

Feature 2 Overseas Energy Business Initiatives

With the vision to “Make a brighter future for generations to come” from Kyushu to the world, the Kyushu Electric Power Group aims to grow together with everyone through the overseas energy business.

Track Record of the Overseas Energy Business

IPP and Investment Business

Equity ownership in overseas electricity output

Output: **1,530 MW**

(total output: 6,690 MW)

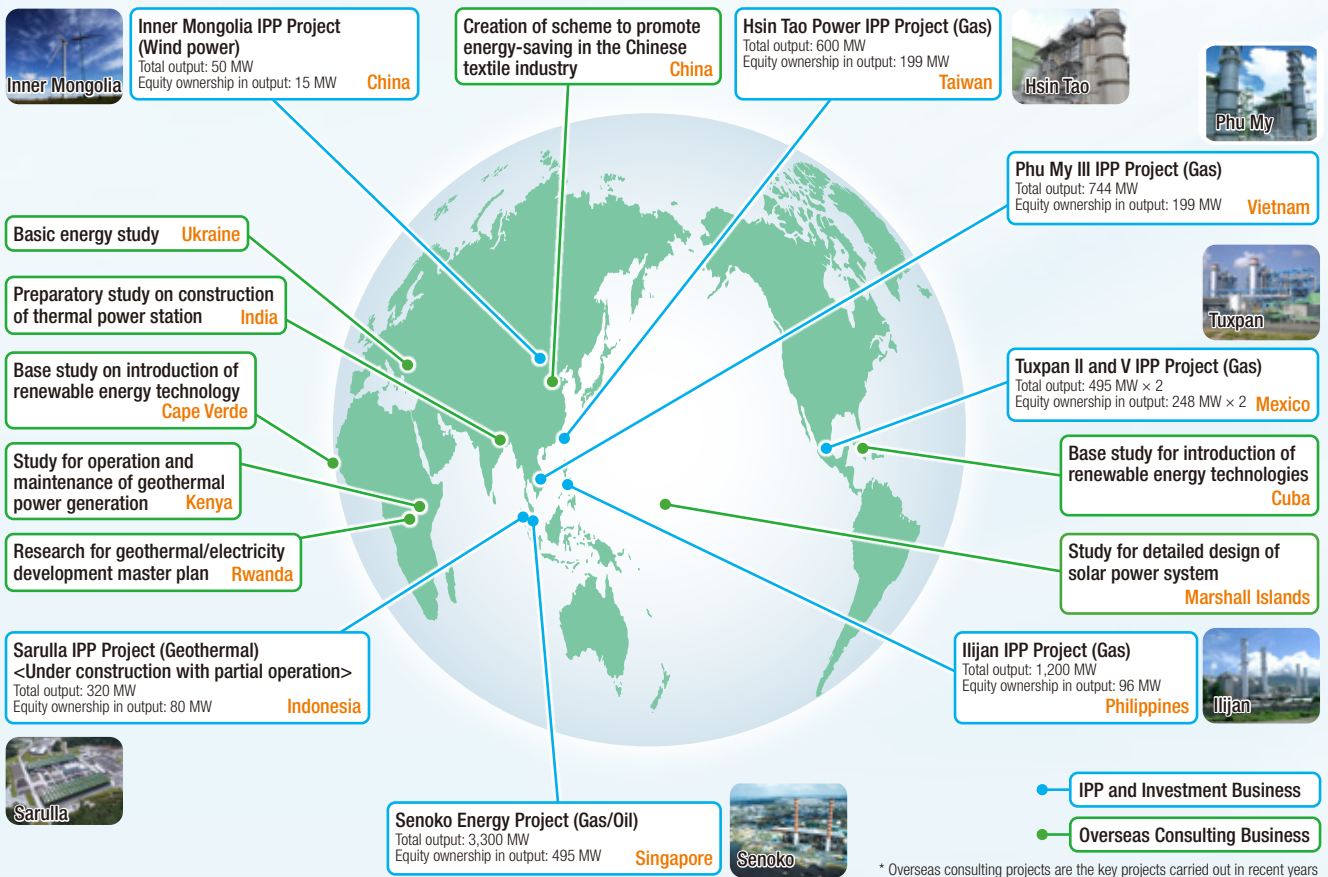
2030 Target

5,000 MW

Overseas Consulting Business

19 countries or territories
68 projects

(as of June 2017)



Interview with Senior Managing Executive Officer Makoto Kakebayashi

We spoke with Senior Managing Executive Officer Makoto Kakebayashi, who serves concurrently as Kyuden International Corporation’s President & Representative Director, about the Kyushu Electric Power Group’s initiatives in the overseas energy business.

Senior Managing Executive Officer
of Kyushu Electric, President &
Representative Director of
Kyuden International Corporation

Makoto Kakebayashi



Please discuss your vision and strategies for achieving the targets (bottom-right graph) for the overseas energy business set forth in the Kyushu Electric Power Group's Medium-term Management Policy (released in April 2015) and the financial targets in the Medium-term Management Policy (announced in June 2017).

