Generation Interconnection Facilities Study Report

For

PJM Generation Interconnection Request Queue Position AC2-120

“Ripley 69 kV”

December 2018

Background: Maryland Solar 2 LLC, the Interconnection Customer (IC), proposed a 27.5 MW (10.45 MWC) solar generating facility to be located in Pisgah, Maryland. This facility will interconnect to the Southern Maryland Electric Cooperative (SMECO) electric system. SMECO has studied the local area impacts due to the proposed project with PJM studying the broader regional area impacts. Regional area impacts are studied from the 69 kV Hawkins Gate bus #224078 within the existing PJM RTEP model set. The proposed IC project in-service date was previously updated to June 30, 2019. This date may not be attainable due to the required PJM studies schedule and proposed SMECO construction schedule.

Point of Interconnection: The proposed solar generating facility will interconnect to the local SMECO electric system at SMECO's existing 69 kV Ripley switching station. The physical interconnection will be made using an existing open 69 kV bay within Ripley switching station. A proposed Ripley switching station one-line, plan view, and profile view drawing set, indicating the Point of Interconnection (POI) and demarcation between SMECO and the IC, is provided in Attachment One.

Scope of Work: The Attachment One drawings depict expanding the existing SMECO Ripley switching station fence line to accommodate the proposed interconnection. Site expansion requires an additional 26' X 122' strip of land, opposite the open 69 kV bay position, to move the existing fence line and expand the existing station ground grid. SMECO will perform the site expansion work. The IC is responsible for acquiring and conveying the necessary land to SMECO prior to SMECO proceeding with the site expansion work. SMECO understands the adjacent expansion land area is owned or otherwise available to the IC for this purpose.

Breaker isolating disconnect switches need to be added to the existing Ripley switching station open bay position bus. Adding the disconnect switches will require a partial 69 kV bus outage. During the bus outage period, SMECO will construct two temporary 69 kV transmission bypass circuits to maintain service to existing SMECO Grayton and McConchie substation loads served via SMECO 69 kV lines #6718 and #6727 respectively.

The physical interconnection itself will include a 69 kV line breaker with protective relaying and control circuits, communications, revenue metering units, and disconnect switches. The IC owned and installed self-supporting dead-end structure outside SMECO's Ripley switching station is the POI and physical demarcation between SMECO and the IC. Overhead line

conductor will complete the physical connection between the new breaker position and the IC dead-end structure.

Project Estimate: SMECO's revised project estimated cost is $718,490 and includes: engineering, permitting, project management, labor and materials, construction, and construction management. SMECO included 15% contingency on material and labor in the cost estimate. The previous Impact study scope of work considered project permitting and site work to be the IC's responsibility. This revised Facilities Study report now includes the project permitting and site work within SMECO's defined scope of work. The revised estimated cost breakdown is:

Engineering, Company Labor, and Overhead		$208,665.00
Material		$197,125.00
Construction		$312,700.00
	Total	$718,490.00

Additional cost estimate clarifications are as follows:

- Project cost estimate includes: 1) site clearing and grubbing, 2) cutting and removal of topsoil, 3) importing and filling site to grade, 4) expanding the stated existing switching station fence line and ground grid, and 5) rocking the project construction area.
- This estimate does not include any associated real estate costs.
- SMECO will coordinate a planned outage on half of the existing Ripley switching station 69 kV bus in order to facilitate the proposed interconnection work. The planned outage requires that SMECO configure temporary 69 kV transmission bypass circuits to maintain service to other area substation loads. The bypass circuits require that: 1) jumpers be installed on the dual-circuit #6727 / #6717 pole line just south of Ripley switching station, and 2) line #6717, from Mason Springs substation to Ripley switching station, be temporarily relocated to an alternate Ripley switching station open 69 kV bay.
- The project POI is the IC owned and installed dead end structure outside Ripley switching station. The IC is responsible for installing and terminating the interconnection tap line to the dead end structure. SMECO is responsible for the OH conductor, equipment, and associated jumpers from the dead end structure to the Ripley switching station 69 kV bus.
- Protective relaying is installed within the SMECO 69 kV breaker cabinet as opposed to being installed within a separate control building. The stated project estimate does not include installing a climate-controlled control building at Ripley switching station.

