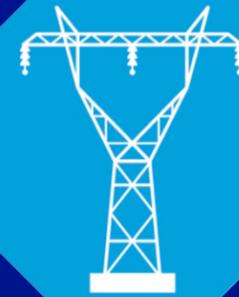


2019 National Grid NY Local Transmission Plan

NYISO ESPWG

November 18, 2019

nationalgrid



Contents page

01	Introduction	03
02	Areas	08
03	Conclusion	27

01

Introduction

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Planning Horizon, Data, Assumptions, Tools

Planning horizon required by NERC standards is 10 years; National Grid extends some studies to a 15 year horizon.

LTP list contains projects for the 10 year horizon, 2019-2028.

NYISO base cases for load flow and transient stability (FERC 715); PSS/E used for analysis

NYISO data for short circuit studies; Aspen OneLiner used for analysis

NYISO “gold book” forecasts for NY wide loads

Adjustments to load in local areas where necessary to reflect non-coincident peaks (90/10), localized load growth

LTP Information Available on Line

The NYISO website provides a link to the National Grid project list:

Choose **Market Participants**

Then **NYISO Planning**

Select **Documents & Resources** in menu at left

Select **Local Transmission Plans** & filter to get the current plan

National Grid's Project List can also be accessed directly at:

www.nationalgridus.com/oasis/filings_studies.asp

The National Grid Transmission Planning Guide is posted on our website under:

www.nationalgridus.com/transmission/c3-8_standocs.asp

Then Click the link for Operations Documentation and then the link for: Transmission Planning Guide

Project Status Description

Project Status Description	
Concept	Project is identified as solution to a need and it still requires internal and external approvals.
Proposed	National Grid has internally determined that the project is an appropriate solution to a need, but has not yet obtained System Impact Study (SIS) approval through the NYISO (if required).
Planned (Firm)	SIS has been approved (if required) and National Grid has management commitment to proceed with the project.
Under Construction	Project has siting approval, as required, and is under construction.
In Service	Project is complete and in commercial operation.

