

# Outlook of offshore wind power market and CS WIND's business strategy

Date : 2021. 06. 09

***Change & Challenge***

- 01** Introduction of CS WIND's Business
- 02** Outlook of Offshore Wind Power Market
- 03** CS WIND's Offshore Strategy

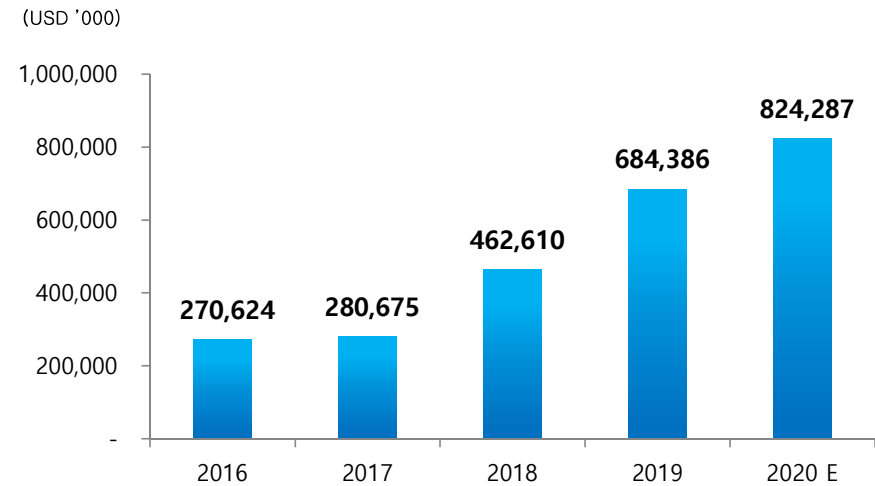
# Introduction\_Corporate Overview

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Human Beings and Nature  
**CS WIND**

## CS Wind At a Glance

|                                       |  |   |
|---------------------------------------|--|---|
| <b>CEO &amp; Chairman</b>             | Gim, Seong Gon   |   |
| <b>HQ Location</b>                    | 129-12, DONGSEO-DAERO, SEOBUK-GU,<br>CHEONAN-SI, CHUNGCHEONGNAM-DO,<br>SOUTH KOREA   |   |
| <b>Date of Establishment</b>          | <ul style="list-style-type: none"> <li>- CS Wind Tower Co., Ltd. in Vietnam established in Dec. 2003</li> <li>- Holding Company CS Wind Corporation established in Aug. 2006</li> <li>- Listed on Korean Stock Market on Nov. 27, 2014</li> </ul>                              |   |
| <b>Employees</b><br>(as of Mar. 2021) | <ul style="list-style-type: none"> <li>- Vietnam : 921</li> <li>- China : 376</li> <li>- Malaysia : 482</li> <li>- Turkey : 165</li> <li>- Indonesia : 159</li> <li>- CS Bearing : 263<br/>(Include CS Bearing VN : 134)</li> <li>- Taiwan : 256</li> <li>- HQ : 83</li> </ul> | <p style="text-align: center;">Total<br/><b>2,705 employees</b></p> |

## Sales in USD



## Shareholders (as of Mar, 2021)

|   |        |
|---|--------|
| <b>Founder and families</b>                 | 43.51% |
| <b>National Pension Service</b>             | 9.97%  |
| <b>Employee Stock Ownership Association</b> | 0.15%  |
| <b>Others</b>                               | 46.37% |

# Introduction\_ Distinctive Market Leader, CS WIND

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CS Wind has achieved first-mover advantage and market leadership by continuously responding to rapidly changing market environment.

## Glocalization Strategy

### Localization in the Global Market

Successful localization at each of the newly entered international market



## Sales & Operation Excellence

### Customer Satisfaction and Diversification

Sales expansion based on expertise and reliability



## Advanced Technology

### Offshore Tower & LDST Market Expansion

Entry into offshore tower and LDST market with distinguished track record in onshore tower business



# Introduction\_ Leading Wind Tower Manufacturer

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## Product Offerings



Onshore Tower



Offshore Tower



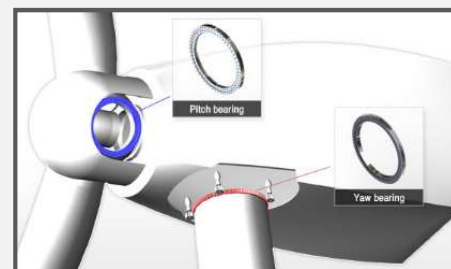
Large Diameter Steel Tower



Tower Internal Parts



Transition Pieces

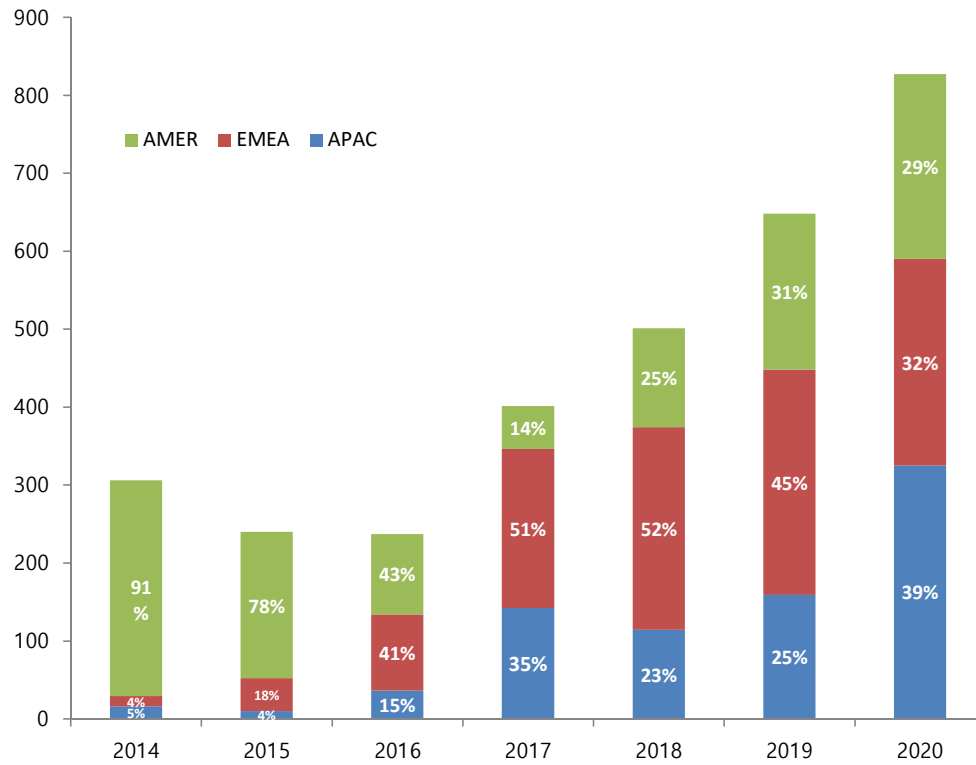


Bearings

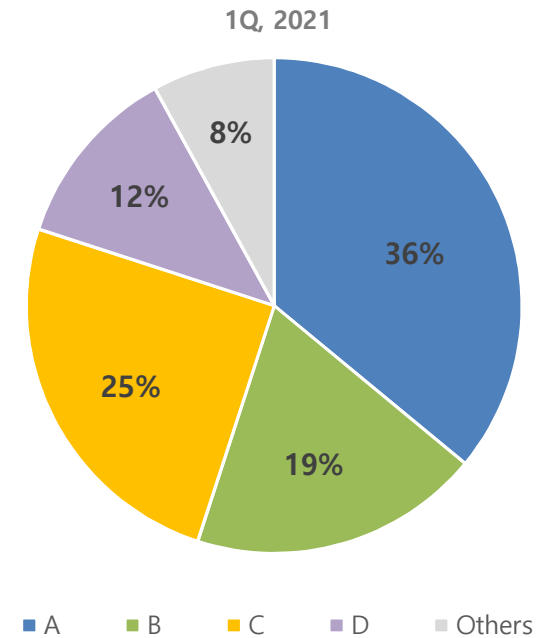
# Introduction\_ Strong Customer Base and Regional Diversification