- The IC is required to install a separate 69 kV line disconnect switch at the IC collector substation.
- The IC is responsible for all aspects of the new 69 kV tap line, the isolation step-up transformer, and associated solar distribution feeder circuits. All such facilities are subject to SMECO review and approval.
- IC generation will operate in accordance with applicable PJM Tariff reactive power requirements. If not subject to PJM Tariff requirements, the IC generation will hold a power factor between 0.95 leading (absorbing MVars) and 0.95 lagging (supplying MVars) both with and without IC generation being on-line.

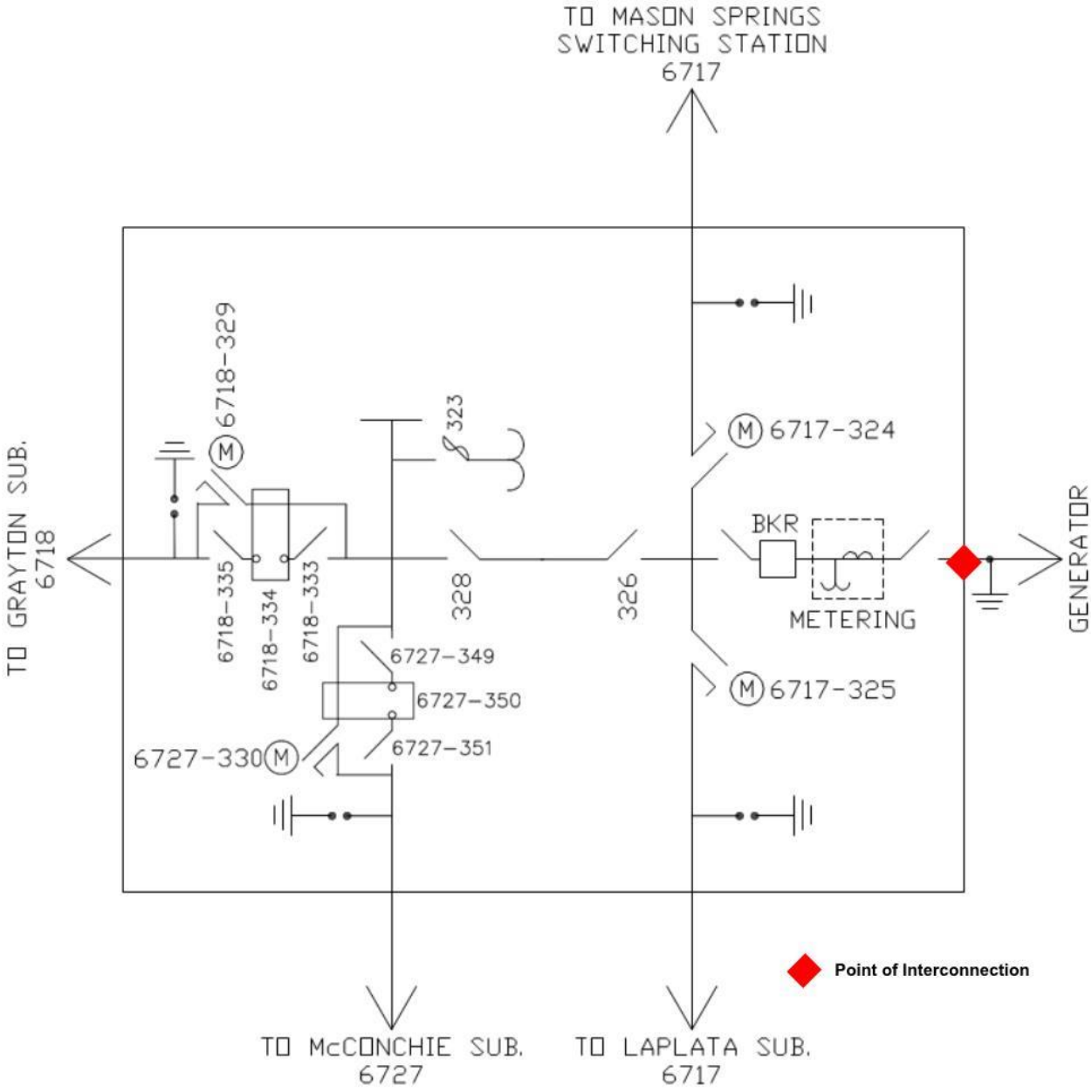
Construction Schedule:

SMECO prefers that construction be scheduled between March and October if possible to do so. The estimated project schedule is 12 months after receiving the signed interconnection agreement and initial milestone payment. The construction schedule breakdown is:

Engineering, Permitting, and Real Estate	9 months
Material Procurement	6 months
Construction	3 months

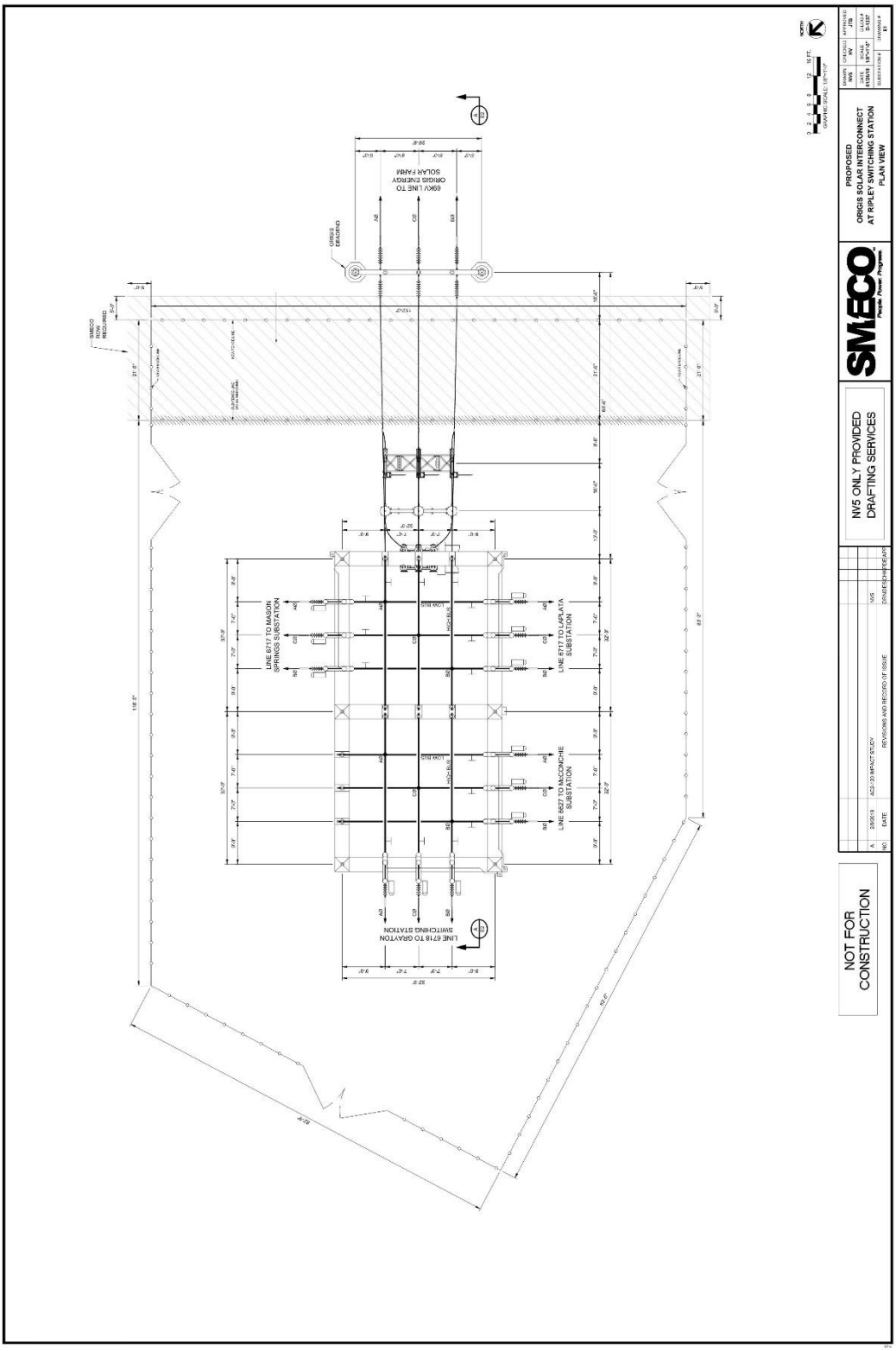
Attachment One

Figure One – Ripley Switching Station One-Line Diagram and POI



Attachment One

Figure Two – Ripley Switching Station Plan View



Attachment One

Figure Three – Ripley Switching Station Profile View