

5. Simulation of Grid Connected Fuel Cell Panel

5.1 Current Controller

The current controller mainly used for getting triggering pulse as per the reference value. Here we take the inverter output current and using by MATLAB software converts the current into direct axis and quadrature axis current. This two currents and current given by power controller outputs compared and using PI controller we get the pulse.

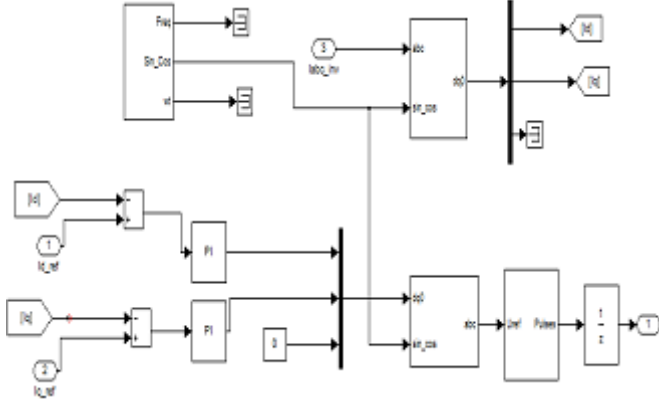


Figure 5.1: Current controller

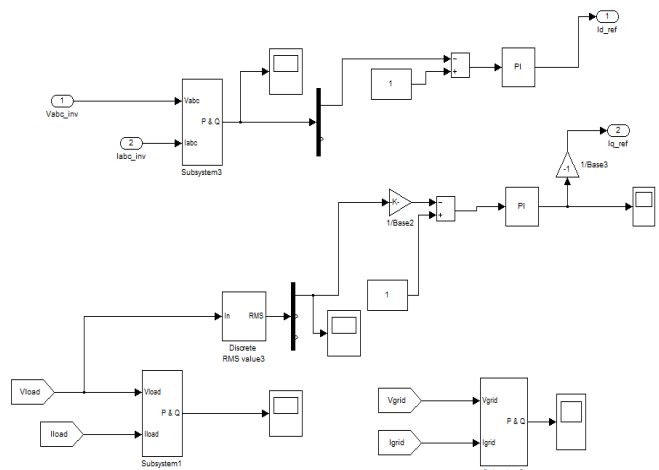


Figure 5.2: Power controller

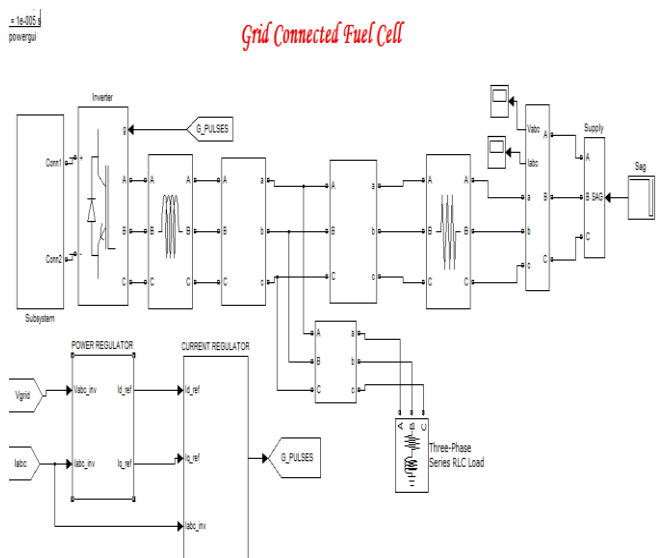


Figure 5.3: Simulink diagram of Grid connected Fuel Cell power generation system

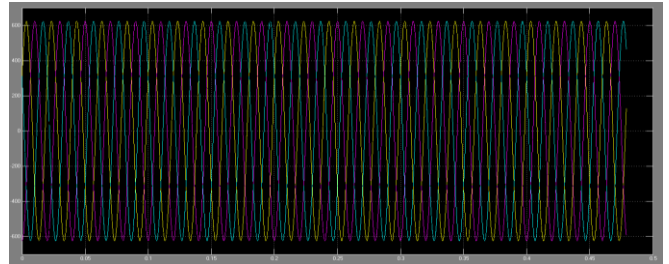


Figure 5.4: Grid voltage waveform

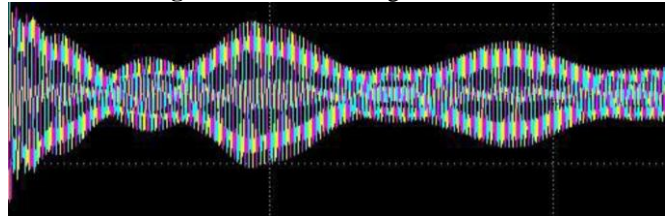


Figure 5.5: Grid Current waveform

6. Conclusion

In this paper we are successfully study of simulation of grid connected fuel cell using MATLAB software. Three main tasks of the proposed power conditioning system (PCS) are DC link voltage regulation, power flow control and power quality improvement. Correspondingly, PCS is composed of DC/DC converters, DC/AC inverter. The modeling process and stability analysis of each part are presented in this thesis. This dissertation focuses on load/grid connected fuel cell power system (FCPS) which can be used as a backup power source for household and commercial units. This backup power source will be efficient and will provide energy at an affordable per unit cost. Load/grid connected fuel cell power system mainly comprises of a fuel cell module.

References

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