October 27, 2020
SB Power Corp.

Results of Trial of Demand Response Service for Households

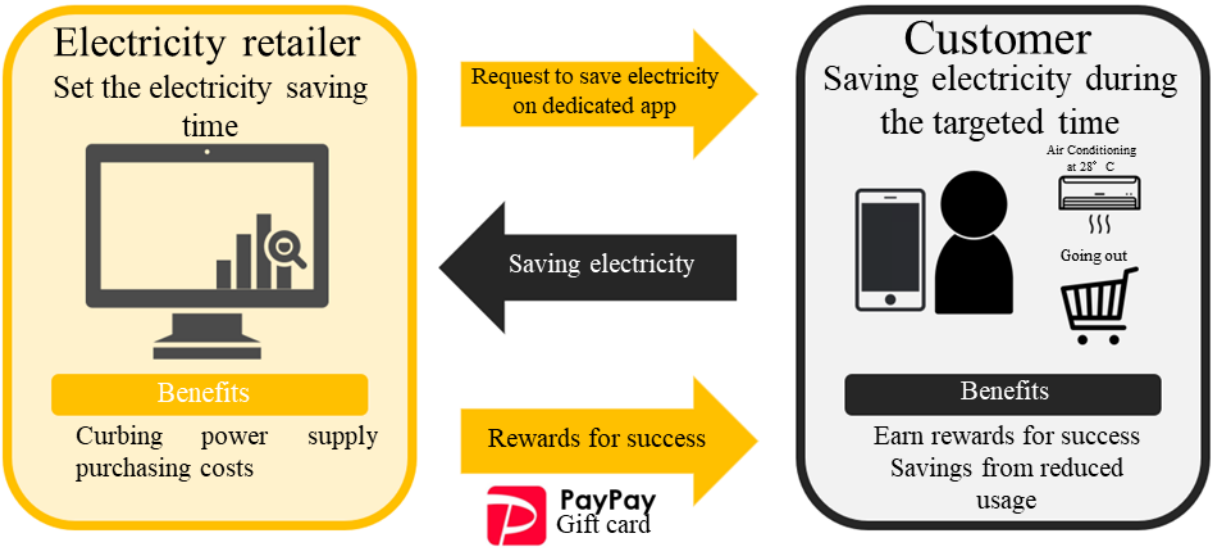
- Participated in by 54.3% on average and achieved a total saving of 29,365 kWh -

SB Power Corp. (Minato-ku, Tokyo; President and CEO: Akihiko Nakano; hereinafter "SB Power"), a subsidiary of SoftBank Corp. and an electricity retailer, hereby announces the result of a trial of Demand Response Service (hereinafter "DR Service") for households. It was conducted from July 13, 2020, and utilized 30-minute electric power data (C-route* data) obtained from each general power transmission/distribution business operator and demand forecasting technology based on SB Power's proprietary artificial intelligence (AI). DR Service is one in which SB Power requests the subscribers to cooperate in saving electricity. They can do this by using a smartphone app dedicated for use with SB Power that was developed independently. The customers are offered a PayPay* bonus for their cooperation in saving electricity, based on the electricity-saving effect of the service.

* C-route: One of the routes to send data measured by a smart meter. The data is sent from a power transmission/distribution business operator to an electricity retailer.
* PayPay: A Japanese company that develops and provides services for electronic payments such as mobile payments.

■ Overview of DR Service Trial
Trial period: From July 13, 2020 to September 30, 2020
Trial scale: 4,002 households
Trial target: Customers subscribing to the Electricity Plan with SB Power

[Mechanism of SB Power's DR Service]



We provided 4,002 households with behavior-inducing DR Service not using control equipment. A total of 175 DR Service programs were participated in by an average of 54.3% of customers. This brought the following benefits to customers and SB Power (electricity retailer).

Benefits to Customers

SB Power has developed a dedicated smartphone app that allows customers to easily participate in electricity-saving and earn electricity saving points according to how much power they save. In addition, customers will be able to lower their electricity bills by reducing their electricity consumption and thus save money in a fun way. Participating customers saved on their electricity bills by cutting their electricity consumption by a total of 29,365 kWh and earned electricity saving points worth 809,200 yen in total.

