



**Department of
Public Service**

Three Empire State Plaza, Albany, NY 12223-1350
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May 13, 2022

Hon. Michelle Phillips
Secretary to the Commission
New York State Public Service Commission
Three Empire State Plaza
Albany, NY 12223-1350

Re: Case 20-E-0197 – Proceeding on Motion of the Commission to Implement
Transmission Planning Pursuant to the Accelerated Renewable Energy Growth
and Community Benefit Act.

Dear Secretary Phillips:

Materials for the May 13, 2022 virtual technical conference are enclosed. A link to the materials will be available on the Coordinated Grid Planning Working Group webpage: <https://on.ny.gov/3LOMzy5> following the conference.

Sincerely,

Jalila Aissi
Assistant Counsel

System & Resource Planning Process

Zach Smith

Vice President, System & Resource Planning

PSC Technical Conference

May 13, 2022

Topics

- **NYISO System & Resource Planning roles**
- **Comprehensive System Planning Process overview**
- **Planning Timeline**
- **FERC Notice of Proposed Rulemaking**

NYISO System & Resource Planning

Comprehensively Plan
system & resources to elicit market-based and regulated infrastructure investments to maintain system reliability, improve market efficiency, and fulfill public policy needs

Reliably Interconnect
competitive generation, load and transmission projects to the New York grid

NYISO System & Resource Planning

Accurately Forecast
short-term and long-term electricity demand for grid & market operations, system planning, and NYISO budgeting

Independently Provide
authoritative information to promote economic and environmental improvements in balance with reliability requirements

NYISO Planning Responsibility

- **Open Access Transmission Tariff Attachment Y establishes the process that the ISO, Transmission Owners, Market Participants, and other interested parties shall follow to plan the New York State Bulk Power Transmission Facilities (BPTFs)**
 - BPTFs are generally 230 kV and above; 138 kV and above on Long Island
- **Planning Coordinator and Reliability Coordinator for New York Bulk Electric System (100 kV and above):**
 - The NYISO is the responsible entity that coordinates and integrates transmission facilities and service plans, resource plans, and protection systems.

NYISO Planning Responsibility: Criteria, Assumptions, and Data

■ Planning Criteria:

- The electric power system planning and operating policies, standards, criteria, guidelines, procedures, and rules promulgated by the North American Electric Reliability Corporation (NERC), Northeast Power Coordinating Council (NPCC), and the New York State Reliability Council (NYSRC)

■ Assumptions:

- Factors for consideration: Federal, state and local laws and regulations, demand forecast, resource availability, system expansion, etc.
- Details vary according to the planning process and are described in manuals.

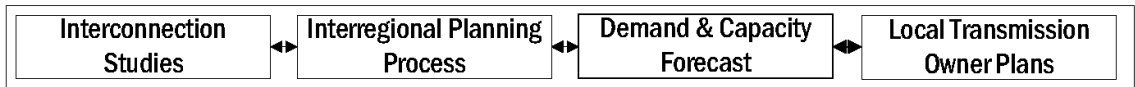
NYISO Planning Responsibility: Review and Approval

- **Stakeholder forums:**
 - Transmission Planning Advisory Subcommittee (TPAS)
 - Electric System Planning Work Group (ESPWG)
- **Collaborative Governance and stakeholder approval:**
 - BIC: Business Issue Committee
 - OC: Operating Committee
 - MC: Management Committee
- **NYISO Board of Directors approval**

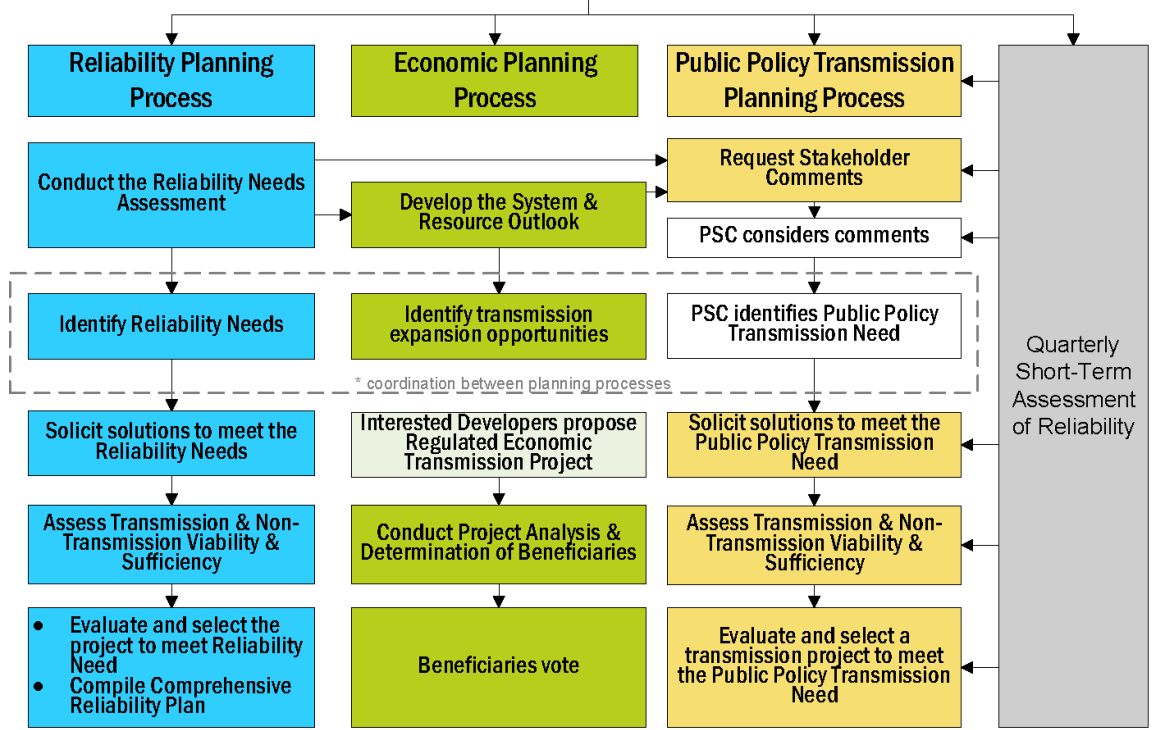
Comprehensive System Planning Process

Comprehensive System Planning Process

- **Local Transmission Owner Planning Process**
- **Reliability Planning Process**
 - Short-Term Assessments of Reliability (STARs)
 - Reliability Needs Assessment (RNA)
 - 10-year Comprehensive Reliability Plan (CRP)
- **Economic Planning Process**
 - 20-year System & Resource Outlook (“The Outlook”)
- **Public Policy Transmission Planning Process**
 - Public Policy Transmission Needs (PPTN)
- **Interregional Planning**
 - Northeast Coordinated System Plan



