

Mobile Capacitor Bank Trailer Helps To Support Utility's Network Reliability

Customer:
Southeastern Utility Company

Location:
Southeast USA

Sector:
Public Utility

Background

Seasonal loads, peak load reactive power needs, planned transmission projects, and the need to perform maintenance of existing capacitor banks has driven the demand for cost-effective, easy to deploy high voltage mobile trailers. One Southeastern utility, serving over 1 million residential and commercial customers, identified the need for a modular reactive power compensation solution that could add reliability and operational flexibility to the grid without the installation of permanent equipment. Specifically, this solution would support the utility's transmission capital projects and provide emergency VAR support during unplanned equipment outages. The specified application called for a 115 kV, 30 MVAR capacitor bank, as well as current limiting reactors, arrestors, single phase potential transformers for station service power, a motor operated disconnect switch, batteries, battery charger, and a high voltage breaker with relays for protection.

The proposed mobile capacitor bank solution was to be suitable for safe and efficient deployment in electric power substations as well as transmission right of ways. Additionally, it was to be transported assembled and in compliance with the utility's local Department of Transportations. Equipment was to be designed, rated, constructed, and tested in accordance with the latest published standards of ANSI, ASTM, AWS (American Welding Society, Inc.), CGA (Compressed Gas Association), IEEE, NEMA, NESC, NFPA (con't)

(National Fire Protection Association), SSPC (Steel Structures Painting Council), as well as other state and federal highway safety regulations.

When considering a partner for this project, the Southeastern utility knew it was critical to find a manufacturer who had the design expertise and resources to implement a successful solution.

Solution

Southern States, in partnership with a leading manufacturer of capacitor banks, worked with the utility and capacitor manufacturer to provide a mobile capacitor bank solution that met the specified requirements unique to this utility's applications.

Mobile capacitor banks can be designed on a single or multi-trailer platform, depending on the utility's requirements. For this application, Southern States designed a multi-trailer platform that included a capacitor bank as well as a circuit breaker that would allow for connection in a perpendicular configuration. The capacitor bank was to be mounted on one trailer, while all other switchgear and components were to be mounted on the other.

Some application and switchgear requirements specific to this utility included:

- Turn tables and/or racking mechanism to eliminate the need for large equipment such as cranes
- A capacitor bank configurable for 15 or 30 MVAR and supplied by a specified manufacturer of capacitor banks

- Safety ground for capacitors
- A Southern States center break disconnect switch and motor operator that was wired per the utility's standard drawing
- A trailer manufactured in the United States with maximum transportation limits of 10' (W) X 14' (H)
- AC and DC circuit breakers and surge arresters
- Painted red and clearly marked removable pieces to support transit
- Safe electrical clearances via a permanently mounted fence
- 22.5-inch tires with load rating equal to or greater than the total gross weight being carried on each axle
- Color coded wiring per the utility's standards

Results

The utility is pleased with the mobile capacitor bank's ease of deployment and operational flexibility, which will help them add reliability to their network. As part of their rigorous safety standards, the mobile capacitor solution is currently undergoing in-house testing to ensure compliance with the various operating conditions it will face. Once completed, the solution will be deployed to the field, adding VARs to their transmission grid and ensuring reliable amounts of active power are available to their customers during the approaching peak season.



30 Georgia Avenue Hampton, GA 30228
P 770-946-4562 F 770-946-8106
sales@southernstatesLLC.com
www.southernstatesLLC.com

Publication No. CS1601-MobileCapBank-R0 05062019
Printed in USA May 2019 ©2019 Southern States, LLC