Kyushu Electric's current equity ownership in electricity output of 1,530 MW is the result of roughly 20 years of effort. Over the upcoming five years, we must add 900 MW of new output, which is roughly 60% of the current total output.

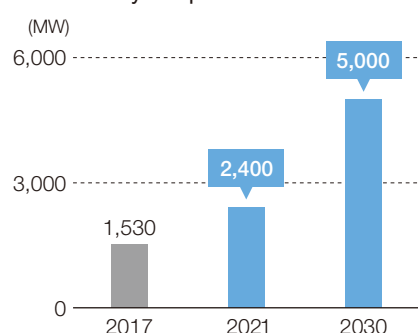
Furthermore, to achieve our goal of 5,000 MW in 2030, we must acquire 2,600 MW over the nine-year period beginning fiscal 2022, so **we will have to boost the speed of development by two or three times going forward.**

I think it is clear that this is a challenging goal. To be honest, it is a figure that I find almost overwhelming.

However, there are many countries and regions in the world where the electrification rate is still low. For example, according to the OECD's *World Energy Outlook 2016*, global electricity demand will continue to grow, centered on Asia, Africa, and Latin America. **Capacity in 2040 is expected to increase to 11.2 billion kW, nearly twice the level in 2015.**

Therefore, we must view the world's current robust electric power demand as an opportunity, and do our best as a professional power and energy provider, and race towards our goals. I also find it rewarding to be involved in businesses that make full use of personnel and technologies, and challenge you to struggle with unprecedented difficulties while making a contribution to the world. As a person from Kyushu, I feel a sense of excitement.

Target Overseas Equity Ownership in Electricity Output



In March 2017, the first unit of the Sarulla Geothermal Power Station in North Sumatra, Indonesia, started commercial operation. Please discuss the significance and outlook for the Sarulla geothermal IPP project, the Kyushu Electric Power Group's first overseas geothermal power generation project.

When all of the units come online, the Sarulla geothermal IPP project will be one of the world's largest geothermal power stations (320 MW).

About 10 years have passed since we joined this project, and during this time there was a period when we had to hold off on overseas investment projects. However, as an exception this was the only project that we continued to look at as an in-progress project, and we have freely invested the Group's geothermal power generation technology and know-how.

This project is a symbol of the resurgence of the Group's overseas investment business, and the insights gained will be utilized in the development of upcoming geothermal projects in Japan and overseas.

Moreover, among renewable energy sources, geothermal power is excellent in terms of providing a stable supply of power. As a result, global needs for geothermal power will continue to grow in the future.

Although the Kyushu Electric Power Group has a substantial track record with the development and operation of geothermal power stations in Japan, I think that international recognition will come in the future. We believe that properly completing the Sarulla IPP project and establishing a path for long-term stable operation will provide **the opportunity for us to make a name for ourselves in the international geothermal IPP market.**

Furthermore, last year we were commissioned to conduct a survey (for the Japan International Cooperation Agency (JICA)) about the operation and maintenance of Kenya's Olkaria Geothermal Power Station, as an overseas consulting project. In the geothermal field, it is the first project that only we and Group companies West Japan Engineering Consultants, Inc. and Nishinippon Plant Engineering and Construction Co., Ltd. have worked on. In this way, **our efforts to advance IPP projects and consulting projects in parallel in the geothermal field have given us a lot of confidence,** and have prepared us for upcoming opportunities.



In March 2017, the first unit of the Sarulla Geothermal Power Station commenced commercial operation

Moving on, please tell us about the status of the eight IPP projects that are currently operating commercially, including the Sarulla IPP Project, as well as talk about the role of IPP projects in the overseas energy business going forward.

The eight IPP projects (of which the Singapore Senoko Energy project is a power generation and retail project, making it different from power generation-only IPP projects) are important and will be the foundation for our development of the overseas energy business going forward.

We have valued taking a hands-on approach, from the construction stage through to the operation stage.

For example, in Vietnam and Mexico, we have focused on nurturing local employees, transferring operation technologies and raising the overall level of people on the front line. **As a utility, we have otherwise followed through overseas on our commitment to firmly develop personnel under the mission of stably supplying electric power.**

In addition, relationships of trust with consortium partner companies, banks participating in project finance lending, and many other related parties have been major assets as the foundation of our overseas business in the IPP project field. I believe that amassing such relationships can lead to the next new project.

Based on this trend, **rather than viewing existing projects as legacies from the past, I view them as a launching pad for the future**, and we plan to value them going forward.

The overseas consulting business is not as well known in the Company as the IPP business. What is the role of the consulting business?