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### Tower Order Breakdown by Region



### Revenue Breakdown by Customer

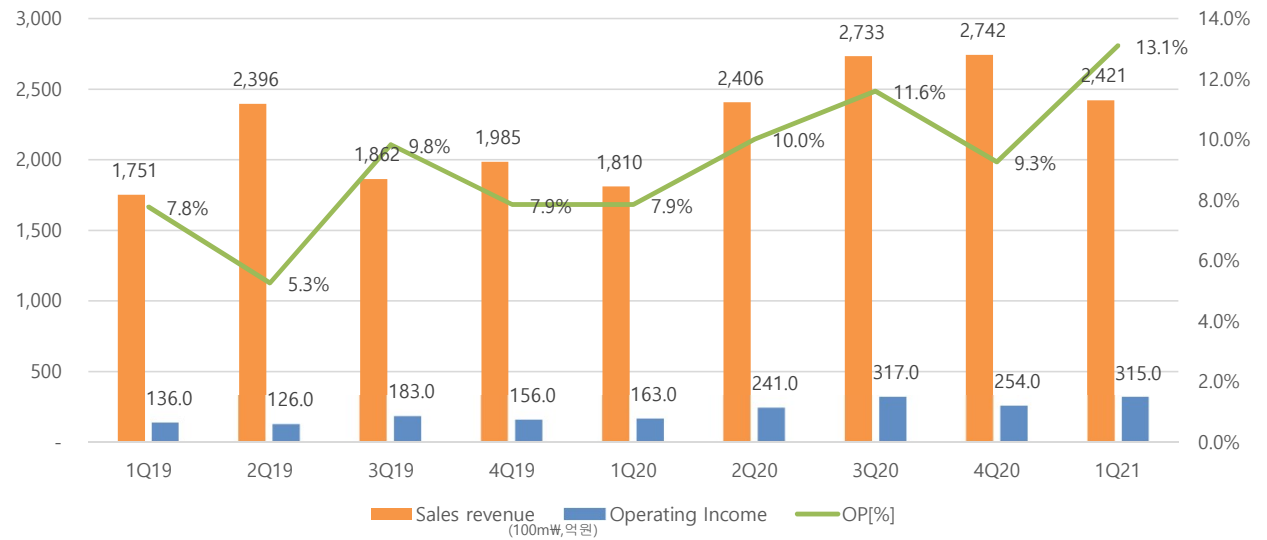
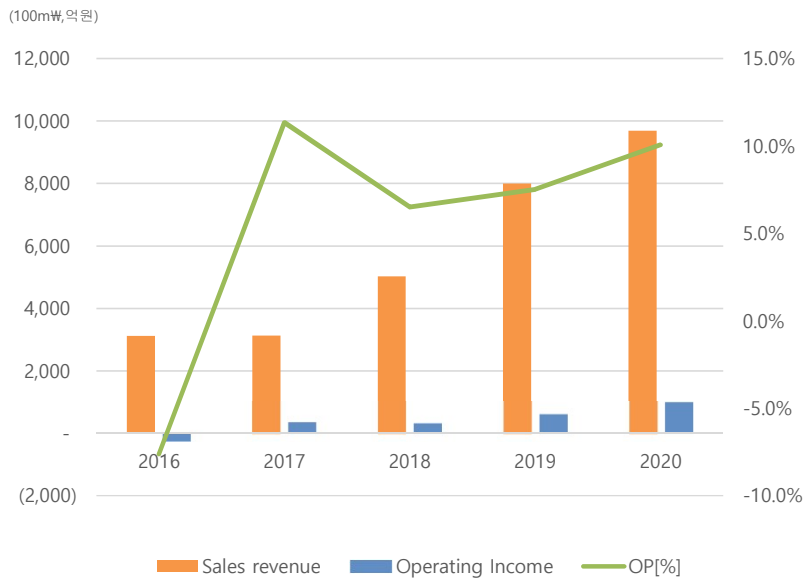


# Introduction\_ Financial Results

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| [100m₩, 억원]      | 2016  | 2017  | 2018  | 2019  | 2020  |
|------------------|-------|-------|-------|-------|-------|
| Sales revenue    | 3,112 | 3,122 | 5,022 | 7,994 | 9,691 |
| Operating Income | 237   | 354   | 327   | 601   | 976   |
| OP[%]            | -7.6% | 11.3% | 6.5%  | 7.5%  | 10.1% |

