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(54) **DYNAMICALLY RECONFIGURABLE PHOTOVOLTAIC SYSTEM**

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(57) **ABSTRACT**

A PV system composed of sub-arrays, each having a group of PV cells that are electrically connected to each other. A power management circuit for each sub-array has a communications interface and serves to connect or disconnect the sub-array to a programmable power grid. The power grid has bus rows and bus columns. A bus management circuit is positioned at a respective junction of a bus column and a bus row and is programmable through its communication interface to connect or disconnect a power path in the grid. As a result, selected sub-arrays are connected by selected power paths to be in parallel so as to produce a low system voltage, and, alternately in series so as to produce a high system voltage that is greater than the low voltage by at least a factor of ten.

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