System Impact Study Report
PID-279
19.9 MW
Mermentau 69kV
Transmission Interconnection

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0	August 31, 2011	Initial Review	JCA
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DISCLAIMER

This study has been prepared without the benefit of detailed engineering or study data. The solution set reflects the current understanding of the proposed project. There are many variables which are unknown at this time. These variables could significantly change the scope of work and estimated cost. In order to proceed with the project, a System Impact Study and Facility Study will need to be developed.

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I. Introduction

The following System Impact Study is based on the request for interconnection of Entergy's transmission system at Mermentau 69kV substation by PID-279. The objective of this study is to assess the impact of the proposed 19.9MW biomass fueled generating facility on reliability of the Entergy transmission.

The study is intended to determine whether the transmission system Planning Criteria is met when the facility is connected to Entergy's system. If not, appropriate system improvements will be identified.

The System Impact Study process required a load flow analysis to determine if the existing transmission lines are adequate to handle the full output from the proposed facility and maintain the system voltages within the acceptable limits. A short circuit analysis was performed to determine if the proposed facility would cause the available fault current to exceed the fault duty of existing equipment within the Entergy transmission system. Finally, impact on the existing protection systems in the local area was investigated. If necessary, appropriate mitigation measures were identified.

This study was based on information provided by PID-279 and assumptions made by Entergy's Transmission Planning group. If the actual equipment installed is different from the supplied information or the assumptions made, the results outlined in this report are subject to change.

II. Transmission System Analysis

1. SHORT CIRCUIT ANALYSIS/BREAKER RATING ANALYSIS

There were no problems identified for this part of the study that were a result of the proposed PID-279 facility.

2. LOAD FLOW ANALYSIS

There were no problems identified for this part of the study that were the result of the proposed PID-279 facility.

The load flow results are for information only. This interconnection does not in and of itself convey any transmission service.

3. STABILITY ANALYSIS

A stability analysis is not required at this stage in the interconnection process. However, any changes to the submitted stability data between now and the commissioning of the facility should be communicated to Entergy for proper modeling purposes.

4. RELAYING COORDINATION AND EQUIPMENT

Entergy will design and build a point of interconnection at Mermentau 69kV substation. One breaker will be installed at Mermentau substation to interconnect the PID-279 facility to the Jennings-Mermentau 69kV radial transmission line. Additional work will be required at Jennings substation to add synchronism check and transfer trip capability. The interconnection station will consist of the following equipment systems:

- Electrical (includes structures, breaker, switches, arrestors, etc.)
- Foundation/site (includes, site prep, foundations, rock, ground grid, etc.)
- Relay (includes CCVTs, CTs, relay panels, batteries, metering, RTU, ADSS fiber, MUX, etc.)

The total estimated cost of interconnection facilities needed to connect the PID-279 generator at the Mermentau 69kV radial tap substation is Two Million Five Hundred Thousand Dollars (**$2,500,000).** The estimate does not include any major transmission line work and assumes that the customer will build the transmission line connecting the generator to Mermentau substation.

The estimated time needed to complete construction of the interconnection facilities is 24 months after receipt of a fully executed Small Generator Interconnection Agreement (SGIA).

Modified one-line diagrams for Jennings and Mermentau 69kV substations are shown in Appendix A.

