

	A	B	C	D	E	F	G	H
1	<i>Table AR-1</i>							
2	<i>Asset Renewal Line Work</i>							
3	System Additions	Projected In-Service Year	Project Status	Planning Zone	MISO MTEP Appendix Status	MTEP PRJID	MTEP Cost or Cost Range (M\$)	Need Category
4	Shoto - Northeast 69 kV, (K-11) Line Uprate	2022	Proposed	4	target A 18	14126	1.00	Replacement or upgrade of existing equipment to provide adequate clearance to maintain ratings for present and forecasted needs.
5	South Fond Du Lac SW YD – Spring Brook Road 69-kV line (Y133) Rebuild	2023	Provisional	3	target B 18	13739	>25	Improve condition and increase reliability performance of existing line; Add MTEP PRJID and Cost
6								
7	<i>Table AR-2</i>							
8	<i>Asset Renewal Underground Line Work</i>							
9	System Additions	Projected In-Service Year	Project Status	Planning Zone	MISO MTEP Appendix Status	MTEP PRJID	MTEP Cost or Cost Range (M\$)	Need Category
10	Pflaum SS, Replace Failed 69 kV Underground Cable	2019	Proposed		target A 18	13768	2.08	Replace Failed Cable
11								
12	<i>Table AR-5</i>							
13	<i>Asset Renewal Circuit Breakers</i>							
14	System Additions	Projected In-Service Year	Project Status	Planning Zone	MISO MTEP Appendix Status	MTEP PRJID	MTEP Cost or Cost Range (M\$)	Need Category
15	Install 69KV Breaker Inland SS	2017	Proposed	2	A 17	12043	0.56	End of life, parts obsolescence
16	Install 69KV Mount Horeb SS Breakers	2017	Proposed	3	A 17	12903	2.30	End of life, parts obsolescence
17	Install 138KV South Fond Du Lac SS Breakers	2017	Proposed	4	A 17	13063	0.40	End of life, parts obsolescence
18	Lone Rock SS, Replace Relays and Breakers	2017	Proposed	3	target A 18	13760	1.94	End of life, parts obsolescence
19	Install 138KV Breaker Arpin SS	2018	Proposed	1	A 17	12038	0.27	End of life, parts obsolescence
20	Install 69KV Circuit Breaker Wells Street SS	2018	Proposed	4	A 17	12044	0.29	End of life, parts obsolescence
21	Install 69KV Breaker Whitcomb SS	2018	Proposed	1	A 17	12046	1.50	End of life, parts obsolescence
22	Install 69KV Breaker Harrison SS	2018	Proposed	1	A 17	12051	0.58	End of life, parts obsolescence
23	Install 138KV Breakers West Marinette SS	2018	Proposed	4	A 17	12052	1.14	End of life, parts obsolescence
24	Install 115kV Breakers Highway 8 SS	2018	Proposed	1	A 17	12054	1.20	End of life, parts obsolescence
25	Install 138KV Breakers Burlington SS	2018	Proposed	5	A 17	12058	1.20	End of life, parts obsolescence
26	Install 138KV Breakers Nordic SS	2018	Proposed	2	A 17	12062	1.06	End of life, parts obsolescence
27	Install 138KV Breaker Cornell SS	2018	Proposed	5	A 17	12093	0.90	End of life, parts obsolescence
28	Install 69KV Breakers Sycamore SS	2018	Proposed	3	A 17	12183	1.22	End of life, parts obsolescence
29	Install 69KV Breakers Manrap SS	2018	Proposed	4	A 17	12184	0.86	End of life, parts obsolescence
30	Install 69KV Breaker Glenview SS	2018	Proposed	4	A 17	12464	0.53	End of life, parts obsolescence
31	Install 138KV Breaker Maplewood SS	2018	Proposed	4	A 17	12465	0.78	End of life, parts obsolescence
32	Install 115KV Breaker Venus SS	2018	Proposed	1	A 17	12466	0.90	End of life, parts obsolescence
33	Install 138KV Breakers Howard SS	2018	Proposed	4	A 17	12467	1.58	End of life, parts obsolescence
34	Easton SS, Relay and Circuit Switcher Replacement	2018	Proposed	1	target A 18	13722	1.03	End of life, parts obsolescence
35	Huiskamp SS, Relay and Breaker Replacement	2018	Proposed	3	target A 18	13717	0.51	End of life, parts obsolescence
36	N Monroe SS, Relay Replacements	2018	Proposed	3	target A 18	13733	1.62	End of life, parts obsolescence
37	St Lawrence SS, Breaker Replacement	2018	Proposed	5	target A 18	13746	0.22	End of life, parts obsolescence
38	Install 69KV Breakers Hilltop SS	2019	Proposed	1	A 17	12031	1.00	End of life, parts obsolescence
39	Cloverleaf SS, Replace Dead End and Switches	2019	Proposed	4	target A 18	13728	1.06	End of life, parts obsolescence
40	North Fond du lac SS, Breaker Replacements	2019	Proposed	4	target B 18	13801	0.47	End of life, parts obsolescence
41	Kilbourn SS, Bus Reconfiguration and Relay Replacement	2019	Proposed	1	target A 18	13789	5.05	End of life, parts obsolescence
42	Winneconne SS, Relay and Breaker Replacement	2019	Proposed	4	target A 18	13243	2.15	End of life, parts obsolescence
43	Lincoln SS Relay and Breaker Replacements	2019	Proposed	5	target A 18	13738	1.35	End of life, parts obsolescence
44	Waukesha SS Relay and Breaker Replacement	2019	Proposed	5	target A 18	13742	0.84	End of life, parts obsolescence
45	Wesmark SS, Relays and Breakers	2019	Proposed	4	target A 18	13747	0.81	End of life, parts obsolescence
46	West Towne SS, Relay Replacement	2019	Proposed	3	target A 18	13749	3.19	End of life, parts obsolescence
47	Osceola SS, Breaker Replacement	2019	Proposed	2	target A 18	13755	0.35	End of life, parts obsolescence
48	Straits SS, Replace 3 138 kV Breakers	2019	Proposed	2	target A 18	13758	1.09	End of life, parts obsolescence
49	Dyckesville SS, Relay, Breaker and Switch Replacement	2019	Proposed	4	target A 18	13762	0.60	End of life, parts obsolescence
50	Nine Mile SS, Install MODS for Sectionalizing	2019	Proposed	2	target A 18	13788	3.44	End of life, parts obsolescence
51	New Holstein SS, Install 69 kV Breaker	2019	Proposed	4	target A 18	13791	0.78	End of life, parts obsolescence
52	Hillside SS, Relay and Breaker Replacements	2019	Proposed	3	target A 18	13802	0.67	End of life, parts obsolescence
53	Colley Road SS, Replace Breaker	2019	Proposed	3	target A 18	13803	0.30	End of life, parts obsolescence
54	Ripon SS, Replace Breaker	2019	Proposed	1	target B 18	13798	0.30	End of life, parts obsolescence
55	Port Edwards SS, Breaker Replacements	2019	Proposed	1	target B 18	13799	0.99	End of life, parts obsolescence
56	Petenwell SS, Breaker Replacements	2019	Proposed	1	target B 18	13800	0.70	End of life, parts obsolescence
57								

