

**EVERGY METRO**  
**RESOURCE ACQUISITION**  
**STRATEGY SELECTION**  
**INTEGRATED RESOURCE PLAN**  
**4 CSR 240-22.070**

**APRIL 2021**



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**Table 1: Evergy Metro Preferred Plan**

| <b>Year</b> | <b>CT's<br/>(MW)</b> | <b>Wind<br/>(MW)</b> | <b>Solar<br/>(MW)</b> | <b>DSM<br/>(MW)</b> | <b>Retire<br/>(MW)</b> |
|-------------|----------------------|----------------------|-----------------------|---------------------|------------------------|
| 2021        | 0                    |                      |                       | 29                  |                        |
| 2022        | 0                    |                      |                       | 48                  |                        |
| 2023        | 0                    |                      |                       | 146                 |                        |
| 2024        | 0                    |                      | 230                   | 196                 |                        |
| 2025        | 0                    | 120                  |                       | 237                 |                        |
| 2026        | 0                    | 120                  |                       | 273                 |                        |
| 2027        | 0                    |                      |                       | 305                 |                        |
| 2028        | 0                    |                      | 120                   | 333                 |                        |
| 2029        | 0                    |                      | 120                   | 357                 |                        |
| 2030        | 0                    |                      | 120                   | 377                 |                        |
| 2031        | 0                    |                      | 120                   | 384                 |                        |
| 2032        | 0                    |                      | 120                   | 382                 | 373                    |
| 2033        | 0                    |                      |                       | 380                 |                        |
| 2034        | 0                    |                      |                       | 379                 |                        |
| 2035        | 0                    |                      |                       | 377                 |                        |
| 2036        | 0                    |                      |                       | 376                 |                        |
| 2037        | 0                    |                      |                       | 376                 |                        |
| 2038        | 0                    |                      |                       | 378                 |                        |
| 2039        | 0                    |                      |                       | 379                 | 821                    |
| 2040        | 699                  |                      |                       | 379                 |                        |

The Preferred Plan includes the following renewable additions: 230 MW of solar generation in year 2024, and 120 MW of solar generation in each of the years 2028 – 2032. Additionally, 120 MW of wind generation in years 2025 and 2026. DSM resources are based upon a RAP- level which consists of a suite of eight residential and ten commercial programs five of which are demand response programs, three are demand side rates, and ten are energy efficiency programs.

The Preferred Plan was not the lowest cost plan from a Net Present Value of Revenue Requirement (NPVRR) perspective. On an expected value basis, the

