Project

25% H. W.

Student Choice

April 8 Session 33

n 22
H.W. #4

Phasor Diagrams

\[ \text{Diagram with phasors and circuit elements} \]
\[ P = \frac{E}{x}, \quad \frac{V_{R \sin \beta}}{E} \]
Assumption that control device

Increase $Q$ when the voltage is high.
1) initially not at $P_{LD}$ limit. 

Gen bus. \[ P = \frac{V_I \cdot V_R \cdot \sin(\theta_V - \theta_R)}{X_I} \]
2) hit fill current limit

Voltage magnitude is not a good measure of how close you are to collapse.
14.1

\[ V_1 = 1.0 \text{ p.u.} \]

\[ P = 1.36 \text{ MW}, 1.56 \text{ MW}, 1.76 \text{ MW}, 1.96 \text{ MW} \]
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\[ Q_i = \frac{3}{2} \frac{x_c}{V_{in}^2} \]
\[ Q_i = \frac{300 \text{ MVAR}}{1 \text{ pu}^2} \]
\[ |\frac{V_{in}^2}{2} \text{ and } \frac{V_{in}^2}{2} | \]

\[ \text{K V}_2^2 \text{ K V}_2^2 \]
If the R is high

If r ≤ a or f ≤ v e

de "a " ≥ d e u e

increase a. ⇒ increase v e

if v e is low

if R is low

Stable point
\[ \frac{\theta_{\text{sys.}}}{\theta V_R} > \frac{\theta Q_i}{\theta V_R} \]