ASIA CLEAN ENERGY FORUM 2025

Empowering the Future: Clean Energy Innovations, Regional Cooperation and Integration, and Financing Solutions

2–6 June | ADB Headquarters

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ADB

Strengthening Global Cooperation and Policy for Clean Energy Future

4 June 2025

In cooperation with

한국에너지공단
KOREA ENERGY AGENCY

ENERGY & SPACE
Research Institution for Renewable Energy

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Empowering the Future: Clean Energy Innovations,
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ADB

Yunsoung Kim

CEO
Energy and Space, Inc.

Featured Speaker

Korea's Offshore Wind Power Special Act: Enactment and Pathways for International Cooperation

Yunsoung Kim
4 June 2025, Manila

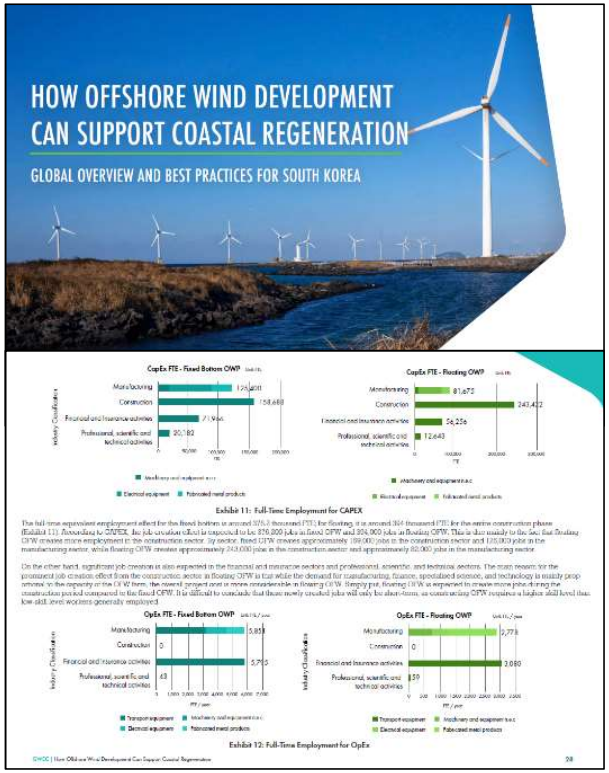
Research Institution for Renewable Energy

Who We Are

Energy and Space

Economic Impact of Offshore Wind Construction and Operation

- Assuming 14.3GW of offshore wind capacity is constructed by 2030 and operated until 2050:
  - Development and Construction Period
    - Total value-added impact: **KRW 87 trillion (Fixed-bottom: KRW 45.3 trillion, Floating: KRW 41.7 trillion)**
    - Employment creation effect: **Total 750,200 FTEs (Fixed-bottom: 376,200, Floating: 374,000)**
  - Operation and Maintenance Period
    - Annual value-added impact: **Fixed-bottom: KRW 876.2 billion/yr, Floating: KRW 578.2 billion/yr**
    - Annual O&M employment creation: **17,606 FTEs (Fixed-bottom: 11,689, Floating: 5,917)**



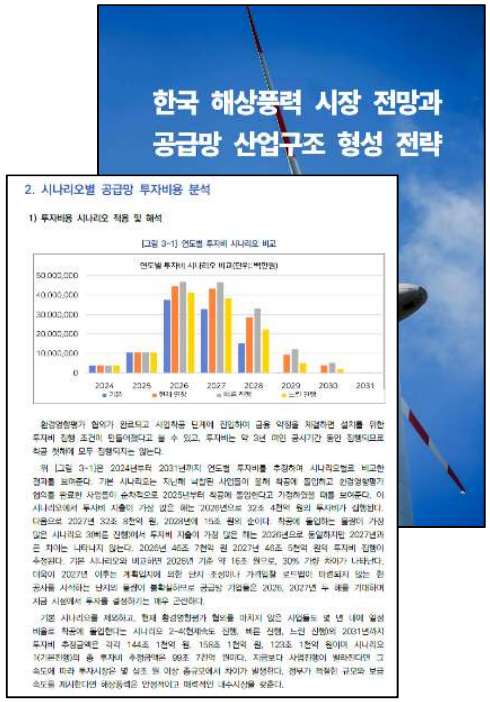
Source: Published by GWEC. Analysis conducted by Energy & Space (2024).

