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The Impacts of Developing a Port Network for Floating Offshore Wind Energy on the West Coast of the United States

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Northwest Supply Chain Summit
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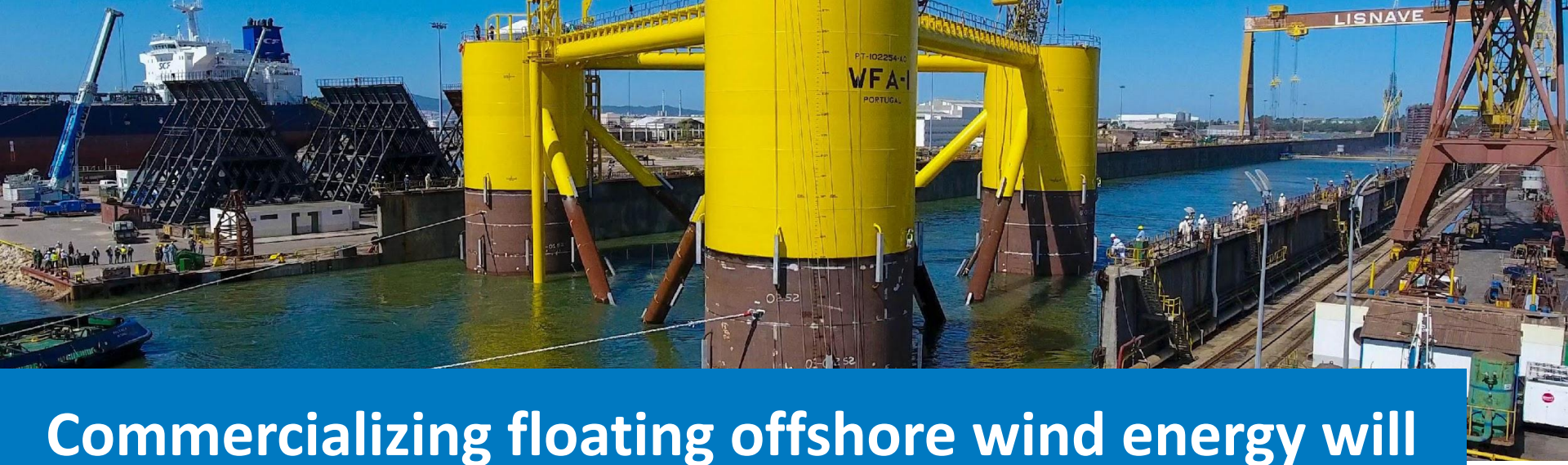
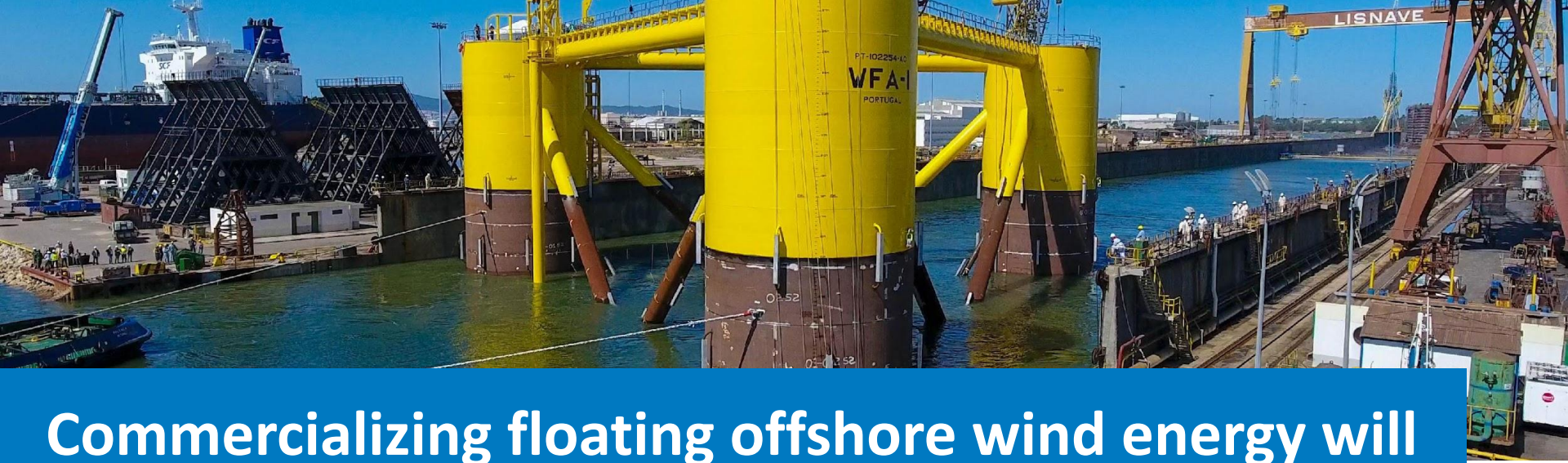


