

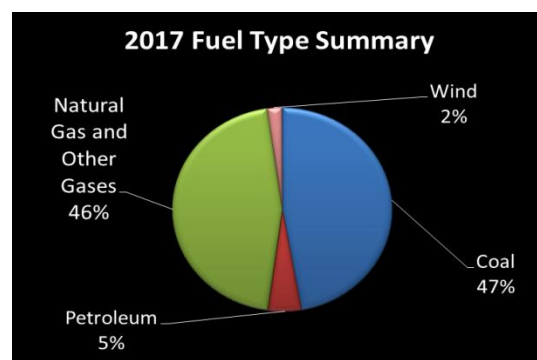
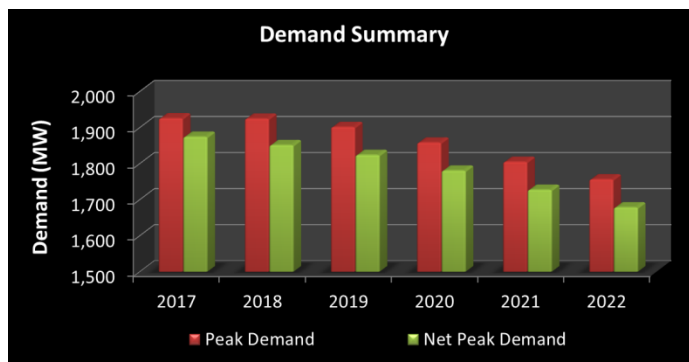
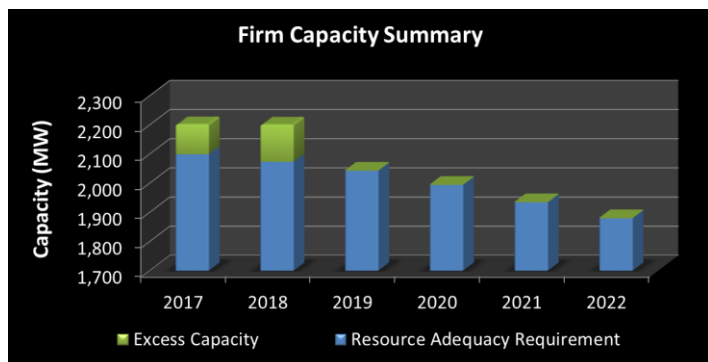


# **SPP 2017 RESOURCE ADEQUACY REPORT**

Published on June 19<sup>th</sup>, 2017

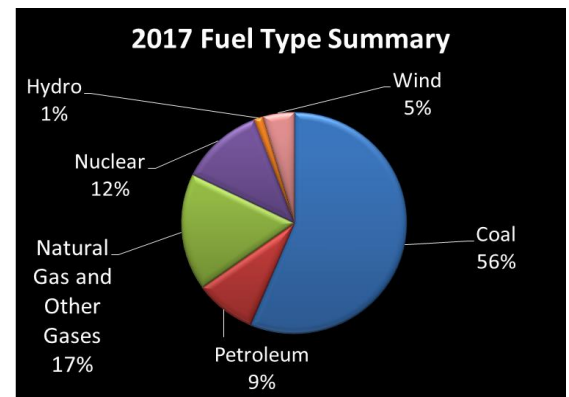
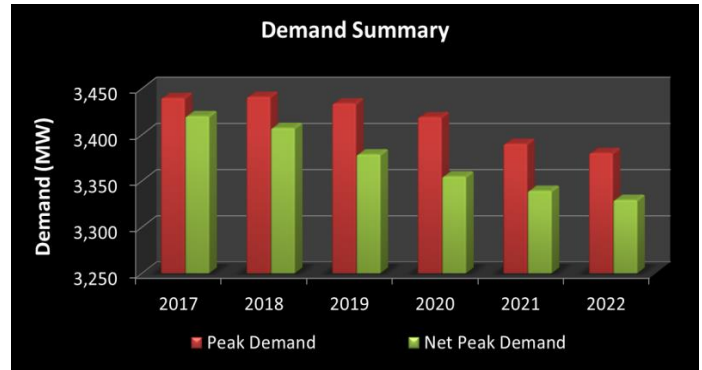
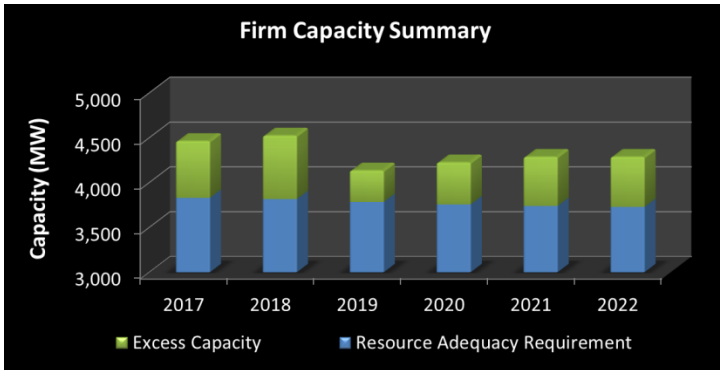
By Resource Adequacy Coordination

