CLAIMS

1. An electric/thermal energy storage schedule optimizing device comprising:

~~a setting unit that sets a control setting value for setting an activation, an operation, and a deactivation during a future predetermined time period for at least one of control target devices that are an energy supplying device including a device which changes an energy supply level depending on a weather condition, an energy consuming device which consumes energy, and an energy storage device which stores energy;~~

a predicting unit ~~that~~ setting~~s a~~ predicted values of a consumed energy ~~of the energy consuming device~~ or supplying energy of a plurality of control-target devices~~the energy supplying device during the future predetermined time period based on a comparison between the control setting value set by the setting unit and a past control setting value~~; and

a start-stop optimizing unit ~~that~~ creating~~s a~~ start-stop schedules ~~obtained by optimizing a start-stop schedule~~ of the plurality of control-target devices ~~during the predetermined time period~~ based on the predicted values set by the predicting unit~~and a characteristic of the control target device in view of a predetermined evaluation index~~; ~~and~~

wherein the start-stop optimizing unit further comprising:

a start-stop condition setting unit setting start-stop conditions of the plurality of control-target devices in accordance with cold heat and hot heat consumed energy based on an activation preference order of the plurality of

the control-target devices determined based on a predetermined evaluation index;

an activation-device allocating unit allocating the plurality of the control-target devices to be activated at each clock time based on the start-stop conditions and the predicted values;

a production-unit-price collecting unit computing a cold heat production unit price of a control-target device with lowest activation preference order among the plurality of the control-target devices to be activated at each clock time; and

a heat-storage/heat-dissipation allocating unit allocating heat storage or electricity storage to clock times in an order beginning with the lowest cold heat production unit price, and allocating heat dissipation or electricity dissipation to clock times in an order beginning with the highest cold heat production unit price~~a status quantity optimizing unit that creates an electric/thermal energy storing schedule obtained by optimizing a status quantity of the control target device to be activated based on the start-stop schedule and the characteristic of the control-target device in view of the predetermined evaluation index~~.

2. The electric/thermal energy storage schedule optimizing device according to claim 1, wherein the start-stop optimizing unit comprises:

~~an activation preference order setting unit that sets an activation preference order of the control target device in accordance with the consumed energy or the supplying energy based on the characteristic of the control target device;~~

an activation-boundary-condition setting unit that sets an activation boundary condition which is a condition for activating each control-target device based on a~~the~~ characteristic of the control-target device and the activation preference order; and

a deactivation-boundary-condition setting unit that sets a deactivation boundary condition which is a condition for deactivating each control-target device based on the characteristic of the control-target device and the activation preference order.

3. The electric/thermal energy storage schedule optimizing device according to claim 2, wherein the deactivation-boundary-condition setting unit sets the deactivation boundary condition to be smaller than the activation boundary condition within a range where a device with the high activation preference order does not become a lower-limit output.

4. The electric/thermal energy storage schedule optimizing device according to any one of claims 1 to 3, further comprising:

a setting unit that sets a control setting value for setting an activation, an operation, and a deactivation during a future predetermined time period for the plurality of the control-target devices;

a status-quantity optimizing unit that creates an electric/thermal energy storing schedule obtained by optimizing a status quantity of the control-target device to be activated based on the start-stop schedule and a characteristic of the control-target device in view of the predetermined evaluation index;

an object accomplishment determining unit that determines whether or not the electric/thermal energy storing schedule accomplishes a predetermined target value;

a control-setting-value output unit that outputs the control setting value based on the electric/thermal energy storing schedule when the object accomplishment determining unit determines that the target value is accomplished; and

an adjusting unit that adjusts the control setting value set by the setting unit when the object accomplishment determining unit determines that the target value is not accomplished.

5. The electric/thermal energy storage schedule optimizing device according to ~~any one of~~ claim~~s 1 to~~ 4, further comprising an inquiring unit that inquires to local control device~~an exterior~~ whether or not to accept the control setting value based on the electrical/thermal energy storing schedule when the object accomplishment determining unit determines that the target value~~object~~ is not accomplished.

6. The electric/thermal energy storage schedule optimizing device according to any one of claims 1 to 5, further comprising:

a re-scheduling necessity determining unit that determines whether or not a difference between the predicted value by the predicting unit and a value of actual consumed energy or supplying energy, or, a difference between the control setting value and the actual status quantity of the control-target device exceeds a predetermined threshold; and

an adjusting unit that adjusts the control setting value when the re-scheduling necessity determining unit

determines that the difference exceeds the predetermined threshold.

7. The electric/thermal energy storage schedule optimizing device according to any one of claims 1 to 6, wherein the evaluation index is a minimization of either one of or both of the consumed energy and a cost.

8. The electric/thermal energy storage schedule optimizing device according to claim 7, wherein

the control-target device includes devices that produce cold water and hot water, and

the evaluation index is a cold water production unit price and a hot water production unit price or cold water production energy and hot water production energy.

9. The electric/thermal energy storage schedule optimizing device according to any one of claims 1 to 8, wherein

the energy consuming device includes an illuminator, and

the control setting value used for a comparison by the predicting unit is an illuminance.

