

Japanese small hydropower unit on licensing partnership

Summary

Profile type	Company's country	POD reference
Technology offer	Japan	TOJP20231109003
Profile status	Type of partnership	Targeted countries
PUBLISHED	Commercial agreement with technical assistance	• World
Contact Person	Term of validity	Last update
Alessandro PERNA	9 Nov 2023 8 Nov 2024	3 Apr 2024

General Information

Short summary

A Japanese company offers their intellectual property rights to technology for an open, small hydropower unit through a licensing agreement. Their hydropower technology can be used to effectively convert unused hydropower energy into electricity.

Full description

This Japanese company is specialized in small hydroelectric power generation, solar power generation and energy saving related services.

In its internationalization process, the company is now offering its intellectual property rights for a recently developed small hydropower unit through a licensing agreement. Their technology can be used to effectively convert unused hydropower energy into electricity.

An innovative aspect of their technology is that it enables the effect installation of hydropower equipment in locations that are suitable, but previously considered impossible for conventional technologies, therefore creating access to untapped hydropower.

Their technology accounts for challenges such as fluctuations in waterflow, for biodiversity and animal migration, for

protection against dust and heavy snowfall, and also against the dangers of overflowing due to fast water flow.

The Japanese company has done extended research and development in fluid engineering and high-performance turbomachinery. They have improved the accuracy of their technology through Computational Fluid Dynamics (CFD). Furthermore, they have published their research results in multiple publications.

Intellectual property for this technology has been registered in Japan, China, Taiwan, the United States, Canada, Indonesia, and elsewhere, and patents, designs, and trademarks have been registered in Europe.

The company is looking to expand to the Europe because they regard the European Market to be ahead of other regions in decarbonization. They contribute this to the institutional and carbon value issues of Europe.

They expect decarbonised energy to become increasingly popular in the future, and the use of this technology is an effective tool to access untapped areas suitable for generating hydropower energy.

Advantages and innovations

The Japanese company's technology can be implemented at locations where conventional technologies cannot, due to its unique features for mitigating fluctuations in waterflow, dust control, and biofriendly elements.

Hydropower technologies are suitable to sites with rapid flow works and drop-off works, but conventional propeller water turbines can cause overflowing or clogging because they block the waterway. The Japanese company's turbines have a low risk of overflowing and require very little dust control, resulting in significantly lower maintenance costs compared to conventional turbines. The technology is also recognised as effective against heavy snowfall.

In addition, The Japanese company invented a new open type breastshot waterwheel in 2021. A key feature of the open-type breastshot waterwheel is that it can be installed even in low-head and low-waterflow conditions. In this type of waterwheel, since the body force between the blades of the impeller is converted into angular momentum, concave blades that can effectively hold the mass of the fluid in the shape of the blades are used.

This invention enables repositioning for the impeller so that hydraulic energy can be effectively converted into electrical energy, even in locations with fluctuating water flow rates. The technology's innovative impeller can mitigate the risk of losing hydropower when water flow is low, therefore allowing efficient and stable power generation regardless of the fluctuations.

Finally, their water turbines can be biodiversity friendly. Where conventional types of water turbines do not allow fish to move through, the Japanese company's hydropower unit accommodates for wildlife migration.

Technical specification or expertise sought

Stage of development

Lab tested

Sustainable Development goals

• **Goal 7: Affordable and Clean Energy**

IPR Status

IPR granted

Partner Sought

Expected role of the partner

The Japanese company is looking to partner with organisations that are (or will be) actively involved in ecological solutions, SDGs, sustainability, smart agriculture and other aspects of locally produced and consumed energy use. This includes EU companies that want to generate hydropower for their own particular use.

With respect to the contractual structure of the partnership, they prefer to offer their technology through a licensing agreement.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **Big company**
- **SME 50 - 249**
- **SME 11-49**

Dissemination

Technology keywords

- **04002012 - Other energy related machinery**

Market keywords

- **06003004 - Marine energy**
- **06003008 - Other alternative energy**

Targeted countries

- **World**

Sector groups involved

Media

Images



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[On site test1](#)