Who We Are

Energy and Space

South Korea: Offshore Wind Market Outlook and Supply Chain Formation Strategy (2024.11)

- Project Pipeline: As of July 2024, 87 projects (27GW) have received EBL; Among them, 9.6GW are in the EIA stage
  - A concentration of projects entering the Environmental Impact Assessment (EIA) stage is anticipated between 2026 and 2028, potentially leading to a pipeline bottleneck
  - Volatile or overly aggressive deployment plans could negatively impact the development of the domestic supply chain industry
  - To ensure stable investment in the supply chain, maintaining an auction volume of approximately 2.5 GW per year through 2030, and 2.5–3.0 GW per year through 2040, is recommended
- This study is the first report in Korea to focus on reducing market uncertainty from the perspective of the supply chain industry
  - It provides detailed scenario-based estimates of annual investment requirements and project commencement volumes over the next 4–5 years
  - It outlines realistic deployment pathways and policy directions aligned with Korea's economic and environmental context



Source: E&S(2024), Offshore Wind Market Outlook and Supply Chain Formation Strategy in Korea.

1.
Background

Lack of a government-led project development process

Persistent conflicts arising from the open-door system's impact on local community acceptance

Significant delays in the scale-up of offshore wind power deployment

1.
Background

After over seven years of extensive deliberation,
the Offshore Wind Power Special Act
was officially enacted in March 2025

2. Status of Offshore Wind Power Pipeline in South Korea

Offshore Wind Energy Roadmap(offshoremap.kr)

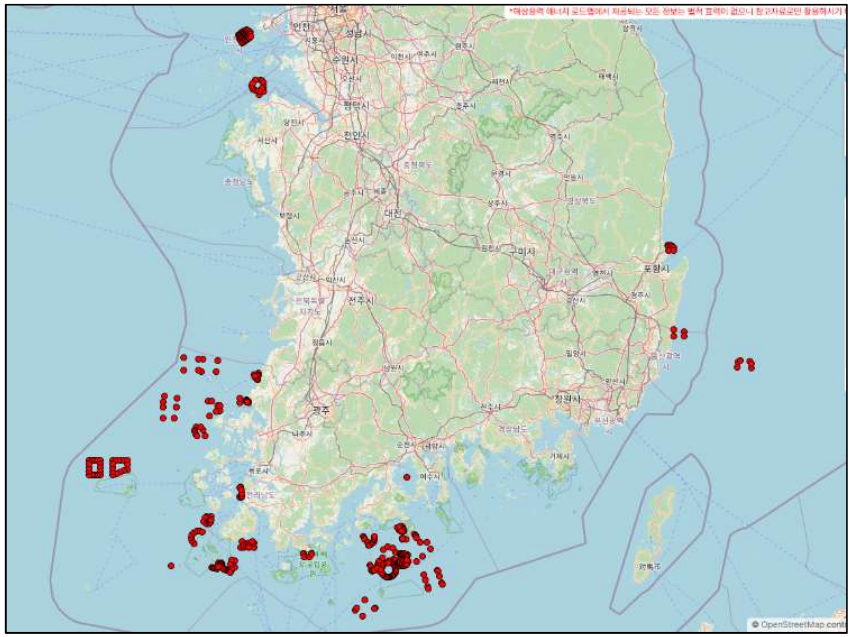
The "Offshore Wind Energy Roadmap" is an interactive open-access mapping service designed to enhance public access to information and raise awareness about offshore wind energy

2. Status of Offshore Wind Power Pipeline in South Korea

Status of Electricity Business License Acquisition

- As of January 2025, a total of 91 projects have entered the pipeline after obtaining electricity business licenses and reaching the construction initiation phase
- Of these, 48 projects have already secured electricity business licenses
- By region, Jeollanam-do hosts the largest number of projects, with a total of 36 projects

Region	No of Projects
Jeollanam-do	36
Incheon City	4
Busan City	1
Ulsan City	2
Chungcheongnam-do	3
Gyeonggi-do	1
Gyeongsangbuk-do	1



Note: Analysis based on data provided by offshoremap.kr, conducted by Energy and Space.

