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(54) **LOAD CONTROL ARCHITECTURE OF AN ENERGY CONTROL SYSTEM**

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(57) **ABSTRACT**

The present disclosure provides an electrical system that includes an energy control system, a photovoltaic (PV) power generation system electrically coupled to the energy control system, an energy storage system electrically coupled to the energy control system, and a smart load panel electrically coupled to the energy control system and to a plurality of backup loads. The energy control system operates in an on-grid mode electrically connecting the PV power generation system to a utility grid and a backup mode electrically disconnecting the PV power generation system from the utility grid. The smart load panel selectively disconnects one or more of the plurality of backup loads from the energy control system when the energy control system is in the on-grid mode and when the energy control system is in the backup mode.