# OCEAN ENERGY:
## A Net Zero Roadmap for 2050

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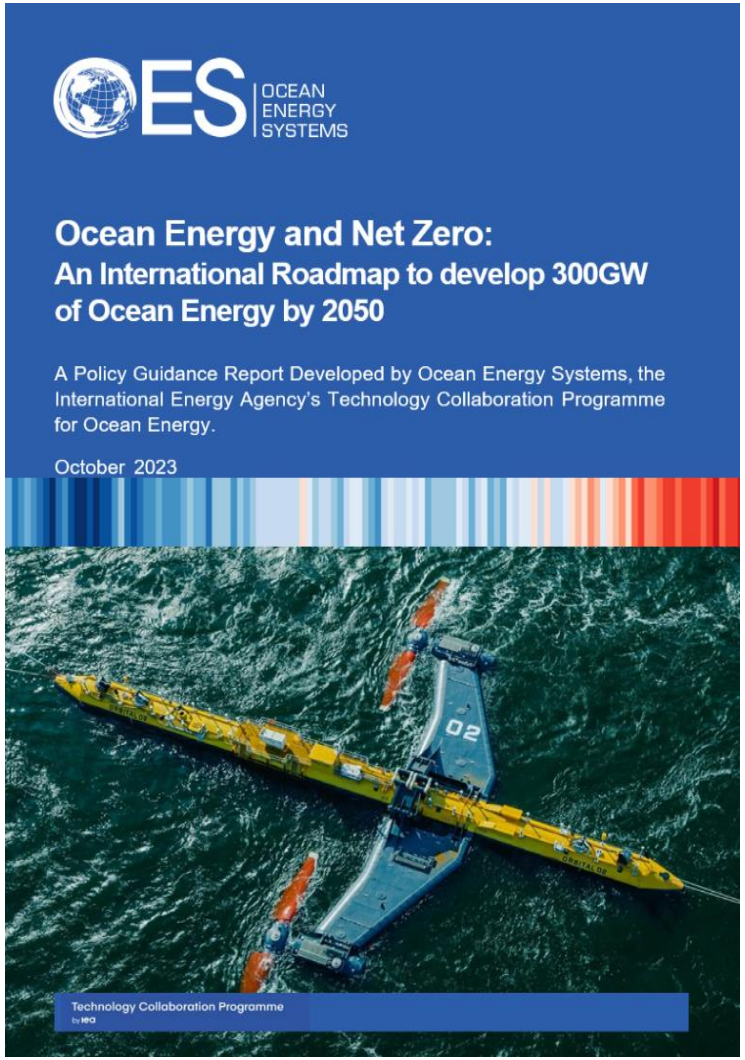
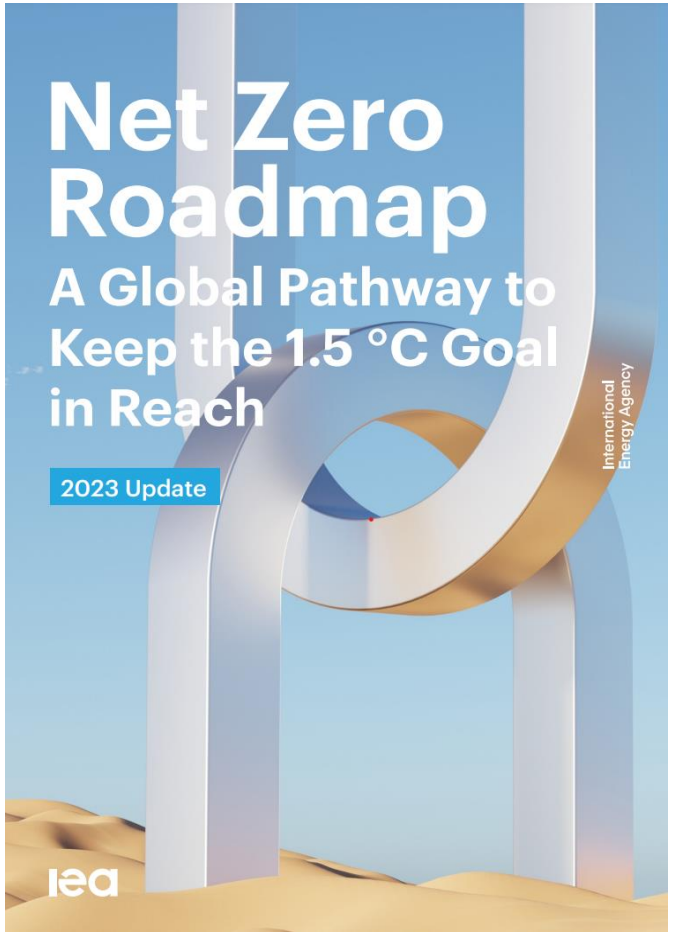
ADB November 2024

