



Ocean Grid

RESTRUCTURING ROUNDTABLE

September 29th, 2023

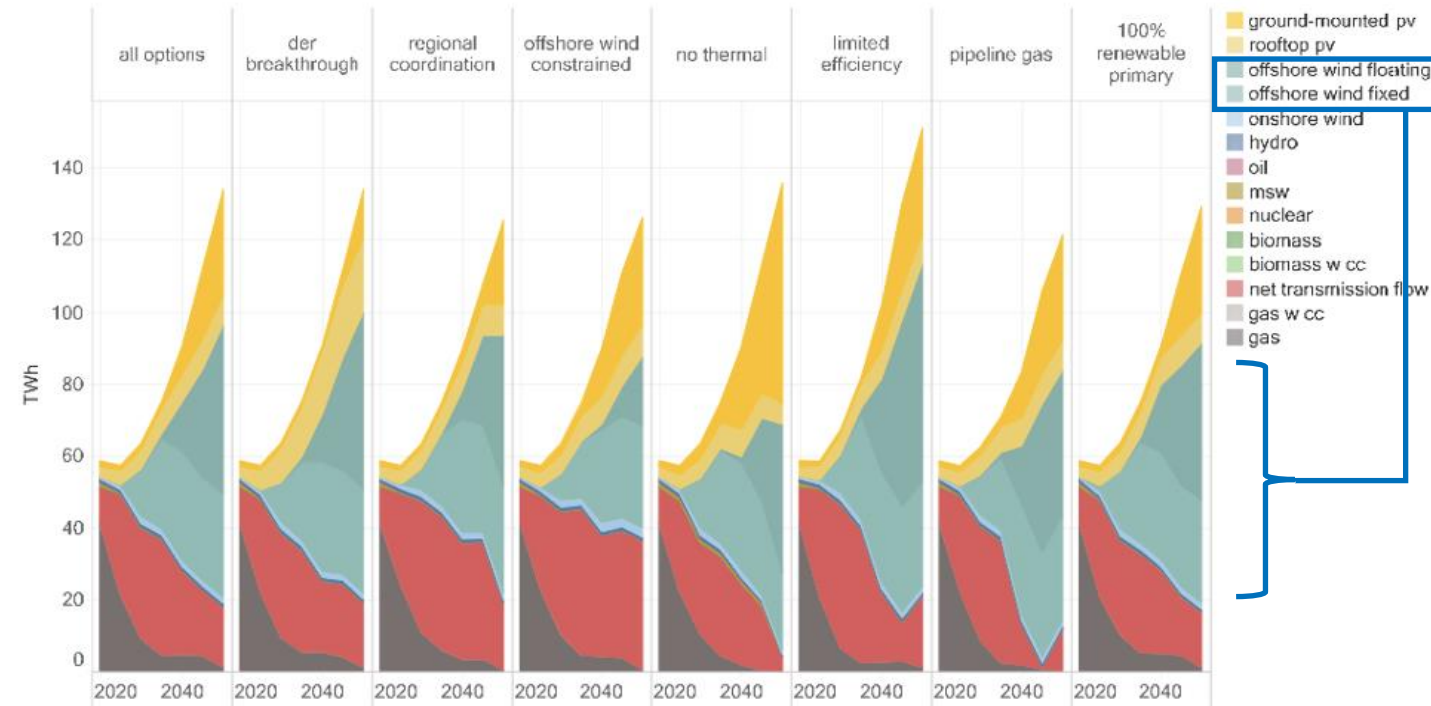
Clarke Bruno, CEO



Offshore Wind Transmission: The Challenge

- **Decarbonizing the Northeast energy system depends on scaling offshore wind**
- 30 to 40 GW offshore wind needed in New England by 2050
- Across all policy and technology scenarios evaluated in MA Decarbonization Roadmap, offshore wind supplies the majority of the region's future energy needs

Figure 23. Massachusetts annual electricity supply by resource type for all pathways.

