

# Medium-Term Strategy for Electric Power Cable

Sumitomo Electric Industries, Ltd.  
November 13, 2023

# 1. Electric Power Cable Business Unit — Overview and Medium-Term Targets 2/10

## (1) Overview

### Electric Power Cable Unit Results for FY 2022

**Sales**    **¥200 billion**

### Major Products

Electric Power Cable

Engineering

Distribution Accessories

Overhead Conductors



### Sites

Foreign

Domestic

**SEUK-CL (UK)**  
Submarine Cable  
(Established May, 2023)

**JPSS (Saudi Arabia)**  
Submarine Cable

**F-JPS (India)**  
High-Voltage Cable

**SEI-Futong (Hangzhou)**  
Accessories

**SIK (Indonesia)**  
Low and Middle Voltage Cable

Ibaraki Works

Itami

Osaka Works

## (2) Medium-Term Targets

**FY2030**

Aim for sales of 150% or more and operating profit of 200% or more compared to FY2022

Electric Power Cable Business Unit Sales / Operating Profit

**150% or more**

**Sales**

100%

**200% or more**

**Operating Profit**

100%

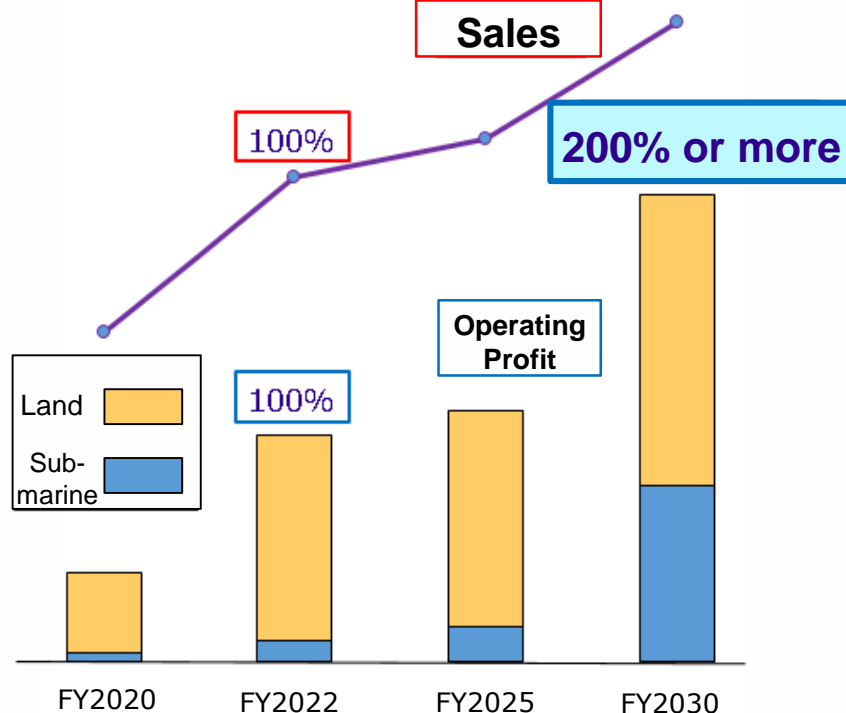
Land  
Submarine

FY2020

FY2022

FY2025

FY2030



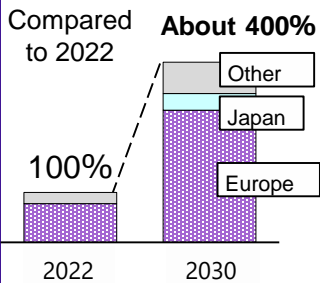
## 2. Market Environment and Priority Initiatives

Increase in renewable energy investment has expanded the demand for DC interconnectors and offshore wind power. Demand for domestic equipment renewal has been steady. Strengthening manufacturing and installation capacity, mainly in Europe and Japan, to capture growing demand.