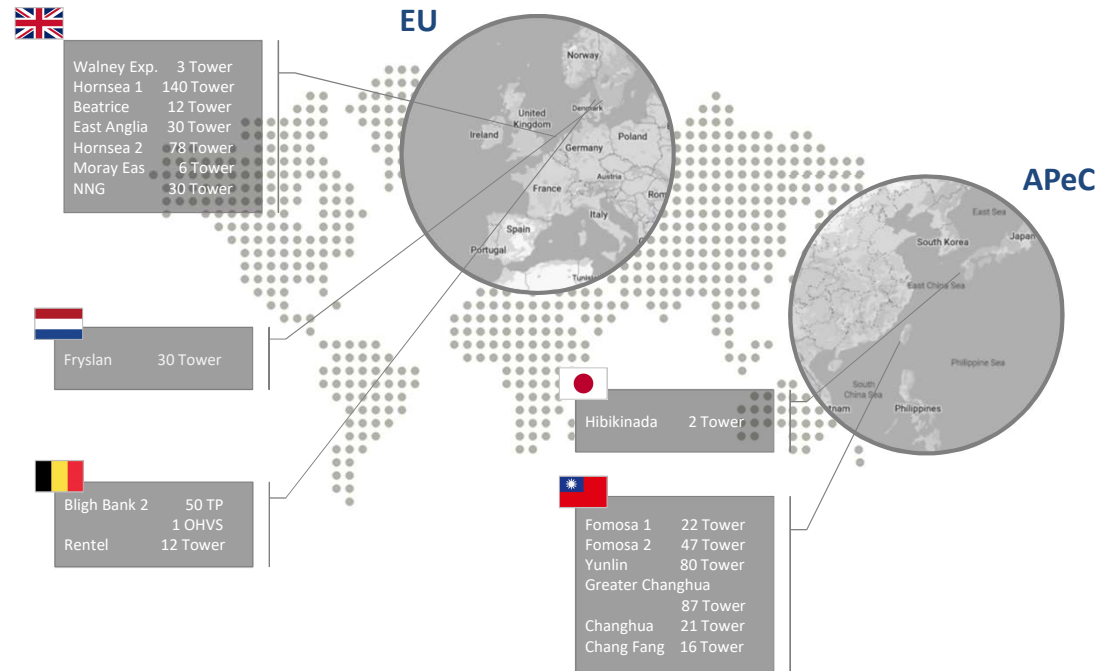
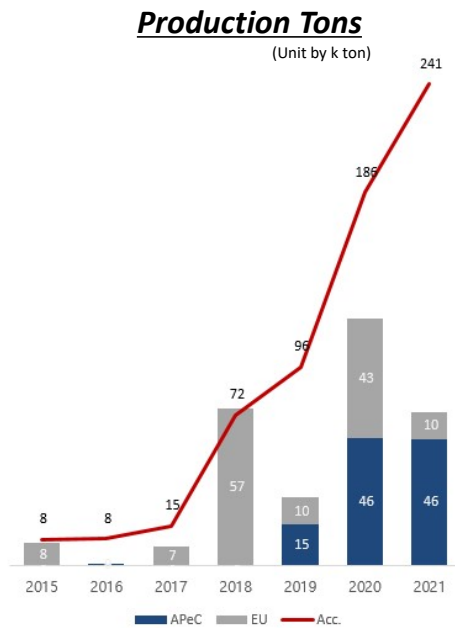
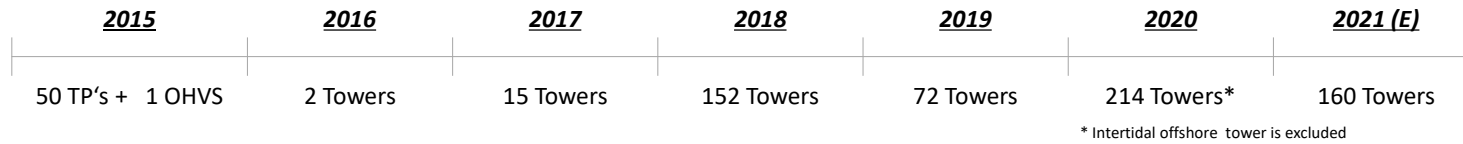
| [100m₩, 억원]      | 1Q19  | 2Q19  | 3Q19  | 4Q19  | 1Q20  | 2Q20  | 3Q20  | 4Q20  | 1Q21  |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Sales revenue    | 1,751 | 2,396 | 1,862 | 1,985 | 1,810 | 2,406 | 2,733 | 2,742 | 2,421 |
| Operating Income | 136.0 | 126.0 | 183.0 | 156.0 | 163.0 | 241.0 | 317.0 | 254.0 | 315.0 |
| OP[%]            | 7.8%  | 5.3%  | 9.8%  | 7.9%  | 7.9%  | 10.0% | 11.6% | 9.3%  | 13.1% |



# Introduction\_ CS WIND Offshore Track Record

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- CS Wind has successfully produced large size offshore towers and foundation from VN & UK facility and set up cross functional team to implement lesson learned to all of CS Wind facilities.



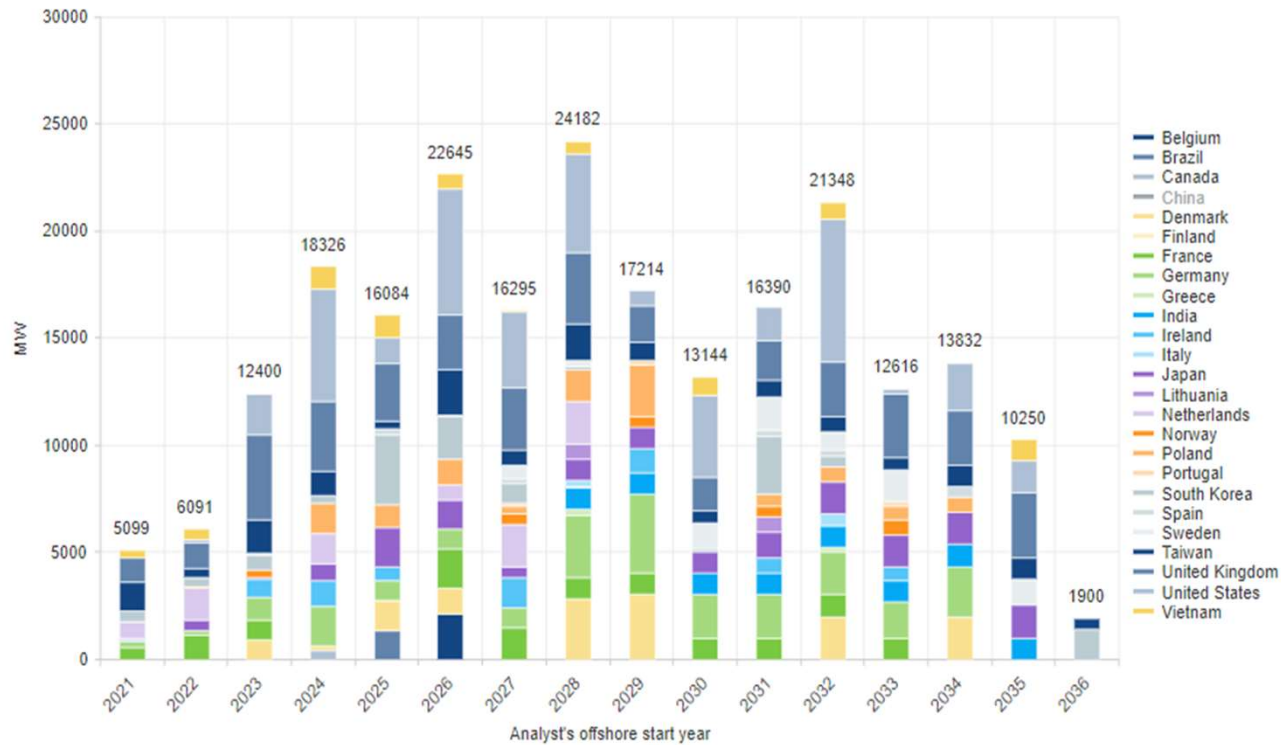


# Outlook\_Global Offshore Wind Market

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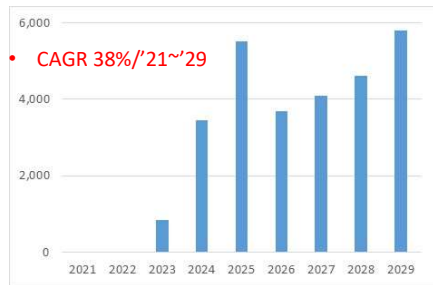
- Additional offshore wind market is expected to be 228 GW until 2035 (142GW excluding China by 2030)
- Big demand increase from 2023 expected due to demand increase in APAC led by Taiwan / US / Northern Europe including Poland and it will cause supply constrains in main components

Total of 227.8 GW planned for construction start by 2036 close



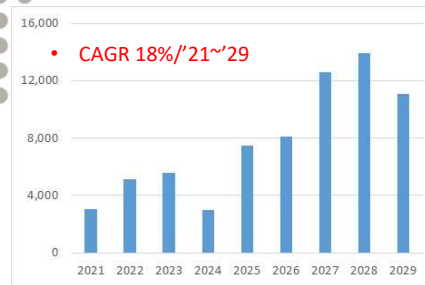
# Outlook\_Global Offshore Wind Market

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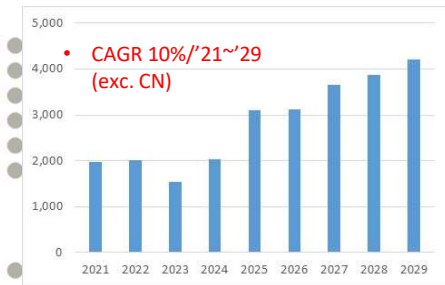
## US

