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Perovskite Solar Panel Installation on Warehouses to be Tested by JGC and Partners

– First domestic testing of next-gen solar cells to be conducted in Hokkaido –

JGC Holdings Corporation
Tomakomai Futo Co., Ltd.
EneCoat Technologies Co., Ltd.

JGC Holdings Corporation (Representative Director, Chairman and CEO: Masayuki Sato; "JGC HD") domestic EPC operating company JGC Japan Corporation (Representative Director and President: Shoji Yamada; "JGC Japan"), Tomakomai Futo Co. Ltd. (Representative Director and President: Takao Kaizu; "Tomakomai Futo"), and EneCoat Technologies Co. Ltd. (President and CEO: Naoya Kato; "EneCoat Technologies") have announced that we will jointly test perovskite solar panel installation on warehouses and similar buildings in the city of Tomakomai, Hokkaido starting in 2024. The panels consist of next-generation solar cells developed by EneCoat Technologies. It will be the first domestic verification testing at a site used in the logistics sector, where warehouses, silos, and similar facilities are used. New methods of installation on roofs and walls will be developed and demonstrated.

This project also represents the first testing toward practical adoption of perovskite solar panels in Hokkaido, which will yield data applicable to cold-climate installation.

1. Project background

Having developed perovskite solar cell materials and deposition technologies to date, Kyoto University startup EneCoat Technologies successfully developed highly efficient thin-film perovskite solar cells with a module conversion efficiency of 19.4% in April this year. The company participates in projects supported by the Green Innovation Fund, a government program seeking carbon neutrality by 2050.

JGC Japan was among the first companies in Japan to venture into solar power in 2012 and is now one of the country's most experienced contractors in renewable power plant construction. For perovskite solar cells as well, the company has invested in EneCoat Technologies and intends to combine their work with JGC engineering technologies refined over many years to contribute to the development of construction methods and power generation systems that can help accelerate widespread adoption.

Logistics company Tomakomai Futo supports Hokkaido's industries and livelihoods through a combination of some of the prefecture's largest facilities (concentrated at the largest international trading port in northern Japan) and professional expertise backed by extensive experience and



knowledge. Through the company's medium-term management plan announced in 2022, Tomakomai Futo supports decarbonization and recycling in society as one of its corporate missions. The three companies have decided to take on joint testing in Tomakomai to support accelerated widespread adoption of perovskite solar cells.

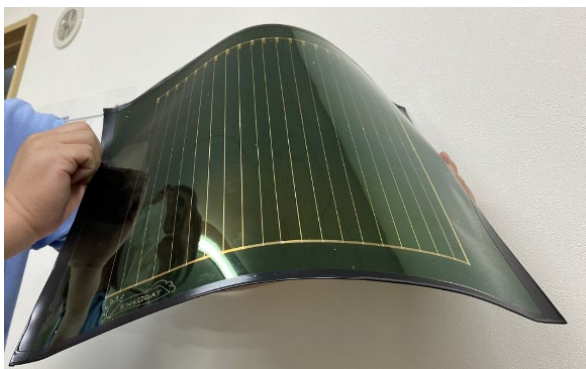
2. Project overview

Starting in early spring 2024, thin-film perovskite solar cells will be installed on uneven roofs and exterior walls mainly used in warehouses and other buildings in logistics operations of Tomakomai Futo. Testing over the course of roughly one year will focus on the following three points.

- Measured power generation efficiency, compared to estimates
- Durability where panels are subjected to snow and salty air
- Methods of installing solar battery modules on existing warehouse roofs and curved building surfaces

Although the city is often cloudy, this presents an opportunity to capitalize on the low-light performance of perovskite solar cells. It also presents a suitable environment for testing because temperatures vary widely here but there is relatively little snow for a city in Hokkaido. Moreover, Tomakomai Futo facilities face a humid port with salty air, which also provides an opportunity to test the panels where the environment can be considered suboptimal.

Widespread adoption of perovskite solar cells will depend on further cost reduction, and the new methods of installation to be tested are intended to make deployment more economical.



Perovskite solar cell developed by EneCoat Technologies



Warehouse owned by Tomakomai Futo

3. Future development

In establishing ways to install perovskite solar panels on warehouses and a variety of other buildings, JGC Japan, Tomakomai Futo, and EneCoat Technologies hope to contribute to carbon



neutrality by expanding this solar power source to logistics hubs across the country.

Roles of the three companies

JGC Japan	<ul style="list-style-type: none"> • Demonstration planning • Installation, measurement, analysis and technical assessment of perovskite solar panels • Development of a power generation system for operations at warehouses, etc.
Tomakomai Futo	<ul style="list-style-type: none"> • General arrangements, provision of installation sites
EneCoat Technologies	<ul style="list-style-type: none"> • Provision of perovskite solar panels; analysis and technical assessment <p>This demonstration is based on results obtained from a project subsidized by the New Energy and Industrial Technology Development Organization (NEDO).</p>

For reference

Perovskite solar cells

Perovskite solar cells are next-generation solar cells that use a crystal structure called perovskite.

Compared to silicon solar cells

- (1) "Thinner, lighter, and more flexible," which allows for a wider range of locations for installation.
- (2) Better power generation performance even under low illumination.
- (3) There is a possibility of mass production and lower manufacturing costs through the development of manufacturing technology.
- (4) In addition to being a Japan-originated technology, about 30% of the world's production of iodine, the main raw material, is produced in Japan.

These characteristics are expected to make it highly competitive against silicon-based solar cells.

Related JGC Holdings release

[Developing Next-generation Solar Cells through the CVC Fund Investment in EneCoat Technologies | News Releases 2022 | JGC Holdings Corporation \(jgc.com\)](#)



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