

BAY AREA Air Quality

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Connect with the Bay Area Air District:



January 4, 2021

Elizabeth Blanton City of Hayward, Planning 777 B Street Hayward, CA 94541

RE: Clawiter Road Industrial Project – Mitigated Negative Declaration

Dear Ms. Blanton,

Bay Area Air Quality Management District (Air District) staff has reviewed the Mitigated Negative Declaration (MND) for the proposed Clawiter Road Industrial Project (Project). The Project applicant proposes to demolish the four existing onsite structures and construct an industrial park consisting of four industrial core sites and shell structures totaling approximately 616,000 square feet and a transformer yard on a 26-acre site in the City of Hayward. While three of the proposed core sites will be occupied by industrial uses, the fourth core site would be occupied by a data center designed to provide 49 megawatts (MW) of information technology power with 24 backup diesel generators to provide emergency power to the data center.

The Air District commends the applicant for its commitment to procure 100 percent renewable energy mix by 2025 and to achieve carbon neutrality by 2040 for the data center. Because the data center includes backup diesel generators, the Project will require Air District approval of an Authority to Construct and Permit to Operate for the backup diesel generators, and, as such, the Project will be required to comply with all applicable Air District regulations. Although the Air District's regulations do not currently prohibit the use of diesel generating equipment, a rulemaking effort is underway to address backup generators at data centers. As such, the Air District encourages the City of Hayward to go beyond current regulatory requirements and require the project applicant to adopt the use of cleaner, non-diesel technologies.

Additionally, staff are providing the following recommendations on how the City could enhance its CEQA analysis and minimize emissions from the Project and future proposed data centers.

Consistency with Long-Term State Climate Goals

The MND states that the Project's greenhouse gas (GHG) emissions "are evaluated for consistency with the State's next milestone target year of 2030." However, the MND does not evaluate, disclose, nor discuss the Project's consistency with State

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policies requiring long-term reductions in emissions of GHGs, including the direction in Executive Order B-55-18 to achieve carbon neutrality as soon as possible and no later than 2045, and Executive Order S-3-05 to achieve GHG emissions reductions equivalent to 80 percent below 1990 levels by 2050. See *Cleveland Nat'l Forest Foundation v. San Diego Ass'n of Governments* (2017) 3 Cal.5th 497, 516 (CEQA analysis should "compare the [project's] projected greenhouse gas emissions ... from 2020 through 2050 with the Executive Order's goal of reducing emissions to 80 percent below 1990 levels by 2050.").

Although the MND states that the data center tenant has committed to achieving carbon neutrality/net-zero carbon by 2040, the details of this commitment are unclear. Specifically, the MND mentions the tenant's commitment to procure 100 percent renewable energy by 2025, while GHG-1 specifies procurement of 60 percent renewable sources by 2030, yet the math behind GHG-1 appears to be approaching 100 percent GHG-free electricity. Likewise, the MND does not evaluate how the Project's use of diesel fuel in the 24 proposed Tier 2 back up diesel generators is consistent with carbon neutrality as soon as possible and no later than 2045. Air District staff recommends that the City augment its GHG analysis to include an evaluation, disclosure, and discussion of whether the Project will be consistent with the State's policies beyond 2030. Regardless of whether upon further evaluation the City deems that deployment of 24 diesel backup generators is consistent with the State's carbon neutrality target, the Air District recommends that the City compel the project applicant to adopt alternative zero emitting technologies, procure renewable fuel, commit to otherwise mitigate GHG emissions, or a combination of the three.

Lastly, although the uses of buildings 1-3 are not specified, it appears that building 3 will include 26 loading docks. It is unclear if these loading docks will include electric vehicle (EV) charging infrastructure for trucks. In accordance with Executive Order N-79-20 which calls for 100 percent medium- and heavy-duty vehicles to be zero-emission by 2045, the Air District recommends the City clarify if loading dock EV charging infrastructure is included and discuss how inclusion of EV charging (or lack thereof) is consistent with Executive Order N-70-20 and the broader goals of carbon neutrality.

Calculation of GHG Emissions

The GHG emissions for electricity use are calculated by applying an adjusted energy intensity factor for the year 2030, however, the project is scheduled to be operating in 2023. The Air District recommends the calculation be redone to include energy intensity factors for the year commencing project operations.

Non-Testing/Non-Maintenance Operations

The MND should include various scenarios of backup power generation operations beyond routine testing and maintenance. Air District staff has reviewed recent data regarding backup

generator usage during non-testing/non-maintenance operations at several Bay Area data centers. Between September 1, 2019, and September 30, 2020, nearly half of the identified data centers in Santa Clara, San Jose, and Sunnyvale operated backup diesel generators for reasons other than routine testing and maintenance. Many of the data centers operated diesel generators during multiple non-testing/non-maintenance events; non-testing/nonmaintenance hours of operation approached 50 hours for one generator for one event; it appears 40 or more generators operated concurrently at two facilities; and one facility ran diesel generators for approximately 400 hours for non-testing/non-maintenance purposes over the course of the period. Please see Attachment 1 for details of the preliminary information on nontesting/non-maintenance operations that the Air District has received from data centers, which demonstrates the need to evaluate these operations. Air District staff recommends that the MND include GHG, criteria pollutant, and toxic air contaminant (TAC) impacts due to the nontesting/non-maintenance operations of backup power generators. Various scenarios should be considered for non-testing/non-maintenance operations, including non-zero hours of operation and concurrent generator operations.