Transmission Facilities Studied

National Grid organizes its study reports by Transmission Planning Study Areas

Transmission Planning Study Areas

West

F – Frontier

G – Genesee

SW – Southwest

Central

SOC – Syracuse Oswego Cortland

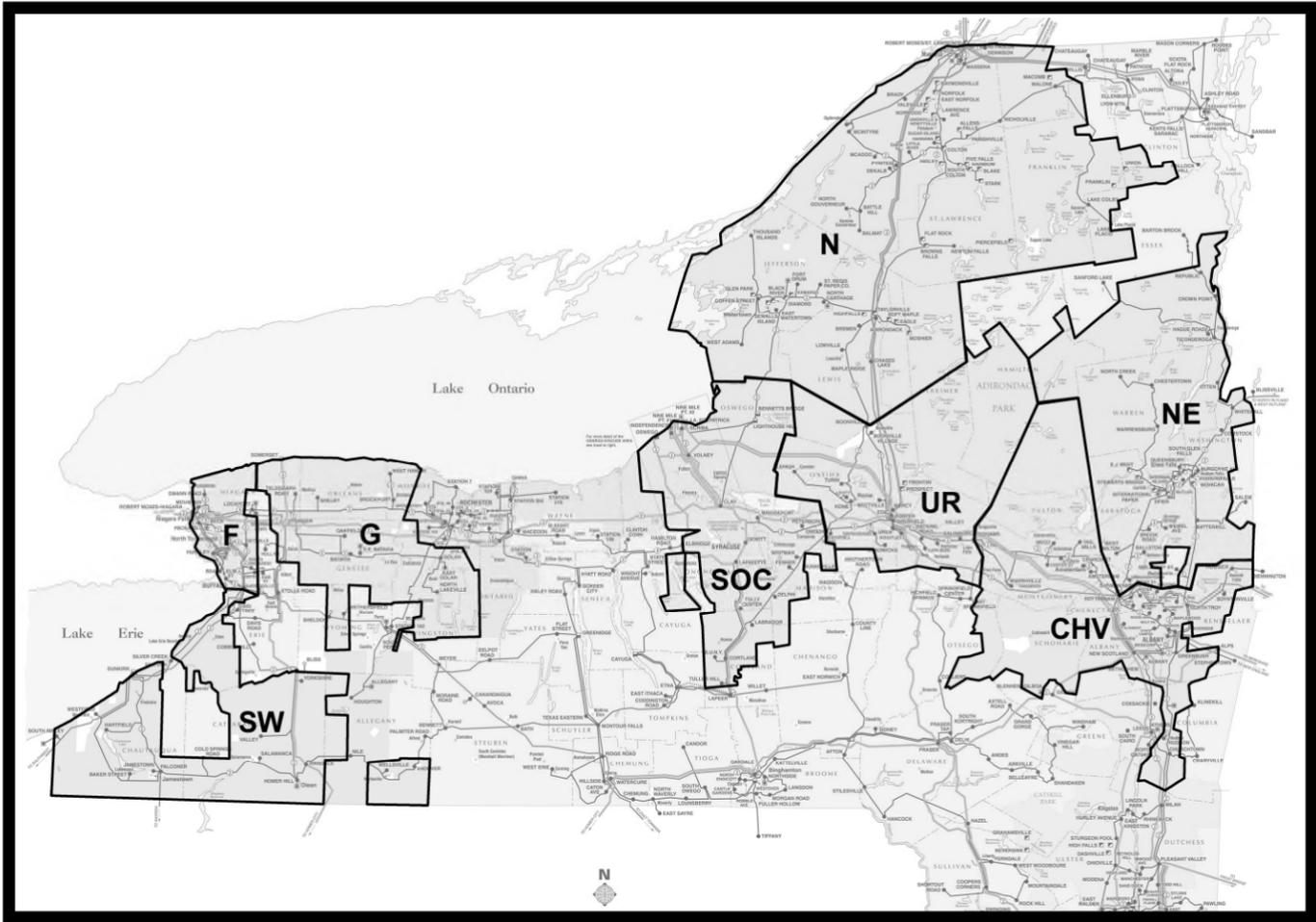
N – Northern

UR – Utica/Rome

East

CHV – Capital Hudson Valley

NE - Northeast



Note: Some National Grid transmission lines extend outside its retail service areas. Some lines within National Grid's retail service areas are not owned by National Grid.

