



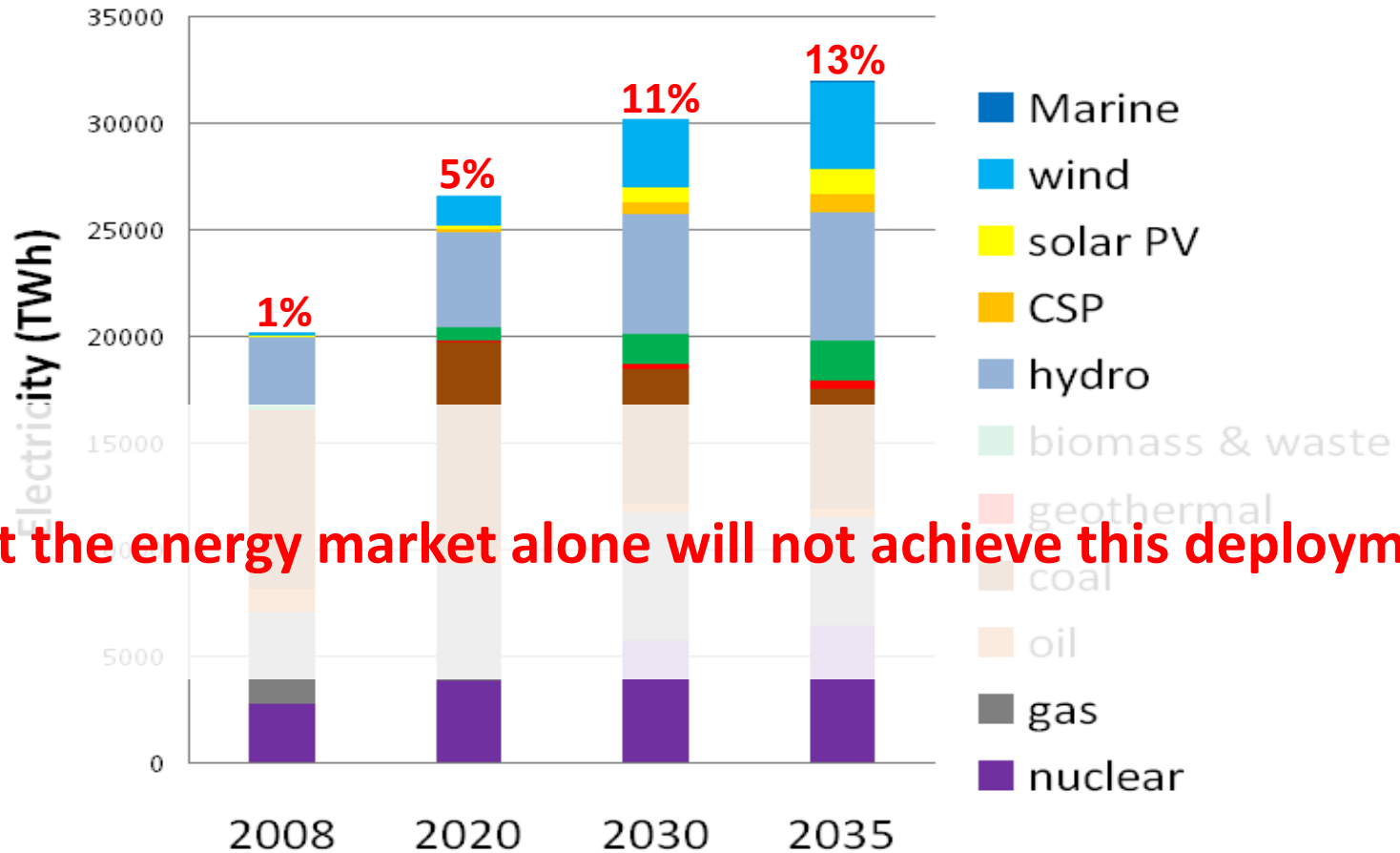
IEA Wind Energy Roadmap

Hugo Chandler, IEA Secretariat
June 21st 2011

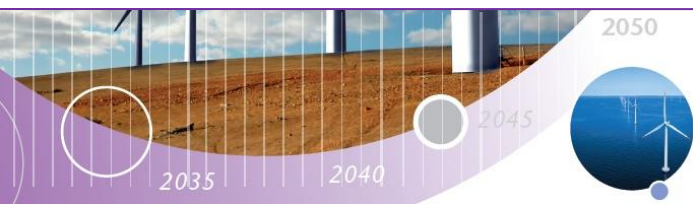
Technology Roadmap

Wind energy

Wind power potential (WEO 450 Scenario)



