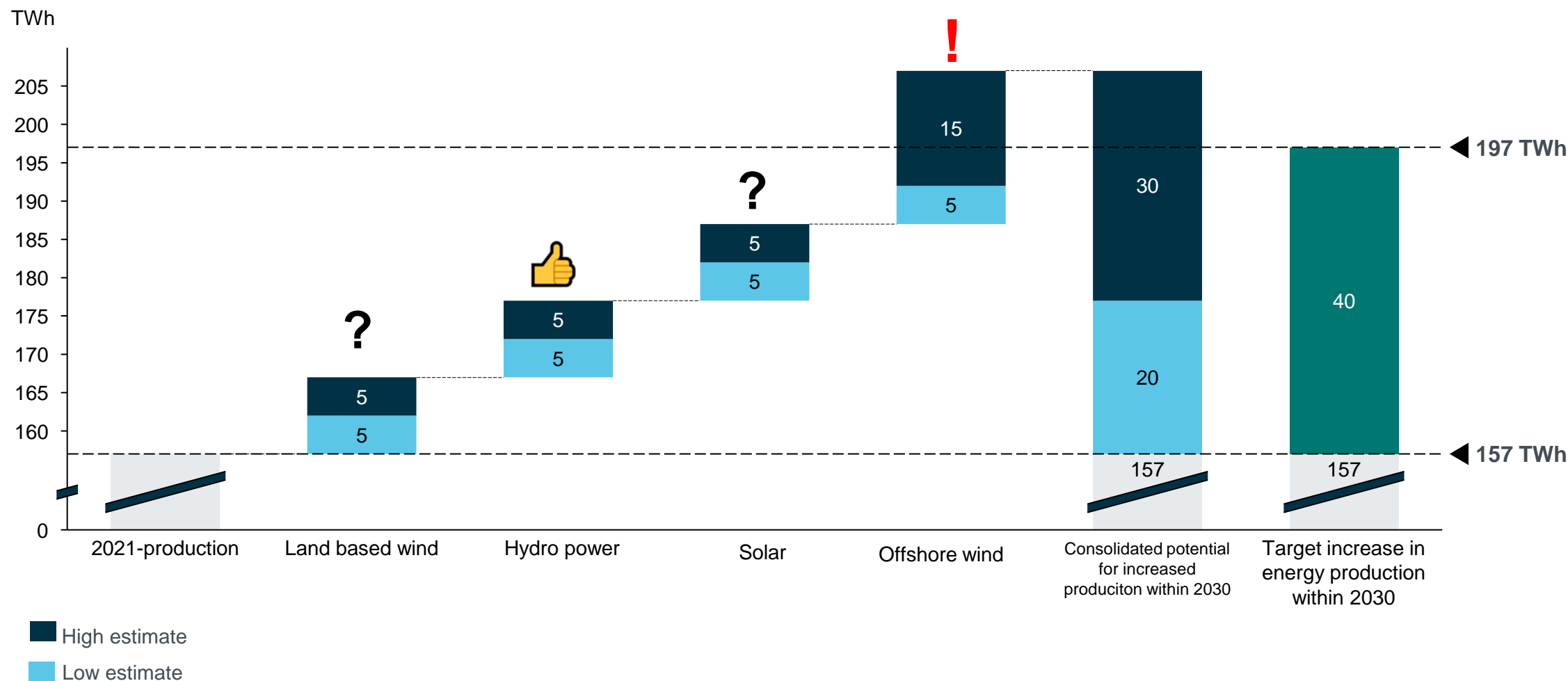


# Capacity challenges in developing large scale floating wind

FER Forum

June 2024

# The Norwegian Energy Commission: Additional 40 TWh required within 2030 (in Norway)



# Aligned ambitions



## How can Norwegian supplier industry contribute such that Norway:

- *Meet our **energy demand** (40 TWh increase in production within 2030)*
- *Reach our targets for **reduction in emissions** (55% reduction within 2030)*
- *Develop an international **competitive** supplier industry within renewables*