Recommendations for Achieving Additional Emissions Reductions

To the extent that further analysis concludes the Project's emissions would be cumulatively considerable or inconsistent with the State's climate goals, the Project may need to incorporate mitigation measures to reduce emissions. Even if the revised analysis does not conclude the Project's emissions will be cumulatively considerable, the Air District encourages the City to compel the applicant to incorporate additional emission reduction measures as a condition of approval of the Project. These recommended measures will help ensure that the Project's emissions impacts are reduced to the maximum extent possible to achieve the most health protective air quality for Bay Area residents and to achieve climate change goals established by the State and the Air District.

The MND identifies the predominant source of the Project's GHG emissions as electricity use (15,615 MTCO₂e per year), which would be provided by Pacific Gas & Electric (PG&E). The Air District commends the applicant for its commitment to procuring 100 percent renewable energy mix by 2025 for the data center. Air District staff encourages the applicant to commit to procuring 100 percent renewable energy for the entire project site at the onset of project operation. This can be achieved by opting into PG&E's Solar Choice program. Alternatively, because the City is a member of the Community Choice Energy program, East Bay Community Energy (EBCE), the City could opt in to EBCE's Brilliant 100 program (carbon-free energy) or Renewable 100 program (solar and wind energy).

According to the MND, the Project would include 24 Tier 2 diesel backup generators, designed to provide 24 hours of emergency generation at full demand. To meet State and regional climate goals, the Air District encourages projects go above and beyond permitting requirements. In

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September 2018, the Air District launched the *Diesel Free by '33* initiative to eliminate diesel emissions from Bay Area communities by 2033. To cut diesel use to zero by the end of 2033, the Air District recommends that the City compel the Project applicant to use the cleanest available technologies such as solar battery power, fuel cells, natural gas reciprocating engines, or Tier 4 generators.

Lastly, Air District staff strongly recommends that the City work with PG&E, the Air District, State agencies, and the Project proponents for this and similar proposed data center projects to explore alternative options to reduce GHG emissions. For example, the Air District awarded a Climate Protection Grant of \$300,000 to the City of Santa Clara to conduct a pilot project to demonstrate the viability of replacing data center backup diesel generators with electric energy storage systems, and the California Energy Commission (CEC) has previously provided Electric Program Investment Charge (EPIC) awards for data center microgrids. We also encourage proponents of the Project and future data centers to seek available grant funding for zero-emitting alternatives to diesel backup generators.

Air District staff is available to assist the City in addressing these comments. If you have any questions or would like to discuss Air District recommendations further, please contact Josephine Fong, Environmental Planner, at (415) 749-8637 or <u>ifong@baaqmd.gov</u>, or Jakub Zielkiewicz, Advanced Projects Advisor, at (415) 749-8429 or <u>izielkiewicz@baaqmd.gov</u>.

Sincerely,

Greg Nudd Deputy Air Pollution Control Officer

Attachment 1: Preliminary Back-Up Diesel Engine Operations (Non-Testing/Non-Maintenance)

cc: BAAQMD Director John J. Bauters BAAQMD Director Pauline Russo Cutter BAAQMD Director Scott Haggerty BAAQMD Director Nate Miley

September 1, 2019 - September 30, 2020

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Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
1	1	Santa Clara	2	9	5%	90	8/17/20-8/18/20	State Emergency Load Shedding
1	2	Santa Clara	2	8.8	6%	240	8/17/20-8/18/20	State Emergency Load Shedding
1	2	Santa Clara	2	1.2	5%	29	8/17/20-8/18/20	Human error event
1	3	Santa Clara	2	1	1%	5	8/17/20-8/18/20	Human error event
1	4	Santa Clara	2	8.5	25%	390	8/17/20-8/18/20	State Emergency Load Shedding
1	4	Santa Clara	2	1	26%	58	8/17/20-8/18/20	Human error event
1	5	Santa Clara	2	9.1	31%	400	8/17/20-8/18/20	State Emergency Load Shedding
1	6	Santa Clara	2	8.9	21%	300	8/17/20-8/18/20	State Emergency Load Shedding
1	7	Santa Clara	2	8.8	24%	350	8/17/20-8/18/20	State Emergency Load Shedding
1	8	Santa Clara	2	8.8	25%	350	8/17/20-8/18/20	State Emergency Load Shedding
1	9	Santa Clara	2	8.6	22%	325	8/17/20-8/18/20	State Emergency Load Shedding
1	10	Santa Clara	2	9	19%	300	8/17/20-8/18/20	State Emergency Load Shedding
2	1	Sunnyvale	2	12.6	34%	682	Various	Utility inflicted disturbance
2	2	Sunnyvale	2	14.7	41%	795	Various	Utility inflicted disturbance
2	3	Sunnyvale	2	15.3	30%	828	Various	Utility inflicted disturbance
2	4	Sunnyvale	2	13.8	32%	747	Various	Utility inflicted disturbance
2	5	Sunnyvale	2	20.2	26%	1093	Various	Utility inflicted disturbance
3	1	Santa Clara	2	0.5	1%		8/17/20-8/18/20	State Emergency Load Shedding
3	2	Santa Clara	2	1.4	2%		8/17/20-8/18/20	State Emergency Load Shedding
3	3	Santa Clara	2	36.7	40%		8/17/20-8/18/20	State Emergency Load Shedding
3	4	Santa Clara	2.25	0.2	1%		8/17/20-8/18/20	State Emergency Load Shedding
3	5	Santa Clara	2.25	31.7	36%		8/17/20-8/18/20	State Emergency Load Shedding
3	6	Santa Clara	2.25	37.3	36%		8/17/20-8/18/20	State Emergency Load Shedding
4	1	Santa Clara	2.25	0.4	33%	25	8/16/2020	Lightning strikes to transmission line
4	2	Santa Clara	2.25	0.4	33%	25	8/16/2020	Lightning strikes to transmission line
4	3	Santa Clara	2.25	0.4	33%	25	8/16/2020	Lightning strikes to transmission line
4	4	Santa Clara	2.25	0.4	33%	25	8/16/2020	Lightning strikes to transmission line
4	5	Santa Clara	2.25	0.4	33%	25	8/16/2020	Lightning strikes to transmission line
4	6	Santa Clara	2.25	0.5	33%	32	8/16/2020	Lightning strikes to transmission line
4	7	Santa Clara	2.25	0.5	33%	32	8/16/2020	Lightning strikes to transmission line
4	8	Santa Clara	2.25	0.5	33%	32	8/16/2020	Lightning strikes to transmission line
4	9	Santa Clara	2.25	0.5	33%	32	8/16/2020	Lightning strikes to transmission line
4	10	Santa Clara	2.25	0.5	33%	32	8/16/2020	Lightning strikes to transmission line
4	11	Santa Clara	2.25	0.5	33%	32	8/16/2020	Lightning strikes to transmission line
4	12	Santa Clara	2.25	0.6	33%	38	8/16/2020	Lightning strikes to transmission line