Benefits to SB Power

SB Power will schedule electricity-saving time in advance*1 and customers will be able to reduce their electricity consumption in a specified time zone by saving electricity for the scheduled time. To respond to the wholesale electricity market and a system reform, SB Power's DR Service is designed to change the notice time for an electricity-saving request as well as the service application deadline. The following results were achieved by altering conditions according to each purpose.

[Measurement results for participation rate and saving volume for the purpose of responding to the wholesale electricity market and system reform]

Item	Spot market	Imbalance System	Capacity market	Supply and demand adjustment market
Purpose	Reduce procurement volume when spot market prices spike	Prevent an imbalance occurring due to a shortage of power	Reduce any capacity contribution*2 burden	Verify the possibility of power supply for Replacement Reserve for FIT (RR-FIT)
Notice time for an electricity-saving request	Two days prior to an electricity-saving day	At or after 10:30 on a day immediately preceding an electricity-saving day *3	Not specified	Forty-five minutes prior to a target time *4
Application deadline	No later than 9:00 on the day immediately preceding an electricity-saving day *5	No later than two hours prior to an electricity-saving time *6	Not specified	Until electricity-saving start time *7
Number of times of electricity-saving	82 times	83 times	175 times	10 times
Average participation rate for electricity-saving	52.5%	59.1%	54.3%	29.3%
Average saving volume per participant *8	0.058 kWh/household for 30 minutes *9	0.058 kWh/household for 30 minutes *9	0.133 kW/household for 60 minutes *10	0.138 kW/household for 30 minutes *11

*1 Uses a patent technology (Japanese Patent Application No. 2018-138870, Demand Response Management System that Includes Scheduling Function) of ENCORED JAPAN Inc., a subsidiary of SoftBank Corp.

*2 Capacity contributions are created from each electricity retailer in order to secure a sufficient supply capacity for the entire country (by newly installing/replacing power supplies). Each electricity retailer's contribution is allocated according to their supplying rate in area peak demand.

*3 It is assumed that electricity-saving is requested when the reserve rate of predicted electric power is likely to decline.

*4 It is assumed that electricity-saving is requested in the event of an activation order being issued in the supply and demand adjustment market.

*5 It is assumed that the savable volume via DR Service is estimated no later than the bidding deadline on the spot market.

*6 It is assumed that the savable volume via DR Service is estimated no later than gate closing of the forward market (an-hour ahead) for bulletin board products at JPEX.

*7 It is assumed that, no later than the electricity-saving time, DR Service responds to an activation order issued 45 minutes before.

*8 State the average saving volume achieved by electricity-saving participants, including those who have not achieved sufficient electricity-saving (those who have failed to reach a target for electricity-saving volume)

*9 State the average saving volume per 30 minutes in "kWh" as adjusted for market transaction units

*10 State electricity consumption per hour in "kW" according to the calculation of capacity contribution amounts

*11 State the providable volume per 30 minutes in "kW", which is an assessment unit in Assessment II for RR-FIT

Feasibility with use of DR Service

- **It is potentially possible to save electricity consumption during specific hours by using behavior-inducing DR Service.**
- **It is potentially possible to utilize DR Service to save on the procurement volume in times of spot market spike and prevent an imbalance due to a shortage of power.**
- **Forecasting peak demand hours could potentially lower demand during specific time periods and reduce capacity contribution burden.**
- **Average electricity consumption per household is reduced by 0.138 kW on average when electricity-saving was requested 45 minutes before. Requesting about 7,200 households to save electricity could potentially generate an adjustment volume of 1 MW, which is the minimum trade volume of RR-FIT of the supply and demand adjustment market.**

■ Challenges

- **For people saving electricity insufficiently**

There were people who, although having participated in electricity-saving, failed to save electricity sufficiently (failed to reach a target for electricity-saving volume) depending on the day and hour. In order to rein in electricity consumption more stably during specific hours of the day, it is necessary to improve the success rate of electricity-saving by participating customers by making inventive efforts such as proposing a electricity-saving method optimal for individual customers.

- **Variations in electricity-saving volume**

The amount of electricity-saving volume varied depending on the day and hour. In order to use DR Service to reduce the procurement volume in times of a spot market spike and prevent an imbalance due to a shortage of power, it is necessary to deal with often-occurring variations while reining in the variations in electricity-saving volume.

- **Reduction in capacity contribution burden**

It is necessary to forecast peak demand hours correctly and save electricity consumption during those hours.

- **Possibility of entry to RR-FIT of the supply and demand adjustment market**

As each area is required to generate 1 MW, the minimum trade volume, 7,200 households in the area are required to participate in electricity-saving. In order to use electricity as a power source for RR-FIT in the supply and demand adjustment market, it is necessary to keep a providable volume margin of error within 10% or less above or below an order value changed 45 minutes before. However, since the electricity-saving volume per 30 minutes varies, it is necessary to stably generate the providable volume by: i) analyzing the characteristics and tendencies of people succeeding in saving electricity; and ii) making inventive efforts such as selecting candidates according to the purpose of an electricity-saving request.

Future Initiatives

As a result of the trial this time, we discovered a possibility of using C-route data-based behavior-inducing DR Service for the electricity retail business. Nevertheless, variations occurred in the electricity-saving volume depending on the day and hour. SB Power will continue to examine ways of saving electricity consumption more effectively during specific day and hour and work to deliver effective behavior-inducing DR Service. As future

initiatives, we will verify the electricity-saving volume in the event of issuing a request immediately prior such as 10 minutes prior. Not only reducing electricity consumption through electricity-saving, we will take on the challenge of providing advanced DR Service with which we can increase electricity consumption by arranging for customers to use electricity during periods of high solar power output.

SB Power is considering requesting electricity retailers to jointly verify behavior-inducing DR Service for households. If you are interested as an electricity retailer, please contact us at the following.

For inquiries from electricity retailers regarding DR Service
DR Service inquiry desk at SB Power Corp.
E-mail: sbp_support_energy_service@sbpower.co.jp

SB Power will continue to promote the development of the most familiar and affordable energy services by utilizing the latest smartphone services and contents and AI-based big data analysis technology of SoftBank Corp. and its group companies in the electric power retail business.

<Exhibit>

■ Details of DR Service Trial results

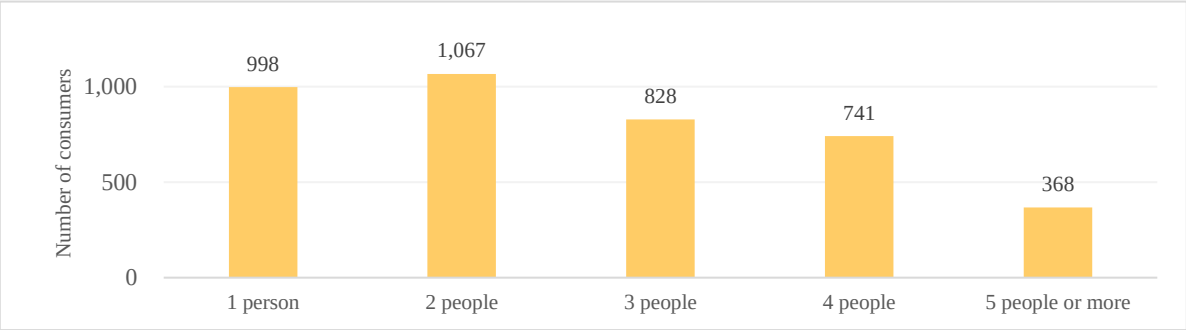
To respond to market and system reforms through DR Service, we examined the customer participation rate and average saving volume in instances of changing the notice time for an electricity-saving request as well as the application deadline. In addition to the results announced this time, we examined changes in electricity-saving participation rate and average saving volume as a result of changing the amount of compensation in the event of a success and changes in an average saving volume due to whether customers are given a reminder prior to electricity-saving time. We aim to deliver effective and behavior-inducing DR Service in consideration of these results.

i. Characteristics of customers participating in DR Service
ii. Customer participation rate
iii. Average saving volume by customers
iv. Questionnaire survey results