Commercializing floating offshore wind energy will require significant upgrades to port infrastructure

- Reinforced wharves
- Dredged harbors and navigation channels
- Storage and manufacturing space

Photo courtesy of the Windfloat Atlantic project / Principle Power. Artist: DOCK90



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Understanding the overall investment and resulting impacts is important for strategic planning

Photo courtesy of the Windfloat Atlantic project / Principle Power. Artist: DOCK90

Study Scope

Port investment

Deployment

Supply chain

Project cost

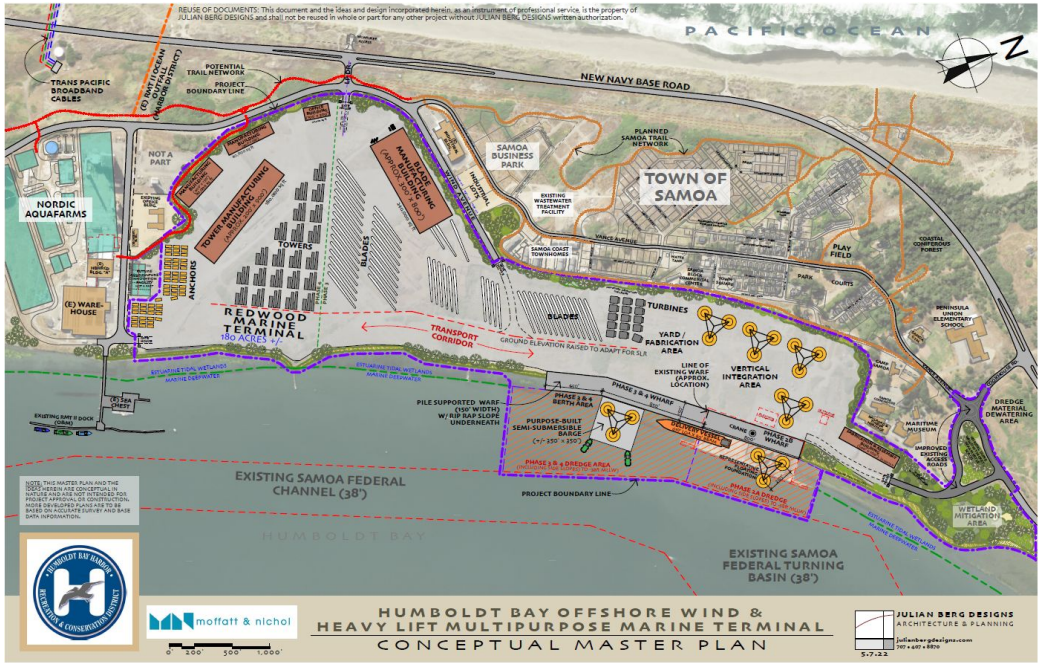
Energy justice

Gaps, challenges, and opportunities for developing a collaborative West Coast ports network

Photo courtesy of the Windfloat Atlantic project / Principle Power. Artist: DOCK90

