nent. Exemplary devices or components may enter such an energy saving mode without power management operations discussed herein in one embodiment. Other arrangements of system **120** apart from the exemplary depicted home and office system and which include at least one device or component configured to operate in an energy saving mode are possible.

As shown, system **120** comprises a personal computer system in the depicted example and includes a plurality of components including control circuitry **30***g* (e.g., personal computer microprocessor), peripherals **122** (e.g., laser printer), a display **124** (e.g., CRT), and other associated components **126** (e.g., fans, disk drives, etc.) which comprise associated loads **50***g* of appliance **18***g* in the depicted example.

At least some of loads **50***g* are configured to independently or dependently operate in a plurality of respective operational modes, including an energy saving mode wherein a reduced amount of electrical energy is consumed, in the described example. Control circuitry **30***g* is configured to implement exemplary power management operations including selectively providing individual ones or all loads **50***g* into the respective energy saving modes of operation (e.g., in addition to any other programming or criteria configured to provide such devices or components into the respective energy saving modes). For example, control circuitry **30***g* may enter an energy saving mode of operation having reduced clock speed. A peripheral **122** embodied as a laser printer may enter an energy saving mode wherein a laser printer heating element (e.g., toner fusing assembly) is configured to consume a reduced amount of electrical energy. Display **124** may enter an energy saving mode wherein a cathode ray tube is configured to consume a reduced amount of electrical energy. Control circuitry **30***g* may control any associated device or component of system **120** to enter an energy saving mode (if provided for the device or component) according to exemplary described aspects.

Referring to FIG. **10**, appliance **18***h* configured as an exemplary water heater **130** is shown. Water heater **130** includes control circuitry **30***h* (embodying a thermostat **132** in the illustrated configuration) and a heating element **134**. Heating element **134** is configured to heat water in an associated reservoir (not shown) to a desired temperature in the depicted configuration. Control circuitry **30***h* and heating element **134** comprise loads **50***h* of water heater **130** in one embodiment.

According to an illustrative embodiment, power management operations of system **130** and implemented by control circuitry **30***h* include adjusting a set point of thermostat **132**. For example, the thermostat set point may be temporarily lowered (e.g., for a period of tens of seconds, or a few minutes in some examples). In other exemplary power management operations, control circuitry **30***h* may directly disable or provide other control of heating element **134**.

According to additional exemplary aspects, a set point of any of the thermostats disclosed herein of the various appliances **18***a*–**18***g* may be assigned to one of a plurality of possible power management set points according to a monitored condition of electrical energy of system **10**. For example, a scale of set points may be used according to the condition of the electrical energy (e.g., the temperature set point may be decreased at predefined decrements (1–10 degrees for example) corresponding to the system frequency of the electrical energy deviating respective predetermined amounts (e.g., 10 mHz) from the nominal frequency. In accordance with the described example, the magnitude of adjustment of the thermostat set point increases as the deviation of the system frequency from the nominal frequency increases.

Referring to FIG. **11**, appliance **18***i* configured as an exemplary refrigerator **140** is shown. The illustrated refrigerator **140** includes control circuitry **30***i* (embodying a thermostat **142**), a heating element **144**, a fan **146**, a compressor **148**, and a solenoid valve **150** in the depicted embodiment. Control circuitry **30***i*, heater **144**, fan **146**, and compressor **148** comprise exemplary loads **50***i* in the depicted example.

First exemplary power management operations of control circuitry **30***i* include adjustment of a temperature set point of thermostat **142**. It may be desired in at least one embodiment to set a relatively short duration of any temperature adjustment during power arrangement operations. Another possible power management operation provides temporary disablement of defrost operations of heating element **144** (e.g., coupled with unillustrated coils of refrigerator **140**), or adjusting a time of the defrost operations controlled by control circuitry **30***i*. In another arrangement, heating element **144** may be used to provide anti-sweat operations (e.g., appropriately positioned adjacent an exterior portion of an unillustrated cabinet of refrigerator **140**—for example adjacent to a door) and power management operations may include temporary disablement of the anti-sweat operations or otherwise adjusting such operations to occur at another moment in time wherein power management operations are not being implemented. Additional exemplary power management operations include disablement of interior air circulation operations implemented by fan **146** and/or controlling operations of compressor **148** (e.g., including temporarily disabling or reducing the speed of compressor **148**). Additional aspects include implementing a hot gas bypass operation of compressor **148** using solenoid valve **150** and as described in further detail above in one example. One other embodiment provides a multi-stage refrigerator **140** having a plurality of cooling stages and a power management operation includes controlling the refrigerator **140** to operate at less than the available number of cooling stages thereby reducing the amount of energy consumed by the appliance.

In compliance with the statute, the invention has been described in language more or less specific as to structural and methodical features. It is to be understood, however, that the invention is not limited to the specific features shown and described, since the means herein disclosed comprise preferred forms of putting the invention into effect. The invention is, therefore, claimed in any of its forms, or modifications within the proper scope of the appended claims appropriately interpreted in accordance with the doctrine of equivalents.

What is claimed is:

1. An electrical appliance energy consumption control method comprising:

providing an electrical appliance coupled with a power distribution system;

receiving electrical energy within the appliance from the power distribution system;

consuming the received electrical energy using a plurality of loads of the appliance;

monitoring electrical energy of the power distribution system; and

adjusting an amount of consumption of the received electrical energy via one of the loads of the appliance from an initial level of consumption to an other level of consumption different than the initial level of consumption responsive to the monitoring.

2. The method of claim **1** further comprising:

operating the one of the loads at the other level of consumption for a period of time; and