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CALIFORNIA
ENERGY COMMISSION

July 26, 2022

Curt Hilderbrand
Hydrostor, Inc.
400 Capitol Mall, Suite 3000
Sacramento, CA 95814-4497

Data Requests Set 1 for Gem Energy Storage Center (21-AFC-02)

Dear Curt:

Pursuant to Title 20, California Code of Regulations, section 1716, California Energy Commission (CEC) staff is asking for the information specified in the enclosed Data Requests Set 1, which is necessary for a complete staff analysis of the Gem Energy Storage Center (GESC) under the Warren-Alquist Act and California Environmental Quality Act (CEQA).

Responses to the data requests are due to staff within 30 days. If you are unable to provide the information requested, need additional time, or object to providing the requested information, please send written notice to me and the Committee within 20 days of receipt of this letter. Such written notification must contain the reasons for not providing the information, the need for additional time, or the grounds for any objections (see Title 20, California Code of Regulations, section 1716 (f)).

If you have any questions, please email me at leonidas.payne@energy.ca.gov.

_____/S/_____

Leonidas Payne
Project Manager

Enclosure: Data Requests Set 1

GEM ENERGY STORAGE CENTER
DATA REQUESTS SET 1

AIR QUALITY and GREENHOUSE GAS EMISSIONS

BACKGROUND

The proposed project will require permits from the Eastern Kern Air Pollution Control District (District). For purposes of inter-agency consistency, staff needs copies of all correspondence between the applicant and the District in a timely manner to stay up to date on any issues that arise prior to completion of the Preliminary and Final Staff Assessments (PSA and FSA).

DATA REQUEST

1. Please provide copies of all substantive correspondence between the applicant and the District regarding the project, including any application(s), supplemental information, including attachments or information referenced in correspondence, and e-mails. Please provide all existing records in accordance with the requirements of title 20, California Code of Regulations, section 1716. This is a continuing request, requiring ongoing submission of relevant correspondence. Please provide correspondence no more than one week from the date it is created or received. This request is in effect until staff publishes the PSA and FSA.

BACKGROUND

AFC appendix 5.1A (Emission Calculations for Operation Phase) and 5.1B (Emission Calculations for Construction Phase) are used to document emissions calculations. Staff needs the spreadsheet files of the emission estimates with live, embedded calculations to complete the review.

DATA REQUEST

2. Please provide the spreadsheet versions of Appendix 5.1A and 5.1B worksheets with the embedded calculations live and intact.

BACKGROUND: Stack Exhaust Velocity

Section 5.1 Air Quality, Table 5.1-3 on page 5-7 shows an extremely high stack exhaust velocity of 123.3 meters per second (m/s) for the emergency diesel generators. Staff re-calculated the stack exhaust velocity to be 21.6 m/s, based on the stack diameter of 1.5 feet (ft) and exhaust gas flowrate of 7,525 actual cubic feet per minute (cfm or ft^3/min) given in Table 5.1-3. Staff's calculation is shown in the equation below:

$$\text{Exhaust Velocity} = \frac{\text{Exhaust Flowrate}}{\text{Stack Area}} = \frac{7525\ \text{ft}^3/\text{min}}{\frac{\pi}{4} \times 1.5^2 \text{ft}^2} \times \frac{0.3048\ \text{m}}{1\ \text{ft}} \times \frac{1\ \text{min}}{60\ \text{s}} = 21.6\ \text{m/s}$$

Using a high stack exhaust velocity in dispersion modeling would reduce the project impacts. Staff needs to confirm how the stack exhaust velocity of 123.3 m/s was calculated prior to completion of the staff assessment.

DATA REQUEST

3. Please confirm how the stack exhaust velocity of 123.3 m/s was calculated.If there was an error in the calculation of the stack exhaust velocity, please fix the error and redo the dispersion modeling and health risk assessment using the correct stack exhaust velocity.

ALTERNATIVES

BACKGROUND: Site Control

Sections 1.0 Introduction (subsection 1.6), 5.6 Land Use (page 5-6-1), and 6.0 Alternatives (subsection 6.3.1) of the application for certification (AFC) state that the applicant has obtained site control of the approximately 61-acre parcel through a long-term lease and that site control of the adjoining approximately 10-acre parcel is in process. The extent of the applicant's right to use the properties impacts access by the applicant and staff, which could impact the ability to obtain information about the site and thus, staff's analysis.

Appendix 1B Property Owners List of the AFC shows that the approximately 61-acre parcel is owned by Stricklen Properties. (Section 1.0 Introduction [subsection 1.6] incorrectly states the owner as Strickland Properties.) The owner of the approximately 10-acre parcel is listed as Mahmoud Abdelhak.

DATA REQUESTS

4. Please provide details of the terms of the long-term lease on the approximately 61-acre parcel, including but not limited to the length of the lease and any renewal options.
5. Please describe the status of the process to secure site access for the adjoining approximately 10-acre parcel, including whether property purchase or a lease is being negotiated. If site access will be through a long-term lease, please provide information on the expected length of the lease and renewal options. This is a continuing request, requiring ongoing updates on the status of the applicant's efforts to obtain adequate rights to the parcel, and for the terms of any occupancy rights once obtained.

BACKGROUND: U.S. Bureau of Land Management Site

Section 6.0 Alternatives of the AFC evaluates a U.S. Bureau of Land Management (BLM) site as a potential offsite alternative to the proposed project. The BLM site is likely to be included in staff's analysis of alternatives. The AFC says the site was identified in Hydrostor's preliminary examination of the geology of the area. It also states that the southern 70–80 percent of the site "consists of irregular, complex and steep terrain that would not be conducive to site development."

The AFC discusses two other offsite alternatives, the Little Buttes and Rosamond Hills sites. The Little Buttes site is described as having "less preferred" geologic conditions compared to the proposed project site. The Rosamond Hills site is described as "the least favorable of the alternative sites as a result of the presence of surface

fanglomerate and underlying tuff and/or tuffaceous sandstone." (See subsections 6.3.2–6.3.5 of the AFC for further details.)

A single aerial photograph in the AFC (Figure 6-1) shows the three offsite alternatives at a very small scale with no distinguishable details.

DATA REQUESTS

6. Please provide a copy of Hydrostor's preliminary geologic examination of the area and a large-scale map (i.e., zoomed in) of the BLM site. Please include similar maps of the Rosamond Hills and Little Buttes sites.
7. Please explain what it means for the site terrain on the BLM site to be irregular and complex, and please provide information on what would be required to prepare the BLM site for development, including the amount and extent of excavation and site leveling required.
8. Please provide information on any other known constraints to developing the BLM site that were not discussed in the AFC.

GEM ENERGY STORAGE CENTER
DATA REQUESTS SET 1

BIOLOGICAL RESOURCES

BACKGROUND: GIS Data

The AFC (several Biological Resources documents) provides survey data in figures for special-status species and jurisdictional waters. While figures are very helpful in displaying survey information, GIS data would be even more useful for staff.

DATA REQUEST

9. For all survey data included in AFC documents for whichGIS data is available, please provide the following data sets in a format compatible with ArcGIS desktop software (preferably geodatabase or shapefile format). Survey data from 1) special status plants, 2) special status wildlife, 3) State and federal jurisdictional features, 4) nest sites, 5) dens, 6) natal dens, 7) burrows, 8) scat, and 9) complexes.

