

# System & Resource Outlook Update

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Economic Planning Department

**Electric System Planning Working Group (ESPWG)**

Tuesday June 21st, 2022 – WebEx Teleconference

# Agenda

- Outlook Study Status
- Draft Report Postings
- Draft Report Key Finding Review
- Next Steps

# Outlook Study Status

- September – October 2021: Finalize reference case assumptions\*
- November - December 2021: Conduct simulations and analysis\*
- January, February, March, April 2022, May 2022: Conduct Policy case simulations and analysis
- **May-July 2022: Issue draft report, finalize draft report, seek input from Market Monitoring Unit, Business Issues Committee and Management Committee review and action**
- **August 2022: Seek Board of Directors review and approval**
- **Following issuance, the NYISO will conduct a public information session on the Outlook**

\*Collaborate with ESPWG and seek stakeholder input

*Information in italics represents an update from the previous status or schedule*

# Material Attached w/ Agenda

- Draft Report – Chapter 1-4 (.pdf)
- Draft Report – Chapter 1-5 (.pdf) – later posting

# Report: Key Findings

# Key Finding #1

Significant new resource development will be required in order to achieve CLCPA energy targets. The total installed generation capacity to meet policy objectives within New York is projected to range from 111 GW and 124 GW by 2040.

Compared to the 51 GW of generation capacity that exists and is contracted today, this represents a significant increase in the amount of capacity needed to satisfy system reliability and policy requirements.

# Key Finding #2

To achieve an emission-free grid, dispatchable emission-free resources (DEFs) must be developed and deployed throughout New York to replace the various electrical attributes that are provided today by fossil generation. DEFs that provide sustained on-demand power and system stability will be essential to meeting policy objectives while maintaining a reliable electric grid. The capacity contribution of intermittent renewable resources declines as more are added to the system. The limited contribution of incremental resources inhibits the ability of the power system to effectively meet mandatory resource requirements and to serve load in hours in which renewable generation are limited or unavailable. The scale and technology of DEFs necessary to meet state energy needs will also depend upon the buildout of the transmission and distribution grids.

# Key Finding #3

Resource buildout alone to meet minimum capacity requirements is not sufficient to efficiently achieve policy goals. If resources are not built in excess of reserve requirements to meet reliability margins, New York will likely import significant amount of external energy that may or may not be renewable. Even with additional imports, there could be significant renewable energy that is not deliverable to customers during peak producing hours.



# Key Finding #4

Transmission expansion is critical to facilitating efficient CLCPA energy target achievement. The current New York transmission system, at both local and bulk levels, is inadequate to achieve currently required policy objectives. Renewable generation pockets throughout the State become more constrained as an increasing number of intermittent generation resources connect, necessitating transmission upgrades to make the renewable energy deliverable. Bulk and local transmission constraints on today's grid will limit the effective delivery of renewable energy to consumers throughout the State. A significant portion of projected renewable generation will be built in upstate New York areas, which are geographically and electrically distant from the major consumer hubs in downstate New York. Without significant transmission investment to provide access to renewable energy resource rich areas, the renewable energy cannot efficiently traverse New York State and be delivered to consumers.

# Key Finding #5

When dispatched effectively, energy storage could help to increase the utilization of the renewable generation, but energy storage alone cannot completely resolve the transmission limitations in the pockets analyzed.

# Key Finding #6

Peak load management should be integrated as a measure to facilitate CLCPA energy target achievement. By lowering the peak load and avoiding system buildout to serve the highest demand hour, less DEFR buildout will be needed, and during the transition fossil fuel-fired plants can be utilized less to meet lower peaks.

# Key Finding #7

Electrification from other sectors, such as building and transportation, into the power sector should be monitored and managed closely. Electrification is one of the largest factors driving peak and annual energy demand. While other sectors, such as transportation, currently account for a larger share of greenhouse gas emissions, unmitigated electrification of the energy sector could lead to higher energy costs and reduced reliability.

# Key Finding #8

Co-optimization of renewable energy additions and fossil fuel plant operation during the transition could facilitate a more efficient and cost-effective buildout of the future renewable generation portfolio. High natural gas prices, high CO2 prices, or lower capital costs for renewable generation, could all lead to a relatively larger buildout of renewable energy resources. However, the large amount of renewable energy additions to achieve the CLCPA goals will impact the operations of the fossil fuel fleet in the 20-year transition to an emission-free grid. Overall, the annual output of the fossil generation will decline. The units that are more flexible will be dispatched more often, while the units that are less so may be dispatched less or not at all. Balancing the need to retain fossil resources that are necessary in the transition for the continued reliability of the grid with the goals of achieving a zero-emissions grid will be the central challenge to the industry in the coming decades.

# Next Steps

# Next Steps

- **Full Draft Report v2 at 7/1 ESPWG**
  - Posting deadline Tuesday 6/28
  - Please send feedback to NYISO by Monday 6/27
- **Upcoming Stakeholder Meetings**
  - Friday July 1<sup>st</sup> ESPWG
  - Wednesday July 13<sup>th</sup> BIC
  - Wednesday July 27<sup>th</sup> MC
- **Board of Directors Meeting on August 15<sup>th</sup>**

# Questions, Feedback, Comments?

- Email additional feedback to: [JFrasier@nyiso.com](mailto:JFrasier@nyiso.com)



# 2021-2040 Outlook Data Catalog

ESPGW/TPAS Presentations

May 20, 2021

Model Benchmark Results

September 22, 2021

System & Resource Outlook Update

October 25, 2021

Capacity Expansion Model Primer

System & Resource Outlook Update

November 19, 2021

System & Resource Outlook Update

December 19, 2021

System & Resource Outlook Update

January 25, 2022

System & Resource Outlook Update

February 9, 2022

System & Resource Outlook Update

Base & Contract Case Results

February 25, 2022

System & Resource Outlook Update

March 8, 2022

System & Resource Outlook Update

March 24, 2022

System & Resource Outlook Update

Contract Case Congestion Analysis

April 1, 2022

System & Resource Outlook Update

April 26, 2022

System & Resource Outlook Update

May 23, 2022

System & Resource Outlook Update

June 2, 2022

System & Resource Outlook Update

June 8, 2022

System & Resource Outlook Update

Updated 6/2 Presentation

Reports

Data Posted to ESPWG



6/7 – Draft Report Chapter 1  
6/16 – Draft Report Chapters 1-4

- Assumptions Matrix v1
- Capacity Expansion Assumptions Matrix v1
- Contract Case Renewable Projects
- Emissions Price Forecast
- Fuel Price Forecast
- Capacity Expansion Assumptions Matrix v2 (Redline)
- Capacity Expansion Assumptions Matrix v3 (Redline)
- Production Cost Assumptions Matrix v2 (Redline)
- Capacity Expansion Assumptions Matrix v4 (Redline)
- Capacity Expansion Assumptions Matrix v5 (Redline)
- Policy Case Hourly Load Forecasts
- Policy Case Zonal Capacity Expansion Preliminary Results
- Capacity Expansion Assumptions Matrix v6 (Redline)
- Capacity Expansion Assumptions Matrix v7 (Redline)
- S1 & S2 New Generator Additions
- Hourly Load Forecasts
- Capacity Expansion Assumptions Matrix – Final
- Production Cost Assumptions Matrix - Final

# Our Mission & Vision



## Mission

Ensure power system reliability and competitive markets for New York in a clean energy future



## Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation