

Table PR-2  
Transmission System Additions for 2009

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Uprate the Chandler-Masonville 69-kV line summer normal and emergency ratings from 120 deg F to 167 deg F	2009	2009	2	reliability	Proposed	F2532
Install 1-4.08 MVAR capacitor bank at L'Anse 69 kV	2008	2009	2	reliability	Proposed	F1819
Construct ring bus at the Pine River 69-kV Substation and replace 1-5.4 MVAR capacitor bank with 2-4.08 MVAR banks	2008	2009	2	reliability, condition	Proposed	F1282
Install 1-8.16 MVAR capacitor banks at the M38 138-kV Substation	2009	2009	2	reliability	Proposed	F2485
Uprate Chandler-Cornell 69-kV line clearance from 120 to 167 deg F	2009	2009	2	reliability	Proposed	F2016
Install 1-8.2 MVAR capacitor bank at Hiawatha 138-kV Substation	2009	2009	2	reliability	Proposed	F2222
Install 1-4.08 MVAR capacitor banks at Osceola 69 kV	2009	2009	2	reliability	Proposed	F2468
Uprate the Chandler-Delta #1 69-kV line summer emergency rating from 120 deg F to 167 deg F	2009	2009	2	reliability	Proposed	F2534

Table PR-2  
Transmission System Additions for 2009 (continued)

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in Financial Table
Uprate the Chandler-Delta #2 69-kV line summer emergency rating to from 120 deg F 167 deg F	2009	2009	2	reliability	Proposed	F2535
Construct a Jefferson-Tyranena-Stony Brook 138-kV line	2006	2009	3	reliability	Planned	F0924
Uprate X-8 Rockdale to Boxelder 138-kV line	2008	2009	3	reliability	Planned	F0924
Uprate Y-41 Walworth- North Lake Geneva 69-kV to achieve a 69 MVA summer emergency rating	2009	2009	3	reliability	Planned	F2154
Install a second 138-kV reserve auxiliary transformer (RAT) at Kewaunee and remove tertiary auxiliary transformer (TAT)	2009	2009	4	reliability	Proposed	F2371

Defined in Previous 10-Year Assessment
Revised in scope from Previous 10-Year Assessment
New to this 10-Year Assessment

Table PR-3  
Transmission System Additions for 2010

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Rebuild Arpin-Rocky Run 345-kV line	2010	2010	1	condition	Planned	F2252
Construct 69-kV line from new Warrens Substation to the Council Creek-Tunnel City 69-kV line	2010	2010	1	T-D interconnection	Planned	F2173
Construct Brandon-Fairwater 69-kV line	2010	2010	1	T-D interconnection	Planned	F1844
Replace Metomen 69-kV breaker	2010	2010	1	reliability, condition	Planned	F2398
Rebuild/convert Conover-Plains 69-kV line to 138 kV	2010	2010	2	reliability, transfer capability	Planned	F1363
Construct 138-kV bus and install a 138/69-kV, 60 MVA transformer at Aspen Substation	2010	2010	2	reliability	Planned	F1363
Install 1-16.33 MVAR capacitor bank at Indian Lake 138-kV Substation	2010	2010	2	reliability	Proposed	F2223
Uprate Y-61 McCue-Lamar 69-kV line to achieve 300 deg F line ratings and install 2-12.45 MVAR 69-kV capacitor banks at Lamar Substation	2008	2010	3	reliability	Proposed	F2324
Uprate X-23 Colley Road-Marine 138-kV line terminals*	2014	2010	3	reliability	Proposed	F1670
Construct new Oak Ridge-Verona 138-kV line and install a 138/69-kV transformer at Verona with a 100 MVA summer normal rating	2009	2010	3	reliability	Planned	F1407

Table PR-3  
Transmission System Additions for 2010 (continued)

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Upgrade Sheepskin capacitor bank from 10.8 MVAR to 16.2 MVAR	2009	2010	3	reliability	Planned	F2248
Construct second Paddock-Rockdale 345-kV line and replace 345/138-kV transformer T22 at Rockdale Substation	2010	2010	3	economics	Planned	F1981
Install 2-16.33 MVAR 69-kV capacitor banks at Spring Green Substation	2010	2010	3	reliability	Planned	F2327
Uprate the Royster Substation terminals	2010	2010	3	reliability	Planned	F2317
Uprate Point Beach-Sheboygan Energy Center 345-kV circuit L111 to 167 degrees F	2010	2010	4	economics	Proposed	F1988
Install 2-32 MVAR capacitor banks at Summit 138-kV Substation	2010	2010	5	reliability	Proposed	F2256
Expand 345-kV switchyard at Oak Creek to interconnect one new generator	2010	2010	5	new generation	Planned	F1729
Uprate Oak Creek-Root River 138-kV line	2010	2010	5	new generation	Planned	F2140
Uprate Oak Creek-Nicholson 138-kV line	2010	2010	5	new generation	Planned	F2112
Upgrade Bain-Albers 138-kV line	2010	2010	5	reliability	Proposed	F2461

