Stakeholder Comments Template

SCE Comments on the ISO April 2, 2012 2012/2013 Transmission Planning Process Stakeholder Meeting on Renewable Portfolio Scenarios

Please submit comments (in MS Word) to regionaltransmission@caiso.com by 4/16/12.

Submitted by	Company	Date Submitted
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Southern California Edison ("SCE") appreciates the opportunity to comment on the CPUC/CEC resource scenarios submitted jointly on March 23, 2012 by the California Public Utilities Commission ("CPUC") and the California Energy Commission ("CEC") to the California Independent System Operator ("CAISO") and as discussed at the April 2, 2012 CAISO Transmission Planning stakeholder meeting.

Below please find SCE's key comments. SCE looks forward to working with the CAISO in this process.

1. Overall Comments

We commend the CPUC and CAISO for their efforts at building these scenarios and understand that there is an interest to have both transmission planning and Long Term Procurement Planning (LTPP) work from common future scenarios. In particular, we commend the CAISO, CPUC and CEC for their collaborative effort to refine the LTPP RPS Calculator to include information from the Desert Renewable Energy Conservation Plan (DRECP). SCE believes that the integration of land-use and transmission planning efforts, informed by the LTPP, DRECP, and the BLM Solar Programmatic EIS—will provide greater certainty, resulting in a more orderly, rational, timely, and cost-effective state and regional transmission planning and permitting process. Although SCE recognizes these commendable efforts, further refinements to the development and utilization of resource scenarios will be necessary.

SCE is concerned that using these cases, which represent four possible future states, will be extremely burdensome for the CAISO Transmission Planning studies as those studies should only focus on a "worst case transmission analysis". If the CAISO transmission planners are required to look at peak day effects of four cases, rather than focusing on other days in a worst case scenario, then valuable information about the operating issues in other months will be lost. As noted in the California Transmission Planning Group (CTPG) RPS transmission studies, the months of April and September, or October, may be more important to the transmission planners than the peak hour analysis of the four proposed scenarios. Likewise, the LTPP should look at the emissions and production costs of one of the cases in detail, but the differences between cases, as noted in the last LTPP cycle, are minor so extensive analysis of these

cases is burdensome. Therefore the LTPP should likewise look at the most important modeling criteria in determining the need for integrating resources. These criteria are: 1) the peak load level, 2) generator maintenance patterns, 3) renewable generation variability, and 4) the retirement of Once-Thru-Cooling (OTC) units and the replacement units that are necessary for Localized Capacity Resources (LCR).

For the CAISO's consideration in developing a base case and updating the portfolios, SCE suggests that the CAISO assess priorities that reflect generator likelihood of interconnection. This should include the consideration of the status of a variety of issues such as: interconnection queue status, commercial interest status, environmental permitting status, financing status, and land acquisition status, as well as other land-use and transmission factors.[1]

Please find SCE's specific comments provided below.

2. CAISO's Transmission Planning Should Focus on the Commercial Interest Case, including the South of Kramer Transmission Project

SCE strongly recommends that the CAISO **include in the base case, all transmission projects that have been approved by the CAISO as required network upgrades that the PTO has received approval by the CAISO and FERC to finance upfront. For example, the South of Kramer Transmission Project should be modeled in the CAISO's base case, or at a minimum, as sensitivity** in the CAISO's base case. It appears that the CPUC/CEC March 23, 2012 letter would only include this project in the Commercial Interest case.

Firstly, the CAISO 2011/12 Transmission Plan includes the South of Kramer project in the base case for <u>all</u> portfolios:

> Several transmission projects that were identified in the SCE area in previous transmission planning processes to interconnect and deliver renewable generation have been included in the base cases for all portfolios. Following is a list of the projects in the SCE area along with a brief description. *(Please see, CAISO 2011/12 Transmission Plan, page 331.)*
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> *Cool Water-Lugo (South of Kramer) Project*
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> *The project includes approximately 60-70 miles of new 220 kV and 500 kV transmission lines and the siting of a future Desert View Substation east of the city of Apple Valley. The project has LGIA and pre-licensing activities are underway. The proposed in-service date is 2018. (CAISO 2011/12 Transmission Plan, P. 332)*

Secondly, this project is moving forward. The CAISO and SCE have executed a Large Generation Interconnection Agreement (LGIA) with Mojave Solar for a 250 MW solar project and the LGIA has been filed and accepted by FERC. Additionally information has been provided to the CAISO that provides support that the Mojave Solar Project is active and groundwork has been started.

[1] SCE notes the CAISO is including a type of scoring that utilize these factors in approaching the studies on CAISO deliverability.

The LGIA for the Mojave Solar project includes the Coolwater-Lugo project as a Delivery Network Upgrade and SCE has agreed to upfront financing as part of the South of Kramer Upgrades. Upfront financing and abandoned plant approval for this project has been agreed to by the CAISO in the LGIA and has also been approved by FERC. This project will provide additional transmission capacity needed in the Kramer Junction and Lucerne Valley areas. SCE is preparing its applications to the regulatory agencies, including its Application for a Certificate of Public Convenience and Necessity. Currently SCE is active in project development and public outreach activities in preparation for the application.

Thirdly, on November 10, 2011 the CPUC approved a Pacific Gas and Electric Company (PG&E) renewable energy power purchase agreement (PPA) with Mojave Solar, LLC for this project.[2]

Fourthly, SCE also notes that other customers will benefit from this project. Currently, customers requesting interconnection in the North of Kramer System totals 1099 MWs in queue. These customers would benefit from the South of Kramer transmission project. Additionally, customers requesting interconnection in Lucerne Valley totals 1060 MWs;[3] these renewable customers will also benefit from the South of Kramer transmission project.[4]

Lastly, it is important to acknowledge the CEC's support of the Coolwater-Lugo transmission line in its letter dated July 15, 2011 to the CAISO explaining that the South of Kramer transmission project will support renewable development in the Kramer CREZ as well as facilitate solar development in the San Bernardino-Lucerne Valley, Inyokern, Owens Valley and geothermal development in Nevada that interconnects near Mono Lake. These fundamental points support the need to include the South of Kramer transmission project in the base case transmission planning evaluation. The CEC July 15, 2011 letter is also submitted for reference.

In summary, the project driving the South of Kramer upgrade is on track and moving forward. A number of MWs of renewable customer interest is in the queue. Policy makers have identified development potential, including the Coolwater-Lugo line, which would serve RETI CREZs[5]. Given this support, at a

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[2] A CPUC Resolution adopting E-4433 can be found at ttp://docs.cpuc.ca.gov/PUBLISHED/COMMENT_RESOLUTION/145204.htm

[3] The CAISO generation interconnection queue is located at:
http://www.caiso.com/planning/Pages/GeneratorInterconnection/Default.aspx
Specifically the CAISO queue is this document:
http://www.caiso.com/Documents/ISOGeneratorInterconnectionQueueExcel.xls
Additionally, the SCE's WDAT generation interconnection queue is located at:
http://www.sce.com/AboutSCE/Regulatory/openaccess/default.htm
Specifically it is this document: http://www.sce.com/nrc/aboutsce/regulatory/openaccess/wdat/wdat_queue.xls
Between those two publically available spreadsheets, one can verify the queued MW values in the North of Kramer area and MWs requesting interconnection at a future Jasper Substation. Also, please note, the Rule 21 queue is anticipated to be published after the Rule 21 Settlement is approved by the CPUC.

[4] Please note that the MWs queued in both areas are about 2159 MWs and that capacity of the Coolwater-Jasper-Lugo 220 kV Transmission Line only has a capacity of about 1,000 MW. Please note that the capacity on this line would be provided on a first come first serve basis, and if all the projects were developed an additional transmission project upgrade would be needed.

[5] Specifically, Table 1-1 from the RETI Phase 2B executive summary estimates 2,336 megawatts (MW) in the Barstow competitive renewable energy zone (CREZ), 2,432 MW in the Inyokern CREZ, 6,412 MW in the Kramer CREZ, 5,000 MW in the Owens Valley CREZ, and 2,230 MW in the San Bernardino-Lucerne CREZ for a total of 18,410 MW. The MW reference from the Phase 2A RETI report is located at: http://www.energy.ca.gov/2009publications/RETI-1000-2009-001/RETI-1000-2009-001-F-REV2.PDF. Additionally, the Desert Renewable Conservation Plan (DRECP) report is expected to be released later in 2012 and may provide additional support.

minimum, SCE requests the CAISO incorporate the South of Kramer Transmission Project in its base case.

