

DOCKETED	
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Project Title:	SJ2
TN #:	240942
Document Title:	SJC Data Center City of San Jose Form 327 Natural Gas Exception Request
Description:	N/A
Filer:	Jerry Salamy
Organization:	Jacobs
Submitter Role:	Applicant Consultant
Submission Date:	12/15/2021 1:20:44 PM
Docketed Date:	12/15/2021

NATURAL GAS PROHIBITION EXEMPTION FORM

The City's updated Natural Gas Ban goes into effect on August 1, 2021, as outlined in [Municipal Code CHAPTER 17.845 - Prohibition of Natural Gas Infrastructure in Newly Constructed Buildings](#). Natural Gas Infrastructure shall be prohibited in Newly Constructed Buildings that are wholly or partly located in the City of San Jose, with allowance for exceptions and exemptions, as summarized below (please read the ordinance for full language).

EXCEPTIONS & EXEMPTIONS

Hospitals and Certain Attached ADUs are Excepted. These requirements do not apply to Hospitals, as defined in the California Building Code, Chapter 2, Section 202. (17.845.020(G)) Attached accessory dwelling units (ADUs) that are proposed in an existing mixed-fuel building are also excepted.

Distributed Energy Resource Facilities may be Excepted - Facilities with a Distributed Energy Resource (DER) for necessary operations to protect the public health, safety, or economic welfare in the event of an electric grid outage may apply for an exception on or before December 31, 2022 as allowed by the criteria of the [Municipal Code 17.845.040](#).

Manufacturing/Industrial Facilities and Food Service Establishments - There are limited exemptions for Manufacturing and Industrial Facilities and Food Service Establishments. Exemptions may be applied for on or before December 31, 2022 as allowed by the criteria of the [Municipal Code 17.845.045](#). The limited exemption may be approved by the Director of Planning, Building, Code Enforcement or his or her designee. The Director may issue a decision requiring compliance with less than the full extent of the requirements of the Chapter, but to the fullest extent reasonably achievable given the circumstances, provided:

- The non-exempt areas of the project comply with the code provisions.
- The proposed design meets or exceed the electrification readiness requirements in Municipal Code 24.12.

Hardship Exemption (section 17.845.050). The City allows for hardship exemptions that meet the criteria outlined in the [Municipal Code 17.845.050](#). The hardship exemption may be approved by the Director of Planning, Building, Code Enforcement, or his or her designee. The Director may issue a decision requiring compliance with less than the full extent of the requirements of the Chapter, but to the fullest extent reasonably achievable given the circumstances, provided:

- The non-exempt areas of the project comply with the code provisions.
- The proposed design meets or exceed the electrification readiness requirements in Municipal Code 24.12.

This form enables application of an exemption. For information more information about the ban and Reach Code, please visit the [San Jose Reach Code](#) webpage and view the [FAQs](#).

INSTRUCTIONS

Complete and submit this form to apply for an exemption.

HOW TO SUBMIT

- This form should be submitted with your building permit application. Schedule your required appointment for your building permit project at www.sanjoseca.gov/BuildingPermitServices.
- Please ensure that you sign and save all forms and documents as PDF files.

This is a computer-fillable PDF form and signatures, if required, must be a Digital ID Signature.
Follow instructions for [Digital Forms & Signatures](#).

Staff will assign PLAN CHECK #:

1. PROPERTY INFORMATION

FIND APN: WWW.SCCASSESSOR.ORG. FIND COUNCIL DISTRICT AND PERMIT INFO: WWW.SJPERMITS.ORG

PROJECT NAME: San José City Data Center

PROJECT ADDRESS/ES: 1657 Alviso-Milpitas Road, San Jose

2. TYPE OF EXEMPTION/EXCEPTION

2.a. Check the type of exemption (or exception for DER) that is applicable to your project:

- Distributed Energy Resource (DER) Facility**, requesting exception for necessary operations to protect the public health, safety, or economic welfare in the event of an electric grid outage.
- Manufacturing and Industrial Facility**, requesting limited exemption for the area with Process Loads. If checking this box, please also be sure to include information in Section 3:
- Food Service Establishment**, requesting limited exemption for area with Cooking Equipment or Commercial Kitchen.
- Hardship Exemption** - The type of project, site conditions, or operational requirements make it infeasible or a hardship to meet the requirements.

2.b. In the space below, briefly describe the area that is the subject of the limited exemption (or DER exception) and justify the request. Attach typed pages to the form if more space is needed.

