

# Offshore Wind Decommissioning

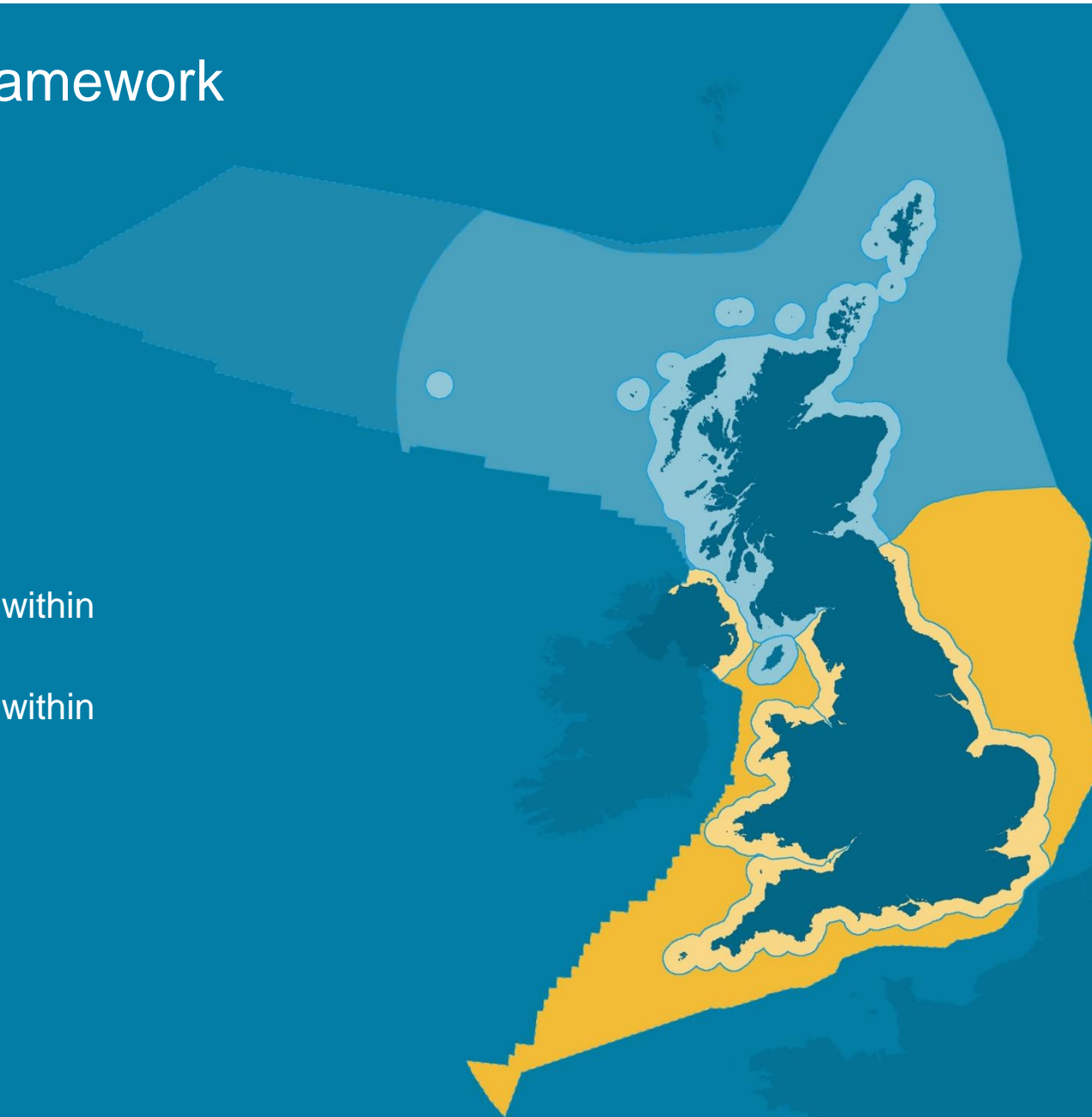
# UK offshore wind leasing framework

## Leasing the seabed

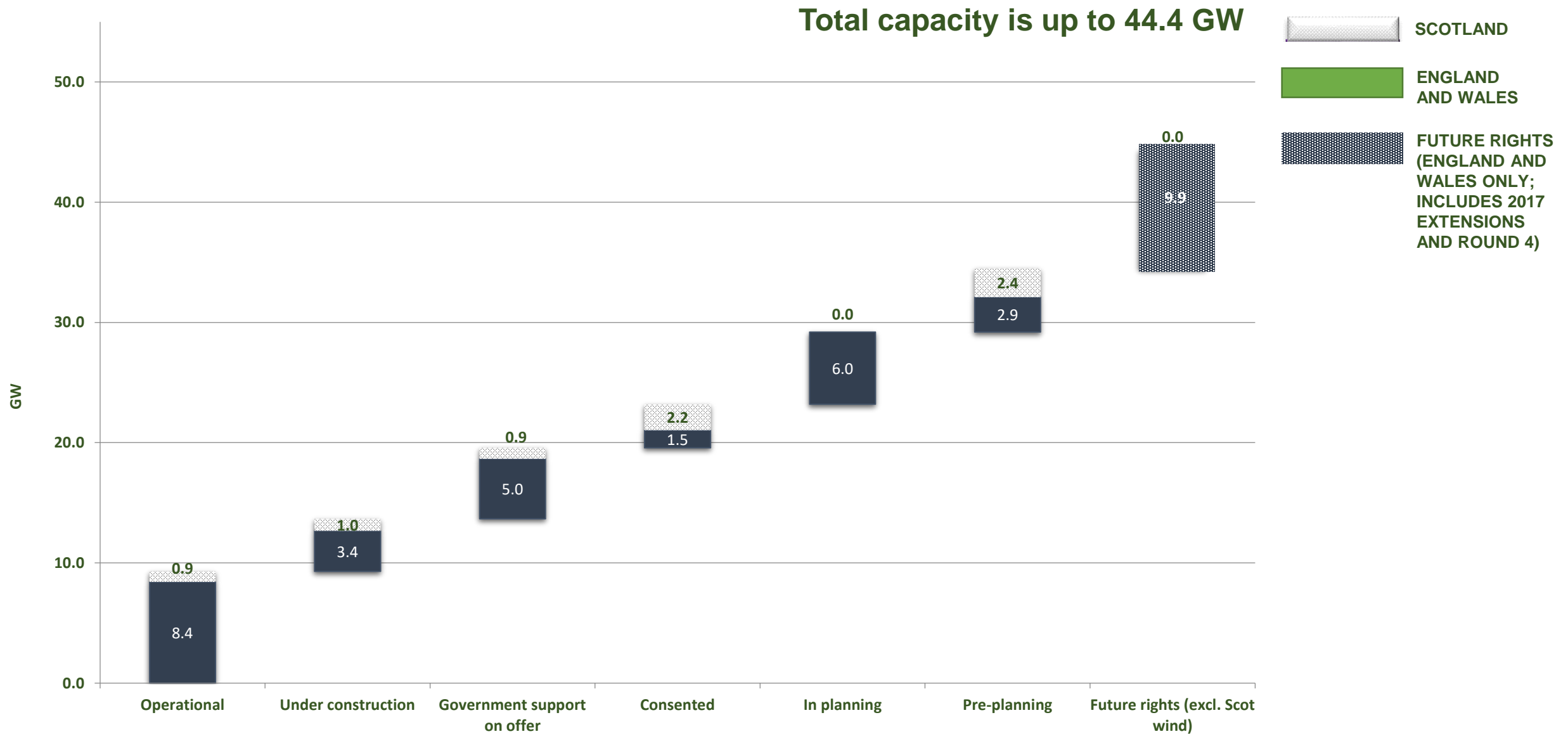
- Within 12nm - land owner
- Within REZ - Energy Act 2004

## The Crown Estate's responsibilities

- England, Wales, Northern Ireland within 12nm - land owner
- England, Wales, Northern Ireland within REZ - Energy Act 2004
- Territorial Waters Limit
- UK Continental Shelf
- Renewable Energy Zone Limit