3. The ISO Should Only Study One Scenario to Ensure Mandatory Reliability Planning is Achieved

SCE appreciates that interest in the coordination the CPUC and CEC is interested in pursuing; however, it is extremely burdensome for the CAISO to study four scenarios for reliability planning purposes. It is important to understand that one scenario requires six months of study and numerous engineers. To perform studies for four scenarios would require quadruple the amount of work and resources. SCE is concerned that it may not be possible to perform this amount of work in the planned time frame of the Transmission Planning process. SCE recommends the CAISO be selective about the study objectives to ensure mandatory reliability planning standards are met.

SCE recommends the CAISO choose the Commercial Interest Case as the reasonable base case.

4. The High DG Scenario Case is Premature and should not be studied in the 2012/13 Transmission Plan; however, Key Drivers for Transmission Planning must be studied

SCE appreciates that as a first step, the agencies created a scenario that moves the DG from more remote desert locations where significant upgrades would have been required, to closer to the load center. However, SCE is very concerned that the High DG case, which adds more than 5,200 MW of additional DG, if studied, will not provide informative results for transmission planning purposes unless the following questions are addressed.

The High DG Scenario will not be Complete and may have Significant Cost Implications on Generators

There are numerous questions on how a high DG scenario will be modeled by the Transmission Planners. These include:

- Where will the DG be physically located?
- How will the transmission models be built under the High DG case?
- How will the CAISO ensure the amount of high DG scenario PV generation remain and be absorbed within the Distribution system under varying minimum load conditions for each distribution circuit and substation always matching with the hourly PV generation amount on that circuit and substation without any residual PV generation backfeed flow impact on to the Transmission system?
- What will the assumptions be on substation loading? How will the CAISO unload the substations?
- Will the technical and feasibility studies be made to provide a detailed picture of these issues?

SCE is concerned that the CAISO process will not include an opportunity to study the technical issues or the impacts on the non-CAISO and CAISO systems from DG resources in this scenario. It is very important that these more technical issues be evaluated because, depending on the location of the DG resources, this scenario may require local transmission and significant distribution upgrades. Such

upgrades may have significant financial impacts to the generators as these interconnection customers may be required to finance distribution upgrades if required by their interconnection project. These issues are significant and must be understood to analyze a High DG case. Given this, SCE believes that it is premature to include a High DG Scenario in the future year Transmission Planning process and therefore recommends that the CAISO not utilize it as a planning scenario.

SCE is concerned that key drivers such as OTC and SCIT analysis should be the focus when they are critical to future Transmission Planning. It is important to call out the critical key drivers for Transmission Planning including:

1. Once Through Cooling (OTC) unit retirement. SCE reviewed the CAISO's 2011/12 transmission plan (March 23, 2012) and notes that there are several sections on OTC planning/scenario analysis[6]. It appears the CAISO has a methodology for incorporating OTC impacts into its transmission plan. SCE expresses its appreciation for the OTC study effort and stresses the continued importance of studying OTC implications. SCE requests that the CAISO re-affirm its assumptions/approach from the 2011-12 plan. Additionally, the CAISO has currently identified that there are 2370 MWs of OTC[7] that will need to be shut down and possibly replaced in order to reliably serve the load. Given that an assumption should be made, a simplifying assumption is to replace the resources in kind. This is a simplifying assumption for transmission planning purposes only.

2. Load Forecast – The level of Load is a key driver for transmission planning.

3. Modification of Southern California import transmission (**SCIT**) nomograms – SCE understands that the OTC shutdowns will affect transmission transfer capability and the CAISO plans to reflect this in the modeling by turning on basin generation. Again, for transmission planning purposes, a simplifying assumption on how the CAISO will rebalance the resources is to replace assumed OTC plant shutdowns with resources in kind. (OTC retirements in the long term are about 7,000-8,000 MWs).

Additionally the E3 report used to support the High DG scenario was only recently published, is characterized as a preliminary analysis by the CPUC, has not been vetted by stakeholders and was merely mentioned at the April 2, 2012 CAISO meeting. Put simply, there has not been enough time provided to assess that report and have a meaningful chance to provide feedback to the CAISO on the assumptions going into the High DG case. Initial SCE comments on this E3 report can be found in Section 5.