## GREATER MISSOURI OPERATIONS COMPANY (KCP&L)



| Firm Capacity Summary  |           | Unit         | 2017         | 2018         | 2019         | 2020         | 2021         | 2022 |
|--|-----------|--------------|--------------|--------------|--------------|--------------|--------------|------|
| Firm Capacity Resources                                      | MW        | 2,076        | 2,076        | 1,628        | 1,531        | 1,531        | 1,565        |      |
| Firm Capacity Resources (Other)                              | MW        | 0            | 0            | 0            | 0            | 0            | 0            |      |
| Firm Capacity Purchases                                      | MW        | 131          | 130          | 195          | 105          | 70           | 70           |      |
| Firm Capacity Sales  | MW        | 0            | 0            | 0            | 0            | 0            | 0            |      |
| Confirmed Retirements  | MW        | 0            | 0            | 448          | 546          | 546          | 546          |      |
| Scheduled Outages  | MW        | 0            | 0            | 0            | 0            | 0            | 0            |      |
| Transmission Limitations                                     | MW        | 0            | 0            | 0            | 0            | 0            | 0            |      |
| Other Capacity Adjustments - Additions                       | MW        | 0            | 0            | 0            | 0            | 0            | 0            |      |
| Other Capacity Adjustments - Reductions                      | MW        | 5            | 5            | 5            | 5            | 5            | 5            |      |
| <b>Firm Capacity</b>   | <b>MW</b> | <b>2,202</b> | <b>2,201</b> | <b>1,818</b> | <b>1,631</b> | <b>1,596</b> | <b>1,630</b> |      |
| <b>Demand Summary</b>  |           |              |              |              |              |              |              |      |
| Peak Demand (Forecasted)                                     | MW        | 1,926        | 1,925        | 1,902        | 1,858        | 1,805        | 1,756        |      |
| Firm Power Purchases   | MW        | 0            | 0            | 0            | 0            | 0            | 0            |      |
| Firm Power Sales   | MW        | 0            | 0            | 0            | 0            | 0            | 0            |      |
| Controllable and Dispatchable DR - Available                 | MW        | 51           | 73           | 78           | 78           | 78           | 78           |      |
| Other Controllable and Dispatchable DEG - Available          | MW        | 0            | 0            | 0            | 0            | 0            | 0            |      |
| <b>Net Peak Demand (Forecasted)</b>                          | <b>MW</b> | <b>1,875</b> | <b>1,851</b> | <b>1,824</b> | <b>1,781</b> | <b>1,727</b> | <b>1,679</b> |      |
| Energy Efficiency and Conservation (Included in Peak Demand) | MW        | 16           | 27           | 56           | 106          | 162          | 220          |      |
| Standby Load Under Contract (Included in Peak Demand)        | MW        | 0            | 0            | 0            | 0            | 0            | 0            |      |
| <b>Requirements Summary</b>                                  |           |              |              |              |              |              |              |      |
| Resource Adequacy Requirement                                | MW        | 2,099        | 2,074        | 2,043        | 1,994        | 1,935        | 1,880        |      |
| Excess Capacity  | MW        | 103          | 128          | 0            | 0            | 0            | 0            |      |
| Deficient Capacity   | MW        | 0            | 0            | 225          | 364          | 339          | 250          |      |
| <b>Planning Reserve Margin</b>                               |           |              |              |              |              |              |              |      |
| SPP Target Planning Reserve Margin                           | %         | 12.0%        | 12.0%        | 12.0%        | 12.0%        | 12.0%        | 12.0%        |      |
| Actual Planning Reserve Margin                               | %         | 17.5%        | 18.9%        | -0.3%        | -8.4%        | -7.6%        | -2.9%        |      |

