

How many Reclosers / Smart Switches are Too Many? -

Sectionalizing to 300 customer zones using only local intelligence

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EVERSOURCE

Eversource – CT Loops

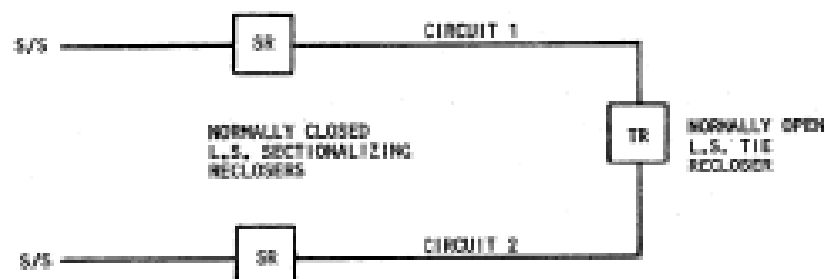
- 1,380 automatic recloser loop zones
 - 1139 sectionalizing reclosers
 - 241 Midpoint reclosers
 - 768 Tie reclosers
- 69% of CT 's 1.2 million customers are within auto-loops.
- Averaging 480 customers within a zone

Does not include Radial reclosers

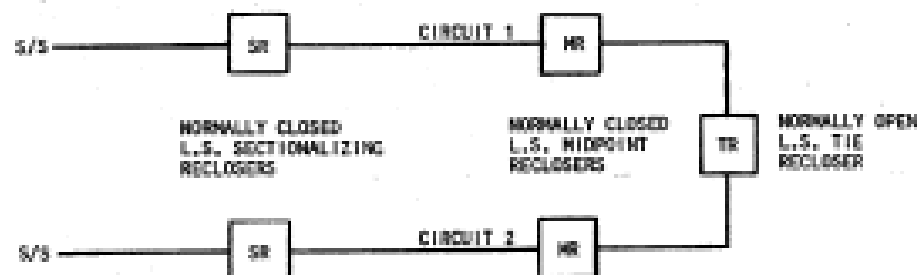
Recloser Loops

LOOP SCHEMES - Loop schemes have been developed to improve reliability and maintain service continuity to the greatest number of customers. In a loop scheme two or more distribution circuits are tied together with a normally open recloser equipped with a tie control. The same model of recloser is used for each application, however, there are differences in the control package. There are three types of controls which can be configured in various ways. Examples of a three and a five recloser loop are shown.

