BUILDING ENERGY CONSUMPTION ANALYSIS SYSTEM

BACKGROUND OF THE INVENTION

1. Cross Reference to Related Applications

[001] This application claims priority to U.S. provisional patent application serial numbers 61/176,855 and 61/176,790, both filed 8-May-2009 and titled Building Sensor Operational Data Analysis for Energy Saving System Control.

2. Technical Field.

[002] This disclosure relates to obtaining and analyzing building energy data. This disclosure also relates to engaging in an energy analysis to determine analysis results, and optionally responsively controlling building systems, such as lighting, heating, air-conditioning, and other energy consuming systems.

3. Related Art.

[003] Energy consumption, monitoring, and management are crucial components of sustainable, eco-friendly infrastructures now and into the future. In the past, energy monitoring systems, such as those available from Sensus Machine Intelligence, have obtained and analyzed energy data from individual pieces of equipment in a building. A need exists to provide energy data focused analysis results to accurately determine building energy expenditures, performance and costs.

SUMMARY

[003a] According to one aspect, there is provided a method for energy analysis comprising: establishing a data connection from a network operations center through an energy data connectivity interface to an energy data source; obtaining energy data at the network operations center through the data connection to the energy data source; performing an energy analysis in the network operations center on the energy data to produce an analysis result, where performing the energy analysis comprises: determining a balance point set from the energy data as the analysis result, the balance point set comprising a heating balance point and a cooling balance point, wherein the heating balance point is a temperature above which a building is not heated and the cooling balance point is a temperature below which the building is not cooled; and generating and displaying a user interface on a display, the user interface including the analysis result.

[003b] According to another aspect, there is provided an energy analysis system comprising: a processor; and a memory coupled to the processor, the memory comprising: energy analysis logic that, when executed by the processor, causes an energy analysis system to: establish a data connection from a network operations center through an energy data connectivity interface to an energy data source; obtain energy data at the network operations center through the data connection to the energy data source; perform an energy analysis in the network operations center on the energy data to produce an analysis result, where the energy analysis comprises: determining a balance point set from the energy data as the analysis result, the balance point set comprising a heating balance point and a cooling balance point, wherein the heating balance point is a temperature above which a building is not heated and the cooling balance point is a temperature below which the building is not cooled; and generate and display a user interface on a display, the user interface including the analysis result.

[003c] According to a further aspect, there is provided a method for energy analysis comprising: establishing a data connection from a network operations center through an energy data connectivity interface to an energy data source; obtaining energy data at the network operations center through the data connection to the energy data source; performing an energy analysis in the network operations center on the energy data to produce an analysis result, where performing the energy analysis comprises: determining a heating balance point and a cooling balance point, wherein the heating balance point is a temperature above which a building is not heated and the cooling balance point is a

temperature below which the building is not cooled; determining building comparison baseline data within the energy data; determining actual consumption data within the energy data; determining, as the analysis result, an exception rank by: determining a comparison standard deviation of the energy data within a time interval in the building comparison baseline data; and comparing the comparison standard deviation data and the actual consumption data, the exception rank identifying specific data in the actual consumption data for further review; and generating and displaying a user interface on a display, the user interface including the analysis result.

[003d] According to yet another aspect, there is provided an energy analysis system comprising: a processor; and a memory coupled to the processor, the memory comprising: energy analysis logic that, when executed by the processor, causes an energy analysis system to: establish a data connection from a network operations center through an energy data connectivity interface to an energy data source; obtain energy data at the network operations center through the data connection to the energy data source; perform an energy analysis in the network operations center on the energy data to produce an analysis result, where the energy analysis comprises: determining a heating balance point and a cooling balance point, wherein the heating balance point is a temperature above which a building is not heated and the cooling balance point is a temperature below which the building is not cooled; determining building comparison baseline data within the energy data; determining actual consumption data within the energy data; determining, as the analysis result, an exception rank by: determining a comparison standard deviation of the energy data within a time interval in the building comparison baseline data; and comparing the comparison standard deviation and the actual consumption data, the exception rank identifying specific data in the actual consumption data for further review; and generate and display a user interface on a display, the user interface including the analysis result.

[004] Herein disclosed is a~~A~~n energy analysis system that provides energy analysis results. The energy analysis system may include a processor, a communication interface coupled to the processor, and a memory coupled to the processor. The memory may include energy analysis logic that, when executed by the processor, causes an