

BEFORE THE KANSAS CORPORATION COMMISSION

OF THE STATE OF KANSAS

Before Commissioners: Shari Feist Albrecht, Chair
 Jay Scott Emler
 Dwight D. Keen

In the Matter of the Application of Kansas Power)
Pool for a Certificate of Convenience and Authority)
to Transact the Business of an Electric Utility in the)
State of Kansas for Transmission Rights Only to)
Cross Service Territory of Southern Pioneer Electric)
Company and Ninneseah Rural Electric Company)

Docket No.: 18-KPPE-343-COC

DIRECT TESTIMONY AND EXHIBITS OF

LARRY W. HOLLOWAY
ASSISTANT GENERAL MANAGER – OPERATIONS
KANSAS POWER POOL

MAY 8, 2018

1 **Q. Please state your name and business address.**

2 A. My name is Larry W. Holloway. My business address is 100 N Broadway, Suite L110, Wichita, KS
3 67202.

4 **Q. By whom and in what capacity are you employed?**

5 A. I am employed by the Kansas Power Pool ("KPP") as Assistant General Manager - Operations.

6 **Q. Please describe your educational background and professional experience.**

7 A. I received a Bachelor of Science degree in Civil Engineering and a Bachelor of Science degree in
8 Mechanical Engineering from the University of Kansas in 1978, a Master of Engineering
9 Management degree from Washington State University in 1988 and a Master of Science degree
10 in Mechanical Engineering from the University of Kansas in 1997. I am a registered professional
11 engineer in the disciplines of Mechanical and Civil Engineering in the State of Oregon, PE #
12 12,989. My professional experience began outside of the electric industry and includes one year
13 as a field engineer for a natural gas utility and two years as a project engineer for an inorganic
14 chemical plant. Since 1981, most of my professional experience has been in the electric
15 industry. I have twelve years of construction, design, startup and operations engineering
16 experience with power plants, primarily nuclear. In 1993, I started work at the Kansas
17 Corporation Commission (KCC) as Chief of Electric Operations, Rates and Services. In 1998, I was
18 promoted to Chief of Energy Operations. In March of 2009 I accepted the position of Operations
19 Manager with KPP. In August of 2014 I was promoted to my current position with KPP.

20 **Q. Have you previously testified before the Commission?**

21 A. Yes, While employed at the KCC, I have filed testimony in Docket Nos. 94-GIMX-462-GIV, 95-
22 EPDE-043-COM, 96-KG&E-100-RTS, 96-WSRE-101-DRS, 96-SEPE-680-CON, 97-WSRE-676-MER,

98-KGSG-822-TAR, 99-WSRE-381-EGF, 99-WSRE-034-COM, 99-WPEE-818-RTS, 00-WCNE-154-GIE, 00-UCUE-677-MER, 01-WSRE-436-RTS, 01-WPEE-473-RTS, 01-KEPE-1106-RTS, 02-SEPE-247-RTS, 02-EPDE-488-RTS, 02-MDWG-922-RTS, 03-MDWE-001-RTS, 03-WCNE-178-GIE, 03-MDWE-421-ACQ, 03-KGSG-602-RTS, 04-AQLE-1065-RTS, 04-KCPE-1025-GIE, 05-EPDE-980-RTS, 05-WSEE-981-RTS, 06-WCNE-204-GIE, 06-SPPE-202-COC, 06-WSEE-203-GIE, 06-KCPE-828-RTS, 06-KGSG-1209-RTS, 06-MKEE-524-ACQ, 07-WSEE-616-PRE, 07-KCPE-905-RTS, 08-WSEE-309-PRE, 08-KMOE-028-COC, 08-WSEE-609-MIS, 08-MDWE-594-RTS, 08-WSEE-1041-RTS, 08-ITCE-936-COC, 09-KCPE-246-RTS, and 08-PWTE-1022-COC. While working at KPP I have filed testimony in Docket Nos. 09-MKEE-969-RTS, 11-GIME-497-GIE, 12-KPPE-630-MIS, 15-SPEE-161-RTS, 16-MKEE-023-TAR, 16-KPEE-470-PRE, 16-KCPE-593-ACQ, 17-KPPE-o92-COM, and 18-KCPE-095-MER.

Q. What is the purpose of your testimony?

A. Kansas Power Pool ("KPP") has applied for a certificate of transmission rights only ("TRO") to construct a 115/34.5 kV substation and approximately 5 miles of 34.5 kV line connecting a 34.5 kV line owned and operated by the City of Kingman to a Mid-Kansas Electric Company, LLC ("MKEC") 115 kV line. While these TRO certificate filings are commonly routine, due to recent changes in the law, KPP has made the decision to file this testimony explaining its desire to construct these facilities and proving that its proposed project is in the public interest.

KPP's Services and Obligations to its Full Requirements Members

Q. Can you explain why KPP seeks to construct this project?

A. KPP is a municipal energy agency formed in 2005 under K.S.A. 12-885, *et seq.* While any Kansas municipal electric utility may be a member of KPP, KPP provides wholesale electric service to

Members that have signed the Amended Operating Agreement (“Operating Agreement”).¹ Currently KPP serves 24 Kansas municipal electric utilities under full requirements contracts (“Members”). KPP arranges transmission service and generation supplies for these Members. 16 of these KPP Members are in the Westar Energy transmission zone, 7 are in the Mid-Kansas Electric Company (“MKEC”) zone, and 1 is in the Midwest Energy (“Midwest”) zone. This application supports a transmission project that will provide vastly improved transmission service to the City of Kingman, KS.

Q. What is KPP’s relationship to the City of Kingman?

A. The City of Kingman owns and operates its own electric municipal utility and provides retail service to customers both within, and, to a small extent, outside, of its city limits, per its retail electric supplier certificate. In 2007, the City of Kingman began taking service from the KPP under the KPP Operating Agreement and became a full requirements Member of KPP. KPP’s obligations to the City of Kingman and other Members is spelled out in KPP’s Operating Agreement:²

- a) To provide the means for an adequate power supply for Members in conformance with applicable standards of reliability and safety;
- b) to provide the means for optimal use of generation and transmission facilities resulting in the efficient use of natural resources;
- c) to attain maximum practicable economy to the Members consistent with applicable standards of reliability and safety and to provide for equitable sharing of the resulting benefits and costs;

¹ While any Kansas municipal electric utility may join KPP, KPP only provides wholesale power services to those that have signed the Operating Agreement. Additionally, only those who have signed the Operating Agreement can be on the KPP membership committee or the board of directors. KPP does not charge any power or administrative costs to non-operating agreement members. Currently there are 7 municipal electric utilities that are non-operating agreement members, the Cities of Stockton, Osborne, Chapman, Burlingame, Larned, Stafford, and Anthony. Members that have signed the KPP operating agreement are full requirements members and are referred to here as “Members”.

² See Exhibit LWH-1 filed August 8, 2017 in KCC Docket No. 17-KPPE-092-COM (“17-092”) for the KPP 2nd Amended Operating Agreement.

1 d) and to provide any additional services to the Members as directed and approved by the
2 Board of Directors.

3 **Q. Can you summarize KPP's obligation to its Members and how it is relevant to this TRO certificate**
4 **filing?**

5 A. Not only is KPP obligated to provide its Members with transmission service, it is also required to
6 provide services to its Members as reliably, equitably, and economically as possible. Additionally,
7 KPP's budget and rate setting process makes this project in the interest of all KPP Members.

8 **Q. Can you explain how KPP bills its Members for services?**

9 A. Yes. KPP pays for all the costs of transmission and generation services for its Members and then
10 bills all Members at the same rates for these services to collect the combined costs. KPP does not
11 distinguish between costs to serve individual Members, but, instead, pools transmission service
12 and generation resources to serve all Members. Under the Operating Agreement, Members turn
13 over their generation resources and purchase power contracts³ to KPP, and KPP uses these
14 resources to serve all Members, even those that do not have any resources to contribute to the
15 pool. In return, KPP pays the cost of these purchase power agreements and compensates
16 Members for use of their generation.

17 **Q. Can you describe how KPP develops its budget and the rates for its Members?**

18 A. Yes. Prior to the 2011 budget, KPP had a single, non-coincident peak ("NCP") monthly demand
19 charge and a monthly energy charge with a monthly energy cost adjustment ("ECA") that it used
20 to bill its Members. At that time, KPP allowed Members with internal generation to shave their
21 monthly peak demand by generating at their own cost. This created problems in the pool because

³ The one exception is Western Area Power Administration hydropower contracts. Because KPP is not located in the Missouri River basin, these contracts cannot be used by the pool and are, instead, paid for and credited to the Member holding the contract.

1 a significant part of the fixed costs, such as transmission charges in the Southwest Power Pool
2 ("SPP") for Network Integrated Transmission Service ("NITS") customers such as KPP are
3 determine on a load ratio share amount. Load, as defined under the SPP Open Access
4 Transmission Tariff ("OATT"), would include the interconnection meter reading plus any of the
5 city's behind-the-interconnection meter generation. For example, if a city had no generation and
6 the interconnection meter read 10 megawatts ("MW"), it would be assumed that the load was 10
7 MW. If the city had 4 MW of internal generation operating and an interconnection reading of 6
8 MW, it would still be charged for 10 MW of load under the SPP OATT. However, prior to 2011,
9 the KPP Member in this example would only be charged for 6 MW of demand by KPP.

10 To address these problems and others with the KPP budget and billing process, KPP Members
11 formed a rate review committee in late 2009 and adopted several ratemaking principles in May
12 of 2010, as summarized below:⁴

- 13 1. KPP will make capacity payments based on the rate of \$4.50/kW-year for all city-owned
14 generation. Payments will be based on actual capacity test results in accordance with the KPP
15 capacity testing procedures. (Note: This replaces the current practice of paying for excess
16 capacity only.)
- 17 2. Peak shaving to avoid capacity charges will not be allowed. KPP capacity charges shall not
18 exceed import limits of individual members due to tie restrictions.
- 19 3. The KPP wholesale capacity and energy rate shall be determined annually based on the
20 projected load and costs as approved by the Board of Directors.
- 21 4. The KPP monthly Energy Cost Adjustment shall be posted on the member's only portion of
22 the KPP website.
- 23 5. KPP Billing shall be "unbundled," demonstrating the fixed costs included in the demand rate
24 (purchase power fixed costs, transmission fixed costs, KPP administrative fixed costs).
- 25 6. The KPP Energy Cost Adjustment will continue to be calculated under the current
26 methodology based on the expected overall average demand and energy costs, adjusted
27 annually based upon the KPP Rate Forecast Model. Annual base rate for the energy cost
28 adjustment calculation to be approved by the KPP Board of Directors.
- 29

⁴ Final Recommendations to the KPP Board of Directors that was approved by both the Board of Directors and the Operating Committee on May 12, 2010 is attached as Exhibit LWH-1

1 Since these principles were adopted in 2010, little has changed in the way KPP has developed and
2 approved its budgets and rates. While KPP members voted to increase the compensation for
3 internal generation capacity to \$7.50/kW-year in 2018,⁵ little else has changed since these
4 principals were adopted.

5 **Q. Can you provide an example of the KPP budget and rates?⁶**

6 **A.** A copy of the 2018 KPP budget is attached as Exhibit LWH-2.

7 **Q. How is the KPP rate-making process and budget process relevant to this proceeding?**

8 **A.** It is important to understand KPP's obligations to its Members and how KPP rates are developed
9 when determining if the certificate for TRO application in this docket is in the public interest. As
10 discussed, KPP is responsible for providing transmission service for its Members. Additionally, it
11 is important to understand that, as shown in the KPP 2018 budget, these transmission costs are
12 paid for in the transmission demand rates paid by all KPP Members. Both facts are important for
13 the Commission to consider in granting this application.

14 **Kingman's Transmission Service**

15 **Q. Can you describe how the City of Kingman is interconnected to the transmission network?**

16 **A.** Yes. The City of Kingman ("Kingman") is the county seat of Kingman County and owns and
17 operates its own municipal electric utility. Kingman County is adjacent to western Sedgwick
18 County, a Kansas County with over half a million in population, and the City of Kingman itself is
19 located less than 35 miles west of the Wichita city limits. Despite Kingman's proximity to the

⁵ KPP Members understand that this is well below market compensation for generation capacity, but are also aware that the KPP Members must recover the revenue for these payments in their rates.

⁶ KPP Members voted to deregulate under the new provisions of K.S.A. 12-8,111 effective March 8, 2018 on April 19, 2018.

1 second largest urban center in Kansas, Kingman, and for that matter all of Kingman County, have
2 very poor electric transmission connectivity to power supplies and markets. This is, in part,
3 because much of Kingman County is served by the very Eastern portion of the Mid-Kansas
4 ("MKEC") electric system (the old Aquila system), while the northeastern quarter of the county
5 is served by the far western edge of Westar Energy's electric system. This creates a type of
6 border area where neither of these systems is well equipped to provide robust electric
7 transmission service.

8 Historically,⁷ the City of Kingman was connected by an antiquated undersized 34.5 kV
9 line now owned by Wheatland Electric Cooperative, Inc. ("WEC") that runs north out of the
10 MKEC Harper substation.⁸ This undersized transmission line could deliver only 2 MegaWatts
11 ("MW") of power. Because Kingman has about a 12 MW peak load, the result was that Kingman
12 ran its dual fuel generation⁹ every day to provide the remaining power the city needed. This
13 situation improved somewhat in 2005 when Kingman, at its own expense, constructed about 26
14 miles of 34.5 kV composite core conductor line west to the small town of Cunningham to
15 interconnect with an Aquila 34.5 KV line¹⁰ that ran about 18 miles east out of the Pratt
16 substation. See Figure 1 below:¹¹

⁷ It is KPP's understanding that this Wheatland interconnection has been in place since the late 1960s.

⁸ Both the substation and the line were part of the old Aquila system.

⁹ This refers to the engines Kingman uses to generate electricity internally. These are large diesel engine generator sets that use diesel as a pilot fuel and natural gas. The "dual fuel" designation refers to these types of internal combustion engines that can use either 100% diesel, or up to 95% or more of natural gas, with diesel as a pilot fuel.

¹⁰ Now owned and operated by Southern Pioneer Electric Company, "Southern Pioneer."

¹¹ Note: Figure 1 shows the existing Kingman to Cunningham 34.5 kV Line, the existing Southern Pioneer Pratt to Cunningham 34.5 kV line, the Ninnescah Line, and the existing SemCrude substation, as well as the Proposed KPP project to install a 115/34.5 kV substation on the Ninnescah line and a 34.5 kV line to the existing Kingman to Cunningham line. The actual line routing of the Kingman Direct Connection is provided in this application.

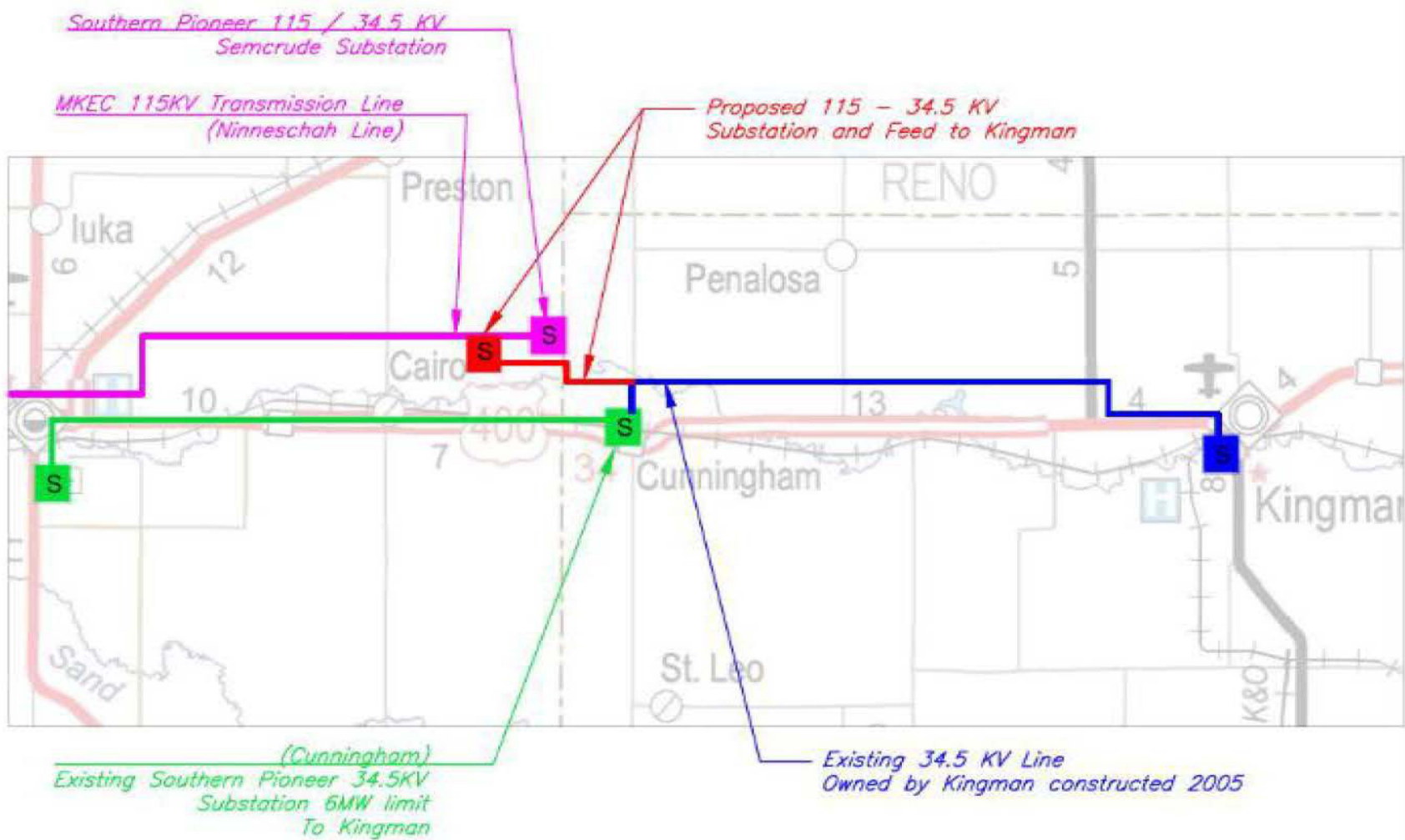


Figure 1

1 While the new line constructed by Kingman to interconnect with the existing Southern Pioneer
2 Pratt to Cunningham 34.5 kV line increased Kingman's import capability from 2 MW to 6 MW, it
3 did not allow Kingman to import all the power it needed. The result was that Kingman's operation
4 of internal generation was reduced to only about 5 months out of the year. Nonetheless, to this
5 day, Kingman is not fully interconnected with the Southwestern Power Pool ("SPP"), even though
6 KPP and its Members pay Kingman's full load ratio share for transmission service under the SPP
7 Open Access Transmission Tariff ("OATT") Network Integrated Transmission Service ("NITS").¹²

8 **Q. Given Kingman's history of inadequate interconnection to transmission services, has KPP been**
9 **able to solve the problem?**

10 A. Not yet. For over ten years, KPP has been working to meet its obligation to optimize the use of
11 Kingman's generation resources and to provide Kingman with access to efficient and reliable
12 power supplies through unlimited transmission service.

13 **Q. What actions did KPP take in 2007 to meet its Operating Agreement obligations to Kingman?**

14 A. In 2007, when KPP began serving the City of Kingman and other KPP Members, KPP requested
15 that the Southwest Power Pool provide KPP with NITS under the SPP OATT.

16 **Q. Please explain what is meant by NITS (Network Integrated Transmission Service)?**

17 A. Network Integrated Transmission Service, or NITS, is a transmission service concept used by the
18 Federal Energy Regulatory Commission ("FERC") to describe how a transmission owner uses its
19 transmission service for its native load customers in the FERC's landmark 1996 Order 888. The

¹² Under the SPP OATT, Kingman load is used to determine its load ratio share for calculating the SPP NITS charges. For example, if Kingman's load is 12 MW at the MKEC peak hour in July, and Kingman only imported 6 MW of power from SPP at that hour, Kingman is still charged as if all of its load (12 MW) was served by SPP at that peak hour under the SPP OATT.

1 emphasis of this order was to require transmission owners to provide open access transmission
2 service to wholesale customers equivalent to the service the transmission owners provided to
3 their own retail and wholesale power customers. The overall intent of this order was to develop
4 and promote competitive wholesale generation markets by ensuring that utilities that owned
5 both transmission and generation did not use their transmission service monopoly to prevent
6 access to competitive generation supplies. As described in FERC Order 888, "Network service
7 permits the applicant to fully integrate load and resources on an instantaneous basis in a manner
8 similar to the transmission owner's integration of its own load and resources."¹³

9 NITS stands in contrast to traditional Point-to-Point ("PTP") transmission service. PTP
10 transmission service allows the use of a single transmission path from a single receipt point to a
11 single delivery point. For example, suppose that KPP had two cities (City A and City B) and KPP
12 wanted to deliver power from two separate generators (Generator A and Generator B) to these
13 cities. If KPP wished to be able to deliver power from either generator to either City at any time
14 and could only use PTP service, KPP would have to have four firm PTP transmission paths. These
15 paths would be 1) Generator A to City A; 2) Generator A to City B; 3) Generator B to City A; and 4)
16 Generator B to City B.

17 However, in contrast to PTP, KPP would only need one NITS agreement, listing the
18 Network resources (Generator A and Generator B) and the Network load (City A and City B).
19 Furthermore, NITS is not only similar to the way the transmission owner uses its own transmission
20 system to serve its load from its generation resources, it is a far more efficient use of the
21 transmission system. If the PTP paths described above are used, for example, transmission
22 capacity must be reserved for use even though the system is not being used when Generator A is

¹³ Page 34, FERC Docket No.'s RM95-8-000 and RM94-7-001, April 24, 1996 Order No. 888 Final Rule.

