ATTACHMENT B

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 (Filed March 22, 2012)

DECLARATION OF DAVID PEFFER IN SUPPORT OF POC'S PETITION FOR MODIFICATION

I, David A. Peffer, declare and state that the following is based on my own personal knowledge and if called upon as a witness I could and would competently testify thereto:

1. I am an attorney authorized to practice law in the State of California. I represent the Protect Our Communities Foundation in the Commission's 2012 LTPP proceeding, R.12-03-014.

2. Attached hereto is a true and correct copy of the cover page, table of contents, and pages 1-16 of the California Independent Operator's (CAISO's) 2014 Summer Loads & Resources Assessment, dated May 9, 2014, and downloaded from CAISO's website (http://www.caiso.com/Documents/2014SummerAssessment.pdf) on May 22, 2014.

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I declare under penalty of perjury and under the laws of the state of California that the foregoing is true and correct. Executed this day, May 22, 2014, in San Diego, California.

Dated: May 22, 2014

/S/

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2014 SUMMER LOADS & RESOURCES ASSESSMENT

California ISO
Shaping a Renewed Future

May 9, 2014

Prepared by: Infrastructure Development

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I. EXECUTIVE SUMMARY

The *2014 Summer Loads and Resources Assessment* provides an analysis of the upcoming summer supply and demand outlook in the California Independent System Operator (ISO) balancing authority area. The ISO works with state agencies, generation and transmission owners, load serving entities, and other balancing authorities to formulate the summer forecast and identify any issues regarding upcoming operating conditions. The loads and resources assessment considers the conditions across the entire ISO balancing authority area as a whole (representing about 80 percent of California), and then further considers separately the situations in the Northern California zone (North of Path 26 or NP26) and the Southern California zone (South of Path 26 or SP26). The drought impact in California on power supply and local reliability concerns for southern Orange and San Diego counties due to the loss of the San Onofre Nuclear Generation Station are two of the key issues in 2014 and are addressed in this report

Impact of California Drought on Summer Power Supply

The 2014 water year is one of the most severe droughts on record according to California Department of Water Resources. As of April 29, 2014, the statewide hydrologic conditions were summarized as: 56% of average precipitation; 20% of average snowpack water content; and 63% of average reservoir storage.[1] These drought conditions will limit the capability of the state's hydroelectric resources and may cause up to 1,150 MW of thermal units to shut down due to water supply curtailments.[2]

However, these potential supply limitations should not materially impact the reliability of the ISO system this summer due to significant generation additions, sufficient energy imports, and moderate peak demand growth. The main impact from the drought during 2014 summer will be an increase in natural gas generation, which could result in an increase in energy prices, and increased greenhouse gas emissions. However, the unusually dry conditions across the state do create a heightened risk of wildfires, which could impact the use of major transmission lines during periods of critical summer peak demand. Thus, wildfires could create grid reliability challenges over the summer. Some of the key factors supporting this conclusion are summarized below.

[1] http://cdec.water.ca.gov/cgi-progs/reports/EXECSUM

[2] Climate change studies suggest this is the start of a long-term trend toward drier, hotter conditions in California. This trend in addition to increasing deployment of renewable resources underscores the importance of ensuring California has adequate grid infrastructure going forward to both offset the impacts of climate change and effectively integrate renewable resources. To address this challenge, the ISO is taking a more sophisticated approach to system planning where generic capacity and traditional planning reserve margins are less relevant and the primary focus is on ensuring California has sufficient dispatch and flexibility capabilities within the resource fleet to reliability operate the system and achieve state energy policy goals. This study work is being used in ongoing CPUC proceedings to inform resource procurement decisions.

- **ISO Hydro Generation Derate**

  In the Final Net Qualifying Capacity (NQC) Report for Compliance Year 2014[3], ISO total hydro NQC in August is 7,666 MW (capacity available for peak based on state's resource adequacy program). The NQC is the maximum capacity eligible and available for meeting the CPUC resource adequacy requirement. The ISO determines the NQC by applying performance criteria and deliverability restrictions as outlined in the ISO tariff and the applicable business practice manual. However, as a result of the drought, and based on discussions held with Pacific Gas and Electric and Southern California Edison, the two largest hydro capacity owner/operators in the ISO, the ISO has determined that a hydro derate in the amount of 1,370 MW (normal scenario) to 1,669 MW (extreme scenario) should be applied to the net qualifying capacity of 7,666 MW. There is only 44 MW of NQC hydro generation located in San Diego and Orange Counties and the majority of this generation is pumped storage. Consequently, drought conditions will have little impact on local resource adequacy in the San Diego and Orange County areas.

- **Potential Thermal Restriction**

  In considering the drought situation for the summer of 2014, the ISO is following the potential impact of thermal units being out of service due to water supply curtailments. Among the 260 thermal power plants greater than 20 MW, three facilities in Northern California totaling 1,150 MW have been identified to be at risk of having water supply curtailments. The ISO will work with state and local agencies to monitor these facilities through the summer. Water supplies to thermal generation will likely be of a greater concern in 2015 if the current drought continues.

- **Imports from Outside California**

  As of April 29, 2014, Northwest River Forecast Center projected April to August reservoir storage in Columbia - Dalles Dam to be 107% of average.[4] The Pacific Northwest hydro surplus energy sales into the ISO are anticipated to be in the normal to above normal range for 2014 to make up for some of California's low hydro generation. The California – Oregon Intertie (COI) thermal limit could be a limiting factor for these imports. It is anticipated that dynamically scheduled and other generation from the Four Corners will be available for surplus energy sales into the ISO during the peak hours. The Southern California Import Transmission (SCIT) thermal limit could be a limiting factor for these imports.

- **Natural Gas and Solar Generation Additions**

  A total of 3,243 MW additional generations are expected to enter commercial operation by June 1 2014, 2,258 MW in SP26 and 985 MW in NP26, This 3,243 MW comes from 3,555 MW of new generation that went into commercial operation since last summer, the retirement of the 650 MW of generation at Morro Bay, and an additional 338 MW that is expected to become commercial operation by June 1, 2014.

