CLAIMS

1. A system for trading a power reserve margin for supply-demand adjustment, the system comprising:

a predicted amount/reducible amount acquisition unit configured to acquire a predicted power demand amount and a power reducible amount for a predetermined period in the future for each customer;

a reserve margin trading unit configured to trade the power reducible amount of the customer acquired by the predicted amount/reducible amount acquisition unit as a reserve margin for demand adjustment and thereby to acquire a consideration;

a power consumption amount acquisition unit configured to acquire a power consumption amount for each customer;

a customer rank determination unit configured to calculate, for each customer, a difference between the predicted power demand amount acquired by the predicted amount/reducible amount acquisition unit and the power consumption amount for the predetermined period acquired by the power consumption amount acquisition unit, and to determine a rank of each customer by giving a higher rank to a customer having a smaller value of the calculated difference;

a reduction request notification unit configured to determine a reduction request amount for each customer based on the power reducible amount acquired by the predicted amount/reducible amount acquisition unit and to transmit the reduction request amount to the customer as notification when a power reduction request is sent;

an estimated reduction amount calculation unit configured to calculate, for each customer, an estimated reduction amount being an estimated reduction amount of power consumption by use of the predicted power demand amount acquired by the predicted amount/reducible amount acquisition unit and a power consumption amount after the reduction request amount transmission calculated by using the power consumption amount acquired by the power consumption amount acquisition unit; and

a trading consideration distribution unit configured to distribute a consideration acquired by the reserve margin trading unit into customers in such a manner that a customer determined

as a higher rank by the customer rank determination unit receives a larger proportion of the consideration when a power reduction request is not transmitted, and in such a manner that a customer determined as a higher rank by the customer rank determination unit and achieving a larger estimated reduction amount calculated by the estimated reduction amount calculation unit receives a larger proportion of the consideration when the power reduction request is transmitted.

2. The system for trading a power reserve margin for supply-demand adjustment according to claim 1, wherein

the predicted power demand amount acquired by the predicted amount/reducible amount acquisition unit is information inputted by use of an integrated quantity of the predicted power demand amount in one of certain unit periods into which the predetermined period is sub-divided.

3. The system for trading a power reserve margin for supply-demand adjustment according to any one of claims 1 and 2, wherein

the power reducible amount acquired by the predicted amount/reducible amount acquisition unit is information inputted by designating either or both of a reduction level and power-reducible time information, the reduction level set for each customer in advance by selecting one of reduction levels corresponding to a plurality of power reducible amounts.

4. The system for trading a power reserve margin for supply-demand adjustment according to any one of claims 1 to 3, wherein

the predicted power demand amount and the power reducible amount acquired by the predicted amount/reducible amount acquisition unit are each indicated by using any of a constant fixed amount set for each customer, a fixed amount patterned to vary in time-dependent manner, and a calculated amount based on a predetermined formula.

5. The system for trading a power reserve margin for

supply-demand adjustment according to any one of claims 1 to 4, further comprising:

a customer information accumulation unit configured to accumulate the power consumption amounts acquired by the power consumption amount acquisition unit;

a customer information estimation unit configured to estimate any of the predicted power demand amount and the power reducible amount by analyzing the power consumption amounts accumulated in the customer information accumulation unit.

6. The system for trading a power reserve margin for supply-demand adjustment according to any one of claims 1 to 5, wherein

when the estimated reduction amount calculated for a customer is different from the reducible amount acquired by the predicted amount/reducible amount acquisition unit by an amount equal to or above a predetermined value, the estimated reduction amount calculation unit executes any of processing for lowering the rank of the customer and processing for collecting an additional charge.

7. The system for trading a power reserve margin for supply-demand adjustment according to any one of claims 1 to 6, further comprising:

a customer equipment control unit configured to control operation of power load equipment of the customer according to the reduction request amount determined by the reduction request notification unit.

8. The system for trading a power reserve margin for supply-demand adjustment according to any one of claims 1 to 7, further comprising:

a display unit configured to display the estimated reduction amount calculated by the estimated reduction amount calculation unit and a greenhouse gas reduction amount calculated by using the estimated reduction amount as notification to the customer.

9. A method for trading a power reserve margin for supply-demand adjustment performed in a system for trading a power reserve margin

for supply-demand adjustment, the method comprises:

a predicted amount/reducible amount acquisition step of acquiring a predicted power demand amount and a power reducible amount for a predetermined period in the future for each customer;

a reserve margin trading step of trading the power reducible amount of the customer acquired by the predicted amount/reducible amount acquisition step as a reserve margin for demand adjustment and thereby of acquiring a consideration;

a power consumption amount acquisition step configured to acquire a power consumption amount for each customer;

a customer rank determination step of calculating, for each customer, a difference between the predicted power demand amount acquired in the predicted amount/reducible amount acquisition step and the power consumption amount for the predetermined period calculated by using power consumption value acquired in the power consumption amount acquisition step and of determining a rank of each customer by giving a higher rank to a customer having a smaller value of the calculated difference;

a reduction request notification step of determining a reduction request amount for each customer based on the power reducible amount acquired in the predicted amount/reducible amount acquisition step and of transmitting the reduction request amount to the customer as notification when a power reduction request is sent;

an estimated reduction amount calculation step of calculating, for each customer, an estimated reduction amount being an estimated reduction amount of a power consumption by use of the predicted power demand amount acquired in the predicted amount/reducible amount acquisition step and a power consumption amount after the reduction request amount transmission calculated by using the power consumption amount acquired in the power consumption amount acquisition step; and

a trading consideration distribution step of distributing a consideration acquired in the reserve margin trading step into customers in such a manner that a customer determined as a higher rank in the customer rank determination step receives a larger proportion of the consideration when a power reduction request is not transmitted, and in such a manner that a customer determined

as a higher rank in the customer rank determination step and achieving a larger estimated reduction amount calculated in the estimated reduction amount calculation step receives a larger proportion of the consideration when the power reduction request is transmitted.

CLAIMS

1. A power reserve margin trading system comprising:

a first acquisition unit configured to acquire a predicted power demand amount and a power reducible amount for a predetermined period in the future for each customer;

a reserve margin trading unit configured to trade the power reducible amount of the customer acquired by the first acquisition unit as a reserve margin for demand adjustment and thereby to acquire a consideration;

a second acquisition unit configured to acquire a power consumption amount for each customer;

a determination unit configured to calculate, for each customer, a difference between the predicted power demand amount acquired by the first acquisition unit and the power consumption amount for the predetermined period acquired by the second acquisition unit, and to determine a rank of each customer by giving a higher rank to a customer having a smaller value of the calculated difference;

a notification unit configured to determine a reduction request amount for each customer based on the power reducible amount acquired by the first acquisition unit and to transmit the reduction request amount to the customer as notification when a power reduction request is sent;

an estimated reduction amount calculation unit configured to calculate, for each customer, an estimated reduction amount being an estimated reduction amount of power consumption by use of the predicted power demand amount acquired by the first acquisition unit and a power consumption amount after the reduction request amount transmission calculated by using the power consumption amount acquired by the second acquisition unit; and

a trading consideration distribution unit configured to distribute a consideration acquired by the reserve margin trading unit into customers in such a manner that a customer determined as a higher rank by the determination unit receives a larger proportion of the consideration when a power reduction request

is not transmitted, and in such a manner that a customer determined as a higher rank by the determination unit and achieving a larger estimated reduction amount calculated by the estimated reduction amount calculation unit receives a larger proportion of the consideration when the power reduction request is transmitted.

2. The power reserve margin trading system according to claim 1, wherein

the predicted power demand amount acquired by the first acquisition unit is information inputted by use of an integrated quantity of the predicted power demand amount in one of certain unit periods into which the predetermined period is sub-divided.

3. The power reserve margin trading system according to any one of claims 1 and 2, wherein

the power reducible amount acquired by the first acquisition unit is information inputted by designating either or both of a reduction level and power-reducible time information, the reduction level set for each customer in advance by selecting one of reduction levels corresponding to a plurality of power reducible amounts.

4. The power reserve margin trading system according to any one of claims 1 to 3, wherein

the predicted power demand amount and the power reducible amount acquired by the first acquisition unit are each indicated by using any of a constant fixed amount set for each customer, a fixed amount patterned to vary in time-dependent manner, and a calculated amount based on a predetermined formula.

5. The power reserve margin trading system according to any one of claims 1 to 4, further comprising:

a customer information accumulation unit configured to accumulate the

power consumption amounts acquired by the second acquisition unit;

a customer information estimation unit configured to estimate any of the predicted power demand amount and the power reducible amount by analyzing the power consumption amounts accumulated in the customer information accumulation unit.

6. The power reserve margin trading system according to any one of claims 1 to 5, wherein

when the estimated reduction amount calculated for a customer is different from the reducible amount acquired by the first acquisition unit by an amount equal to or above a predetermined value, the estimated reduction amount calculation unit executes any of processing for lowering the rank of the customer and processing for collecting an additional charge.

7. The power reserve margin trading system according to any one of claims 1 to 6, further comprising:

a customer equipment control unit configured to control operation of power load equipment of the customer according to the reduction request amount determined by the notification unit.

8. The power reserve margin trading system according to any one of claims 1 to 7, further comprising:

a display unit configured to display the estimated reduction amount calculated by the estimated reduction amount calculation unit and a greenhouse gas reduction amount calculated by using the estimated reduction amount as notification to the customer.

9. A power reserve margin trading method performed in a power reserve margin trading system, the method comprises:

a predicted amount/reducible amount acquisition step of acquiring a predicted power demand amount and a power reducible amount for a

predetermined period in the future for each customer;

a reserve margin trading step of trading the power reducible amount of the customer acquired by the predicted amount/reducible amount acquisition step as a reserve margin for demand adjustment and thereby of acquiring a consideration;

a power consumption amount acquisition step configured to acquire a power consumption amount for each customer;

a customer rank determination step of calculating, for each customer, a difference between the predicted power demand amount acquired in the predicted amount/reducible amount acquisition step and the power consumption amount for the predetermined period calculated by using power consumption value acquired in the power consumption amount acquisition step and of determining a rank of each customer by giving a higher rank to a customer having a smaller value of the calculated difference;

a reduction request notification step of determining a reduction request amount for each customer based on the power reducible amount acquired in the predicted amount/reducible amount acquisition step and of transmitting the reduction request amount to the customer as notification when a power reduction request is sent;

an estimated reduction amount calculation step of calculating, for each customer, an estimated reduction amount being an estimated reduction amount of a power consumption by use of the predicted power demand amount acquired in the predicted amount/reducible amount acquisition step and a power consumption amount after the reduction request amount transmission calculated by using the power consumption amount acquired in the power consumption amount acquisition step; and

a trading consideration distribution step of distributing a consideration acquired in the reserve margin trading step into customers in such a manner that a customer determined as a higher rank in the customer rank determination step receives a larger proportion of the consideration when a power reduction request is not transmitted, and in such a manner that a customer determined as a higher

rank in the customer rank determination step and achieving a larger estimated reduction amount calculated in the estimated reduction amount calculation step receives a larger proportion of the consideration when the power reduction request is transmitted.