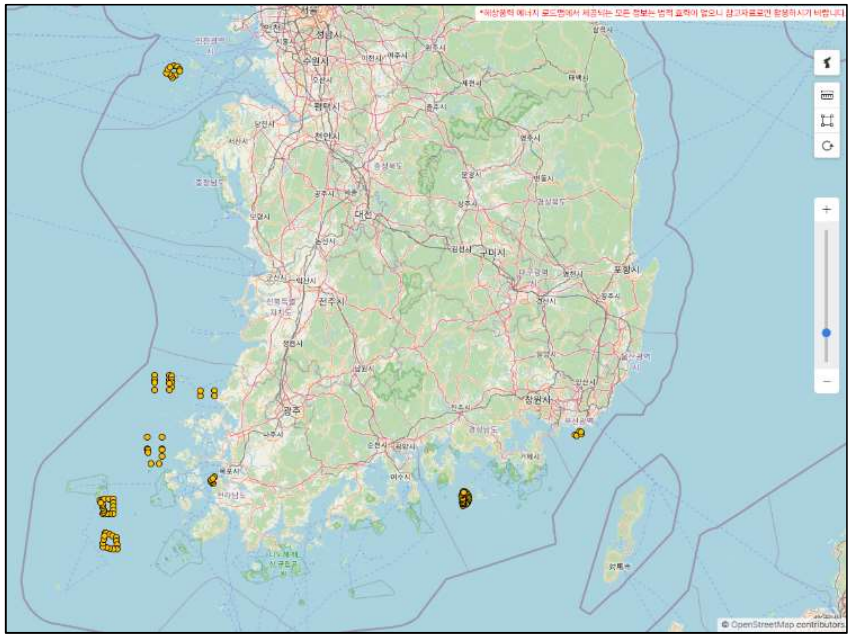
The spatial distribution map excludes Jeju Island, as license information there is separately managed and not included in the data aggregated by the Korea Electric Power Exchange

2. Status of Offshore Wind Power Pipeline in South Korea

Status of EIA Consultations

- Environmental Impact Assessments (EIAs), including marine environmental impact assessments, are underway for a total of 12 projects
  - No official consolidated data or announcement on offshore wind development projects is available for Jeju Island
- Several projects are undergoing change consultations after the commencement of construction

Region	No of Projects
Jeollanam-do	8
Incheon City	1
Busan City	1



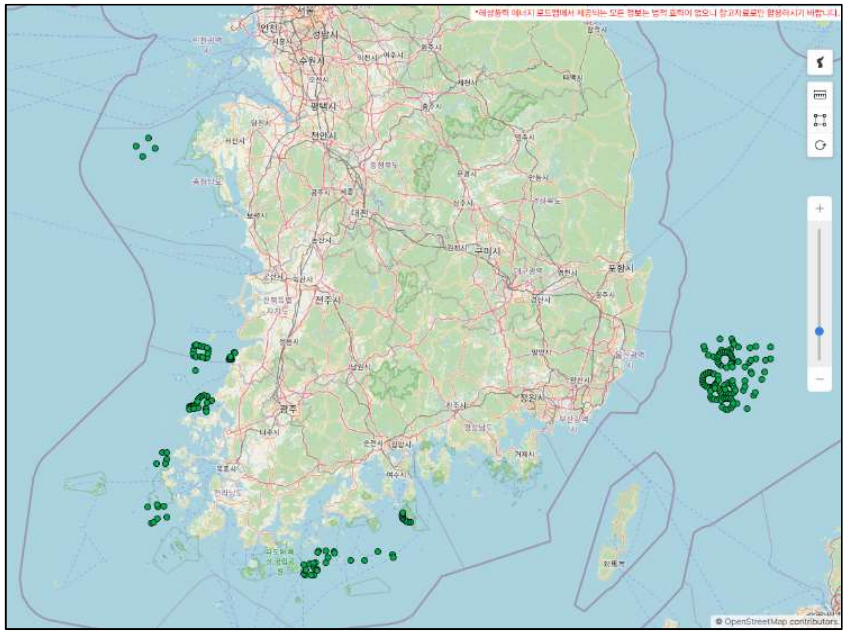
Note: Analysis based on data provided by offshoremap.kr, conducted by Energy and Space.

2. Status of Offshore Wind Power Pipeline in South Korea

Status of EIA Consultations Completed

- As of now, EIAs have been completed for a total of 30 projects, and construction is progressing in phases
  - Among the 30 projects, 2 projects (the Jeonnam Offshore Wind Project and the Yeonggwang Nakwol Offshore Wind Project) are currently under construction
- In Jeju Island, the Handong-Pyeongdae offshore wind farm are under construction, and the Hanrim Offshore Wind Farm has entered commercial operation

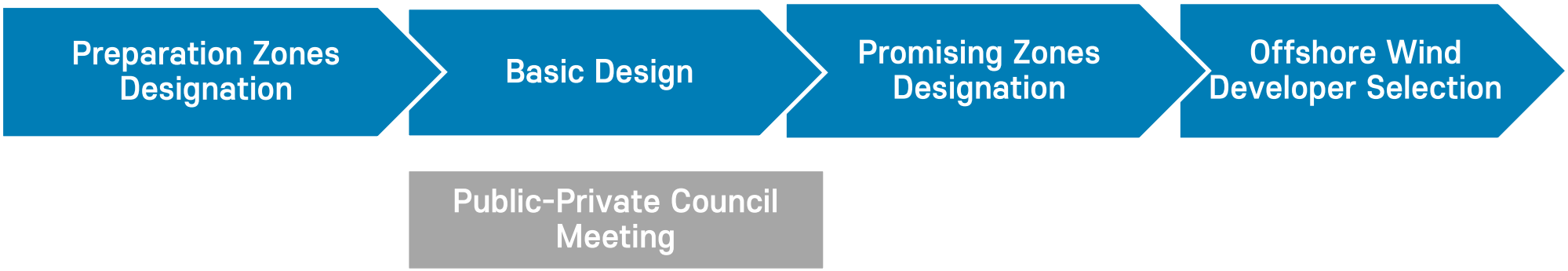
Region	No of Projects
Jeollanam-do	13
Ulsan City	12
Jeollabuk-do	2
Chungcheongnam-do	1



Note: Analysis based on data provided by offshoremap.kr, conducted by Energy and Space.

3. Key Provisions of the Offshore Wind Power Special Act

Offshore Wind Site Designation Process under the Special Act



- Preparation Zones are designated based on offshore wind site information maps
- MOTIE and MOF designate the Preparation Zones or the provincial governor can submit the application
- (Following the Preparation Zone designation) the MOTIE plan the basic design
- (Based on negotiation from the Public-Private Council) all or parts of the Preparation Zones may be designated as Promising Zones

3. Key Provisions of the Offshore Wind Power Special Act

Structure and Operation of Public-Private Council Meeting

1. Basic design plans
2. Designation and adjustment of promising zones
3. Establishment and operation of community benefit-sharing schemes
4. Ensuring stakeholder acceptance
5. Activation of the fisheries industry and revitalization of the local economy

3. Key Provisions of the Offshore Wind Power Special Act

Offshore Wind Supply Chain Support and Energy Security Enhancement

Purpose

To strengthen the competitiveness of the offshore wind industry and to contribute to national energy security and economic development

Support for Supply Chain Expansion

- Establishment of financial resources
- Provision of funding and loans
- Support for the development of financial products

Promising Zones Designation

- Contribution to offshore wind industrial ecosystem (supply chain) is required

Offshore Wind Developer Selection

- Contributions to energy security and industry are reflected in the evaluation process

3. Key Provisions of the Offshore Wind Power Special Act

Establishment and Operation of Offshore Wind Demonstration Zones

Purpose

To promote the offshore wind industry and enhance the competitiveness of offshore wind companies

Demonstration Zone Designation

- **Full or partial designation of development sites for technology validation**

Operation and Support

- **Entrustment to public institutions with potential cost subsidies**

Offshore Wind Developer Selection

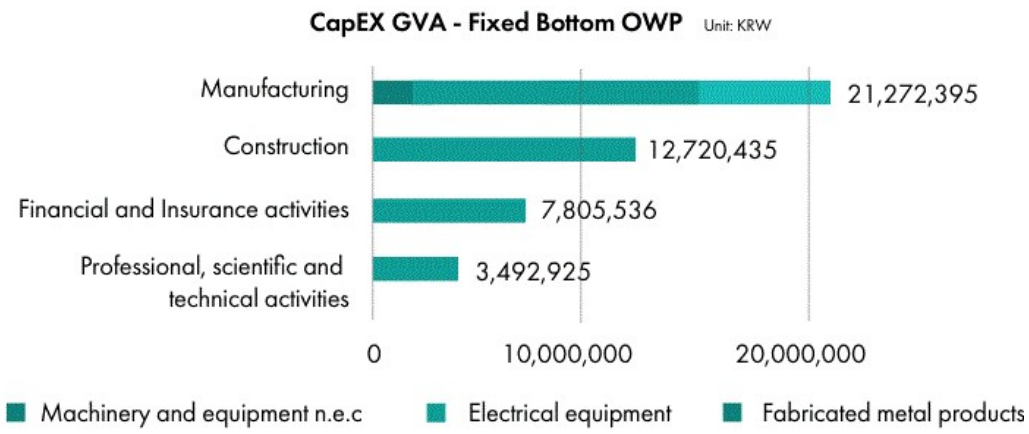
- **Selection of a related institutions as offshore wind Developer if necessary**

