

UCAN's Fourth Set of Data Requests

A. 05-12-014

1. In hours when SDG&E load is above 2600 Mw, please identify the minimum number of Mw that must be generating inside the SDG&E service area.
2. Please identify the lowest load level for SDG&E at which it is possible to have imports exceed 2500 Mw, taking into account minimum load requirements.
3. In hours when SDG&E load is above 3000 Mw, please identify the minimum number of Mw that must be generating inside the SDG&E service area.
4. Please identify the lowest load level for SDG&E at which it is possible to have imports exceed 2850 Mw, taking into account minimum load requirements.
5. In SDG&E's Case 1 modeling, for each hour in 2010, please indicate:
 - a. Load in that hour
 - b. Imports in that hour
 - c. Generation within the SDG&E service area in that hour
 - d. SONGS generation in that hour
6. In SDG&E's Case 1 modeling, for each hour in 2015, please indicate:
 - a. Load in that hour
 - b. Imports in that hour
 - c. Generation within the SDG&E service area in that hour
 - d. SONGS generation in that hour
7. Please provide the PMI study of SIL/NSIL capability in 2006, 2008 and 2010 referenced in SDG&E's 3/3/06 Grid Assessment Study, p. 2.
8. Please provide the study work for the Imperial Valley transformer upgrade referenced in SDG&E's 3/3/06 Grid Assessment Study, p. 10.
9. Please confirm the following two subparts:
 - a. The increase in SDG&E import capability due to Sunrise, under N-1 conditions, was reported to the ISO as 700 Mw in SDG&E's 3/3/06 Grid Assessment Study, pp. 20 and 25.
 - b. That SDG&E has reported to the ISO that it will have a 37 Mw import capability deficiency in 2015, under N-1 conditions, even if Sunrise is built, as shown in SDG&E's 3/3/06 Grid Assessment Study, pp. 20 and 25.
10. Please reconcile an apparent discrepancy where SDG&E's CPCN application asserts that Sunrise will increase NSIL by 1000 Mw, yet SDG&E informed the ISO some months later, in its 3/3/06 Grid Assessment Study, (p. 25), that the expected increase would be only 700 Mw and the actual number was still under study.

11. Please describe the “study” referred to on p. 25 of the Grid Assessment Study. This description should include, but is not limited to:

- a. Identify who is performing it,
- b. State what work has been done to date, when will it be complete –
- c. Provide copies of any study results, final or partial, that have been completed to date.
- d. Provide copies of any documents that have been sent to the ISO regarding the increase in NSIL attributable to Sunrise.

12. With regard to the South Bay regional transmission study referenced on p. 36 of SDG&E’s 3/306 Grid Assessment Study,

- a. Please indicate when this study is due to be completed
- b. Please provide a copy of the completed study when available
- c. Please provide a copy of any interim study products sent to the ISO.

13. With regard to the Imperial Valley transformer upgrade projects described at pp. A-13 to A-16 and A-25 to A-26 of the “SDGE 2005 Grid Assessment Appendix A-D.pdf” attachment to SDG&E’s response to UCAN data request 1-4f:

a. Please explain why the smaller of the two current transformers at Imperial Valley substation is described as having a 900 MVA emergency rating (p. A-16) but is modeled with an MVA2 of only 732 MVA (p. A-14).

b. What 230/500 KV transformer capabilities were modeled in SDG&E’s analyses for the Sunrise CPCN, including any differences between cases.

c. Please describe the basis upon which SDG&E is modeling IV transformers for the Sunrise CPCN, given the uncertainty cited in the 3/3/06 Grid Assessment appendix as to what upgrades would be installed and when.

d. What transfer limits at IV for Mw deliveries at the 230 KV level were in force in SDG&E’s Sunrise CPCN modeling?

e. For each of the years 2010 and 2015, please provide an hourly listing of the Mw flows into the IV substation at the 230 KV level.

f. State whether SDG&E intends to keep the IV 500 KV bus as a ring bus rather than a breaker-and-a-half arrangement, as indicated on p. A-25, if Sunrise is built.

g. Has SDG&E included the costs of converting the IV 500 KV bus to a breaker-and-a-half arrangement as part of the costs of the Sunrise project? If so, where are those costs shown and how much are they?

