When the sealed lead acid (SLA) battery is supplying power to the load, it is very important that it is not over discharged (or deep discharged); as this will damage the cells, greatly reducing the life of the battery.

The above drawing shows how to add a simple deep discharge protection circuit to our recommended MOSFET supply changeover circuit. This circuit will switch Q1 OFF when the battery terminal voltage drops to ~9.8V and will prevent it from being switched back ON until the terminal voltage is raised above ~12.5V.