

Sold a Total of 200,000 Units of the Ene-Farm Fuel Cell System for Residential Use

April 10, 2024

Osaka Gas Co., Ltd.

Osaka Gas Co., Ltd. (President: Masataka Fujiwara; hereinafter referred to as "Osaka Gas") achieved cumulative total sales of 200,000 units^{*1} for Ene-Farm, a fuel cell cogeneration system for residential use, on April 5, 2024. The CO₂ emissions reduction attributable to 200,000 Ene-Farm units roughly reaches 370,000 tons^{*2} annually, which is equivalent to planting about 26.5 million *sugi* cedar trees.^{*3}

Since Ene-Farm was launched in June 2009, Osaka Gas has striven to put it into widespread use and worked to improve its functions. Ene-Farm Type S, launched in April 2020, attains the highest power generation efficiency in the world,^{*4} of 55%.^{*5} Moreover, the main unit has improved in durability, and has been significantly downsized. As an outcome, Ene-Farm Type S has won multiple awards, including a 2020 Energy Conservation Grand Prize Award.^{*6} Additionally, Osaka Gas offers various enhanced services, which have been chosen by many customers. These include IoT connection service, which benefits the user with improved convenience and security, and the surplus power purchase service "E-Share," designed to improve Ene-Farm's environmental friendliness and economy even more.

In recognition of these features, Ene-Farm has been designated an eligible device for the "Subsidy for Energy Conservation Promotion Project in the Household Sector by Promoting the Introduction of High-efficiency Water Heaters" system, and each Ene-Farm purchaser will receive a subsidy of up to 200,000 yen per unit at the time of installation.

In recent years, natural disasters such as those caused by typhoons and heavy rains have been increasing. As a result, there is a growing need for resilient Ene-Farm units, which can operate independently and provide uninterrupted power generation, even in the event of a power outage. During the large-scale power outage in the Kansai region caused by Typhoon No. 21 in 2018, approximately 2,000^{*7} Ene-Farm units generated electricity through their own independent power generation function. Approximately 99%^{*8} of new Ene-Farm purchasers choose a model with an independent power generation function, and to date, approximately 100,000 units^{*9} have been equipped with this function.

Furthermore, Ene-Farm is expected to serve as a supplier and adjuster in the power grid. Specifically, Osaka Gas plans to use Ene-Farm as an energy resource to build a virtual power plant^{*10} in the future, which is expected to help stabilize the power grid, thereby contributing to the wider use of renewable energy, including that generated from photovoltaic power. Most recently, Osaka Gas participated in the "Energy Management Demonstration toward the Realization of a Decarbonized City," conducted jointly with Kobe City in FY2023.3, and the "Demonstration Project for Further Utilization of Distributed Energy Resources," conducted by the Ministry of Economy, Trade and Industry in FY2024.3. Through these efforts, the company is working to improve the accuracy of Ene-Farm's control technology, and is also preparing to expand its services.

Due to the evolution of the unit and its features to date, more than 90%^{*11} of customers whose Ene-Farm unit has reached the end of its life have purchased another Ene-Farm unit. Osaka Gas will continue to work on reducing initial costs and improving ease of installation by reducing the size of Ene-Farm to further expand its use, and in the future, it aims to commercialize a compact, high-efficiency unit that can be attached on the wall.

The Daigas Group will accelerate the dissemination of Ene-Farm to contribute to the realization of a low-carbon and decarbonized society, and strives to become a corporate group that helps further the evolution of customers' livelihoods and businesses.

*1 Based on orders received by Osaka Gas

*2 The value was calculated in a trial by Osaka Gas on the assumption that the gas combination room heater and water heater of the conventional system are replaced by Ene-Farm or Ene-Farm Type S (for a family of four in a single-family detached home).
[Conventional system] Gas combination room heater and water heater, gas hot water floor heating (living/dining room), gas hot water bathroom heater and dryer equipped with a mist sauna function, gas stove, and electric air conditioner
[Ene-Farm/Ene-Farm Type S] Ene-Farm/Ene-Farm Type S, gas hot water floor heating (living/dining room), gas hot water bathroom heater and dryer equipped with a mist sauna function, gas stove, and electric air conditioner
[CO₂ emission coefficients] Gas: 2.29 kg-CO₂/m³ (our data); Electricity: 0.65 kg-CO₂/kWh
(Based on the mean coefficient of the thermal power source in FY2013 set out in the Plan for Global Warming Countermeasures [decided by the Cabinet in May 2016])

*3 Unit CO₂ absorption of one *sugi* cedar tree = 13.9 kg-CO₂/year (on the supposition of a 50-year-old *sugi* cedar tree with a diameter of 26 cm and a height of 22 m; source: 1997 White Paper on Forestry)

*4 Fuel cells for residential use whose rated output is 1 kW or less (based on a survey conducted by Osaka Gas as of the end of January 2020). Based on the lower heating value.

*5 Power generation efficiency observed during continuous, stable rated power generation for at least three hours (e.g., under the surplus electricity purchase system) In cases other than the above, the rated power generation efficiency is 54% (overall efficiency: 87%). Based on the lower heating value.

*6 The Energy Conservation Grand Prize Award program is set up by the Energy Conservation Center, Japan. The program honors players in the domestic industrial, commercial, and transport sectors for their superb energy-saving efforts and advanced, highly energy-efficient equipment.

*7 Some 853 permanently connected Ene-Farm units operate independently. It is estimated that approximately 2,000 units, including those that are not permanently connected, operate independently.

*8 Track record for existing residential houses in the service area of Osaka Gas for the period from April 2023 to the end of March 2024

*9 As of the end of March 2024

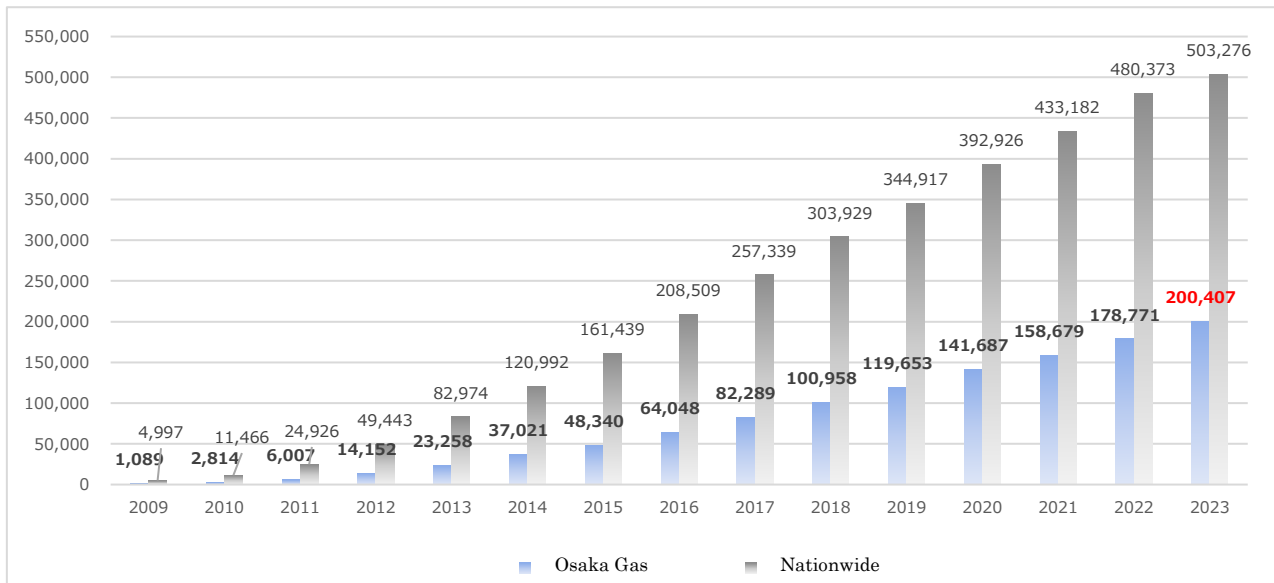
*10 Business operators called "aggregators" bundle and utilize the adjustability provided by dispersed power sources.

*11 The value was calculated using the number of customers who have purchased an Ene-Farm unit from Osaka Gas and replaced it several times in the same home as the denominator, and the number of customers who have purchased an Ene-Farm unit again as the numerator.

■ About Ene-Farm, a fuel cell system for residential use

http://home.osakagas.co.jp/search_buy/enefarm/index.html (in Japanese)

■ Ene-Farm sales



- ◆ The nationwide figure of 503,276 units for FY2024.3 is the sum of units sold by individual Ene-Farm manufacturers by the end of December 2023 (according to a survey by the Advanced Cogeneration and Energy Utilization Center Japan).
- ◆ The Osaka Gas figure of 200,407 units for FY2024.3 is based on orders received by Osaka Gas (as of April 5, 2024).

■ Major awards received for Ene-Farm Type S



- ICEF2020 https://www.osakagas.co.jp/topics/1290224_14522.html (in Japanese)
- Energy Conservation Grand Prize Award
https://www.osakagas.co.jp/topics/1291052_14522.html (in Japanese)
- Japan Resilience Award https://www.osakagas.co.jp/topics/1294778_14522.html (in Japanese)
- EcoPro Award https://www.osakagas.co.jp/topics/1297451_14522.html (in Japanese)

■ About FY2023.3 Energy Management Demonstration with Kobe City toward the Realization of a Decarbonized City

https://www.osakagas.co.jp/en/whatsnew/_icsFiles/afieldfile/2022/03/30/220325.pdf

■ About FY2024.3 Demonstration Project to Build a Virtual Power Plant

https://www.osakagas.co.jp/en/whatsnew/_icsFiles/afieldfile/2023/07/18/230626_2.pdf

■ To view a video commemorating the achievement of sales of 200,000 units, click on the link below.

<https://youtu.be/yTPOmcQ2qeg> (in Japanese)