Power Electronics Converters and Systems
DC/AC Conversion

Homework 7 (Bonus)

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Aspects of Assignment

- Problem 11: Create an average value model of the WRSM generation system we described in Lecture Set 7. Produce well documented code, and reproduce the average value model results of lecture Set 7, Slides 35.
- Parameters are in the paper, “Reading: S.D. Sudhoff, K.A. Corzine, H.J. Hegner, D.E. Delisle, “Transient and Dynamic Average-Value Modeling of Synchronous Machine Fed Load-Commutated Converters,” IEEE Trans. On Energy Conversion, Vol. 11, No. 3, September 1996”

Notes on plots

- Change in load at 2.8 s
- Show time from 2.7 s to 3.2 s in all plots
- Figure 1: Q- and d-axis voltages. Range: 0 to 35 V.
- Figure 2: Torque. Range -5 to 0 Nm.
- Figure 3: Field current. Range 0 to 0.6 A.
- Figure 4: DC current. Range 0 to 15 A
- Figure 5: Q- and d-axis currents. Range -14 to 0 A.
- Figure 6: Commutation angle. Range 0 to 60 degree