

Trade Study for Integrating Numerous Solid State Energy Conversion Alliance (SECA) Solid Oxide Fuel Cell (SOFC) Modules

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At the [Power Electronics and Electric Machinery Center](#) of the [National Transportation Research Center](#), several power electronics converters for integrating fuel cells have been modeled in Matlab Simulink. The results of the models will be used in the final report for comparison purposes.

Figure 1 shows SOFC modules connected in series feeding a three-phase R-L load through a three-phase inverter. Figure 2 shows SOFC modules connected in series feeding a three-phase R-L load through a three-phase inverter. Figure 3 shows one phase of a multilevel inverter feeding a single-phase R-L load.

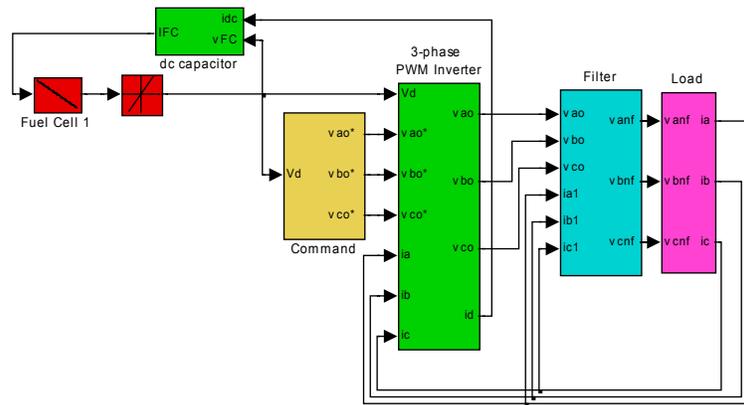


Figure 1 : SOFC modules connected in series feeding a three-phase R-L load through a three-phase inverter.

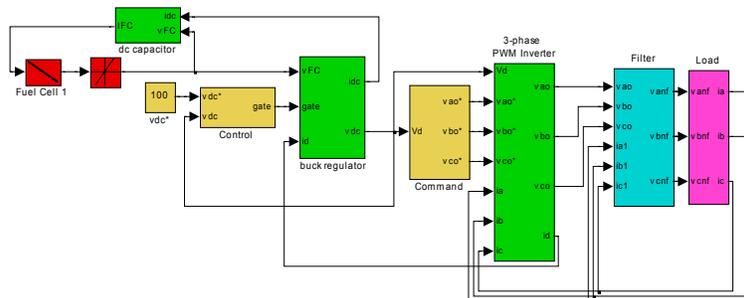


Figure 2 : SOFC modules connected in series feeding a three-phase R-L load through a three-phase inverter (with regulated dc output voltage).

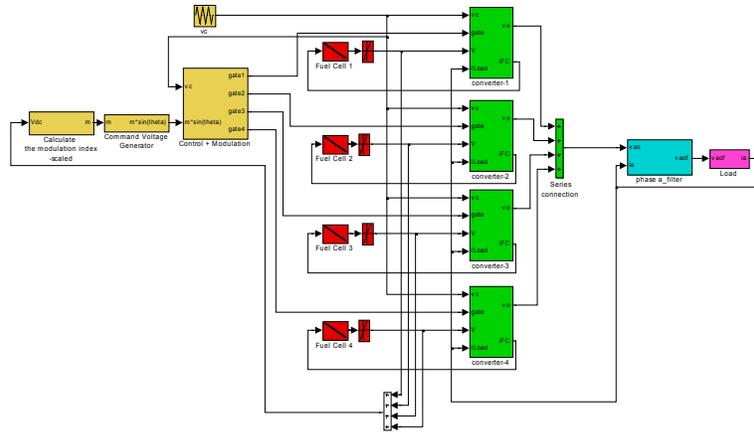


Figure 3 : One phase of a multilevel inverter feeding a single-phase R-L load

The two 2.2 kW alkaline fuel cells from Zetek are being prepared to be shipped to Alternative Fuel System Ltd. for repair.

[Read more about this work.](#)