

Planning Advisory Committee Meeting October 20, 2016

Local System Plan Presentation

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 to the PAC at an ISO-NE PAC RSP meeting once a year.
 - Separate meetings can be arranged if needed
- PAC, Transmission Customers, and other Stakeholders have 30 days to provide written comments for consideration to CMP.
 - CMP's contact:
 - Chris Morin Manager Electric System Planning Central Maine Power Company 83 Edison Drive Augusta, Maine 04336 (email: chris.morin@cmpco.com)







LSP Communication cont.

- Each PTO 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 PTO's transmission project list and is located at:



http://iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/topac/mtrls/index.html

• CMP's LSP project list and Planning Manual are located at:

http://www.cmpco.com/SuppliersAndPartners/TransmissionServices/CMPTransmissionSvc/lsp.html





CMP LSP Project List

- Central Maine Power will update the LSP project list at least annually.
- A presentation of the LSP will be made annually.
- LSP Project List is a cumulative listing of proposed transmission solutions intended to meet identified needs.
- Similar to PTF projects in the RSP, the LSP project list contains a status of each non-PTF project.

Status	Definition
Concept	Project is under consideration as a possible solution to a need, but little or no analysis is available
Proposed	CMP has determined that the project is an appropriate solution to a need, but has not yet obtained internal budget approval, or final regulatory approval
Planned	Budgetary and regulatory approval has been obtained
Under Construction	Project is approved and is under design/construction
In-Service	Project is complete





- All CMP system upgrades are determined in accordance with *Iberdrola USA Electric System Planning Manual*.
- Planning studies can result from:
 - Periodic Assessment of CMP's Local Planning Areas
 - Load Growth
 - Retail or Wholesale Customer Request
 - Generator Interconnection Request
 - System-Wide Contingency Analysis
 - Public Policy Requirements
- Studies may utilize both ISO-NE Library Base Cases and/or Local CMP Base Cases.
- Generator Interconnections on the non-PTF Transmission System are guided by the CMP Transmission & Distribution Interconnection Requirements for Generation.





Berwick/Lebanon Area









Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Berwick - Lebanon Area Reliability Study	Berwick Substation	New 34/12 kV Berwick Substation and 34.5 kV transmission line to Bassett (Section 116)	Load growth, inadequate 34/12 kV capacity, overloaded distribution circuits	Jan 2017	Under construction
	South Sanford Substation	Complete rebuild of South Sanford Substation	Load growth, inadequate 34/12 kV capacity, overloaded distribution circuits	May 2017	Under construction





Brunswick/Topsham Area









LSP Projects – Brunswick/Topsham Area

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Brunswick - Topsham Area	Line work	Re-rate 34.5 kV Section 76	Overloaded under single element contingency conditions	2018	Planned
	Brunswick Hydro Substation	Upgrade Brunswick Hydro T2 34/12 kV transformer	Overloaded under normal operating conditions	2018	Planned
	Woolwich Substation	Upgrade Woolwich T1 34/12 kV transformer	Overloaded under normal operating conditions	2019	Proposed
	Topsham Substation	Upgrade Topsham T2 34/12 kV transformer	Overloaded under normal operating conditions	2022	Proposed
	Section 11 Rebuild	Rebuild 34.5 kV line between Topsham 115 kV and Bath 115 KV	Overloaded under single element contingency conditions	2021	Proposed
	Section 77 Rebuild	Rebuild 34.5 kV line between Mason and Bath 115 kV	Overloaded under single element contingency conditions	2021	Proposed





Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Brunswick – Topsham Area Study (Cont.)	Topsham 115 kV Substation	Rebuild the Topsham Substation to a 115 kV six breaker ring bus configuration. Upgrade Topsham 115 kV T1 and T3 115/34.5 kV transformers	Voltage collapse conditions, T1 and T3 overloaded under single element contingency conditions	2022	Proposed
	Bath 115 kV Substation	Add a 5.4 MVAR 34.5 kV capacitor bank	Low voltage	2021	Proposed
Distribution Betterment	Cooks Corner Substation	Rebuild the existing Cooks Corner Substation to a new green field location.	N-1 violations of Distribution Planning Criteria	2020	Concept





Lakes Region Area









Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Lakes Region Area Reliability Study	Northern Sub-Area Upgrades	New (9.5 mile) 34.5 kV line from Bridgton to Kimball Road (Section 98)	Voltage collapse under contingent system conditions	Dec 2019	Planned
		Install a 115/34.5 kV 30/56 MVA transformer at Kimball Road		Dec 2019	Planned
		Rebuild 34.5 kV line Section 94	Thermal violation under contingent system conditions	Dec 2019	Planned
		Remove voltage supervision for the reverse power relaying on Lovell T1	Back feeding NH under post- contingent conditions creates voltage and thermal violations	Dec 2019	Planned





Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Lakes Region E Area s Reliability Study ((Cont.)	Eastern Sub-Area Upgrades	New 115/34 kV S/S at New Gloucester with a four breaker ring bus and 115/34 kV transformer and (8 mile) 115 kV transmission line to Surowiec (Section 282)	Voltage collapse and thermal violations under contingent system conditions	Aug 2020	Proposed
		Relocate Raymond 34 kV S/S and rename to Webbs Mills S/S, install two 5.4 MVAR capacitor banks	Room needed for expansion	Jan 2020	Proposed
		New (8 mile) 34.5 kV line from New Gloucester to Webbs Mills	Voltage collapse and thermal violations under contingent system conditions	Aug 2020	Proposed





Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Lakes Region Area	Eastern Sub- Area Upgrades	Shaw Mills Substation Upgrades; two 5.4 MVAR capacitor banks and three 34.5 kV breakers	Voltage violations under contingent system conditions	Mar 2018	Planned
Reliability Study (Cont.)	Western Sub- Area Upgrades	Two 34.5 kV breakers, two 5.4 MVAR capacitor banks at the North Limington Substation	Voltage collapse under contingent system conditions	Oct 2018	Planned
Maintenance - Reliability Inspection	New Waterford Substation	Add new Waterford Substation and 34.5 kV transmission line to Papoose Pond	Section 78 needs to be rebuilt due to its asset condition. However, due to the high cost of a rebuild, it was decided to retire Section 78 and feed Papoose Pond from a new Waterford Substation.	2020	Concept





Lewiston/Auburn Area









Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Lewiston - Auburn Area Reliability Study	Line work	Change protection settings on Section 72	34.5 kV line overload post-contingency	2016	Planned
	Line work	Replace Section 148 cable into Great Falls Substation	34.5 kV line overload post-contingency	2016	Planned
	Gulf Island Substation	Upgrade Gulf Island 115/34.5 kV T4 transformer	Transformer overloaded with load growth, coordinate with MPRP reinforcements	2020	Cancelled













Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Midcoast Area NTA Analysis (the Camden - Rockland Area Reliability Study)	Line Work	Add 1 mile 34.5 kV line to separate Section 51 (Warren – Waldoboro)	Voltage and thermal violations under contingent system conditions	2019	Proposed – pending NTA analysis
Midcoast Area NTA Analysis	Boothbay Upgrades	Add a 2.7 MVAR capacitor bank at Boothbay	Low voltage	Jun 2017	Planned
	Line Work	Rebuild 34.5 kV Section 23	Voltage violations under contingent system conditions	2020	Cancelled
	Newcastle Substation Upgrades	Construct a 4-breaker 115 kV ring bus and install a 34.5 kV bus- tie breaker. Also relocate Section 18 onto bus 3	Voltage collapse under contingent system conditions	May 2018	Planned













Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Portland Area NTA Analysis	Raven Farm Expansion (115/34.5 kV)	New 115 kV bus with four breaker, breaker-and-a-half configuration. Also, install a 115/34 kV transformer and 34.5 kV line to Elm Street	Voltage collapse thermal violations under contingent system conditions	2021	Concept– pending NTA analysis
	Line work	Rebuild 34.5 kV Section 181	Overloaded under single element contingency conditions	2021	Concept– pending NTA analysis
		Rebuild a portion of 34.5 kV Section 180	Overloaded under single element contingency conditions	2021	Concept
	Red Brook	Upgrade Red Brook 115/34.5 kV T1 to a 30/56 MVA	Transformer overloaded under contingent system conditions	2021	Concept– pending NTA analysis





Portland North Area









LSP Projects – Portland North Area

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
	Line work	Re-rate/rebuild portions of 34kV line Section 180A	Thermal violations under normal operating and contingent system conditions	2021	Concept – pending NTA analysis
	Freeport Substation	Add two 2.7 MVAR capacitor banks	Voltage violations under contingent system conditions	2021	Concept –pending NTA analysis
Portland North Area Reliability	Bishop Street Substation	Add a 5.4 MVAR capacitor bank	Voltage violations under contingent system conditions	May 2017	Planned
Study	Elm Street Substation	Bring S164 in/out of Elm St, re-rate S164A	Thermal violations under contingent system conditions (Not needed if Raven Farms 115 kV is built)	2021	Concept –pending NTA analysis
	Prides Corner Substation	Add an additional 5.4 MVAR 34.5 kV capacitor bank	Voltage violations under contingent system conditions	2021	Concept – pending NTA analysis