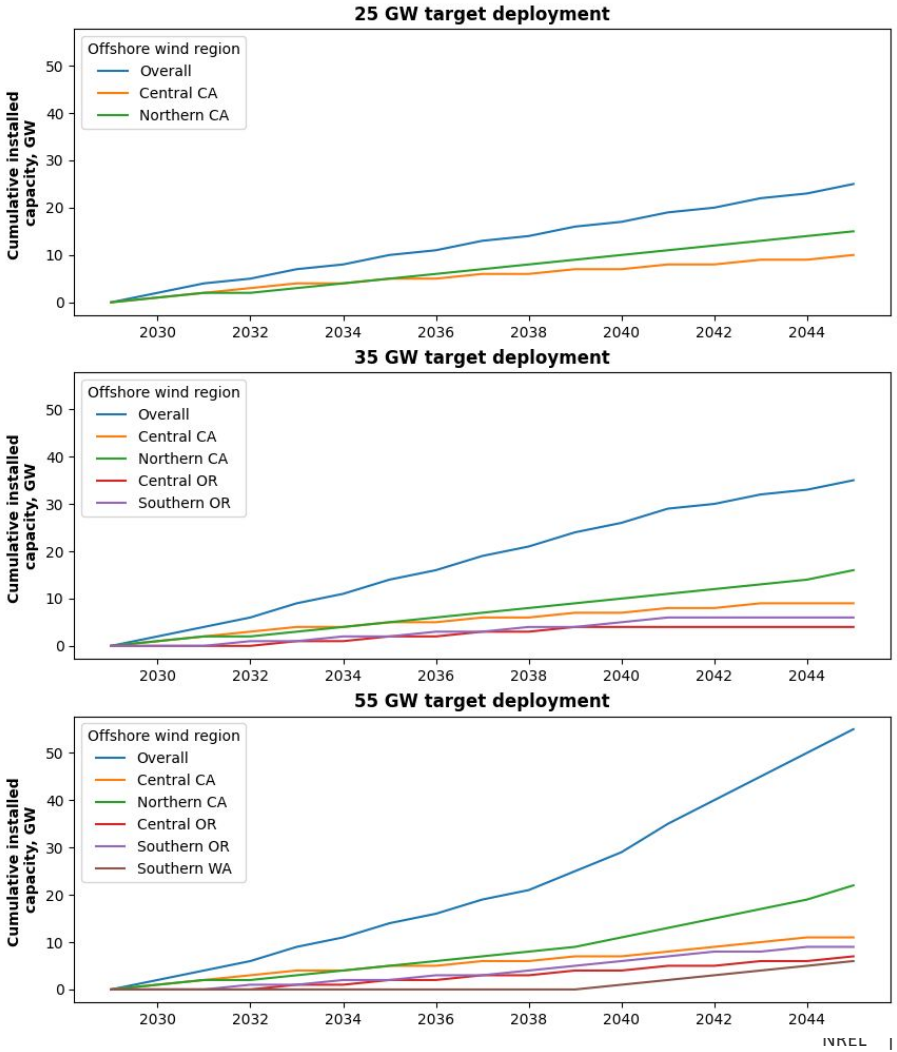
We consider three primary types of port ‘sites’

- **Staging and integration**
  - Floating platform and wind turbine assembly and tow-out
  - Major repair activities
  - About $1 billion per site
- **Operations and maintenance**
  - Vessel staging for routine maintenance
  - About $25 million per site
- **Manufacturing and fabrication**
  - Major component manufacturing
  - About $500 million per site