- US offshore will be dramatically increase from 2023 according to current plan and political target but projects delaying continuously (39.7GW by 2035)
- Orsted / O&G companies are strongly positioning in US and GE and SGRE fighting to be major turbine supplier



## EU

- Continue to be in leading position of offshore wind having more than half of global demand (128GW by 2035)
- UK is leading amongst others while Poland announced aggressive plan to reach 10.7GW by 2035
- The level of FIT in European offshore wind continuing to decrease and cost competitiveness is highly required



## APeC

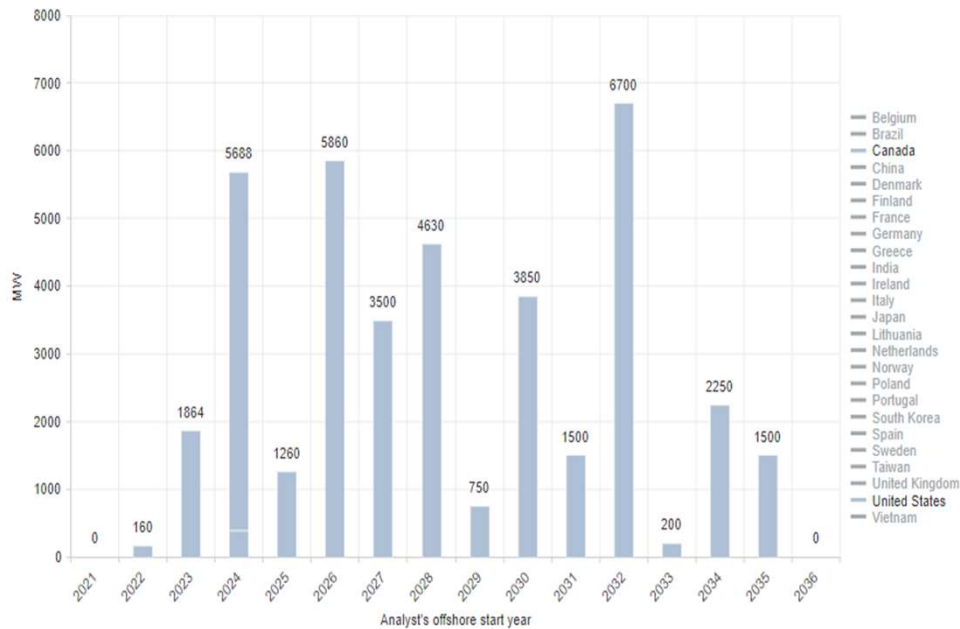
- APeC is glowing market leading new demand of related industry following successful installation of Taiwan offshore (58.7GW by 2035)
- Because of immature track record and technology, Global developers and OEMs including supplier of main components will still maintaining strong position in industry

# Outlook\_US Offshore Wind Market

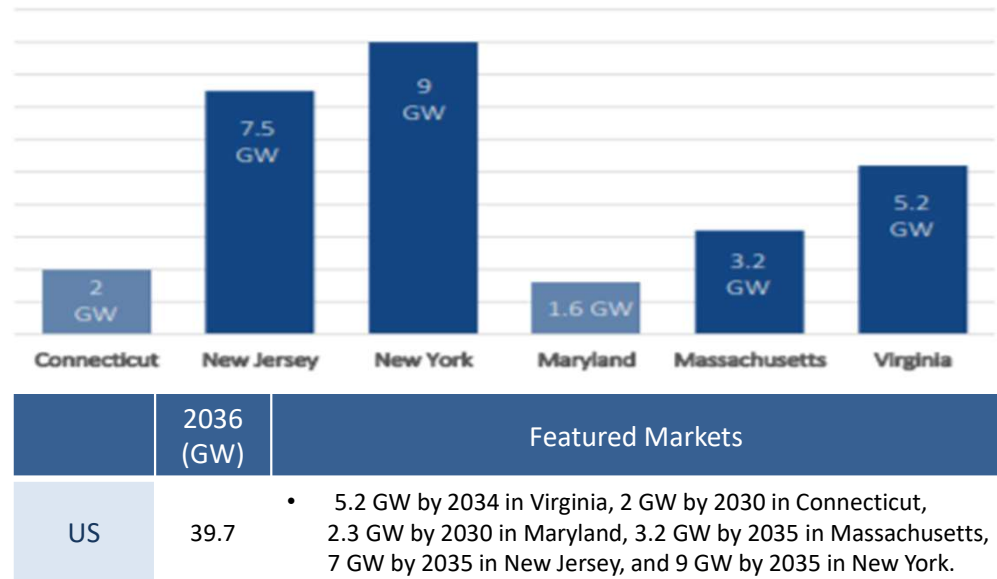
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- US offshore will be dramatically increase from 2023 according to current plan and political target but projects delaying continuously **(39.7GW by 2026)**
- Orsted / O&G companies are strongly positioning in US and GE and SGRE fighting to be major turbine supplier

Total of 39.7 GW planned for construction start by 2036 close



Offshore wind-specific targets by state  
Dark blue = by 2035, light blue = by 2030

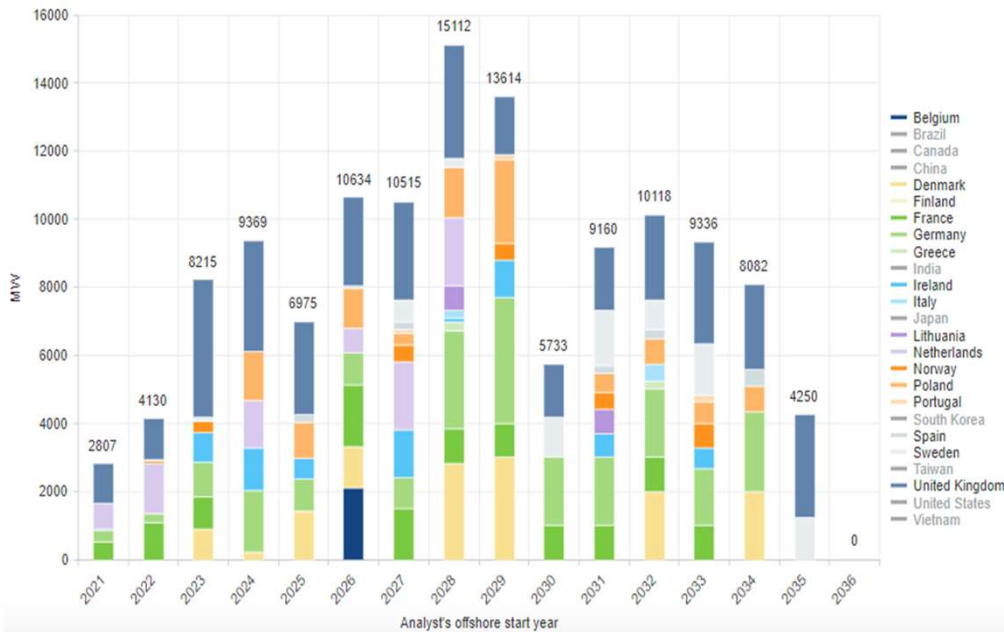


|    | 2036 (GW) | Featured Markets  |
|----|-----------|---|
| US | 39.7      | <ul style="list-style-type: none"> <li>• 5.2 GW by 2034 in Virginia, 2 GW by 2030 in Connecticut, 2.3 GW by 2030 in Maryland, 3.2 GW by 2035 in Massachusetts, 7 GW by 2035 in New Jersey, and 9 GW by 2035 in New York.</li> </ul> |

