Application No.: ______________________
Exhibit No.: ______________________
Witness: Robert Sparks

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans.	Rulemaking 12-03-014

TESTIMONY OF ROBERT SPARKS
ON BEHALF OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans.	Rulemaking 12-03-014

TESTIMONY OF ROBERT SPARKS
ON BEHALF OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

Q. What is your name and by whom are you employed?

A. My name is Robert Sparks. I am employed by the California Independent System Operator Corporation (ISO), 250 Outcropping Way, Folsom, California as Manager, Regional Transmission.

Q. Please describe your educational and professional background.

A. I am a licensed Professional Electrical Engineer in the State of California. I hold a Master of Science degree in Electrical Engineering from Purdue University, and a Bachelor of Science degree in Electrical Engineering from California State University, Sacramento.

Q. What are your job responsibilities?

A. I manage a group of engineers responsible for planning the ISO controlled transmission system in southern California to ensure compliance with NERC, WECC, and ISO Transmission Planning Standards in the most cost effective manner. With the California transmission system undergoing a major transformation, there are significant uncertainties that must be considered.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe the local capacity needs for the Los Angeles Basin and Big Creek/Ventura areas that the ISO has identified through its once through cooling (OTC) study conducted as part of the ISO's 2011-2012 transmission planning process. This assessment identifies the minimum amount of resources within transmission constrained areas that must be available to support the reliable operation of the transmission system assuming that the generating resources subject to California's OTC policies retire or otherwise become unavailable. To the extent that new generation is required to maintain grid reliability in the ISO's local capacity areas, it was assumed in the study that the new generation would come from the repowering or replacement of the existing OTC plants with acceptable cooling technology that the State Water Resources Control Board (SWRCB) approves. The OTC study results are described in Chapter 3 of the 2011-2012 Transmission Plan at http://www.caiso.com/Documents/Board-approvedISO2011-2012-TransmissionPlan.pdf

Q. Have you provided information about local capacity needs in other areas of the state?

A. Yes. I have submitted testimony addressing local area needs in the San Diego area in Docket A.11-05-023. My supplemental testimony in that proceeding can be found at http://www.caiso.com/Documents/2012-04-06_A11-05-023_Sparks_SuppTest.pdf. It is my understanding that the Commission will consider the San Diego local area needs in that docket as part of its consideration of the need for three power purchase tolling agreements.

Q. Are there local area needs in the PG&E area that should be addressed in this proceeding?

A. The ISO has determined that the potential retirement of OTC generation in the PG&E service territory is not expected to create local capacity deficiencies and therefore the PG&E area is not addressed in this testimony or as part of the immediate 2012 long term procurement process. However, the Fresno local area is being studied in the 2012-2013 ISO annual transmission planning cycle to assess the long term local capacity needs of this area. This assessment is part of a comprehensive assessment of the transmission expansion needs of this area associated with also maintaining the operability of Helms Pumped Storage Project and addressing potential congestion on WECC Path 15.

Q. What is a Local Capacity Technical (LCT) study?

A. A local capacity technical study determines the minimum amount of resources within a local capacity area needed to address reliability concerns following the occurrence of various contingencies on the electric system (known as the local capacity requirement). The contingencies that are studied are identified in the ISO's federally-approved tariff and applicable reliability standards adopted by the North American Electric Reliability Corporation and Western Electricity Coordinating Council. 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 potentially widespread and serious system impacts that might otherwise result from the loss of transmission and generation facilities.

A local capacity area is a geographic area that does not have sufficient transmission import capability to serve the customer demand in the area without the operation of generation located within that area. There must be sufficient generation in that area available for ISO operators to serve load in the area under stressed system conditions such as during high demand periods; during outages of up to two transmission lines used to import power into the area; during outages of up to two local generating units; and during outages of one generating unit and one transmission line.