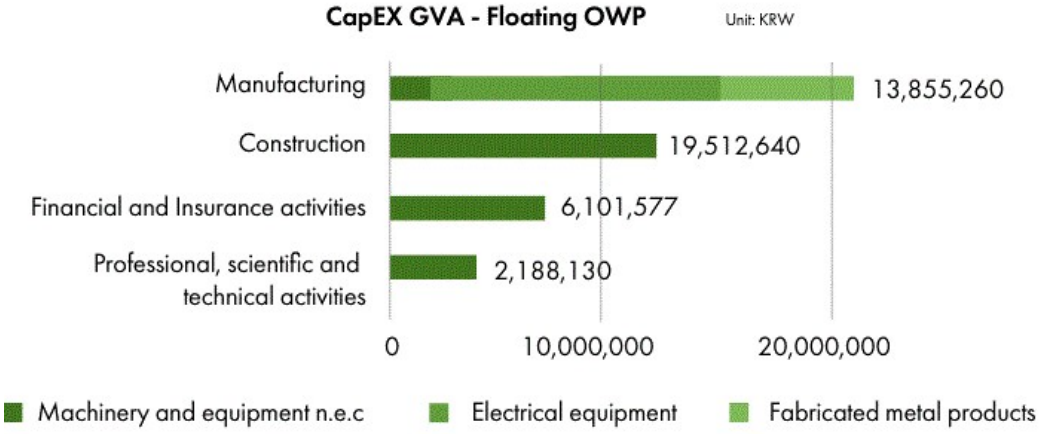
Electricity Market Participation

- **Selected developers may engage in power sales in the electricity market**

4. Economic Impacts of offshore wind development in South Korea

Gross Value-added for CapEx



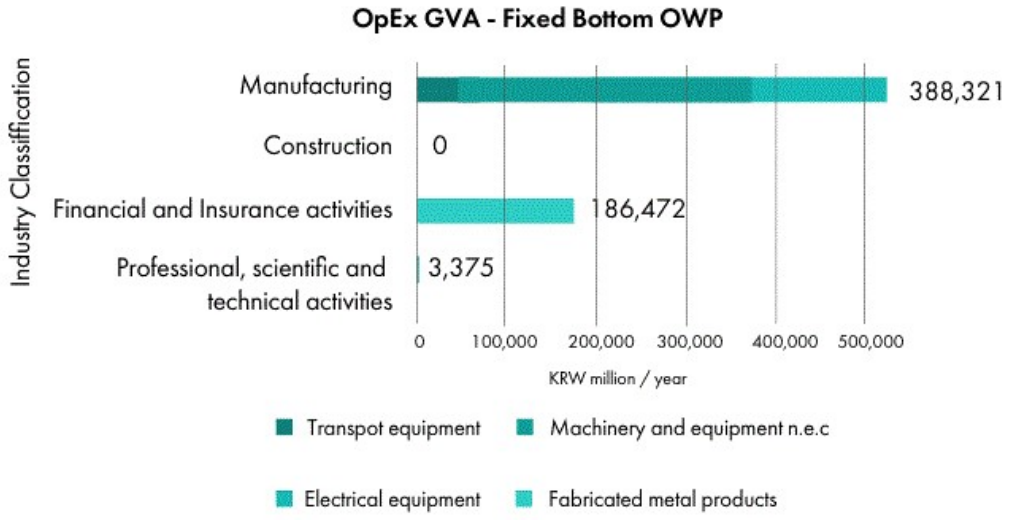


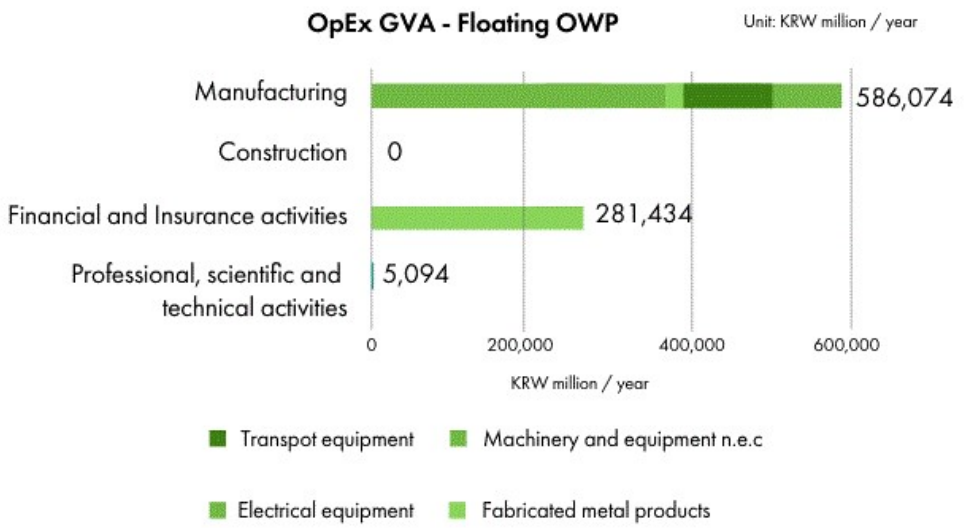
Source: GWEC, 2024, How Offshore Wind Development Can Support Coastal Regeneration
Note: This report was co-authored by GWEC and Energy & Space, with the economic analysis led by an Energy & Space analyst.