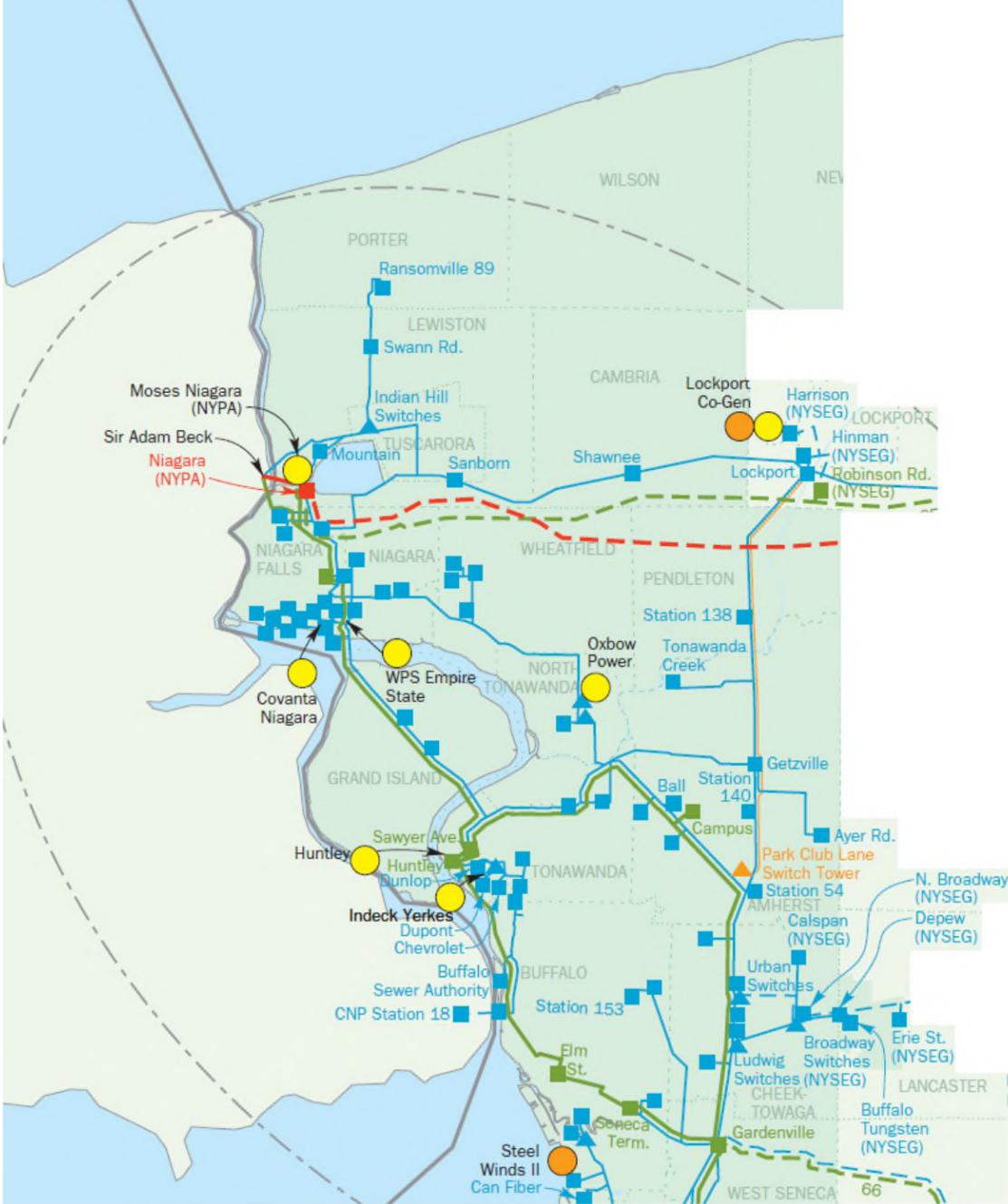
02

Areas

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Western NY - Frontier



2019 LTP – Western NY (Frontier 1 of 2)

Primary Driver	Primary Equipment Owner	Other Equipment Owners (s)	Proposed In-Service date Month/Year	Major Project	Project Name	Updated Status	NYISO System Impact Study Status	Comments
Western New York - Frontier								
Load Growth	National Grid, USA		10/2019	New Sub Transmission Supply Stations	Install 115-34.5kV substation at Ohio Street	In-Service	N/R	
Reliability	National Grid, USA		10/2019	Transformer Replacements	Seneca Terminal Station - Replace TR2	In-Service	N/R	Damage/failure
Reliability	National Grid, USA		12/2019	Gardenville Substation	Complete rebuild of Gardenville 115 kV station	Under Construction	Approved	In service with Phased Cut-overs
Load Growth	National Grid, USA		3/2020	New Distribution Stations	Addition of New Two Mile Creek Rd 115-13.2 kV substation	Under Construction	N/R	formerly known as Tonawanda 115-13.2kV
Reliability	National Grid, USA		3/2020		Huntley-Lockport 36/37 Asset Condition Refurbishment	Under Construction	N/R	
Reliability	National Grid, USA		11/2020	Gardenville Substation	Replace Gardenville 230:115 kV transformer TR#4	Planned	Approved	
Reliability	National Grid, USA		12/2020		Addition of 4th Elm Street 240-24 kV transformer at substation (TR3)	Under Construction	N/R	
Reliability	National Grid, USA		1/2021	Huntley Substation Rebuild	Rebuild of Huntley Substation	Under Construction	N/R	
Reliability	National Grid, USA		5/2021		Mountain-Lockport 103/104 Bypass	Planned	N/R	
Reliability	National Grid, USA		6/2021	New Distribution Stations	Install new 115-13.2kV substation in Niagara Falls (Royal Ave)	Planned	N/R	
Reliability	National Grid, USA	NYPA	11/2021	Western NY Reinforcement Project	Niagara-Packard #192 Reconductor 3.7 miles	Planned	N/R	Separated 191 &192

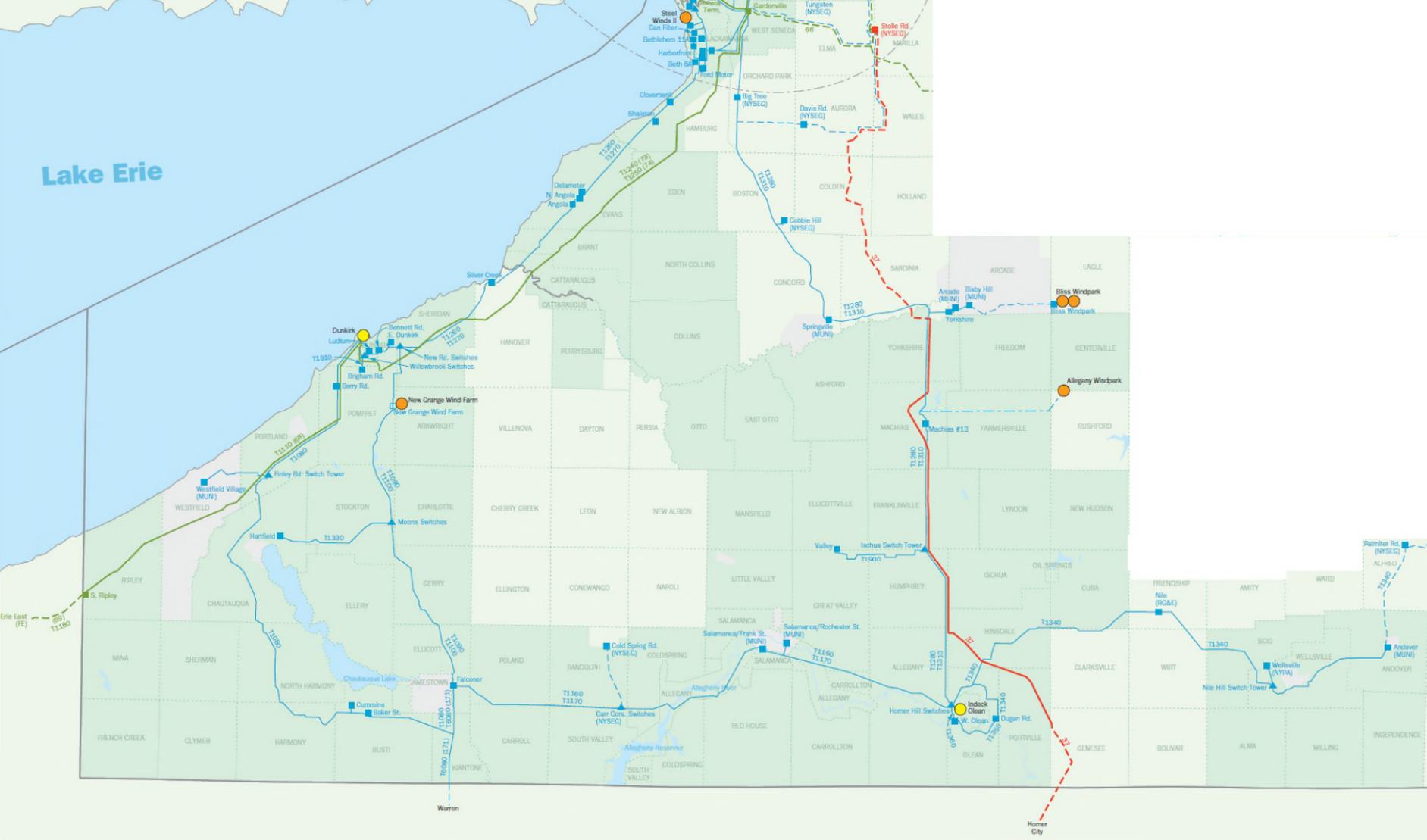
2019 LTP – Western NY (Frontier 2 of 2)