Table PR-3  
Transmission System Additions for 2010 (continued)

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Construct a 138-kV bus at Pleasant Valley Substation to permit second distribution transformer interconnection	2010	2010	5	T-D interconnection	Planned	F2086
Construct second Shorewood-Humboldt 138-kV underground cable*	2012	2010	5	reliability	Proposed	F2487

Defined in Previous 10-Year Assessment
Revised in scope from Previous 10-Year Assessment
New to this 10-Year Assessment

Table PR-4  
Transmission System Additions for 2011

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Install 1-4.08 MVAR capacitor bank at North Bluff 69-kV Substation	2010	2011	2	reliability	Provisional	F2490
Replace two overhead Blount-Ruskin 69-kV lines with one underground 69-kV line	2010	2011	3	Completion of earlier project per agreement with the City of Madison	Proposed	F2628
Rebuild the Y-119 Verona to Oregon 69-kV line	2008	2011	3	reliability, condition	Proposed	F2469
Rebuild Y-33 Brodhead to South Monroe 69-kV line	2011	2011	3	generation interconnection, reliability	Planned	F2526
Uprate terminal limitations at McCue for the Y-79 McCue-Milton Lawns 69-kV line	2011	2011	3	reliability	Proposed	F2405
Install 2-24.5 MVAR 138-kV capacitor bank and 1-18 MVAR 69-kV capacitor bank at Brick Church substation	2011	2011	3	reliability	Provisional	F2404
Reconfigure Kewaunee 345/138-kV switchyard and install a second 500 MVA 345/138-kV transformer	2011	2011	4	reliability, condition	Proposed	F2437
Rebuild 2.37 miles of 69 kV from Sunset Point to Pearl Ave with 477 ACSR	2011	2011	4	reliability	Planned	F1361

Defined in Previous 10-Year Assessment
Revised in scope from Previous 10-Year Assessment
New to this 10-Year Assessment

Table PR-5  
Transmission System Additions for 2012

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Construct 115-kV line from new Woodmin Substation to the Clear Lake Substation	2012	2012	1	T-D interconnection	Proposed	F2495
Uprate overhead portions of Straits-McGulpin 138-kV circuits #1 & #3 to 230 F degree summer emergency ratings	2012	2012	2	reliability	Provisional	TBD
Rebuild/convert Straits-Pine River 138-kV lines 6904/5	2012	2012	2	reliability	Provisional	F2833
Install 138/69-kV 150 MVA transformer at Pine River	2012	2012	2	reliability	Provisional	F2834
Install 138/69-kV 150 MVA transformer at Nine Mile	2012	2012	2	reliability	Provisional	F2834
Install 138/69-kV 150 MVA transformer at Lakehead Rapid River	2012	2012	2	reliability	Provisional	TBD
Construct tap from the Kinross load to Pine River/Nine Mile 69-kV line	2012	2012	2	T-D interconnection, reliability	Provisional	F2836
Construct/convert Pine River-Nine Mile 138/69-kV double-circuit line	2012	2012	2	reliability	Provisional	F2836
Rebuild part of the Y-8 Dane-Dam Heights 69-kV line*	2015	2012	3	reliability, asset renewal, potential T-D interconnection	Provisional	F1602
Uprate Y-40 Gran Grae-Boscobel 69-kV line to achieve a 99 MVA summer emergency rating*	2017	2012	3	reliability	Proposed	F1444

Table PR-5  
Transmission System Additions for 2012 (continued)

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Construct Canal-Dunn Road 138-kV line	2012	2012	4	reliability	Proposed	F1358
Install 60 MVA 138/69-kV transformer at Dunn Road	2012	2012	4	reliability	Proposed	F1358
Install 3-75 MVAR capacitor banks at Bluemound Substation	2012	2012	5	reliability	Proposed	F2650

Defined in Previous 10-Year Assessment
Revised in scope from Previous 10-Year Assessment
New to this 10-Year Assessment

Table PR-6  
Transmission System Additions for 2013

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Construct Monroe County-Council Creek 161-kV line and Timberwolf 69-kV switching station	2013	2013	1	economics, reliability	Proposed	F2454
Install a 161/138-kV transformer at Council Creek Substation	2013	2013	1	economics, reliability	Proposed	F2454
Uprate Council Creek-Petenwell 138-kV line	2013	2013	1	economics, reliability	Proposed	F2849
Upgrade Mckenna 6.3 MVAR capacitor bank to 12.25 MVAR and install a second new 12.25 MVAR capacitor bank	2013	2013	1	reliability	Provisional	F2519
Install second Chandler 138/69-kV transformer	2013	2013	2	reliability	Provisional	TBD
Increase ground clearance of M38-Atlantic 69-kV line from 120 to 167 degrees F	2009	2013	2	reliability	Provisional	TBD
Uprate Fitchburg-Nine Springs 69-kV and Royster-Pflaum 69-kV lines and move AGA load to the Royster-Femrite 69-kV line	2006	2013	3	reliability	Proposed	F2088
Rebuild Y-32 Colley Road-Brick Church 69-kV line	2013	2013	3	reliability, condition	Provisional	F1670
Install 2-16.33 MVAR 69-kV capacitor banks at Nine Springs Substation	2013	2013	3	reliability	Proposed	F2088
Install a 138/69-kV transformer at Bass Creek Substation	2010	2013	3	reliability	Proposed	F1869

Table PR-6  
Transmission System Additions for 2013 (continued)

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in Financial Table
Uprate X-12 Town Line Road-Bass Creek 138-kV line to 300 deg F	2010	2013	3	reliability	Proposed	F1869
Construct 345-kV line from Rockdale to West Middleton	2013	2013	3	reliability	Planned	F1435
Construct a 345-kV bus and install a 345/138 kV 500 MVA transformer at West Middleton Substation	2013	2013	3	reliability	Planned	F1435
Uprate Y-61 Sheepskin-Dana 69-kV line to 95 MVA	2013	2013	3	reliability	Proposed	F2583
Uprate Arcadian-Waukesha 138-kV lines KK9942/KK9962	2010	2013	5	reliability	Provisional	F2142
Replace two existing 345/138-kV transformers at Arcadian Substation with 1-500 MVA transformer	2010	2013	5	reliability	Provisional	F2539

Defined in Previous 10-Year Assessment
Revised in scope from Previous 10-Year Assessment
New to this 10-Year Assessment

Table PR-7  
Transmission System Additions for 2014

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Construct a 69-kV line from SW Ripon to the Ripon-Metomen 69-kV line	2014	2014	1	T-D interconnection	Provisional	F2053
Uprate Munising-Seney-Blaney Park 69-kV line to 167 degrees F	2014	2014	2	reliability	Provisional	TBD
Construct Gwinn-Forsyth second 69-kV line	2014	2014	2	reliability	Provisional	TBD
Install 2-16.33 MVAR 69-kV capacitor banks and 2-24.5 MVAR 138-kV capacitor banks at Femrite Substation	2014	2014	3	reliability	Provisional	F2516
Install 1-16.33 MVAR 69-kV capacitor bank at Verona Substation	2014	2014	3	reliability	Provisional	F2520

Defined in Previous 10-Year Assessment
Revised in scope from Previous 10-Year Assessment
New to this 10-Year Assessment

Table PR-8  
Transmission System Additions for 2015

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Replace the existing 46 MVA Hillman 138/69-kV transformer with a 100 MVA transformer	2015	2015	3	reliability	Provisional	F0339
Install 1-8.16 MVAR capacitor bank at Boscobel 69-kV Substation and upgrade existing 5.4 MVAR bank with an 8.16 MVAR bank	2015	2015	3	reliability	Provisional	F2518
Upgrade Columbia 345/138-kV transformer T-22 to 527 MVA	2015	2015	3	reliability	Provisional	F2135
Upgrade Oak Creek-Pennsylvania 138-kV line	2015	2015	5	reliability	Provisional	F2473

Defined in Previous 10-Year Assessment
Revised in scope from Previous 10-Year Assessment
New to this 10-Year Assessment

Table PR-9  
Transmission System Additions for 2016

<b>System Additions</b>	<b>System Need Year</b>	<b>Projected In-Service Year</b>	<b>Planning Zone</b>	<b>Need Category</b>	<b>Planned, Proposed or Provisional</b>	<b>Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i></b>
Upgrade 4.1 MVAR capacitor bank to 8.2 MVAR and install a new 8.2 MVAR capacitor bank at Ripon 69-kV Substation	2016	2016	1	reliability	Provisional	F2477
Install a second 138/69-kV transformer at Spring Green with a 100 MVA summer normal rating	2016	2016	3	reliability	Provisional	F2445
Uprate X-67 Portage-Trienda 138-kV line to 373 MVA	2016	2016	3	reliability	Provisional	F2092
Construct new 138-kV line from North Lake Geneva to South Lake Geneva Substation	2016	2016	3	reliability, T-D interconnection	Provisional	F2587
Construct new 138-kV bus and install a 138/69-kV 100 MVA transformer at South Lake Geneva Substation	2016	2016	3	reliability	Provisional	F2587
Install 2-16.33 MVAR 69-kV capacitor banks at Eden Substation	2016	2016	3	reliability	Provisional	F2515
Install 4-49 MVAR 138-kV capacitor banks at Concord Substation	2016	2016	3	reliability, economics	Provisional	F2489
Uprate the 6986 Royster to Sycamore 69-kV line to 115 MVA	2016	2016	3	reliability	Provisional	F2471
Install 2-16.33 MVAR 69-kV capacitor banks at Sun Prairie	2016	2016	3	reliability	Provisional	F2475
Replace two existing 138/69-kV transformers at Glenview Substation with 100 MVA transformers	2016	2016	4	reliability	Provisional	F2079

