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Russell City Energy Company, LLC

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March 2, 2018

Eric Veerkamp
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Siting, Transmission and
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California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, CA 95814

RE: Docket No. 01-AFC-07C: Petition for Modification

Dear Mr. Veerkamp:

On behalf of the Russell City Energy Center (“Project”), Russell City Energy Company, LLC (“Project Owner”) submits this Petition for Modification.

If you have any questions regarding the proposed modification, please contact Barbara McBride at 925-570-0849 or Barbara.McBride@calpine.com.

Sincerely,

/S/

Barbara McBride

Petition for Modification

Black Start Capabilities
Russell City Energy Center
Hayward, California

Submitted to
California Energy Commission

Submitted by
Russell City Energy Company, LLC



March 2018

Contents

Section	Page
Contents	i
Executive Summary	1
Introduction	1-1
1.1 Overview of the Modification	1-1
1.2 Ownership of the Facility Property	1-2
1.3 Necessity of Proposed Changes	1-2
1.4 Consistency of Changes with Certification	1-2
1.5 Summary of Environmental Impacts	1-2
Description of Project Modification	2-1
Environmental Analysis of Proposed Project Modification	3-1
3.1 Resources.....	3-1
3.2 LORS.....	3-5
The proposed modification will not impact the facility's ability to comply with applicable laws, ordinances, regulations, and standards ("LORS"), as discussed in each subsection of Section 3.	3-5
Potential Effects on the Public	4-1
List of Property Owners	5-1
Potential Effects on Property Owners	6-1

Attachments

List of Property Owners within 1,000 feet (provided under separate cover)

Executive Summary

Russell City Energy Company, LLC (hereinafter, "project owner") was selected by the California Independent System Operator (CAISO) to provide Black Start service at its existing Russell City Energy Center facility (RCEC) in Hayward, CA. To provide this service, the project owner is proposing modification of the RCEC to install a Battery Energy Storage System (BESS). The BESS is designed for a duty large enough to start either gas turbines in a 1x0 mode to energize a 230kV bus within three hours of a grid-wide blackout (Black Start event occurrence). This system would play a vital role in restoring power to the grid. Two potential locations for the BESS on the property are shown on Figure 1.

Both locations would utilize lithium-ion as the energy storage technology. The battery will range in size from 6 to 10 MW. Both locations are currently viable and depending on the final engineering and size necessity of the battery, a final site selection will be made.

Section 1.0 provides an overview of the Petition for Modification and a review of the ownership of the project. Section 2.0 provides a complete description of the proposed modifications and the necessity for the proposed changes. Section 3.0 assesses the potential environmental effects of the proposed changes, the project's continued compliance with all applicable laws, ordinances, regulations and standards (LORS), and the consistency of the changes with the Commission Decision certifying the facility. This assessment indicates that adoption of the Petition will not result in any significant, unmitigated adverse environmental impacts. The project will continue to comply with all applicable LORS.

Figure 1



SECTION 1.0

Introduction

1.1 Overview of the Modification

The RCEC is a natural gas fired power plant located in the City of Hayward. In this Petition, the project owner is proposing modification of the RCEC to include Black Start capabilities through installation of a BESS large enough to start either gas turbines in a 1x0 mode to energize a 230kV bus within three hours of a grid-wide blackout.

This Petition for Modification contains all of the information that is required pursuant to the CEC's Siting Regulations (California Code of Regulations [CCR] Title 20, Section 1769, Post Certification Amendments and Changes). The information necessary to fulfill the requirements of Section 1769 is contained in Sections 1.0 through 6.0, as summarized in Table 1.1-1.

TABLE 1.1-1
Informational Requirements for Post-Certification Modifications

Section 1769 Requirement	Section of Petition Fulfilling Requirement
(A) A complete description of the proposed modifications, including new language for any conditions that will be affected.	Section 2.0—Proposed modifications Sections 3.1 to 3.15—Proposed changes to Conditions of Certification, if necessary, are located at the end of the technical section
(B) A discussion of the necessity for the proposed modifications.	Section 1.3
(C) If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time.	Section 1.3
(D) If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted.	Sections 1.4, 3.1
(E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts.	Section 1.5, 3.1
(F) A discussion of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards.	Section 1.5, 3.1
(G) A discussion of how the modification affects the public.	Section 4.0
(H) A list of property owners potentially affected by the modification.	Section 5.0
(I) A discussion of the potential effect on nearby property owners, the public and the parties in the application proceedings.	Section 6.0

1.2 Ownership of the Facility Property

Project owner (Russell City Energy Company, LLC) is 25% owned by ASC and 75% by Calpine Russell City. Calpine Russell City is an indirect wholly owned subsidiary of Calpine Corporation which is an independent power developer, owner, and operator engaged in the business of owning or leasing, operating, and selling energy and capacity from electric power generation facilities.

1.3 Necessity of Proposed Changes

The Siting Regulations require a discussion of the necessity for the proposed revision to the RCEC certification and whether the modification is based on information known by the petitioner during the certification proceeding (Title 20, CCR, Sections 1769 (a)(1)(B) and (C)).

The proposed modification is necessary to provide Black Start Capabilities. RCEC was selected by the CAISO to provide Black Start Services in the event that a grid emergency occurs. In order to fulfill these capabilities, the project owner will install a battery capable of starting each gas turbine in the event that there is no power available from the grid.

1.4 Consistency of Changes with Certification

The Siting Regulations also require a discussion of the consistency of the proposed project revision with applicable laws, ordinances, regulations, and standards (LORS) and whether the modifications are based on new information that changes or undermines the assumptions, rationale, findings, or other basis of the final decision (Title 20, CCR Section 1769 (a)(1)(D)). If the project is no longer consistent with the certification, the petition must provide an explanation why the modification should be permitted.

The proposed modification is consistent with all applicable LORS. This Petition is not based on new information that changes or undermines any basis for the Final Decision.

1.5 Summary of Environmental Impacts

The CEC Siting Regulations require that an analysis be conducted to address the potential impacts the proposed modifications may have on the environment, and proposed measures to mitigate any potentially significant adverse impacts (Title 20, CCR, Section 1769 (a)(1)(E)). The regulations also require a discussion of the impact of the modification on the facility's ability to comply with applicable LORS (Section 1769 (1) (a) (F)). Section 3.0 of this Petition includes a discussion of the potential environmental impacts associated with the modification, as well as a discussion of the consistency of the modification with LORS. Section 3.0 concludes that there will be no significant environmental impacts associated with implementing the actions specified in the Petition and that the project will continue to comply with all applicable LORS.

SECTION 2.0

Description of Project Modification

This section includes a description of the proposed modification, consistent with CEC Siting Regulations (Title 20, CCR, Section 1769 (a) (1) (A)). The BESS will be located on either the Northern Location (Site A) or the Southern Location (Site B) shown on Figure 1. The BESS project includes an installation of a 6 to 10 MW lithium-ion (Li-ion) Battery. This energy storage system is comprised of the storage device, the interconnection and the communication system.

The Northern Location shown in Figure 2 has a footprint of approximately 15,000 square feet and includes a larger battery system than the Southern Location shown on Figure 3. However, both BESS configurations meet the black start system requirements. The BESS will include a combination of battery modules, inverters and transformers. If built at the Southern Location, which is approximately 10,000 square feet, the BESS will have fewer inverters with switched capacitor banks to support the high amount, but short time frame, of reactive power needed to start the large motors associated with startup cycle during a Black Start event.

The BESS will be tied into the power plant's Motor Control Centers (MCC)s. The two primary MCCs will be modified by the inclusion of tie breakers to enable one continuous MCC with a single BESS connection enabling the start of either Gas Turbine. The Turbine controls and facility SCADA will be adjusted to enable operation and control of this new Black Start capability from the existing facility control room.

In addition, the project will include an interconnection of the battery to the existing 4160V auxiliary bus through which energy will flow to and from the grid using existing electrical infrastructure and installation of a new and separate revenue meter for monitoring battery activity.