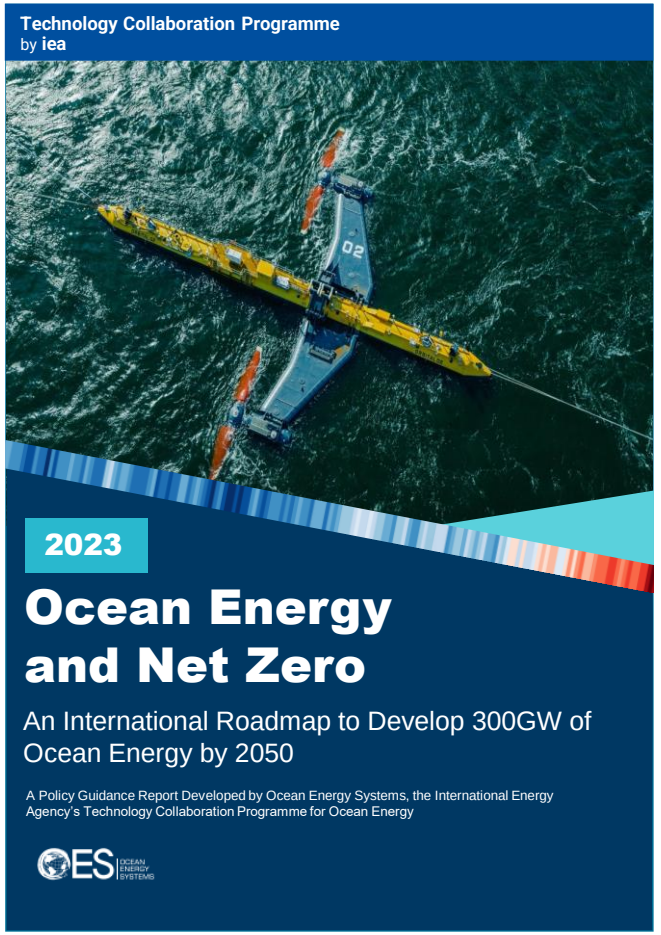


# Ocean Energy at an International Level

- **The IEA net zero roadmap update published in September 2023**

- **The IEA-OES Roadmap is intended to present a pathway through with ocean energy technology can contribute to achieving Net Zero**



