PACIFIC GAS AND ELECTRIC COMPANY
General Rate Case 2011 Phase I
Application 09-12-020
Data Response

PG&E Data Request No.:	DRA_226-01		
PG&E File Name:	GRC2011-Ph-I_DR_DRA_226-Q01		
Request Date:	March 22, 2010	Requester DR No.:	DRA-226-JJT
Date Sent:	April 5, 2010	Requesting Party:	DRA
PG&E Witness:	M. Christopher Maturo	Requester:	Joel Tolbert

EXHIBIT REFERENCE: EXHIBIT PG&E-7, CHAPTER 2

SUBJECT: INFORMATION TECHNOLOGY

QUESTION 1

In the PG&E and DRA field visit on March 8, 2010 we were informed of significant increases in the need for more power, cooling and facility upgrades. PG&E is requesting that its two Data Centers be upgraded to the Tier III level. New Smart Grid technologies among other things were noted as causative factors fueling the expediential programming processing and data growth. Please discuss how the following factors impact Data Center needs.

a. Planning:

    1. Demand Forecast

    2. Price Forecasting

    3. Resource Portfolio Optimization – Short – Term and Long – Term Plans

    4. Transmission Management – Congestion Revenue Rights (CRRs)

    5. Market Monitoring and Analysis

    6. MRTU

    7. Growth

b. Trading:

    1. Day – Ahead Power Trading & Bid Optimization

    2. Real – Time Power Trading

    3. Gas Procurement

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c. Operations:

   1. Pre – Scheduling

   2. Real – Time Energy Management

   3. Outage Management

d. Finance:

   1. CAISO Settlements and Allocations

   2. Counterparty Settlements

   3. Accounting – Receivables and Payables

   4. Reporting

ANSWER 1

As an initial point of clarification, PG&E is requesting funding in the 2011 GRC to build two new data centers to Telecommunications Industry Association (TIA) 942 Tier III standards. PG&E is not proposing, as this question states, " that its two Data Centers be upgraded to the Tier III level".

The above-mentioned factors (in this question) are collectively impacting data center needs. These factors, among others, affect Data Center planning by way of regular planning discussions and meetings between the Functional Area IT (FAIT) project design team and the data center planning team. The data center planning team and the FAIT project designers work together to track and plan for upcoming data center power, equipment and storage requirements to support the new or enhanced IT projects and systems that FAIT is implementing for the lines of business, and the different work groups and organizations within each line of business.

Working with the FAIT project designers, the data center planning team has line-of-sight into all of PG&E's lines of business technology needs. The data center team's long-term capacity plans are based on on-going IT project and program needs, as opposed to the needs of a specific application or system. For example, the data centers currently handle the needs of the planning and trading departments. As new IT programs such as MRTU (and others on the list in this question) are developed, the data center planning team will add the necessary power and equipment to the data center long-term plan to accommodate the new MRTU program. The on-going needs of all the lines of business, and work groups within those lines of business, are regularly communicated by the FAIT design team to the data center planning team, and the line of business needs are incorporated into the on-going data center planning requirements.

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Planning for future data center needs with the lines of business is only part of PG&E's data center planning. Data center planning is also considered during regular lifecycle planning activities. PG&E considers two factors planning for data center growth: 1) maintain data center reliability; and 2) long range capacity planning to support the line of business needs. The key objectives for data center planning are maintaining the power needed to operate current systems at pre-determined reliability standards and added capacity to accommodate new systems and applications.

The first factor, maintaining data center reliability, involves planning for near-term and mid-term capacity and for overall data center reliability issues. For near-term and mid-term capacity planning, PG&E has established acceptable low and high levels for power needs for the data center. PG&E began formal capacity planning for the data centers in 2008. Currently, PG&E is planning for data center needs approximately five years in advance. By 2013, PG&E expects to be at maximum power capacity at the data centers and will not be able to accommodate additional growth.

To stay within the acceptable high/low power needs range, PG&E regularly evaluates near-term and mid-term capacity needs and plans build-outs for additional power to stay within the acceptable range. In 2009, PG&E did a full evaluation of the data center and established a plan for updating and enhancing systems in order to keep within the acceptable power range for the next three years. However, even with forward looking capacity planning and system upgrades and enhancements, PG&E recognizes that there is limited power capacity at each data center site. Based on current projections, PG&E will reach the limits of the power capacity by or before 2013.

The overall reliability issues involves maintaining the environmental systems in the data centers such as air conditioning systems, facility power, fire suppression systems, security cameras, racks, and seismic bracing. Maintaining the environmental systems in good working order is necessary to ensure that the data centers remain operational and that PG&E reliability standards are achieved. PG&E plans for the regular upkeep and required enhancements to these systems as part of the regular IT lifecycle planning process.

As described above, the second planning factor, long-range capacity planning, is a collaborative effort between the data center planning team and the FAIT team. This long-term planning effort involves collaboration between the two teams to determine when new systems or applications will come on-line that will require new storage, servers or other equipment be installed in the data centers. When the IT architecture team completes the detailed design for new FAIT projects, they communicate the types and amounts of new equipment required to support the new project with the data center planning team. The needs for new equipment are defined approximately three to six months in advance of implementation.

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