Each year the ISO performs an LCT study for the purposes of providing information for resource adequacy procurement. In addition to this annual, year-ahead LCT study, the ISO performs a longer-term LCT study as part of the transmission planning cycle.

Q. Please describe the OTC study.

A. The OTC policy establishes uniform, technology-based standards to implement federal Clean Water Act section 316(b), which requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

For purposes of the 2011-2012 transmission planning process, the ISO continued its collaborative study efforts with various state agencies and stakeholders. The ISO performed technical evaluations using power flow and transient stability programs for various RPS scenarios (i.e., trajectory, environmentally constrained, ISO base case, cost-constrained and time-constrained) to determine long-term (2021) local capacity area requirements for areas that currently have OTC generating units. These areas include the Los Angeles Basin and Big Creek/Ventura local areas.

Q. What are the differences between the OTC study and the LCT studies the ISO performs annually for resource adequacy and transmission planning purposes?

A. Simply put, the OTC study was an LCT study of local transmission constrained areas that currently have OTC generation. However, rather than being on an annual or short-term basis, the OTC study looked at the ten year planning horizon 2011-2021.

Q. How were the local capacity needs assessed?

A. Using a 2021 case prepared for the analysis of local capacity needs, the ISO performed a reliability assessment. The assessment determined the range of generation-including OTC generation- needed to maintain applicable local area resource capability for the areas according to the four RPS portfolio scenarios. The ISO evaluated the following mitigation measures on a high level in order to maintain local reliability: generation need; potential transmission mitigation measures; potential demand side management or other state energy agencies' forecast of contracted resources such as combined heat and power.

Q. What were the OTC local capacity area study results for Los Angeles Basin and Big Creek/Ventura local areas?

A. The local capacity needs for 2021 in the Los Angeles Basin and Big Creek/Ventura local areas are set forth in the table below:

Table 1: Summary of OTC (2021) study results

<table>
<tr><th rowspan="2">Local Area</th><th colspan="4">Local Area Requirements (MW)</th><th colspan="4">Replacement OTC Generation Need (MW)</th></tr>
<tr><th>Trajectory</th><th>Environmentally Constrained</th><th>ISO Base Case</th><th>Time Constrained</th><th>Trajectory</th><th>Environmentally Constrained</th><th>ISO Base Case</th><th>Time Constrained</th></tr>
<tr><td>LA Basin (this area includes sub-area below)</td><td>10,743</td><td>11,246</td><td>11,010</td><td>12,165</td><td rowspan="2">2,370 – 3,741</td><td rowspan="2">1,870 – 2,884</td><td rowspan="2">2,424 – 3,834</td><td rowspan="2">2,460 – 3,896</td></tr>
<tr><td>Western LA Basin (sub-Area of the larger LA Basin)</td><td>7,797</td><td>7,564</td><td>7,517</td><td>7,397</td></tr>
<tr><td rowspan="2">Big Creek/Ventura (BC/V) Area</td><td rowspan="2">2,371</td><td rowspan="2">2,604</td><td rowspan="2">2,438</td><td rowspan="2">2,653</td><td colspan="4">(Need is for Moorpark only, a sub-area of the Big Creek/Ventura Local area)</td></tr>
<tr><td>430</td><td>430</td><td>430</td><td>430</td></tr>
</table>

Table 1 shows the total local area capacity needs for the LA Basin and Big Creek/Ventura local capacity resource areas under each of the four RPS portfolio scenarios. Table 1 also identifies ranges of the amount of generation at existing OTC sites or electrically equivalent sites in the local area (replacement OTC generation) that would be needed under each of the RPS portfolio scenarios. The replacement OTC generation needs in the LA Basin are all within the Western LA Basin, which is a sub-area of the larger LA Basin. In addition, there is also an identified replacement OTC generation need in the Ellis sub-area, which is within the Western LA Basin.

Q. Please explain why there is a range of repowered former OTC needs for each RPS scenario for the Western LA Basin sub-area.