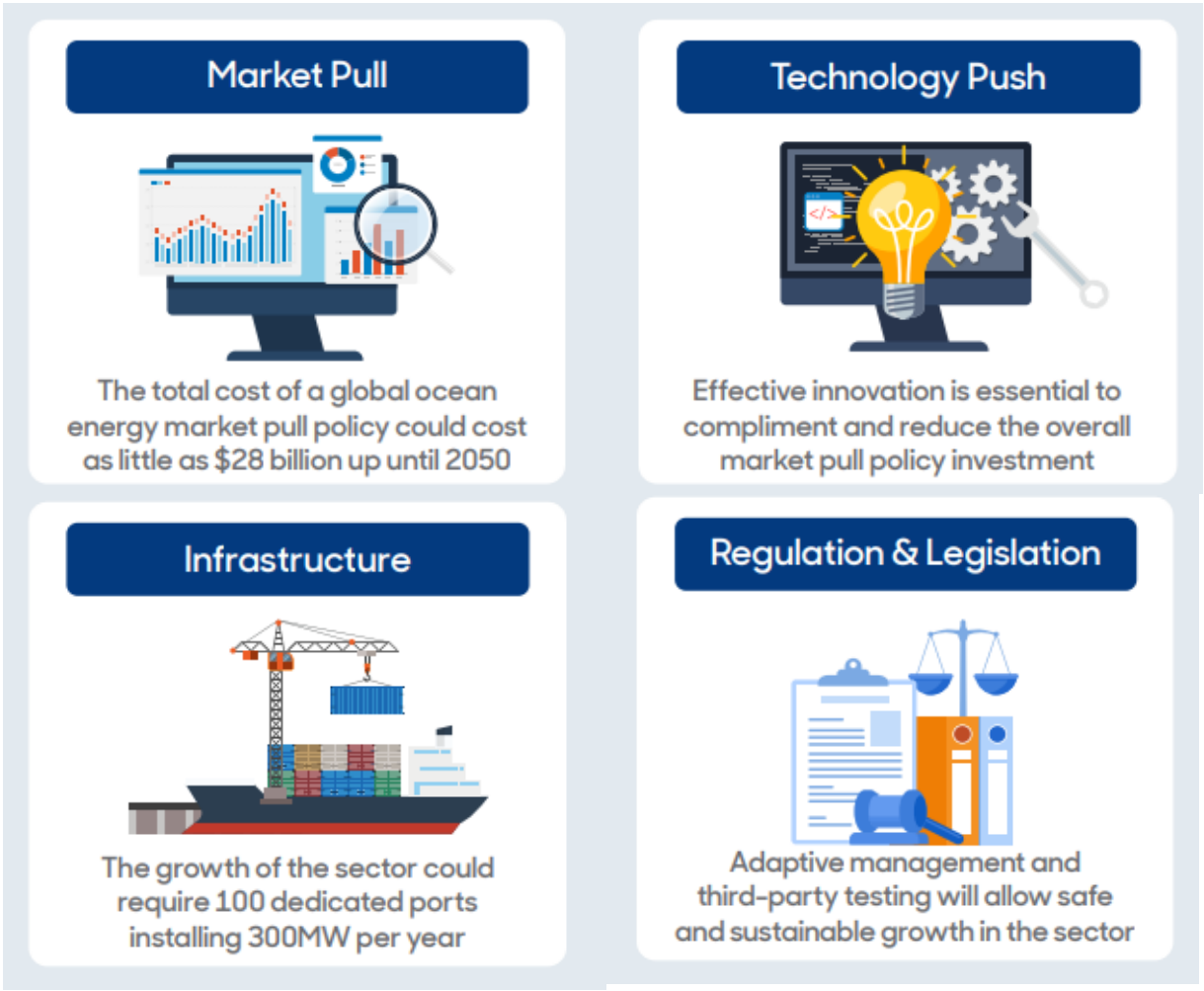
# IEA-OES Roadmap Targets

## Sector Targets

1. Installed Capacity (GW)
2. Direct Jobs
3. Investment in 2050 year/Gross Value Added (GVA US$)
4. Carbon Savings (Tonnes of CO2)