[3] *Net Qualifying Capacity (NQC).* Retrieved from website: http://www.caiso.com/planning/Pages/ReliabilityRequirements/Default.aspx

[4] http://www.nwrfc.noaa.gov/water_supply/ws_forecasts.php?id=TDAO3

Of the 3,243 MW, 61% is solar, 32% is natural gas, and 7% is in other categories. This will help to offset the anticipated hydro derate in 2014.

Local Reliability Concerns due to SONGS Outage

The permanent retirement of the San Onofre Nuclear Generating Station was announced on June 7, 2013. This further validated the steps taken in 2012 to prepare the system for the summer of 2013 in anticipation of SONGS not returning to service. Those steps included the completion of several transmission and voltage support enhancements in the LA Basin area.

While additional approved mitigations are expected to begin coming into service for the summer of 2015, no additional transmission measures are available for the summer of 2014. With continued modest load growth, local reliability conditions in the south Orange and San Diego counties are likely to be marginally more challenging this summer compared to last.

If critical high-voltage transmission lines are out of service, due to wildfires or other conditions, deficient voltage levels may occur under peak load conditions that could trigger localized customer outages. Furthermore, the absence of SONGS results in potential overloading of local transmission lines under certain contingencies.

Until longer term mitigations are in place, southern Orange County and San Diego will remain susceptible to reliability concerns and will require close attention during summer operations – particularly during critical peak days and in the event of wildfires that could potentially force transmission lines out of service.

During these types of conditions, both demand response programs and Flex Alert conservation appeals will likely be used to lessen the strain on the grid.

Overall ISO System-wide and Zonal Reliability

Even with the drought concerns, the summer assessment projects adequate supply for meeting 2014 summer peak demand for the ISO grid at the system wide level and for the NP26 and SP26 regions when considered independently. This projection is based on examining the operating reserve margins under normal and extreme scenarios.

The summer 2014 supply and demand outlook for the entire ISO system, NP26 and SP26 are shown in *Tables 1 through 3*. Planning reserve margins under the normal peak demand scenario are projected to be 34.4% for the ISO system, 35.9% for SP26, and 36.3% for NP26 (*Table 1*).

Operating reserve margins under the normal summer conditions are expected to be 23.8% for the ISO system 28.2% for SP26, and 22.7% for NP26 (*Table 2* and *Figure 1)*. Both the planning reserve margin and the normal operating reserve margin are projected to be greater than the California Public Utility Commission's 15% resource adequacy requirement for planning reserve margin.

The 2005 to 2014 operating reserve margins under the normal scenario projected prior to each summer are shown in *Figure 2*. It is worth mentioning that the operating reserve margin projected for 2014 is the second largest in the past ten years. The normal scenario for operating reserves is defined for system and zonal conditions as moderate

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net imports, 1-in-2 generation outages, and 1-in-2 peak demand. A 1-in-2 event means the event has an equal probability of the outcome falling below the forecast value or exceeding the forecast value.

Under an extreme scenario, operating reserve margins are projected to drop to 13.6% for the ISO system, 15.1% for SP26 and 7.6% for NP26 (*Table 3* and *Figure 1*), which are above the firm load shedding threshold of 3%. The extreme scenario is defined as low net imports, 1-in-10 generation outages, and 1-in-10 peak demand. A 1-in-10 event means the event has a 90% probability of the outcome being less than or equal to the forecast value, or conversely, a 10% probability of the outcome being greater than or equal to the forecast value. Operating reserve margins for each zone are for informational purposes as the system is dispatched on a one-system basis. The methodology for assessing transfers between the NP26 and SP26 zones that has been employed in this and past Summer Assessments is based on historical flows, which does not adequately address evolving conditions with drought impacts most strongly felt in NP26. A revised methodology utilizing modeled transfers under projected load and resource scenarios will be employed in next year's Summer Assessment.

The projected probability of experiencing involuntary load curtailments due to low operating reserve margins in summer 2014 is 0% for ISO system, 0% for SP26 and 0.1% for NP26, assuming moderate imports and a high hydro derate. These projected probabilities are based on historical generating resource availabilities and the forecast range of weather driven peak demand levels and do not include load curtailments due to transmission lines being out of service due to wildfires or other contingencies.

The ISO summer 2014 peak demand is projected to reach 47,351 MW during 1-in-2 weather conditions, which was 646 MW more than 2013 weather normalized peak of 46,705 MW. The weather normalized peak is an estimate of what the peak would have been under normal weather conditions. The increase in the ISO peak demand forecast is a result of a moderate economic recovery forecast from Moody's Analytics.

The ISO projects that 53,950 MW of net qualifying capacity (NQC) will be available for summer 2014 (*Table 7*). A total of 3,243 MW of additional generation since last year's report is made up of 3,555 MW of new generation that reached commercial operation and the retirement of 650 MW of generation at Morro Bay between June 1, 2013 and April 22, 2014 and an additional 338 MW that is expected to become commercial operation during April 23, 2014 to June 1, 2014 timeframe.

An estimated 2,066 MW of demand response and interruptible load programs will be available to be deployed during summer 2014. Demand response can reduce summer peak demands and provide grid operators with additional system flexibility during periods of limited supply. Demand response can provide economic day-ahead and real-time energy and ancillary service.

The 2014 summer imports are projected to vary from 8,500 MW to 11,000 MW for the ISO, 8,800 MW to 11,300 MW for SP26, and 1,300 MW to 3,000 MW for NP26. The projected 2014 moderate imports for the ISO is 9,000 MW, which is lower than last year. Having sufficient imports are essential in maintaining system reliability under extreme conditions.

