



**Transmission Owner Planning Advisory
Committee Meeting
November 20, 2024**

Local System Plan Presentation

Presenter: Forrest Kugell, Senior Transmission Planning Engineer (AVANGRID)

Purpose of Local System Plan

Per Attachment K – Local, this LSP presentation:

- Describes projected improvements to non-PTF that are needed to maintain reliable customer service.
 - Reflects:
 - LSP Needs Assessments
 - Corresponding transmission system planning studies
 - LSP is communicated at the TOPAC meeting once a year.
 - PAC, Transmission Customers, and other Stakeholders have 30 days to provide written comments for consideration to AVANGRID.
-
- AVANGRID Contact:
 - Forrest Kugell
 - Senior Engineer, Transmission Planning
 - Central Maine Power Company
 - 83 Edison Drive
 - Augusta, Maine 04336
 - (email: Forrest.Kugell@cmpco.com)

Avangrid LSP Communication

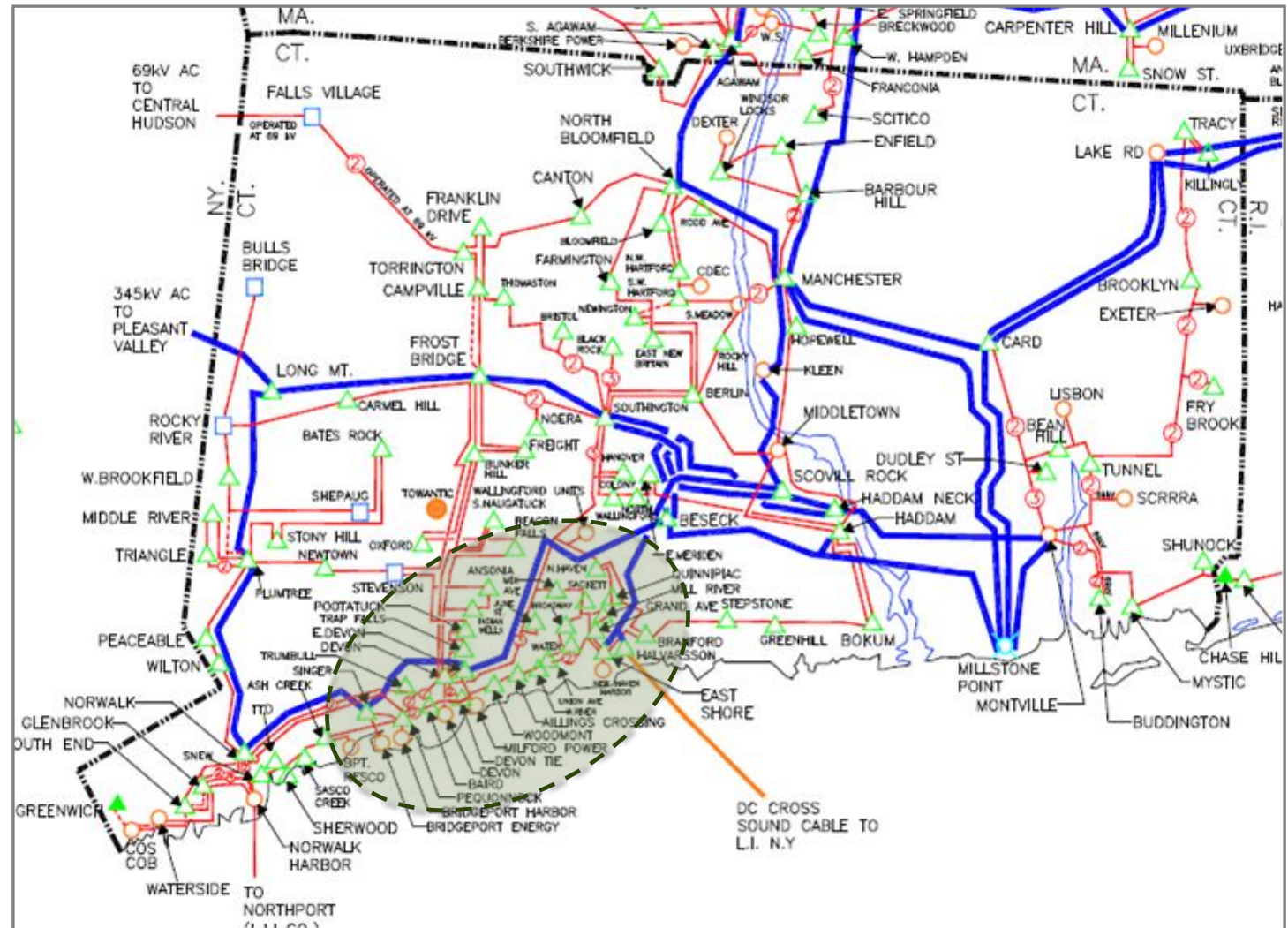
- Each TO is individually responsible for publicly posting and updating the status of its respective LSP and the transmission projects list on a website in a format similar to the RSP project list
- The ISO-NE RSP project list contains links to each individual TO's transmission project list and is located at:
[Link to ISO-NE's RSP project list](#)
- CMP's LSP project list is located at:
[Link to CMP's LSP](#)
- UI's LSP project list is located at:
[Link to UI's LSP](#)

Avangrid's Local System Planning Process

- All Avangrid local system upgrades are determined in accordance with ***Avangrid Transmission Planning Criteria***.
- LSP needs assessments can result from:
 - Periodic Assessment of Transmission Facilities
 - Load Growth
 - Retail or Wholesale Customer Request
 - Generator Interconnection Request
 - Asset Conditions
 - Public Policy Requirements
- Any new project or major project change since the 2023 LSP presentation will be highlighted using red text.

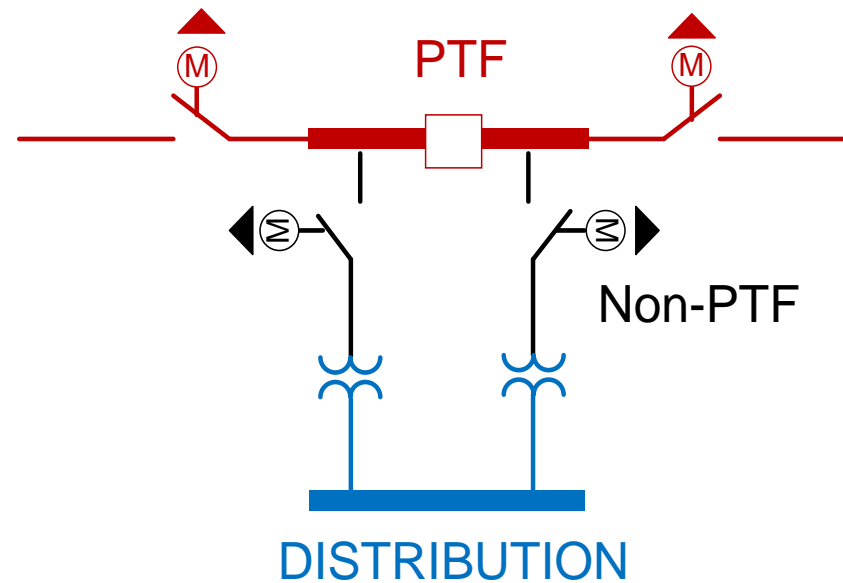
UI Local System Plan

There are currently no UI projects that qualify for the LSP



Characteristics of UI's Transmission System

Typical UI 115/13.8 kV Substation



- There are no radial 115 kV transmission lines on UI's system
- Nearly all of UI's transmission facilities are classified as PTF
- The only non-PTF on UI's system are the 115 kV taps to 115/13.8 kV transformers

In addition to the over 1,000 miles of 115 kV transmission lines pictured here, CMP has over 1,000 miles of 34.5 kV transmission lines that are considered non-

- In addition to the over 500 miles of 345 kV transmission lines and over 1250 miles of 115 kV transmission lines pictured here, CMP has over 1000 miles of 34.5 kV transmission lines that are considered non-PTF.

