consumer in the daytime is greater than that in the nighttime, and a peak of power (power peak) which is supplied to the power consumer from an electric power system is shown in the daytime. When the power consumer suppresses the purchasing of power in the daytime according to the rate plan, a power supplier can cut the power peak shown in the daytime, and thus the stable supply of power is easily realized.

[0010]

Incidentally, a power peak is shown in a specific time period in the daytime, for example, a time period between 13 o'clock and 17 o'clock in summertime. According to a rate plan in which a daytime time period is divided into a plurality of time periods and a unit price different for each time period is determined, it is considered that a power supplier can effectively cut a power peak. In addition, a power consumer having a storage battery can lower a power rate by properly using power charged in the storage battery and power supplied from an electric power system in accordance with a difference in unit price between time periods, in using power in a daytime time period. However, in the related art, there has not been a technique for appropriately controlling a discharging schedule from a storage battery on the basis of the rate plan.

[0011]

~~An object~~ Embodiments of the present invention ~~is to~~ provide

a new technique for controlling a discharging schedule from a storage battery.

SOLUTION TO PROBLEM

[0012]

According to a first aspect of the present invention, there is provided a storage battery management device, wherein the storage battery management device determines an upper limit of power discharged from a storage battery or an upper limit of an amount of power discharged from the storage battery for each of discharging time periods divided for each unit time, on the basis of remaining discharge capacity information indicating an amount of power that can be supplied to a load from the storage battery.

[0013]

~~In addition, according to~~ According to a second aspect of the present invention, there is also provided a storage battery that discharges power in accordance with the upper limit determined by the above-mentioned storage battery management device.

[0014]

~~In addition, according to~~ According to a third aspect of the present invention, there is also provided a method of managing a storage battery, the method including causing a computer to determine an upper limit of power discharged from the storage battery or an upper limit of an amount of power discharged from the storage battery for each of

discharging time periods divided for each unit time, on the basis of remaining discharge capacity information indicating an amount of power that can be supplied to a load from the storage battery.

[0015]

~~In addition, according to~~ According to a fourth aspect of the present invention, there is also provided a program causing a computer to execute a process of determining an upper limit of power discharged from a storage battery or an upper limit of an amount of power discharged from the storage battery for each of discharging time periods divided for each unit time, on the basis of remaining discharge capacity information indicating an amount of power that can be supplied to a load from the storage battery.

ADVANTAGEOUS EFFECTS OF INVENTION

[0016]

According to embodiments of the present invention, it is possible to realize a new technique for controlling a discharging schedule from a storage battery.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017]

The above-described ~~objects~~ aspects, other ~~objects~~aspects, features and advantages will be further apparent from the preferred exemplary embodiments described below, and the accompanying drawings as follows.

[0018]

FIG. 1 is a diagram illustrating an application

of information regarding power to be supplied to the storage battery and the remaining discharge capacity information.

3. The storage battery management device according to ~~1 or~~ 2,

wherein the information regarding power is power purchasing price information indicating a power purchasing price for each time period.

4. The storage battery management device according to 3,

wherein the upper limit is determined so that an upper limit in the discharging time period having a relatively high power purchasing price is larger than an upper limit in the discharging time period having a relatively low power purchasing price.

5. The storage battery management device according to 3 or 4,

wherein priority ranks are given to the discharging time periods so that a priority rank of the discharging time period having a high power purchasing price is high, and the upper limit is determined so that an upper limit for a first discharging time period is set to be equal to or larger than an upper limit for a second discharging time period having a priority rank lower than that of the first discharging time period.

6. The storage battery management device according to any one of 3 to 5,

wherein ~~the plurality of discharging time periods~~ a plurality of the discharging time periods are divided into a first group in which discharging time periods having a relatively high power purchasing price are collected and a second group in which discharging time periods having a relatively low power purchasing price are collected,

wherein a maximum amount of power that can be discharged in each discharging time period is specified on the basis of the upper limit of the power or the upper limit of the amount of power, and

wherein a discharging schedule is generated so that a sum of a first total which is a total of maximum amounts of power in the respective discharging time periods included in the first group and a second total which is a total of maximum amounts of power in the respective discharging time periods, included in the second group, which are temporally prior to at least one discharging time period included in the first group does not exceed a predetermined amount of power which is determined on the basis of the remaining discharge capacity information.

7. The storage battery management device according to 6,

wherein the discharging schedule is generated so that a sum of a third total which is a total of maximum amounts of power in the respective discharging time periods, included in the second group, which are

can be supplied to a load from the storage battery.

21-2. The method according to 21,

wherein the computer determines the upper limit on the basis of information regarding power to be supplied to the storage battery and the remaining discharge capacity information.

21-3. The method according to ~~21 or~~ 21-2,

wherein the information regarding power is power purchasing price information indicating a power purchasing price for each time period.

