PJM Generator Interconnection Request
Queue #L12
Essex (ECCF) 26.4kV
Feasibility/Impact Study Report

June 2004
#268767

Essex (ECCF) Feasibility/Impact Study

General

DCO Essex Energy, LLC has submitted an interconnection request for 6 MW at the Essex County Correctional Facility. In actuality the Interconnection Customer plans to connect 6.0 MW of aggregate generation consisting of two natural gas fueled 3.086 MW engine-generators. The net output to the system will not exceed 3.0 MW. The Generator Facility is located at 354 Doremus Avenue, City of Newark, Essex County, New Jersey.

Commercial operation is scheduled to December 2004.

Direct Connection

The two proposed generators will be connected at 13.2kV within the correctional facility. A 13.2kV/26.4kV step-up transformer will connect to the existing 26.4 correctional facility 26.4kV bus. The point of interconnection shall be at the PSE&G 26.4kV taps to the C-289 and O-327 circuits at the Essex County Correctional Facility existing substation as shown in the attached single-line-diagram. See Figure #1

In order to interconnect the generation Direct Transfer Trip equipment will need to be installed that automatically disconnects the generator from the Essex County Resource Recovery substation and the PSE&G system whenever the Essex Switching Station 26kV circuits, designated O-327 and C-289 are both open. Additionally, PSE&G reserves the right to disconnect the generator at certain times for the purpose of performing routine line or substation maintenance.

The following equipment and work will need to be performed by PSE&G to connect the generation to the system

1. Install new transfer trip and tone equipment at Essex Switching Station to coordinate with the existing 26kV circuit breakers installed at the Essex County Correctional Facility Substation.
2. Perform relay testing and operational testing on the Essex County Correctional Facility new transfer trip and eliminate the non-export reverse power relay.
3. Purchase and install a new bi-directional revenue meter.
4. Add new points in existing monitoring system at Essex County Correctional Facility and Clifton Distribution Headquarters.

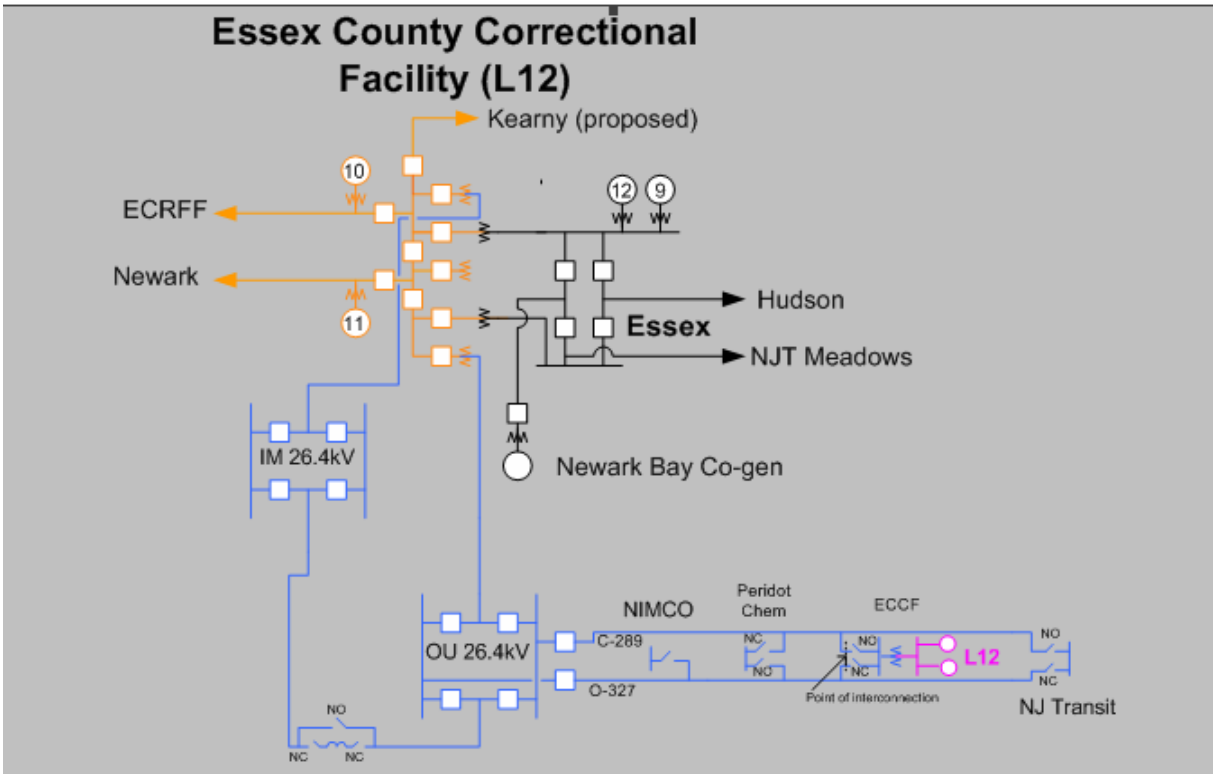
The estimated cost for the PSE&G Company work to interconnect the project is itemized below.