LSP Projects – Augusta/Southern Area

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Augusta Area Reliability Study	South China 34.5 kV Substation	10 MVAR DRD	N-1-1 inoperability with both High/Low voltage	2027	Canceled
	Augusta East 34.5 kV Substation	Replace the existing 5.4 MVAR Capacitor with a 10 MVAR DRD	N-1-1 inoperability with both High/Low voltage	2027	Canceled
Southern Area Reliability Study	Rebuild 34.5 kV Section 110	Rebuild line with 795 ACSR from Sanford to South Sanford	N-1-1 thermal violations	2025	Planned
	Greenfield Bolt Hill Substation	Full rebuild 115kV AIS 4-BAY BAAH, 4-Line ups of 34.5kV GIS straight bus, and 2-Line ups of 15kV GIS straight bus.	Various thermal and voltage violations Asset condition needs Customer funded expansion	2028	Planned

LSP Projects – Southern Area

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Southern Area Reliability Study	Greenfield Bolt Hill Substation	Four new 115/34.5 kV 56 MVA Transformers	Thermal and Voltage Violations	2028	Planned
		Two new 115/12.47 kV 37 MVA Transformers	Load shifts to new Bolt Hill substation	2028	Planned
		New 34.5 kV Section 136 and Rebuild 176 to PNSY	Customer Need	2028	Planned
		Removal of 34.5/12.47 kV Eliot Substation and move load to Bolt Hill	Distribution Reconfiguration	2028	Planned
		Re-rating 115 kV N133A and N133B	Thermal Violations	2028	Planned
		Relocate and configure 115 kV switch 133J9 as Normally Open between line sections N133A and N133B	Thermal and Voltage Violations	2028	Planned

LSP Projects – Greater Portland Area

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Greater Portland Area Reliability Study	Raven Farms Substation	Bring 34.5kV Elm Street Substation into new 115 kV Raven Farms Substation	N-1 and N-1-1 violations	2030	Concept
		Second 115/34.5 Transformer at New Raven Farms Substation	N-1 and N-1-1 violations	2030	Concept
	East Deering Substation	New 115/34.5 kV Transformer at East Deering	N-1 and N-1-1 violations	2030	Concept
	Bayside Substation	New 115/12.47 kV Substation fed from 115 kV Raven Farms & 115 Sewall Substations	N-1 and N-1-1 violations due to load growth	2030	Concept
	Line Work	Rebuild 34.5 kV Section 180A	N-1 and N-1-1 violations	2030	Concept

LSP Projects – Detroit Guilford Area

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Detroit Guilford Area Reliability Study	Guilford Substation	Install Two 34.5 kV 12 MVAR DRDs at Guilford Substation	High & Low Voltage	2026	Planned
	Detroit Substation	2nd 115/34.5 kV Transformer at Detroit	Thermal Violations / Voltage Violations & LOL	2026	Planned
	Sections 5 & 35	Bifurcation of 34.5 kV Sections 5 and 35	Thermal and Low Voltage Violations & LOL	2027	Planned
	Carmel Rebuild 34.5/12.47 kV	Rebuild Carmel and add 16 MVAR of DRD at 34.5 kV	Increased load / Voltage Violations	2029	Planned

LSP Projects – Asset Condition

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Asset Condition	Great Falls 34.5 kV Substation	Partial Rebuild of Great Falls Substation	Asset condition, reliability, and maintenance concerns	Q4 2025	Planned
	Butlers Corner 34.5 kV Substation	Partial Rebuild of Butlers Corner Substation	Asset condition, and several safety concerns	2026	Planned
	Deer Rips 34.5 kV Substation	Greenfield rebuild of Deer Rips Substation	Asset condition, and problems with joint ownership of facilities within hydro station	2030	Proposed
	Warren 34.5 kV Substation	New Warren Substation at a new location	Asset condition, maintenance, reliability, and safety concerns	2026	Planned
	South Berwick 34.5 kV Substation	New South Berwick Substation at a new location	Asset condition, reliability, and safety concerns	2026	Planned

LSP Projects – Asset Condition

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Asset Condition	Upgrade 34.5 kV Section 151A ¹	New Underground Cable and Duct Bank	Asset Condition of the underground line	Q4 2025	Planned
	Partial Rebuild of 34.5 kV Section 1	34.5 kV Rebuild from Augusta Eastside to McCoy's	Asset condition, and several safety concerns	2025	Planned
	34.5 kV Section 53	Structure Replacements	138 "Reject" Structures, making up 23% of the line	2026	Planned

