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## INTERCONNECTION FACILITIES STUDY AGREEMENT

### ASTORIA ENERGY INCREASED CRIS REQUEST

**THIS AGREEMENT** is made and entered into this 6<sup>th</sup> day of May, 2015 by and among Astoria Energy LLC, a limited liability company organized and existing under the laws of the State of Delaware, ("Developer,"), the New York Independent System Operator, Inc., a not-for-profit corporation organized and existing under the laws of the State of New York ("NYISO"), and Consolidated Edison Company of New York, Inc. a corporation organized and existing under the laws of the State of New York ("Connecting Transmission Owner"). Developer, NYISO and Connecting Transmission Owner each may be referred to as a "Party," or collectively as the "Parties."

### RECITALS

**WHEREAS**, Developer is the owner of a Large Facility interconnected to the New York State Transmission System; and

**WHEREAS**, Developer wishes to enter the Class Year 2015 Interconnection Facilities Study in order to obtain additional Capacity Resource Interconnection Service pursuant to Section 30.3.2.6 of Attachment X of the NYISO's Open Access Transmission Tariff ("Standard Large Facility Interconnection Procedures").

**NOW, THEREFORE**, in consideration of and subject to the mutual covenants contained herein the Parties agreed as follows:

- 1.0 When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated in the NYISO's Commission-approved Standard Large Facility Interconnection Procedures.
- 2.0 Developer elects to be evaluated for Capacity Resource Interconnection Service and NYISO shall cause to be performed a Class Year Deliverability Study consistent with Sections 30.3.2.6 and 30.8 of the Standard Large Facility Interconnection Procedures to be performed in accordance with the NYISO OATT. The terms of the above-referenced tariff sections, as applicable, are hereby incorporated by reference herein.
- 3.0 The scope of the Interconnection Facilities Study shall be subject to the assumptions set forth in Attachment A and the data provided in Attachment B to this Agreement.
- 4.0 The Interconnection Facilities Study report (i) shall identify whether System Deliverability Upgrades are required for the Large Facility to be fully deliverable at its requested level of Capacity Resource Interconnection Service; and (ii) shall provide a description and estimated cost of any required System Deliverability Upgrades, to the extent required based on the Developer's election under Section 25.7.7.1 of Attachment S, as applicable.

- 5.0 The Developer shall provide a deposit of \$100,000 for the performance of the Interconnection Facilities Study. The time for completion of the Interconnection Facilities Study is specified in Attachment A.

NYISO shall invoice Developer on a monthly basis for the expenses incurred by NYISO and the Connecting Transmission Owner on the Interconnection Facilities Study each month as computed on a time and materials basis in accordance with the rates attached hereto. Developer shall pay invoiced amounts to NYISO within thirty (30) Calendar Days of receipt of invoice. NYISO shall continue to hold the amounts on deposit until settlement of the final invoice.

6.0 Miscellaneous.

- 6.1 Accuracy of Information. Except as Developer or Connecting Transmission Owner may otherwise specify in writing when they provide information to the NYISO under this Agreement, Developer and Connecting Transmission Owner each represent and warrant that the information it provides to NYISO shall be accurate and complete as of the date the information is provided. Developer and Connecting Transmission Owner shall each promptly provide NYISO with any additional information needed to update information previously provided.
- 6.2 Disclaimer of Warranty. In preparing the Interconnection Facilities Study, the Party preparing such study and any subcontractor consultants employed by it shall have to rely on information provided by the other Parties, and possibly by third parties, and may not have control over the accuracy of such information. Accordingly, neither the Party preparing the Interconnection Facilities Study nor any subcontractor consultant employed by that Party makes any warranties, express or implied, whether arising by operation of law, course of performance or dealing, custom, usage in the trade or profession, or otherwise, including without limitation implied warranties of merchantability and fitness for a particular purpose, with regard to the accuracy, content, or conclusions of the Interconnection Facilities Study. Developer acknowledges that it has not relied on any representations or warranties not specifically set forth herein and that no such representations or warranties have formed the basis of its bargain hereunder.
- 6.3 Limitation of Liability. In no event shall any Party or its subcontractor consultants be liable for indirect, special, incidental, punitive, or consequential damages of any kind including loss of profits, arising under or in connection with this Agreement or the Interconnection Facilities Study or any reliance on the Interconnection Facilities Study by any Party or third parties, even if one or more of the Parties or its subcontractor consultants have been advised of the possibility of such damages. Nor shall any Party or its subcontractor consultants be liable for any delay in

delivery or for the non-performance or delay in performance of its obligations under this Agreement.

- 6.4 **Third-Party Beneficiaries.** Without limitation of Sections 6.2 and 6.3 of this Agreement, Developer and Connecting Transmission Owner further agree that subcontractor consultants hired by NYISO to conduct or review, or to assist in the conducting or reviewing, an Interconnection Facilities Study shall be deemed third party beneficiaries of these Sections 6.2 and 6.3.
- 6.5 **Term and Termination.** This Agreement shall be effective from the date hereof and unless earlier terminated in accordance with this Section 6.5, shall continue in effect until the Interconnection Facilities Study for Developer's Large Facility is completed [approved by the NYISO Operating Committee]. Developer or NYISO may terminate this Agreement upon Developer's withdrawal from the Interconnection Facilities Study pursuant to Section 25.7.7.1 of Attachment S.
- 6.6 **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to any choice of laws provisions.
- 6.7 **Severability.** In the event that any part of this Agreement is deemed as a matter of law to be unenforceable or null and void, such unenforceable or void part shall be deemed severable from this Agreement and the Agreement shall continue in full force and effect as if each part was not contained herein.
- 6.8 **Counterparts.** This Agreement may be executed in counterparts, and each counterpart shall have the same force and effect as the original instrument.
- 6.9 **Amendment.** No amendment, modification or waiver of any term hereof shall be effective unless set forth in writing signed by the Parties hereto.
- 6.10 **Survival.** All warranties, limitations of liability and confidentiality provisions provided herein shall survive the expiration or termination hereof.
- 6.11 **Independent Contractor.** NYISO shall at all times be deemed to be an independent contractor and none of its employees or the employees of its subcontractors shall be considered to be employees of Developer or Connecting Transmission Owner as a result of this Agreement.
- 6.12 **No Implied Waivers.** The failure of a Party to insist upon or enforce strict performance of any of the provisions of this Agreement shall not be construed as a waiver or relinquishment to any extent of such party's right to insist or rely on any such provision, rights and remedies in that or any

other instances; rather, the same shall be and remain in full force and effect.

- 6.13 Successors and Assigns. This Agreement, and each and every term and condition hereof, shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

**New York Independent System Operator, Inc.**

By: \_\_\_\_\_

Henry Chao

Title: VP, System & Resource Planning

Date: 4/9/2015

**Consolidated Edison Company of New York, Inc.**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Astoria Energy LLC**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.


**New York Independent System Operator, Inc.**

By: \_\_\_\_\_  
Henry Chao

Title: VP, System & Resource Planning

Date: \_\_\_\_\_

**Consolidated Edison Company of New York, Inc.**

By:  \_\_\_\_\_  
Mr. Jensen

Title: Acting Chief Engineer

Date: 4/17/15

**Astoria Energy LLC**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**IN WITNESS WHEREOF**, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

**New York Independent System Operator, Inc.**

By: \_\_\_\_\_  
Henry Chao

Title: VP, System & Resource Planning

Date: \_\_\_\_\_

**Consolidated Edison Company of New York, Inc.**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Astoria Energy LLC**

By: 

Title: CEO

Date: 4-8-15

  
CFO

4-8-2015

**Charles R. McCall**  
Chief Executive Officer



### **SCHEDULE FOR CONDUCTING THE INTERCONNECTION FACILITIES STUDY**

The NYISO and Connecting Transmission Owner shall use Reasonable Efforts to complete the study and issue an Interconnection Facilities Study report to the Developer within the following number of days after receipt of an executed copy of this Interconnection Facilities Study Agreement:

- estimated completion date (*i.e.*, Operating Committee approval of the Class Interconnection Facilities Study) for Class Year 2015 Interconnection Facility Study for the Annual Transmission Reliability Assessment required by Attachment S to the NYISO OATT: 5/31/16, if no additional System Deliverability Upgrade studies are required.
- Study work (other than data provision and study review) that may be requested of the Transmission Owner by the NYISO is currently not specified, but will be specified in a Study Work Agreement to be developed between the NYISO and Transmission Owner.
- Pursuant to Article 5.0 of this Agreement, the rates for the study work are attached as Exhibit 1.

## **Exhibit 1:**

### **Study Costs**

Below are the rates applicable for any work that is conducted by the NYISO and Transmission Owners for the Class Year 2015 Interconnection Facilities Study. All of the rates specified below are subject to adjustment. This list is intended to include all Transmission Owners that may be a connecting Transmission Owner for a project in Class Year 2015. Developer shall be responsible for Class Year 2015 Interconnection Facilities Study costs as specified by Section 30.13.3 of Attachment X of the NYISO's Open Access Transmission Tariff.

#### **New York State Electric & Gas Corporation**

Labor	\$75-\$200/hour
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Developer understands that (a) the above rates for labor services are estimates, (b) the above charges do not represent an exhaustive list of charges, and (c) Developer shall pay the actual costs incurred by NYISO and Connecting Transmission Owner under this Agreement.

#### **Niagara Mohawk Power Corporation d/b/a National Grid**

Technical Services and/or Management Services \$90.00/hr. to \$245.00/hr.\*

\*These costs are estimates and subject to update. National Grid only bills its actual costs; there is no profit. Sales tax is not included in the above rates.

#### **Consolidated Edison Company of New York, Inc.**

Transmission Planning	\$126.75/hour
Central Engineering	\$104.45/hour

These rates are for work performed by Con Edison during 2014. The rates for work performed after December 31, 2014 are subject to adjustment.

#### **New York Power Authority**

Technical and/or Management Services	\$80.00/hr. - \$135.00/hr.
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**Central Hudson Gas & Electric Corporation**

Technical Services:	\$85 - \$140 per hour
Management Services:	\$85 - \$175 per hour

**Orange & Rockland Utilities, Inc.**

\$110/hour

**Long Island Power Authority**

\$200/hour

**New York Independent System Operator, Inc.**

\$164.00/hr.

This rate is for work performed by the NYISO during 2015, work performed after December 31, 2015 will be subject to adjustment.

**DATA FORM TO BE PROVIDED BY DEVELOPER**  
**WITH THE INTERCONNECTION FACILITIES STUDY AGREEMENT**

1. Provide location plan and simplified one-line diagram of the plant and station facilities. For staged projects, please indicate future generation, transmission circuits, etc.

a. No modifications will be made to existing interconnect. See Attachment 1, Astoria 9T-0-10

2. Finalize and specify your Interconnection Service evaluation election for the Class Year Interconnection Facilities Study. New Interconnection Requests should specify either Energy Resource Interconnection Service alone, or both Energy Resource Interconnection Service and some MW level of Capacity Resource Interconnection Service, not to exceed the nameplate capacity of your facility (some MW level of Capacity Resource Interconnection Service election is required to become a qualified Installed Capacity Supplier or to receive Unforced Capacity Deliverability Rights). If your facility is already interconnected taking Energy Resource Interconnection Service, and not covered by a new Interconnection Request, you may elect to be evaluated for Capacity Resource Interconnection Service at a MW level you specify, not to exceed the nameplate capacity of your facility. Evaluation election:

ERIS: 5% increase to the current base ERIS level of the plant (i.e. max amount possible without having to undergo the interconnection study process)

CRIS: an increase in CRIS rights (MW for MW) that equates to a 5% increase to the current base ERIS level of the plant (note: current summer CRIS rights for the plant is 557.4 MW)

CM

CRIS: CC1 13.9 MW  
CC2 13.9 MW  
Total 27.8 MW

CU

Additional Information:

Nameplate MW: 632.6 @ 0.85 pf

Nameplate MVA: 744.2

MW vs temp curves, summer/winter ERIS numbers, aux load, etc

Current and future (post upgrade) MW vs Temp curves for the summer and winter are provided in Attachment 2.

3. One set of metering is required for each generation connection to the new ring bus or existing Connecting Transmission Owner station. Number of generation connections:

- a. Existing generators, PTID 323581 & 323582 have installed meters at the transmission owner (Con Edison) stations Astoria Energy East and Astoria Energy West on lines 34G03 and 34G04.
4. On the one line indicate the generation capacity attached at each metering location. (Maximum load on CT/PT)
    - a. No modifications will be made to existing interconnect. See Attachment 3, Astoria East 120-0-127.
    - b. The metering locations are identified on 120-0-127 for feeders Astoria Energy 34G03 and 34G04. The meters are owned and maintained by Con Edison.
  5. On the one line indicate the location of auxiliary power. (Minimum load on CT/PT Amps)
    - a. No modifications will be made to existing interconnect. See Attachment 3, Astoria East 120-0-127.
    - b. The metering locations are identified on 120-0-127 for feeders Astoria Energy 34G03 and 34G04. The meters are owned and maintained by Con Edison.
  6. Will an alternate source of auxiliary power be available during CT/PT maintenance?  
☒ Yes    ☐ No
  7. Will a transfer bus on the generation side of the metering require that each meter set be designed for the total plant generation?    ☐ Yes    ☒ No  
 (Please indicate on one line diagram).
    - a. No modifications will be made to existing interconnect. See Attachment 1, Astoria 9T-0-10, and Attachment 3, Astoria East 120-0-127.
  8. What type of control system or PLC will be located at the Developer's Large Facility?
    - a. The facility utilizes three primary control systems.
      - i. GE network which utilizes the Mark VI control system for the 2 gas turbine generators. This system utilizes the EX2100 for excitation and LS2100 for Load Commutation to provide starting needs of the gas turbine generator. GE network is controlled via GE HMI Simplicity 7.5 and universal GE toolbox.
      - ii. Alstom network is used for the operations and control of the Alstom steam turbine generator. This control system consists of proprietary 90-70 GE PLC branded for Alstom, supervised by an Alspa HMI system.



- iii. Emerson Ovation 3.2 network is used as the plant Balance of Plant Distributed Control System (DCS). This network is linked with the GE and Alstom networks for monitoring and control of the plant systems.

9. What protocol does the control system or PLC use?

- a. Astoria Energy LLC uses different communication methods and protocols across the facility including copper, fiber, routable and non-routable communication protocols.

10. Please provide a 7.5-minute quadrangle of the site. Sketch the plant, station, transmission line, and property line.

- a. See Attachment 4, Site Survey.

11. Physical dimensions of the proposed interconnection station:

- a. No new interconnection is required. See Attachment 4, Site Survey, for existing interconnection station dimensions.

12. Bus length from generation to interconnection station:

- a. Existing generator leads 34G03 and 34G04 will be used. See Attachment 5, 34G03 and 04 Feeder Map.

13. Line length from interconnection station to Connecting Transmission Owner's transmission line.

- a. Existing generator leads 34G03 and 34G04 will be used. See Attachment 5, 34G03 and 04 Feeder Map.

14. Tower number observed in the field. (Painted on tower leg)\*:

- a. Existing generator leads 34G03 and 34G04 will be used. See Attachment 6, 138kV Transmission Line.

15. Number of third party easements required for transmission lines\*:

- a. Existing generator loads and easements associated with 34G03 and 34G04 will be used. See Attachment 4, Site Survey

\* To be completed in coordination with Connecting Transmission Owner.

Is the Large Facility in the Transmission Owner's service area?

X   Yes           No    Local provider: Consolidated Edison

Please provide proposed schedule dates:

Begin Construction                      Date: Oct 2016

In-Service                                Date: April 2017

Generation Testing                      Date: April 2017

Commercial Operation                      Date: May 1, 2017