

Nature and Shizen Connect sign partnership to optimize residential DER control

Shizen Connect to provide VPP control for Nature's remote energy control system

Nature Inc.(Nature), which promotes energy management through IoT products, and Shizen Connect Inc.(Shizen Connect), a VPP^{*1} platform developer, have announced the start of a partnership in the low-voltage VPP sector. This partnership involves the collaboration of Nature's smartphone HEMS "Nature Remo E" remote control system, developed and sold by Nature, with Shizen Connect's VPP control.(Diagram 1)



Based on its mission of "Driving sustainable coexistence with nature", Nature aims to achieve a shift to renewable energy through the use of its smart remote control - Nature Remo and its home energy management system - Nature Remo E. In 2022, Nature launched a "demand response support service" for utility companies and now, it aims to contribute to the evolution of next-generation energy infrastructure by developing the "Nature DER^{*2} Platform", a unique energy management system that optimally controls distributed energy resources (DER). This partnership exemplifies the initiative and vision behind the "Nature DER Platform."

Shizen Connect provides a VPP platform that controls a wide range of energy resources, from low-voltage energy resources such as residential storage batteries, EVs, and EcoCute hot water systems to grid storage batteries (Figure 2). In the low-voltage VPP sector, Shizen Connect has started to provide an "Equipment Control Demand Response Service", which implements controls that reduces procurement costs and capacity payments for electric retailers and has been adopted by several major electric retailers.

To achieve the government's goal of "carbon neutrality by 2050," efforts are being made to expand the introduction of renewable energy generation facilities; however, since the output of renewable energy generation facilities can be highly variable depending on the weather, effective use of renewable energy requires a system that balances electricity supply and demand. As such, there is a growing interest in low-voltage VPPs that use low-voltage

resources such as residential storage batteries as flexibility. To achieve effective low-voltage VPPs, it is crucial to have a system that can control a large number of low-voltage energy resources by amassing them together, while maintaining consumer comfort and confidence in reliability.

In this partnership, the cloud services of both Shizen Connect and Nature will be linked, and Shizen Connect will work with electricity retailers and various electricity markets to create control plans. Nature will implement optimal control of DER based on these plans for households where “Nature Remo E” is installed. By working together, Nature and Shizen Connect will promote optimal control of residential DERs and further expand the scale of VPPs. Through this partnership, the two companies will work closely with electricity providers and aggregators to promote the expansion of renewable energy and ensure a stable power supply.

Diagram 1 Collaboration scheme

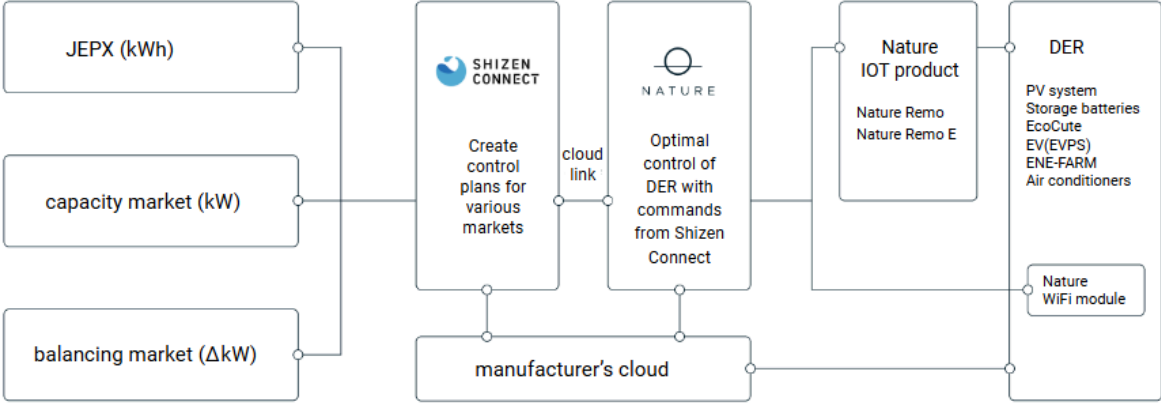
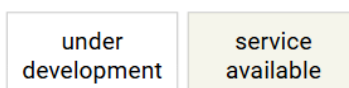


