SUMMARY OF THE INVENTION

[0006] In ~~one form, although not necessarily the only or broadest form, the invention resides~~ a first aspect, ~~in~~ a method of measuring electrical power is provided including the steps of:

measuring a first electrical input variable at an input to a power conditioner connected to an electricity supply;

measuring one or more electrical output variables at an output of the power conditioner;

calculating a second electrical input variable at the input to the power conditioner according to the one or more electrical output variables measured at the output and the first electrical input variable measured at the input;

calculating an estimated power according to the measured first electrical input variable and the calculated second electrical input variable; and

sending the estimated power via a data interface.

[0007] Preferably, the first electrical input variable is an input voltage and the second electrical input variable is an estimated input current. Alternatively, the first electrical variable is an input current and the second electrical variable is an estimated input voltage.

[0008] Preferably, the one or more electrical output variables measured at the output includes one or more of an output voltage, an output current, and an actual power.

[0009] Preferably, the actual power is one or more of an apparent output power and a real output power. The estimated power may be an estimated apparent power and/or an estimated real power.

[0010] Preferably, the method includes the step of calculating a power difference between the estimated power and the actual power, and sending the power difference via the data interface. Preferably, a level of power savings may be calculated from the power difference.

[0017] Preferably, the method includes calculating an output voltage according to a desired level of savings set by a user, and setting the output voltage of the power conditioner according to the calculated output voltage.

[0018] Preferably, the method includes the step of calculating a power loss of the power conditioner. Preferably the power loss is an apparent power loss. Preferably, the power loss is a real power loss. Preferably, the real power loss is subtracted from the real power savings. Preferably, the apparent power loss is subtracted from the apparent power savings.

[0019] In another ~~form, the invention resides in a measurement system, the~~aspect, a measurement system is provided including:

a processor and a memory coupled to the processor, the memory including computer readable program code components configured to cause the processor to:

measure a first electrical input variable at an input to a power conditioner connected to an electricity supply;

measure one or more electrical output variables at an output of the power conditioner;

calculate a second electrical input variable at the input to the power conditioner according to the one or more electrical output variables measured at the output and the first electrical input variable measured at the input;

calculate an estimated power according to the measured first electrical input variable and the calculated second electrical input variable; and

send the estimated power via a data interface.

[0020] In another ~~form, the invention resides~~embodiment, ~~in~~ a method of estimating a load power is provided including the steps of:

measuring one or more electrical supply variables of an electricity supply;

calculating one or more electrical load variables based on the one or more measured electrical supply variables of the electricity supply, and an assumed load