



Offshore Wind and Transmission Planning

IPSAC

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PJM Interconnection

State Agreement Approach Implementation With NJ

- Scenario planning analysis
- Convene a public policy RTEP window
- Proposal evaluation and selection
- File SAA term agreement with FERC

Multi-State Offshore Wind Scenario Study

Offshore Wind Transmission Study Group (OTSG)
2020–2021 Scenario Analysis – Phase 1



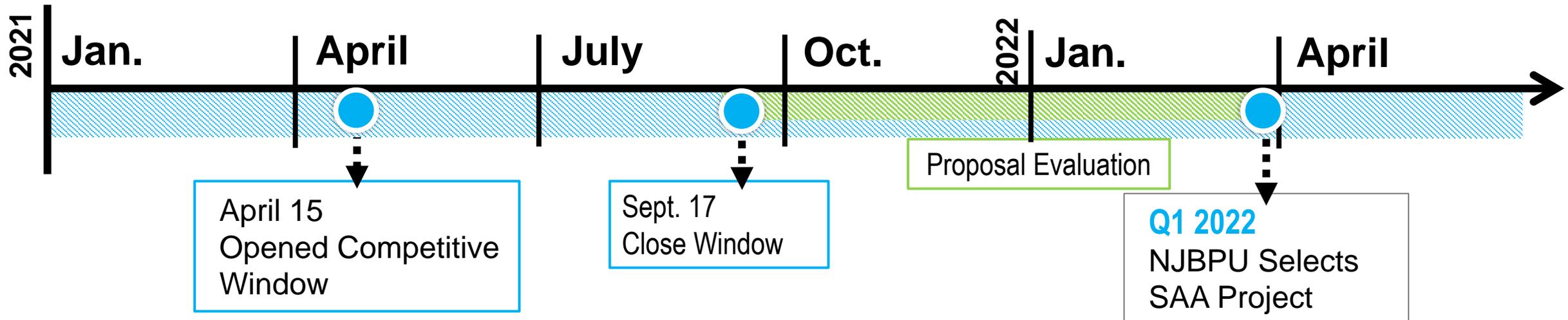
State Agreement Approach and New Jersey Offshore Wind

What Is the State Agreement Approach?

- PJM added an SAA transmission planning mechanism with its Order No. 1000 compliance filing (not needed for compliance with Order No. 1000), pursuant to which a state or states can request that PJM study a project designed to address public policy requirements identified by a state(s).
- If the state(s) voluntarily agrees to sponsor such a project and assumes responsibility for the allocation of all costs of the project, the SAA project will be included in the RTEP either as a Supplemental Project or state public policy project.

November 2020

NJBPU requested that PJM solicit proposals to address public policy needs in a competitive window.



Regulatory

- On Feb. 16, 2021, the Commission accepted the SAA Study Agreement between PJM and the NJBPU that authorized PJM to implement the SAA process to conduct an open window for OSW transmission.
- File Term Sheet Agreement – 4Q 2021