Three Recloser Loop



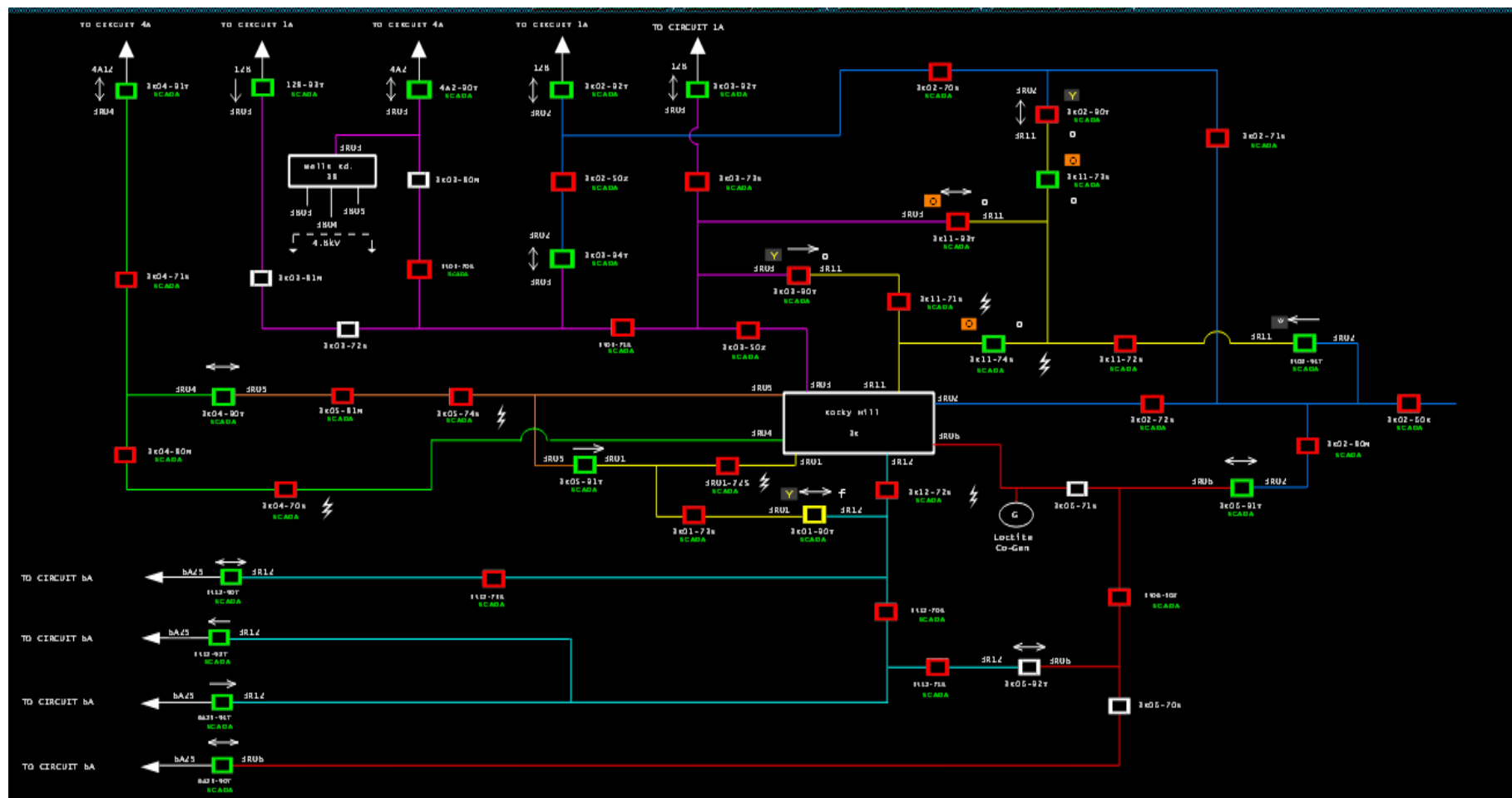
Five Recloser Loop



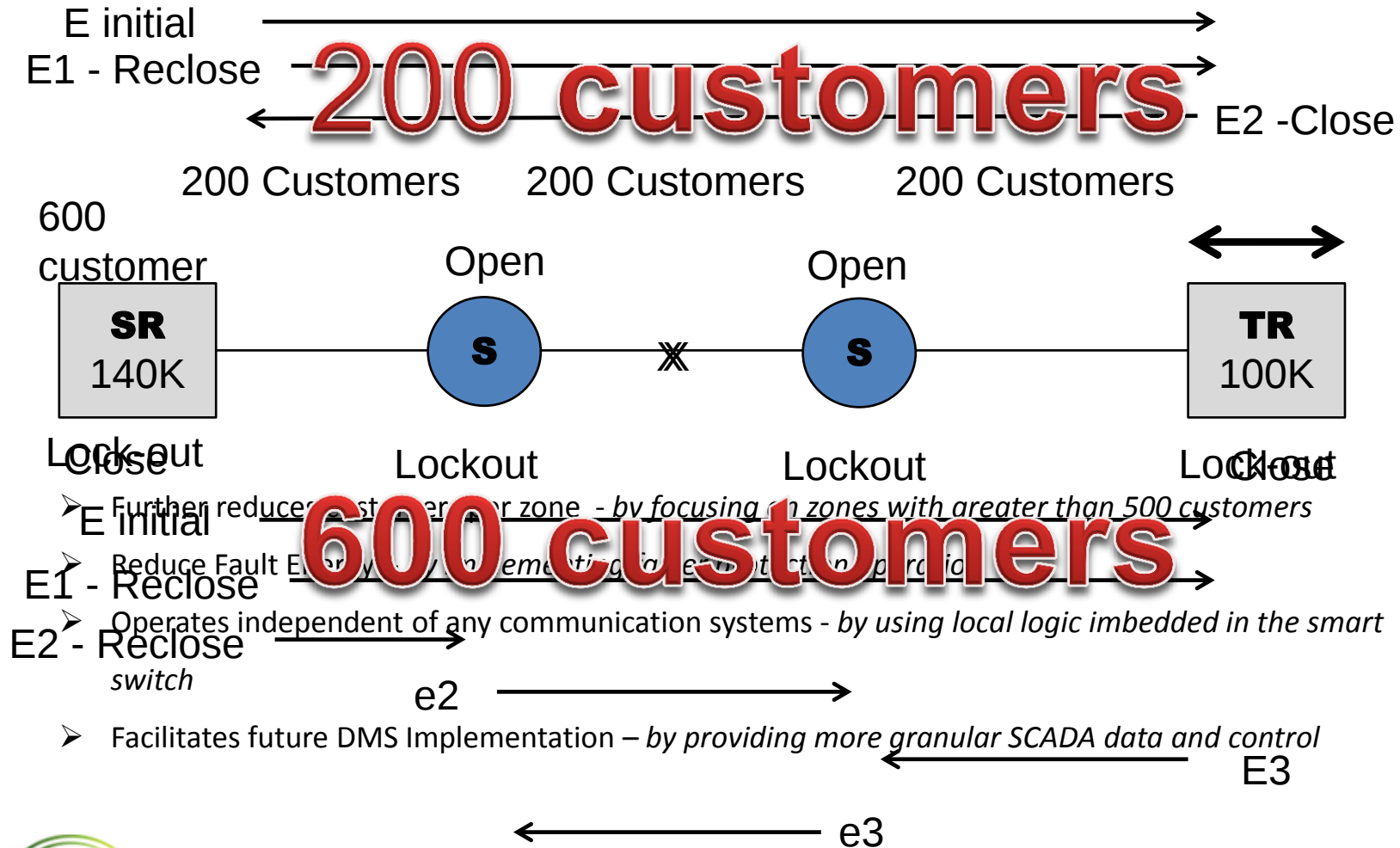
