

Figure 15. Response of power and voltage before boost converter

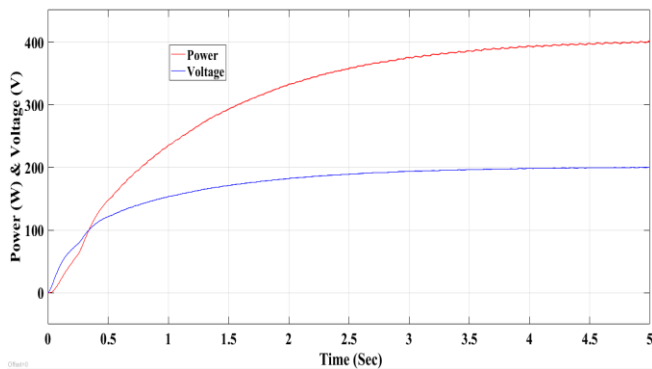


Figure 16. Output power and voltage after boost converter with P&O MPPT controller

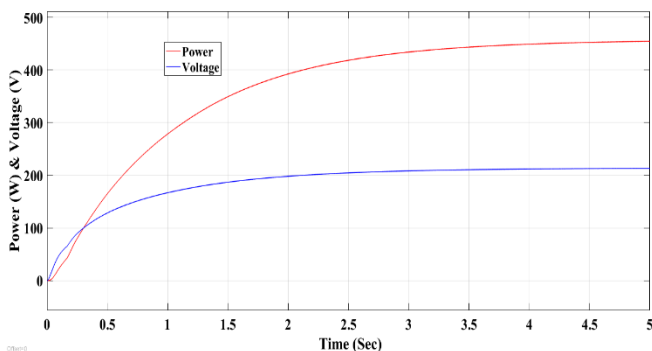


Figure 17. Output power and voltage after boost converter with FL based MPPT controller

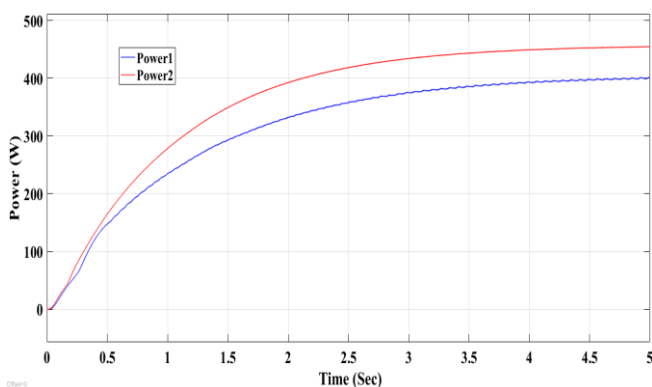


Figure 18. Comparative characteristics of output power of boost converter using P&O and FL based MPPT controllers

Figure 16 and Figure 17 show the output power and voltage of boost converter with P&O and FL based MPPT controllers, it is clearly seen that the that the voltage value (in blue) of 200 V and power value (in red) of 400 W using P&O based MPPT controller and the voltage value (in blue) of 210 V and power value (in red) of 450 W using FL based MPPT controller. Similarly, Figure 18 shows the comparative analysis of output power of boost converter using P&O and FL based MPPT controllers. It is clearly observed that the output power value (in red power2) is a greater response as compared to output power value (in blue power1).

7.CONCLUSIONS

In this paper, A PEMFC system is stand-alone generation framework consisting of a PEMFC stack, dc-dc power boost converter, MPPT controllers, and the load was developed in MATLAB/ SIMULINK. To discussed PEMFC stack with different MPPT controllers and fuel flow rate, the selecting of the FL controller is best for achieving maximum power from FC system. The FC power system's efficiency has improved from 40 percent to 45 percent using FL controller and demonstrates the effectiveness of the proposed PEMFC system. Also, reduced the fluctuation about the MPP. Future research can be done on economic analysis of the stand-alone as well as on grid-connected PEMFC framework using a hybrid intelligent MPPT controller for different loads.

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