## KANSAS CITY POWER & LIGHT



| Firm Capacity Summary  |    | Unit  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022 |
|--|----|-------|-------|-------|-------|-------|-------|------|
| Firm Capacity Resources                                      | MW | 4,344 | 4,344 | 4,010 | 4,010 | 4,010 | 4,010 |      |
| Firm Capacity Resources (Other)                              | MW | 0     | 0     | 0     | 0     | 0     | 0     |      |
| Firm Capacity Purchases                                      | MW | 256   | 292   | 292   | 292   | 292   | 292   |      |
| Firm Capacity Sales  | MW | 137   | 112   | 167   | 77    | 15    | 15    |      |
| Confirmed Retirements  | MW | 0     | 0     | 334   | 334   | 334   | 334   |      |
| Scheduled Outages  | MW | 0     | 0     | 0     | 0     | 0     | 0     |      |
| Transmission Limitations                                     | MW | 0     | 0     | 0     | 0     | 0     | 0     |      |
| Other Capacity Adjustments - Additions                       | MW | 0     | 0     | 0     | 0     | 0     | 0     |      |
| Other Capacity Adjustments - Reductions                      | MW | 0     | 0     | 0     | 0     | 0     | 0     |      |
| Firm Capacity  | MW | 4,463 | 4,524 | 4,135 | 4,225 | 4,287 | 4,287 |      |
| Demand Summary   |    | Unit  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022 |
| Peak Demand (Forecasted)                                     | MW | 3,440 | 3,441 | 3,434 | 3,419 | 3,390 | 3,380 |      |
| Firm Power Purchases   | MW | 0     | 0     | 0     | 0     | 0     | 0     |      |
| Firm Power Sales   | MW | 0     | 0     | 0     | 0     | 0     | 0     |      |
| Controllable and Dispatchable DR - Available                 | MW | 20    | 34    | 55    | 64    | 51    | 51    |      |
| Other Controllable and Dispatchable DEG - Available          | MW | 0     | 0     | 0     | 0     | 0     | 0     |      |
| Net Peak Demand (Forecasted)                                 | MW | 3,420 | 3,407 | 3,379 | 3,355 | 3,339 | 3,329 |      |
| Energy Efficiency and Conservation (Included in Peak Demand) | MW | 18    | 35    | 54    | 75    | 112   | 141   |      |
| Standby Load Under Contract (Included in Peak Demand)        | MW | 0     | 0     | 0     | 0     | 0     | 0     |      |
| Requirements Summary   |    | Unit  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022 |
| Resource Adequacy Requirement                                | MW | 3,831 | 3,816 | 3,784 | 3,757 | 3,740 | 3,729 |      |
| Excess Capacity  | MW | 633   | 708   | 351   | 467   | 547   | 558   |      |
| Deficient Capacity   | MW | 0     | 0     | 0     | 0     | 0     | 0     |      |
| Planning Reserve Margin                                      | %  | 30.5% | 32.8% | 22.4% | 25.9% | 28.4% | 28.8% |      |
| SPP Target Planning Reserve Margin                           | %  | 12.0% | 12.0% | 12.0% | 12.0% | 12.0% | 12.0% |      |

