



Eaton solutions help to regulate power in oil and gas fields

Location:

Western Texas

Segment:

Oil & Gas

Challenge:

Correct voltage sags in power distribution lines used in oil and gas fields.

Solution:

Leverage the 32-step, single-phase voltage regulator solution from Eaton's Cooper Power Systems business to help improve power quality, increase power delivery and efficiency, and reduce maintenance costs for customers.

Results:

The oil and gas customer installed voltage regulators, replacing traditional on-load tap changes (OLTC) to improve voltage on the company's individual feeders.

"Properly regulating power distribution at oil and gas sites is critical to ensure companies do not experience long service outages and loss in revenue."

Keith Blodorn, Eaton's Cooper Power Systems

Background

The rapid expansion of domestic oil and gas production in Texas has pushed operations further into rural areas of the state. As a result, many energy companies face the added challenge of finding ways to adequately and efficiently distribute power throughout their oil and gas fields so that they can operate the many pumps that extract crude oil from the ground.

In those rural oil and gas fields, long runs of distribution lines can lead to voltage sag issues. This can cause lapses in power to the pumps, ultimately resulting in loss of revenue.

Many oil and gas companies facing the challenge of maintaining power efficiency look to on-load tap changers (OLTC) to correct voltage sags on their lines. However, when one phase of the OLTC fails or requires maintenance, the entire unit is removed from service, affecting all phases. This can result in long service outages, decreased load-control flexibility and increased cost.

Challenge

An oil and gas customer had been working with Eaton for several years to manage and control power in numerous oil fields, and sought a solution from Eaton's Cooper Power Systems business that would correct voltage sags and improve power quality on the distribution feeders. The customer's goals were to identify a reliable partner whose solution would regulate substation voltage, install easily and offer the prospect of cost-efficient maintenance over the long term.

Solution

Working with Eaton's Cooper Power Systems business, the customer explored two options to correct voltage sags – OLTC transformer or single-phase voltage regulator. After evaluating the options, the customer chose Eaton's 32-step single-phase voltage regulators to adjust system voltages.

The customer noted the advantages of single-phase voltage regulators, including performance, individual feeder regulation, lower initial costs, anticipated lower maintenance costs in the long term, inventory savings and shorter lead times.

The driving factor in the customer's decision is the voltage regulator's ability to regulate voltage on each individual feeder. Since this customer's loads vary by feeder, the three single-phase voltage regulators provided an advantage over a regulated station bus which cannot respond to the demands of the individual feeder.

Additionally, single-phase regulators can be easily replaced in a few hours without affecting other components utilizing bypass provisions, enabling faster restoration of service throughout the system. With lead-times up to 30 weeks shorter than power-class transformers utilizing OLTCs, the regulators could arrive on site without affecting the project schedule. Moreover, this allowed the customer to specify and procure a more standard, less complex power-class transformer. Finally, rapid maintenance and the ability to keep spare regulators on hand decrease both installation and long-term costs.

"Properly regulating power distribution at oil and gas sites is critical to ensure companies do not experience long service outages and loss in revenue," said Keith Blodorn, product line manager, Eaton's Cooper Power Systems Division. "Voltage regulators are typically used in utility applications, but we believe these solutions provide a major benefit to customers in the oil and gas market who control their own power distribution."

Results

The customer and Eaton's Cooper Power Systems business are working to install more than 60 units in the company's oil field. The 32-step single-phase voltage regulators are expected to save the company a significant amount of time and money by providing superior accuracy, reliability and serviceability.

To learn more about voltage regulator solutions from Eaton's Cooper Power Systems business, visit www.cooperpower.com



VR32 Voltage regulator with CL-7 regulator control

VR-32 single-phase step voltage regulators are tap-changing autotransformers. Voltage is maintained within desired limits by controls that feature superior accuracy, reliability, and serviceability. Continuity of service is assured by rugged, service-proven tap changers and core-and-coil assemblies functioning with the control.

For Eaton's Cooper Power Systems product information, call **1-877-277-4636** or visit: www.CooperPower.com

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