10. The electric/thermal energy storage schedule optimizing device according to any one of claims 1 to 8, wherein

the energy consuming device includes an air-conditioner, and

the control setting value used for a comparison by the predicting unit is a PMV value.

11. An electric/thermal energy storage schedule optimizing method that causes a computer to execute:

~~a setting process for setting a control setting value that sets an activation, an operation, and a deactivation during a future predetermined time period for at least one of control target devices that are an energy supplying device including a device which changes an energy supply level depending on a weather condition, an energy consuming device which consumes energy, and an energy storage device which stores energy;~~

a predicting process ~~for~~ setting ~~a~~ predicted values of a consumed energy ~~of the energy consuming device~~ or supplying energy of a plurality of control-target devices~~the energy supplying device during the future predetermined time period based on a comparison between the control setting value set through the setting process and a past control setting value~~; and

a start-stop optimizing process ~~for~~ creating ~~a~~ start-stop schedules ~~obtained by optimizing a start-stop schedule~~ of the plurality of control-target devices ~~during the predetermined time period~~ based on the predicted values set by the predicting process~~and a characteristic of the control target device in view of a predetermined evaluation index; and~~

wherein the start-stop optimizing process comprises:

a start-stop condition setting process setting start-stop conditions of the plurality of control-target devices in accordance with cold heat and hot heat consumed energy based on an activation preference order of the plurality of the control-target devices determined based on a predetermined evaluation index;

an activation-device allocating process allocating the plurality of the control-target devices to be activated at

each clock time based on the start-stop conditions and the predicted values;

a production-unit-price collecting process computing a cold heat production unit price of a control-target device with lowest activation preference order among the plurality of the control-target devices to be activated at each clock time; and

a heat-storage/heat-dissipation allocating process allocating heat storage or electricity storage to clock times in an order beginning with the lowest cold heat production unit price, and allocating heat dissipation or electricity dissipation to clock times in an order beginning with the highest cold heat production unit price~~a status quantity optimizing process for creating an electric/thermal energy storing schedule obtained by optimizing a status quantity of the control target device to be activated based on the start stop schedule and the characteristic of the control target device in view of the predetermined evaluation index~~.

12. The electric/thermal energy storage schedule optimizing method according to claim 11, wherein the start-stop optimizing process comprises:

~~an activation preference order setting process for setting an activation preference order of the control target device in accordance with the consumed energy or the supplying energy based on the characteristic of the control target device;~~

an activation-boundary-condition setting process for setting an activation boundary condition which is a condition for activating each control-target device based on the characteristic of the control-target device and the activation preference order; and

a deactivation-boundary-condition setting process for setting a deactivation boundary condition which is a condition for deactivating each control-target device based on the characteristic of the control-target device and the activation preference order.

13. An electric/thermal energy storage schedule optimizing program that causes a computer to execute:

~~a setting process for setting a control setting value that sets an activation, an operation, and a deactivation during a future predetermined time period for at least one of control target devices that are an energy supplying device including a device which changes an energy supply level depending on a weather condition, an energy consuming device which consumes energy, and an energy storage device which stores energy;~~

a predicting process ~~for~~ setting ~~a~~ predicted values of a consumed energy ~~of the energy consuming device~~ or supplying energy of a plurality of control-target devices~~the energy supplying device during the future predetermined time period based on a comparison between the control setting value set through the setting process and a past control setting value~~; and

a start-stop optimizing process ~~for~~ creating ~~a~~ start-stop schedules ~~obtained by optimizing a start-stop schedule~~ of the plurality of control-target devices ~~during the predetermined time period~~ based on the predicted values set by the predicting process~~and a characteristic of the control-target device in view of a predetermined evaluation index; and~~

wherein the start-stop optimizing process comprises:

a start-stop condition setting process setting start-stop conditions of the plurality of control-target devices

in accordance with cold heat and hot heat consumed energy based on an activation preference order of the plurality of the control-target devices determined based on a predetermined evaluation index;

an activation-device allocating process allocating the plurality of the control-target devices to be activated at each clock time based on the start-stop conditions and the predicted values;

a production-unit-price collecting process computing a cold heat production unit price of a control-target device with lowest activation preference order among the plurality of the control-target devices to be activated at each clock time; and

a heat-storage/heat-dissipation allocating process allocating heat storage or electricity storage to clock times in an order beginning with the lowest cold heat production unit price, and allocating heat dissipation or electricity dissipation to clock times in an order beginning with the highest cold heat production unit price~~a status quantity optimizing process for creating an electric/thermal energy storing schedule obtained by optimizing a status quantity of the control-target device to be activated based on the start-stop schedule and the characteristic of the control-target device in view of the predetermined evaluation index~~.

14. The electric/thermal energy storage schedule optimizing program according to claim 13, wherein the start-stop optimizing process comprises:

~~an activation preference order setting process for setting an activation preference order of the control-target device in accordance with the consumed energy or the~~

~~supplying energy based on the characteristic of the control-target device;~~

an activation-boundary-condition setting process for setting an activation boundary condition which is a condition for activating each control-target device based on the characteristic of the control-target device and the activation preference order; and

a deactivation-boundary-condition setting process for setting a deactivation boundary condition which is a condition for deactivating each control-target device based on the characteristic of the control-target device and the activation preference order.