September 1, 2019 - September 30, 2020

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Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
4	13	Santa Clara	2.25	0.6	33%	38	8/16/2020	Lightning strikes to transmission line
4	14	Santa Clara	2.25	0.6	33%	38	8/16/2020	Lightning strikes to transmission line
4	15	Santa Clara	2.25	0.6	33%	38	8/16/2020	Lightning strikes to transmission line
4	16	Santa Clara	2.25	0.6	33%	38	8/16/2020	Lightning strikes to transmission line
4	17	Santa Clara	2.25	0.4	43%	33	8/16/2020	Lightning strikes to transmission line
4	18	Santa Clara	2.25	0.4	43%	33	8/16/2020	Lightning strikes to transmission line
4	19	Santa Clara	2.25	0.4	43%	33	8/16/2020	Lightning strikes to transmission line
4	20	Santa Clara	2.25	0.4	43%	33	8/16/2020	Lightning strikes to transmission line
4	21	Santa Clara	2.25	0.4	43%	33	8/16/2020	Lightning strikes to transmission line
4	22	Santa Clara	2.25	0.5	43%	41	8/16/2020	Lightning strikes to transmission line
4	23	Santa Clara	2.25	0.5	43%	41	8/16/2020	Lightning strikes to transmission line
4	24	Santa Clara	2.25	0.5	43%	41	8/16/2020	Lightning strikes to transmission line
4	25	Santa Clara	2.25	0.5	43%	41	8/16/2020	Lightning strikes to transmission line
4	26	Santa Clara	2.25	0.5	43%	41	8/16/2020	Lightning strikes to transmission line
4	27	Santa Clara	2.25	0.5	43%	41	8/16/2020	Lightning strikes to transmission line
4	28	Santa Clara	2.25	0.6	43%	49	8/16/2020	Lightning strikes to transmission line
4	29	Santa Clara	2.25	0.6	43%	49	8/16/2020	Lightning strikes to transmission line
4	30	Santa Clara	2.25	0.6	43%	49	8/16/2020	Lightning strikes to transmission line
4	31	Santa Clara	2.25	0.6	43%	49	8/16/2020	Lightning strikes to transmission line
4	32	Santa Clara	2.25	0.6	43%	49	8/16/2020	Lightning strikes to transmission line
4	33	Santa Clara	2.25	0.4	52%	34	8/16/2020	Lightning strikes to transmission line
4	34	Santa Clara	2.25	0.4	52%	34	8/16/2020	Lightning strikes to transmission line
4	35	Santa Clara	2.25	0.4	52%	34	8/16/2020	Lightning strikes to transmission line
4	36	Santa Clara	2.25	0.4	52%	34	8/16/2020	Lightning strikes to transmission line
4	37	Santa Clara	2.25	0.4	52%	34	8/16/2020	Lightning strikes to transmission line
4	38	Santa Clara	2.25	0.5	52%	43	8/16/2020	Lightning strikes to transmission line
4	39	Santa Clara	2.25	0.5	52%	43	8/16/2020	Lightning strikes to transmission line
4	40	Santa Clara	2.25	0.5	52%	43	8/16/2020	Lightning strikes to transmission line
4	41	Santa Clara	2.25	0.5	52%	43	8/16/2020	Lightning strikes to transmission line
4	42	Santa Clara	2.25	0.5	52%	43	8/16/2020	Lightning strikes to transmission line
4	43	Santa Clara	2.25	0.5	52%	43	8/16/2020	Lightning strikes to transmission line
4	44	Santa Clara	2.25	0.6	52%	51	8/16/2020	Lightning strikes to transmission line
5	1	Santa Clara	2	5	46%	325	8/17/20-8/18/20	State Emergency Load Shedding
5	2	Santa Clara	2	6	58%	400	8/17/20-8/18/20	State Emergency Load Shedding
6	1	Santa Clara	2	41.9	30%	200	8/17/20-8/18/20	utility outage