# Significant Ambitions for Offshore Wind

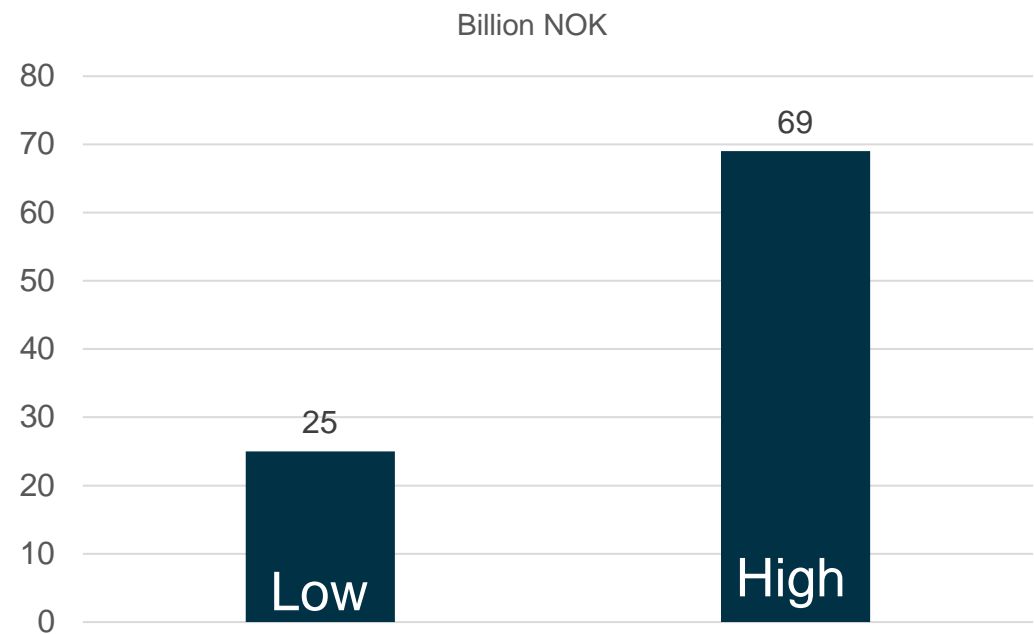
Norway

NW Europe ambition

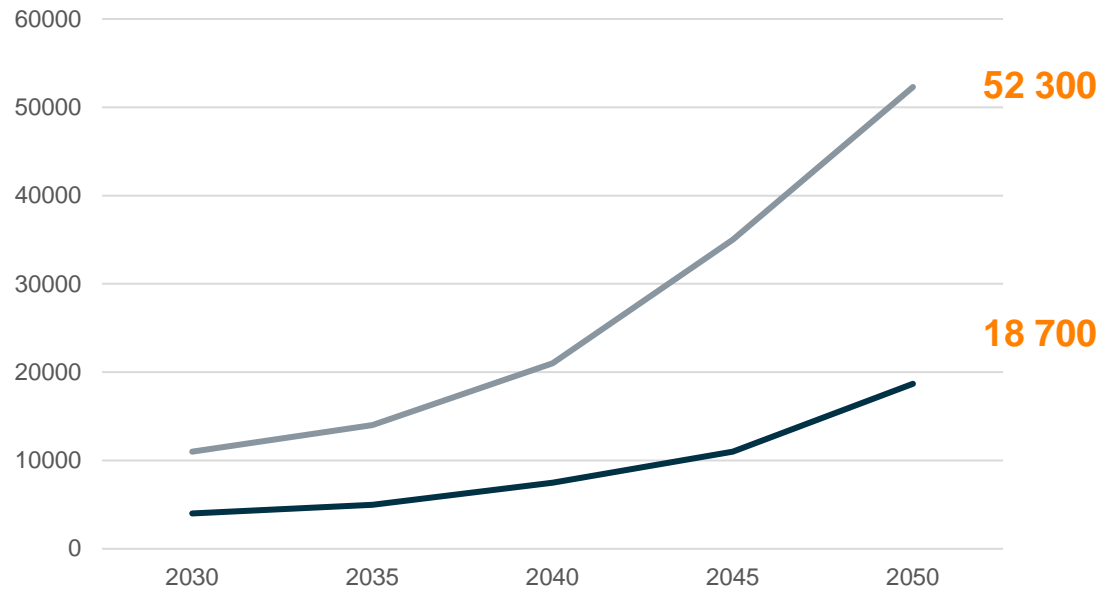
> 30 GW awarded before 2040 (approx. 100 turbines every year)

~340 GW before 2050 (approx. 1000 offshore turbines every year)

Yearly value creation effects (incl. ripple effects) in Norway in billion NOK i 2050.



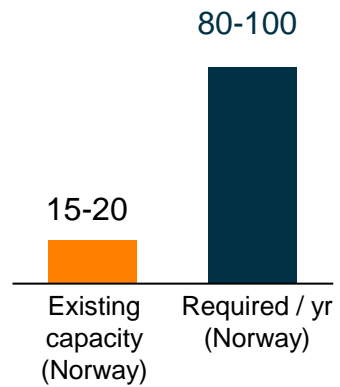
Total employment (incl.ripple effects) in NOK



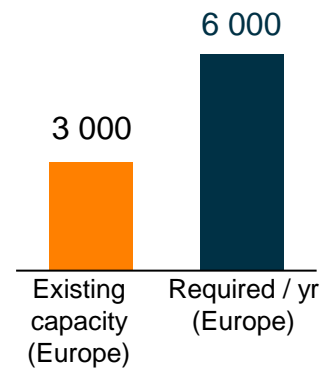
# Obvious gap in the industry to be able to deliver 30 GW offshore wind prior to 2040