BACKGROUND: Construction Laydown and Parking

The Project Description section of the AFC (TN 240770) mentions a construction laydown and parking area will be located on property north of the site as depicted on the site plan in Figure 2-1. Note 3 of this figure states that temporary construction parking and laydown area is to be located offsite on leased land north of the facility but does not show where this is located. The Biological Resources section of the AFC (TN 240788) states the laydown area for construction would occur within the boundaries of the Gem Energy Storage Center parcel. This contradicts what is mentioned in the Project Description section.

DATA REQUESTS

10. Please describe where the construction laydown and parking would occur during construction and provide the location on a map.
11. If this location is outside of the project site and this area has not been surveyed for biological resources, please conduct the appropriate surveys for this area.

BACKGROUND: Hydrostatic Compensation Surface Reservoir and Stormwater Retention Ponds

The AFC (DA5.2-1 Biological Technical Report TN 242779) states the hydrostatic compensation surface reservoir would have a floating cover but does not provide any details of what it looks like, how much area it will cover, how it will be prevented from blowing around, bunching up, or blowing away. It also states the reservoir will be constructed using excavated soil and mined rock (Project Description, TN 240770), but no other details are provided. In addition, it is not clear whether the reservoir would have a fence around it to keep out wildlife. American badgers, desert kit fox, various

squirrels and other rodents may dig into the rock and earthen berm. In addition, waterfowl, and shorebirds along with other bird species may land on the cover or berm when seeing water as they fly by. Providing water in a desert environment has been problematic for projects with ponds built in the desert environment.

The AFC (Project Description TN 240770) also states that during operations some of the water makeup for the reservoir will be from a non-potable source and produced through the compression sequence. There is no discussion of what the compression sequence is and how it might affect the water quality of the reservoir.

In addition to the reservoir, the Project Description (TN 240770) and Water Resources (TN 240751-21) sections mention two stormwater retention ponds, a south pond (150 feet long by 260 feet wide) and a north pond (245 feet long by 180 feet wide), served by perimeter stormwater culverts to manage stormwater onsite. The Proposed Plot Plan (Project Description) states there would be a 6-foot-high berm all around the north pond, but not the south pond. The Water Resources section does not mention the 6-foot-high berm or any details regarding the stormwater ponds outside of water quality.

DATA REQUESTS

12. Please provide a description(s) and photos of the floating cover and how much of the surface area it will cover.
13. Please describe how the floating cover will be kept in place during windy conditions. How will it be prevented from blowing to one side, bunching up, or prevented from blowing away? Will there be straps to keep it in place?
14. Please provide details of what materials would be used to construct the reservoir berms.
15. Please explain how the project proposes to prevent wildlife from undermining (from digging and burrowing) the integrity of the rock and earthen berm.
16. Please provide the slope of the berm from the water to the top of the berm.
17. Please explain what the expected water quality of the reservoir would be and how often the water quality would be monitored.
18. Please explain what the compression sequence is, when it occurs and how often, and what the expected water quality of this water source would be.
19. Please provide a more thorough discussion of the stormwater ponds. The information should be comprehensive, and include, but not be limited to, details regarding the materials that would be used to construct the 6-foot-high berm, maintenance and environmental risks to the structures, how wildlife (e.g., desert kit fox, American badger, Mohave ground squirrel) would be prevented from undermining the berm, the slope of the berm, the expected water quality of the ponds, and how often the water quality would be checked, etc.

BACKGROUND: Delineation of State Waters

The AFC (TN 240788, DA 5.2-3 TN 242780) states there are 58 ephemeral drainage features which total 5.770 acres that are under California Department of Fish and Wildlife (CDFW) jurisdiction. It also mentions CDFW jurisdiction was delineated by measuring the outer width and length boundaries of potentially jurisdictional areas consisting of the greater of either the top of bank measurement or the extent of associated riparian or wetland vegetation. This definition does not apply to arid and desert environments. The Biological Technical Report for CDFW jurisdictional waters followed the California Department of Fish and Game (CDFG) 1994 guidance document which is not the current CDFW guidance when evaluating proposed project activities which may impact episodic state waters. CDFW guidance covers any activity involving the alteration or placement of fill within any river, stream, or lake, including those that are dry for periods of time (ephemeral/episodic) as well as those that flow year-round (perennial). This includes ephemeral streams, desert washes, and watercourses with a subsurface flow, which is appropriate to the type of state waters on and adjacent to the project site (including offsite linear alignments). Here is a link to the Lake and Streambed Alteration Program website (https://wildlife.ca.gov/Conservation/Environmental-Review/LSA). To ensure that the delineation of state waters (ephemeral drainages/washes) aligns with current guidance, please refer to: *A Review of Stream Processes and Forms in Dryland Watersheds* (Kris Vyverberg 2010) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* and *Appendix G: The MESA Field Guide, Mapping Episodic Stream* (Brady Roland and Kris Vyverberg 2013).

It is important to complete the mapping and delineation of streams following the documents listed previously (as preferred by CDFW) so CDFW and CEC staff can review, and the Lake and Streambed Alternation Agreement can be addressed, if needed, in staff's analysis and the details included as a condition of certification. The project design should be based on appropriate technical studies/calculations (e.g., topographic, hydrologic, hydraulic, geotechnical, and scour) to ensure it is properly designed and would not cause streambed degradation or aggradation, redirection of flows, ponding of water, etc.

DATA REQUESTS

20. Please conduct delineation of state waters (ephemeral drainages/washes) pursuant to: *A Review of Stream Processes and Forms in Dryland Watersheds* (Kris Vyverberg 2010) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* and *Appendix G: The MESA Field Guide, Mapping Episodic Stream* (Brady Roland and Kris Vyverberg 2013) including a delineation and hydrologic analysis for the project site including a buffer (to the extent practicable and as directed by the

above protocols) of 1,000 feet around the project site and 500 feet on either side of the gen-tie centerline.

21. Please revise the delineation of ephemeral washes following the methods provided in the three documents mentioned above.

22. Please provide a hydrologic analysis and report that maps the stream extent at various storm events (e.g., 5, 10, 50, 100, 250-year). The extent of each stream mapped should include all areas where water flows at the highest point within the streams and includes the floodplain, if present.

23. Please describe how surface water flow patterns have been designed or addressed by the project. This should include a discussion of how stream flow will be altered to flow around project infrastructure and fence lines (security, desert tortoise exclusion, etc.) or whether stream flow will be allowed to flow naturally through each stream impact area following construction.

24. Please provide a grading plan, a post-construction drainage plan, construction designs, hydraulic study, and/or other documentation that evaluates how modifications to the streams during project construction would affect changes upstream, onsite, and in downstream water and sediment flow patterns.

BACKGROUND: Western Joshua Tree

Figure 8 (DA 5.2-1 TN 242779) of the Biological Technical Report shows western Joshua trees (WJT) occurring primarily along the roads of the gen-tie with no survey buffer used. CDFW was not consulted regarding protocol. The survey area for all linears including the gen-tie should include (to the extent possible) 500 feet on either side of the linear centerline. In addition, surveys around the project site should extend out to 1,000 feet where possible. The Swainson's hawk Figure 2 (DA 5.2-1) shows nests further out from the roads in the survey area, of which some of these are in western Joshua trees. At a minimum, WJT surveys need to have at least a 290-foot buffer, per CDFW guidance to determine impacts to the seed bank in addition to direct impacts to the trees.

