

**Table PR-20
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	Install a 345/161-kV transformer at Stone Lake Substation (temporary installation for construction outages)	300	0	2006	2006	1
relieve overloads under contingency, reduce service limitations	Construct a 345/138-kV switchyard at a new Werner West Substation; install a 345/138-kV transformer. Loop existing Rocky Run to North Appleton 345 kV and existing Werner to White Lake 138-kV lines into Werner West	500	0	2004	2006	4
accommodate new generation	Construct a 138-kV substation at a new Forward Energy Center Substation; loop existing Butternut-South Fond du Lac line into Forward Energy Center	N/A	0	2006	2006	4
accommodate new generation	Construct a 345-kV substation at new Cypress Substation; loop existing Forest Junction-Arcadian line into new Cypress	N/A	0	2006	2006	4
relieve overloads under contingency, replace aging facilities	Relocate Brule Substation (Aspen)	N/A	0	2007	2007	2
relieve overloads under contingency, accommodate new generation	Install 138/69-kV transformer at Femrite Substation	187	0	2007	2007	3
relieve overloads under contingency, accommodate new generation	Install 138/69-kV transformer at Reiner Substation	100	0	2007	2007	3
relieve overloads under contingency, improve transfer capability & Weston stability	Construct the new permanent Stone Lake 345/161-kV Substation	N/A	0	2008	2008	1
relieve overloads under contingency, transfer capability	Construct 138 kV bus and install 138/115-kV 150 MVA and 138/69-kV 60 MVA transformers at Conover Substation	210	0	2008	2008	2
relieve overloads under contingency, replace aging facilities	Relocate Cedar Substation (North Lake)	N/A	0	2005	2008	2
relieve overloads under contingency, transfer capability	Install second 345/138-kV transformer at Plains Substation	500	0	2008	2008	2
relieve overloads under contingency	Construct 138/69 kV substation at a site near Horicon and install a 138/69-kV transformer	100	0	2008	2008	3
relieve overloads under contingency	Construct a new 138/69-kV substation near Huiskamp and install a 187 MVA 138/69-kV transformer	187	0	2008	2008	3

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relieve overloads under contingency	Install 138/69-kV transformer at the expanded Menominee Substation	100	0	2008	2008	4
reduce service limitations, relieve overloads under contingency, improve transfer capability and Weston stability	Construct new Central Wisconsin 345-kV Substation	N/A	N/A	2009	2009	1
relieve overloads under contingency, transfer capability	Construct 138 kV bus and install a 138/69 kV, 60 MVA transformer at Iron Grove Substation	60	0	2009	2009	2
relieve overloads under contingency	Construct 138 kV bus and install a 138/69 kV, 60 MVA transformer at Aspen Substation	60	0	2009	2009	2
relieve overloads under contingency	Relocate Iron River Substation (Iron Grove)		0	2009	2009	2
relieve overloads under contingency	Install a second 138/69-kV transformer at Hillman Substation	47	0	2008	2009	3
accommodate new generation	Install second 500 MVA 345/138-kV transformer at Oak Creek Substation	500	0	2009	2009	5
relieve overloads under contingency	Construct a 345-kV bus at Bain Substation	N/A	0	2005	2009	5
T-D interconnection request	Construct a 138-kV bus at Hale Substation to permit third Brookdale distribution transformer interconnection	N/A	0	2009	2009	5
access initiative, relieve overloads under contingency	Install a 161/138-kV transformer at Council Creek Substation	100	0	2010	2010	1
relieve overloads under contingency	Replace 138/69-kV transformer at Metomen Substation	100	47	2010	2010	1
relieve overloads under contingency	Construct new Mackinac 138/69-kV Substation	N/A	0	2010	TBD	2
relieve overloads under contingency	Install a 138/69-kV transformer at Bass Creek Substation	100	0	2010	2010	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	2011	2011	3
relieve overloads under contingency	Upgrade M38 138/69-kV transformer	64	47	TBD	TBD	2
relieve overloads under contingency	Install 60 MVA 138/69-kV transformer at Dunn Road Substation	60	0	2012	2012	4
relieve overloads or low voltages under contingency	Install 138/69-kV transformer at Custer Substation	100	0	2012	2012	4

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accommodate new generation	Construct a 345/138-kV switchyard at Hale (Brookdale) to accommodate two 345-kV lines, a 500 MVA 345/138-kV transformer and 4-138-kV lines plus three 138-26.2 kV transformers	500	0	2013	2013	5
relieve overloads under contingency	Install a second 138/69-kV transformer at McCue Substation	100	0	2014	2014	3
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	2014	2014	3
relieve overloads under contingency	Replace the existing 138/69-kV transformer at South Sheboygan Falls Substation with 100 MVA transformer	100	60	2014	2014	4
relieve overloads under contingency	Replace two existing 138/69-kV transformers at Glenview Substation with 100 MVA transformers	200	116	2014	2014	4
relieve overloads under contingency	Install a second 138/69-kV transformer at Wautoma Substation	100	0	2015	2015	1
relieve overloads under contingency	Replace two existing 138/69-kV transformers at Sunset Point with 100 MVA transformers	200	142	2015	2015	4
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