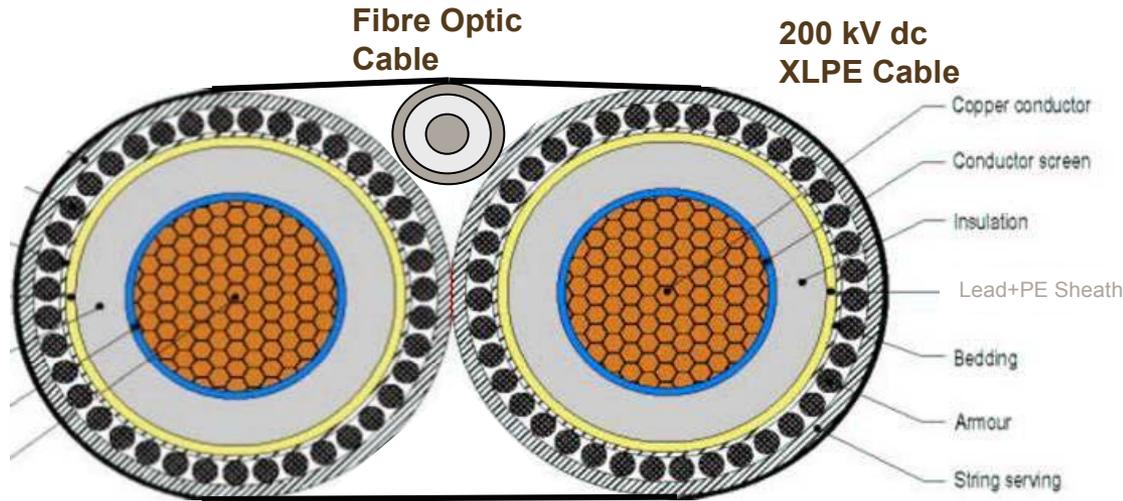
Trans Bay Cable Project - Pittsburg Converter Station



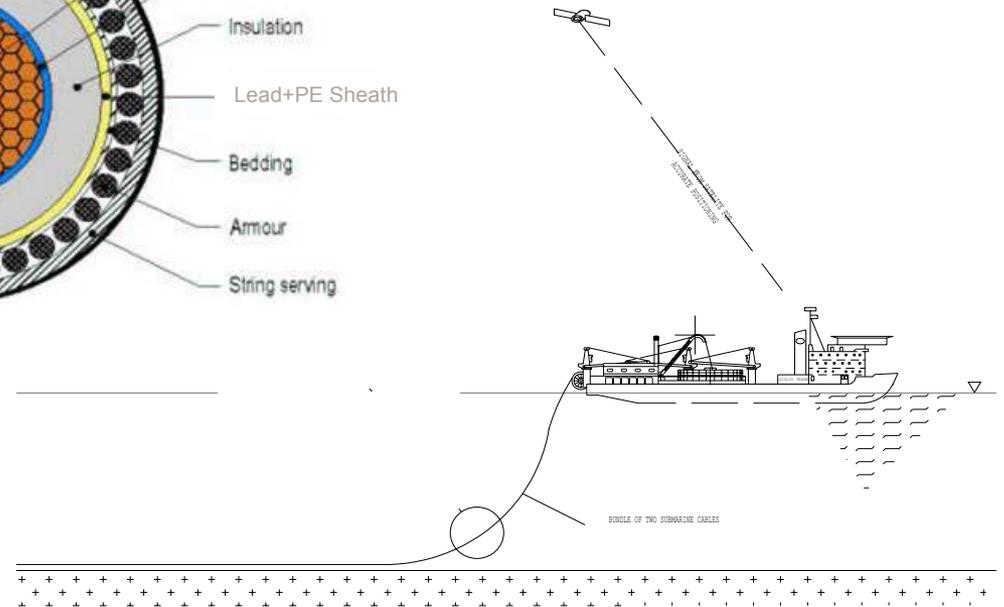
3D View of the HWC Converter Station Site in San Francisco, Siemens HVDC PLUS Technology



Cable Cross Section of Prysmian's HVDC Cable



The cables will be simultaneously installed in a **Bundle** configuration, fastened together with ropes and straps applied before approaching the laying sheave. The bundle is approximately **10 inches** in diameter.



