California ISO
Your Link to Power

February 22, 2010

VIA ELECTRONIC MAIL AND HAND DELIVERY

bkelley@waterboards.ca.gov

Mr. David Gibson
Executive Officer,
c/o Brian Kelley
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, California 92123-4340.

Re: In the Matter of Dynegy South Bay, LLC
SBPP Issue Submittal

Dear Mr. Gibson,

Consistent with timeframe established by the Notice of Public Hearing of the California Regional Water Quality Control Board for the San Diego Region, please find enclosed fifteen (15) copies of the prepared witness statements of Dr. Ali Asraf Chowdhury and Mr. Gregory Van Pelt on behalf of the California Independent System Operator Corporation.

Thank you in advance for your consideration.

Respectfully,

Andrew Ulmer
Counsel

Enclosures

cc: Margaret Rosegay, Esq. (via electronic mail)
Ms. Laura Hunter (via electronic mail)
Bart Miesfeld, Esq. (via electronic mail)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

In the Matter of **Dynegy South Bay, LLC** **South Bay Power Plant** **San Diego County**	

Prepared Testimony of Dr. Ali Asraf Chowdhury

on behalf of the California Independent System Operator Corporation

February 22, 2010

I. Witness Qualifications and Purpose of Testimony

Q1. Please state your name?

A1. My name is Ali Asraf Chowdhury.

Q2. By whom are you employed?

A2. I am employed by the California Independent System Operator Corporation (the ISO), located at 151 Blue Ravine Road, Folsom, CA 95630. The ISO is a nonprofit public benefit corporation that operates the electric transmission grid serving over 80 percent of California's electric load for the benefit of California's citizens. My title is Director of Regional Transmission. I oversee transmission planning efforts for the southern region of the ISO balancing authority area, which includes the service territory of Southern California Edison Company, San Diego Gas & Electric Company, and the Cities of Anaheim, Asuza, Banning, Pasadena, Riverside and Vernon.

Q3. Please describe your professional background?

A3. I have been employed by ISO since June 2007 as Director of Regional Transmission. Prior to joining the ISO, I held increasingly senior management positions at General Electric Company, Atlantic Nuclear Services, Alberta Power

Limited and MidAmerican Energy Company. At the ISO, I am responsible for among other things planning to maintain reliability of the transmission system and performing generation interconnection studies.

I served as the Chairman of the Reliability Task Force of the Alberta Electric Utility Planning Council from 1990 to 1996 and as the Chairman of the Co-ordination of Reliability Information Group of the Grid Company of Alberta, Inc. from 1996 to 1998. I have also served as the Chairman of the Mid-Continent Area Power Pool's Composite System Reliability Working Group. I am actively involved in the activities of several working groups and subcommittees of the Institute of Electrical and Electronics Engineers. I have served as a member of the Midwest Independent System Operator System Adequacy Working Group. Currently, I am the Chairman of Electric Power Research Institute Reliability Task Force.

I am a licensed Professional Engineer in the state of Texas, as well as in Alberta, Canada and the United Kingdom. I hold a Master of Science degree with honors in electrical engineering from the Belarus Polytechnic Institute in Minsk, Belarus. In addition, I earned a Master of Science and Doctor of Philosophy degrees in electrical engineering with specialization in power systems reliability and security at the University of Saskatchewan in Canada and a Master of Business Administration degree from the St. Ambrose University in Davenport, USA.

Q4. What is the purpose of your testimony?

A4. The purpose of my testimony is to describe the ISO's planning efforts that resulted in designating units 1 and 2 and the combustion turbine unit at the South Bay Power Plant as Reliability Must Run Units for the 2010 calendar year. This designation means the generation is required to be available for reliability reasons, including meeting reliability criteria of the North American Electric Reliability Corporation and the Western Electricity Coordinating Council, meeting demand of loads in transmission constrained areas, and providing voltage or

security support to the ISO balancing authority area or the San Diego local capacity area.

II. The ISO conducts a local capacity technical analysis to identify whether sufficient capacity is available to support reliable operation of the transmission system in transmission constrained areas

Q5. Can you briefly describe what assessment, if any, the ISO prepared in connection with designating units 1 and 2 and the combustion turbine unit at the South Bay Power Plant as Reliability Must Run Units for the 2010 calendar year?