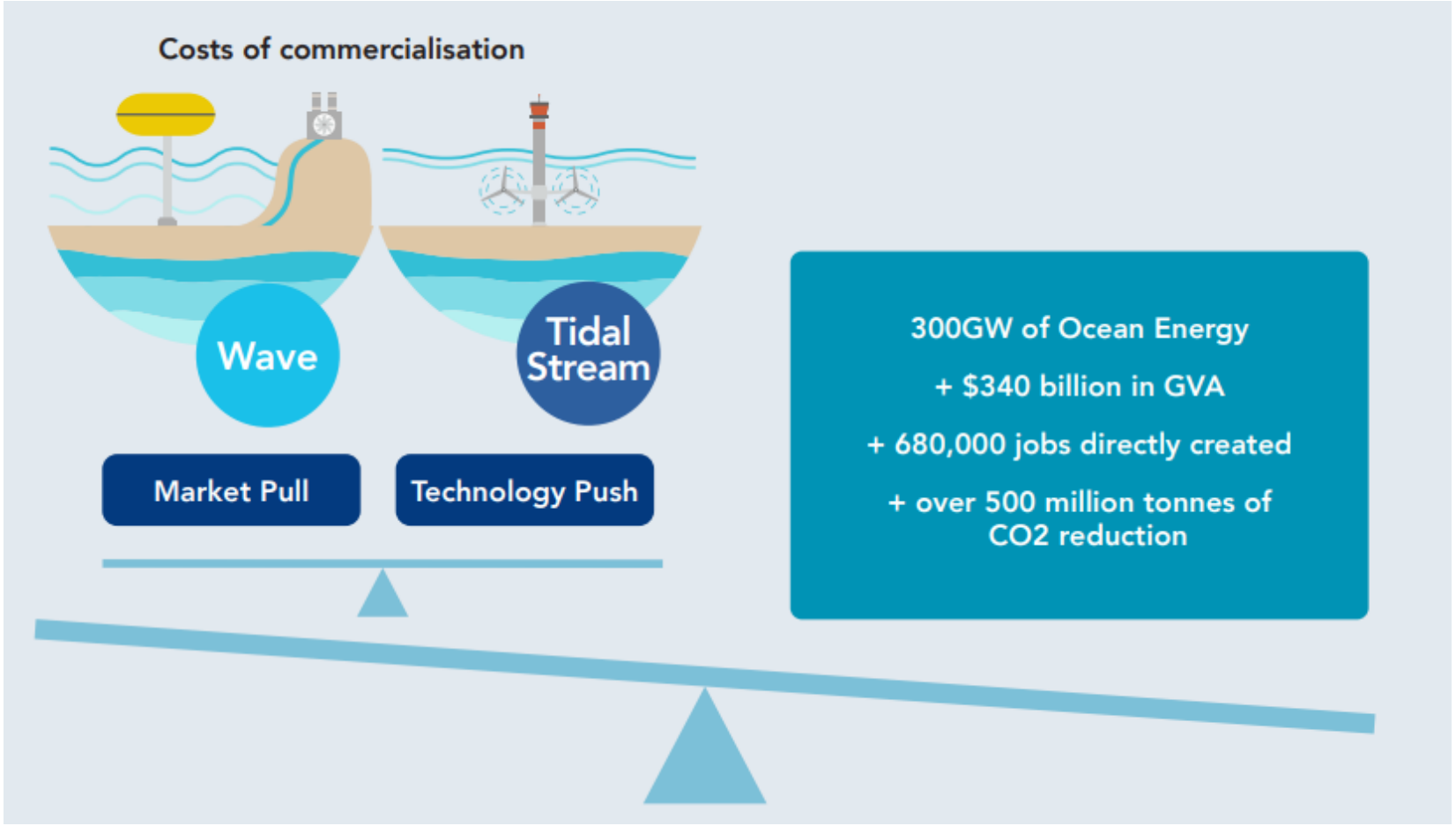
# Policy Action Areas

- **Market pull mechanisms to fund deployment**
- **Technology innovation programmes**
- **Infrastructure – Ports and harbours**
- **Regulation and legislation**