Trans Bay Cable Project - Proposed Cable Laying Vessels

Ship: Giulio Verne (Deep Water Cable Installer)



Barge (Shallow Water Cable Installer)



Hydroplow



Further Information on HVDC Plus Converter Technology

Reduced Environmental Impact of HVDC PLUS Technology

FACTOR	HVDC Classic	HVDC PLUS
Converter Station Building Height	65 feet	35 feet
Noise Along Illinois St. in San Francisco	72 dB	48 dB
Lightning Arrestor Posts	85 feet	65 feet (1/3 less required)
Footprint	~5 acres	~3 acres
AC Filters	Included	Not required
Landscaping	Limited capability	Smaller footprint allows for more aesthetically pleasing landscaping
Transformers	---	Smaller than Classic
VAR Support Otherwise Provided by Generation Projects	None	+/- 170-300 MVAR available at Pittsburg and Potrero without additional equipment
Generators (and Associated Air emissions)	Emergency generator and fire deluge pump required	None required

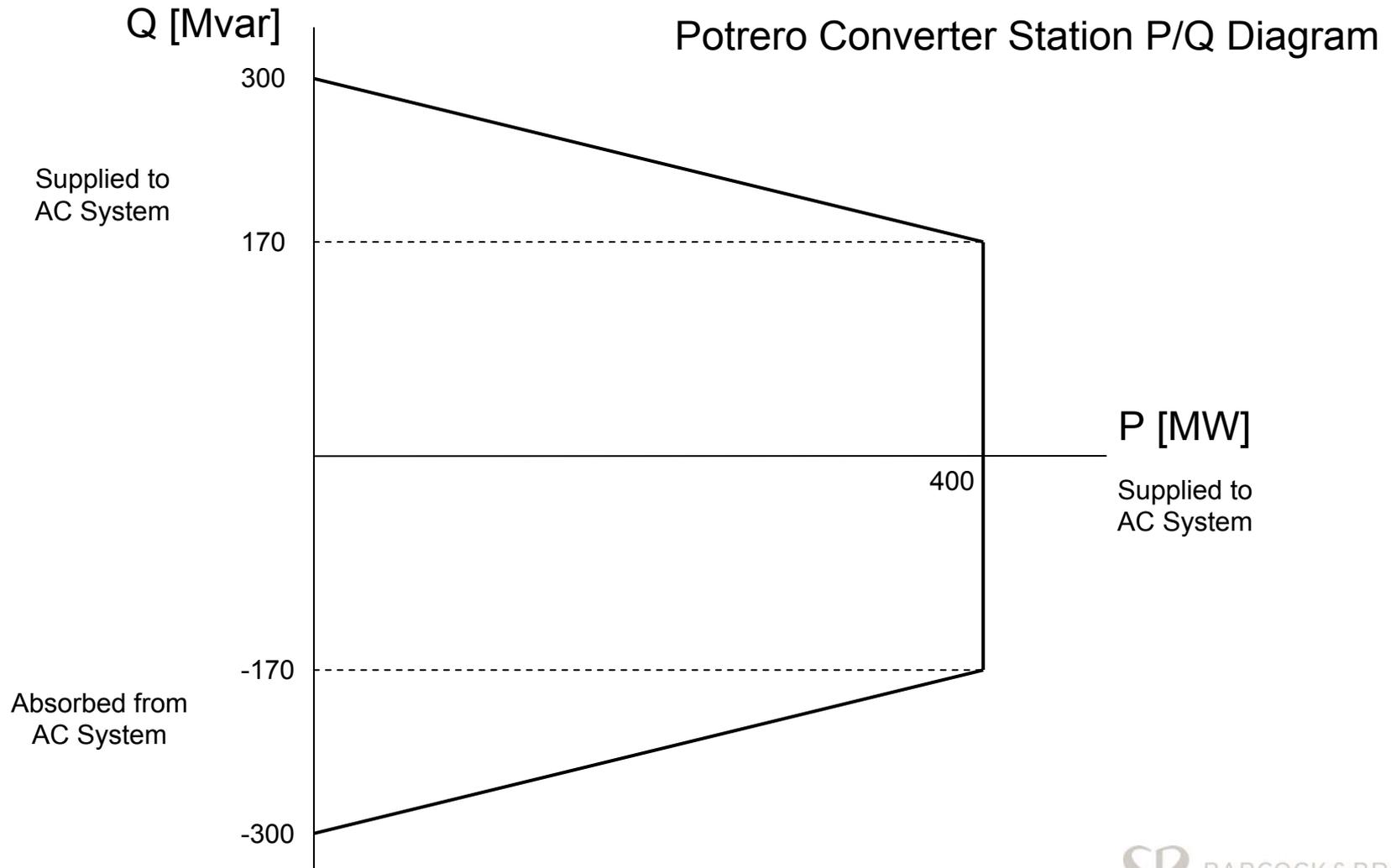
Availability of HVDC PLUS Converter Technology Confirmed Through Detailed Technical and Commercial Review