The Kyushu Electric Power Group has been engaging in overseas consulting for many years, and has been commissioned to work on 68 projects in 19 countries and territories from 2000 to the end of June 2017. However, we only began to engage in the overseas business on a full-fledged basis in around 2012, and are **now moving twice as fast as before, both in terms of the number of projects and the monetary amount of projects.**

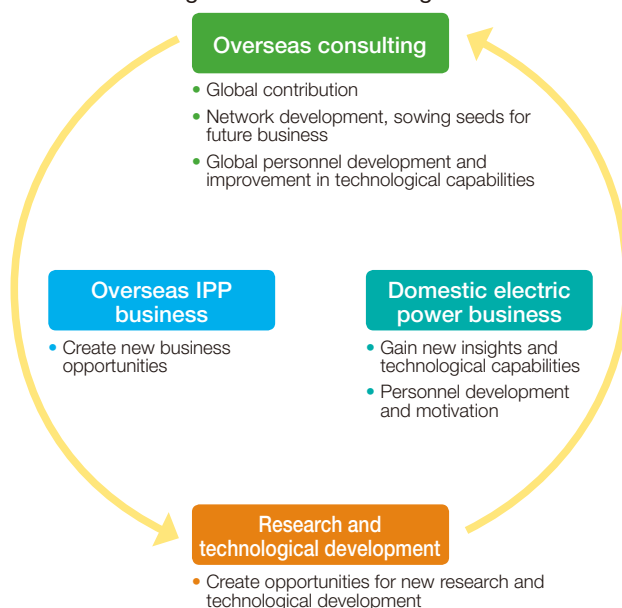
Competitive bidding is the norm in the overseas consulting business, which means that clients have a high opinion of us, including our past track record, personnel, execution platform, and proposal quality.

Initially, it was a process of trial and error, and we repeatedly failed to win projects, but in the past few years our efforts have paid off, and we have received a wide range of projects such as geothermal, remote island supply, electric power basic plans, and coal-fired thermal power. This has allowed us to fully display the Kyushu Electric Power Group's strengths.

Electric power and energy facilities are important social infrastructure assets directly connected to the economy, industry and people's everyday lives. Once basic plans for power plants and electric power grids are made, it is not easy to change direction. Therefore, in consulting, you must firmly understand the issues and needs of the client country from the planning stage, and pursue and propose optimal solutions. Meanwhile, consulting also allows us to obtain some hints for thinking about our overseas business strategies. That is why consulting is said to be "sowing seeds for the future."

I think that the key point of consulting is not looking at things through one's own eyes, but seeing the issue through the eyes of the client. Simply pushing the technologies of advanced countries on client countries does not work well. The most important thing is for the client to be convinced, and be able to continue with the project. In that respect, our consulting team works with clients in a straightforward manner with a pure sense of curiosity, striving to provide solutions. I feel that the team has really gotten stronger.

Diagram of positive cycle of technology and know-how through overseas consulting



What kind of benefits will the organizational changes made this April have on the overseas energy business going forward?

This April, the International Business Division was dissolved, and the overseas business department was divided into the International Business Office and Kyuden International Corporation.

Based on a medium- to long-term perspective, the International Office functions as Kyushu Electric Power's platform for information gathering, international cooperation, and linking the Company with the outside based on the key theme of overseas energy business. Meanwhile, Kyuden International is the core driving force for our overseas business, handling asset management of the overseas investment business, new project development, overseas consulting and other functions.

Keeping the overseas electricity business as its core field, Kyuden International is also aiming to expand its scope into other energy businesses. Kyuden International is a small and nimble organization, which I think will allow it to dauntlessly take on challenges and foster an organizational culture that is action-oriented and intent on transformation. Still, the current organizational framework is insufficient, so we will gradually strengthen our financial base and make more improvements, including recruiting outside talent to join us.

The International Office and Kyuden International will move forward as **a hybrid vehicle for investment, development and management of our overseas businesses** appropriate in these fast-changing times.



“Comprehensive Energy Solutions” oriented by global utility group’s competency

Rwanda – Geothermal and Energy Sector Master Plan Support Project

(Article by Chief Manager Katsumi Yoshida, International Solution Group, International Business Office)

The geothermal and energy sector master plan support project in Rwanda was Kyushu Electric's first full-fledged consultation project in Africa.

Rwanda's problem was that it had scarce energy resources and was unable to effectively develop geothermal energy.

JICA planned a project to support the formulation of a master plan for both the geothermal and the electric sector, and Kyushu Electric and group company West Japan Engineering Consultants, Inc. were commissioned to work on the project together. Kyushu Electric was responsible for power demand forecasts, and the master plan for power supply and the grid, while West Japan Engineering Consultants handled the geothermal master plan.

For example, to make it possible for Rwanda to update the demand forecast on its own, we used general-purpose spreadsheet software for analysis, and taught the local engineers through written procedures and workshops. In this way, the project included capacity-building elements to ensure that not only knowledge, but also skills became deeply rooted among the local staff. The “handmade” report prepared in accordance with Rwanda's current situation was rated highly by both Rwanda and JICA, and this became an unforgettable first consulting experience for me.

Going forward, I would like to utilize my experience in Rwanda to tap the integrated capabilities of the Group to provide new solutions in new places.



Rwanda Project Team of Kyushu Electric Group
(The writer is at the far left)