14. On p. IV-6 of its Sunrise testimony, SDG&E indicates at the top of the page that it is in negotiations with a confidential supplier for a confidential project in the Imperial Valley. Please indicate:

- a. If the project referred to has, to SDG&E's knowledge, entered into a contract with a different purchaser.
- b. Is still negotiating with SDG&E?
- c. Please describe current status of the project negotiations
- d. If the redacted language was taken from the first of the confidential documents supplied in response to UCAN DR1-32.

15. SDG&E's December 14, 2005 "purpose and need" filing with the CPUC states that the west of central upgrades will include two new 230 kV lines between Central substation and Sycamore Canyon substation and one new 230 kV line between Sycamore Canyon substation and Penasquitos substation. According to the filing, "the proposed 230 kV transmission lines are assumed to use self supporting tubular steel poles." (page II-5)

- a. Identify the specific locations where the underground lines area proposed to be placed.
- b. Indicate the number of miles of Sunrise Powerlink facilities that will be undergrounded.
- c. Provide the cost estimate for the underground portion of the Sunrise Powerlink facilities. Indicate whether the costs are in constant or nominal dollars and whether it includes AFUDC. Provide all workpapers supporting this cost estimate.
- d. Indicate the overhead costs that will be avoided by undergrounding the indicated portions of the Sunrise Powerlink. Indicate whether these avoided costs are in constant or nominal dollars and whether it includes AFUDC. Provide all workpapers supporting this cost estimate.
- e. Indicate the difference in expected O&M costs for overhead versus underground 230 kV lines.
- f. Provide an indication of the relative difference in reliability between overhead and underground 230 kV lines.

16. In addition, an April 4, 2005 Channel 10 news editorials, however, indicated that SDG&E "agreed to spend additional money—eight times as much as a tower—to bury some of the lines underground." Please verify if this editorial assertion is factually accurate. And, if so, provide the workpapers showing how this "eight times" figure was calculated. If not, please identify the correct number and any corresponding workpapers.

17. In its response to DR 1-14, UCAN says that the load forecasts in A.05-12-014 "reflect adjustments for the CPUC's adopted demand response goals and programs."

- a. Is AMI an "adopted demand response goal and program"?
- b. Are the Mw and Mwh savings in SDG&E's March 28, 2006 AMI filing incremental savings that would reduce SDG&E's loads the stated number of Mw below the SDG&E load forecasts shown in A.05-12-014?
- c. Please provide the most current SDG&E 50/50, 80/20, and 90/10 demand forecasts for the years 2010-2015, inclusive, with and without AMI.
- d. Please provide a written explanation of any differences between the with AMI/without AMI numbers in your response to the previous subpart which differ from the AMI savings projected in SDG&E's March 28, 2006 AMI filing.

18. In the spreadsheet attachment to UCAN DR 1-21, SDG&E shows different levels of renewable resource development with and without Sunrise. Please indicate:

- a. Whether SDG&E's modeling of economic impacts include different levels of renewable generation with and without Sunrise?
- b. How many Mw and Mwh of renewable resources did SDG&E include as SDG&E resources in each of the years 2010 and 2015 for each of scenarios 0, 00, 1, 2, and 3?
- c. Did SDG&E price its renewable resources with both energy and capacity prices?
- d. For each of scenarios 0, 00, 1, 2, and 3, what was the total cost in \$/Mwh (energy cost plus capacity cost, divided by Mwh produced) for each of the following categories of SDG&E renewable resources in 2010:
 - i. Solar thermal
 - ii. Wind
 - iii. Geothermal
- e. For each of scenarios 0, 00, 1, 2, and 3, what was the total cost in \$/Mwh (energy cost plus capacity cost, divided by Mwh produced) for each of the following categories of SDG&E renewable resources in 2015:
 - i. Solar thermal
 - ii. Wind
 - iii. Geothermal

19. UCAN data request 1-22 asked whether the economic modeling of the Sunrise proposal had been performed for SDG&E by ABB using the Gridview model. SDG&E's response indicated that the economic modeling used ABB's Gridview model to simulate the years 2010 and 2015, but did not answer UCAN's question as to who performed the modeling. Please provide answers to the following questions:

- a. Who developed the Gridview model inputs used for Sunrise modeling?
- b. Who actually ran the model for the years 2010 and 2015?
- c. Who was responsible for reviewing model outputs and any subsequent debugging efforts?
- d. Who did the post-processing to convert model results for 2010 and 2015 into nominal dollar results?
- e. Who did the modeling to convert annual dollar impacts in 2010 and 2015 into estimated levelized values over the life of the Sunrise project?