A. The lower end of the repowered former OTC range value corresponds to the amount of generation that would be needed if it were located at existing OTC sites that are the most effective at mitigating the identified transmission constraint. The higher end of the OTC range value corresponds to the amount of generation inside the sub-area that would be needed if it were located at existing OTC sites that are the least effective at mitigating the identified transmission constraint.

Q. Do you have more detailed information about the OTC results for each of the four scenarios for the LA Basin?

A. Yes, I do. Tables 2- through 5 show below more detailed results for the LA Basin areas, broken down by area. Each of these four tables shows detailed results for each of the four renewable portfolios studied including the amount of distributed generation (DG) production from DG in the renewable portfolios, the transmission constraint and the critical contingency driving the local area need.

Table 2: Trajectory portfolio — Local area replacement OTC requirements in the LA Basin and its sub-areas

Portfolios	Area	Local Area Reqm't			Replacement OTC Units Needed?	Constraint	Contingency
		Non-D.G. (MW)	D.G. (MW)	Total (MW)			
Trajectory	Overall LA Basin	12,961	339	13,300	Yes	Mira Loma West 500/230 Bank #1 (24-Hr rating)	Chino-Mira Loma East #3 230 kV line + Mira Loma West 500/230 kV Bank #2
		10,404	339	10,743	Yes	Eagle Rock-Sylmar S 230 kV line	Sylmar S-Gould 230 kV line + Lugo-Victorville 500 kV line
	Western	7,529	268	7,797	Yes	Serrano-Villa PK #1	Serrano-Lewis #1 / Serrano-Villa PK #2
	Ellis	225	59	284	Yes	Voltage Collapse	Barre-Ellis 230 kV line + SONGS - Santiago #1 and #2 230 kV lines
	El Nido	614	5	619	No	La Fresa-Hinson 230 kV line	La Fresa-Redondo #1 and #2 230 kV lines

Table 3: Environmentally constrained portfolio — Local area requirement and replacement OTC requirements in the LA Basin area and its sub-areas

Portfolios	Area	Local Area Reqm’t			Replacement OTC Units Needed?	Constraint	Contingency
		Non-D.G. (MW)	D.G. (MW)	Total (MW)			
Environmentally Constrained	Overall LA Basin	11,048	1,519	12,567	Yes	Mira Loma West 500/230 bank #1 (24-Hr rating)	Chino-Mira Loma East #3 23 0kV line + Mira Loma West 500/230 kV bank #2
		9,727	1,519	11,246	Yes	Eagle Rock-Sylmar S 230 kV line	Sylmar S - Gould 230 kV line + Lugo - Victorville 500 kV line
	Western	6,695	869	7,584	Yes	Serrano- Villa PK #1	Serrano-Lewis #1 / Serrano-Villa PK #2
	Ellis	225	124	349	Yes	Voltage Collapse	Barre-Ellis 230kV Line + SONGS - Santiago #1 and #2 230 kV lines
	El Nido	494	91	585	No	La Fresa-Hinson 230 kV line	La Fresa-Redondo #1 and #2 230 kV lines

Table 4: ISO Base portfolio — Local area requirement and replacement OTC requirements in the LA Basin and its sub-areas

Portfolios	Area	Local Area Reqm’t			Replacement OTC Units Needed?	Constraint	Contingency
		Non-D.G. (MW)	D.G. (MW)	Total (MW)			
Base	Overall LA Basin	12,659	271	12,930	Yes	Mira Loma West 500/230 Bank #1 (24-Hr rating)	Chino-Mira Loma East #3 230 kV line + Mira Loma West 500/230 kV bank #2
		10,739	271	11,010	Yes	Eagle Rock-Sylmar S 230 kV line	Sylmar S-Gould 230kV line + Lugo-Victorville 500 kV line
	Western	7,325	192	7,517	Yes	Serrano-Villa PK #1	Serrano - Lewis #1 / Serrano - Villa PK #2
	Ellis	225	39	264	Yes	Voltage Collapse	Barre-Ellis 230kV Line + SONGS-Santiago #1 and #2 230 kV lines
	El Nido	544	94	568	No	La Fresa-Hinson 230 kV line	La Fresa-Redondo #1 and #2 230 kV lines

