CLAIMS

1. A data management system for a power grid, the power grid comprising a central power grid ~~authority~~ controller for managing the power grid and a plurality of devices within the power grid, the data management system comprising:

local data storage associated with a device positioned in a section of the power grid, the local data storage being proximate to the device, the device ~~sensing~~ configured to sense an electrical parameter in the section of the power grid, the data storage comprising a plurality of memory locations for storing the sensed electrical parameter; and

a central data storage associated with the central power grid ~~authority~~controller, wherein the central data storage comprises links to the memory storage locations in the local data storage, and the central power grid controller is configured to access the sensed electrical parameter seamlessly from the plurality of memory storage locations in the local data storage using the links stored in the central data storage.

2. The data management system of claim 1, wherein the device within the power grid comprises a substation.

3. The data management system of claim 2, wherein the local data storage associated with the substation comprises a memory that is located in or on the substation.

4. The data management system of claim 2, wherein the substation sends the link to the central power grid ~~authority~~controller; and wherein the central power grid ~~authority~~ controller stores the link in the central data storage as a pointer to an address in the local data storage that houses the sensed electrical parameter.

5. The data management system of claim 4, wherein the central power grid ~~authority~~ controller accesses the link stored in the central data storage;

wherein the central power grid ~~authority~~ controller sends a request to the substation requesting data ~~associated with~~, the request including the stored database link; and wherein the central power grid ~~authority~~ controller receives a response from the substation comprising the data retrieved from the address in the local data storage associated with the link.

6. The data management system of claim 4, wherein the substation further sends at least one header associated with the link; and wherein the central power grid ~~authority~~ controller comprises:

a first portion of a bus for communicating operational data to the central power grid ~~authority~~controller, the operational data comprising at least one real-time measurement of voltage, current, real power, or reactive power for at least a part of the power grid; and

a second portion of the bus for communicating event data to the central power grid ~~authority~~controller, the second portion being separate from the first portion, the event data being distinct from and derived from the real-time measurement and comprising at least one analytical determination as to operation of the power grid based on the at least one real time measurement,

wherein the operational data is communicated via the first portion and not communicated via the second portion, and

wherein the event data is communicated via the second portion and not communicated via the first portion.

7. The data management system of claim 1, wherein data is stored in the memory location in the local data storage; wherein the central data storage stores the link to the memory location in the local data storage and does not store the data stored in the memory location.

8. The data management system of claim 1, wherein the at least one of the plurality of devices within the power grid comprises a meter at a customer premises.

9. A method for data management system for a power grid, the power grid comprising a central power grid ~~authority~~ controller for managing the power grid and a plurality of devices within the power grid, the method comprising:

sensing, using an electrical device positioned in a section of the power grid, an electrical parameter in the section of the power grid;

storing the sensed electrical parameter in a memory location of a local data storage device, the local data storage device associated with the electrical device and proximate to the device; and

sending to a central data storage associated with the central power grid ~~authority~~ controller the memory location of the data storage device for storage as a link in the central data storage, the link providing the central power grid controller a pointer to access the memory location in the local data storage device where the sensed electrical parameter is stored.

10. The method of claim 9, wherein the device within the power grid comprises a substation.

11. The method of claim 10, wherein the local data storage associated with the substation comprises a memory that is located in or on the substation.

12. The method of claim 10, wherein the substation sends as the link to the central power grid controller the pointer which is an indication of an address that houses the storage location of the data in the local data storage~~to the central power grid authority~~; and wherein the central power grid ~~authority~~ controller stores the indication of the link in the central data storage to provide the central power grid controller seamless access to the memory location.

13. The method of claim 12, wherein the central power grid ~~authority~~ controller accesses the link in the central data storage; wherein the central power grid ~~authority~~ controller sends a request to the substation requesting data associated with the address that houses the storage location of the data in the local data storage~~link~~; and wherein the central power grid ~~authority~~ controller receives a response from the substation comprising the data associated with the address that houses the storage location of the data in the local data storage~~link~~.

