

GCRP – Constant Terminal Voltage

J Greasley, 4th Feb 2010, Warwick



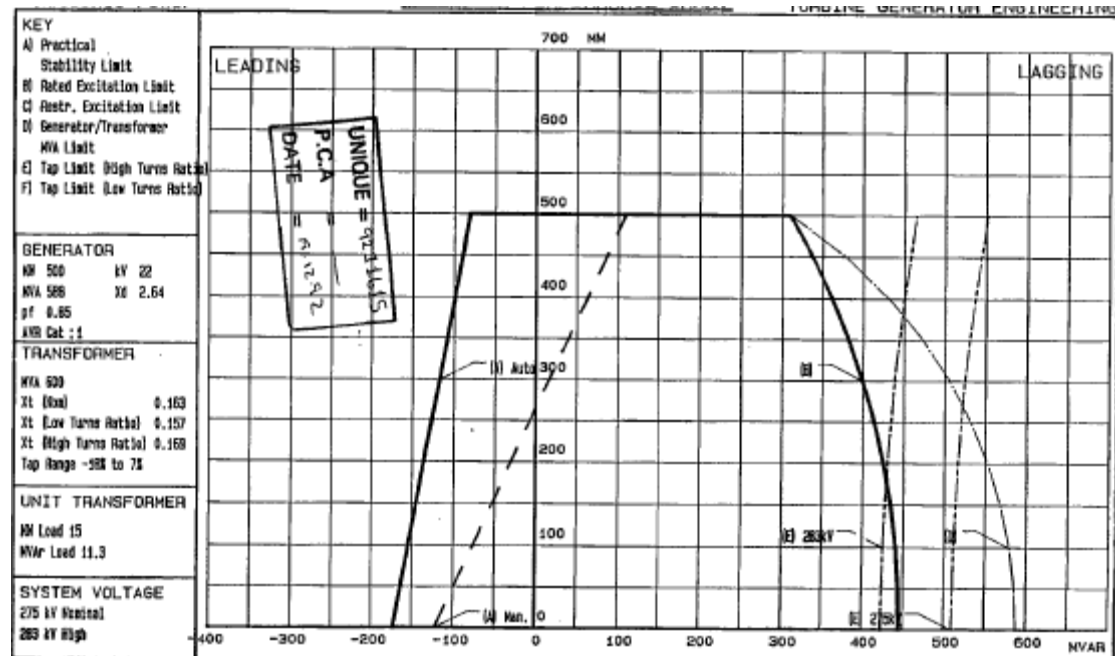
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Constant Terminal Voltage Control

- ◆ NGET interpretation of CC.6.3.2 and CC.6.3.4 is this is achieved at a single constant terminal voltage, a value normally 1 pu for the Generator.

- ◆ The value should be consistent with the Generator Performance Chart provided to NGET under Grid Code; PC.A.3 and OC2.4.2



Constant Terminal Voltage Control

- ◆ Compliance assessments, planning and operational studies performed by NGET are based on the principle set out above.
- ◆ At this single constant terminal voltage full reactive capability can be delivered unless otherwise derogated.
- ◆ Reactive Capability delivered by variation in Generator terminal voltage has not been accepted in existing derogations issued against CC.6.3.4.
- ◆ Assumption has been valid for past 20 years and has
 - ◆ delivered a secure system
 - ◆ provided consistent planning and operational studies
 - ◆ operated a level playing field for generation connections
- ◆ NGET believes Generators have no reason to operate significantly away from 1pu.

Constant Terminal Voltage Control

- ◆ Generator operation with variable terminal voltage has implications for the way the transmission system is planned and operated
- ◆ NGET believes the following measures would be likely to be required to maintain secure operation of the transmission system:
 - ◆ Provision to NGET of additional performance charts at a range of alternative Generator terminal voltages.
 - ◆ Additional planning and operational studies to consider potential variation in terminal voltage and the impact on reactive reserves.
 - ◆ Real time information on actual Generator terminal voltage within transmission system control function (ENCC).
 - ◆ Real time reassessment of power system security where Generator terminal voltage is adjusted outside of any request from NGET.

Constant Terminal Voltage Control

In order to clarify the Grid Code wording NGET suggests the following additional words are considered:

CC.6.3.4 (b)132kV and lower voltage **and delivered at the generator terminal voltage consistent with the Generator Performance Chart supplied under OC2.4.2.1(a).**

BC2.11.2 (a) (i) limiters in service at all times **with the generator terminal voltage consistent with the Generator Performance Chart supplied under OC2.4.2.1(a).**