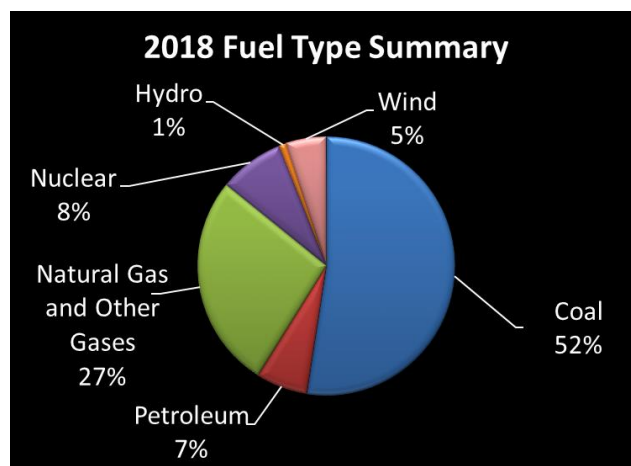


# **SPP 2018 RESOURCE ADEQUACY REPORT**

Published on June 29<sup>th</sup>, 2018

By SPP Resource Adequacy

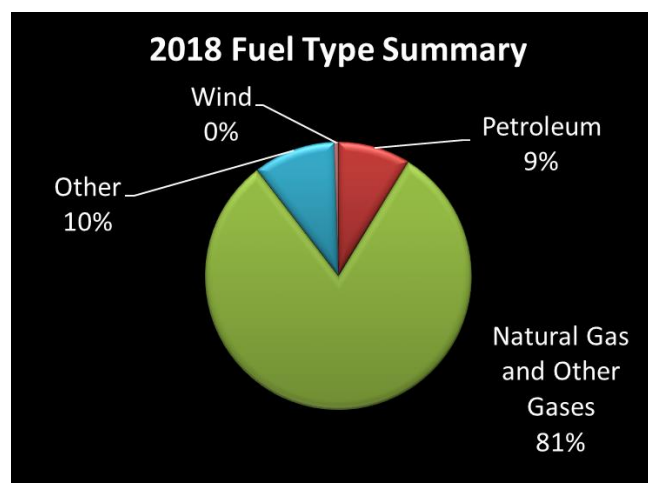
## KANSAS CITY POWER & LIGHT



| Firm Capacity Summary                   |           | Unit | 2018         |
|---|-----------|------|--------------|
| Firm Capacity Resources                 | MW        |      | 6,381        |
| Firm Capacity Purchases                 | MW        |      | 391          |
| Firm Capacity Sales                     | MW        |      | 52           |
| Confirmed Retirements                   | MW        |      | 0            |
| Scheduled Outages                       | MW        |      | 0            |
| Transmission Limitations                | MW        |      | 0            |
| Other Capacity Adjustments - Additions  | MW        |      | 0            |
| Other Capacity Adjustments - Reductions | MW        |      | 0            |
| <b>Firm Capacity</b>                    | <b>MW</b> |      | <b>6,720</b> |
| Demand Summary                          |           |      |              |
| Peak Demand (Forecasted)                | MW        |      | 5,483        |
| Firm Power Purchases                    | MW        |      | 0            |
| Firm Power Sales                        | MW        |      | 0            |
| Controllable and Dispatchable DR        | MW        |      | 239          |
| Other Controllable and Dispatchable DEG | MW        |      | 0            |
| <b>Net Peak Demand (Forecasted)</b>     | <b>MW</b> |      | <b>5,244</b> |
| Requirements Summary                    |           |      |              |
| Resource Adequacy Requirement           | MW        |      | 5,874        |
| Excess Capacity                         | MW        |      | 846          |
| Deficient Capacity                      | MW        |      | 0            |
| Planning Reserve Margin                 |           |      |              |
| SPP Target Planning Reserve Margin      | %         |      | 28.1%        |
|   | %         |      | 12.0%        |

## KANSAS MUNICIPAL ENERGY AGENCY – EMP1

| Firm Capacity Summary                   |           | Unit | 2018       |
|---|-----------|------|------------|
| Firm Capacity Resources                 | MW        |      | 82         |
| Firm Capacity Purchases                 | MW        |      | 21         |
| Firm Capacity Sales                     | MW        |      | 0          |
| Confirmed Retirements                   | MW        |      | 0          |
| Scheduled Outages                       | MW        |      | 0          |
| Transmission Limitations                | MW        |      | 0          |
| Other Capacity Adjustments - Addition   | MW        |      | 0          |
| Other Capacity Adjustments - Reductions | MW        |      | 0          |
| <b>Firm Capacity</b>                    | <b>MW</b> |      | <b>103</b> |
| Demand Summary                          |           |      |            |
| Peak Demand (Forecasted)                | MW        |      | 106        |
| Firm Power Purchases                    | MW        |      | 38         |
| Firm Power Sales                        | MW        |      | 0          |
| Controllable and Dispatchable DR        | MW        |      | 0          |
| Other Controllable and Dispatchable DEG | MW        |      | 29         |
| <b>Net Peak Demand (Forecasted)</b>     | <b>MW</b> |      | <b>39</b>  |
| Requirements Summary                    |           |      |            |
| Resource Adequacy Requirement           | MW        |      | 43         |
| Excess Capacity                         | MW        |      | 59         |
| Deficient Capacity                      | MW        |      | 0          |
| Planning Reserve Margin                 |           |      |            |
| SPP Target Planning Reserve Margin      | %         |      | 164.8%     |
|   | %         |      | 12.0%      |