## Table 2: Evergy Metro Forecast of Capacity Balance - Preferred Plan

|   | 2021         | 2022         | 2023         | 2024         | 2025         | 2026         | 2027         | 2028         | 2029         | 2030         | 2031         | 2032         | 2033         | 2034         | 2035         | 2036         | 2037         | 2038         | 2039         | 2040         |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>A. System Generating Capacity (Evergy Metro share)</b> |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| <b>Base Capacity</b>                                      |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| Wolf Creek  | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          | 553          |
| Iitan 1   | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          | 490          |
| Iitan 1   | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          | 491          |
| Hawthorn 5  | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          | 564          |
| La Cagne 1  | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          | 373          |
| La Cagne 2  | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          | 331          |
| <b>Total Base Capacity</b>                                | <b>2,802</b> | <b>2,802</b> | <b>2,802</b> | <b>2,802</b> | <b>2,802</b> | <b>2,802</b> | <b>2,802</b> | <b>2,802</b> | <b>2,802</b> | <b>2,802</b> | <b>2,802</b> | <b>2,802</b> | <b>2,429</b> | <b>2,429</b> | <b>2,429</b> | <b>2,429</b> | <b>2,429</b> | <b>2,429</b> | <b>2,429</b> | <b>1,608</b> |
| <b>Intermediate Capacity</b>                              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| Hawthorn 6 & 9  | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          | 225          |
| <b>Total Intermediate Capacity</b>                        | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   | <b>225</b>   |
| <b>Peaking Capacity</b>                                   |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| Hawthorn 7  | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           |
| Hawthorn 8  | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           | 47           |
| Northeast 11  | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           | 41           |
| Northeast 12  | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           | 46           |
| Northeast 13  | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           |
| Northeast 14  | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           |
| Northeast 15  | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           |
| Northeast 16  | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           | 53           |
| Northeast 17  | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           |
| Northeast 18  | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            |
| Northeast Black Start Generator                           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           | 80           |
| West Gardner 1  | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           | 79           |
| West Gardner 2  | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           | 77           |
| West Gardner 3  | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           | 78           |
| West Gardner 4  | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           | 76           |
| Osawatimie  | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | 233          |
| New CT  | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | 1,165        |
| <b>Total Peaking Capacity</b>                             | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>935</b>   | <b>1,168</b> | <b>2,100</b> |
| <b>Intermittent Capacity (Nameplate)</b>                  |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| Spearsville 1   | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          | 101          |
| Spearsville 2   | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           | 48           |
| <b>Total Intermittent Capacity</b>                        | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   | <b>149</b>   |
| <b>Percent Accredited Intermittent Capacity</b>           | <b>32%</b>   | <b>32%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   | <b>20%</b>   |
| <b>Total Accredited Intermittent Capacity</b>             | <b>48</b>    | <b>48</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    | <b>30</b>    |
| Wind Additions  | -            | -            | 12           | 24           | 24           | 24           | 24           | 24           | 24           | 24           | 24           | 24           | 24           | 24           | 24           | 24           | 24           | 24           | 30           | 60           |
| Solar Additions   | -            | -            | 115          | 115          | 115          | 115          | 115          | 175          | 235          | 247          | 259          | 271          | 271          | 271          | 271          | 271          | 271          | 271          | 271          | 271          |
| <b>Total Intermittent Capacity with Additions</b>         | <b>48</b>    | <b>48</b>    | <b>30</b>    | <b>145</b>   | <b>157</b>   | <b>169</b>   | <b>169</b>   | <b>229</b>   | <b>289</b>   | <b>301</b>   | <b>313</b>   | <b>325</b>   | <b>325</b>   | <b>325</b>   | <b>325</b>   | <b>325</b>   | <b>331</b>   | <b>361</b>   | <b>361</b>   | <b>361</b>   |
| <b>Total Generation Capacity (TGC)</b>                    | <b>4,009</b> | <b>4,009</b> | <b>3,991</b> | <b>4,106</b> | <b>4,118</b> | <b>4,130</b> | <b>4,130</b> | <b>4,190</b> | <b>4,250</b> | <b>4,262</b> | <b>4,274</b> | <b>4,286</b> | <b>3,913</b> | <b>3,913</b> | <b>3,913</b> | <b>3,913</b> | <b>3,919</b> | <b>3,949</b> | <b>4,182</b> | <b>4,293</b> |
