



Control Number: 35077



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PUBLIC UTILITY COMMISSION
FILING CLERK

November 20, 2020

Filing Clerk
Public Utility Commission of Texas
1701 N. Congress Avenue
P.O. Box 13326
Austin, TX 78711-3326

RE: Project No. 35077, Amendment One to ERCOT Standard Generation Interconnection Agreement between CenterPoint Energy Houston Electric, LLC and Hecate Energy Ramsey LLC

To whom it may concern:

Enclosed for filing in Project No. 35077 is Amendment One dated November 5, 2020 to the ERCOT Standard Generation Interconnection Agreement (SGIA) dated May 29, 2020 between CenterPoint Energy Houston Electric, LLC and Hecate Energy Ramsey LLC. This filing is made pursuant to 16 Tex. Admin. Code § 25.195(e).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Mickey Moon", with a long horizontal flourish extending to the right.

Mickey Moon
Assistant General Counsel
CenterPoint Energy Houston Electric, LLC

Enclosures: (1) Executed SGIA Amendment Provisions

EXHIBIT 1

**AMENDMENT ONE TO
ERCOT STANDARD GENERATION INTERCONNECTION AGREEMENT**

This Amendment One ("Amendment") to the Ramsey Solar Project Electric Reliability Council of Texas Standard Generation Interconnection Agreement, (the "SGIA") dated May 28, 2020, is made between **Hecate Energy Ramsey LLC** ("Generator") and **CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC** ("CenterPoint Energy"), (collectively, "the Parties") effective on the 30th day of October, 2020. In consideration of the mutual promises and undertakings herein set forth, Generator and CenterPoint Energy agree to amend the SGIA as follows:

Exhibit "C" dated May 28, 2020 is replaced with the Exhibit "C" dated October 30, 2020, which is attached to this Amendment One.

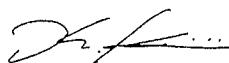
Except as otherwise expressly provided for herein, the SGIA will continue in full force and effect in accordance with its terms.

Generator and CenterPoint Energy have caused this Amendment to be executed in several counterparts, each of which shall be deemed to be an original, but all shall constitute one and the same instrument.

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC

HECATE ENERGY RAMSEY LLC

DocuSigned by
By: Lesli Cummings
C6A9CFD8EA824B2

By: 

Name: Lesli Cummings

Name: Ken Kiriishi

Title: Manager, Transmission Accounts and Support

Title: President

Date: November 5, 2020

Date: Nov 2, 2020

Exhibit "C"
Interconnection Details

- 1) Plant Name: Ramsey Solar Project ("Plant").
- 2) Point of Interconnection Location
 - A) TSP system side of Plant's terminating structure(s), located on the GIF interconnection line route at approximate coordinates [29° 2' 19.30"N, 96° 14' 41.50"W] ("POI") as such location may be adjusted during final design and shall be such that TSP portion of TIF is no more than one (1) mile of TSP's Hilje Substation in Wharton County, Texas, as shown on Exhibit "K".
- 3) Delivery Voltage: 345 kV
- 4) Number and Size of Generating Unit(s)
 - A) Plant will be comprised of solar photovoltaic arrays powering multiple inverters with a total output of 514 MW measured at the generator terminals (when operating at 0.95 power factor) ("Planned Capacity"); the inverter design MVA rating may be different subject to final selected inverter reactive power capability.
- 5) Type of Generating Unit
 - A) Solar photovoltaic modules, DC/AC inverters (Sungrow SG3600UD_MV Series or similar) and associated medium voltage transformers and aux transformers.
 - B) Two main step-up transformers connected at Delivery Voltage each will have a circuit breaker for isolation from the TIF.
 - C) Electrical characteristics of Plant's generating units shall be in accordance with the most recent version of data that Generator has provided to TSP and shall be consistent with data provided to ERCOT.
- 6) Metering Equipment
 - A) TSP shall provide and install ERCOT Polled Settlement (EPS) primary and check meters, 345 kV instrument transformers and associated wiring required for measuring the output of the Plant's generation and auxiliary electrical load at TSP's HILJE Substation. The 345 kV metering instrument transformers for the EPS metering shall be procured by TSP and owned, maintained, and replaced by TSP. TSP shall install and maintain the metering system's components in a manner consistent with ERCOT Requirements and the PUCT Substantive Rules. TSP shall provide Generator remote communication access to the metering data.
- 7) Generator Interconnection Facilities (GIF)
 - A) Generator shall furnish, operate, and maintain a complete generation facility capable of generating the Planned Capacity, including, but not limited to, all inverters, main step-up transformers, protective devices, and other transformers and associated foundations, the terminating structures at the Point of Interconnection, all relays necessary for the protection and coordination of the Plant equipment.
 - B) The Plant shall meet all voltage and reactive requirements as outlined in the ERCOT Protocol, ERCOT Operating Guides and other binding documents.

- C) Generator shall furnish, own and maintain the connection from Plant's equipment to Plant's terminating structure at the Point of Interconnection, including phase conductors, static conductors, structure(s), tower fittings, suspension insulators, terminating clamps and line conductor terminal fittings.
 - D) TSP shall provide to Generator the TSP's alpha/numeric identifiers for incoming 345 kV transmission lines and shall provide TSP's alpha/numeric identifiers for high voltage circuit breakers, switches, power transformers, generators and certain low side equipment and the TSP's assigned 6-character substation identification for the GIF substation. The GIF high voltage circuit breakers, switches, transformers, generators and certain low side equipment, including 34.5kV feeder breakers, shall be identified with TSP's identifiers as requested by TSP. TSP will develop a substation basic one-line diagram that includes these identifiers. The Generator shall mark these identifiers on the applicable GIF substation equipment. TSP may require Generator to stencil identification numbers on GIF substation equipment and mount signs, labels, drawings, telephone numbers, and other suitable instructions as required by TSP. The Generator shall use TSP's assigned substation name, or Substation ID, and equipment identifiers in discussions with TSP and in RARF submittals.
 - E) Generator shall provide the foundations for Plant's terminating structures and disconnecting devices. Generator shall design and install the POI terminating structure(s) and necessary conductor mounting features, insulators all in accordance with TSP's conductor loading requirements.
 - F) Generator shall connect its generating Plant ground mat to transmission tower static wires at the Plant's terminating structures. Static wire(s) shall be bonded directly to the generating plant's ground mat via use of dedicated grounding conductor(s) of adequate ampacity to establish main electrical bond(s).
 - G) Electrical characteristics of Plant's Generator Interconnection Facilities shall be in accordance with the most recent version of TSP's "Specification for Customer 138 kV Substation Design attached as Exhibit "H" to the extent applicable and in particular, the section pertaining to "Generation" and also the most recent version of TSP's "Minimum Acceptable Requirements for 345 kV Substation Construction" attached as Exhibit "L".
 - H) Generator shall provide a disconnect switch located on Generator's terminating structure(s) located at the Plant substation for connection to TIF. No disconnect switch is provided at the POI terminating structure on the GIF interconnection line.
 - I) Generator shall provide NEMA four-hole pads on Plant's GIF interconnection line terminating structure for connection to NEMA four-hole pads on TSP's connecting conductors.
 - J) Generator shall grant to TSP all necessary land rights for TIF, in a form mutually acceptable to TSP and Generator, and drafted by TSP.
 - K) Generator shall own all protective relays, instrument transformers, instrumentation, and control equipment physically located at the Plant substation.
- 8) TSP Interconnection Facilities (TIF)

- A) Generator shall facilitate conveyance to TSP, and TSP shall purchase, easement rights to the property for the TIF interconnection line at an agreed price that shall not be greater than the market price as determined by an independent appraisal, the cost of said appraisal shall be split evenly between Generator and TSP. TSP shall subsequently construct the TIF on real property at the location shown in Exhibit "K".
 - B) TSP shall complete its entire scope of work on the HILJE Substation and TIF interconnection line (except for Punch List Items) including, but not limited to, bus works, supports, structures, circuit breakers, disconnect switches, relays, and other equipment necessary for protection and coordination, controls, and wiring all as necessary to provide an interconnection between Plant's generation facilities and TSP's System; energize the same, and interconnect with Plant, all as provided herein.
 - 1) Punch List Items are defined as those non-material items of work that remain to be performed in order to ensure full compliance with this Agreement. Punch List Items do not include any items of work, alone or in the aggregate, non-completion of which (i) prevents the TIF from being used for its intended purposes as described in this Agreement or in accordance with applicable laws; (ii) prevents the TIF from being legally, safely, and reliably placed in commercial operation; or (iii) in the exercise of reasonable engineering judgment could have an adverse effect on the operation, efficiency, or reliability of the TIF, or its ability to transmit the Plant's power to the ERCOT grid.
 - C) TSP shall furnish, own, and maintain the connection from TSP's equipment to Plant's terminating structure(s) at the Point of Interconnection, including phase conductors, static conductors, structures, tower fittings, suspension insulators, terminating clamps and line conductor terminal fittings with NEMA standard four-hole flat pads for attachment to the NEMA four-hole pads on Plant's GIF interconnection line terminating structure .
 - D) TSP shall furnish, own, and maintain the connection from Point of Interconnection to TSP's transmission system.
 - E) TSP shall develop and install transmission improvements that it determines, in its sole discretion, are foreseeable and reasonably necessary to safely, reliably, and economically integrate the Plant into the TSP System.
 - F) TSP shall expand its existing HILJE Substation as shown on the drawing entitled "CenterPoint Energy 345 kV HILJE Substation, Substation Development Plan for Ramsey Solar Project Interconnection Agreement – Final Proposed Offer," dated 6_-15-2019 ("HILJE Substation Development Plan") and any subsequent modifications to such drawing(s) made by TSP and delivered to Generator.
 - G) TSP shall provide a disconnect switch located at HILJE substation for isolation of the TSP system from the Plant and GIF.
 - H) Generator shall facilitate to TSP all necessary land rights for the TIF interconnection line, in a form mutually acceptable to TSP and Generator and drafted by TSP.
- 9) Communications Facilities
- A) TSP shall provide and maintain, at TSP's expense, a communication circuit for real-time data transmittal via SCADA equipment from the HILJE Substation to TSP's Energy Management System.
 - B) Generator shall provide a fiber optic communication interface device at its GIF interconnection line terminating structure and at the Plant substation. TSP will provide a

fiber optic communication interface device at the HILJE Substation. Fiber is associated with the RTU inputs between Plant and the HILJE Substation and required relaying.

- C) Generator shall furnish RTU inputs identified in Exhibit "C", Paragraph 10) D) from the Plant to the HILJE Substation's communication interface point.
- D) Generator shall provide a voice telephone extension outlet in close proximity to Plant's relay panel that is located within the Plant. Such telephone extension outlet shall be connected to the local exchange carrier's telephone system; however, the telephone extension outlet may be connected to Plant's internal telephone system, provided Plant's internal telephone system is equipped with an uninterruptible power supply system.
- E) TSP shall furnish RTU inputs identified in Exhibit "C", Paragraph 11) D) from HILJE Substation to Plant's communication interface termination point.
- F) Generator and TSP will each be individually responsible for providing fiber optic communication cables of suitable type and sufficient length, and terminating such fiber optic communication cables at the fiber optic communication interface devices located at the Point of Interconnection.

10) System Protection Equipment

- A) Generator shall provide two sets of protective relaying accuracy (C800) current transformers on Generator's 345 kV circuit breakers associated with the protective relaying between Plant and the HILJE Substation. Each set of current transformers will provide signals to independent sets of primary and backup protective relays for the interconnection line between the GIF and the HILJE Substation. The current transformer ratio will be approved by the TSP relay protection engineer and reflected on the Generator's drawings.
- B) The fiber optic communication cables will have strands of single mode fiber optic cable to be utilized at 1300 nm wavelength for communication of protection data and telemetry.