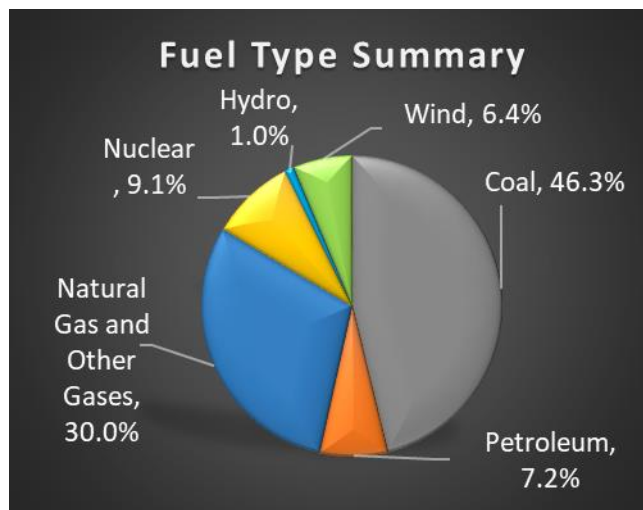
# **2019 SPP RESOURCE ADEQUACY REPORT**

Published on June 14, 2019

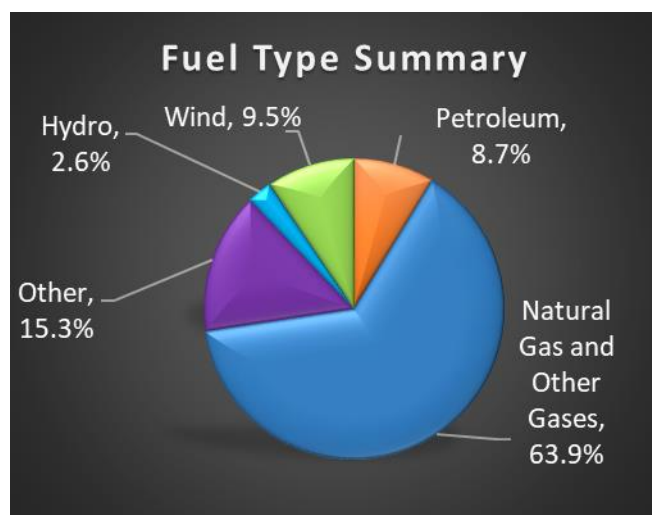
SPP Resource Adequacy

## KANSAS CITY POWER AND LIGHT

| Capacity Summary                      |           | Unit | 2019         |
|---------------------------------------|-----------|------|--------------|
| Capacity Resources                    | MW        |      | 5,641        |
| Firm Capacity Purchases               | MW        |      | 423          |
| Firm Capacity Sales                   | MW        |      | 67           |
| External Firm Power Purchases         | MW        |      | 0            |
| External Firm Power Sales             | MW        |      | 0            |
| Confirmed Retirements                 | MW        |      | 0            |
| <b>Total Capacity</b>                 | <b>MW</b> |      | <b>5,997</b> |
| Demand Summary                        |           |      |              |
| Forecasted Peak Demand                | MW        |      | 5,408        |
| Internal Firm Power Sales             | MW        |      | 0            |
| Internal Firm Power Purchases         | MW        |      | 0            |
| Controllable and Dispatchable DR      | MW        |      | 235          |
| Controllable and Dispatchable BTM Gen | MW        |      | 2            |
| <b>Net Peak Demand</b>                | <b>MW</b> |      | <b>5,171</b> |
| Requirements Summary                  |           |      |              |
| <b>Resource Adequacy Requirement</b>  | <b>MW</b> |      | <b>5,792</b> |
| Excess Capacity                       | MW        |      | 205          |
| <b>Deficient Capacity</b>             | <b>MW</b> |      | <b>0</b>     |
| LRE planning reserve margin           | %         |      | 15.97        |
| Planning Reserve Margin               | %         |      | 12.00        |



## KANSAS MUNICIPAL ENERGY AGENCY – EMP1



| Capacity Summary                      |           | Unit | 2019      |
|---------------------------------------|-----------|------|-----------|
| Capacity Resources                    | MW        |      | 79        |
| Firm Capacity Purchases               | MW        |      | 6         |
| Firm Capacity Sales                   | MW        |      | 19        |
| External Firm Power Purchases         | MW        |      | 2         |
| External Firm Power Sales             | MW        |      | 0         |
| Confirmed Retirements                 | MW        |      | 0         |
| <b>Total Capacity</b>                 | <b>MW</b> |      | <b>68</b> |
| Demand Summary                        |           |      |           |
| Forecasted Peak Demand                | MW        |      | 105       |
| Internal Firm Power Sales             | MW        |      | 0         |
| Internal Firm Power Purchases         | MW        |      | 36        |
| Controllable and Dispatchable DR      | MW        |      | 0         |
| Controllable and Dispatchable BTM Gen | MW        |      | 27        |
| <b>Net Peak Demand</b>                | <b>MW</b> |      | <b>42</b> |
| Requirements Summary                  |           |      |           |
| <b>Resource Adequacy Requirement</b>  | <b>MW</b> |      | <b>47</b> |
| Excess Capacity                       | MW        |      | 21        |
| <b>Deficient Capacity</b>             | <b>MW</b> |      | <b>0</b>  |
| LRE planning reserve margin           | %         |      | 62.61     |
| Planning Reserve Margin               | %         |      | 12.00     |