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[6] CAISO 2011/12 transmission plan - http://www.caiso.com/Documents/Board-approvedISO2011-2012-TransmissionPlan.pdf, please see, **3.3.1.1 Long-Term LCR and Zonal Assessments and 3.3.2 Once Through Cooling Reliability Assessment – Study Results.**

[7] The report shows a minimum of 2370 MWs of replacement capacity for 2021 in the LA Basin on page 216, in the table in the "Trajectory" case, page 216. (http://www.caiso.com/Documents/Board-approvedISO2011-2012-TransmissionPlan.pdf.)

Given the reasons aforementioned, SCE recommends the CAISO not study the High DG Scenario in the 2012/13 Transmission Planning process because the assumptions in the case are premature.

5. Initial SCE comments on the E3 Preliminary Assessment, "Technical Potential for Local Distributed Photovoltaics in California" (March, 2012)

The E3 report is new and will require additional time to provide complete and meaningful comment on it. However, initial comments are provided below:

1. The report was structured to assume "no export to the transmission system". This may require unique and novel communication and control systems with functions to, for example, curtail Distribution PV output during unexpected low load situations and may result in added cost at numerous distribution substations. Unexpected load reduction below assumed hourly minimum load targets may occur within the distribution system causing unexpected backfeed flows to the transmission system which may not be designed to accommodate such situations reliably.

2. The effort in the study to actively match PV output with load may actually make efforts to prevent inadvertent islanding worse. It increases the possibility that generation on any circuit or circuit segment will match load, which makes a sustainable island more likely in the event of disconnection from the overall system. The efficacy of active anti-islanding systems is today being questioned for situations involving multiple generators on a segment.

3. SCE disagrees with the view that the 15% of maximum load screening criteria is an impediment to rapid interconnection. Other factors are more problematic.

4. The report compares German DG interconnection rates with those in California. The German system differs in at least two important respects: (a) their system uses much more three phase and less single phase radials. This reduces the system impacts of individual loads or generators. (b) the German policy socializes the costs of interconnecting PV generators whereas which is different from policy governing generation interconnection at FERC and the state which assigns non network costs triggered by a generator interconnection project to the individual generator.

5. The report does not appear to consider modifications to the protection system which will likely be required, nor does it recognize the cost and time delay associated with making such changes. For example, generators on one circuit may provide fault current to a sister circuit, resulting in backfeed and false tripping of their own circuit breaker.

6. The report attempts to limit problems with voltage regulation on circuits by limiting their range from the substation. This may be an appropriate approximation, but the details of each interconnection will have to be considered. For example, a large generator may be within a mile of the substation but most of that distance may be over a small wire radial connection to the main line.

7. The report identifies roof tops and ground based sites deemed within reach of each distribution substation for 2.5 miles radius urban/suburban and 5.0 miles radius rural targets to assess the

high DG scenario PV generation amounts. This methodology is a rule of thumb for an academic estimate of potential PV generation. However, the process may create conditions where it may be impractical. This could happen for example where, a potential location may be within 2.5 miles of a distribution substation, but may not have much local load to be served with PV generation at the identified location and may require long runs of small radial distribution lines to carry the excess PV generation. A set minimum radius does not always guarantee the delivery and absorption of PV generation by local loads without additional distribution upgrade costs.

8. Assessing a high DG potential utilizing a fixed radial area for each distribution substation may seem to be an easy exercise, however, the implementation of such high DG PV schemes within the radial area will encounter severe distribution constraints and added costs of PV interconnection. Although the E3 report may be a reasonable estimate of the level of PV potential using simple radial algorithms, it lacks details on how to achieve that potential within the distribution system topography and operational environment.

9. The report should also evaluate the environmental constraints, excessive land use and risks in the high DG case involving heavily populated urban and suburban open areas with multiple PV farms.

6. **SCE appreciates the April 2, 2012 stakeholder meeting and opportunity to provide these comments. SCE's key message is that given the enormous amount of resources required to perform one scenario, this includes over six months of study and many engineers, SCE strongly recommends that the ISO choose one scenario to perform the 2012/13 Transmission Planning analysis and to include the South of Kramer transmission project. Please do not hesitate to contact us with any questions you may have.**