NJBPU OSW Solicitation Schedule

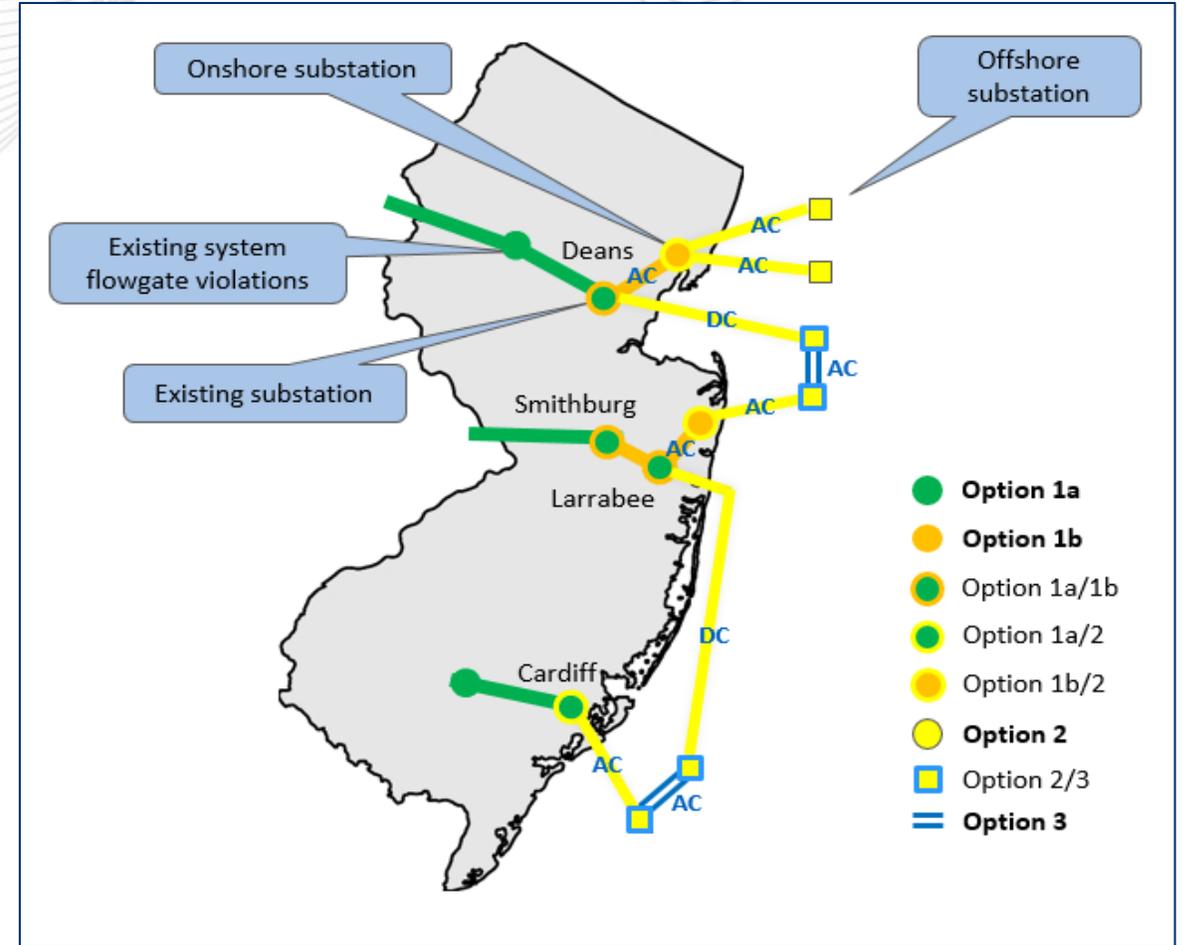
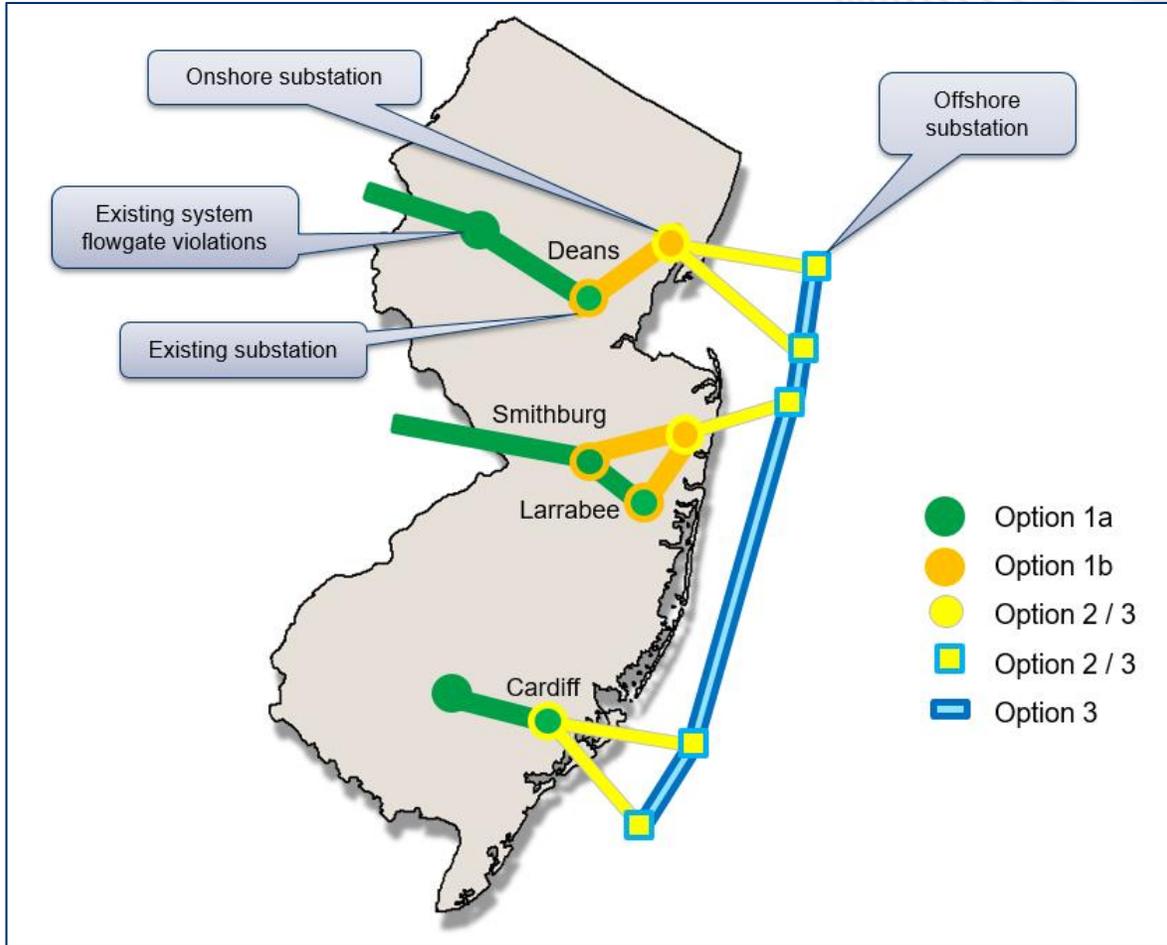
Solicitation