# Outlook\_EU Offshore Wind Market

- Europe will continue to be in leading position of offshore wind having more than half of global demand (**128GW by 2035**)
- UK is leading amongst others while Poland announced aggressive plan to reach 10.7GW by 2035
- The level of FIT in European offshore wind continuing to decrease and cost competitiveness is highly required in all of component level as TCO base

Total of 128.1 GW planned for construction start by 2036 close

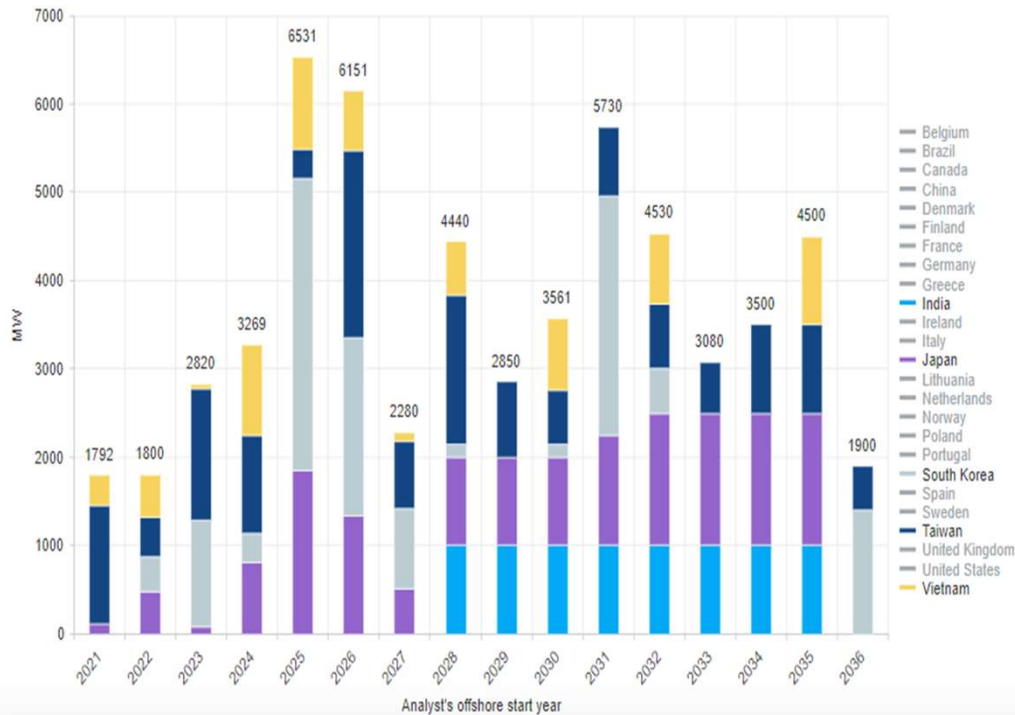


|         | 2035 (GW) | Featured European Markets   |
|---------|-----------|---|
| UK      | 37.2      | <ul style="list-style-type: none"> <li>• Net zero target for greenhouse gas emission by 2050</li> <li>• New ambition for 40GW+ by 2030</li> </ul>   |
| Denmark | 13.6      | <ul style="list-style-type: none"> <li>• 2.4GW across 3 projects to be tendered by 2023</li> </ul>  |
| Germany | 22.8      | <ul style="list-style-type: none"> <li>• 7.6GW Operational and 3.1GW awarded in 2017 &amp; 2018</li> <li>• 1GW per annum is expected to be installed from 2023</li> <li>• Slow demand expected until 2022</li> </ul>  |
| France  | 11.9      | <ul style="list-style-type: none"> <li>• 3.75GW of projects will be tendered from 2020 – 2023 and 1GW will be tendered per year from 2024</li> <li>• Local contents required and SGRE and GE established production facility in France</li> </ul>   |
| Poland  | 10.7      | <ul style="list-style-type: none"> <li>• The Act provides for a two-phase contract for difference (CfD) model. In the first phase, up to 5.9 GW of capacity will be awarded a uniform, non-competitive CfD, for which developers must apply by 31st March for award in June.</li> <li>• In the second stage, developers will compete in CfD auctions where 2.5 GW is available in 2025 and 2027.</li> </ul> |

# Outlook\_APeC Offshore Wind Market

- APeC is glowing market leading new demand of related industry following successful installation of Taiwan offshore **(58.7GW by 2036)**
- Because of immature track record and technology, Global developers and OEMs including supplier of main components will still maintaining strong position in industry

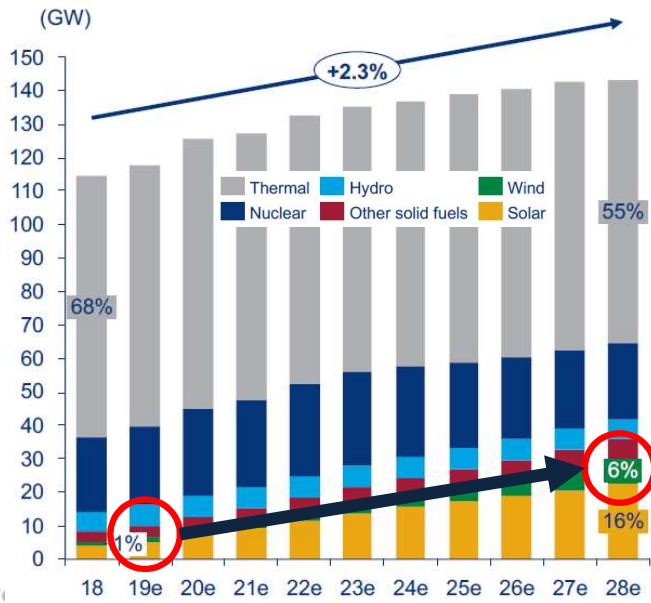
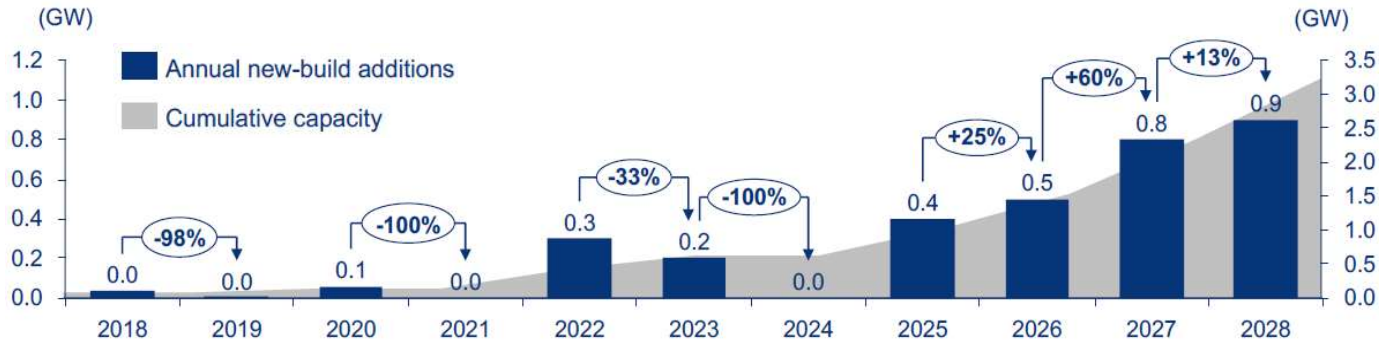
Total of 58.7 GW planned for construction start by 2036 close