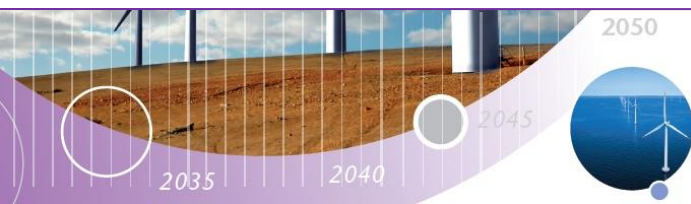
But the energy market alone will not achieve this deployment



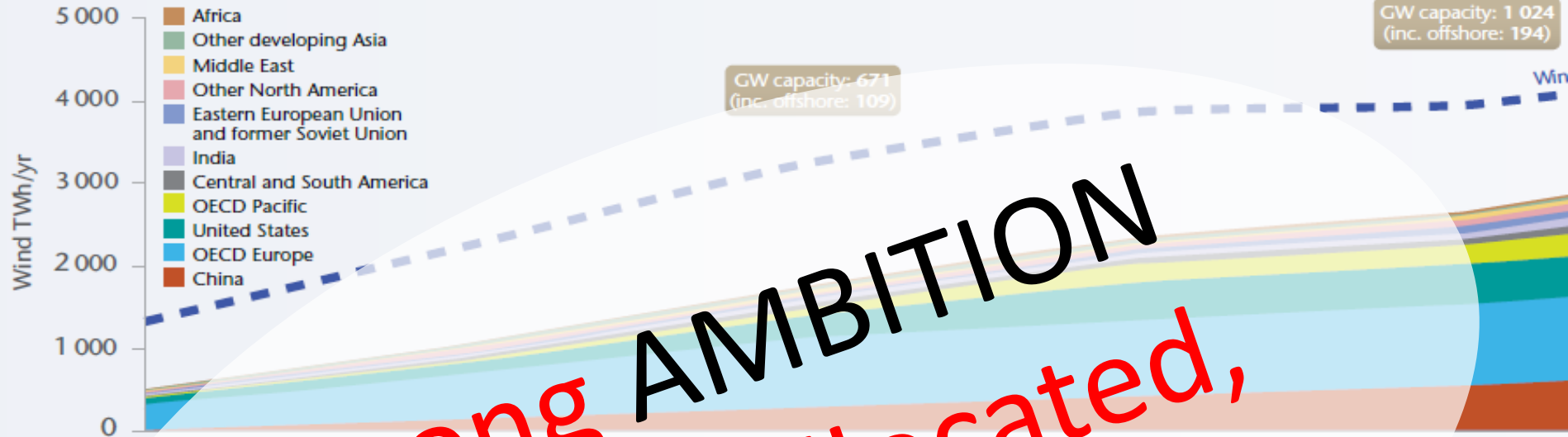
Technology Roadmap
Wind energy

Why do a wind roadmap?

- Wind has **value**
 - Security of supply, reduced gas consumption, climate change mitigation, local pollution reduction (air, soil, water), employment, water constraints
- Clear **objectives**: accelerated deployment of wind energy, vehicle for monitoring progress towards targets
- Capture full range of **tasks**
 - Resource assessment, technology, supply chain, transmission, system integration, regulatory
- **Consensus** on priorities, timelines, responsible parties
 - government, academia, industry, transmission and system operators consumers...