APPENDIX A: ONE LINE DIAGRAMS

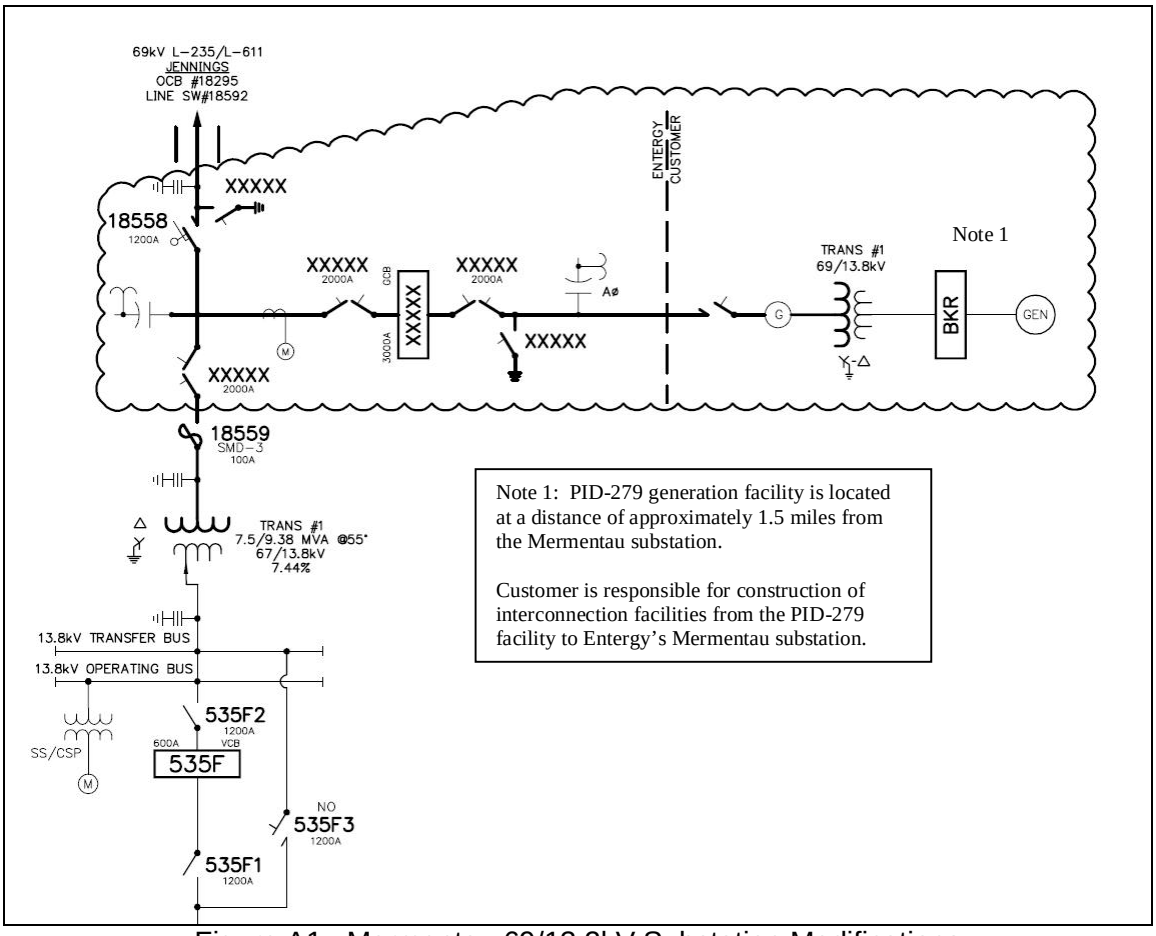

Figure A1: Mermentau 69/13.2kV Substation Modifications

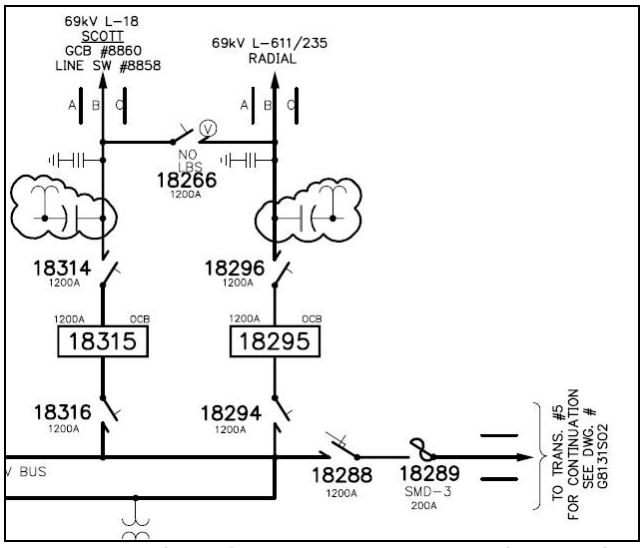

Figure A2: Location of Two CCVTs at Jennings Substation