1 providing all the needed power to City A and City B, and the Generator B transmission paths are
2 not loaded.¹⁴

3 **Q. Please describe how NITS is obtained under the SPP OATT?**

4 A. First, the transmission customer must submit a Transmission Service Request ("TSR") to SPP.
5 Then, if the transmission customer is adding network resources, or if a simple analysis shows the
6 load may not be readily served, SPP must perform a detailed study to see if the requested NITS
7 may be provided with either existing transmission facilities or if new transmission facilities must
8 be constructed. Rather than perform individual studies, in 2005 SPP began aggregating studies to
9 allow entities to enter the study process on equal footing and to more efficiently evaluate TSRs.

10 **Q. Is this the process used by KPP to obtain SPP NITS in 2009?**

11 A. Yes. KPP entered the first SPP Aggregate Study of 2007 ("2007 AG1 Study") and when the 2007
12 AG1 Study was complete in early 2009, KPP could provide the City of Kingman with SPP NITS in
13 June of 2009. The result of the 2007 AG1 Study was KPP had three different SPP NITS Agreements
14 ("NITSAs"), resulting in three different settlement locations representing KPP load in the MKEC
15 transmission area, the Midwest Energy transmission area and the Westar Energy transmission
16 area. In 2009, KPP entered another SPP aggregate study, the 2009 AG2 Study, to consolidate
17 these three NITSAs into one, to allow all KPP generation resources to serve all KPP Members under
18 one NITSA.

¹⁴ In this simple case, the two generator B transmission paths may be used only on a non-firm basis and cannot be relied upon for firm transmission use by other parties. Additional transmission facilities may need to be constructed to provide other users with firm transmission capacity needlessly reserved for these two paths. Network service allows transmission planners to make simple assumptions regarding generation dispatch to prevent needless over-construction of transmission facilities.

Q. Did SPP identify any upgrades that would be needed to give Kingman full import and export¹⁵ capability?

A. Yes. However, they were not on facilities under the SPP OATT. Unfortunately, the modifications identified involved what SPP considered “third party” upgrades. These upgrades were on the Southern Pioneer 34.5 kV line from Pratt to Cunningham. Because Southern Pioneer had not placed these facilities under the SPP tariff, these upgrades were considered outside the SPP tariff and therefore were considered third-party upgrades. Under the SPP tariff, anyone requesting transmission service will be directly assigned the full cost of any third-party upgrade. The SPP 2009 AG2 Study concluded the following:

Table 1. Upgrades Identified by SPP in 2009 AG2 Study for Full Kingman Transmission Service

Direct Assigned Network Upgrades - The requested service is contingent upon completion of the follow					
Reservation	Upgrade Name	DUN	EOC	Allocated E & C Cost	Total E & C Cost
73446841	Pratt 115/34.5kV Transformer	8/1/2010	6/1/2014	\$ 2,000,000	\$ 2,000,000
	CKT 1	8/1/2010	6/1/2014	\$ 4,164,600	\$ 4,164,600
	Cunningham Voltage Regulator	8/1/2010	6/1/2014	\$ 250,000	\$ 250,000
				\$ 6,414,600	\$ 6,414,600

Note that the costs of this upgrade assumed that the entire Southern Pioneer 34.5 kV line from Pratt to Cunningham would be rebuilt (approximately 18 miles). Had this upgrade been completed, Kingman would have been served on the end of over 44 miles (the Southern Pioneer line and the Kingman line) of 34.5 kV line. KPP and the City of Kingman considered this to be an unnecessarily costly solution that would result in an unusually long low voltage line providing poor transmission connectivity to Kingman.

¹⁵ This refers to the ability to export Kingman generation to serve other KPP Members under the SPP OATT

1 **Q. How did SPP arrive at their supposition that this work would allow full use of Kingman’s**
2 **generation and full import capability for Kingman’s load?**

3 A. SPP does not perform the engineering analysis on lower voltage lines (below 100 kV) or third-
4 party facilities. Since the proposed modifications involve 34.5 kV transmission facilities, SPP
5 relied upon input provided by Southern Pioneer and MKEC into the SPP process.

6 **Q. What did this study conclude about the ability of SPP OATT facilities to provide full**
7 **transmission service for Kingman’s load and generation?**

8 A. The backbone MKEC 115 kV lines that interconnect with the Pratt substation are adequate for
9 providing this additional service to the Kingman generation and load.

10 **Q. Did KPP decide to go ahead with the \$6.4 million in upgrades?**

11 A. No. Rebuilding every inch of the Southern Pioneer facilities would still have left the Kingman
12 load and generation at the end of almost 40 miles of 34.5 kV line. KPP sought a better solution
13 for its obligation to Kingman. Furthermore, KPP knew that there was closer and better access to
14 high voltage transmission in the area.

15 **KPP’s decision to install the Kingman Direct Connection**

16 **Q. Did KPP make any other efforts to identify a solution to the Kingman interconnection?**

17 A. Yes, in 2014 MKEC acquired a 115 kV line running east from a MKEC 115 kV line north of Pratt,
18 KS to a Northern Natural Gas compressor station north and west of Cunningham, KS from
19 Ninnescah Rural Electric Cooperative (the “Ninnescah 115kV”) and placed this line under the SPP
20 OATT.¹⁶ KPP worked with SPEC and MKEC to support this acquisition and initiated discussions

¹⁶ See the Order Approving Unanimous Settlement Agreement issued on April 29, 2014 in KCC Docket No. 14-MKEE-170-TAR.

1 with SPEC regarding use of SPEC's SemCrude Substation to provide full transmission service to
2 the City of Kingman by interconnecting with Kingman's 34.5 kV line. However, use of the
3 SemCrude substation and additional SPEC service was found to be impractical for KPP.

4 **Q. Why was utilization of the SemCrude substation impractical for providing Kingman full**
5 **transmission service?**

6 A. For three reasons. First, the SemCrude substation equipment was designed and installed merely
7 to serve the SemCrude load, and much of the equipment in the substation would need to be
8 replaced and rebuilt to accommodate the Kingman load and generation. Second, the proposal
9 from SPEC required KPP to pay for most of the necessary upgrades and then to also pay
10 increased SPEC local access charges, resulting in an unacceptable financial outcome for KPP.
11 Third, even after these upgrades, Kingman transmission service through SPEC would still prevent
12 KPP from optimizing use of Kingman's generators.

13 **Q. What events occurred as KPP continued its evaluation?**

14 A. As KPP looked harder at the option of providing full service to the City of Kingman by rebuilding
15 the SemCrude substation, several events unfolded. First, on October 8, 2014 SPEC filed a
16 request with the Commission in Docket No. 15-SPEE-161-RTS ("15-161") to increase its charges
17 for its local transmission access charge (LADS) from \$2.78 to \$4.53 per kilowatt-month ("kW-
18 mo"), a proposed 63% rate increase. This immediately changed the economics of the project
19 such that the SemCrude Project was no longer economic. Second, it became clear that the large
20 Kingman industrial customer would continue to operate following its change in ownership.¹⁷

¹⁷ There was a concern in mid-2014 that this industrial customer might move operations after it was acquired by a Canadian company.

1 Finally, KPP became aware that continuing service over SPEC's system for Kingman would strand
2 KPP generation investments.

3 **Q. Does KPP consider the City of Kingman's generation valuable?**

4 A. Yes, and so do SPP and MKEC. Even before the SPP Integrated Market ("SPP IM") was
5 implemented in March of 2014, KPP, the City of Kingman and MKEC had a standing agreement
6 for Kingman generation to support energy emergencies in the MKEC transmission zone.

7 **Q. Have KPP Members invested in the City of Kingman's generation?**

8 A. Yes. In 2010, KPP acted to assist its Members in the implementation of the Environmental
9 Protection Agency's ("EPA's") National Emission Standards for Hazardous Air Pollutants
10 ("NESHAP") proposed rules for stationary Reciprocating Internal Combustion Engines ("RICE").
11 These "RICE NESHAP" rules required many municipal generating units that were RICE engines
12 to install catalytic converters, or to be limited to emergency use only. The rules went into effect
13 May 3, 2013. KPP took a close look at its Members' internal RICE generating units and decided
14 to install the upgrades on 25 engines. While these 25 engines are owned by only 7 KPP
15 members, the cities of Augusta, Burlingame, Clay Center, Ellinwood, Kingman, Minneapolis and
16 Mulvane, all KPP Members agreed they would equally share the costs of these upgrades. This is
17 because under the Operating Agreement, as discussed, all Members share the use of their
18 generating resources. Altogether, KPP Members spent over \$4 million to upgrade these
19 engines, ensuring over 87 MW of KPP Member RICE generating capacity was available to benefit
20 KPP Members. Of these engines, KPP Members spent nearly \$900,000 on 5 Kingman RICE
21 generators that provide about 17 MW of generating capacity. Today, all 5 of these generators
22 are registered in the SPP IM and are considered designated network resources under KPP's SPP
23 NITSA.

1 **Q. When did KPP become aware that it would never get adequate value for any generation**
2 **delivered to SPP transmission through SPEC's facilities?**

3 A. KPP entered into a 2-year agreement to sell capacity from the Kingman units to the City of
4 Garden City through the Kansas Municipal Energy Agency ("KMEA") in December of 2013. In
5 late 2014, KPP was contacted by KMEA requesting an early termination on the contract since
6 SPEC was attempting to charge KMEA the full LADS rate for the generation capacity from
7 Kingman to the MKEC lines under the SPP OATT. Unlike the SPP OATT, the MKEC tariff for its
8 member's 34.5 kV service does not allow utilization of capacity on the 34.5 kV system without
9 paying SPEC's additional local access charge.

10 **Q. How did this incident change KPP's perspective of using the SPEC 34.5 kV line?**

11 A. All KPP Members paid to upgrade Kingman's generation. The current value for excess
12 generation capacity in the SPP market is over \$2.00/kW-mo. SPEC's local access charge plus
13 property tax surcharge ("LAC" and "PTS")¹⁸ is \$5.390840. If SPEC's tariff requires this generation
14 to pay the LAC, this means KPP will never be able to receive market value for any excess
15 available generation capacity.¹⁹ This is because the current market rate for generation capacity
16 is far less than SPEC's additional charges to deliver the capacity to the SPP transmission network.

17 **Q. When did KPP first begin planning the Kingman Direct Connection?**

18 A. In 2015, KPP engaged an engineering and design firm which specializes in comprehensive
19 engineering and design solutions for public and private infrastructure projects, Olsson and

¹⁸ Referred to collectively as the LAC.

¹⁹ Any generation directly connected to SPP's transmission system does not have to pay a separate transmission charge for serving load under a NITSA on SPP's OATT. It is only generation that must go through a third party such as SPEC, or generation located outside of SPP's footprint, that is required to pay an additional transmission charge. Essentially generation located on MKEC's 34.5 kV system is treated as if it were in a "whole different country."

1 Associates, to prepare preliminary cost estimates for directly connecting the Kingman 34.5 kV
2 line to the Ninnescah 115 kV. After receiving SPP analysis and approval for this connection in
3 the fall of 2015, KPP began meeting with MKEC to coordinate this interconnection. As Olsson
4 and Associates was preparing the initial design packages and requesting bids, SPEC filed a
5 complaint with the Commission on September 8, 2016.²⁰ While SPEC requested the
6 Commission to dismiss the Complaint on April 12, 2018, this 18-month delay in the Kingman
7 Direct Connection project has already cost KPP members over \$534,000 in SPEC LAC costs.²¹
8 Additionally, municipal bond rates have increased by over 100 basis points in that same 18-
9 month period. The result is whatever project KPP decides to do, whether it is the SPEC
10 SemCrude rebuild with a line extension ("SPEC Project") or the Kingman Direct Connection, this
11 delay has created additional financing costs, irreparably harming KPP Members.

12 **Economic Evaluation of Kingman Transmission Service Alternatives**

13 **Q. Did KPP perform an economic evaluation of alternatives to provide the City of Kingman with**
14 **unlimited access to SPP transmission service?**

15 **A.** Yes, and that analysis is attached as Exhibit LWH-3.

16 **Q. Can you provide an overview of this analysis?**

17 **A.** Exhibit LWH-3, "Economic Evaluation of Kingman Transmission Service Alternatives" (the
18 "Analysis"), provides an in-depth discussion of the purpose, scope, assumptions and methods
19 used in the Analysis. Overall, the Analysis used a Net Present Worth (NPV) calculation over the
20 20-year period from 2020 through 2039 to compare 3 alternatives. The resulting 2019 NPV of

²⁰ For a full discussion of the series of events and a detailed timeline, see the Direct Testimony of Larry W. Holloway filed August 7, 2017 in KCC Docket No. 17-KPPE-092-COM (the "Complaint")

²¹ These are just the costs from October 2016 through March 2018, as an estimate. Given cost escalation of SPEC LAC charges, this delay will likely cost much more.

1 the costs (or benefits) was then calculated for both KPP (all KPP Members)²² and the City of
2 Kingman alone (“Kingman”). The three alternatives considered were: 1) Do Nothing, 2) the SPEC
3 Project, and 3) the Kingman Direct Connection.

4 **Q. Where these alternatives all that were available for transmission service to Kingman?**

5 A. No. As discussed in the Analysis, there are at least 3 other possible solutions for Kingman
6 transmission access: connect to a Westar 69 kV line near Cheney Reservoir, rebuild the original
7 34.5 kV Wheatland line to the city of Rago where a new 138/34.5 kV substation has been built,
8 or attempt to connect to the 34.5 kV collector system of the Kingman Wind Farm. However,
9 none of these alternatives are as well developed as the ones used in the Analysis and the costs
10 associated with them is unknown. As discussed in the Analysis, they were not considered.

11 **Q. What costs were considered in the Analysis?**

12 A. The Analysis considered the costs of financing all KPP construction (the Kingman Direct
13 Connection) or KPP-assigned costs of construction by others (in the case of the SPEC Project),
14 with KPP-issued 20-year municipal bonds with levelized repayment amounts over the 2020
15 through 2039 period. The Analysis considered the forecasted SPEC LAC charges, as well as the
16 Kingman capacity sale lost opportunity costs over same 20-year period for the “Do Nothing” and
17 the SPEC Project alternatives. For the SPEC Project and the Kingman Direct Connection, the
18 increase in KPP capacity demand payments was considered a benefit to KPP and a cost to
19 Kingman and the Kingman generation savings were considered a benefit to Kingman over the
20 20-year period. The Kingman Direct Connection also considered the KPP transmission Operating

²² Including the City of Kingman.

and Maintenance (“O&M”) costs and the Kingman meter loss savings over the 20-year period. A two percent inflation rate was used in the Analysis. A summary of these results is shown below:

Table 2 - Results of NPV Analysis of the Three Alternatives		
	SPEC Project	
	2019 Net Present Value of Costs (Benefits)	
	Kansas Power Pool	City of Kingman
Bond Issue Payments	\$2,302,492	\$0
Bond Reserve Refund	(\$183,168)	\$0
LAC charges	\$11,624,627	\$0
Increased Capacity Payments	(\$2,186,469)	\$2,186,469
Kingman Generation Savings	\$0	(\$2,374,793)
Kingman Capacity Sale Lost Opportunity	\$7,529,412	\$0
Total	\$19,086,892	(\$188,324)
	Do Nothing	
	2019 Net Present Value of Costs (Benefits)	
	Kansas Power Pool	City of Kingman
LAC charges	\$9,395,727	\$0
Kingman Generation Costs	\$0	\$2,374,793
Kingman Capacity Sale Lost Opportunity	\$7,529,412	\$0
Total	\$16,925,139	\$2,374,793
	Kingman Direct Connection	
	2019 Net Present Value of Costs (Benefits)	
	Kansas Power Pool	City of Kingman
Bond Issue Payments	\$4,365,099	\$0
Bond Reserve Refund	(\$347,254)	\$0
O&M Costs	\$1,424,180	\$0
Increased Capacity Payments	(\$2,186,469)	\$2,186,469
Kingman 115 kV Metering Loss Savings	\$0	(\$1,292,015)
Kingman Generation Savings	\$0	(\$2,374,793)
Total	\$3,255,556	(\$1,480,339)

1

2 **Q. Are there other benefits or costs that were not considered?**

3 A. Yes, there are at least two. First, when KPP cities such as Kingman have units that are offered
4 into the SPP Integrated Market, KPP pays these cities the compensation KPP receives from the
5 SPP Integrated Market when these units are dispatched into the market. Today, because of its
6 import limits on the SPEC Connection, Kingman units often get picked up by the market when
7 they are already operating due to import limits. In this case, the SPP Integrated Market
8 recognizes these units as self-committed and does not compensate Kingman for startup costs.
9 Additionally, because these units are already self-committed for the import limits, it is difficult
10 to match any SPP Integrated Market dispatch instructions, often resulting in deviation costs.
11 The net result is that Kingman is undercompensated for its market dispatched generation, and
12 KPP Members often must pay for any deviation costs in the SPP Integrated Market settlements.
13 These additional market costs to Kingman and KPP are difficult to quantify and were not added
14 to the “Do Nothing” alternative that leaves the import limits in place.

15 Second, the Analysis does not include the cost of import limits to the citizens of Kingman
16 and its economic development. KPP did engage an expert to quantify these costs, and his
17 testimony and analysis is available for Commission consideration.²³ Additionally, an ordinance
18 supporting the Kingman Direct Connection was passed by the City of Kingman on July 27, 2017,
19 and is attached as Exhibit LWH-4.²⁴ Nonetheless, it is important to consider that when a rare
20 opportunity arises to attract a new industry or commercial enterprise to a small community,

²³ See the Direct Testimony of Kenneth A. Kriz on August 7, 2017 in KCC Docket No 17-KPPE-092-COM.

²⁴ This was also an exhibit to the Direct Testimony of Ira Hart filed on August 7, 2017 in Docket No. 17-KPPE-092-COM.

there is often not time to initiate and complete a large infrastructure construction project to successfully compete with other communities and locations. While these economic costs of import limits for Kingman are certainly real, they were not quantified for purposes of the Analysis.

Q. Can you provide a short summary of the NPVs calculated by the Analysis?

A. Yes. See Table 3 below.

Table 3. Summary Comparison of Alternatives		
	2019 Net Present Value of Costs (Benefits)	
	Kansas Power Pool	City of Kingman
SPEC Project	\$19,086,892	(\$188,324)
Do Nothing	\$16,925,139	\$2,374,793
Kingman Direct Connection	\$3,255,556	(\$1,480,339)

As shown in Table 3, the least cost alternative for KPP Members is the Kingman Direct Connection, which is estimated to provide over \$13 million in savings over the 20-year period, as compared to the “Do Nothing” alternative. The Kingman Direct Connection also provides the City of Kingman with net benefits of almost \$1.5 million, as compared to costs of almost \$2.4 million for the “Do Nothing” alternative, for a net savings of over \$3.8 million. While the City of Kingman would also see some savings from the SPEC project, this is irrelevant as shown by the least cost comparisons of the 20-year NPVs.

Q. Why are Kingman savings with the SPEC Project irrelevant in KPP’s evaluation of these 3 alternatives?

A. As discussed earlier, because of the way KPP Members pool costs and pay uniform rates, the Kingman Direct Connection can be funded by all KPP Members (including Kingman) and still

1 create significant savings, as compared to the “Do Nothing” alternative. For that reason, it
2 makes sense for KPP Members to pay for the Kingman Direct Connection. The same cannot be
3 said for the SPEC Project. If the Commission were to deny KPP the TRO certificate to construct
4 the Kingman Direct Connection, there is simply no justifiable funding mechanism to pay for the
5 SPEC Project, since all KPP members would pay more than they would benefit.²⁵

6 **Q. What actions would KPP take on behalf of its Members if the Commission were to deny KPP’s**
7 **certificate for TRO?**

8 **A.** At this point in time, none. The SPEC Project simply makes no sense for KPP Members. Until a
9 better solution comes along, Kingman would remain with “third world” transmission access
10 under the same conditions that exist right now (despite paying a “first world” price for that
11 transmission access). Furthermore, KPP Members’ investment in Kingman’s generation capacity
12 would remain stranded, and the ability of this generation capacity to contribute to regional
13 reliability would continue to be limited.

14 **This Certificate for Transmission Rights Only is in the Public Interest**

15 **Q. What did Staff conclude in its Report and Recommendation in the Complaint Docket?**²⁶

16 **A.** Staff reached several conclusions regarding the Kingman Direct Connection KPP project that are
17 relevant in this proceeding for a certificate for Transmission Rights Only for that project. First,
18 Staff disagreed with SPEC’s allegation that the Kingman Direct Connection was unnecessary or
19 duplicative of existing SPEC transmission services. Second, Staff concluded that the existing
20 SPEC transmission service to Kingman was not sufficient or efficient. Third, Staff concluded that

²⁵ As stated previously, the “Do Nothing” alternative has a 20-year NPV of costs, less than the SPEC Project for KPP Members.

²⁶ For a complete discussion, see Staff’s Report and Recommendation filed on March 30, 2018 in Docket No. 17-KPPE-092-COM.

1 SPEC's Complaint should be dismissed. Finally, Staff recommended that this certificate for TRO
2 filing for the Kingman Direct Connection be reviewed by the Commission and evaluated
3 considering the 6 factors stated in K.S.A. 66-1,171, the declaration of public policy applicable to
4 retail electric certificates and applications for TRO certificates. These six factors are as follows:²⁷

- 5 (a) Encourage the orderly development of retail electric service;
- 6 (b) avoid wasteful duplication of facilities for the distribution of electricity;
- 7 (c) avoid unnecessary encumbrance of the landscape of the state;
- 8 (d) prevent waste of materials and natural resources;
- 9 (e) facilitate the public convenience and necessity; and
- 10 (f) minimize disputes between retail electric suppliers which may result in inconvenience,
11 diminished efficiency and higher costs in serving the consumer.