LSP Projects – Portland North Area

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Portland North Area Reliability Study (Cont.)	Line work	Rebuild Section 103	Overloaded under normal operating and/or single element contingency conditions	2018	Proposed – pending Lakes Region Area Reliability Study results
	Falmouth Substation	Add two 34.5 kV breakers	Voltage and 25 MW loss of load criteria violations under contingent system	2021	Concept –pending NTA analysis
	Swett Rd. Substation	Add two 34.5 kV breakers and add 5.4 MVAR 34.5 kV capacitor bank	Low Voltages in the local area under single element contingencies	2018	Proposed – pending Lakes Region Area Reliability Study results
	East Deering Substation	115-34 kV substation with 115 kV line from Raven Farm.	Voltage collapse, additional source needed in the area	2021	Concept – pending NTA analysis
	North Yarmouth Substation	New 115/34kV S/S tapped from Sect. 166, and 14.8 mi 34.5 kV line to Gray & Freeport with breakers	Voltage violations under contingent system conditions	2020	Concept – pending NTA analysis





Waterville/Winslow Area









LSP Projects – Waterville/Winslow Area

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Waterville - Winslow Area Reliability Study	County Road Substation	Bring Section 241 in/out of new County Road S/S by constructing 7 miles of new 115 kV Transmission. Construct a 4- breaker ring bus with a second 115/34 kV transformer. The existing Rice Rips Substation will be replaced.	Voltage collapse and thermal violations under contingent system conditions	Jul 2020	Planned
	Line work	Re-conductor a portion of 34.5 kV line Section 56.	Overloaded under single element contingency conditions	2019	Planned
Maintenance - Reliability Inspection	South China Substation	Upgrade South China T1	Overloaded under normal operating conditions	Jan 2017	Under Construction





Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Maintenance - Reliability Inspection	Line work	Rebuild Section 187	This 34.5 kV line section is in very poor condition and needs to be rebuilt to improve reliability.	May 2018	Planned
Maintenance - Reliability Inspection	Line work	Rebuild River Crossing of Section 77/207 double circuit towers	Towers are in poor condition and need to be rebuilt to improve reliability	May 2018	Planned
Upper Kennebec Area Reliability Study	Moxie Falls Substation	New Moxie Falls 115/34.5 kV Substation	Inadequate voltage regulation, low voltage violations during all lines in conditions	2021	Concept
Maintenance - Reliability Inspection	Spring Street	Replace 5-34.5 kV breakers, new control house and relay upgrades	Aging oil filled breakers being replaced with new SF-6 units	2020	Concept





LSP Projects – Asset Condition

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Substation Modernization	Forest Ave	Construction of a new Forest Ave Substation at the same location	Asset condition, maintenance, reliability, and safety concerns	2020	Proposed
	Searsport Substation	Construction of a new Searsport Substation and re- rate of Sections 20 and 26	Asset condition, reliability and safety concerns	Dec 2017	Planned
	Dunstan Substation	Construction of a new Dunstan Substation at a new location	Asset condition, several safety concerns	2020	Proposed
	South Berwick Substation	Construction of a new South Berwick Substation at a new location	Asset condition, reliability and safety concerns	2020	Proposed
	Warren Substation	Construction of a new Warren Substation at a new location	Asset condition, maintenance, reliability, and safety concerns	2020	Proposed





Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Substation Modernization	East Wilton Substation	Construction of a new East Wilton Substation at a new location	Asset condition, reliability and safety concerns	2020	Proposed
	Fryeburg Substation	Construction of a new Fryeburg Substation at a new location	Asset condition, reliability concerns	2024	Concept
	Great Falls Substation	Complete Rebuild of Great Falls Substation	Asset condition, reliability and maintenance concerns	2024	Concept
	North Anson Substation	Construction of a new North Anson Substation at a new location	Asset condition, several safety concerns	2025	Concept





LSP Projects – Asset Condition

Project Origin	Major Project	Project Description	Needs Assessment	Projected In-Service Date	Status
Substation Modernization	Butlers Corner Substation	Construction of a new Butlers Corner Substation at a new location	Asset condition, several safety concerns	2023	Concept
	Deer Rips Substation	Complete Rebuild of Deer Rips Substation	Asset condition, problems with joint ownership of facilities within hydro station	2023	Concept





Project Origin	Major Project	Project Description	Needs Assessment	In-Service Date	Status
Midcoast Area NTA Analysis	Mason Upgrades	Relay Modifications on Section 25 at Mason	34.5 kV line overload post-contingency	2016	In-Service
Maintenance - Reliability Inspection	Bristol Substation	Upgrade Bristol T1	Overloaded under normal operating conditions	2016	In-Service
Berwick - Lebanon Area Reliability Study	New Lebanon Substation	Add new Lebanon Substation and 34.5 kV transmission line to Butler's Corner (Section 185A)	Load growth in Lebanon area will exceed area capacity	2016	In-Service
Substation Modernization	Carrabassett Substation	Retire Carrabassett Substation and feed existing load from North Anson Substation	Asset condition with very low customer count	2014	In-Service





Central Maine Power's Electric System Planning

Welcomes Your Feedback