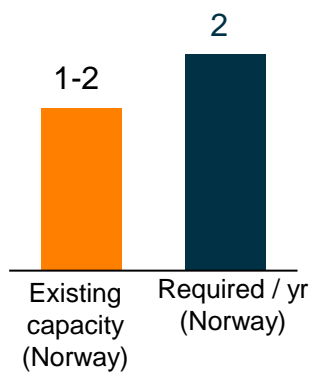
## Foundations, Fixed / floating (Units)



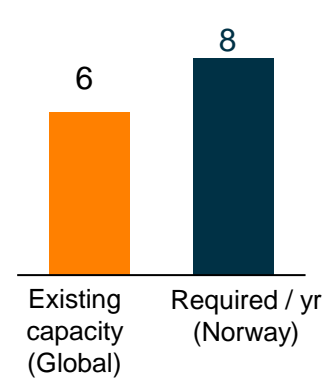
## Cables (km)



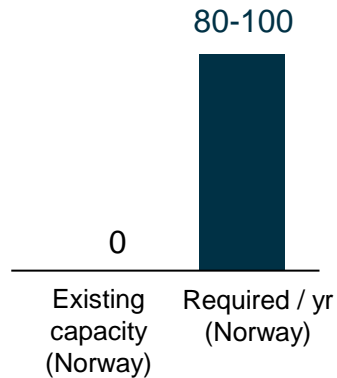
## Substations (Units)



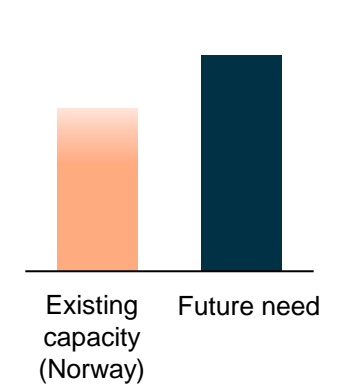
## Marine operations\* (Units)



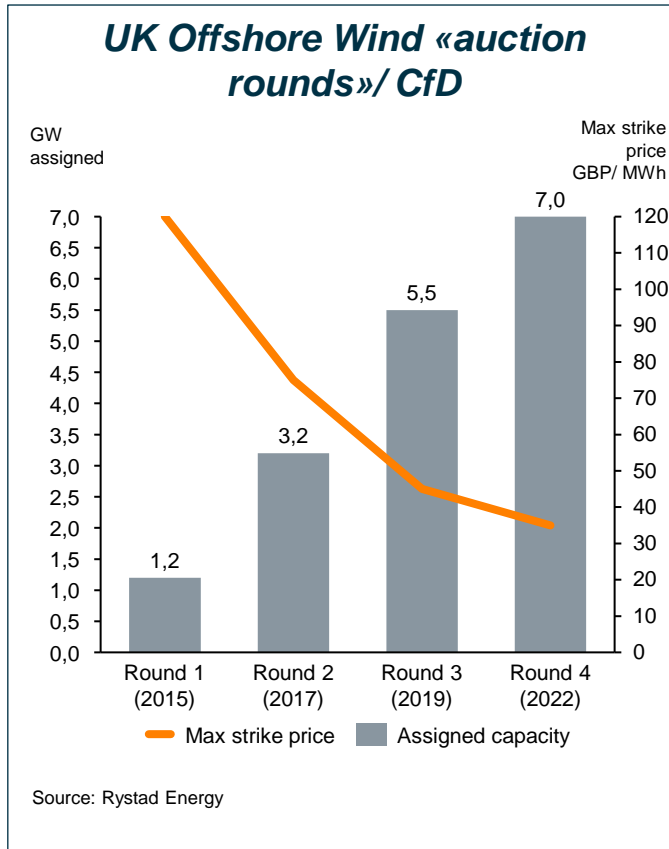
## Turbines (Units)



