



MISSOURI PUBLIC SERVICE COMMISSION

SCHEDULE CGF-1 through 10

**Rebuttal Testimony of
Cary G. Featherstone**

KCP&L GREATER MISSOURI OPERATIONS COMPANY

CASE NO. ER-2016-0156

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KCP&L Greater Missouri Operations Company
Case No. ER-2016-0156
Electric Rate Comparisons

The following tables are based on information from the *Edison Electric Institute's Typical Bills and Average Rates Report Winter 2016* publication for Total Retail Average Rates:

Utility Company	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
MISSOURI RETAIL AVERAGE RATES											
KCPL-Missouri	9.34 cents/kwh	8.89	8.78 Jan 26, 2013 ER- 2012- 0174 and ER- 2012- 0175	8.23	8.01 May 4, 2011 ER- 2010- 0355	7.69	6.88	6.51 Feb 1 ER- 2007- 0291	6.14 Feb 1 ER- 2006- 0314	5.66	5.65
MPS	9.93	9.56	9.51	9.48	9.31	9.09	8.36	7.79	7.33	6.85	6.45
L&P	9.35	9.14	9.10	8.49	7.34	6.75	6.34	5.93	5.63	5.30	5.20
Ameren Missouri	8.53	8.02	8.12	7.36	7.16	6.48	5.95	5.43	5.46	5.43	5.49
Empire-Missouri	11.09	11.00	10.65	10.35	10.07	8.96	8.45	8.18	8.03	7.33	7.09
Missouri Average	9.01	8.56	8.58	7.96	7.72	7.11	6.55	6.04	5.93	5.74	5.71
KANSAS RETAIL AVERAGE RATES											
KCPL-Kansas	10.99	10.40	10.42	9.87	9.43	8.57	8.06	7.46	6.73	6.35	6.32
Empire - Kansas	10.76	10.39	10.15	10.48	10.11	9.25	8.41	8.69	8.61	8.06	6.54
Westar Energy -- KGE	9.43	9.54	8.87	8.42	7.90	7.46	7.13	6.32	5.73	6.04	6.03
Westar Energy -- KPL	10.06	10.17	9.42	8.99	8.28	8.15	7.82	6.92	6.06	6.25	5.58
Kansas Average	10.06	9.99	9.46	9.00	8.43	8.00	7.62	6.84	6.12	6.35	6.14
West North Central	8.95	8.70	8.56	8.06	7.82	7.53	7.14	6.81	6.51	6.38	6.17
United States Average	10.71	10.73	10.37	10.09	10.09	9.97	9.83	9.77	9.20	8.89	8.22

Source: EEI Winter 2010 Report, page 180 provided Data Request 380- ER-2010-0355
 EEI Winter 2012 Report, page 180 provided Data Request 241- ER-2012-0174
 EEI Winter 2014 Report, page 179; EEI Winter 2015 Report, page 178;
 EEI Winter 2016 Report, page 178

The following table shows such a comparison of KCPL's actual **Residential** customer rates as of December 31, 2015:

MISSOURI AND KANSAS RESIDENTIAL RATES – in cents per kilowatt hour											
Utility Company	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
MISSOURI RESIDENTIAL RATES											
KCPL-Missouri	11.63	10.99	10.82	10.30	9.90	9.53	8.51	8.14	7.61	6.90	6.88
MPS	11.78	11.20	11.17	11.21	10.81	10.52	9.67	9.10	8.64	8.08	7.45
L&P	11.23	10.80	10.81	10.24	8.64	7.97	7.43	7.03	6.78	6.31	5.97
Ameren Missouri	10.89	9.97	10.11	9.30	8.80	7.82	7.03	6.53	6.60	6.60	6.52
Empire-Missouri	12.65	12.27	11.90	11.74	11.22	9.95	9.75	9.19	9.10	8.35	7.98
Missouri Average	11.25	10.47	10.50	9.89	9.39	8.54	7.77	7.27	7.18	6.96	6.77
KANSAS RESIDENTIAL RATES											
KCPL-Kansas	12.30	11.58	11.57	11.09	10.58	9.67	9.07	8.43	7.43	6.92	6.88
Empire - Kansas	11.40	10.94	10.72	11.03	10.53	9.65	8.97	9.26	9.20	8.69	7.11
Westar Energy -- KGE	12.04	12.04	11.16	10.68	9.92	9.46	8.84	7.84	7.29	7.72	7.74
Westar Energy -- KPL	12.11	12.08	11.18	10.70	9.93	9.55	9.17	8.07	7.16	7.36	6.69
Kansas Average	12.13	11.90	11.29	10.81	10.12	9.56	9.03	8.12	7.31	7.51	7.27
West North Central	11.54	11.01	10.82	10.35	9.91	9.40	8.79	8.37	8.13	7.99	7.70
United States Average	12.95	12.71	12.43	12.20	12.07	12.01	11.72	11.53	10.95	10.6	9.60

Source: EEI Winter 2010 Report, page 212 provided Data Request 380- ER-2010-0355
 EEI Winter 2012 Report, page 212 provided Data Request 241- ER-2012-0174
 EEI Winter 2014 Report, page 212; EEI Winter 2015 Report, page 212
 EEI Winter 2016 Report, page 212

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The following table shows such a comparison of KCPL’s actual **Commercial** customer rates as of December 31, 2015:

MISSOURI AND KANSAS COMMERCIAL RATES – in cents per kilowatt hour											
Utility Company	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
MISSOURI COMMERCIAL RATES											
KCPL-Missouri	8.96 cents/kwh	8.51	8.37	7.79	7.62	7.31	6.56	6.22	5.92	5.49	5.48
MPS	8.94	8.63	8.57	8.49	8.45	8.25	7.62	7.08	6.59	6.16	5.94
L&P	9.39	9.21	9.12	8.46	7.36	6.69	6.26	5.86	5.51	5.26	5.37
Ameren Missouri	8.12	7.72	7.81	7.02	6.92	6.29	5.71	5.34	5.34	5.32	5.29
Empire-Missouri	10.91	10.93	10.58	10.25	9.94	8.82	8.60	8.13	7.96	7.32	7.08
Missouri Average	8.57	8.21	8.20	7.55	7.40	6.85	6.26	5.87	5.74	5.56	5.50
KANSAS COMMERCIAL RATES											
KCPL-Kansas	9.91	9.40	9.44	8.93	8.38	7.57	7.20	6.62	6.13	5.90	5.87
Empire - Kansas	11.84	11.44	11.18	11.59	11.21	10.27	9.48	9.62	9.61	9.19	7.64
Westar Energy -- KGE	9.51	9.73	8.95	8.46	7.97	7.57	7.31	6.66	6.03	6.38	6.29
Westar Energy -- KPL	9.49	9.64	8.90	8.45	7.99	7.64	7.33	6.54	5.68	5.89	5.22
Kansas Average	9.63	9.60	9.08	8.61	8.12	7.61	7.30	6.61	5.93	6.24	5.96
West North Central	9.01	8.80	8.60	8.07	7.83	7.50	7.01	6.75	6.51	6.38	6.17
United States Average	10.87	10.94	10.52	10.19	10.20	10.21	10.03	10.05	9.53	9.33	8.54

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Source: EEI Winter 2010 Report, page 246 provided Data Request 380- ER-2010-0355
 EEI Winter 2012 Report, page 244 provided Data Request 241- ER-2012-0174
 EEI Winter 2014 Report, page 245; EEI Winter 2015 Report, page 244
 EEI Winter 2016 Report, page 244

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The following table shows such a comparison of KCPL's and GMO's actual **Industrial** customer rates as of December 31, 2015:

MISSOURI AND KANSAS INDUSTRIAL-in cents per kilowatt hour											
Utility Company	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
MISSOURI INDUSTRIAL RATES											
KCPL-Missouri	6.75	6.44	6.46	5.99	5.83	5.57	5.13	4.77	4.47	4.21	4.23
MPS	6.61	6.47	6.40	6.27	6.28	6.26	5.82	5.34	4.89	4.58	4.49
L&P	7.11	6.98	6.96	6.47	5.61	5.16	4.96	4.60	4.26	3.98	3.97
Ameren Missouri	5.48	5.34	5.45	4.85	4.87	4.46	4.30	3.87	3.89	3.96	4.05
Empire-Missouri	8.27	8.33	8.07	7.72	7.72	6.89	6.60	6.19	6.08	5.51	5.41
Missouri Average	5.99	5.83	5.88	5.35	5.30	4.90	4.73	4.26	4.18	4.14	4.61
KANSAS INDUSTRIAL RATES											
KCPL-Kansas	9.29	8.79	8.16	6.65	7.95	7.06	6.73	6.15	5.50	5.15	5.15
Empire - Kansas	8.49	8.20	7.92	8.25	8.26	7.42	7.01	6.97	6.94	6.32	5.02
Westar Energy -- KGE	6.95	7.04	6.63	6.30	5.89	5.47	5.34	4.78	4.17	4.36	4.32
Westar Energy -- KPL	7.84	8.02	7.45	7.14	6.84	6.50	6.31	5.62	4.83	5.01	4.40
Kansas Average	7.40	7.49	7.00	6.62	6.34	5.91	5.75	5.15	4.49	4.77	4.65
West North Central	6.30	6.20	6.10	5.68	5.62	5.48	5.38	5.21	4.83	4.76	4.52
United States Average	6.97	7.21	6.91	6.60	6.64	6.71	6.63	6.66	6.15	6.00	5.62

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Source: EEI Winter 2010 Report, page 278 provided Data Request 380- ER-2010-0355
 EEI Winter 2012 Report, page 276 provided Data Request 241- ER-2012-0174
 EEI Winter 2014 Report, page 278; EEI Winter 2015 Report, page 276
 EEI Winter 2016 Report, page 276

CROSSROADS ENERGY CENTER

Summary Crossroads

It wasn't the building of Crossroads as a merchant power plant in 2002 that made the unit imprudent, it was the subsequent attempt by GMO to charge its customers for the full cost of the value of the plant by Aquila Merchant Services Inc. ("Aquila Merchant") and the high transmission costs to transmit the energy generated by that plant to western Missouri that made Crossroads imprudent. It was the imprudence of GMO's capacity planning that resulted in the use of Crossroads to serve the Company's customers in western Missouri causing unnecessary and excessive costs. Had GMO acted appropriately to add permanent capacity to its system to serve growing customer usage, the Commission would not be placed in the position it has since the 2001 GMO rate case to continually reviewing the revenue requirement impacts to GMO's customers from its failure to adequately plan for the future. Aquila had many opportunities to add new generating capacity at reduced costs compared to Crossroads' construction costs.

The Commission in its past two GMO rate orders addressing this issue, made it clear that while Crossroads could be included in rate base, it would be reflected at a reduced cost level the Commission found to better represent prudent utility decision-making. The Commission disallowed inflated costs of building Crossroads in 2002, when the turbine market was at much higher prices than just a couple of years later when GMO needed to replace a capacity agreement that was ending in May 2005. Because the Crossroads plant was located in Mississippi, several hundred miles from where GMO's customers live and work, the Company had to incur significant and substantial costs to get the power back to the Kansas City area. It was the attempt by GMO to saddle its customers with these transmission costs, as well as the higher Crossroads plant costs, that the Commission determined was imprudent in Case No. ER-2010-0356 (the "2010 rate case") and Case No. ER-2012-0175 (the "2012 rate case").

Staff has been examining capacity planning issues at GMO (Aquila) since 1999, specific to the issues surrounding the combined cycle unit and the purchased power agreement that terminated in May 2005. Staff concluded that this 500 megawatts capacity from this agreement was never completely replaced by GMO until 2008, when the Company moved Crossroads from an unregulated affiliate into its regulated plant investment. Staff opposed the inclusion of the cost of Crossroads at the rate base values in proposed by GMO, as it was not the least-cost planning decision, and the plant is located in the state of Mississippi, several hundred miles and over nine (9) hours from GMO's service territory. Further, because this plant is located outside the Southwest Power Pool, GMO must incur substantial transmission costs that it is asking customers to pay for. No other power plant owned by either GMO or its affiliate, KCPL, results in transmission costs to transmit power to the service areas of these two entities. All other power

**** Denotes Highly Confidential Information ****

plant facilities operated by GMO and KCPL are located within SPP. As such, these other power plants do not incur any transmission costs to transmit electricity to GMO and KCPL customers.

The least cost planning decision for ratemaking in this case should be focused on the events surrounding the time period of 2004 and 2005 when GMO (Aquila) was deciding how to replace the full 500 megawatt capacity from a purchased power agreement that expired before the summer of 2005 (May 31, 2005), not the period suggested by GMO of 2007 and beyond. GMO is misdirecting the Commission to the wrong time horizon when it states that Crossroads was the least cost option when it studied it in 2007 and after.¹

In February 2004, GMO conducted a least cost study that concluded it should install five combustion turbines, each with the capacity of 105 megawatts, or a total generating station of 525 megawatts. GMO constructed three of these peaking turbines (315 megawatts) but failed to install the other two turbines from its capacity planning analysis. Not following this planning analysis lead to the short fall in generating capacity in 2005 when the Aries purchased power agreement (the Aries PPA) terminated on May 31, 2005.

The three combustion turbines that were installed in June 2005 are the South Harper facility. This peaking generating station was the first regulated generating capacity that GMO (Aquila) built since 1983. Between 1983 and 2005, GMO relied on short-term purchased power agreements to meet the growing demand for electricity in its MPS rate district. South Harper replaced only 315 megawatts of the 500 megawatt Aries purchase power agreement that ended May 31, 2005. Staff viewed Aquila should have installed at least two other combustion turbines to meet the loss of capacity from the Aries PPA. This PPA was supplied by Aries Energy Center (now called Dogwood). Aires is a 580-megawatt combined cycle natural-gas fired generating unit completed in 2002 that was built by a wholly-owned affiliate of Aquila called Aquila Merchant.

Had Aquila followed its 2004 least cost plan, it had many buying opportunities to acquire new combustion turbines at depressed market pricing. Aquila also had several combustion turbines under its ownership control that could have been used by the capacity short MPS to fill out the replacement of the Aries PPA. In addition, Aquila had many combustion turbines already in service that could have been moved to MPS' service area at very attractive pricing.

GMO has examined many options regarding the regulatory treatment of Crossroads. One of many options reviewed by GMO was the possibility of ** _____

¹ GMO witness Burton Crawford's direct at pages 15 and 17 and Scott Heidtbrink's direct at page 12

² ** Historically, natural gas costs are

less expensive in the Kansas City area. Certainly, incorporating Crossroads within KCPL's and GMO's other combustion turbine fleet operations by relocating the facility to Missouri would enhance GMO's ability to manage this facility providing many benefits. Those would include shared labor force for operations and maintenance using KCPL personnel. So there are other operating efficiencies and benefits to ** _____ ** Crossroads.

Aquila failed to take advantage of these many buying opportunities in a very depressed turbine market that resulted in substantial costs to MPS for many years, past and present.

AQUILA'S PAST CAPACITY PLANNING

Staff has presented testimony on Crossroads in every rate case filing made by GMO since its acquisition by Great Plains in July 2008. I have personally filed testimony on the Crossroads issue in each of those cases— Case No. ER-2009-0090, (the "2009 rate case"), the 2010 rate case and 2012 rate case. In addition, I have represented Staff in every rate case filed by the predecessor company, Aquila and the previously named UtiliCorp, from 1997 to 2007 rate cases concerning various aspects of capacity planning.