Regional electricity production from wind power and share of global electricity in terawatt hours (TWh)



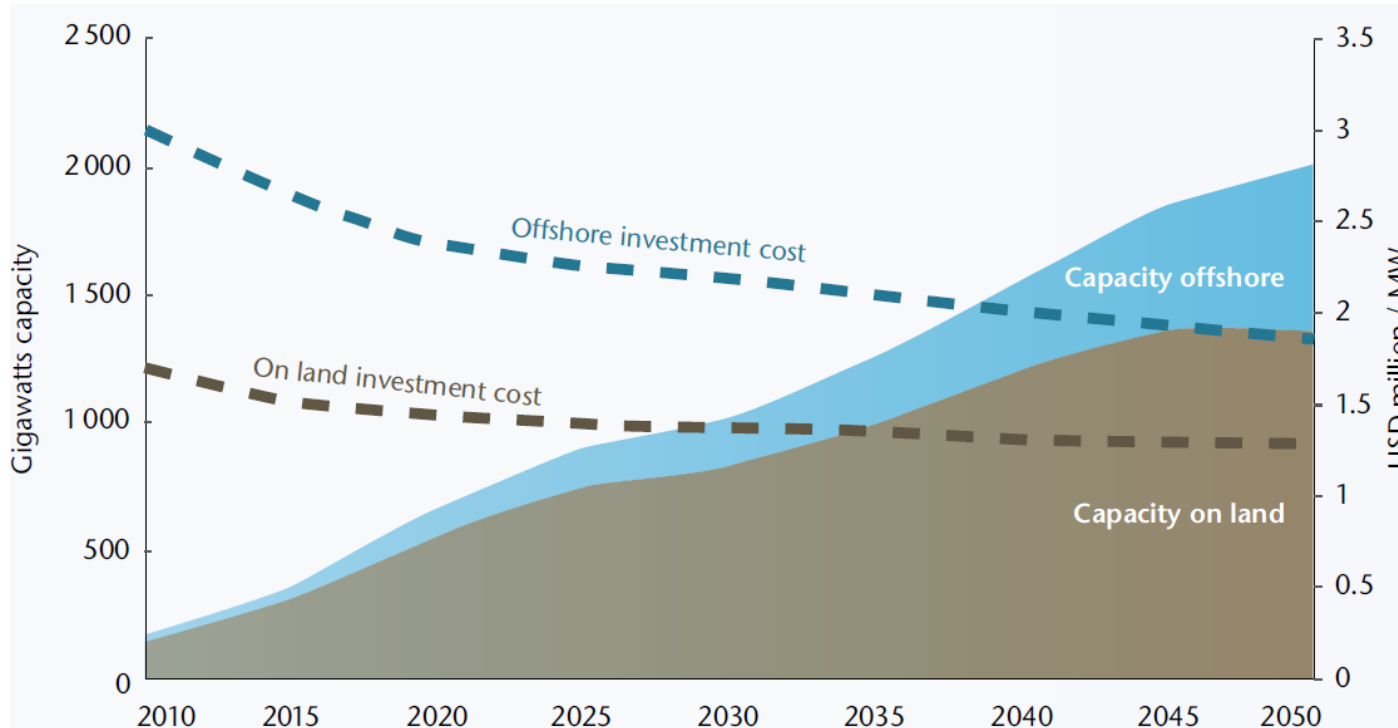
Strong AMBITION
linked to allocated,
scheduled TASKS

Wind Roadmap milestone

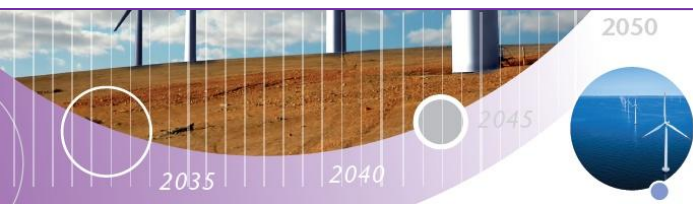
Timelines are indicative. Some policy and power system actions have already commenced in leading countries.