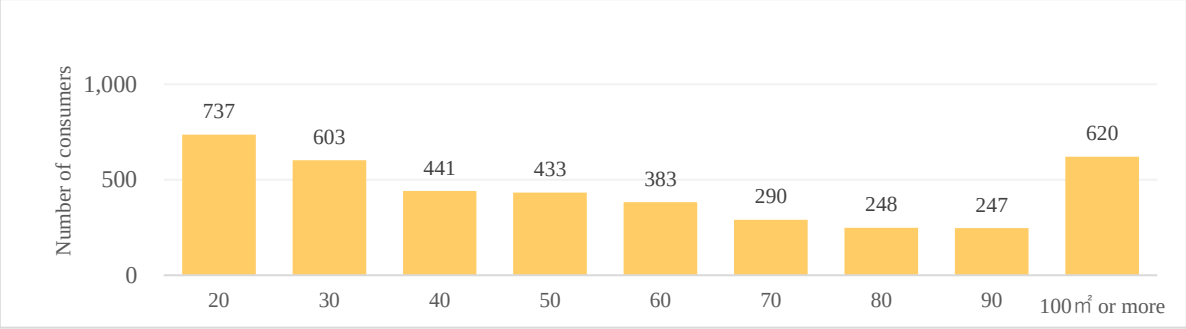
i. Characteristics of customers participating in DR Service

The following shows the household member count and floor area of 4,002 households that participated in DR Service. This table shows that customers having diverse characteristics participated.

[1. Number of participating consumers by household count (persons)]



[2. Number of participating consumers by floor area (persons)]

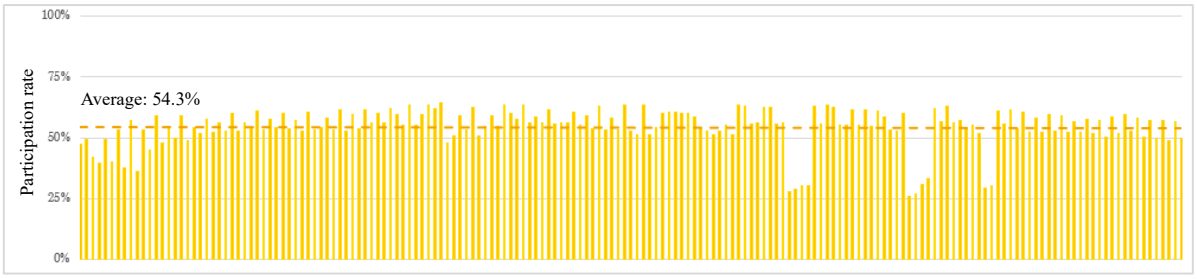


ii. Customer participation rate

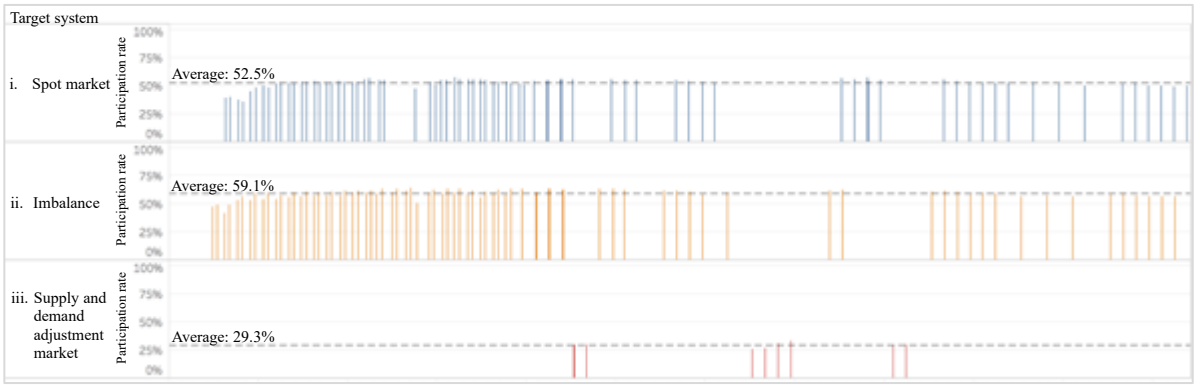
The following shows the historical participation rate from day one of the trial to the last day of it, in response to electricity-saving requests. In addition, we have changed the notice time for an electricity-saving request and the application deadline in order to respond to the spot market, imbalance, and the supply and demand adjustment market, and we will release those results.

