Value of Planning

- Selection of Point of Interconnection (POI)
  - Previous studies (e.g., Brattle) have demonstrated that planning and carefully selecting POIs can reduce onshore upgrades, cables, and potentially costs by $1 billion.

- Intra-regional transmission
  - Regions have quantified or considered potential benefits
  - E.g., NJ SAA, NY Mesh-Ready, 5-state RFI

- Inter-regional transmission
  - Many potential sources of value beyond POI selection and intra-regional transmission (reliability, resilience, congestion relief, curtailment mitigation)
  - How to quantify?

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Atlantic Offshore Wind Transmission Study and the Value of Planning

Greg Brinkman

Atlantic Offshore Wind Study Overview: Tasks

https://www.nrel.gov/wind/atlantic-offshore-wind-transmission-study.html

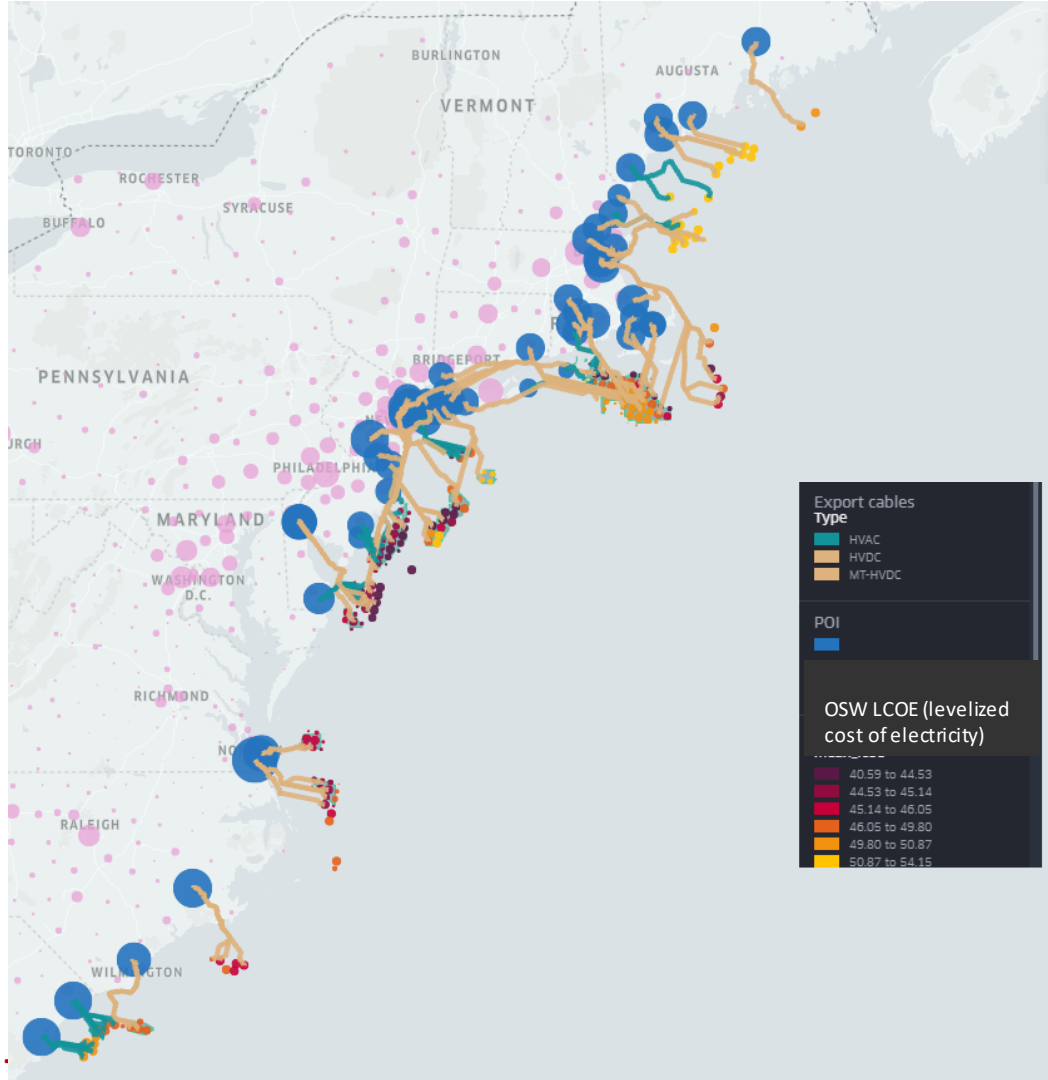
Version 0 (v0) topologies

Note that these are all changing, especially in New England, as we perform more modeling and incorporate stakeholder feedback. For example only.