DATA REQUESTS

25. Please survey and map any WJT that occur within 1,000 feet of the project site and 500 feet of the gen-tie route centerline.

26. Please provide a complete census of the size classes of each WJT within the project area (including the gen-tie and all appropriate buffers mentioned above). The size classes would be less than 1-meter in height, 1-meter or greater but less than 4-meters, and 4-meters or greater in height.

27. Please submit California Natural Diversity Database (CNDDB) field forms to CDFW for any positive occurrences.

BACKGROUND: California Desert Native Plant Protection – Cactus Species

The Observed Species List in Appendix 5.2 B (TN 240768-6) shows two cactus species - teddybear cholla (*Cylindropuntia bigelovii*) and beavertail cactus (*Opuntia basilaris*) - which are not shown on any maps. Their removal, in addition to western Joshua tree, requires a permit as well as a fee per plant removed in accordance with the California Desert Native Plant Protection Act (Division 23 of the California Food and Agricultural Code). In order to determine the fee and where these species occur, they must be mapped. In addition, the Willow Springs Specific Plan (Kern County Department of Planning and Development Services 1992) requires plants protected by the California Desert Native Plants Act to be preserved where possible and to replant ones that are unavoidably displaced.

DATA REQUESTS

28. Please map all cacti species as specified in Division 23 of the California Food and Agricultural Code (Chapter 3. Regulated Native Plants [80071 - 80075]) including the two cacti species listed above, found on the project site including (to the extent feasible) a 1,000-foot buffer and 500 feet on either side of the centerline of the gen-tie route.
29. Please provide a Draft Cactus Salvage and Relocation Plan that would describe which cacti species would be lost, where they occur, and possible relocation site(s). Include in the Draft Cactus Salvage and Relocation Plan details of the survey methods and results, preconstruction impact and avoidance assessment, salvage suitability, salvage and relocation process, and monitoring which includes success criteria.

BACKGROUND: Desert Tortoise

The Biological Resources section (TN 240788) mentions desert tortoise surveys followed USFWS 2009 *Chapter 4, General Ecology and Survey Protocol for Determining Presence/Absence & Abundance for Desert Tortoise – Mojave Population.* However, the current protocol required by USFWS and CDFW is USFWS 2019 *Preparing for any action that may occur within the range of the desert tortoise (Gopherus agassizii).* In addition, surveys were conducted with a buffer of 150-meters (492 feet) for the entire study area (project site and gen-tie). Surveys should (to the extent possible) or as otherwise indicated in the official survey protocol, include a buffer of 1,000 feet for linears (500 feet on either side of the centerline) and 1,000 feet for the project site. The Biological Resources section also mentions that 10-meter-wide belt transects were used during surveys but does not provide this on a map. Desert tortoise surveys should be conducted by qualified wildlife biologist(s) who have previous experience surveying for desert tortoise, are familiar with the survey protocol, and their sign. In addition, desert tortoise survey results are valid for one year and are required to be conducted again no sooner than a year prior to the start of ground disturbance (surveys were conducted in

April and May of 2021 (TN 242779) and therefore are already outdated). An incidental take permit will be required for this species. This permit will be part of staff's conditions of certification.

The AFC mentions (TN 240788: Section 5_2, Biological Resources, TN 242779: ATT DA 52-1_Biological Technical Report, and TN 242791: ATT DA 52-6_52 Bio Section) desert tortoise surveys were conducted in areas that were accessible to surveyors. Areas with no access, such as private property, were surveyed using binoculars. It is not clear which areas were not surveyed as these areas were not provided on a map. In addition, Table 5.2-2 Biological Surveys Conducted shows surveys were conducted along the gen-tie line but with no buffer distance. Also, no stand-alone desert tortoise survey report was provided. The Introduction section of the AFC (TN 240751-2) mentions the use of a secure perimeter chain link fence but does not mention the use of desert tortoise exclusion fencing.

Since an older outdated protocol was used, and surveys by 2023 will be older than one year, new surveys would be required.

DATA REQUESTS

30. Please provide the existing stand-alone desert tortoise survey report, if available.
31. Please provide a map showing the 10-meter-wide transects used during the 2021 surveys.
32. Please provide a map of the locations showing areas of where access was not permitted to conduct desert tortoise surveys.
33. Please provide a discussion and details, including diagrams, of any fencing that would be installed around the project site. Include the fence location on a map. Discuss how desert tortoise and other wildlife would be prevented from burrowing under any fencing to gain access to the site.
34. Please conduct desert tortoise surveys following USFWS 2019 protocol and provide details of methods used and map results. Include on the map the 10-meter-wide belt transects. Include areas that were not accessible at the time the previous surveys were conducted.
35. Please submit CNDDB field forms to CDFW for any positive occurrences.

BACKGROUND: Desert Kit Fox

No surveys were conducted for desert kit fox (DKF) (TN 240788, TN 240768, DA 5.2-1 and DA 5.2-6). The reason provided was because this species is not listed. Although this species is not listed it is a state protected fur-bearing mammal and is protected under Title 14, California Code of Regulations, section 460, which stipulates that desert kit fox take is not allowed. Since take is not allowed, it is important to have survey data

of active dens, natal dens, etc. in the project area in order to do proper project planning with avoidance measures. Information regarding suitable dens present in the survey area was provided as part of a data adequacy request under confidential cover. While some data was provided it was anecdotal information obtained while conducting surveys for other species. No focused survey(s) were conducted for this species. To avoid take of this species where no take is allowed, surveys need to occur to ensure sign was not overlooked. Use USFWS 2011 *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* survey protocols for San Joaquin kit fox since there are no specific survey protocols for desert kit fox.

DATA REQUESTS

36. Please conduct DKF surveys within the study area (project site and, where possible, 1,000-foot buffer, plus gen-tie out 500 feet from either side of the linear facility centerline) including a compilation of known sightings within 10 miles pursuant to USFWS 2011 (page 1) protocols. Biologists conducting the surveys should be familiar with all DKF signs (scat, burrows, dens, tracks, individuals).
37. Please provide resumes of biologists for review and approval prior to conducting surveys.
38. Please provide a map of all suitable dens, complexes, natal dens, scat, and DKF detected.
39. Please submit CNDDB field forms to CDFW for any positive occurrences.

BACKGROUND: American Badger

The AFC (TN 240788, TN 240768, DA 5.2-1 and DA 5.2-6) does not provide any information on focused American badger (AMBA) surveys. The AMBA is a State species of special concern, and protected as are other special-status species. The limited information regarding suitable dens present in the survey area was provided as part of a data adequacy request provided under confidential cover. While data was provided, it was anecdotal information obtained while conducting surveys for other species. No focused survey(s) were conducted for this species or its sign. To have accurate data, surveys focused on American badger need to occur to ensure all sign was not overlooked and to avoid impacts to this species.

DATA REQUESTS

40. Please conduct focused AMBA burrow surveys within the survey area (project site and gen-tie plus a buffer as recommended through consultation with CDFW). Since there is no protocol for conducting surveys for this species, use biologists familiar with AMBA sign (scat, burrows, dens, tracks, individuals).

41. Please provide resumes of biologists for review and approval prior to conducting surveys.
42. Please map all suitable dens, complexes, scat, and individuals.
43. Please submit CNDDB field forms to CDFW for any positive occurrences.

BACKGROUND: Mohave Ground Squirrel

No Mohave ground squirrel (MGS) surveys were conducted (Biological Technical Report DA 5.2-1, TN 242779 and TN 240788). Appendix 5.2 A (TN 240768-6) mentions that suitable habitat occurs throughout the survey area for this species. As a threatened species, surveys would be required given the project location being near the edge of the known geographic range of MGS. Cameras should also be incorporated into the standard survey methodology described in the CDFG 2003, 2010 *Mohave Ground Squirrel Survey Guidelines* for increased detectability. Use biologists familiar with MGS and who have conducted surveys before.

DATA REQUESTS

44. Please conduct surveys for MGS following the CDFG 2003, 2010 *Mohave Ground Squirrel Survey Guidelines*. Use cameras to increase detectability of MGS.
45. Please consult with CDFW and CEC for the hybrid (camera/live trapping) survey methodology prior to conducting surveys for concurrence of survey methods.
46. Please provide resumes of biologists for review and approval prior to conducting surveys.
47. Please submit CNDDB field forms to CDFW for any positive occurrences.

BACKGROUND: Crotch's Bumble Bee

According to page 5.2A-3 of 5.2A-3 (TN 240768-6), Crotch's bumble bee habitat consists of "open grassland and scrub habitats and food plants include Asclepias, Chaenactis, Lupinus, Medicago, Phacelia, and Salvia. Nests are often located underground in abandoned rodent nests, or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees". This page further states that "Suitable habitat is found in portions of the Survey Area".

In 2018, the Xerces Society for Invertebrate Conservation, the Center for Food Safety, and the Defenders of Wildlife petitioned the California Fish and Game Commission to list four species of native bumble bees as endangered under the California Endangered Species Act (CESA), including Crotch's bumble bee (*Bombus crotchii*), a critically imperiled species (CDFW 2022). As a result of the groups' petition, the California Fish and Game Commission voted to begin the listing process in 2019 but was sued by a consortium of California's large scale industrial agricultural interests shortly after its

decision. Most recently, a court ruling has allowed the potential listing of *B. crotchii* to move forward (California Courts, 3rd Appellate District, 2022). Even if *B. crotchii* is not listed, CEQA independently requires an agency to identify potential impacts to the environment from the project. (CCR title 14, section 15002)

Additionally, since at this time the bumble bee is not listed but may become listed by the time the spring survey period begins, it would be in the best interest of the applicant to move forward and conduct surveys on the chance that if the species becomes listed this would prevent any additional delays of the application and possible approval of the project.

Considering this development, and the imperiled nature of the species and its regional importance as a pollinator species, staff, in consultation with CDFW, considers surveys for this species to be necessary. While there are currently no official survey protocols for this species, the active season for Crotch's bumblebee queens is February 1–October 31 (page 17, CDFW 2019). Based on staff's literature search and coordination, to achieve the highest detection probability, focused bee surveys should be conducted between March 1 and June 30.

If this species regains Candidate status or becomes listed, survey protocols may change.

DATA REQUESTS

48. Please conduct surveys for Crotch's bumble bee. Prior to conducting surveys consult with CDFW and CEC staff for guidance of survey protocol methodology.
49. Provide a complete survey report, including at minimum, surveyor qualifications, and map of suitable habitat and any positive findings.

BACKGROUND: Raven Management Plan

While desert tortoise surveys did not find desert tortoise or much sign, the project is within the range of desert tortoise. The AFC (TN 240788, TN 240768, DA 5.2-1 and DA 5.2-6) did not discuss the increased risk of raven predation on juvenile desert tortoise. In addition, the project will have several bodies of water which include a large reservoir, temporary settlement ponds, and water collection ponds. In the desert where water is scarce, these bodies of water become an attractant to wildlife including common raven (a nuisance predator).

DATA REQUESTS

50. Please provide a Draft Raven Management Plan (Plan) for review that identifies where the plan applies, a list of raven management measures that will be implemented at the project and plans to incorporate a basic summary of

activities associated with raven management. The focus of the Plan should be on the measures that a project would implement to eliminate raven access to food/water resources, reduce perching and nesting opportunities, and contacting the United States Fish and Wildlife Service (USFWS) in the event that a raven nest is identified at the project. The plan should be brief and concise (1-2 pages) and does not need to include extensive project background information.

51. The Plan should include discussion of the following:

    a. A basic summary of activities associated with raven management should be incorporated into any annual environmental compliance reports submitted to CEC and USFWS.

    b. Recommended raven management measures include implementation during all phases of the project (construction, operations, and decommissioning) of standard methods to eliminate/minimize raven food, water subsidies, and active raven nests.

        - Dispose of all potential sources of food and nesting materials for ravens (human food waste, trash, roadkill) in trash cans or dumpsters that are regularly maintained and are kept closed with secured (i.e., latched) lids/coverings.
        - Cover, bury, or remove any roadkill or other dead wildlife at the project.
        - Water should be transported and kept in watertight containers that are maintained regularly to prevent leaks.
        - If using water for dust abatement minimize use to prevent ponding/standing water.
        - Any active raven nests should be reported to the USFWS Common Raven Program Manager (Kerry Holcomb: Kerry_Holcomb@fws.gov). Information on raven nests conveyed to the USFWS should include at a minimum the location of the nest and time of initial nest observation. The USFWS will communicate with the project owner about access for dealing with active nests.
        - The USFWS encourages project owners to remove inactive raven nests and raven nests prior to egg-laying to prevent future nesting by ravens.
        - The USFWS recommends modifying structures when feasible to prevent raven nesting, i.e., nest and perch deterrents, designing structures to eliminate surfaces large enough for raven nest building, etc.
        - Information on raven management and the above measures should be incorporated into a Worker Environmental Awareness Program (WEAP).
        - Payment to the regional raven management and monitoring program. This is a one-time fee. The current cost is ($105) per acre of total project

disturbance. Questions on this payment can be directed to the USFWS's Common Raven Program Manager (see above).

BACKGROUND: Swainson's Hawk

The Biological Technical Report (DA 5.2-1 TN 242779) discusses the Swainson's hawk (SWHA) survey conducted for the project. Jaime Marquez (CDFW) was consulted prior to conducting the survey. However, the survey deviated from the CDFW protocol (only 2 surveys during Period II rather than 3) and there is no mention of whether CDFW was consulted on this deviation. Also, the survey on April 6, 2021, was only conducted in the morning (not all day). While this may meet survey criteria, it is not conducive to detecting nest building activity. Also, if the survey area includes approximately 14,495 acres as the Focused Swainson's Hawk Survey Report indicates, the area surveyed each day should be provided. The final survey day for Period III was only 30 minutes with surveyors who had not surveyed this project previously.

Survey protocol for SWHA (CEC and CDFG 2010; page 4) requires a 5-mile survey radius. Figure 2 of DA 5.2-1 Biological Technical Report only shows SWHA surveys within the survey area and 0.25-mile around a known nest location both of which are less than the 5-mile survey radius required. Page 4 of the CEC and CDFG 2010 guidance states that "Surveys should be repeated within the 5-mile radius if a survey season ensues or elapses before the onset of project related activities." And further (page 5) "To meet the minimum level of protection for the species, surveys should be completed for at least the two survey periods immediately prior to a project's initiation." The proposed mitigation measure states only that a Swainson's hawk monitoring plan shall be developed. It is important to provide any mitigation measures to CDFW and CEC for review so the measures can be addressed, if needed, in staff's analysis and the details included as a condition of certification.

