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(54) **MODIFIED DYNAMIC VOLTAGE AND REACTIVE POWER CONTROL OF AC POWER DISTRIBUTION NETWORKS**

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(57)

ABSTRACT

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An electrical power distribution system configured to automatically regulate one or more Voltage/VAR control devices for optimization of one or more user defined metrics in an alternating current (AC) electrical power distribution system that includes one or more power distribution lines configured to transmit AC electrical power between a substation and a plurality of loads, each power distribution line including one or more Voltage/VAR control devices configured to regulate voltage and reactive power of the AC electrical power on the power distribution line according to an operational setting for each of the one or more Voltage/VAR control devices and one or more sensors configured to sense a sensed quality of the AC electrical power on the one or more power distribution lines with at least one communication network communicating with the one or more Voltage/VAR control devices and the one or more sensors.