In addition, we also examined changes in the participation rate due to changes in the amount of compensation for successful electricity-saving in individual electricity-saving requests.

[1. Participation rate in electricity-saving requests totaling 175]



[2. Rate of participation intended to respond to market and system reforms]

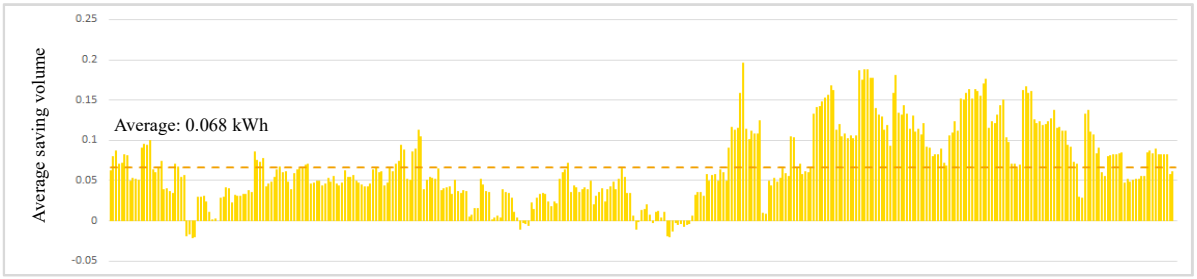


iii. Average saving volume by customers

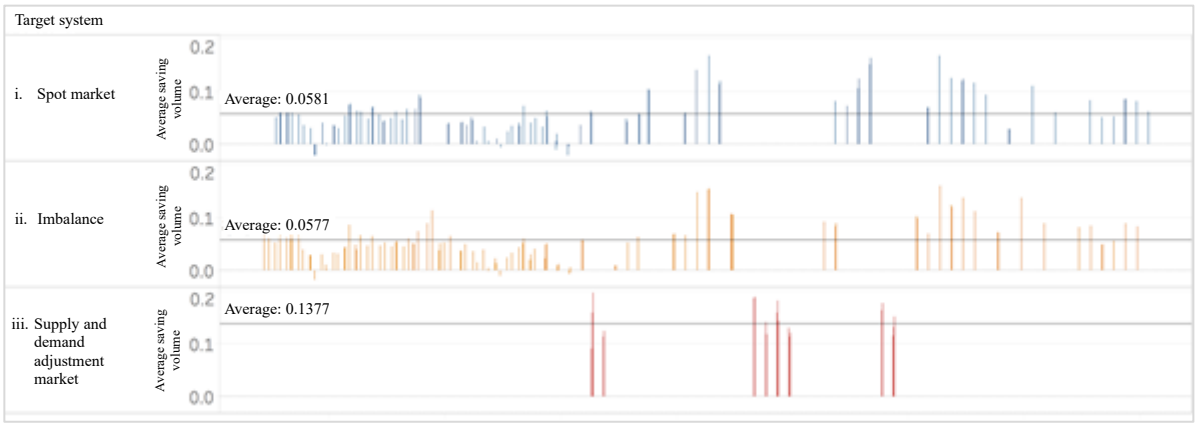
Per-participant average saving volume in electricity-saving requests totaling 175 was 0.068 kWh/household for 30 minutes, but it was shown to vary greatly depending on the day and hour.

In addition, we verified changes in average saving volume due to changes in the amount of compensation for successful electricity-saving in individual electricity-saving requests, as well as changes in average saving volume due to whether a reminder was issued prior to electricity-saving time.