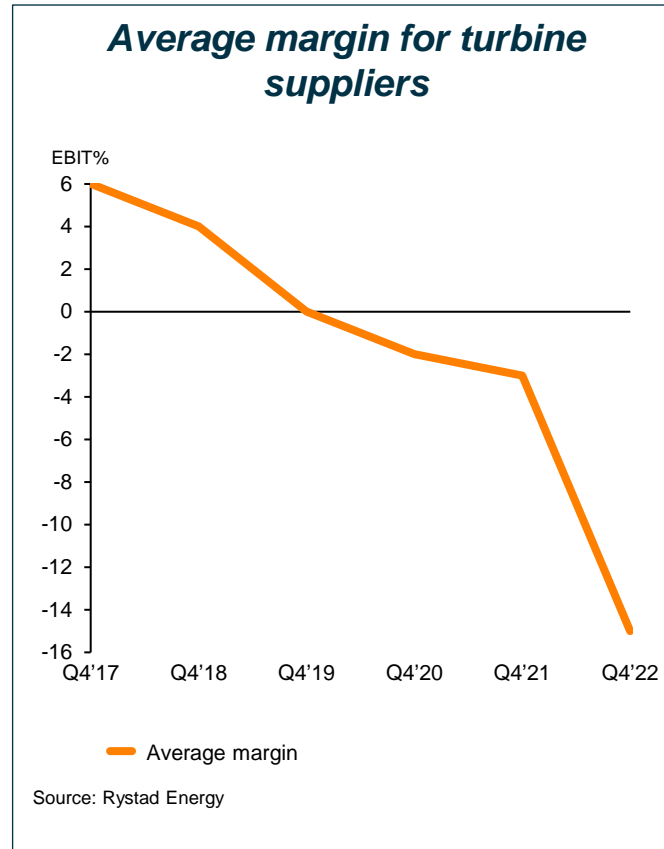
## Competence and new technology



# «The broken model»



More than **70%** reduction in cost recovery



Unacceptable loss in value chain  
=> lack in industry development

- Auctions: *Principle for CfD levels need to reflect costs, bottle necks, inflation*
- Mechanisms for qualitative criteria, incl. building competence, innovation, sustainability, regional supply chains, investments in supplier industry
- Land allocation: Roof on payments, incentive for shared / early investments in infrastructure
- Financial market , developers, supplier industry and government must establish better commercial models: Better balance for risk/reward, common incentives for cost improvement, industrialization

Establish model to reach targets, not  
«Race to the bottom»



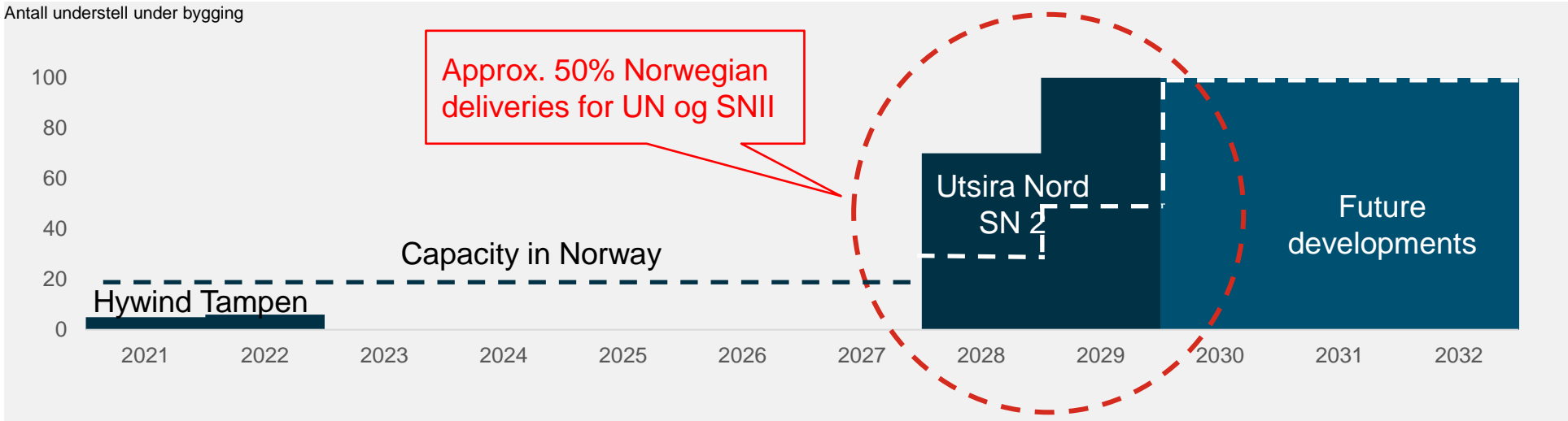
A photograph of three men in suits standing behind a podium with microphones. The man on the right is speaking. The background features a large, colorful abstract painting. A dark blue text box is overlaid on the lower left of the image.

*“The Norwegian Parliament asks the government in the revised national budget for 2024 to put forward measures to electrify offshore installations using offshore wind in order to cut greenhouse gas emissions.”*