Table PR-9  
Transmission System Additions for 2016 (continued)

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Construct second Dunn Road-Egg Harbor 69-kV line	2016	2016	4	reliability	Provisional	F0181

Defined in Previous 10-Year Assessment
Revised in scope from Previous 10-Year Assessment
New to this 10-Year Assessment

Table PR-10  
Transmission System Additions for 2017

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Install a second 138/69-kV transformer at Wautoma Substation	2017	2017	1	reliability	Provisional	F2480
Replace 138/69-kV transformer at Metomen Substation	2017	2017	1	reliability	Proposed	F1867
Uprate Castle Rock-Mckenna 69-kV line	2017	2017	1	reliability, economic benefits	Provisional	F2491
Uprate Y159 Brick Church-Walworth 69-kV line to 115 MVA	2017	2017	3	reliability	Provisional	F2153
Construct West Middleton-Blount 138-kV line	2017	2017	3	reliability	Provisional	F2466
Construct a Lake Delton-Birchwood 138-kV line	2017	2017	3	reliability	Provisional	F1638
Install 2-12.25 MVAR 69-kV capacitor banks at Mazomanie Substation	2017	2017	3	reliability	Provisional	F2517
Construct 69-kV double-circuit line between McCue and Lamar substations	2017	2017	3	reliability		F2558

Table PR-10  
Transmission System Additions for 2017 (continued)

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Install 2-16.33 MVAR 69-kV capacitor banks at Dam Heights	2017	2017	3	reliability	Provisional	F2474

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Table PR-11  
Transmission System Additions for 2018

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Convert Necedah distribution substation from 69 kV to 138 kV	2018	2018	1	reliability	Provisional	F2560
Construct Fairwater-Mackford Prairie 69-kV line	2018	2018	1	reliability	Provisional	F2105
Install 2-16.33 Mvar 69-kV capacitor banks at North Monroe	2018	2018	3	reliability	Provisional	F2472
Construct Spring Valley-Twin Lakes-South Lake Geneva 138-kV line	2018	2018	3	T-D interconnection, reliability	Provisional	F2570
Replace two existing 138/69-kV transformers at Sunset Point Substation with 100 MVA transformers	2018	2018	4	economic benefits	Provisional	F2080

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Table PR-12  
Transmission System Additions for 2019

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Construct a Horicon-East Beaver Dam 138-kV line	2019	2019	3	reliability	Provisional	F1640
Install 2-32 MVAR capacitor banks at Mukwonago 138-kV Substation	2019	2019	5	reliability	Provisional	F2493

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New to this 10-Year Assessment

Table PR-13  
Transmission System Additions beyond 2019

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Install 28.8 MVAR capacitor bank at Butternut 138-kV Substation	2020	2020	4	reliability	Provisional	F1403
Uprate the Melissa-Tayco to 229 MVA (300F)	2020	2020	4	reliability, economics	Provisional	F2434
Install 138/69-kV transformer at Custer Substation	2020	2020	4	reliability, economics	Provisional	F2081
Construct Shoto to Custer 138-kV line	2020	2020	4	reliability, economics	Provisional	F2081
Rebuild/Convert Bayport-Suamico-Sobieski-Pioneer 69-kV line to 138 kV	2020	2020	4	reliability, condition	Provisional	F1619
Reconfigure the North Randolph-Ripon 69-kV line to form a second Ripon-Metomen 69-kV line and retire the circuit between Metomen and the Mackford Prairie tap	2021	2021	1	reliability	Provisional	F2105
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	2021	2021	3	reliability	Provisional	F2093
Install 2-16.33 MVAR 69-kV capacitor banks at Rio	2022	2022	3	reliability	Provisional	F2557
Install a 12.2 MVAR capacitor bank at Hilltop 69-kV Substation	2023	2023	1	reliability	Provisional	F2476

Table PR-13  
Transmission System Additions beyond 2019

System Additions	System Need Year	Projected In-Service Year	Planning Zone	Need Category	Planned, Proposed or Provisional	Cost Estimate - Refer to <i>Funding Project</i> and <i>Sum of Total (2009-2018)</i> in <i>Financial Table</i>
Reconductor Ramsey-Harbor 138-kV line	TBD	TBD	5	reliability	Provisional	TBD

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