[1. Average saving volume in electricity-saving requests totaling 175: “kWh/household for 30 minutes"]



[2. Average saving volume intended to respond to market and system reforms: “kWh/household for 30 minutes"]

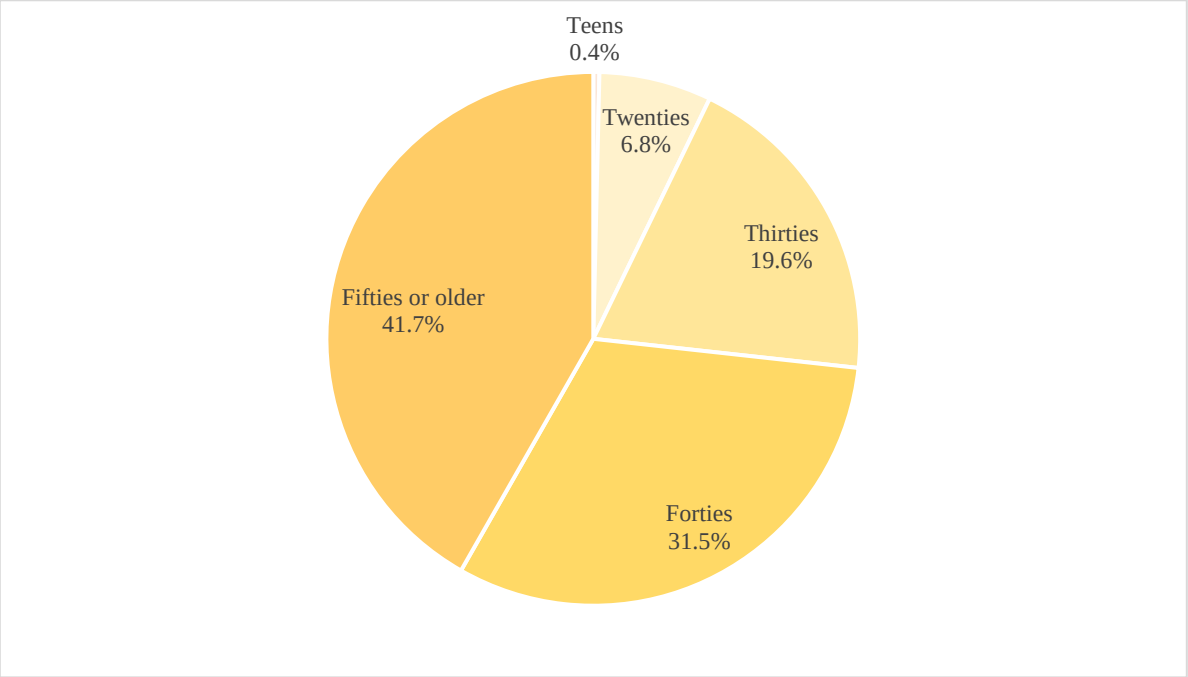


iv. Questionnaire survey results

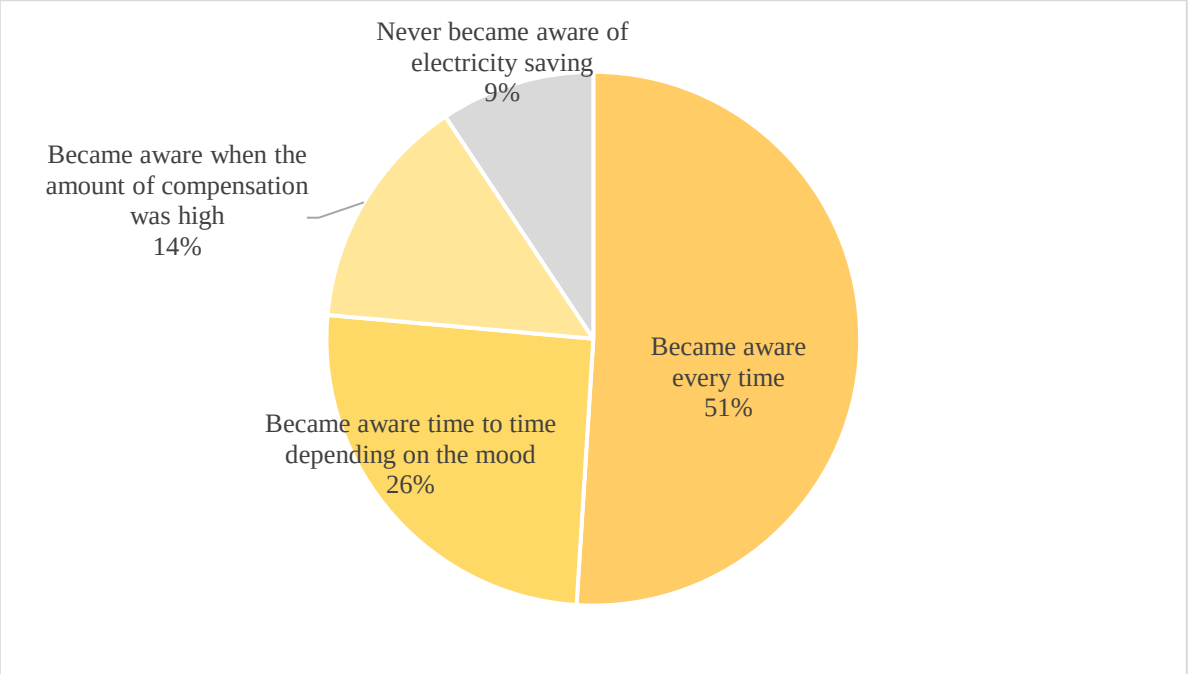
Using a dedicated smartphone application, we conducted a free-answer questionnaire survey on customers who participated in electricity-saving, and received responses from 49% of them. Some of the findings from it are shown.

