

Start of Demonstration to Develop a New Service Using EVs

—Realization of Multi-Use Service That Can Provide Three Benefits: (1) Reduction of Electricity Charge, (2) Resources for Car Sharing, and (3) Resources for BCP—

February 14, 2022

Osaka Gas Co., Ltd.

Osaka Gas Autoservice Co., Ltd.

Today, Osaka Gas Co., Ltd. (President: Masataka Fujiwara; hereinafter, "Osaka Gas") started a demonstration experiment, at the experimental multi-unit housing "NEXT21" owned by the Osaka Gas, to realize a multi-use electric vehicle (hereinafter "EV") service that can provide customers with three benefits: (1) reduction of electricity charge, (2) resources for car sharing, and (3) emergency power supply systems (hereinafter "resources for BCP"). The EV car-sharing service is operated by Osaka Gas Autoservice Co., Ltd. (President: Motoya Yukawa; hereinafter, "OGAS"), a subsidiary of Osaka Gas, and the OGAS aims to acquire new know-how about the car sharing business through this demonstration.

In Japan, it is required to reduce CO₂ emissions in all sectors, such as homes, commercials and industries, for the realization of carbon neutrality by 2050. The transportation sector, which accounts for less than 20% of total emissions, is also required to achieve carbon neutrality, and the use of EVs in combination with carbon neutral power resources is said to be an effective means.

Also, as the introduction of renewable energy progresses, the need for flexibility,^{*1} such as demand response^{*2} (hereinafter "DR") and virtual power plants^{*3} (hereinafter "VPPs") consisting of storage batteries and other resources,^{*4} is increasing, and EVs are expected to provide this function as "moving storage batteries."

However, at the moment, the initial costs of an EV tend to be higher than those of a conventional gasoline-powered vehicle, which is considered as a hurdle for widespread use of EVs.

In addition, as an increasing number of young people do not have interest in owning a car, use of a car-sharing vehicle in daily life is spreading.

With these trends in mind, Osaka Gas aims to develop a multi-use EV service that can provide customers with three benefits: (1) reduction of electricity charge by conducting peak shaving and DR, (2) resources for car sharing, and (3) resources for BCP. Firstly, electricity charge will be reduced by conducting efficient energy management using EVs in combination with an AI-powered system that can forecast electric power demand and the output of solar power generation systems. This AI-powered forecasting system was originally developed by Osaka Gas as a system for stationary storage batteries. Secondly, customers will earn profits by sharing their EVs with public users during the time when Osaka Gas do not conduct energy management using EVs. Thirdly, Osaka Gas aims to heighten EVs' value as resources for BCP by enabling EVs to automatically charge their batteries prior to typhoons and other extreme weather events in response to weather warnings and supply electricity in the event of a power outage. Through the development of these multi-use services, Osaka Gas aims to create additional value of EVs as storage batteries in addition to mobility devices.

In this demonstration, the Daigas Group will provide a car sharing service to the residents of NEXT21 while conducting energy management using EVs, thereby collecting the data of actual operation and evaluating the business model.

After finishing the demonstration, the Daigas Group will introduce this multi-use service to government offices, companies that own company cars, and multi-unit housing.

The Daigas Group will contribute to further stabilization of power systems by adding EVs to conventional VPP resources, such as cogeneration systems, air conditioning systems and etc., and also help customers reduce their CO₂ emissions by combining EVs and renewable electricity and reduce energy consumption.

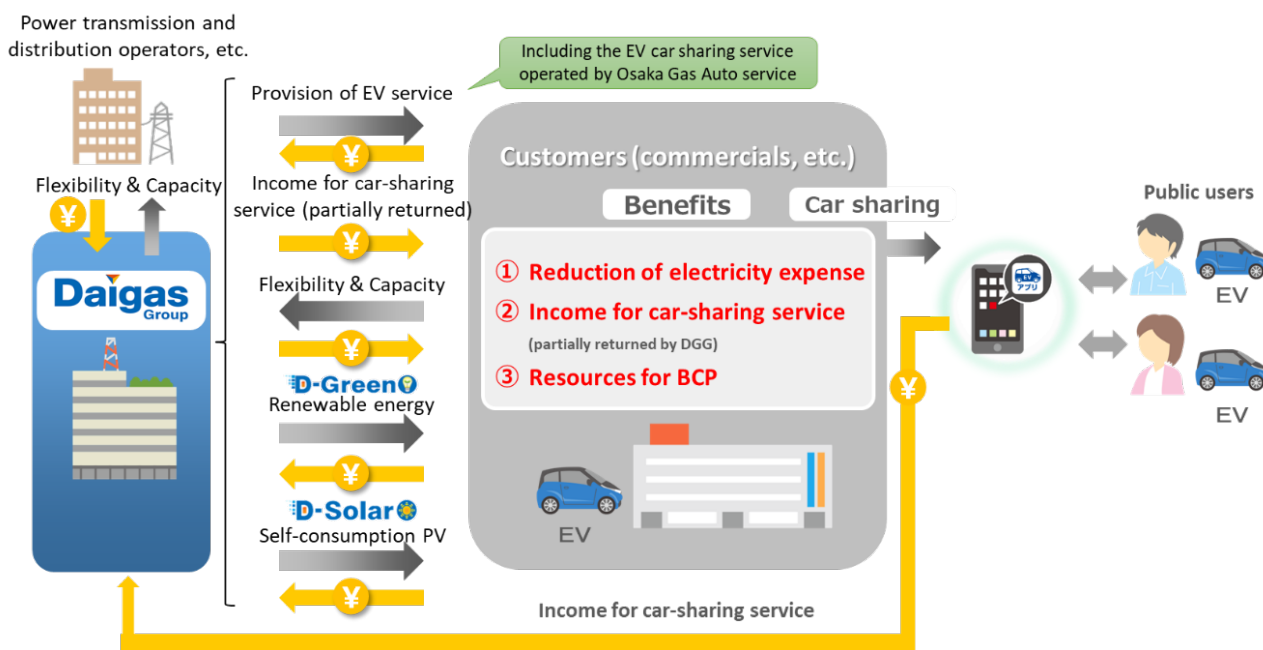
*1 flexibility: Power generation equipment, storage batteries, and DR used by power transmission and distribution operators for frequency control and balancing in their supply area

