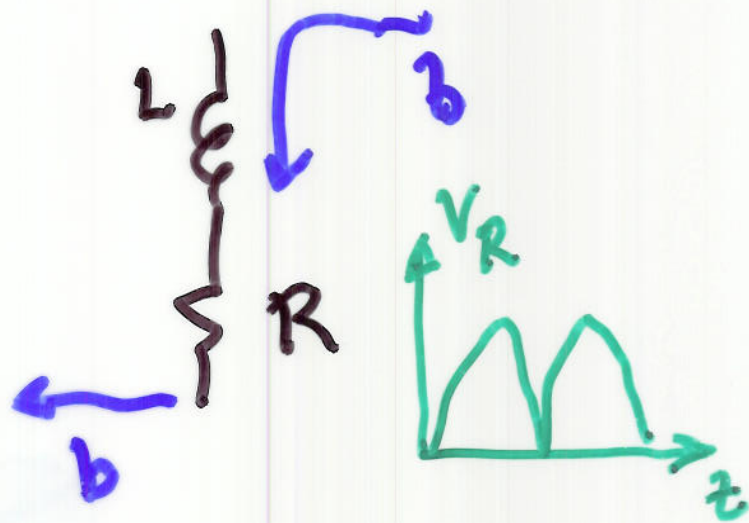


diode pairs
only conduct for $\frac{180}{360}$
in a full wave bridge!



Power Factor R load



$$\theta = 0$$