Table 1

Planning Reserve Margins

Summer 2014 Supply & Demand Outlook (Planning Reserve Margins)			
Resource Adequacy Planning Conventions	**ISO**	**SP26**	**NP26**
Existing Generation[5]	53,612	26,178	27,434
Retirement	0	0	0
High Probability Addition[6]	338	261	77
Hydro Derate (below NQC)	(1,370)	(281)	(1,089)
Net Interchange (Moderate)[7]	9,000	9,200	2,100
Total Net Supply (MW)[8]	61,580	35,358	28,522
DR & Interruptible Programs[9]	2,066	1,341	725
Demand (1-in-2 Summer Temperature)[10]	47,351	26,994	21,452
Planning Reserve Margin[11]	**34.4%**	**35.9%**	**36.3%**

Table 2

Normal Scenario Operating Reserve Margins

Summer 2014 Outlook - Normal Scenario 1-in-2 Demand, 1-in-2 Generation Outage and Moderate Imports			
Resource Adequacy Conventions	**ISO**	**SP26**	**NP26**
Existing Generation	53,612	26,178	27,434
Retirement	0	0	0
High Probability Additions	338	261	77
Hydro Derate (below NQC)	(1,370)	(281)	(1,089)
Outages (1-in-2 Generation)[12]	(5,030)	(2,105)	(2,921)
Net Interchange (Moderate)	9,000	9,200	2,100
Total Net Supply (MW)[13]	56,550	33,253	25,601
DR & Interruptible Programs	2,066	1,341	725
Demand (1-in-2 Summer Temperature)	47,351	26,994	21,452
Operating Reserve Margin[14]	**23.8%**	**28.2%**	**22.7%**

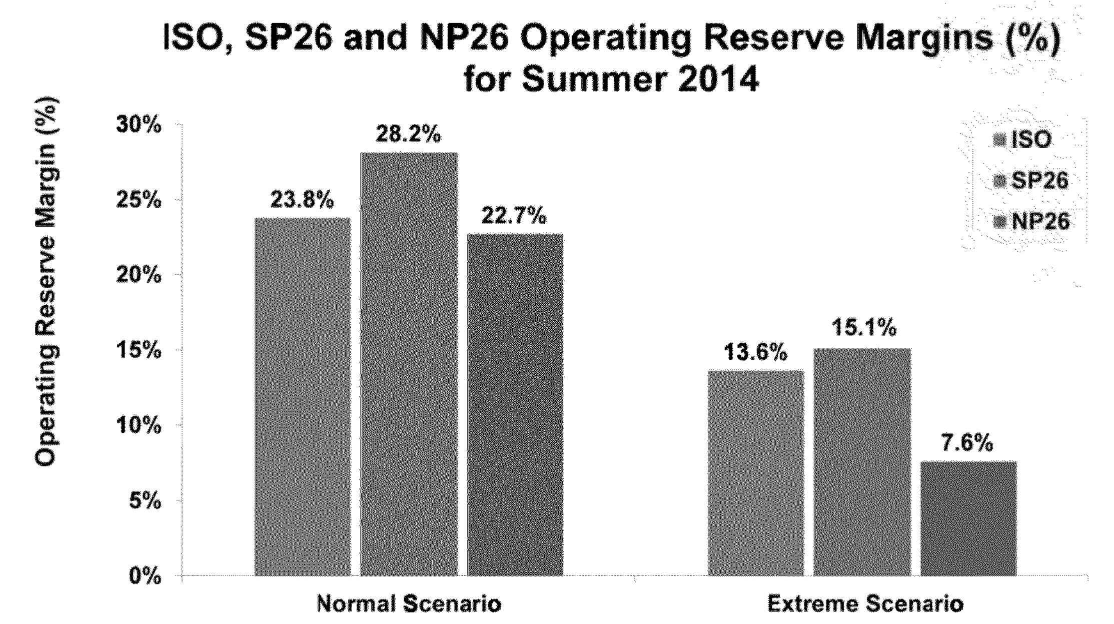
5 Refer to Table 7. Conventional 74%, Renewable 26%.
6 Refer to Table 6.
7 Refer to Table 10. Net Interchanges of ISO, SP26 and NP26 are not coincident.
8 Total Net Supply = Existing Generation + High Probability Additions – Hydro Derate – Retirements + Net Interchange
9 Refer to Table 11.
10 Refer to Table 12.
11 Planning Reserve Margin = [(Total Net Supply + Demand Response + Interruptible) / Demand] – 1
12 Refer to Table 8. Outages of ISO, SP26 and NP26 are not coincident.
13 Total Net Supply = Existing Generation + High Probability Additions – Hydro Derate – Retirements – Outages + Net Interchange
14 Operating Reserve Margin = (Total Net Supply + Demand Response + Interruptible) / Demand -1

Table 3

Extreme Scenario Operating Reserve Margins

Summer 2014 Outlook - Extreme Scenario 1-in-10 Demand, 1-in-10 Generation Outage and Low Imports			
Resource Adequacy Conventions	**ISO**	**SP26**	**NP26**
Existing Generation	53,612	26,178	27,434
Retirement	0	0	0
High Probability Additions	338	261	77
High Hydro Derate (below NQC)	(1,669)	(342)	(1,328)
High Outages (1-in-10 Generation)	(6,478)	(3,406)	(4,126)
Net Interchange (Low)	8,500	8,800	1,300
Total Net Supply (MW)	54,303	31,491	23,357
DR & Interruptible Programs	2,066	1,341	725
High Demand (1-in-10 Summer Temperature)	49,601	28,522	22,377
Operating Reserve Margin	**13.6%**	**15.1%**	**7.6%**

Figure 1



Notes:
⇨Demand based on 1-in-2, or 1-in-10 Weather.
⇨All Demand Response and Interruptible Load has been utilized.
⇨At Stage 3 Emergency firm load is shed to maintain 3% Operating .

Figure 1 shows adequate operating reserve forecast margins under the normal and extreme scenarios. The operating reserve margins for ISO, SP26 and NP26 are projected to be above the 3% firm load shedding threshold in all scenarios.