	Capability Target (MW)	Capability Awarded	Issue Date	Submittal Date	Award Date	Estimated Commercial Operation Date
1	1,100 ⁽¹⁾	1,100	Q3 2018	Q4 2018	Q2 2019	2024–2025
2	1,200-2400 ⁽²⁾	2,658	Q3 2020	Q4 2020	Q2 2021	2027–2029
3	1,200	N/A	Q3 2022	Q4 2022	Q2 2023	2030
4	1,200	N/A	Q2 2024	Q3 2024	Q1 2025	2031
5	1,342	N/A	Q2 2026	Q3 2026	Q1 2027	2033

(1) NJBPU Solicitation Award – June 2019

(2) NJBPU Solicitation Award – June 2021

<https://www.njcleanenergy.com/renewable-energy/programs/nj-offshore-wind/solicitations>



Diagrams are for illustration purposes only.



Current Status to Review 2021 SAA Proposal Window for NJ OSW

Proposal evaluations are ongoing, and additional details are expected to be available for the November TEAC.

Total number of individual proposals received: **80**

Total number of proposals with Cost Commitment provisions: **57**

For more information on the NJ OSW SAA window, updates will be posted on the PJM TEAC webpage:
<https://www.pjm.com/committees-and-groups/committees/teac.aspx>



Multi-State Offshore Wind Scenario Study

- PJM and interested state agencies began meeting in October 2020 as an independent effort to consider offshore wind public policy needs.
 - Also factored in all PJM state RPS requirements
- The goal is to analyze and identify transmission solutions across the PJM region to accommodate the coastal states' offshore wind goals and PJM states' RPS requirements.
- PJM collaboration with states determined initial **five** scenarios to model.

2020

2021

Education

- State offshore wind targets
- Interconnection process
- Technical components of OSW turbines
- Transmission system overview
- Cost allocation
- Order 1000 and the State Agreement Approach
- Environmental and social considerations for OSW development

Phase 1 Scenario Development

- OTSG Sessions
- 1:1 meetings with coastal state agencies
- PJM feedback and coordination
- Scenario finalization

Simulation & Analysis

Initial Results
July

Phase 2 Scenario Development

Final Report

Consistent with PJM RTEP analysis

Powerflow reliability analysis for onshore transmission system

- Summer, winter and light load
- Simulated for years 2027 and 2035

Examined 100 kV and up across the entire PJM footprint

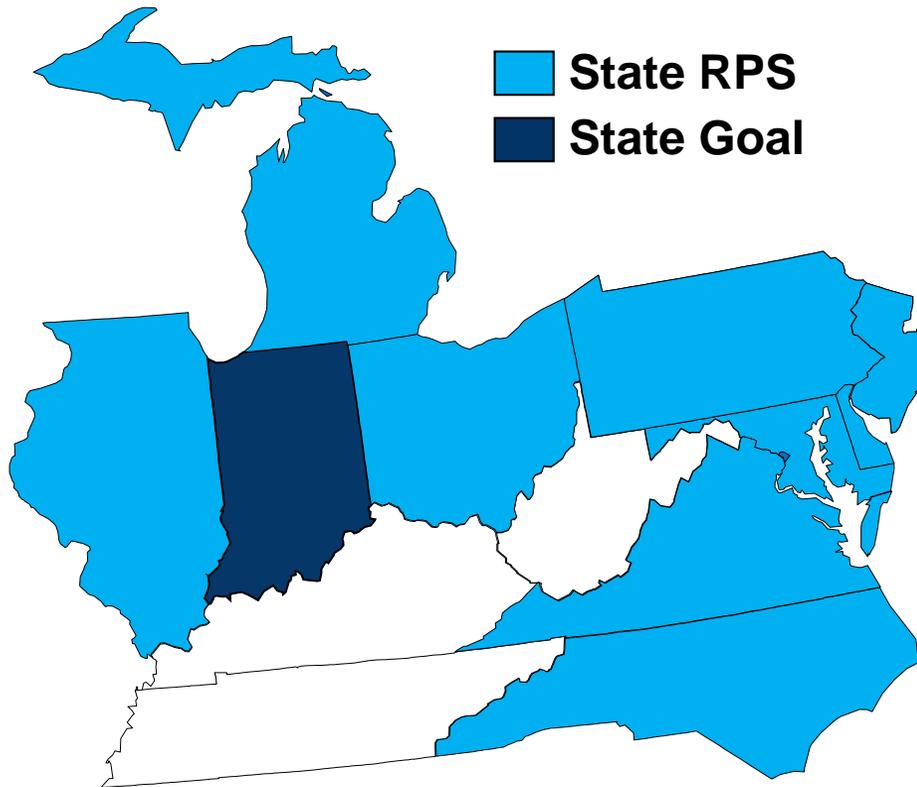
Only identified thermal violations

Transmission line conductor limits were used to establish transmission line overloads

Included RPS targets and carve-outs for each PJM state and modeled each state meeting its RPS target by required date

State Renewable Portfolio Standards (RPS) require suppliers to utilize renewable resources to serve an increasing percentage of total demand.

State RPS Targets*



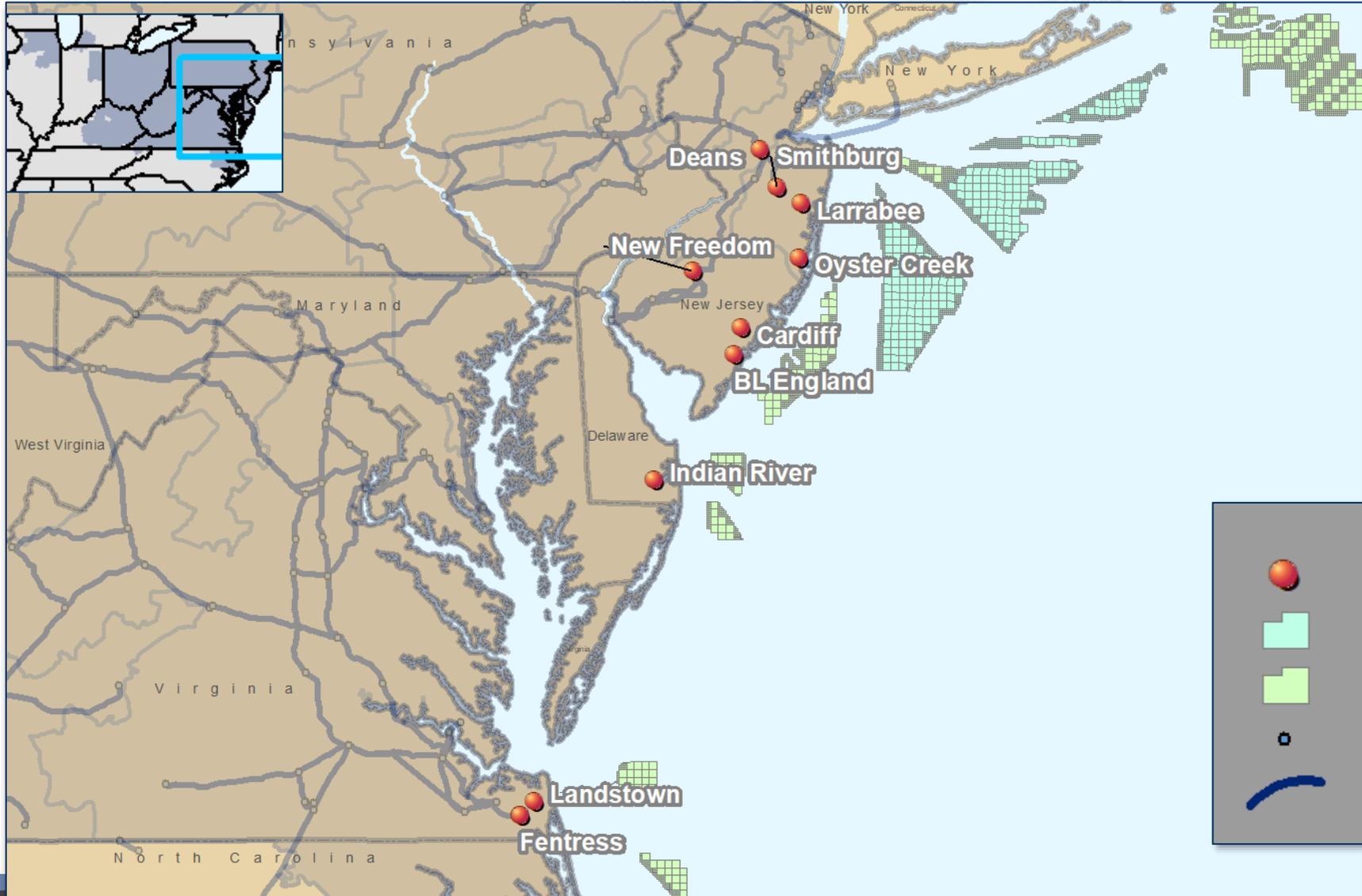
☀️ NJ: 50% by 2030**	☀️ VA: 100% by 2045/2050 (IOUs)
☀️ MD: 50% by 2030	☀️ NC: 12.5% by 2021 (IOUs)
☀️ DE: 40% by 2035	OH: 8.5% by 2026
☀️ DC: 100% by 2032	MI: 15% by 2021
☀️ PA: 18% by 2021***	IN: 10% by 2025***
☀️ IL: 50% by 2040	

☀️ Minimum solar requirement

* Targets may change over time; these are recent representative snapshot values

** Includes an additional 2.5% of Class II resources each year

*** Includes non-renewable "alternative" energy resources



Legend

- OSW Injection Scenarios
- BOEM Wind Planning Areas
- BOEM Lease Areas
- Subs \geq 345 kV
- Trans Lines \geq 345 kV

Cost Estimates

- Range from \$627.34 million to \$3,213.14 million
 - OSW injection totals range 6,416 MW–17,016 MW

Key Conclusions/ Takeaways

- Costs increase significantly between 2027 and 2035 scenarios, commensurate with RPS requirements.
 - RPS targets modeled to be met in all scenarios
- Network upgrades and associated costs identified in all scenarios.
 - High-level analysis, non-inclusive of all PJM Tariff facilities, neighboring affected systems
- Market efficiency analysis for Scenario 1 demonstrates decreased gross load payments, especially for coastal states, among other benefits.
- Phase 1 results demonstrate system impacts, opportunities to identify possible regional solutions.
- Considerations of timeline and constructability

Report: <https://www.pjm.com/-/media/committees-groups/committees/teac/2021/20211102/20211102-informational-report-offshore-wind-transmission-study-phase-1-results.ashx>

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