

National Grid's 2015 Local Transmission Plan

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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, 2016-2026.
- 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 **Planning For The Future**
 - Then **NYISO Planning**
 - Select **Documents & Resources** in menu at left
 - Click link to **Local TO Planning Process**
- 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
 - Click the link to: Transmission Planning Guide

Project Status Description

Project Status Description	
Concept	Project is under consideration as possible solution to a need
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

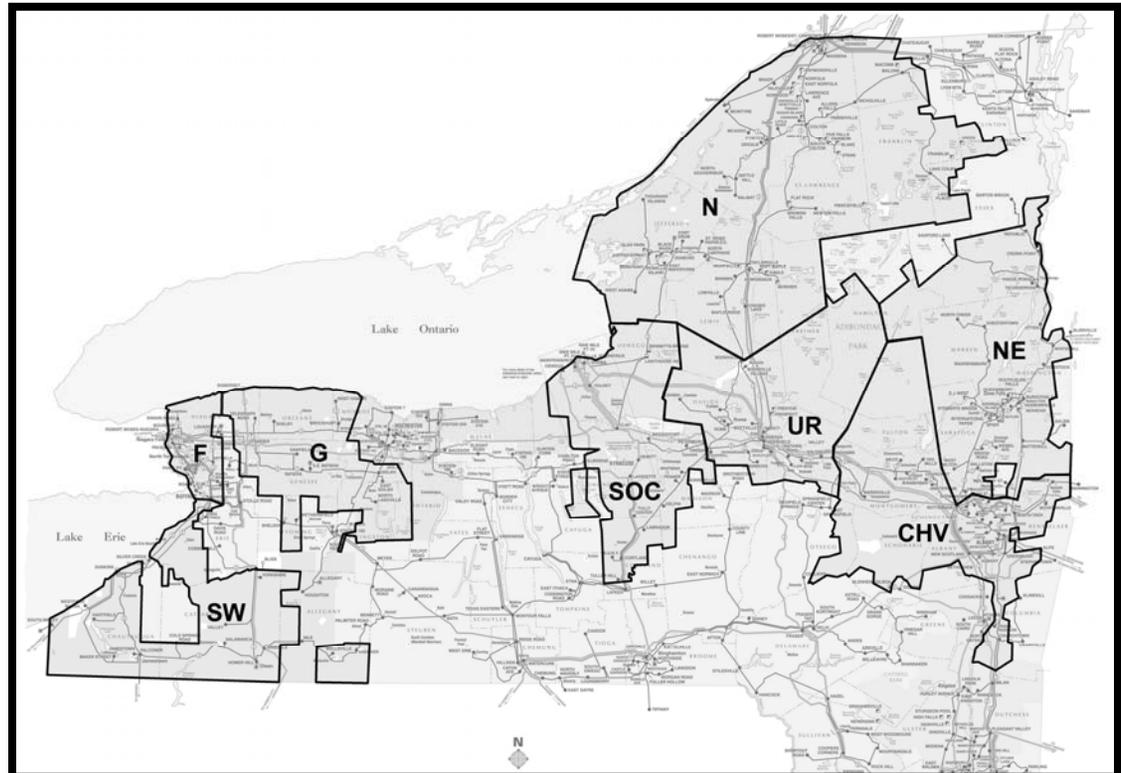
N – Northern

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.

Western New York Generator Assumptions

- National Grid is providing its plans, to the extent known, to address the potential loss of Huntley and Dunkirk.
- Some projects were already planned and would have been needed even if retirement of Huntley was not announced, but the need has become more critical assuming Huntley and Dunkirk are not available.
- Western NY plans will reduce potential dependency on Dunkirk and Huntley.
- NYISO and National Grid are still considering the reliability impacts due to the loss of Huntley and in response to NYPSC August 28th letter to NYISO and National Grid.