	A	B	C	D	E	F	G	H
58	<i>Table AR-5 Asset Renewal Circuit Breakers, Continued</i>							
59	System Additions	Projected In-Service Year	Project Status	Planning Zone	MISO MTEP Appendix Status	MTEP PRjID	MTEP Cost or Cost Range (M\$)	Need Category
60								
61	Edgewater Substation, reconfiguration	2020	Proposed	4	target B 18	13756	10.29	End of life, bushing leaks (4 units) 345 kV; End of life, live tank, free standing CTs (2 units) 345 kV; Optimizing breaker renewal, operating flexibility, security, and cost; Add MTEP PRjID and Cost
62								

	A	B	C	D	E	F	G	H
63	<i>Table AR-9 Other Asset Renewal Projects</i>							
64	System Additions	Projected In-Service Year	Project Status	Planning Zone	MISO MTEP Appendix Status	MTEP PRjID	MTEP Cost or Cost Range (M\$)	Need Category
65								
66	Asset Renewal Current Cycle (Various Projects)	2018	Proposed	Various	target A 18	13821	38.00	Replacement of aging or end-of-life equipment to maintain safety, reliability and compliance.
67	Communication Reliability Upgrades Current Cycle (Various Projects)	2018	Proposed	Various	target A 18	13823	37.00	Replacement or upgrade of existing substation communication networks (e.g. SCADA, Relay Protection and OPGW Communication Systems).
68	Line Clearance Mitigation Projects Current Cycle (Various Projects)	2018	Proposed	Various	target A 18	13824	29.00	Replacement or upgrade of existing equipment to provide adequate clearance to maintain ratings for present and forecasted needs.
69	Physical Security Current Cycle (Various Projects)	2018	Proposed	Various	target A 18	13826	29.00	Replacement and/or enhancement of equipment with newer technology to harden the substation infrastructure and maintain physical integrity of the site.
70	Asset Renewal 2019 (Various Projects)	2019	Proposed	Various	target A 18	13822	9.00	Replacement of aging or end-of-life equipment to maintain safety, reliability and compliance.
71	Communication Reliability Upgrades 2019 (Various Projects)	2019	Proposed	Various	target A 18	13829	49.00	Replacement or upgrade of existing substation communication networks (e.g. SCADA, Relay Protection and OPGW Communication Systems).
72	Line Clearance Mitigation Projects 2019 (Various Projects)	2019	Proposed	Various	target A 18	13825	23.00	Replacement or upgrade of existing equipment to provide adequate clearance to maintain ratings for present and forecasted needs.
73	Physical Security 2019 (Various Projects)	2019	Proposed	Various	target A 18	13828	31.00	Replacement and/or enhancement of equipment with newer technology to harden the substation infrastructure and maintain physical integrity of the site.
74								

Legend	
75	
76	
77	No Shading = No change to project since previous Assessment
78	Orange Shading = new project, was not in previous Assessment project list
79	Gray Shading = some change (e.g. In-service year or scope) since previous Assessment
80	Red Shading = Cancelled Project since previous Assessment