Primary Driver	Primary Equipment Owner	Other Equipment Owners (s)	Proposed In-Service date Month/Year	Major Project	Project Name	Updated Status	NYISO System Impact Study Status	Comments
Western New York - Frontier								
Reliability	National Grid, USA	NYPA	2/2022	Western NY Reinforcement Project	Niagara-Packard #191 Reconductor 3.7 miles	Planned	N/R	Separated 191 &192
Interconnection	National Grid, USA	NYSEG	3/2022		Gardenville-Arcade 151 - Loop-in-and-out of NYSEG Big Tree	Planned	Approved	
Reliability	National Grid, USA		6/2022	Transformer Replacements	Seneca Terminal Station - Replace TR5	Planned	N/R	TR2 replaced as Failure
Reliability	National Grid, USA		6/2022	Transformer Replacements	Gardenville TR3 Replacement	Concept	Uncertain	
Reliability	National Grid, USA		6/2022		Lockport - Second Differential Relay Scheme	Concept	N/R	
Public Policy	National Grid, USA	NYPA	7/2022	Western NY Reinforcement Project	Niagara-Packard #193 & 194 Reconductor	Planned	N/R	
Reliability	National Grid, USA		6/2023	Transformer Replacements	Replace TR2 at Elm Street	Planned	N/R	
Reliability	National Grid, USA		6/2023	Western NY Reinforcement Project	Walck-Huntley #133, Packard-Huntley #130 Reconductor	Planned	N/R	Packard-Huntley in Gold Book
Reliability	National Grid, USA		12/2023	Transformer Replacements	Kensington Terminal Station - Replace TR4 & TR5	Planned	N/R	
Reliability	National Grid, USA		6/2024		Lockport Station Rebuild	Planned	N/R	
Reliability	National Grid, USA		3/2025	Western NY Reinforcement Project	Niagara-Gardenville #180 - Reconfiguration & Reactor	Concept	N/R	
Reliability	National Grid, USA		3/2025	Western NY Reinforcement Project	Packard-Gardenville 182/181 Reactor	Planned	N/R	
Reliability	National Grid, USA		6/2026	Western NY Reinforcement Project	Packard-Erie #181-922 Reconfiguration	Planned	Uncertain	
Reliability	National Grid, USA		6/2026		Packard 115kV & 230kV Refurbishment	Concept	N/R	
Reliability	National Grid, USA		6/2026		Gardenville - Add Two 115kV breakers	Planned	N/R	

2019 LTP – Western NY (Genesee)

Primary Driver	Primary Equipment Owner	Other Equipment Owners (s)	Proposed In-Service date Month/Year	Major Project	Project Name	Updated Status	NYISO System Impact Study Status	Comments
Western New York - Genesee								
Reliability	National Grid, USA		1/2019	Genesee 115kV Capacitor Banks	Install 115kV 20 MVAR cap bank at Golah substation	In Service	N/R	
Reliability	National Grid, USA		8/2019	Genesee 115kV Capacitor Banks	Install 30 MVAR 115 kV Capacitor Bank at Batavia	In Service	N/R	Second
Reliability	National Grid, USA		6/2020	Mortimer	Swap 115 kV lines #113 and #114 at Mortimer Station	Planned	N/R	Corrected Line Numbers
Reliability	National Grid, USA		1/2021	Mortimer	Replace 115-66kV TR3 At Mortimer	Planned	N/R	
Reliability	National Grid, USA		8/2021	Mortimer	Add second 115 kV breaker in series with the existing bus tie breaker at Mortimer	Planned	N/R	
Reliability	National Grid, USA		6/2022		Batavia - Replace Five 115kV Breakers	Concept	NR	
Reliability	National Grid, USA		6/2022		Replace Cables Lockport-Mortimer #111,#113, #114	Planned	NR	
Reliability	National Grid, USA		12/2022	Golah	Replace 69-34.5kV TR at Golah	Planned	N/R	
Reliability	National Grid, USA		6/2024		Reconfiguration of 115kV portion of Golah Substation	Planned	N/R	
Reliability	National Grid, USA		6/2026		Mortimer-Pannell 24 & 25 Rebuild	Planned	N/R	
Reliability	National Grid, USA		6/2026		Mortimer-Golah 110 Refurbishment	Concept	N/R	
Reliability	National Grid, USA		6/2026		Mortimer-Golah 109 Refurbishment	Concept	N/R	

