Transmission Planning for CLCPA Goals

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New York’s Climate Targets

• 70% renewable generation by 2030
• Zero-emission electricity by 2040
• 85% reduction in greenhouse gas emissions from 1990 levels by 2050
• Specific electric supply targets:
  – 6,000 MW of distributed solar resources by 2025
  – 3,000 MW of energy storage by 2030
  – 9,000 MW of offshore wind (OSW) generation by 2035
## Bulk Power vs. Distribution vs. Retail Load

### ENERGY PRODUCTION AND DELIVERY

<table>
<thead>
<tr>
<th>GENERATE</th>
<th>TRANSFORM</th>
<th>TRANSMIT</th>
<th>TRANSFORM</th>
<th>DISTRIBUTE</th>
<th>CUSTOMERS</th>
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**Energy Suppliers**

**Bulk Power System - Grid**

**Distribution System**

**Wholesale Energy Market - NYISO**

**Retail - Customers**

![Diagram showing the process from energy generation to retail consumption](image-url)
Identifying System Needs

- PSC and NYSERDA performed the Power Grid Study, 2020-21
- Goal: preliminarily identify electric system upgrades that are needed to meet CLCPA targets
  - 2030, 2040 horizons
- Three components:
  - Utility study (distribution and local transmission)
  - Zero emissions (100 x 40) study
  - Offshore wind integration study
Initial PGS Findings

- Grid investment will be needed throughout the State as the supply portfolio changes
- System is well placed to meet CLCPA **2030** goals
- Recent high voltage transmission projects have put the State on track
- The 9 GW offshore wind target is achievable
- A program of distribution and local transmission upgrades may be sufficient to meet 2030 targets
- More study will be needed to identify emerging transmission needs as the supply portfolio approaches 2040 targets
Types of Local Upgrades

• PGS identified two types of local upgrades that will be needed, in all regions of the State
• “Phase 1” projects: typical utility projects that are already being planned to meet reliability, asset condition, and resilience standards
• “Phase 2” projects: upgrades specifically driven by CLCPA requirements
  – Work the utilities would not do but for the CLCPA
• Phase 1 projects have significant potential to achieve most of the 2030 goals
• Phase 2 projects will likely be needed as more renewables come on-line 2030-2040
Bulk System Investments

• Key PGS findings:
  – These facilities connect different regions of the statewide system, typically at higher voltages
  – No major bulk transmission investments are needed before 2030
    • Exception: Long Island to mainland tie
  – After 2035, integration of offshore wind supplies and shift to renewables elsewhere across the State will drive bulk system investments
Offshore Wind Transmission Needs

• PGS suggests interconnecting 3 GW of offshore wind to Long Island and 6 GW to New York City may be an efficient approach to the 9 GW target
• A new tie is needed to flow up to 3 GW from Long Island to the mainland grid
• Cost-effective interconnection points capable of managing up to 6 GW are needed in New York City
  – Cable routing options should be studied
Questions so Far?

• Summarized PGS findings
• Next, discuss what the PSC is doing to address PGS recommendations
Accelerated Renewable Energy Growth and Community Benefit Act

- Statute enacted in 2020, 1 year after CLCPA
- Recognizes need to rebuild the grid in order to integrate and support new renewable generation
- Requires utilities to develop and publish plans for distribution and transmission upgrades needed to meet targets
- Requires Public Service Commission (PSC) to establish **new transmission planning processes**
Laying the Foundations

• Since publishing the Power Grid Study, the PSC has been implementing its recommendations in accordance with the Accelerated Renewable Energy Act

• Long term planning: proceeding underway to develop coordinated planning processes focused on CLCPA needs

• Phase 1 investments: PSC issued Phase 1 Order in February 2021, directing utilities to identify these projects in their investment plans
  – In response, Avangrid and National Grid have petitioned for approval of Phase 1 projects in their territories

• Offshore wind: PSC initiated solicitation for proposals for the Long Island tie
  – Several proposals are now under review
Further Ongoing Initiatives

• Phase 2 projects: PSC directed Avangrid, National Grid, and Central Hudson to propose solutions to problems in three areas of the State – where existing system cannot support installed and expected renewable generation
  – These proposals are now under review
• PSC also directed the utilities to develop a coordinated portfolio of Phase 2 projects – to be filed in January 2023
Areas of Concern
Offshore Wind Interconnection

• Con Ed has proposed a renewable energy interconnection hub in Brooklyn, NY – sized up to 4.5 GW
  – This proposal is under review
  – Cable routing options are being studied
The Planning Process

- The long term planning process: PSC, utilities, NYISO, NYSERDA, renewable energy developers, and other stakeholders are refining proposals submitted by the utilities in December 2021
- Utilities to file a revised planning process later this year
  - Public comment opportunities
- Coordinated planning will give the PSC and the public a comprehensive view of transmission needs – the basis for future investment – the blueprint for the zero carbon grid
More Questions?
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