CLAIMS

1. A system for reducing power consumption in a power supply circuit including:

a transformer including:

a core;

a first winding including a first end and a second end of a first wire wound on the core;

a second winding including a first end and a second end of a second wire, wherein the second wire has a larger cross-section than the first wire and the second end of the first wire is connected to the first end of the second wire;

an input at the second end of the second winding for connecting to the power supply circuit; and

an output at a junction of the first and second windings for connecting to a load; and

a controller for variably controlling an output voltage at the output, wherein the output voltage is less than a supply voltage at the input, to reduce the power consumption of the load.

2. The system of claim 1 wherein the system further includes a variac connected to the controller to variably control the output voltage.

3. The system of claim 2 wherein a first end of a winding of the variac is connected to a neutral line of the power supply circuit.

4. The system of claim ~~3~~ 2 wherein a second end of a winding of the variac is connected to the output of the transformer.

5. The system of claim ~~3~~ 2 wherein an output of the variac is connected to a first end of the first winding.

6. The system of claim 1 wherein a second end of the second winding is connected to an active line of the power supply circuit.

7. The system of claim 1 wherein the core is an iron core.

8. The system of claim 1 wherein the core is linear in shape.

9. The system of claim 1 wherein the core is toroidal in shape.

10. The system of claim 1 wherein the core is an E and I core.

11. The system of claim 1 wherein the first winding is wound on a separate core to the second winding.

12. The system of claim 1 wherein the second winding is on a same core as the first winding.

13. The system of claim 1 wherein the controller includes a voltage sensor circuit for detecting a voltage at the output of the transformer.

14. The system of claim ~~14~~ 13 wherein the voltage sensor circuit includes one or more comparators for comparing a voltage at the output of the transformer to ~~the~~ an upper voltage limit and ~~the~~ a lower voltage limit.

15. The system of claim 1 ~~wherein the voltage control system~~ further ~~includes~~ including a remote sensor circuit connected to the controller, for monitoring a voltage at a remote device connected to the load.

16. The system of claim ~~1~~ 15 wherein the controller adjusts the output voltage of the transformer such that the voltage at the remote device is between a lower voltage limit and an upper voltage limit.

17. A method of reducing power consumption in a power supply circuit including the steps of:

connecting an input of a transformer to the power supply circuit and connecting an output of the transformer to a load, the transformer including:

a core;

a first winding including a first end and a second end of a first wire wound on the core;

a second winding including a first end and a second end of a second wire, wherein the second wire has a larger cross-section than the first wire and the second end of the first wire is connected to the first end of the second wire;

an input at the second end of the second winding for connecting to the power supply circuit; and

an output at a junction of the first and second windings for connecting to a load

wherein an output voltage at the output is variable between a lower voltage limit and an upper voltage limit; and

controlling the output voltage, such that the output voltage is less than a supply voltage, to reduce the power consumption of the power supply circuit.

18. The method of claim 17 wherein a variac is connected to the transformer to variably control the output voltage.