| System Addition  | 2017 TYA<br>Network Need<br>Year | 2017 TYA In-<br>Service Year | Planning<br>Zone | Need Category                                 | Planned,<br>Proposed or<br>Provisional | MISO MTEP<br>Appendix<br>Status | MTEP PRJiD |        | Reason for Change<br>since Previous TYA<br>(Gray items only) |
|--|----------------------------------|------------------------------|------------------|---|--|---------------------------------|------------|--------|--|
| Y-121: re-rate 1.2 miles of 69 kV line between Council Creek and Tomah Industrial Park                     | 2015*                            | 2017                         | 1                | reliability (P1), operating<br>flexibility    | Proposed                               | targeted A 17                   | 9928       | 0.6    |  |
| White Lake Substation: Install line breaker to sectionalize  | 2017***                          | 2017                         | 1                | T-D Interconnection                           | Proposed                               | А                               | 11224      | 0.9    |  |
| J395: Falcon Substation, new G-T interconnection   | 2017***                          | 2017                         | 3                | G-T Interconnection                           | Proposed                               | targeted A 17                   | 12284      | 18.6   |  |
| Town Hall Substation, new T-D Interconnection  | 2017***                          | 2017                         | 3                | T-D Interconnection                           | Proposed                               | A                               | 11223      | 1.6    |  |
| Cardinal - North Madison 345 kV line   | 2018***                          | 2017                         | 3                | reliability, economics and<br>policy benefits | Planned                                | А                               | 3127       | 1054.8 |  |
| Birchwood Substation: Install a bus tie breaker  | 2019***                          | 2017                         | 3                | T-D interconnection                           | Proposed                               | A                               | 9921       | 0.7    |  |
| Creekview Substation: 138 kV line construction to serve T-D interconnection                                | 2017***                          | 2017                         | 4                | T-D interconnection                           | Planned                                | А                               | 4353       | 25.0   |  |
| South Fond du Lac Substation, motor operator installation  | 2017***                          | 2017                         | 4                | operating flexibility                         | Planned                                |                                 |            | <10    |  |
| Verona Substation, breaker installation  | 2017***                          | 2017                         | 3                | T-D Interconnection                           | Proposed                               | targeted A 17                   | 12097      | 0.4    |  |
| Mukwonago Substation: Install line breaker on line 671K61  | 2018***                          | 2018                         | 5                | operating flexibility                         | Proposed                               | A                               | 9923       | 0.6    | was 2017   |
| Okray Substation, breaker installation   | 2018***                          | 2018                         | 1                | T-D Interconnection                           | Proposed                               |                                 |            | 2.4    |  |
| McMillan - Wildwood 115-kV line N-144, uprate  | ASAP***                          | 2018                         | 1                | Economics                                     | Proposed                               | targeted A 17                   | 13064      | 0.2    |  |
| Plover Substation, Reconfiguration   | 2018***                          | 2018                         | 1                | T-D Interconnection                           | Proposed                               |                                 |            | <10    |  |
| Springwater Substation, new T-D Interconnection  | 2018***                          | 2018                         | 1                | T-D Interconnection                           | Proposed                               | A                               | 10603      | <10    |  |
| Arcadian - Waukesha 138 kV lines, Uprate (9942/9962)   | 2018                             | 2018                         | 5                | reliability (P3.2, P1.2)                      | Proposed                               | targeted A 17                   | 12463      | 0.3    |  |
| Spare Reactor Purchase   | 2020                             | 2018                         | 1, 3             | P0  | Proposed                               | target A 18                     |            | <10    | was 2017   |
| Pershing Substation: Loop Stone Lake - Gardner Park 345-kV<br>line into new Pershing 345/115-kV Substation | 2018***                          | 2018                         | 1                | T-T interconnection                           | Proposed                               | В                               | 9925       | 15.0   |  |
| Stoughton West Substation, new T-D Interconnection   | 2018***                          | 2018                         | 3                | T-D Interconnection                           | Proposed                               | targeted A 17                   | 12347      | 1.8    |  |
| Tripp Rd Substation, breaker installation  | 2018***                          | 2018                         | 3                | T-D Interconnection                           | Proposed                               | targeted A 17                   | 13068      | 2.9    |  |
| Oakview Substation: loop line 836 in and out and install 138-kV bus tie breaker                            | 2018***                          | 2018                         | 5                | T-D Interconnection                           | Planned                                | A                               | 10563      | <10    | Scope change   |
| St Martins Substation: Add new 138 kV bus and bus tie breaker  | 2018***                          | 2018                         | 5                | T-D Interconnection                           | Proposed                               | А                               | 10643      | <10    |  |
| North Madison - Briggs Road 345 kV line  | 2018***                          | 2018                         | 1, 3             | reliability, economics and<br>policy benefits | Planned                                | А                               | 3127       | 1054.8 |  |
| Oak Creek - Hayes 138-kV line 811 uprate and reconfiguration   | ASAP***                          | 2018                         | 5                | reliability (P7)                              | Proposed                               | A                               | 9934       | 21.0   |  |
| Plymouth 4 Substation, breaker installation  | 2018***                          | 2018                         | 4                | T-D Interconnection                           | Proposed                               | targeted A 17                   | 13065      | 1.7    |  |
| West Marinette Substation: Add high side protection to 138/69-kV transformers                              | 2014***                          | 2018                         | 4                | reliability (various TPL<br>categories)       | Proposed                               | А                               | 9080       | 4.5    | Scope change   |
| Lawn Rd Substation: Install 138-kV breakers to sectionalize 138-kV circuit 6851                            | 2018***                          | 2018                         | 4                | operating flexibility                         | Proposed                               | targeted A 17                   | 12174      | 2.5    |  |
| Forest Junction 138kV Substation: Install 25 Mvar inductor   | 2018***                          | 2018                         | 4                | system intact (P0)                            | Provisional                            | targeted A 17                   | 7581       | 1.8    |  |
| Ogden St. Networking Project: Ogden St Bayshore 69-kV line<br>construction                                 | 2018***                          | 2018                         | 4                | T-D interconnection                           | Proposed                               | А                               | 4732       | 10.4   |  |
| Lost Dauphin - Red Maple 138 kV line uprate Q-147  | 2020***                          | 2018                         | 4                | reliability (various TPL<br>categories)       | Planned                                | targeted A 17                   | 9930       | 0.04   |  |
| Depere - Glory Rd 138-kV overhead line rebuild   | 2020***                          | 2018                         | 4                | reliability (various TPL<br>categories)       | Proposed                               | А                               | 9081       | 0.7    |  |
| Bay Lake: Morgan Substation reconfigure and expand 345-kV and 138-kV switchyards                           | ASAP***                          | 2018                         | 4                | reliability (various TPL categories)          | Planned                                | A                               | 3679       | 356.8  |  |
| Bay Lake: North Appleton - Morgan 138 kV line construction   | ASAP***                          | 2018                         | 4                | reliability (various TPL categories)          | Planned                                | A                               | 3952       | 76.7   |  |
| Bay Lake: North Appleton - Morgan 345 kV line construction   | ASAP***                          | 2018                         | 4                | reliability (various TPL categories)          | Planned                                | A                               | 3679       | 356.8  |  |
| Bay Lake: North Appleton Substation Construct new 345-kV switchyard and reconfigure 138-kV switchyard      | ASAP***                          | 2018                         | 4                | reliability (various TPL categories)          | Planned                                | А                               | 3679       | 356.8  |  |

| System Addition  | 2017 TYA<br>Network Need<br>Year | 2017 TYA In-<br>Service Year | Planning<br>Zone | Need Category  | Planned,<br>Proposed or<br>Provisional | MISO MTEP<br>Appendix<br>Status | MTEP PRJID | MTEP Cost<br>or Cost<br>Range | Reason for Change<br>since Previous TYA<br>(Gray items only) |
|--|----------------------------------|------------------------------|------------------|--|--|---------------------------------|------------|-------------------------------|--|
| Branch River Substation: Construct new 345-kV switching station  | 2018*                            | 2018                         | 4                | new generation   | Planned                                | А                               | 3206       | 46.6                          |  |
| City Limits 138-kV bus reconductor   | 2018***                          | 2018                         | 4                | reliability (P3.2)                                     | Proposed                               | A                               | 8640       | 0.5                           | Was 2019   |
| Somers Substation: loop Racine - Kenosha 138-kV line 1651 in and out                                   | 2018***                          | 2018                         | 5                | T-D interconnection                                    | Planned                                | А                               | 8660       | 4.7                           | Scope change/was<br>2019                                     |
| Atlantic Substation: Reconfiguration   | 2019                             | 2019                         | 2                | operating flexibility,<br>reliability (69P5)           | Provisional                            | В                               | 7586       | 9                             |  |
| Bain - Spring Valley 138-kV uprate 63141   | 2019                             | 2019                         | 3 & 5            | T-D interconnection,<br>reliability (69P1.2)           | Planned                                | А                               | 3808       | 70.5                          |  |
| Construct a new 138/69-kV substation on Spring Valley - North<br>Lake Geneva 138-kV circuit            | 2019                             | 2019                         | 3 & 5            | T-D interconnection,<br>reliability (69P1.2)           | Planned                                | А                               | 3808       | 70.5                          |  |
| Construct a new 69-kV circuit from Twin Lakes to the new<br>substation                                 | 2019                             | 2019                         | 3 & 5            | T-D interconnection,<br>reliability (69P1.2)           | Planned                                | А                               | 3808       | 70.5                          |  |
| Construct a new Spring Valley-North Lake Geneva 138-kV circuit   | 2019                             | 2019                         | 3 & 5            | T-D interconnection, reliability (69P1.2)              | Planned                                | А                               | 3808       | 70.5                          |  |
| Twin Lakes - Katzenberg 69-kV rebuild Y-102  | 2019                             | 2019                         | 3 & 5            | T-D interconnection,<br>reliability (69P1.2)           | Planned                                | A                               | 3808       | 70.5                          |  |
| J395: Darlington - North Monroe 138 kV line X-49, uprate   | 2017***                          | 2019                         | 3                | G-T Interconnection                                    | Proposed                               | targeted A 17                   | 12284      | 18.6                          |  |
| M13-Reinforcement-Bunker Hill-Blackbrook   | 2019**                           | 2019                         | 1                | reliability (P1.2)                                     | Planned                                | A                               | 7602/7603  | 30.0                          |  |
| Walker Tap Underground Cable Removal   | 2019***                          | 2019                         | 5                | no T-D Need  | Proposed                               | target A 18                     |            | <10                           |  |
| Williams Bay Substation: Loop X-44 in and out  | 2019***                          | 2019                         | 3                | T-D interconnection                                    | Proposed                               | A                               | 4421       | 4.4                           |  |
| J390: Kittyhawk Substation, new G-T interconnection  | 2019***                          | 2019                         | 3                | G-T Interconnection                                    | Proposed                               | targeted A 17                   | 13103      | 49.5                          |  |
| Paddock - NW Beloit 138 kV line X-53, install series reactor   | 2019***                          | 2019                         | 3                | reliability (various TPL<br>categories)                | Proposed                               | targeted A 17                   | 13004      | 1.4                           |  |
| Highway V Substation: Install 138-kV breakers and 69-kV circuit switchers on 138/69-kV transformers    | 2019***                          | 2019                         | 4                | operating flexibility,<br>reliability (prior + 69P1.3) | Proposed                               | targeted A 17                   | 7986       | 7.4                           | Was 2018   |
| Pulliam 138-kV Substation: Install redundant bus differential  | 2019***                          | 2019                         | 4                | reliability (stability P5.5)                           | Proposed                               | target A 18                     |            | <10                           |  |
| Ellinwood 138-kV Bus Rerate  | 2019*                            | 2019                         | 4                | reliability (P6)                                       | Proposed                               | targeted A 17                   | 12103      | 2.4                           |  |
| Plains - Arnold 138-kV uprate  | 2019***                          | 2019                         | 2                | NITS Request   | Proposed                               | targeted A 17                   |            | <10                           |  |
| J703: Huron Substation, new G-T interconnection  | 2019***                          | 2019                         | 2                | G-T Interconnection                                    | Provisional                            | target B 18                     |            | 10-25                         |  |
| J704/J711: Silver River Substation, new G-T interconnection  | 2019***                          | 2019                         | 2                | G-T Interconnection                                    | Provisional                            | target B 18                     |            | 10-25                         |  |
| J704/J711: North Lake - Silver River 138 kV line NLKG31, uprate  | 2019***                          | 2019                         | 2                | G-T Interconnection                                    | Provisional                            | target B 18                     |            | 10-25                         |  |