RECLOSER GUIDE

NORTHEAST UTILITIES	DESIGN & APPLICATION STANDARD	DTR 18.441
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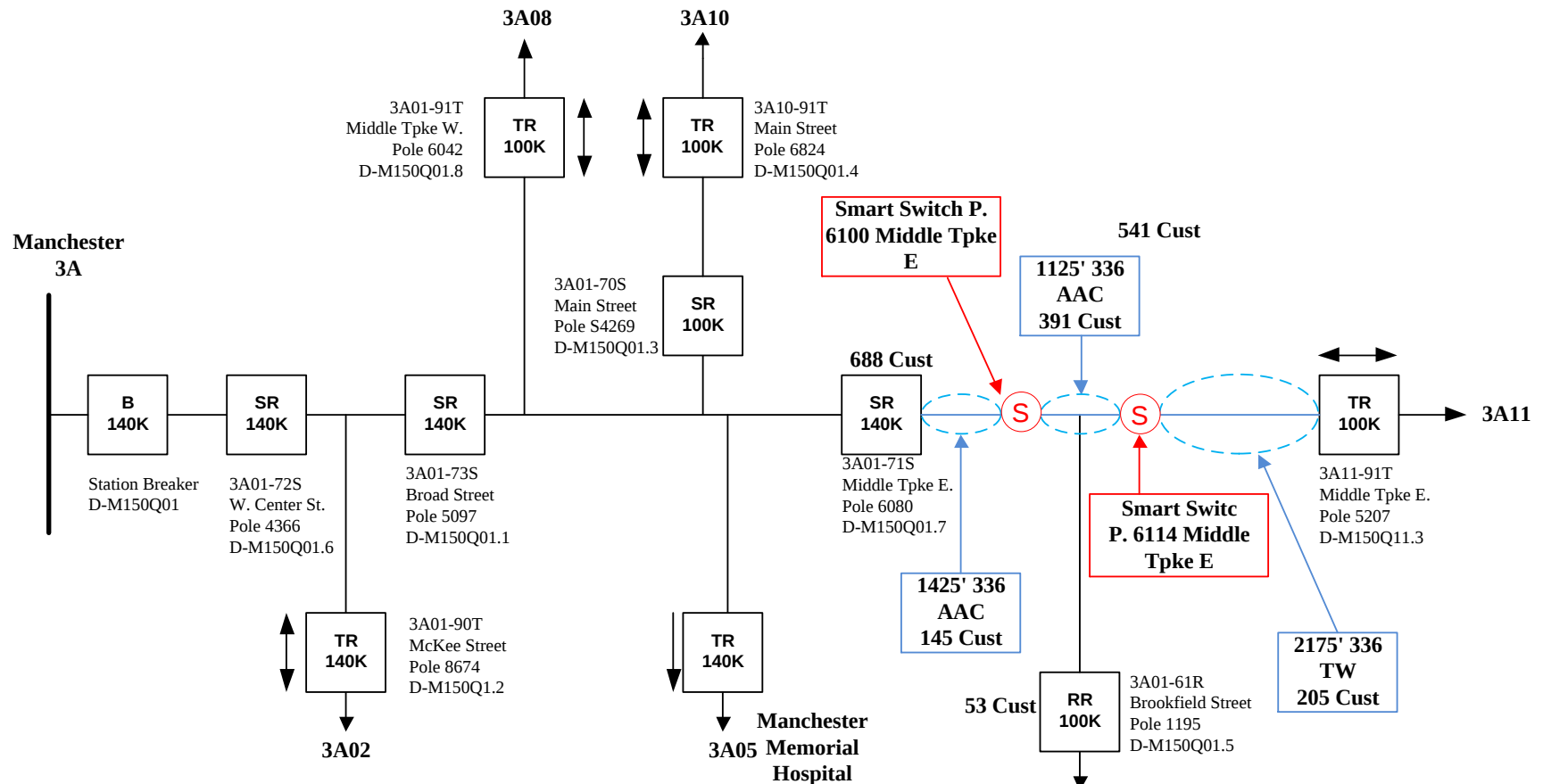
Eversource – Loop Sample