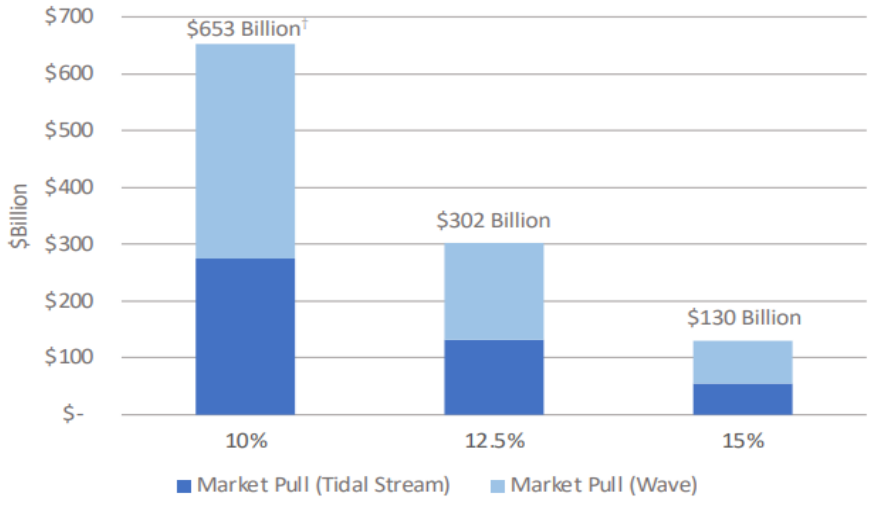
# Market Pull & Technology Push &– Aims

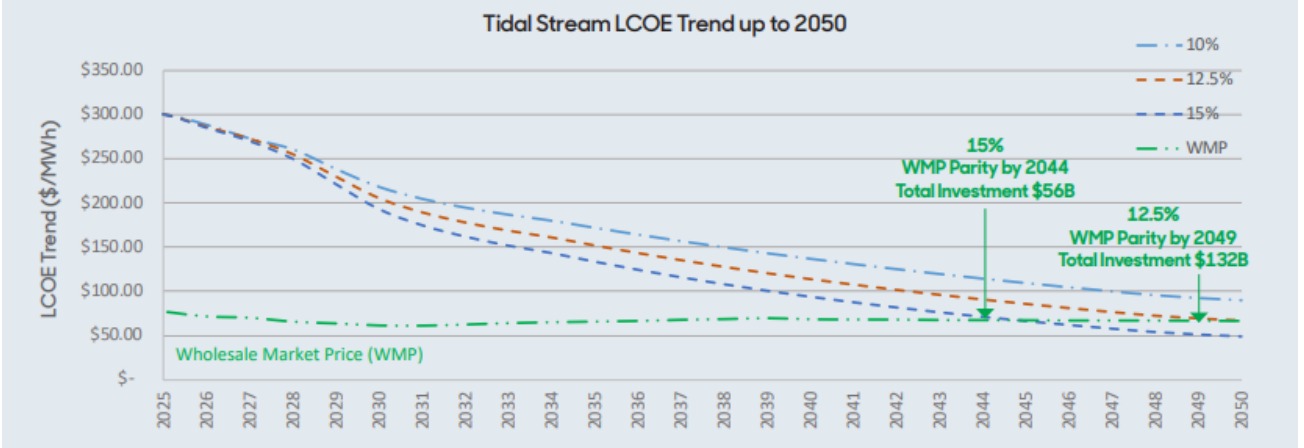
- How much will it cost to reach OES Roadmap targets by 2050?
- Finding the most cost-effective balance of Tech Push and Market Pull funding mechanisms



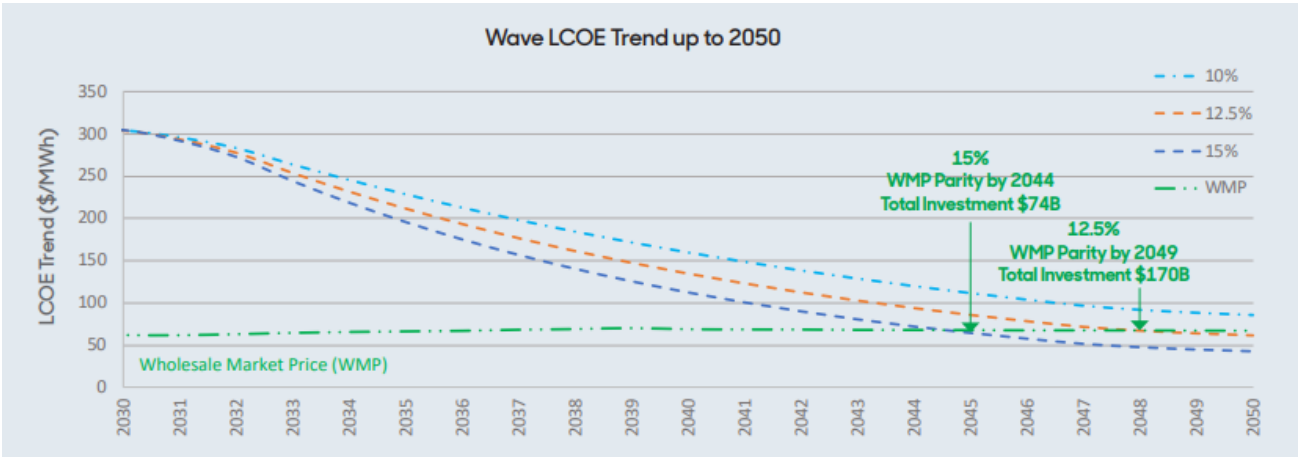
# Market Pull Analysis – How much will it cost?