September 1, 2019 - September 30, 2020

Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
6	2	Santa Clara	2	47.7	22%	180	8/17/20-8/18/20	utility outage
6	3	Santa Clara	2	13	2%	20	8/17/20-8/18/20	utility outage
6	4	Santa Clara	2	37.2	54%	500	8/17/20-8/18/20	utility outage
6	5	Santa Clara	2	37.3	38%	250	8/17/20-8/18/20	utility outage
6	6	Santa Clara	2	41.7	0%	20	8/17/20-8/18/20	utility outage
7	1	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	1	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	1	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	2	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	2	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	2	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	3	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	3	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	3	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	4	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	4	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	4	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	5	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	5	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	5	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	6	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	6	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	6	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	7	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	7	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	7	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	8	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	8	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	8	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	9	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	9	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	9	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	10	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	10	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	10	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage

September 1, 2019 - September 30, 2020

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Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
7	11	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	11	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	11	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	12	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	12	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	12	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	13	Santa Clara	2.5	3.5	48%	600	8/18/2020	Power outage
7	13	Santa Clara	2.5	3.5	48%	600	9/6/2020	Power outage
7	13	Santa Clara	2.5	2.5	48%	480	8/14/2020	Power outage
7	14	Santa Clara	2	3.7	45%	220	8/17-8/18	Power outage
7	14	Santa Clara	2	4.9	55%	370	9/6/2020	Power outage
7	15	Santa Clara	2	3.7	45%	210	8/17-8/18	Power outage
7	15	Santa Clara	2	0.4	50%	390	9/6/2020	Power outage
7	16	Santa Clara	2	3.7	45%	220	8/17-8/18	Power outage
7	16	Santa Clara	2	4.9	5%	1.5	9/6/2020	Power outage
7	17	Santa Clara	2	0.2	5%	1.4	8/17-8/18	Power outage
7	17	Santa Clara	2	0.2	5%	0.2	9/6/2020	Power outage
7	18	Santa Clara	2	3.7	40%	210	8/17-8/18	Power outage
7	18	Santa Clara	2	4.9	55%	400	9/6/2020	Power outage
7	19	Santa Clara	2	5.5	50%	360	8/17-8/18	Power outage
7	19	Santa Clara	2	4.9	60%	410	9/6/2020	Power outage
7	20	Santa Clara	2	5.5	50%	370	8/17-8/18	Power outage
7	20	Santa Clara	2	4.9	60%	410	9/6/2020	Power outage
7	21	Santa Clara	2	5.5	50%	370	8/17-8/18	Power outage
7	21	Santa Clara	2	4.9	60%	410	9/6/2020	Power outage
7	22	Santa Clara	2	5.5	50%	370	8/17-8/18	Power outage
7	22	Santa Clara	2	4.9	60%	410	9/6/2020	Power outage
7	23	Santa Clara	2	5.5	20%	150	8/17-8/18	Power outage
7	23	Santa Clara	2	0.7	15%	14	9/6/2020	Power outage
7	24	Santa Clara	2	0.2	5%	1	8/17-8/18	Power outage
7	24	Santa Clara	2	0.1	5%	1	9/6/2020	Power outage
8	1	Santa Clara	2	0.3	5%	2	11/27/2019	System-wide power quality event
8	1	Santa Clara	2	0.2	6%	2	2/15/2020	System-wide power quality event
8	2	Santa Clara	2	0.3	5%	2	11/27/2019	System-wide power quality event
8	2	Santa Clara	2	0.3	5%	2	2/15/2020	System-wide power quality event