20. Now that the IID/SDG&E MOU has been finalized, UCAN requests copies of any communications between IID and SDG&E regarding their respective plans for 500 KV transmission lines and potential integration, as well as any communications leading up to or following the SDG&E-IID MOA of March 2006, as sought in UCAN data request 1-30a. Please provide copies of any such communications in SDG&E's possession.

21. For the revised joint IID-SDG&E Sunrise-Green Path Southwest project described in SDG&E's responses to UCAN data request 1-30b and 1-30d:

- a. Please provide a map showing the intended locations of the various elements of the revised project (Narrows substation, San Felipe substation, Stirling substation, non-SDG&E-owned transmission facilities).

b. Please provide a revised economic analysis which incorporates the effects of the MOA on Sunrise costs and benefits, and includes all of the planned Green Path transmission facilities (not just Green Path Southwest), including the proposed 500 KV lines interconnecting LADWP and IID.

22. Please provide all documents associated with the "sensitivity" referred to in SDG&E's response to UCAN data request 1-30f.

23. Footnote 1 to SDG&E's response to UCAN DR 1-31c refers to the bond defeasance trigger if there are net annual outbound flows of electricity from SDG&E. For each of the years 2010 and 2015, for each of scenarios 0, 00, 1, 2, and 3, please indicate the relevant net annual flow (inbound or outbound) and whether that flow would trigger bond defeasance.

24. SDG&E's response to UCAN data request 1-32 included a copy of SDG&E's 12/22/2005 "2006 Short-Term renewable procurement plan."

a. Please provide a detailed description of the \$344 million 138 kV transmission line referred to on p. 14, indicating its route and the costs of its various components and any other costs which would comprise the \$344 million figure.

b. SDG&E indicates that it added the \$344 million transmission cost as a cost of delivering renewable energy in evaluating renewable energy projects that would use the potential \$344 million line. Please explain why SDG&E does not similarly add the cost of Sunrise, or some portion thereof, in evaluating renewable energy projects proposed to be located in the Imperial Valley.

25. SDG&E's response to UCAN data request 1-32 included a copy of SDG&E's 12/6/2005 supplement to its long term procurement plan.

a. The 12/6/05 supplement indicates (at p. 7) that if the costs of new IID facilities are to be recovered in whole or in part through CAISO TAC rates, the CPUC "may wish to intervene in the CAISO/FERC process."

i. Under the March 2006 IID/Citizens/SDG&E MOU, will costs of the eastern portion of the Sunrise line, the portion not owned by SDG&E, be recovered through CAISO TAC rates?

ii. If so, which facilities will be subject to cost recovery via CAISO TAC rates?

iii. Which facilities used to deliver renewable energy from the Imperial Valley to SDG&E will not have their costs recovered through CAISO TAC rates, and how much does SDG&E anticipate paying to deliver energy and/or capacity over those facilities?

iv. Does SDG&E agree that the CAISO's access rules are far more conducive to grid usage and more likely to provide a higher level of consumer benefit than IID's grid access rules?

b. The 12/6/05 supplement indicates (at pp. 9-10) that under the CAISO's MRTU "the costs of transmitting energy cross the CAISO grid are the marginal costs of losses and congestion between the point of injection into the CAISO grid and the point of withdrawal from the CAISO grid." For each of the years 2010 and 2015, for each of Sunrise cases 0, 00, 1, and 3, please provide:

i. The LMP at the Imperial Valley substation

ii. The LMP at the SDG&E service area Load Aggregation Point (LAP)
iii. The marginal transmission losses for deliveries from Imperial Valley substation to the SDG&E LAP

c. The 12/6/05 supplement discusses (at pp. 12-13) two transmission options which are different from the 138 KV option referenced in part (a) of the previous question, but are intended to deliver resources in the same area to the SDG&E grid. For each of these two transmission options:

i. Please provide a detailed description of its various components and any other costs which would comprise the cost figure given in the supplement.

ii. What would be the annual dollar cost of the transmission option in each of the years 2010 and 2015?