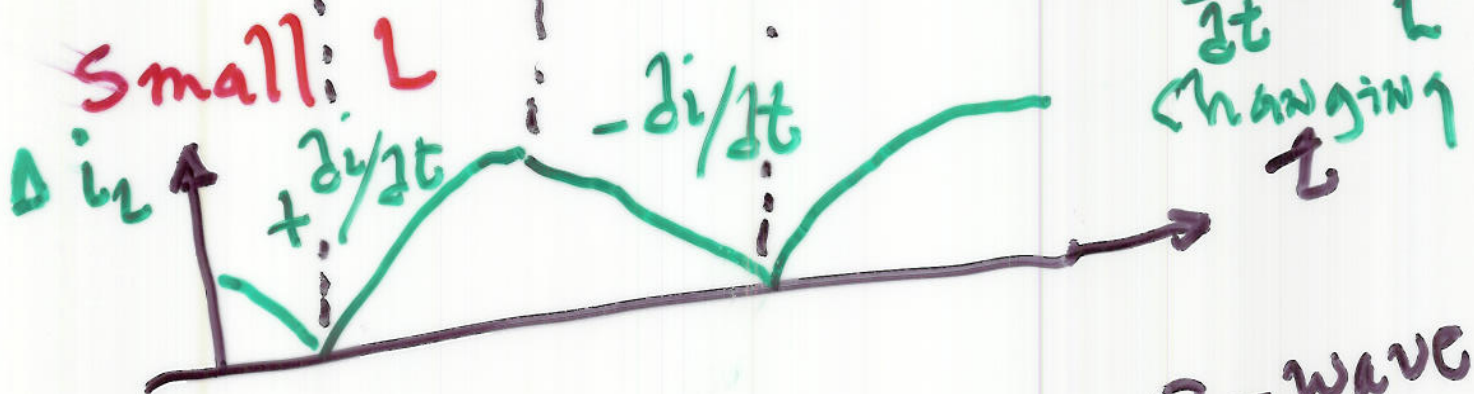
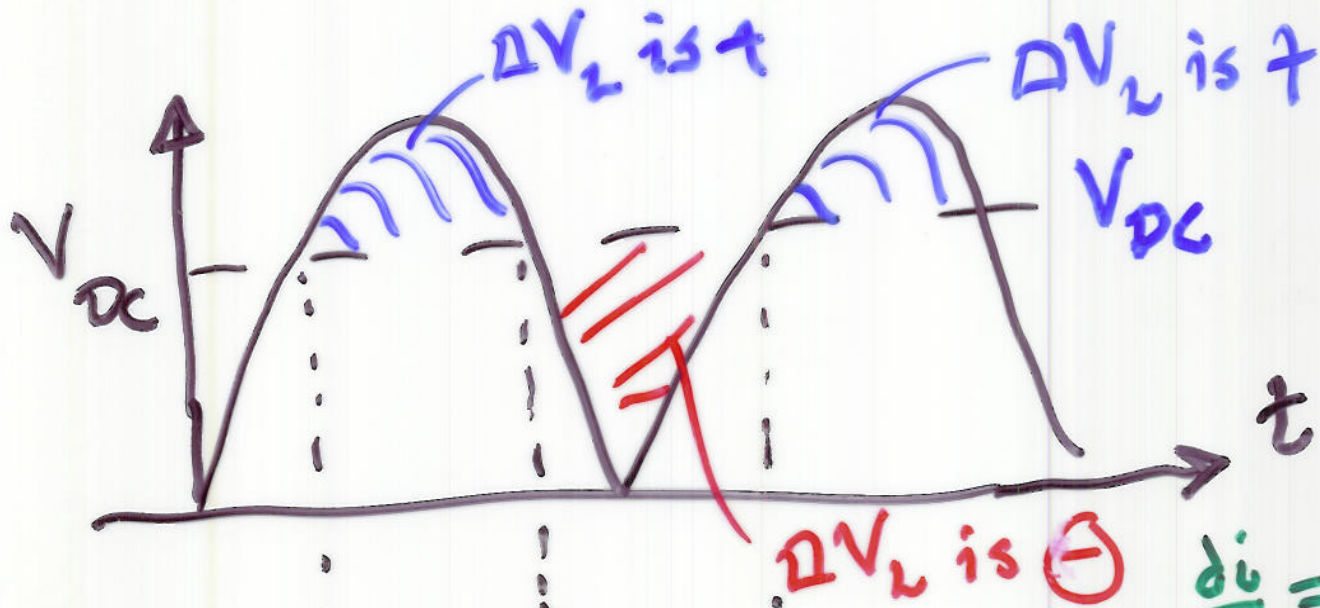
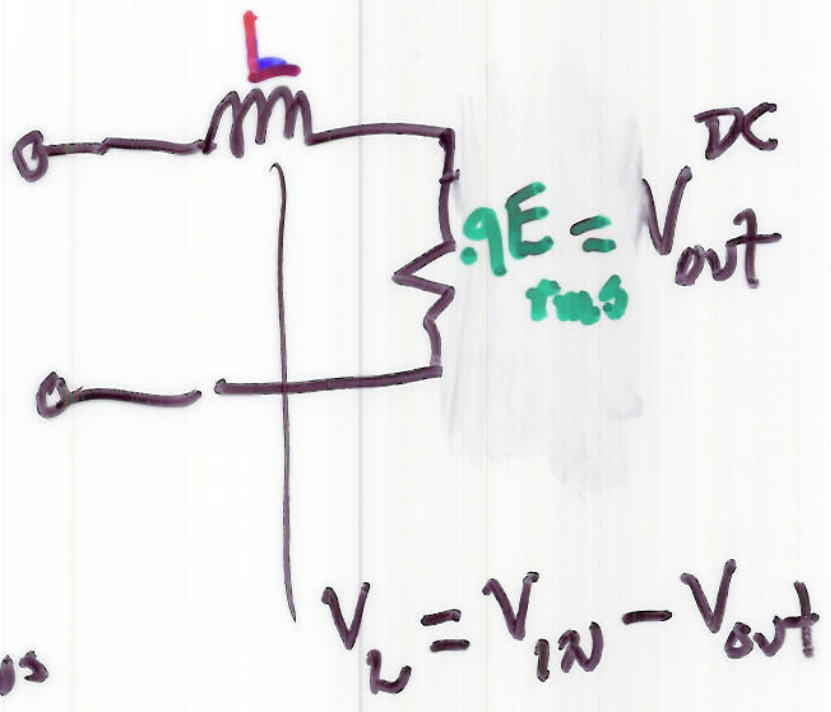
$\cos \theta = 1.0$ is power factor