2015 LTP List – Western NY (1 of 2)

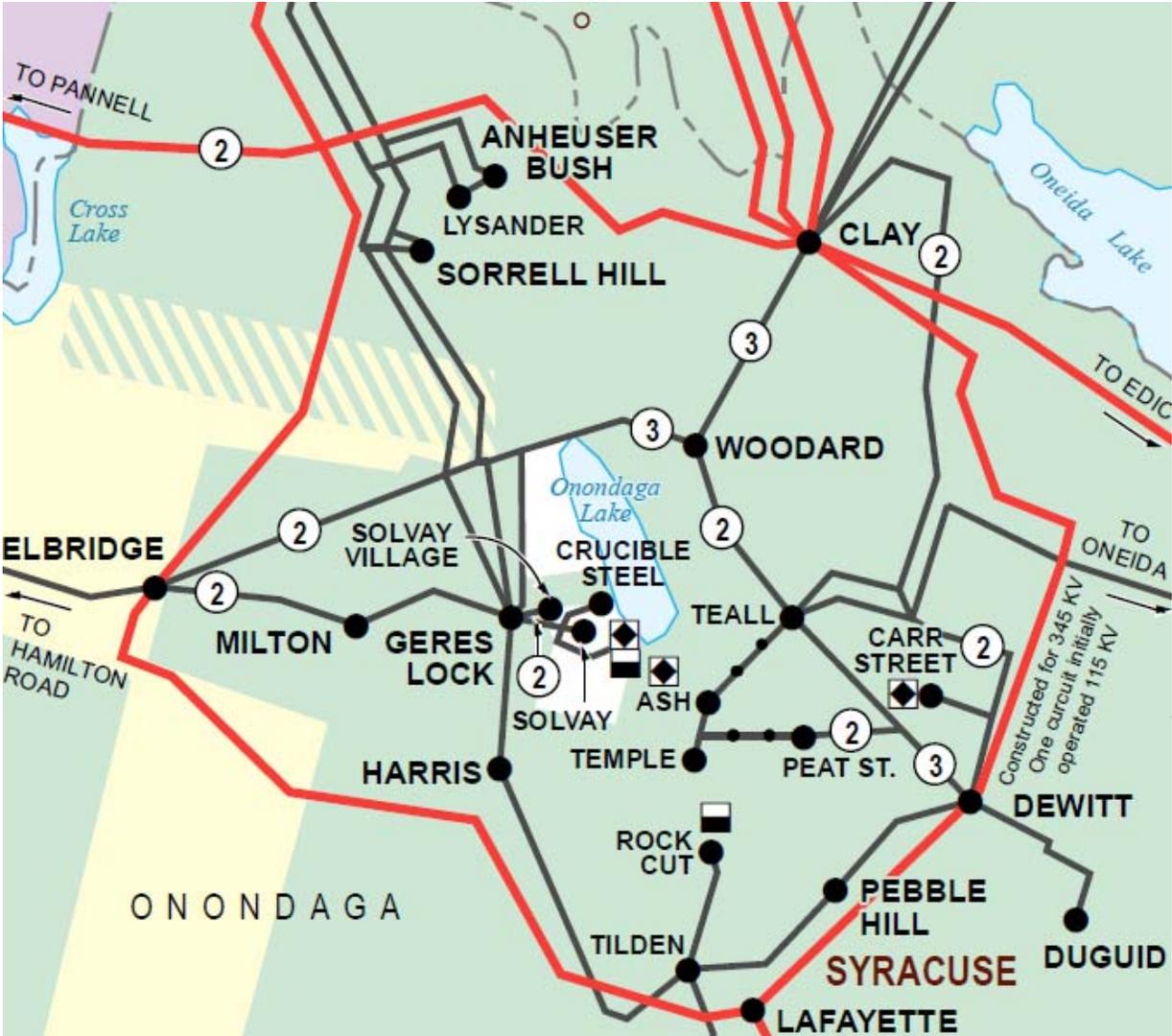
The 2015 LTP assumes Dunkirk and Huntley are out of service