- Assuming that by 2030, a total of 14.3 GW of OFW farms will be constructed, the gross value-added effect for a fixed-bottom OFW is approximately 45.3 trillion won for 7 years, and a floating OFW is around 41.7 trillion won

4. Economic Impacts of offshore wind development in South Korea

Gross Value-added for OpEx



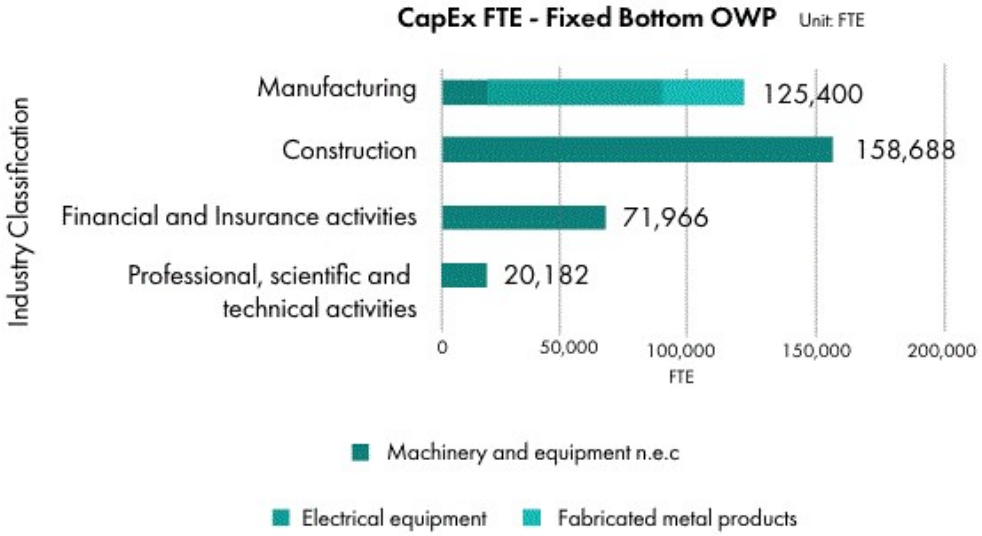


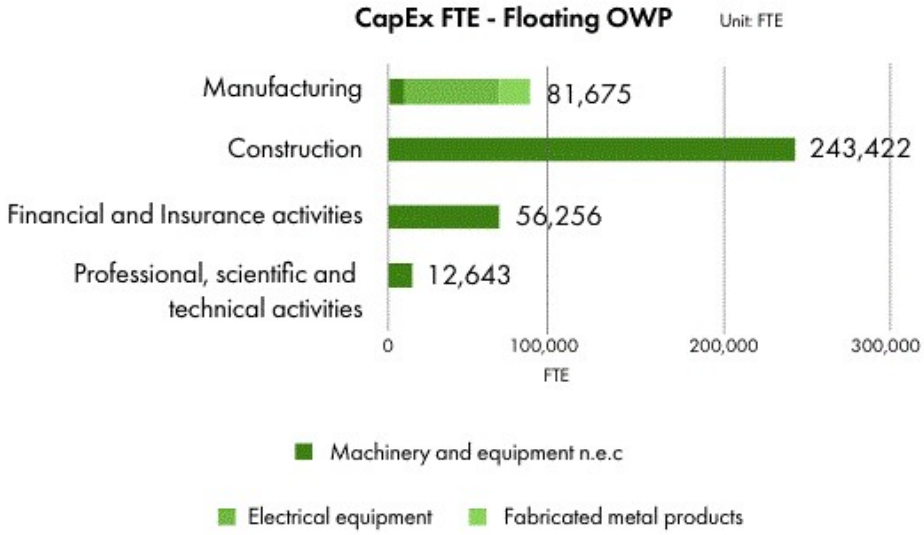
Source: GWEC, 2024, How Offshore Wind Development Can Support Coastal Regeneration

- During the O&M phase, 87.26 billion won for a fixed-bottom for one year and 57.82 billion won worth of gross value-added effect can be estimated

4. Economic Impacts of offshore wind development in South Korea

Full-Time Employment for CapEx(Job Creation)



