

Start of Project to Verify Open Platform Aggregation Business  
~ Start of FY2020 Demonstration Project for the Construction of a Virtual Power Plant  
that Utilizes Demand-Side Energy Resources (VPP Aggregation Project) ~

June 8, 2020

Tokyo Electric Power Company Holdings, Inc.

NEC Corporation

Goal connect Co., Ltd.

SEKISUI CHEMICAL CO., LTD.

TEPCO Power Grid, Inc.

TEPCO Energy Partner, Inc.

TAKAOKA TOKO CO., LTD.

Toshiba Energy Systems & Solutions Corporation

Japan Weather Association

Mitsubishi Motors Corporation

Hitachi Systems Power Services, Ltd.

Thirty companies including Tokyo Electric Power Company Holdings, Inc., NEC Corporation, Goal connect Co., Ltd., SEKISUI CHEMICAL CO., LTD., TEPCO Power Grid, Inc., TEPCO Energy Partner, Inc., TAKAOKA TOKO CO., LTD., Toshiba Energy Systems & Solutions Corporation, Japan Weather Association, Mitsubishi Motors Corporation, and Hitachi Systems Power Services, Ltd.<sup>\*1</sup> have applied as a consortium for a grant to cover the costs of its “FY2020 Demonstration Project for the Construction of a Virtual Power Plant that Utilizes Demand-Side Energy Resources (VPP Aggregation Project),” for which a public offering was made by the Ministry of Economy, Trade and Industry through its Sustainable Open Innovation Initiative. The demonstration phase of this experiment, which aims to construct a virtual power plant<sup>\*2</sup> (hereinafter referred to as, “VPP”) through which resource aggregation can be commercialized, commenced today.

In recent years, problems that impact the stable operation of power grids, such as output fluctuations and surplus power generated by renewable energy sources (hereinafter referred to as, “RESs”), such as solar power, have continued to manifest. Adjustments at power stations and the other facilities are required to stabilize power grids, but owning and maintaining power generation equipment necessary to do so is costly. Amidst these conditions it is becoming necessary to develop a new mechanism

that can balance the continual introduction of RESs with power grid stability at low-cost.

Through this demonstration project, these thirty companies aim to balance the continual expansion and introduction of RESs into the future with power grid stability, and construct a VPP that connects energy resources dispersed throughout society (multifarious power equipment, such as storage batteries, electric vehicles (hereinafter referred to as, “EV/PHEV”), water heaters, solar power generation and the other equipment) and can be used to adjust power supply on a megawatt scale. Furthermore, the project also aims to establish a business model for Vehicle to Grid (V2G) systems that can adjust power demand/supply through bidirectionality with EV/PHEV storage batteries.

In FY2016, we developed an Aggregation Coordinator<sup>\*3</sup> (hereinafter referred to as, “AC”) system and secured resources. In FY2017, we improved and tested this AC system to fit the needs of power distribution and transmission companies, and created a business model for the commercialization of resource aggregation. Then in FY2018, we again improved and tested the AC system in anticipation of the future supply and demand adjustment market, and deliberated how to stabilize distribution networks.

In FY2019, 10 companies joined the project and we were able to continue to develop and expand resources while improving and testing the AC system to fit the needs of the supply/demand adjustment market.

In FY2020, we shall further improve and test this AC system in order to further improve resource control accuracy and accelerated our deliberation of supply/demand adjustment market system issues and business models. We shall also engage in initiatives that aim for the early start of our resource aggregation business and our entrance into the supply/demand adjustment market from FY2021.

Through the construction of a VPP, this consortium of thirty companies aims to establish an innovative energy management system and commercialize resource aggregation in order to solve global energy/environmental issues.

## Attachment: Virtual Power Plant Construction Demonstration Project Overview

\*1: Consortium members (thirty companies)

Aggregation Coordinators (three companies) (⊙: Core company)

⊙ Tokyo Electric Power Company Holdings, Inc. (Headquarters: Chiyoda-ku, Tokyo; President: Tomoaki Kobayakawa)

- NEC Corporation (Headquarters: Minato-ku, Tokyo; President and CEO: Takashi Niino)

- Goal connect Co.,Ltd. (Headquarters: Minato-ku, Tokyo; President : Akira Oshita)

Joint demonstration project (eight companies)

- SEKISUI CHEMICAL CO., LTD. (Headquarters: Osaka City, Osaka; President and Representative Director: Keita Kato)

- TEPCO Power Grid, Inc. (Headquarters: Chiyoda-ku, Tokyo; President: Yoshinori Kaneko)

- TEPCO Energy Partner, Inc. (Headquarters: Chuo-ku, Tokyo; President: Nobuhide Akimoto)

- TAKAOKA TOKO CO., LTD. (Headquarters: Koto-ku, Tokyo; President: Toshiro Takebe)

- Toshiba Energy Systems & Solutions Corporation (Headquarters: Kawasaki City, Kanagawa Prefecture; President and CEO: Mamoru Hatazawa)

- Japan Weather Association (Headquarters: Toshima-ku, Tokyo; Chairman: Ken Haruta)

- Mitsubishi Motors Corporation (Headquarters: Minato-ku, Tokyo; Representative Executive Officer, CEO: Takao Kato)

- Hitachi Systems Power Services, Ltd. (Headquarters: Minato-ku, Tokyo; President/CEO: Akira Sakai)

Resource aggregators (19 companies)

- Global Engineering Co., Ltd.

- ONE Energy Corporation

- Osaki Electric Co., Ltd.

- FAMILYNET JAPAN Corporation

- KYOCERA Corporation

- EFFICIENT Inc.
- MUL Utility Innovation Co., Ltd.
- Shizuoka Gas Co., Ltd.
- ELIYY Power Co., Ltd.
- Energy Optimizer Inc.
- KANDENKO Co., Ltd
- Nippon Koei Co., Ltd.
- SANIX Inc.
- Toyo Engineering Corporation
- Yachiyo Engineering Co., Ltd.
- Takenaka Corporation
- Tokyo Gas Co., Ltd.
- ENE -VISION Co., Ltd.
- Advantec Co., Ltd.

27 companies, with the exception of Toshiba Energy Systems & Solutions Corporation, Energy Optimizer Inc., and Advantec Co., Ltd., were selected and approved for subsidies. The aforementioned remaining three companies should be selected and approved for subsidies this month.

**\*2: Virtual Power Plant (VPP):**

A virtual power plant that uses information and communications technology for the integrated control of dispersed energy resources and functions like a single power generation facility.

**\*3: Aggregation Coordinator (AC):**

An aggregation coordinator aggregates multiple power loads controlled by resource aggregators, which control resources upon entering into VPP service agreements with demand households, and directly engages in power transactions with general transmission and distribution operators and retail electric companies.