

Cynergy Electric Company, Inc.

NASA Goddard Space Flight Center Central Substation 34.5KV Transformer Replacement C1202

Parsons Infrastructure & Technology
Group, Inc.
Code 224.4 Goddard Space Flight Center
Greenbelt, MD 20771
Elvin Davis, Project Manager
(240) 476-1020 (mobile)
(301) 286-0137 (office)



Cynergy entered into a \$1,432,903.00 contract with Parsons to replace three (3) 3750/4687KVA 34.5KV Δ -4160Y/2400KV

substation transformers at NASA's central substation located in Greenbelt, Maryland.

The major equipment for the project included three (3) Niagara 3750/4687KVA OA/FA 34.5KV Δ -4.16Y2.4KV 65°C rise 200KV BIL primary 75KV BIL secondary 3 phase less flammable liquid filled substation transformers with paralleling controls, secondary Reinhausen vacuum type RMV 32 step 4160V 1320A automatic load tap-changer, 34.5KV Cooper station type arrestors and three (3) Park Electric 2000A copper bus 4.16KV secondary outdoor rated bus. The bus came furnished with strip heaters and thermostat.

The central substation had a neutral grounding resistor for each transformer that was reused on the new transformers. The 2000A 4.16KV outdoor bus replaced the existing bus between the transformers and each of three (3) existing 4.16KV outdoor walk-in substation switchgear. The new transformers were equipped with a "sudden pressure" (device 63) relay to trip the related primary (34.5KV) vacuum circuit breaker. The transformers were also equipped with sensitive high speed differential protection relays (device 87T), ground differential relays (device 87G/O and 87G/R) to protect the entire transformer assembly.

Three (3) new custom remote paralleling control cabinets were provided and mounted inside the existing 4.16KV switchgear. The control cabinet provided the LTC tap position. The existing transformer concrete pads had minor repair work. Three (3) 4' x 3' bar grate type safety ground mats were installed by the primary switch locations. New primary copper jumpers were provided between the substation bus and the transformer bushings.

The transformers were shipped with seismic recording impact indicators and a crane lift plan was developed for the 41000lb. transformers. When replacing the transformers only one transformer was allowed to be out of service at a time.

Commissioning, field testing and training was a large component in the project. Customer transformer witness testing was performed. Factory field services were provided for the transformer and LTC commissioning. Certified factory test reports were provided for the transformers. Third party field testing was performed and Cynergy developed and implemented a quality control plan. Hands on training and operation and maintenance manuals were provided for all systems. A five (5) year manufacturer warranty was provided for the transformer and LTC.