NYISO Comprehensive System Planning Process



Local TO Planning Process (LTPP)

- **The Transmission Owners are responsible for planning their local transmission systems for their transmission districts and developing their respective Local Transmission Owner Plans (LTPs).**
 - All transmission voltage levels within their transmission districts
 - *Does not include electric distribution system planning*
- **FERC requires the Transmission Owners and the NYISO to comply with requirements of Order No. 890 and Order No. 1000 in carrying out local and bulk power system transmission planning.**
- **Variations from approved tariffs would require FERC acceptance or approval that the proposed changes meet FERC planning principles and are consistent with or superior to current requirements.**

LTPP: Transmission Owner Responsibilities

- Identify and evaluate solutions to identified transmission needs, including transmission solutions proposed by market participants and other parties for inclusion in its LTP.
- Determine whether there are transmission needs driven by a public policy requirement for which local transmission solutions should be evaluated, after considering input provided by the DPS and any information provided by a market participant or other party.
- Present draft LTPs, including planning criteria and assumptions, and a list of applicable software and/or analytical tools for comments in the NYISO stakeholder process.
- Any local solution identified by a Transmission Owner to address an identified transmission need, including those driven by public policy requirements, will be reviewed with stakeholders. Formal solicitation of solutions is not required, but Transmission Owners must evaluate transmission solutions proposed by market participants and other parties for inclusion in its LTP.

LTPP: Applications in CSPP

- **LTPs provided by Transmission Owners:**
 - Serve as input into the compilation of NYISO's annual Load & Capacity Data Report (Gold Book)
 - Included in the unified planning model for the New York State Transmission System, and used as the foundation of CSPP
 - Transmission Owners actively participate in all elements and are responsible for compiling the system representation for their service territories.
 - The models include all system transmission facilities from 765 kV and can include distribution facilities down to 11 kV.

Planning Timeline

		Data	Reliability			Economic		Public Policy	
			NERC Compliance	Long-Term	Short-Term	Outlook	Requests	PPTN	TO Process
2022	Q1	Gold Book & FERC 715 compilation	TO and NYISO Planning Assessment analysis and draft findings	Base Case Development	Quarterly STARS	20-year System & Resource Outlook	REPS or ETPE as resources allow	NYISO assessments, evaluations, selection	TOs consider DPS and MP input on PPR needs. TOs post PPR needs selected, explain others not selected. TOs evaluate solutions, including MP solutions. TOs consult with DPS to identify more efficient or cost effective solutions for local system. TOs incorporate projects into LTP.
	Q2	Dynamics database compilation	Finalize Planning Assessments	Draft Reliability Needs					
	Q3		TO and NYISO Planning Assessment analysis and draft findings	Final Reliability Needs Assessment		Database benchmarking and development	Better time for REPS or ETPE	Stakeholders propose public policy transmission needs	
	Q4	TOs provide LTP Updates						Post-RNA Update	
2023	Q1	Gold Book & FERC 715			Quarterly STARS	20-year System & Resource Outlook	REPS or ETPE as resources allow	NYISO assessments, evaluations, selection	
	Q2	Dynamics database	Finalize Planning Assessments	Comprehensive Reliability Plan					
	Q3		TO and NYISO Planning Assessment analysis and draft findings	Base Case Development		Database benchmarking and development	Better time for REPS or ETPE	Stakeholders propose needs PSC issues SAPA and seeks public comments	
	Q4	LTP Updates							
2024	Q1	Gold Book & FERC 715 compilation	TO and NYISO Planning Assessment analysis and draft findings	Base Case Development	Quarterly STARS	20-year System & Resource Outlook	REPS or ETPE as resources allow	NYISO assessments, evaluations, selection	
	Q2	Dynamics database compilation	Finalize Planning Assessments	Draft Reliability Needs					
	Q3		TO and NYISO Planning Assessment analysis	Final Reliability Needs Assessment		Database benchmarking and development	Better time for REPS or ETPE	Stakeholders propose needs PSC issues SAPA and seeks public comments	
	Q4	TOs provide LTP Updates							

FERC Notice of Proposed Rulemaking

FERC NOPR Expanding Bulk & Local Transmission Planning

- On April 21, 2022, FERC issued a long-anticipated draft Notice of Proposed Rulemaking (NOPR) proposing federal regulations requiring expanded bulk and local transmission planning through NYISO's tariffs. Among the proposals, the new rules would establish:
 - New Long-Term Regional Transmission Planning requirements to identify and fulfill transmission needs driven by expected system and resource changes, in consideration of state entity input
 - Expanded transmission evaluation metrics
 - Enhanced local transmission planning requirements
 - “Right sizing” of transmission solutions

Long-Term Regional Planning

- **Longer time period; plan for 20 years from expected in-service date of new transmission**
- **Evaluate scenarios to address specific factors affecting transmission needs, including:**
 - Federal, state and local laws affecting the resource mix, changing demand, requiring decarbonization, and driving electrification
 - Trends in new technologies and fuel costs
 - Aging resources and retirements
 - Generator interconnection requests and withdrawals due to costly system upgrades
 - Utility and corporate commitments
 - High-impact, low-frequency events such as extreme hot and cold weather, and storms

Long-Term Transmission Evaluation

- Evaluate transmission using expanded set of 12 Long-Term Regional Transmission Benefits
- Establish role for states to determine cost allocation with FERC approval
- Allow utilities to exercise rights-of-first-refusal for new transmission if co-owned by other developers
- Consider interregional transmission projects to meet long-term needs

Local TO Planning Enhanced Requirements

- **Assumptions meeting:** Prior to submitting plans utilities must convene a stakeholder meeting to review criteria, assumptions and models to be used
- **Needs meeting:** No fewer than 25 days after the assumptions meeting, utilities must convene a stakeholder meeting to review identified reliability criteria violations and other transmission needs that drive need for local transmission facilities
- **Solutions meeting:** No fewer than 25 days after the needs meeting, utilities must convene a stakeholder meeting to review potential solutions, before posting final local transmission plans
- All meeting materials publicly posted
- Stakeholders must have opportunities before and after each meeting to submit comments

Transmission Replacement “Right Sizing”

- **Public utilities must evaluate whether transmission facilities 230 kV and above that owners anticipate replacing in kind during next years can be “right sized” to more efficiently or cost-effectively address transmission needs identified in Long-Term Regional Transmission Planning**
 - For example, redesigning a single-circuit line as a double circuit and/or incorporating advanced technologies.

Next Steps on FERC NOPR:

- Initial comments due July 18, 2022
- Reply comments due August 17, 2022
- FERC will hold a technical conference on transmission planning and cost management on October 6, 2022
- FERC has indicated it will issue a final order by the end of the year
- Compliance filings are expected in 2023
- Depending on FERC action, new planning processes may be effective sometime in 2024

Questions?

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

Appendices: CSPP Details

Reliability Planning Objectives

- Identify Reliability Needs of the Bulk Power Transmission Facilities pursuant to applicable reliability criteria (NERC, NPCC, NYSRC);
- Identify, through the development of appropriate scenarios, factors and issues that might adversely impact the reliability of the bulk system;
- Provide an open and transparent process whereby solutions to identified needs are proposed, evaluated on a comparable basis, selected (as applicable), and implemented in a timely manner to ensure the reliability of the system;
- Provide an opportunity first for the implementation of market-based solutions while providing for the reliability of the bulk system;
- Coordinate the NYISO's reliability assessments with local utilities and neighboring control areas.

Reliability Planning Studies

- **Short Term Assessments of Reliability (STARs)**
 - Conducted quarterly in direct collaboration with Transmission Owners
 - Five-year study, with a focus on addressing needs arising in the first three years
- **Reliability Needs Assessment (RNA)**
 - Conducted biennially to identify long term reliability needs in years 4-10
 - Considers all Transmission Owner LTPs and updates throughout the process
 - If reliability needs are identified, the NYISO issues a competitive solicitation for solutions, and TOs are required to propose Regulated Backstop Solutions
- **Comprehensive Reliability Plan (CRP)**
 - Biennial report that documents the plans for a reliable grid over the 10-year planning horizon
 - Includes evaluation and selection of transmission solutions to reliability needs in years 4-10

Economic Planning Process Objectives

- I.** Develops the 20-year System & Resource Outlook and identifies current and future congestion on the New York State Transmission System;
- II.** Evaluates any Regulated Economic Transmission Project proposals to address any constraint(s) on the BPTFs identified in the Economic Planning Process, which transmission projects are eligible for cost allocation and cost recovery under the ISO OATT if approved by a vote of the project's Load Serving Entity beneficiaries;
- III.** Conducts any Requested Economic Planning Studies. In conducting the process, the ISO will analyze a base case and scenarios that are developed in consultation with stakeholders.

System & Resource Outlook Scope

**Model
Development**

**Congestion
Assessment**

Renewable
Pocket
Formation

Projected
Operations
& Market
Impact
Analysis

Reference
cases

Sensitives
and
Scenarios

Historic &
Future
Transmission
Congestion

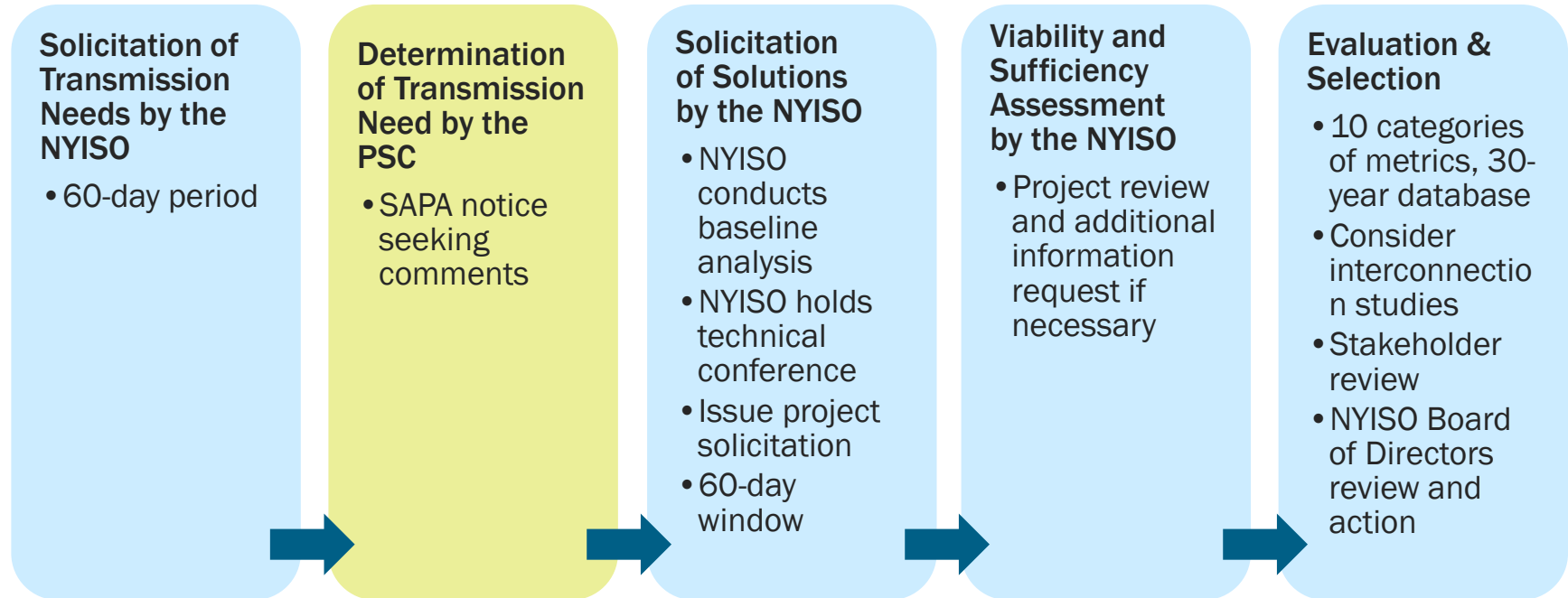
Congestion
Relief
Analysis

**Energy
Deliverability
Assessment**

Public Policy Transmission Planning Process Objectives

- I. ISO solicits needs for transmission driven by Public Policy Requirements;**
 - A. Public Policy Requirements are federal, state and local laws and regulations that create a need for changes to the transmission system.
- II. Evaluates all Public Policy Transmission Projects and Other Public Policy Projects proposed to address a Public Policy Transmission Need on a comparable basis;**
- III. Selects the more efficient or cost effective Public Policy Transmission Project, if any, for eligibility for cost allocation under the ISO Tariffs;**
- IV. Designates developers and utilities as responsible for developing the facilities that compose the selected Public Policy Transmission Project.**

Public Policy Transmission Planning Process



Blue: NYISO steps

Green: PSC steps

NYSERDA Solicitation Process Alignment with Coordinated Grid Planning Process

Coordinated Grid Planning Process (CGPP)
Process Alignment Technical Conference
May 2022

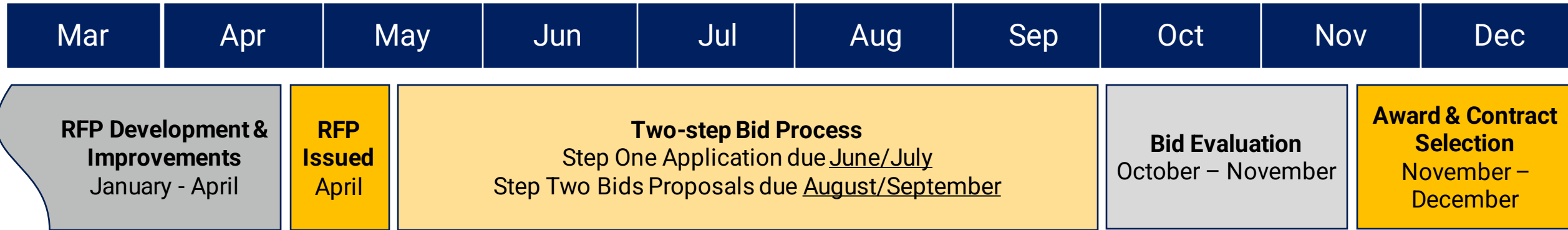


NYSERDA

Key Areas of Process Alignment

- Informing the site identification and development work of bidders before they propose to NYSERDA at two primary opportunities
 1. The application stage, typically in June/July.
 2. The binding bid step, typically due late August/September. This is the step in which the non-refundable Bid Fee is required.
- Informing the Technical Evaluation Panel scoring process, and NYSERDA and DPS Staff's evaluation and selection process for each annual Tier 1 RFP

Typical Annual Tier 1 RFP Schedule*



Milestone	Date
Planned RFP Release	April
Proposers' Webinar	May
Step One Applications Due	June/July
Notice of Qualifications Sent	July
Step Two Bid Proposals Due	August/Sept.

CGPP outputs will inform the evaluation process; this will be described in future RFP's once CGPP is more fully developed.

CGPP is also intended to inform project developer activities and is anticipated to inform RFP responses submitted to NYSERDA.

* This schedule is indicative of annual NYSERDA Tier 1 RFP timing. Specific timing will be determined and communicated for each individual RFP at the time of issuance.

COORDINATED GRID PLANNING PROCESS (CGPP)

*Process Alignment of New York Joint Utilities (JU),
NYISO & NYSERDA to meet the CLCPA*

Agenda

01 Utilities Existing Planning Processes

02 CGPP Stages: Stage 1 to Stage 6

03 CGPP Process Alignment

04 CGPP Evolution

Existing Local planning processes

Annual:

- Summer Operating Study
- Winter Operating Study
- Local Reliability Rule
- Light Load Analysis*
- NERC TPL Planning Assessment
- FAC-014 Planning Horizon SOLs
- Long Range Development Plan
 - Incorporates identified needs from relevant studies/processes

Biennial:

- Local Transmission Plan (LTP)
 - Updated outside of schedule, as needed

As required:

- FAC-002 BES Transmission Project System Impact Study (SIS)
- PRC-002 Identification of BES buses for sequence of events / fault recording. (Short Circuit Study)
- TVR Guidelines
- Effective Grounding Studies
- Various Criteria updates as needed



Existing Regional planning processes

Annual:

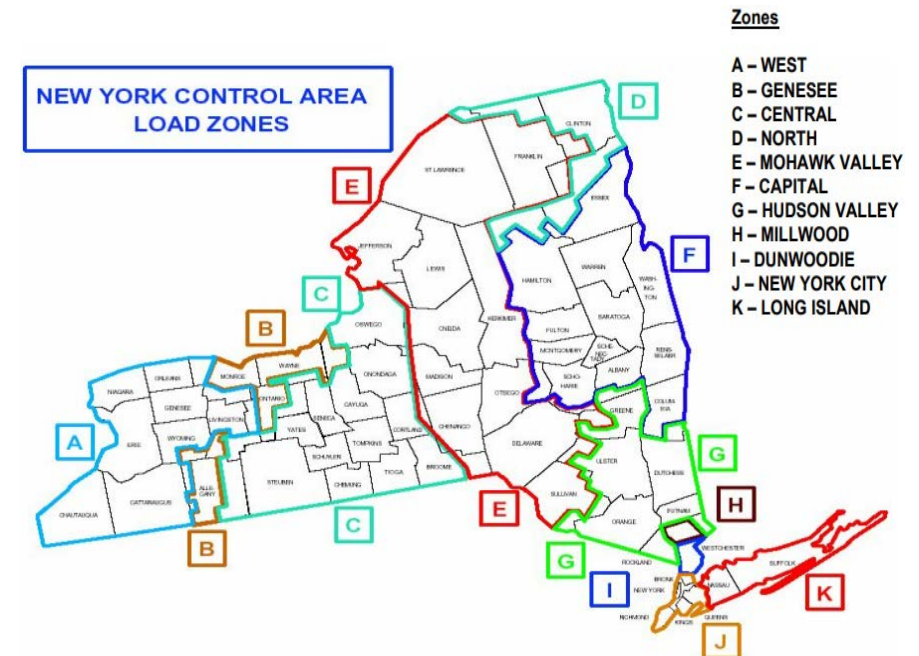
- Summer Operating Study
- Winter Operating Study
- Fault Current Assessment
- Updates to “NYISO Elements Critical to IROL Derivation”
- FERC 715 / Gold Book / Database Update
 - Firm projects from LTP incorporated