DATA REQUESTS

52. Please provide a map of the 5-mile survey radius for Swainson's hawk nest trees. as per CEC and CDFG 2010 page (4) "All potential nest trees within the five-mile radius shall be surveyed for presence of nests. Surveys should be conducted prior to environmental analysis. Surveys should be repeated within the 5-mile radius if a survey season ensues or elapses before the onset of project related activities." As the survey season starts in January, new surveys in 2023 would be required to provide CEC staff with appropriate baseline information, including location and density of this species.

53. Please provide a Draft Swainson's Hawk Monitoring Plan that incorporates agency guidelines and specifically references timing of preconstruction surveys for review, comment, and revision.

54. Please provide the area surveyed for each day.

55. Please provide a discussion to indicate whether the project would impact SWHA foraging habitat and document positive occurrences on maps, suitable habitat, and any other parameters as dictated by the CEC and CDFG 2010 protocol.

56. Please submit CNDDB field forms to CDFW for any positive occurrences.

BACKGROUND: Burrowing Owl

Focused surveys for burrowing owl (BUOW) were conducted following the CDFW 2012 *Staff Report on Burrowing Owl Mitigation* (Biological Resources section TN 240788, Biological Technical Report DA 5.2-1 TN 242799). CDFW also recommends using the California Burrowing Owl Consortium's (CBOC) 1993 *Burrowing Owl Survey Protocol and Mitigation Guidelines* along with the CDFW 2012 document when conducting surveys. The 1993 protocol requires pedestrian survey transects with a distance between transect center line that are no more than 30 meters. Less if there is a lot of vegetation that obscures surveyor's view. The Biological Technical Report and the Biological Resources section do not mention anything about transects. In addition, since only one adult owl was found during surveys and was not associated with a burrow this is considered a negative finding. New burrows can be created at any time and if only the currently known burrows are mapped, some burrows may be missed. Therefore, new surveys would need to be conducted.

DATA REQUESTS

57. Please provide a discussion of the methodology for conducting BUOW surveys and whether pedestrian survey transects were used. If they were not used, please explain why.

58. Please conduct surveys for western burrowing owls following CDFW 2012 and CBOC 1993 protocols.

59. Please submit CNDDB field forms to CDFW for any positive occurrences.

BACKGROUND: Special Status Plant Species

The AFC (DA 5.2-1 TN 242779, TN 240788) mentions rare plant surveys methods followed: 1) *Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities* (CDFW 2009), 2) *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 1996), and 3) *General Rare Plant Survey Guidelines* (Cypher 2002). There is an updated CDFW 2018 protocol that should have been used instead of the 2009 version. In addition, there is no mention of whether reference sites for all the plants that could occur within the project vicinity were used. Part of the protocol requires identification of reference populations to facilitate the likelihood of field investigations occurring during the appropriate floristic period. Also, if rainfall in this area was below normal or differed in timing, the plants may not have bloomed at all or during the "typical bloom period".

Based on the fact of local documented occurrences as well as the severity of California's long-standing and ongoing drought—which has the effect of suppressing growth and bloom—plants may well persist in the seedbank and therefore could emerge. The "mega-drought" that California is experiencing, is tracked by the U.S Drought Monitor (U.S. Drought Monitor 2022). Kern County is currently rated as experiencing "extreme" to "exceptional" drought. That is why reference populations are used, to know if the plant is in bloom when surveys are conducted, or if these results should be considered conclusive. Alkali mariposa-lily and Horn's milk vetch occur in the project area (AVEP Solar 2019, Appendix E-1 Biological Technical Report) and require further investigation and description. Additionally, "inaccessible areas", that could only be viewed by binoculars, need to be further defined and mapped. Biologists who specialize in botany and have experience with the flora of the area should be used.

DATA REQUESTS

60. Please conduct special status plant surveys following the Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018).

61. Please provide a report that includes a map of any special status plant species found and details of the methodology, resumes of biologist(s), and discussion of reference populations.

62. Please submit CNDDB field forms to CDFW for any positive occurrences.

63. Please explain what is meant by "inaccessible areas". If these areas were not accessible by foot, conduct special status plant surveys for these areas when access becomes available.

REFERENCES

Brady, Roland H. III, Kris Vyverberg. 2013. *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants.* California Energy Commission. Publication Number: CEC-500-2014-013.

Brady, Roland H. III, Kris Vyverberg. 2013. *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants. Appendix G: The MESA Field Guide, Mapping Episodic Stream.* California Energy Commission. Publication Number: CEC-500-2014-013-APG.

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Cypher, Ellen. 2002. *General Rare Plant Survey Guidelines*. Revised July 2002. California State University, Stanislaus Endangered Species Recovery Program. 26pp.

Dudek, 2022. Bumble Bees May Soon Be Eligible for Listing under the California Endangered Species Act. Accessed June 20, 2022. Available at: https://dudek.com/bumble-bees-may-soon-be-eligible-for-listing-under-the-california-endangered-species-act/#:~:text=The%20active%20season%20for%20crotch%20bumble%20bees%20is,protocols%20for%20this%20species%20since%20its%20original%20candidacy

Kern County Department of Planning and Development Services. 1992. *Willow Springs Specific Plan.* March 1992. 122 pp.

The California Burrowing Owl Consortium. 1993. B*urrowing Owl Survey Protocol and Mitigation Guideline*. April 1993. 15pp.

U.S. Drought Monitor 2022 – U. S. Drought Monitor. Accessed on June 23, 2022 Available online at: https:/droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?fips_06029

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GEM ENERGY STORAGE CENTER
DATA REQUESTS SET 1

GEOLOGICAL HAZARDS AND RESOURCES

BACKGROUND: Excavated Rock Recycle and Reuse

Section 2.0 Project Description of the AFC (subsection 2.1.16.2) describes how the construction of the underground compressed air storage cavern has an equivalent volume of excavated material of approximately 1.1 million cubic yards and the excavation waste would generally include soil and rock. Based on preliminary design assumptions, a majority of the cavern waste rock would be hauled off-site to a quarry approximately 5 miles to the north of the site. A preference would be given to using rock onsite, with the anticipation that up to 50 percent of rock would be used onsite.

Section 6.0 Alternatives (subsection 6.4.3) states that the waste rock is expected to be of aggregate quality. As a result, the project would attempt to recycle excavated material for site grading and construction of the earthen berms for the surface compensation reservoir.

DATA REQUEST

64. If the geotechnical properties of excavated soil and rock is not suitable to supply all the required material types needed for site grading and embankment construction, what alternative sources of materials have been identified and/or evaluated?

BACKGROUND

Section 5.4 Geological Hazards and Resources of the AFC (subsection 5.4.1.1.1) presents information on Faulting and Seismicity as based on the California Geologic Survey (CGS) Fault Activity Map of California web application. Subsection 5.4.1.4.1 presents information on Ground Rupture as based on the CGS Seismic Hazards Program, Alquist-Priolo Fault Hazard Zone web application. While no Alquist-Priolo Earthquake Fault Zones are mapped in the vicinity of the project, the Willow Springs fault is identified as approximately 4,000 feet west of the site, and trends west-southwest with one segment projected towards the general vicinity of the project site. The CGS Fault Activity Map of California cites the U.S. Department of the Interior Geological Survey, Geologic Map and Sections of the Willow Springs and Rosemond Quadrangles, California, Bulletin 1089-C, prepare by T. W. Dibblee, 1963 (Dibblee 1963) as the source of the mapping, however, the detail provided on web application appears to be reduced.

