

*Table AR-5
Asset Renewal Circuit Breakers*

System Additions	Projected In-Service Year	Planning Zone	MISO MTEP Appendix Status	MTEP PRjID	Need Category
Circuit breaker replacements	2015	Various			Mechanism design issues (7 units) 69 kV
Circuit breaker replacements	2015	Various			End of life, parts obsolescence (10 units) 69 kV
Circuit breaker replacements	2015	Various			Type U Bushings (2 units) 69kV
Circuit breaker replacements	2015	Various			End of life, parts obsolescence (11 units) 138 kV
Circuit breaker replacements	2015	4			Type U Bushings (3 units) 138kV
Circuit breaker replacements	2015	4			Bushing flange oil leak (4 units) 345 kV
Circuit breaker replacements	2016	Various			Mechanism design issues (9 units) 69 kV
Circuit breaker replacements	2016	Various			End of life, parts obsolescence (3 units) 69 kV
Circuit breaker replacements	2016	Various			End of life, parts obsolescence (3 units) 138 kV
Circuit breaker replacements	2016	3			Bushing flange oil leak (3 units) 345 kV
Circuit breaker replacements	2017	Various			Mechanism design issues (7 units) 69 kV

*Table AR-5
Asset Renewal Circuit Breakers (continued)*

Circuit breaker replacements	2017	Various			End of life, parts obsolescence (6 units) 69 kV
Circuit breaker replacements	2017	Various			End of life, parts obsolescence (9 units) 138 kV
Waupan	2018	4	Targeted A 17	12100	End of life, parts obsolescence (4 units) 69 kV
Circuit breaker replacements	2018	Various			End of life, parts obsolescence (6 units) 69 kV
Circuit breaker replacements	2018	1			End of life, parts obsolescence (3 units) 115 kV
Circuit breaker replacements	2018	Various			End of life, parts obsolescence (7 units) 138 kV
Racine	2019	5	Targeted B 16	9991	End of life, bushing leaks (2 units) 345 kV
Racine	2019	5	Targeted B 16	9991	End of life, live tank, free standing CTs (1 unit) 345 kV
Edgewater	2020	4			End of life, bushing leaks (4 units) 345 kV
Edgewater	2020	4			End of life, live tank, free standing CTs (2 units) 345 kV
Circuit breaker replacements	2019	Various			End of life, parts obsolescence (17 units) 69 kV
Circuit breaker replacements	2019	Various			End of life, parts obsolescence (14 units) 138 kV

*Table AR-5
Asset Renewal Circuit Breakers (continued)*

Circuit breaker replacements	2020-2024	Various			End of life, parts obsolescence, mechanism design issues (56 units) 69 kV
Circuit breaker replacements	2020-2024	Various			End of life, parts obsolescence, mechanism design issues (4 units) 115kV
Circuit breaker replacements	2020-2024	Various			End of life, parts obsolescence, mechanism design issues (76 units) 138kV
Circuit breaker replacements	2020-2024	Various			End of life, parts obsolescence, mechanism design issues (7 units) 345kV