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Figure 2

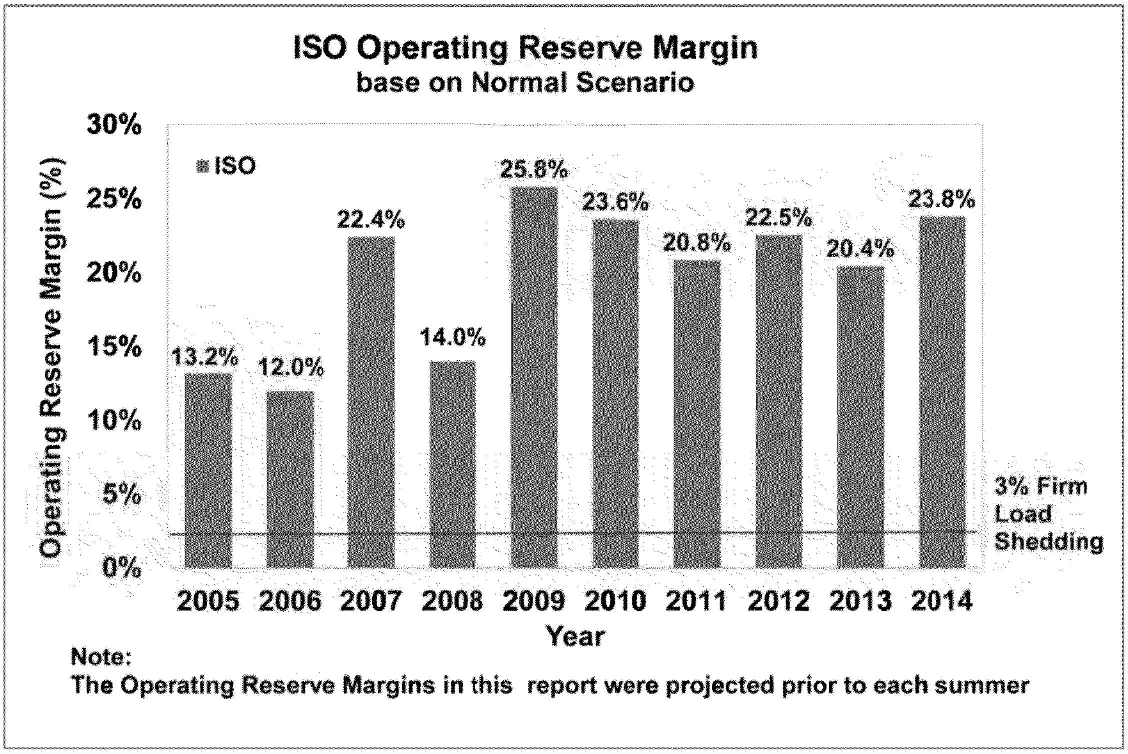

Figure 2 shows forecasts of normal operating reserve margins have remained ample and fairly consistent since 2009.

Producing this report and publicizing its results is one of many activities the ISO undertakes each year to prepare for summer operations. Other activities include coordinating meetings on summer preparedness with the WECC, Cal Fire, natural gas providers and neighboring balancing authorities. The ISO's ongoing relationships with these entities help to ensure everyone is prepared during times of system stress.

Significant amounts of new renewable generation has reached commercial operation and this trend is expected to continue as new renewable generation comes online to meet the state's 33% renewables portfolio standard (RPS). A certain amount of flexible and fast responding resources will need to be maintained on the system to ensure reliable operation in the transition to the RPS.

The roughly 10,517 MW of natural gas fired capacity subject to the once-through-cooling regulation, which will require coastal power plants that use ocean water for cooling to be retired, retrofitted or repowered, is an ongoing issue that also needs to be addressed. The ISO is working closely with state agencies and plant owners in evaluating the reliability impacts of implementing these regulations to ensure electric grid reliability is maintained throughout the transition. The ISO plans to include assessments of the adequacy of flexible capacity in future Summer Loads and Resources Assessment reports.

II. SUMMER 2013 REVIEW

Demand

The recorded 2013 summer peak demand reached 44,941 MW on June 28, 2013. Adjusting for the normalized weather conditions, this translates into a peak load of 46,705 MW for ISO in 2013, an increase of 30 MW, or 0.06% from the 46,675 MW of 2012 summer peak demand. The SP26 summer peak demand was 27,058 MW and NP26 peak demand reached 20,928 MW. The annual peaks for the ISO, SP26 and NP26 happened on June, July and September, respectively. The fact that the annual peaks did not occur coincidently is due to a number of factors, with weather being the primary contributing factor.

Figure 3 shows ISO, SP26 and NP26 actual monthly peak demand from 2006 to 2013. The ISO summer peak dropped each year from 50,085 MW in 2006, which was high because of extreme weather conditions and a stronger economy, to 45,809 MW in 2009 as demand moderated during the recession. Demand has fluctuated since 2009 based on changing economic, demographic, and weather conditions. The ISO, SP26 and NP26 daily peaks from June to September 2013 are shown in *Appendix A: 2013 Summer Peak Load Summary Graphs.*