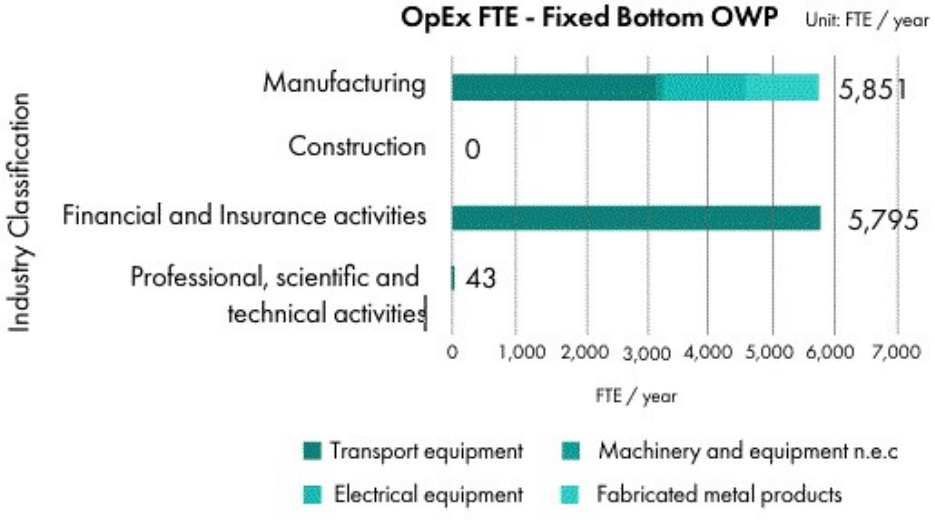


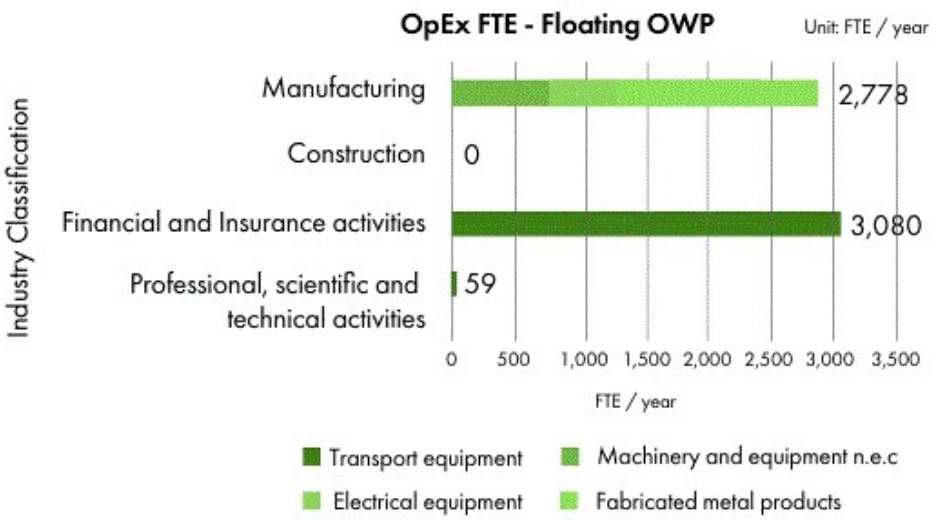
Source: GWEC, 2024, How Offshore Wind Development Can Support Coastal Regeneration

- The full-time equivalent employment effect for the fixed bottom is around 376.2 thousand FTE; for floating, it is around 394 thousand FTE for the entire construction phase

4. Economic Impacts of offshore wind development in South Korea

Full-Time Employment for OpEx(Job



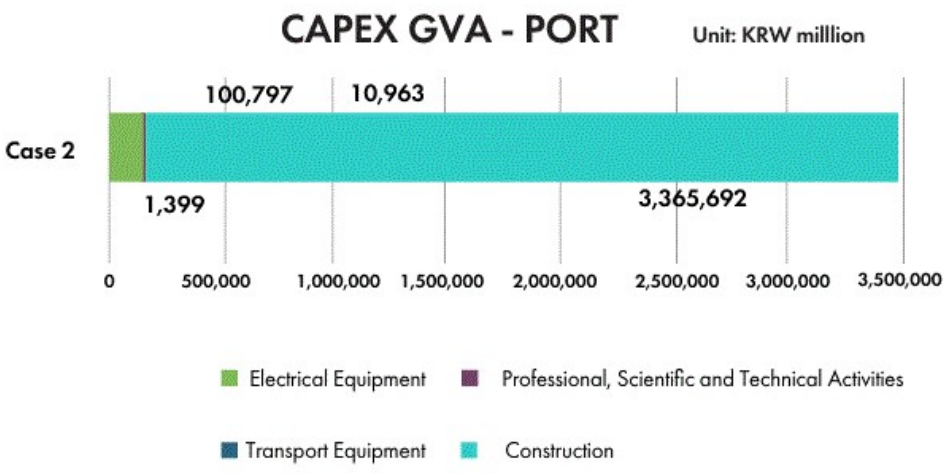


Source: GWEC, 2024, How Offshore Wind Development Can Support Coastal Regeneration