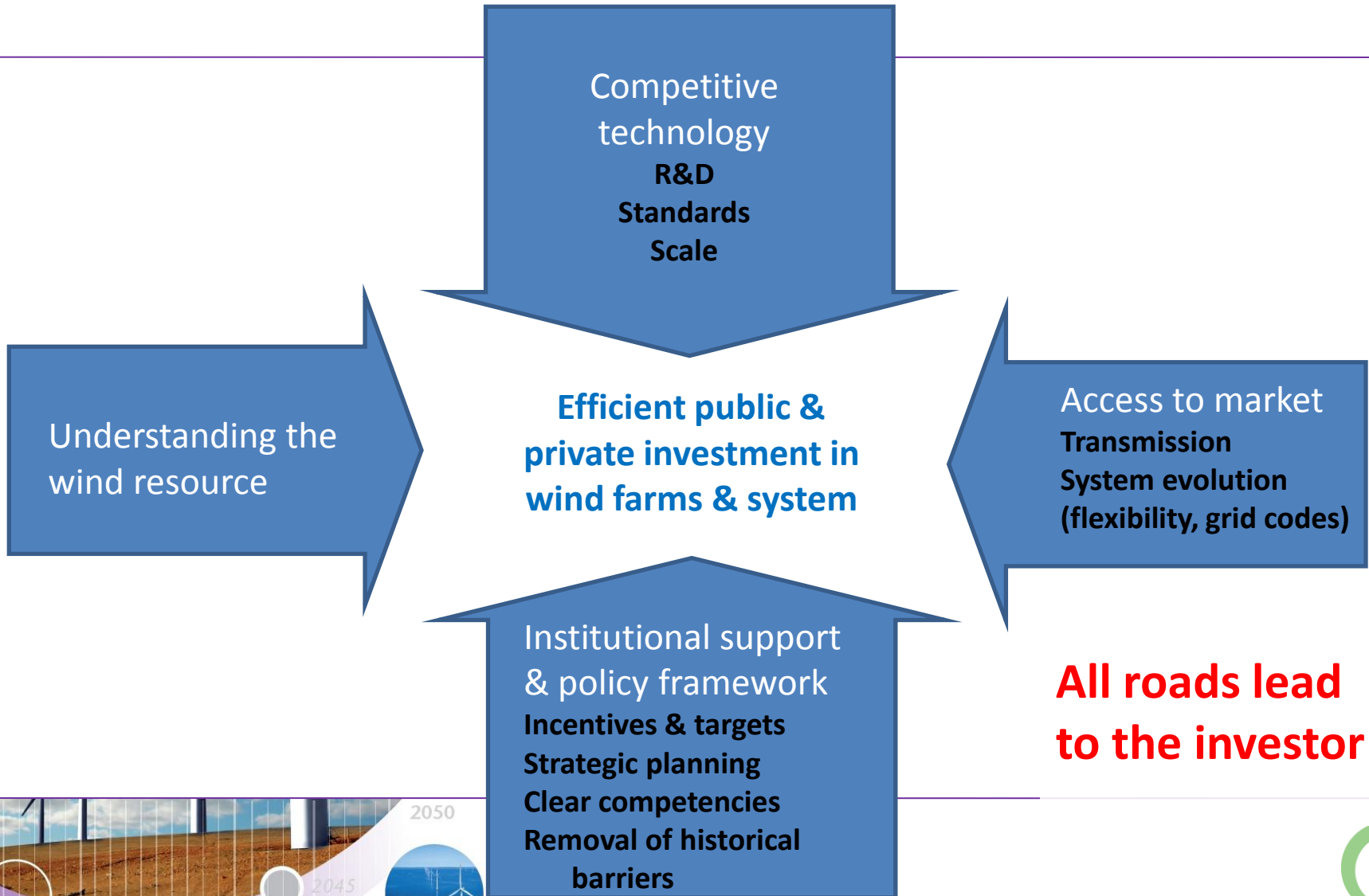
Cost reduction is a primary goal



In the IEA global wind roadmap, land-based investment costs reduces by 23% from 2010 to 2050, and by 38% offshore.

