

Technology Development & Intellectual Property/Promotion of Innovations

J-Power Group's Technological Development

With a view to achieving carbon neutrality by 2050 under J-POWER "BLUE MISSION 2050," we are addressing future energy challenges through a multifaceted approach. Our efforts include technology development to resolve challenges and introduce new technologies in each area of the roadmap—expanding CO₂-free power sources, pushing for zero-emission power sources, and stabilizing and enhancing power networks—as well as technology development aimed at creating new business opportunities.

For details of the initiatives of our Research & Development Department, please refer to our website.

https://www.jpowers.co.jp/company_info/rd/ (available only in Japanese)

Priority items and major areas of research

Creating new business opportunities

- Research aimed at the development of new profit-making businesses centered on energy and the environment (cultivation and fuel conversion of herbaceous energy crops, and synthetic fuels), etc.
- Initiatives for low-carbon concrete and blue carbon

Promoting transition

- Expansion of CO₂-free power sources and realization of environmental value (next-generation floating-axis wind turbine)
- Pushing for zero-emission power sources (CO₂-free hydrogen and underground CO₂ hydrate storage technology)
- Stabilizing and enhancing power networks (energy storage technologies and development of supply-demand analysis models)

Strengthening existing businesses

- Automation and DX (enhancing power plant maintenance operations through digital technologies)
- Grid simulation technology
- Strengthening resilience against natural disasters (remote monitoring using satellite image data)

Example of initiatives

Mixed combustion with biomass

Conducting Japan's first co-firing test using the energy crop "Erianthus"
A new initiative toward carbon neutrality using domestically grown biomass fuel

For details of the initiatives, please refer to our website.

https://www.jpowers.co.jp/english/news_release/pdf/news260310e.pdf

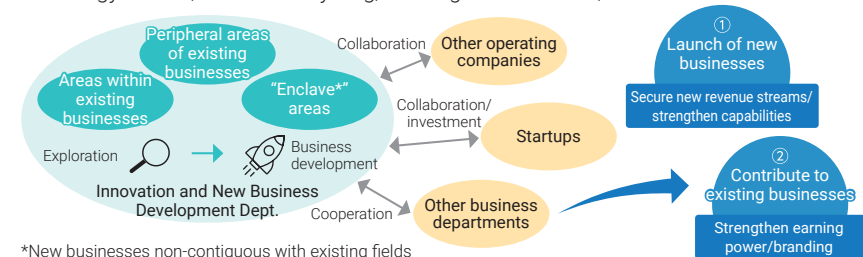


Intellectual Properties

For outcomes achieved in technological development and other activities, we continuously seek to acquire their intellectual property by, for example, filing for patents. We hold 153 patent rights in Japan as of the end of FY2025. To help advance J-POWER "BLUE MISSION 2050," we will further promote the creation, protection, and utilization of intellectual property.

Promotion of Innovations

The J-POWER Group is taking on the challenge of promoting innovations and capturing new business domains by integrating the assets and know-how, which were accumulated mainly in the power generation business, with the technologies and ideas of startup companies and other organizations. So far, we have invested in three funds and 18 startups. The Innovation and New Business Development Department undertakes exploration and business development/promotion activities in a wide range of areas centered on decentralization, energy transition, sustainability, regional co-creation, and AI. These activities span our existing businesses and their peripheral areas, focusing especially on areas the Company has not tapped into in its existing businesses, such as energy-related, resource recycling, food/agriculture areas, and data centers.



*New businesses non-contiguous with existing fields

Major portfolio startups

Morgenrot Inc.

Morgenrot provides consulting services for the construction and operation of AI data centers and is developing a product that enables visualization of the operating status and power consumption of AI servers and high-performance computing (HPC) systems. J-POWER will explore opportunities to participate in the data center business by leveraging Morgenrot's expertise, with the aim of realizing environmentally friendly green data centers that combine our strengths.



*Image

Examples of new business development

BASHFIBER®, a continuous filament fiber developed by Nippon Fiber Corporation, in which J-POWER has invested, is made primarily from coal ash. It provides high strength and heat resistance, and thus, is expected to be used in a wide range of fields, including construction, civil engineering, and industrial materials. BASHFIBER® is attracting strong attention as a means of building a sustainable society as it contributes to reducing CO₂ emissions through the upcycling of coal ash and is easier to recycle compared to conventional glass fibers. We are jointly exploring business opportunities with Nippon Fiber Corporation.



For updates of activities by Innovation and New Business Development Department, visit the following site dedicated to the department.

<https://www.jpowers.co.jp/english/innovation/>