|         | 2036 (GW) | Featured APeC Markets   |
|---------|-----------|---|
| Taiwan  | 15.4      | <ul style="list-style-type: none"> <li>• Taiwan's Ministry of Economic Affairs (MOEA) has set a target of 5.7 GW of installed capacity by 2025.</li> <li>• A new phase of planning is expected to be released of around 10 GW from 2026 to 2035.</li> </ul> |
| Japan   | 15.4      | <ul style="list-style-type: none"> <li>• More than 15 GW of projects are in the pipeline, but multiple projects have been proposed within the same areas.</li> </ul>  |
| Korea   | 13.1      | <ul style="list-style-type: none"> <li>• Targeting 13GW by 2030 but the target looks too aggressive considering current status of 38MW commissioned to date</li> <li>• 1GW per annum is planned to be installed from 2021</li> </ul>                        |
| Vietnam | 6.9       | <ul style="list-style-type: none"> <li>• Currently, it is targeting 6 GW by 2030.</li> <li>• Success of Thang long project (3.6GW) and La Gan will be big momentum</li> </ul>   |
| India   | 8.0       | <ul style="list-style-type: none"> <li>• The government set target of 30GW by 2030 which is unrealistic as 1st project yet to be tendered for.</li> <li>• auctions consistently delayed. First construction may start in 2027</li> </ul>                    |

# Outlook\_Korean Offshore Wind Market

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- The South Korean government is targeting solar PV and offshore wind to cater to new electricity demand growth over the long term while limiting growth of new thermal and nuclear capacity
- This has led to ambitious national energy plans to increase the share of renewables from less than 3% in 2018 to 20% by 2030 and a further increase to as much as 35% by 2040
- Public discontent with air pollution has led to temporary shut down legacy local plants or limit its max output (42 plants) to below 80%

Change & Challenge

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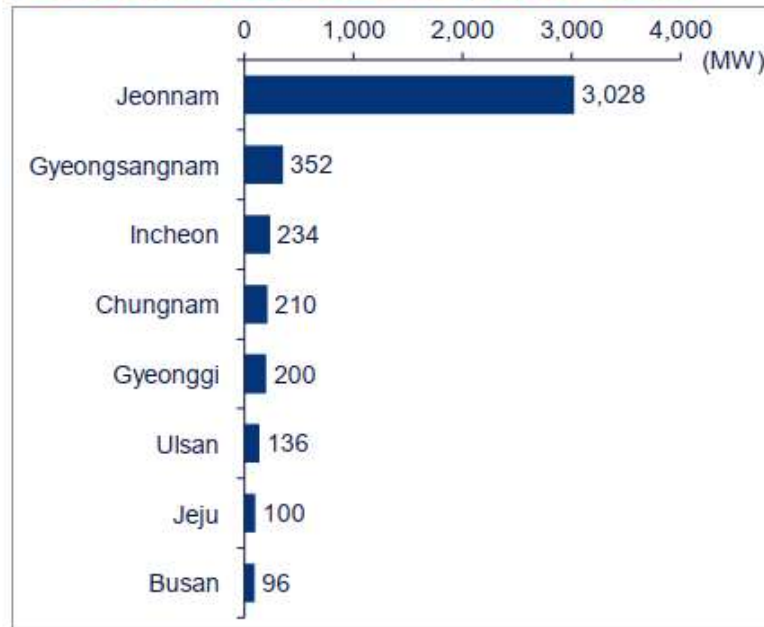
\* Source : Woodmac, APEC Offshore Wind Power Outlook

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# Outlook\_Korean Offshore Wind Market

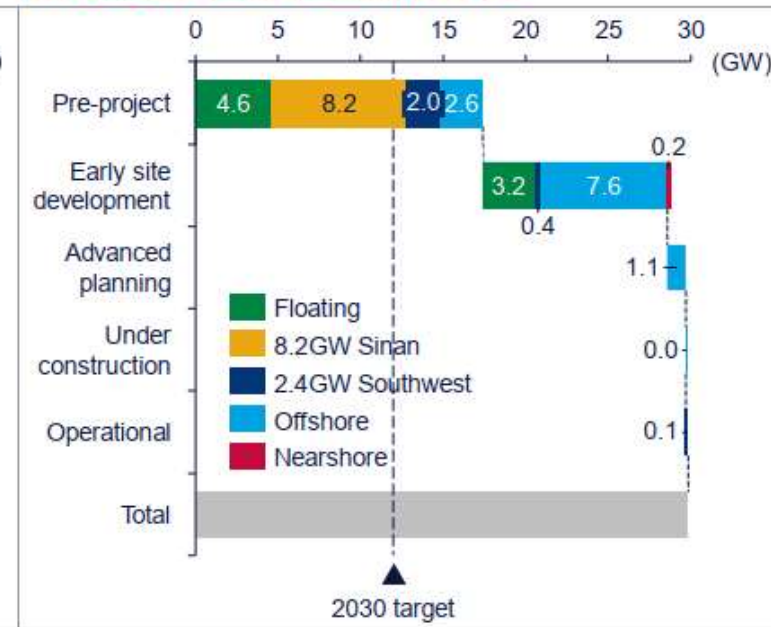
- Korean government announced plans to build the world's largest offshore wind plant on 5 February 2020.
- Sinan offshore project will have a maximum capacity of 8.2 GW and is scheduled to be fully commissioned by 2030; this is in addition to the current pipeline of 21.6 GW of offshore projects.
- But despite this 30 GW pipeline, progress in constructing new offshore wind plants has lagged, taking a decade to reach just 0.13 GW.

70% of approved offshore wind projects in the 9<sup>th</sup> Plan are in the southwestern region of Jeonnam



Source: Ministry of Trade, Industry and Energy

Despite 30 GW offshore wind pipeline, 95% of projects are still in planning stages

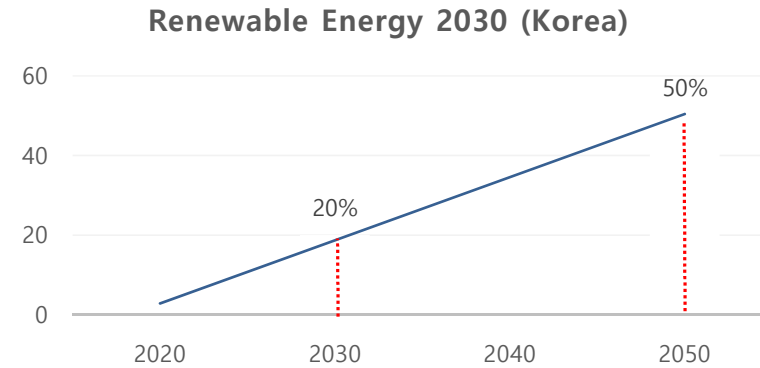
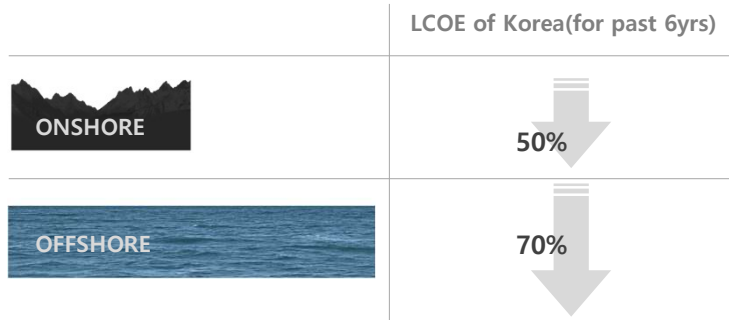