A5. The ISO performed a local capacity technical analysis. This study identifies the minimum amount of resources within transmission constrained areas – known as local capacity areas – that must be available to support the reliable operation of the transmission system. The study also indentifies generating units within each local capacity area that must be available to support the reliable operation of the transmission system. As part of its study process, the ISO collaborates with the California Public Utilities Commission, Load Regulatory Authorities within the ISO balancing authority area, federal agencies, and market participants. The ISO undertakes the study annually through a process that is open to public participation. The ISO completed the 2010 Local Capacity Technical Analysis in 2009. A copy of the ISO's Final Report and Study Results for the 2010 Local Capacity Technical Analysis is available on the ISO's website at the following address: http://www.caiso.com/2495/2495c69b28da0.pdf. The ISO will undertake the 2011 Local Capacity Technical Analysis this year.

Q6. How, if at all, if this study relevant to the San Diego area?

A6. San Diego is one of ten local capacity areas within the ISO's balancing authority area.

III. The ISO relies on planning criteria identified in its federally-approved tariff to complete its Local Capacity Technical Analysis and also adheres to reliability standards established by the North American Electric Reliability Corporation

Q7. What parameters, if any, define the ISO's Local Capacity Technical Analysis?

A7. The Local Capacity Technical Study determines the minimum amount of resources within a local capacity area needed to address reliability concerns following the occurrence of contingencies on the electric system as identified in the ISO's federally-approved tariff and applicable reliability standards adopted by the North American Electric Reliability Corporation. Among other parameters, the study requires that the ISO plan for contingencies such as the loss of transmission facilities while local generation is out of service. This planning approach ensures that the ISO can contain system impacts that might otherwise result from the loss of transmission and generation facilities.

Q8. Can you identify the planning criteria the ISO relied upon to conduct the 2010 Local Capacity Technical Study for the San Diego Region?

A8. The ISO adheres to national and regional planning standards to conduct the 2010 Local Capacity Technical Study for the San Diego Region. The ISO has indentified these planning criteria in Section 40.3 of its federally-approved tariff. A copy of Section 40.3 of the ISO's tariff is available at the following website: http://www.caiso.com/2495/2495937e59f0.pdf. In addition to the planning criteria for the Local Capacity Technical Study set forth in its tariff, the ISO also adheres to reliability standards of the North American Electric Reliability Corporation to determine if sufficient capacity is available in local capacity areas like San Diego. These reliability standards include the following:

Standard TPL-001-0 — System Performance Under Normal Conditions. This standard requires the ISO to plan the electric system so that it can operate to supply projected customer demands over a range of forecasted demand with all transmission facilities in service and with normal operating procedures in

effect. This planning standard refers to a Category A contingency. A copy of this standard is available at the following website: http://www.nerc.com/files/TPL-001-0.pdf

Standard TPL-002-0 System Performance Following Loss of a Single Bulk Electric System Element. This standard requires the ISO to plan the electric system so that it can operate to supply projected customer demands over a range of forecasted demand under specified contingency conditions such as the loss of a generator or transmission circuit. This planning standard refers to a Category B contingency. A copy of this standard is available at the following website: http://www.nerc.com/files/TPL-002-0.pdf. Outages of generation facilities can have a significant impact on the ability to maintain reliable electric service in transmission constrained areas during a transmission contingency. In consultation with market participants and participating transmission owners in the ISO's balancing authority area, the ISO has adopted planning standards to clarify that for the ISO balancing authority area, a Category B contingency shall reflect a combined outage of a generator and a transmission circuit. The ISO adopted this combined generator and transmission line outage as a Category B contingency to address the fact that the ISO operates a large balancing authority area in which generating facilities are often subject to planned or forced outages. This standard has been in effect since the inception of the ISO's operations and is similar to planning approaches used in other balancing authorities in the United States. A copy of the ISO's Planning Standards is available at the following website: http://www.caiso.com/docs/09003a6080/14/37/09003a608014374a.pdf

Standard TPL-003-0 System Performance Following Loss of Two or More Bulk Electric System Elements. This standard requires the ISO to plan the electric system so that it can operate to supply projected customer demands over a range of forecasted demand under specified contingency conditions such as the loss of both a generator or transmission circuit. This planning standard refers to a Category C contingency. A copy of this standard is available at the following website: http://www.nerc.com/files/TPL-003-0.pdf

Standard TPL-004-0 System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements. This standard requires the ISO to plan the electric system to assess the risk and consequences resulting from extreme contingency events. This planning standard refers to a Category D contingency. A copy of this standard is available at the following website: http://www.nerc.com/files/TPL-004-0.pdf The ISO has also adopted a reliability criteria in its federally-approved tariff that do not allow for a voltage collapse of the electric system or dynamic instability of the system that would result in cascading outages following a Category D contingency. This requirement is also applicable to Category A, B and C contingencies.