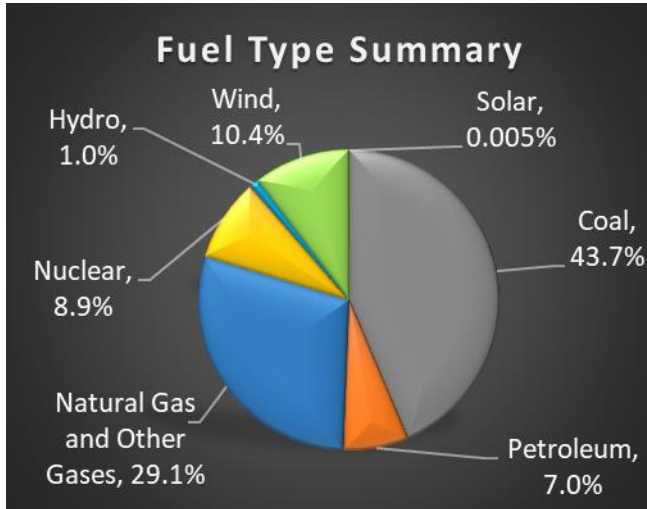
# **2020 SPP RESOURCE ADEQUACY REPORT**

Published on June 15, 2020

SPP Resource Adequacy



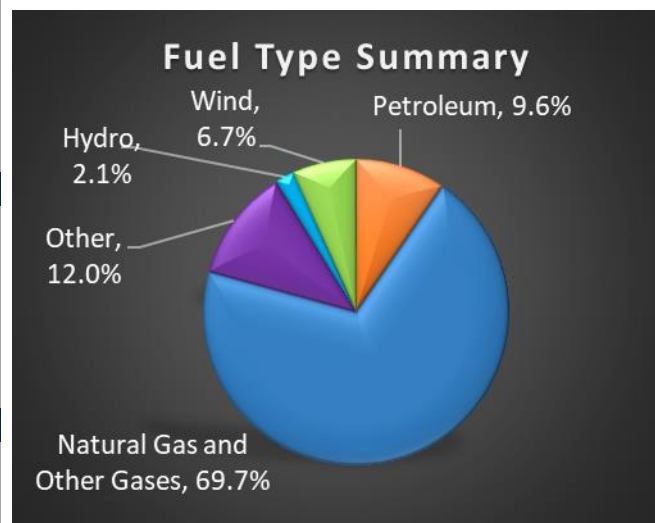
## KANSAS CITY POWER AND LIGHT



| Capacity Summary                      |           | Unit | 2020         |
|---------------------------------------|-----------|------|--------------|
| Capacity Resources                    | MW        |      | 5,634        |
| Firm Capacity Purchases               | MW        |      | 686          |
| Firm Capacity Sales                   | MW        |      | 67           |
| External Firm Power Purchases         | MW        |      | 0            |
| External Firm Power Sales             | MW        |      | 0            |
| Confirmed Retirements                 | MW        |      | 97           |
| <b>Total Capacity</b>                 | <b>MW</b> |      | <b>6,155</b> |
| Demand Summary                        |           |      |              |
| Forecasted Peak Demand                | MW        |      | 5,450        |
| Internal Firm Power Sales             | MW        |      | 0            |
| Internal Firm Power Purchases         | MW        |      | 0            |
| Controllable and Dispatchable DR      | MW        |      | 159          |
| Controllable and Dispatchable BTM Gen | MW        |      | 0            |
| <b>Net Peak Demand</b>                | <b>MW</b> |      | <b>5,291</b> |
| Requirements Summary                  |           |      |              |
| <b>Resource Adequacy Requirement</b>  | <b>MW</b> |      | <b>5,925</b> |
| Excess Capacity                       | MW        |      | 230          |
| <b>Deficient Capacity</b>             | <b>MW</b> |      | <b>0</b>     |
| LRE planning reserve margin           | %         |      | 16.35        |
| Planning Reserve Margin               | %         |      | 12.00        |

## KANSAS MUNICIPAL ENERGY AGENCY – EMP1

| Capacity Summary                      |           | Unit | 2020      |
|---------------------------------------|-----------|------|-----------|
| Capacity Resources                    | MW        |      | 79        |
| Firm Capacity Purchases               | MW        |      | 6         |
| Firm Capacity Sales                   | MW        |      | 0         |
| External Firm Power Purchases         | MW        |      | 2         |
| External Firm Power Sales             | MW        |      | 0         |
| Confirmed Retirements                 | MW        |      | 0         |
| <b>Total Capacity</b>                 | <b>MW</b> |      | <b>87</b> |
| Demand Summary                        |           |      |           |
| Forecasted Peak Demand                | MW        |      | 106       |
| Internal Firm Power Sales             | MW        |      | 0         |
| Internal Firm Power Purchases         | MW        |      | 36        |
| Controllable and Dispatchable DR      | MW        |      | 0         |
| Controllable and Dispatchable BTM Gen | MW        |      | 28        |
| <b>Net Peak Demand</b>                | <b>MW</b> |      | <b>41</b> |
| Requirements Summary                  |           |      |           |
| <b>Resource Adequacy Requirement</b>  | <b>MW</b> |      | <b>46</b> |
| Excess Capacity                       | MW        |      | 40        |
| <b>Deficient Capacity</b>             | <b>MW</b> |      | <b>0</b>  |
| LRE planning reserve margin           | %         |      | 109.81    |
| Planning Reserve Margin               | %         |      | 12.00     |