- The Siemens HVDC PLUS technology became available due to both on-going R&D efforts and the Neptune RTS project engineering development, manufacture, test, and installation of the Active Filter Systems.
 - Efficacy of underlying technology (Modular Multilevel Converter – HVDC PLUS) had already been proven successful, confirmed during a type test.
- Siemens had extensive experience in Voltage Source Converter (VSC) technology with different power ratings up to 100MVA:
 - Early HVDC PLUS development with two-level technology, SIPLINK* technology, static frequency cascaded converters and UPFC (FACTS System technology).
 - Modular Multilevel Converter technology design had very good scalability features
- Siemens had committed significant resources aimed at completing all of the required type testing and obtaining all of the approvals for the new technology.
 - Siemens will be constructing a full scale Back-to-Back HVDC station, a 12 level design with a power rating of 28MW, for the final Prototype Test program.
- Siemens has committed to an extensive on-site, Project testing and commissioning program designed to ensure a smooth commercial operation start.
 - Scheduled start of this event is September, 2009, more than 6 months before the planned COD.

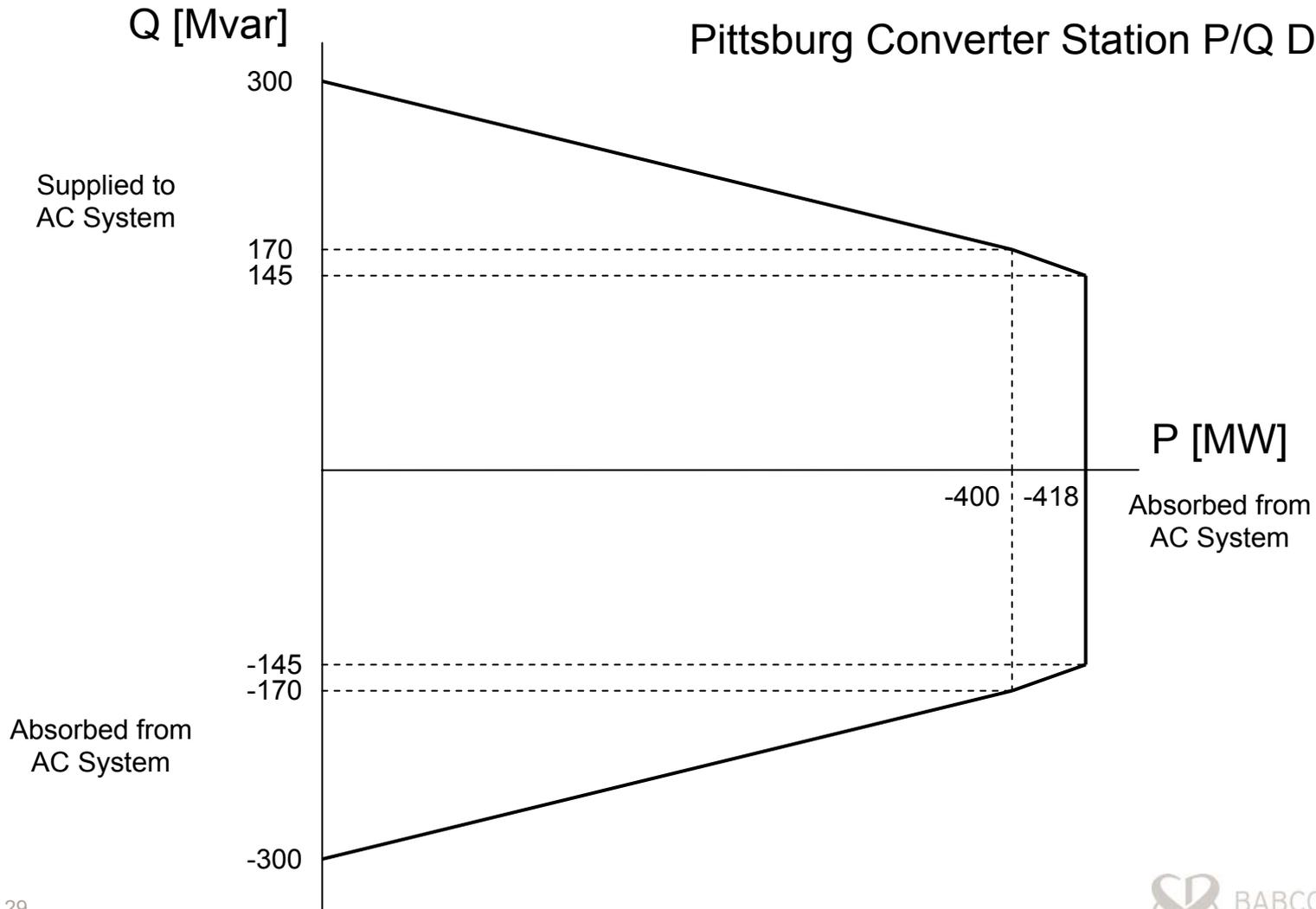
Grid System Benefits of HVDC PLUS Technology

