

Upgrade list from 2006 Long Range Plan
Modified for VSPC meeting

	Reliability problem identified	Transmission solution examined in analysis	Load level need (estimated)	Year of need (estimate based on forecast)	Affected System	Corresponding Planning Study/project	Address in VSPC	Responsible Entities
1	Loss of St. Johnsbury 115/34.5 kV transformer results in loss of all load at St. Johnsbury	Install second 115/34.5 kV transformer at St. Johnsbury with requisite station expansion	400	2006	Sub-system	Lyndonville	Yes	CVPS
2	Loss of the New Haven 115/46 kV transformer results in unacceptable low voltages (loss of all load following completion of NRP)	Install second 115/46 kV transformer at New Haven with requisite station expansion (or build Middlebury to New Haven 46 kV line)	700	2006	Sub-system	Not started	Yes	CVPS
3	Loss of 115/46 kV transformers into Bennington or Brattleboro area causes loss of significant load in Southern Vermont	Add West Dummerston substation on new line between Vermont Yankee to Coolidge. CVPS adds reactive supply in 46 kV system between Bennington to Brattleboro	760	2006	Sub-system	Southern Loop	No	CVPS
4	Loss of Middlebury 115/46 kV transformer causes unacceptable low voltages locally	Install second 115/46 kV transformer at Middlebury with requisite station expansion (or build Middlebury to New Haven 46 kV line)	760	2006	Sub-system	Not started	Yes	CVPS
5	Loss of Vermont Yankee 345/115 kV auto transformer places Brattleboro area load at high risk until replacement transformer installed	Install second Vermont Yankee 345 / 115 kV transformer with requisite station expansion	800	2006	Bulk system	Southern Loop	No	VELCO
6	Loss of one St. Albans 115/34.5 kV transformer overloads the other	Install two 50 MVA 115 / 34.5 kV transformers at St. Albans	850	2006	Sub-system	Not started	Yes	CVPS
7	Loss of West Rutland - Blissville 115 kV line causes unacceptable low voltages locally	Install 16.2 MVAR of capacitor banks at Blissville	920	2006	Sub-system	Not started	Yes	CVPS
8	Loss of one Essex 115/34.5 kV transformer may overload the other (with McNeil unavailable), with consequent load shedding	Install larger transformers at Essex, or pursue other local solution to address transformer load distribution	920	2006	Sub-system	East Ave Loop	No	GMP
9	Loss of either the North Rutland or Cold River 115/46 kV transformer overloads the other unit with unacceptable low voltages locally	Install second 115/46 kV transformer at North Rutland with requisite station expansion	930	2006	Sub-system	Not started	Yes	CVPS
10	Loss of the St. Albans transformers with loss of the 115 kV line or the East Fairfax transformer causes local voltage collapse	Install old St. Albans transformers at new Milton station	950	2006	Sub-system	Not started	Yes	CVPS
11	Loss of the Hartford 115/46 kV transformer causes unacceptable low voltages locally	Install second 115/46 kV transformer at Hartford with requisite station expansion	950	2006	Sub-system	Not started	Yes	CVPS
12	Low voltage or voltage collapse in northern Vermont for loss of transmission at either end	Install reactive power device at Irasburg substation with requisite station expansion	1000	2006	Primarily Bulk system	Not started	Yes	VELCO/ CVPS
13	Breaker failure at Georgia substation results in unacceptable voltage / thermal performance locally	Rebuild Georgia station to 6 breaker ring bus	1100	2006	Primarily Bulk system	Georgia	Yes	VELCO/ CVPS
14	Long term loss of PV20 underground causeway cable with many other outages can cause severe & widespread voltage / thermal concerns	Install 2nd parallel PV20 causeway underground cable	1100	2006	Bulk system	Not started	Yes	VELCO
15	Loss of the Vermont Yankee to Coolidge 345 kV line causes significant voltage / thermal concerns	Four alternatives considered - least cost option builds line parallel to Vermont Yankee - Coolidge line in same right of way (ROW) with expansions to two existing substations (Coolidge and Vermont Yankee) and addition of reactive power device at Coolidge	1200	2011	Bulk system	Southern Loop	No	VELCO
16	Overload of the Coolidge to Cold River 115 kV line	Rebuild Coolidge to Cold River 115 kV line	1200	2011	Bulk system	Not started	Yes	VELCO
17	Breaker failure at Ascutney substation results in unacceptable voltage / thermal performance locally	Improve Ascutney station from current radial bus configuration with 115 kV cap bank and 2nd 115 /46 kV transformer	1200	2011	Primarily Bulk system	Not started	Yes	VELCO/ CVPS
18	Loss of one Bennington 115/46 kV transformer overloads the other	Install two 75 MVA 115 / 46 kV transformers at Bennington	1200	2011	Sub-system	Southern Loop	No	CVPS
19	Loss of the Williston to Tafts Corners 115 kV line, with heavy flows from south to north, overloads the Queen City 115/34.5 kV transformer	Install second 115/34.5 kV transformer at Queen City with requisite station expansion (or automatically sectionalize the underlying subtransmission network)	1200	2011	Primarily Bulk system	Not needed	No	VELCO/GMP
20	Loss of the Barre to Berlin 115 kV line section, when heavily loaded from east to west, overloads the Barre transformer	Install either a larger transformer or a second 115/34.5 kV transformer at Barre with any requisite station expansion (or automatically sectionalize the underlying network)	1200	2011	Primarily Bulk system	Not needed	No	VELCO/GMP
21	Loss of the Berlin to Middlesex 115 kV line section, when heavily loaded from east to west, overloads the Berlin transformer	Install a second 115/34.5 kV transformer at Berlin with any requisite station expansion (or automatically sectionalize the underlying subtransmission network)	1200	2011	Primarily Bulk system	Not needed	No	VELCO/GMP
22	Long term loss of Coolidge 345/115 kV transformer causes voltage / thermal concerns in central VT	Install second Coolidge 345 / 115 kV transformer with requisite station expansion	1250	2013	Bulk system	Southern Loop	No	VELCO
23	Overload of the Barre to Berlin 115 kV line	Rebuild Barre to Berlin 115 kV line	1300	2016	Bulk system	Not started	Yes	VELCO
24	Overload of the Florence to West Rutland 115 kV line	Rebuild the Florence to West Rutland 115 kV line	1300	2016	Bulk system	Not started	Yes	VELCO
25	Overload of the Cold River to North Rutland 115 kV line	Rebuild Cold River to North Rutland 115 kV line	1300	2016	Bulk system	Not started	Yes	VELCO
26	Overload of New Haven to Williston 115 kV line	Rebuild New Haven to Williston 115 kV line	1325	2017	Bulk system	Not started	Yes	VELCO