September 1, 2019 - September 30, 2020

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Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
8	3	Santa Clara	2	0.3	6%	2	11/27/2019	System-wide power quality event
8	3	Santa Clara	2	0.2	6%	2	2/15/2020	System-wide power quality event
8	4	Santa Clara	2	0.3	7%	2	2/15/2020	System-wide power quality event
8	4	Santa Clara	2	0.2	8%	2	11/27/2019	System-wide power quality event
8	5	Santa Clara	2	0.2	10%	2	11/27/2019	System-wide power quality event
8	5	Santa Clara	2	0.2	8%	2	2/15/2020	System-wide power quality event
8	6	Santa Clara	2	0.2	9%	2	11/27/2019	System-wide power quality event
8	6	Santa Clara	2	0.2	7%	2	2/15/2020	System-wide power quality event
8	7	Santa Clara	2	0.2	15%	2	11/27/2019	System-wide power quality event
8	7	Santa Clara	2	0.2	8%	2	2/15/2020	System-wide power quality event
8	8	Santa Clara	2	0.2	13%	2	11/27/2019	System-wide power quality event
8	8	Santa Clara	2	0.2	6%	2	2/15/2020	System-wide power quality event
8	9	Santa Clara	2	0.2	9%	2	11/27/2019	System-wide power quality event
8	9	Santa Clara	2	0.2	6%	2	2/15/2020	System-wide power quality event
8	10	Santa Clara	2	0.2	12%	2	11/27/2019	System-wide power quality event
8	10	Santa Clara	2	0.2	7%	2	2/15/2020	System-wide power quality event
8	11	Santa Clara	2	0.2	5%	2	11/27/2019	System-wide power quality event
8	11	Santa Clara	2	0.2	6%	2	2/15/2020	System-wide power quality event
8	12	Santa Clara	2	0.2	5%	2	11/27/2019	System-wide power quality event
8	12	Santa Clara	2	0.2	6%	2	2/15/2020	System-wide power quality event
8	13	Santa Clara	2	0.2	6%	2	11/27/2019	System-wide power quality event
8	13	Santa Clara	2	0.2	7%	2	2/15/2020	System-wide power quality event
8	14	Santa Clara	2	0.2	6%	2	11/27/2019	System-wide power quality event
8	14	Santa Clara	2	0.2	7%	2	2/15/2020	System-wide power quality event
8	15	Santa Clara	2	0.2	12%	2	11/27/2019	System-wide power quality event
8	15	Santa Clara	2	0.2	11%	2	2/15/2020	System-wide power quality event
8	16	Santa Clara	2	0.3	10%	2	11/27/2019	System-wide power quality event
8	16	Santa Clara	2	0.2	9%	2	2/15/2020	System-wide power quality event
8	17	Santa Clara	2	0.3	9%	2	11/27/2019	System-wide power quality event
8	17	Santa Clara	2	0.2	9%	2	2/15/2020	System-wide power quality event
8	18	Santa Clara	2	0.2	7%	2	11/27/2019	System-wide power quality event
8	18	Santa Clara	2	0.2	6%	2	2/15/2020	System-wide power quality event
8	19	Santa Clara	2	0.2	10%	2	11/27/2019	System-wide power quality event
8	19	Santa Clara	2	0.2	8%	2	2/15/2020	System-wide power quality event
8	20	Santa Clara	2	0.2	9%	2	11/27/2019	System-wide power quality event

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Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
8	20	Santa Clara	2	0.2	7%	2	2/15/2020	System-wide power quality event
8	21	Santa Clara	2	0.2	17%	2	11/27/2019	System-wide power quality event
8	21	Santa Clara	2	0.2	12%	2	2/15/2020	System-wide power quality event
8	22	Santa Clara	2	0.2	8%	2	11/27/2019	System-wide power quality event
8	22	Santa Clara	2	0.2	8%	2	2/15/2020	System-wide power quality event
8	23	Santa Clara	2	0.2	6%	2	11/27/2019	System-wide power quality event
8	23	Santa Clara	2	0.2	5%	2	2/15/2020	System-wide power quality event
8	24	Santa Clara	2	0.2	6%	2	11/27/2019	System-wide power quality event
8	24	Santa Clara	2	0.2	5%	2	2/15/2020	System-wide power quality event
9	1	Santa Clara	2	8.4	65%	524	8/17/20-8/18/20	State Emergency Load Shedding
9	2	Santa Clara	2	5.6	60%	400	8/17/20-8/18/20	State Emergency Load Shedding
9	3	Santa Clara	2	2.6	50%	300	8/17/20-8/18/20	Equipment failure
9	4	Santa Clara	2	2.9	1%	20	8/17/20-8/18/20	State Emergency Load Shedding
9	5	Santa Clara	0.23	6.5	7%	10	8/17/20-8/18/20	State Emergency Load Shedding
10	1	Santa Clara	2	9	50%	256	8/17/20-8/18/20	State Emergency Load Shedding
10	2	Santa Clara	2	9	50%	256	8/17/20-8/18/20	State Emergency Load Shedding
10	3	Santa Clara	2	9	50%	256	8/17/20-8/18/20	State Emergency Load Shedding
10	4	Santa Clara	2.06	4	60%	296	8/17/20-8/18/20	State Emergency Load Shedding
10	5	Santa Clara	2.06	4	60%	296	8/17/20-8/18/20	State Emergency Load Shedding
10	6	Santa Clara	2.06	4	60%	296	8/17/20-8/18/20	State Emergency Load Shedding
10	7	Santa Clara	3	7	40%	1280	8/17/20-8/18/20	State Emergency Load Shedding
10	7	Santa Clara	3	4	40%	731.5	8/17/20-8/18/20	State Emergency Load Shedding
10	8	Santa Clara	3	7	40%	1280	8/17/20-8/18/20	State Emergency Load Shedding
10	8	Santa Clara	3	4	40%	731.5	8/17/20-8/18/20	State Emergency Load Shedding
10	9	Santa Clara	3	7	40%	1280	8/17/20-8/18/20	State Emergency Load Shedding
10	9	Santa Clara	3	4	40%	731.5	8/17/20-8/18/20	State Emergency Load Shedding
10	10	Santa Clara	3	7	40%	1280	8/17/20-8/18/20	State Emergency Load Shedding
10	10	Santa Clara	3	4	40%	731.5	8/17/20-8/18/20	State Emergency Load Shedding
10	11	Santa Clara	3	5	50%	780	8/17/20-8/18/20	State Emergency Load Shedding
10	12	Santa Clara	3	5	50%	780	8/17/20-8/18/20	State Emergency Load Shedding
10	13	Santa Clara	3	5.5	50%	930	8/17/20-8/18/20	State Emergency Load Shedding
10	14	Santa Clara	3	5	50%	780	8/17/20-8/18/20	State Emergency Load Shedding
10	15	Santa Clara	3	5.5	50%	930	8/17/20-8/18/20	State Emergency Load Shedding
10	16	Santa Clara	3	5.5	50%	930	8/17/20-8/18/20	State Emergency Load Shedding
10	17	Santa Clara	2.75	9	70%	625	8/17/20-8/18/20	State Emergency Load Shedding