The 1963 Bulletin (Dibblee 1963) describes the type locality of the Gem formation mapped southeast of the project site at the Willow Springs Butte and states "It is not certain that this section gives the true thickness of the Gem Hill formation; there are several minor faults and parts of the formation may be repeated." This could indicate that there are other unmapped faults in the project vicinity.

The geologic mapping provided on the figures in the AFC appear to all be derived from on the 1963 Bulletin (Dibblee 1963), yet the figures present varying levels of detail. As such, the locations of mapped faults and geologic contacts as well as descriptions of the mapped geologic units do not appear consistent. A brief review of the United States Geological Survey U.S. Quaternary Faults web application and the California Department of Conservation, California Geologic Survey Fault Activity Map of California web application suggests that there has been subsequent interpretations of the Willow Springs and adjacent faults and that subsection 5.4.1.1.1 of the AFC may need to be updated to reflect these interpretations.

DATA REQUEST

65. Please confirm the 1963 Bulletin (Dibblee 1963) is the original source of the all the data you are including in your figures. If more current or alternative data is available, please clarify and provide it.

BACKGROUND

AFC Figure 5.4.2, Geologic Map, cites the source as http://maps.conservation.ca.gov, which cites the compilation and interpretation by Charles W. Jennings, 1977. T. W. Dibblee is cited as a contributor to the 1977 compilation. Figure 5.4.6 cites the 1963 Bulletin (Dibblee 1963). The level of detail and descriptions of the geologic units provided on the two figures do not fully agree. The text in section 5.4.1.2 is based on the Jennings, 1977 mapping, and as a result does not provide the most detailed description of the mapped units as the site.

DATA REQUESTS

66. Please provide the most accurate and consistent geologic mapping and descriptions of the mapped units at and in the vicinity of the project site.

67. While the CEC staff finds the fault map and geologic map submitted for the license application to meet the minimum level of detail required, they may not be of sufficient detail, accuracy, or precision to be solely relied on for final project design. Please provide any new geologic or geologic hazards maps and site reconnaissance mapping performed for the project which you plan to incorporate into the final design.

68. Please provide copies of all substantive geotechnical and geological information collected during the subsurface exploration program as well as the results of analyses and laboratory testing performed on the collected data and/or soil and rock samples. This is a continuing request, requiring ongoing submission of relevant information. Please provide no more than 30 days from the date it is created or received. A weekly records delivery to staff is requested. This request is in effect until staff publishes the final staff assessment.

BACKGROUND

AFC Section 5.4 Geological Hazards and Resources (subsection 5.4.1.4.2) discusses seismic shaking and preliminary seismic ground acceleration for the site. The section also states, "advancement of the project is contingent on sound bedrock that is seismically stable at the depth of the underground cavern."

DATA REQUESTS

69. How is "sound bedrock" defined for the purpose of this project?

70. What geologic conditions would constitute "ideal" conditions, "minimum acceptable" conditions, and what would constitute "unacceptable" conditions that would force you to find another site?

BACKGROUND

AFC Section 5.4 Geological Hazards and Resources (subsection 5.4.1.4.3) discusses liquefaction hazards for the project and concludes only surface structures would be affected. Damage to the casing/lining of the deep shafts that access the underground cavern could result in loss of the confinement of the overlying aquifers and the surface reservoir.

DATA REQUEST

71. Have the effects of liquefaction on the deep vertical shafts been considered or performed? What analyses would be appropriate to analyze liquefaction at the locations of the deep shafts and what would be the resulting effects on their casing/lining?

BACKGROUND

AFC Section 5.4 Geological Hazards and Resources (subsection 5.4.1.4.8) discusses slope stability of permanent slopes and embankments and identifies the embankment dam for the hydrostatic compensation reservoir as a slope that would require slope stability analyses.

DATA REQUEST

72. In addition to static, pseudo-static (seismic), seepage, and rapid drawdown conditions, would slope stability for concurrent pseudo-static (seismic) and rapid drawdown conditions be analyzed? Please provide the results of the analyses.

GEM ENERGY STORAGE CENTER
DATA REQUESTS SET 1

BACKGROUND

AFC Section 5.4 Geological Hazards and Resources (subsections 5.4.1.4.10.1 and -10.2) discuss induced seismicity due to reservoir and compressed air cycling. You report, this is not anticipated to be problematic due to the relatively low height of water in the reservoir (less than 50 feet deep) and moderate compressed air pressures involved (1,000 psi or less). The cyclic nature of pressurizing and depressurizing the compressed air cavern and hydrostatic compensation reservoir would, correspondingly, cycle the state of stress in the underlying and surrounding rock formations. These changes could be sensitive to and potentially reactivate existing fractures, shear zones, or joints in the rock mass.

DATA REQUESTS

73. How will the in-situ stress regime be determined during the geotechnical investigation?

74. How will changes in the stress regime be analyzed during the geotechnical design?

75. Has the applicant evaluated any underground storage facilities of comparable size and geology that have undergone a similar cyclic pressurization/depressurization scenarios? If yes, please describe their performance and any issues encountered, especially in terms of rock fatigue due to cyclic stress.

LAND USE

BACKGROUND: Kern County Comments Regarding Rezones and Conditional Use Permit

On May 19, 2022, the Kern County Planning and Natural Resources Department submitted comments on the Gem Energy Storage Center application for certification (TN 243152). Comment 1 pertains to Land Use:

1. *The proposed 71-acre project site, as described in the AFC submitted to the California Energy Commission (CEC) on December 1, 2021, is located on two adjacent parcels: an approximate 10-acre parcel identified as Assessor's Parcel Number (APN) 315-081-01 and an approximate 61-acre parcel identified as APN 315-081-09. An additional approximate 40-acre parcel north of the project area, APN 315-011-18, is proposed to be used as a temporary construction laydown yard and parking. These parcels are classified as E (2 ½) RS (Estate 2 ½ Acres, Residential Suburban Combining) and E (2 ½) RS FPS (Estate 2 ½ Acres, Residential Suburban Combining, Floodplain Secondary Combining). The proposed use for energy storage is not a permitted use within the current residential zoning for the project site. The proposed project requires a zone change on all three (3) parcels from the Estate (E) Zone District to the Agriculture (A) base Zone District and a Conditional Use Permit (CUP) for the energy storage facility in the Agriculture (A) Zone District (19.12.030.G).*

DATA REQUESTS

76. Please discuss the plan and timeline for resolving the project's inconsistencies with the current zoning, as discussed by the County in their letter referenced above. The applicant should obtain from the County the necessary rezones of the parcels from Estate designations to *Agriculture* designations before CEC staff prepares the Final Staff Assessment.

77. Because of the CEC's exclusive authority over the proposed project, a Conditional Use Permit will not be necessary from Kern County. Please provide confirmation from the County that the necessary findings for a Conditional Use Permit could be made, but for the CEC's jurisdiction, to enable CEC staff to make findings of consistency with the County's zoning designations following the rezoning from Estate designations to Agricultural designations.