### Market Environment

### Priority Initiatives

#### DC Interconnectors

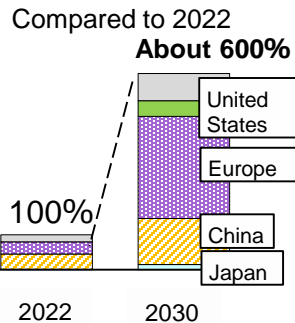


**Europe: Rapid growth and reinforcement of DC interconnectors**

**Japan: As renewable energy expands, future demand for interconnectors will gain speed**

**Europe: Increase manufacturing and installation capacity**  
**Cooperation with Siemens**  
**Japan: DC interconnection line project**  
**Development: High-performance insulation materials**  
**Protection Engineering method**

#### Offshore Wind

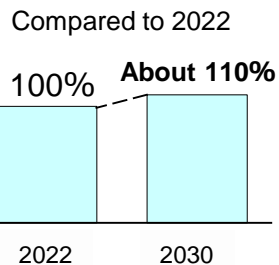


**Renewable energy is expanding to achieve decarbonization**

**Installation of offshore wind is accelerating mainly in Europe and China**

**Europe: Augment production capacity**  
**Japan: Transmission package with Nissin/Densetsu**  
**Development: Larger scale / Floating type**

#### Domestic Market



**Demand is at a high level due to the updating of aging equipment**  
**Many long-term contracts with partners**

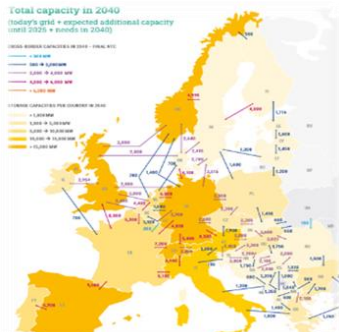
**Long-term partner contracts**  
**Augment construction capabilities**  
**Continue to introduce distinct products**

**Acceleration of interconnection line reinforcement. There is a move toward preferential local content in response to increased demand for DC cables and from the perspective of energy security. We will also establish a base in Europe.**

## (1) Market Trends

### ■ Europe

- Accelerated construction of national and interregional interconnection lines.
- Plans are being developed to reinforce European power grids (~FY2040, 70,000 km cable length)



**Plans of major operators to augment power grids**

Source: ENTSO-E (2023), Figure 1.4

### ■ Japan

- Plans to expand the interconnected power grid, mainly along the Hokkaido → Honshu route.
- OCCTO formulated a master plan in March 2023. Basic requirements will be formulated in FY2023, and public solicitation for operators and selection of suppliers are expected in FY2024 or later. (~FY2050, 8,000 km cable length)

## (2) Our Projects

\* indicates collaboration with Siemens (Germany)

Country	Project Name	Underground/ Submarine	Voltage / Cable Length	Launch/ Completion
England - Belgium	<b>NEMO Link</b> <u>Highest submarine voltage in the world</u>	Submarine	400 kV / 283 km	May 2019
India	<b>PK2000 *</b>	Underground	320 kV / 128 km	March 2021
England - Ireland	<b>Greenlink *</b>	Submarine	320 kV / 380 km	Planned for 2024
UAE	<b>Lightning</b> <u>Highest submarine voltage in the world</u>	Submarine	<b>400 kV / 420 km</b>	Planned for 2024
Germany	<b>Corridor-A (CAN)</b> <u>Highest voltage in the world</u>	Underground	<b>525 kV / 640 km</b>	Planned for 2029

In addition to the track record with NEMO etc., build relationships with European customers. We've seized the Corridor-A in Germany, and we are currently looking toward future projects.

## (3) Our Initiatives

### ■ Develop insulating material

- Manufacturing a highly insulating compact cable with reversible polarity and heat resistance up to 90 °C is possible.

### ■ Installation method development (cable laying vessel, deep-sea cable laying, protection technique)

### ■ Collaboration with Siemens (cable + transducer)

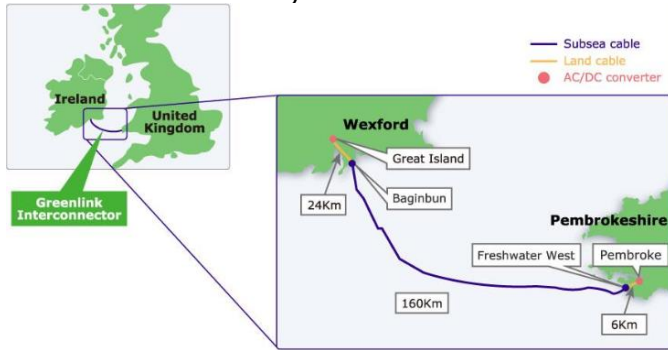
## 3-2. DC interconnectors - UK/Germany Market

We are currently handling DC cable projects in the UK and Germany, where demand is particularly strong.