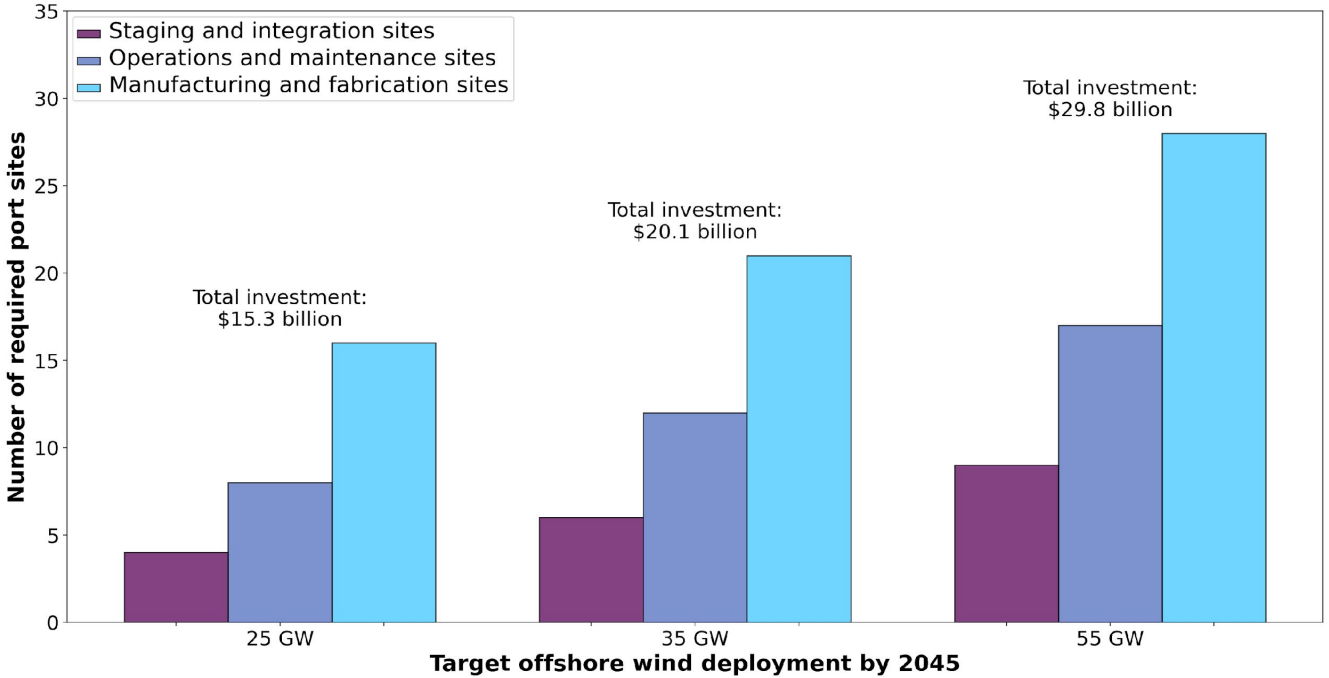


We define three offshore wind deployment scenarios to estimate the number of required port sites

- **25 GW by 2045**
  - Deployment in California
- **35 GW by 2045**
  - Deployment in California and Oregon
- **55 GW by 2045**
  - Deployment in California, Oregon, and Washington

