

Texas Panhandle Synchronous Condenser Solution



One of the Largest Utilities with the
Largest Power Generation Supplier.



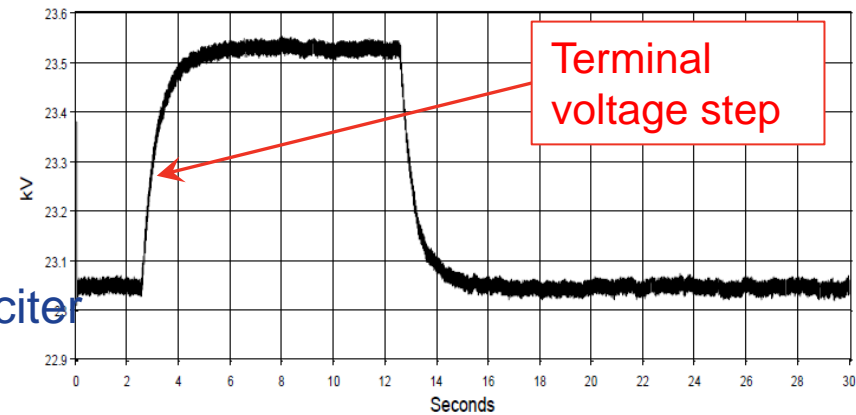
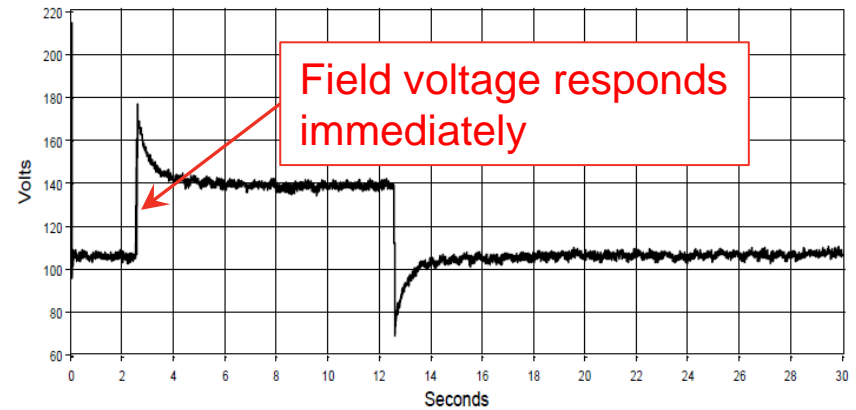
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Synchronous Condenser Transient Response

- Excitation system is biggest factor



- Synchronous Condenser – Circa 1960 Converted Generator
- New High Initial Response GE EX2100e Exciter
- WECC Test:** 2% step test
“Need 2% more voltage immediately!”
- Capable of providing overload for 10’s of seconds



Synchronous Condenser Conversion

Rejuvenates Generators when Plants retired...

- The power plant is not competitive (more efficient gas turbine)
- It has the wrong fuel (coal vs. clean natural gas)
- The plant is too dirty (expensive CO2 scrubbers – Big Sandy Plant)

Maintenance extends lifetime...

Example: FirstEnergy converts Eastlake Plant to synchronous condensers (generators date to 1951)

Duke Energy is Original Owner...

- Has full maintenance, service and operational records
- Excellent generator owner and maintainer



imagination at work