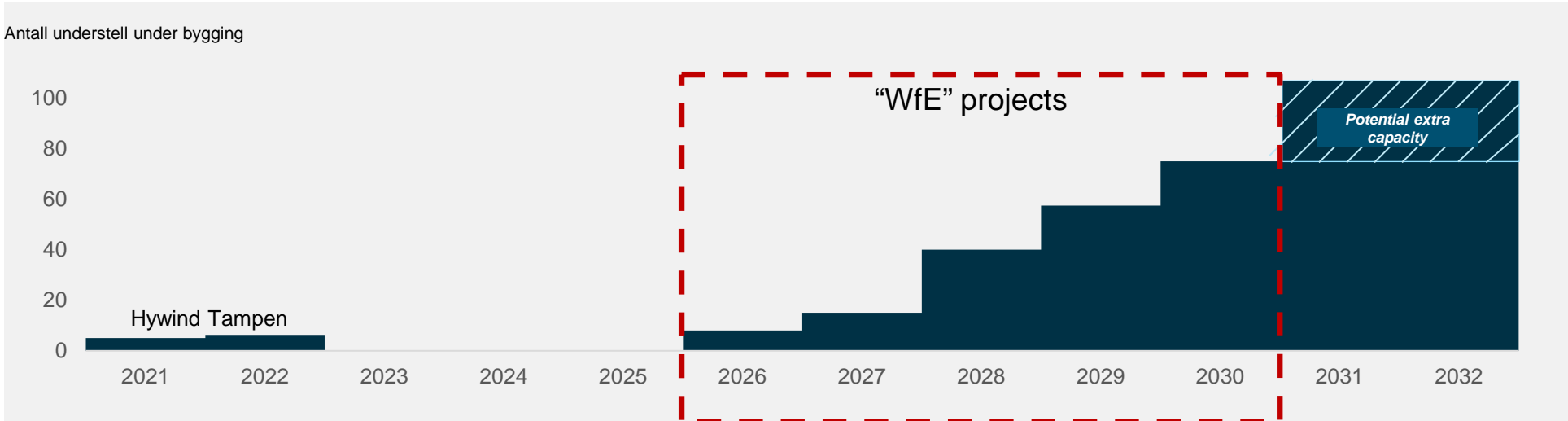
*Revised national budget for 2023*

# Earlier development of supplier industry - "first mover advantage"

Today's plan



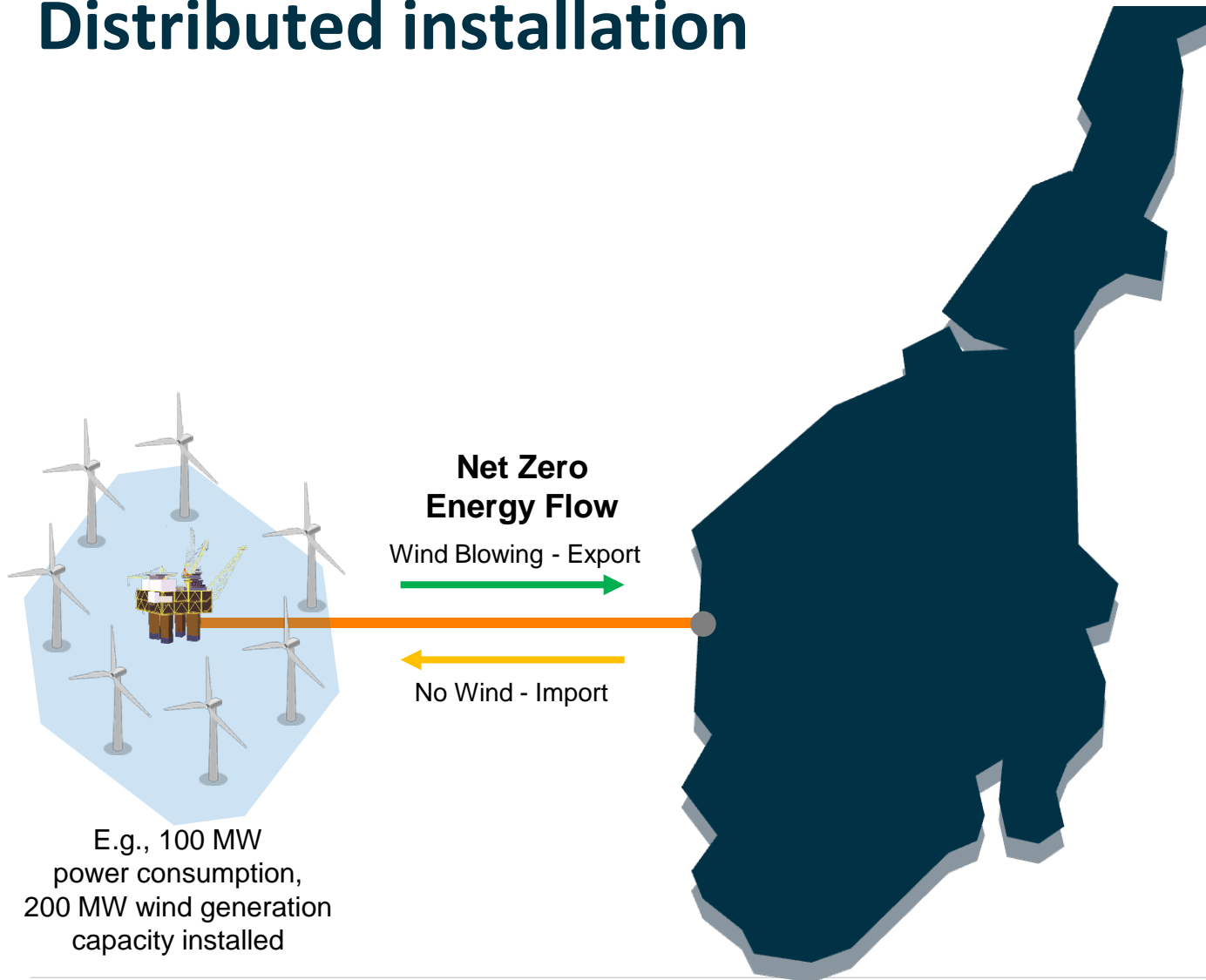
Alternative plan  
– accelerated  
through WfE  
“Wind for  
Electrification”





