

UNIT IV

STABILITY ANALYSIS

STABILITY

- ❖ The tendency of a power system to develop restoring forces equal to or greater than the disturbing forces to maintain the state of equilibrium.
- ❖ Ability to keep the machines in synchronism with another machine

CLASSIFICATION OF STABILITY

➤ Steady state stability

Ability of the power system to regain synchronism after small and slow disturbances (like gradual power changes)

➤ Dynamic stability

Ability of the power system to regain synchronism after small disturbances occurring for a long time (like changes in turbine speed, change in load)

CLASSIFICATION OF STABILITY

➤ Transient stability

This concern with sudden and large changes in the network conditions i.e. . sudden changes in application or removal of loads, line switching operating operations, line faults, or loss of excitation.

- ❖ Steady state limit is the maximum power that can be transferred without the system become unstable when the load is increased gradually under steady state conditions.
- ❖ Transient limit is the maximum power that can be transferred without the system becoming unstable when a sudden or large disturbance occurs.

Thank you