¹. This project was moved from the Line Work section to the Asset Condition Section

LSP Projects – Misc. Projects

Project Origin	Major Project	Project Description	Needs Assessment	In-Service Date	Status
Distribution Reliability	Rock Row 34.5 kV Substation	New greenfield 34.5kV Substation with line breakers	Upgrade needed to support load growth	2026	Planned
	Hinckley Pond 115 kV Substation	Brownfield Rebuild Hinckley Pond Substation and add a Parallel 115/12.47 kV Transformer	Distribution Criteria Violations and Asset Condition	April 2025	Planned
	Brighton Ave 34.5 kV Substation	Rebuild the 34.5 kV bus with to GIS and add auto-sectionalizing schemes	Asset Condition	2028	Proposed
Transmission Reliability	34.5 kV Transmission Automation	Add motor operators to switches	Reliability	2024-2025	Planned
Relay Limitations	34.5 kV Relay Limitations	Upgrade Relays	Thermal Violations	2026	Planned

LSP Projects - FERC Projects

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Generator Interconnection	QP910 (20 MW Solar)	New 34.5kV breaker and bay position at Sanford	Interconnection Request	September 2025	Planned
	QP786 (20 MW Solar)	New 34.5 kV three breaker ring bus on section 185A	Interconnection Request	2026	Proposed
		Rebuild 1.88-miles of 34.5 kV Section 185	Interconnection Request	2026	Proposed
	QP953 (20 MW Solar)	New 34.5kV breaker and bay position at Augusta East	Interconnection Request	August 2025	Planned
	QP928 (20 MW Solar)	New 34.5kV breaker at the Lakewood Substation	Interconnection Request	2024	Canceled
		Rebuild 34.5 kV Section 10	Interconnection Request	2024	Canceled

LSP Projects - FERC Projects

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Generator Interconnection	QP1013 (17.2 MW Solar)	New 34.5 kV three breaker ring bus	Interconnection Request	2028	Proposed
		Upgrade 34.5 kV Section 43	Interconnection Request	2028	Proposed
	QP1021 (16.425 MW Solar)	Rerate 34.5 kV Section 182	Interconnection Request	2026	Planned
		New 34.5 kV three breaker ring bus	Interconnection Request	2026	Planned

LSP Projects - FERC Projects

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Generator Interconnection	QP1087 (18.1 MW Solar)	New 34.5 kV Breaker at County Road	Interconnection Request	2026	Planned
		Upgrade 34.5 kV Section 56 between Winslow and County Road	Interconnection Request	2026	Planned
	QP1139 (19.1 MW Solar)	New 34.5 kV Three beaker ring bus	Interconnection Request	2026	Planned
	QP935 (17 MW Solar)	New 34.5 kV Three breaker straight bus	Interconnection Request	2028	Planned
		Rebuild 34.5 kV Section 92	Interconnection Request (CMP Funded)	2028	Planned

LSP Projects - FERC Projects

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Generator Interconnections	QP1241 (Sanford/Quaker Hill Cluster)	New 34.5 kV 10 MVAR DRD at Bragdon Commons	Interconnection Request	2027	Canceled
		115/34.5 kV Transformer LTC Adjustments	Interconnection Request (CMP Funded)	2025	Proposed
	QP1242 (Lewiston Cluster)	Rebuild 34.5 kV line section 50	Interconnection Request	2028	Canceled
		Re-rate 34.5 kV Section 76	Interconnection Request (Customer Funded)	2027	Proposed
		115/34.5 kV Transformer LTC Adjustments	Interconnection Request (CMP Funded)	2025	Proposed

LSP Projects - FERC Projects

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Generator Interconnections	QP1255 (Detroit/Guilford/Belfast Cluster)	Add 10 MVAR Capacitor to 115 kV Dogtown Road	Interconnection Request (Customer Funded)	2026	Proposed
	Raymond Cluster	115/34.5 kV Transformer LTC Adjustments	Interconnection Request (CMP Funded)	2025	Proposed
		Upgrade switch on 34.5 kV Section 157	N-1-1 Thermal Violation (Customer Funded)	2027	Proposed
		Upgrade Switch and Relay on 34.5 kV Section 168	N-1-1 Thermal Violation (Customer Funded)	2027	Proposed