# Wind for Electrification

## Distributed installation



### Legislation / Tax

- Offshore legislation (Saves time)
  - Revised PDO
- Offshore tax regime (triggers investments)

### Commercial / technical

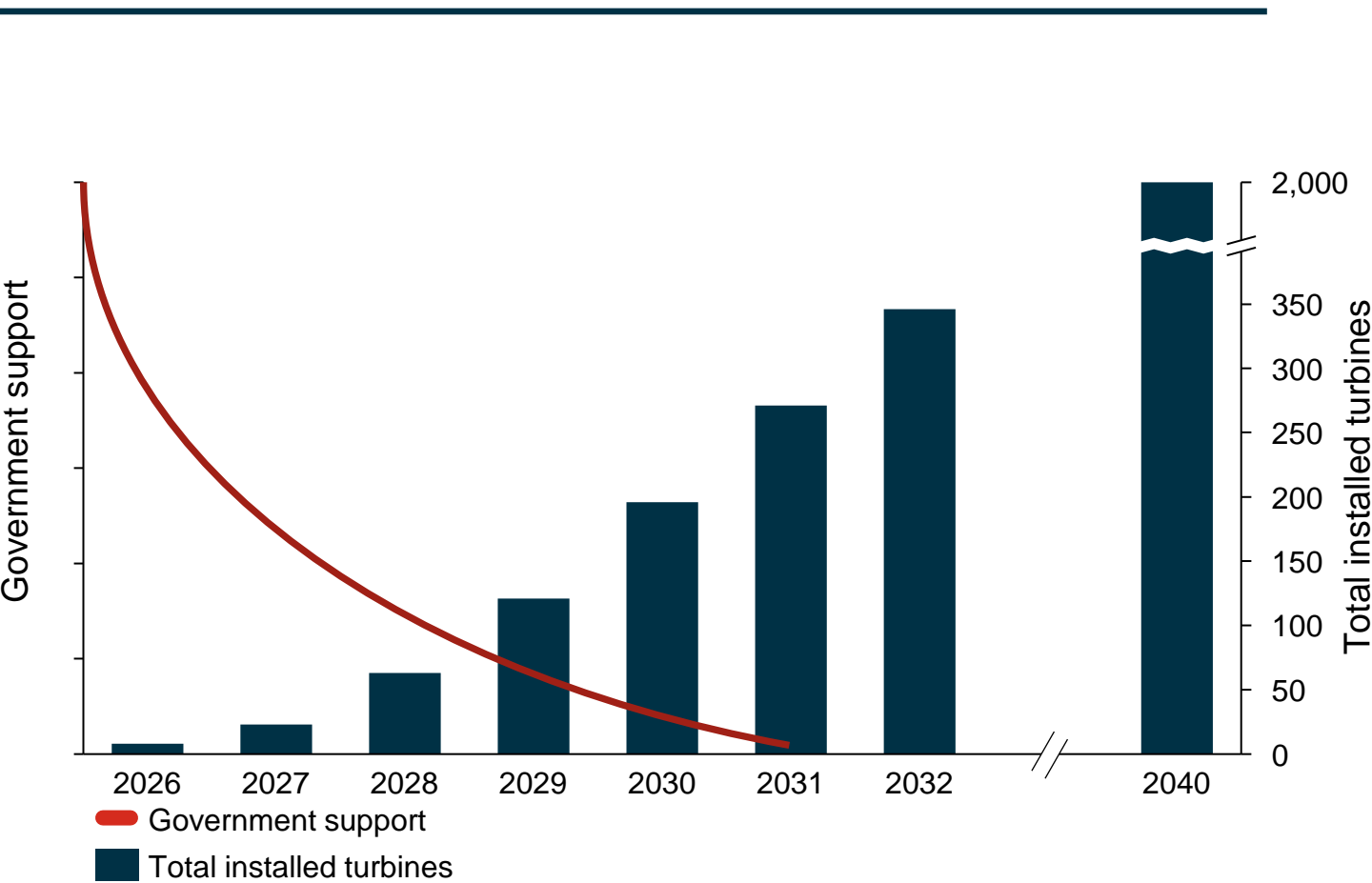
- Organize as a few large projects
  - Secure economy of scale
  - Investments in capacity upgrades
  - Interest from turbine suppliers