*2 Demand response (DR): To save the consumption of electricity from the power grid by controlling equipment owned by customers and discharging electricity from their storage batteries and EVs in order to balance the supply and demand of electric power

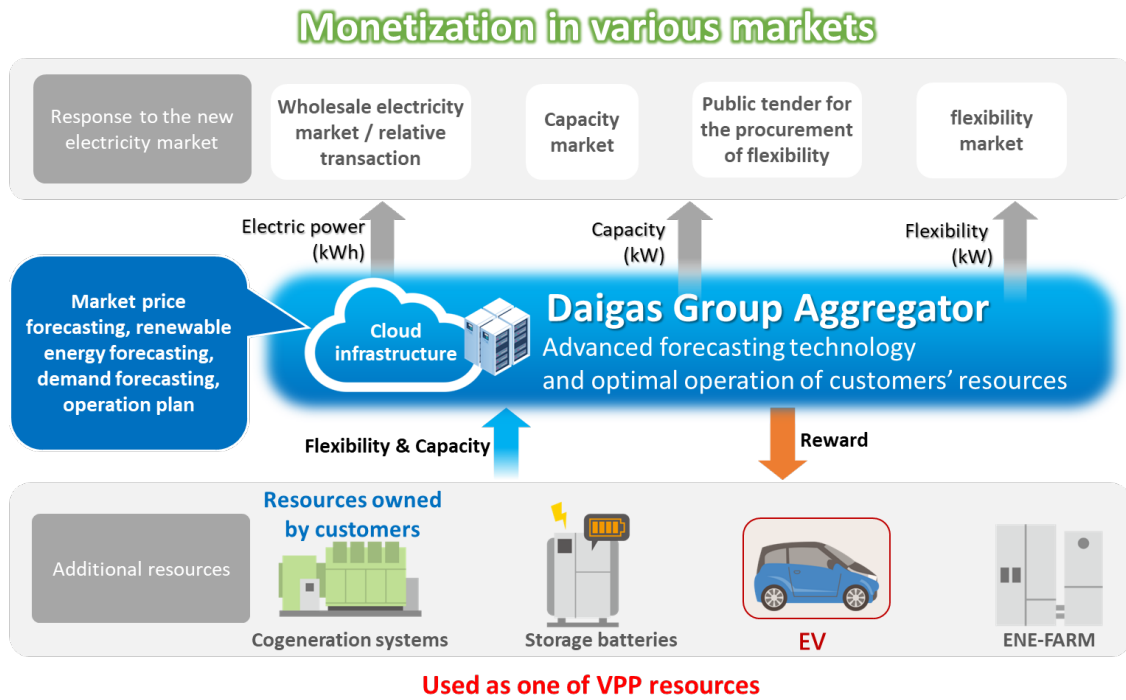
*3 Virtual power plants (VPPs): When an operator called an "aggregator" systematically controls distributed power resources and other resources by using information and communication technologies, they function as if they were a single power plant.

*4 Storage batteries and other resources: Cogeneration systems and ENE-FARM are included.

1. Scheme of multi-use service using EVs



2. Conceptual image of VPP configuration



3. EVs used in this demonstration experiment



[Overview of multi-unit housing “NEXT21”]

Address: 6-16 Shimizudani-cho, Tennoji-ku, Osaka City

(Nearest station: Tanimachi 6-chome on the Osaka Metro Nagahori Tsurumi-ryokuchi Line and Tanimachi Line)

Scale: Six stories above ground and one story underground

Building area: 896 m²

Total floor area: 4,577 m²

Dwelling units: 18



You can view the details of the NEXT21 project and the "3D Walk-through Virtual Tour" on the websites below.

▼ The Daigas Group's project at experimental multi-unit housing "NEXT21"

<https://www.osakagas.co.jp/company/efforts/next21/>

▼ "VIRTUAL NEXT21," where you can view NEXT21 in 3D

<https://www.osakagas.co.jp/company/efforts/next21/index.html#a01>