Primary Driver	Primary Equipment Owner	Other Equipment Owner(s)	Projected In-Service Month/Year	Major Project	Project	Updated Status	NYISO System Impact Study Status	Comments
Western New York								
Reliability	National Grid, USA		06/2016	Western NY Reinforcement Project	Reconductor part of Gardenville - Erie 115 kV circuit #54	Planned	Approved	
Reliability	National Grid, USA		06/2021		Install Reactors on Falconer - Warren 115 kV circuit #171 (795 ACSR)	Concept	Approved	
Reliability	National Grid, USA		6/2018		Add a second 115 kV bus tie in series with existing Dunkirk 115 kV bus tie breaker	Planned	Approved	
Reliability	National Grid, USA		12/2015		Construct Five Mile Rd 345/115 kV station connecting 345 kV Homer City-Stolle #37 circuit and 115 kV Gardenville-Homer Hill #151/152 circuits with single 345/115 kV 448 MVA transformer and single 25 MVAR capacitor bank	Under Construction	Approved	
Reliability	National Grid, USA		6/2015		Addition of second 75 MVAR capacitor bank Huntley 115 kV switchyard	Completed	Approved	
Reliability	National Grid, USA		05/2015		Add a second 115 kV bus tie in series with existing Lockport bus tie breaker	Completed	Approved	
Reliability	National Grid, USA		6/2015		Add two 33.3 MVAR capacitor banks on two Dunkirk 115 kV bus sections	Completed	N/A	
Reliability	National Grid, USA		12/2015		Reconductoring of two 115 kV lines between Five Mile Rd and Homer Hill, each approx. 7.4 miles long	Under Construction	Approved	
Reliability	National Grid, USA		06/2020	Packard-Gardenville 115 kV # 182 Line	Reconductor 20.9 miles of #182 line	Concept	N/R	
Reliability	National Grid, USA		06/2018	Gardenville Subst.	Replace Gardenville 230:115 kV transformers TB#3 and TB#4	Planned	Approved	
	National Grid, USA		06/2018		Complete rebuild of Gardenville 115 kV station	Planned	Approved	
Reliability	National Grid, USA		06/2015	Niagara-Packard 115 kV #195	Niagara-Packard #195 115 kV line rebuild	Completed	Approved	
Reliability	National Grid, USA		06/2020	Packard -Erie 115 kv #181 Line	Reconductor 28.4 miles of Packard-Erie #181 line	Concept	N/A	
Reliability	National Grid, USA		06/2023	Niagara -Gardenville 115 Kv #180 Line	Reconductor 14.6 miles of #180	Concept	N/A	
Reliability	National Grid, USA		06/2018		Install a 115 kV 30 MVAR capacitor bank at Batavia	Concept	N/A	