Question 1: How old are you?
Question 2: When did you become aware of electricity-saving?
Question 3: What did you do specifically to save electricity?
Question 4: Do you want to recommend this app to other people?

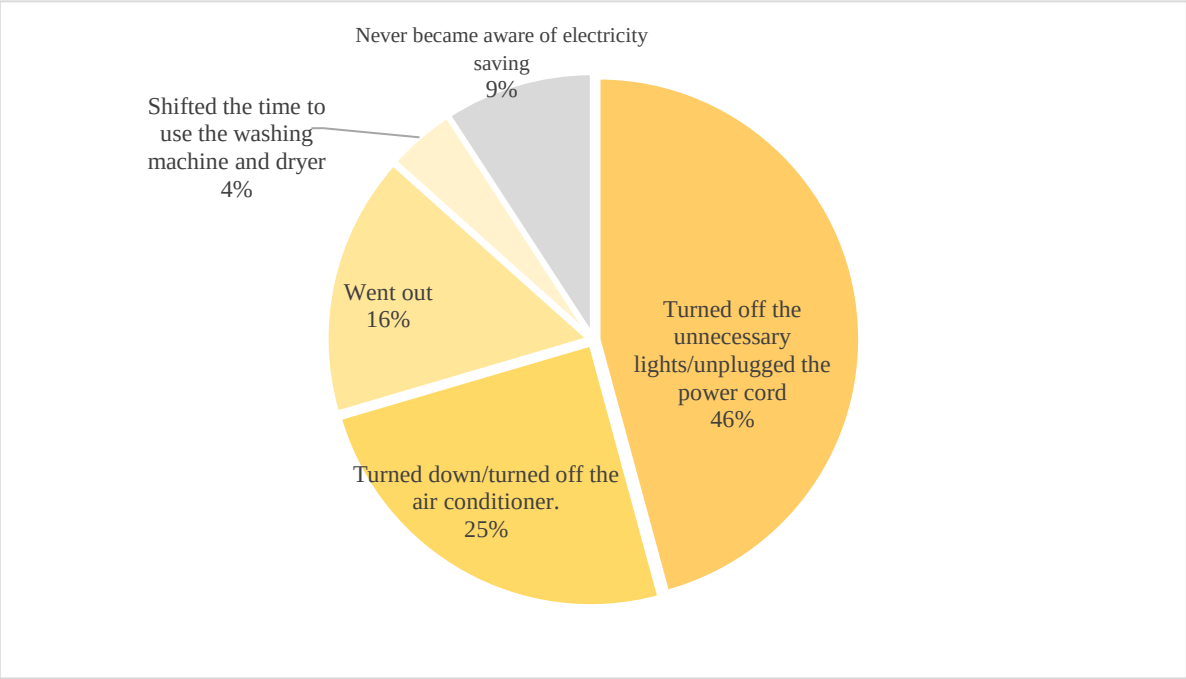
[Question 1: How old are you?]



[Question 2: When did you become aware of electricity-saving?]



[Question 3: What did you do specifically to save electricity?]



[Question 4: Do you want to recommend this app to other people?]