Table 5: Time-constrained portfolio — Local area requirement and replacement OTC requirements in the LA Basin and its sub-areas

Portfolios	Area	Local Area Reqm't Non-D.G. (MW)	Local Area Reqm't D.G. (MW)	Local Area Reqm't Total (MW)	Replacement OTC Units Needed?	Constraint	Contingency
Time-Constrained	Overall LA Basin	12,677	687	13,364	Yes	Mira Loma West 500/230 bank #1 (24-Hr rating)	Chino - Mira Loma East #3 230 kV line + Mira Loma West 500/230 kV bank #2
		11,478	687	12,165	Yes	Eagle Rock-Sylmar S 230 kV Line	Sylmar S-Gould 230 kV line + Lugo-Victorville 500kV line
	Western	6,954	443	7,397	Yes	Serrano-Villa PK #1	Serrano-Lewis #1 / Serrano-Villa PK #2
	Ellis	225	61	286	Yes	Voltage Collapse	Barre - Ellis 230 kV line + SONGS-Santiago #1 and #2 230 kV lines
	El Nido	589	31	620	No	La Fresa-Hinson 230 kV line	La Fresa-Redondo #1 and #2 230 kV lines

Q. What are the critical contingencies that drive the local area needs for each of the four portfolios in the LA Basin and its sub-areas?

A. The most critical contingency for the overall LA Basin for all four portfolios is an N-1/T-1 contingency of Chino-Mira Loma East #3 500 kV line and Mira Loma West 500/230 kV bank #2. The limiting element is Mira Loma West 500/230 kV bank #1 (24-hour rating). This constraint establishes the local area requirements for the four RPS portfolios as shown in the top row of Tables 2-5 above.

Mira Loma West 500/230 kV bank #1 has a 1-hour emergency rating. This emergency rating can be utilized by assuming up to 600 MW of either load curtailment or load transfer within 1 hour. The load transfer option would require substantial sub-transmission upgrades at Rancho Vista substation. If this mitigation is feasible, the next worst contingency for the overall LA Basin area is the outage of Sylmar S-Gould 230 kV line and Lugo-Victorville 500 kV line. The limiting element is Eagle Rock-Sylmar S 230 kV line. With this alternative mitigation in place, this constraint establishes the local area requirements for the four RPS portfolios as shown in the second row of Tables 2 through 5 above.

The most critical contingency for the Western L.A. sub-area is the loss of Serrano-Villa Park #1 or #2 230 kV line followed by the loss of the Serrano-Lewis 230 kV line or vice versa, which would result in thermal overload of the remaining Serrano-Villa Park 230 kV line. This constraint establishes the local area requirements for the four RPS portfolios as listed in the third row of Tables 2 through 5 above.

The most critical contingency for the Ellis sub-area is the loss of the Barre-Ellis 230 kV line followed by the loss of the Santiago-San Onofre #1 & #2 230 kV lines, which would cause voltage collapse. This constraint establishes the local area requirements for the four RPS portfolios, as shown in row 4 of Tables 2 through 5 above. This also has an assumption that the loop-in of the Del Amo – Ellis 230kV line into Barre substation (i.e., Barre-Ellis upgrade project) is completed and in service. This project is currently under construction and has an anticipated in-service date of June 1, 2012. However, the use of an existing SPS for the double line contingency (i.e., Santiago – San Onofre #1 and #2 230kV lines, with the Barre-Ellis 230 kV line already forced out of service) to drop approximately 800 MW of load at Santiago 230 kV substation could be relied upon to eliminate 225 MW repowered former OTC generation need in the Ellis subarea. This SPS is currently operational and is maintained by SCE. On the other hand, generation in the Ellis subarea is highly effective at mitigating the Western LA Basin constraint, and is one of the most effective locations for replacing SONGS in any scenario where SONGS is not available on a short or long-term basis.