Source: Wood Mackenzie

# Outlook\_LCOE (Levelized Cost of Energy)

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< Global LCOE > Selected renewable energy generation technologies are cost-competitive with conventional generation technologies under certain circumstances

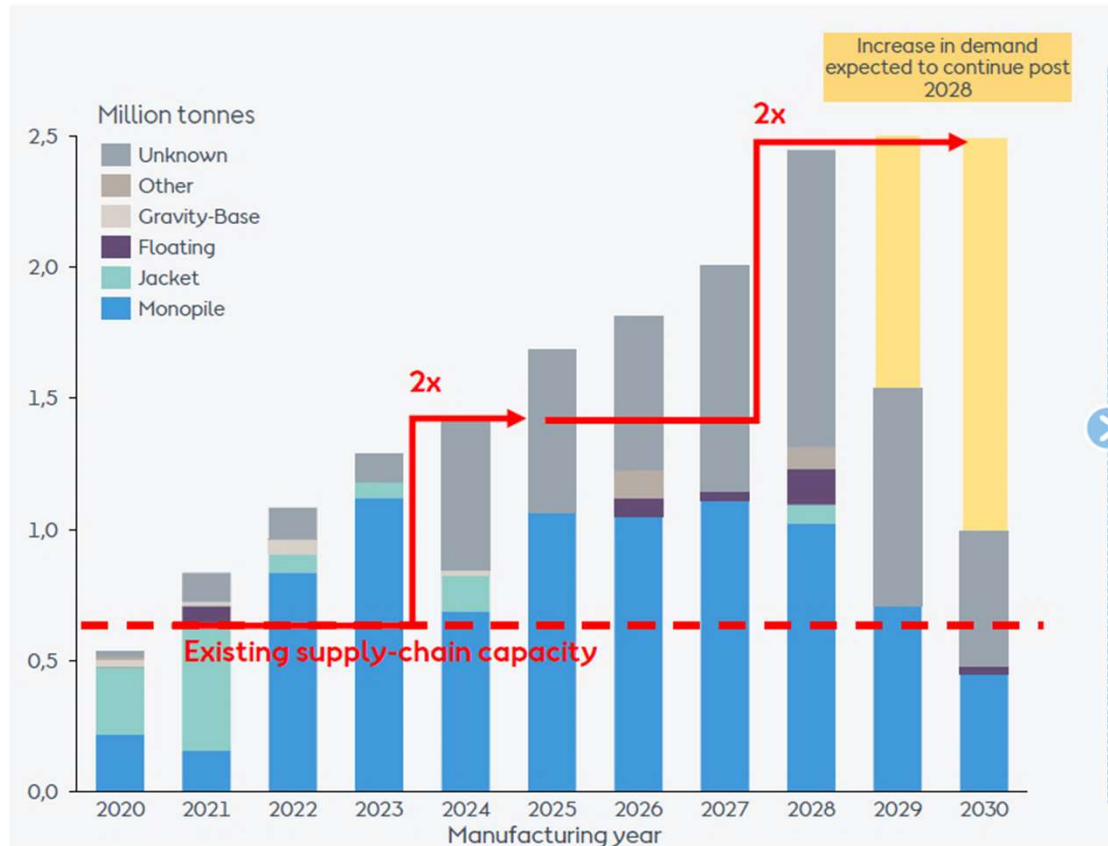




# Outlook\_Global Offshore Wind Demand Vs. Supply (Foundation)

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<Source : Orsted>



1. Demand estimated by combining Q2 2020 GW build out forecast with model designs
2. Demand excludes Chinese offshore and new EU2050 ambitions

# CS WIND's Offshore Strategy\_Keys to Success

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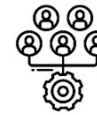
## Time to Market

- Major Players in the market are calling CS Wind NOW
- Market will be quadrupled in 10 years. First mover to enjoy the growth



## Partnership with Steel Mills

- Procuring thick plates (> 100mm) reliably at market competitive price is a Key to Success
- Steel Indexation to hedge a fluctuation risk



## New Organizational Setup

- A new organization for Tendering & Contracting OFF foundations. No success without good contract!
- Empowered Project Management team.
- Hiring Specialists from Foundation Industry



## Productivity

- Productivity matters lots
- Cutting Edge Production Technology for +100mm plates welding
- Flexible production for both Towers and Foundations

# CS WIND's Offshore Strategy\_ Strategies and Action items

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| Region | Market size (2021–2035) | Market prospect   | Supply balance   | Strategy  | Action plan   |
|--------|-------------------------|---|--|---|---|
| Europe | 128GW                   | <ul style="list-style-type: none"> <li>Continuous growth / Cost competitiveness</li> <li>12+MW turbine from 2023</li> <li>XXL/Mega monopile will be main type</li> </ul>          | <ul style="list-style-type: none"> <li>Offshore experienced foundation and tower suppliers exists but not 100% suitable for production of large monopile</li> <li>Production capacity far below against increasing demand</li> </ul>                     | <ul style="list-style-type: none"> <li>Secure local tower /Foundation production facility</li> </ul>  | <ul style="list-style-type: none"> <li>Offshore wind production facility M&amp;A or set up in <b>Europe</b></li> <li><b>Supplemental supply from Vietnam</b></li> </ul> |
| APeC   | 58.7GW                  | <ul style="list-style-type: none"> <li>Ramping up from 2023</li> <li>14+M turbine will be introduced from 2024</li> <li>Jacket and XXL/Mega monopile will be main type</li> </ul> | <ul style="list-style-type: none"> <li>No approved suppliers for offshore tower and big size foundation (Monopile)</li> <li>Will be imported from European suppliers in initial projects but need to set up local supplier in mid / long term</li> </ul> | <ul style="list-style-type: none"> <li>Increase production capability for larger diameter tower in existing facility of CS VN &amp; TW</li> <li>New facility for big size monopile (and pinpile)</li> </ul> | <ul style="list-style-type: none"> <li>Offshore wind production facility set up in <b>Vietnam or Korea</b></li> </ul>   |
| US     | 39.7GW                  | <ul style="list-style-type: none"> <li>Ramping up from 2023</li> <li>12+MW turbine from 2023</li> <li>XXL/Mega monopile will be main type</li> </ul>                              |  | <ul style="list-style-type: none"> <li>New facility for big size tower</li> </ul>   | <ul style="list-style-type: none"> <li><b>Offshore wind manufacturing facility set up in US</b></li> </ul>  |