Figure 2: Northern Location A - North Location BESS General Arrangement

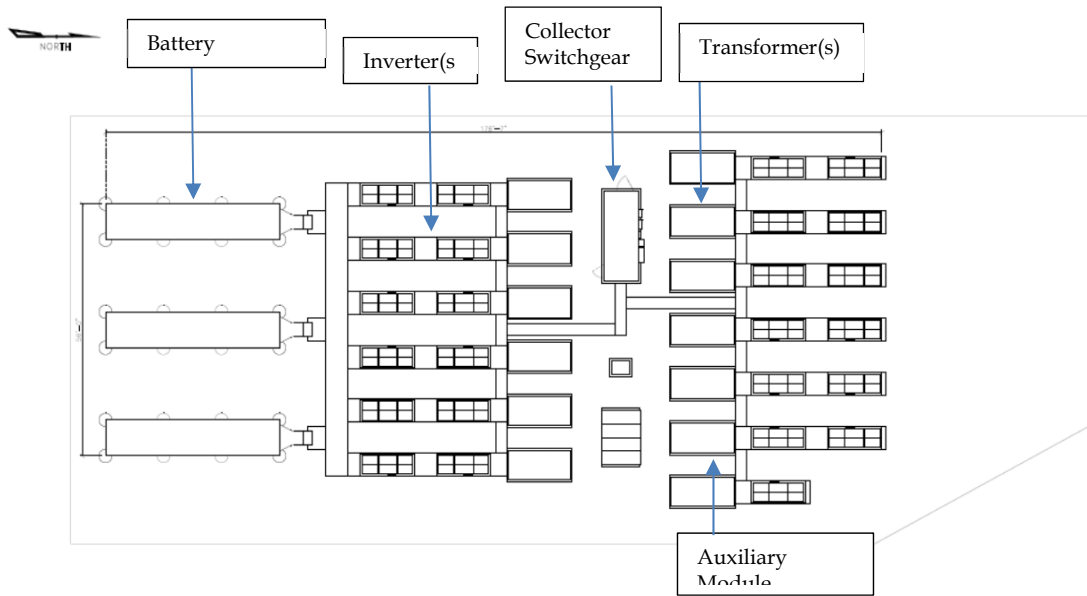
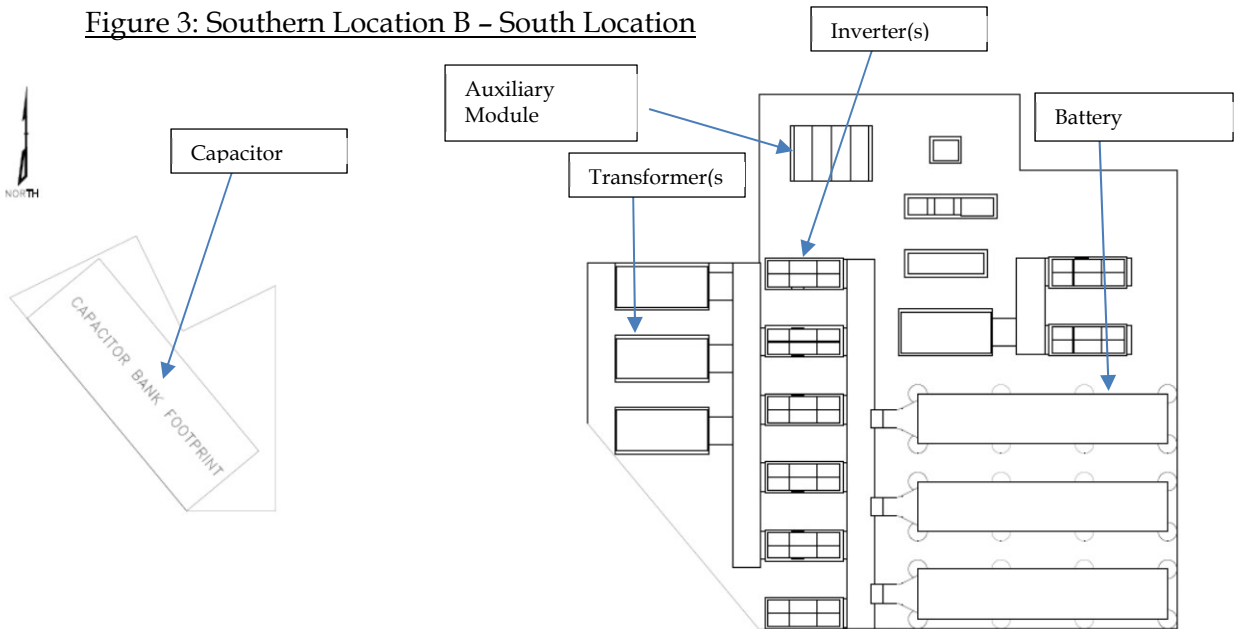


Figure 3: Southern Location B - South Location



Either System would be tied into the power plants Motor Control Centers (MCC

SECTION 3.0

Environmental Analysis of Proposed Project Modification

The proposed modification will not result in any potentially significant impacts and will comply with all applicable LORS.