Please see Attachment 1 - San José City Data Center (SP19-066) Distributed Energy Resource (DER) Facility Exception Request

3. FACILITIES WITH A DISTRIBUTED ENERGY RESOURCE SYSTEM

Please provide the following information for your DER system:

SYSTEM SIZE (kW): 96000	UNIT EFFICIENCY (KWH/THERM):
ESTIMATED TOTAL ANNUAL GENERATION (KWH): 19,051,200 (450 kW * 224 Units * 189 hr)	
ESTIMATED ANNUAL FUEL USAGE BY FUEL TYPE: 234,349 MMBtu/Year	
EMISSION FACTORS (CO2/KWH, CH4/KWH, N2O/KWH) IF AVAILABLE: CO2 - 56.06, CH4 - 0.001, N2O - 0.0001 kg/MMBtu	

4. SIGNATURE & CONTACT INFORMATION

This exemption application is requested by:

Sieu Quan

Digital Signature by Sieu Quan
DN: cn=Sieu Quan, email=Sieu.Quan@microsoft.com, o=Microsoft, ou=Software Engineering, cn=Sieu Quan
Reason: I am approving this document
Date: 2021.12.14 12:54:42 PST

12/14/2021

• SIGNATURE of Property Owner

DATE: [MM/DD/YYYY]

PRINT NAME: Sieu Quan

TITLE IF APPLICABLE: Design Manager, AMER West Region

FIRM NAME IF APPLICABLE: Microsoft, Inc.

EMAIL: sieu.quan@microsoft.com

PHONE: 425.538.6254

MAILING ADDRESS: 5600 148th Ave NE Redmond, WA 98052

PERSON TO CONTACT WITH DECISION IF DIFFERENT FROM ABOVE:

NAME: Jerry Salamy

EMAIL: Jerry.Salamy@jacobs.com

A Digital ID Signature is required of the property owner or legally authorized agent of the property owner. By signing this application, you acknowledge that you are the property owner or the legally authorized agent of the property owner. For signatures by multiple property owners, use the [Affidavit Of Ownership-Multiple Owners Form](#).

DISCLAIMER: Applicants must recognize that approval of the exemption is based on the documentation provided at the time of approval. If during the review or inspection process, a City building official notices deviations from the original application, the approval becomes null and void. The applicant will then need to either revert to the original proposal or file a new application based on revised plans. For proposals that are processed prior to submittal of a full set of plans, only a conceptual approval can be given; a valid approval to proceed with the proposal requires submittal of all construction documents.

OFFICE USE ONLY

FINDINGS:

BUILDING INSPECTION MANAGER Signature: <input type="text"/>	<input type="checkbox"/> RECOMMENDED	<input type="checkbox"/> NOT RECOMMENDED
CHIEF BUILDING OFFICIAL Signature: <input type="text"/>	<input type="checkbox"/> APPROVED	<input type="checkbox"/> DENIED
DEPARTMENT DIRECTOR or Designee Signature: <input type="text"/>	<input type="checkbox"/> APPROVED	<input type="checkbox"/> DENIED

San José City Data Center (SP19-066)

Distributed Energy Resource (DER) Facility Exception Request

San José Municipal Code Section 17.845.030 B.

Natural Gas Infrastructure shall not be extended to any system or device within a building for which an equivalent all-electric system or design is available.

San José Municipal Code Section 17.845.040 B. - DER Exception

The requirements of this Chapter shall not apply to [a] facilities with a physical connection to the electrical grid and a Distributed Energy Resource for necessary operational requirements to protect the public health, safety, or economic welfare in the event of an electric grid outage...

Justification for DER Exception

The San José City Data Center (SJC) is critical infrastructure designed to support data storage and processing needs and to facilitate communication via internet connections, without interruption, both daily and during public emergencies. Crucial public emergency services such as 911, Offices of Emergency Management, police, fire, and utilities infrastructure rely on data centers for their continuous operation, as do government agencies dealing with critical health, safety, and economic welfare issues. Private enterprises such as hospitals, nursing and rehabilitation facilities, private security companies, financial institutions and others also rely on data centers for continuous operation.

The selected backup electric generation technology for data centers must be extremely reliable in the event of Pacific Gas & Electric Company (PG&E) electrical power outages. Such critical infrastructure resiliency is necessary to protect the health, safety, and economic welfare of the public in the event of an electrical power grid outage in the region. For the SJC the applicant is proposing the use of natural gas for its backup electric generation for both reliability and environmental benefits. The use of natural gas will allow the backup generating facility to further protect the health, safety and economic welfare of the public at times when the electric grid is strained by allowing PG&E to divert electric service from the data center to other critical and residential uses.

The backup generating facility will, therefore, provide DER support in two critical ways, both of which will protect the health, safety and economic welfare of the public: 1) ensuring the critical data center functions are maintained for public use during a PG&E outage at the data center; and 2) providing a tool for PG&E to redirect electricity to other critical uses to avoid outages at locations other than the data center.

Equivalent All-electric System or Design – Not Available

The natural gas generators proposed for SJC do not have an equivalent all-electric system or design available. The primary purpose of the natural gas generators is to provide electrical

power to SJC in the event that PG&E is unable to provide electrical power to the facility's onsite substation.

No all-electric system or design can reliably replace the natural gas generators given the limited size of the project site. Gas-fired generators can provide backup power for an extensive period of time. Backup generation using batteries would require an extensive amount of space to supply adequate backup capacity. In the Great Oaks South Backup Generating Facility Environmental Impact Report (GO EIR), the California Energy Commission (CEC) estimated that approximately 6 acres would be required to supply 99 MW of uninterruptable power for 41 hours of grid outage.¹ This additional acreage is not available at the SJC site. In addition, the density of the batteries would increase fire risk and result in other attendant design, safety, and maintenance issues to reduce the risk to an acceptable level. The GO EIR also concluded that biodiesel and fuel cell technology are likewise unsuitable as alternative technologies, based on their infeasibility and/or lack of a sufficient level of proven reliability required for the critical infrastructure.² Where a site has two independent back-up natural gas sources, the GO EIR concluded that the most reliable design option is natural gas.

Here, the SJC project site is supported by two (2) natural gas connections from separate sources, currently located immediately adjacent to the site in Alviso-Milpitas Road. The onsite natural gas infrastructure would be designed to meet required seismic standards providing a low probability of operational failure.

Environmentally Superior Alternative

The Applicant expects the California Energy Commission to issue a draft EIR for the SJC Project on December 23, 2021. The draft EIR is expected to conclude that the SJC Project does not have a significant, unmitigated environmental impact, including air quality, energy resources, and greenhouse gases.

The GO EIR found the use of natural gas internal combustion engines to be the environmentally superior alternative for the Great Oaks data center due to its significant reductions in criteria air pollutants. The GO EIR analyzed criteria pollutant emissions and carbon dioxide emissions of natural gas engines against emissions from petroleum diesel fired engines. The EIR concluded that oxides of nitrogen and volatile organic compound emissions would be reduced by more than 99 percent using natural gas internal combustion engines compared to diesel engines that meet Tier 2 or Tier 4 emission standards. The PM emissions would be reduced by more than 95 percent using natural gas compared to diesel engines that meet Tier 4 emission standards, there would be an 86 percent reduction in carbon monoxide emissions, and a 56 percent reduction in sulfur dioxide emissions. The GO EIR also determined that natural gas would reduce greenhouse gas (GHG) emissions by approximately 10 percent compared to Tier 1 and Tier 4 diesel engines. When extending to the full fuel cycle, GHG emissions from natural gas engines fueled with natural gas produced from fossil feedstocks would be 20 percent lower than those from

¹ Great Oaks South Backup Generating Facility Environmental Impact Report (GO EIR), State Clearinghouse # 2020100431, California Energy Commission, 5/21/2021

² See fn 1.

petroleum diesel. As an added benefit, the SJC Applicant has committed to using renewable natural gas for the project. It is important to California's goals to replace fossil-derived natural gas with renewable natural gas to have large users make this commitment.

Distributed Energy Resource Exception

City Municipal Code Section 17.845.020 E defines "distributed energy resource" as *an electric generation or storage technology that complies with the emissions standards adopted by the State Air Resources Board pursuant to the distributed generation certification requirements of Section 94203 of Title 17 of the California Code of Regulations, or any successor regulation.*

Section 94203 of Title 17 of the California Code of Regulations requires that after January 1, 2007, fossil fueled distributed generation units meet specific emission limits of 0.07 pounds of Oxides of Nitrogen per megawatt-hour, 0.10 pounds of carbon monoxide per megawatt-hour, and 0.02 pounds of volatile organic compounds per megawatt-hour.

Section 94202 of Title 17 of the California Code of Regulations defines "distributed generation" as *electrical generation technologies that produce electricity near the place of use.*

Section 94202 of Title 17 further defines "generation technology" as *reciprocating engines, external combustion engines, combustion turbines, photovoltaics, wind turbines, fuel cells or any combination thereof.*

Distributed Energy Resource

Using natural gas for the SJC back-up distributed energy resource will enable the Applicant to participate in PG&E's Base Interruptible Program (BIP). This program was designed to reduce electrical loads on PG&E's system when the California Independent System Operator (CAISO) issues a curtailment notice. The SJC project is *physically connected* to PG&E's electrical grid with two redundant electrical power connections from the SJC onsite substation to the adjacent PG&E Los Esteros Substation. Participating in PG&E's BIP program will enable SJC to reduce its power load by disconnecting the project from the electrical grid and self-generating the required electric load through the natural gas generators, making a significant quantity of electric power available to PG&E's grid during CAISO curtailment events. This ability to make additional power available for distribution to the power grid during emergencies and critical events will assist PG&E in protecting the public health, safety, or economic welfare of the region enabling PG&E to redirect the electricity from the data center to other critical facilities and residential uses. In other words, the backup generating facility will act as a distributed resource to protect the data center during outages and will operate as a grid distributed resource for PG&E to prevent outages and curtailment for other users. The dual purpose of the backup generating facility, when balanced against the infeasibility of non-combustion alternatives, necessitates the use of natural gas.

Fossil Fueled Distributed Generation Units Emission Limits

The Applicant has provided documentation (see Attachment 2) confirming that the proposed natural gas generators comply with Section 94203 of Title 17 of the California Code of

Regulations fossil fueled distributed generation unit emission limits of 0.07 pounds of Oxides of Nitrogen per megawatt-hour, 0.10 pounds of carbon monoxide per megawatt-hour, and 0.02 pounds of volatile organic compounds per megawatt-hour. Therefore, the SJC project complies Section 17.845 of the City of San Jose Municipal Code.

Precedent

The GO EIR similarly concluded that natural gas internal combustion engines, by definition, are a Distributed Energy Resource, and that data centers have operational requirements to protect the critical services they provide. Thus, the use of natural gas engines for data center projects, such as the SJC project, falls under the DER exception.

Summary

By definition, the natural gas generators at SJC are a Distributed Energy Resource and fall under the DER exception to the San José Municipal Code Section 17.845.030 natural gas prohibition for new building construction. Data centers provide critical communication services that must be reliably maintained during public emergencies. There is no equivalent all-electric system or design currently available to provide the resiliency demanded by the system, as analyzed and determined previously for similar data center projects, as well as to provide the on-demand participation in PG&E's BIP program to avoid outages and curtailment elsewhere on the electric system.

Public health impacts using natural gas would be less than those that would occur with diesel engines. Air quality impacts using natural gas generators are expected to be much less than those that would occur with diesel engines. GHG impacts would also be less than those of diesel engines due to the reduced GHG emissions during the entire fuel cycle. There is a low probability of operational failure because the onsite natural gas infrastructure will be designed to meet required seismic standards. The redundancy of the two natural gas sources existing at the site boundary makes natural gas generators a reliable choice for SJC data center backup power.

The SJC project satisfies the intent and requirements of San Jose Municipal Code Section 17.845.040 and is considered a facility with a distributed energy resource.

Attachment 2: Enchanted Rock Emission Guarantee Letter



Enchanted Rock, LLC
1113 Vine Street, Suite # 101
Houston, TX 77002
713-429-4091 Phone
281-509-9559 Fax

July 21, 2021

Ms. Jordan Weiszhaar
Microsoft

Via email to jordanw@microsoft.com

Subject: Emission Limits – Enchanted Rock 21.9 L Natural Gas-fired Generator

Dear Ms. Weiszhaar:

Per your request, below are the guaranteed controlled emissions limits for Enchanted Rock's 21.9L natural gas fired generator with updated PM levels and the CARB DG certified emissions package we proposed.

Parameter	lb/MW-hr
Nitrogen Oxides (NOx)	0.070
Carbon Monoxide (CO)	0.100
Hydrocarbons (VOC)	0.020
Particulate Matter (PM10/PM2.5)	0.009

If you have any questions regarding the information presented above, please contact the undersigned via email at nsmith@enchantedrock.com.

Sincerely,

Norman Smith
EVP of Engineering

Salamy, Jerry/SAC

From: Salamy, Jerry/SAC
Sent: Wednesday, December 15, 2021 12:24 PM
To: julie.benabente@sanjoseca.gov
Cc: Amador, Lisa/LAC; Madams, Sarah; Petersen, Adam; Atienza, Manuel
Subject: SP19-066 DER Exception Form
Attachments: SJC0203_Form327NaturalGasProhibitionException_2021-12-14.pdf

Hi Julie,

Per our conversation with the CEC on November 17th, attached is the San José Building Department SJC Form 327 – Natural Gas Prohibition Exception for your consideration. Please let me know if you have any comments or questions.

Thanks,

Jerry Salamy | [Jacobs](#) | Project Manager
M:+916.769.8919 | jerry.salamy@jacobs.com
2485 Natomas Park Drive, Suite 600 | Sacramento, CA 95833 | USA

PTO December 23rd to January 3rd