Q11. Please describe why the ISO's adopted reliability criteria do not allow for voltage collapse or dynamic instability of the electric system following a Category A, B, C or D contingency?

A11. The ISO's adopted reliability criteria reflect North American Electric Reliability Corporation planning standards which do not allow for cascading outages for Category A, B or C contingencies. The ISO's adopted reliability criteria seek to mitigate potential cascading outages within its balancing authority area as well as to other neighboring balancing authority areas. Cascading outages, typically caused by voltage collapse or dynamic instability, occur when there is uncontrolled loss of system elements. Voltage collapse is analogous to the total loss of water pressure in a water system. Dynamic instability occurs when a power generator loses synchronism with other elements of the electric system such as load. Dynamic instability is typically triggered by critical outage conditions and can result in widespread loss of power to load centers.

Q12. Does the ISO plan for load shedding in the event of a Category B contingency?

A12. Under the North American Electric Reliability Corporation reliability standards, the ISO does not plan to shed load in response to Category A and B conditions, except when limited to radial load customers or some local network customers.

A different planning approach for San Diego would constitute a departure from existing practice and degrade current service expectations by increasing the exposure of load to service interruptions.

Q13. Do the ISO's planning standards allow the ISO to plan to drop load within the San Diego area in the event of a Category B contingency?

A13. No. The ISO's planning standards do not recognize involuntary load interruption as an acceptable consequence in planning for Category B contingencies, except when limited to radial load customers or some local network customers.

Q14. For the San Diego area, which specific transmission facility does the ISO plan to be out of service during a Category B contingency?

A14. Currently, the ISO plans for the Southwest Powerlink 500 kV transmission line to be out of service during a Category B contingency in the San Diego area. This transmission circuit is currently the only 500 kV transmission line that provides access to electricity imports from Arizona to the San Diego area.

Q15. For the San Diego area, which specific generation facility does the ISO plan to be out of service during a Category B contingency?

A15. The ISO plans for either the Otay Mesa Energy Center or the Palomar Energy Center to be out of service during a Category B contingency in the San Diego area.

IV. South Bay units 1 and 2 and its combustion turbine unit must continue to operate during 2010 to maintain local grid reliability.

Q16. Can you please describe the ISO findings from the 2010 Local Capacity Technical Analysis with respect to the San Diego area?

A16. The ISO determined the local capacity requirement in the San Diego area for 2010 based on a load and resource assessment under a Category B outage in which the Otay Mesa Energy Center and Southwest Powerlink 500 kV

transmission line were out of service. Table 1 illustrates the calculation that determines the surplus (or deficiency) of generation capacity in the San Diego area.

Table 1 – Load & Resource Table for 2010

	Resources without South Bay	**(MW)**
1	Existing 2009 Resources	+2,247
2	**New Generation Additions in 2009**	
	Otay Mesa (energized October 2009)	+603
	Miramar 2 (energized July 2009)	+48
3	CPUC-Approved Demand Side Management	+85
4	**Subtotal Resources (Sum of Lines 1 – 3)**	**2,983**
5	1-in-10 year Load Forecast from CEC	5,127
6	Transmission Contingency (Loss of Southwest Powerlink)	-2500
7	Generation Contingency (Loss of Otay Mesa Energy Center)	+603
8	LCR Requirement in San Diego (Sum of Lines 5 – 7)	3,230
9	Surplus/Deficiency for San Diego Area (Line 4 – Line 8)	(247)

Q17. How, if at all, do these findings affect the need for continued operation of the South Bay Power Plant?

A17. The above findings reflect that there is a need of 247 MW of generation for 2010 to mitigate a resource deficiency in the San Diego area. The availability of units

1 and 2 at the South Bay Power Plant resolves this resource deficiency. The combustion turbine unit at the South Bay Power Plant provides the ISO with black-start generation capability, which the ISO uses to restore power to a power generating station without relying on external resources.

Q18. Does the San Diego area have sufficient capacity to account for a Category B contingency?

A18. Yes, as determined by the ISO's 2010 Local Capacity Technical Analysis, San Diego currently has sufficient capacity under applicable planning criteria so long as South Bay Power Plant units 1 and 2 and the combustion turbine unit remain available.

Q19. How, if at all, does the dispatch of energy from units 1 or 2 or the combustion turbine unit at the South Bay Power Plant support reliable electricity service in San Diego?