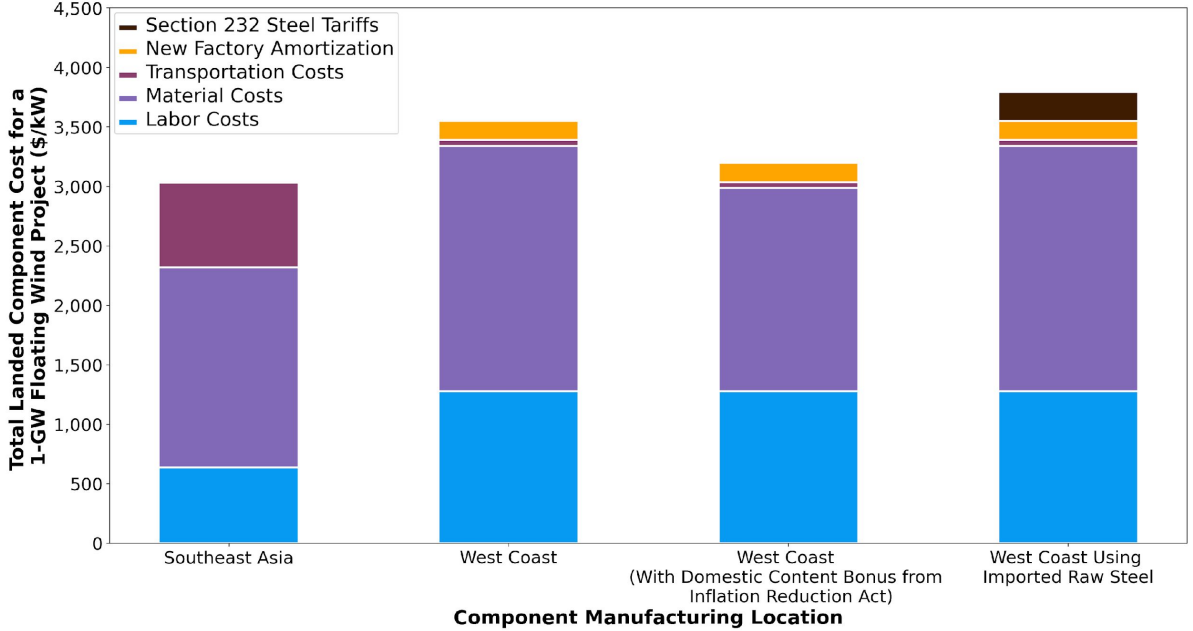


A port network* would likely require an investment of $15 - $30 billion to enable 25 – 55 GW of deployment (worth $125 - $275 billion)along the West Coast by 2045