Radial / Generator Lead Line

Notes:

- Green lines are HVAC, brown are HVDC
- Assumes most projects are large, and HVDC export cables are 1,200-1,500 MW
- POIs are identical for subsequent scenarios
- Result of optimization

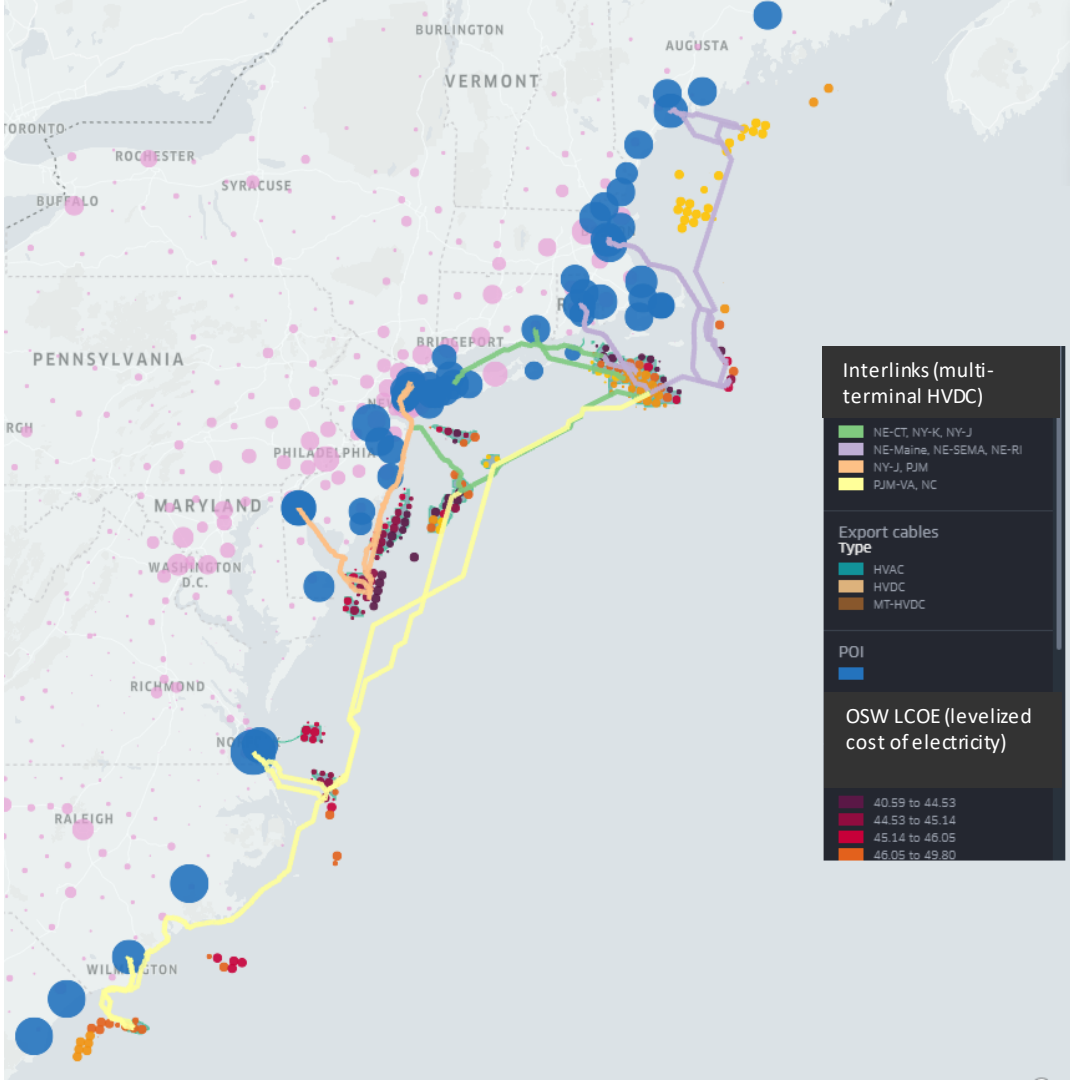


Preliminary

Hypothetical inter-regional transmission interlinks

Notes:

- Only offshore interlinks (and associated export cables) are shown
- All other export cables identical to Radial topology



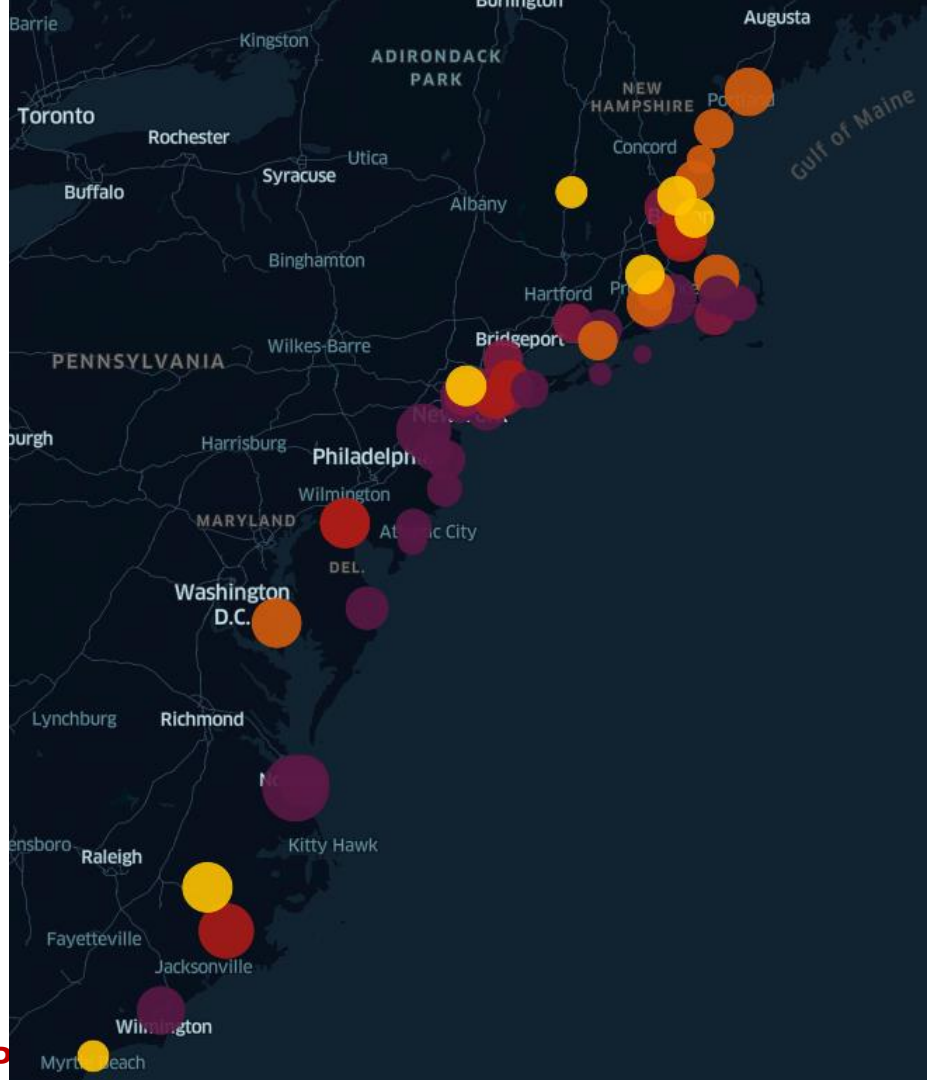
Preliminary

Hypothetical sequencing…

Buildout by year based on version 1 optimization, incorporating some TRC feedback on POIs