LSP Projects - FERC Projects

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Generator Interconnections	QP1244 (Sturtevant Cluster)	Add a 10 MVAR Capacitor to 115 kV Dogtown Road	Voltage Violations (Customer Funded)	2026	Proposed
	QP1099 (Midcoast Cluster)	Split of 4 MVAR DRD at 34.5 kV Bristol Substation into 2x2 MVAR devices	Voltage Violations (Customer Funded)	2028	Proposed
		2x2 MVAR DRD at 34.5 kV Bristol Substation	Voltage Violations (CMP Funded)	2028	Proposed
		115/34.5 kV Transformer LTC Adjustments	Interconnection Request (CMP Funded)	2025	Proposed

LSP Projects - FERC Projects

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Generator Interconnection	QP1254 (Kimball Road)	Upgrade 34.5 kV Section 170	N-0/N-1 Overloads	2028	Canceled
		4 MVAR DRD at 34.5 kV North Limington	N-1 Voltage Violations	2026	Canceled
		Upgrade 34.5 kV Section 91	N-1 Overloads (Customer Funded)	2029	Proposed
		Relay Upgrade on 34.5 kV Section 92	N-1 Overloads	Q3 2024	Canceled
		Rebuild 34.5 kV Section 143	N-0/N-1 Overloads (Customer Funded)	2029	Proposed
		115/34.5 kV Transformer LTC Adjustments	N-1/N-1-1 Voltage Violations (CMP Funded)	2025	Proposed

LSP Projects - FERC Projects

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Generator Interconnection	QP1254 (Kimball Road)	Relay/Switch Upgrade on Section 172 34.5 kV	N-1-1 Maintenance Overloads	Q3 2024	Canceled
		Relay Upgrade on 34.5 kV Section 182	N-1-1 Maintenance Overloads	Q3 2024	Canceled
		Bifurcate 34.5 kV Section 145	N-1-1 Overloads	2028	Canceled
		New North Bridgton Substation 115/34.5 kV	N-1-1 Overloads and Voltage Violations	2028	Canceled
		Second Lovell 115/34.5 kV Transformer	N-1 Overloads	2028	Canceled

LSP Projects - FERC Projects

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Generator Interconnection	QP1254 (Kimball Road)	Adjust Hiram Hydro Voltage Setpoint at 34.5 kV	N-1/N-1-1 Voltage Violations (CMP Funded)	2025	Proposed
		Adjust QP1021 Voltage Setpoint at 34.5 kV	N-1/N-1-1 Voltage Violations (CMP Funded)	2025	Proposed
		Relay Upgrade on 34.5 kV Section 157	N-1/N-1-1 Thermal Violations (CMP Funded)	2025	Proposed
		Relay Upgrade on 34.5 kV Section 168	N-1/N-1-1 Thermal Violations (CMP Funded)	2025	Proposed
		Relay Upgrade on 34.5 kV Section 183	N-1/N-1-1 Thermal Violations (CMP Funded)	2025	Proposed

In-Service LSP Projects – CMP

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Line Work	34.5 kV Section 146	Section 146 Re-Rate	Re-Rating to 140F will allow full utilization of the Distribution Transformer	July 2024	In-Service
	34.5 kV Section 185	Partial Rebuild	Asset Condition & Overloaded N-0	September 2023	In-Service
Asset Condition	Forest Ave 34.5 kV Substation	New Forest Ave Substation at the same location	Asset condition, maintenance, reliability, and safety concerns	June 2024	In-Service
	Fryeburg 34.5 kV Substation	Upgrade Fryeburg Substation	Asset condition, and reliability concerns	July 2024	In-Service
	Bond Brook 34.5 kV Substation	Bring Section 39 in and out of Bond Brook	Failure of Section 38B created the need for a second source into Bond Brook	September 2023	In-Service
Distribution Reliability	Goosefare Substation 115/12.47 kV	New 115/12.47 kV Transformer and Distribution bay	Upgrade needed to support load growth	February 2024	In-Service

In-Service LSP Projects – CMP

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Distribution Reliability	Biddeford Pump Substation	New greenfield 34.5/12.47 kV Substation	N-0 Distribution Overload	September 2024	In-Service

Discussion / Q&A