Biennial:

- Comprehensive System Planning Process (CSPP)
- Reliability Needs Assessment (RNA)
- Comprehensive Reliability Plan (CRP)
- Public Policy

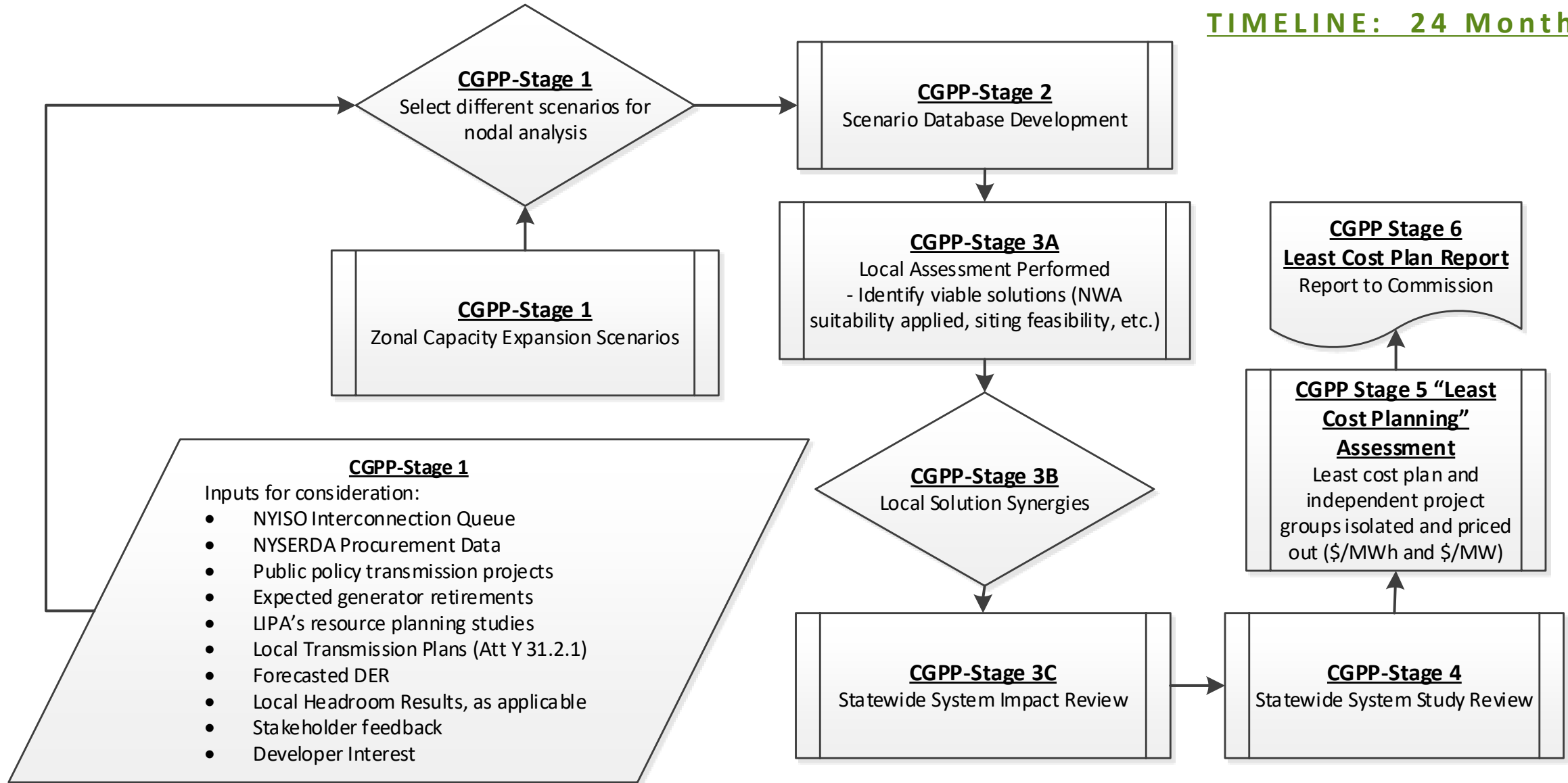
As required:

- Interconnection (FES, SRIS, CY)
- Area Transmission Review
- Geomagnetic Disturbance (GMD) Vulnerability Assessment
- Short-Term Assessment of Reliability (Quarterly STAR)
 - Increasing needs experienced



Proposed Coordinated Grid Planning Process “CGPP”

TIMELINE: 24 Months



Proposed CGPP STAGES

Stage 1: Data Collection / Coordination and Development of Scenarios

Stage 2: Scenario Database Development

Stage 3: Assessment

Stage 3A: Local System Assessment

Stage 3B: Local Solution Synergies

Stage 3C: Statewide System Impact Review

Stage 4: Statewide System Study Review

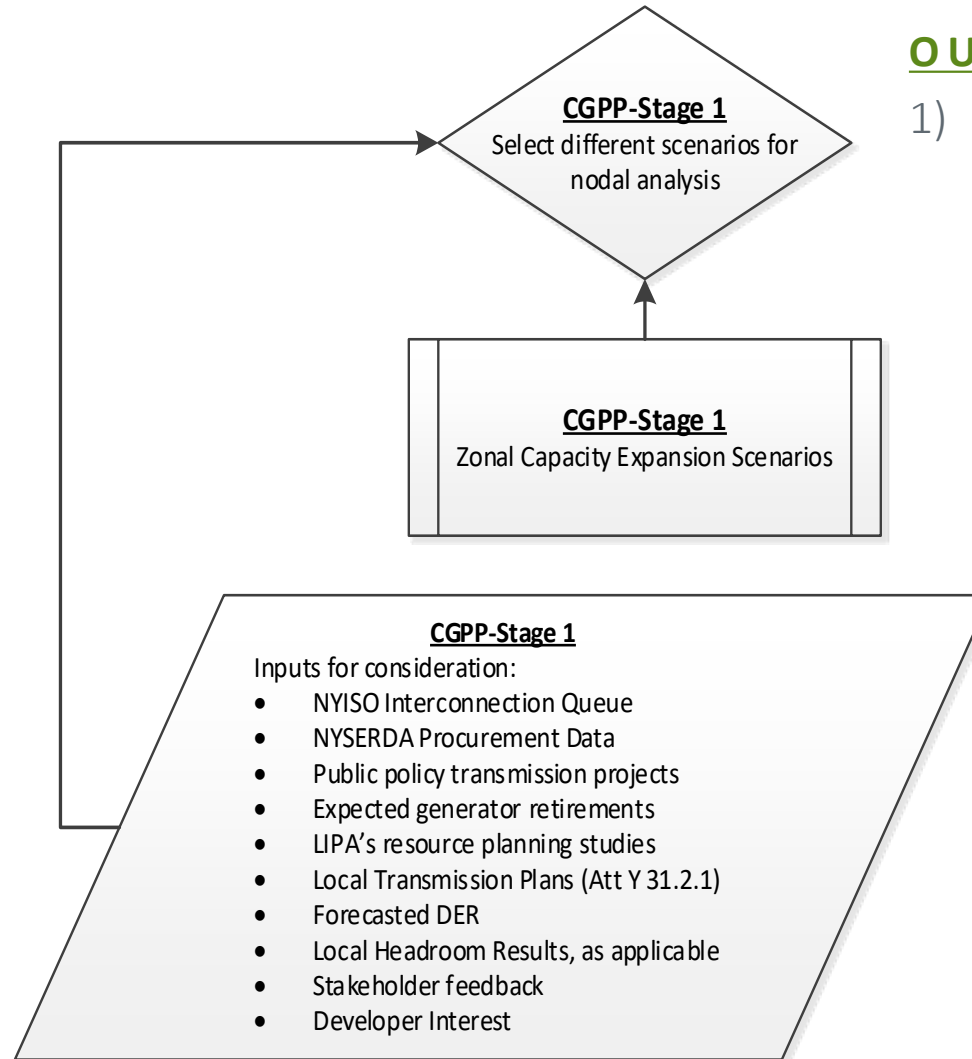
Stage 5: “Least Cost Planning” Assessment

Stage 6: Least Cost Plan Report

Proposed Stage 1: Data Collection / Coordination and Development of Scenarios

SCOPE OF WORK

- 1) Energy Policy Planning Advisory Committee (EPPAC) guides Capacity Expansion (CapEx) scenarios for CGPP analysis
- 2) Base decision on different considerations:
 - NYISO Interconnection Queue
 - NYSERDA Procurement Data
 - Public policy transmission projects
 - Expected generator retirements
 - LIPA's resource planning studies
 - Local Transmission Plans
 - Approved Phase 2 projects
 - Forecasted DER
 - Local Headroom Results, as applicable
 - Stakeholder feedback
 - Developer Interest



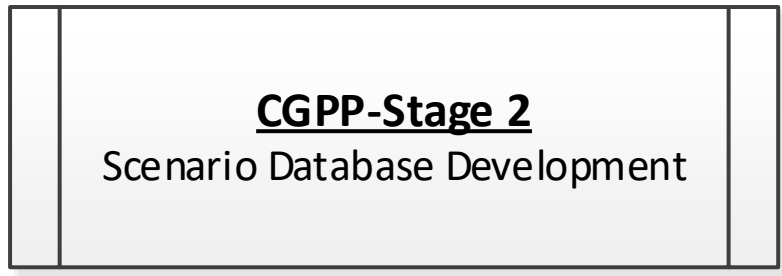
OUTPUTS

- 1) CapEx scenarios:
 - Type and magnitude of generation by zone
 - When generation gets installed
 - When generation gets retired
 - Capital vs. operating cost
 - Areas with economic generation opportunity

Proposed Stage 2: Scenario Database Development

INPUTS

- 1) NYISO Gold Book
- 2) NYISO Database Updates
- 3) FERC 715 cases
- 4) Selected CapEx scenarios



SCOPE OF WORK (Under Discussion)

For each respective CapEx scenario:

- 1) Develop accurate system models for:
 - short circuit (x1 per scenario)
 - power flow (x12 per scenario)
- 2) Develop reliability contingency files
 - Developed for each respective case
- 3) Develop load and generation assumptions
- 4) Develop utility specific T&D system representation

OUTPUTS

- 1) Study Cases

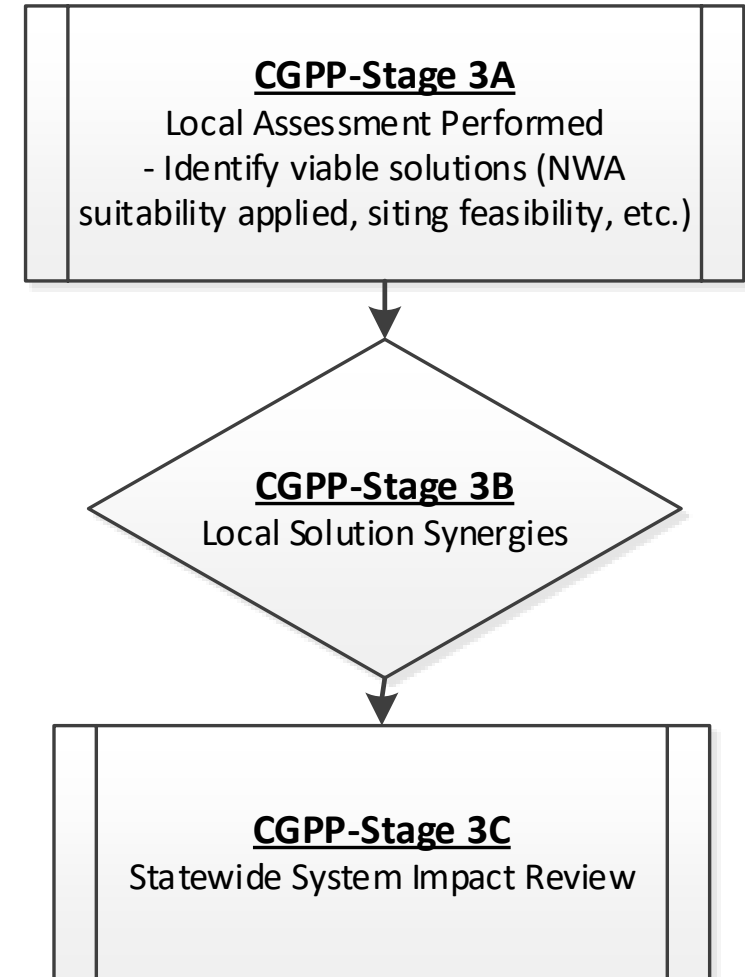
Proposed Stage 3: Assessment

INPUTS

- 1) Study Cases for **each** CapEx scenario (under discussion):
 - Short Circuit and Steady State Load Flow
 - Light Load, Shoulder Load, Winter Peak, Summer Peak
 - Done on a calendar basis:
 - Years 2030, 2035, & 2040 studied for first cycle
 - 12 load flow cases per CapEx scenario
 - 1 short circuit cases per CapEx