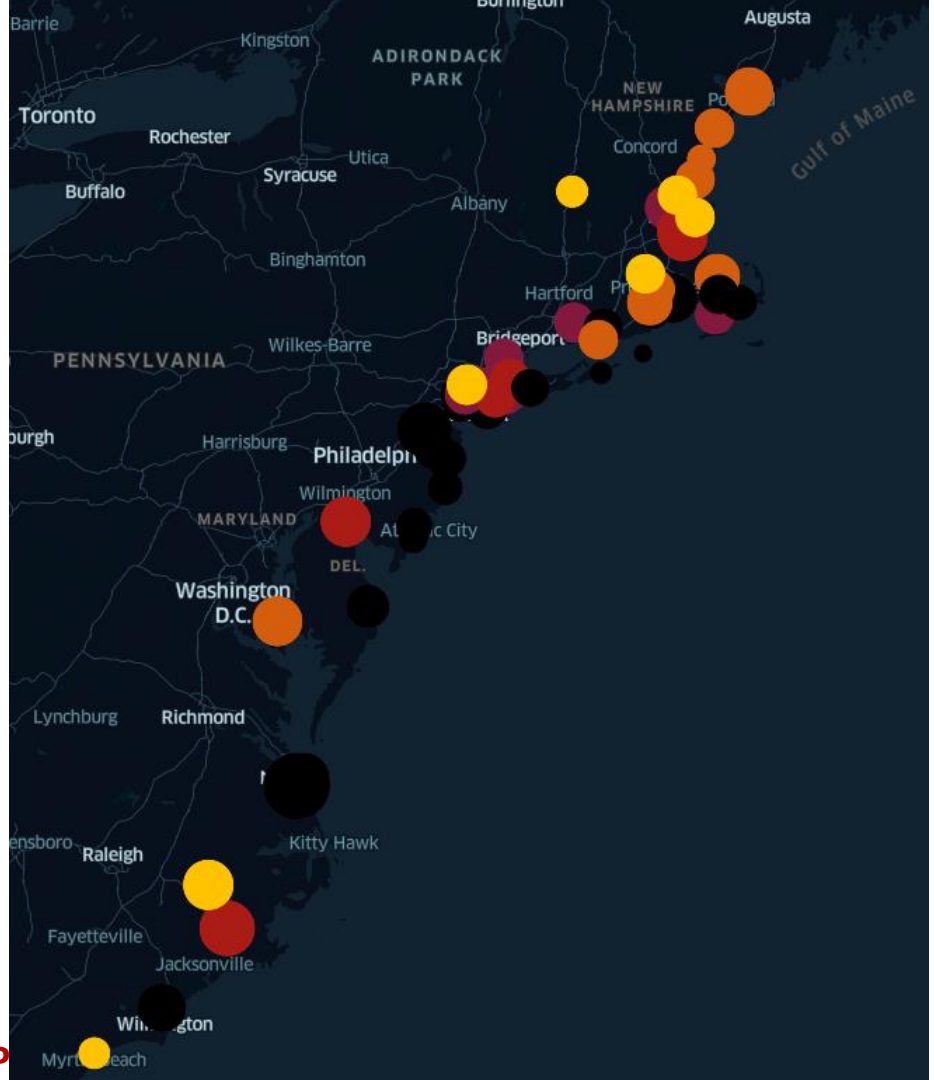
All POIs

- Darker colors represent more favorable sites based on optimization
- Favorable based on POI, offshore wind resource/depth, and cable distance



