

- a computer for determining the amount of the third power stored in the battery and the priority order of the at least two loads; and
- a control signal generator for generating control signals for selectively providing the third power stored in the battery to the at least two loads under the control of the computer.
- 8.** The energy storage system of claim 7, further comprising a battery management system (BMS) for managing charging/discharging the third power stored in the battery under the control of the integrated controller, wherein the integrated controller further comprises a BMS controller for controlling the BMS.
- 9.** The energy storage system of claim 1, further comprising a DC linking unit for maintaining a voltage level of a DC voltage of the first node at a DC linking level.
- 10.** The energy storage system of claim 1, wherein the renewable energy generating system comprises a photovoltaic system.
- 11.** An energy storage system comprising:
- a first power converter for converting power generated by a renewable energy generating system to a first power;
 - a second power converter for converting the first power to a second power and storing the second power in a battery and for converting the second power stored in the battery to the first power;
 - a third power converter for converting the first power and outputting the converted first power to a load or a grid and for converting power provided by the grid to the first power; and
 - an integrated controller for controlling the first through third power converters, so that power is selectively provided to the load based on an amount of the second power stored in the battery and a priority order of the load.
- 12.** A method of controlling an energy storage system coupled to a renewable energy generating system, a load, and a grid, the energy storage system comprising a maximum power point tracking (MPPT) converter for converting a first power generated by the renewable energy generating system and outputting the converted first power to a first node; a battery for storing the first power generated by the renewable energy generating system or a second power provided by the grid; a bi-directional inverter for converting the first power of the first node, for outputting the converted first power to the load or the grid, and for converting the second power provided by the grid and outputting the converted second power to the first node; a bi-directional converter for converting the first power of the first node for storing the converted first power in the battery, and for converting a third power stored in the battery and outputting the converted third power to the first node; and an integrated controller, the method comprising:
- determining whether or not an amount of the third power stored in the battery is above a first critical power amount;
 - providing power to the load regardless of a priority order of the load in the case where the amount of the third power stored in the battery is above the first critical power amount and determining the priority order of the load in the case where the amount of the third power stored in the battery is less than the first critical power amount; and
 - selectively providing power to the load based on the determined priority order of the load.
- 13.** The method of claim 12, further comprising setting up the priority order, so that the load is categorized into first, second, and third priority loads.
- 14.** The method of claim 13, wherein said selectively providing power to the load comprises providing power to the first and second priority loads.
- 15.** The method of claim 13, further comprising receiving a power interruption signal, which indicates a power interruption in the grid, wherein, when the power interruption signal is received, the amount of the third power stored in the battery is determined.
- 16.** The method of claim 13, further comprising determining whether or not the amount of the third power stored in the battery is above a second critical power amount, wherein, when the amount of the third power stored in the battery is less than the second critical power amount, power is provided only to the first priority load.
- 17.** The method of claim 13, further comprising determining whether or not the amount of the third power stored in the battery is above a third critical power amount, wherein, when the amount of the third power stored in the battery is less than the third critical power amount, power provided to the load is blocked.
- 18.** The method of claim 15, further comprising turning off a switch coupled between the energy storage system and the grid when the power interruption signal is received.
- 19.** The method of claim 12, wherein the renewable energy generating system is photovoltaic.
- 20.** The method of claim 12, further comprising stabilizing a voltage level of the first node to a DC linking level.

* * * * *