Diagram 2 List of controls provided by Shizen Connect

Beneficiary	Power generator	TDSO	Energy retailer	Consumer
Control	Imbalance reduction	1st flexibility (GF)	Imbalance reduction	Peak-cut
	Market price optimization	2nd (1) flexibility (LFC)	Market price optimization	Time-shift
	Output curtailment optimization	Other flexibilities	Capacity charge reduction	Microgrid
	Overload optimization	DR for capacity market	Demand reduction DR	Reverse power flow prevention
			Demand creation DR	



*1 **Virtual Power Plant (VPP)**: digital technology that remotely integrates and controls distributed energy resources (power generation facilities, storage batteries, EVs, etc.) and demand-side facilities as if they were a single power plant

*2 **Distributed Energy Resources (DER)**: energy sources owned by consumers (users of energy such as electricity) that are distributed across various locations. Specifically, this includes equipment such as solar power generation systems, storage batteries, EVs, and ENE-FARM systems that can generate or store electricity in different locations.

About Nature Remo E

Nature Remo E is a HEMS that can be used with smartphones and easily installed by plugging it into a standard socket. It allows users to check electricity consumption, estimated electricity costs, solar power generation sales status, battery charge and discharge levels in real time via the Nature Home App. In addition, users can remotely control batteries and V2H systems while away from home.

About Demand Response Support Service

Based on operational experience, Nature offers a service to electricity retailers to support the implementation and operation of Demand Response (DR). This includes the provision of Nature's unique appliance control-based DR functions, such as automatic control of home appliances to reduce electricity demand using Nature Remo and Nature Smart Eco Mode. In addition, Nature supports electric retailers in a wide range of efforts, including DR system construction, promotion management, and impact evaluation.

About Nature Inc.

Location: 1-1 Sakae-chou, Kanagawa-ku, Yokohama-shi, Kanagawa 221-0052

Established: December 10, 2014

Representative: Haruumi Shiode

Business: Development, manufacturing, and sales of IoT devices, and energy management

Product: Nature Remo, Nature Remo E series

URL: <https://nature.global/>

About **EMS “Shizen Connect”** <https://www.se-digital.net/> (Japanese website)

“Shizen Connect” is an energy management system that uses IoT/AI technology to control energy equipment such as storage batteries, EVs, and EcoCute heat pump water heaters, and enables market trading of the control value. It can reduce electricity bills by cutting peak demand, be used to build microgrids, and create VPPs (virtual power plants) by performing control for various electricity markets. It has been adopted by Tokyo Gas and TEPCO Energy Partner as a VPP platform for residential storage batteries, and by Osaka Gas and Tokyu Land Corporation for controlling storage batteries for power grids.

About **Equipment Control Demand Response Service**

A service that changes electricity usage patterns by remotely controlling residential storage batteries and other energy resources owned by consumers to balance electricity supply and demand according to the needs of retail electricity providers, or to create flexibility.

About **Shizen Connect Inc.**

Head Office: 2-4-7 Nihonbashi-honcho, Chuo-ku, Tokyo

Founded: October 2, 2023

Shareholder: Shizen Energy Inc. 100%

*JERA Co., Inc., Shikoku Electric Power Co., Inc., Shin Nippon Air Technologies Co., Ltd., Tokyu Land Corporation, Tokyo Gas Co., Ltd., Nishi-Nippon Railroad Co., Ltd., Hokuriku Electric Power Co., Inc., and Hokkaido Electric Power Co., Inc. have concluded a capital and business alliance agreement with Shizen Connect Inc. through the issuance of convertible bonds with stock acquisition rights.

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