Figure 3

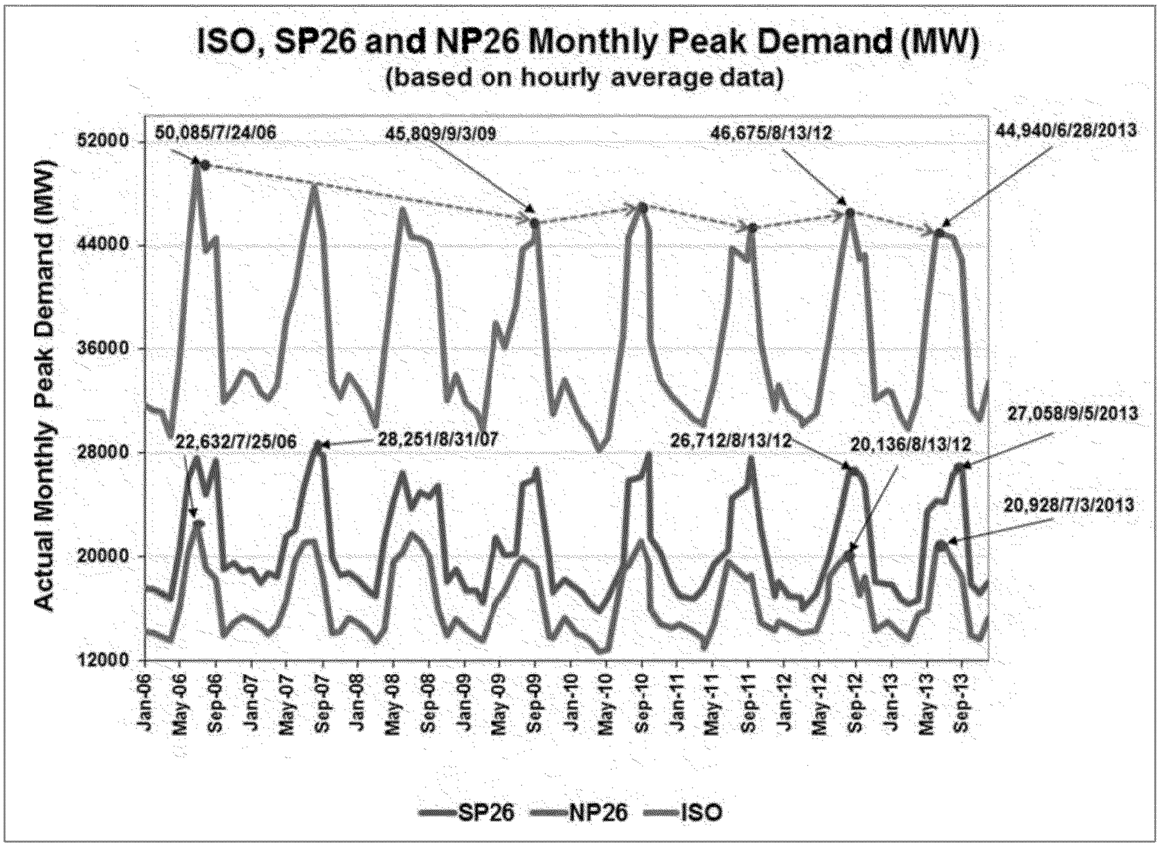

Figure 3 shows the ISO balancing authority system peak as well as peaks for Northern and Southern California. Starting in 2006, the summer ISO peak demand gradually declined to 2009, somewhat rollercoaster from 2009 to 2013.

Table 4 shows the difference between 2013 actual peak demands and 2013 1-in-2 peak demand forecasts. The ISO peak demand in 2013 was categorized as approximately the 20th percentile or 1-in-1.25 temperature event. The 20th percentile represents a point at which 20 percent of the probable outcomes will be equal to or less than this value. The weather normalized peak load for ISO in 2013 was 46,705 MW.

The actual peak demand in Southern California was 195 MW lower than the 1-in-2 forecast peak demand for SP26, The weather at the time of the SP26 peak demand was the 27th percentile or 1-in-1.38 temperature event. A combination of a mild weather pattern, demand response, and an actual economic growth slower than that forecasted by Moody's was the main contributor to the actual peak demands being lower than 1-in-2 forecast peak demands for ISO and SP26.

The actual peak demand in Northern California was 400 MW lower than 1-in-2 forecast peak demand for NP26. The weather at the time of the NP26 peak demand was the 62th percentile or 1-in-2.63 temperature event. This anomaly was the result of differences in non-weather parameters in the load forecast model, including but not limited to the difference between the realized economic growth in Northern California and the assumptions incorporated into the forecast. The downward impact of these variations from forecast more than offset the upward impact of higher than average temperatures.

Table 4

2013 ISO Actual Peak Demand vs. Forecasts				
	1-in-2 Forecast (MW)	Actual (MW)	Difference from 1-in-2 Forecast (MW)	Difference from 1-in-2 Forecast (%)
ISO	47,413	44,941	-2,472	-5.2%
SP26	27,253	27,058	-195	-0.7%
NP26	21,328	20,928	-400	-1.9%

Generation

As of April 22, 2014, the net dependable capacity of the ISO balancing authority was 65,226 MW, including 32,157 MW in SP26 and 33,069 MW in NP26. The NDC is the maximum capacity of a unit during the most restrictive seasonal conditions less the units' capability used for station service or auxiliaries. It includes the capability of units that may be temporarily inoperable because of maintenance, forced outage, or other reasons, or only operable at less than full output. It excludes power required for plant operation and emergency power for unit startup and shutdown. The net dependable capacity of the ISO balancing authority is shown in *Appendix B 2014 ISO NDC and RPS by Fuel Type.*

Generation in the ISO balancing authority is primarily fueled by natural gas (60.8%), followed by 22.0% renewables portfolio standard (RPS) resources, 12.5% large hydro, 3.5% nuclear units and a small amount of oil and coal. Although SONGS units 2 and 3 totaling 2,246 MW were retired on June 7, 2013, they were excluded in 2013 summer resources and outages calculation. Contra Costa Units 6 and 7 totaling 674 MW were replaced on May 1, 2013 with 800 MW Marsh Landing Generation Station units 1 to 4. Huntington Beach units 3 and 4 were converted to synchronous condensers on December 7, 2012. Morro Bay Units 3 and 4 retired on February 5, 2014. The ISO used the California Public Utilities Commission methodology for determining the components of the renewables portfolio standard generation.[15] The conventional resources included natural gas, nuclear, oil and coal.

Renewables Generation

A total of 14,330 MW renewable commercial operation generations were composed of 41.5% wind, 31.1% solar, 11.0% geothermal, 8.9% small hydro, 4.8% biomass, and 2.9% biogas. Maximum wind generation reached 4,268 MW on June 23, 2013. Maximum solar generation reached 2,893 MW on December 26, 2013. Because California has relatively large share of natural gas generation, a potential shortage of natural gas could create reliability issues on the power grid. Greater fuel diversity through integration of renewable energy resources is helping to mitigate this risk.

Generation Outages

The average weekday generation outages in 2013 were lower than those in 2012, with the most significant contribution to the change coming from the retirement of the SONGS units 2 and 3. ISO average weekday generation outages from June 2013 to September 2013 were 5,104 MW lower than 8,220 MW in 2012. SP26 average weekday outages were 2,341 MW lower than 4,307 MW in 2012. NP26 average weekday outages were 2,178 MW lower than 3,913 MW in 2012.

Graphs in *Appendix C: 2011 – 2013 Summer Generation Outage Graphs* show the weekday hour-ending 16:00 forced and planned outage amounts during the summer peak days from June 15 through September 30 for the 2011, 2012, and 2013 (excluding holidays). The graphs do not include ambient and normal outages as these amounts are accounted for in the NQC listing, based on most likely summer peak weather conditions.

A forced outage is the outage where the equipment is unavailable for unexpected events such as the removal from service availability of a generating unit, transmission line, or other facility for emergency reasons. A planned outage is the outage where the shutdown of a generating unit, transmission line, or other facility, is for inspection or maintenance, in accordance with an advance schedule. An ambient outage is a special type of outage where the cause is due to ambient conditions outside of the resource operator's control. The ambient conditions include exceeding air emission limits, lack of fuel, lack of water, low steam pressure, geomagnetic disturbance, earthquake, or catastrophe. Normal outage is the outage when the unit cannot response to a dispatch due to designed operations.