A19. These dispatches ensure sufficient energy is available to serve San Diego's demand. In addition, the dispatch of generation at the South Bay Power Plant provides voltage support and stability to the electric system in the San Diego area.

V. South Bay Power Plant units 1 and 2 and combustion turbine unit are subject to a reliability must run contract for the 2010 calendar year.

Q20. Please describe what actions, if any, the ISO has taken with respect to the South Bay Power Plant based on the findings of the 2010 Local Capacity Technical Study.

A20. At its meeting on September 10 and 11, 2009, the ISO Board of Governors designated units 1 and 2 and the combustion turbine unit at the South Bay Power Plant as Reliability Must Run. A copy of the ISO Board of Governors' Decision is available at the following websites:

http://www.caiso.com/241e/241ebbea3c9c0.pdf and
http://www.caiso.com/242a/242ae67b2750.pdf

On September 30, 2009, the ISO informed Dynegy that the ISO intended to extend the term of the reliability must run contract applicable to South Bay Power Plant units 1 and 2 and the combustion turbine unit for the 2010 year. The ISO also terminated South Bay Units 3 and 4 Reliability Must Run (RMR) designations effective at midnight of December 31, 2009,

Q21. What is your understanding, if any, of designating the South Bay Power Plant units 1 and 2 and the combustion turbine unit as Reliability Must Run Units for 2010?

A21. The Reliability Must Run agreement between the ISO and Dynegy will remain in effect for units 1 and 2 and the combustion turbine unit at least through December 31, 2010. Among other obligations, these units must remain available during this timeframe as local capacity to support the reliable operation of the electricity grid.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
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In the Matter of **Dynegy South Bay, LLC** **South Bay Power Plant** **San Diego County**	

Prepared Testimony of Gregory Van Pelt

on behalf of the California Independent System Operator Corporation

February 22, 2010

I. Witness Qualifications and Purpose of Testimony

Q1. Please state your name?

A1. My name is Gregory Van Pelt.

Q2. By whom are you employed?

A2. I am employed by the California Independent System Operator Corporation (the ISO), located at 151 Blue Ravine Road, Folsom, CA 95630. The ISO is a nonprofit public benefit corporation that operates the electric transmission grid serving over 80 percent of California's electric load for the benefit of California's citizens. My title is Director of Operations Process, Quality and Compliance.

Q3. Please describe your professional background?

A3. I have been employed by the ISO since September 1997, holding increasingly responsible positions during that time within the ISO's Operations Division. Prior to joining the ISO, I was employed by the Southern California Edison Company (SCE) for 24 years. At SCE, I held various positions from apprentice operator in 1972 through support manager in their system operations control center, and later as manager of SCE's corporate Emergency Preparedness Department. I

am certified with the North American Electric Reliability Corporation at the Reliability Coordinator level.

Q4. What is the purpose of your testimony?

A4. The purpose of my testimony is to describe the possible operational impacts to the electric system in the San Diego local capacity area, if units 1 and 2 at the South Bay Power Plant were unavailable for the remainder of the 2010 calendar year.

II. The ISO continually balances loads and resources to ensure customers receive reliable electric service.

Q5. Can you briefly describe what role the ISO plays in managing the electric system?

A5. The ISO must meet mandatory operating and reliability standards in operating the bulk electric system within its balancing authority area. These standards require reliable operation of the electric system under both normal and emergency operating conditions. Reliable operation of the electric system requires ongoing and constant changes to balance energy supply to meet customer demand and unforeseen outages during both on and off peak periods. The ISO must maintain the performance of the electric system and also restore the system to a balanced state of power flow, frequency and voltage after disturbances. Accordingly, the ISO continuously monitors the state of the electric system and sends dispatch commands to generators to start-up or shut-down or change their energy production to match changes in system conditions.

Q6. Does the ISO need to accommodate local conditions such as demand or resource constraints when operating the electric system?

A6. Yes. In operating the electricity grid, the ISO responds to system wide, regional and local changes in available supply and demand.

III. The ISO relies on units 1 and 2 at the South Bay Power Plan to provide reliable electric service.

Q7. Is San Diego one of the local areas within the ISO's balancing authority area that requires operational adjustments to balance supply and demand.

A7. Yes. San Diego is a transmission constrained area that requires the ISO to monitor continuously the availability or transmission and generation resources to serve load in that area. San Diego is susceptible not only to additional constraints from outages of transmission circuits but also to generation outages depending on conditions at the time.

Q8. What is the value, if any, of maintaining generation resources within transmission constrained areas?