21-4. The method according to 21-3,

wherein the computer determines the upper limit so that an upper limit in the discharging time period having a relatively high power purchasing price is larger than an upper limit in the discharging time period having a relatively low power purchasing price.

21-5. The method according to 21-3 or 21-4,

wherein the computer gives priority ranks to the discharging time periods so that a priority rank of the discharging time period having a high power purchasing price is high, and determines the upper limit so that an upper limit for a first discharging time period is set to be equal to or larger than an upper limit for a second discharging time period having a priority rank lower than that of the first discharging time period.

21-6. The method according to any one of 21-3 to 21-5,

wherein the computer

divides ~~the plurality of discharging time periods~~ a plurality of the discharging time periods into a first group in which discharging time periods having a relatively high power purchasing price are collected and a second group in which discharging time periods having a relatively low power purchasing price are collected,

specifies a maximum amount of power that can be discharged in each discharging time period on the basis of the upper limit of the power or the upper limit of the amount of power, and

generates a discharging schedule so that a sum of a first total which is a total of maximum amounts of power in the respective discharging time periods included in the first group and a second total which is a total of maximum amounts of power in the respective discharging time periods, included in the second group, which are temporally prior to at least one discharging time period included in the first group does not exceed a predetermined amount of power which is determined on the basis of the remaining discharge capacity information.

21-7. The method according to 21-6,

wherein the computer generates the discharging schedule so that a sum of a third total which is a total of maximum amounts of power in the respective discharging time periods, included in the second group,

specified on the basis of the upper limit of the power or the upper limit of the amount of power is an amount of power which is obtained by subtracting a predetermined amount from an amount of power that can be supplied to the load from the storage battery.

21-19. The method according to any one of 21 to 21-18,

wherein the computer determines a chargeable time period in which the storage battery acquires power from the electric power system and charges the power, and determines a time period except for the chargeable time period as the discharging time period.

22. A program causing a computer to execute a process of determining an upper limit of power discharged from a storage battery or an upper limit of an amount of power discharged from the storage battery for each of discharging time periods divided for each unit time, on the basis of remaining discharge capacity information indicating an amount of power that can be supplied to a load from the storage battery.

22-2. The program according to 22, causing the computer to execute a process of determining the upper limit on the basis of information regarding power to be supplied to the storage battery and the remaining discharge capacity information.

22-3. The program according to ~~22 or~~ 22-2,

wherein the information regarding power is power

purchasing price information indicating a power purchasing price for each time period.

22-4. The program according to 22-3, causing the computer to execute a process of determining the upper limit so that an upper limit in the discharging time period having a relatively high power purchasing price is larger than an upper limit in the discharging time period having a relatively low power purchasing price.

22-5. The program according to 22-3 or 22-4, causing the computer to execute a process of giving priority ranks to the discharging time periods so that a priority rank of the discharging time period having a high power purchasing price is high, and determining the upper limit so that an upper limit for a first discharging time period is set to be equal to or larger than an upper limit for a second discharging time period having a priority rank lower than that of the first discharging time period.

22-6. The program according to any one of 22-3 to 22-5, causing the computer to execute a process of

dividing ~~the plurality of discharging time periods~~ a plurality of the discharging time periods into a first group in which discharging time periods having a relatively high power purchasing price are collected and a second group in which discharging time periods having a relatively low power purchasing price are collected,

specifying a maximum amount of power that can be discharged in each discharging time period on the basis

CLAIMS

1. A storage battery management device, wherein the storage battery management device determines an upper limit of power discharged from a storage battery or an upper limit of an amount of power discharged from the storage battery for each of discharging time periods divided for each unit time, on the basis of remaining discharge capacity information indicating an amount of power that can be supplied to a load from the storage battery.

2. The storage battery management device according to claim 1,

wherein the upper limit is determined on the basis of information regarding power to be supplied to the storage battery and the remaining discharge capacity information.

3. The storage battery management device according to claim ~~1 or~~ 2,

wherein the information regarding power is power purchasing price information indicating a power purchasing price for each time period.

4. The storage battery management device according to claim 3,

wherein the upper limit is determined so that an upper limit in the discharging time period having a relatively high power purchasing price is larger than an upper limit in the discharging time period having a relatively low power purchasing price.

5. The storage battery management device according to claim 3 or 4,

wherein priority ranks are given to the discharging time periods so that a priority rank of the discharging time period having a high power purchasing price is high, and the upper limit is determined so that an upper limit for a first discharging time period is set to be equal to or larger than an upper limit for a second discharging time period having a priority rank lower than that of the first discharging time period.

6. The storage battery management device according to any one of claims 3 to 5,

wherein ~~the plurality of discharging time periods~~a plurality of the discharging time periods are divided into a first group in which discharging time periods having a relatively high power purchasing price are collected and a second group in which discharging time periods having a relatively low power purchasing price are collected,

wherein a maximum amount of power that can be discharged in each discharging time period is specified