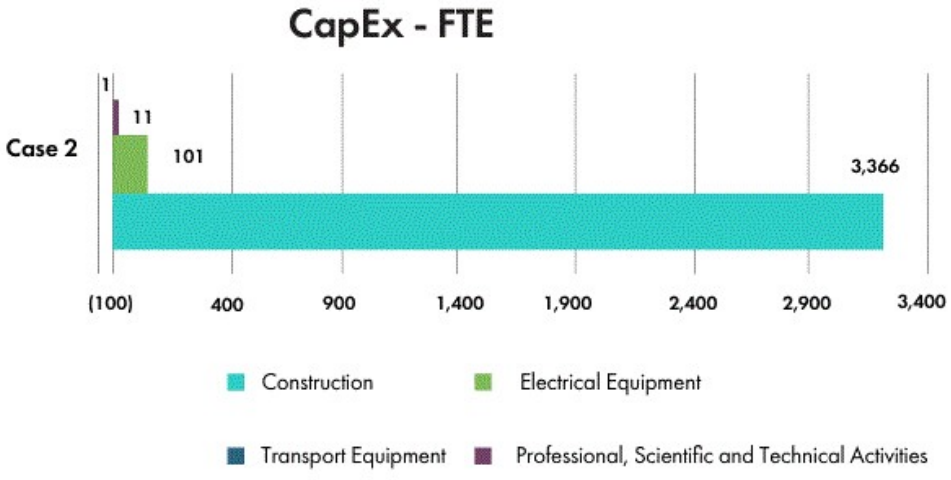
- For the O&M phase, for the year of 2030 alone, it is estimated that 11,689 FTEs can be created annually in fixed bottom OFW, while there is estimated to be 5,917 FTEs in floating wind

4. Economic Impacts of offshore wind development in South Korea

CapEx GVA - Port



CapEx - FTE

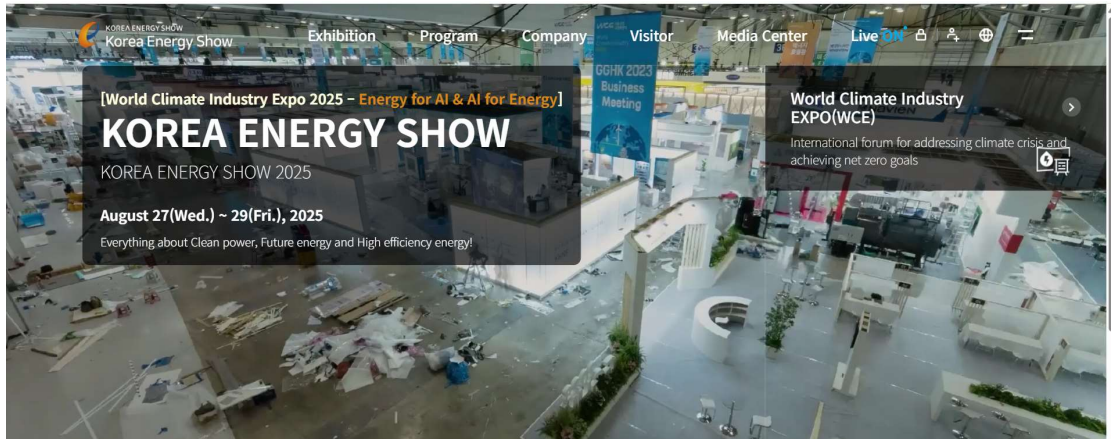


Source: GWEC, 2024, How Offshore Wind Development Can Support Coastal Regeneration

- The total port investment cost for 14.3 GW can be seen as approximately KRW 5,691,89 million (435.7M USD). The value added from port CAPEX is estimated at KRW 3,478,851 (2,663.1M USD)
- The expected job creation effect from port construction is estimated to be 3,479 people during the construction period

5. Conclusion: Proposal for Global Partnership on Offshore Wind Cooperation

- **Korea is a promising region with a well-developed manufacturing industry that can support the growth of the offshore wind industrial ecosystem**
- **International cooperation to foster offshore wind industry in APAC regions**
  - Accelerate energy transition and address to carbon neutrality
  - Strengthen energy security
  - Expand technological capabilities and expertise through R&D and innovation
  - Promote industrial and corporate collaboration in the offshore wind sector
- Exchange progress updates, and explore future cooperation opportunities with offshore wind partners



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We share the commitment to accelerate the energy transition in APAC!