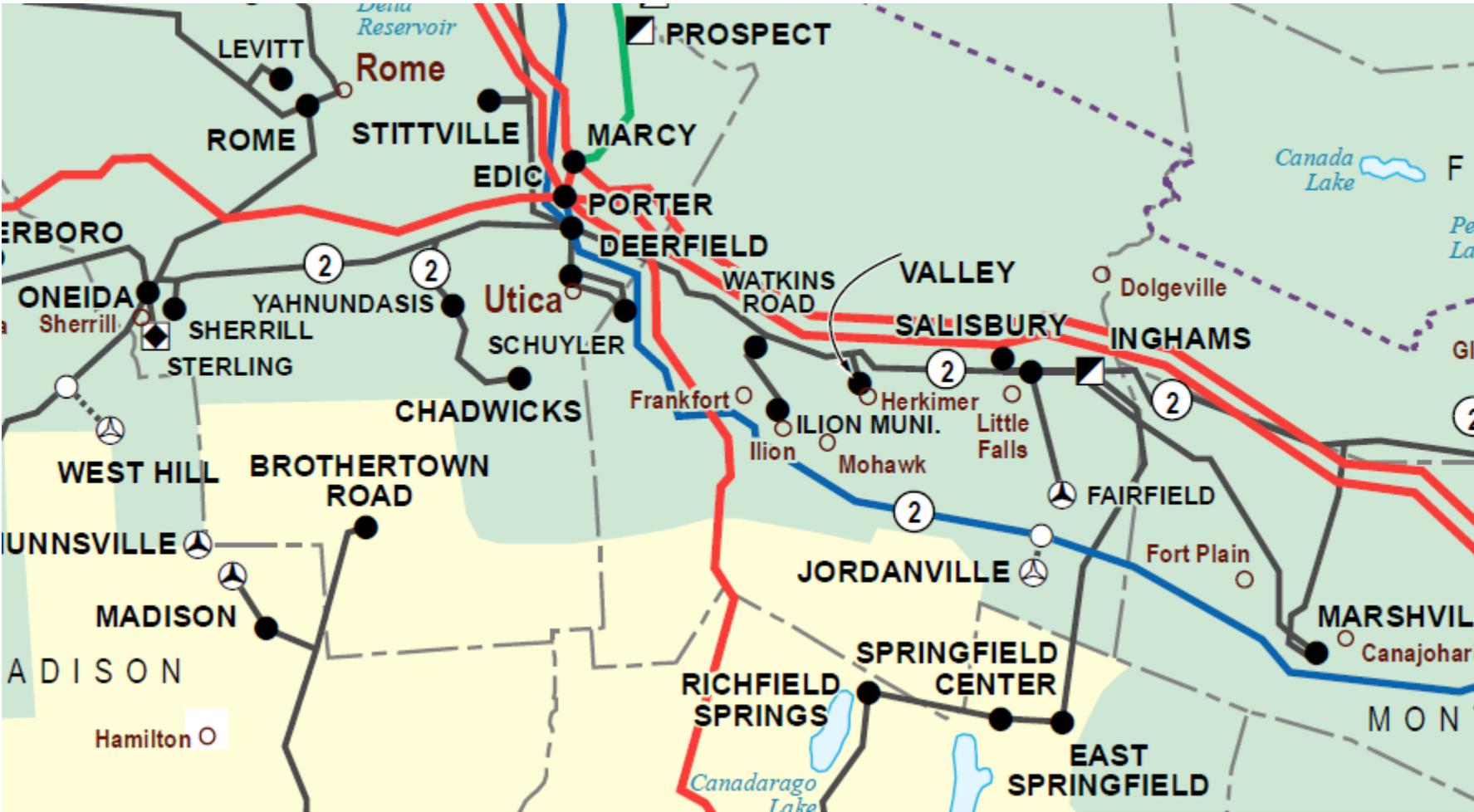
2015 LTP List – Western NY (2 of 2)

Primary Driver	Primary Equipment Owner	Other Equipment Owner(s)	Projected In-Service Month/Year	Major Project	Project	Updated Status	NYISO System Impact Study Status	Comments
Western New York								
Reliability	National Grid, USA		06/2017		Install 115kV 20 MVAR cap bank at Golah substation	Concept	N/R	
			06/2018		Install 30 MVAR 115 kV Capacitor Bank at Batavia -	Concept	N/R	
Reliability	National Grid, USA		06/2018		Add second 115 kV breaker in series with the existing bus tie breaker at Mortimer	Concept	N/R	
Load Growth	National Grid, USA		10/2014	New Distribution Stations	Addition of new Frankhauser 115/13.2 kV station	Completed	N/R	
Load Growth	National Grid, USA		12/2017		Addition of new North Lakeville 115/13.2 kV station	Planned	N/R	
Load Growth	National Grid, USA		06/2017		Addition of new New Tonawanda 115/13.2 kV station	Planned	N/R	
Reliability	National Grid, USA		05/2015	Bank Replacement	Replace TB #4 at Elm Street	Completed	N/R	
Reliability	National Grid, USA		12/2018	Addition of 4th Elm Street 230-23 kV station	Addition of 4th Elm Street 230-23 kV station	Planned	N/R	
Reliability	National Grid, USA		06/2019		Swap 115 kV line postions for 111 & 113 lines at Mortimer	Concept	N/R	
Reliability	National Grid, USA		06/2020		Dunkirk 115 kV Rebuild	Concept		
Reliability	National Grid, USA		06/2016	Packard 77/78 Series Reactors	Install 230 kVseries reactors on #77 &# 78 Lines at Packard	Planned	Required	
Reliability	National Grid, USA		06/2016	Huntley 230 kV Cap banks	Install two 230 kV Capacitor Banks at Huntley	Planned	Required	
Reliability	National Grid, USA		06/2019		Swap 115 kV lines #113 and #114 at Mountian Station	Concept		
Reliability	National Grid, USA		06/2019		Replace Elm Street Transformer Bank #1	Concept	N/R	