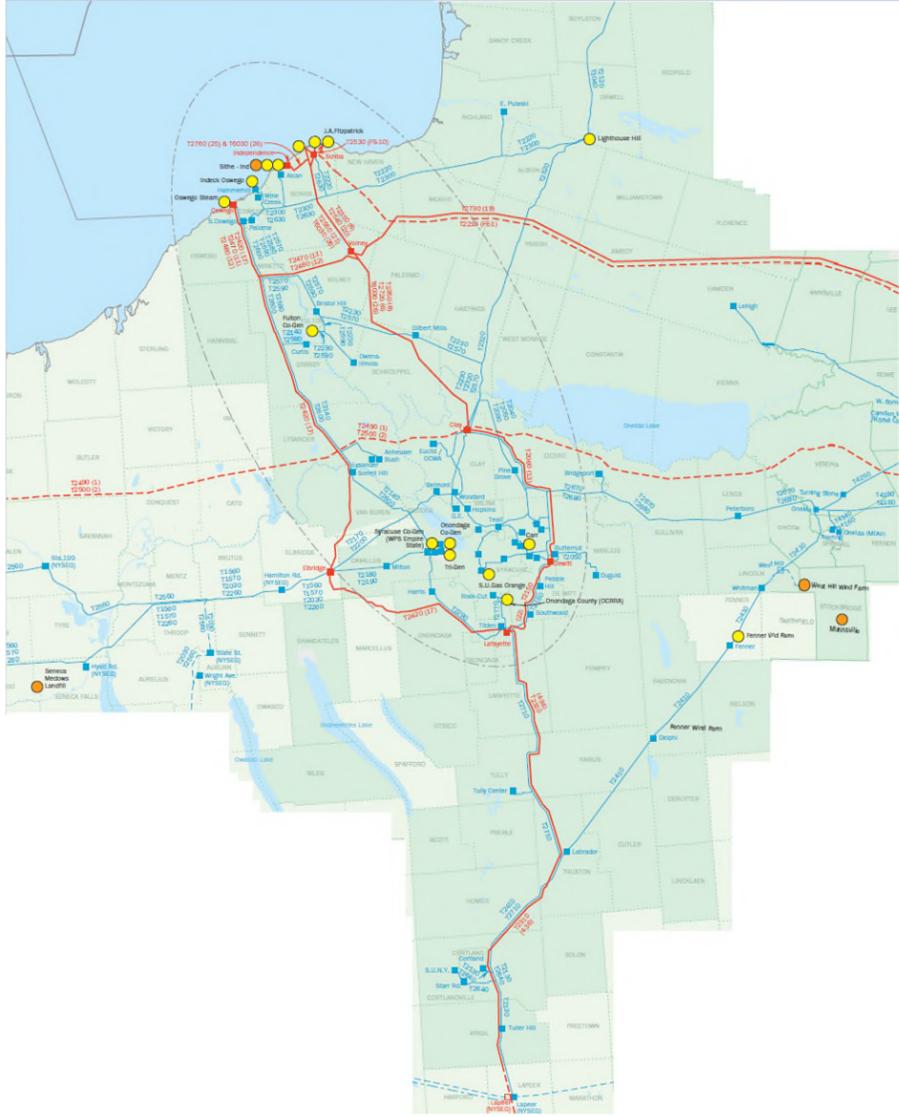
Western NY - Southwest



2019 LTP – Western NY (Southwest)

Primary Driver	Primary Equipment Owner	Other Equipment Owners (s)	Proposed In-Service date Month/Year	Major Project	Project Name	Updated Status	NYISO System Impact Study Status	Comments
Western New York - Southwest								
Reliability	National Grid, USA		2/2020	New Sub Transmission Supply Stations	Install new 115-34.5kV substation at West Ashville	Under Construction	N/R	Article VII Approved
Reliability	National Grid, USA		6/2022		Dunkirk-Laona 161/162 Reactor Removal	Planned	N/R	
Reliability	National Grid, USA		6/2022		MoonRd-Falconer 175/176 Reactor Installation	Planned	N/R	
Reliability	National Grid, USA		3/2024	Western NY Reinforcement Project	Add a second 115 kV bus tie in series with existing Dunkirk 115 kV bus tie breaker	Planned	Approved	Delayed from 6/2018
Reliability	National Grid, USA		3/2024		Dunkirk 115 kV Rebuild	Planned	N/R	
Reliability	National Grid, USA		6/2024	Gardenville-Dunkirk	Reconductor 20.5 Miles of the 115 kV #141 & #142 circuits between Gardenville and North Angola	Planned	N/R	Article VII Proceedings
Reliability	National Grid, USA		6/2024		Homer Hill - Replace Five OCB	Planned	N/R	

Central NY – SOC (Syracuse/Oswego/Cortland)



2019 LTP – Central NY (Syracuse/Oswego/Cortland)

Primary Driver	Primary Equipment Owner	Other Equipment Owners (s)	Proposed In-Service date Month/Year	Major Project	Project Name	Updated Status	NYISO System Impact Study Status	Comments
Central New York - Syracuse/Oswego/Cortland								
Load Growth	National Grid, USA		3/2019		Install new distribution substation - Collamer	In Service	N/R	DeWitt Area
Reliability	National Grid, USA		5/2020	Central Division Reconductoring	GE - Geres Lock #8 115 kV Reconductor	Under Construction	N/R	
Reliability	National Grid, USA		3/2021		Oswego 115kV Station Rebuild	Under Construction	N/R	
Reliability	National Grid, USA		10/2021	Central Division Reconductoring	Reconductor 115 kV Clay - Dewitt #3	Under Construction	N/R	
Reliability	National Grid, USA		10/2021	Central Division Reconductoring	Reconductor 115 kV Clay - Teall #10	Under Construction	N/R	
Reliability	National Grid, USA		3/2022		South Oswego-Indeck #6 - High Speed Protection	Concept	Uncertain	
Reliability	National Grid, USA		8/2022		Cortland - Clarks Corners #1-716 Reconductor 0.3 miles of 115 kV	Planned	N/R	
Reliability	National Grid, USA		6/2023		Cortland 115kV Capacitor Bank	Concept	N/R	
Reliability	National Grid, USA		3/2025		Oswego 345kV Rebuild	Planned	N/R	
Reliability	National Grid, USA		6/2025		Lighthouse Hill Station Relocation	Planned	N/R	
Reliability	National Grid, USA		6/2026		South Oswego 115kV Rebuild	Concept	N/R	
Reliability	National Grid, USA		3/2028		DeWitt Station Rebuild	Concept	N/R	

Central NY – Utica/Rome



2019 LTP – Central NY (Utica/Rome)

Primary Driver	Primary Equipment Owner	Other Equipment Owners (s)	Proposed In-Service date Month/Year	Major Project	Project Name	Updated Status	NYISO System Impact Study Status	Comments
Central New York - Utica/Rome								
Reliability	National Grid, USA		7/2018		Install Reactors on Yahnundasis-Porter #3	In-Service	N/R	
Reliability	National Grid, USA		7/2018		Install Reactors on Oneida -Porter #7	In-Service	N/R	
Reliability	National Grid, USA		12/2023		Oneida Station Rebuild	Planned	N/R	
Reliability	National Grid, USA		12/2023		Oneida Cap Bank Installation	Concept	N/R	
Reliability	National Grid, USA		6/2024		Terminal Substation (Utica) Relocation	Planned	N/R	
Reliability	National Grid, USA		6/2024		Boonville Station Rebuild	Planned	N/R	

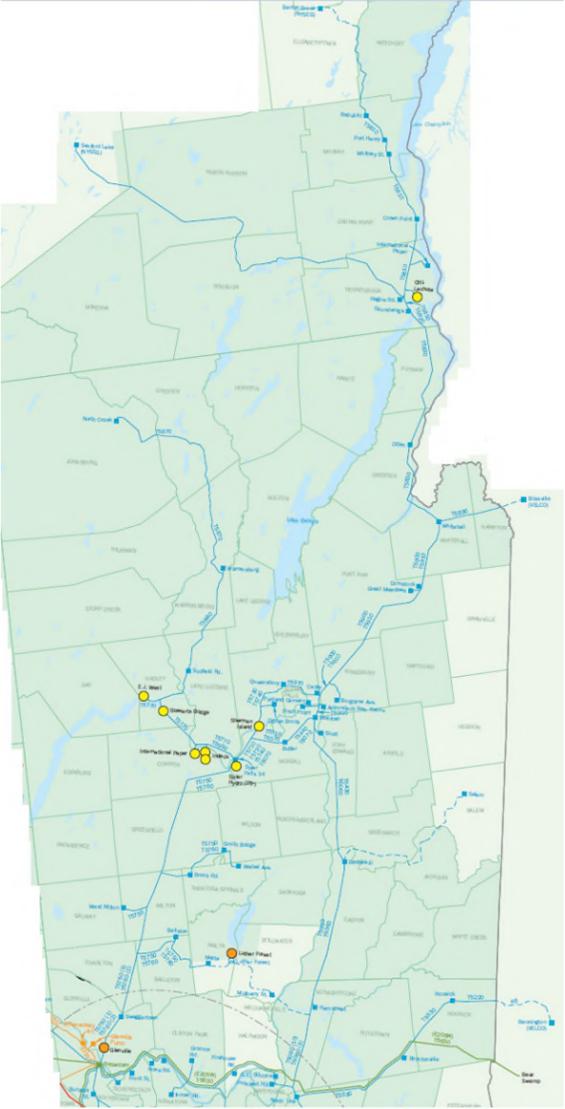
Central NY – Northern



2019 LTP – Central NY (Northern)

Primary Driver	Primary Equipment Owner	Other Equipment Owners (s)	Proposed In-Service date Month/Year	Major Project	Project Name	Updated Status	NYISO System Impact Study Status	Comments
Central New York - Northern								
Reliability	National Grid, USA		11/2019		Browns Falls Terminal Equipment Upgrades	In-Service	N/R	Gold Book S2022
Reliability	National Grid, USA		6/2020		Taylorville Terminal Equipment Upgrades	Planned	N/R	Gold Book S2022
Reliability	National Grid, USA		6/2020		Taylorville - Boonville Clearance Upgrades	Planned	N/R	
Reliability	National Grid, USA		6/2020		Browns Falls Taylorville Clearnace	Planned	N/R	
Reliability	National Grid, USA		6/2020		Colton - Browns Falls Clearance	Planned	N/R	
Reliability	National Grid, USA		6/2020		Lowville STA CONN Replacement	Planned	N/R	
Reliability	National Grid, USA		6/2021		Flat Rock Terminal Equipment Upgrades	Proposed	N/R	
Reliability	National Grid, USA		6/2021		Colton Terminal Equipment	Proposed	N/R	
Reliability	National Grid, USA		6/2022		Black River Terminal Equipment	Proposed	N/R	
Reliability	National Grid, USA		6/2023		Install Reactors Taylorville-Boonville	Concept	Uncertain	
Reliability	National Grid, USA		12/2024		Coffeen Terminal Equipment Upgrades	Proposed	N/R	Gold Book S2022
Reliability	National Grid, USA		6/2025		Malone Distribution Substation Expansion	Planned	N/R	
Reliability	National Grid, USA		6/2025		Malone PAR	Concept	N/R	
Reliability	National Grid, USA		12/2025		New 115kV Line - Lyme Junction to Indian River	Planned	Uncertain	