3.1 Resources

3.1.1 Air Quality

The proposed modification will not significantly affect emissions from the BESS project and will support continued safe, reliable and effective operation. There are no new emissions sources associated with the BESS.

In the unlikely event of a Black Out situation of the power grid as determined by CAISO, the RCEC will need to operate at a reduced load while grid operations are restored. During this time, the RCEC will likely not be in compliance with its permitted emissions limits for non-Black Start operations for up to 48 hours while grid stability is restored. The project owner is in discussions with the Bay Area Air Quality Management District (BAAQMD) to facilitate operations in this emergency situation. Any BAAQMD required modifications will be incorporated into this Petition once the appropriate path has been determined.

3.1.2 Biological Resources

The proposed modification will occur entirely on site, and will not result in any significant physical modification to the site. No sensitive biological resources or habitats occur on site. Because the entire site is currently developed and used for existing facility operations, the proposed modification will not have a significant impact to biological resources.

3.1.3 Cultural Resources

The proposed modification will occur entirely on site, and will not result in any significant impact to cultural resources. The battery will sit on a concrete pad and be approximately 9 feet by 41 feet. The approximate depth of the foundation will be 6 feet at either location. An evaluation will be performed to determine the amount of fill currently present at the chosen location. In consultation with the CEC's Cultural Resources staff, RCEC will determine the amount of fill at the chosen location. If the excavation depth for the concrete pad extends into soils beyond the fill, a cultural monitor will be on site during the excavation.

3.1.4 Geology and Paleontology

The proposed modification will not cause geological hazards, or impacts to paleontological or geological resources beyond those analyzed by the Commission during certification.

3.1.5 Hazardous Materials Management

The proposed modification will add a Li-ion Battery to the RCEC. Li-ion batteries will be added to the Hazardous Materials Business Plan and Annual Compliance Report. The hazardous materials permit with the City of Hayward will be amended to incorporate the BESS. Hazardous materials will be handled and stored in a safe manner, reducing any potential public health or safety hazards. The attached updated table is included for reference.

Battery chemical inventory

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite	CERCLA SARA RQ^a	RQ of Material as Used Onsite^b	LaFollette Bill TPQ^c	Prop 65
Hazardous Materials							
	Lithium-Ion Battery*	TBD	TBD	d	d	d	Yes
Lithium-Ion Battery							

^aReportable quantity for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) [Ref. 40 CFR 302, Table 302.4]. Release equal to or greater than RQ must be reported. Under California law, any amount that has a realistic potential to adversely affect the environment or human health or safety must be reported.

^b Reportable quantity for materials as used onsite. Since some of the hazardous materials are mixtures that contain only a percentage of a reportable chemical, the reportable quantity of the mixture can be different than for a pure chemical. For example, if a material only contains 10 percent of a reportable chemical and the RQ is 100 lbs., the reportable quantity for that material would be (100 lbs.)/(10%) = 1,000 lbs.

^c Threshold Planning Quantity [Ref. 40 CFR Part 355, Appendix A]. If quantities of extremely hazardous materials equal to or greater than TPQ are handled or stored, they must be registered with the local Administering Agency.

^d No reporting requirement. Chemical has no listed RQ or TPQ.

- Lithium- Ion Battery chemical makeup to be determined once vendor is selected.

The Li-ion Battery is a closed cell battery. The system is totally enclosed and exposure to hazardous ingredients is not expected. Li-ion batteries are made with non-toxic, non-hazardous materials. Li-ion batteries carry a very remote fire risk. There is minimal fire hazard when manufacturer's recommendations are followed for proper handling of the battery and its containment. Secondary containment and fire suppression are supplied with the battery package as specified by the battery manufacturer. In addition, each Li-ion cell is continuously monitored and is provided with an automatic shutdown to prevent a runaway thermal condition. Therefore, the proposed modification will not result in any significant impacts from hazardous materials.

3.1.6 Land Use

The proposed modification would not result in any change to the land uses associated with the site, and is consistent with applicable General Plan and zoning ordinance provisions for this industrial use.

3.1.7 Noise and Vibration

The Li-ion battery would add a minimal new source of noise to the site. The source of the noise would be the HVAC system for Li-ion battery. The battery itself is low in noise. Because the RCEC will continue to meet noise requirements established in the Final Decision with the proposed modification, the proposed modification will not cause a significant adverse noise impact.

3.1.8 Public Health

The proposed modification will not have a significant impact on Public Health. There will be no off-site consequences as a result of the installation of the BESS, and no changes to the potential public health impacts analyzed in the Final Decision. Any potential air quality impacts will occur only as the result of emergency operations in the event of a grid emergency as determined by the CAISO. . (See the discussion under Air Quality, Section 3.1.1.)

3.1.9 Socioeconomics

The proposed modification will require construction contractors and labor for the installation of the batteries. At peak construction there will be approximately 25 workers for a 3-6 month period. There will be no increased staff required for the operational phase of the project. Therefore, there will be no potential impacts to utilities and public services or housing needs as a result of the proposed modification, and no significant socioeconomic impacts.

3.1.10 Soil and Water Resources

Construction associated with the foundations needed for installation of the BESS will not result in land disturbance of one acre or more. Therefore a General Storm Water Permit for construction related activities will be not be required. Any excavated soil will be disposed of in accordance with existing soils management plan and final grading will comply with the existing Erosion and Sedimentation Control Plan. The General Storm Water Permit for

operations will be updated upon completion of the BESS. Therefore, there will be no significant impacts to soil and water resources.

3.1.11 Traffic and Transportation

All project deliveries during construction will continue to comply with all applicable Conditions of Certification.

The project owner will ensure that permits and/or licenses are secured from the California Highway Patrol and Caltrans for construction-related transport of hazardous materials, and that federal and state regulations for the transport of hazardous materials are observed. Therefore, there will be no significant impacts to traffic and transportation.

3.1.12 Visual Resources

The proposed modification will not substantially degrade the existing visual character or quality of the site, or its surrounding. The proposed modification will not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Therefore, the proposed modification will not have a significant impact to visual resources.

3.1.13 Waste Management

The proposed changes will not change or affect waste management practices or the types or quantities of waste generated by the construction or operation of the project. All waste generated during construction will comply with the facility's existing Waste Management Plan. Therefore, the proposed modification will not have a significant waste management impact.

3.1.14 Worker Safety and Fire Protection

The proposed changes will not modify or increase impacts analyzed by the CEC, and the proposed changes do not affect the Commission Decision's conditions, findings or conclusions regarding worker safety and fire protection. All workers will undergo proper training consistent with the CEC license requirements. Li-ion batteries are supplied with secondary containment and fire suppression, which will automatically activate in the event of an emergency. Further, each Li-ion cell is monitored and can be shut down individually to prevent a runaway thermal condition. Therefore, the proposed modification will not have any significant impacts to worker safety and fire protection.

3.2 LORS

The proposed modification will not impact the facility's ability to comply with applicable laws, ordinances, regulations, and standards ("LORS"), as discussed in each subsection of Section 3.

SECTION 4.0

Potential Effects on the Public

The proposed modification will not adversely affect the public. The modification will occur entirely onsite, and will not negatively impact air quality or public health. Therefore, there are no significant adverse effects on property owners that will result from the proposed modification.

SECTION 5.0

List of Property Owners

This section lists the property owners in accordance with the CEC Siting Regulations (Title 20, CCR, Section 1769(a)(1)(H)). A list of property owners within 1,000 feet of the proposed facility will be submitted directly to the Compliance Project Manager.

As described in this Petition, there will be no significant adverse environmental impacts from the proposed changes. Therefore, no significant adverse effects on property owners will result from the proposed modification.

SECTION 6.0

Potential Effects on Property Owners

This section addresses potential effects of the project changes proposed in this Petition on nearby property owners, the public, and parties in the application proceeding, pursuant to CEC Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(I)).

The project, as modified, will not differ significantly in potential effects on adjacent land owners, compared with the project as previously proposed. The project, therefore, will have no adverse effects on nearby property owners, the public, or other parties in the application proceeding.