OUTPUTS

- 1) Draft statewide system study report



Proposed Stage 3A: Assessment – Local System Assessment

INPUTS

- 1) Study Cases

SCOPE OF WORK (Under Discussion)

- 1) Review of system performance for each local area:
 - short circuit
 - thermal
 - voltage
- 2) Identify pre- and post-contingency constraints on local system
- 3) Identify viable solutions for the identified constraints:
 - “on-ramps”
 - Local transmission projects that deliver new renewable generation (REG), typically, from lower voltage systems to higher voltage systems (including BPS) as part of the transmission of energy from generation to load.
 - Distribution projects that increase local hosting including being able to backfeed new REG to the local transmission.
 - “off-ramps”
 - LT&D projects that deliver new REG, typically from higher voltage systems, to serve loads in lower voltage systems.
 - “internal”
 - LT&D project which allow new REG to feed other loads at the same voltage level.
 - Non-Wire Alternatives / Solutions (NWA/NWS)

OUTPUTS

- 1) Set of local solutions

Proposed Stage 3B: Assessment – Local Solution Synergies

INPUTS

- 1) Sets of local solutions

SCOPE OF WORK (Under Discussion)

- 1) Qualitative review of solutions:
 - Identify potential synergies between local solutions
 - Perform iterative assessment, as needed, to ensure viability and sufficiency of cost-effective solution(s)
 - Identify any potential to perform cost effective adjustments to local solution(s)

OUTPUTS

- 1) Sets of preferred local solutions

Proposed Stage 3C: Assessment – Statewide System Impact Review

INPUTS

- 1) Sets of preferred local solutions

SCOPE OF WORK (Under Discussion)

- 1) Identify any adverse impacts on the neighboring systems or to the BPS
- 2) Modify solutions, as needed, to address adverse reliability issues.

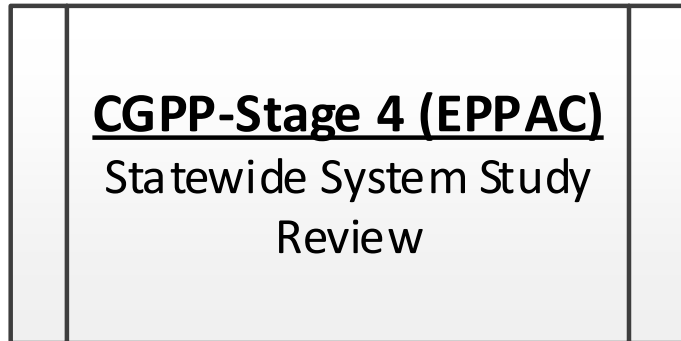
OUTPUTS

- 1) Draft statewide system study report

Proposed Stage 4: Statewide System Study Review

INPUTS

- 1) Draft statewide system study report



SCOPE OF WORK

- 1) Stakeholder review of results and findings

OUTPUTS

- 1) Statewide system study report

Proposed Stage 5: “Least Cost Planning” Assessment

INPUTS

- 1) Cost and benefit of transmission solutions

<p><u>CGPP Stage 5 “Least Cost Planning” Assessment</u></p> <p>Least cost plan and independent project groups isolated and priced out (\$/MWh and \$/MW)</p>

SCOPE OF WORK

- 1) Review solutions for cost effectiveness:
 - Evaluate cost solutions on a \$/MW basis
 - Incremental amount of energy delivered to load
 - Reduced curtailment
 - Capacity of additional renewable generation that can be interconnected

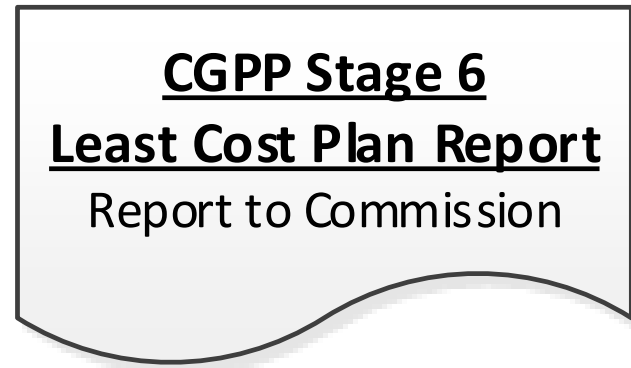
OUTPUTS

- 1) Least Cost Plan

Proposed Stage 6: Least Cost Plan Report

INPUTS

- 1) Least Cost Planning Assessment result



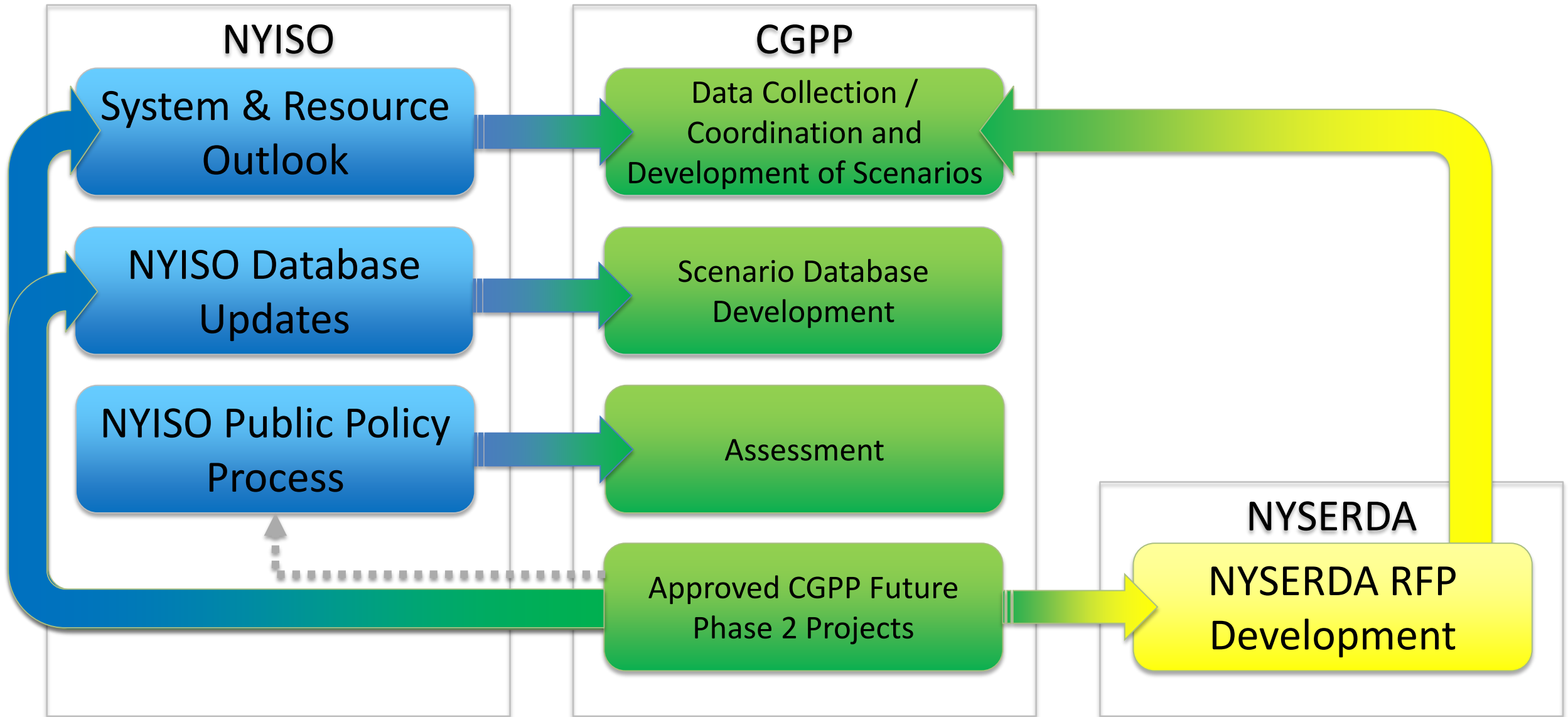
SCOPE OF WORK

- 1) Identify and rank sets of transmission solutions needed to ensure timely and cost-effective attainment of CLCPA policy goals under various generation build out scenarios
- 2) Identify Bulk system limitations
- 3) Provide accurate and actionable information

OUTPUT

- 1) Least Cost Plan Report

Proposed CGPP Process Alignment – Potential Touchpoints



CGPP Evolution

Approved CGPP Future Phase 2 Projects

- Approved Phase 2 Projects naturally inform future CGPP runs

Stage 1: Data Collection / Coordination and Development of Scenarios

- Scenario selection and parameter settings refined based on previous CGPP runs
- Future System & Resource Outlook runs to inform decision making

Stage 2: Scenario Database Development

- Consultant supported initially. Will look to maximize NYISO support in future.
- Project previously approved to be incorporated in relevant cases.

Stage 6: Least Cost Plan Report

- Incorporate lessons learned in future CGPP runs, as applicable

Stage 3: Assessment

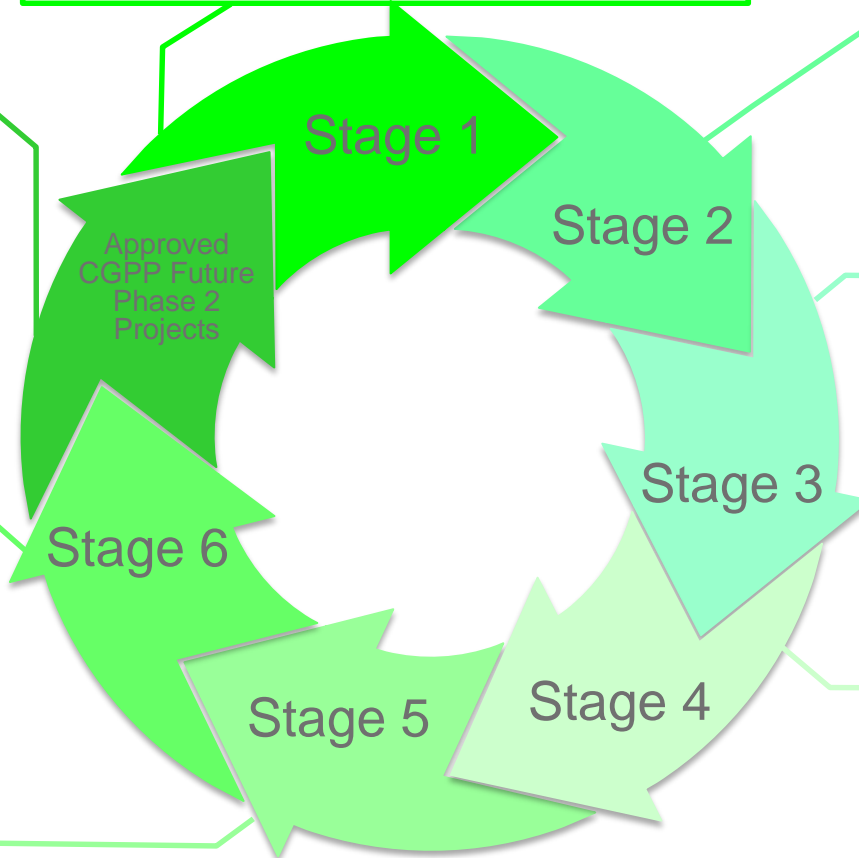
- Consultant supported initially. Will look to maximize NYISO support in future.

Stage 5: “Least Cost Planning” Assessment

- Incorporate lessons learned in future CGPP runs, as applicable

Stage 4: Statewide System Study Review

- Incorporate lessons learned in future CGPP runs, as applicable



Questions?