| <b>B. Capacity Transactions</b>                           |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| <b>Purchases:</b>   |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| Cimarron II (131.1 MW)                                    | 61           | 61           | 30           | 30           | 30           | 30           | 30           | 30           | 30           | 30           | 30           | -            | -            | -            | -            | -            | -            | -            | -            | -            |
| Spearsville 3 (100.8 MW)                                  | 47           | 47           | 20           | 20           | 20           | 20           | 20           | 20           | 20           | 20           | 20           | 20           | -            | -            | -            | -            | -            | -            | -            | -            |
| CNPID Hydro PPA   | 60           | 60           | 60           | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            |
| Waverly (200 MW)  | 71           | 71           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           |
| State Creek (150 MW)                                      | 78           | 78           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           | 49           |
| Rock Creek (180 MW)                                       | 46           | 46           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           | 34           |
| Osborn (120 MW)   | 16           | 16           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           |
| Pratt (98 MW)   | 59           | 59           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           | 27           |
| Prairie Queen (80 MW)                                     | 27           | 27           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           | 22           |
| Ponderosa (100 MW)  | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           | 10           |
| PPA Purchase  | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | 25           | 100          |
| <b>Total Capacity Purchases (P)</b>                       | <b>474</b>   | <b>474</b>   | <b>323</b>   | <b>263</b>   | <b>263</b>   | <b>263</b>   | <b>263</b>   | <b>263</b>   | <b>263</b>   | <b>263</b>   | <b>263</b>   | <b>233</b>   | <b>213</b>   | <b>213</b>   | <b>213</b>   | <b>140</b>   | <b>143</b>   | <b>159</b>   | <b>32</b>    | <b>10</b>    |
| <b>Sales:</b>   |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| City of Eudora  | (323)        | (325)        | (328)        | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            |
| MWEA (from Spearsville 1 & 2)                             | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         |
| Big Rivers Electric                                       | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         | (15)         |
| Big Rivers Electric                                       | (25)         | (25)         | (25)         | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            |
| PPA Sale  | (100)        | (100)        | (89)         | (100)        | (100)        | (100)        | (100)        | (100)        | (100)        | (100)        | (100)        | (100)        | (100)        | (100)        | (100)        | (86)         | -            | -            | -            | -            |
| <b>Total Capacity Sales (S)</b>                           | <b>(478)</b> | <b>(480)</b> | <b>(472)</b> | <b>(130)</b> | <b>(130)</b> | <b>(115)</b> | <b>(115)</b> | <b>(100)</b> | <b>(100)</b> | <b>(100)</b> | <b>(100)</b> | <b>(100)</b> | <b>(100)</b> | <b>(100)</b> | <b>(100)</b> | <b>(86)</b>  | <b>-</b>     | <b>-</b>     | <b>-</b>     | <b>-</b>     |
| <b>Net Transactions (NT)</b>                              | <b>(4)</b>   | <b>(6)</b>   | <b>(149)</b> | <b>133</b>   | <b>133</b>   | <b>148</b>   | <b>148</b>   | <b>148</b>   | <b>163</b>   | <b>163</b>   | <b>163</b>   | <b>133</b>   | <b>113</b>   | <b>113</b>   | <b>115</b>   | <b>140</b>   | <b>143</b>   | <b>159</b>   | <b>32</b>    | <b>10</b>    |
| <b>Total System Capacity (TSC)</b>                        | <b>4,006</b> | <b>4,004</b> | <b>3,842</b> | <b>4,239</b> | <b>4,251</b> | <b>4,278</b> | <b>4,278</b> | <b>4,338</b> | <b>4,413</b> | <b>4,425</b> | <b>4,437</b> | <b>4,419</b> | <b>4,026</b> | <b>4,026</b> | <b>4,028</b> | <b>4,053</b> | <b>4,062</b> | <b>4,108</b> | <b>4,214</b> | <b>4,303</b> |
| <b>C. System Peaks &amp; Reserves</b>                     |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| <b>Peak Demands</b>                                       |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| Forecasted Peak   | 3,455        | 3,465        | 3,470        | 3,480        | 3,486        | 3,495        | 3,505        | 3,519        | 3,527        | 3,536        | 3,546        | 3,561        | 3,571        | 3,586        | 3,603        | 3,623        | 3,639        | 3,708        | 3,677        | 3,696        |
| Less DSM:   | -            | -            | 83           | 105          | 123          | 137          | 149          | 159          | 164          | 169          | 172          | 176          | 177          | 178          | 179          | 180          | 180          | 181          | 182          | 183          |
| Energy Efficiency   | -            | -            | 22           | 46           | 66           | 84           | 98           | 111          | 122          | 132          | 140          | 146          | 149          | 149          | 146          | 145          | 145          | 147          | 148          | 149          |
| MEIA</  |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |