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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of
McLaren Backup Generating Facility

Docket Number 17-SPPE-01

Helping Hand Tools Response to Committee Notice of Status Conference and Further Orders

Introduction

On September 28, 2018 the Committee for the McLaren Backup Generating Facility issued a Notice of Status Conference and Further Orders. In its Notice of Status Conference and Further Orders the CEC asked for clarification from stakeholders regarding several issues including guidance on statutory and regulatory clarification on generating capacity definitions for the purpose of fixing jurisdictional limits; and the potential for alternate methods and technologies by which MBGF might accomplish its goals with a smaller environmental footprint. In the following we provide our responses to the questions and support those answers with references to the evidentiary record.

1. Are there any regulations, statutes, or guidance documents, other than Section 2003, that can apply to the calculation of generating capacity for determining SPPE jurisdiction?

Helping Hand Tools has not found any other regulations or statutes that would permit calculating generation capacity based on the demand of a data center. We agree with the testimony provided by CEC Staff at the evidentiary hearing:

6 MR. SARVEY: Where in Title 20 or any regulations
7 does Staff find authorization to calculate maximum generation
8 based on a data center load? Is there -- am I missing

9 something? I haven't seen anywhere in the regulations. Is
10 this just an ad hoc regulation?
11 MR. LAYTON: You are correct. It's not in there.¹

2. Is there any regulation, statute, or other guidance document that supports the argument that the generation capacity in this proceeding can or should be based upon the data center's demand?

The most relevant guidance document that we found was the letter from Melissa Jones to the Santa Clara Data Center applicant which we have requested official notice of.² In that letter the executive director Melissa Jones directly addressed the issue of calculating generating capacity of multiple diesel backup generators located at a data center directly across the railroad tracks from the proposed MBGS. The applicant for the Santa Clara Data Center tried to evade Energy Commission jurisdiction by claiming that the design of the data center would limit the 36 three megawatt back up diesel generators output to 49.1 megawatts thereby removing it from Energy Commission SPPE Jurisdiction. In that case the CEC Executive Director Melissa Jones sent the Santa Clara Data Center applicant a letter explaining that the 32 diesel generators had a combined output of 91.8 MW utilizing Section 2003 and informed the applicant that the Energy Commission had jurisdiction. The executive director did not allow the applicant to de-rate the gross generating capacity of the backup diesel generators by an artificial continuous rating and dismissed any idea that the demand of the data center would determine generating capacity and therefore eliminate energy commission SPPE jurisdiction.

On May 26, 2017 CEC Staff issued a guidance document called , “ General Method for Determining Thermal Power Plant Generating Capacity.”³ Staff calculates, “The Net Generating Capacity as the Gross Rating minus the Minimum Auxiliary Load.”⁴ This method complies with Section 2003. Nowhere in that document is any method outlined which would determine

¹ Prehearing Conference and Evidentiary Hearing Recorded Transcript 9-30-2018 Page 76 of 123

² TN 224682

³ Attachment 1 TN-224911

https://www.google.com/url?q=https://www.energy.ca.gov/sitingcases/documents/Gen_Capacity_Methodology_Questionnaire.pdf&sa=U&ved=0ahUKEwi39eGq8e_dAhUzHjQIHsa0D88QFggRMAU&client=internal-uds-cse&cx=001779225245372747843:ctr4z8fr3aa&usg=AOvVaw0r8klCbTYv9I7A0sl89j3m

⁴ Attachment 1 TN-224911

https://www.google.com/url?q=https://www.energy.ca.gov/sitingcases/documents/Gen_Capacity_Methodology_Questionnaire.pdf&sa=U&ved=0ahUKEwi39eGq8e_dAhUzHjQIHsa0D88QFggRMAU&client=internal-uds-cse&cx=001779225245372747843:ctr4z8fr3aa&usg=AOvVaw0r8klCbTYv9I7A0sl89j3m Page 4

generating capacity by the load of a data center. The document does not describe any method other than using the gross rating of the generating unit and then subtracting minimum auxiliary load.

The most conclusive guidance we found was the Final Decision for the Santa Clara Data Center which correctly applies Section 2003 of Title 20.⁵ The decision calculates the generating capacity as follows, “Each backup generator has a capacity to generate 2,250 kilowatts, or 2.25 megawatts (MW), a total capacity of 72 MW.”⁶ This is the only other recent data center application where generating capacity was at question. We could find no proceeding before the CEC that allowed the demand of a data center to be used as the proxy for generating capacity.

The CEC has always calculated generating capacity using nameplate capacity and adjusting capacity calculations for parasitic load and the site conditions of the generator. The Applicant and staff propose instead an assessment method based on demand, which can fluctuate at any given time, and can only be arbitrarily estimated on information provided by the applicant. For example, the record of the proceeding is still not clear on what the actual peak demand of the McLaren Data Center is. The Applicants most recent estimate of peak demand for the data center is 98.67 MW within 1.34 MW of exceeding 100 MW.⁷ That peak demand relies on the data centers Power Usage Effectiveness (PUE) not exceeding 1.42.⁸ According to the CEC Staff’s latest testimony, “*the proposed project can only generate up to 94.41 MW as currently configured.*”⁹ Using such an arbitrary method of calculating generating capacity leads to regulatory uncertainty and confusion and leads to possible manipulation of the projects generating capacity.

For obvious reasons the regulations make no mention of using a method like this. Had the legislature intended to use such a method, they could have specified it. The fact that they did not means it was not their intent to do so. Authorizing Applicant’s use of such a method would be endorsing a nebulous standard of estimation with no clear method of oversight; applicability

⁵ Exhibit304

⁶ Exhibit 304 Page 40 of 142

⁷ Prehearing Conference and Evidentiary Hearing Recorded Transcript 9-30-2018 Page 68 of 123 Lines 13,14

⁸ How the projects PUE was calculated is not in the record. “Each data center operator has its own way of presenting the numbers and you cannot compare one datacenter another.”

<https://www.datacenterdynamics.com/opinions/pue-be-gone/> Applicant seems to include only critical IT load and air conditioning load in its calculation of PUE. Prehearing Conference and Evidentiary Hearing Recorded Transcript 9-30-2018 Page 64 of 123 Lines 1-4

⁹ Exhibit 205 Page 6 of 6

within a regulatory scheme; or means of enforcement for transgressions. It would essentially be relying on the Applicant to self-police their demand, which is the exact opposite of the regulator's appointed role.

Indeed, the Staff Response to Comments, Motion to Dismiss, and Motion for a New Schedule contains no references at all to statutory, regulatory, or other legal guidance that might show that the calculation of generating capacity based on demand is grounded in law¹⁰. Staff testified at the evidentiary hearing that the method of calculating generating capacity based on demand had no authority in the Commissions regulations at all.¹¹ CEC Staff has previously rejected the approach of using the demand of the data center to determine generating capacity in the Santa Clara Data Center proceeding as detailed above. This sort of regulatory application falls squarely within the definition of arbitrary and capricious, and is likely to open the agency to suit if used as a basis for granting the application.

3. Is there a technology or device that would allow the electricity demand of the Data Center to be met and still permanently limit the generating capacity to less than 100MW?

The only one who will limit the generating capacity of the MBGS is the applicant. If the applicant ramps up the diesel backup generators to over 100 MW to provide reliability to data center occupants only the applicant will know. Agreements to limit the amount of electricity provided by Silicon Valley Power does nothing to prevent the backup diesel generators from generating over 100 MW as Silicon Valley Power has no control or monitoring of the backup diesel generators. Internal devices to limit generation can be modified without anyone knowing but the applicant. The applicant can also draw on the projects batteries to increase the total output of the MBGS.

4. Instead of only using diesel generators, are there other devices or technology, such as battery storage, that could meet some of the backup electricity needs of the Data Center?

¹⁰ See, e.g. TN-224479 3-5.

¹¹ Prehearing Conference and Evidentiary Hearing Recorded Transcript 9-30-2018 Page 76 of 123 Lines 6-11

The applicant has several options which could reduce criteria pollutant and TAC emissions and still maintain reliability at the data center. First the applicant could utilize an alternative fuel. Liquid natural gas has emerged as a viable back up electrical source at data centers. Wartsila a dominate player in the backup diesel generation industry is now touting natural gas as a cleaner alternative to back up diesel engines. According to Wartsila a backup,

“Engine does not have to run on diesel fuel anymore – especially, when there is a cleaner and more economically effective alternative: natural gas. Compared with other fuel-based technologies used in large-scale commercial power industry, gas engines meet all the features of a smart power backup system. It is fast to start, cheap to build, and extremely flexible. Not long ago, gas-fired engines suffered a major drawback in terms of very delayed start-up timing – at times as high as 10 minutes. But recent years have seen huge progress on this front. Now these state-of-the-art gas engines can be started and brought to full power in considerably less than one minute of the starting order, ushering them into the world of emergency power supply. Gas engines have also taken care of the issue of fuel storage. Recent years have seen emergence of small-scale affordable gas storage technologies, especially in the form of liquefied natural gas (LNG). As a matter of fact, small-scale LNG storage and regasification plants are so reliable and safe that they are currently being installed on passenger ships. Clearly, modern gas engines hold enough power to become a potent alternative to diesel generators. However, gas engines go far beyond merely providing an equivalent solution. Restricting carbon emissions is very important amid growing environmental concerns. And adopting gas engines is the need of the hour as natural gas is the cleanest of all fossil fuels. Using gas means less CO₂, which in turn means corporations can reduce their carbon footprint besides reducing costs.”¹²

Caterpillar has recently introduced its new natural gas power backup generator the CAT G 3512. Caterpillar announced the release of the new Cat® G3512 in 2016 as the first natural gas generator set on the market engineered to meet a full suite of critical standby market requirements. According to Caterpillar:

“ the G3512 is appropriate for office buildings, **data centers**, retail complexes, schools, government buildings, universities and research facilities. With an updated package design, the G3512 is modeled after the standby diesel solution to minimize installation costs and commissioning time on-site. A high power density 12-cylinder engine offers market leading load acceptance and transient response.

¹² <https://www.wartsila.com/twentyfour7/in-detail/transforming-data-centers>

Designed for reliability, this engine is built on established 3500 technology and features a robust design with steel pistons and a protection monitoring system. The G3512 is compatible with NFPA 110 Level 1 Type 10 applications, where backup power is required for mandatory building functions such as egress lighting, elevators, ventilation or data equipment, among others. The G3512 generator set starts and accepts power load in as quickly as 6.5 seconds, depending on conditions at the site. “The combination of performance, certifications, and other critical customer requirements addressed by the Cat G3512 generator set checks all the boxes for the standby market segment,” said Mike Yohe, product line management with Caterpillar Energy Solutions. “This is built upon a robust diesel 3500 platform with a proven track record, and dependability is critical for customers who use these generators during utility outages.”¹³

Other alternative fuels exist to power the backup generators at the McLaren Data Center and reduce their emissions. Propane is a viable alternative with much less pollution than the diesel fired generators. Biogas could also be utilized in the back up generators. Dual fuel fired generators using a diesel pilot and natural gas would also reduce potential emissions from the MBGS.

Additional emission controls on the back up diesel generators can be utilized and are likely to be required by the BAAQMD. BAAQMD required the generators at the Santa Clara Data Center across the railroad tracks from the MBGS to be equipped with SCR to reduce NOx emissions to prevent violations of the State and Federal NO2 standards.¹⁴ Additional limitations on the hours of testing and maintenance for the diesel engines will also likely be required. BAAQMD limited the combined testing hours of the 32 diesel engines at the Santa Clara Data Center to 700 hours combined per year.¹⁵ According to the testimony in this proceeding BAAQMD limited the hours of testing for the 32 Santa Clara Data Center Backup diesel generators to around 20 hours per year per engine, “due to the initial risk assessment for the project coming out as not passing.”¹⁶ If 32 backup diesel generators at the Santa Clara Data

¹³ https://www.cat.com/en_MX/news/engine-press-releases/caterpillar-introduces-new-g3512-natural-gas-generator-set-for-emergency-standby-applications.html

¹⁴ Exhibit 304 Energy Commission Decision SANTA CLARA SC-1 DATA CENTER, PHASE 2 Page 57 of 141

¹⁵ Exhibit 304 Energy Commission Decision SANTA CLARA SC-1 DATA CENTER, PHASE 2 Page 11 of 14

¹⁶ Prehearing Conference and Evidentiary Hearing Recorded Transcript 9-30-2018 Page 91 of 123 Lines 19-23

Center caused a significant health risk when operated over 20 hours the 47 diesel generators of the MBGS will likely cause a significant health risk if operated more than 20 hours considering the Santa Clara Data Center is located across the railroad tracks from the MBGS. This is a significant impact which precludes the approval of the MBGS as an SPPE application.

Respectfully Submitted

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