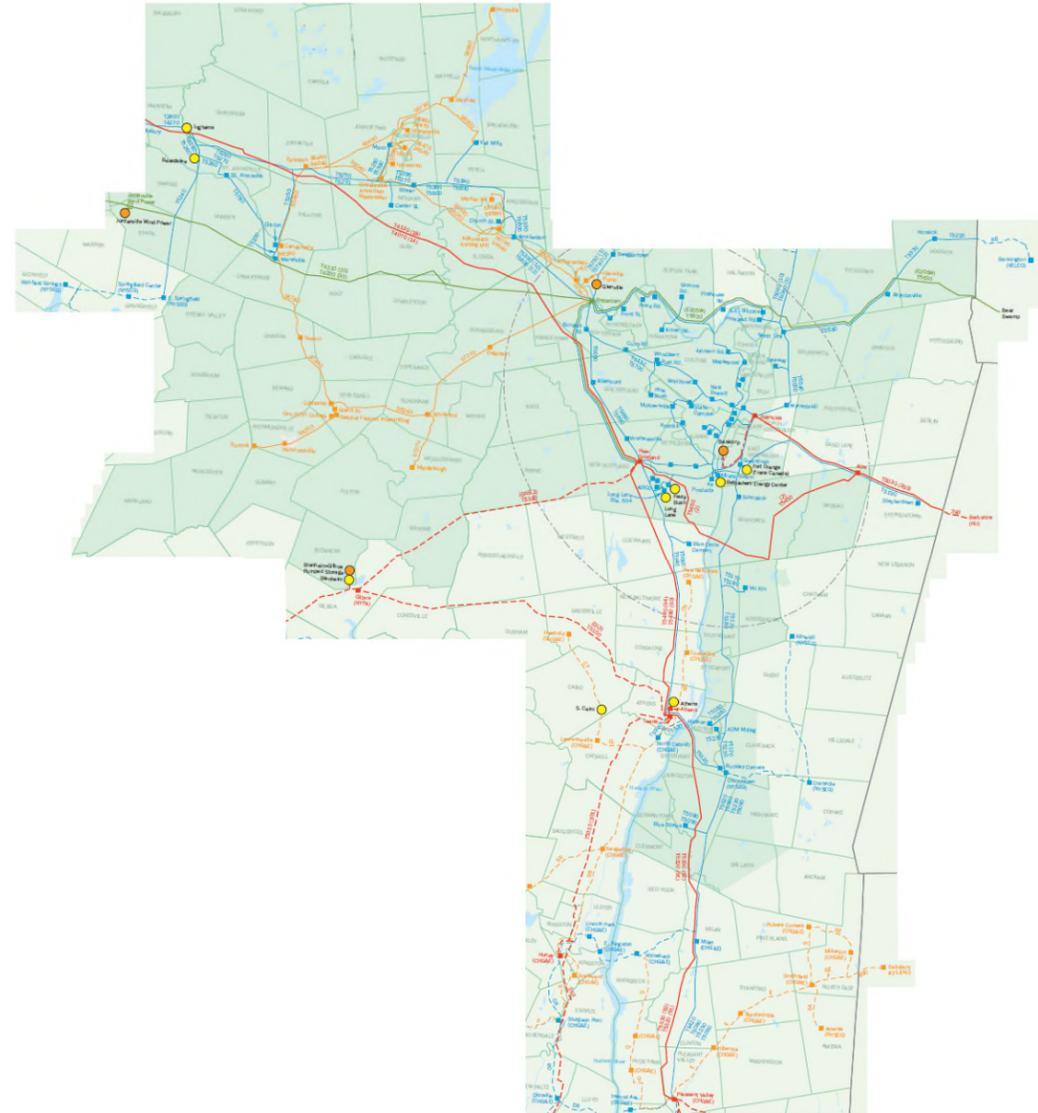
Eastern NY – Northeast area



2019 LTP List – Eastern NY (Northeast)

Primary Driver	Primary Equipment Owner	Other Equipment Owners (s)	Proposed In-Service date Month/Year	Major Project	Project Name	Updated Status	NYISO System Impact Study Status	Comments
Eastern New York - Northeast								
Reliability	National Grid, USA		5/2018		Add second 230-115kV transformer at Eastover Road	In Service	Approved	
Reliability	National Grid, USA		12/2018		Add a two-stage 115 kV 21.6VAR Capacitor at Ticonderoga	In Service	N/R	
Reliability	National Grid, USA		1/2019		Replace 115kV Breakers at North Troy	In Service	N/R	
Reliability	National Grid, USA		7/2019	New Distribution substations	Build a 115-13.2 kV substation @ Sodeman Road	In Service	N/R	
Reliability	National Grid, USA		10/2019		New 115 kV Switching Station - Schaghticoke	In Service	N/R	
Reliability	National Grid, USA		3/2020		New 115 kV switching Station - Lasher Rd	Under Construction	N/R	Article VII Approved
Load Growth	National Grid, USA		3/2020	New Distribution substations	New Lasher (Randall) Rd 115-13.2kV substation outside Ballston, NY	Under Construction	N/R	Article VII Approved
Reliability	National Grid, USA		3/2022		Queensbury - Capacitor Replacement	Planned	N/R	

Eastern NY - Capital & Hudson Valley



2019 LTP – Eastern NY (Capital & Hudson Valley 1 of 2)

Primary Driver	Primary Equipment Owner	Other Equipment Owners (s)	Proposed In-Service date Month/Year	Major Project	Project Name	Updated Status	NYISO System Impact Study Status	Comments
Eastern New York - Capital & Hudson Valley								
Reliability	National Grid, USA		12/2018		Reconfigure Rotterdam Station as part of planned Rebuild to eliminate R1 and R82 breaker-failure contingencies	In-Service	N/R	
Reliability	National Grid, USA		4/2019		Maplewood - Replace one OCB	In Service	N/R	
Reliability	National Grid, USA		6/2019		Reconductor 115kV Albany-Greenbush 1&2	In Service	N/R	
Reliability	National Grid, USA		8/2019		Rotterdam Replace R13 & R14 115kV breakers	In Service	N/R	
Reliability	National Grid, USA		8/2019	Shunt Capacitor Bank	Install one 39.6 MVAR 115 kV capacitor bank at Rosa Road	In-Service	N/R	
Interconnection	National Grid, USA	NYSEG	10/2019		Accommodate NYSEG Falls Park Station on Schodack-Churchtown	In Service	N/R	
Reliability	National Grid, USA		3/2020		Install Series Reactors at Rotterdam station on the #19 and #17 115 kV lines	Under Construction	N/R	
Reliability	National Grid, USA		3/2020		Reconductor/rebuild 7.1 miles of the Rotterdam-Curry Rd #11 115kV	Under Construction	N/R	
Load Growth	National Grid, USA		12/2020	New Distribution substations	New Maple Ave 115-13.2kV Substation outside Amsterdam NY	Under Construction	N/R	
Reliability	National Grid, USA		6/2021		Stoner-Rotterdam #12 - Correct Clearance Limit	Concept	N/R	

2019 LTP – Eastern NY (Capital & Hudson Valley 2 of 2)

Primary Driver	Primary Equipment Owner	Other Equipment Owners (s)	Proposed In-Service date Month/Year	Major Project	Project Name	Updated Status	NYISO System Impact Study Status	Comments
Eastern New York - Capital & Hudson Valley								
Reliability	National Grid, USA		6/2023		Reconductor 115 kV Maplewood-Menands #19 & Maplewood-Reynolds #31 Lines	Planned	N/R	
Reliability	National Grid, USA		6/2023		Cobleskill Station Take-Off Reconductor	Proposed	N/R	
Reliability	National Grid, USA		3/2024		Rotterdam TR3 & Relay upgrade	Concept	Uncertain	
Reliability	National Grid, USA		6/2024		Reconductor 115kV Meco-Rotterdam & Stoner-Rotterdam	Concept	Uncertain	
Reliability	National Grid, USA		6/2024		Reynolds Road Station Rebuild	Planned	N/R	
Reliability	National Grid, USA		6/2025		Greenbush - 115kV & 34.5kV refurb	Proposed	N/R	
Reliability	National Grid, USA		12/2025	Inghams Substation Rebuild	Rebuild stations; replace new phase angle regulator	Planned	Uncertain	
Reliability	National Grid, USA		3/2026		Cobleskill Take-Off Reconductor	Concept	N/R	
Reliability	National Grid, USA		3/2026		Rotterdam Schoharre #18/Schenectady International - Rotterdam #4 Rebuild 0.93 mi	Concept	N/R	
Reliability	National Grid, USA		6/2028		Reconductor 0.3mi 115kV St Johnsville - Marshville	Concept	Uncertain	
Reliability	National Grid, USA		3/2030		Rotterdam 115kV Rebuild	Concept	N/R	

03

Conclusion

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LTP Communication

Interested parties may submit written comments on National Grid's LTP within 30 days (Dec 18, 2019) to:

Mark Domino, Engineering Manager

Transmission Planning - NY

National Grid

300 Erie Blvd, West

Syracuse, NY 13202

- TransmissionPlanning@nationalgrid.com

Comments will be posted on the NYISO website.

Modifications to the LTP discussed at the next LTP meeting.

Questions?



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