The following is a table of Staff's involvement with Aquila's and GMO's previous rate cases where either Crossroads specifically was considered or capacity planning was addressed:

Case No.	Subject	Rate Base Issue	Cost Issue
ER-2012-0175	Crossroads	Prudence of Investment Valuation	Transmission Costs and Depreciation Costs
ER-2010-356	Crossroads Adding Capacity with two combustion turbines	Prudence of Investment Valuation	Transmission Costs and Depreciation Costs
ER-2009-0090	Crossroads	Prudence of Investment Valuation	Transmission Costs and Depreciation Costs
ER-2007-0004	Adding Capacity with two combustion turbines	Prudence of Adding Owned Generation instead of PPAs	Operation and Maintenance Costs and Depreciation Costs

² Highly Confidential Data Request No. 0261, Case No. ER-2016-0156

Case No.	Subject	Rate Base Issue	Cost Issue
ER-2005-0436	Adding Capacity with two combustion turbines in addition to inclusion of the three South Harper CTs	Prudence of Adding Owned Generation instead of PPAs	Operation and Maintenance Costs and Depreciation Costs
ER-2004-0034	Opposed full cost recovery of Aries PPA Greenwood Rate Base	Prudence of Adding Owned Generation instead of PPAs	N/A
ER-2001-672	Opposed full cost recovery of Aries PPA Greenwood Rate Base	Prudence of Adding Owned Generation instead of PPAs	N/A
EM-97-395	Opposed removing all generating units to Exempted Wholesale Generator	Prudence of transferring generating units to non-regulated affiliated entity	N/A

Crossroads is but one of many issues Staff has had with GMO and its predecessor companies relating to capacity planning. However, there is similar background for all the identified issues above. Aquila had an unwritten policy to not build generation for its regulated utilities, specifically MPS and did not do so from 1983 until the 315 megawatt natural gas fired combustion turbine South Harper facility was installed in June 2005.

AQUILA LEASE COST ANALYSIS FOR CAPACITY PLANNING OPTIONS

In this 2016 rate case, GMO has cited to a 2007 least cost analysis it performed to support its position regarding using Crossroads as a regulated generating facility. While Aquila performed what it referred to as a 2007 least cost study, Aquila also performed a least cost plan in 2004 to support capacity addition in 2005 to replace the Aries PPA.

As part of Aquila's commitment to its resource planning process, it presented findings from its least cost planning study in February 2004. This analysis was based on responses Aquila received from Request for Proposals (RFP's) (similar to the RFP process GMO used to support its Crossroads decision in 2007). The 2004 analysis concluded that the least cost plan to replace the Aries purchased power agreement was to construct and install five combustion turbines, each sized at 105 megawatts, for a total of 525 megawatts of capacity.

Attached as Highly Confidential Schedule CGF-r8 is Aquila's 2004 integrated resource planning presentation regarding its Resource Planning that is dated February 9, 2004.

In 2004, Aquila decided not to build the five combustion turbines found to be economical by the 2004 cost study, opting to build only three peaking turbines instead. After the Aries capacity agreement ended May 31, 2005, Aquila completed construction of three combustion turbines at its South Harper facility. This facility was originally sized to accommodate up to six combustion turbines of at least the size of the Siemens model 501 D, each having 105 megawatts of capacity. In addition to the facility being sized for six units, the natural gas pipelines were installed to provide sufficient fuel to operate six units. Installation of the three combustion turbines totaling 315 megawatts of capacity was completed in June and July of 2005.

When Aquila developed its capacity plan and presented it to Staff in January 2004, Aquila determined that its least cost plan was to install five combustion turbines, not three. At the February 9, 2004, IRP meeting, Aquila's lowest cost plan, on a net present value revenue requirements over a 20-year period, identified replacing the Aries Agreement by constructing five combustion turbines totaling 525 megawatts, instead of the three totaling 315 megawatts that they installed at the South Harper facility.

Staff asked Aquila why it was not pursuing its least cost plan, and instead decided to install only three turbines. Aquila indicated that it only had three combustion turbines in storage at the time and planned to use them in its preferred plan. With its preferred plan, Aquila would make up the capacity shortfall resulting from the expiration of the Aries Agreement with purchased power agreements.

The impact on Aquila's decision not to add the necessary capacity to replace the Aries power agreement in 2005 is that Aquila could have added generating capacity at significantly discounted turbine prices. Turbine market prices were low in 2004 to 2005, and Aquila's non-regulated operations had turbines that it was selling then for even lower than market prices. Aquila missed a tremendous opportunity to add low cost generation to its fleet resulting in an improper and imprudent decision years later to include the higher cost Crossroads facility in rate base.

Had Aquila built its least cost plan of five combustion turbines in MPS' service area, there would be no transmission costs that customers would have to pay in rates. Equally important, Aquila needed to add this capacity in 2005, at a time when combustion turbines were selling at steep discounts. So the rate base values of generating plant added in 2005 would have reflected the discounted turbine pricing, not the value GMO attempted to include in rates for Crossroads in the 2009, 2010 and 2012 rate cases.

Replacing the Aries PPA in June 2005 came at a time when new combustion turbines were selling at deep discounts after the collapse of the energy markets following the bankruptcy of Enron and the financial troubles of Aquila starting in late 2001 and early 2002.

- Aquila could have purchased new combustion turbines for several million dollars below those purchased just a few years earlier. In fact, Crossroads turbines were

purchased at a time of high turbine prices in 2001 which was described by Aquila as a “brutal sellers’ market.”³

- Aquila also had ownership control of new peaking turbines that had not been installed and three generating facilities, one of which was Crossroads that could have been used to meet the capacity short fall of MPS when the Aries PPA ended.

Aquila Had Many Opportunities to Replace Aries PPA with Least Cost Options

While MPS was never offered any of the distressed combustion turbines owned by Aquila, it certainly had many opportunities to take advantage of buying of peaking turbines in the 2003, 2004 and 2005 time periods.

With the collapse of the turbine market and the discontinuing of merchant operations of Aquila Merchant in 2002, presented great opportunities to acquire generating equipment at much less cost-- certainly less cost than any time period studied by GMO which reflected substantial cost increases for equipment after 2006. Aquila had many buying opportunities for combustion turbines in 2003 and 2004 that exactly coincided when MPS need for capacity for its customers. Indeed, Aquila missed an opportunity to acquire generating assets for MPS at very attractive pricing.

New Combustion Turbines in 2004 and 2005-

The costs of combustion turbine acquisition and installation in 2005 are substantially different than in the 2007, 2008 or 2009 time periods. For the Aries capacity replacement to have occurred by May 2005, Aquila would have had to have purchased the turbine equipment by 2004. As noted above, the combustion turbine market in 2004 was completely different than the market during 2007 and 2008 when GMO made its analysis and concluded that Crossroads was the least cost decision. Prices in the 2004 turbine market were much lower than in the 2001 turbine market when Aquila originally purchased the turbines installed at Crossroads. Thus, the book cost Crossroads turbine values are higher compared to what they would be if they, or comparable turbines, had been purchased in 2004.

COMBUSTION TURBINE VALUES EXPERIENCED SIGNIFICANT DECREASES IN 2004 AND 2005

At exactly the time Aquila to replace the Aries PPA in 2005, tremendous buying opportunities existed to acquire very reasonably priced turbines. Aquila did not take advantage of this buying opportunity and suffers today as GMO tries to deal with ever increasing

³ Source: Data Request No. 56.1 in Case No. EO-2005-0156; April 29, 2005 interview of David Kreimer Aquila’s former Director of Engineering

transmission costs at Crossroads. Had Aquila acquired new turbines in 2005 or acquired turbines under the ownership control of Aquila, Crossroads would not be needed today to meet capacity short MPS needs. Thus, no transmission costs would be incurred from a power plant located outside the Southwest Power Pool RTO.

When GMO conducted its 2007 and 2009 studies in attempt to justify Crossroads, combustion turbine prices went up after the time when GMO should have decided in 2004 to replace the capacity it was obtaining from the 2005 Aries capacity agreement. Staff reviewed the pricing of combustion turbines in its examination of Aquila's and GMO's capacity planning. It is clear from this review, turbines prices declined significantly in 2003 and 2004 from when the Crossroads turbines were purchased in 2001.