| J704/J711: Perch Lake - Silver River 138 kV line M38, uprate   | 2019***                          | 2019                         | 2                | G-T Interconnection                                    | Provisional                            | target B 18                     |            | <10                           |  |
| Northern WI/UP High Voltage Control<br>Presque Isle - Tilden 138 kV line loop into National and uprate | 2019***                          | 2019                         | 1,2              | P0   | Provisional                            | target B 18                     |            | <10                           |  |
| National - Tilden 138 kV line  | 2019                             | 2020                         | 2                | reliability (prior + P1.2)                             | Provisional                            |                                 |            | <10                           |  |
| Baker St Substation: Add new 115-kV bus and bus tie breaker  | 2020***                          | 2020                         | 1                | T-D Interconnection                                    | Proposed                               | targeted A 17                   | 12115      | 4.4                           |  |
| Northern Lights Substation, new T-D interconnection  | 2020***                          | 2020                         | 3                | T-D Interconnection                                    | Proposed                               | targeted A 17                   | 12346      | 26.0                          |  |
| Juneautown Substation, new T-D interconnection   | 2020***                          | 2020                         | 5                | T-D Interconnection                                    | Proposed                               | targeted B 17,<br>target A 18   | 13104      | 43.0                          |  |
| Saukville Substation: Install parallel breaker on line 8222  | 2020                             | 2020                         | 5                | reliability (P2.1)                                     | Provisional                            |                                 |            | <10                           |  |
| SE WI Economic Development Interconnection Project   | 2020***                          | 2020                         | 5                | T-D Interconnection                                    | Proposed                               | target B 18                     |            | TBD                           |  |
| Southestern Wisconsin Northeastern Illinois Reinforcement<br>Project                                   | ASAP***                          | 2021                         | 5                | reliability(P7.1)                                      | Proposed                               | А                               | 8065       | 52.0                          | Was 2020   |
| Port Washington - Saukville: Rebuild Line 762 to a double circuit                                      | 2021                             | 2021                         | 5                | reliability (P2.4, P7.1)                               | Proposed                               | А                               | 9986       | 18.0                          |  |
| Lakota Rd to Winona 138-kV Conversion  | 2021***                          | 2021                         | 2                | reliability (prior + P1.2),<br>condition               | Provisional                            | В                               | 8089       | 100.0                         |  |
| Eaton Substation, new T-D interconnection  | 2022***                          | 2022                         | 4                | T-D Interconnection                                    | Proposed                               | A                               | 10484      | <10                           |  |

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|--|----------------------------------|------------------------------|------------------|---|--|---------------------------------|------------|-------------------------------|--|
| Shoto - Mirro - Northeast 69 kV line K-11, uprate  | 2022***                          | 2022                         | 4                | reliability (69P1.2)                          | Proposed                               | target A 18                     |            | <10                           |  |
| Portage-Trienda 138-kV uprate X-67   | 2022**                           | 2022                         | 3                | reliability (69P1.2)                          | Planned                                | A                               | 1624       | 2.0                           | Was 2018   |
| Arcadian Substation: install redundant bus differentials on 345-kV and 138-kV buses                              | 2023                             | 2023                         | 5                | reliability (stability E2.D)                  | Provisional                            |                                 |            | <10                           |  |
| Granville Substation: install redundant bus differentials on 345-kV and 138-kV buses                             | 2023                             | 2023                         | 5                | reliability (stability E2.D)                  | Provisional                            |                                 |            | <10                           |  |
| West Middleton - Stagecoach 69 kV line rebuild 6927  | 2023**                           | 2023                         | 3                | reliability (P1.2, P1.3)                      | Provisional                            | targeted B 17                   | 12175      | 3.8                           |  |
| Plains - National 138-kV project   | 2023***                          | 2023                         | 2                | reliability (various TPL<br>categories)       | Provisional                            | А                               | 8071       | 124.6                         |  |