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Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
10	18	Santa Clara	2.75	8.2	70%	525	8/17/20-8/18/20	State Emergency Load Shedding
10	19	Santa Clara	2.75	8.9	70%	615	8/17/20-8/18/20	State Emergency Load Shedding
10	20	Santa Clara	2.75	11.3	70%	975	8/17/20-8/18/20	State Emergency Load Shedding
10	21	Santa Clara	2	4	60%	238	8/17/20-8/18/20	State Emergency Load Shedding
10	22	Santa Clara	3	5.5	50%	930	8/17/20-8/18/20	State Emergency Load Shedding
10	23	Santa Clara	3	5.5	50%	930	8/17/20-8/18/20	State Emergency Load Shedding
10	24	Santa Clara	3	5.5	50%	930	8/17/20-8/18/20	State Emergency Load Shedding
10	25	Santa Clara	2.75	8.3	70%	530	8/17/20-8/18/20	State Emergency Load Shedding
10	26	Santa Clara	2.75	8.3	70%	530	8/17/20-8/18/20	State Emergency Load Shedding
10	27	Santa Clara	2.75	8.3	70%	530	8/17/20-8/18/20	State Emergency Load Shedding
10	28	Santa Clara	2.75	8.3	70%	530	8/17/20-8/18/20	State Emergency Load Shedding
10	29	Santa Clara	3	11.6	60%	1786		Power bump
10	29	Santa Clara	3	4	60%	616		Power bump
10	29	Santa Clara	3	3.5	60%	539	8/17/20-8/18/20	State Emergency Load Shedding
10	29	Santa Clara	3	3	60%	462		Power bump
10	29	Santa Clara	3	2.7	60%	416		Power bump
10	29	Santa Clara	3	1	60%	154		Power bump
10	29	Santa Clara	3	1	60%	154		Utility outage
10	30	Santa Clara	3	10.1	60%	1555		Utility outage
10	30	Santa Clara	3	5.5	60%	847		Power bump
10	30	Santa Clara	3	4	60%	616		Utility outage
10	30	Santa Clara	3	3.7	60%	569.8	8/17/20-8/18/20	State Emergency Load Shedding
10	30	Santa Clara	3	2.8	60%	431		Power bump
10	30	Santa Clara	3	1	60%	154		Utility outage
10	30	Santa Clara	3	1	60%	154		Utility outage
10	31	Santa Clara	3	11.5	60%	1771		Utility outage
10	31	Santa Clara	3	4	60%	616		Utility outage
10	31	Santa Clara	3	3.7	60%	569.8	8/17/20-8/18/20	State Emergency Load Shedding
10	31	Santa Clara	3	3	60%	462		Power bump
10	31	Santa Clara	3	2.7	60%	416		Power bump
10	31	Santa Clara	3	1	60%	154		Utility outage
10	31	Santa Clara	3	1	60%	154		Utility outage
10	32	Santa Clara	3	11.6	60%	1786		Utility outage
10	32	Santa Clara	3	4	60%	616		Utility outage
10	32	Santa Clara	3	3	60%	462		Power bump

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Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
10	32	Santa Clara	3	3	60%	462	8/17/20-8/18/20	State Emergency Load Shedding
10	32	Santa Clara	3	2.7	60%	416		Power bump
10	32	Santa Clara	3	1	60%	154		Utility outage
10	32	Santa Clara	3	1	60%	154		Utility outage
10	33	Santa Clara	3	11.6	60%	1786		Utility outage
10	33	Santa Clara	3	4	60%	616		Utility outage
10	33	Santa Clara	3	3.7	60%	569.8	8/17/20-8/18/20	State Emergency Load Shedding
10	33	Santa Clara	3	3	60%	462		Power bump
10	33	Santa Clara	3	2.8	60%	431.2		Power bump
10	33	Santa Clara	3	1	60%	154		Utility outage
10	33	Santa Clara	3	1	60%	154		Utility outage
10	34	Santa Clara	3	11.6	60%	1786		Utility outage
10	34	Santa Clara	3	4	60%	616		Utility outage
10	34	Santa Clara	3	3.7	60%	569.8	8/17/20-8/18/20	State Emergency Load Shedding
10	34	Santa Clara	3	3	60%	462		Power bump
10	34	Santa Clara	3	2.9	60%	447		Power bump
10	34	Santa Clara	3	1	60%	154		Utility outage
10	34	Santa Clara	3	1	60%	154		Utility outage
10	35	Santa Clara	3	6	40%	450	8/17/20-8/18/20	State Emergency Load Shedding
10	36	Santa Clara	3	2	40%	150	8/17/20-8/18/20	State Emergency Load Shedding
10	37	Santa Clara	3	5.5	40%	412	8/17/20-8/18/20	State Emergency Load Shedding
10	38	Santa Clara	3	5.5	40%	412	8/17/20-8/18/20	State Emergency Load Shedding
10	39	Santa Clara	3	5.5	40%	412	8/17/20-8/18/20	State Emergency Load Shedding
10	40	Santa Clara	2.75	8.3	70%	530	8/17/20-8/18/20	State Emergency Load Shedding
11	1	Santa Clara	2	5.8	25%	390	8/17/20-8/18/20	Power supplier request
11	1	Santa Clara	2	4.1	25%	390	8/17/20-8/18/20	Power supplier request
11	2	Santa Clara	2	4.7	31%	280	8/17/20-8/18/20	Power supplier request
11	2	Santa Clara	2	3.9	31%	280	8/17/20-8/18/20	Power supplier request
11	3	Santa Clara	2	5.6	28%	380	8/17/20-8/18/20	Power supplier request
11	3	Santa Clara	2	4.3	28%	380	8/17/20-8/18/20	Power supplier request
11	4	Santa Clara	2	5.4	43%	605	8/17/20-8/18/20	Power supplier request
11	4	Santa Clara	2	3.5	43%	605	8/17/20-8/18/20	Power supplier request
11	5	Santa Clara	0.23	6	17%	27	8/17/20-8/18/20	Power supplier request
11	5	Santa Clara	0.23	3.5	17%	27	8/17/20-8/18/20	Power supplier request
11	6	Santa Clara	2	4.5	17%	75	8/17/20-8/18/20	Power supplier request

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Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
11	7	Santa Clara	2	4.7	8%	75	8/17/20-8/18/20	Power supplier request
11	8	Santa Clara	2	4.7	8%	100	8/17/20-8/18/20	Power supplier request
11	9	Santa Clara	2	4.7	9%	100	8/17/20-8/18/20	Power supplier request
11	10	Santa Clara	2	4.8	11%	100	8/17/20-8/18/20	Power supplier request
11	11	Santa Clara	0.23	4.8	7%	30	8/17/20-8/18/20	Power supplier request
12	1	Santa Clara	0.23	2.9	14%	87	8/17/20-8/18/20	Utility outage
12	2	Santa Clara	2	43	8%	160	8/17/20-8/18/20	Utility outage
12	3	Santa Clara	2	42.8	6%	160	8/17/20-8/18/20	Utility outage
12	4	Santa Clara	2	38	15%	420	8/17/20-8/18/20	Utility outage
12	5	Santa Clara	2	24	55%	500	8/17/20-8/18/20	Utility outage
12	6	Santa Clara	2	10	6%	160	8/17/20-8/18/20	Utility outage
12	7	Santa Clara	2	10.4	7%	160	8/17/20-8/18/20	Utility outage
12	8	Santa Clara	2	42.1	30%	250	8/17/20-8/18/20	Utility outage
12	9	Santa Clara	2	41.8	30%	250	8/17/20-8/18/20	Utility outage
12	10	Santa Clara	2	10.3	1%	50	8/17/20-8/18/20	Utility outage
12	11	Santa Clara	2	10	7%	160	8/17/20-8/18/20	Utility outage
13	1	Santa Clara	2	19.8	37%	80.3	Various	Utility power outages; power blips, UPS/board repair
13	2	Santa Clara	2	20.4	37%	82.5	Various	Utility power outages; power blips, UPS/board repair
13	3	Santa Clara	1.25	14.96	43%	527	Various	Utility power outages; power blips, UPS/board repair
13	4	Santa Clara	1.25	14.94	42%	525	Various	Utility power outages; power blips, UPS/board repair
13	5	Santa Clara	1.25	14.92	43%	523	Various	Utility power outages; power blips, UPS/board repair
14	1	Santa Clara	2.7	1.9	22%	90	11/27/2019	Utiilty sag event
14	2	Santa Clara	2.7	1.9	32%	95	11/27/2019	Utiilty sag event
14	3	Santa Clara	2.7	1.9	1%	57	11/27/2019	Utiilty sag event
14	4	Santa Clara	2.7	1.9	34%	99.75	11/27/2019	Utiilty sag event
14	5	Santa Clara	2.7	4.4	41%	422	8/18/2020	Mandatory load transfer
14	6	Santa Clara	2.7	6.3	32%	445	8/18/2020	Mandatory load transfer
14	7	Santa Clara	2.7	4.7	2%	139	8/18/2020	Mandatory load transfer
14	8	Santa Clara	2.7	4.5	48%	123	8/18/2020	Mandatory load transfer
15	1	Santa Clara	2	14	65%	693		
15	2	Santa Clara	2	14	65%	693		
15	3	Santa Clara	2	14	65%	693		
15	4	Santa Clara	2	14				
15	5	Santa Clara	2	14				
15	6	Santa Clara	2.5	14	19%	486		

