CLAIMS:

1. A method of assessing an electrical device connected to an electrical circuit, the device in operation providing an electrical load, the method including assessing at least one electrical feature of the electrical device, and determining at least one electrical characteristic of the electrical device, comparing the at least one electrical characteristic to recorded electrical signatures of other electrical devices, and determining from the comparison that the electrical device is either one of the other electrical devices or is a different electrical device.

2. The method of claim 1, including storing the at least one electrical characteristic and/or the at least one electrical feature in a record.

3. The method of claim 2, the record including searchable record of multiple said characteristics and/or multiple features of multiple electrical devices.

4. The method of any one of claims 1 to 3, the characteristic(s) or feature(s) used as a reference or benchmark for other electrical devices for assessment.

5. The method of claim 4, including identifying other electrical devices with the same or similar characteristic(s) and/or feature(s) as the same type of device or within a family of devices.

6. The method of any one of claims 1 to 5, the assessed feature(s) and/or characteristics include current and/or voltage harmonics.

7. The method of any one of claims 1 to 6, wherein the assessed feature(s) and/or characteristic(s) include power harmonics of the electrical device.

8. A system for assessing or monitoring performance of electrical devices connected to at least one electrical circuit, the system including at least one electrical information collector connected a said electrical circuit, at least one processor receiving and processing electrical information relating to at least one electrical feature, characteristic or harmonic of operation of the respective electrical device, a transmitter sending the processed electrical information to at least one remote location, a means for generating at least one unique electrical characteristic of the respective electrical device derived from the electrical information relating to the respective electrical device, and the system including a comparator that compares characteristics of the respective electrical device to recorded electrical characteristics of at least one other electrical device, and the system including means to determine whether said electrical device is one of the at least one other electrical device or is different from the at least one other electrical device.

9. The system of claim 8, including access to a record of the at least one characteristic and/or the at least one feature of a number of said electrical devices.

10. The system of claim 8 or 9, including the comparator benchmarking information of two said electrical devices.

11. The system of any one of claims 8 to 10, including assignment means to assign an identifier to the electrical device being assessed or monitored.

12. A network of multiples of the system of claims 8 to 11, the systems sharing access to the records/data containing the records.

13. A method of monitoring electrical energy usage of at least one electrical device in use includes the steps of:

obtaining electrical usage data relating to at least one electrical energy usage characteristic of at least one electrical device in use;

identifying at least one electrical energy feature relating to the at least one electrical energy usage characteristic of the at least one electrical device in use;

comparing the at least one electrical characteristic to recorded electrical signatures of other electrical devices; and

determining from the comparison that the electrical device is either one of the other electrical devices or is a different electrical device.

14. The method of claim 13, wherein the at least one electrical energy usage characteristic of the at least one electrical device includes one or both of current and voltage characteristics of the respective electrical device.

15. The method of claim 13 or 14, wherein the at least one electrical use signature is obtained periodically by sampling the electrical energy usage characteristic of the respective at least one device in use.

16. The method of claim 15, wherein the sampling is conducted over a period of time.

17. The method of claim 16, wherein, the sampling is conducted at above 10Hz, preferably at 12.8 kHz or more.

18. The method of any one of claims 13 to 17, the at least one electrical energy usage characteristic includes at least one energy use signature of the at

least one electrical device include electrical current and/or voltage harmonics characteristics.

19. The method of claim 18, wherein the harmonics characteristics include one or more sampled current and/or voltage values over time.

20. The method of any one of claims 13 to 19, the obtaining of the electrical energy use data includes obtaining the electrical energy usage characteristics from one or more electrical circuits with at least one said electrical device providing an electrical load in each said circuit.

21. The method of any one of claims 13 to 20, wherein at least one said electrical device has a set of associated electrical energy use characteristics, the electrical energy use signature identifying that device as a particular electrical load.

22. The method of claim 21, wherein the set of associated electrical energy use characteristics is compared with a known said identification characteristics for a particular type or model of said electrical device, and any variation(s) in electrical energy use characteristics between the obtained characteristics and known identification is/are used to determine any need for modification of electrical energy usage.

23. The method of claim 21 or 22, wherein the obtained electrical energy use characteristic is used to establish the identification of subsequent use for that electrical device.

24. The method of any one of claims 13 to 23, wherein the identification is assigned as an identification code for other like types or models of the device in other electrical circuits.

25. The method of any one of claims 13 to 24, including using the at least one electrical energy use characteristic to determine a maintenance or replacement strategy for the at least one electrical device.

26. The method of any one of claims 13 to 25, whereby features of an electrical energy use waveform are sampled to identify one or more electrical characteristics of a device.

27. The method of claim 26, wherein multiple features are sampled from multiple harmonics of the electrical energy use waveform.

28. The method of claim 26 or 27, including modifying the electrical character set of a device by relating the features/characteristics to the electrical identities from sampled features of one or more other devices at other locations and/or in other circuits.

29. The method of claim 27, whereby deviations over time from sampled harmonics are used to identify or indicate degradation or potential failure of device.

30. A method of analysing and reporting electrical data relating to electrical energy usage, the method including: connecting a portable electrical energy diagnostic apparatus to at least one electrical circuit of the building or installation, obtaining for a period of time electrical data relating to electrical energy usage characteristics of at least one electrical device connected to at least one electrical

circuit, analysing the obtained electrical data, and reporting on the electrical energy usage characteristics based on the analysed electrical data, the method including identifying an electrical energy usage characteristics of one or more of said at least one electrical device, comparing the at least one electrical usage characteristic characteristics to recorded electrical signatures of other electrical devices, determining from the comparison that the electrical device is either one of the other electrical devices or is a different electrical device, and providing an electrical energy usage modification strategy for use in determining need for modification of electrical energy usage characteristics in the at least one circuit.