The most critical contingency for the El Nido sub-area in all four portfolios is an N-2 outage of La Fresa-Redondo #1 and #2 230 kV lines. The limiting element is La Fresa-Hinson 230 kV line. This constraint establishes the local area requirements for the four RPS portfolios, as shown in row five of Table 2 through 5 above.

Q. Based on the information provided in the tables above, can you describe the range of local capacity needs for the LA Basin for each of the renewable portfolios?

A. Table 6 shows the range of local capacity area needs in the LA Basin for each of the four renewable portfolios scenarios studied. The main drivers behind replacement OTC generation need in the LA Basin are the Western LA Basin area and the Ellis sub-area. The replacement OTC need across all four portfolios ranges from 1,870 MW to 2,460 MW, assuming most effective units are selected. The 'HIGH' or 'LOW' replacement OTC levels are determined by using less effective or more effective replacement OTC units, respectively. The following table is a summary of local capacity area and replacement OTC requirements for the overall LA Basin and sub-areas.

Table 6: Summary of Local capacity area and replacement OTC requirements in LA Basin and its sub-areas

Local Area	Trajectory		Environmental		ISO Base Case		Time-Constrained	
	High (MW)	Low (MW)	High (MW)	Low (MW)	High (MW)	Low (MW)	High (MW)	Low (MW)
LA Basin*	10,743	10,263	11,246	10,891	11,010	10,516	12,165	11,663
Western LA Basin	9,168	7,797	8,482	7,468	8,831	7,421	8,833	7,397
Ellis	284		349		264		286	
El Nido	619		585		568		620	
Replacement OTC	3,741	2,370	2,884	1,870	3,834	2,424	3,896	2,460

* The High LA Basin local area amounts correspond to the Low replacement OTC amounts. This is because the most effective generation sites for mitigating the Western LA Basin constraint are the least effective generation sites for mitigating the Overall LA Basin constraint.

Q. Do you have more detailed information about the OTC results for each of the four scenarios in the Big Creek/Ventura area?

A. Tables 7 through 10 show more detailed results for the Big Creek/Ventura local capacity areas. Each of these four tables shows detailed results for each of the four renewable portfolios studied including the amount of distributed generation (DG) production from DG in the renewable portfolios, the transmission constraint and the critical contingency driving the local area need.

Table 7: Trajectory portfolio — Local area requirement and replacement OTC requirements in Big Creek/Ventura area

Area	Local Area Reqm't			Replacement OTC Units Needed?	Constraint	Contingency
	Non-D.G. (MW)	D.G. (MW)	Total (MW)			
Overall Big Creek Ventura	2,175	14	2,189	No	Remaining Sylmar-Pardee 230 kV line	Antelope 500/230kV bank #1 or #2 + Magunden- Omar 230 kV line (and the associated generation)
Moorpark	735	0	735	Yes	Voltage Collapse	Pardee-Moorpark #1 230kV + Pardee-Moorpark #2 and #3 230 kV lines

Table 8: Environmentally Constrained — Local area requirement and replacement OTC requirements in Big Creek/Ventura area

Area	Local Area Reqm't			Replacement OTC Units Needed?	Constraint	Contingency
	Non-D.G. (MW)	D.G. (MW)	Total (MW)			
Overall Big Creek Ventura	2,185	419	2,604	No	Antelope 500/230 kV bank #1 or #2	Antelope 500/230 kV Bank #1 or #2 + Magunden-Omar 230 kV line (and the associated generation)
Moorpark	502	140	642	Yes	Voltage Collapse	Pardee-Moorpark #1 230 kV + Pardee- Moorpark #2 and #3 230 kV lines