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Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
15	7	Santa Clara	2.5	14				
16	1	Santa Clara	2	2.4	2%	45.6	7/31/2020	Utility power outage
16	2	Santa Clara	2	2.4	18%	48	7/31/2020	Utility power outage
16	3	Santa Clara	1.5	2.4	30%	40.8	7/31/2020	Utility power outage
16	4	Santa Clara	1.5	2.4	25%	38.4	7/31/2020	Utility power outage
17	1	San Jose	2	2	14%	80	11/26/2019	Commercial power outage
17	2	San Jose	2	2	14%	80	11/26/2019	Commercial power outage
18	1	San Jose	2	1.5	30%	150	8/16/2020	Utility power outage
18	1	San Jose	2	1.5	30%	150	8/25/2020	Utility power outage
18	2	San Jose	2	1.5	30%	150	8/16/2020	Utility power outage
18	2	San Jose	2	1.5	30%	150	8/25/2020	Utility power outage
18	3	San Jose	2	1.5	30%	150	8/16/2020	Utility power outage
18	3	San Jose	2	1.5	30%	150	8/25/2020	Utility power outage
18	4	San Jose	2	1.5	30%	150	8/16/2020	Utility power outage
18	4	San Jose	2	1.5	30%	150	8/25/2020	Utility power outage
18	5	San Jose	2	1.5	30%	150	8/16/2020	Utility power outage
18	5	San Jose	2	1.5	30%	150	8/25/2020	Utility power outage
18	6	San Jose	2	1.5	30%	150	8/16/2020	Utility power outage
18	6	San Jose	2	1.5	30%	150	8/25/2020	Utility power outage
19	1	San Jose	1.5	4	20%	200	8/19/2020	Substation transformer power equipment failure
19	2	San Jose	1.5	4	17%	190	8/19/2020	Substation transformer power equipment failure
19	3	San Jose	1.5	4	50%	290	8/19/2020	Substation transformer power equipment failure
19	4	San Jose	1.5	4	60%	310	8/19/2020	Substation transformer power equipment failure
19	5	San Jose	1.5	4	53%	300	8/19/2020	Substation transformer power equipment failure
19	6	San Jose	1.5	4	40%	280	8/19/2020	Substation transformer power equipment failure
20	1	Santa Clara	3	4.1	42%	410	8/18/2020	State Emergency Load Shedding
20	1	Santa Clara	3	3.5	42%	350	9/7/2020	State Emergency Load Shedding
20	1	Santa Clara	3	1.5	42%	150	8/17/2020	State Emergency Load Shedding
20	2	Santa Clara	3	4.1	37%	410	8/18/2020	State Emergency Load Shedding
20	2	Santa Clara	3	3.6	37%	360	9/7/2020	State Emergency Load Shedding
20	2	Santa Clara	3	2.6	37%	250	8/17/2020	State Emergency Load Shedding
20	3	Santa Clara	3	4.1	40%	410	8/18/2020	State Emergency Load Shedding
20	3	Santa Clara	3	3.6	40%	360	9/7/2020	State Emergency Load Shedding
20	3	Santa Clara	3	1.8	40%	180	8/17/2020	State Emergency Load Shedding
20	4	Santa Clara	3	4.1	38%	410	8/18/2020	State Emergency Load Shedding

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Data Center #	Engine #	City	Engine Size (MW)	Hours of operation (non-testing/non- maintenance)	Estimated engine load percentage during each non-testing/non- maintenance operations	Estimated fuel usage during each non- testing/non- maintanence operation (gallons)	Date	Explanation of non-testing/non-maintenance operation
20	4	Santa Clara	3	3.6	38%	360	9/7/2020	State Emergency Load Shedding
20	4	Santa Clara	3	1.4	38%	150	8/17/2020	State Emergency Load Shedding
20	5	Santa Clara	3	4.2	20%	410	8/18/2020	State Emergency Load Shedding
20	5	Santa Clara	3	1.1	20%	120	8/17/2020	State Emergency Load Shedding
20	6	Santa Clara	3	4.1	17%	410	8/18/2020	State Emergency Load Shedding
20	6	Santa Clara	3	1.3	17%	130	8/17/2020	State Emergency Load Shedding
20	7	Santa Clara	3	4.1	18%	410	8/18/2020	State Emergency Load Shedding
20	7	Santa Clara	3	1.4	18%	140	8/17/2020	State Emergency Load Shedding
20	8	Santa Clara	3	4.1	19%	410	8/18/2020	State Emergency Load Shedding
20	8	Santa Clara	3	1.4	19%	140	8/17/2020	State Emergency Load Shedding
20	9	Santa Clara	3	4.2	15%	420	8/18/2020	State Emergency Load Shedding
20	9	Santa Clara	3	1.1	15%	110	8/17/2020	State Emergency Load Shedding
20	10	Santa Clara	3	4.1	29%	410	8/18/2020	State Emergency Load Shedding
20	10	Santa Clara	3	1.3	29%	130	8/17/2020	State Emergency Load Shedding
20	11	Santa Clara	3	4.3	18%	430	8/18/2020	State Emergency Load Shedding
20	11	Santa Clara	3	1.4	18%	140	8/17/2020	State Emergency Load Shedding
20	12	Santa Clara	3	4.1	19%	410	8/18/2020	State Emergency Load Shedding
20	12	Santa Clara	3	1.4	19%	140	8/17/2020	State Emergency Load Shedding
20	13	Santa Clara	3	4.1	3%	120	8/18/2020	State Emergency Load Shedding
20	13	Santa Clara	3	1.2	3%	40	8/17/2020	State Emergency Load Shedding
20	14	Santa Clara	3	4	2%	120	8/18/2020	State Emergency Load Shedding
20	14	Santa Clara	3	1.3	2%	40	8/17/2020	State Emergency Load Shedding
20	15	Santa Clara	3	4	2%	160	8/18/2020	State Emergency Load Shedding
20	15	Santa Clara	3	1.3	2%	50	8/17/2020	State Emergency Load Shedding
20	16	Santa Clara	3	2	30%	20	8/17/2020	State Emergency Load Shedding
20	16	Santa Clara	3	1.5	30%	20	8/18/2020	State Emergency Load Shedding
20	17	Santa Clara	3	0.9	10%	20	8/17/2020	State Emergency Load Shedding
20	17	Santa Clara	3	0.8	10%	20	8/18/2020	State Emergency Load Shedding