Imports

Figure 4 shows the 2013 ISO peak and the net interchange over the weekday summer peak load period. There are numerous factors that determine to the level of interchange

[15] Renewable Energy and RPS Eligibility; website: http://www.cpuc.ca.gov/PUC/energy/Renewables/FAQs/01REandRPSeligibility.htm

between the ISO and other balancing authorities at any given point in time (refer to the Imports section on page 20).

The imports at the 2014 summer peak for ISO and SP26 decreased in 2013. The ISO imports at the peak decreased from 9,199 MW in 2012 to 8,780 MW in 2013 and the SP26 imports at its peak decreased from 8,513 MW in 2012 to 8,306 MW in 2013. These decreases were due in part to higher in-state generation dispatch in Southern California in 2013 and low loads due to mild weather. However, the NP26 imports at its peak increased from 997 MW in 2012 to 2,331 MW in 2013. *(Appendix D: 2011 – 2013 Summer Imports Summary Graph)*

Figure 4

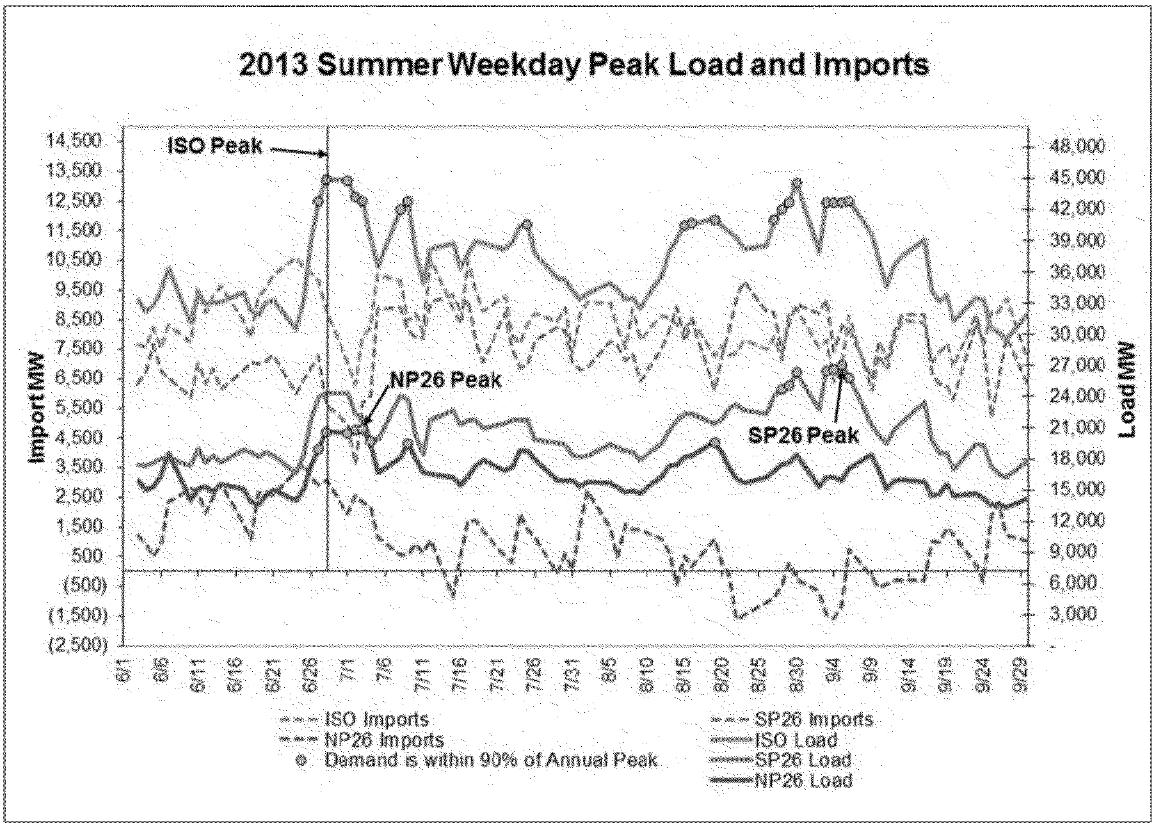

Figure 4 shows the amount of imports at ISO daily system peaks.

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III. SUMMER 2014 ASSESSMENT

Generation

Total ISO generation NQC (before hydro derates) for the 2014 summer peak is estimated to be 53,950 MW, a 3,243 MW increase from June 1, 2013. This additional amount will help meet an expected 646 MW of load growth and offset the hydro derate for this summer. Each year, CPUC, the CEC and the ISO work together to publish an NQC list which describes the amount of capacity that can be counted from each resource to meet Resource Adequacy requirements in the CPUC's RA program. To account for the variable output of intermittent resources, the NQC calculation process uses a three-year rolling average of historical production data to determine the NQC for each wind, solar, or other non-dispatchable resource. The NQC for dispatchable resources depends on its availability and deliverability. The ISO determines the net qualifying capacity by testing and verification as outlined in the ISO tariff and the applicable business practice manual.

The largest available generation resource type is natural gas generation accounting for 68.7% and the second largest generation type is hydro accounting for 14.2%. Non-hydro renewables including geothermal, biogas, biomass, wind and solar units make up about 11.7%. With the retirement of both SONGS units nuclear generation accounts for 4.2% while coal and oil generation provide 1.2%. On-peak NQC by fuel type is shown in *Appendix E: 2013 ISO Summer On-Peak NQC Fuel Type.*

Generation Addition and Retirement

Table 5 shows that a total of 3,555 MW of NQC came on line in the ISO balancing authority from June 1, 2013 to April 22, 2014. This new NQC included 1,997 MW in SP26 and 1,558 MW in NP26, and 650 MW from Morro Bay Units 3 and 4 retiring on February 5, 2014. After April 22, 2014, 338 MW of additional net qualifying capacity generation is expected to come on line by June 1, 2014 as shown in *Table 6*, with 261 MW in SP26 and 77 MW in NP26. New generation with zero NQC are not listed in *Tables 5* and *6*.

