GENERATION INTERCONNECTION
REQUEST # GI-2014-14
Addendum to the Final SIS study

SYSTEM IMPACT STUDY REPORT
50 MW PV SOLAR, ALAMOSA COUNTY, COLORADO

XCEL ENERGY – PSCO TRANSMISSION PLANNING WEST
October 7, 2016

Background

At the Facilities Study Report review meeting with the Customer on July 27, 2016, the Customer asked for more details on the Energy Resource Interconnection Service (ERIS). The Customer would like to know how much they can deliver from San Luis Valley to PSCo's load in Denver utilizing the existing transmission system based on the study assumptions in the report. PSCo agreed to perform additional studies and create an addendum to the Final System Impact Study dated March 14, 2016.

Additional Studies

Base Cases

2016 Heavy Sumer

San Luis Valley load: 140 MW

Existing SLV Solar Gen: 85% of nameplate

2016 Light Spring

San Luis Valley load: 45 MW

Existing SLV Solar Gen: 85% of nameplate

Energy Resource Interconnection Service

For the loss of the Poncha – San Luis Valley 230 kV line, the ERIS is found to be approximately 31 MW. That means up to 31 MW of additional generation can be delivered using the existing transmission system under the study assumptions made in the base cases. The ability to deliver additional generation on a non-firm basis may be available depending on marketing activities, dispatch patterns, generation levels, demand levels, import path levels (TOT 5, etc.) and the operational status of transmission facilities.

Calculation assumptions for ERIS:

1) The total solar generation in the valley is 85% of 134 MW (the nameplate generation) and
2) The minimum light spring load in the valley is approximately 45 MW when the solar generation is at 85% of nameplate

Calculation procedure for ERIS:

Step 1) 134 MW * 0.85 = 114 MW. This is the average solar generation for existing solar generators in the study area (SLV).

Step 2) 114 MW – 45 MW = 69 MW. This is the generation minus load (plus losses) in the study area (SLV) = generation export out of the valley. At this export level of 69 MW, there are no contingency overloads in the study area (SLV).

Step 3) Increase the export out the study area (SLV) by increasing generation in the study area (and scheduling the generation to the PSCO load center) until a contingency overload in the study area (SLV) is observed.

Step 4) At an export level of 100 MW, the loss of Poncha-SLV 230 kV branch causes the contingency overload of the Sargent-SLV 115 kV branch.

Step 5) Therefore, 100 MW (final export level) – 69 MW (initial export level) = 31 MW left for ERIS.