12
13 **Q. Would granting KPP a certificate for TRO encourage the orderly development of retail electric**
14 **service?**

15 A. Yes. Current retail customers in the Kingman and Cunningham areas have retail electric service.
16 A quick review of the KCC certificate maps for Kingman County show that, while the certificate
17 of TRO requested in this filing traverses the territories of SPEC and Ninnescah Rural Electric
18 Cooperative, Kingman's existing 34.5 kV facilities go through many miles of Ark Valley Electric
19 Cooperative and other Kingman facilities are adjacent to Wheatland Electric Cooperative. While
20 retail customers in these areas are currently served, opportunities to serve new load additions
21 are limited, due to the limited transmission connectivity in the area, as discussed above.

22 Unlike SPEC, KPP has placed transmission assets under the SPP OATT. While SPEC could
23 have done this, it has chosen not to. Effects of this decision on public policy will be discussed
24 later, but for purposes of this issue, it is important to understand that if the Kingman Direct
25 Connection certificate for TRO is approved, KPP stands ready, willing, and able to work with the

²⁷ Ibid, p.8

1 City of Kingman to provide direct access to SPP OATT service, up to and including placing
2 applicable portions of the Kingman Direct Connection and Kingman's existing 34.5 kV line under
3 the SPP OATT.²⁸ Should other entities in the area wish to access the SPP transmission network
4 by interconnection with these facilities, KPP and the City of Kingman will provide the necessary
5 transmission service without the needless restrictions SPEC places on transmission service on
6 use of its 34.5 kV transmission service.²⁹

7 Economic development in rural Kansas is a difficult task, and it is certainly not easy if
8 there is inadequate transmission service, as currently exists in the northern half of Kingman
9 County. Often, when opportunities arise, it is critical that supporting infrastructure
10 improvements can be made expeditiously to compete with locations in other communities or
11 even states. The Kingman Direct Connection is the most economic solution to improve
12 transmission access in this area in the near future. As discussed, the SPEC Project is uneconomic
13 for KPP Members, and, if the Commission denies this application, there will simply be no
14 improvement in transmission service in this area for the foreseeable future. Furthermore, the
15 SPEC Project would limit the ability of any local development of small generation resources on
16 the lower voltage transmission lines in the area. Finally, the City of Kingman formally recognized
17 the benefits of the Kingman Direct Connection in a resolution passed on July 27, 2017, attached
18 as Exhibit LWH-4.³⁰

19 In conclusion, granting this application is the only near-term solution to assuring that
20 future retail electric service in the area can be adequately served, as well as removing the limits

²⁸ KPP has already done this with Winfield's 69 kV transmission facilities, see Docket No. 12-KPPE-630-MIS.

²⁹ For example, SPEC restrict full utilization of valuable generation capacity, as discussed above.

³⁰ And as an exhibit to the Direct Testimony of Ira Hart filed on August 7, 2018 in Docket No. 17-KPPE-092-COM.

1 that currently exist on Kingman's retail electric service and fostering future economic
2 development in the area.

3 **Q. Would granting KPP a certificate for TRO cause wasteful duplication of facilities for the**
4 **distribution of electricity?**

5 A. No. The Kingman Direct Connection is being constructed to connect the City of Kingman to SPP
6 transmission service. The current service provided by SPEC limits the City of Kingman's
7 transmission access and utilization of Kingman's generation capacity. To date, SPEC has made
8 no investments to increase the import limits on Kingman's service since the City of Kingman, at
9 its own considerable expense, connected to the Pratt to Cunningham 34.5 kV line in 2005.
10 These facilities existed then and now, with the current service limits, and were never
11 constructed to serve the City of Kingman.

12 **Q. Do any of MKEC's members currently provide transmission facilities designed, constructed and**
13 **maintained to provide Kingman with unlimited access to SPP OATT services?**

14 A. No. Until recently, KPP maintained the limited Wheatland 2 MW reservation for the City of
15 Kingman, even though it has been years since this service was utilized. As discussed, SPEC's
16 current 34.5 kV service fails to provide an adequate interconnection to MKEC's transmission
17 system to allow KPP to fully import Kingman's load through the SPP OATT. Additionally, SPEC's
18 transmission system does not allow full and economic participation of the City of Kingman's
19 generation capacity in the SPP Integrated Market.

20 **Q. Did SPEC construct its Pratt to Cunningham 34.5 kV facilities to serve the City of Kingman?**

21 A. No. In 2005, the City of Kingman, through its own initiative, and at its own considerable
22 expense, installed approximately 26 miles of 34.5 kV line to interconnect with the SPEC 34.5 kV

1 substation in Cunningham.³¹ While the City of Kingman installed robust 34.5 kV conductor and
2 structures, the existing SPEC 34.5 kV line from Pratt to Cunningham and the associated facilities
3 were only capable of providing about 10 MW of power. After reserving 4 MW to serve SPEC's
4 retail load at Cunningham, this left Kingman with a 6 MW import limit. Not only has Kingman
5 installed the 26 miles of 34.5 kV line to Cunningham, but Kingman also paid for all
6 interconnection costs at the Cunningham substation.³²

7 **Q. Has SPEC increased the capacity of its Pratt to Cunningham 34.5 kV facilities since 2005?**

8 A. No. Except for some line replacement due to construction on Highway 400 and storm repairs,
9 there has been little done since 2005 to update or improve the SPEC Pratt to Cunningham 34.5
10 kV facilities. In fact, in 2005 Kingman paid for the entire costs of the interconnect and SPEC has
11 done little, if anything, to improve the Pratt to Cunningham 34.5 kV facilities since then.
12 Considering these facilities are necessary for service to retail customers in Cunningham, all
13 revenue received for this limited, inadequate 34.5 kV service to Kingman has been like "found
14 money" for SPEC.

15 **Q. But didn't SPEC have to pay for maintenance and upkeep on these facilities over the years?**

16 A. When KPP asked this question in discovery in the Complaint Docket, SPEC provided information
17 regarding the actual expenditures on these facilities since 2008. This information is summarized
18 in the following table. Note that virtually all of these expenditures were necessary for both
19 Kingman and SPEC's local retail service in Cunningham.

³¹ Owned at that time by Aquila.

³² See Exhibit 1 in the Testimony of KPP witness Mr. Ira Hart filed on August 7, 2018 in Docket No. 17-KPPE-092-COM.

Table 4 - SPEC Expenditures on Pratt to Cunningham 34.5 kV Facilities since 2008 per response to KPP DR# 36 in the Complaint Docket			
Work Order	Description	Net Construction Amount	Retail or Wholesale Function?
63100013	SPCC Pratt Transmission Sub	\$205,030	Both
63100018	RPLC BAD X ARM E OF PRATT SUB	\$856	Both
63140007	Kingman Load Increase 34.5 Line Work	\$5,320	Retail
63150008	2015 Line Inspection Repairs 34.5 Pratt	\$7,419	Both
63150009	H-Structure Hwy 54 Cairo	\$16,388	Both
63150016	H-Structure Hwy 54 Wellsford	\$16,592	Retail
63160022	Osmose Pratt-Cunn Change Outs 34.5/13.8	\$36,581	Both
63160023	Osmose Pratt-Cunn Respan 34.5/13.8	\$14,245	Both
64140003	Sunflower Pratt Sub 34.5 Mobile Conectio	\$54,125	Both
64140006	Add Exit Switches to the Cunningham Sub	\$24,728	Retail
63080007	F1776 PR Co May 08 Tornado	\$12,414	Both
63080021	KDOT US 54 Rd Move KM Co	\$60,535	Both
63080022	KDOT US 54 Rd Move PR Co	\$254,580	Both
63120015	KDOT Cairo / Waldeck 54 RD Move	\$102,276	Both
63130032	Storm Pratt 1/2 mile East of Sub 6413001	\$438	Both
63090019	Change out breaker at Kingman tap snake	\$29,937	Wholesale
	Total	\$841,463	

On the other hand, if one looks at the LAC charges that KPP has paid to SPEC for inadequate 34.5 kV service to Kingman, KPP has paid over \$1,830,000 for service to Kingman since January of 2011.³³ As shown, the amount of expenditures in the past 9 years by SPEC on the Pratt to Cunningham 34.5 kV facilities that serve both 4 MW of retail load and the limited Kingman service are less than half of what has been paid to SPEC for service to Kingman alone in the last 7 ¼ years.³⁴

³³ See Appendix C of Exhibit LWH-3.

³⁴ KPP has paid SPEC over \$1,575,000 for service on this line since 2011 and SPEC has only spent \$841,463 for investments since 2008.

1 **Q. What is your conclusion regarding this certificate for TRO request and the subsequent**
2 **Kingman Direct Connection in the context of the factor regarding avoidance of wasteful**
3 **duplication of facilities for the distribution of electricity?**

4 A. First, the existing SPEC and Wheatland facilities connecting Kingman to SPP transmission service
5 are inadequate to provide full transmission service access and do not provide service that allows
6 full utilization of Kingman's generation capacity. In fact, SPEC's current 34.5 kV facilities and
7 policies *create* waste by not allowing utilization of Kingman's full generation capacity and by
8 causing uneconomic dispatch of local generation. Second, existing facilities are not capable of
9 providing Kingman with the same type of unlimited import capabilities and electric service
10 currently enjoyed by distribution customers of the other local utilities. The Kingman Direct
11 Connection will provide this service to the City of Kingman, but it cannot be said this project will
12 duplicate facilities, because the existing SPEC and Wheatland facilities were never built,
13 designed, maintained or improved to provide this service equally to Kingman. In fact, the
14 facilities that will provide full transmission service for Kingman have yet to be built, let alone
15 duplicated. Finally, it is important to note that this is not about the distribution of electricity
16 and is, instead, related to the final link in Kingman's SPP OATT transmission service. These
17 factors lead to the obvious conclusion that this certificate for TRO does not create a wasteful
18 duplication of facilities for the distribution of electricity.

19 **Q. Would granting KPP a certificate for TRO avoid unnecessary encumbrance of the landscape**
20 **of the state?**

21 A. Obviously doing nothing would avoid construction of any additional electric facilities. This is not
22 only true of this certificate application, but can be said about the construction of electric
23 facilities anywhere in the state. KPP's application is necessary to provide unlimited transmission

1 service to Kingman and to maximize use of Kingman's generation capacity. Public right of way
2 will be used where possible to construct the 5 miles of 34.5 kV line. Additionally, the substation
3 is located along a gravel road with no nearby residences. Furthermore, the area itself has
4 multiple natural gas facilities for the injection and withdrawal of natural gas from the
5 Cunningham storage field. While there is a crossing of the Ninescah River involved, the
6 relatively short width of the river in this location should minimize the impact of this line
7 extension. In conclusion, the overall design and construction of the Kingman Direct Connection
8 should minimize any impacts on the area along the route of the project. Furthermore, by
9 creating a direct transmission path to SPP OATT transmission service, KPP hopes to maximize
10 utilization of Kingman's generation capacity. Making the most use out of existing generation
11 capacity provides benefits by delaying or preventing the unnecessary construction of additional
12 generation capacity and its related effects on the landscape of the state.

13 **Q. Would granting KPP a certificate for TRO prevent waste of materials and natural resources?**

14 A. Yes. The current import limits on the City of Kingman result in needless and uneconomic
15 generation, wasting natural gas when, for example, cheaper power supplies such as wind energy
16 are available from the SPP Integrated Market. Furthermore, the current limited transmission
17 service to Kingman does not allow the full use of Kingman generation capacity in the regional
18 market. Granting KPP a certificate for TRO will allow construction of the Kingman Direct Project
19 and prevent the waste of materials and natural resources, as well as allow full utilization of
20 generation capacity that already exists at Kingman.

21 **Q. Would granting KPP a certificate for TRO facilitate the public convenience and necessity?**

22 A. Yes. Electric service is considered a necessity of modern life and is necessary for business and
23 industry in local communities. This certificate will allow KPP to provide Kingman with efficient

1 and sufficient electric service. Furthermore, the Kingman Direct Connection project will provide
2 Kingman with electric transmission service that is equal to the same type of service that is
3 enjoyed by KPP Members served by Westar Energy and Midwest Energy. Finally, this project will
4 provide a path for future retail electric customers in the area to access SPP OATT transmission
5 service through Kingman and KPP transmission facilities. For all these reasons, this certificate
6 will facilitate public convenience and necessity and have a positive effect on the provision of
7 electric service in the local area.

8 **Q. Would granting KPP a certificate for TRO minimize disputes between retail electric suppliers**
9 **which may result in inconvenience, diminished efficiency and higher costs in serving the**
10 **consumer?**

11 A. KPP is a municipal energy agency and is prohibited by K.S.A. 12-897 from making retail sales
12 of electricity. Because KPP is not a retail electric supplier and is using the certificate for TRO
13 for transmission service, granting this certificate will have no effect on retail electric
14 suppliers or their territories.

15 **Q. Are there other factors the Commission should consider regarding this application?**

16 A. Yes. Unlike the transmission service provided on SPEC's 34.5 kV system, as stated previously,
17 KPP stands willing, ready and able to provide SPP OATT transmission service on its 34.5 kV
18 facilities and to facilitate this service on Kingman's 34.5 kV facilities.

19 **Q. Is SPP OATT transmission service in the public interest?**

20 A. Yes. In originally considering whether to grant SPP a certificate, the Commission stated "...
21 After reviewing the evidence presented in this docket, taking into account previously filed
22 Comments of the parties, and considering the Agreement reached by the parties, the

Commission concludes approval of these applications under the terms of the Agreement is in the public interest. The Commission finds the SPP RTO and SPP EIS market will benefit Kansas retail electricity customers. ..."³⁵ In its decision, the Commission noted many benefits of the SPP RTO, including the establishment of a region-wide transmission tariff without pancaked rates.

Q. Is 34.5 kV transmission service by Midwest Energy and Westar Energy provided under the SPP OATT without pancaked rates?

A. Yes.

Q. Do MKEC members offer 34.5 kV transmission service under the SPP OATT without pancaked rates?

A. No. In fact, the Commission has recognized that these facilities provide transmission service but are not part of SPP transmission service because they have not been placed under the SPP OATT by MKEC members:

"... the S&A resolves the issue of classification of the 34.5 kV facilities owned by the members through a stipulated finding that the 34.5 kV facilities at issue are not "transmission facilities" as per Attachment AI to SPP's Open Access Transmission Tariff under the Federal Energy Regulatory Commission (FERC) Seven Factor Test, an agreement that a necessary condition for inclusion of the member facilities in the SPP transmission system and under the SPP OATT is not met because ownership and control of the facilities resides with the MKEC Members who are not members of SPP, and a stipulated finding that the facilities that currently provide or are necessary to provide transmission service to one or more wholesale customers (Member Facilities) are being used to provide "transmission service" under Kansas law and such service must be provided under the Mid-Kansas open access transmission tariff (OATT) under the jurisdiction of the Commission. ..."³⁶

To summarize, MKEC members 34.5 kV facilities provide transmission service, but do so under a separate transmission tariff and not under the SPP OATT. This is the very definition of pancaked

³⁵ See Paragraph 40 of the Commission's Order Granting Stipulation and Agreement and Granting Applications" issued September 19, 2006 in Docket Nos 06-SPPE-202-COC and 06-WSEE-203-MIS

³⁶ See paragraph 8 of the January 11, 2012 Order Addressing Joint Motion to Approve Stipulation and Agreement in Docket No. 12-GIME-597-GIE.

1 transmission rates. Furthermore, as already noted, the characteristics of this service not only
2 negatively affect the economics of using Kingman's generation, as discussed, but also limit the
3 full utilization of many megawatts of additional generation throughout the state on MKEC
4 members' 34.5 kV system.

5 **Q. Is KPP willing to place its Kingman Direct Connection facilities under the SPP OATT, if needed**
6 **to provide transmission service to others in the area?**

7 A. Yes. Furthermore, KPP is already a transmission owner under the SPP OATT, so such an addition
8 of facilities would be a simple matter.

9 **Q. Are MKEC members' transmission facilities under the SPP OATT?**

10 A. No.

11 **Q. What is your conclusion?**

12 A. The Kingman Direct Connection is in the public interest and will do more to serve the
13 transmission needs of the local area than any other transmission service option for the City of
14 Kingman.


15 **Q. Does this conclude your testimony?**

16 A. Yes.

VERIFICATION

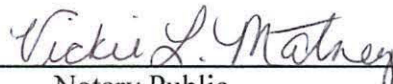
STATE OF KANSAS)
) ss:
COUNTY OF SEDGWICK)

Larry W. Holloway, of lawful age, being first duly sworn upon my oath, state that I am the Assistant General Manager - Operations with Kansas Power Pool; that I have read the above direct testimony; that I know the contents thereof and declare that the statements made therein are true and correct to the best of my knowledge and belief.



Larry W. Holloway

SUBSCRIBED AND SWORN to before me this 8th day of May, 2018.



Notary Public

My Appointment Expires:

8-10-2019



Rate Review Committee: Bob Porter, Doug Allen, Flip Hutfles, J. D. Cox, Bill Callaway, Chris Rasmussen, Jim Sutton, Larry Paine, Gene Williams

Final Recommendations to the Board of Directors:

1. KPP will make capacity payments based on the rate of \$4.50/kW-year for all city owned generation. Payments will be based on actual capacity test results in accordance with the KPP capacity testing procedures. (Note: This replaces the current practice of paying for excess capacity only.)
2. Peak shaving to avoid KPP capacity charges will not be allowed. KPP capacity charges shall not exceed import limits of individual members due to tie restrictions.
3. The KPP Wholesale Capacity and Energy Rate shall be determined annually based on projected load and costs as approved by the Board of Directors.
4. The KPP monthly Energy Cost Adjustment Calculation shall be posted on the member's only portion of the KPP website.
5. KPP Billing shall be "unbundled" demonstrating the fixed costs included in the demand rate (purchase power fixed costs, transmission fixed costs, KPP administrative fixed costs).
6. The KPP Energy Cost Adjustment will continue to be calculated under the current methodology based on the expected overall average demand and energy costs, adjusted annually based upon the KPP Rate Forecast Model. Annual base rate for the energy cost adjustment calculation to be approved by the KPP Board of Directors.

2018 Budget Summary (for board approval)

OPERATING EXPENSES:

		Rate Charged
Purchased Power - Demand	\$ 16,046,833	Capacity Demand Rate
Purchased Power - Energy	\$ 25,832,430	Energy Rate
Transmission Costs	\$ 13,927,661	Transmission Demand Rate
Debt Service - Dogwood	\$ 1,950,629	Capacity Demand Rate
Debt Service - Additional Dogwood	\$ 1,240,083	Capacity Demand Rate
Debt Service - KPP RICE Project	\$ 350,854	RICE Demand Rate
Ellinwood & Minneapolis RICE Payback	\$ 40,802	RICE Demand Rate
Debt Service - Erie & Luray	\$ 150,963	Others/Admin
Debt Service - Clay Center	\$ 440,083	Others
Debt Service - 2017	\$318,500	Capacity Demand Rate
Total Operating Expenses	\$ 60,298,841	

ADMIN. & GENERAL (A&G) EXPENSES:

		Rate Charged
Other/Misc. General Exp	\$ 100,000	Admin Demand Rate
Insurance	\$ 48,600	Admin Demand Rate
Legal	\$ 300,000	Admin Demand Rate
Outside Services	\$ 267,960	Admin Demand Rate
Consulting/Audit	\$ 80,000	Admin Demand Rate
Salaries	\$ 994,000	Admin Demand Rate
Payroll taxes	\$ 78,708	Admin Demand Rate
Communications	\$ 25,600	Admin Demand Rate
LOC Expense	\$ 12,000	Admin Demand Rate
Office Space	\$ 46,800	Admin Demand Rate
Travel & Meals	\$ 59,000	Admin Demand Rate
Retirement	\$ 96,337	Admin Demand Rate
Medical	\$ 99,000	Admin Demand Rate
Training	\$ 33,200	Admin Demand Rate
Dues & Memberships	\$ 195,920	Admin Demand Rate
Advertising	\$ 10,000	Admin Demand Rate
Vacation	\$ 3,000	Admin Demand Rate
EcoDevo/Organization Checkup	\$ 5,000	Admin Demand Rate
Board of Directors Expenses	\$ 76,800	Admin Demand Rate
Banking Service Chg	\$ 6,000	Admin Demand Rate
Accounting System Upgrade	\$ 7,000	Admin Demand Rate
Office Furniture	\$ 5,000	Admin Demand Rate
Hardware & Software	\$ 32,310	Admin Demand Rate
Subtotal	\$ 2,582,235	
DSCR Adder	\$ 1,259,977	Admin Demand Rate
Total Admin. & General Expenses	\$ 3,842,211	

OPERATING REVENUE:

		Revenue Source
Revenue from Capacity Demand Charges	\$ 19,556,497	Capacity Demand Rate
Revenue from Administrative Demand Charges	\$ 3,842,211	Admin Demand Rate
Revenue from Transmission Charges	\$ 13,932,840	Transmission Demand Rate
Revenue from RICE Project Demand Charges	\$ 396,839	RICE Demand Rate
Revenue from Energy Charges	\$ 26,185,408	Energy Rate
Revenue from Erie and Luray (90% of D/S)	\$ 135,867	Other
Revenue from Clay Center (100% of D/s)	\$ 440,083	Other
Interest Income	\$ 24,600	Other
Revenue from Other Sources	\$ 16,000	Other
Total Operating Revenue	\$ 64,530,345	

KPP Rate Forecast		<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Capacity Demand Rate	\$/kW-mo	\$10.76	\$10.61	\$10.63	\$10.67	\$10.86	\$11.01	\$11.01	\$10.98	\$10.96	\$11.04
Transmission Demand Rate	\$/kW-mo	\$7.47	\$7.70	\$8.00	\$8.31	\$8.65	\$9.00	\$9.37	\$9.75	\$10.14	\$10.66
A&G Demand Rate	\$/kW-mo	\$2.06	\$2.12	\$2.20	\$2.34	\$2.43	\$2.74	\$2.45	\$2.53	\$2.61	\$2.72
Energy Rate	\$/MWH	\$29.48	\$29.44	\$29.63	\$29.81	\$30.25	\$26.78	\$27.01	\$27.32	\$27.05	\$28.23
Overall Average Energy Costs	\$/MWH	\$69.28	\$72.10	\$73.10	\$74.27	\$76.04	\$74.27	\$74.63	\$75.87	\$76.56	\$78.73
RICE DNR Project	\$/kW-mo	\$0.26	\$0.26	\$0.26	\$0.25	\$0.25	\$0.13				

Year	2018	2019	2020	2021
OPERATING REVENUE:				
Revenue from Capacity Demand Charges	19,556,497	19,613,319	19,690,056	19,886,295
Revenue from Administrative Demand Charges	3,842,211	3,992,808	4,136,919	4,432,389
Revenue from Transmission Charges	13,932,840	14,474,253	15,068,112	15,747,132
Revenue from RICE Project Demand Charges	396,839	399,847	400,672	387,616
Revenue from Energy Charges	26,185,408	26,270,812	26,509,199	26,869,016
Revenue from Erie and Luray (90% of D/S)	135,867	136,512	136,977	137,262
Revenue from Clay Center (100% of D/s)	440,083	441,014	439,873	441,962
Interest Income	24,600	24,600	24,600	24,600
KMEA Metering Charges	6,000	6,000	-	-
Revenue from Other Sources	10,000	10,000	10,000	10,000
Total Operating Revenue	64,530,345	65,369,165	66,416,408	67,936,272
OPERATING EXPENSES:				
Purchased Power - Demand	\$16,046,833	\$16,093,301	\$16,176,945	\$16,271,598
Purchased Power - Energy	25,832,430	25,911,825	26,150,878	26,506,088
Transmission Costs	13,927,661	14,467,654	15,065,615	15,752,605
Debt Service - Dogwood	\$1,950,629	\$1,953,129	\$1,952,629	\$1,949,963
Debt Service - Additional Dogwood	\$1,240,083	\$1,243,604	\$1,242,221	\$1,244,392
Debt Service - KPP RICE Project	\$350,854	\$352,179	\$353,204	\$353,929
RICE Project Ellinwood Minneapolis Payback	40,802	40,802	40,802	40,802
Debt Service - Erie & Luray	\$150,963	\$151,680	\$152,197	\$152,513
Debt Service - Clay Center	\$440,083	\$441,014	\$439,873	\$441,962
Debt Service - 2017	\$318,500	\$318,500	\$318,500	\$423,632
Total Operating Expenses	\$60,298,841	\$60,973,689	\$61,892,865	\$63,137,485
ADMIN. & GENERAL EXPENSES:				
Other/Misc. General Exp	100,000	102,000	104,040	106,121
Insurance	\$48,600	49,572	50,563	51,575
Legal	\$300,000	306,000	312,120	318,362
Outside Services	\$267,960	273,319	278,786	284,361
Consulting/Audit	\$80,000	81,600	83,232	84,897
Salaries	994,000	1,013,880	1,034,158	1,054,841
Payroll taxes	78,708	80,282	81,888	83,526
Communications	25,600	26,112	26,634	27,167
LOC Expense	12,000	12,240	12,485	12,734
Office Space	\$46,800	47,736	48,691	49,665
Travel & Meals	59,000	60,180	61,384	62,611
Retirement	96,337	98,263	100,229	102,233
Medical	99,000	100,980	103,000	105,060
Training	33,200	33,864	34,541	35,232
Dues & Memberships	195,920	199,838	203,835	207,912
Advertising	10,000	10,200	10,404	10,612
Vacation	\$3,000	3,060	3,121	3,184
EcoDevo/Organization Checkup	\$5,000	5,000	5,000	5,000
Board of Directors Expenses	\$76,800	78,336	79,903	81,501
Banking Service Chg	6,000	6,120	6,242	6,367
Accounting System Upgrade	7,000	7,140	7,283	7,428
Office Furniture	5,000	1,500	1,500	1,500
Hardware & Software	32,310	32,956	33,615	34,288
Subtotal	2,582,235	2,630,179	2,682,653	2,736,176
DSCR Adder	1,259,977	1,362,629	1,454,267	1,696,213
Total Admin. & General Expenses	3,842,211	3,992,808	4,136,919	4,432,389
Total Expenses	64,141,052	64,966,497	66,029,785	67,569,875
Revenue less Expenses	389,293	402,668	386,623	366,397
DSCR Adder	1,259,977	1,362,629	1,454,267	1,696,213
NET OPERATING REVENUE (LOSS)	1,649,269	1,765,297	1,840,890	2,062,611

Year	2022	2023	2024	2025
OPERATING REVENUE:				
Revenue from Capacity Demand Charges	20,349,326	20,723,871	20,834,953	20,883,940
Revenue from Administrative Demand Charges	4,624,675	5,240,608	4,708,876	4,889,526
Revenue from Transmission Charges	16,478,172	17,221,330	18,023,854	18,848,721
Revenue from RICE Project Demand Charges	389,649	203,525	-	-
Revenue from Energy Charges	27,382,168	24,356,949	24,701,140	25,105,833
Revenue from Erie and Luray (90% of D/S)	169,242	139,392	36,571	38,075
Revenue from Clay Center (100% of D/s)	438,802	439,633	439,408	439,225
Interest Income	24,600	24,600	24,600	24,600
KMEA Metering Charges	-	-	-	-
Revenue from Other Sources	10,000	10,000	10,000	10,000
Total Operating Revenue	69,866,635	68,359,908	68,779,403	70,239,919
OPERATING EXPENSES:				
Purchased Power - Demand	\$16,730,269	\$17,107,984	\$17,208,072	\$17,266,077
Purchased Power - Energy	27,020,352	23,997,040	24,332,448	24,735,156
Transmission Costs	16,472,080	17,225,585	18,014,739	18,841,238
Debt Service - Dogwood	\$1,953,421	\$1,953,379	\$1,950,671	\$1,953,587
Debt Service - Additional Dogwood	\$1,241,658	\$1,242,633	\$1,240,350	\$1,241,433
Debt Service - KPP RICE Project	\$353,104	\$205,042	\$0	\$0
RICE Project Ellinwood Minneapolis Payback	40,802	-	-	-
Debt Service - Erie & Luray	\$188,047	\$154,880	\$40,634	\$42,305
Debt Service - Clay Center	\$438,802	\$439,633	\$439,408	\$439,225
Debt Service - 2017	\$424,790	\$422,048	\$427,613	\$424,130
Total Operating Expenses	\$64,863,326	\$62,748,224	\$63,653,935	\$64,943,151
ADMIN. & GENERAL EXPENSES:				
Other/Misc. General Exp	108,243	110,408	112,616	114,869
Insurance	52,606	53,658	54,731	55,826
Legal	324,730	331,224	337,849	344,606
Outside Services	290,049	295,849	301,766	307,802
Consulting/Audit	86,595	88,326	90,093	91,895
Salaries	1,075,938	1,097,456	1,119,405	1,141,794
Payroll taxes	85,196	86,900	88,638	90,411
Communications	27,710	28,264	28,830	29,406
LOC Expense	12,989	13,249	13,514	13,784
Office Space	50,658	51,671	52,704	53,758
Travel & Meals	63,863	65,141	66,444	67,772
Retirement	104,278	106,363	108,491	110,660
Medical	107,161	109,304	111,490	113,720
Training	35,937	36,655	37,389	38,136
Dues & Memberships	212,070	216,312	220,638	225,050
Advertising	10,824	11,041	11,262	11,487
Vacation	3,247	3,312	3,378	3,446
EcoDevo/Organization Checkup	5,000	5,000	5,000	5,000
Board of Directors Expenses	83,131	84,793	86,489	88,219
Banking Service Chg	6,495	6,624	6,757	6,892
Accounting System Upgrade	7,577	7,729	7,883	8,041
Office Furniture	1,500	1,500	1,500	1,500
Hardware & Software	34,973	35,673	36,386	37,114
Subtotal	2,790,769	2,846,455	2,903,254	2,961,189
DSCR Adder	1,833,906	2,394,153	1,805,622	1,928,337
Total Admin. & General Expenses	4,624,675	5,240,608	4,708,876	4,889,526
Total Expenses	69,488,001	67,988,832	68,362,811	69,832,677
Revenue less Expenses	378,633	371,076	416,592	407,242
DSCR Adder	1,833,906	2,394,153	1,805,622	1,928,337
NET OPERATING REVENUE (LOSS)	2,212,539	2,765,229	2,222,214	2,335,580

Year	2026	2027
OPERATING REVENUE:		
Revenue from Capacity Demand Charges	20,949,998	20,998,059
Revenue from Administrative Demand Charges	5,072,956	5,267,845
Revenue from Transmission Charges	19,698,979	20,607,935
Revenue from RICE Project Demand Charges	-	-
Revenue from Energy Charges	24,983,017	26,206,541
Revenue from Erie and Luray (90% of D/S)	36,833	37,466
Revenue from Clay Center (100% of D/s)	442,029	439,761
Interest Income	24,600	24,600
KMEA Metering Charges	-	-
Revenue from Other Sources	10,000	10,000
Total Operating Revenue	71,218,411	73,592,208
OPERATING EXPENSES:		
Purchased Power - Demand	\$17,323,393	\$17,379,832
Purchased Power - Energy	24,613,881	25,832,323
Transmission Costs	19,706,859	20,613,464
Debt Service - Dogwood	\$1,952,921	\$1,953,233
Debt Service - Additional Dogwood	\$1,241,188	\$1,240,667
Debt Service - KPP RICE Project	\$0	\$0
RICE Project Ellinwood Minneapolis Payback	-	-
Debt Service - Erie & Luray	\$40,925	\$41,628
Debt Service - Clay Center	\$442,029	\$439,761
Debt Service - 2017	\$425,216	\$425,724
Total Operating Expenses	\$65,746,412	\$67,926,632
ADMIN. & GENERAL EXPENSES:		
Other/Misc. General Exp	117,166	119,509
Insurance	56,943	58,081
Legal	351,498	358,528
Outside Services	313,958	320,237
Consulting/Audit	93,733	95,607
Salaries	1,164,629	1,187,922
Payroll taxes	92,219	94,063
Communications	29,994	30,594
LOC Expense	14,060	14,341
Office Space	54,834	55,930
Travel & Meals	69,128	70,510
Retirement	112,874	115,131
Medical	115,994	118,314
Training	38,899	39,677
Dues & Memberships	229,552	234,143
Advertising	11,717	11,951
Vacation	3,515	3,585
EcoDevo/Organization Checkup	5,000	5,000
Board of Directors Expenses	89,983	91,783
Banking Service Chg	7,030	7,171
Accounting System Upgrade	8,202	8,366
Office Furniture	1,500	1,500
Hardware & Software	37,856	38,613
Subtotal	3,020,283	3,080,558
DSCR Adder	2,052,673	2,187,287
Total Admin. & General Expenses	5,072,956	5,267,845
Total Expenses	70,819,368	73,194,477
Revenue less Expenses	399,044	397,730
DSCR Adder	2,052,673	2,187,287
NET OPERATING REVENUE (LOSS)	2,451,717	2,585,017

<u>Resource Output (MWH)</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
JEC	310,104	303,902	297,824	291,867	286,030	280,309	274,703	269,209	263,825	258,549
GRDA	110,262	110,262	110,532	110,532	110,532	110,532	110,532	110,532	110,532	110,532
SPA	9,431	9,431	9,431	9,431	9,431	9,431	9,431	9,431	9,431	9,431
Greensburg	38,905	38,905	38,905	38,905	38,905	38,905	38,905	38,905	38,905	38,905
Dogwood	141,130	140,328	137,168	134,908	122,678	133,770	133,770	133,770	133,770	133,770
Marshall Wind Farm	104,419	98,550	98,550	98,550	98,550	98,550	98,550	98,550	98,550	98,550
Municipal	3,877	3,877	3,877	3,877	3,877	3,877	3,877	3,877	3,877	3,877
Resource Generation Total	718,128	705,255	696,287	688,070	670,003	675,375	669,769	664,275	658,890	653,614
WAPA (IM credits only)	8,925	9,082	9,082	9,082	9,082	9,082	9,082	9,082	9,082	9,082
<u>Resource Energy Cost</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
JEC	\$7,383,576	\$7,282,219	\$7,183,779	\$7,088,214	\$6,995,483	\$6,905,549	\$6,818,373	\$6,733,918	\$6,652,149	\$6,573,032
GRDA	\$3,348,622	\$3,382,108	\$3,424,294	\$3,458,536	\$3,493,122	\$3,528,053	\$3,563,334	\$3,598,967	\$3,634,957	\$3,671,306
SPA	\$179,502	\$185,440	\$191,004	\$196,734	\$202,636	\$208,715	\$214,976	\$221,425	\$228,068	\$234,910
Greensburg	\$1,906,362	\$1,906,362	\$1,906,362	\$1,906,362	\$1,906,362	\$1,906,362	\$1,906,362	\$1,906,362	\$1,906,362	\$1,906,362
Dogwood	\$3,404,504	\$3,264,817	\$3,159,917	\$3,132,046	\$2,859,692	\$0	\$0	\$0	\$0	\$0
Marshall	\$3,546,076	\$3,346,758	\$3,346,758	\$3,346,758	\$3,346,758	\$3,346,758	\$3,346,758	\$3,346,758	\$3,346,758	\$3,346,758
Municipal	\$232,599	\$234,925	\$237,274	\$239,647	\$242,043	\$244,464	\$246,908	\$249,378	\$251,871	\$254,390
Resource Generation Total	\$20,001,241	\$19,602,629	\$19,449,387	\$19,368,297	\$19,046,096	\$16,139,901	\$16,096,711	\$16,056,808	\$16,020,166	\$15,986,759
<u>Load Costs in IM</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
MKEC On Peak Load	\$730,203	\$699,640	\$694,996	\$703,422	\$709,146	\$721,627	\$736,423	\$758,239	\$723,415	\$829,540
MKEC Off Peak Load	\$496,941	\$476,141	\$472,980	\$478,715	\$482,611	\$491,104	\$501,174	\$516,021	\$492,321	\$564,544
MWE On Peak Load	\$216,503	\$207,441	\$206,064	\$208,562	\$210,260	\$213,960	\$218,347	\$224,815	\$214,490	\$245,956
MWE Off Peak Load	\$129,602	\$124,177	\$123,353	\$124,848	\$125,864	\$128,079	\$130,706	\$134,578	\$128,397	\$147,232
Westar On Peak Load	\$10,717,871	\$10,269,272	\$10,201,100	\$10,324,783	\$10,408,802	\$10,591,994	\$10,809,169	\$11,129,382	\$10,618,233	\$12,175,925
Westar Off Peak Load	\$6,683,219	\$6,403,491	\$6,360,982	\$6,438,106	\$6,490,496	\$6,604,727	\$6,740,148	\$6,939,820	\$6,621,088	\$7,592,400
Total Costs to Serve Load in the IM	\$18,974,338	\$18,180,162	\$18,059,475	\$18,278,436	\$18,427,179	\$18,751,492	\$19,135,967	\$19,702,855	\$18,797,943	\$21,555,597
<u>Resource Value in IM</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
JEC	(\$6,000,312)	(\$5,491,847)	(\$5,213,290)	(\$5,042,337)	(\$4,857,780)	(\$4,723,902)	(\$4,606,823)	(\$4,532,798)	(\$4,132,698)	(\$4,528,657)
GRDA	(\$2,500,002)	(\$2,366,827)	(\$2,345,147)	(\$2,361,771)	(\$2,369,145)	(\$2,398,847)	(\$2,435,853)	(\$2,495,535)	(\$2,369,075)	(\$2,703,102)
SPA	(\$254,588)	(\$237,017)	(\$234,272)	(\$235,933)	(\$236,669)	(\$239,636)	(\$243,333)	(\$249,295)	(\$236,662)	(\$270,030)
Greensburg	(\$587,833)	(\$559,953)	(\$553,469)	(\$557,392)	(\$559,133)	(\$566,142)	(\$574,876)	(\$588,961)	(\$559,116)	(\$637,949)
Dogwood	(\$3,727,112)	(\$3,304,257)	(\$3,120,556)	(\$3,039,972)	(\$2,521,640)	(\$3,035,848)	(\$3,082,680)	(\$3,158,211)	(\$2,998,170)	(\$3,420,897)
Marshall	(\$1,551,946)	(\$1,395,663)	(\$1,379,500)	(\$1,389,280)	(\$1,393,617)	(\$1,411,089)	(\$1,432,857)	(\$1,467,964)	(\$1,393,576)	(\$1,590,063)
Municipal	(\$108,470)	(\$114,080)	(\$112,759)	(\$113,558)	(\$113,912)	(\$115,341)	(\$117,120)	(\$119,989)	(\$113,909)	(\$129,970)
WAPA (MEAN settlement)	(\$212,885)	(\$201,323)	(\$198,991)	(\$200,402)	(\$201,028)	(\$203,548)	(\$206,688)	(\$211,752)	(\$201,022)	(\$229,365)
TCR Cost (Revenue) Market Costs	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000
Total IM Resource Value	(\$13,143,149)	(\$11,870,967)	(\$11,357,983)	(\$11,140,645)	(\$10,452,923)	(\$10,894,353)	(\$10,900,230)	(\$11,024,507)	(\$10,204,228)	(\$11,710,033)
<u>Total IM and Resource Energy Costs</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Resource Generation Total	\$20,001,241	\$19,602,629	\$19,449,387	\$19,368,297	\$19,046,096	\$16,139,901	\$16,096,711	\$16,056,808	\$16,020,166	\$15,986,759
Total Costs to Serve Load in the IM	\$18,974,338	\$18,180,162	\$18,059,475	\$18,278,436	\$18,427,179	\$18,751,492	\$19,135,967	\$19,702,855	\$18,797,943	\$21,555,597
Total IM Resource Value	(\$13,143,149)	(\$11,870,967)	(\$11,357,983)	(\$11,140,645)	(\$10,452,923)	(\$10,894,353)	(\$10,900,230)	(\$11,024,507)	(\$10,204,228)	(\$11,710,033)
Total Energy and IM Costs	\$25,832,430	\$25,911,825	\$26,150,878	\$26,506,088	\$27,020,352	\$23,997,040	\$24,332,448	\$24,735,156	\$24,613,881	\$25,832,323
<u>Other Costs Assigned to Energy</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
KPP Margin	\$355,297	\$356,940	\$357,870	\$360,537	\$362,078	\$363,808	\$365,807	\$367,582	\$369,435	\$371,329
Subtotal Other	\$355,297	\$356,940	\$357,870	\$360,537	\$362,078	\$363,808	\$365,807	\$367,582	\$369,435	\$371,329
Total Energy and IM Costs	\$25,832,430	\$25,911,825	\$26,150,878	\$26,506,088	\$27,020,352	\$23,997,040	\$24,332,448	\$24,735,156	\$24,613,881	\$25,832,323
TOTAL ENERGY COSTS	\$26,187,728	\$26,268,765	\$26,508,748	\$26,866,625	\$27,382,430	\$24,360,848	\$24,698,255	\$25,102,737	\$24,983,315	\$26,203,652
Sales in MWH	888,243	892,351	894,674	901,342	905,196	909,520	914,518	918,954	923,587	928,322
Rate \$/MWH	\$29.48	\$29.44	\$29.63	\$29.81	\$30.25	\$26.78	\$27.01	\$27.32	\$27.05	\$28.23

Transmission Costs by Year

<u>Item</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
SPP Transmission Charges	\$12,194,798	\$12,773,351.36	\$13,379,353	\$14,014,104	\$14,678,970	\$15,375,378
MKEC Local Charges	\$1,066,440	\$859,778	\$683,036	\$715,947	\$750,580	\$787,024
Kingman Project Annual Costs		\$150,000	\$300,000	\$300,000	\$300,000	\$300,000
SCADA	\$71,871	\$75,465	\$79,238	\$83,200	\$87,360	\$91,728
Metering Equipment	\$37,000	\$38,850	\$40,793	\$42,832	\$44,974	\$47,223
NERC Costs	\$50,233	\$52,745	\$55,382	\$58,151	\$61,059	\$64,112
Subtotal	\$13,420,343	\$13,950,188	\$14,537,801	\$15,214,234	\$15,922,942	\$16,665,464
Facilitator Costs	\$507,319	\$517,465	\$527,814	\$538,371	\$549,138	\$560,121
Total	\$13,927,661	\$14,467,654	\$15,065,615	\$15,752,605	\$16,472,080	\$17,225,585
Transmission Demand (kW-mo)	1,865,173	1,879,773	1,883,514	1,894,962	1,904,991	1,913,481
Transmission Demand Rate (\$/kW-mo)	\$7.47	\$7.70	\$8.00	\$8.31	\$8.65	\$9.00

<u>Item</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
SPP Transmission Charges	\$16,104,826	\$16,868,881	\$17,669,185	\$18,507,458
MKEC Local Charges	\$825,374	\$865,731	\$908,200	\$952,891
Kingman Project Annual Costs	\$300,000	\$300,000	\$300,000	\$300,000
SCADA	\$96,314	\$101,130	\$106,186	\$111,496
Metering Equipment	\$49,584	\$52,063	\$54,666	\$57,399
NERC Costs	\$67,317	\$70,683	\$74,217	\$77,928
Subtotal	\$17,443,416	\$18,258,488	\$19,112,454	\$20,007,171
Facilitator Costs	\$571,323	\$582,750	\$594,405	\$606,293
Total	\$18,014,739	\$18,841,238	\$19,706,859	\$20,613,464
Transmission Demand (kW-mo)	1,923,570	1,933,202	1,942,700	1,933,202
Transmission Demand Rate (\$/kW-mo)	\$9.37	\$9.75	\$10.14	\$10.66

		MW of Capacity by Source by Year				
	<u>Source</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
JEC		59.00	59.00	59.00	59.00	59.00
GRDA		12.58	12.58	12.69	12.81	12.95
SPA		4.60	4.60	4.60	4.60	4.60
Dogwood		62.00	62.00	62.00	62.00	62.00
		Cost of Capacity by Source by Year				
	<u>Source</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
Capacity Payment to Cities		\$1,370,505	\$1,370,505	\$1,370,505	\$1,370,505	\$1,370,505
JEC		\$11,349,240	\$11,349,240	\$11,349,240	\$11,349,240	\$11,349,240
GRDA		\$1,617,303	\$1,633,476	\$1,664,379	\$1,696,963	\$1,731,373
SPA		\$250,056	\$255,082	\$257,633	\$260,209	\$262,811
Dogwood O&M		\$2,080,729	\$2,058,748	\$2,114,556	\$2,241,551	\$2,297,590
Dogwood Debt Service		\$3,509,213	\$3,515,233	\$3,513,350	\$3,617,987	\$3,619,869
Subtotal Capacity Costs		\$20,177,046	\$20,182,285	\$20,269,663	\$20,536,455	\$20,631,389
Capacity Sale		(\$655,500)	(\$605,625)	(\$611,559)	(\$682,810)	(\$296,875)
Tenaska Sales Payment		\$34,500	\$31,875	\$32,191	\$35,940	\$15,625
Total		\$19,556,046	\$19,608,535	\$19,690,295	\$19,889,585	\$20,350,139
Demands (kW-mo)		1,817,518	1,848,569	1,852,310	1,863,758	1,873,787
Rate		\$10.76	\$10.61	\$10.63	\$10.67	\$10.86

<u>Source</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
JEC	59.00	59.00	59.00	59.00	59.00
GRDA	13.09	13.24	13.07	12.89	12.69
SPA	4.60	4.60	4.60	4.60	4.60
Dogwood	62.00	62.00	62.00	62.00	62.00

<u>Source</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Capacity Payment to Cities	\$1,370,505	\$1,370,505	\$1,370,505	\$1,370,505	\$1,370,505
JEC	\$11,349,240	\$11,349,240	\$11,349,240	\$11,349,240	\$11,349,240
GRDA	\$1,767,770	\$1,806,327	\$1,801,304	\$1,794,056	\$1,784,357
SPA	\$265,439	\$268,094	\$270,775	\$273,483	\$276,217
Dogwood O&M	\$2,355,030	\$2,413,906	\$2,474,253	\$2,536,110	\$2,599,513
Dogwood Debt Service	\$3,618,060	\$3,618,634	\$3,619,150	\$3,619,325	\$3,619,623
Subtotal Capacity Costs	\$20,726,044	\$20,826,706	\$20,885,227	\$20,942,718	\$20,999,455
Capacity Sale					
Tenaska Sales Payment					
Total	\$20,726,044	\$20,826,706	\$20,885,227	\$20,942,718	\$20,999,455
Demands (kW-mo)	1,882,277	1,892,366	1,901,998	1,911,496	1,901,998
Rate	\$11.01	\$11.01	\$10.98	\$10.96	\$11.04

<u>Item</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Other/Misc. General Exp	\$100,000	\$102,000	\$104,040	\$106,121
Insurance	\$48,600	\$49,572	\$50,563	\$51,575
Legal	\$300,000	\$306,000	\$312,120	\$318,362
Outside Services	\$267,960	\$273,319	\$278,786	\$284,361
Consulting/Audit	\$80,000	\$81,600	\$83,232	\$84,897
Salaries	\$994,000	\$1,013,880	\$1,034,158	\$1,054,841
Payroll taxes	\$78,708	\$80,282	\$81,888	\$83,526
Communications	\$25,600	\$26,112	\$26,634	\$27,167
LOC Expense	\$12,000	\$12,240	\$12,485	\$12,734
Office Space	\$46,800	\$47,736	\$48,691	\$49,665
Travel & Meals	\$59,000	\$60,180	\$61,384	\$62,611
Retirement	\$96,337	\$98,263	\$100,229	\$102,233
Medical	\$99,000	\$100,980	\$103,000	\$105,060
Training	\$33,200	\$33,864	\$34,541	\$35,232
Dues & Memberships	\$195,920	\$199,838	\$203,835	\$207,912
Advertising	\$10,000	\$10,200	\$10,404	\$10,612
Vacation	\$3,000	\$3,060	\$3,121	\$3,184
EcoDevo/Organization Checkup	\$5,000	\$5,000	\$5,000	\$5,000
Board of Directors Expenses	\$76,800	\$78,336	\$79,903	\$81,501
Banking Service Chg	\$6,000	\$6,120	\$6,242	\$6,367
Accounting System Upgrade	\$7,000	\$7,140	\$7,283	\$7,428
Office Furniture	\$5,000	\$1,500	\$1,500	\$1,500
Hardware & Software	\$32,310	\$32,956	\$33,615	\$34,288
Subtotal	\$2,582,235	\$2,630,179	\$2,682,653	\$2,736,176
DSCR Adder	\$1,259,977	\$1,362,629	\$1,454,267	\$1,696,213
Total Administrative Costs	\$3,842,211	\$3,992,808	\$4,136,919	\$4,432,389
Administrative Demand (kW-mo)	1,865,173	1,879,773	1,883,514	1,894,962
Administrative Demand Rate (\$/kW-mo)	\$2.06	\$2.12	\$2.20	\$2.34

<u>Item</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>
Other/Misc. General Exp	\$108,243	\$110,408	\$112,616	\$114,869
Insurance	\$52,606	\$53,658	\$54,731	\$55,826
Legal	\$324,730	\$331,224	\$337,849	\$344,606
Outside Services	\$290,049	\$295,849	\$301,766	\$307,802
Consulting/Audit	\$86,595	\$88,326	\$90,093	\$91,895
Salaries	\$1,075,938	\$1,097,456	\$1,119,405	\$1,141,794
Payroll taxes	\$85,196	\$86,900	\$88,638	\$90,411
Communications	\$27,710	\$28,264	\$28,830	\$29,406
LOC Expense	\$12,989	\$13,249	\$13,514	\$13,784
Office Space	\$50,658	\$51,671	\$52,704	\$53,758
Travel & Meals	\$63,863	\$65,141	\$66,444	\$67,772
Retirement	\$104,278	\$106,363	\$108,491	\$110,660
Medical	\$107,161	\$109,304	\$111,490	\$113,720
Training	\$35,937	\$36,655	\$37,389	\$38,136
Dues & Memberships	\$212,070	\$216,312	\$220,638	\$225,050
Advertising	\$10,824	\$11,041	\$11,262	\$11,487
Vacation	\$3,247	\$3,312	\$3,378	\$3,446
EcoDevo/Organization Checkup	\$5,000	\$5,000	\$5,000	\$5,000
Board of Directors Expenses	\$83,131	\$84,793	\$86,489	\$88,219
Banking Service Chg	\$6,495	\$6,624	\$6,757	\$6,892
Accounting System Upgrade	\$7,577	\$7,729	\$7,883	\$8,041
Office Furniture	\$1,500	\$1,500	\$1,500	\$1,500
Hardware & Software	\$34,973	\$35,673	\$36,386	\$37,114
Subtotal	\$2,790,769	\$2,846,455	\$2,903,254	\$2,961,189
DSCR Adder	\$1,833,906	\$2,394,153	\$1,805,622	\$1,928,337
Total Administrative Costs	\$4,624,675	\$5,240,608	\$4,708,876	\$4,889,526
 Administrative Demand (kW-mo)	 1,904,991	 1,913,481	 1,923,570	 1,933,202
 Administrative Demand Rate (\$/kW-mo)	 \$2.43	 \$2.74	 \$2.45	 \$2.53

<u>Item</u>	<u>2026</u>	<u>2027</u>
Other/Misc. General Exp	\$117,166	\$119,509
Insurance	\$56,943	\$58,081
Legal	\$351,498	\$358,528
Outside Services	\$313,958	\$320,237
Consulting/Audit	\$93,733	\$95,607
Salaries	\$1,164,629	\$1,187,922
Payroll taxes	\$92,219	\$94,063
Communications	\$29,994	\$30,594
LOC Expense	\$14,060	\$14,341
Office Space	\$54,834	\$55,930
Travel & Meals	\$69,128	\$70,510
Retirement	\$112,874	\$115,131
Medical	\$115,994	\$118,314
Training	\$38,899	\$39,677
Dues & Memberships	\$229,552	\$234,143
Advertising	\$11,717	\$11,951
Vacation	\$3,515	\$3,585
EcoDevo/Organization Checkup	\$5,000	\$5,000
Board of Directors Expenses	\$89,983	\$91,783
Banking Service Chg	\$7,030	\$7,171
Accounting System Upgrade	\$8,202	\$8,366
Office Furniture	\$1,500	\$1,500
Hardware & Software	\$37,856	\$38,613
Subtotal	\$3,020,283	\$3,080,558
DSCR Adder	\$2,052,673	\$2,187,287
Total Administrative Costs	\$5,072,956	\$5,267,845
 Administrative Demand (kW-mo)	 1,942,700	 1,933,202
 Administrative Demand Rate (\$/kW-mo)	 \$2.61	 \$2.72

KPP RICE Project Debt Service by Year

<u>Item</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
Total KPP RICE Finance Debt Service	\$350,854	\$352,179	\$353,204	\$353,929	\$353,104	\$205,042
Minneapolis and Ellinwood Repayment	\$40,802	\$40,802	\$40,802	\$40,802	\$40,802	
Total Requirement	\$391,657	\$392,982	\$394,007	\$394,732	\$393,907	\$205,042
KPP RICE Project Demand (kW-mo)	1,526,303	1,537,872	1,541,047	1,550,463	1,558,597	1,565,575
RICE Demand Rate (\$/kW-mo)	\$0.26	\$0.26	\$0.26	\$0.25	\$0.25	\$0.13

Economic Evaluation of Kingman Transmission Service Alternatives

Executive Summary

This analysis considered the costs and benefits to Kansas Power Pool (KPP) and its full requirements members and the City of Kingman for 3 alternatives to the current local limited transmission service to the City of Kingman. These alternatives included Do Nothing (no change from the current service), a Southern Pioneer proposal to rebuild its SemCrude substation and build an interconnecting 34.5 kV line (the SPEC Project), and the Kingman Direct Connection project that would be built and operated by KPP. This analysis concluded that the alternative with the least cost over 20 years and the most benefits to the City of Kingman was the KPP Direct Connection. Furthermore, because the costs of the SPEC Project exceed the Do Nothing alternative, KPP and its full requirements members would not have any incentive to accept and fund the SPEC Project.

Summary Comparison of Alternatives		
	2019 Net Present Value of Costs (Benefits)	
	Kansas Power Pool	City of Kingman
SPEC Project	\$19,086,892	(\$188,324)
Do Nothing	\$16,925,139	\$2,374,793
Kingman Direct Connection	\$3,255,556	(\$1,480,339)

Purpose

The purpose of this cost benefit analysis is to review alternatives for providing full transmission service to the city of Kingman. While Kingman and other KPP members are served under the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT), Kingman is in the Mid-Kansas Electric Company (MKEC) transmission zone. Due to the unique characteristics of service in the MKEC zone, Kingman must utilize local transmission service by Southern Pioneer Electric Company (SPEC) 34.5 kV lines to connect to SPP transmission service.¹ Unlike Westar and Midwest Energy, SPEC has elected to not join SPP and place its 34.5 kV transmission service under the SPP OATT. For that reason, cost characteristics are unique for KPP members who have load in the MKEC zone. Furthermore, Kingman has limited transmission service.²

¹ This has been true since 2007 when MKEC and its members (which includes SPEC and WEC) purchased these facilities from Aquila, Inc. Prior to that all 34.5 kV service from Aquila, Inc was provided under the same OATT terms and conditions, albeit there was an extra charge for lower 34.5 kV service.

² It is KPP's understanding that until 1969 Kingman was isolated from transmission service. That year or thereabouts the City of Kingman connected to a 34.5 kV line that ran roughly north from Rago, KS to near Partridge, KS. This line, now operated by MKEC member Wheatland Electric Cooperative (WEC), had then and now only 2 MegaWatts (MW) of available capacity for Kingman's use. This meant the City relied on internal generation which ran 24 hours a day to meet its additional load and its roughly 12 MW peak. In 2005 Kingman, at its own expense, built approximately 26 miles of new, heavy conductor, 34.5 kV line to Cunningham, KS to connect to a 34.5 kV line that runs from Pratt to Cunningham, now operated by SPEC. While the old Pratt to Cunningham line was also insufficient to serve Kingman's peak load, it did then and now allow Kingman to import 6 MW of power, dramatically reducing the need to run Kingman's local generation to the months of May through September.

Economic Evaluation of Kingman Transmission Service Alternatives

KPP's Obligation to Provide Kingman with Transmission Service

Under KPP's membership agreement, KPP is directed to provide all of its full requirements members (KPP Members) with transmission service. Extra cost such as SPEC's charges for local transmission service are recovered from all KPP Members. Additionally, all KPP Members pool their internal generation and power purchase agreements for use by the entire pool. The City of Kingman is responsible for the costs of local distribution upgrades.

Improvements to KPP's Transmission Service to Kingman

Today Kingman transmission service is limited to the ability to import 6 MW on the SPEC local transmission lines. This analysis compares costs of 3 alternatives to remove this import limit for service to the city of Kingman. The alternatives considered are as follows:

1. Do Nothing. In this case there is no change made to service as it currently exists. Local transmission charges will continue to be paid to SPEC and imports will be limited to 34.5 kV. The City of Kingman's tie metering will continue to be at the 34.5 kV level and utilization of its generation will be economically limited to capacity sales in the MKEC zone.
2. SPEC Project. In this case KPP would pay SPEC a load ratio share allocation of rebuilding its SemCrude pumping station and build a 34.5 kV line to interconnect with the existing Kingman 34.5 kV line. The net result would be the City of Kingman would be served by a 115 kV MKEC line near Cunningham that would remove all import limits for power delivered to Kingman from the SPP Integrated Market (IM). The City of Kingman's tie metering would continue to be at the 34.5 kV level and utilization of its generation capacity will be economically limited to sales within the MKEC zone.
3. Kingman Direct Connection. In this case KPP would pay for a direct connection to the MKEC 115 kV line near Cunningham. This would allow KPP to serve the City of Kingman directly with SPP transmission service without the need of purchasing secondary transmission service from SPEC. Additionally, this would provide for 115 kV metering for the City of Kingman tie meter and would allow KPP to economically make sales from the City of Kingman's internal generators directly into the SPP market.

Alternatives Not Considered

There are alternatives that were not studied or considered in this analysis. For example, KPP is aware of at least 4 other possibilities for providing full SPP transmission service to the City of Kingman. First, as a possible viable alternative for consideration, WEC has recently installed a 138/34.5 kV substation approximately 14 miles south of Kingman at the city of Rago, KS. This would require construction of about 14 miles of 34.5 kV line and possibly a 138/34.5 kV substation at Rago. Second, KPP has not approached WEC to see if there is the possibility that WEC could give KPP a full access proposal using its existing facilities that connect to the new Rago substation. This was not considered because of the same problems with full utilization of Kingman's generation capacity, and the fact that it would not utilize Kingman's existing 34.5 kV facilities. Nonetheless WEC's local access charges are significantly less (about 37%) than SPEC's. Third, there is a Westar 69 kV line near Lake Cheney in northeast Kingman County

Economic Evaluation of Kingman Transmission Service Alternatives

and KPP did not investigate connecting to this line because KPP understands that it is already near capacity. Nonetheless KPP could approach Westar to provide upgraded capability or sponsor a study in the SPP process. Fourth, KPP could attempt to interconnect with the Kingman Wind Farm 34.5 kV collector system utilizing its 345 kV radial generation lead. KPP believe this would be a difficult path given that the facilities have no current certificate and were built only as generation interconnection facilities. All 4 of these alternatives would require much more development than the alternative that has been studied, but could be possibilities if none of the other alternatives work out.

Reference Case

Arguably the reference case to consider in this analysis could be the “do nothing” alternative. While this can be merely subtracted from the other 2 cases for purposes of comparison, the analysis instead considers a reference case of the charges KPP would have to pay for Kingman local transmission service generation if Kingman were instead in the Westar transmission zone. While Westar zonal transmission charges are greater than those of MKEC, service over the Westar 34.5 kV transmission system is not a separate charge. In addition, there is no additional charge for KPP generation capacity sold to loads outside the Westar zone. Furthermore, Westar has made upgrades over the years to remove import limits on numerous KPP delivery points. For example, the KPP cities of Clay Center, Wellington, Winfield and Erie had import limits only 10 years ago, but Westar improvements made on their lower voltage transmission facilities have been made that have essentially eliminated the need for these cities to run local generation to support lower voltage transmission issues. These improvements were made as local reliability projects and the costs were uploaded to the Westar zone and were not directly assigned to KPP or its members. The one KPP city in Midwest Energy’s territory, the City of Ellinwood, has seen similar Midwest Energy improvements on the Midwest Energy 34.5 kV system that have not been directly assigned to Ellinwood or KPP and have removed the need for Ellinwood to generate for local voltage support. Finally, one of the alternatives not considered, as discussed, was for KPP to build and interconnection to Westar facilities northeast of Kingman. For this reason, it is not unreasonable to consider Westar service as a reference case for comparing the Kingman alternatives.

Assumed Costs and Benefits to Alternatives

Construction Cost Financing

Both the SPEC Project and the Kingman Direct Connection alternatives require an outlay of construction costs before completion. In both cases it is assumed that these costs will be financed by 20-year municipal bonds issued by KPP. On April 17, 2018 the KPP Financial advisor recommended that a 4.5% interest rate, a 3% issuance cost and a 10% bond reserve³ be used in calculating annual bond payments. It is assumed that the construction costs will be fully incurred by December 31, 2019 and that the first bond effective annual payment will be due the end of 2020. It is also assumed that the bond reserve (which is returned at end of the bond payments) is invested at a rate equivalent to inflation so that the 2019 net present value of the bond reserve is essentially the same as the initial bond reserve amount financed.

³ This is a conservative number. As shown in Table 3 the bond reserve exceeds the estimated annual bond payments. While the rules are complex, the bond reserve generally does not need to exceed the annual bond repayment amount. Using a flat 10 percent therefore overestimates the bond reserve amount and therefore conservatively overestimates the finance costs for both the SPEC Project and the Kingman Direct Connection.

Economic Evaluation of Kingman Transmission Service Alternatives

SPEC Project Costs

Latest SPEC cost estimate for their proposal was calculated April, 2014 and is attached as Exhibit LWH-8 to the Direct Testimony of Larry W. Holloway in Docket No. 17-KPPE-092-COM filed August 7, 2017 (17-092 Holloway Direct). To determine the current value of this estimate, the US Bureau of Labor statistics PPI index for transmission costs was used. These indices from 2008 to March 2018 are attached as Appendix A to this analysis. The result is shown below in Table 1.

Table 1 - Southern Pioneer Project cost Update	
	KPP Costs
April 2014 Estimate	\$1,499,889.72
Updated March 2018 Estimate	\$1,593,565.53
March 2018 PPI index for Transmission Costs	148
April 2014 PPI index for transmission costs	139.3
Escalation factor	1.06

Kingman Direct Connection Costs

Kingman Direct Connection costs are based on 3 factors. First the cost of the 115/34.5 kV substation and the 34.5 kV line extension is based on an August 8, 2016 preliminary design memorandum provided by Olsson and Associates and attached as Appendix B. This estimate has been updated to show both the change in the length of 34.5 kV line extension from 3.5 to 5 miles⁴ and any effects of inflation on the initial estimate. The cost of the MKEC 115/kV dead end structure and switch are based on discussions with MKEC the summer of 2016. Finally, while it is unlikely it will be necessary to purchase right of way for the entire route (it is unlikely unimproved roads in the area will be rerouted in the foreseeable future) KPP has included an estimate of \$100,000 for right of way acquisition, including the land for the substation. The result of this estimate is shown below in Table 2.

⁴ Field inspection revealed it was impractical to install the new substation adjacent to the existing SemCrude substation and therefore, as shown in the line routing in this application, it is located approximately 1 mile west.

Economic Evaluation of Kingman Transmission Service Alternatives

Table 2 - Kingman Direct Connection Cost Update		
August 2016 Cost Estimate		
115/34.5 kV Substation	\$1,446,670	
34.5 kV Line Extension	\$682,105	3.5 miles of line
MKEC 115 kV Costs	\$500,000	Based on 2016 discussions
Updated Costs		PPI index shows no increase (148.5 to 148)
115/34.5 kV Substation	\$1,446,670	Same
34.5 kV Line Extension	\$974,435.71	Increased miles to 4.5
Subtotal	\$2,421,106	Use for O&M cost calculation
MKEC 115 kV Costs	\$500,000	
Right of Way	\$100,000	20 acres at \$5,000/acre
Total	\$3,021,106	
Note PPI indices for August 2016 and March 2018 show a slight decrease so no inflation is used		
March 2018 PPI index for Transmission Costs	148.5	
April 2014 PPI index for transmission costs	148	
Escalation factor	1.00	

Financing Costs

As discussed, the financing costs for both the Kingman Direct Connection and the SPEC Project were calculated based upon KPP issuing a 20-year municipal bond. Table 3 below shows the levelized annual repayment of the bonds for years 2020 through 2039.

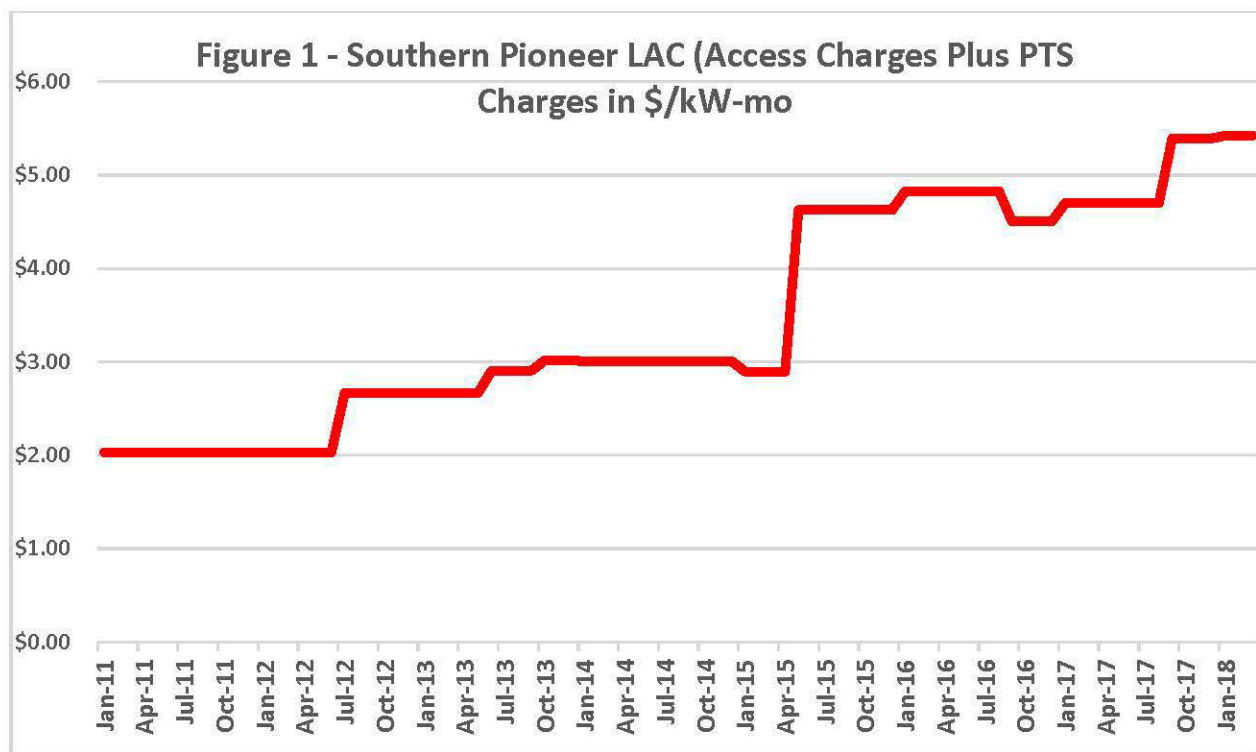
Table 3 - Annual 20-Year Bond Payments for Alternate Projects					
	Project Costs in 2019	Bond Reserve	Bond Issue Costs	Amount Financed	Annual Bond Payment
KPP Share SPEC Project Cost	\$1,593,566	\$183,168	\$54,951	\$1,831,685	(\$140,813)
Kingman Direct Project Cost	\$3,021,106	\$347,254	\$104,176	\$3,472,535	(\$266,955)
Interest Rate	4.50%				
Bond Reserve	10.00%				
Issuance Costs	3.00%				

Economic Evaluation of Kingman Transmission Service Alternatives

Local Access Charges

Local Access Charges for using SPEC's 34.5 kV system consist of 2 components. The basic charge for using SPEC 34.5 kV facilities and a property tax surcharge (PTS) collecting property taxes on the 34.5 kV facilities. Together these are referred to, in this analysis, as the LAC costs. Both charges are assessed on a kW basis for the demand during the hour of the coincident SPEC peak for the month. Currently KPP pays the LAC based on the import limit of 6 MW. For this reason, KPP pays 6,000 kW a month times the SPEC LAC. Should the SPEC project be completed KPP would then pay for the actual Kingman demand during the SPEC monthly coincident peak times the LAC. Therefore, this analysis must provide an estimate for the unlimited Kingman coincident peak charges as well as the estimated increase in LAC costs over the 20-year period.

An illustration of the SPEC LAC over the past 7 years is shown in Figure 1 below.



A detailed table of these charges for each month of the period is shown in Appendix C to this analysis. One of the challenges of this analysis has been to try and estimate the possible future LAC charges over the 20-year period of the analysis. As shown the increases have been dramatic in the past 7 years. In fact, the actual 7-year cost increases have averaged over 15%. This is obviously not sustainable in the long run (at this rate by 2039 the current overall LAC rate of \$5.421725⁵ would be over \$100 per kW-mo). Therefore, only ¼ of the actual experienced inflation rate of SPEC overall LAC costs was used for the purposed of analysis, as shown in Table 4 below.

⁵ Local Access charges plus PTS.

Economic Evaluation of Kingman Transmission Service Alternatives

Table 4 - LAC Escalation Estimate	
Apr-11	\$2.030000
Mar-18	\$5.421725
years	7
Average Annual Increase	15.07%
Assume 1/4	3.77%

As discussed, currently KPP is billed for 6,000 kW each month for service to Kingman. If the SPEC Project is used KPP will be billed the actual Kingman SPEC coincident peak for each month. A three year average was used to predict this coincident peak demand and was not escalated for the 20-year analysis period. The results are shown in Table 5 below.

Table 5 - Calculation of Kingman Demands Without Import Limits				
Flowday	Interval (Hour Ending)	Tie Meter Net MWh	Total City Gen (MWh)	Load w/o Losses (MWh)
4/6/2015	15:00	5.143	0.000	5.143
5/27/2015	15:00	5.919	0.000	5.919
6/22/2015	15:00	5.691	3.903	9.594
7/13/2015	15:00	3.515	6.671	10.186
8/7/2015	14:00	6.533	2.808	9.341
9/2/2015	15:00	6.840	2.721	9.561
10/14/2015	16:00	5.750	0.000	5.750
11/11/2015	20:00	4.908	0.000	4.908
12/29/2015	19:00	5.736	0.000	5.736
1/5/2016	19:00	5.912	0.000	5.912
2/2/2016	19:00	5.987	0.000	5.987
3/2/2016	11:00	5.240	0.000	5.240
4/25/2016	15:00	5.871	0.000	5.871
5/25/2016	15:00	6.987	0.000	6.987
6/22/2016	15:00	5.310	4.504	9.814
7/22/2016	15:00	5.759	4.978	10.737
8/1/2016	16:00	5.568	4.987	10.555
9/22/2016	15:00	6.349	2.591	8.940
10/17/2016	15:00	6.920	0.000	6.920
11/29/2016	19:00	5.386	0.000	5.386

Economic Evaluation of Kingman Transmission Service Alternatives

12/17/2016	19:00	6.563	0.000	6.563
1/5/2017	19:00	6.290	0.000	6.290
2/2/2017	11:00	6.031	0.000	6.031
3/20/2017	15:00	5.055	0.000	5.055
4/19/2017	15:00	5.976	0.000	5.976
5/31/2017	14:00	7.461	0.000	7.461
6/28/2017	15:00	6.668	2.606	9.274
7/25/2017	15:00	5.418	4.985	10.403
8/19/2017	15:00	5.823	3.485	9.308
9/14/2017	15:00	6.186	1.718	7.904
10/6/2017	15:00	6.723	0.000	6.723
11/16/2017	08:00	4.990	0.000	4.990
12/27/2017	19:00	4.628	0.000	4.628
1/17/2018	09:00	6.617	0.000	6.617
2/5/2018	11:00	6.334	0.000	6.334
3/19/2018	12:00	5.496	0.000	5.496
Total in kW				257,540
Annual Average in kW				85,847

The net result of both the expected inflation of SPEC overall LAC charges and the annual kW delivered by removing the Kingman import limits has been calculated for the 20-year analysis period. The result is shown in Table 6 below.

Economic Evaluation of Kingman Transmission Service Alternatives

Table 6 - Forecasted annual SPEC LAC charges			
Year	Projected LAC Charge \$/kW	Annual Cost of 6 MW/Mo Limit - Do Nothing Option	Annual Cost 85,847 kW-mo - No Limit - SPEC Project
2018	\$5.42	\$390,364	\$465,437
2019	\$5.63	\$405,068	\$482,968
2020	\$5.84	\$420,325	\$501,160
2021	\$6.06	\$436,157	\$520,037
2022	\$6.29	\$452,585	\$539,624
2023	\$6.52	\$469,633	\$559,950
2024	\$6.77	\$487,322	\$581,041
2025	\$7.02	\$505,677	\$602,927
2026	\$7.29	\$524,724	\$625,637
2027	\$7.56	\$544,489	\$649,202
2028	\$7.85	\$564,998	\$673,655
2029	\$8.14	\$586,279	\$699,029
2030	\$8.45	\$608,362	\$725,359
2031	\$8.77	\$631,276	\$752,680
2032	\$9.10	\$655,054	\$781,031
2033	\$9.44	\$679,727	\$810,449
2034	\$9.80	\$705,330	\$840,976
2035	\$10.17	\$731,897	\$872,652
2036	\$10.55	\$759,465	\$905,521
2037	\$10.95	\$788,071	\$939,629
2038	\$11.36	\$817,755	\$975,021
2039	\$11.79	\$848,557	\$1,011,747

Inflation/Escalation

For purposes of this analysis an inflation (or escalation) rate of 2% is used unless more detailed information is available.

Kansas Power Pool Rates

KPP charges are used in the analysis to determine the benefits from increased capacity demand payments from Kingman to KPP and to determine the value of decreased losses to Kingman. KPP rates are based on the principle of recovering fixed costs from non-coincident demands of its members and

Economic Evaluation of Kingman Transmission Service Alternatives

from recovering only variable costs from energy charges.⁶ The annual budget process forecasts costs and the annual rates for the following year are approved by the KPP Members in the December annual meeting. The 2018 KPP budget process provided an integrated forecast of KPP rates through 2027, as shown in Table 7 below. After 2027 KPP rates were assumed to escalate at the rate of inflation, assumed to be 2%.

Table 7 - KPP 2018 Budget Rate Forecast as Approved by KPP Members December 2017					
	Capacity Demand Rate	Transmission Demand Rate	A&G Demand Rate	Energy Rate	Overall Average Energy Costs
	\$/kW-mo	\$/kW-mo	\$/kW-mo	\$/MWH	\$/MWH
2018	\$10.76	\$7.47	\$2.06	\$29.48	\$69.28
2019	\$10.61	\$7.70	\$2.12	\$29.44	\$72.10
2020	\$10.63	\$8.00	\$2.20	\$29.63	\$73.10
2021	\$10.67	\$8.31	\$2.34	\$29.81	\$74.27
2022	\$10.86	\$8.65	\$2.43	\$30.25	\$76.04
2023	\$11.01	\$9.00	\$2.74	\$26.78	\$74.27
2024	\$11.01	\$9.37	\$2.45	\$27.01	\$74.63
2025	\$10.98	\$9.75	\$2.53	\$27.32	\$75.87
2026	\$10.96	\$10.14	\$2.61	\$27.05	\$76.56
2027	\$11.04	\$10.66	\$2.72	\$28.23	\$78.73

KPP Capacity Demand Revenue

As discussed, KPP rates charge KPP Members for fixed costs related to generation resources based on the KPP Members non-coincident peak demand. However, in the case of Kingman, because of its import limits Kingman must often generate in the Summer. When KPP cannot deliver pool resources to Kingman due to import limits KPP only charges Kingman based on the maximum demands at the tie meter, not the tie meter demand plus generation (which is how load is calculated). While transmission demand costs and administrative demand costs are based on load, Kingman's generation capacity demand is reduced to the actual tie meter demand when import limits require Kingman to generate. The result is that Kingman pays a reduced amount for KPP capacity demand costs. This reduced amount is calculated based on a three-year average, as shown in Table 8 below, and assumed to remain constant for the duration of the 20-year analysis period. The annual costs calculated based on the KPP forecasted capacity demand charges are shown in Appendix D. It should be noted that this increased Capacity Demand payment by Kingman to KPP is treated as a benefit for KPP under the Kingman Direct Connection and SPEC Project and a cost to Kingman under both alternatives.

⁶ Every month average costs per kWh are compared to the annual all-inclusive forecasted costs per kWh and the difference is either refunded or collected as an Energy Cost Adjustment. For this reason, all KPP budget model forecasts assume that the annual amount of the monthly ECA refunds or collections sum to zero.

Economic Evaluation of Kingman Transmission Service Alternatives

Table 8 - Average KPP Lost Kingman Capacity Demand Billing Due to Import Restrictions			
Month	Overall Demand in kW	Billed Capacity Demand in kW	KPP Members lost Capacity Demand in kW
May-15	6,765	6,765	0
June-15	10,654	8,134	2,520
July-15	11,747	7,923	3,824
August-15	10,663	8,210	2,453
September-15	11,029	8,452	2,577
May-16	8,008	7,780	228
June-16	11,068	8,149	2,919
July-16	11,601	7,700	3,901
August-16	11,314	8,361	2,953
September-16	10,308	8,161	2,147
May-17	8,506	8,506	0
June-17	10,302	8,280	2,022
July-17	11,546	7,790	3,756
August-17	10,373	8,084	2,289
September-17	10,578	8,152	2,426
Total			34,015
Average			11,338

Kingman Loss Savings

KPP bills its members based on the values of their metered delivery points plus losses. For example, if a member has a tie meter reading of 1,000 megawatt-hours (MWh) for the month and 10% transmission losses, KPP would bill that member for 1100 MWh for the month (1,000 MWh + 100 MWh of losses).⁷ Today the City of Kingman's tie meter is located near Cunningham KS. Because SPEC losses on its 34.5 kV transmission system are calculated at 1.86%, in addition to MKEC transmission losses, KPP adds 1.86% to Kingman tie meter indication. With the Kingman Direct Connection, the SPEC loss component of 1.86% will no longer be charged. While the SPEC losses would still apply under the Do Nothing and

⁷ If there were 100 MWh of internal generation that KPP had compensated the member for then the overall billing would be an additional 100 MWh, or 1200 MWh total.

Economic Evaluation of Kingman Transmission Service Alternatives

the SPEC Project alternative, the City of Kingman will essentially lower its metered demand and energy billing components by 1.86% with the Kingman Direct Connection. This benefit has been calculated for the 20-year analysis period and is shown in Appendix E.⁸

Operating and Maintenance (O&M) Costs

The Kingman Direct Connection involves new lower voltage transmission facilities that must be operated and maintained by KPP. To calculate the anticipated O&M costs KPP reviewed the O&M costs as a percentage of net plant for transmission assets recently installed by 3 independent transmission companies. The reason for using independent transmission companies is that their assets are all recently installed and represent very little, if any, older facilities that require increased O&M costs and decreased net plant. In its review KPP used the latest Formula Based Rate filings of three independent transmission companies: Transource Missouri, LLC, a KCPL affiliate; Prairie Wind Transmission, LLC, which has significant participation and ownership by Westar Energy; and ITC Great Plains, LLC, which has various agreements with MKEC. The results of this review are shown in Table 9 below with the net effect that the analysis assumes 3% of construction costs for O&M expenses on facilities constructed by KPP for the Kingman Direct Connection in 2020, escalated by 2% annually.⁹

Table 9 - Calculation of Operating and Maintenance Cost of New Transmission			
	Total O&M costs	Net Plant	O&M % Net Plant
Transource Missouri, LLC	\$2,612,593.17	\$302,587,421.37	0.86%
Prairie Wind Transmission, LLC	\$556,507.32	\$151,661,161.33	0.37%
ITC-Great Plains, LLC	\$14,028,586.81	\$506,435,660.31	2.77%
Total	\$17,197,687.30	\$960,684,243.01	1.79%
Average is 1.79% for newer facilities - use 3% and escalate by 2% inflation			

Kingman Generation Savings

KPP reimburses its members for generation if the generation is done for environmental testing, SPP required capacity or operability testing, if requested by SPP or transmission operators, if dispatched by the SPP Integrated Market, or if due to a loss of transmission.¹⁰ KPP does not reimburse its Members for generation due to problems on the Member's distribution system, member training, testing following maintenance or generation operation due to transmission limits. Each month KPP tracks Member generation and determines whether the generation should be billed to KPP or paid for by the Member.

⁸ While this could have a slight effect on overall KPP rates by reducing overall billing determinants it should also decrease MKEC transmission cost allocators that add back in losses on their members system to determine load ratio share of transmission costs. In addition, loss components used in determining Locational Marginal Pricing for KPP load in the MKEC zone should also decrease. For these reasons, any detriment to other KPP members is considered insignificant.

⁹ Or 3% of the subtotal \$2,323,662 in Table 2, or \$69,710 for 2020 escalated by 2% annually after that.

¹⁰ The reasoning is that KPP is responsible for the KPP Members transmission service.

Economic Evaluation of Kingman Transmission Service Alternatives

If the Member does not bill KPP for the generation the member avoids the KPP energy charge and the KPP ECA associated with the generation, but must pay for the variable generation costs. Kingman offers 5 of its 6 generating units into the market, so variable generation costs can be determined from Kingman's market offers. Without adding in startup or no load costs an inspection of Kingman's recent market offers reveals that \$70/mWh is a conservative amount to use for their internal generation costs. Based on this amount and the total KPP energy costs for the last three summer seasons the average Kingman generation costs due to the current import restriction was calculated from the generation that was not billed to KPP. The result is shown in Table 10 below. The average was used for 2020 and escalated at 2% for the following years.

Table 10 - Estimated Kingman Generation Cost Savings by Removing Import Limits							
Month	Generation MWh (Not Billing KPP)	KPP Annual Energy Charge (\$/MWH)	KPP Monthly ECA (\$/MWH)	Total KPP Energy Cost (\$/MWH)	Cost of KPP Replacement Power	Kingman Generation Costs at \$70/MWH	Kingman Excess Costs
May-15	37.624	\$34.35	\$4.86	\$39.21	\$1,475.12	\$2,633.68	(\$1,158.56)
June-15	763.799	\$34.35	(\$6.71)	\$27.64	\$21,110.56	\$53,465.93	(\$32,355.37)
July-15	1,309.975	\$34.35	(\$7.50)	\$26.86	\$35,179.44	\$91,698.25	(\$56,518.81)
August-15	702.362	\$34.35	(\$7.43)	\$26.93	\$18,911.15	\$49,165.34	(\$30,254.19)
September-15	266.479	\$34.35	(\$1.94)	\$32.41	\$8,636.40	\$18,653.53	(\$10,017.13)
May-16	108.276	\$28.19	\$4.36554	\$32.56	\$3,524.98	\$7,579.32	(\$4,054.34)
June-16	733.756	\$28.19	(\$9.83804)	\$18.35	\$13,465.86	\$51,362.92	(\$37,897.06)
July-16	1,184.685	\$28.19	(\$14.26904)	\$13.92	\$16,491.95	\$82,927.95	(\$66,436.00)
August-16	907.476	\$28.19	(\$9.93791)	\$18.25	\$16,563.34	\$63,523.32	(\$46,959.98)
September-16	339.657	\$28.19	(\$5.33401)	\$22.86	\$7,763.20	\$23,775.99	(\$16,012.79)
May-17	0.000	\$31.46	(\$0.11)	\$31.35	\$0.00	\$0.00	\$0.00
June-17	418.026	\$31.46	(\$9.26)	\$22.20	\$9,279.58	\$29,261.82	(\$19,982.24)
July-17	458.976	\$31.46	(\$13.40)	\$18.06	\$8,289.74	\$32,128.32	(\$23,838.58)
August-17	224.874	\$31.46	(\$7.58)	\$23.88	\$5,369.37	\$15,741.18	(\$10,371.81)
September-17	160.613	\$31.46	(\$8.07)	\$23.39	\$3,756.42	\$11,242.91	(\$7,486.49)
Total					\$169,817.10	\$533,160.46	(\$363,343.36)
Average					\$56,605.70	\$177,720.15	(\$121,114.45)

Capacity Sale Revenue

KPP Members have made significant investments in Members internal generation for the benefit of everyone in the pool. KPP and its Members issued bonds in 2012 to install environmental upgrades¹¹ at 87 megawatts (MW) of its members internal combustion diesel¹² engine generator sets, include 5 units at Kingman at a cost of nearly \$900,000 to all KPP Members. The 5 Kingman units are also currently offered into the SPP IM. One of the concerns with the SPEC 34.5 kV transmission service is that it does

¹¹ Catalytic convertors in the exhaust systems.

¹² Diesel in this case refers to the thermodynamic cycle of the engine. Each of the diesel engines that KPP installed catalytic convertors on is a dual fuel engine which used fuel oil as a pilot fuel and burns mainly natural gas.

Economic Evaluation of Kingman Transmission Service Alternatives

not allow KPP to fully utilize its members generation, even though the KPP Members have went to considerable expense to make this generation capacity available. Currently KPP has excess generation capacity. KPP's believes this generation capacity to be worth over \$2/kW-mo based on a review of current offers KPP is aware of for generation capacity. Unfortunately, prospective buyers are not located in the MKEC zone. SPEC charges its full LAC rate, currently over 5.41/kW-mo for delivery of this capacity outside their zone. This means that this generation cannot be sold to other buyers because the SPEC charges exceed its market value. Furthermore, SPP is in the process of developing Resource Adequacy Requirements (RAR)¹³ that in its current form will require SPP entities that are short of generation capacity each year to pay a minimum of \$8.92/kW-mo to be divided among entities with deliverable excess generation. Because Kingman generation cannot be delivered economically over the SPEC 34.5 kV system it would not be available for these additional revenues. For these reasons, KPP believes that the approximate 16 MW of environmentally compliant and market registered Kingman generation has a market capacity value of at least \$2/kW-mo in 2020 with an annual escalation of 2% a year afterwards.¹⁴ This amounts to \$384,000 a year of benefits in 2020 only available under the Kingman Direct Connection alternative.

Analysis Method

The analysis considered the 20-year period of 2020 through 2039 and assumed that the net present value (NPV) of all alternatives were considered for "year 0" in 2019 for comparison. In this case 2020 was year 1, 2021 was year 2, and so forth with 2039 being year 20. Positive values in 2019 reflect the NPV of costs over the following 20 years. Negative values in 2019 reflect the NPV of benefits over the following 20 years. The following discussion involves the treatment of each item in the analysis which has been calculated as discussed above. A detailed yearly cost comparison of all items is attached in Appendix F. A summary of the 2019 NPV for each item is shown below in Table 11.

Table 11 - Summary of 2019 NPV of Cost and Benefits	
Item	Total 2019 NPV
SPEC Project Bond Payments	\$2,302,492
Kingman Direct Connection Bond Costs	\$4,365,099
O&M Costs	\$1,424,180
LAC Charges with 6 MW limit	\$9,395,727
LAC Charges with No Limit	\$11,624,627
Increase in Capacity Payments	\$2,186,469
Kingman Loss Savings	\$1,292,015
Kingman Generation Savings	\$2,374,793
Kingman Capacity Sale Revenue	\$7,529,412

¹³ See FERC Docket No. ER18-1268.

¹⁴ Note that the KPP pool agreement allows all Members to share the benefits of capacity sales of any KPP resource.

Economic Evaluation of Kingman Transmission Service Alternatives

SPEC Project Bond Payments

These costs are only incurred by KPP under the SPEC Project.

Kingman Direct Connection Bond Costs

These costs are only incurred by KPP under the Kingman Direct Connection.

O&M Costs

These costs are only incurred by KPP under the Kingman Direct Connection.

LAC Charges with 6 MW Limit

These costs are only incurred by KPP under the Do Nothing alternative.

LAC Charges with No Limit

These costs are only incurred by KPP under the SPEC Project.

Increase in Capacity Payments

These reflect benefits to KPP and costs to the City of Kingman under both the SPEC Project and the Kingman Direct Connection.

Kingman Loss Savings

These are benefits to the City of Kingman under the Kingman Direct Connection alternative.

Kingman Generation Savings

These are benefits to the City of Kingman under both the SPEC Project and the Kingman Direct Connection.

Kingman Capacity Sale Revenue

These are treated as lost opportunity costs for KPP under both the Do Nothing and the SPEC Project alternatives.

Results

Combining the results for each item, the 2019 NPV of costs and benefits for both KPP and the City of Kingman were calculated and the results are shown in Table 12 as follows.

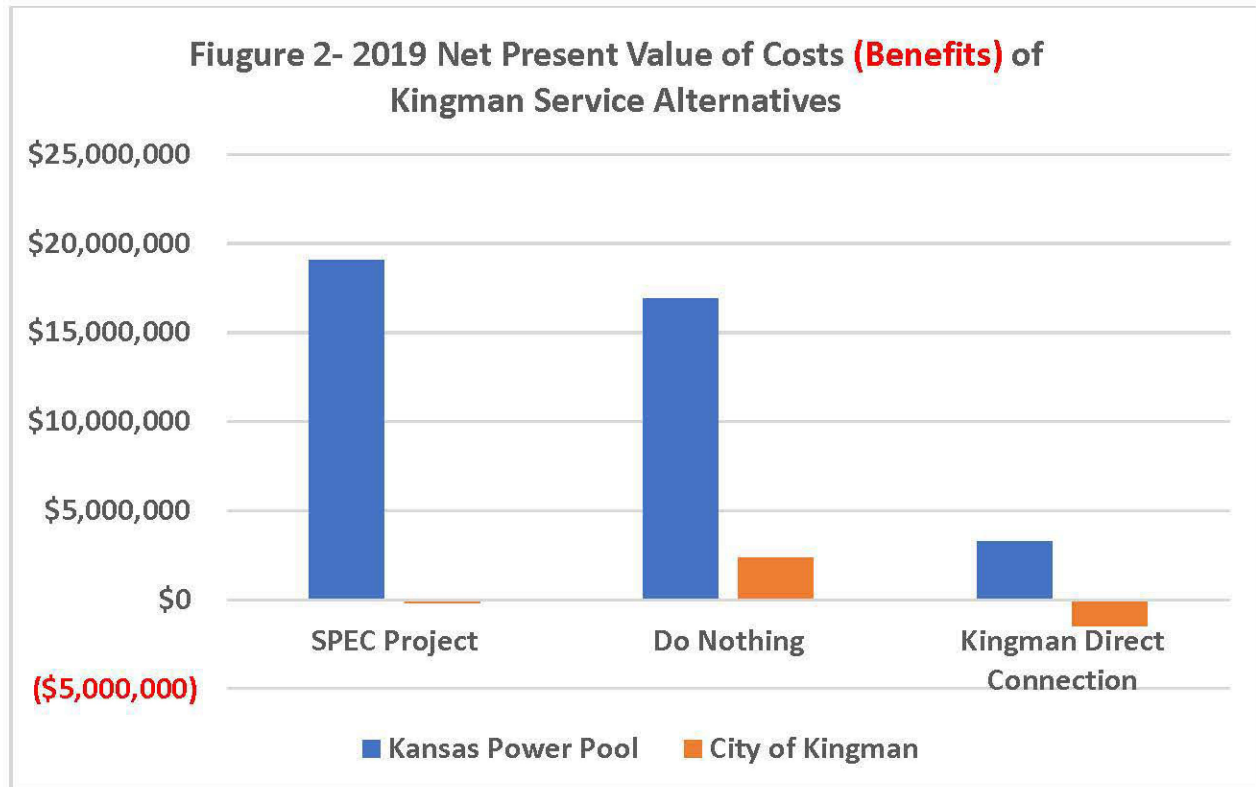
Economic Evaluation of Kingman Transmission Service Alternatives

Table 12 - Results of NPV Analysis of the Three Alternatives		
	SPEC Project	
	2019 Net Present Value of Costs	
	(Benefits)	
	Kansas Power Pool	City of Kingman
Bond Issue Payments	\$2,302,492	\$0
Bond Reserve Refund	(\$183,168)	\$0
LAC charges	\$11,624,627	\$0
Increased Capacity Payments	(\$2,186,469)	\$2,186,469
Kingman Generation Savings		(\$2,374,793)
Kingman Capacity Sale Lost Opportunity	\$7,529,412	\$0
Total	\$19,086,892	(\$188,324)
	Do Nothing	
	2019 Net Present Value of Costs	
	(Benefits)	
	Kansas Power Pool	City of Kingman
LAC charges	\$9,395,727	\$0
Kingman Generation Costs	\$0	\$2,374,793
Kingman Capacity Sale Lost Opportunity	\$7,529,412	\$0
Total	\$16,925,139	\$2,374,793
	Kingman Direct Connection	
	2019 Net Present Value of Costs	
	(Benefits)	
	Kansas Power Pool	City of Kingman
Bond Issue Payments	\$4,365,099	\$0
Bond Reserve Refund	(\$347,254)	\$0
O&M Costs	\$1,424,180	\$0
Increased Capacity Payments	(\$2,186,469)	\$2,186,469
Kingman 115 kV Metering Loss Savings	\$0	(\$1,292,015)
Kingman Generation Savings	\$0	(\$2,374,793)
Total	\$3,255,556	(\$1,480,339)

Economic Evaluation of Kingman Transmission Service Alternatives

Conclusions

As shown from KPP's perspective the least cost alternative by far is the Kingman Direct Connection. The second least cost alternative (at an NPV of over 5 times the Kingman Direct Connection) is Do Nothing. The SPEC Project is by far the most expensive alternative considers. While the City of Kingman will see net benefits from the Kingman Direct Connection and some minor benefits from the SPEC Project, consideration of the SPEC project benefits to the City of Kingman is a moot point since the rest of the KPP Members would be better off with the Do Nothing alternative. The results are illustrated below:



CPI - All Urban Consumers (Current Series)
12 - Month Percent Change

Series Id: CUUR0000SA0L1E

Not Seasonally Adjusted

Series Title: All items less food and energy in U.S. city

Area: U.S. city average

Item: All items less food and energy

Base Period: 1982-84=100

Years: 2008 to 2018

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	2.5	2.3	2.4	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.2	
2009	1.7	1.8	1.8	1.9	1.8	1.8	1.7	1.5	1.4	1.5	1.7	
2010	1.6	1.3	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.6	
2011	1.0	1.1	1.2	1.3	1.5	1.6	1.8	2.0	2.0	2.0	2.1	
2012	2.3	2.2	2.3	2.3	2.3	2.2	2.1	1.9	2.0	2.0	2.0	
2013	1.9	2.0	1.9	1.7	1.7	1.6	1.7	1.8	1.7	1.7	1.7	
2014	1.6	1.6	1.7	1.8	2.0	1.9	1.9	1.7	1.7	1.7	1.8	
2015	1.6	1.7	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.9	1.9	
2016	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.1	
2017	2.3	2.2	2.0	1.9	1.7	1.7	1.7	1.7	1.7	1.7	1.8	
2018	1.8	1.8	2.1									



August 8, 2016

Kansas Power Pool
c/o: Larry Holloway
100 N. Broadway, Suite L110
Wichita, KS 67202

RE: Preliminary Design Memorandum Update
KPP Kingman Bypass
Kingman, Kansas – 2016-2017
Olsson Project No. 015-1461

Mr. Holloway:

This Design Memorandum presents the following recommendations relating to the proposed 2016-2017 KPP Kingman, Kansas Bypass Project, which includes the following components:

- 115 – 34.5 kV substation north of Cairo, Kansas near the existing semcrude substation, new 15/28 MVA transformer.
- 34.5 kV 477 ACCC tie line from the new substation approximately 3.5 miles to the existing Kingman 477 ACCC line between Kingman and Cunningham, Kansas.
- 34.5 – 12.5 kV substation transformer in Kingman, 15/28 MVA transformer with LTC.

This document addresses the preferred 115 kV substation configuration, the 34.5 kV line extension, the replacement of the 7/10 MVA 34.5 kV substation transformer in Kingman with a new 15/28 MVA transformer, preliminary opinions of costs, proposed schedule, and specific information relating to the design for the proposed 34.5 kV line. In addition to establishing an opinion of cost and the anticipated schedule, it is also the intent of this document to define the criteria and component information on which the design will be based.

Preliminary opinions of cost and a proposed schedule are provided; costs have been based on materials and construction by contract. All referenced figures are attached to the end of the document.

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SUMMARY OF RECOMMENDATIONS

Existing Situation

- The city of Kingman peaks at 12 MW, projected to grow to 15.2 MW by 2027. The maximum capacity of the existing 34.5 kV source from Pratt to Cunningham (15 miles) is 6 MW.
- The existing 34.5 kV line from Cunningham to Kingman (21 miles) is 477 ACCC, which has 39.6 MVA of capacity. The line is owned by Kingman.
- The existing 34.5 kV – 12.5 kV transformer in Kingman is limited to 7/10 MVA capacity.
- The city of Kingman is generating just to carry their normal loads because of insufficient capacity on the source to the city.

Recommendations

- 2 miles west of Cunningham, and approximately 2 ½ miles north of Hwy 400 there is an existing 115 kV semcrude substation that is fed by a radial 115 kV line now owned by MKEC.
- KPP will purchase the property for the new substation.
- MKEC will review the proposed footprint of the new KPP substation.
- It has been proposed that MKEC will install a 3-way 115 kV tap on their 115 kV line and deadend the new tap on the deadend structure in the new KPP 115 – 34.5 kV substation. MKEC will require an easement for the 115 kV line connection.
- It has been proposed that KPP will procure and install the equipment as specified by MKEC to meter the load at 115 kV within the new substation.
- The 115 kV metering CT's and PT's will feed only the metering. They will not be used for relaying protection. A separate set of CT's and PT's will be installed for relaying.
- MKEC will procure and install the meters in the KPP control building on a panel as specified by MKEC. There will be two sets of metering, primary and backup.
- MKEC requires an easement to access the new KPP substation for metering.
- MKEC requires a 115 kV line switch in the new KPP substation. MKEC will require open/close indication and tag-out capabilities. MKEC does not need ownership, just access.
- The new KPP substation would have a 115 – 34.5 kV transformer rated at 15/28 MVA. The transformer will be YY or Auto, yet to be determined.

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- There will be differential relaying between the 115 kV circuit switcher on the high side of the transformer and the 34.5 kV circuit breaker on the low side of the transformer. MKEC does not require control of the circuit switcher or breaker.
- If redundant relaying is present, there is no need for transfer trip. Redundant relaying will be recommended.
- MKEC recommends a SEL-351-7 relay in the new KPP substation for line protection with a 3-phase power element and 67G element.
- MKEC will require SCADA indication for relay alarms, LOP, circuit switcher status, and low side breaker status.
- A new 34.5 kV 477 ACCC line would be built by KPP from the new KPP substation to tie into the existing Kingman 477 ACCC 34.5 kV line north of Cunningham. The new line will be 477 ACCC to match the existing 477 ACCC. The tie will be completed at a new 34.5 kV 3-way switch which will be normally open back to Cunningham.
- In the city of Kingman the existing 34.5 – 12.5 kV, 7/10 MVA transformer will need to be replaced with a 15/28 MVA transformer. It has not been determined if this replacement will be completed at this time or at a later date.
- The RTU at Kingman may need to be changed out due to overload.
- Significant coordination will be required on the project for SCADA communication between the multiple substations monitored by this system.
- A price comparison between steel poles and wood poles for the new 34.5 kV line will be completed for the client's review and selection.

PRELIMINARY OPINION OF PROBABLE COSTS

The following Table 1 shows a breakdown of the preliminary opinion of probable costs for the proposed KPP 115 – 34.5 kV substation. All costs are based on materials and labor by contract.

Kingman 115 kV Substation Estimate

\$33,000.00	voltage transformers
\$35,000.00	current transformers
\$4,000.00	115 kV surge arresters
\$38,500.00	H-frame deadend structure
\$22,000.00	bus support structures
\$20,000.00	meter/relay support structures
\$10,000.00	post insulators
\$5,000.00	tubular bus
\$100.00	cable in bus
\$2,100.00	jumpers
\$2,000.00	bus support fittings

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\$2,500.00	line deadends
\$375.00	bus tee pads
\$125.00	cable pads
\$3,000.00	foundation, circuit breaker
\$8,000.00	foundation, bus supports
\$15,500.00	foundation, circuit switcher
\$6,000.00	precast concrete trench
\$9,000.00	5" conduit for 34.5 kV cable
\$6,000.00	10/C control cable
\$1,500.00	3/C control cable
\$58,000.00	fence
\$5,000.00	gates
\$14,000.00	ground grid
\$1,500.00	ground rods
\$7,000.00	light/shield wire steel pole
\$1,000.00	light fixtures
\$2,000.00	3/c #10 600 volt cable
\$40,000.00	control house
\$12,000.00	control cubicles
\$55,000.00	protective relaying
\$5,000.00	metering panels/wiring
\$13,000.00	battery charging system
\$11,000.00	rock surface
\$90,000.00	115 kV circuit switcher
\$45,000.00	34.5 kV circuit breaker
\$8,000.00	station service transformer
\$12,000.00	34.5 kV disconnects
\$1,000.00	34.5 kV surge arresters
\$6,000.00	foundation transformer pad
\$150,000.00	34.5 kV (2) 4/0 CU UG cable
\$1,500.00	34.5 kV terminations
\$15,000.00	115 kV line switch and footings
\$10,000.00	SCADA equipment
\$3,000.00	fiber or radio to semcrude sub
\$789,700.00	sub total
\$78,970.00	contingencies (10%)
\$128,000.00	engineering fees
<u>\$450,000.00</u>	<u>115-34.5 kV transformer</u>
\$1,446,670.00*	total 115 kV substation

*Pricing Includes labor

Table 1

The following Table 2 shows a breakdown of the preliminary opinion of probable costs for the proposed city of Kingman 34.5 – 12.5 kV substation. All costs are based on materials and labor by contract.

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34.5 kV Substation in Kingman

\$520,000.00	34.5-12.5 kV transformer with LTC
\$20,000.00	materials, estimated
<u>\$15,000.00</u>	<u>engineering fees</u>
\$555,000.00*	total for Kingman 34.5 kV substation

*Pricing Includes labor

Table 2

The following Table 3 shows a breakdown of the preliminary opinion of probable costs for the proposed 34.5 kV line extension to tie the new KPP substation to the existing Kingman 34.5 kV subtransmission line.

34.5 kV Line Extension

\$63,000.00	74 wood poles x 3.5 miles, 250' spans
\$30,000.00	213 horizontal post insulators, 34.5 kV
\$4,700.00	71 shield wire cable support
\$2,000.00	18 suspension insulators, 34.5 kV
\$128,000.00	56Mft conductor, 477 ACCC
\$6,000.00	19Mft shield wire, 3/8 H.S.S.
\$29,000.00	3-way switch structure, 34.5 kV
\$262,700.00	sub total
\$39,405.00	contingencies (15%)
\$80,000.00	engineering fees
<u>\$300,000.00*</u>	<u>labor</u>
\$682,105.00	total

*Pricing does not include labor, labor added as separate line item.

Table 3

The total opinion of probable construction costs for the project is \$2,683,775.00.

PROPOSED SCHEDULE

The following Table 4 shows the schedule milestones for design, bidding, and construction of the proposed work.

<u>Item</u>	<u>Completion Month - Year</u>
Approve Preliminary Design Memo	Aug 2016
Contract Between KPP and Engineer	Sep 2016
50% Design Completion and Owner Review	Nov 2016

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95% Design Completion and Final Owner Review	Jan 2017
Advertise Procurement Contracts	Feb 2017
Advertise Labor, Equipment, and Materials Contract	Mar 2017
Open Bids for Labor, Equipment, and Materials Contract	May 2017
Open Bids for Procurement Contracts	May 2017
Award Contracts	Jun 2017
Contract Bonding, Insurance, and Execution	Jul 2017
Construction Start Date	Aug 2017
Substation Transformer Delivery	Jun 2018
Final Inspection and Acceptance	Aug 2018

Table 4

The table above provides proposed schedule milestones for several project components. The schedule is controlled by an estimated 50 week delivery schedule on the substation transformers.

Figure 1 (attached) is a one-line diagram of the proposed KPP 115 – 34.5 kV substation near the existing semcrude substation northwest of Cunningham.

Sincerely,



Mike Jones

Attachment

Cost Benefit Analysis of Upgrading Service to Kingman

Kingman LADS Payments (at 6,000 kW per Month w/o losses)

Marker	Month	Southern Pioneer Monthly LAC \$/kW			
		Charge	PTS	Total	Monthly Charge
0.00	Jan-11	\$2.030000		\$2.030000	\$12,180.00
0.08	Feb-11	\$2.030000		\$2.030000	\$12,180.00
0.17	Mar-11	\$2.030000		\$2.030000	\$12,180.00
0.25	Apr-11	\$2.030000		\$2.030000	\$12,180.00
0.33	May-11	\$2.030000		\$2.030000	\$12,180.00
0.42	Jun-11	\$2.030000		\$2.030000	\$12,180.00
0.50	Jul-11	\$2.030000		\$2.030000	\$12,180.00
0.58	Aug-11	\$2.030000		\$2.030000	\$12,180.00
0.67	Sep-11	\$2.030000		\$2.030000	\$12,180.00
0.75	Oct-11	\$2.030000		\$2.030000	\$12,180.00
0.83	Nov-11	\$2.030000		\$2.030000	\$12,180.00
0.92	Dec-11	\$2.030000		\$2.030000	\$12,180.00
1.00	Jan-12	\$2.030000		\$2.030000	\$12,180.00
1.08	Feb-12	\$2.030000		\$2.030000	\$12,180.00
1.17	Feb-12	\$2.030000		\$2.030000	\$12,180.00
1.25	Mar-12	\$2.030000		\$2.030000	\$12,180.00
1.33	Apr-12	\$2.030000		\$2.030000	\$12,180.00
1.42	May-12	\$2.030000		\$2.030000	\$12,180.00
1.50	Jun-12	\$2.030000		\$2.030000	\$12,180.00
1.58	Jul-12	\$2.670000		\$2.670000	\$16,020.00
1.67	Aug-12	\$2.670000		\$2.670000	\$16,020.00
1.75	Sep-12	\$2.670000		\$2.670000	\$16,020.00
1.83	Oct-12	\$2.670000		\$2.670000	\$16,020.00
1.92	Nov-12	\$2.670000		\$2.670000	\$16,020.00
2.00	Dec-12	\$2.670000		\$2.670000	\$16,020.00
2.08	Jan-13	\$2.670000		\$2.670000	\$16,020.00
2.17	Feb-13	\$2.670000		\$2.670000	\$16,020.00
2.25	Mar-13	\$2.670000		\$2.670000	\$16,020.00
2.33	Apr-13	\$2.670000		\$2.670000	\$16,020.00
2.42	May-13	\$2.670000		\$2.670000	\$16,020.00
2.50	Jun-13	\$2.670000	\$0.234423	\$2.904423	\$17,426.54
2.58	Jul-13	\$2.670000	\$0.234423	\$2.904423	\$17,426.54
2.67	Aug-13	\$2.670000	\$0.234423	\$2.904423	\$17,426.54
2.75	Sep-13	\$2.670000	\$0.234423	\$2.904423	\$17,426.54
2.83	Oct-13	\$2.780000	\$0.234423	\$3.014423	\$18,086.54
2.92	Nov-13	\$2.780000	\$0.234423	\$3.014423	\$18,086.54
3.00	Dec-13	\$2.780000	\$0.234423	\$3.014423	\$18,086.54
3.08	Jan-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
3.17	Feb-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
3.25	Mar-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
3.33	Apr-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
3.42	May-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29

