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Filer:	Jerry Salamy
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San José City Data Center
(19-SPPE-04)

Data Response Set 5A
(Data Requests 60, 61, and 63)

Submitted to
California Energy Commission

Prepared by
Microsoft Corporation

with technical assistance from

JACOBS

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Contents

Attachments

Introduction

Attached are Microsoft Corporation's (Microsoft or the Applicant) responses to the California Energy Commission (CEC) Data Request, Set 5A regarding the San José City Data Center (SJC02) (19-SPPE-04) Small Power Plant Exemption (SPPE). Staff modified Data Request Set 5 in its January 2021 Monthly Status Report (TN 236342) where they indicated that responses to Data Request #61 c. and a revised Data Request #63 were still required.

Response to Staff Data Request Set 5 (60, 61, and 63)

60) The Los Esteros Substation one-line diagram indicated that there are six existing 115 kV transmission lines connected to the Los Esteros Substation 115 kV bus. Are the 115 kV lines able to provide power to the Los Esteros Substation when one or both of the 230 kV lines (Metcalf-Los Esteros and Newark-Los Esteros) are out of service?

Response: Attachment DR-60 presents Pacific Gas and Electric Company's (PG&E) responses to Data Request #'s 60, 61c. and 63.

61) Please describe any outages or service interruptions, including Public Safety Power Shutoffs (PSPS), on the 115 kV systems that would serve the proposed San Jose City Data Center:

    c. What were the responses to the outage(s) by any existing data centers (i.e., initiated operation of some or all backup generation equipment, data off-shoring, data center shutdown, etc.)?

    Response: See Attachment DR-60.

63) Please provide the following regarding Public Safety Power Shutoff events:

    a. Would historical Public Safety Power Shutoff events have resulted in the emergency operations at the proposed San Jose City Data Center?

    b. Have there been changes to the PG&E system around the San Jose City Data Center that would affect the likelihood that future Public Safety Power Shutoff events would result in the operation of the project's emergency generators?

    Response: See Attachment DR-60.

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Attachment DR-60

Pacific Gas and Electric Company's Response to Data Request Data Request #'s 60, 61c. and 63

Questions for PG&E related to the proposed San Jose Data Center

Q1) The Los Esteros Substation one-line diagram indicated that there are six existing 115 kV transmission lines connected to the Los Esteros Substation 115 kV bus. Are the 115 kV lines able to provide power to the Los Esteros Substation when one or both of the 230 kV lines (Los Esteros-Metcalf and Newark-Los Esteros) are out of service?

Yes, even with both 230 kV lines out of service, the 115 kV system connected into Los Esteros should be able to supply power to all customers – if local generation facilities are producing power. Two of the six 115 kV lines connected into Los Esteros Substation are the interconnection for Calpine's Los Esteros Critical Energy Facility (LECEF). That generation facility has a maximum output of 300 MW. The Agnews cogeneration facility, which has a maximum output of over 25 MW, is connected into Los Esteros via the Los Esteros-Agnews 115 kV Line. And Silicon Valley Power's DVR Power Plant, which is connected into the 115 kV, has maximum output of 145 MW.