### (1)UK market

#### ■ Greenlink overview

· International interconnection line between UK and Ireland. The project is being promoted in a consortium with Siemens of Germany.



Voltage	DC±320kV
Cable length	Submarine 160 km x 2, Underground 29 km x 2
Process	Dec 2021: Order received, 2024: Construction complete

### (2)German market

#### ■ Corridor-A overview

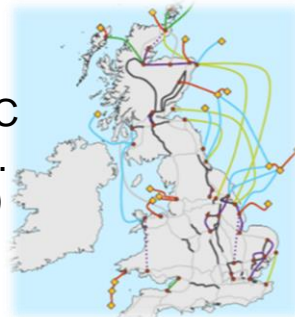
· Project to transmit electricity generated from renewable energy sources in northern Germany to electricity demand areas in the south



Voltage	DC±525kV <b>World's highest voltage</b>
Cable length	320 km Underground x 3 strips (including neutral lines)
Process	Jun 2020: Order received 2029: Scheduled completion

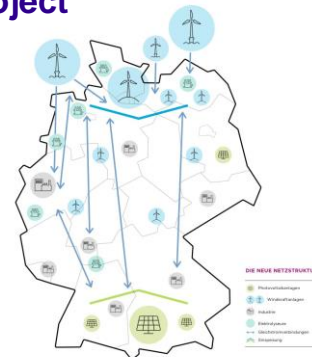
#### ■ UK-Scotland DC interconnection line project

For the purpose of regional power interchange, the construction of a DC transmission network is progressing. (~FY2040, cable length 20,000 km)



#### ■ Germany DC interconnection line project

Plans for the development of a large-scale DC power grid for the purpose of transmitting onshore and offshore wind power are progressing. (~FY2040, 23,000 km cable length)



Source : Amprion -Grid expansion

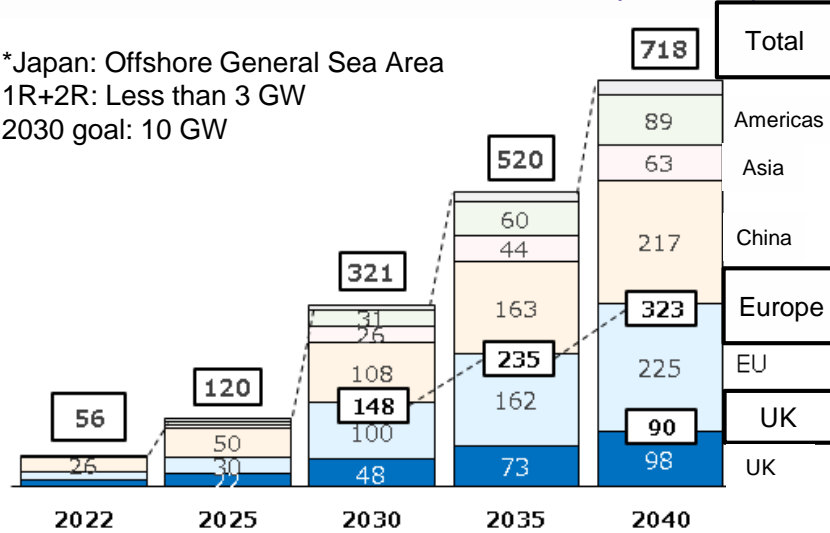
# 4. Offshore Wind Power

The installation of offshore wind power is accelerating. Progress is being made on scaling up the size of wind turbines and power farms.  
 Capture demand by responding to higher voltage and larger size of cables.