- Dynamic Control of Reactive Power
- Reduced System Harmonics
- Compatibility with PG&E's SF Area SVC's

HVDC PLUS Technology System Benefits - Significant VAR Support to the Grid



HVDC PLUS Technology System Benefits - Significant VAR Support to the Grid



Project Cost Impacts of HVDC Plus Technology

- The original project capital cost estimate range for FERC and CAISO approvals was \$300mm, -25%/+50%: (\$225 – 450mm).
- The project capital cost estimate was based on 2004 cost estimates for the Turnkey EPC contract.
- TBC learned of possible EPC contract cost estimate escalation in late May, 2006.
- In August 2006, as with many/most large construction projects around the world, we were informed by Siemens/Prysmian that their EPC cost estimate had increased to a point to where the Total Project Capital Cost would have exceeded \$450mm:
 - Currency fluctuations (Weakening USD)
 - Commodities (copper, steel, concrete, etc.) inflation
 - SF building index inflation
 - SF subcontractor index inflation
 - Increased world demand for HVDC, including submarine HVDC, and other large infrastructure projects
 - Certain unknowns:
 - Implications of geotechnical and environmental studies and Marine Survey
 - Other

Project Cost Impacts of HVDC Plus Technology, cont'd

- TBC undertook several actions:
 - Negotiation of terms and conditions of EPC Contract continued
 - Many alternatives explored with Siemens/Prysmian in relation to scope of supply
 - TBC undertook HVDC market price comparisons to other projects
 - Dr. Mohamed Rashwan was retained to undertake HVDC market price study
 - TBC prepared for a competitive bid process for the HVDC supply
 - TBC advised CAISO Staff of the potential cost increase
- TBC elected to continue with Siemens and Prysmian as EPC contractors with HVDC PLUS Technology due to several factors
 - Reduced Environmental Impact, increasing the likelihood of approval of Project's EIR
 - VSC ("HVDC PLUS") Technology Availability
 - HVDC PLUS Technology System Benefits due to VAR support are estimated to be worth approximately \$40mm
 - Substantially lower costs than indicative HVDC "Classic" design
 - Assured Project Schedule, Performance and Reliability

TBC's EPC Contract and Other Project Features Will Assure Project Schedule, Performance and Reliability