iii. In its Sunrise modeling that includes one or the other of these transmission options, please identify how many gwh per year of renewable generation does SDG&E assume the transmission option will deliver in each of the years 2010 and 2015?

iv. Please reconcile the difference between the cost of the transmission option discussed on the top half of p. 13 and the cost for corresponding facilities (a substation of the same voltage and the same number of miles of transmission line) proposed as part of the Sunrise project.

d. Which "production cost model" was SDG&E referring to on p. 16 of the supplement?

e. The supplement discusses "REC's" on pp. 17-18. In this regards, please state:

i. What does the acronym REC stand for?

ii. Does SDG&E support the use of REC's as part of compliance with the state of California's 20% RPS goal?

iii. If REC's are allowed and available, will SDG&E need Sunrise to deliver renewable energy to its service area to meet its RPS goals?

iv. If REC's are allowed and available, will SDG&E need any new transmission facilities other than gen-tie facilities to obtain renewable energy to meet its RPS goals?

v. If REC's are allowed, does SDG&E expect them to be available?

26. SDG&E's response to UCAN data request 1-33c contains SDG&E's 1/13/2006 filing in FERC proceeding ER06-289 (LEAPS). In regards to this filing, please state:

a. Is it SDG&E's position that Sunrise would be "an interconnection to Arizona, *not* a reinforcement to California facilities? (1/13/06 filing, p. 5; emphasis in original)

b. SDG&E's 1/13/06 filing asserts at p. 7 that "SDG&E has indicated to TNHC an interest in constructing the transmission portion of the project on a basis that would complement Sunrise." Please provide:

i. Copies of all communications from SDG&E to TNHC whereby SDG&E "indicated" its interest.

ii. A description of the scope and timing and cost of what SDG&E proposed to construct "on a basis that would complement Sunrise."

c. SDG&E's 1/13/06 filing asserts at p. 8 that "to the extent the ISO and CPUC determines there is a need, SDG&E will build the transmission facilities."

i. Has SDG&E made any request to the CPUC to determine whether "there is a need"?

ii. Does SDG&E believe "there is a need"?

iii. Would SDG&E support or oppose a CPUC decision that "there is a need"?

d. SDG&E's 1/13/06 filing asserts at p. 8 that "on its face, the TE/VS Interconnect is a "gen-tie," and not eligible for network treatment."

i. Please explain how LEAPS, which would connect a 500 KV portion of the CAISO grid at one end and a 230 KV portion of the CAISO grid at the other end, with a looped in renewable energy project in the middle, is distinguishable from Sunrise, which would connect a 500 KV portion of the CAISO grid at the Imperial Valley end to a 230 KV portion of the CAISO grid at the Sycamore Canyon end with a looped in renewable energy project (Stirling) in the middle.

ii. Does the fact that a stated purpose of Sunrise is to deliver renewable energy generation from the Imperial Valley to SDG&E make Sunrise a gen-tie project as well?

27. With regard to SDG&E's response to UCAN data request 1-37:

a. What are "SDG&E-owned RMR capacity payments"?

b. Why are they omitted from SDG&E's Sunrise analyses?

c. What are the annual values for "SDG&E-owned RMR capacity payments"?

d. How much does SDG&E (or its affiliates), in its role of powerplant owner, expect to charge the ISO for units designated as RMR or equivalent in each of the years 2010-2015, inclusive?

e. How much does SDG&E, in its role as a PTO, expect to have to pay the CAISO in RMR or equivalent costs for units owned by SDG&E or any other Sempra-affiliates in each of the years 2010-2015?

f. Will Sunrise have any effect on RS payments (RMR or equivalent) by SDG&E to the CAISO for any of the following units:

i. Miramar

ii. Palomar

iii. Otay Mesa

28. In response to UCAN data request 1-38, SDG&E states that "Whatever mechanism is used under the MRTU regime, critical local generators in the San Diego area that would otherwise shut down because they are not economically viable will need to be provided with supplemental revenues beyond what the competitive market is expected to provide. The supplemental revenues paid to local generators will come from consumers within the San Diego area" In reference to this statement, please answer the following:

a. Are the "supplemental revenues" in this answer different from the "RMR" costs in SDG&E's Sunrise analysis?

b. Please explain what (if any) "RMR" costs in 2010 and beyond that SDG&E would have to pay that are different from the "supplemental costs" in this response.

c. Is it SDG&E's position that Otay Mesa "would otherwise shut down because [it is] not economically viable" and "will need to be provided with supplemental revenues beyond what" SDG&E has already contractually committed to pay it?

d. How much will Otay Mesa have to be paid in each of the years 2010-2015 beyond what SDG&E is already under contract to pay it in order to keep it from shutting down?

e. How much will Encina have to be paid in each of the years 2010-2015 in order to keep it from shutting down?

f. In its Sunrise analyses for the year 2010, how many dollars has SDG&E assumed it will pay for each operating generator in San Diego County for RA costs?

g. In its Sunrise analyses for the year 2015, how many dollars has SDG&E assumed it will pay for each operating generator in San Diego County for RA costs?

29. SDG&E's response to UCAN data request 1-44d indicates that no operating reserve criterion was imposed on the San Diego local area in SDG&E's economic modeling. Please indicate:

a. Is it true in current practice that the CAISO does not maintain operating reserves within the San Diego local area?

b. What is the minimum generation the CAISO requires to be on line in the San Diego local area?

c. In SDG&E's economic modeling in this proceeding, please indicate for each of cases 0, 00, 1, 2, and 3, and for each of the years 2010 and 2015, the number of annual hours in that year and case when generation in the SDG&E local area was:

i. 0 Mw

ii. 200 Mw or less

iii. 500 Mw or less

30. SDG&E's response to UCAN data request 1-47d indicates that SDG&E expects a tax deduction in 2047 due to the cost of removal of Sunrise "Overhead Conductors and Devices."

a. What is the expected dollar cost of removal (in 2047 dollars) that produces the tax deduction?

b. How many dollars is the tax deduction?

c. Where is the cost of removal (as opposed to the tax deduction it generates) shown in the Sunrise revenue requirement calculation?

d. Does SDG&E expect to actually incur a removal cost for Sunrise?

31. Please provide the "preliminary studies" referenced in SDG&E's response to UCAN data request 1-53, and any associated memos, e-mails or other communications.

32. Please provide copies of the WECC Path 44 rating studies referenced in SDG&E's response to UCAN data request 1-54a.

33. UCAN's data request 1-54j asked for certain documents. SDG&E's identified responsive documents but did not provide them. Please provide copies of the "Valley-Rainbow Interconnect Study" and the "Non-Simultaneous Import Capability Screening Study" referenced in SDG&E's response to UCAN data request 1-54j

34. Please provide the document "SDGE_comment_RMR_2006.doc" referenced at the end of the attachment to SDG&E's response to UCAN data request 1-58

35. Please identify the location of the wind generation referenced in SDG&E's response to UCAN data request 1-70.

36. With regard to SDG&E's response to UCAN data request 1-74:

- a. Please provide the source and date of the CEC forecast shown in the response.
- b. Please provide any more recent CEC forecast of which SDG&E is aware.

37. SDG&E's response to UCAN data request 1-76 sought clarification before responding. By way of clarification, for each of the years 2010 and 2015, for each of cases 0, 00, 1, 2, and 3, please provide the average LMP for:

- a. SDG&E service area
- b. SCE service area
- c. PG&E service area
- d. LADWP service area
- e. IID service area
- f. The state of Arizona
- g. The state of Nevada
- h. The Nevada Power Company (NPC) service area
- i. The Salt River Project (SRP) service area
- j. The Arizona Public Service (APS) service area
- k. The Tucson Electric Power (TEP) service area
- l. Palo Verde bus
- m. Hassayamba bus
- n. North Gila bus
- o. Imperial Valley bus
- p. Devers bus

38. With regard to UCAN data request 1-92, please provide any and all documents that relate to the *projected or forecasted* frequency of unscheduled gas turbine and/or steam turbine outages at combined cycle power plants, either on a generic basis or specifically for plants located in San Diego County.

39. For each month of the years 2010 and 2015, for each of SDG&E's Sunrise Cases 0, 00, 1, 2, and 3, please provide:

- a. The installed geothermal capacity in Imperial County
- b. Generation (in gwh) by geothermal resources in Imperial County
- c. The installed solar thermal capacity in Imperial County
- d. Generation (in gwh) by solar thermal resources in Imperial County