14. A power grid management system for managing a power grid, the power grid comprising a plurality of grid devices, the power grid management system comprising:

~~a central power grid authority for managing the power grid;~~

a first grid device positioned in a first section of the power grid, the first device comprising:

a first sensor for sensing an electrical parameter associated with at least one feeder circuit in the first section of the power grid;

a first processor ~~for analyzing~~configured to analyze the sensed electrical parameter in the first section of the power grid and ~~determining~~ determine an event has occurred based on the sensed electrical parameter, and

a second grid device ~~comprising~~ associated with a substation positioned in a second section of the power grid, the second grid device comprising:

a second sensor configured to sense a second electrical parameter in the second section of the power grid; and

a second processor ~~for receiving~~configured to:

receive the event determined by the first grid device and communicated to the second grid device,

analyze the event determined by the first grid device and the second electrical parameter in the second section of the power grid to refine analysis of the event determined by the first grid device,

~~for modifying~~automatically modify operation of at least a ~~section of the power grid comprising~~part of the second section based on the event determined by the first grid device and the analysis by the second processor, the modification of operation including automatically change at least one control aspect of the first section of the power grid or the second section of the power grid by controlling operation of the substation and/or adjusting power supplied to the first section of the power grid, and

~~for transmitting~~transmit to ~~the~~ a central power grid ~~authority~~ controller information indicative of the modification of the first section and/or the second~~the at least a~~ section of the power grid.

15. The power grid management system of claim 14, wherein the second grid device modifies the section of the power grid without intervention of the central power grid ~~authority~~controller.

16. The power grid management system of claim 14, wherein at least one feeder circuit emanates from the substation; and

wherein the first sensor of the first grid device senses the electrical parameter for at least a part of the feeder circuit.

~~17. The power grid management system of claim 16, wherein the second grid device further comprises a second sensor for sensing an electrical parameter in the second section of the power grid; and~~

~~wherein the second processor analyzes the event determined by the first grid device and the sensed electrical parameter in the second section of the power grid in order to modify the at least a section of the power grid.~~

~~18~~17. The power grid management system of claim ~~17~~14, wherein the substation further comprises local data storage associated with and proximate to the substation, the local data storage comprising a plurality of memory locations for storing the sensed electrical parameter in the second section of the power grid.

~~19~~18. A grid device associated with a substation in a first section of a power grid, the ~~substation~~ first section comprising:

a sensor configured to sense a first electrical parameter associated with at least one feeder circuit in the first section of the power grid, wherein the grid device includes a communication interface configured to communicate with ~~a~~ another grid device positioned in a second section of the power grid, and receive indication of an event from the another grid device, ~~configured to sense an electrical parameter in the second section of the power grid, analyze the sensed electrical parameter in the second section of the power grid, and determine an~~the event determined by the another grid devices

based on ~~the~~ analysis of a sensed electrical parameter~~,~~ in the second section of the power grid~~the communication interface configured to receive the event~~; and

a processor in communication with the sensor and the communication interface, the processor configured to:

~~receive~~ combine the event ~~determined by~~communicated to the grid device from the another grid device and the first electrical parameter communicated from the sensor to further refine the analysis of the event,

automatically modify operation of the first section of the power grid and/or the second section of the power grid based on the further refined analysis of the ~~received~~ event by control of operation of the substation and/or adjustment of power supplied to the first section of the power grid, and

transmit to a central power grid ~~authority~~ controller information indicative of the modification of the first section of the power grid.

~~20~~19. The ~~substation~~ grid device of claim ~~19~~18, wherein the ~~substation~~ processor is configured to automatically modify the first section or the second section of the power grid without intervention of the central power grid ~~authority~~controller.

~~21~~20. The ~~substation~~ grid device of claim ~~19~~18, wherein a feeder circuit emanates from the substation; and

wherein the communication interface is configured to receive from the another grid device the sensed electrical parameter for at least a part of the feeder circuit.

~~22. The substation of claim 21, further comprising a sensor configured to sense an electrical parameter in the first section of the power grid; and~~

~~wherein the processor is configured to analyze the event determined by the grid device and the sensed electrical parameter from the sensor in order to modify the first section of the power grid.~~

~~23~~21. The ~~substation~~ grid device of claim ~~22~~18, wherein the substation further comprises local data storage associated with and proximate to the substation, the local data storage comprising a plurality of memory locations configured to store the sensed electrical parameter from the sensor.