

**Table PR-21
New Substations, Transformer Additions and Replacements**

Identified need	Potential additions or replacements	Transformer Capacity (MVA)		System need year	Projected In-service year	Planning zone
		Install	Replace			
relieve overloads under contingency	Construct 138 kV bus and install a 138/69 kV, 60 MVA transformer at Aspen Substation	60	0	2010	2010	2
relieve overloads under contingency, replace aging facilities	Reconfigure Kewaunee 345/138-kV switchyard and install a second 500 MVA 345/138-kV transformer	500	0	2011	2011	4
relieve overloads under contingency	Install 138/69-kV 150 MVA transformer at Pine River	150	0	2012	2012	2
relieve overloads under contingency	Install 138/69-kV 150 MVA transformer at Nine Mile	150	0	2012	2012	2
relieve overloads under contingency	Install 138/69-kV 150 MVA transformer at Lakehead Rapid River	150	0	2012	2012	2
relieve overloads under contingency	Install 60 MVA 138/69-kV transformer at Dunn Road	60	0	2012	2012	4
economics, relieve overloads under contingency	Install a 161/138-kV transformer at Council Creek Substation	100	0	2013	2013	1
relieve overloads under contingency	Install second Chandler 138/69-kV transformer	0	40	2013	2013	2
relieve overloads under contingency	Install a 138/69-kV transformer at Bass Creek Substation	100	0	2010	2013	3
relieve overloads under contingency	Construct a 345-kV bus and install a 345/138 kV 500 MVA transformer at West Middleton Substation	500	0	2013	2013	3
relieve overloads under contingency	Replace two existing 345/138-kV transformers at Arcadian Substation with 1-500 MVA transformer	500	672	2010	2013	5
relieve overloads under contingency	Replace the existing 46 MVA Hillman 138/69-kV transformer with a 100 MVA transformer	47	0	2015	2015	3
relieve overloads under contingency	Uprate Columbia 345/138-kV transformer T-22 to 527 MVA	527	400	2015	2015	3
relieve overloads under contingency	Install a second 138/69-kV transformer at Spring Green with a 100 MVA summer normal rating	100	0	2016	2016	3
relieve overloads under contingency	Construct new 138-kV bus and install a 138/69-kV 100 MVA transformer at South Lake Geneva Substation	100	0	2016	2016	3
relieve overloads under contingency	Replace two existing 138/69-kV transformers at Glenview Substation with 100 MVA transformers	200	116	2016	2016	4

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		Install	Replace			
relieve overloads under contingency	Install a second 138/69-kV transformer at Wautoma Substation	100	0	2017	2017	1
relieve overloads under contingency	Replace 138/69-kV transformer at Metomen Substation	100	47	2017	2017	1
relieve overloads under contingency	Convert Necedah distribution substation from 69 kV to 138 kV	N/A	N/A	2018	2018	1
economic benefits	Replace two existing 138/69-kV transformers at Sunset Point Substation with 100 MVA transformers	200	142	2018	2018	4
relieve overloads under contingency, economics	Install 138/69-kV transformer at Custer Substation	100	0	2020	2020	4
relieve overloads under contingency	Construct a 345-kV bus, install a 345/138-kV 500 MVA transformer at North Randolph and loop the Columbia to South Fond Du Lac 345-kV line into the substation	500	0	2021	2021	3