- Terms and Conditions of the EPC Contract Include:
 - Lump Sum Fixed Price Contract
 - Warrantees for power transfer capability and losses and Project availability
 - Guaranteed completion date of March, 2010
 - Liquidated Damages for missing performance, schedule or availability guarantees
 - Damages generally cover full cost of loss, which will be accommodated in rates in the event they are paid
 - Joint and several liability by Siemens and Prysmian, with parent guarantees
 - 3 year Warranty
 - Significant type-test requirement
 - Replacement guarantee
 - Obligation to correct a “Root cause” problem
- Other Features of Project's Business Structure
 - First class technical support team of EIG and Cross Sound Cable Company (“CSCC”) personnel are assisting TBC. This support will continue during construction and operation. CSCC, now operating the Cross Sound Cable HVDC Project, will O&M TBC.
 - E3, with assistance of Trans Grid Solutions (Dr. Mohamed Rashwan), will conduct a full Independent Engineer review of all aspects of the Project prior to close of financing.

Why the Trans Bay Cable Project is Important to San Francisco

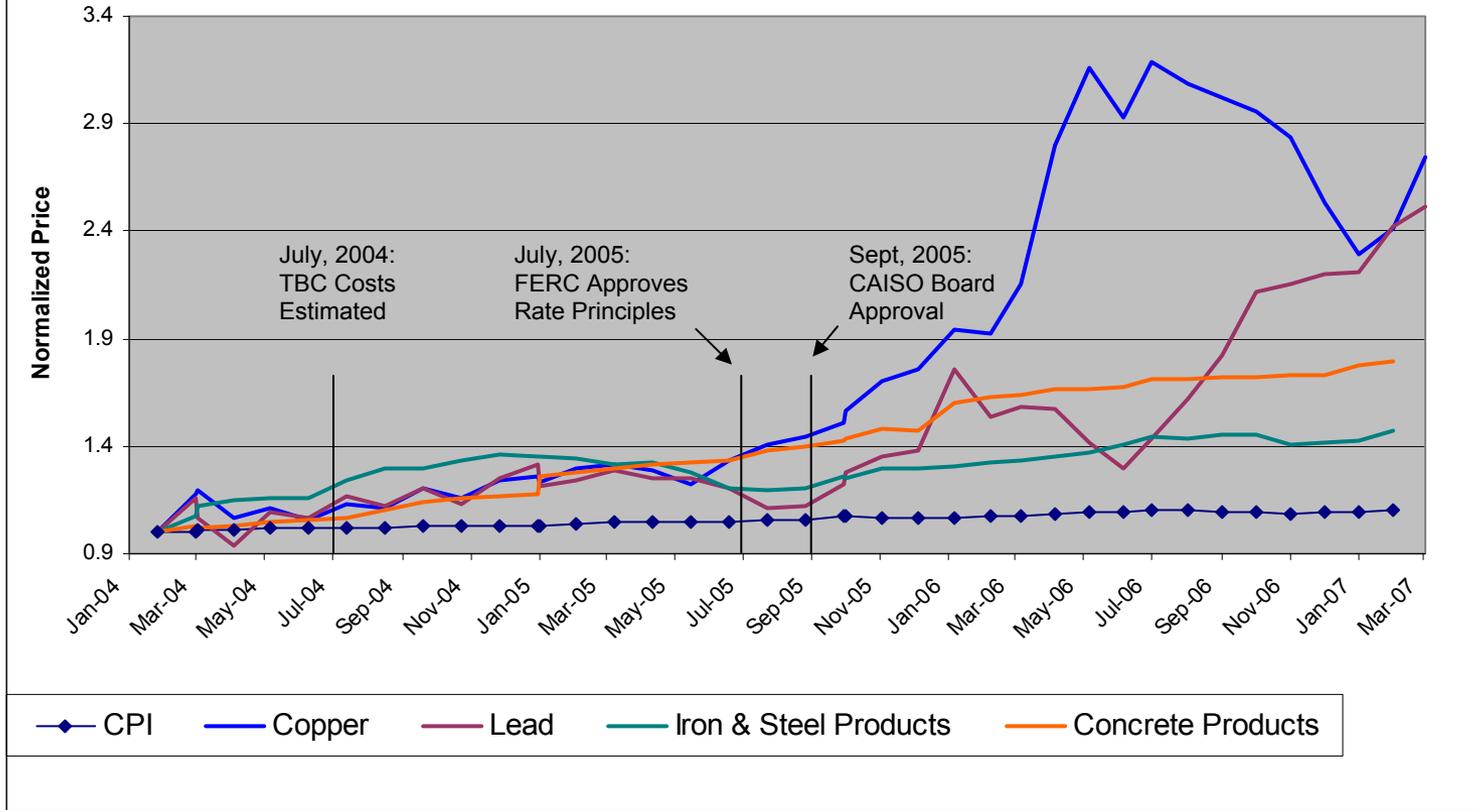
Why the Trans Bay Cable is Important to San Francisco