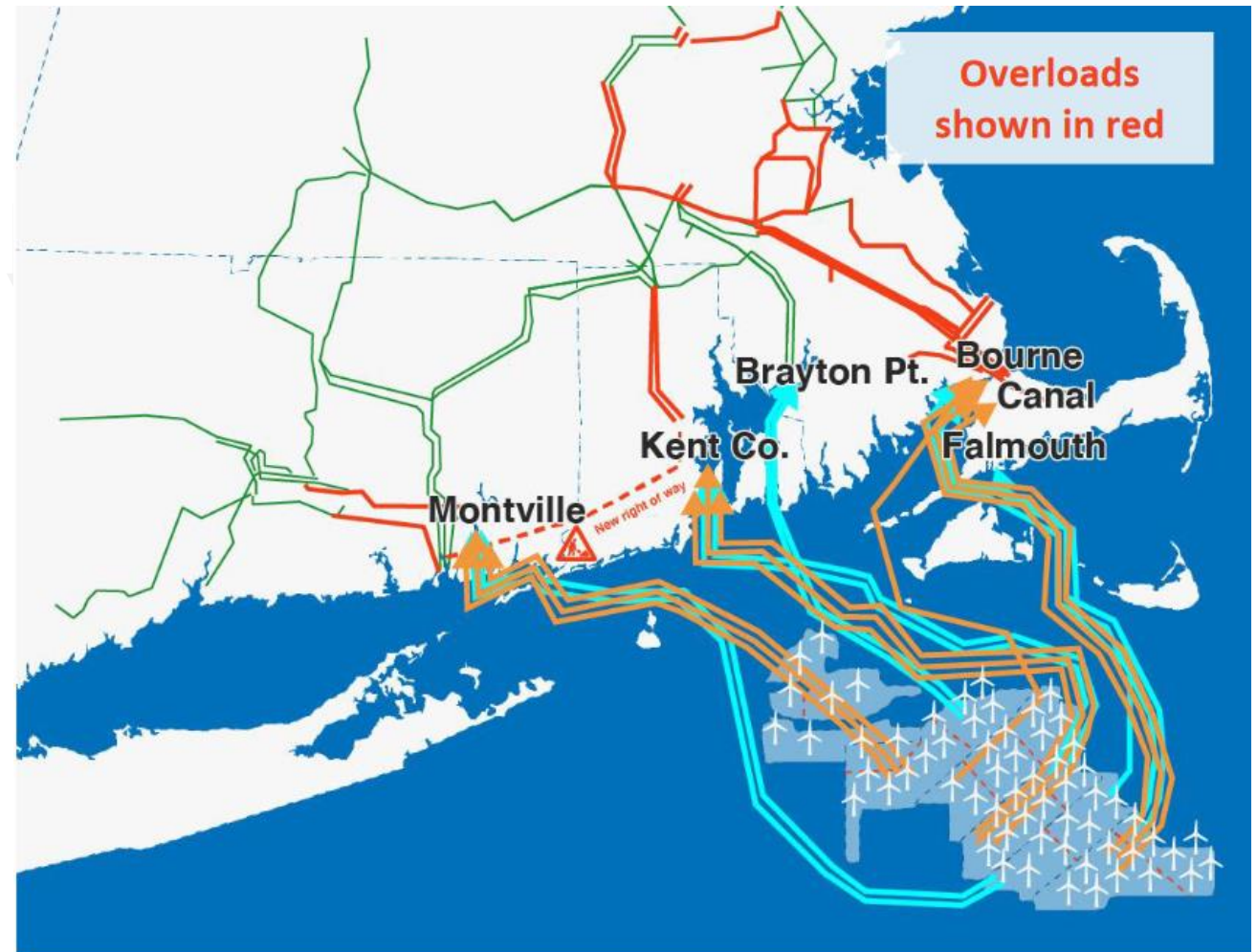


Source: Massachusetts Decarbonization Roadmap, at:
<https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/15400457>

Offshore Wind Transmission: Initial Approach

- Separate transmission for each wind farm
- Routing to nearshore locations
- More significant onshore upgrades
- More curtailment
- More seabed cabling and landfalls