| Plains 345/138-kV project (2-500 MVA replace existing)   | 2023***                          | 2023                         | 2                | reliability (various TPL<br>categories)       | Provisional                            | В                               | 8073       | 43.7                          |  |
| Cardinal - Hickory Creek 345-kV line construction  | 2023***                          | 2023                         | 3                | reliability, economics and<br>policy benefits | Proposed                               | А                               | 3127       | 1054.8                        |  |
| Highway V - Preble 138-kV line uprate  | >2032                            | 2023                         | 4                | reliability (various TPL categories)          | Provisional                            | В                               | 8082       | 6.0                           | Was 2020   |
| Morgan - Plains 345-kV loop into new Thunder 345-kV substation.  | 2023***                          | 2023                         | 4                | reliability (various TPL<br>categories)       | Provisional                            | В                               | 8076       | 105.0                         |  |
| Morgan - Thunder 138-kV project  | 2023***                          | 2023                         | 4                | reliability (various TPL<br>categories)       | Provisional                            | В                               | 8076       | 105.0                         |  |
| Thunder Substation: install 345/138-kV and 138/69-kV transformers, convert 1 ckt of Thunder to Crivitz to 138-kV | 2023***                          | 2023                         | 4                | reliability (various TPL<br>categories)       | Provisional                            | В                               | 8076       | 105.0                         |  |
| Bayridge Substation, new T-D interconnection   | 2024***                          | 2024                         | 4                | T-D Interconnection                           | Proposed                               | A                               | 10485      | <10                           |  |
| Winona - Atlantic 69-kV line rebuild Winona69  | >2032                            | 2024                         | 2                | reliability (69 prior + P1.2)                 | Provisional                            |                                 | 4727       | 28.1                          |  |
| Colley Road Substation: Install 2nd 100 MVA 138/69kV transformer   | >2032                            | 2025                         | 3                | reliability (69P1.2, 69P2.1<br>,69P1.3)       | Provisional                            | В                               | 7585       | 9.9                           | Was 2023   |
| Aviation - North Fond du Lac 138-kV rebuild G-111  | >2032                            | 2025                         | 4                | reliability (P3.2)                            | Provisional                            |                                 |            | 10-25                         |  |
| Gran Grae Substation: Install a second 161/69 kV transformer   | 2026                             | 2026                         | 3                | reliability (69P1.3)                          | Provisional                            |                                 |            | <10                           |  |
| Portage - Columbia 138-kV line rebuild X-13  | 2018                             | 2027                         | 3                | reliability (P1.2)                            | Provisional                            |                                 | 4730       | 5.9                           |  |
| Portage - Columbia 138-kV line rebuild X-20  | 2018                             | 2027                         | 3                | reliability (P1.2)                            | Provisional                            |                                 | 4730       | 5.9                           |  |
| Construct Cardinal-Blount 138-kV line  | 2032                             | 2029                         | 3                | reliability (P6)                              | Provisional                            |                                 | 1730       | 60.8                          |  |
| Legend   |                                  |                              |                  |   |  |                                 |            |                               |  |
| * = dates based on approved project scope ISDs   |                                  |                              |                  |   |  |                                 |            |                               |  |
| ** = SBRM Study Need Year  |                                  |                              |                  |   |  |                                 |            |                               |  |
| *** = Other Major Project Study need year  |                                  |                              |                  |   |  |                                 |            |                               |  |
| No Shading = No change to project since previous Assessment  |                                  |                              |                  |   |  |                                 |            |                               |  |
| Orange Shading = new project, was not in previous Assessment<br>project list                                     |                                  |                              |                  |   |  |                                 |            |                               |  |
| Gray Shading = some change (e.g. In-service year or scope)<br>since previous Assessment                          |                                  |                              |                  |   |  |                                 |            |                               |  |