1.	Transfer Trip equipment – Essex Switching Station	$167,000
2.	Relay Testing – customer gen facilities	$ 8,000
3.	Revenue Metering	$ 2,200
4.	Add SCADA points	$ 2,000
5.	Project Management	$ 12,000
	TOTAL ESTIMATE	**$191,200**

Material Required

- RFL Transfer Trip Equipment
- Relay Panel
- Miscellaneous Equipment/Material/Tags
- Bi-directional Revenue Metering

Figure #1



The Essex County Correctional Facility project commercial date of December 2004 can be met provided that "notice to proceed" is given by July 1, 2004. "Notice to proceed" will be issued following Customer execution of the Interconnection Service Agreement (ISA) and Construction Service Agreement (CSA). Estimated time for construction of PSE&G facilities requirements is approximately 6 months from "notice to proceed".

PSE&G will attempt to move up the service date by using single source RFP, etc. upon Interconnection Customer's approval. The use of a single source RFP will be evaluated based on PSE&G's design resource availability.

Interconnection Customer Interconnection Facilities Requirements (Constructed by Interconnection Customer)

DCO Essex Energy LLC will be responsible for the following items to assure the viability of the interconnection of the generation with the system.

1. Meet PSE&G Distribution System standards if posted on the PJM website under PSE&G "Applicable Technical Requirements and Standards", if any, and included in the Interconnection Service Agreement among Essex County Correctional Facility, PSEG and PJM.
2. Procure, Design, Engineer and install RFL transfer trip equipment at the customer's facility. PSE&G will provide the ordering information, drawings will be provided by RFL. PSE&G will perform operational testing prior to generator export operation.
3. Pull cables for additional monitoring points into the existing SCADA unit and terminate at station equipment. PSE&G will terminate all cables inside the cabinet.
4. Licensing and Environmental issues, if any, will be the responsibility of the Interconnection Customer and is not included in this scope of work.

Metering and Data Transmittal to PJM

In order to be a Capacity resource the Interconnection Customer must install metering, as described in PJM Manual M-14D, to transmit the following real time data to PJM.

a. Instantaneous net MW for the plant
b. Instantaneous net MVAR for the plant

In addition, the Interconnection Customer is responsible for assuring the following non real-time data is transmitted to PJM.

a. Hourly compensated MWh delivered by the plant.
b. Hourly compensated MWh received by the plant.
c. Hourly compensated MVARh delivered by the plant
d. Hourly compensated MVARh received by the plant

Interconnection Customer Telecommunication Requirements

Remote Trip Equipment

PSE&G will order two (2) dedicated full duplex, four-wire data circuits, 4800 baud w/C-2 conditioning for the remote trip circuits. The circuits will be from Essex Switching Station to the Project. Essex County Correctional Facility will be billed monthly for these circuits.

Project Control Room
PSE&G requires one voice grade circuit that can be an extension of the Project's main switchboard. This phone line shall be for the exclusive use of coordinating generator operations with PSE&G Electric System Operations and Distribution Operations.

Network Impacts

The system, as planned, was evaluated for compliance with reliability criteria. The Essex (ECCF) L12 project was studied as 6 MW capacity addition. The results are summarized below.

Normal System
No identified problems.

Single Contingency (MAAC Criteria IIA)
No identified problems.

Second Contingency (MAAC Criteria IIB)
No identified problems.

Multiple Facility Contingency (MAAC Criteria IIC)
No identified problems.

Generator Deliverability
No identified problems.

Stability (MAAC Criteria IV)
Not required.

CETO/CETL (MAAC Criteria III / VIIB)
No identified problems.

Short Circuit Analysis
No identified problems.

System Reinforcements

None.

Cost Allocation

None.