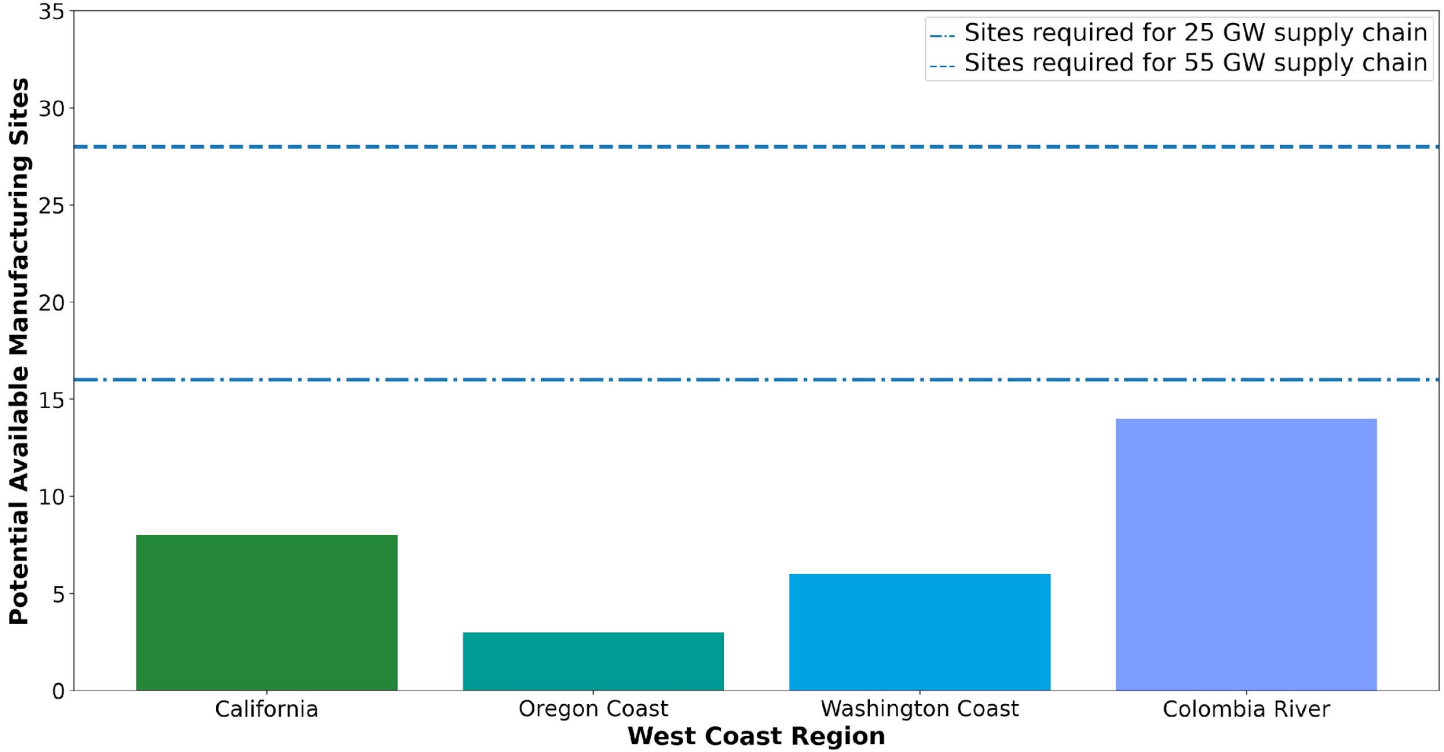


*Includes manufacturing sites to localize a supply chain. Installation and O&M ports comprise ~$5 - $11 billion

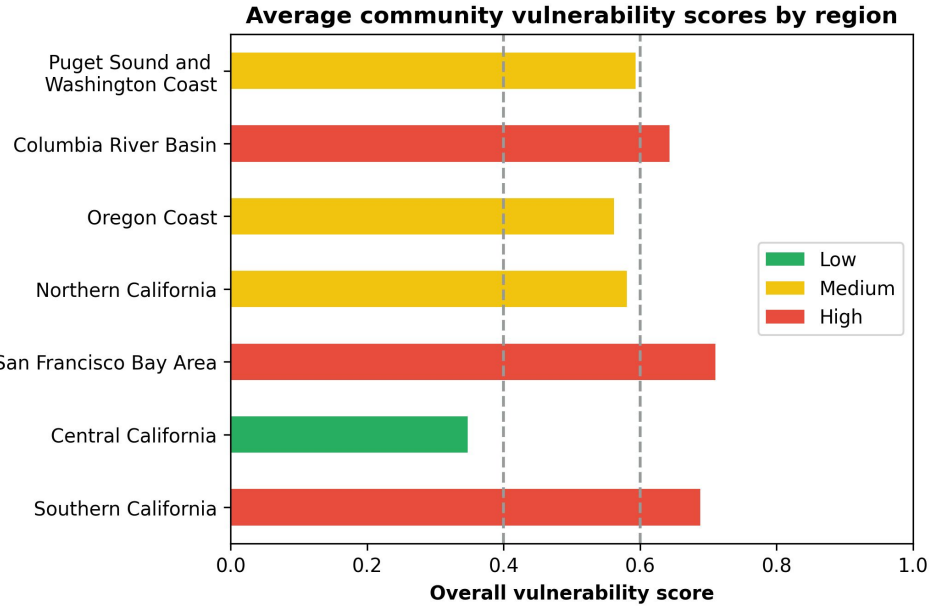
A West Coast supply chain could be cost competitive with imports because of reduced transportation costs and Inflation Reduction Act incentives

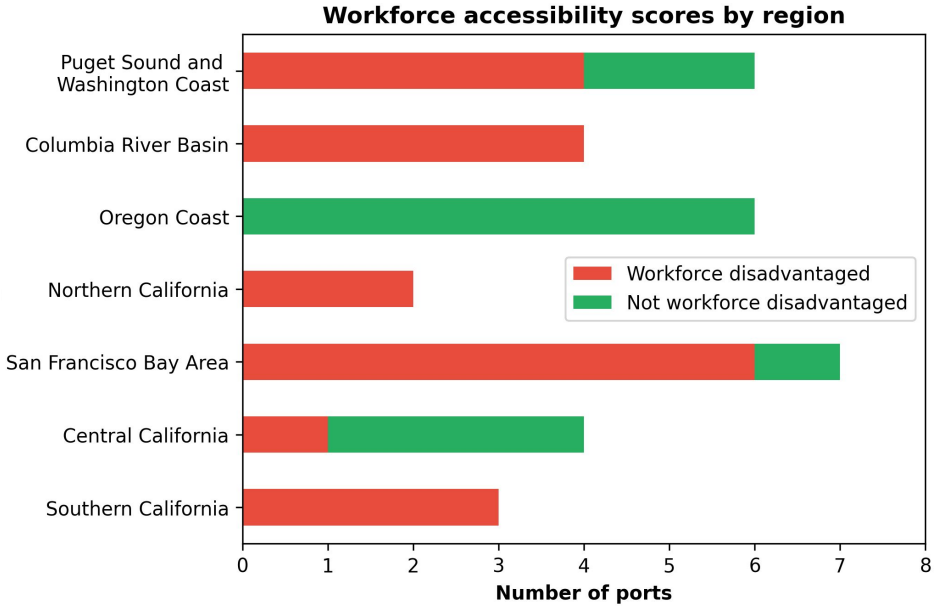


West Coast States would likely need to collaborate to develop enough manufacturing sites to support a local supply chain because no state has enough existing capacity

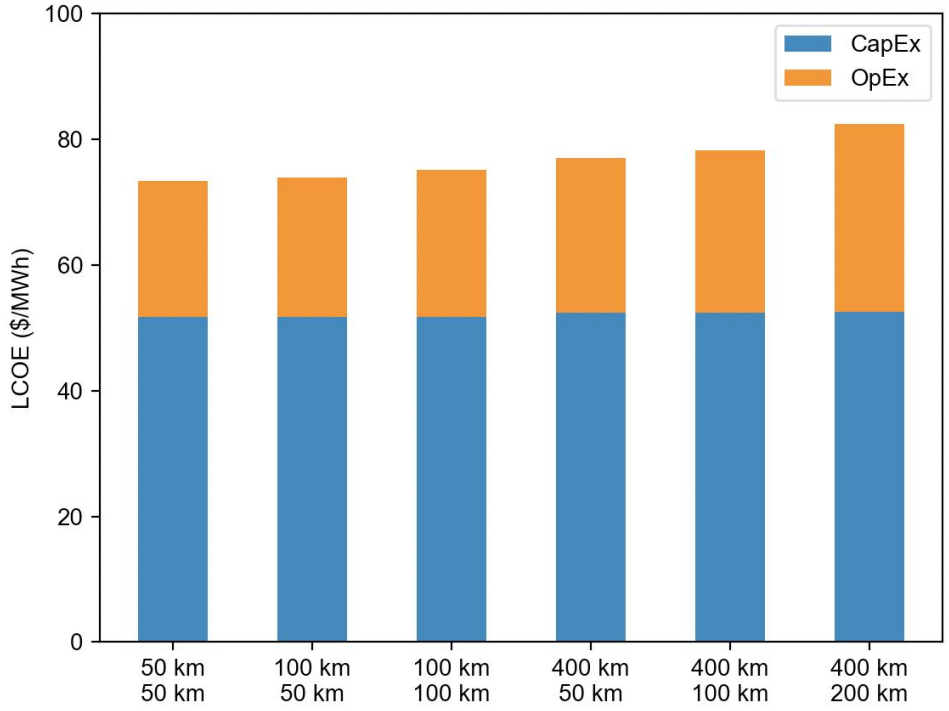


Port communities have different types of vulnerabilities that may impact how much they are affected (positively or negatively) by new ports and job opportunities





Port proximity to the offshore wind project location can significantly impact levelized cost of energy (a 15% increase as the distance goes from 50 km to 400 km)



Other Port Development Considerations

Vessels

Permitting

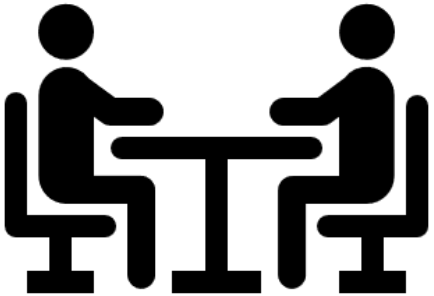
Tribes

Insurance

Workforce

Next steps for ports and supply chain work

- **Key steps:**
  - Convene West Coast decision-making working group
  - Provide technical support to facilitate strategic planning
  - Integrate findings/methods into ongoing studies
  - Fund and conduct recommended follow-on studies
  - Disseminate findings and engage key stakeholders at upcoming West Coast conferences/meetings



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