Table 7 shows the total generation capacity changes within the ISO since June 1, 2013 and expected by June 1, 2014. A total of 3,243 MW of generation additions are expected to enter commercial operation for this summer, 2,258 MW in SP26 and 985 MW in NP26. This table was developed using the final NQC list that was used for the California Public Utilities Commission as part of its resource adequacy program for compliance year 2014, which the ISO posted to its website on March 13, 2014. Generators who chose not to participate in the NQC process were added using the ISO Master Control Area Generating Capability List, which is also posted on the ISO website.[16]

[16] *Master Control Area Generating Capability List* website : http://www.caiso.com/participate/Pages/Generation/Default.aspx

Table 5

New Generating Capacity (MW) (Generation that achieved commercial operation from 6/1/ 2013 to 4/22/2014)					
Resource ID	**COD**	**NDC**	**NQC (est)**	**Fuel Type**	**Area**
DEVERS_1_SOLAR1	01-Jun-13	12.0	8.2	SUN	SCE
DEVERS_1_SOLAR2	01-Jun-13	9.0	6.2	SUN	SCE
KANSAS_6_SOLAR	06-Jun-13	20.0	13.7	SUN	PGAE
COCOSB_6_SOLAR	12-Jun-13	1.5	1.0	SUN	PGAE
OLIVEP_1_SOLAR	22-Jun-13	20.0	13.7	SUN	PGAE
GATES_2_SOLAR	24-Jun-13	20.0	13.7	SUN	PGAE
GATES_2_WSOLAR	24-Jun-13	10.0	6.8	SUN	PGAE
ELSEGN_2_UN2021	29-Jun-13	263.7	263.7	NATURAL GAS	SCE
ELSEGN_2_UN1011	09-Jul-13	263.0	263.0	NATURAL GAS	SCE
DAVIS_1_SOLAR1	01-Jul-13	1.0	0.7	SUN	PGAE
GONZLS_6_UNIT	08-Jul-13	1.4	0.9	LANDFILL GAS	PGAE
PEABDY_2_LNDFIL	09-Jul-13	1.6	1.0	LANDFILL GAS	PGAE
SANLOB_1_LNDFIL	21-Jul-13	1.5	0.9	LANDFILL GAS	PGAE
OCTILO_5_WIND	29-Jul-13	265.0	50.5	WIND	SDGE
LECEF_1_UNITS	31-Jul-13	315.0	315.0	NATURAL GAS	PGAE
DAVIS_1_SOLAR2	05-Aug-13	1.0	0.7	SUN	PGAE
RUSCTY_2_UNITS	08-Aug-13	625.0	625.0	NATURAL GAS	PGAE
WAUKNA_1_SOLAR	14-Aug-13	20.0	13.7	SUN	PGAE
VACADX_1_NAS	06-Sep-13	1.9	1.9	BATTERY	PGAE
TOPAZ_2_SOLAR	09-Sep-13	237.0	162.1	SUN	PGAE
VISTA_2_FCELL	13-Sep-13	1.4	0.9	AGRICULTURAL WASTE	SCE
GUERNS_6_SOLAR	18-Sep-13	20.0	13.7	SUN	PGAE
CSLR4S_2_SOLAR	11-Oct-13	130.0	88.9	SUN	SDGE
CNTNLA_2_SOLAR1	16-Oct-13	51.5	35.2	SUN	SDGE
CPVERD_2_SOLAR	22-Oct-13	150.0	102.6	SUN	SDGE
SOLAR PROJECT	10/22/2013 (COM)	219.7	150.2	SUN	SCE
CAVLSR_2_RSOLAR	01-Nov-13	210.0	143.6	SUN	PGAE
ARLVAL_5_SOLAR	05-Nov-13	127.0	86.8	SUN	SDGE
GLDTWN_6_SOLAR	18-Nov-13	5.0	3.4	SUN	SCE
GENESI_2_STG	27-Nov-13	250.0	171.0	SUN	PGAE
VICTOR_1_SOLAR1	06-Dec-13	17.5	12.0	SUN	SCE
GLDTWN_6_COLUM3	10-Dec-13	10.0	6.8	SUN	SCE
ETIWND_2_CHMPNE	20-Dec-13	1.0	0.7	SUN	SCE
CHINO_2_JURUPA	20-Dec-13	1.5	1.0	SUN	SCE
CONTRL_1_CASAD1	20-Dec-13	10.0	7.0	GEOTHERMAL	PGAE
CHINO_2_SASOLR	20-Dec-13	1.5	1.0	SUN	SCE
DEVERS_1_SOLAR	24-Dec-13	18.5	12.7	SUN	SCE
RSMSLR_6_SOLAR1	20-Dec-13	20.0	13.7	SUN	SCE
RSMSLR_6_SOLAR2	20-Dec-13	20.0	13.7	SUN	SCE
PEORIA_1_SOLAR	30-Dec-13	1.5	1.0	SUN	PGAE
KNGBRG_1_KBSLR1	30-Dec-13	1.5	1.0	SUN	PGAE
KNGBRG_1_KBSLR2	30-Dec-13	1.5	1.0	SUN	PGAE
IVANPA_1_UNIT1	30-Dec-13	126.0	86.2	SUN	SCE
IVANPA_1_UNIT2	30-Dec-13	133.0	90.9	SUN	SCE
IVANPA_1_UNIT3	30-Dec-13	133.0	90.9	SUN	SCE
VLCNTR_6_VCSLR1	30-Dec-13	2.5	1.7	SUN	SDGE
VLCNTR_6_VCSLR2	30-Dec-13	5.0	3.4	SUN	SDGE
CRELMN_6_RAMON1	30-Dec-13	2.0	1.4	SUN	SDGE
CRELMN_6_RAMON2	31-Dec-13	5.0	3.4	SUN	SDGE
MSOLAR_2_SOLAR1	01-Jan-14	165.0	112.8	SUN	SCE
ESCNDO_6_PL1X2	23-Jan-14	49.5	49.5	NATURAL GAS	SDGE
LOCKFD_1_BEARCK	05-Feb-14	1.5	1.0	SUN	PGAE
COGNAT_1_UNIT	12-Feb-14	49.5	30.2	BIOMASS	PGAE
JAYNE_6_WLSLR	18-Feb-14	18.0	12.3	SUN	PGAE
IVSLRP_2_SOLAR1	04-Mar-14	200.0	136.8	SUN	SDGE
PIT1_6_FRIVRA	05-Mar-14	1.5	1.0	SUN	PGAE
MCARTH_6_FRIVRB	05-Mar-14	1.5	1.0	SUN	PGAE
TMPLTN_2_SOLAR	06-Mar-14	1.5	1.0	SUN	PGAE
OLDRIV_6_BIOGAS	10-Mar-14	2.0	1.2	BIOMASS	PGAE
RIVRBK_1_LNDFIL	11-Mar-14	1.0	0.6	LANDFILL GAS	PGAE
WIND PROJECT	3/13/2014 (COM)	138.0	26.3	Wind	SCE
OTAY_6_LNDFL5	14-Mar-14	1.5	0.9	Land Fill Gas	SDGE
OTAY_6_LNDFL6	14-Mar-14	1.5	0.9	Land Fill Gas	SDGE
LOCKFD_1_KSOLAR	14-Mar-14	1.0	0.7	SUN	PGAE
WIND PROJECT	3/17/2014 (COM)	90.0	17.1	Wind	SCE
SOLAR PROJECT	4/17/2014 (COM)	72.0	49.2	SUN	SCE
SOLAR PROJECT	4/17/2014 (COM)	103.5	70.8	SUN	SCE
SOLAR PROJECT	4/18/2014 (COM)	195.3	133.6	SUN	SCE
Total		4,859	3,555	ISO	
		3,010	1,997	SP26	
		1,849	1,558	NP26	