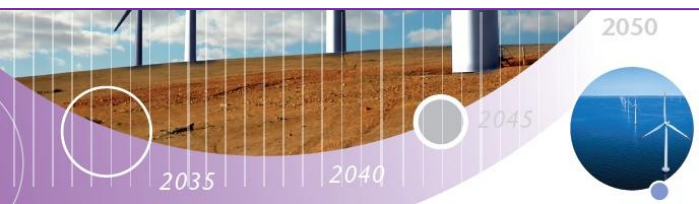
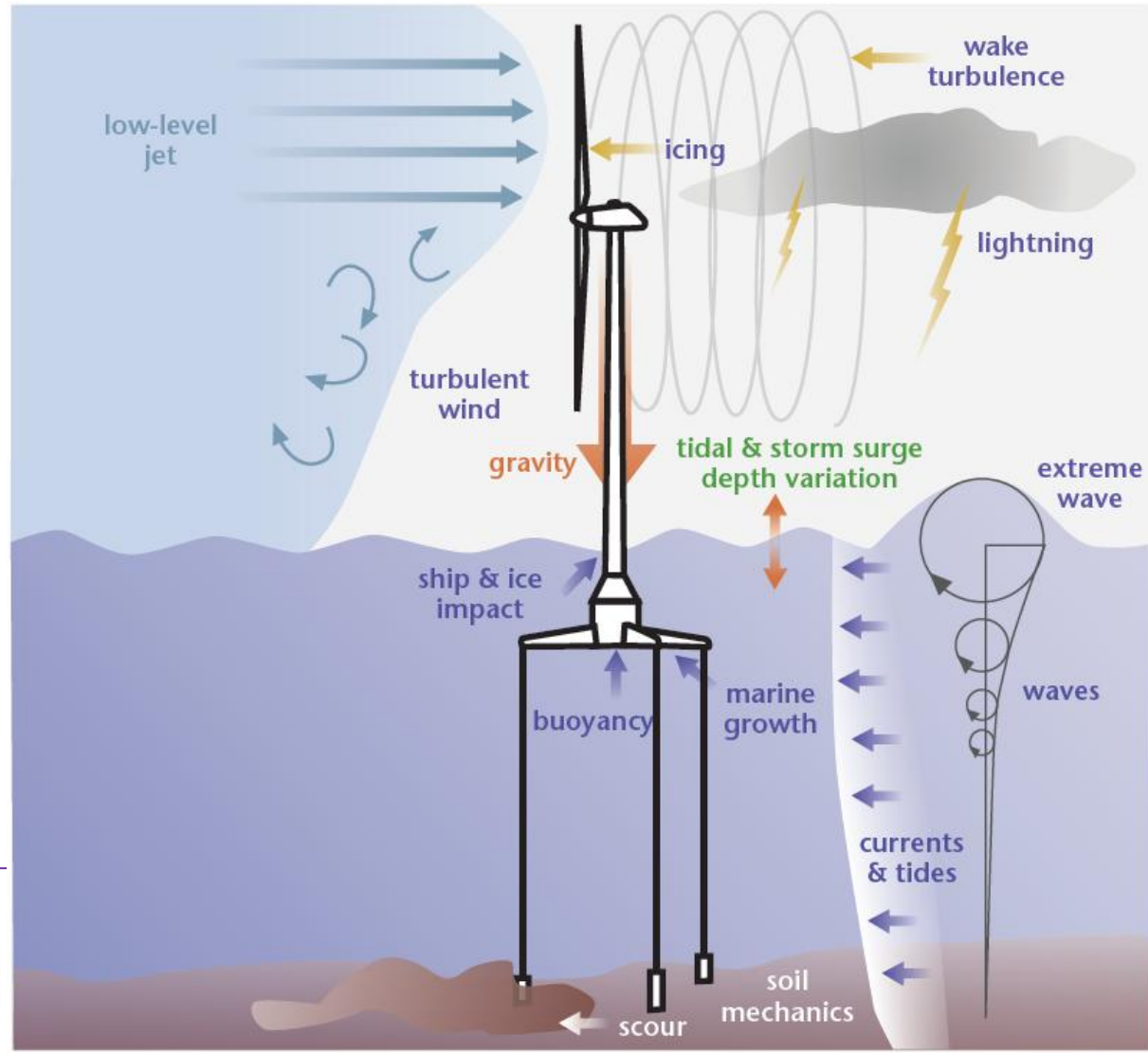