NOISE AND VIBRATION

BACKGROUND: Discrepancy in Observed Noise data

The Sound Pressure Level (SPL) versus time data presented in Table 5.7-5 of the AFC (Summary of Long-term Sound Pressure Levels) for existing long-term ambient noise near noise monitoring location Site 2 does not match the SPL versus time data in Figure 5.7-2 of the AFC (Long-Term Baseline Sound Pressure Levels, One Minute Intervals), which staff understands is a graphical representation of the same data as in the table. For example, in Table 5.7-5, at 0:00 hours on Friday July 9, 2021, the SPL L_{eq} is 32.8 dBA, while in Figure 5.7-2 the SPL L_{eq} at 0:00 hours is above 40 dBA. Another example is that all of the data points for L_{90} in the table that are below 30 dBA, does not correspond to L_{90} data below 30 dBA during the same time taken. Also, the graph shows that the observed noise levels during the night are higher than during the day, which is not typical, as the nighttime noise levels are usually lower than the daytime ones.

DATA REQUESTS

78. Please provide an explanation for the discrepancy between the data presented in Table 5.7-5 and Figure 5.7-2.

79. Please provide a corrected figure that matches the data presented in the table, unless the data in the table is also incorrect, in which case you will also need to provide the table with the correct data.

PALEONTOLOGICAL RESOURCES

BACKGROUND

Section 5.8.1 introduces the project area, however, Figures 5.8-1 and 5.8-2 identify blue lines as the Project Area but the figures do not identify the location of the main facility.

DATA REQUEST

80. Please provide updated figures showing where the main facility would be located and identify what the blue lines represent.

BACKGROUND

Section 5. 8 Paleontological Resources (subsection 5.8.1.1.1), discusses regional geology and its implications on potential paleontological resources. The cited map is from 1963 (Dibblee 1963) and while it meets the minimum level of detail, it may not be of sufficient detail to adequately determine the presence of Holocene versus Pleistocene and older geologic units.

Note: The heading Section 5.8.1.1.1 is repeated multiple times in the AFC.

DATA REQUEST

81. Please provide any new geologic maps available and any reconnaissance level or specific geologic mapping conducted during the preparation of the AFC.

BACKGROUND

Section 5.8.1.1.1 discusses the results of records searches for paleontological resources. Table 5.8-1 does not include a location in comparison to the site. Additionally, the table indicates the "Location" as feet "bgs."

DATA REQUEST

82. Please provide location data in Table 5.8-1 with respect to proximity to the site. Clarify the "Location" and its units in Table 5.8-1.

GEM ENERGY STORAGE CENTER
DATA REQUESTS SET 1

PROJECT OVERVIEW

BACKGROUND: Interconnection to Electrical Grid

Section 2.0 Project Description of the AFC (subsection 2.1.20) states that the Gem facility would connect to the Southern California Edison (SCE) or Los Angeles Department of Water and Power (LADWP) electrical grid via a 230 kilovolt (kV) overhead line running either to the SCE Whirlwind Substation or the future LADWP Rosamond Substation. It also states that the potential interconnection with the Rosamond Substation has been studied.

Section 6.0 Alternatives (subsection 6.4.1) discusses the proposed interconnection to the SCE Whirlwind Substation via a 10.9-mile route. Several alternative interconnections are described, including two that could potentially interconnect to the future LADWP Rosamond Substation (Routes 2A and 2B). The two LADWP alternatives are approximately 2.5 to 3.5 miles long. The AFC states that interconnecting to the Rosamond Substation would be consistent with the project's overall objectives.

Section 3.0 Electric Transmission (subsection 3.3) describes the transmission interconnection studies for the proposed project. It states that a separate interconnection request was submitted to LADWP on October 2, 2020, for the potential interconnection of the project to LADWP's planned Rosamond Substation and that the LADWP interconnection has not yet been studied by LADWP. In its July 5th comment letter on the Gem Energy Storage Center (TN# 243839), LADWP commented that a potential interconnection with the Rosamond Substation should be coordinated through its Transmission Planning Group with an e-mail address for Sunaja Lakshman: Sunaja.Lakshman@ladwp.com.

Section 5.6 Land Use (page 5-6-1) states that the timing for development of the Rosamond Substation is unknown; however, online information from LADWP indicates that the Rosamond Substation is budgeted and expected to be in service in December 2023.[1]

Staff considers the potential interconnection of the project at the Rosamond Substation an option requiring analysis in the staff assessment.

DATA REQUESTS

83. Please provide information on the status and possible schedule for preparation of a Phase I Interconnection Study for LADWP's Rosamond Substation. Staff requests a copy of the Phase I study when it is available.

1 https://www.wecc.org/Reliability/LADWP%202020%20APR.pdf

84. Staff requests the details and any study results prepared by the applicant on the potential interconnection at the Rosamond Substation.

BACKGROUND: Options for Use of Waste Rock

Section 2.0 Project Description of the AFC (subsection 2.1.16.2) describes how construction of the underground compressed air storage cavern would produce excavation waste (generally soil and rock). Project construction would require excavating approximately 1.1 million cubic yards of waste rock that is expected to be of aggregate quality. It states that most of the cavern waste rock would be hauled offsite to a quarry approximately 5 miles north of the project site, but that preference will be given to using up to 50 percent of the rock on the site.

Section 6.0 Alternatives (subsection 6.4.3.1) describes the possible option of using all the waste rock to raise the entire project site by several feet. If it were determined to be feasible, using the waste rock on the site could avoid certain impacts of hauling surplus material to the quarry. Conversely, using the waste rock on the site could increase certain impacts, such as impacts on visual resources, air quality impacts from increased particulate matter, noise impacts at nearby receptors, and it could require additional measures for stormwater management. Processing of rock for use on the site would require a permit from Kern County.

Staff considers the potential for the site to be raised from distributing waste rock aggregate over the site an option requiring analysis in the staff assessment. The work to process and use waste rock on the site requires details on possible options and the potential environmental impacts relating to those options.

DATA REQUEST

85. Please fully describe the processes and any permitting requirements for preparing all the excavated material for use on the site and an estimate of how many feet the site would be raised as a result. Please discuss whether the increased elevation would be relatively even across the site.

86. Please provide an analysis of the environmental impacts caused by processing and using all of the waste rock onsite.

87. Please provide an analysis of the environmental impacts caused by using any portion less than 100 percent of the waste rock onsite and hauling the remainder to the quarry.

GEM ENERGY STORAGE CENTER
DATA REQUESTS SET 1

TRANSPORTATION

BACKGROUND: Kern County Comments On Application For Certification

On May 19, 2022, the Kern County Planning and Natural Resources Department submitted comments on the Gem Energy Storage Center application for certification (TN 243152). Comments number three and five below pertain to Transportation:

3. *Tehachapi-Willow Springs Road and Sweester [sic] Road are classified as Future Expressway and Secondary (Collector) Highway by the Willow Springs Specific Plan Circulation Element, respectively. These alignments require a dedication of 55' and 45' from the centerline of the roads. No facilities or structures can be constructed in this area. If a portion of the proposed facility needs to encroach into those dedications, then a Specific Plan Amendment would be required to delete or downgrade the alignment. This process requires a hearing before the Board of Supervisors and can only be heard at a scheduled General Plan Amendment window date (i.e. April, June, September, and December).*

5. *Full improvements to Type B standards (plate attached – Attachment A) are required for Sweester [sic] Road from Tehachapi – Willow Springs Road to the project entrance. Currently this road is a dirt, unmaintained public access easement which is not passable during wet weather.*

DATA REQUESTS

88. Please confirm if any project facilities or structures would be constructed in the Tehachapi-Willow Springs Road and Sweetser Road dedication located 55 feet and 45 feet from the road centerline.