- **Providing appropriate technology push funding is key to maximising the potential of ocean energy.**
- **10% - $653B**
- **12.5 % - $302B**
- **15% - $130B**




Learning rate model for tidal stream market pull mechanism




Learning rate model for wave energy market pull mechanism

**Country led / Innovation is key**

# Technology Push & Market Pull – Policy Action

***"Market pull support is the foundation of a comprehensive policy plan"***

- ***Led at a country-by-country level, the immediate application of a long-term and sustained market pull policy mechanism is key to strengthening and accelerating deployments in the ocean energy sector***

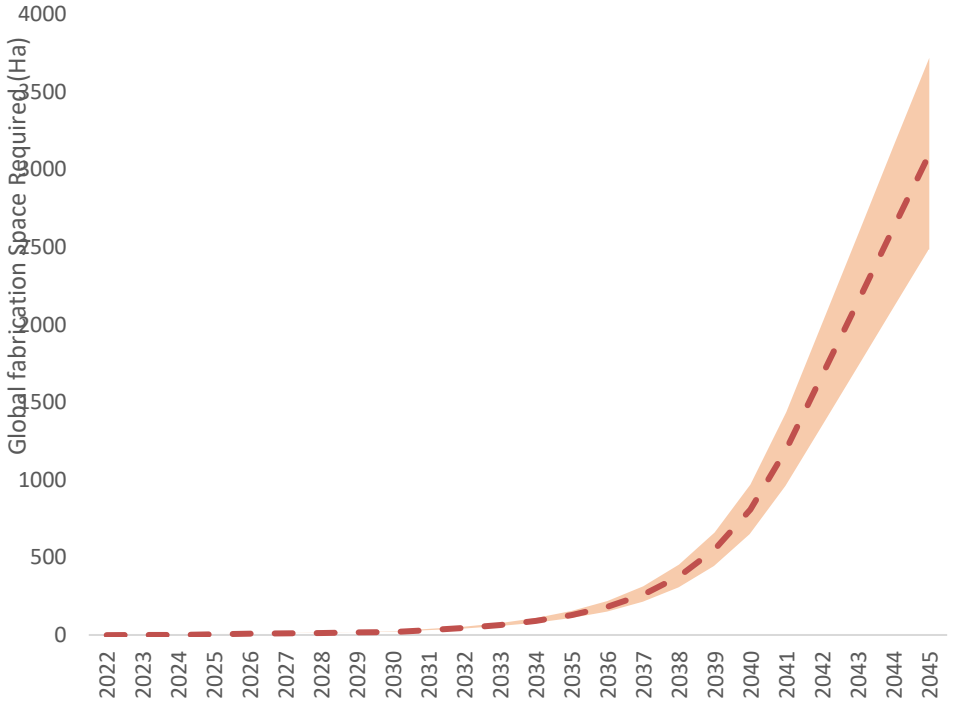
***"Accelerated innovation is key to enabling long-term cost reductions"***

- ***A well-funded and comprehensive technology push policy programme, actively pursuing international collaboration, is vital to ensuring that technological innovation occurs at a significant rate and helps to lower the overall investment required to provide a long-term market support mechanism***

# Supply Chain Infrastructure

- Ports and Harbours
- Manufacturing Space
- Laydown space
- Number of global ports

# Manufacturing/Fabrication Space


- **For Devices, foundations, but also cover other sub-assemblies such as tidal blades and nacelles**

| | Ocean Energy |
|---|---|
| Fabrication Space ($m^2$/MW/Year) | 800 - 1200 |

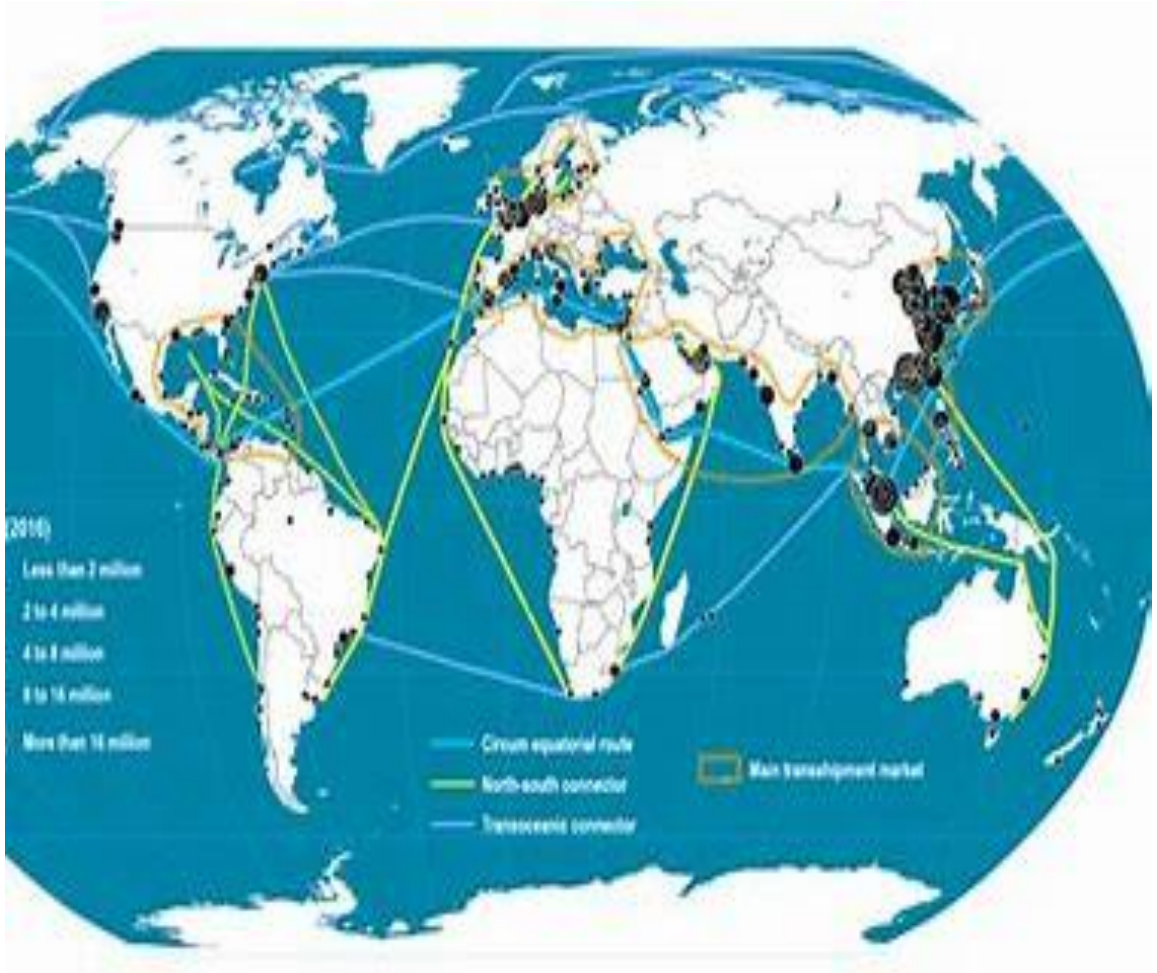
# Infrastructure Policy Action

- **Case Study: 300MW/Year Future Port**

- **100 Ports Globally**

***"A proactive approach to infrastructure development is required"***

- ***While existing infrastructure is well-positioned to handle the short-term requirements of the sector, the rapid expected growth will require large-scale global infrastructure development projects to begin immediately***



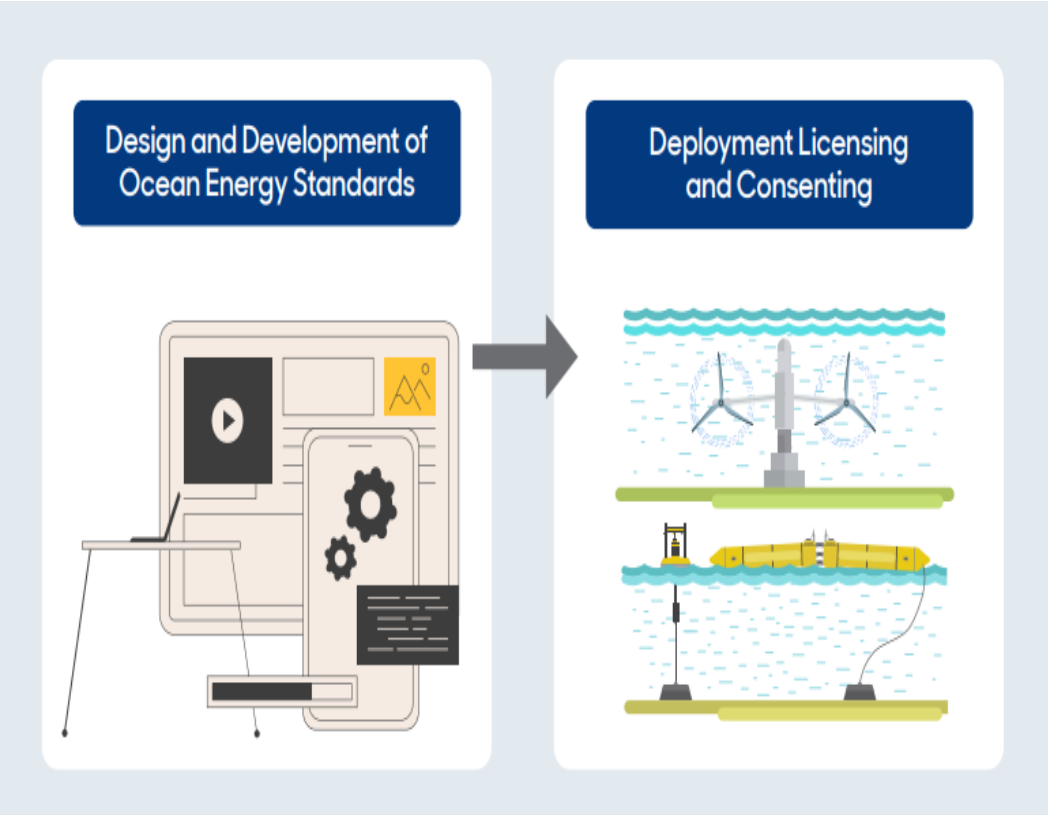
# Regulation & Legislation and Consenting

- **Leverage test sites as key stepping stones for the ocean energy industry**
- **Incorporate a clear consenting scheme using a “one window committee”**
- **Ensure data transferability to address site-specific regulatory concerns**
- **Adaptive management strategies should be used to understand the interactions between technology and marine environment**

# Regulation & Legislation : Policy Actions

*"The regulatory and legislative framework should help, not hinder"*

- *The ocean energy sector should be underpinned by a robust and efficient regulatory and legislative framework that provides the levels of support required to ensure that sector growth happens in line with forecasted timelines*



# Summary - IEA-OES Roadmap Targets

## Sector Targets

1. Installed Capacity (GW)
2. Direct Jobs
3. Investment in 2050 year/Gross Value Added (GVA US$)
4. Carbon Savings (Tonnes of CO2)

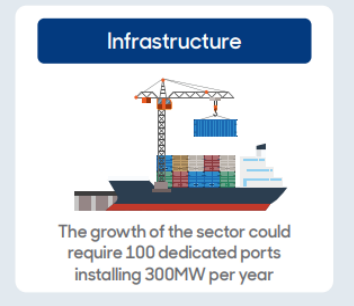
# Summary: Policy Recommendations


## Market pull support is the foundation of a comprehensive policy plan

- Led at a country-by-country level, the immediate application of a long-term and sustained market pull policy mechanism is key


## Accelerated innovation is key to enabling long-term cost reductions

- A well-funded and comprehensive technology push policy programme, actively pursuing international collaboration




## A proactive approach to infrastructure development is required

- Sector growth will require large-scale global infrastructure development projects to begin immediately


## The regulatory and legislative framework should help, not hinder

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