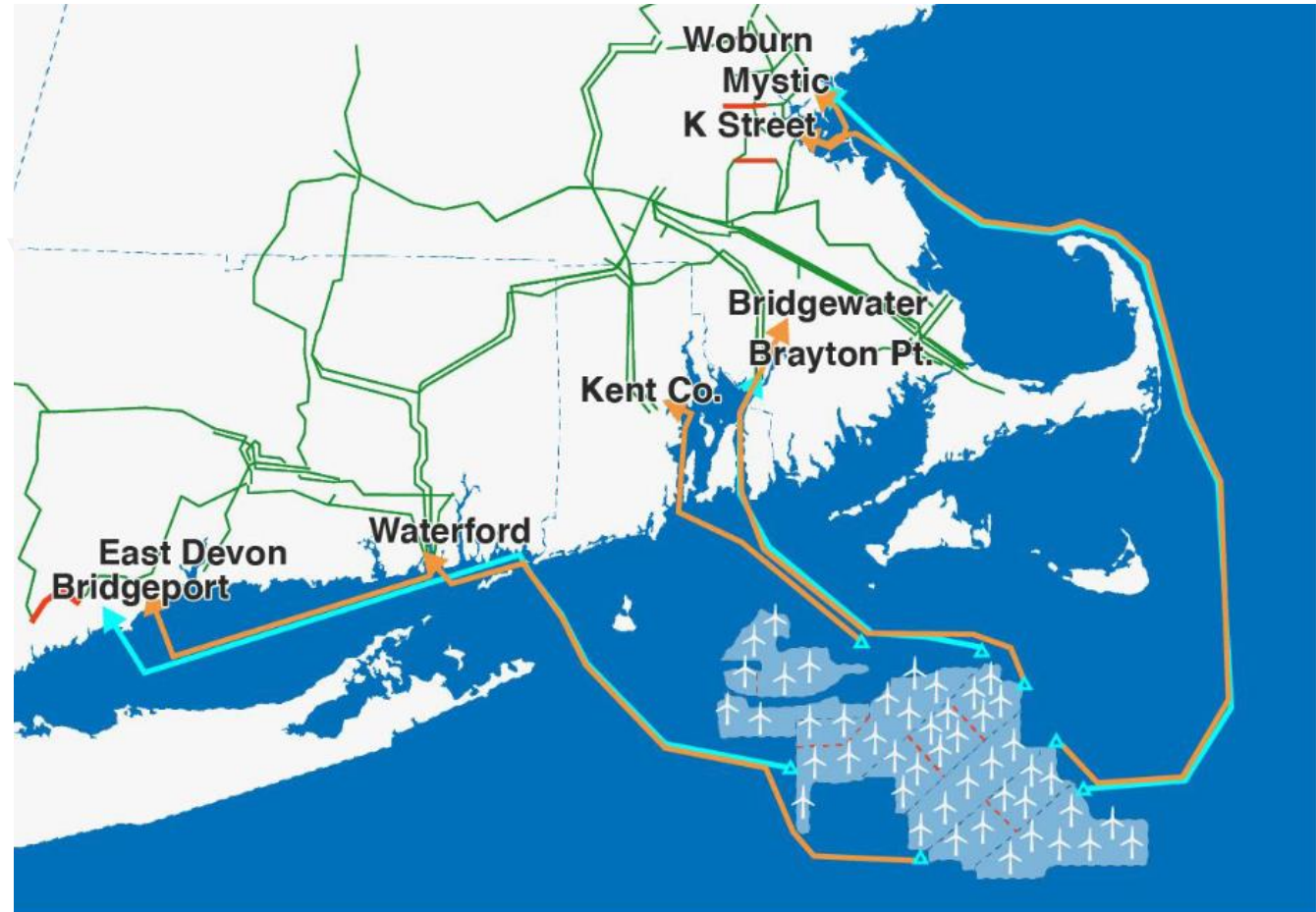
Source: https://newengland.anbaric.com/wp-content/uploads/2020/07/Brattle_Group_Offshore_Transmission_in_New-England_5.13.20-FULL-REPORT.pdf



