NYISO Transmission Planning & Cost Allocation

Henry Chao
Vice President – System & Resource Planning
New York Independent System Operator

Harvard Electricity Policy Group 81st Plenary Session
Transmission Expansion and Cost Allocation: Order 1000 Redux Panel
December 10, 2015
Palm Beach, FL
Infrastructure Investment

- Locational market signals have driven investments in both generation and transmission.
- New investments have been predominantly directed at serving metropolitan New York City region -- where both energy and capacity prices are the most attractive.

80% of new generation built in South/East where demand is greatest.

All new interstate transmission built in South/East.
Transmission Congestion

The most congested parts of NY’s transmission system restrict flow of power from Northern and Western NY to Southeastern NY.

KEY CONGESTION CORRIDORS
2015 Congestion Assessment and Resource Integration Study (CARIS)

Western 230 kV System

Legend
- 765 kV
- 500 kV
- 345 kV
- 230 kV
NYISO’s Comprehensive System Planning Processes

- Reliability Planning
  - Approved by FERC in 2004
- Economic Planning
  - Approved by FERC in 2008
- Public Policy Transmission Planning
  - New process -- Approved by FERC in 2014
- Interregional Planning
  - A consensus from two or more regions is required to include interregional transmission projects in regional plan for cost allocation – Approved by FERC in 2015
Reliability Planning

- Step 1: Reliability Needs Assessment (RNA)
  - 10-year planning horizon
  - Identifies needs to comply with planning criteria

- Step 2: Comprehensive Reliability Plan (CRP)
  - 10-year planning horizon
  - Market-based solutions (Preferred)
  - Regulated backstop solutions (Transmission Owner obligation if markets do not address needs)
  - Transmission, Generation, Demand Response all eligible (NYISO evaluates all resources for viability & sufficiency)
  - NYISO evaluates and selects a transmission project based on efficiency and cost effectiveness
  - “Beneficiaries Pay” cost allocation and cost recovery
Economic Planning
Congestion Assessment & Resource Integration Study (CARIS)

❖ Phase I: Generic Study
  - 10-year planning horizon
  - Identification and ranking of congested elements and corridors
  - Develop 3 generic solutions (transmission, generation, demand response) to mitigate identified congestion
  - Provide costs and benefits analysis as an information to interested parties

❖ Phase II: Specific Project Evaluation
  - 20-year planning horizon
  - Perform cost-benefit analysis of proposed economic transmission projects to determine eligibility for cost recovery
  - “Beneficiaries Pay” cost allocation and cost recovery – Need 80% supermajority for approval (Only ISO/RTO to adopt elements of Hogan’s Argentine Model)
Hogan’s Argentine Model

A framework to incorporate “lumpy” transmission investments into electricity markets*

♦ Major Expansion of Transmission by “Public Contest” Method

- Overcoming market failure without overturning markets
  - Regulator applies the “Golden Rule” (Cost Benefit Test). Use the same economic cost benefit analysis to identify expected beneficiaries
  - 30%-30% Rule. At least 30% of beneficiaries must be proponents. No more than 30% of beneficiaries can be opponents.
  - Assign costs to beneficiaries with mandatory participant funding
  - Award either Auction Revenue Rights or Long Term FTRs to beneficiaries with costs

Public Policy Transmission Planning Process (PPTPP)

- **Phase I: Identify Needs and Solicit Solutions**
  - NYSPSC identifies transmission needs driven by public policy
  - NYISO solicits solutions (transmission, generation, & demand response)
  - NYISO evaluates all solutions for viability and sufficiency to meet the need

- **Phase II: Transmission Evaluation and Selection**
  - NYPSC confirms transmission need after considering the results of the NYISO’s viability & sufficiency analysis
  - NYISO evaluates proposed transmission solutions, calculates benefits and costs, and identifies the more efficient or cost effective transmission solution
  - MMU assesses the potential market impacts of transmission solutions
  - NYISO Board may select a transmission solution for cost allocation
  - “Beneficiaries Pay” cost allocation and cost recovery
Public Policy Transmission Needs

Western New York Public Policy Transmission Need

- Transmission constraints affect Niagara generation & Ontario Imports
- **July 2015** -- PSC Order identified Western New York as a Public Policy Transmission Need

Central East Transmission Upgrades

- **Sept. 2015** -- DPS staff recommended **two transmission segments** for AC transmission upgrades
- **Dec. 2015** -- PSC expected to consider DPS recommendation & may identify a public policy transmission need
New York State Energy Plan Goals (by 2030)

- 40% Reduction in greenhouse gas emissions compared to 1990
- 50% electricity generation from renewable energy sources
- 600 TBTU increase in statewide energy efficiency
Interregional Planning

• Based on the Northeast ISO/RTO Planning Coordination Protocol and its stakeholder process
  ▪ A formal procedure for the “identification and joint evaluation of interregional facilities that may be more efficient or cost-effective solutions to regional needs”
  ▪ Transparency and sharing of information, data and regional needs and potential conceptual interregional solutions.

• Specific Procedures
  ▪ A developer must first propose an interregional project in each regional planning process
  ▪ The interregional evaluation must be conducted in the “same general timeframe” as the regional evaluations
  ▪ An interregional project must first be selected in both of the regional planning processes in order to receive interregional cost allocation
Interregional Cost Allocation

- Region A has identified Transmission Project X to meet a Reliability Need identified in its regional planning process at Cost (X)
- Region B has identified Transmission Project Y to meet a Reliability Need identified in its regional planning process at Cost (Y)
- Regions A & B through their interregional planning process have determined that Interregional Transmission Project Z at Cost (Z) will address the Reliability Needs in both regions “more efficiently and cost effectively” than the separate regional Transmission Projects X & Y
  - The Cost of Project Z is less than the combined cost of Projects X & Y
- Regions A & B have each determined that Interregional Project Z is the preferred solution to their individual Reliability Needs and have each adopted that project in their respective Regional Plans replacing Projects X & Y respectively
- Regions A & B will be cost allocated at each of their avoided costs
The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state’s bulk electricity grid, administering New York’s competitive wholesale electricity markets, conducting comprehensive long-term planning for the state’s electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.

www.nyiso.com