Power Factor R-L load



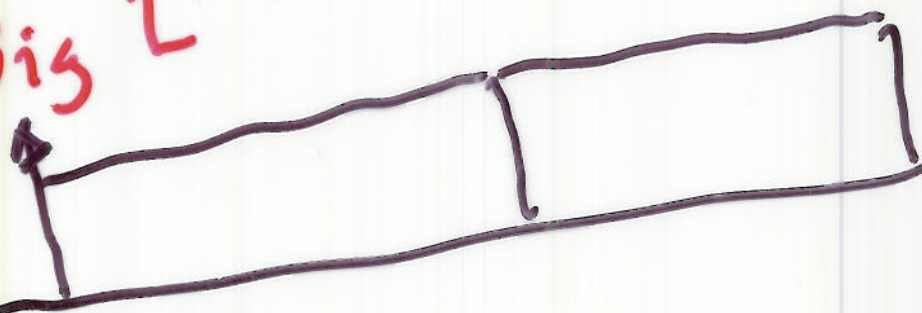
lag

$$\theta \neq 0 \quad \cos \theta < 1.0$$

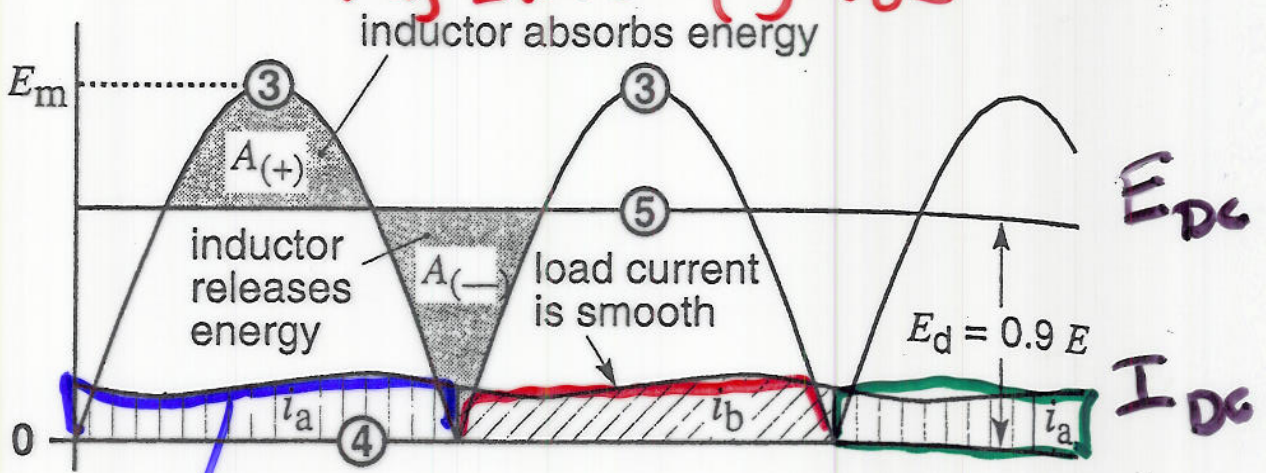
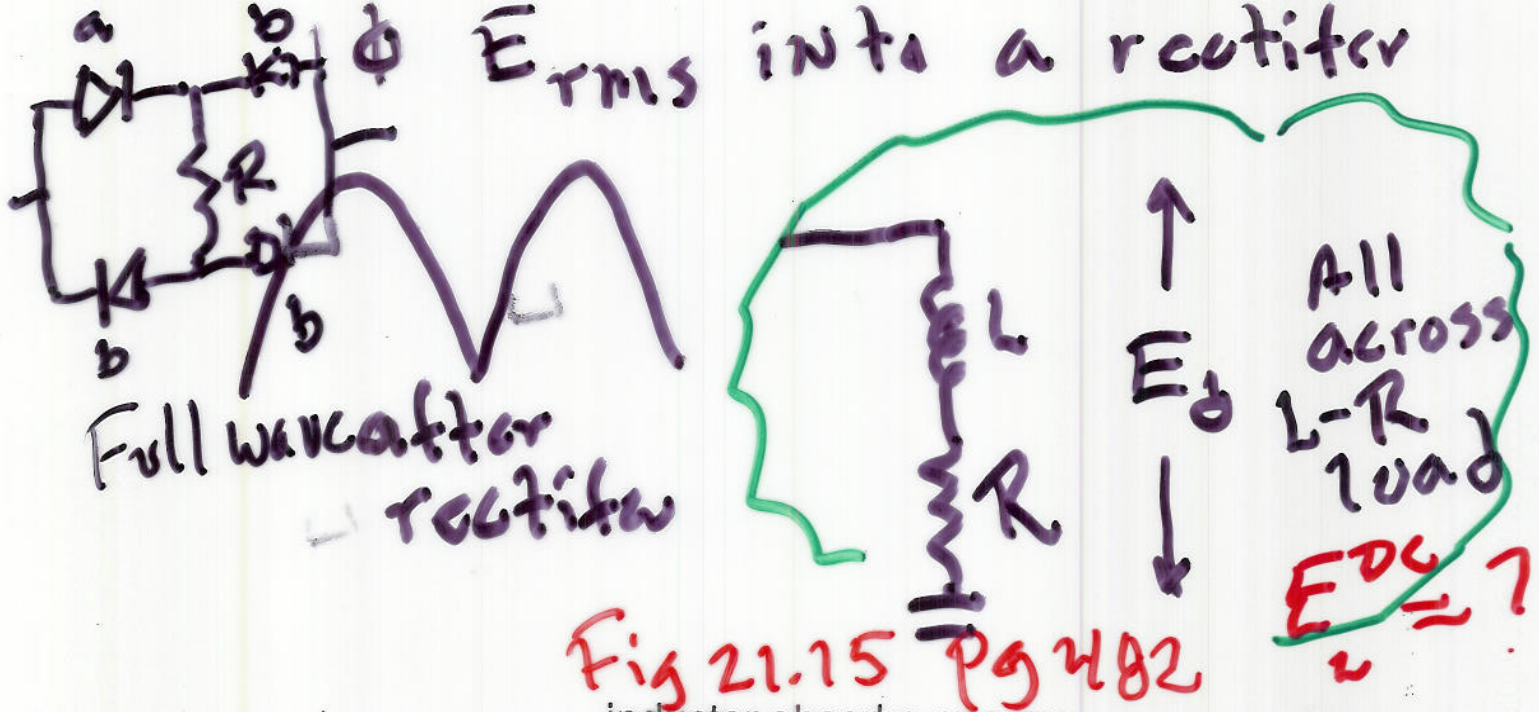