- The Trans Bay Cable Project is the only Project That can be Placed in Service Prior to the Summer, 2010 CAISO Need Date to Prevent Rolling Blackouts, as Determined by the CAISO SF Action Plan Update of February 15, 2007
- CAISO Conducted a Multi-Year Stakeholder Study Process to Solve San Francisco's Electric Infrastructure Problems
 - Phase I results, San Francisco Action Plan:
 - Operations of Jefferson to Martin transmission line allowed for the shut down of Hunters Point Power Plant
 - CAISO will remove the RMR from the Mirant Potrero Power facility after the SFERP is in commercial operation
 - Phase II Results: TBC selected as Long Term Reliability Solution needed by 2012
 - CAISO Board approved project for 2009 COD due to improve operating capabilities and economic benefits
 - Need date updated to Summer, 2010 in February, 2007
- Five other Alternatives Were Considered and Rejected by the Stakeholder Process
 - Do Nothing
 - “Band-Aid”
 - PG&E Moraga-Potrero Transmission Line
 - PG&E Tesla (Tracy)-Potrero Transmission Line
 - Load Management, Distributed Generation, Renewables

Trends in Commodity and EPC Contract Prices

Commodity Price Increases Since 2004

Commodity Prices vs. Inflation

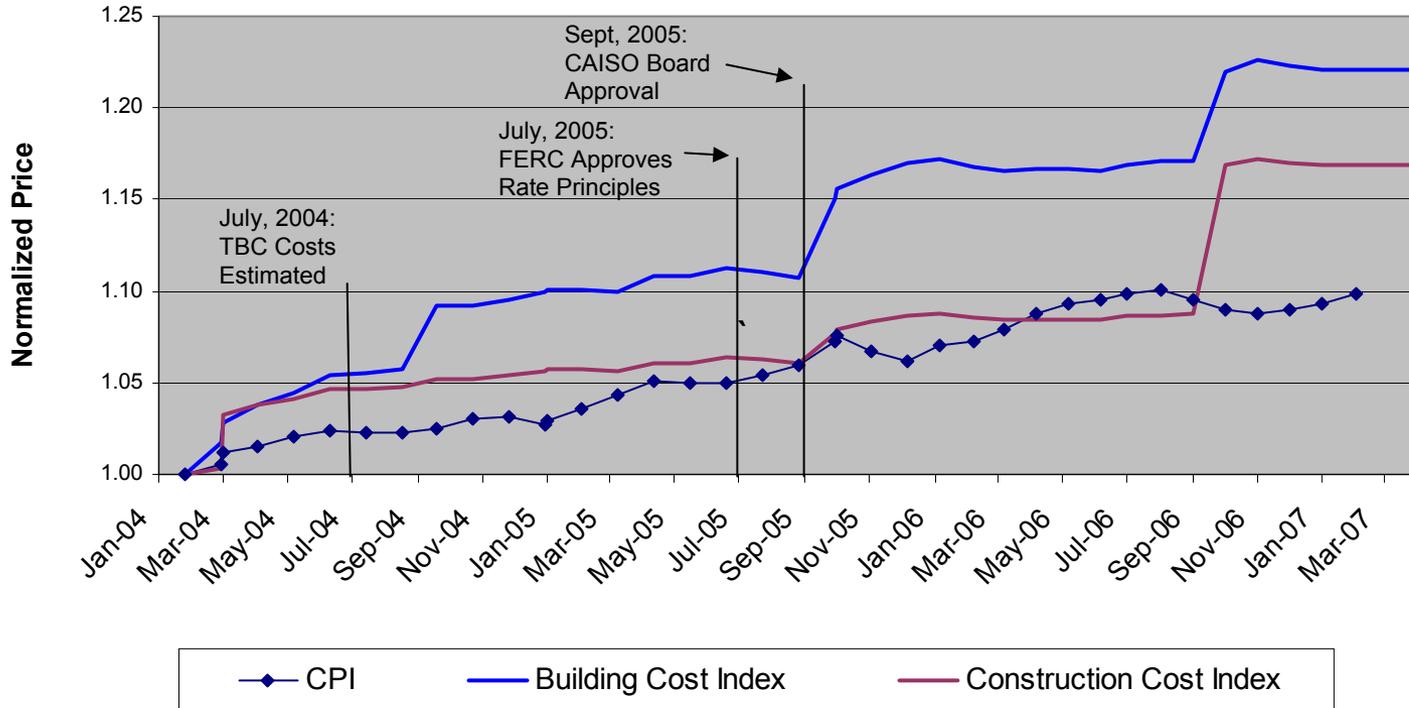


- % of starting price:
- copper: 275%
- lead: 251%
- concrete: 180%
- iron/steel: 147%

Source: London Metal Exchange Indices, Bureau of Labor Statistics

Construction Price Increases Since 2004

Construction Cost Indices vs. Inflation



- Building Cost Index:
 - 63% Skilled Labor
 - 22% Steel
 - 13% Lumber
 - 2% Cement
- Construction Cost Index:
 - 79% Common Labor
 - 12% Steel
 - 8% Lumber
 - 1% Cement

Source: Engineering News Record, *Quarterly Cost Report*, San Francisco Indices

EPC Contract Price Increases – Market Trends

- The construction price of five coal-fired generation projects (600MW-1200MW) which commenced construction in 2005 through early 2006 ranged from \$1250 to \$1500/kW with most falling in the lower end of the range. Construction pricing for new projects in the summer of 2006 was in the range of \$1850 - \$2100/kW, an increase of 40-48%.