# UK offshore wind development pipeline [Oct 2019]



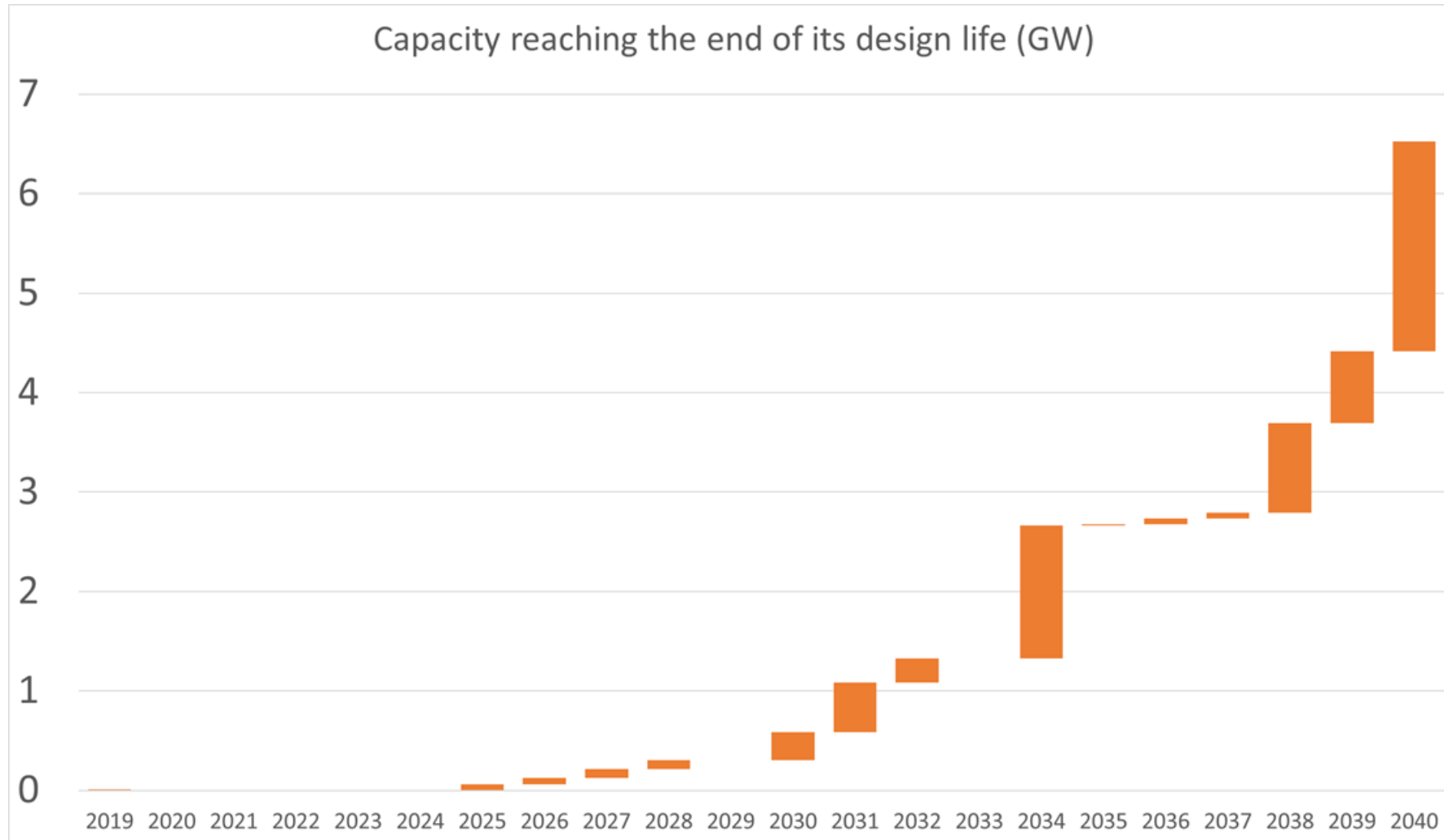
# What is currently on the seabed?

- 2225 offshore wind turbines – 9953 MW
- 200,000t of composites
- 1.3Mt steel for monopiles alone
- 100,000t of copper (export and array cables)
- 50,000t of polymers in the cables
- 60,000t of lead (export cables)

# 30 GW by 2030

- 5000 wind turbines
- 600,000t of composites
- 5 Mt of steel
- 300,000t of copper

# Decommissioning timeline



# Offshore Wind Decommissioning costs

- Decommissioning cost range: £80-300k/MW
- Total decommissioning liability in real (2017) terms is forecast to be £1.82bn.
- Considering the uncertainties, a range of £1.28bn to £3.64bn is anticipated.
- Opportunities for cost reduction:
  - Vessel rates
  - Decommissioning methodology
  - Improved estimation accuracy



# Earth Overshoot Day 2019

**July  
29<sup>th</sup>**





# Benefits of recycling

## Recycled steel vs virgin steel

- 74% energy saving
- 1.5 tonnes of iron ore
- 0.5 tonnes of coke
- 1.28 tonnes of solid waste
- Reduces air emissions by 86%
- Reduces water pollution by 76%

## Recycled aluminium

- 95% energy saving

# Oil & Gas Decommissioning costs

## Oil & Gas 2019 “Like-for-like” Decommissioning Cost Estimate:

- Comparing the same inventory as listed in 2017, estimated costs have reduced by 17% to £49 billion.
- The reduction has been primarily driven by continued improvement in planning and execution practices.
- Reduced contingency associated with improved estimation accuracy

*Source: Oil & Gas Authority*