



Energy Division
California Public Utilities Commission

505 Van Ness Avenue, 4th flr
San Francisco, CA 94102

**Data Request to: Pacific Gas & Electric Company
R.12-03-014, Long Term Procurement Plan**

Date: August 10, 2012

To: Redacted

Regulatory Affairs
Pacific Gas & Electric Company

E-mail: Redacted

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Re: Data Request No.: GTP_R12-03-014_PGE001

Responses Due: August 28, 2012, 4 p.m.

Definitions

Unless the request indicates otherwise, the following definitions are applicable in providing the requested information.

1. "Local Capacity Area" or "LCA" has the meaning defined by the California Independent System Operator. (It appears that LCA is the same as Local Capacity Requirements area, LCR area, and Local Reliability Area.) For reference, CAISO's witness Robert Sparks defines "local capacity area" as follows:¹

¹ Testimony of Robert Sparks on Behalf of The California Independent System Operator Corporation, in Order

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.

2. "Measure" means: new equipment or facility; upgraded or modified equipment or facility; operation; or activity, that would provide reactive power. Without limitation, this includes generation.
3. "You" and "your" and "utility" refer to Pacific Gas & Electric Company.

DATA REQUESTS

- 1) **Local Capacity Areas and Subareas.** Please provide a list of the utility's Local Capacity Areas and subareas. Define what constitutes a subarea. Please provide a map showing the utility's Local Capacity Areas and subareas, including transmission-level substations and switchyards. If you disagree in any way with the definition of Local Capacity Area above, provide your definition and justification for the difference.
- 2) **Voltage Support and Reactive Power Needs.** Please describe and quantify the utility's voltage support and reactive power resources and needs in each of its Local Capacity Area(s) and subareas within the LCA's for the years 2013, 2014, 2015, 2016, 2017, and 2022. Please answer the same question for 2027 and 2032 to the extent modeling (e.g., power flow analyses) has already been done. Identify the delta between future need and resources already in operation (less expected retirements) in each subarea in each identified year.
 - a) Quantification of reactive power resources and needs should be as Q_{min} / Q_{max} in Mvars, by year, by subarea and totaled for each LCA. Recognizing the extent of assumptions and computations that might be needed for such quantification, studies that the utility has already completed may be used. If desired, contact the data request originator to discuss existing analyses and how much additional work would be needed for years beyond 2017. Please organize requested results in one or more Microsoft Excel tables, even if they are generated by different software or model.

Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans, Rulemaking 12-03-014, submitted May 23, 2012, pp. 3:28 - 4:5. *Cf.* California Independent System Operator, 2011-2012 Transmission Plan, prepared by Infrastructure Development, March 23, 2012, pp. 208-211 (hereinafter "**2011-2012 Transmission Plan**") (final version).

- b) Explain in a narrative the primary and secondary factors that the utility expects will drive its voltage support and reactive power needs, and how these factors drive the needs.
 - c) Provide the assumptions underlying the calculations, explain their roles, and provide citations. For example, major assumptions may include: retirement of Once-Through-Cooling (“OTC”) units, and potential repowering at OTC sites; renewable resource megawatts of different technologies to be integrated; new conventional generation (identify specific projects where possible); load forecast (e.g., California Energy Commission forecast of [X] year, 1-in-10 weather, forecast from 2009); demand-side management programs (e.g., incremental demand response; incremental, uncommitted energy efficiency), etc.
 - i) Where data are voluminous, provide on a Compact Disc.
 - ii) Include a discussion of load forecasts for peak, shoulder, and minimum loads.
 - iii) If the responses for question #2 would be influenced by whether and when San Onofre Nuclear Generating Station (“SONGS”) Units 2 and 3 return to service, then state clearly your assumptions for when those units return to service.
- 3) [Omitted.]
- 4) **Meeting Voltage Support and Reactive Power Needs.** Please describe how the utility plans to meet its voltage support and reactive power needs in each of its LCAs and LCA subareas for the years 2013, 2014, 2015, 2016, 2017, and 2022, including any new Measures to meet a delta between resources and need. Please describe how the utility plans to meet the needs for 2027 and 2032 to the extent modeling (e.g., power flow analyses) has already been done.
- a) If the utility has chosen one or more particular new Measure(s) to address unmet voltage support or reactive power need(s), e.g., a certain device of X size at Y substation, please specify them. Provide type, size, and major technical specifications, including Mvar capability. Indicate alternative Measures considered. If a particular Measure has not been identified, indicate a range of alternatives.
 - b) If the Measure has been submitted to the California Independent System Operator in a Request Window of CAISO’s Transmission Planning Process (“TPP”), please provide a copy of the Request Window submission, and identify which TPP cycle it was submitted, and the date it was submitted. Indicate whether CAISO approved, rejected, or deferred the Measure, with citation to the relevant Transmission Plan(s), and summarize CAISO's reasoning for its approval, rejection, or deferral.

