

**FNM Scope for FNM 21M4 DB104**  
(Production Week of 4/26/2021)

*Revision History – Final Scope Due by 2/25/2021*

| Effective Date | Version | Description   |
|----------------|---------|---|
| 2/25/2021      | 1.0     | Final scope by due date. The scope is considered finalized without any addendum attached. |

**FNM Scope for FNM 21M4 DB104**  
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**I. NRI Projects**

| No | PTO  | Resource ID          | Project Name                   | Project Key   |
|----|------|----------------------|--------------------------------|---------------|
| 1  | PGAE |                      | Clapper Rail Plant 1           | 20GEN13715    |
| 2  | PGAE |                      | Mustang 1 BESS                 | 20NGR14760    |
| 3  | SCE  | JAWBNE_2_SRWND       | Sky River Wind Repower A       | 20GEN13818    |
| 4  | SCE  |                      | Arlington                      | 15AS885659    |
| 5  | SCE  |                      | High 5 Solar                   | 17AS1740      |
| 6  | SCE  |                      | Almasol Generating Station 6   | 20GEN10903    |
| 7  | SCE  |                      | Almasol Generating Station 7   | 20GEN10904    |
| 8  | SCE  |                      | Sky River Wind Repower B       | 20GEN13819    |
| 9  | SCE  |                      | High 5 Solar BESS              | 20NGR14425    |
| 10 | SCE  |                      | Almasol 6 BESS                 | 20NGR14426    |
| 11 | SCE  |                      | Garland B BESS                 | 20NGR14511    |
| 12 | SCE  |                      | Lancaster Psomas PV            | 21GEN14838    |
| 13 | SCE  |                      | EdSan 1A                       | 21NGR14807    |
| 14 | SCE  |                      | EdSan 1B                       | 21NGR14826    |
| 15 | SDGE |                      | Valley Center Energy Storage   | 15AS883200    |
| 16 | SDGE |                      | Valley Center Energy Storage B | 20NGR14758    |
| 17 | NA   |                      | Barre Peaker AGC               | 20RIG14794    |
| 18 | SCE  | CLINESCO_3_ELCABOSCE | El Cabo Wind Pseudo            | 21PSEUDO14938 |
| 19 | SCE  |                      | Townsite Solar BESS            | 20DYN13995    |

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**II. Transmission Projects**

| No | PTO  | RIMS ID      | Project Name                          | Project Key |
|----|------|--------------|---------------------------------------|-------------|
| 1  | PGAE | 17TRANS6465  | Blackbriar Generation Interconnection | ET3272      |
| 2  | PGAE | 19TRANS8817  | Ultrapower Chinese Station (Q1116)    | ET4043      |
| 3  | SCE  | 20TRANS10928 | Inland Empire RAS Removal             | ET4289      |
| 4  | SCE  | 20TRANS10928 | Inland Empire RAS Removal             | ET4290      |
| 5  | SCE  | 21TRANS14924 | Delano, PandolGen ICCP Removal        | ET4569      |

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### III. EIM/ RC Projects

| No | Entity  | Project Name  | Project Key |
|----|---------|---|-------------|
| 1  | AESO_RC | Breaker(s)\ Disconnect(s) - Added Breakers at 895S  | 20EMS13666  |
| 2  | AESO_RC | Breaker(s)\ Disconnect(s) - Added disconnectors at 959S   | 20EMS13671  |
| 3  | AESO_RC | Breaker(s)\ Disconnect(s) - Added breakers at 95S   | 20EMS13672  |
| 4  | AESO_RC | Breaker(s)\ Disconnect(s) - Added disconnectors at 9900S  | 20EMS13676  |
| 5  | AESO_RC | Transformer - Added Transformer T1, T2 at 95S   | 20EMS13682  |
| 6  | AESO_RC | Generator - Added generator SUF1_G1 at 895S   | 20EMS13688  |
| 7  | AESO_RC | Generator - added generator IRO4_G1 at 95S  | 20EMS13689  |
| 8  | AESO_RC | Generator - Updated Max Operating MW and Rated MVA for several generators   | 20EMS13691  |
| 9  | AVA_TOP | Transmission Line - Ratings update  | 21EMS15094  |
| 10 | AVA_TOP | Transmission Line - Ratings update  | 21EMS15095  |
| 11 | AVA_TOP | Transmission Line - Ratings update  | 21EMS15096  |
| 12 | AVA_TOP | Transmission Line - Ratings update  | 21EMS15100  |
| 13 | AVA_TOP | Transmission Line - Ratings update  | 21EMS15101  |
| 14 | AVA_TOP | Transmission Line - Ratings update  | 21EMS15102  |
| 15 | AVA_TOP | Contingency Definition - Update contingencies due to segment changes  | 21EMS15103  |
| 16 | AVA_TOP | Transmission Line - Addition of segments  | 21EMS15104  |
| 17 | AVA_TOP | Transmission Line - Removal of segments   | 21EMS15105  |
| 18 | AVA_TOP | Transmission Line - Line addition   | 21EMS15106  |
| 19 | AVA_TOP | Transmission Line - Line addition   | 21EMS15107  |
| 20 | AVA_TOP | Transmission Line - Line removal  | 21EMS15108  |
| 21 | AVA_TOP | Transmission Line - Line removal  | 21EMS15109  |
| 22 | AVA_TOP | Contingency Definition - Contingency additions  | 21EMS15110  |
| 23 | AVA_TOP | Shunt Cap\Reactor\ SVDs - Capacitor addition  | 21EMS15111  |
| 24 | AVA_TOP | Substation\Load - Bus ratings update  | 21EMS15112  |
| 25 | AVA_TOP | Breaker(s)\ Disconnect(s) - Correct six English/Common names which were incorrectly duplicates of other devices. As these are exclusively changes to the English/Common name, no other documents should be necessary. | 21EMS15416  |
| 26 | AZPS_BA | Transmission Line - Changed line impedances of MK-Wilo  | 21EMS15202  |
| 27 | AZPS_BA | Transmission Line - changed susceptance of BG-CF  | 21EMS15203  |
| 28 | AZPS_BA | Transmission Line - Changed line impedances of CF-AJ  | 21EMS15204  |

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| No | Entity  | Project Name   | Project Key |
|----|---------|--|-------------|
| 29 | AZPS_BA | Transmission Line - Changed line impedances of CFP-WY  | 21EMS15205  |
| 30 | AZPS_BA | Transmission Line - Changed line impedances of DBY-AIC   | 21EMS15206  |
| 31 | AZPS_BA | Transmission Line - Changed line impedances of MX-BG   | 21EMS15207  |
| 32 | AZPS_BA | Transmission Line - Changed line impedances of NOR-STT   | 21EMS15208  |
| 33 | AZPS_BA | Transmission Line - Changed line impedances of PP-DD   | 21EMS15209  |
| 34 | AZPS_BA | Transmission Line - Changed line impedances of PP-DZ L2  | 21EMS15210  |
| 35 | AZPS_BA | Transmission Line - Changed line impedances of PP-DZ L1  | 21EMS15211  |
| 36 | AZPS_BA | Transmission Line - Changed line impedances of PP-GRF  | 21EMS15212  |
| 37 | AZPS_BA | Transmission Line - Changed line impedances of RSG-NOR   | 21EMS15213  |
| 38 | AZPS_BA | Transmission Line - Changed line impedances of RUN-BRD   | 21EMS15214  |
| 39 | AZPS_BA | Transmission Line - Changed line impedances of WT-BRD  | 21EMS15215  |
| 40 | AZPS_BA | Substation\Load - Addition of LucidEQL (69KV)  | 21EMS15216  |
| 41 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of ABS-BBS and LUCID  | 21EMS15217  |
| 42 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed of ABUSBBUS to ABS-BBS and added 562 (69KV)                                | 21EMS15218  |
| 43 | AZPS_BA | Substation\Load - removed substation   | 21EMS15219  |
| 44 | AZPS_BA | Transmission Line - Removal of PVTTPND   | 21EMS15220  |
| 45 | AZPS_BA | Transmission Line - Changed name from FDM-PND line to PND-FDM (230KV)  | 21EMS15221  |
| 46 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed names from SLNX-LBX to SLNX-FDM, LBX to FDM, LBX-PV to FDM-GLX and (230KV) | 21EMS15222  |
| 47 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of dual modeling switches na%  | 21EMS15223  |
| 48 | AZPS_BA | Transmission Line - Addition of EG-TR (69KV)   | 21EMS15224  |
| 49 | AZPS_BA | Transmission Line - Removal of TLTTP-EG (69KV)   | 21EMS15225  |
| 50 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of K4879 and TR (69KV)  | 21EMS15226  |
| 51 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of CG (69KV)   | 21EMS15227  |
| 52 | AZPS_BA | Transmission Line - Addition of CG-TR (69KV)   | 21EMS15228  |
| 53 | AZPS_BA | Transmission Line - Removal of CG-TLTP (69KV)  | 21EMS15229  |
| 54 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of K4880 (69KV)   | 21EMS15230  |
| 55 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of NBUSSBUS (230KV)  | 21EMS15231  |
| 56 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of XFMR3H (mod replaced with disc) (230KV)                                | 21EMS15232  |
| 57 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of XFMR3H (reconfigured) (230KV)   | 21EMS15233  |
| 58 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of CQ and CQT (230KV)   | 21EMS15234  |

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| No | Entity  | Project Name  | Project Key |
|----|---------|---|-------------|
| 59 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of CQ (retooled) (230KV)  | 21EMS15235  |
| 60 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of some dual modeling switches na% (230KV)  | 21EMS15236  |
| 61 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of V2259 (69KV)  | 21EMS15237  |
| 62 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of K2259 (69KV)   | 21EMS15238  |
| 63 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of K8171 (115KV)   | 21EMS15239  |
| 64 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed EBS-WBS (added 562 breaker)   | 21EMS15240  |
| 65 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed Aux to STNPWR, CYX-ST1 to CYX-1852, ST1 to EBUS1862, CYX-ST1 to CYX1852 (500KV)                                       | 21EMS15241  |
| 66 | AZPS_BA | Shunt Cap\Reactor\ SVDAs - Changed CB4s1, CB4S2 reactance (500KV)   | 21EMS15242  |
| 67 | AZPS_BA | Substation\Load - Addition of Aux4 and Aux5 loads (20KV)  | 21EMS15243  |
| 68 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of na% switches for JOP gen pseudo ties (20KV)   | 21EMS15244  |
| 69 | AZPS_BA | Generator - Addition of naGNst4p, naGNst4s, naGNst4t, naGNst5p, naGNst5s, naGNst5t for JOP (20KV)   | 21EMS15245  |
| 70 | AZPS_BA | Generator - Removal of FC4PNM, FC5PNM replaced with new JOP pseudo tie gen (20KV)   | 21EMS15246  |
| 71 | AZPS_BA | Transmission Line - Addition of fictitious lines to model pseudo ties of joint owned station. FCFCpX1, FCFCpX2, FCFCsX1, FCFCsX2, FCFCtX1, FCFCtX2 (20KV) | 21EMS15247  |
| 72 | AZPS_BA | Substation\Load - Addition of Aux loads 4 and 5 (20KV)  | 21EMS15248  |
| 73 | AZPS_BA | Transmission Line - Removed naFLch_x (500KV)  | 21EMS15249  |
| 74 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removed ST4-M (500KV))  | 21EMS15250  |
| 75 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed NBUS RE (retooled 354 changed from a disc to a mod) (500KV)   | 21EMS15251  |
| 76 | AZPS_BA | Transformer - Changed XFMR1, XFMR4 impedances (500KV)   | 21EMS15252  |
| 77 | AZPS_BA | Transformer - Changed XFMR1, XFMR4 impedances (230KV)   | 21EMS15253  |
| 78 | AZPS_BA | Transformer - Changed XFMR1, XFMR4 impedances (34.5KV)  | 21EMS15254  |
| 79 | AZPS_BA | Transmission Line - Addition of WTN-FDMT (69KV)   | 21EMS15255  |
| 80 | AZPS_BA | Transmission Line - Removal of PYTP-WTN (69KV)  | 21EMS15256  |
| 81 | AZPS_BA | Transmission Line - Addition of WPK-FDMT line (69KV)  | 21EMS15257  |
| 82 | AZPS_BA | Transmission Line - Removal of WPK-PYTP line (69KV)   | 21EMS15258  |
| 83 | AZPS_BA | Substation\Load - Addition of Feeder 19 added (12KV)  | 21EMS15259  |
| 84 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed TTH-PV to PV-PY   | 21EMS15260  |
| 85 | AZPS_BA | Substation\Load - Removal of Substation   | 21EMS15261  |
| 86 | AZPS_BA | Transmission Line - Removal PYTP-PY (69KV)  | 21EMS15262  |
| 87 | AZPS_BA | Transmission Line - Addition PY-FDM (69KV)  | 21EMS15263  |

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| No  | Entity  | Project Name  | Project Key |
|-----|---------|---|-------------|
| 88  | AZPS_BA | Substation\Load - Addition XFMR3 equivalent load (69KV)                       | 21EMS15264  |
| 89  | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of 563 and U6839 (69KV)                  | 21EMS15265  |
| 90  | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal K6843, K6389 (69KV)                       | 21EMS15266  |
| 91  | AZPS_BA | Substation\Load - Removed 12KV portion of station (69KV)                      | 21EMS15267  |
| 92  | AZPS_BA | Substation\Load - removed substation  | 21EMS15268  |
| 93  | AZPS_BA | Transmission Line - Removal of PVTP-PV line (230KV)                           | 21EMS15269  |
| 94  | AZPS_BA | Transmission Line - Changed name from FDM-PV to PV-FDM (230KV)                | 21EMS15270  |
| 95  | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed name from LBX-PND to FDM (230KV)          | 21EMS15271  |
| 96  | AZPS_BA | Breaker(s)\ Disconnect(s) - Removed dual modeling switches na% (230KV)        | 21EMS15272  |
| 97  | AZPS_BA | Substation\Load - Addition of 69KV station                                    | 21EMS15273  |
| 98  | AZPS_BA | Transmission Line - Changed name of FDM-PV line to PV-FDM (230KV)             | 21EMS15274  |
| 99  | AZPS_BA | Transmission Line - Changed name from FDM-PND line to PND-FDM (230KV)         | 21EMS15275  |
| 100 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of 921, PND-SBUS (230KV)                 | 21EMS15276  |
| 101 | AZPS_BA | Substation\Load - Addition of 69KV portion of station                         | 21EMS15277  |
| 102 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of XFMR3H, 961 (69KV)                    | 21EMS15278  |
| 103 | AZPS_BA | Transformer - Addition of XFMR3A (69KV)                                       | 21EMS15279  |
| 104 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed SBS-NBS (added 562 breaker) (69KV)        | 21EMS15280  |
| 105 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of dual modeling for shoofly (69KV)      | 21EMS15281  |
| 106 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition DZ L1 (69KV)                             | 21EMS15282  |
| 107 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed GRF to DZ L2, DD to GRF, DZ to DD (69KV)  | 21EMS15283  |
| 108 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal dual modeling na% switching fields (69KV) | 21EMS15284  |
| 109 | AZPS_BA | Shunt Cap\Reactor\ SVD&ccaron;s - Removal of CB9 A                            | 21EMS15285  |
| 110 | AZPS_BA | Substation\Load - Addition XFMR10, XFMR20, XFMR30 equiv loads (69KV)          | 21EMS15286  |
| 111 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition XFMR10H, XFMR20H, XFMR30H (69KV)         | 21EMS15287  |
| 112 | AZPS_BA | Breaker(s)\ Disconnect(s) - removed XFMR11H and XFMR3H (69KV)                 | 21EMS15288  |
| 113 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition ABUSBBUS (69KV)                          | 21EMS15289  |
| 114 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal CBUSWBUS                                  | 21EMS15290  |
| 115 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of CB9, 061 (69KV)                        | 21EMS15291  |
| 116 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed EBUSCBUS to BBUSCBUS (69KV)               | 21EMS15292  |
| 117 | AZPS_BA | Substation\Load - Removal of 12KV temporarily                                 | 21EMS15293  |

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| No  | Entity  | Project Name  | Project Key |
|-----|---------|---|-------------|
| 118 | AZPS_BA | Transmission Line - Additon of PP L2 (69KV)   | 21EMS15294  |
| 119 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed DX to PP L2 (69KV)  | 21EMS15295  |
| 120 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed DX FUT to DX (69KV)   | 21EMS15296  |
| 121 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removlal of dula modeling na% switches (69KV)                             | 21EMS15297  |
| 122 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed CLNT name to CLN (69KV)   | 21EMS15298  |
| 123 | AZPS_BA | Transmission Line - Addition of BV-DG line (for possible shoofly) (69KV)                              | 21EMS15299  |
| 124 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of dual modeling for shoofly na% (69KV)                          | 21EMS15300  |
| 125 | AZPS_BA | Substation\Load - Removal changed name to CLN)(12KV/69KV)   | 21EMS15301  |
| 126 | AZPS_BA | Substation\Load - Addition (replaced CLNT) (12KV/69KV)  | 21EMS15302  |
| 127 | AZPS_BA | Substation\Load - Addition of XFR11EL, XFMR19EL, XFM3EL equivalent loads (69KV)                       | 21EMS15303  |
| 128 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of WBS-CBS, XFMR3H   | 21EMS15304  |
| 129 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of 1161, 461, WBUSCBUS (69KV)                                     | 21EMS15305  |
| 130 | AZPS_BA | Substation\Load - 12KV portion temporarily removed  | 21EMS15306  |
| 131 | AZPS_BA | Substation\Load - Changed CIGTMP objects moved to CIG (69KV)  | 21EMS15307  |
| 132 | AZPS_BA | Breaker(s)\ Disconnect(s) - Changed name from CLNT to CLN (69KV)                                      | 21EMS15308  |
| 133 | AZPS_BA | Shoofly Install\ Removal - Addition of BV-DG line (for possible shoofly) (69KV)                       | 21EMS15309  |
| 134 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of dual modeling for shoofly na% (69KV)                          | 21EMS15310  |
| 135 | AZPS_BA | Transmission Line - Removal of line RSG-STT (69KV)  | 21EMS15311  |
| 136 | AZPS_BA | Breaker(s)\ Disconnect(s) - Update renamed RSG to NOR (69KV)  | 21EMS15312  |
| 137 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of all dual modeling switches na% (69KV)                          | 21EMS15313  |
| 138 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of K6427 (69KV)   | 21EMS15314  |
| 139 | AZPS_BA | Transmission Line - Addition of line RSG-NOR (69KV)   | 21EMS15315  |
| 140 | AZPS_BA | Transmission Line - Removal RSG-STT (69KV)  | 21EMS15316  |
| 141 | AZPS_BA | Breaker(s)\ Disconnect(s) - Update - renamed from STT to NOR (69KV)                                   | 21EMS15317  |
| 142 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of all dual modeling switches na% (69KV)                          | 21EMS15318  |
| 143 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of switch MDT-ME (69KV)   | 21EMS15319  |
| 144 | AZPS_BA | Breaker(s)\ Disconnect(s) - Removal of switch K7719 (69KV)  | 21EMS15320  |
| 145 | AZPS_BA | Breaker(s)\ Disconnect(s) - Addition of switch K6428 (69KV)   | 21EMS15321  |
| 146 | BANC_BA | Entire BANC model including WAPA, MID and Redding   | 20EMS10836  |
| 147 | BANC_BA | Shunt Cap\Reactor\ SVDÂ¿s - Added a ShuntCompensator of the bank2 12kv winding that is normally open. | 21EMS15344  |



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| No  | Entity   | Project Name   | Project Key |
|-----|----------|--|-------------|
| 148 | BANC_BA  | Transformer - Converted bank 2 to a three tw-winding transformer with 1kv common bus.            | 21EMS15345  |
| 149 | BANC_BA  | Transformer - Updated transformer impedances at these stations.                                  | 21EMS15346  |
| 150 | BANC_BA  | Breaker(s)\ Disconnect(s) - Added disconnects in MID SubGeographical region substations.         | 21EMS15347  |
| 151 | BCHA_RC  | Generator - Update generator name  | 21EMS15338  |
| 152 | BCHA_RC  | Generator - Update generator name  | 21EMS15339  |
| 153 | BCHA_RC  | Transmission Line - Update Impedance to 60L_18_4   | 21EMS15340  |
| 154 | BCHA_RC  | Transmission Line - Update Impedance to 60L_18_3   | 21EMS15341  |
| 155 | BCHA_RC  | Transmission Line - Update Impedance to 60L_18_1   | 21EMS15342  |
| 156 | BCHA_RC  | N/A - Updated ICCP   | 21EMS15343  |
| 157 | BPAT_BA  | Generator - DYD Mapping file.  | 20EMS14029  |
| 158 | BPAT_BA  | Generator - Dynamic Model for Transient Stability Analysis in GE PSLF format.                    | 20EMS14030  |
| 159 | BPAT_BA  | Breaker(s)\ Disconnect(s) - Added DSC JMP_BANK1, JMP_BANK2, JMP_115_1641, JMP_115_1642           | 21EMS15126  |
| 160 | BPAT_BA  | Substation\Load - Added fake tab station to split the line by owner.                             | 21EMS15127  |
| 161 | BPAT_BA  | Substation\Load - Added fake tab station to split the line by owner.                             | 21EMS15128  |
| 162 | BPAT_BA  | Transmission Line - Split the tie-line "STAC_SOUT_1230" to "STAC_STSW_1230" and "STSW_SOUT_1230" | 21EMS15129  |
| 163 | BPAT_BA  | Transmission Line - Split the tie-line "MOSY_CHEH_1230" to "CHEH_CHMO_1230" and "CHMO_MOSY_1230" | 21EMS15130  |
| 164 | BPAT_BA  | Transmission Line - Added tie line "RDSM_SCOO_1_34Z1"  | 21EMS15131  |
| 165 | BPAT_BA  | Transmission Line - Added tie line "EBC__RGLD_1_13Z1"  | 21EMS15132  |
| 166 | BPAT_BA  | Transmission Line - Added tie line "PEC__GLAD_1_13Z1"  | 21EMS15133  |
| 167 | BPAT_BA  | Substation\Load - Fix the model to reflect 34.5kV bus tie to RDSMITH (SCL).                      | 21EMS15134  |
| 168 | BPAT_BA  | Substation\Load - Fix the model to reflect 13.8kV bus tie to EBC (SCL).                          | 21EMS15135  |
| 169 | BPAT_BA  | Substation\Load - Fix the model to reflect 13.8kV bus tie to PEC_SCL (SCL) .                     | 21EMS15136  |
| 170 | BPAT_BA  | Generator - BPA DYD mapping file.  | 21EMS15137  |
| 171 | BPAT_BA  | Contingency Definition - BPA contingency list.   | 21EMS15138  |
| 172 | BPAT_TOP | Transmission Line - Updating Request Number 6.23   | 21EMS14963  |
| 173 | BPAT_TOP | Generator - Fixed mapping file to include full dyd model.  | 21EMS15023  |
| 174 | CEN      | ICCP Review  | 21EMS14876  |
| 175 | CSU      | Missing substations and modelling changes for CSU  | 21EMS14973  |
| 176 | IID_BA   | Generator - ICCP Links Revision 2, to include new ICCP ID  | 21EMS15060  |
| 177 | IPCO_BA  | Transmission Line - Removed limits on zero impedance branches                                    | 21EMS15331  |

## FNM Scope for FNM 21M4 DB104

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| No  | Entity   | Project Name   | Project Key |
|-----|----------|--|-------------|
| 178 | IPCO_BA  | Breaker(s)\ Disconnect(s) - Updated BOIS switches 104X, 105X, 104Z, 105Z to 134X, 135X, 134Z, 135Z   | 21EMS15332  |
| 179 | IPCO_BA  | Breaker(s)\ Disconnect(s) - Added new mobile switch FRMT 132X  | 21EMS15333  |
| 180 | IPCO_BA  | Substation\Load - Separated PTSN into IPCO and Northwestern Energy based on equipment ownership for EIM                                      | 21EMS15334  |
| 181 | IPCO_BA  | - All ICCP Object IDs for IPCO_BA FNM.   | 21EMS15335  |
| 182 | IPCO_BA  | - CIM export of IPCO_BA FNM.   | 21EMS15336  |
| 183 | IPCO_BA  | Transmission Line - Updated Limits, Resistance, Reactance and Capacitance. No topology changes   | 21EMS15458  |
| 184 | LDWP_BA  | Transformer - One Line comparison of OLV station changes   | 21EMS15082  |
| 185 | LDWP_BA  | Transformer - Emergency replacement of OLV BK G and OLV BK H   | 21EMS15083  |
| 186 | LDWP_BA  | Substation\Load - Added ICCP for ADL Solar   | 21EMS15358  |
| 187 | LDWP_BA  | Substation\Load - Update ADL SOL Modeling to include GSU Transformer   | 21EMS15359  |
| 188 | LDWP_BA  | Substation\Load - OLV Bank G damaged, swapped with OLV Bank H  | 21EMS15360  |
| 189 | LDWP_BA  | Transmission Line - Update Transmission Line Ratings and Impedances SCA-AIR, FAR-AIR, FAR-GRA, FAR-OLY                                       | 21EMS15361  |
| 190 | NEVP_TOP | Substation\Load - Added 230 KV Switching station that will be connected between H ALLEN and GRTEON with a 11 MW load.                        | 21EMS15348  |
| 191 | NEVP_TOP | Generator - Increased MCG3_IPP_GO Pmax from 60 MW to 90 MW ; Resource ID = MCG HILL_2_UNIT 3   | 21EMS15349  |
| 192 | NEVP_TOP | Generator - Added Battery Energy Storage System (Generator) to Chukar called CKR_BESS_GEN; Pmax = 10 MW and Resource ID = CHUKAR_1_BESS_UNIT | 21EMS15350  |
| 193 | NEVP_TOP | Substation\Load - Added Chukar 25 kV bus   | 21EMS15351  |
| 194 | NEVP_TOP | Substation\Load - Moved elements from BROCKWAY substation to KING BCH substation and removed old switches                                    | 21EMS15352  |
| 195 | NEVP_TOP | Substation\Load - Removed BROCKWAY substation  | 21EMS15353  |
| 196 | NVE      | BA Modeling Change for Griffith Dynamic  | 21EMS15182  |
| 197 | NWMT_BA  | Generator - Updated Stillwater Wind capacity from 79.75 to 80 MW for RCBSAP.   | 21EMS14940  |
| 198 | NWMT_TOP | Substation\Load - Construction oneline for South Butte rebuild   | 21EMS15158  |
| 199 | NWMT_TOP | Substation\Load - Construction oneline for Mill Creek Rebuild  | 21EMS15159  |
| 200 | NWMT_TOP | Substation\Load - Construction oneline for Montana Street Rebuild  | 21EMS15160  |
| 201 | NWMT_TOP | Substation\Load - As-built onelines for 2020 work  | 21EMS15161  |
| 202 | NWMT_TOP | Transmission Line - Updated English Names template to include all sub-BES equipment and capture other missing Enlighs Names                  | 21EMS15163  |
| 203 | NWMT_TOP | Substation\Load - Updated CIM model; see attached document for concise description of changes.   | 21EMS15337  |
| 204 | PAC_TOP  | Breakers/Disconnects - Update 2D611's normal state to OPEN   | 21EMS14977  |
| 205 | PAC_TOP  | Transmission Lines - Remove FRIEND_HOUSTONL_115 and update 2D619's normal state to OPEN  | 21EMS14978  |
| 206 | PAC_TOP  | Transmission Lines - Remove WALAWALA_WANAPUM_230 and WALAWALA 230 4 SBUS KV measurement  | 21EMS14979  |

## FNM Scope for FNM 21M4 DB104

(Production Week of 4/26/2021)

| No  | Entity  | Project Name  | Project Key |
|-----|---------|---|-------------|
| 207 | PAC_TOP | Breakers/Disconnects - Update MO 2H389's NORMST to CLOSE  | 21EMS14980  |
| 208 | PAC_TOP | Breakers/Disconnects - Remove JP1,2, 3  | 21EMS14981  |
| 209 | PAC_TOP | Transmission Lines - Update line impedance data for HARRISON_HARSNPGE_115   | 21EMS14982  |
| 210 | PAC_TOP | Substation\Load - CAISO please change BA to PACE  | 21EMS14983  |
| 211 | PAC_TOP | Transformers - Remove T3 and 5 devices  | 21EMS14984  |
| 212 | PAC_TOP | Breakers/Disconnects - Add MO 42A   | 21EMS14985  |
| 213 | PAC_TOP | Transformers - Add new T2 and 3 devices and a JUMPER  | 21EMS14986  |
| 214 | PAC_TOP | Substation\Load - Add new substation  | 21EMS14987  |
| 215 | PAC_TOP | Substation\Load - Add new substation  | 21EMS14988  |
| 216 | PAC_TOP | Substation\Load - Add line to WILDFLOW, 8 devices, three JUMPERS, rename 10H54 to 7H58, 10H59 to 10H54, AS 146 to 187A                              | 21EMS14989  |
| 217 | PAC_TOP | Transmission Lines - Add MO 132A and line to MIDWAY   | 21EMS14990  |
| 218 | PAC_TOP | Breakers/Disconnects - Add 6 devices, Line to JORDANEL, and a JUMPER  | 21EMS14991  |
| 219 | PAC_TOP | Substation\Load - Remove BUS KV and line KV   | 21EMS14992  |
| 220 | PAC_TOP | Breakers/Disconnects - Add SW J1923   | 21EMS14993  |
| 221 | PAC_TOP | Substation\Load - CAISO please change BA to PACE  | 21EMS14994  |
| 222 | PGE_BA  | Contingency Definition - Contingency definition changes   | 21EMS15147  |
| 223 | PGE_BA  | Substation\Load - Replace St Marys relays and breakers at 230kV level yard (SCADA keys changed)   | 21EMS15148  |
| 224 | PGE_BA  | Transmission Line - Rebuild Sunset-St Marys line to the Butler-St Marys and Butler-Sunset #2 lines with two new line switches SW_11698 and SW_11690 | 21EMS15149  |
| 225 | PGE_BA  | - List of ICCP points mapping   | 21EMS15151  |
| 226 | PGE_BA  | - Model Difference reoport  | 21EMS15152  |
| 227 | PGE_BA  | - Model Updates for DB103: CIMxml model file  | 21EMS15153  |
| 228 | PNM_BA  | Transmission Line - DIAMONDTL Line Ratings changed for summer and winter. These are normal continous ratings.                                       | 21EMS14943  |
| 229 | PNM_BA  | Transmission Line - HOLLYWD Line Ratings changed for summer and winter. These are normal continous ratings.   | 21EMS14944  |
| 230 | PNM_BA  | Transmission Line - NORTH Line Ratings changed for summer and winter. These are normal continous ratings.   | 21EMS14945  |
| 231 | PNM_BA  | Transmission Line - B_A Line Ratings changed for summer and winter. These are normal continous ratings.   | 21EMS14946  |
| 232 | PNM_BA  | Transmission Line - NORTON Line Ratings changed for summer and winter. These are normal continous ratings.  | 21EMS14947  |
| 233 | PNM_BA  | Transmission Line - WHITERCK Line Ratings changed for summer and winter. These are normal continous ratings.  | 21EMS14948  |
| 234 | PNM_BA  | Transmission Line - BUCKMAN Line Ratings changed for summer and winter. These are normal continous ratings.   | 21EMS14949  |
| 235 | PNM_BA  | Transmission Line - NORTON Line Ratings changed for summer and winter. These are normal continous ratings.  | 21EMS14950  |

## FNM Scope for FNM 21M4 DB104

(Production Week of 4/26/2021)

| No  | Entity   | Project Name  | Project Key |
|-----|----------|---|-------------|
| 236 | PNM_BA   | Transmission Line - LAMORADA Line Ratings changed for summer and winter. These are normal continuous ratings.   | 21EMS14951  |
| 237 | PNM_BA   | Transmission Line - PETROGLYPH 115kV Line Ratings changed for summer and winter. These are normal continuous ratings.   | 21EMS14952  |
| 238 | PNM_BA   | Transmission Line - LOSTHORZ Line Ratings changed for summer and winter. These are normal continuous ratings.   | 21EMS14953  |
| 239 | PNM_BA   | Transmission Line - OLDLAGUN Line Ratings changed for summer and winter. These are normal continuous ratings.   | 21EMS14954  |
| 240 | PNM_BA   | Transmission Line - SANFIDEL Line Ratings changed for summer and winter. These are normal continuous ratings.   | 21EMS14955  |
| 241 | PNM_BA   | Transmission Line - GRANTS T Line Ratings changed for summer and winter. These are normal continuous ratings.   | 21EMS14956  |
| 242 | PNM_BA   | Transmission Line - BLUEWATR Line Ratings changed for summer and winter. These are normal continuous ratings.   | 21EMS14957  |
| 243 | PNM_BA   | Transmission Line - ALGODONE Line Ratings changed for summer and winter. These are normal continuous ratings.   | 21EMS14958  |
| 244 | PNM_BA   | Transmission Line - AMBROSIA Line Ratings changed for summer and winter. These are normal continuous ratings.   | 21EMS14959  |
| 245 | PNM_BA   | Transmission Line - Line Ratings changed for summer and winter. These are normal continuous ratings.  | 21EMS14960  |
| 246 | PNM_BA   | Substation\Load - New ICCP pts. for BA Load and BA Ties added to facilitate EIM   | 21EMS15030  |
| 247 | PNM_BA   | Breaker(s)\ Disconnect(s) - Added ICCP Objects for breaker and switch   | 21EMS15071  |
| 248 | PNM_BA   | Breaker(s)\ Disconnect(s) - Added ICCP Objects for switches   | 21EMS15176  |
| 249 | PNM_BA   | Breaker(s)\ Disconnect(s) - Added ICCP Objects for switches   | 21EMS15178  |
| 250 | PNM_BA   | Transmission Line - PNM Network Model   | 21EMS15323  |
| 251 | PNM_BA   | Transmission Line - Full ICCP SCADA Mapping for Network Model   | 21EMS15324  |
| 252 | PSCO_BA  | COMA, PAWN, and CEDARCK\$   | 21EMS15388  |
| 253 | SCL_BA   | Transmission Line - Updates to Normal/Emergency Seasonal MVA limits to various transmission lines and transformers.   | 21EMS15325  |
| 254 | SCL_BA   | Generator - Added resources SUMMERFL_1_GEN161_TOTAL and SUMMERFL_1_GEN162_TOTAL. Removed resources SUMMERFL_1_GEN161 and SUMMERFL_1_GEN162 from reliability model. Market model resources will remain the same. See SLD doc for more details. | 21EMS15326  |
| 255 | SCL_BA   | Generator - Added resource MCANLSCL_1_GEN160_TOTAL and removed resource MCANLSCL_1_GEN160 from reliability model. Market model resources will remain the same. See SLD doc for more details.  | 21EMS15327  |
| 256 | SCL_BA   | Generator - Added resource PEC_1_GEN166_TOTAL and removed resource PEC_1_GEN166 from reliability model. Market model resources will remain the same. See SLD doc for more details.  | 21EMS15328  |
| 257 | SCL_BA   | Generator - Added resource EBC_1_GEN165_TOTAL and removed resource EBC_1_GEN165 from reliability model. Market model resources will remain the same. See SLD doc for more details.  | 21EMS15329  |
| 258 | SCL_BA   | Generator - Added resource RDSMITH_1_GEN164_TOTAL and removed resource RDSMITH_1_GEN164 from reliability model. Market model resources will remain the same. See SLD doc for more details.  | 21EMS15330  |
| 259 | SNPD_TOP | Transformer - Add new ICCP points   | 21EMS15025  |
| 260 | SNPD_TOP | Breaker(s)\ Disconnect(s) - Add new ICCP points   | 21EMS15026  |
| 261 | SNPD_TOP | Shoofly Install\ Removal - Install a shoo-fly at Paine Field Substation   | 21EMS15031  |

## FNM Scope for FNM 21M4 DB104

(Production Week of 4/26/2021)

| No  | Entity   | Project Name   | Project Key |
|-----|----------|--|-------------|
| 262 | SNPD_TOP | Shoofly Install\ Removal - Install a shoo-fly at Paine Field Substation  | 21EMS15066  |
| 263 | SNPD_TOP | Shoofly Install\ Removal - Removal of Paine Field shoo-fly   | 21EMS15201  |
| 264 | SRP_BA   | Breaker(s)\ Disconnect(s) - Updated normal state of temp switches  | 21EMS15113  |
| 265 | SRP_BA   | Generator - Added ICCP IDs for generator analog measurements   | 21EMS15114  |
| 266 | SRP_BA   | Substation\Load - Added ICCP IDs for breakers and disconnectors status, generator and line analog measurements           | 21EMS15115  |
| 267 | SRP_BA   | Breaker(s)\ Disconnect(s) - Removed temporary disconnect switches  | 21EMS15116  |
| 268 | SRP_BA   | Breaker(s)\ Disconnect(s) - Added breaker and disconnecter   | 21EMS15117  |
| 269 | SRP_BA   | Substation\Load - Added shunt compensator, breakers and disconnectors  | 21EMS15118  |
| 270 | SRP_BA   | Transmission Line - Removed 22.06E1N Tap-Marcos 69kV line  | 21EMS15119  |
| 271 | SRP_BA   | Transmission Line - Added new Lassen-Marcos 69kV line  | 21EMS15120  |
| 272 | SRP_BA   | Transmission Line - Added ICCP measurements on Howard-McGinnis branch  | 21EMS15121  |
| 273 | SRP_BA   | Breaker(s)\ Disconnect(s) - Removed temporary switch TMP 27  | 21EMS15122  |
| 274 | SRP_BA   | Transformer - Updated transformer impedance and tap ratio  | 21EMS15123  |
| 275 | SRP_BA   | Breaker(s)\ Disconnect(s) - Updated nodes of switches 391 and 393  | 21EMS15124  |
| 276 | SRP_BA   | Transmission Line - Updated branch parameters and ICCP measurements on branch  | 21EMS15125  |
| 277 | TPWR_BA  | Transmission Line - Update to show Mossyrock-Chehalis line as separate TPWR and BPA segments instead of single line.     | 21EMS15027  |
| 278 | TPWR_BA  | Transmission Line - Update to show South Tacoma-Southwest line as separate TPWR and BPA segments instead of single line. | 21EMS15028  |
| 279 | TPWR_BA  | Transmission Line - Updates to BPA-TPWR tie line data.   | 21EMS15322  |
| 280 | TSGT_TOP | Transmission Line - Update of Ratings  | 21EMS15067  |
| 281 | TSGT_TOP | Transformer - Update of Ratings  | 21EMS15068  |
| 282 | TSGT_TOP | Transformer - Update of Ratings  | 21EMS15179  |
| 283 | TSGT_TOP | Transmission Line - Update of Ratings  | 21EMS15180  |
| 284 | WASN_TOP | Transmission - Captain Jack - Olinda 500 kV line rating update   | 21EMS14972  |