

## **UNIT IV**

# **Performance of AGC under normal and abnormal conditions**

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## **AGC –Automatic Generation Control**

- In an electric power system, automatic generation control (AGC) is a system for adjusting the power output of multiple generators at different power plants, in response to changes in the load.
- Since a power grid requires that generation and load closely balance moment by moment, frequent adjustments to the output of generators are necessary.
- The balance can be judged by measuring the system frequency;

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- If it is increasing, more power is being generated than used, which causes all the machines in the system to accelerate.
- If the system frequency is decreasing, more load is on the system than the instantaneous generation can provide, which causes all generators to slow down.

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## Performance of AGC Under Normal and Abnormal Conditions

### ➤ Under normal conditions:

- With each area able to carry out its control obligations, steady-state corrective action of AGC is confined to the area where the deficit or excess of generation occurs.
- Interarea power transfers are maintained at scheduled levels and system frequency is held constant.

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➤ **Under abnormal conditions:**

- One or more areas may be unable to correct for the generation-load mismatch due to insufficient generation reserve on AGC.

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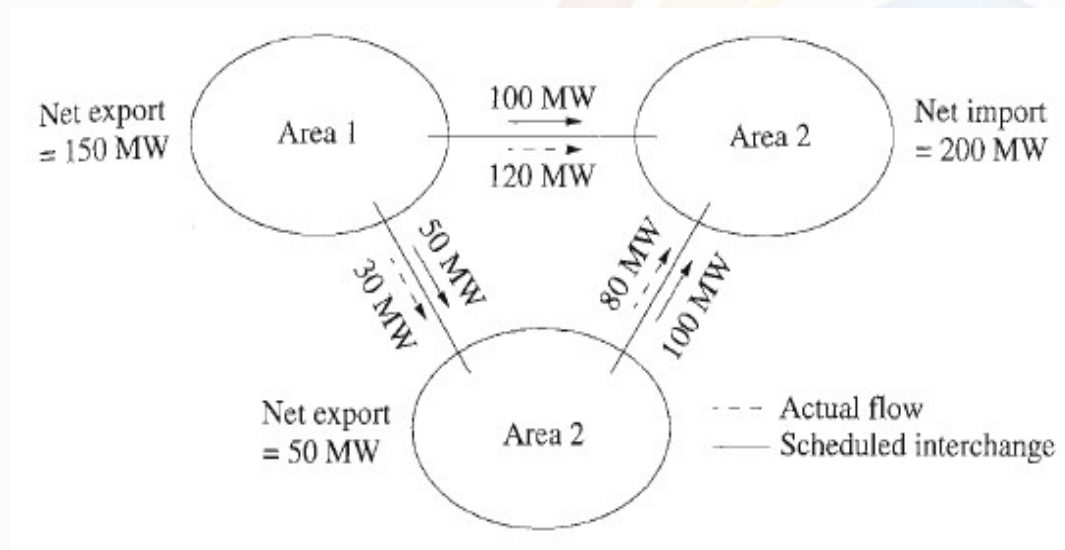
- In such an event, other areas assist by permitting the interarea power transfers to deviate from scheduled values and by allowing system frequency to depart from its pre-disturbance value.
- Each area participates in frequency regulation in proportion to its available regulating capacity relative to that of the overall system.
- The following example illustrates the above aspects of AGC performance.

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