Note: COM means commercial operations for markets

Table 6

High Probability Generation Additions Expected (MW) from 4/23/2014 to 6/1/2014					
Project Name	**Project Type**	**Estimated COD**	**NDC**	**NQC (est)**	**PTO**
Solar Project	New	4/23/2014	1.5	1.0	SCE
Solar Project	New	4/23/2014	20.0	13.7	PG&E
Solar Project	New	4/27/2014	1.5	1.0	PG&E
Solar Project	New	4/30/2014	2.0	1.4	SCE
Solar Project	New	4/30/2014	2.0	1.4	SCE
Solar Project	New	4/30/2014	5.0	3.4	SCE
Solar Project	New	before 6/1/2014	20.0	13.7	PG&E
Solar Project	New	before 6/1/2014	20.0	13.7	PG&E
Solar Project	New	before 6/1/2014	6.5	4.4	SDG&E
Wind Project	New	before 6/1/2014	4.2	0.8	SCE
Solar Project	New	before 6/1/2014	1.5	1.0	PG&E
Solar Project	New	before 6/1/2014	1.3	0.9	PG&E
Solar Project	New	before 6/1/2014	25.0	17.1	PG&E
Land Fill Gas Project	New	before 6/1/2014	0.8	0.5	PG&E
Land Fill Gas Project	New	before 6/1/2014	20.0	12.2	SCE
Solar Project	New	before 6/1/2014	1.3	0.9	PG&E
Biomass Project	New	before 6/1/2014	3.0	1.8	PG&E
Natural Gas Project	New	before 6/1/2014	4.3	4.3	PG&E
Natural Gas Project	New	before 6/1/2014	4.2	4.2	PG&E
Natural Gas Project	New	before 6/1/2014	4.3	4.3	PG&E
Solar Project	New	before 6/1/2014	1.5	1.0	SCE
Solar Project	New	before 6/1/2014	1.5	1.0	SCE
Solar Project	New	before 6/1/2014	1.5	1.0	SCE
Solar Project	New	before 6/1/2014	1.5	1.0	SCE
Land Fill Gas Project	New	before 6/1/2014	20.0	12.2	SCE
Land Fill Gas Project	New	before 6/1/2014	20.0	12.2	SCE
Land Fill Gas Project	New	before 6/1/2014	20.0	12.2	SCE
Land Fill Gas Project	New	before 6/1/2014	20.0	12.2	SCE
Land Fill Gas Project	New	before 6/1/2014	20.0	12.2	SCE
Natural Gas Project	Conversion	before 6/1/2014	170.7	170.7	SCE
Total			425	338	ISO
			318	261	SP26
			107	77	NP26

Table 7

Total Expected Generation change (MW) from June 1, 2013 to June 1, 2014						
	from 6/1/2013 to 4/22/2014	from 6/1/2013 to 4/22/2014	As of 4/22/ 2014	from 4/23/2014 to 6/1/2014	for 2014 summer	for 2014 summer
	Additions COD	Retirements	Existing	High Probability Additions	Total Expected	Total Expected Change
ISO	3,555	(650)	53,612	338	53,950	3,243
SP26	1,997	0	26,178	261	26,439	2,258
NP26	1,558	(650)	27,434	77	27,511	985

This assessment uses all capacity available within the ISO balancing authority regardless of contractual arrangements to evaluate resource adequacy in order to understand how the system will respond under contingencies. Although some resources may not receive contracts under the resource adequacy program, and may contract with entities outside the ISO for scheduled short-term exports, these resources are still considered available to the ISO.

The NQC values for wind and solar are determined and annually adjusted based on actual output during peak hours over a three-year period. If the ISO balancing authority experiences extreme weather conditions beyond what is considered by the NQC calculation process, it is possible that not all of the capacity accounted for will be available because the unit ratings of combustion turbines and some other resources are impacted by high ambient temperatures.

Generation Unavailability

The estimated 1-in-2 generation outages during the 2014 summer peak demand periods for the ISO, SP26 and NP26 are 5,030 MW, 2,105 MW and 2,921 MW, respectively. The estimated 1-in-10 generation outages for the ISO, SP26 and NP26 are 6,478 MW, 3,406 MW and 4,126 MW, respectively (*Table 8*). The last three years of generation outages during the peak demand period were used to develop a range of outages for the probabilistic analysis and to determine the 1-in-2 and 1-in-10 outage levels for the deterministic analysis.

Table 8

Generation Outages for Summer 2014 (MW)			
	ISO	SP26	NP26
1-in-2	5,030	2,105	2,921
1-in-10	6,478	3,406	4,126