Offshore Wind Transmission: Ocean Grid Approach

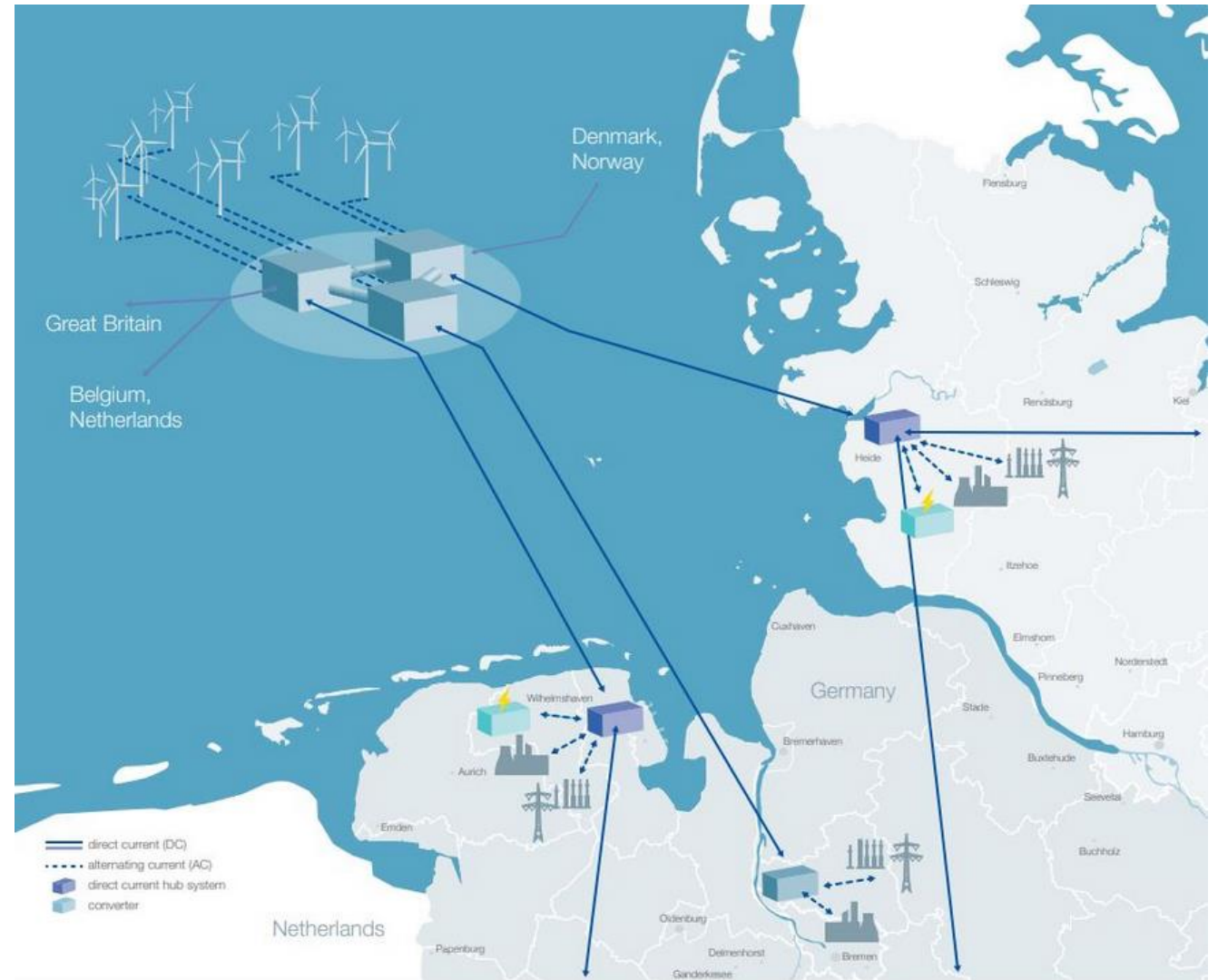
- Scalable transmission for total offshore wind buildout
- Routing in transmission corridors to demand centers
- Fewer onshore upgrades
- Less curtailment
- Less seabed cabling, fewer landfalls

Source: https://newengland.anbaric.com/wp-content/uploads/2020/07/Brattle_Group_Offshore_Transmission_in_New-England_5.13.20-FULL-REPORT.pdf



Learning from Europe

- Independent transmission to enable continuing growth of offshore wind
- Shared collectors for multiple offshore wind farms
- Technology standardization
- TenneT 2 GW program
 - E.g. 6 GW LanWin system for North Sea →
- Interconnectors between projects and countries
- Least-regrets approach to scalability
 - Achieves current targets
 - Expandable for future goals



