Creating New Electric Power Businesses and Developing Globally

The J-POWER Group is engaged in new business opportunities that draw on its accumulated expertise and technical capabilities. Amid the widespread trend of transition to a low-carbon society, J-POWER is striving to achieve sustainable development as a company.

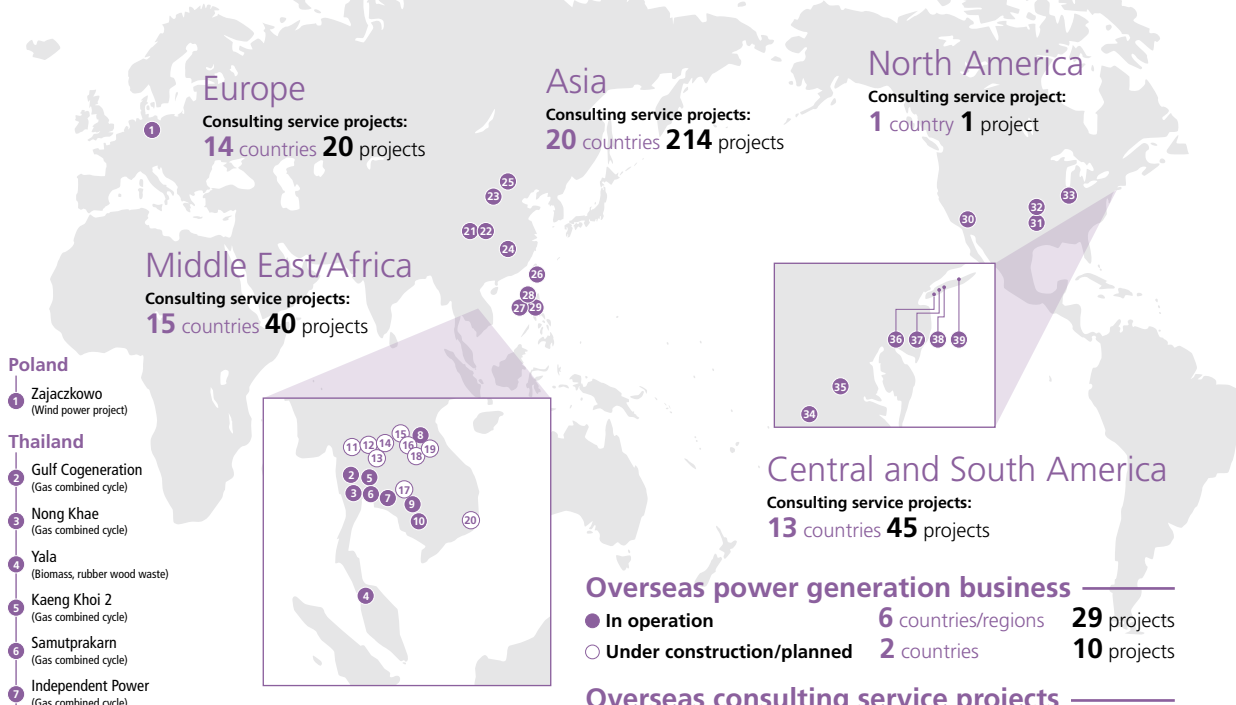
Making Overseas Operations a Driver of Growth for the J-POWER Group as a Whole

See "Overseas Business" on page 39 for more-detailed information.

Having initiated overseas consulting business involving technical cooperation related to electric power development and environmental preservation in the 1960s, J-POWER has executed a total of 320* projects in 63 countries and regions.

Since the late 1990s, we have invested our funds and leveraged our technologies to develop the overseas power generation business. The J-POWER Group now owns power generation facilities that are in operation in six countries and regions, mainly Thailand, the United States, and China. These facilities have a total capacity of 3,690 MW, which accounts for approximately 20% of the Group's consolidated capacity (owned capacity basis).* Regarding Thailand, we are moving ahead with large-scale power development projects in such locations as Nong Saeng and U-thai. Elsewhere in Asia, we are concurrently leveraging the coal-fired thermal power generation technologies and expertise we have accumulated in Japan to undertake activities aimed at obtaining additional development projects. We are working to strengthen this business and make it the second major area of J-POWER business, next to domestic wholesale electric power.

