
APPENDIX G

WORK SCOPE

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Preliminary Protection Requirements & Substation Work

These are the preliminary protection requirements for the 95.8 MW generator connection on the 70 KV bus at Henrietta Substation. The protection requirements for the generation entity to interconnect with PG&E system are detailed in the Interconnection Handbook and are not included here. Protections for generating equipment beyond that were required in the Interconnection Handbook are at the Generator's entity discretion.

Henrietta Substation (work performed by PG&E)

- The maximum Fault Duty (SLGF) available at 70 KV Bus is approximately 12,692 Amps. This includes the 70 KV (Henrietta) and 115 KV (Hanford) GWF cogen units on line. New breakers shall be rated above the maximum fault duty.
- For the new breakers that will be provided, two sets of Current Transformers should be provided on each side of the bushing. The standard 2000/5 or better, Multi-Ratio, C400 breaker CT's should be adequate.
- Provide Set "A" & Set "B" Current Differential Relays with Fiber Optic connection for communication. Current Differential Relays must have provisions to convert to a 3 terminal scheme. These relays will provide protection for very short transmission line connected radially to a Generation Unit. PG&E approved recommended relays for this application are GE L-90 and LFCB 103. Refer to EDS drawing 4010024 & 4010025.
- Install Schweitzer SEL-279 as reclosing relay.
- Install Basler BEI-BPR as breaker failure relay.
- Install Schweitzer SEL-2020 communications processor for remote relay communications.
- Provide a single-phase potential device, "C Phase", on the line side of the new Circuit Breaker for Station Automatics.
- Include the current contribution of the new 70KV breaker into the existing 70 kV bus differential scheme.
- The new circuit breaker should also be tripped by the existing 70kV bus differential protection. Tripping is accomplished by differential tripping relay. Please refer to Henrietta substation drawing nos. 425901 and 425920. For T-1 outage contingency of Bank # 2, the dedicated 70 KV breaker should be tripped by Bank #2 tripping relay, 294TT-2 and also Bank #2 Lock Out relay 286T-2. Direct transfer Trip from PG&E Set "A" and Set "B" relays should be initiated subsequently to trip GWF owned 70

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kV breaker. Refer to Henrietta Drawing Nos. 4004387 (Bank #2 DC), 4004397 (Bank #2 Panel C), 497599 & 428491 (CB242 DC, AC) and 425920 (CB 82 DC).

Henrietta Peaking Plant Facility (Work to be performed by GWF)

- Install new 70 KV Circuit Breaker. The generator step up transformer relays and the line relays specified below will trip the 70KV Circuit Breaker.
- Install Set A & Set B current differential relays with Fiber Optic line communication to match with the Current Differential relays at Henrietta Substation. Current differential relays must have provisions to convert to a 3-terminal scheme.

Adjustments to existing relays at Henrietta Substation 70 KV bus may be required.