The development of small, light on board chargers for electric vehicles (EVs) which contribute to lowering environmental burdens, has made simple charging at home more common for all users.

Nichicon develops on board chargers for EVs using advanced power electronics technology that is installed in nearly all mass-produced EVs. Nichicon also uses this technology to contribute to the adoption of EVs and creation of infrastructure by developing ultra-compact quick chargers for EVs installed at gas stations, expressway service areas and commercial facilities.

Nichicon used this experience and performance to develop the world’s first Vehicle to Home (V2H) System EV Power Station. This system, born from the totally new concept of making the electric vehicle a lifestyle power source, is being installed in Nissan dealer showrooms to provide Nissan Leaf drivers with new value.

The EV Power Station is a two-way charging and power supply system combining an EV charging unit with a home power storage battery system. Electricity stored in the EV battery can be used in the home by connecting the home electricity distribution panel and EV quick charge port. This contributes to peak shift through the effective use of electricity stored in the EVs and can also be used as a backup power source in the event of a blackout.

Through the new possibilities offered by the EV Power Station, Nichicon aims to realize a richer and more comfortable life.

**EV Power Station**

**Vehicle to Home !**

New possibilities to make your car a lifestyle power source.

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Through the new possibilities offered by the EV Power Station, Nichicon aims to realize a richer and more comfortable life.
Nichicon’s environmental businesses include EV inverters, chargers and DC-DC converters. The experience and expertise garnered from these endeavors were used to create the EV Power Station combining EV charger and home power supply functions.

The EV Power Station is the world’s first V2H system, a superior product enabling effective use of electric power in a variety of situations, including electric power peak shift and blackouts during emergencies.

In terms of development, while there were challenges involving new technologies that needed to be developed, such as smooth power grid switching and sorting power for charging and indoor use, the entire Nichicon Group came together to bring this product to market as quickly as possible. Having given particular consideration to simple usability at home, we feel confident we have created a product that is easy to use.

Going forward, we will continue to develop products that benefit society using Nichicon Group environmental technologies.

Toshihiko Arai
Engineering Leader
Engineering Division
Nichicon (Kameoka) Corporation

Voice

Making Use of the World’s First V2H System in a Variety of Situations

Even in the event of a power outage, electricity stored in the EV Power Station can be used as a backup household power source.

Peace of mind during blackouts and emergencies

Even in the event of a power outage, electricity stored in the EV Power Station can be used as a backup household power source.

Effective use of photovoltaic power generation

Homes equipped with a photovoltaic power generation system can use electric power stored in the EV power station overnight in the home during the day. They can then take the excess power generated by their photovoltaic system and sell it to the electric company. This promotes the use of renewable energy.

Contributing to electricity peak shifts

Contributes to peak shift by storing electricity in the EV battery overnight for use in the daytime, thereby reducing power consumption during the afternoon when demand is the highest.
Home Power Station

Store and save power at home intelligently while also making use of photovoltaic power generation.

As concerns grow over insufficient power due to the nuclear accident caused by the Great East Japan Earthquake, expectations for clean renewable energy such as solar and wind power continue to heighten.

However, a storage battery is necessary for the storage of electricity in order to use electricity created by photovoltaic or other means without waste in a typical home. Nichicon developed the Home Power Station, residential power storage system that provides the power necessary for daily life. The system enables intelligent power storage and saving at home while contributing to the realization of a low-carbon society. We aim to sell 10,000 units in the first year of sales.

The Home Power Station enables electricity stored overnight to be used during the daytime, reducing power consumption during times of peak demand and contributing to peak shift. Also, electricity generated with a photovoltaic system during the daytime can be stored in the battery and used at night, facilitating local production for local consumption. The system uses a large-capacity lithium-ion battery that can serve as an automatic power backup in the event of a power outage.

The Home Power Station is compliant with the Home Energy Management System (HEMS), which enables the visualization of energy production and usage to realize more efficient energy saving in the home.

Feature 1
Long-life, Large-Capacity Lithium-Ion Battery

Equipped with large-capacity lithium-ion battery that can be installed outdoors. Battery features two types of storage, a 7.2 kWh storage battery system and expansion unit combined with a 14.4 kWh large-capacity storage battery system. Both use long-life lithium-ion batteries guaranteed for 10 years.

Feature 2
Simple Operation with Indoor Remote Control

Charging and discharging status can be monitored using the five-inch color liquid crystal touch panel on the indoor remote control. Simple to operate, it is also used to switch operating modes, change settings and display error and maintenance messages.
At the time it was developed, the Home Power Station was a product without predecessor, so there was no standard for power storage systems. Using photovoltaic standards and advice from a wide range of people, we developed the system through trial and error. Our system was selected by Japan Electrical Safety & Environment Technology Laboratories from a range of products as the first standard for power storage systems.

Even after this, we received requests for improvement from users, and although there were many days when we had to take the products home and improve them overnight, we succeeded in creating a product that we now ship worldwide.

We will continue to develop products that contribute to the environment and satisfy customers around the world.

Naohisa Okamoto
Engineering Leader
Energy Storage Technology Division
Power Supply Center

### Voice

**Established First Standard for Power Storage Systems**

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Energy Storage Technology Division
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### Feature 3

**Saving Power Day and Night**

Enables power to be saved in the storage battery overnight when electricity costs are cheaper for use in the mornings and evenings. Photovoltaic power created during the day can be stored in the battery for use at night or the excess electricity can be sold.

### Feature 4

**Auto Switching During Power Outages Provides Peace of Mind**

During a power outage, the storage battery system provides an automatic power backup via the home emergency outlet. Runs refrigerator, television, lights and charges mobile phones in a standard home for up to twelve hours.