A8. As a general matter, the availability of generation within a constrained area increases the reliability of that constrained area. The ISO operates transmission facilities that provide power to constrained areas and dispatches generation resources within those areas to provide an appropriate balance and margin for contingencies. While it is generally understood that these margins may be smaller during summer peak months, this concern also may be present during non-peak months at other times of the year. Generation and transmission facilities require regular maintenance. This maintenance typically occurs during non-peak times, but may cause the resource-to-load balance or margin for that area to approach that of peak periods. Accordingly, maintaining sufficient generation resources within a transmission constrained area is a prudent utility practice. This is especially true when system conditions and load growth or load distribution changes over time, prompting electric grid reconfigurations that may result in increased risks from longer duration outages.

Q9. Has the ISO secured units at the South Bay Power Plant to provide for reliable electric service to the San Diego area in 2010?

A9. Yes. The ISO has designated units 1 and 2 and the combustion turbine unit at the South Bay Power Plant as Reliability Must Run Units for calendar year 2010. Under a federally-approved Reliability Must Run contract between the ISO and Dynegy, these units are designated as Reliability Must Run Condition 2 Units. This designation means that the ISO pays all of the units fixed costs and dispatches the units for reliability purposes. Dynegy is not allowed to bid the capacity of the units into the ISO's competitive markets for Dynegy's own benefit.

IV. The unavailability of South Bay Power Plant units 1 and 2 increases the potential for involuntary load shedding within the San Diego area.

Q10. What would be the impact, if any, of reducing the amount generating resources within the transmission constrained San Diego area?

A10. By reducing the amount of generating resources within the San Diego area, the potential for involuntary load shedding in the San Diego area would increase, especially in the event of a loss of the Southwest Powerlink transmission line.

Q11. What would be the impact, if any, if South Bay Power Plant units 1 and 2 ceased operation during 2010?

A11. Absent replacement resources that are electrically equivalent to units 1 and 2 at the South Bay Power Plant, the San Diego area would experience less reliable electric service and potentially loss of electric service in certain situations.

Q12. Can you please describe the projected operational steps the ISO would take in the absence of South Bay Power Plant units 1 and 2 in the event of the loss of the Southwest Powerlink transmission line, which Dr. Chowdhury identifies as a Category B contingency in his prepared statement?

A12. The San Diego area is an import area, which means that generation outside of the San Diego area supports the power requirements for San Diego. Loss of the Southwest Powerlink transmission line that supports these power imports creates significant threats to reliable electric service in the San Diego area because

transmission constraints to the area increase, often overloading the remaining transmission circuits to the area. There is also often inadequate generation within the area to support demand. Because of this fact, oftentimes the next worst contingency would be the subsequent loss of additional transmission, which would further exacerbate the condition and, in turn, makes available in-area generation even more critical.

In the event of a loss of the Southwest Powerlink transmission line as described by Dr. Chowdhury, the ISO must prepare for the next worst contingency as required by applicable reliability standards. Under these conditions, the ISO would adjust in-area generation to meet the new power import limits into the San Diego area. If there is inadequate generation available in-area, it may become necessary to drop load to relieve overloads on transmission serving the area. The ISO would implement the following process, progressing in steps until it achieved a reliable operational balance for the San Diego area:

a. The ISO would determine the next worst contingency and the post-event impact (e.g., voltage or stability problems or thermal overloads of other transmission circuits) so as to determine the appropriate operating point for the area and the transmission system supplying the area.
b. The ISO would increase in-area generation to meet the new operating point. This action would likely include maximizing available in-area generation and any available demand response. If those resources are inadequate because area demand is higher than the combination of available in-area resources and transmission capacity, or other generation or transmission facilities have scheduled outages, or because of some combination of these factors, then the only remaining remedy is to shed in-area load.
c. The ISO would direct San Diego Gas & Electric Company to initiate involuntary load shedding in the amount needed for as long as the deficiency conditions persist.

d. San Diego Gas & Electric Company would select loads to meet the directive from the ISO and disconnect the load.

Q13. What conclusions, if any, do you reach concerning the operational need for South Bay Power Plants units 1 and 2 or the absence of South Bay generation for the remainder of 2010?

A13. Unplanned outages do occur. Without some electrically equivalent replacement for the generation at the South Bay Power Plant, the potential for involuntary load shedding in the San Diego area increases.

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon all of the parties listed on the attached service list via electronic mail.

Dated at Folsom, California this 22nd day of February, 2010.

/s/ Jane Ostapovich
Jane Ostapovich

SERVICE LIST

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South Bay Power Plant

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