WHAT IS CLAIMED IS:

1. An available capacity-based billing system for vehicle batteries, comprising:

a vehicle comprising a battery, and a battery controller configured to determine a maximum value and a minimum value of a state of charge (SOC) of the battery based on settings of an available capacity of the battery;

a user terminal configured to receive, from a user, a capacity setting change request comprising a setting change amount of the available capacity for changing the settings of the available capacity, wherein the setting change amount of the available capacity is determined by the user with reference to a changeable amount of the available capacity provided to the user via the user terminal, and then to transmit the capacity setting change request; and

a server configured to receive the capacity setting change request transmitted by the user terminal, and to determine a battery usage fee corresponding to the setting change amount of the available capacity comprised in the received capacity setting change request.

2. The available capacity-based billing system according to claim 1, wherein the battery controller is configured to determine the changeable amount of the available capacity of the battery based on predetermined settings of the available capacity of the battery, and to transmit the determined changeable amount to the user terminal.

3. The available capacity-based billing system according to claim 2, wherein the user terminal is further configured to display the changeable amount, and to receive the setting change amount of the available capacity as determined by the user with

reference to the changeable amount.

4. The available capacity-based billing system according to any one of claims 1 to 3, wherein:

the server is further configured to transmit the battery usage fee corresponding to the setting change amount of the available capacity to the user terminal; and

the user terminal is further configured to receive instructions whether or not to accept the battery usage fee corresponding to the setting change amount of the available capacity, and to transmit the instructions whether or not to accept the battery usage fee to the server.

5. The available capacity-based billing system according to any one of claims 1 to 4, wherein the server is further configured to calculate and charge the battery usage fee based on the settings of the available capacity of the battery changed according to the setting change amount and a usage period of the corresponding settings of the available capacity.

6. The available capacity-based billing system according to any one of claims 1 to 5, wherein the battery controller is further configured to set a charge cut-off voltage corresponding to the maximum value of the SOC of the battery depending on the settings of the available capacity, and to set a discharge cut-off voltage corresponding to the minimum value of the SOC of the battery depending on the settings of the available capacity.

7. The available capacity-based billing system according to any one of claims

1 to 5, wherein the battery controller is further configured to set a maximum value of an open-circuit voltage of the battery corresponding to the maximum value of the SOC of the battery depending on the settings of the available capacity, and to set a minimum value of the open-circuit voltage of the battery corresponding to the minimum value of the SOC of the battery depending on the settings of the available capacity.

8. The available capacity-based billing system according to any one of claims 1 to 7, wherein the battery controller is further configured to determine the maximum value and the minimum value of the SOC of the battery as values symmetric to each other with respect to a reference value of the SOC of the battery.

9. An available capacity-based billing method for vehicle batteries using an available capacity-based billing system including a battery, a user terminal, a server, and a battery controller, the available capacity-based billing method comprising:

receiving, from a user, via the user terminal, a capacity setting change request comprising a setting change amount of an available capacity for changing the settings of the available capacity, wherein the setting change amount of the available capacity is determined by the user with reference to a changeable amount of the available capacity provided to the user, and then transmitting the capacity setting change request;

receiving, by the server, the capacity setting change request transmitted by the user terminal and determining a battery usage fee corresponding to the setting change amount of the available capacity comprised in the received capacity setting change request; and

transmitting, by the server, the setting change amount of the available capacity to the vehicle after determining the battery usage fee, and changing, by the battery

controller, settings of the available capacity of the battery based on the transmitted setting change amount.

10. The available capacity-based billing method according to claim 9, further comprising determining, by the battery controller, the changeable amount of the available capacity of the battery based on predetermined settings of the available capacity of the battery, and transmitting the determined changeable amount to the user terminal, before the transmitting, by the user terminal, the capacity setting change request.

11. The available capacity-based billing method according to claim 10, wherein, in the receiving the capacity setting change request comprising the setting change amount of the available capacity and then transmitting the capacity setting change request, the user terminal displays the changeable amount, and receives the setting change amount of the available capacity determined by the user with reference to the changeable amount.

12. The available capacity-based billing method according to any one of claims 9 to 11, wherein the determining the battery usage fee comprises:

transmitting, by the server, the battery usage fee corresponding to the setting change amount of the available capacity to the user terminal; and

receiving, by the user terminal, whether or not to accept the battery usage fee corresponding to the setting change amount of the available capacity and transmitting whether or not to accept the battery usage fee to the server.

13. The available capacity-based billing method according to any one of claims 9 to 12, further comprising calculating and charging, by the server, the battery usage fee based on the settings of the available capacity of the battery changed according to the setting change amount and a usage period of the corresponding settings of the available capacity.

14. The available capacity-based billing method according to any one of claims 9 to 13, wherein, in the changing the settings of the available capacity of the battery, the battery controller sets a charge cut-off voltage corresponding to the maximum value of a SOC of the battery depending on the settings of the available capacity, and sets a discharge cut-off voltage corresponding to the minimum value of the SOC of the battery depending on the settings of the available capacity.

15. The available capacity-based billing method according to any one of claims 9 to 13, wherein, in the changing the settings of the available capacity of the battery, the battery controller sets a maximum value of an open-circuit voltage of the battery corresponding to the maximum value of the SOC of the battery depending on the settings of the available capacity, and sets a minimum value of the open-circuit voltage of the battery corresponding to the minimum value of the SOC of the battery depending on the settings of the available capacity.

16. The available capacity-based billing method according to any one of claims 9 to 15, wherein, in the changing the settings of the available capacity of the battery, the battery controller determines the maximum value and the minimum value of the SOC of the battery as values symmetric to each other with respect to a reference value of the

SOC of the battery.