

Fig.16. SRG 6/4 and 8/6 (a) Efficiency (b) Losses

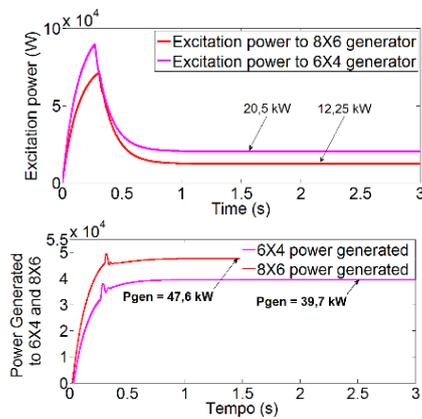


Fig. 17. SRG 6/4 and 8/6 (a) Excitation Power (b) Generated Power

## 6. Conclusion

This work presented a comparative study between two 60 kW Switched Reluctance Generators, one of them is a three-phase machine with 6/4 poles configuration and the other a four-phase machine with 8/6 poles configuration. The mathematical model presented has included the effects of magnetic saturation. The system modeling has specified the flux as state variable and was based on the stator current curve  $i(\lambda, \theta)$  and torque curve  $T(i, \theta)$ . The curves of efficiency, losses, generated power and generated voltage as a function of the magnetization angles  $\theta_{on}$  and  $\theta_{off}$  were shown for

fixed and variable speed. A DC link voltage control scheme was also presented. From the results it was verified that under the same operating conditions the 8/6 SRG presents higher efficiency and generated power, lower losses and a small requirement of excitation power in relation to 6/4 SRG. In addition, it was verified that the 8/6 SRG presents smaller oscillations of torque and minor oscillations in the DC bus voltage.

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