Central NY – Syracuse area



Central NY – Utica/Rome area



2015 LTP List – Central NY (1 of 2)

Primary Driver	Primary Equipment Owner	Other Equipment Owner(s)	Projected In-Service Month/Year	Major Project	Project	Updated Status	NYISO System Impact Study Status	Comments
Central New York								
Reliability	National Grid, USA		12/2015		Reconnect 345-115 kV bank TB2 at Clay substation	Under Construction	Approved	Interim Operating Procedure in place to prevent the SB scenario at Clay
Reliability	National Grid, USA		5/2015		Reconductor Clay-GE #14	Completed	Approved	
Reliability	National Grid, USA		06/2017	Cayuga Station Reliability Study	Add line position at Elbridge. NYSEG to construct new 115kV line. Bus together existing Line5/15 to create new 5 line.	Planned	Approved	ART VII proceedings
Reliability	National Grid, USA		12/2017	Central Division Reconductoring	Reconductor 115 kV Clay - Dewitt #3	Planned	N/R	ART VII proceedings
Reliability	National Grid, USA		06/2018		GE - Geres Lock #8 115 kV Reconductor	Concept	N/R	
Reliability	National Grid, USA		12/2017		Reconductor 115 kV Clay - Teall #10	Planned	N/R	ART VII proceedings
Reliability	National Grid, USA		05/2015		Replace 345 /115kV TB1 at Clay Station	Completed		
Reliability	National Grid, USA		6/2014	Porter Station Bulk Power Upgrades	Porter 115 kV substation bulk power upgrades	Completed		
Reliability	National Grid, USA		12/2019	Porter Station Bulk Power Upgrades	Porter 230 kV substation bulk power upgrades	Planned	N/R	
Reliability	National Grid, USA		11/2017	Edic 345-230kV TB2 Reconnect	Create a new bay by adding two new 345 kV breakers, then reconnect the TB2 to the newly created position.	Planned	Approved	
Reliability	National Grid, USA		12/2021	Inghams Substation Rebuild	Replace 115 kV breakers; adding a new phase shifter	Concept		

2015 LTP List – Central NY (2 of 2)

Primary Driver	Primary Equipment Owner	Other Equipment Owner(s)	Projected In-Service Month/Year	Major Project	Project	Updated Status	NYISO System Impact Study Status	Comments
Central New York								
Load Growth	National Grid, USA		06/2017	Maple Ave Substation	Install new distribution substation in north Syracuse area	Planned	N/R	
Load Growth	National Grid, USA		06/2017	Watertown Substation	Install new distribution substation in Watertown area	Planned	N/R	
Reliability	National Grid, USA		06/2018	Central Division	Install Reactors on Yahundasis-Porter #3	Planned	N/R	
			06/2018	Central Division	Install Reactors on Onedia -Porter #7	Planned	N/R	
Reliability	National Grid, USA		01/2015		Clay -Woodard #17 Line - Remove thermal restrictions associated with Conductor Clearance	Completed		
Reliability	National Grid, USA		06/2018		Gereslock -Woodard #4 Line Install Reactors	Concept		-
Reliability	National Grid, USA		06/2019		Dewitt-Pebble Hill #19 Re-conductor 1/2 mile line	Concept		
Reliability	National Grid, USA		06/2018	Cortland - Clarks Corners # 1-716	Reconductor 0.3 miles of 115 kV	Concept		

Eastern NY – Northeast area



2015 LTP List– Eastern NY (1 of 2)

Primary Driver	Primary Equipment Owner	Other Equipment Owner(s)	Projected In-Service Month/Year	Major Project	Project	Updated Status	NYISO System Impact Study Status	Comments
Eastern New York								
Reliability	National Grid, USA		03/2015		230-115 kV station at Eastover Road in Schaghticoke, supplied by the Rotterdam-Bear Swamp #E205 230 kV	Completed	Approved	
Reliability	National Grid, USA		06/2017		Reconductor Mohican-Battenkill #15 115 kV (14.2 miles)	Planned	Approved	
Reliability	National Grid, USA		06/2017		Add second 230-115kV transformation at Eastover Road	Planned	Approved	
Reliability	National Grid, USA		06/2018	New Distribution substations and Banks	Build a 115-13.2 kV substation @ Sodeman Road	Planned	N/R	
Load Growth	National Grid, USA		06/2017		Addition of two new 115/13.2 kV banks at Riverside station	Planned	N/R	
Load Growth	National Grid, USA		06/2018		New Randall Rd 115-13.2kV sub outside Ballston, NY	Planned	N/R	
Load Growth	National Grid, USA		06/2018		New Van Dyke 115-13.2kV sub Bethlehem, NY	Planned	N/R	
Reliability	National Grid, USA		12/2021		Convert Ephratah sub from 69 to 115kV	Concept	N/R	
Reliability	National Grid, USA		06/2017		Thermal Upgrades on the Greenbush-Schodack/Hudson #13 & #15 115 kV Lines	Planned		

LTP List 2014 Update– Eastern NY (2 of 2)

Primary Driver	Primary Equipment Owner	Other Equipment Owner(s)	Projected In-Service Month/Year	Major Project	Project	Updated Status	NYISO System Impact Study Status	Comments
Eastern New York								
Reliability	National Grid, USA		06/2016		Install Series Reactors at Unionville substation for the New Scotland-Long Lane #7 and New Scotland-Feura Bush #9 115 kV lines	Planned		
Reliability	National Grid, USA		06/2017		Install Series Reactors at Rotterdam station on the #19 and #17 115 kV lines	Concept		
Reliability	National Grid, USA		06/2019		Reconductor/rebuild 3.2 miles of the Wolf Rd-Menands #10 115kV	Concept		
Reliability	National Grid, USA		06/2019		Reconductor/rebuild 3.2 miles of the State Campus-Patruon-Menands #15 115kV	Concept		
Reliability	National Grid, USA		06/2020		Reconductor/rebuild 7.1 miles of the Rotterdam-Curry Rd #11 115kV	Concept		
Reliability	National Grid, USA		06/2016		Upgrade station equipment/terminations for Menands-Riverside #3 115kV	Planned		
Reliability	National Grid, USA		06/2017		Reconfigure Rotterdam Station as part of planned Rebuild to eliminate R1 and R82 breaker-failure contingencies	Planned		
Reliability	National Grid, USA				Upgrade station equipment/termination at Spier Falls for Queensbury-Spier #5 115kV	Cancelled		
Reliability	National Grid, USA				Add a second 115kV bus-tie breaker in series at Spier Falls, and add a two-stage 20MVAR Capacitor at Ticonderoga	Cancelled		
Reliability	National Grid, USA		06/2019	Reconductor 115 kV transmission	Reconductor 115 kV #19 & #31 Lines	Concept		
Reliability	National Grid, USA		06/2020	Shunt Capacitor Bank	Install one 54 MVAR 115 kV capacitor bank at Rosa Road	Concept		
Reliability	National Grid, USA		06/2019		Create Grooms-Maplewood-North Troy - three terminal line	Concept		
Reliability	National Grid, USA		06/2017		Add a two-stage 115 kV 20MVAR Capacitor at Ticonderoga	Concept		
Reliability	National Grid, USA		06/2018		New 115 kV switching Station - Schaghticoke	Planned		
Reliability	National Grid, USA		06/2018		New 115 kV switching Station - Lasher Rd	Planned		

LTP Communication

- Interested parties may submit written comments on National Grid's LTP within 30 days (October 23,2014) to:

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Albany, NY 12204

- Comments will be posted on the NYISO website.
- Modifications to the LTP discussed at the next LTP meeting.

Questions?