- c) If the Measure will be submitted during the 2012-2013 TPP Request Window, please provide the Request Window document electronically (only) to the data request originator simultaneously with submission to CAISO. (Note 1: This is an exception to Instruction (E); please do not send hardcopies.) (Note 2: Because Measure refers only to things providing reactive power, please do not send copies of other Request Window documents, unless requested separately.)
- d) Provide cost estimates for identified Measures, the year dollars in which the cost is estimated, and provide cost estimates adjusted to nominal 2012 dollars. Provide the data source and data used for taking into account the time-value of money (discounting) (e.g., GNP Deflator).
- e) Attached is a sample table regarding reactive power capability of power plants or other devices. Please use the table. Include at least the sample table columns in your response; you may add to it. (For the “Project Status” column, entries such as on-line, under construction, permitted, proposed, conceptual, and the like, are intended.)

5) Technology Choices.

- a) Describe your thinking and preferences regarding choosing dynamic versus static types of reactive power resources.
- b) Describe the advantages and disadvantages of synchronous condensers, static var compensators, static synchronous compensators, and any other technology types that you currently use or might use in the future years in question #4.

6) New Generation and Reactive Power.

- a) Quantify the estimated reactive power that is likely to be provided by generating units expected to come on line within the utility’s service territory, or close enough to utility’s service territory to provide voltage support to utility, from August 1, 2012 forward. Differentiate between renewable and non-renewable resources. Identify by power plant or facility (e.g., X wind farm). Also identify by generating unit, where the unit is greater than 20 MWe nameplate capacity. (For clarity: This request includes generation not owned by the utility, and if exact information is not available, please estimate.)

Attached is a sample table regarding reactive power capability of power plants or other devices. Please use the table. Include at least the sample table columns in your response; you may add to it.

- b) List any existing or proposed generating units that have or will have a “clutch,” such that they can be operated in a generation mode or a synchronous condenser mode. Include these projects in the responses to questions 4 and 5(b).
- c) Regarding 6(a) above, for distributed generation (“DG”) defined as 20 MW or less for this question (including customer-side or utility-side of the meter), aggregate numbers by technology (e.g., X megawatts of solar photovoltaic; Y megawatts of customer-side combined heat and power) should be provided by year for 2013, 2014, 2015, 2016, 2017, and 2022. Ranges of megawatts may be used. Differentiate between customer-side and utility-side of the meter. Please estimate DG for 2027 and 2032. Where a technology provides little or no reactive power (e.g., solar photovoltaic), include the technology anyway. Provide the source of the forecast(s).

Instructions

- A) Energy Division Staff requests answers to the above data requests. If you have any questions regarding the requests, contact the Energy Division data request originator(s) above within three business days of the date (i.e., August 15, 2012) of this request.
- B) If you are unable to provide the information by the due date, contact the data request originator within three business days of the date of this request, by either e-mail or telephone to discuss why the response due date cannot be met and your best estimate of when the information can be provided.
- C) Restate the text of each question prior to providing the response. Text responses in Microsoft Word document format with at least a 12-point font size are requested. Numeric responses in Microsoft Excel format with at least a 10-point font size are requested.
- D) Please identify the person(s) who prepared the response(s) and e-mail address(es) and telephone number(s) for that (those) person(s).
- E) Provide two complete sets of hard copy responses. Voluminous attachments or data sets may be put on a Compact Disc or DVD disc. Provide two such discs.
- F) Provide electronic copies. Send the electronic responses by e-mail, with an individual e-mail no larger than 10 megabytes, except for large data files which may be sent by CD/DVD. Limit e-mails to 10 megabytes each to avoid e-mail system rejection.
- G) Provide the electronic responses in native Microsoft Word, Excel, Powerpoint or similar format, with data and formulas intact. Do not send files in PDF format, unless the files are simply scanned documents.

H) For workpapers, each page of workpapers must be numbered, referenced, and/or indexed so worksheets can be followed. If any number is calculated in a workpaper, include a copy of underlying electronic files, so that formulae and source data can be reviewed. (This instruction applies to workpapers, not data sets, power flow model input and output, or production cost model input and output.)

I) If the responses include voluminous hard copy attachments, use Bates-numbers on the attachments, and index the documents. Responses to data requests that refer to attached documents must specify pages by Bates numbers or ranges.

J) Use filenames that begin with the data request number in this format:

GTP_R12-03-014_PGE001

The character “_” is the underscore. Do not use any spaces in filenames. Please keep filenames to less than 60 characters in length.

Thank you in advance for your adherence to the instructions.

END OF REQUEST