As in previous GMO rate cases, Staff reviewed the industry publication Gas Turbine World for years 2007-2010, 2012, 2013 and 2015 (KCPL did not have the 2011 or 2014 books) In the 2007-2008 GTW Handbook, Gas Turbine World reports that turbine prices increased 20 to 30 % over their 2006 levels. At page 29 of this industry publication the following appears:

Seeing dramatic increase in prices

During the past 18 months we have seen power plant equipment prices increase by as much as 20-30 percent over pre-2006 levels. Meanwhile delivery schedules have stretched out to 16-18 months from 12 months or less, as growing demand puts strain on available manufacturing capacity.

Special orders that require additional engineering can add seven months of lead time.

The rise in equipment price levels since 2006 has been driven by a worldwide increase in cost of materials, higher manufacturing costs, and growing market demand.

Over the last few years, copper has more than tripled to \$3.40 per pound from around \$1, molybdenum six-fold to \$31 per pound from around \$5, aluminum almost doubled to \$2,800 per ton from \$1,500, and nickel almost quadrupled to \$31,000 per ton form \$8,000.

Staff's reviews of Gas Turbine World identified that General Electric's new model that replaced the 7 EA model that is installed at Crossroads is valued at \$19.5 million in the 2007-2008 GTW Handbook, the time that GMO would have examined the price of turbines for the 2007 cost study, and \$25.9 million in the 2009 GTW Handbook, a time when GMO would have conducted its analysis of the value of Crossroads. This indicates that turbine prices in the 2007 and 2008 time period show substantial increases over the prices when Aquila should have installed additional combustion turbines to meet the capacity needs of its MPS customers back in 2005.

The General Electric 7 EA model combustion turbines were valued less in the 2004 time period. At a time when Aquila should have added capacity in 2005, the General Electric 7EA models were significantly less costly than the General Electric 7 EA models Aquila Merchant Services purchased in 2001 and installed at Crossroads in Mississippi. Gas Turbine World reported in its 2004-2005 Handbook that these units were selling for \$14.8 million apiece. The 2003 price was \$16.6 million and the 2000-2001 price was \$21 million. This compares to the actual Crossroads book value of ** ____ ** million each. The volatility of the natural gas market exacerbated the decline in sales of gas-fired generation caused by the implosion of the merchant energy market during 2002 to 2005. This was an ideal time to purchase capacity, if a utility needed capacity, which Aquila did.

In 2006, the price for the General Electric 7 EAs (new model PG7121(EA)) had gone up to \$19.2 million according to the 2006 Gas Turbine World Handbook.

The costs of the turbines installed at Crossroads were much higher than those turbines that could have been purchased in 2004 and 2005 time frame. The Crossroads turbines were purchased in 2001 at a price of ** ____ ** million per turbine. Comparisons of the 2001 price to later valuations of that same turbine model over several years appear in the following table:

Year of Gas Turbine World	General Electric Model 7EA (new MS7001EA old PG7121EA)	
2013	\$24.1 million	
2012	\$25.2 million	
2010	\$22.7	
2009	\$25.9 million	GMO's 2009 Study per Stipulation in ER-2009-0090
2007-2008	\$19.5 million	Pricewaterhouse Study & 2007 Aquila Study
2006	\$19.2 million	
2004-2005	\$14.8 million	End of the Aries contract May 31, 2005
2003	\$16.6 million	
2000-2001	\$21 million	Crossroads Purchased in 2001

Source: Gas Turbine World Handbook

The South Harper turbines are Siemens 501D5A units rated at 105 megawatts each. These units saw prices following the same pattern, going from high at the start of the last decade to significant price reductions during 2003 and 2004 time frame. In the 2004-05 GTW Handbook, the price of a Siemens 501D5A was quoted at \$18.7 million. In the 2003 GTW Handbook, the value was \$19.9 million and in the 2000-2001 GTW Handbook has model 5015DAs priced out at \$25.5 million. Based on this information, the market cost of these units trended downward during the time Aquila needed the five turbines to replace the Aries PPA capacity.

However, the 2006 GTW Handbook identified the price for the Siemens 501D5A (new model SGT6-2000E) at \$22.8 million per unit. In the 2007-2008 GTW, the price of this unit significantly increased to \$29.2 million and in the 2013 publication, \$31.9 million.

The cost of turbines are not the sole costs peaking generating unit. Gas Turbine World does surveys of the industry and contacts turbine manufactures to determine the pricing information it publishes. Some of its data is from actual purchases made by companies - regulated utilities and merchant companies alike. While these combustion turbines prices may include added costs for specific features based on individual needs, such as dual fuel source burning capability and fast-start capability, typically these are the prices that the industry relies on to trend the costs of turbine equipment.

AQUILA HAD COMBUSTION TURBINES UNDER ITS OWNERSHIP CONTROL

Because the 2003 to 2005 time period was a very good time to buy combustion turbines, Aquila had many opportunities to take advantage of buying generating equipment at steep discounted prices that would have provided customers with capacity badly needed on the MPS system. Aquila failed to do so resulting in the capacity shortfalls experienced by the MPS for several years, causing the need to have short-term purchased power agreements that were more costly in the long-term.

Other utilities such as Ameren Missouri took advantage of the buyers' market and purchased combustion turbines at Raccoon Creek and Goose Creek on extremely favorable terms benefiting both the company and its Missouri customers-- but not Aquila.

Aquila had many options to add generating capacity to its system. Aquila purchased a total of 18 combustion turbines from General Electric ("GE") – Model 7 EA and three turbines from Siemens Westinghouse—Model 501 D. The three Westinghouse turbines ultimately were installed at South Harper at Staff's urging.

Four (340 megawatts) of the 18 General Electric turbines were installed at Raccoon Creek at a site located in Flora, Illinois, approximately 120 miles east of St. Louis, with transmission integration with AmerenCIPS. Six (510 megawatts) of the 18 General Electric

turbines were installed at Goose Creek at a site located in Monticello, Illinois, in central Illinois, with transmission integration with AmerenIP. Four of the 18 General Electric turbines were installed at Crossroads. Of the remaining four General Electric turbines, two were sold to Nebraska municipality and one to Colorado municipality and one turbine was never taken by Aquila. Aquila had to pay a reservation payment to General Electric to not take possession of this last unit. In essence, Aquila lost over one million dollars for the “right” not to take the unit.

Aquila could have taken any combination of generating units it already owned and move those units already installed or taken delivery of those yet constructed to a location within MPS’ service territory. Had Aquila built the units determined by its 2004 study as least cost option in 2005 replacing the Aries PPA, the Commission would not have faced the issues surrounding Crossroads these past four GMO rate cases. Certainly, GMO would not have incurred and would not continue to incur significant transmission costs from Crossroads if MPS had made a proper and sound business decision to build capacity using any of the distressed generating units available in Aquila’s system.

In 2003 and 2004, Aquila had other buying opportunities to acquire economic generation. Not only were there plenty of opportunities to take advantage of a depressed turbine market to buy turbines at deeply discounted prices, Aquila actually had several generating units under its ownership control. MPS needed the capacity but was completely shut out of any opportunity to acquire any of these units.

In 2003, Aquila Merchant sold three General Electric 7 EA turbines with rated capacity of 75 megawatts each to two non-affiliates after the 2002 collapse of Aquila and the decline of the turbine market. Two of these units sold to a utility in Beatrice, Nebraska for ** ____ -** million or ** ____ ** million each and a third turbine was sold to a utility in Colorado for ** ____ ** million (Data Request No. 43 in Case No. EO-2005-0156). All three turbines were sold substantially below the original purchase price of ** ____ ** million each (Data Request No. 77 in Case No. EO-2005-0156). The average price that Aquila Merchant sold these units in 2003 was ** ____ ** million— (** ____ ** million plus ** ____ ** million divided by three). Using this average price, Aquila would have had a far better price at which to deploy these three General Electric turbines to meet its regulated system requirements and greater megawatt capacity. It would have been very economical for Aquila to have installed any or all of these three Model 7 EAs in its service territory to meet its regulated load and increase its generating capacity. And important today, installing these generating units which would have avoided transmission costs because they would have been located in the Southwest Power Pool.

These prices compare with the Crossroads turbine values of ** ____ ** million per unit price for the same GE 7 EA model but priced at 2001 costs.

The total costs for the three General Electric turbines Aquila Merchant sold to third parties was ** _____ ** million with a total capacity of 225 megawatts, or ** _____ ** per kilowatt. This per kilowatt cost is far below the per kilowatt cost of the three Siemens turbine costs GMO installed at South Harper. Two 501D5A turbines are 210 megawatts of capacity. Using the three General Electric units would have been even more cost effective for GMO to install the three General Electric 7 EAs having greater capacity than two of three Siemens units installed at South Harper. With the 315 megawatts of South Harper turbines in addition to the 225 megawatts of three 7 EAs units would have given Aquila the needed capacity to fully replace the Aries power agreement in 2005.

Aquila Merchant made offers to sell four General Electric combustion turbines before executing the contracts under which they were sold. Like the Siemens turbines installed at South Harper, Aquila Merchant offered the General Electric turbines to other entities, including KCPL. In August 2002, Aquila Merchant offered the four General Electric turbines identified above to KCPL. In fact, KCPL was offered a combination of two, three or all four units at ** _____ ** for each turbine. KCPL did not act and Aquila withdrew the offer.
(see Highly Confidential Schedule CGF-r9, page 49 of 50)

As noted above, three of the General Electric 7 EAs offered to KCPL were eventually sold in 2003 to Nebraska and Colorado utilities at even less costs than offered to KCPL in 2002.

Aquila did not consider making using these peaking units available to MPS despite MPS being in need of generating units. Aquila never considered using these turbines for its regulated operations, even though MPS needed to replace the Aries purchased power agreement by June 2005. Aquila indicated that these turbines were sold in 2003.⁴ In reality, Aquila should have used these units to meet the capacity shortfall of MPS. Instead, these units sold to other utilities at extremely deep discounted prices. Thus, customers of these Nebraska and Colorado utilities are enjoying the benefits of these units, acquired at a time when the turbine market was a buyers' market and at the time MPS needed to replace the Aries purchased power agreement in 2005. The failure of Aquila to fully replace the 500 megawatt Aries capacity in 2005 results in GMO's high transmission costs today. Had Aquila adequately planned to replace needed capacity with generating facilities within its RTO, Crossroads would not be needed to meet the capacity needs of customers today and, therefore, would not be incurring the transmission costs it is.

AQUILA HAD OTHER POWER PLANTS UNDER ITS OWNERSHIP CONTROL

Aquila had three power plants that it owned which could have been used to relocate to MPS' service territory. Aquila sold two of these facilities to Ameren Missouri (Union Electric)

⁴ Aquila response to Date Request 43 in Case No. EO-2005-0156

so that entity's customers are enjoying the benefits of low-cost plant to supply energy needs to them.

In the December 2, 2005 evaluation performed by Max Sherman, Aquila vice president, the analysis identified ** _____

_____ ** [source: Highly Confidential Data Request 355, Case No. ER-2007-0004 attached as Highly Confidential Schedule CGF-r5; emphasis added] While this option was not pursued by Aquila, this analysis was done in late 2005 when Aquila still needed to replace part of the 500 megawatt Aries purchased power agreement. Aquila chose to sell Raccoon Creek and Goose Creek to Ameren Missouri in early 2006, removing those units as an opportunity for MPS, and also chose not to pursue using Crossroads because of the difficulties in getting transmission. In 2005, Aquila also didn't have the four General Electric 7 EAs turbines sold in 2003. That option was long gone, leaving MPS to be subjected to short-term purchased power agreements. More importantly, Aquila's decision not to take advantage of all the many opportunities available to meet MPS energy needs, limited later decisions after Aquila became of Great Plains Energy. By 2008, all the many options were gone except for a generating facility that had been attempted to be sold many times, but had no takers. That plant was Crossroads and the Commission continues to have to deal with the outcome of Aquila's inadequate and improper decision-making regarding capacity short falls of MPS.

Because of Aquila's long standing policy of not building "steel in the ground" generating facilities for its regulated utilities like MPS, the utility, and ultimately its customers suffered. In an interview with Mr. Frank DeBacker (Aquila Vice President) and Mr. Robert Holzwarth (Vice-President and General Manager of UtiliCorp Power Services held on October 28, 2003, Mr. DeBacker stated that it was Aquila's corporate policy not to consider building regulated generating assets. Mr. DeBacker indicated in the interview that "MPS did not intend to build and include in rate base generating units to supply its power needs. Thus, Aquila (UtiliCorp) through its regulated MPS division never considered building generating capacity as a regulated unit."⁵

Aquila's corporate policy caused imprudent decision-making resulting in inadequate capacity additions to meet MPS' system load requirements on a least cost basis.

AQUILA HAD ANOTHER OPPORTUNITY AS ARIES WAS DETERMINED TO BE LEAST COST OPTION

In 1998, Aquila determined that Aries was least cost option to meet MPS capacity addition.

⁵ Data Request 548 in Case No. ER-2004-0034

In the spring of 1998, Aquila issued a request for proposal (RFP) for its power needs for MPS in the early years of this decade. It received responses in July 1998 offering to provide MPS power needs through a variety of options from several different entities. As part of this evaluation, Aquila also examined the option of building and owning a 500 megawatt combined cycle unit with a projected in-service date in 2001.

In August 1998, through its own analysis, as well as the independent analysis of Burns & McDonnell, an engineering consulting firm, Aquila determined that the least cost option for serving MPS was to build the 500 megawatt combined cycle unit.

Aquila pursued building the 500 megawatt combined cycle unit but decided it should be constructed as a merchant plant. Aquila assigned the construction project to Aquila Power Corporation, Aquila's non-regulated affiliate later known as Aquila Merchant.

Initially, the regulated Aquila pursued building the Aries Combined Cycle Unit as an unregulated exempt wholesale generator ("EWG"). The studies and analyses performed by personnel of the regulated MPS operations ultimately led to the conclusion that the 500 megawatt combined cycle unit was the least cost option to meet the capacity needs of MPS starting in 2001. This was confirmed by the independent engineering firm, Burns & McDonnell in an August 1998 report to the Company.

In an August 24, 1998 study entitled "UtiliCorp United Inc. Missouri Public Service 1998-2003 Preliminary Energy Supply Plan," the Company independently determined that the construction of a 500 megawatt combined cycle unit was the least cost plan for MPS. Under the Executive Summary Section 1, "Conclusions," the following appears:

Conclusions

Based on the 1998-2003 supply-side analysis, the least cost plan for MPS consists of executing short term purchase contacts to meet MPS capacity needs through the year 2000, and **the construction of a gas-fired 500 MW combined cycle unit to meet all of MPS' capacity needs in 2001-2003 time frame and a majority of its needs thereafter.**

The above supply provides the least cost means to meet the MPS capacity and energy needs even though MPS' has a low annual load factor of <50% and an abundant supply of low-cost energy supplied by its existing resource base which is 64% coal-fired base load generating capacity.

The ability of combined cycle units to compete in the regional energy market place enables these resources to provide sufficient revenue to offset their higher capital cost.

1.5 Recommended Action Plan

As a result of the analysis outlined in this report, it is recommended that UCU [(Aquila/UtiliCorp)]:

Negotiate extension of the existing lease agreements on the Greenwood combustion turbines.

Secure short term capacity to meet MPS' capacity needs thru 2000.

Pursue the construction of a 500 MW combined cycle unit proposed with an in service date of June 1, 2001.

[Source: Data Request No. 607 in ER-2004-0034— 1998-2003 Preliminary Energy Supply Plan; emphasis added]

Aquila, then operating as UtiliCorp, never considered the option of building and owning the Aries Combined Cycle Unit as part of its regulated operations because of its corporate policy not to construct regulated power plants. Staff is aware of numerous examples, in Aquila electric rate cases for the MPS (Case Nos. ER-2001-672 and ER-2004-0034) where Aquila readily admitted that at no time did it consider allowing its regulated operations to own or control generating units as regulated plant for serving MPS. While the EWG option was pursued for MPS by Aquila regulated operations, the combined cycle unit was never planned to be part of the traditional regulated operations of MPS, and Aquila never planned for the unit to be included in rate base even though it was determined to be least cost option.

Q. Does Staff believe that Aquila's capacity planning from a long-term perspective was prudent?

A. No. Staff has been very critical of Aquila's approach to addressing its capacity needs for its system. Examples of the imprudence or questionable decision making by Aquila follow:

- Having a corporate policy not to build regulated generation evidenced by not having built generation since 1983, except for South Harper in 2005 which affects the regulated operations to this day and Iatan 2 in August 2010. It transferred Crossroads to its regulated operations in August 2008.
- In 1997 attempted to move all generating assets to an Exempt Wholesale Generator (EWG) status, Case No. EM-97-395. Application was withdrawn after opposition by Staff.
- MPS Resource planning in 1992 determined need for a combined cycle unit by 2000 for MPS yet Aquila's corporate decision was to build unit as a non regulated merchant plant (Aries) after regulated operations did most of the preliminary work and planning for the development of the project.

- Based on a 1998-2003 least cost analysis, the least cost plan for MPS was the construction of a 500 megawatt natural gas-fired combined cycle unit in 2001-2003. This power plant was not built by MPS but Aquila Merchant instead as Aries unit. [source- Data Request 607 in Case No. ER-2004-0034 – study entitled “UtiliCorp United Inc. Missouri Public Service 1998-2003 Preliminary Energy Supply Plan”]
- Aries was built on land previously owned by MPS, adjacent to MPS substation.
- MPS purchased power agreement from 2001 to 2005 from a non-regulated Aquila affiliate (the Aries Combined Cycle Agreement.)
- In 2004, Aquila sold its 50% share of Aries giving its partner ** _____
_____ ** to take unit over.
- Aquila attempted unsuccessfully to re-acquire Aries in December 2006.
- Despite having a known certain date to replace the Aries Agreement by June 2005, Aquila did not timely plan for the replacement of this capacity. Until January 2004, Aquila did not seriously consider building generation instead looking at another purchased power agreement from an affiliate (Aries II).
- Aquila Merchant attempts to sell at steep discounts three turbines which were to be installed at Aries as Aries II in 2002. Units were placed in storage. While units were for sale, at no time were the units ever considered or offered to MPS to meet its growing capacity needs before January 2004. In January 2004 Aquila finally made decision to replace Aries Capacity Agreement with three combustion turbines it had left over from its merchant business. These units had been in storage since 2002 during which the units' warranty expired. Units were eventually installed at the South Harper facility in June and July 2005.
- South Harper legal issues were caused by having to move forward on project to get units in service by June 2005 to replace Aries Agreement. Since Aquila already had possession of units since 2002, appropriate planning could have taken place much earlier than it did providing ample time to get necessary community support.

- Aquila had many combustion turbines, three of which were new units, in its asset portfolio that it sold at distressed values resulting in hundreds of millions of dollars of impairment charge losses that it did not consider to use for its regulated operations despite need for capacity to serve MPS. (Raccoon Creek (340 megawatts) and Goose Creek (510 megawatts) sold to Union Electric Company d/b/a Ameren Missouri, in 2005 with sale completed in early 2006 and three other General Electric 7 EAs combustion turbines sold to non-investor owned utilities in Nebraska and Colorado). None of these units were offered to meet the shortfall in capacity to serve the MPS rate district.
- In 2000 Aquila re-acquired MPS' four combustion turbines at Greenwood which it had built starting in 1975 and sold under a sale lease back which had a provision where the Company could acquire the units at the end of the lease at the existing market value. Aquila re-acquired the units at greater than the original purchase price even though the units were 25 years old. The units were reacquired by an Aquila non-regulated MPS affiliate with a corporate decision that MPS entered into a 15-year purchased power agreement at higher lease payments than the newly acquired cost to Aquila. This was an attempt by Aquila to “profit” from an affiliated relationship the regulated utility. This agreement was ultimately terminated and the units were moved back in the regulated operations of MPS. The 25-year old units are now in rate base at a greater amount than what they were originally purchased for in 1975 and 1976. Customers in essence paid for these units twice- once through the lease payments which were included in rates and now again in rate base. If the units had been rate based from the mid-1970s the units would have either been fully depreciated or depreciated for the impact of unit additions occurring over the operating life of the asset additions.

The foregoing demonstrates that Aquila did not have appropriate and effective decision-making regarding its resource plans or its resource planning process. These events and circumstances are not the actions of a typical utility this Commission regulates. When Great Plains Energy acquired GMO, it inherited the many problems and the long-term issues with Aquila’s capacity planning. These decisions directly relate to high transmission costs GMO is seeking this case from Crossroads. Had Aquila made prudent decisions adding new generating capacity for its growing system load requirements, the Commission would not be faced with the surrounding Crossroads rate base valuation in last several rate cases or the transmission costs issue in each of those cases as well as this current case.

SCHEDULE CGF-r3

HAS BEEN DEEMED

HIGHLY CONFIDENTIAL

IN ITS ENTIRETY

SCHEDULE CGF-r4

HAS BEEN DEEMED

HIGHLY CONFIDENTIAL

IN ITS ENTIRETY

SCHEDULE CGF-r5

HAS BEEN DEEMED

HIGHLY CONFIDENTIAL

IN ITS ENTIRETY

SCHEDULE CGF-r6

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SCHEDULE CGF-r7

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SCHEDULE CGF-r8

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SCHEDULE CGF-r9

HAS BEEN DEEMED

HIGHLY CONFIDENTIAL

IN ITS ENTIRETY

**Kansas City Power and Light Company
KCP&L Greater Missouri Operations Company**

Power Plant Name	Primary Fuel Source	Plant Located in Service Area	Power Plant Address	Mileage One-way	Mileage Roundtrip	Travel Time One-way	Year Plant Completed	Estimated 2016 MW Capacity— Owned & Jointly Owned
Kansas City Power & Light Generating Fleet								
Iatan No. 1 and 2	Coal	No	20250 MO-45, Weston, MO	38 Miles	76 Miles	43 Minutes	1980, 2010	981
Wolf Creek Nuclear Generating Station	Nuclear	No	1550 Oxen Lane NE, Burlington, KS	99.1 Miles	198.2 Miles	1 Hour 32 Minutes	1985	549
La Cygne No.1 and 2	Coal	No	25166 E 2200th Rd, La Cygne, KS	59.9 Miles	119.8 Miles	56 Minutes	1973, 1977	699
Hawthorn No. 5, 6, 7, 8, 9	Coal/Natural Gas	Yes	8700 Hawthorne Rd, Kansas City, MO	7 Miles	14 Miles	20 Minutes	1969	564
Montrose No. 1, 2, and 3 Station	Coal	No	400 SW Highway P, Clinton, MO	74.2 Miles	148.4 Miles	1 Hour 15 Minutes	1960, 1964	340
West Gardner No. 1,2,3, and 4	Natural Gas	Yes	18827 Dillie Rd Edgerton, KS	34.6 Miles	69.2 Miles	42 Minutes	2003	311
Osawatomie	Natural Gas	Yes	32808 Lone Star Rd, Paola, KS	47.1 Miles	94.2 Miles	56 Minutes	2003	77
Northeast No.11,12,13,14,15,16,17,18, and Black Start Unit	Oil	Yes	920 N Olive Street, Kansas City, MO	2.7 Miles	5.4 Miles	6 Minutes	1972, 1975, 1976, 1977, 1985	956
Spearville 1 & 2 Wind Energy Facility	Wind	No	10193 126 Rd, Spearville, KS	320 Miles	640 Miles	4 Hour 52 Minutes	2006, 2010	46
KCP&L Greater Missouri Operations Generating Fleet								
Iatan No. 1 and 2	Coal	Yes	20250 MO-45, Weston, MO	38 Miles	76 Miles	43 Minutes	1980, 2010	287
Jeffrey Energy Center	Coal	No	25905 Jeffrey Rd, St. Marys, KS	98.9 Miles	197.8 Miles	1 Hour 41 Minutes	1978, 1980, 1983	172
Sibley No. 1, 2, and 3	Coal	Yes	33200 E Johnson Rd, Sibley, MO	30.3 Miles	60.6 Miles	47 Minutes	1960, 1962, 1969	461
Lake Road No. 1, 2, 3, 4, 5, 6, 7	Coal/Natural Gas/Oil	Yes	SW Lower Lake Rd, Saint Joseph, MO	54.8 Miles	109.6 Miles	57 Minutes	1951, 1957, 1962, 1967, 1974	235
South Harper No. 1, 2, and 3	Natural Gas	Yes	24400 S Harper Rd, Peculiar, MO	32.8 Miles	65.4 Miles	38 Minutes	2005	303
Crossroads Energy Center	Natural Gas	No	19th and West Tallahatchie Street Clarksdale, MS	520 Miles	1040 Miles	8 Hours 41 Minutes	2002	292
Ralph Green No. 3	Natural Gas	Yes	101 S Front St, Pleasant Hill, MO	34.7 Miles	69.4 Miles	43 Minutes	1981	71
Greenwood Energy Center	Natural Gas/Oil	Yes	14015 S Smart Rd. Greenwood, MO	27.5 Miles	55 Miles	34 Minutes	1975-1979	247
Nevada	Oil	Yes	256A 1400 Rd, Nevada, MO 64772	95 Miles	190 Miles	1 Hour 30 Minutes	1974	18
* Power plant name, primary fuel, Year Completed, and Estimated 2016 MW Capacity obtained from 2015 Great Plains Annual Shareholder Report - page 22								
** All mileage and travel time obtained from Google Maps with a starting point of KCP&L headquarters of 1200 Main St, Kansas City, MO								

**Ameren Missouri
Union Electric Company**

Power Plant Name	Primary Fuel Source	Plant Located in Service Area	Power Plant Address	Mileage One-way	Mileage Roundtrip	Travel Time One-way	Year Plant Completed	Estimated 2016 MW Capacity- Owned & Jointly Owned
Audrain CTG	Natural Gas	Yes	9200 Audrain Rd 124, Centralia, MO 65240 (Audrain Co.)	137 Miles	274 Miles	2 Hours 18 Minutes		600
Callaway	Nuclear	Yes	Portland, MO 65067 (Callaway Co.)	109 Miles	218 Miles	1 Hour 52 Minutes	1984	1193
Fairgrounds C.T.	Oil	Yes	2627 Industrial Dr, Jefferson City, MO 65102 (Cole Co.)	134 Miles	268 Miles	2 Hours 26 Minutes	1974	54
Goose Creek CTG Energy Center	Natural Gas	No	760 E 2150 North Rd, Monticello, IL 61856 (Platt Co.)	167 Miles	334 Miles	2 Hours 27 Minutes	2001	432
Howard Bend		Yes	14769 Olive Blvd, Chesterfield, MO 63017-2221	20.3 Miles	40.6 Miles	29 Minutes	1973	47
Keokuk	Hydro	No	525 N Water St, Keokuk IA	180 Miles	360 Miles	3 Hours 17 Minutes	1913 (1-15)	140
Kinmundy Generation Station	Natural Gas	No	2816 Kinoka Rd, Patoka IL 62875	88 Miles	176 Miles	1 Hour 29 Minutes	2001	206
Kirksville C.T.	Natural Gas	Yes	29430 Kellogg Ave, Macon MO 63552 (Kirksville, MO)	171 Miles	342 Miles	2 Hours 57 Minutes	1967	13
Labadie	Coal	Yes	226 Labadie Power Plant Rd, Labadie MO 63055 (Franklin Co.)	42.5 Miles	85 Miles	46 Minutes	1970 (1), 1971 (2), 1972 (3), 1973 (4)	2372
Maryland Heights LF	Methane Gas	Yes	1938 Creve Coeur Mill Rd, Maryland Heights, MO 63166 (St Louis Co.)	20.2 Miles	40.4 Miles	28 Minutes		8
Meramec	Coal / Oil	Yes	St Louis MO 63129 (St Louis Co.)	21 Miles	42 Miles	28 Minutes	1953 (1), 1954 (2), 1959 (3), 1961 (4), 1974 (GT1), 2000 (GT2)	591 (Coal), 54 (Oil), 282 (Natural Gas)
Mexico C.T.	Oil	Yes	13557 Highway JJ, Mexico MO 65265	109 Miles	218 Miles	1 Hour 58 Minutes	1978	53
Moberly C.T. (Thomas Hill Energy Center)	Oil	Yes	5693 Highway F, Clifton Hill, MO 65244 (Moberly, MO)	178 Miles	356 Miles	2 Hours 52 Minutes	1978	53
Moreau C.T.	Oil	Yes	3930 Algoa Rd Jefferson City, MO 65102 (Jefferson Co.)	121 Miles	242 Miles	2 Hours 24 Minutes	1978	53
O'Fallon	Solar	Yes	551 Pearl Dr, St Peters, MO 63376	35.4 Miles	70.8 Miles	39 Minutes		3
Osage (Bagnell Dam)	Hydro	Yes	617 River Rd, Lakeside, MO 65049	177 Miles	354 Miles	2 Hours 55 Minutes	1931 (1-7), 1953 (8)	234
Peno Creek C.T.	Natural Gas	Yes	16303 Pike 43. Bowling Green, MO 63334	89.3 Miles	179 Miles	1 Hour 28 Minutes	2002 (GT1-4)	188

**Ameren Missouri
Union Electric Company**

Power Plant Name	Primary Fuel Source	Plant Located in Service Area	Power Plant Address	Mileage One-way	Mileage Roundtrip	Travel Time One-way	Year Plant Completed	Estimated 2016 MW Capacity- Owned & Jointly Owned
Pinckneyville	Natural Gas	No	4553 White Walnut Rd, Pinckneyville, IL 62274	73.1 Miles	146 Miles	1 Hour 20 Minutes	2002	316
Raccoon Creek CTG	Natural Gas	No	1619 County Rd 625 N, Louisville, IL 62858 (Clay County, IL)	113 Miles	226 Miles	2 Hours 2 Minutes	2000	300
Rush Island	Coal	Yes	100 Big Hollow Rd, Festus, MO 63028 (Jefferson Co.)	43.4 Miles	69 Miles	46 Minutes	1976 (1), 1977 (2)	1178
Sioux	Coal	Yes	8501 N State Route MO-94 West Alton, MO 63386 (St Charles Co.)	37.5 Miles	75 Miles	43 Minutes	1967 (1), 1968 (2)	970
Taum Sauk Hydroelectric Power Station	Hydro / Pumped Storage	Yes	Lesterville MO 63654 (Reynolds Co.)	107 Miles	214 Miles	1 Hour 59 Minutes	1963 (1-2)	440
Venice C.T.	Natural Gas	No	701 Main St, Venice, IL 62090	5.5 Miles	11 Miles	18 Minutes	1942 (ST1,2 Ret 2002), 1943 (3 Ret 2002), 1948 (4 Ret 2002), 1950 (5,6 Ret 2002), 1967 (GT1), 2002 (GT2)	487

* Power plant name, primary fuel, Year Completed, and Estimated 2016 MW Capacity obtained from FERC Form 1 and Ameren 2015 Annual Report.
 ** All mileage and travel time obtained from Google Maps with a starting point of Ameren's Corporate HQ Office at 1901 Chouteau Ave, St Louis MO 63103.

