Generalized ZVS Analysis

Sinusoidal Analysis (Ch 19)
**Sinusoidal Analysis: Comments**

- Generally most accurate when operating near resonance with a high $Q$
- Effective quality factor $Q_e$ depends not only on resonant tank, but also on loading
- Analysis neglects switching intervals; can only predict where ZVS cannot be obtained

![Graph](image)

*Fig. 2.14. Comparison of exact and approximate series resonant converter characteristics below resonance.*

**AC Link Waveforms**

![Diagram](image)
Switch Network Sinusoidal Analysis

Switch Network Equivalent Circuit
Diode Rectifier Sinusoidal Analysis

Diode Rectifier Equivalent Circuit
Complete Equivalent Circuit