*As of June 30, 2011



Overseas power generation business

● In operation	6 countries/regions	29 projects
○ Under construction/planned	2 countries	10 projects

Overseas consulting service projects

63 countries/regions 320 projects (cumulative)

Poland
1. Zajaczkowo (Wind power project)

Thailand
2. Gulf Cogeneration (Gas combined cycle)
3. Nong Khae (Gas combined cycle)
4. Yala (Biomass, rubber wood waste)
5. Kaeng Khoi 2 (Gas combined cycle)
6. Samutprakarn (Gas combined cycle)
7. Independent Power (Gas combined cycle)
8. Roi-Et (Biomass, chaff)
9. Thaioil Power (Gas combined cycle)
10. Rayong (Gas combined cycle)
11. U-thai (Gas combined cycle)
12. Nong Saeng (Gas combined cycle)
13. 7 SPP Projects (Gas combined cycle)
19. (Gas combined cycle)

Vietnam
20. Nhon Trach 2 (Gas combined cycle)

China
21. Hanjiang (Xihe Hydroelectric Generation) (Hydroelectric)
22. Hanjiang (Shuhe Hydroelectric Generation) (Hydroelectric)
23. Tianshi (Coal waste)
24. Xinchang (Coal)
25. Gemeng International Energy Co., Ltd. (Mainly coal)
26. Chiahui (Taiwan) (Gas combined cycle)

The Philippines
27. CBK (Caliraya Power Generation) (Hydroelectric)
28. CBK (Kalayaan Power Generation) (Hydroelectric)
29. CBK (Botocan Power Generation) (Hydroelectric)

U.S.A.
30. Orange Grove (Gas simple cycle)
31. Tenaska Frontier (Gas combined cycle)
32. Green Country (Gas combined cycle)
33. Elwood Energy (Gas simple cycle)
34. Fluvanna (Gas combined cycle)
35. Birchwood (Coal)
36. Equus (Gas simple cycle)
37. Pinelawn (Gas combined cycle)
38. Edgewood (Gas simple cycle)
39. Shoreham (Jet fuel simple cycle)

Promoting Technological Innovation in Coal-Fired Thermal Power and Creating New Projects

Coal-fired thermal power generation is the largest source of electric power in the world, accounting for approximately 40% of all power generated and around 30% of the world's CO_2 emissions. Therefore, one of the keys to reducing CO_2 emissions on a global scale is to develop, transfer, and promote coal-fired thermal power generation technology that enables both higher efficiency and lower carbon emissions. Having developed and demonstrated the benefits of its leading-edge, high-efficiency coal-fired power technologies in Japan, J-POWER is seeking to leverage those technologies overseas, particularly in Asia, and thereby contribute to reducing global CO_2 emissions.

Renovating Coal-Fired Thermal Power Plants

See "The Future of Coal-Fired Thermal Power Generation" section on page 24 for more-detailed information.

J-POWER is working to renovate and upgrade its power generation facilities by applying high-efficiency generating technologies, such as ultra-supercritical (USC) systems, in its plants that have been in operation for some time. As a result of these initiatives, J-POWER is extending the useful lives of its thermal power generating plants and reducing CO_2 emissions.

Developing Next-Generation Technologies

Looking to the future, J-POWER is emphasizing programs for commercializing oxygen-blown coal gasification technologies that are expected to play an important role in next-generation coal-fired thermal power generation plants. Establishing these technologies and applying them with integrated coal gasification combined cycle (IGCC) and integrated coal gasification fuel cell combined cycle (IGFC) systems will dramatically increase generating efficiency and make it possible to substantially reduce CO_2 emissions. Ultimately, we will seek to bring about innovative, zero-emission coal-fired thermal power by combining these systems with CO_2 capture and storage (CCS) technologies.

Isogo Coal-Fired Thermal Power Plant
(Kanagawa Prefecture, following replacement work)

Promoting Renewable Energy and Business Diversification

Renewable energy has an important role to play in efforts to promote low-carbon energy. Besides promoting hydropower and other energy sources with low levels of CO_2 emissions, J-POWER is working to restrain CO_2 emissions by making effective use of such renewable energy sources as wind, biomass, and geothermal power.

Wind Power

See the "Other Electric Power Businesses" section on page 36 for more-detailed information.

J-POWER owns and operates 19 wind farms*—18 in Japan and one overseas—with a total capacity of 400 MW. We are accelerating our efforts to double the capacity of our domestic wind farms.

*As of June 30, 2011

Koriyama-Nunobiki Kogen Wind Farm
(Fukushima Prefecture)

Biomass Fuel

We are moving ahead with efforts to engage in mixed combustion in our existing coal-fired power plants, using biomass fuels produced from sewage sludge, waste wood, and non-industrial waste. Because enabling stable procurement is a key to promoting the widespread use of biomass fuels, we are emphasizing fuel conversion business operations focused on such materials sources as unused waste lumber from forests and sewage sludge.

Geothermal Power

J-POWER has been operating the Onikobe Geothermal Power Plant since 1975 and undertakes surveys in preparation for the development of additional geothermal power facilities in Japan and overseas. Currently, we are studying the feasibility of geothermal power generation in Akita Prefecture and considering a business project there.

Onikobe Geothermal Power Plant
(Miyagi Prefecture)