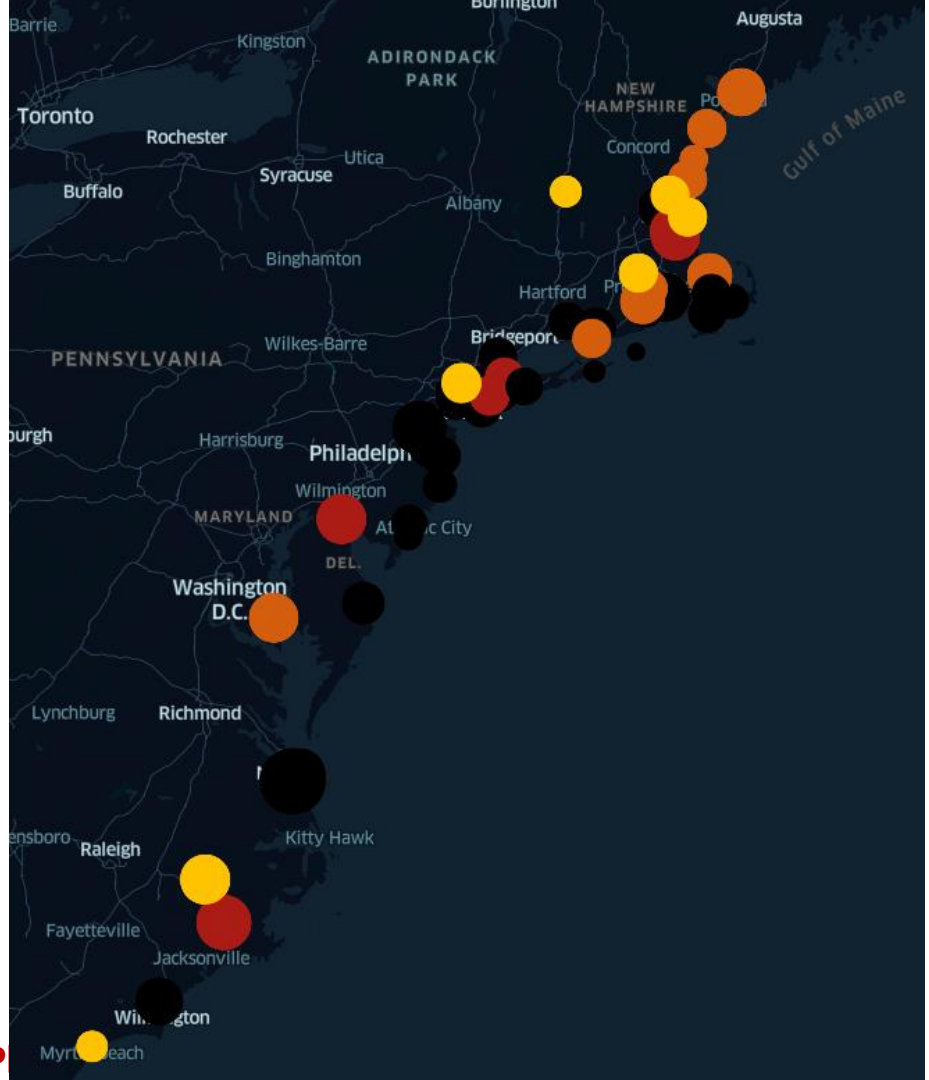
2030

- POIs that were used by 2030 in this scenario are blacked out.
- Darker colors represent more favorable sites based on optimization