Eversource Smart Switches – How they work

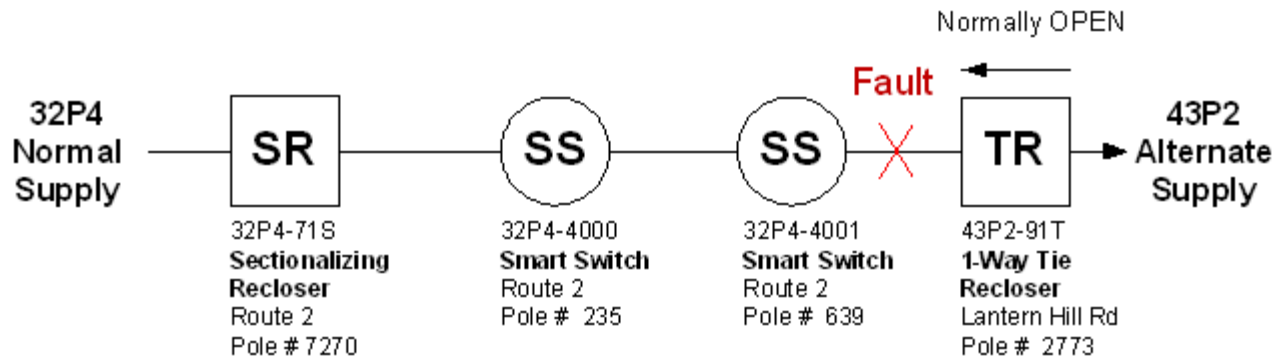


Selected Smart Switch Feeder



Eversource - Smart Switch

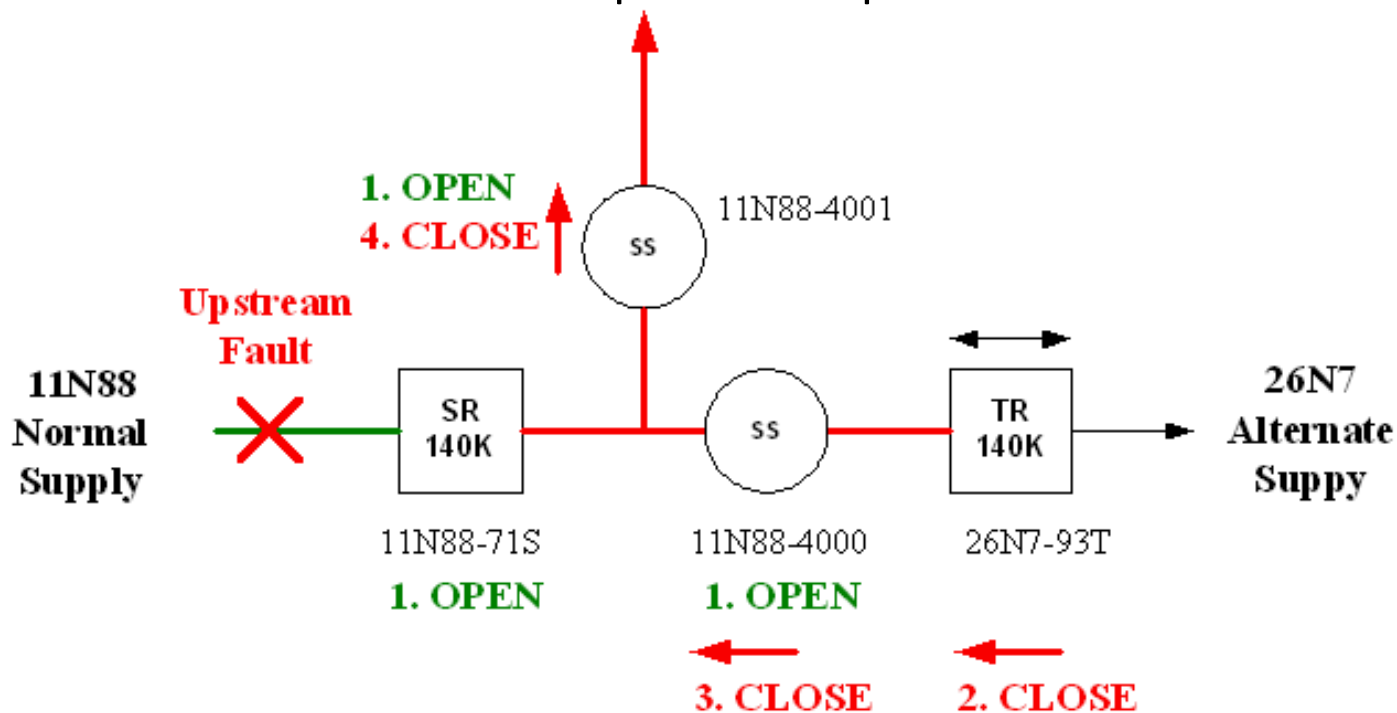
April 3 2015 Event - Sequence of Operations



Fault				X		18:40:47
SR Open	OP			X		18:40:48
SR Reclose	CL			X		18:41:18
SR Open	OP			X		18:41:19
SS(s) Open		OP	OP	X		18:41:59
SR Reclose	CL			X		18:42:09
SS Reclose		CL		X		18:42:12
SS Reclose			CL	X		18:42:15
SS Open			OP	X		18:42:15
TR Close				X	CL	18:43:16
TR Open				X	OP	18:43:16

Eversource Smart Switch Fault

June 23 2015 Event - Sequence of Operations



Fault	-----X-----	OP-----	16:22:28
Step 1	--OP-----X-----OP--OP--OP--OP--	16:22:58	
Step 2	--OP-----X-----OP--OP--OP--CL-----	16:23:13	
Step 3	--OP-----X-----OP--OP--CL-----CL-----	16:23:43	
Step 4	--OP-----X-----OP--CL--CL--CL-----	16:23:45	