Small L

Big L



\square -wave of current



Single Phase \approx π -wave out each diode

Average i for each diode $\approx \frac{I_{DC}}{2}$

For 3ϕ E_{rms} 6 point rectifier

π -wave

Average i for each diode \approx

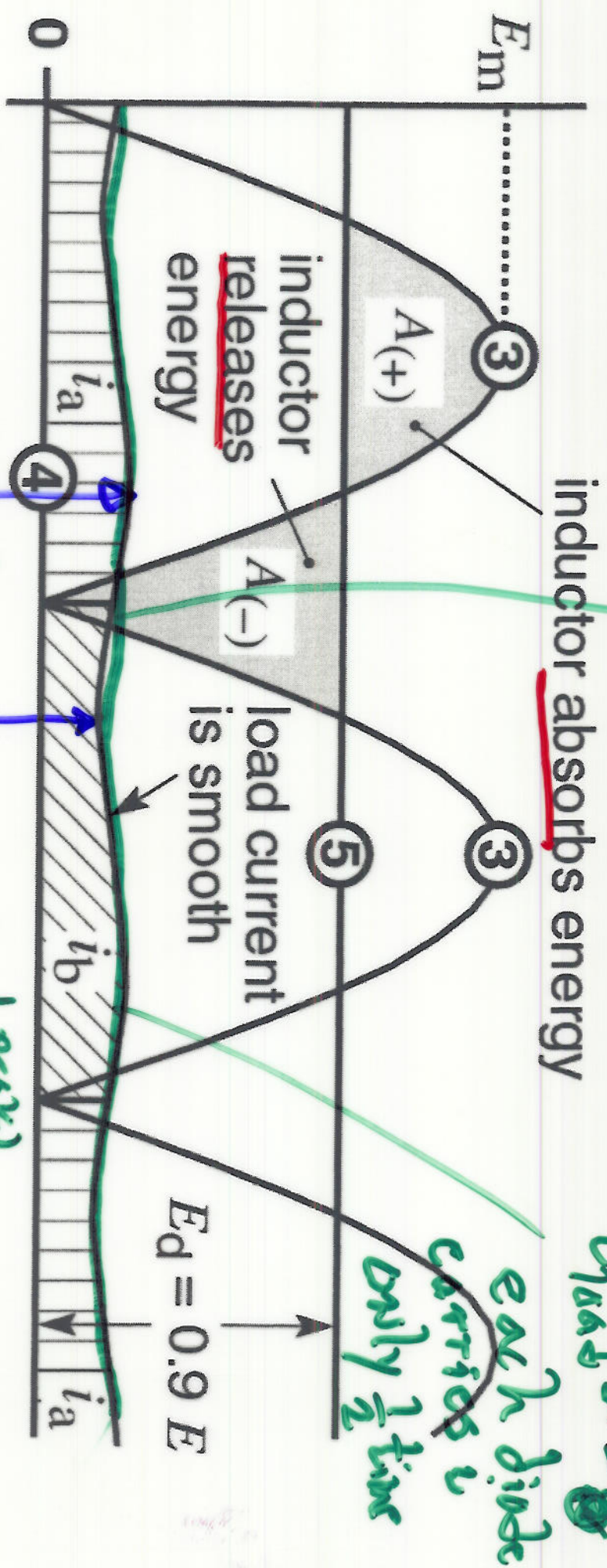
Diagram showing a 6-point rectifier circuit with a transformer secondary (a, b, c, a, b, c) and a load consisting of an inductor L and a resistor R in series. The output voltage is E_d and the load current is I_d . The load is labeled "All across L-R load".

Diagram showing a 3-phase 6-point rectifier circuit with a transformer secondary (a, b, c, a, b, c) and a load consisting of an inductor L and a resistor R in series. The output voltage is E_d and the load current is I_d . The load is labeled "All across L-R load".

① Figure 21.5 Pg 232

choose L large so v never 0

1 Φ rectifier if L large



inductor absorbs energy

inductor releases energy

load current is smooth

each diode carries only $\frac{1}{2}$ time

$i_{load} \approx \frac{I_{peak}}{2}$

$\Delta t \approx \frac{1}{2f_{AC}}$

i_{peak}

i_{min}

I_{AV}

$I_{AV} = I_{DC} = \frac{I_{peak}}{2}$

Figure 21-15 Current and voltage waveforms with inductive filter.