But it's not just about technology cost



Task example 1: offshore technology

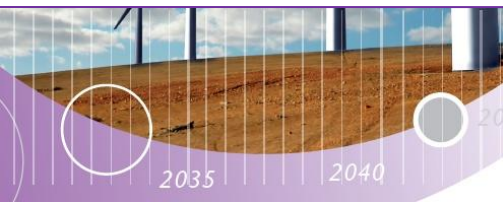
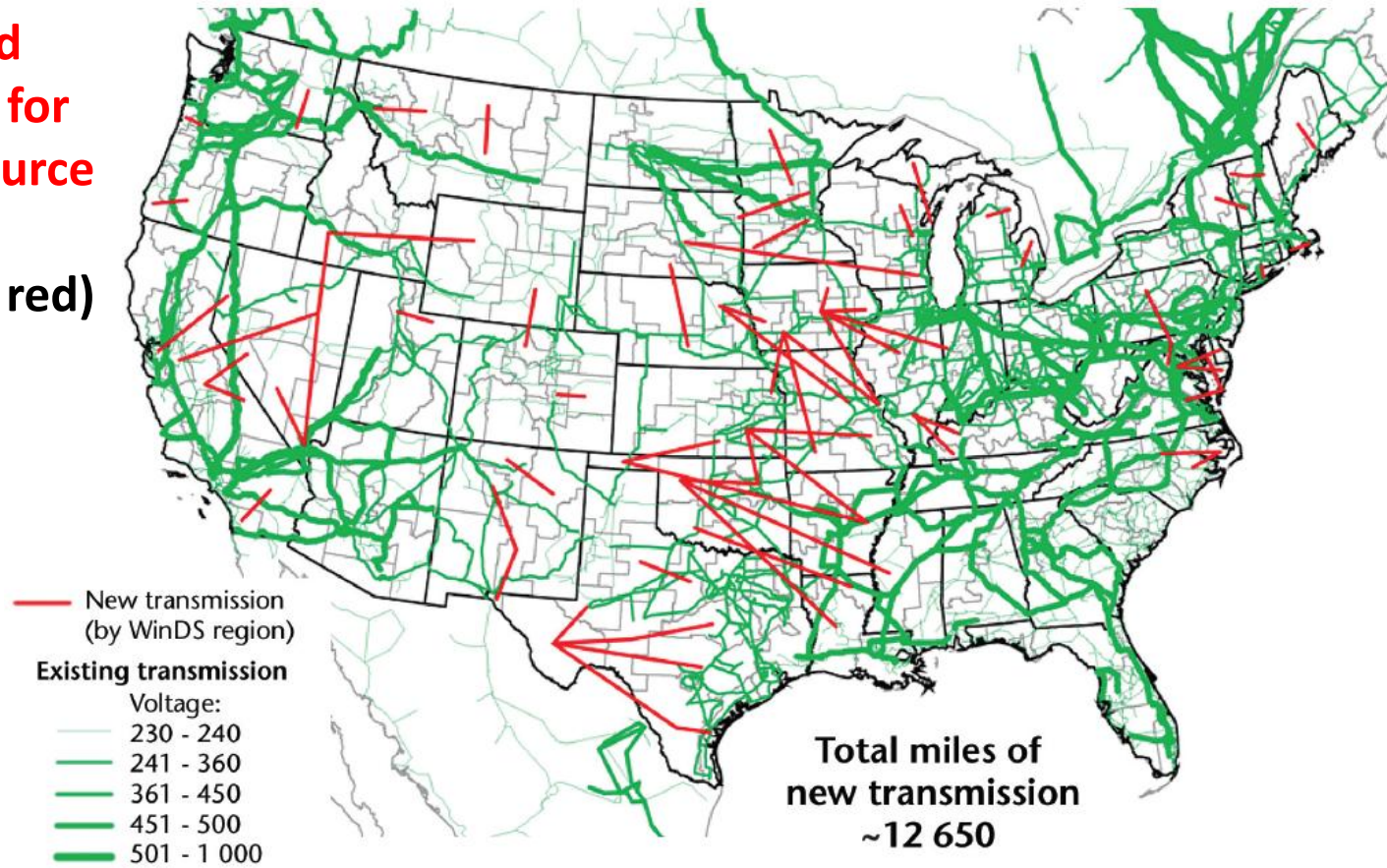
A complex range of forces act on wind turbines offshore



Task example 2: grid reinforcement in the USA

US: early, coordinated planning, accounting for location of wind resource

(new transmission in red)



Existing Transmission Data: POWERmap.
powermap.platts.com ©2007 Platts, A
Division of The McGraw-Hill Companies