11) Telemetry Requirements

- A) TSP shall furnish a substation SCADA RTU at the HILJE Substation. The RTU will be multi-port equipped and operate with protocols compatible with TSP. The RTU will be equipped to monitor the HILJE Substation as outlined in Paragraph 11 and control circuit breakers in the HILJE Substation. TSP shall also furnish the RTU inputs, such as contacts and transducers, in the HILJE Substation. Selected real-time data of the HILJE Substation will be available at TSP's RTU for Generator's use. TSP's RTU will be equipped with a DNP-3 "Slave" serial communication port for this purpose. TSP shall furnish the fiber optic cable(s) between the HILJE Substation and the Plant RTU or DCS "Master" serial communication port for this purpose.
- B) Generator shall furnish Plant data to TSP's RTU communication port at the HILJE Substation as referenced below. The Generator's RTU/DCS shall be equipped with a DNP-3 "Slave" serial communication port for this purpose. TSP shall furnish the fiber optic cable between the Plant and the HILJE Substation RTU "Master" serial communication port for this purpose.
- C) Generator shall provide Plant data to ERCOT according to ERCOT requirements. TSP is not responsible for providing Plant data to ERCOT.
- D) Generator shall provide to TSP at the following signals originating at Generator's Plant:
 - 1) Analog Data from Plant
 - (i) Kilovolts for 345 kV transmission voltage (A phase).

- (ii) Net megawatts and megavars for the 345 kV transmission line (three phase).
 - (iii) Frequency at the collector bus
 - (iv) Megawatts and megavars for each 345/{34.5 kV transformer (three phase).
- 2) Status Data from Plant
 - (i) Status of the 345 kV transmission voltage circuit breakers.
 - (ii) Status of all 34.5 kV circuit breakers for feeders and reactive support equipment.
- E) TSP will provide to Generator at Generator's Substation the following signals originating at TSP's HILJE Substation:
 - 1) Analog Data from TSP Substation Devices
 - (i) Kilovolts for the TIF line at the HILJE Substation (A phase).
 - (ii) Megawatts, megavars, and megawatt-hour data.
 - 2) Data from TSP Substation Devices
 - (i) Status of transmission voltage circuit breakers associated with the generator interconnection line(s).
 - (ii) Alarm for failure of Pilot Wire/fiber optic relaying communication channels, if applicable.

12) Supplemental Terms and Conditions

- A) The following drawings are attached and made a part of this agreement as Exhibit "I" – Attached Drawings. *(Note: The drawings contain a line of demarcation between TSP provided facilities and Generator provided facilities).*
 - 1) CenterPoint Energy 345 kV Ramsey Solar Project / HILJE Substation Project Interconnection Agreement – Final Substation Development Plan Basic Offer, dated 06-15-2019.
 - 2) Basic Offer – CenterPoint Energy 345 kV Ramsey Solar Project / HILJE Substation Interconnection Agreement One-Line Relaying and Metering diagram dated 6/13/19
 - 3) Simplified schematic drawing titled "Ramsey Solar Basic One Line" attached and made a part of this agreement as Exhibit "M"
- B) Cost Responsibility:
 - 1) Notwithstanding the provisions of Exhibit "A", Section 8.1, the amount of the contribution in aid of construction, if any, that Generator may be required to make, shall be specified in Exhibit "E", Security Arrangement Details.
 - 2) The Generator does not desire any enhancements to TSP's basic offer interconnection facilities and therefore no contribution in aid of construction ("CIAC") of the Transmission Interconnection Facilities is required.
 - 3) The TIF described herein is designed based on the generating capacity provided by the Generator. It is assumed that the generating facility will be capable of generating the Planned Capacity by the Scheduled Commercial Operation Date specified in Exhibit "B". Within the first 12 months following full Plant Commercial Operation, if the highest level of Actual Capacity is less than the Planned Capacity and not cured within 120 days after TSP provides notice, then the Generator shall be responsible for TIF costs, if any, that are determined, solely by the TSP, to have been incurred to accommodate Generator's Planned Capacity, but are then determined to not be necessary to accommodate Generator's Actual Capacity. As used here, "Actual Capacity" shall mean the total actual output at the generator terminals as

demonstrated by Generator through testing in accordance with ERCOT Requirements. Generator shall pay such costs determined herein within thirty (30) days following the receipt of TSP's invoice.

C) Clarifications to Exhibit "A"

- 1) The Parties agree that at the time of executing this Agreement the references to the PUCT Rules contained within certain definitions set forth in Exhibit "A", "Article 1. Definitions" have the meanings ascribed to such terms as established in the current PUCT Rules. The Parties recognize that the PUCT Rules are amended from time to time by the PUCT. The parties also acknowledge that ERCOT issues ERCOT Requirements in which terms are redefined from time to time. When the PUCT Rules or ERCOT Requirements are amended and terms defined in Exhibit "A", "Article 1. Definitions" are affected by such amendments, the Parties agree that such terms shall have the meanings as amended by the PUCT or ERCOT. The term "System Security Study" shall have the same definition as "Security Screening Study" in the ERCOT Requirements.

D) Miscellaneous

- 1) Each Party shall be solely responsible for keeping itself informed of, and understanding its respective responsibilities under, all applicable North American Electric Reliability Corporation ("NERC") Standards and ERCOT Requirements and all valid, applicable laws, rules, regulations and orders of, and tariffs approved by, duly constituted Governmental Authorities.
- 2) CenterPoint Energy has documented data specifications that define the operational data CenterPoint Energy requires to perform real-time monitoring. These specifications are incorporated in Exhibit "C", Paragraph 11) D above, Exhibit 'J' Outage and Clearance Coordination Procedure, and Exhibit 'I' Telemetry Specification.
- 3) Generator shall provide on its property access roads to the TIF, and the access roads will be maintained by Generator in such a manner and condition to allow passage of heavy utility vehicles. Otherwise, Generator shall provide, or cause to be provided, such perpetual easements as reasonably needed by TSP, in a form mutually acceptable to TSP and Generator and at no cost to TSP, to use and construct access roads from nearest public road in such a manner and condition to allow passage of heavy utility vehicles.
- 4) Each Party's personnel, contractors, subcontractors, and agents shall abide by and comply with the other Party's reasonable safety requirements and procedures while in areas designated as under that other Party's control.
- 5) Generator understands and agrees that identification of any, including but not limited to stability, oscillation, harmonic, short circuit, over frequency, under frequency, over voltage, under voltage, phase imbalance, or geomagnetic disturbance conditions that may affect Generator's Plant and implementation of any associated protective measures, are the sole responsibility of Generator.
- 6) ERCOT Requirements.
 - (i) Unless expressly stated herein, where the ERCOT Requirements are in conflict with TSP's specifications or procedures, the ERCOT Requirements shall prevail.
 - (ii) ERCOT requirements that currently require installation of power system stabilizers on generators, do not apply to the Plant.

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- (iii) Prior to commercial operation, ERCOT may verify that the Generator is meeting ERCOT Requirements, including complying with Guide and Protocol requirements on RARF modeling, telemetry and testing, as well as complying with reactive standards, and the provision of accurate stability models. It should be noted that the Generator will not be able to go into commercial operation until after 30 days after the TIF is modeled and energized. Failure to meet these ERCOT Requirements may result in delays to commercial operation.
- 7) All generator data, including data for stability studies (transient and voltage) and subsynchronous resonance data, as required by the ERCOT Requirements, shall be provided to ERCOT and the TSP before commercial operation. This data shall be updated when the Plant begins commercial operation. Any updates to this information will be provided within 60 days to ERCOT and the TSP as changes or upgrades are made during the life of the Plant. This requirement applies to all future owners of the Plant. The Generator and any future owners of the Plant shall comply with these data requirements along with all applicable NERC Standards. Such Standards are subject to change from time to time, and such changes shall automatically become applicable based upon the effective date of the approved change.
- 13) Special Operating Conditions, if any, attached: None.