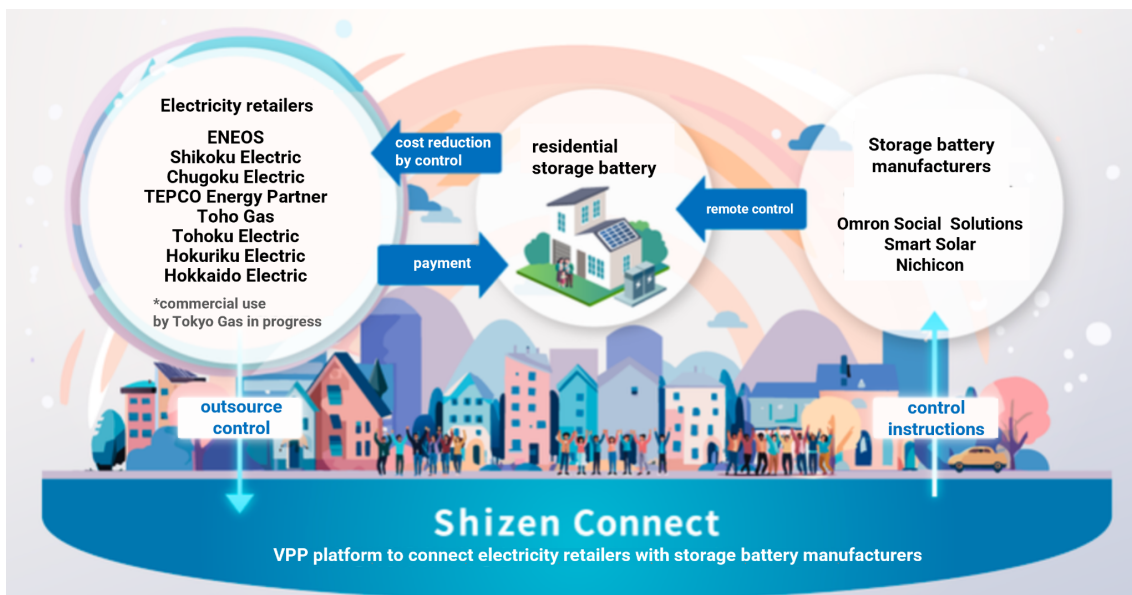


## **Eight leading electricity retailers to conduct joint low-voltage VPP demonstration with Shizen Connect**

**- Demonstrate economic and technical feasibility of equipment-controlled DR service for commercialization by summer 2024 -**

Shizen Connect Inc., a VPP platform developer that provides "Equipment Control Demand Response Service," a low-voltage VPP\*<sup>1</sup> operation service, together with storage battery companies such as Omron Social Solutions Co. Ltd., Smart Solar Corporation, and Nichicon Corporation, will begin a demonstration using this service with 8 major electricity retailers, with the aim of commercial launch in the summer of 2024. The participating electricity retailers are ENEOS Corporation, Shikoku Electric Power Co.,Inc., The Chugoku Electric Power Co. Inc., TEPCO Energy Partner, Inc., Toho Gas Co., Ltd., Tohoku Electric Power Co., Inc., Hokuriku Electric Power Company, and Hokkaido Electric Power Co., Inc.



This service utilizes Shizen Connect's energy management system "Shizen Connect" to remotely control the charging and discharging of low-voltage energy equipment such as residential storage batteries, thereby creating a virtual power plant (VPP) that will generate reserves to help electricity retailers reduce their electricity procurement costs.

This service will provide control that will reduce the cost of purchasing electricity from the wholesale market for electricity retailers as of November 2023 and capacity payments starting in FY2024, as well as control to alleviate supply and demand

constraints in the event of grid stress, as requested by the Agency for Natural Resources and Energy. In the future, control for the capacity market and balancing market, which have already been demonstrated, and "reverse demand response"<sup>\*2</sup>, which will mitigate renewable energy curtailment<sup>\*3</sup>, are also planned for commercialization.

In addition to control from the "Shizen Box" edge computer<sup>\*4</sup> provided by Shizen Connect, control from remote control servers of storage battery manufacturers connected to the cloud is also possible. In this case, no additional installation of IoT devices on the low-voltage power equipment is necessary.