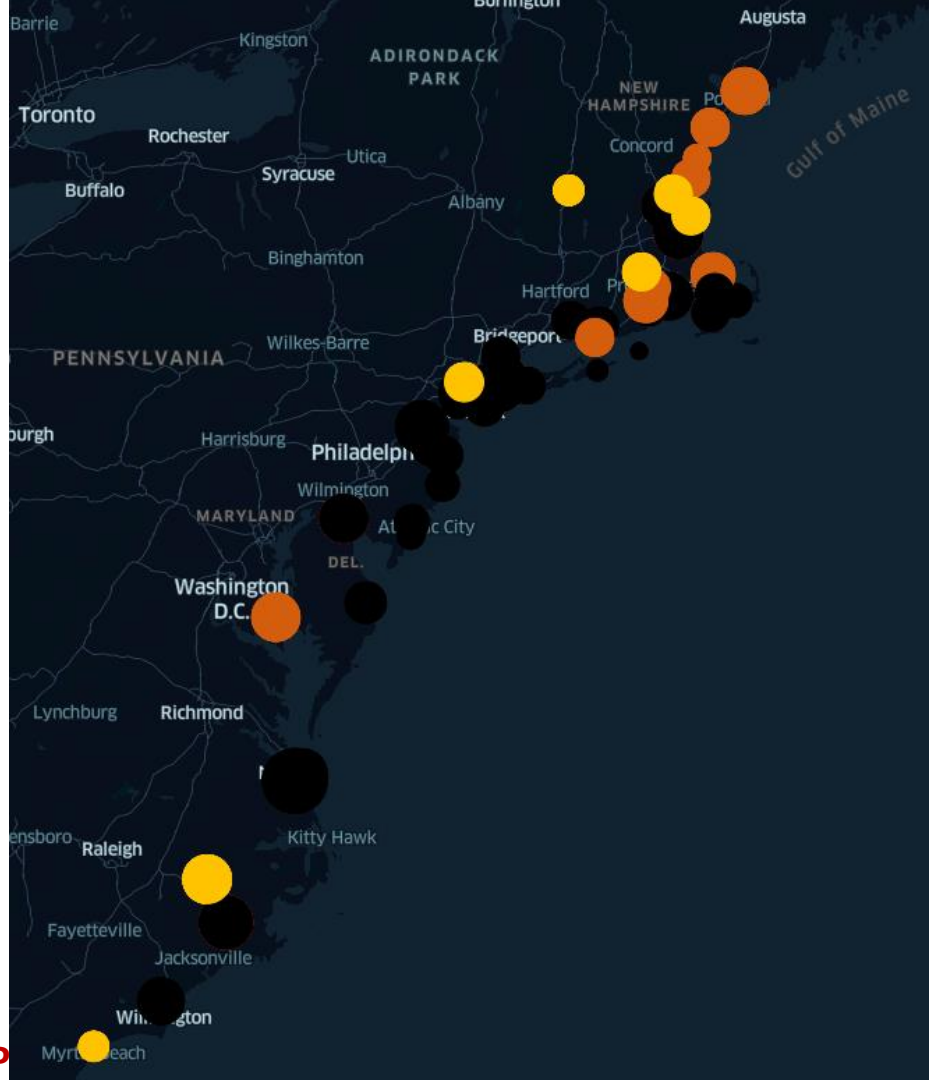
2035

- After 2035, many favorable POIs have been used.
- If offshore platforms for these POIs do not have future-proof designs (e.g., standards), these POIs will not be easily interlinked, eliminating much of the opportunity



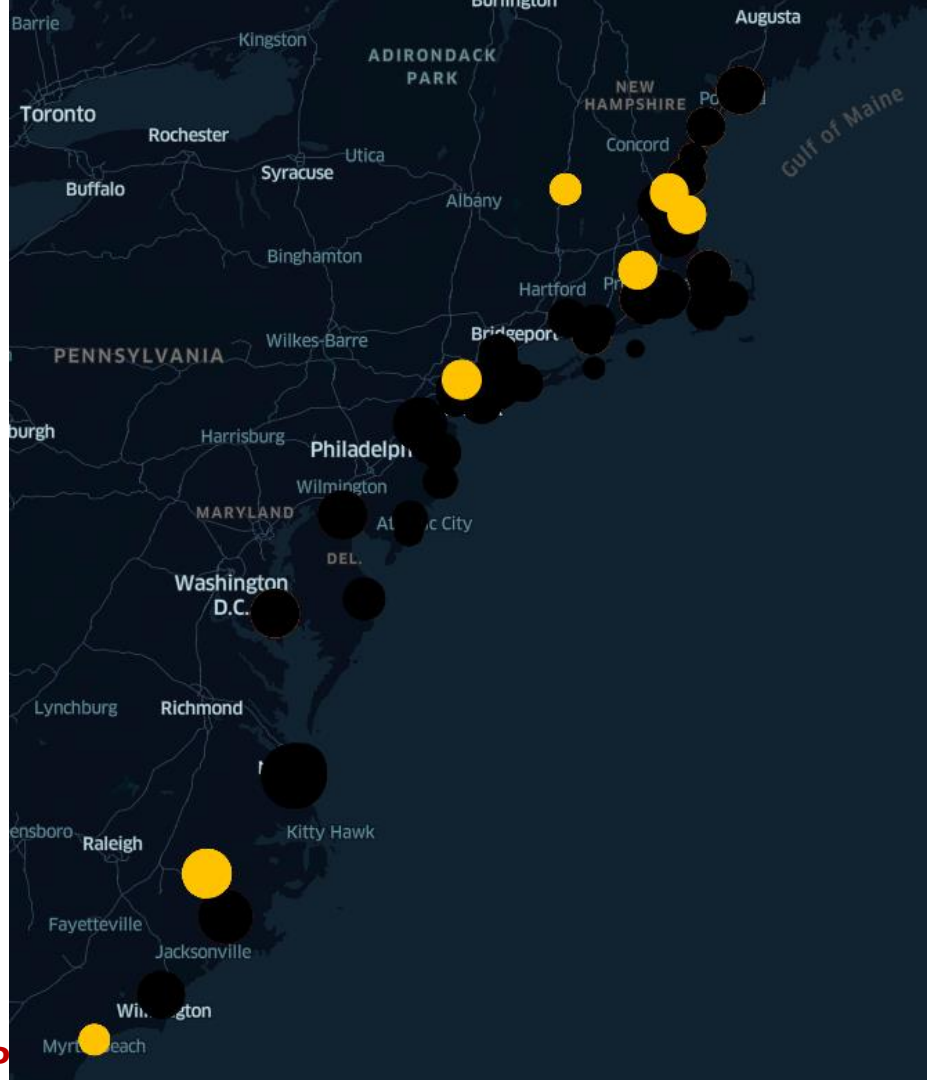
2040

- There are large regions with no favorable POIs still available after 2040



2045

- POIs that were used by 2045 in this scenario are blacked out.
- Darker colors represent more favorable sites based on optimization



Thank you for your attention!

Photo Credit : Dennis Schroeder-NREL