Lecture 2

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- Capacitors may be connected in parallel to increase power factor
- For a balanced three-phase circuit, we may analyze each phase independently
- Connections may be in 'Y' or Delta form; for analysis, we prefer 'Y'
- To convert from Delta-type connections, we may use the following:
  - Impedances:

$$Z_Y = \frac{1}{3} Z_\Delta$$

  - Sources:

$$\hat{V}_{LL} = \sqrt{3} \hat{V}_{LN} e^{j30^\circ}$$

- To use these analyses methods, we must assume:
  - The system is 3-phased and balanced
  - All the loads and sources are 'Y'-connected
  - No mutual inductance between phases
- This then allows us to assume:
  - All the neutrals will be acting at the same potential
  - Phases will be completely decoupled
  - All network variables occur in balanced sets of the same sequence as the sources