As of November 2023, the storage battery manufacturers in this collaboration include companies such as OMRON SOCIAL SOLUTIONS Corporation, Smart Solar Corporation, and Nichicon Corporation, which together account for approximately 50% <sup>\*5</sup> of the domestic market share, and over 100,000 storage batteries are currently connected to the system <sup>\*6</sup>. In the future, we plan to further increase the number of residential storage batteries connected to the system, and also expand to include other to low-voltage energy devices such as electric vehicles <sup>\*7</sup> and heat-pump electric water heaters (Eco-Cute).

This service is already being used commercially, and has been implemented for the "Storage Battery Option" of Tokyo Gas's "Summer Energy Saving Campaign 2023" in July 2023 <sup>\*8</sup>.

The economic and technical feasibility of the service is expected to be demonstrated starting in February 2024, with the aim of commercial deployment in the summer of 2024 at each of the electricity retailers described below (Table 1).

**Table 1: Demonstration overview**

|                                      |  |
|--------------------------------------|--|
| Name                                 | Equipment Control DR demonstration Winter 2023   |
| Objective                            | Demonstration of the economic and technical feasibility of Shizen Connect's Equipment Controlled DR Service for commercial introduction from July 2024   |
| Demonstration duration <sup>*9</sup> | Part 1- Verification of economic and technical feasibility for standard control:<br>February 2024 - March 2024<br><br>Part 2 - Verification considering reverse current and special control requirements:<br>June 2024 - July 2024 |

|                                       |   |
|---------------------------------------|---|
| Evaluation method                     | 1. Simulation of cost savings (wholesale procurement cost reduction, capacity payment reduction)<br>2. Technical assessment (resource adaptability to control instructions to reduce wholesale procurement costs)                                   |
| Role of Shizen Connect                | <ul style="list-style-type: none"> <li>• Control planning and control instructions</li> <li>• Cost reduction simulation</li> <li>• Verification of demonstration results</li> <li>• Overall coordination of the demonstration experiment</li> </ul> |
| Role of storage battery manufacturers | <ul style="list-style-type: none"> <li>• Implementation of storage battery control using proprietary remote control system</li> </ul>   |
| Role of electricity retailers         | <ul style="list-style-type: none"> <li>• Provide control requirements</li> <li>• Provide information necessary for cost reduction simulations</li> </ul>  |

Shizen Connect will continue to contribute to the realization of a decarbonized society together with leading companies in various fields.

\*1 **Virtual Power Plant (VPP)** : A system that uses ICT to integrate and control multiple distributed energy resources as if they were a single power plant

\*2 **reverse demand response**: end users are incentivized to increase demand to help balance the grid during periods of excess renewable generation

\*3 **curtailment**: deliberate reduction of output below what could have been produced in order to balance energy supply and demand or due to transmission constraints

\*4 **edge computer**: IoT device installed near the equipment

\*5 based on survey by monthly magazine Smart House and calculated by our company

\*6 based on in-house research

\*7 [Shizen Energy selected for METI DER Aggregation Demonstration Project](#)  
(June 16, 2023 press release)

\*8 [Shizen Energy launches "Equipment Control Demand Response Service" for electricity retailers for supply and demand strain countermeasures and cost reduction](#)  
(May 15, 2023 press release)

\*9 each company will begin demonstrations in turn during this period.

**EMS "Shizen Connect"** <https://www.se-digital.net/> (japanese website)

"Shizen Connect" is an aggregation energy management system (EMS). It can provide individual control for storage batteries and EV chargers, control for microgrids connecting multiple buildings with their own private transmission lines, as well as control of VPPs for large scale energy resources. Individual control and VPP control tended to be separate, but EMS "Shizen Connect" provides a one stop service allowing energy resources to be used with multi-purpose, which also improves economic efficiency. The system can be adapted with any equipment supplier, allowing energy resources to be chosen freely without relying on a certain manufacturer.

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Founded: October 2, 2023

Shareholder: Shizen Energy Inc. 100%

Representative Director: Munekazu Matsumura

Business: VPP platform, energy management service, IoT equipment sales, etc.

URL: <https://se-digital.net> (Japanese only)

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