Empire District Electric Company

Power Plant Name	Primary Fuel Source	Plant Located in Service Area	Power Plant Address	Mileage One-way	Mileage Roundtrip	Travel Time One-way	Year Plant Completed	Estimated 2016 MW Capacity-- Owned & Jointly Owned
State Line Combined Cycle (60% ownership)	Natural Gas	Yes	2299 State Line Rd Joplin, MO 64801	7.7 Miles	15 Miles	15 Minutes	2001	295
Riverton (7 removed in service 6/30/14; 8 & 9 retired 6/30/15)	Natural Gas	Yes	7240 Kansas 66, Riverton, KS 66770	11.4 Miles	22.8 Miles	18 Minutes	1906, 1954	0
Riverton (10, 11, 12)	Natural Gas	Yes	7240 Kansas 66, Riverton, KS 66770	11.4 Miles	22.8 Miles	18 Minutes	1964, 2007, 2016	177
Empire Energy Center	Natural Gas	Yes	2537 Fir Rd, Sarcoxie, MO 64862	28.2 Miles	56.4 Miles	37 Minutes	1978, 2003	257
State Line Unit #1	Natural Gas	Yes	2299 State Line Rd Joplin, MO 64801	7.7 Miles	15 Miles	14 Minutes	1995	96
Asbury	Coal	Yes	21133 Uphill Rd, Asbury, MO 64832	22.4 Miles	44.8 Miles	29 Minutes	1970, 1986	198
Iatan 1 & 2 (12% ownership)	Coal	Yes	20250 MO-45, Weston, MO	185 Miles	370 Miles	3 Hours 2 Minutes	1980, 2010	190
Plum Point Energy Station (7.52% ownership)	Coal	No	2732 S Co Rd 623, Osceola, AR 72370	350 Miles	700 Miles	5 Hours 54 Minutes	2010	50
Ozark Beach (Powersite Dam)	Hydro	Yes	Ozark Beach, Forsyth, MO 65653	115 Miles	230 Miles	2 Hours	1913	16

* Power plant name, primary fuel, Year Completed, and Estimated 2016 MW Capacity obtained from FERC Form 1 and Empire 2015 Annual Report.
 ** All mileage and travel time obtained from Google Maps with a starting point of Empire District's Headquarters Office at 602 S Joplin Ave, Joplin MO.

Westar Energy, Inc

Power Plant Name	Primary Fuel Source	Plant Located in Service Area	Power Plant Address	Mileage One-way	Mileage Roundtrip	Travel Time One-way	Year Plant Completed	Estimated 2016 MW Capacity-- Owned & Jointly Owned
Abilene Energy Center	Gas	Yes	1013 2000 Ave, Abilene KS 67410	91.6 Miles	183 Miles	1 Hour 23 Minutes	1973 (GT1)	77
Central Plains Wind Farm	Wind	Yes	County Road 25, Marienthal KS 67863 (38.497225, -101.127771), 6,000 acres in Wichita County between Leoti & Scott City, KS	337 Miles	674 Miles	4 Hours 54 Minutes	2009	99
Emporia Energy Center (7 GTs)	Natural Gas	Yes	1685 Rd 200, Emporia, KS 66801	63 Miles	126 Miles	1 Hour 6 Minutes	2008, 2009	665
Flat Ridge Wind Energy	Wind	Yes	7329 NE Ridge Rd, Nashville, KS 67112 (~24 Miles SE of Pratt, KS in Barber County)	218 Miles	436 Miles	3 Hours 20 Minutes	2009	100
Gordon Evans Energy Center	Natural Gas	Yes	6001 N 151st W Colwich, KS, 67030	154 Miles	308 Miles	2 Hours 15 Minutes	1961 (ST1), 2000 (GT2), 1967 (ST2), 2001 (GT3), 1969 (5-IC), 2000 (GT1)	136 (ST1), 98.3 (GT2), 390 (ST2), 178.5 (GT3), 2.9 (5-IC), 98.3 (GT1)
Hutchinson Energy Center	Natural Gas	Yes	3200 E 30th Ave, Hutchinson, KS 67502	175 Miles	350 Miles	2 Hours 27 Minutes	1974 (GT1), 1950 (ST1), 1950 (ST3), 1974 (GT2), 1951 (ST4), 1975 (GT4), 1950 (ST2), 1974 (GT3)	71 (GT1), 23 (ST1), 35 (ST3), 71 (GT2), 172 (ST4), 86 (GT4), 23 (ST2), 71 (GT3)
Jeffrey Energy Center (Westar owns 92%, Great Plains owns 8%)	Coal	Yes	25905 Jeffrey Rd, St Marys, KS 66536	37.4 Miles	75 Miles	49 Minutes	1978 (1), 1980 (2), 1983 (3)	720 ea (1-3)
La Cygne Energy Center (Westar & KCPL each own 50%)	Coal	Yes	25166 E 2200th Rd, Lacygne, KS 66040	99.5 Miles	199 Miles	1 Hour 34 Minutes	1973 (ST1), 1977 (ST2)	893 (ST1), 685 (ST2)
Lawrence Energy Center	Coal	Yes	1250 N 1800 Rd, Lawrence, KS 66049	23.4 Miles	47 Miles	26 Minutes	1952 (2, closed 2000), 1955 (3), 1960 (4), 1971 (5)	38 (2), 49 (3), 114 (4), 403 (5)

Meridian Way Wind Farm (67 Vestas V90 3.0 MW turbines)	Wind	Yes	1409 Iron Road, Concordia, KS 66901-7182 (O&M) 801-899 210th Rd, Aurora, KS 67417 (SubS) (39.427150 -97.544180)	151 Miles (O&M) 123 Miles (SS)	302 Miles (O&M), 246 Miles (SS)	2 Hours 3-6 Minutes	Dec 2008	201
Murray Gill Energy Center	Natural Gas	Yes	6100 W 55th St South Wichita, KS 67215	151 Miles	302 Miles	2 Hours 15 Minutes	1952 (ST1), 1954 (ST2), 1956 (ST3), 1959 (ST4)	46 (ST1), 75 (ST2), 114 (ST3), 114 (ST4)
Neosho Energy Center (closed)	Natural Gas	Yes	2365 22000th Road. Parsons, Kansas 67357.	151 Miles	302 Miles	2 Hours 31 Minutes	1954 (3), closed 1986, reopened 1999, closed 2012	69-73 MW during operation
Rolling Meadows Landfill Gas (Partner with Waste Mgmt)	Landfill Gas	Yes	4080-5198 NW 70th St, Topeka, KS 66618	12.6 Miles	25 Miles	15 Minutes	2010	6
Spring Creek Energy Center	Natural Gas	No	18200 West Simmons Rd, Edmond, OK 73025 (Logan Co.)	291 Miles	582 Miles	4 Hours 14 Minutes	2001 (CT1-4)	84.5 MW ea (CT1-4)
State Line Combined Cycle Plant (Westar Owns 40%)	Natural Gas	No	2299 State Line Rd Joplin, MO 64801	191 Miles	382 Miles	3 Hours 6 Minutes	1995 (1-GT), 1997 (2-2 CT), 2991 (2-3 CA), 2001 (2-1 CT)	123 (1-GT), 180 (2-2 CT), 206 (2-3 CA), 150 (2-1 CT)
Tecumseh Energy Center	Coal	Yes	Tecumseh, KS 66542	8 Miles	16 Miles	12 Minutes	1957 (7-ST), 1962 (8-ST), 1972 (1-GT), 1972 (2-GT)	82 (7-ST), 150 (8-GT), 29 (1-GT), 29 (2-GT)
Wolf Creek Nuclear Generating Station	Nuclear	Yes	1550 Oxen Lane NE, Burlington, KS	60.5 Miles	121 Miles	1 Hour 10 Minutes	1985	549
<p>* Power plant name, primary fuel, Year Completed, and Estimated 2016 MW Capacity obtained from FERC Form 1 and Empire 2015 Annual Report.</p> <p>** All mileage and travel time obtained from Google Maps with a starting point of Westar Energy District's Headquarters Office at 818 S Kansas Ave (8th and Kansas), Topeka, KS 66612.</p>								