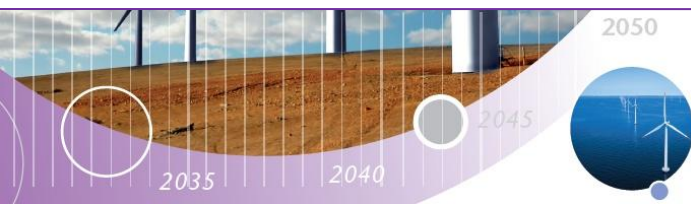
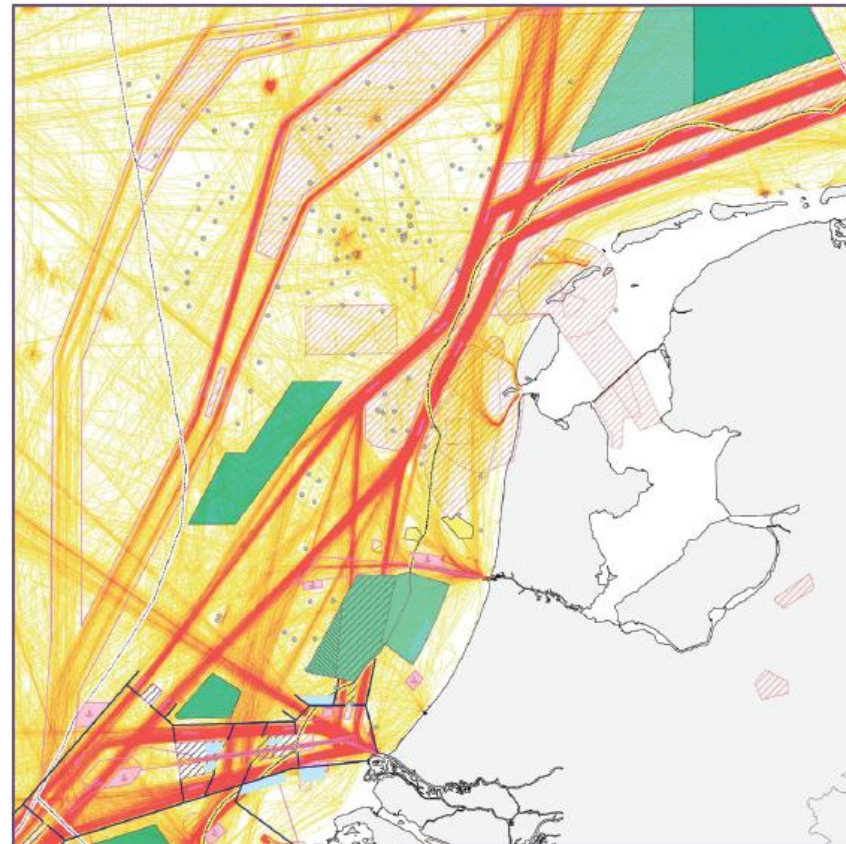
2030 total between region transfers ≥ 100 MW (all power classes, onshore and offshore), visually simplified to minimal paths. Arrows originate and terminate at the centroid of the region for visualization purposes; they do not represent physical locations of transmission lines.

Technology Roadmap

Wind energy

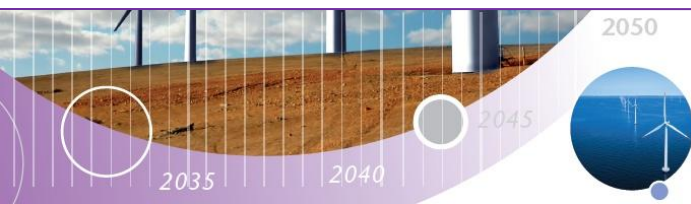
Task example 3: planning in the Netherlands

Dutch spatial planning takes into account the full range of competing sea uses: shipping, defense, ecology



IEA Wind Roadmap origins

- IEA publication - **Energy Technology Perspectives 2008**
 - Around 20 technologies identified
 - Including on- and off-shore wind
- **Japan G8** committed to a new initiative
 - *“We will establish an international initiative with the support of the IEA to develop **roadmaps** for innovative technologies and cooperate upon existing and new partnerships.”*
- Wind was 1 of the 5 **highest priorities**
 - Norway, Denmark, European Wind Energy Association, Vestas



Technology Roadmap
Wind energy