### Financing

- Expand Enova support
- CO2 fund
- Other

# Need for subsidies will decline with technologic development

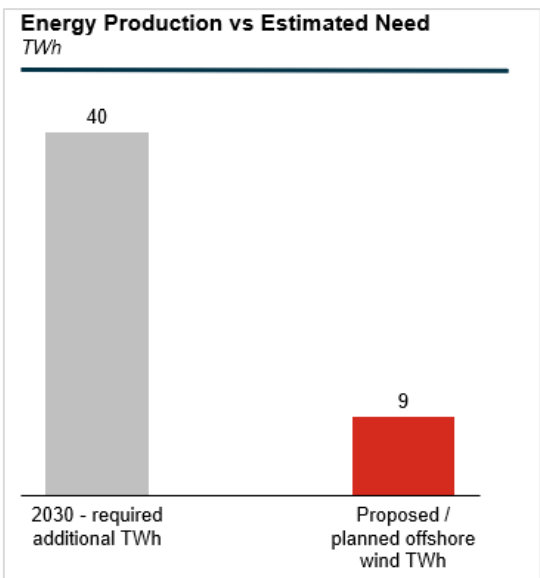
Estimated Government Support and Turbine Installation for Floating Wind  
# installed turbines



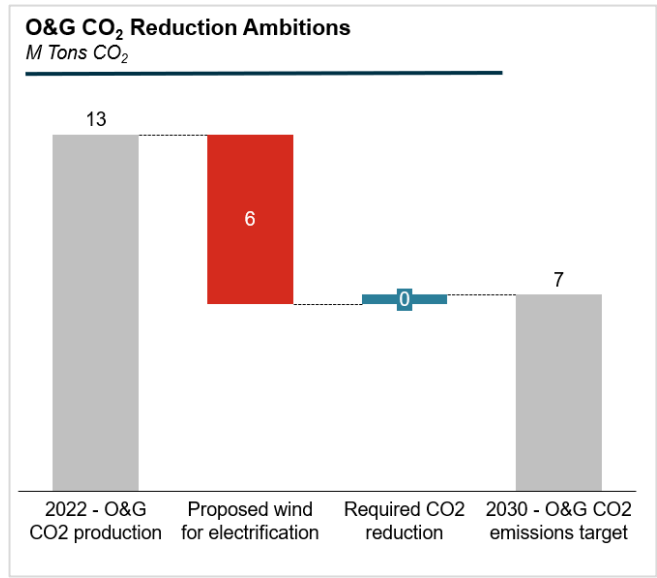
- Subsidies will be required the first years
- By leading technology development and cost reductions, the Norwegian supplier industry will ensure competitiveness
- Reduction in required subsidies will be driven by
  - Technology- and concept development
  - Improved manufacturing efficiency
  - Maturing of entire supply chain
  - Installation- and operational experience
  - Improved understanding of risk

# Offshore wind and the Norwegian 2030 goal and commitments

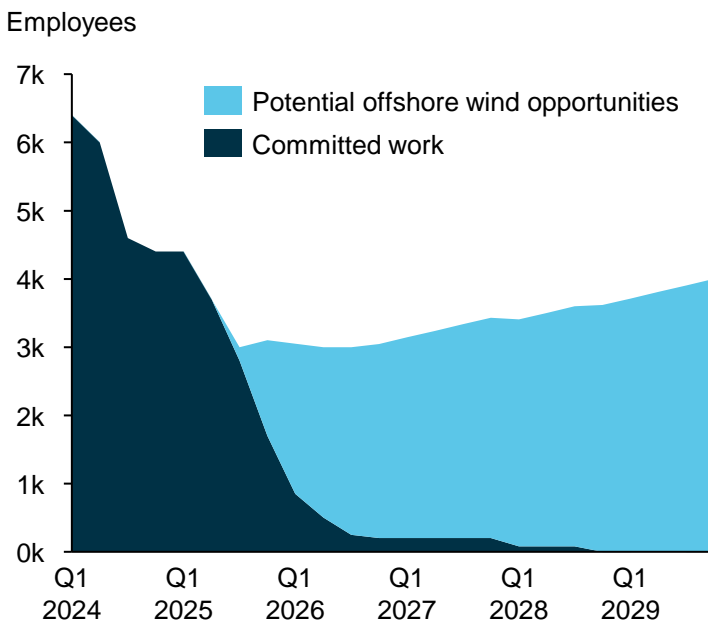
## Increased power production



## Reduced CO2 emissions



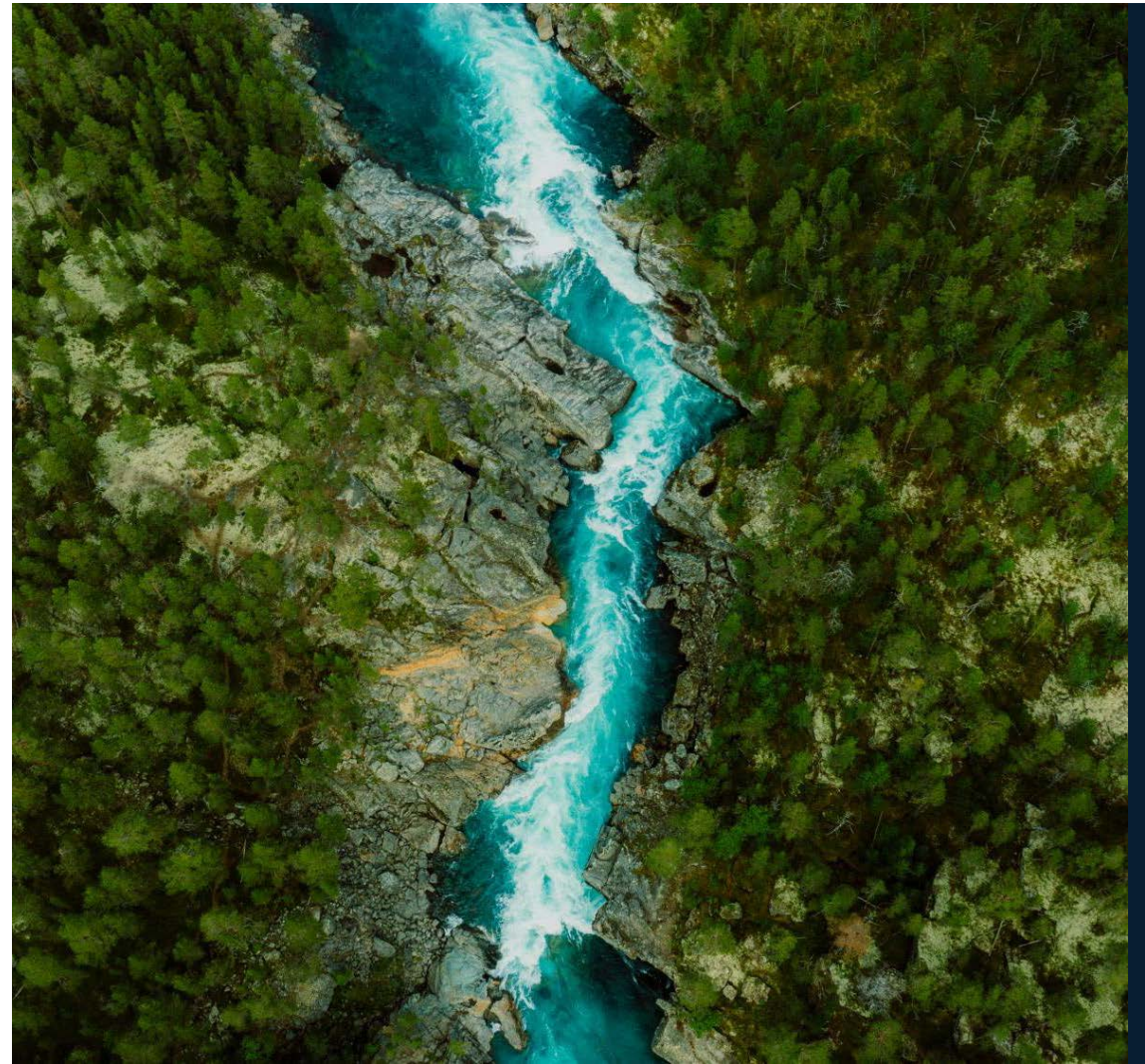
## Strengthened Norwegian supplier industry

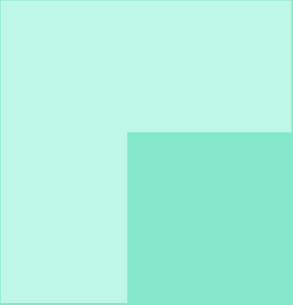




# The industry is changing, and we need to adapt to the new market reality


- To support and adapt to this change Aker Solutions has launched Entr as the consultancy arm of Aker Solutions
- Renewable markets are more unpredictable with regards to commercial models
- Entr offers both technical expertise, techno-economic and consultancy services across the full life cycle. We work with customers to de-risk the commercial, ESG and technical aspects of energy projects.





*Our mission is to provide customers with  
unrivalled, impactful advice,  
data, and insights.*

*Building on a rich heritage of successful  
technological innovation, project  
development, and seamless delivery.*





Entr offers valuable advice backed by real-world experience and data, guiding customers through the energy transition from origination to operation.







Part of Aker Solutions

We solve global  
energy challenges  
for **future** generations

