Case Study

Alternative solution to air insulated substations

Challenge

The utility serves approximately 95,000 residential and 13,000 commercial/industrial customers. The distribution system is 70% overhead and 30% underground. Nominal system voltage is 12.47kV transformed from a 34.5kV sub-transmission system.

A new substation was required to provide additional power and increased reliability to a growing tourist area which included a new hospital. The utility decided to tap off an existing 34.5kV line. The timing of this project coincided with a new utility policy which mandated the use of all standard padmount gear whenever possible for new construction. The utility wanted to stock standard transformers, switches and other equipment to have available for various purposes. They also liked the space savings and cleaner appearance afforded by using all padmount gear. Utility operating personnel preferred the added safetymeasure of using all deadfront equipment and that all cable connection points were the same style elbow connections. Finding deadfront padmount switches, transformers and voltage regulators were no problem. Finding a deadfront, three phase fault interrupting protective device such as a circuit breaker or recloser however became a challenge.

Solution

After investigating the latest products on the market, the utility decided to go with G&W Electric's padmount, three phase, solid dielectric Viper®-ST recloser with SEL 651-R control. The recloser ratings of 15kV, 800A continuous and 12.5kA symmetric interrupting met the application requirements and was a more cost effective solution versus adding a circuit breaker. The use of solid dielectric technology offered the benefits of deadfront construction and elbow style connections, all within a very small footprint, low profile padmount design. The recloser worked directly with the popular standard SEL 651-R control which also fit within the utility's policy of using standard components. A single phase, deadfront padmount transformer was also installed to provide a 120 V source for the recloser control.

15kV Viper-S Z module recloser with SEL 351-R control.

Padmount Viper-ST recloser

Recloser operator compartment

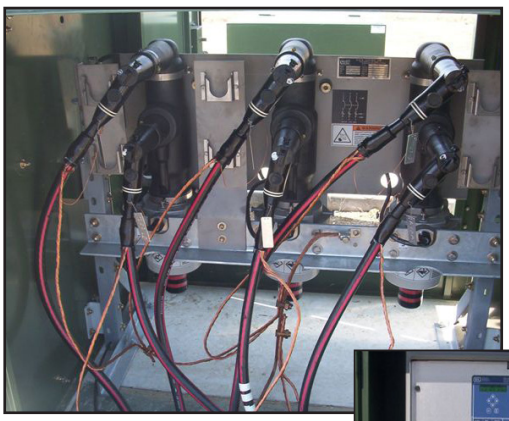

Photo above shows the recloser compartment access for cable connections.

The SEL 651-R control is housed within a separate enclosure on the side of the recloser.

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