- “Otter Tail Power Co. officials told Minnesota regulators last week that the price of building the coal-burning Big Stone II plant could reach \$1.8 billion, because of higher costs for labor, steel, pollution control equipment and other factors.” *Knight-Ridder Tribune Business News* (July 27, 2006)
 - The project had been budgeted at \$1.2 billion, a cost increase of 50%.
- “Tennessee Gas Pipeline Co. (CP04-60) told FERC recently that it actually cost almost twice the original amount that it had estimated it would pay to build the Tewksbury-Andover Lateral Project. In May 2004, Tennessee applied to FERC for authorization to install approximately 5.31 miles of an 8-inch pipeline in Tewksbury and Andover... The original estimate was set at about \$7.7 Million but the final tally is closer to \$12.5 million.” *Foster Natural Gas Report* (May 26, 2006)
 - Cost increase of 62%.

EPC Contract Price Increases – Market Trends, cont'd

- “The Vermont Electric Power Company (VELCO) originally expected the Northwest Vermont Reliability Project to cost about \$120 million. The utility hiked the estimate to \$228 million, citing rising fuel and construction costs, and changes in project design mandated by state regulators. The project, which includes 35 miles of 345kV and 27 miles of 115 kV, is considered crucial for Vermont’s reliability.” *Megawatt Daily* (September 20, 2005)
- Northeast Utilities Southwest Connecticut Phase 1 costs increased by 238% from 2002 to 2006 and by 179% from 2003 to 2006. Phase 2 costs increased by 200% from 2002 to 2006 and by 130% from 2003 to 2006.
- National Grid’s Central MA project costs increased by 48% from 2004 to 2006.
- B&B wind energy projects have seen similar cost increases. Two similar projects, at generally the same site, with commercial operation dates (COD) in 2004 and 2007/8, have experienced turbine and Balance of Plant cost increases of 43% and 59%, respectively.
- PG&E’s Jefferson-Martin and Martin-Hunters Point transmission lines have experienced significant cost increases, with the latter now being estimated at nearly of 250% of original estimates