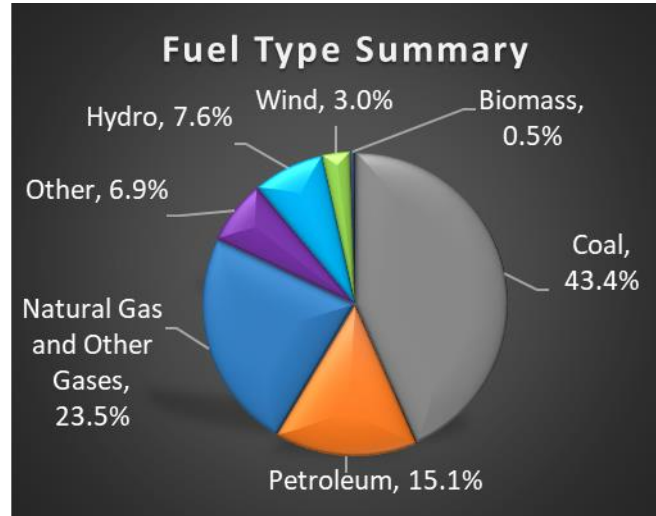
# **2021 SPP RESOURCE ADEQUACY REPORT**

Published on June 15, 2021

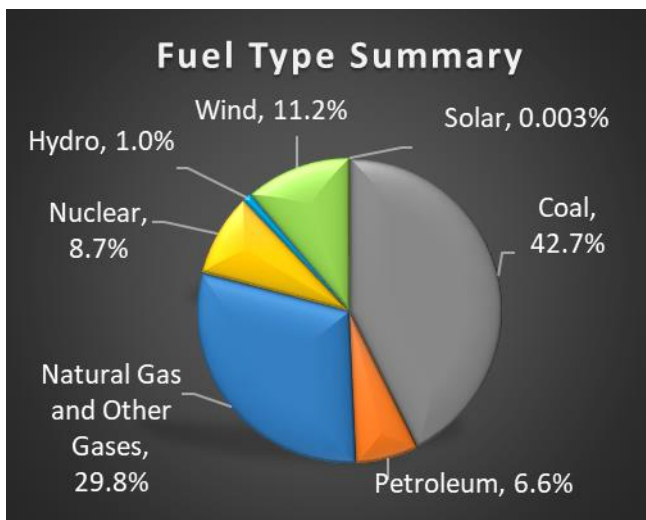
SPP Resource Adequacy

## KANSAS CITY BOARD OF PUBLIC UTILITIES

| Capacity Summary                     |           | Unit | 2021         |
|--------------------------------------|-----------|------|--------------|
| Capacity Resources                   | MW        |      | 518          |
| Firm Capacity Purchases              | MW        |      | 20           |
| Firm Capacity Sales                  | MW        |      | 0            |
| External Firm Power Purchases        | MW        |      | 43           |
| External Firm Power Sales            | MW        |      | 5            |
| Confirmed Retirements                | MW        |      | 0            |
| <b>Total Capacity</b>                | <b>MW</b> |      | <b>576</b>   |
| Demand Summary                       |           |      |              |
| Forecasted Peak Demand               | MW        |      | 456          |
| Internal Firm Power Sales            | MW        |      | 0            |
| Internal Firm Power Purchases        | MW        |      | 0            |
| Controllable and Dispatchable DR     | MW        |      | 0            |
| <b>Net Peak Demand</b>               | <b>MW</b> |      | <b>456</b>   |
| Requirements Summary                 |           |      |              |
| <b>Resource Adequacy Requirement</b> | <b>MW</b> |      | <b>511</b>   |
| Excess Capacity                      | MW        |      | 65           |
| <b>Deficient Capacity</b>            | <b>MW</b> |      | <b>0</b>     |
| LRE planning reserve margin          | %         |      | <b>26.28</b> |
| Planning Reserve Margin              | %         |      | 12.00        |



## KANSAS CITY POWER AND LIGHT



| Capacity Summary                     |           | Unit | 2021         |
|--------------------------------------|-----------|------|--------------|
| Capacity Resources                   | MW        |      | 5,615        |
| Firm Capacity Purchases              | MW        |      | 748          |
| Firm Capacity Sales                  | MW        |      | 193          |
| External Firm Power Purchases        | MW        |      | 0            |
| External Firm Power Sales            | MW        |      | 0            |
| Confirmed Retirements                | MW        |      | 0            |
| <b>Total Capacity</b>                | <b>MW</b> |      | <b>6,169</b> |
| Demand Summary                       |           |      |              |
| Forecasted Peak Demand               | MW        |      | 5,444        |
| Internal Firm Power Sales            | MW        |      | 0            |
| Internal Firm Power Purchases        | MW        |      | 0            |
| Controllable and Dispatchable DR     | MW        |      | 181          |
| <b>Net Peak Demand</b>               | <b>MW</b> |      | <b>5,263</b> |
| Requirements Summary                 |           |      |              |
| <b>Resource Adequacy Requirement</b> | <b>MW</b> |      | <b>5,895</b> |
| Excess Capacity                      | MW        |      | 274          |
| <b>Deficient Capacity</b>            | <b>MW</b> |      | <b>0</b>     |
| LRE planning reserve margin          | %         |      | <b>17.22</b> |
| Planning Reserve Margin              | %         |      | 12.00        |