## (1) Market Trends

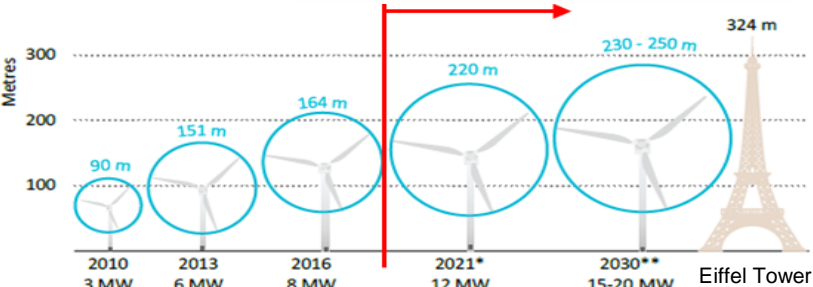
### Forecast for Offshore Wind Power Installation (Units: GW)

\*Japan: Offshore General Sea Area  
 1R+2R: Less than 3 GW  
 2030 goal: 10 GW



### Increasing Turbine Size

10 MW or larger becomes mainstream



Source: IEA Offshore Wind Outlook 2019, All rights Reserved.

⇒ Increased cable size and voltage

## (2) Domestic Major Projects\* projects already accepted at our company

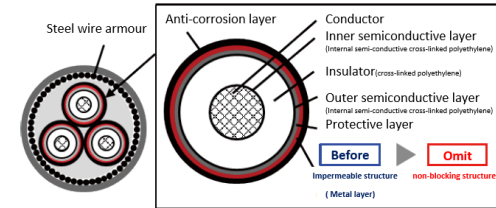
Project Name	Amount (MW)	Period
Akita Port, Noshiro Port *	140	Jan 2023 operation start
Ishikari Port *	100	2023 scheduled to be completed
Goto Sakiyama *	16	2023 scheduled to be completed
North Akita	480	2026-2027
Yurihonjo	820	2027-2029
Choshi	390	2026-2027

## (3) Our Initiatives

### Technological development

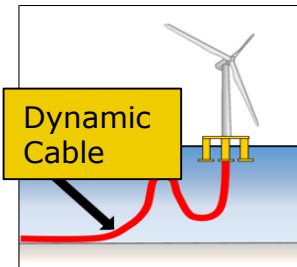
#### -Insulating materials

- water tree retardant
- Non-cross-linked (environmental performance)



#### - Dynamic cables (for floating turbines)

- Twisting/bending/abrasion resistance
- High voltage (154kV)
- Advanced operation system (Diagnosis of movement and degradation due to twisting and flexing)



#### Transmission package with Nissin/Densetsu

- Cable, power receiving, substation and engineering, grid issue resolution

# 5. Overview of New Plant in Scotland

We will build a new plant for submarine cables in Scotland, UK, where demand is expected to increase dramatically. This will allow us to capture demand for DC interconnectors and offshore wind power around Scotland and the rest of the UK.

## ■ Company Overview

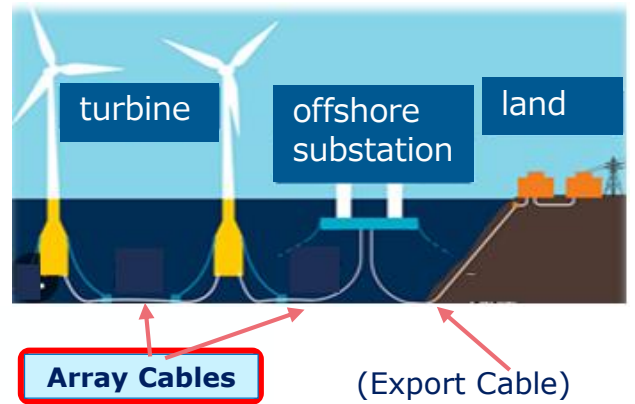


<b>Name of New Company</b>	Sumitomo Electric U.K. Power Cables Ltd.
<b>Location</b>	Ross-shire, Scotland, UK
<b>Business Details</b>	Manufacture and sale of electric power cable
<b>Capital</b>	£127 million
<b>Shareholder Ratio</b>	100% owned subsidiary
<b>Establishment/ Operation</b>	Established May 2023; Operation begins September 2026 (planned)

## ■ Manufactured Products

### Array cables for offshore wind power

Cables that connect wind turbines to each other and turbines to offshore transformer substations

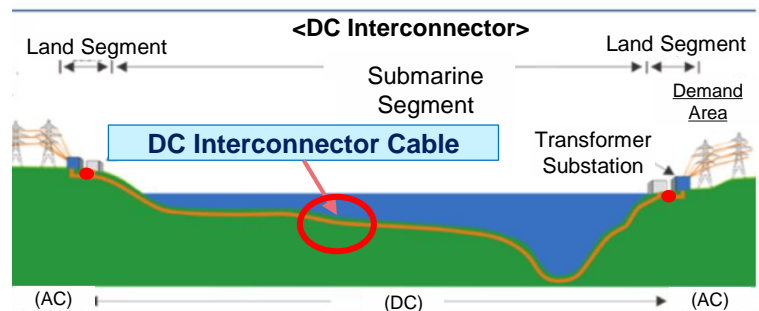


<Array Cables>



### Cables for DC interconnectors

The grid connections between nations and regions are quickly becoming longer and higher voltage. The use of DC cables, which have low transmission loss compared to AC cables, is increasing.



<DC Interconnector Cable>

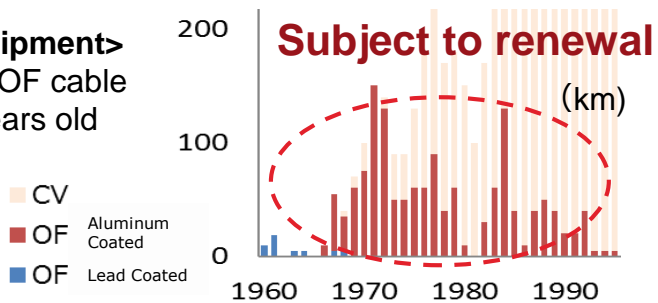


## 6. Domestic Power Cable Market

Steady demand for updating aging equipment  
Aim to ensure demand through long-term partner agreements

### (1) Market: Introduction of revenue cap system to promote equipment renewal

<Aging Equipment>  
1,500 km of OF cable is over 30 years old

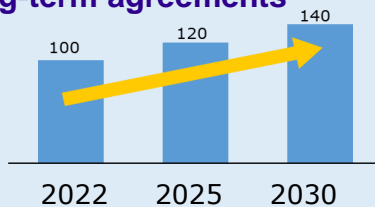


### (2) Our initiatives

#### ■ Enhance workability and long-term agreements with partners

-Promoting long-term contracts to secure manufacturing and construction capabilities

-Plan to increase the number of construction teams to meet increased demand



#### ■ Continue introducing distinct products

- Low-loss electric cable; maintenance and monitoring systems

- DLR sensors



<Our Overhead DLR Sensor>

## 7. Strengthening manufacturing

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Continue to build global manufacturing systems (including in Europe) and expand the production capabilities of the mother factories in Japan throughout the world

### (1) Our initiatives

#### ■ Safety and environment

- Train safe people and build a culture of safety
- Reduce CO2 emissions, expand GX products

#### ■ Quality

- Own process quality assurance
- Quality assurance function enhancing

#### ■ Cost reduction

- Develop new insulating materials
- Improve of overall efficiency of facilities (Reduce outage loss, performance loss, and defective loss)
- Reduce labor (utilize DX)

#### ■ Asset efficiency improvement

- Shorten lead times, reduce inventory, and improve CF



**Contribute to achieving a carbon-neutral society via the top technology and manufacturing in the world**

**DC interconnectors and Offshore Wind Markets: Rapid expansion of installation due to decarbonization**

**Domestic Power Cable Market: Steady demand for updating aging equipment**



- Expanding manufacturing and installation capacity mainly in Europe and Japan (Submarine cable business + Land cable business)
- Development of GX-related products, methods, and systems (DC and offshore)
- Strengthening manufacturing capabilities (quality improvement, cost reduction)
- Strengthening project management

**We will advance the above points in efforts to achieve our medium-term targets.**



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