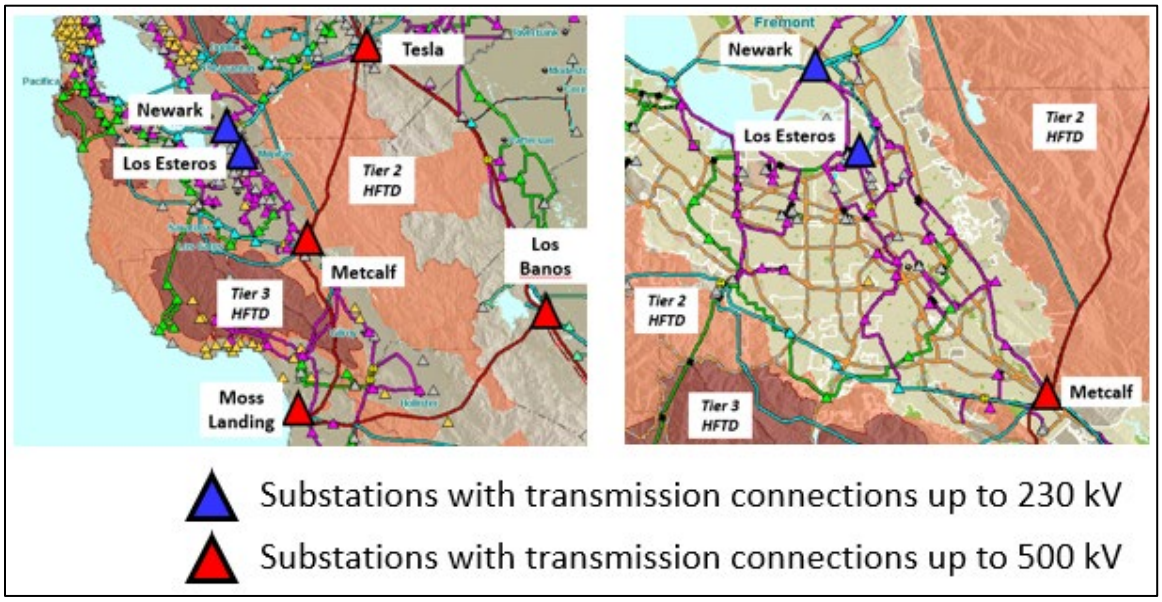
The only problem in the area would be outages of the two 230 kV lines with LECEF off-line during summer peak conditions. That would result in overloads on the 115 kV lines from Newark into the San Jose area and slightly lower voltages in the area. However, that is not a likely event. The next question explains this unlikelihood in more detail.

Q2) Please describe any past outages or service interruptions, including Public Safety Power Shutoffs (PSPS), on the 115 kV systems that would serve the proposed San Jose Data Center:

a. Did PG&E implement equipment upgrades or operational changes to reduce the likelihood of a repeat of the events that led to an outage?

b. What were the responses to the outage(s) by any existing data centers (i.e., initiated operation of some or all backup generation equipment, data off-shoring, data center shutdown, etc.)?

The Microsoft San Jose Data Center will be connected into Los Esteros Substation via two, short 115 kV lines. The maps below show the high-fire threat districts (HFTD's) in the South Bay area. Almost all of the Silicon Valley area is in a Tier 1 HFTD, which is not a high-risk fire area. So there have been no PSPS events in the area.



It is very unlikely that a PSPS event would result in outages of the 115 kV lines in the South Bay area. A PSPS event could potentially impact some of the 500 kV and 230 kV bulk transmission lines supplying power to Newark and Metcalf Substations, although it is very unlikely that an event would result in all of those lines being impacted.

The Los Esteros-Metcalf 230 kV Line is routed through a Tier 2 HFTD. The Newark-Los Esteros is not in a HFTD. So it is unlikely that a PSPS event would result in both 230 kV lines being taken out of service.

Most of the events that have impacted data centers in the Bay Area have been power quality events, where faults on the transmission system have resulted in

momentary low voltages on the system. When installing equipment that could potentially result in momentary voltage sags on the system (such as shunt capacitors connected to the transmission system), PG&E does studies to confirm that switching the device on or off will not result in a power quality event.

Q3) How would local and regional PSPS events be implemented on the 115 kV system compared to PSPS events on the 230 kV system (in other words, would a customer who is extremely concerned about reliability prefer one system over another)?

Events on both the 115 kV and 230 kV systems are implemented in the same way. The transmission lines that could be impacted by a major weather event are evaluated to determine their potential risk of having a component failure in the event. If that risk is high on a line, then PG&E would proactively de-energize that line to prevent a possible failure initiating a wildfire.

Q4) Please provide answers to the following questions regarding PSPS events:

a. Would historical PSPS events have resulted in loss of power to the proposed San Jose Data Center?

b. Have there been changes to the PG&E system around the San Jose Data Center that would affect the likelihood that future PSPS events would result in loss of power to the proposed San Jose Data Center?

None of the past PSPS events would have resulted in a loss of power to the proposed San Jose Data Center. And there have been no changes to the PG&E system in the area that would increase the likelihood that a future PSPS event would result in a loss of power to the proposed San Jose Data Center.