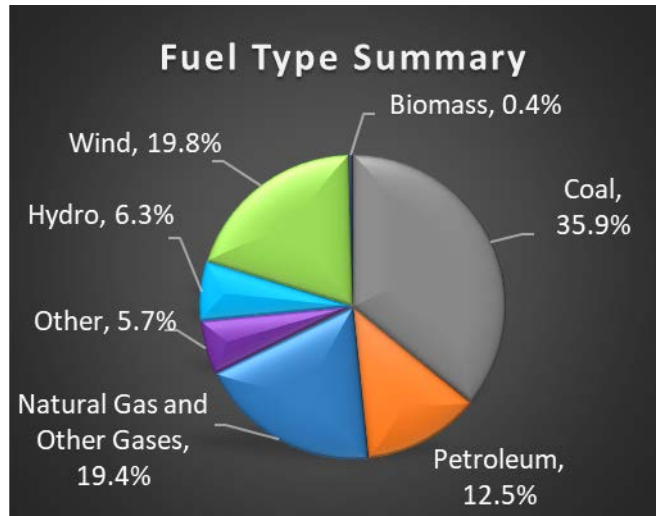
# **2022 SPP RESOURCE ADEQUACY REPORT**

Published on June 15, 2022

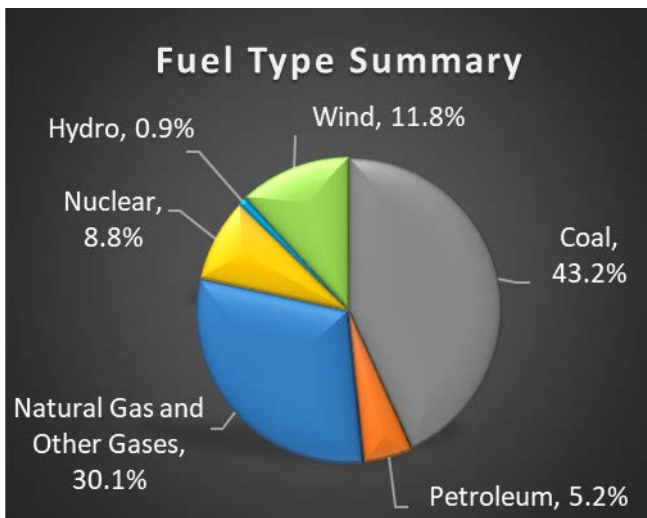
SPP Resource Adequacy

## KANSAS CITY BOARD OF PUBLIC UTILITIES

| Capacity Summary                     |           | Unit | 2022         |
|--------------------------------------|-----------|------|--------------|
| Capacity Resources                   | MW        |      | 518          |
| Firm Capacity Purchases              | MW        |      | 141          |
| Firm Capacity Sales                  | MW        |      | 0            |
| External Firm Power Purchases        | MW        |      | 43           |
| External Firm Power Sales            | MW        |      | 5            |
| Confirmed Retirements                | MW        |      | 0            |
| <b>Total Capacity</b>                | <b>MW</b> |      | <b>697</b>   |
| Demand Summary                       |           |      |              |
| Forecasted Peak Demand               | MW        |      | 459          |
| Internal Firm Power Sales            | MW        |      | 0            |
| Internal Firm Power Purchases        | MW        |      | 0            |
| Controllable and Dispatchable DR     | MW        |      | 0            |
| <b>Net Peak Demand</b>               | <b>MW</b> |      | <b>459</b>   |
| Requirements Summary                 |           |      |              |
| <b>Resource Adequacy Requirement</b> | <b>MW</b> |      | <b>514</b>   |
| Excess Capacity                      | MW        |      | 183          |
| <b>Deficient Capacity</b>            | <b>MW</b> |      | <b>0</b>     |
| LRE planning reserve margin          | %         |      | <b>51.82</b> |
| Planning Reserve Margin              | %         |      | 12.00        |



## KANSAS CITY POWER & LIGHT



| Capacity Summary                     |           | Unit | 2022         |
|--------------------------------------|-----------|------|--------------|
| Capacity Resources                   | MW        |      | 5,522        |
| Firm Capacity Purchases              | MW        |      | 767          |
| Firm Capacity Sales                  | MW        |      | 55           |
| External Firm Power Purchases        | MW        |      | 0            |
| External Firm Power Sales            | MW        |      | 0            |
| Confirmed Retirements                | MW        |      | 0            |
| <b>Total Capacity</b>                | <b>MW</b> |      | <b>6,234</b> |
| Demand Summary                       |           |      |              |
| Forecasted Peak Demand               | MW        |      | 5,389        |
| Internal Firm Power Sales            | MW        |      | 0            |
| Internal Firm Power Purchases        | MW        |      | 0            |
| Controllable and Dispatchable DR     | MW        |      | 0            |
| <b>Net Peak Demand</b>               | <b>MW</b> |      | <b>5,389</b> |
| Requirements Summary                 |           |      |              |
| <b>Resource Adequacy Requirement</b> | <b>MW</b> |      | <b>6,036</b> |
| Excess Capacity                      | MW        |      | 198          |
| <b>Deficient Capacity</b>            | <b>MW</b> |      | <b>0</b>     |
| LRE planning reserve margin          | %         |      | <b>15.68</b> |
| Planning Reserve Margin              | %         |      | 12.00        |