Table 9: ISO Base portfolio — Local area requirement and replacement OTC requirements in Big Creek/Ventura area

Area	Local Area Reqm't			Replacement OTC Units Needed?	Constraint	Contingency
	Non-D.G. (MW)	D.G. (MW)	Total (MW)			
Overall Big Creek Ventura	2,377	61	2,794	No	Antelope 500/230 kV Bank #1 or #2	Antelope 500/230kV bank #1 or #2 + Magunden- Omar 230 kV line (and the associated generation)
Moorpark	637	14	651	Yes	Voltage Collapse	Pardee-Moorpark #1 230kV + Pardee- Moorpark #2 and #3 230 kV lines

Table 10: Time Sensitive portfolio — Local area requirement and replacement OTC requirements in Big Creek/Ventura area and its sub-areas

Area	Local Area Reqm't			Replacement OTC Units Needed?	Constraint	Contingency
	Non-D.G. (MW)	D.G. (MW)	Total (MW)			
Overall Big Creek Ventura	2,558	95	2,653	No	Antelope 500/230 kV Bank #1 or #2	Antelope 500/230 kV bank #1 or #2 + Magunden-Omar 230kV line (and the associated generation)
Moorpark	632	41	673	Yes	Voltage Collapse	Pardee-Moorpark #1 230 kV + Pardee-Moorpark #2 and #3 230 kV lines

Q. Please describe the critical contingencies for the Big Creek/Ventura areas.

A. The most critical contingency for the overall Big Creek/Ventura area is an N-1/T-1 contingency of Magunden-Omar 230 kV line and Antelope 500/230 kV bank #1 or #2. The limiting element is the remaining Antelope 500/230 kV bank. This constraint established the local area need numbers for the four portfolios as listed in row 1 of Tables 7 through 10 above.

The most critical contingency for the Moorpark sub-area is the N-1 outage followed by N-2 outage-loss of Pardee-Moorpark #1 230 kV line and Pardee-Moorpark #2 and #3 230 kV lines. This would result in a voltage collapse. To mitigate this voltage collapse, about 430 MW of repowered OTC units are required as part of the

LCR for this sub-area. This constraint establishes the LCR numbers for the four portfolios as listed in row 2 of Tables 7 through 10 above.

The need for replacement OTC units in the overall Big Creek/Ventura area is established specifically by the Moorpark sub-area. Approximately 430 MW of replacement OTC capacity is required across all four RPS portfolios to mitigate reliability issues in the Moorpark sub-area. This replacement OTC capacity is counted towards the total LCR need for the overall Big Creek/Ventura area. The next most limiting contingency is the N-2 of two of the Moorpark-Pardee 230 kV circuits. Approximately 360 MW of local generation which includes approximately 100 MW of replacement OTC generation, is needed to mitigate the N-2 thermal overload problem. With the 360 MW amount of local generation operating, the N-1 followed by the N-2 contingency can be mitigated by installing large amounts of reactive support (e.g. more than 600 MVAR).

Q. Was the recently ISO- approved project to loop the Del Amo-Ellis 230 kV line into Barre 230 kV substation included in the results above?

A. Yes. The OTC study results were updated to include the benefits of this project. As a result, the Ellis Sub-area local capacity needs were reduced.

Q. Are there any feasible generation options other than repowering former OTC generation and, if so, must these generation options have the same characteristics as the OTC generation?

A. New generation developed at sites that are electrically equivalent to the former OTC generation sites would meet the local area generation needs as well as repowering the former OTC generation. Chapter 3 of the ISO's 2011-2012 Transmission Plan provides effectiveness factors for various electrical locations inside the local area boundaries that can be used to facilitate the identification of electrically equivalent sites. The OTC generation characteristics include ramp rates and minimum output levels that allow the generation to be ramped-up quickly following the first transmission contingency in order to ensure reliable system operation following the next transmission contingency. The flexibility of the OTC generation allows efficient system dispatch when all transmission equipment is in-service, but still provides for reliable system operation following a transmission contingency. Replacement generation should have similar flexible characteristics. Quick starting generation would also provide for efficient system dispatch, but still provide for reliable system operation following a transmission contingency.

Q. Is SONGS assumed to be operational in these ISO OTC studies?

A. Yes. However, in the ISO 2012-2013 Transmission Planning process, the ISO is performing a transmission planning study to evaluate the long-term reliability impacts if SONGS were not available for operation. It is expected that the need for replacement OTC generation within the LA Basin area, Western LA Basin sub-area, Ellis sub-area, Big Creek/Ventura Area, and Moorpark sub-area will be substantially higher under this planning scenario.

Q. How much demand response, uncommitted energy efficiency and uncommitted combined heat and power generation was assumed in these ISO studies performed during the 2011-2012 transmission planning process?

A. The ISO has no basis for expecting that uncommitted energy efficiency and uncommitted combined heat and power generation can be counted upon for meeting local reliability needs beyond the committed programs that were included in the CEC’s officially adopted demand forecast. Demand response was not modeled in the analysis, but it could be used to reduce the replacement OTC needs if the demand response is in electrically equivalent locations and if they materialize and are determined to be feasible for mitigation.

Q. Do the RPS scenarios analyzed in the OTC studies correspond with the RPS scenarios used by the ISO to determine the need for policy-driven transmission elements?

A. Yes. Information about the ISO's studies that analyze the need for additional transmission to meet the state's 33% RPS goals by 2020 can be found at Chapter 4 of the 2011-2012 draft transmission plan.

Q. How do the OTC RPS scenarios compare to the RPS scenarios used for the renewable integration studies?

A. Mr. Rothleder is providing testimony about the renewable integration studies and a production simulation run that is the basis for his resource flexibility recommendations, but it is my understanding that three of the four CPUC scenarios analyzed by the ISO for the purposes of the LTPP proceedings (R.10-05-006 and this docket, R12-03-014) are same portfolios that were used for the ISOs 33% RPS studies and OTC studies. The fourth portfolio, the Cost Constrained portfolio, was updated in July 2011 to incorporate new stakeholder input. The original version of the Cost Constrained portfolio was used in the renewable integration studies and the updated version was used in the 33% RPS studies and in the OTC studies. Another difference is the renewable integration used a mid net load that included uncommitted demand side management (DSM) programs. For the ISO LTPP case, as well as the OTC and 33% RPS studies we used the CEC projected 1-in-10 load level without uncommitted DSM.

Q. What are the ISO's recommendations, based on the OTC studies, for procurement of replacement OTC generation?

A. The ISO studied the need for replacement OTC generation under four 33% RPS scenarios during the 2011-2012 transmission planning cycle. In the latest development of RPS scenarios for the 2012-2013 ISO transmission planning process, the scenario most aligned with commercial interest is considered the most likely scenario and will be studied as the base case for the upcoming planning cycle. The Trajectory scenario studied in the OTC studies is the scenario most aligned with commercial interest and therefore should be used as the reference case for local procurement needs authorized in this proceeding. As shown in Tables 1, 2, and 6, there is an identified need for approximately 2400 MW of replacement OTC generation for the Trajectory RPS scenarios in the Western LA Basin, if the generation is selected from the most effective sites for mitigating the Western LA Basin transmission constraint. There was also an identified need for 225 MW in the Ellis sub-area (which is included in the Western LA Basin) and 430 MW of replacement OTC generation in the Moorpark sub-area. The ISO recommends the long-term procurement of these amounts of replacement OTC generation, to ensure the continued reliable operation of the ISO transmission system. As I discussed above, replacement OTC generation should have flexibility characteristics similar to the OTC generation.

Q. **Does this conclude your testimony?**

A. Yes, it does.