LanWin hub; Image: TenneT

Realizing the Ocean Grid

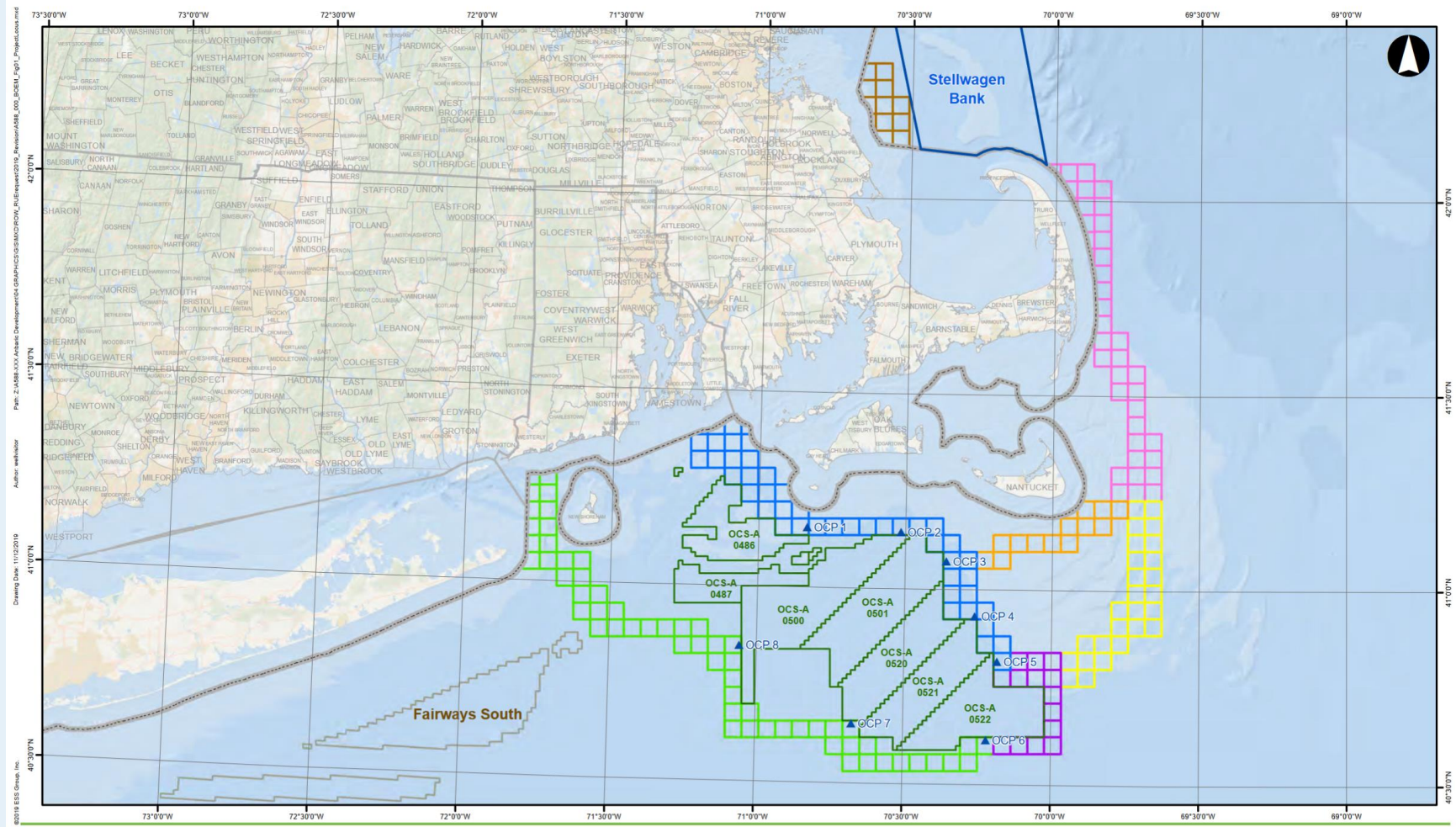
Action	Responsible Entity	Next Step
Commitment to develop independent transmission for offshore wind	States with support from Regional Transmission Organizations (RTOs)	Competitive solicitation of modular HVDC transmission systems
Establishment of technical standards to ensure interoperability of HVDC transmission	Department of Energy (DOE), North American Electric Reliability Corporation (NERC), Federal Energy Regulatory Commission (FERC)	Coordinated standard-setting process
Application of the Investment Tax Credit to independent offshore wind transmission	Treasury Department	ITC regulations establish applicability to 3 rd party owned energy conditioning and export equipment for offshore wind
Secure project finance	Project developers, lenders	Develop financial models that balance risk and innovation
Federal funding support	DOE	Provide grants and financing support
Accommodate large HVDC injections	RTOs	Increase injection limit to 2,000+ MW, building on European precedent

Thank you!



Appendix: Southern New England Ocean Grid

- Comprehensive transmission system to integrate offshore wind from MA/RI lease areas
- Phased development of high voltage direct current (HVDC) open access links to shore
- Non-exclusive right of way/right of use transmission corridors requested from Bureau of Ocean Energy Management
- Access routes to robust points of interconnection in Connecticut, Massachusetts, Rhode Island, and New York



Source: <https://www.boem.gov/sites/default/files/documents/renewable-energy/Anbaric-S-New-England-OceanGrid.pdf>