89. If project facilities or structures would encroach within the Tehachapi-Willow Springs Road and Sweetser Road dedications, please provide CEC staff with copies of communications with Kern County staff and identify at which Board of Supervisors hearing (i.e., April, June, September and December) the project would request a Specific Plan Amendment to delete or downgrade the alignment.

90. Please describe construction activities required to prepare Sweetser Road and Tehachapi-Willow Springs Road for construction worker, equipment, and material vehicle access to the site.

BACKGROUND: Rock Spoil Transport

Approximately 1.1 million cubic yards of rock would be excavated to construct the compressed air storage caverns. It is anticipated that a portion of the rock would be reused on-site to construct the containment structure. The remaining spoil is expected to be transported to the local quarry, located 5 miles north of Tehachapi-Willow Springs Road.

DATA REQUESTS

91. What portion of the 1.1 million cubic yards of rock would be needed to construct the containment structure?

92. Please describe the total number of truck trips associated with the removal of the unused portion of rock off-site per day, and the number of trips expected to occur during AM peak and PM peak hours.

93. Would all truck trips associated with the removal of the rock take the same route to the local rock quarry located five miles north of the project site? Provide a map showing the preferred route.

94. Please confirm if Holiday Rock located on Trotter Avenue would be used for disposal of rock spoils. If another site has been selected, please disclose the name and location.

REFERENCES

Kern County 2022 – Kern County Planning and Natural Resources Department. Kern County Planning and Natural Resources Department Comments - Agency Participation in Review of AFC for GEM Energy Storage Center Project. TN 243152. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=243152&DocumentContentId=76834

GEM ENERGY STORAGE CENTER
DATA REQUESTS SET 1

TRANSMISSION SYSTEM ENGINEERING

BACKGROUND

Appendix G of the CEQA Guidelines requires consideration of the impacts on utility and service systems from the construction or operation of the project. For the identification of impacts on the transmission system resources and the indirect or downstream transmission impacts, staff relies on the Phase I and Phase II Interconnection Studies for ensuring the interconnecting grid meets the California Independent System Operator (California ISO) reliability standards. The studies analyze the effect of the proposed project on the ability of the transmission network to meet reliability standards. When the studies determine that the project will cause a violation of reliability standards, the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures can include the construction of downstream transmission facilities. CEQA requires the analysis of any downstream facilities for potential indirect impacts of the proposed project. Without complete Phase I and Phase II Interconnection Studies, staff is not able to fulfill the CEQA requirement to identify the indirect effects of the proposed project.

DATA REQUESTS

95. Provide the California ISO Phase II Interconnection Study of the proposed 500 MW GESC to the California ISO control grid. The Study should analyze the system impacts with and without the project during peak and off-peak system conditions, and demonstrate conformance or non-conformance with the utility reliability and planning criteria with the following provisions:

    a. Identify major assumptions in the base cases including imports to the system, major generation and load changes in the system and queue generation.

    b. Analyze the system for N-0, important N-1 and critical N-2 contingency conditions and provide a list of criteria violations in a table showing the loadings before and after adding the new generation.

    c. Analyze Short circuit duties.

    d. Analyze system for Transient Stability and Post-transient voltage conditions under critical N-1 and N-2 contingencies, and provide related plots, switching data and a list for voltage violations in the studies.

    e. Provide a list of contingencies evaluated for each study.

    f. List mitigation measures considered and those selected for all criteria violations.

    g. Provide electronic copies of *.sav and *.drw PSLF files.

    h. Provide power flow diagrams (**MW, percent loading & P. U. voltage**) for base cases with and without the project. Power flow diagrams must also be

provided for all N-0, N-1 and N-2 studies where overloads or voltage violations appear. Provide the pre and post project diagrams only for an elements largest overload.

96. Please provide a complete project description includes drawings of the changes required at the interconnecting substation, SCE's Whirlwind Substation.

97. Please provide detailed one-line diagrams of the Whirlwind Substation before the proposed project.

98. Please provide detailed Whirlwind Substation one-line diagram after the proposed project interconnection. Show all equipment ratings, including bay arrangement of the breakers, disconnect switches, buses, transformers and other equipment that would be required for interconnection of the GESC project. Please include any potential changes in the substation and to the existing fenceline at the Whirlwind Substation.

99. Please provide detailed one-line diagrams showing the 230 kV generator tie-line system interconnection with the Whirlwind Substation.

100. Provide DWG NO. 21-5291-50-3642-004.

101. Please provide the conductor name, type, current carrying capacity, and the overhead conductor size for the transmission line which would connect the GESC to the SCE Whirlwind Substation.

BACKGROUND

The California ISO Interconnection Request (IR) Application and the Queue Cluster 13 Phase I Report, Appendix A-Q1782, both include a 100 MW battery energy storage system (BESS) as part of the GESC project. Also, as indicated in the Gem Data Adequacy Master Response No 1, dated April 25, 2022, the GESC does not include a battery component. The one-line diagram in the AFC and the diagram included in the California ISO Phase I study are not consistent.

DATA REQUESTS

102. The California ISO Phase I Report, Appendix A-Q1782 Figure A.1: Generating Facility One-Line Diagram is different from the figures in Section 3 of the AFC.

    a. Please provide a clarification of the proposed project design and provide a list of the equipment including but not limited to transformers, generators, and their ratings for the GESC.

    b. Please provide one-line diagrams which coordinate with the California ISO report so that staff can understand what is including in the licensing process. Show the proposed generators, transformers, generator tie-lines, breakers arrangement and other required equipment and their ratings.

103. How many MW would be needed to maintain one power block? What is the auxiliary load for one power block and the GESC.

BACKGROUND

Section 1.0 Introduction in the AFC in provides an alternative interconnection for the GESC to a future Los Angeles Department of Water and Power (LADWP) Rosamond Substation via an approximately 3.5-mile 230 kV transmission line.

DATA REQUESTS

104. Is the project owner seeking CEC certification of both the proposed interconnection to the SCE Whirlwind Substation and the alternative interconnection to the LADWP Rosamond Substation? If the project owner is seeking certification of both interconnection alternatives, then the information requested in TSE Data Requests 101-106 is required.

105. When would the LADWP Rosamond Substation be built?

106. Should the alternative interconnection route to the LADWP Rosamond Substation be considered under licensing process? If it is the case, please provide an interconnection study from LADWP.

107. Please provide a complete project description that includes drawings of the changes required at the interconnecting substation, LADWP Rosamond Substation.

108. Please provide detailed Rosamond Substation one-line diagrams after the proposed project interconnection. Show all equipment ratings, including bay arrangement of the breakers, disconnect switches, buses, transformers and other equipment that would be required for interconnection of the GESC project.

109. Please provide detailed one-line diagrams showing the 230 kV generator tie-line system interconnection with the Rosamond Substation.

110. Please provide the conductor name, type, current carrying capacity, and the overhead conductor size for the transmission line which would connect the GESC to the future LADWP Rosamond Substation.

BACKGROUND

As shown in Section 1.0 Introduction Figure 1-4, the GESC proposed preferred and alternate transmission interconnection routes would potentially impact the LADWP Transmission Line Right of Way (TLRW).

DATA REQUESTS

111. Please provide evidence showing coordination with LADWP and approval from LADWP for the proposed transmission routes crossing and/or using the LADWP TLRW.

112. Please confirm that the GESC would be connecting to SCE not PG&E as shown in Figure 3-2.