# CS WIND's Offshore Strategy\_Monopile Business

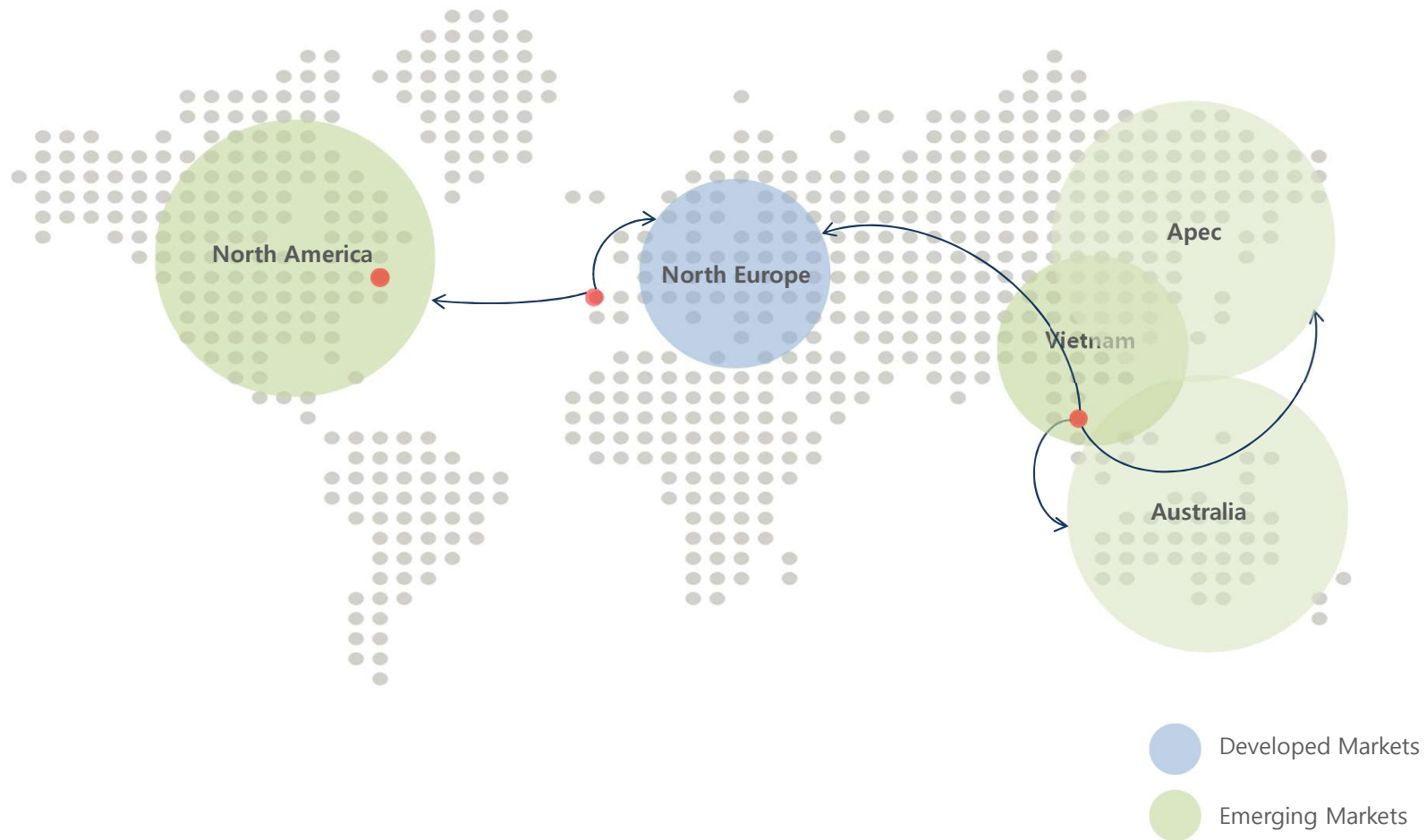
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2 to 3 new monopile suppliers expected to come online within 5 years

1. Monopiles will continue to be the preferential concept for +80% of offshore wind build out
2. New entrants to MP market are needed if global offshore wind build out ambitions are to be met
3. Supply chain to be 80% new towards 2030
4. Global industrial players from adjacent industries expected to enter monopile market
5. TCO should play significant role when choosing new supply-chain geography and capabilities
6. Cost of transport to staging area will be of significant importance
7. Access to steel plate capacity at competitive prices paramount
8. Geo-politics expected to play significant role on all markets
9. Monopiles will continue to grow in size towards 2030 and beyond

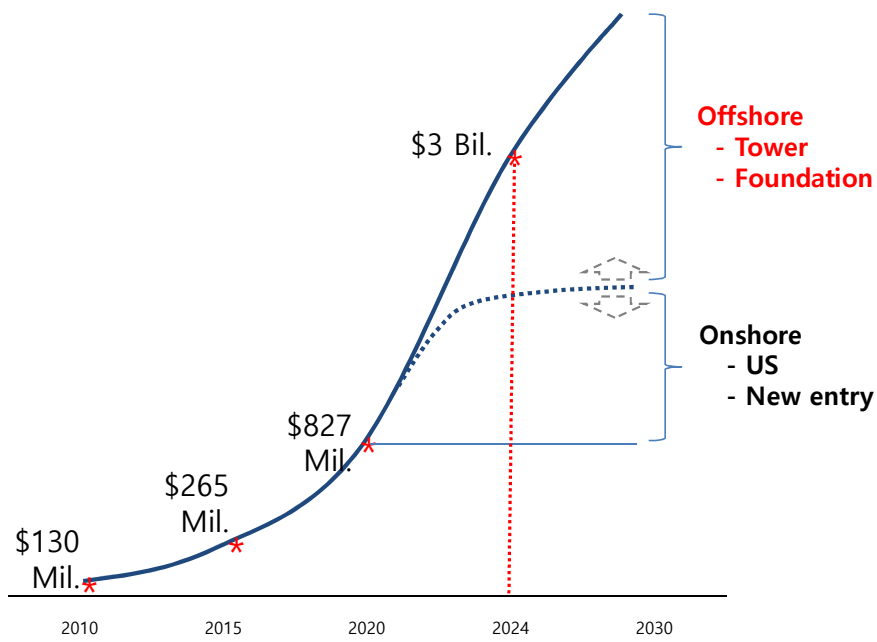
# CS WIND's Offshore Strategy\_Offshore Market Coverage

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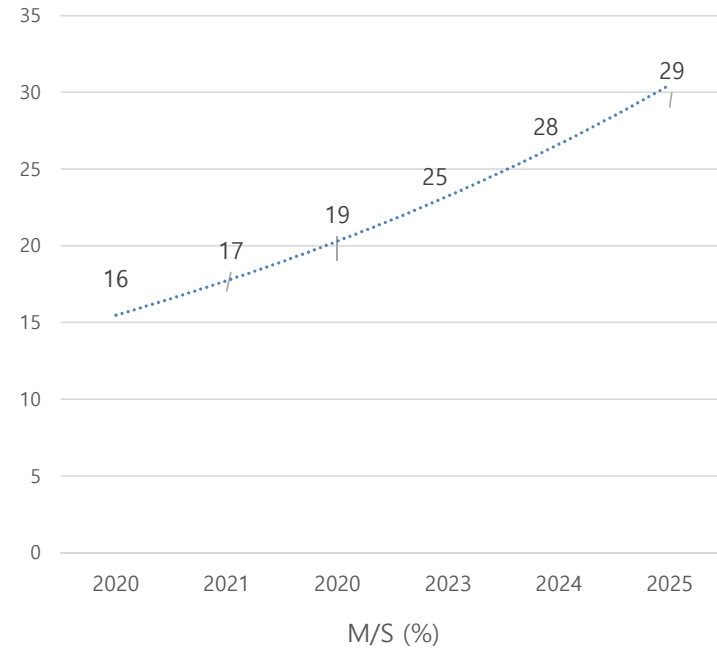


# CS WIND's Offshore Strategy\_CS WIND's Growth Target

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## Global Market Share Target



Thank you

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