Cost Benefit Analysis of Upgrading Service to Kingman

Kingman LADS Payments (at 6,000 kW per Month w/o losses)

Marker	Month	Southern Pioneer Monthly LAC \$/kW			
		Charge	PTS	Total	Monthly Charge
3.50	Jun-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
3.58	Jul-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
3.67	Aug-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
3.75	Sep-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
3.83	Oct-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
3.92	Nov-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
4.00	Dec-14	\$2.780000	\$0.225715	\$3.005715	\$18,034.29
4.08	Jan-15	\$2.780000	\$0.115830	\$2.895830	\$17,374.98
4.17	Feb-15	\$2.780000	\$0.115830	\$2.895830	\$17,374.98
4.25	Mar-15	\$2.780000	\$0.115830	\$2.895830	\$17,374.98
4.33	Apr-15	\$2.780000	\$0.115830	\$2.895830	\$17,374.98
4.42	May-15	\$4.510000	\$0.115830	\$4.625830	\$27,754.98
4.50	Jun-15	\$4.510000	\$0.115830	\$4.625830	\$27,754.98
4.58	Jul-15	\$4.510000	\$0.115830	\$4.625830	\$27,754.98
4.67	Aug-15	\$4.510000	\$0.115830	\$4.625830	\$27,754.98
4.75	Sep-15	\$4.510000	\$0.115830	\$4.625830	\$27,754.98
4.83	Oct-15	\$4.510000	\$0.115830	\$4.625830	\$27,754.98
4.92	Nov-15	\$4.510000	\$0.115830	\$4.625830	\$27,754.98
5.00	Dec-15	\$4.510000	\$0.115830	\$4.625830	\$27,754.98
5.08	Jan-16	\$4.510000	\$0.315819	\$4.825819	\$28,954.91
5.17	Feb-16	\$4.510000	\$0.315819	\$4.825819	\$28,954.91
5.25	Mar-16	\$4.510000	\$0.315819	\$4.825819	\$28,954.91
5.33	Apr-16	\$4.510000	\$0.315819	\$4.825819	\$28,954.91
5.42	May-16	\$4.510000	\$0.315819	\$4.825819	\$28,954.91
5.50	Jun-16	\$4.510000	\$0.315819	\$4.825819	\$28,954.91
5.58	Jul-16	\$4.510000	\$0.315819	\$4.825819	\$28,954.91
5.67	Aug-16	\$4.510000	\$0.315819	\$4.825819	\$28,954.91
5.75	Sep-16	\$4.190000	\$0.315819	\$4.505819	\$27,034.91
5.83	Oct-16	\$4.190000	\$0.315819	\$4.505819	\$27,034.91
5.92	Nov-16	\$4.190000	\$0.315819	\$4.505819	\$27,034.91
6.00	Dec-16	\$4.190000	\$0.315819	\$4.505819	\$27,034.91
6.08	Jan-17	\$4.190000	\$0.510840	\$4.700840	\$28,205.04
6.17	Feb-17	\$4.190000	\$0.510840	\$4.700840	\$28,205.04
6.25	Mar-17	\$4.190000	\$0.510840	\$4.700840	\$28,205.04
6.33	Apr-17	\$4.190000	\$0.510840	\$4.700840	\$28,205.04
6.42	May-17	\$4.190000	\$0.510840	\$4.700840	\$28,205.04
6.50	Jun-17	\$4.190000	\$0.510840	\$4.700840	\$28,205.04
6.58	Jul-17	\$4.190000	\$0.510840	\$4.700840	\$28,205.04
6.67	Aug-17	\$4.190000	\$0.510840	\$4.700840	\$28,205.04
6.75	Sep-17	\$4.880000	\$0.510840	\$5.390840	\$32,345.04
6.83	Oct-17	\$4.880000	\$0.510840	\$5.390840	\$32,345.04
6.92	Nov-17	\$4.880000	\$0.510840	\$5.390840	\$32,345.04

Cost Benefit Analysis of Upgrading Service to Kingman

Kingman LADS Payments (at 6,000 kW per Month w/o losses)

Marker	Month	Southern Pioneer Monthly LAC \$/kW			Monthly Charge
		Charge	PTS	Total	
7.00	Dec-17	\$4.880000	\$0.510840	\$5.390840	\$32,345.04
7.08	Jan-18	\$4.880000	\$0.541725	\$5.421725	\$32,530.35
7.17	Feb-18	\$4.880000	\$0.541725	\$5.421725	\$32,530.35
7.25	Mar-18	\$4.880000	\$0.541725	\$5.421725	\$32,530.35

Cost Benefit Analysis of Upgrading Service to Kingman

Load	Sum	KPP		
		KPP Kingman	Forecasted	Additional KPP
		Additional Capacity Demand in kW-mo	capacity demand in	Demand Revenue
2019	51,535	11,338	\$10.61	\$120,299.72
2020	51,680	11,338	\$10.63	\$120,526.48
2021	52,044	11,338	\$10.67	\$120,980.02
2022	52,272	11,338	\$10.86	\$123,134.30
2023	52,520	11,338	\$11.01	\$124,835.05
2024	52,803	11,338	\$11.01	\$124,835.05
2025	53,058	11,338	\$10.98	\$124,494.90
2026	53,323	11,338	\$10.96	\$124,268.13
2027	53,593	11,338	\$11.04	\$125,175.20
2028	53,860	11,338	\$11.26	\$127,678.70
2029	54,129	11,338	\$11.49	\$130,232.28
2030	54,401	11,338	\$11.72	\$132,836.92
2031	54,672	11,338	\$11.95	\$135,493.66
2032	54,946	11,338	\$12.19	\$138,203.54
2033	55,221	11,338	\$12.43	\$140,967.61
2034	55,497	11,338	\$12.68	\$143,786.96
2035	55,775	11,338	\$12.94	\$146,662.70
2036	56,054	11,338	\$13.19	\$149,595.95
2037	56,335	11,338	\$13.46	\$152,587.87
2038	56,617	11,338	\$13.73	\$155,639.63
2039	56,900	11,338	\$14.00	\$158,752.42
2040	57,185	11,338	\$14.28	\$161,927.47
2041	57,471	11,338	\$14.57	\$165,166.02
2042	57,759	11,338	\$14.86	\$168,469.34
2043	58,048	11,338	\$15.16	\$171,838.73
2044	58,338	11,338	\$15.46	\$175,275.50
2045	58,630	11,338	\$15.77	\$178,781.01

Kingman Loss Savings Calculation

Cost Benefit Analysis of Upgrading Service to Kingman

	2019	2020	2021	2022	2023	2024
Kingman Annual Energy Forecast	51,535	51,680	52,044	52,272	52,520	52,803
Southern Pioneer Losses MWH	941	944	950	955	959	964
KPP Forecasted Energy Cost in \$/MWH	\$29.44	\$29.63	\$29.81	\$30.25	\$26.78	\$27.01
Kingman Enegy Loss Costs	\$27,705	\$27,962	\$28,330	\$28,874	\$25,683	\$26,043
Annual kW-Mo	100,339	100,392	101,078	101,611	102,040	102,595
SPEC lossed	1,832	1,833	1,846	1,855	1,863	1,873
KPP Forecasted Admin Demand in \$/kW	\$2.12	\$2.20	\$2.34	\$2.43	\$2.74	\$2.45
KPP Forecasted Capacity Demand in \$/kW	\$10.61	\$10.63	\$10.67	\$10.86	\$11.01	\$11.01
KPP Forecasted Transmission Demand in \$/kW	\$7.70	\$8.00	\$8.31	\$8.65	\$9.00	\$9.37
KPP ForecastedTotal Demand Charges in \$/kW	\$20.43	\$20.83	\$21.32	\$21.94	\$22.75	\$22.83
Kingman Demand Loss Costs	\$37,440	\$38,179	\$39,349	\$40,704	\$42,387	\$42,766
Kingman Annual Loss Savings	\$65,144	\$66,140	\$67,679	\$69,578	\$68,070	\$68,809

Kingman Loss Savings Calculation

Cost Benefit Analysis of Upgrading Service to Kingman

	2025	2026	2027	2028	2029	2030
Kingman Annual Energy Forecast	53,058	53,323	53,593	53,860	54,129	54,401
Southern Pioneer Losses MWH	969	974	979	983	988	993
KPP Forecasted Energy Cost in \$/MWH	\$27.32	\$27.05	\$28.23	\$28.79	\$29.37	\$29.96
Kingman Enegy Loss Costs	\$26,469	\$26,339	\$27,627	\$28,319	\$29,030	\$29,759
Annual kW-Mo	103,105	103,608	104,136	104,655	105,177	105,705
SPEC lossed	1,883	1,892	1,902	1,911	1,921	1,930
KPP Forecasted Admin Demand in \$/kW	\$2.53	\$2.61	\$2.72	\$2.78	\$2.84	\$2.89
KPP Forecasted Capacity Demand in \$/kW	\$10.98	\$10.96	\$11.04	\$11.26	\$11.49	\$11.72
KPP Forecasted Transmission Demand in \$/kW	\$9.75	\$10.14	\$10.66	\$10.87	\$11.09	\$11.31
KPP ForecastedTotal Demand Charges in \$/kW	\$23.26	\$23.71	\$24.42	\$24.91	\$25.41	\$25.92
Kingman Demand Loss Costs	\$43,791	\$44,860	\$46,446	\$47,611	\$48,805	\$50,031
Kingman Annual Loss Savings	\$70,260	\$71,198	\$74,072	\$75,930	\$77,835	\$79,791

Kingman Loss Savings Calculation

Cost Benefit Analysis of Upgrading Service to Kingman

	2031	2032	2033	2034	2035	2036
Kingman Annual Energy Forecast	54,672	54,946	55,221	55,497	55,775	56,054
Southern Pioneer Losses MWH	998	1,003	1,008	1,013	1,018	1,024
KPP Forecasted Energy Cost in \$/MWH	\$30.56	\$31.17	\$31.79	\$32.43	\$33.08	\$33.74
Kingman Enegy Loss Costs	\$30,506	\$31,272	\$32,057	\$32,862	\$33,687	\$34,533
Annual kW-Mo	106,234	106,765	107,300	107,837	108,376	108,919
SPEC lossed	1,940	1,950	1,959	1,969	1,979	1,989
KPP Forecasted Admin Demand in \$/kW	\$2.95	\$3.01	\$3.07	\$3.13	\$3.19	\$3.26
KPP Forecasted Capacity Demand in \$/kW	\$11.95	\$12.19	\$12.43	\$12.68	\$12.94	\$13.19
KPP Forecasted Transmission Demand in \$/kW	\$11.54	\$11.77	\$12.00	\$12.24	\$12.49	\$12.74
KPP ForecastedTotal Demand Charges in \$/kW	\$26.44	\$26.97	\$27.51	\$28.06	\$28.62	\$29.19
Kingman Demand Loss Costs	\$51,287	\$52,574	\$53,894	\$55,247	\$56,634	\$58,056
Kingman Annual Loss Savings	\$81,793	\$83,846	\$85,952	\$88,109	\$90,321	\$92,589

Kingman Loss Savings Calculation

Cost Benefit Analysis of Upgrading Service to Kingman

	2037	2038	2039	2040	2041	2042
Kingman Annual Energy Forecast	56,335	56,617	56,900	57,185	57,471	57,759
Southern Pioneer Losses MWH	1,029	1,034	1,039	1,044	1,049	1,055
KPP Forecasted Energy Cost in \$/MWH	\$34.41	\$35.10	\$35.80	\$36.52	\$37.25	\$37.99
Kingman Enegy Loss Costs	\$35,400	\$36,288	\$37,199	\$38,133	\$39,090	\$40,072
Annual kW-Mo	109,464	110,011	110,562	111,115	111,671	112,230
SPEC lossed	1,999	2,009	2,019	2,029	2,039	2,049
KPP Forecasted Admin Demand in \$/kW	\$3.32	\$3.39	\$3.46	\$3.52	\$3.60	\$3.67
KPP Forecasted Capacity Demand in \$/kW	\$13.46	\$13.73	\$14.00	\$14.28	\$14.57	\$14.86
KPP Forecasted Transmission Demand in \$/kW	\$12.99	\$13.25	\$13.52	\$13.79	\$14.07	\$14.35
KPP ForecastedTotal Demand Charges in \$/kW	\$29.77	\$30.37	\$30.98	\$31.60	\$32.23	\$32.87
Kingman Demand Loss Costs	\$59,513	\$61,007	\$62,539	\$64,109	\$65,718	\$67,368
Kingman Annual Loss Savings	\$94,913	\$97,296	\$99,738	\$102,242	\$104,809	\$107,440

Kingman Loss Savings Calculation**Cost Benefit Analysis of Upgrading Service to Kingman**

	2043	2044	2045
Kingman Annual Energy Forecast	58,048	58,338	58,630
Southern Pioneer Losses MWH	1,060	1,065	1,071
KPP Forecasted Energy Cost in \$/MWH	\$38.75	\$39.53	\$40.32
Kingman Enegy Loss Costs	\$41,078	\$42,109	\$43,166
Annual kW-Mo	112,792	113,356	113,923
SPEC lossed	2,060	2,070	2,080
KPP Forecasted Admin Demand in \$/kW	\$3.74	\$3.82	\$3.89
KPP Forecasted Capacity Demand in \$/kW	\$15.16	\$15.46	\$15.77
KPP Forecasted Transmission Demand in \$/kW	\$14.63	\$14.93	\$15.23
KPP ForecastedTotal Demand Charges in \$/kW	\$33.53	\$34.20	\$34.88
Kingman Demand Loss Costs	\$69,059	\$70,793	\$72,570
Kingman Annual Loss Savings	\$110,137	\$112,902	\$115,736

Net Present Value Calculation

Cost Benefit Analysis of Upgrading Service to Kingman

Description	Nominal Costs in Future Years (use 2% escalation to calculate Net Present Value)						
	2020	2021	2022	2023	2024	2025	2026
SPEC Project Bond Payments	\$140,813	\$140,813	\$140,813	\$140,813	\$140,813	\$140,813	\$140,813
Kingman Direct Connection Bond Costs	\$266,955	\$266,955	\$266,955	\$266,955	\$266,955	\$266,955	\$266,955
O&M Costs	\$72,633	\$74,086	\$75,568	\$77,079	\$78,620	\$80,193	\$81,797
LAC Charges with 6 MW limit	\$405,068	\$420,325	\$436,157	\$452,585	\$469,633	\$487,322	\$505,677
LAC Charges with No Limit	\$501,160	\$520,037	\$539,624	\$559,950	\$581,041	\$602,927	\$625,637
Increase in Capacity Payments	\$120,526	\$120,980	\$123,134	\$124,835	\$124,835	\$124,495	\$124,268
Kingman Loss Savings	\$66,140	\$67,679	\$69,578	\$68,070	\$68,809	\$70,260	\$71,198
Kingman Generation Savings	\$121,114	\$123,537	\$126,007	\$128,528	\$131,098	\$133,720	\$136,395
Kingman Capacity Sale Revenue	\$384,000	\$391,680	\$399,514	\$407,504	\$415,654	\$423,967	\$432,446
	1	2	3	4	5	6	7
2019 present Value Factor for 2% Inflation	0.9804	0.9612	0.9423	0.9238	0.9057	0.8880	0.8706

Description	2019 Net Present Value of Nominal Future Costs (or Benefits)						
	2020	2021	2022	2023	2024	2025	2026
SPEC Project Bond Payments	\$138,052	\$135,345	\$132,691	\$130,089	\$127,539	\$125,038	\$122,586
Kingman Direct Connection Bond Costs	\$261,721	\$256,589	\$251,558	\$246,625	\$241,789	\$237,049	\$232,401
O&M Costs	\$71,209	\$71,209	\$71,209	\$71,209	\$71,209	\$71,209	\$71,209
LAC Charges with 6 MW limit	\$397,125	\$404,003	\$411,001	\$418,119	\$425,361	\$432,728	\$440,223
LAC Charges with No Limit	\$491,333	\$499,843	\$508,500	\$517,307	\$526,267	\$535,382	\$544,654
Increase in Capacity Payments	\$118,163	\$116,282	\$116,032	\$115,328	\$113,067	\$110,548	\$108,183
Kingman Loss Savings	\$64,843	\$65,051	\$65,565	\$62,886	\$62,323	\$62,389	\$61,983
Kingman Generation Savings	\$118,740	\$118,740	\$118,740	\$118,740	\$118,740	\$118,740	\$118,740
Kingman Capacity Sale Revenue	\$376,471	\$376,471	\$376,471	\$376,471	\$376,471	\$376,471	\$376,471

Net Present Value Calculation

Cost Benefit Analysis of Upgrading Service to Kingman

Description	Nominal Costs in Future Years (use 2% escalation to calculate Net Present Value)						
	2027	2028	2029	2030	2031	2032	2033
SPEC Project Bond Payments	\$140,813	\$140,813	\$140,813	\$140,813	\$140,813	\$140,813	\$140,813
Kingman Direct Connection Bond Costs	\$266,955	\$266,955	\$266,955	\$266,955	\$266,955	\$266,955	\$266,955
O&M Costs	\$83,433	\$85,101	\$86,803	\$88,539	\$90,310	\$92,116	\$93,959
LAC Charges with 6 MW limit	\$524,724	\$544,489	\$564,998	\$586,279	\$608,362	\$631,276	\$655,054
LAC Charges with No Limit	\$649,202	\$673,655	\$699,029	\$725,359	\$752,680	\$781,031	\$810,449
Increase in Capacity Payments	\$125,175	\$127,679	\$130,232	\$132,837	\$135,494	\$138,204	\$140,968
Kingman Loss Savings	\$74,072	\$75,930	\$77,835	\$79,791	\$81,793	\$83,846	\$85,952
Kingman Generation Savings	\$139,122	\$141,905	\$144,743	\$147,638	\$150,591	\$153,602	\$156,674
Kingman Capacity Sale Revenue	\$441,095	\$449,917	\$458,916	\$468,094	\$477,456	\$487,005	\$496,745
	8	9	10	11	12	13	14
2019 present Value Factor for 2% Inflation	0.8535	0.8368	0.8203	0.8043	0.7885	0.7730	0.7579

Description	2019 Net Present Value of Nominal Future Costs (or Benefits)						
	2027	2028	2029	2030	2031	2032	2033
SPEC Project Bond Payments	\$120,182	\$117,826	\$115,516	\$113,251	\$111,030	\$108,853	\$106,719
Kingman Direct Connection Bond Costs	\$227,844	\$223,376	\$218,996	\$214,702	\$210,492	\$206,365	\$202,319
O&M Costs	\$71,209	\$71,209	\$71,209	\$71,209	\$71,209	\$71,209	\$71,209
LAC Charges with 6 MW limit	\$447,847	\$455,604	\$463,495	\$471,522	\$479,689	\$487,997	\$496,449
LAC Charges with No Limit	\$554,088	\$563,684	\$573,447	\$583,379	\$593,483	\$603,762	\$614,219
Increase in Capacity Payments	\$106,836	\$106,836	\$106,836	\$106,836	\$106,836	\$106,836	\$106,836
Kingman Loss Savings	\$63,220	\$63,535	\$63,852	\$64,173	\$64,493	\$64,816	\$65,141
Kingman Generation Savings	\$118,740	\$118,740	\$118,740	\$118,740	\$118,740	\$118,740	\$118,740
Kingman Capacity Sale Revenue	\$376,471	\$376,471	\$376,471	\$376,471	\$376,471	\$376,471	\$376,471

Net Present Value Calculation

Cost Benefit Analysis of Upgrading Service to Kingman

Description Nominal Costs in Future Years (use 2% escalation to calculate Net Present Value)

	2034	2035	2036	2037	2038	2039
SPEC Project Bond Payments	\$140,813	\$140,813	\$140,813	\$140,813	\$140,813	\$140,813
Kingman Direct Connection Bond Costs	\$266,955	\$266,955	\$266,955	\$266,955	\$266,955	\$266,955
O&M Costs	\$95,838	\$97,755	\$99,710	\$101,704	\$103,738	\$105,813
LAC Charges with 6 MW limit	\$679,727	\$705,330	\$731,897	\$759,465	\$788,071	\$817,755
LAC Charges with No Limit	\$840,976	\$872,652	\$905,521	\$939,629	\$975,021	\$1,011,747
Increase in Capacity Payments	\$143,787	\$146,663	\$149,596	\$152,588	\$155,640	\$158,752
Kingman Loss Savings	\$88,109	\$90,321	\$92,589	\$94,913	\$97,296	\$99,738
Kingman Generation Savings	\$159,808	\$163,004	\$166,264	\$169,589	\$172,981	\$176,441
Kingman Capacity Sale Revenue	\$506,680	\$516,813	\$527,150	\$537,693	\$548,447	\$559,415

	15	16	17	18	19	20
2019 present Value Factor for 2% Inflation	0.7430	0.7284	0.7142	0.7002	0.6864	0.6730

Description 2019 Net Present Value of Nominal Future Costs (or Benefits)

	2034	2035	2036	2037	2038	2039	Total 2019 NPV
SPEC Project Bond Payments	\$104,626	\$102,575	\$100,563	\$98,591	\$96,658	\$94,763	\$2,302,492
Kingman Direct Connection Bond Costs	\$198,352	\$194,462	\$190,649	\$186,911	\$183,246	\$179,653	\$4,365,099
O&M Costs	\$71,209	\$71,209	\$71,209	\$71,209	\$71,209	\$71,209	\$1,424,180
LAC Charges with 6 MW limit	\$505,048	\$513,795	\$522,694	\$531,747	\$540,956	\$550,326	\$9,395,727
LAC Charges with No Limit	\$624,857	\$635,680	\$646,690	\$657,890	\$669,285	\$680,876	\$11,624,627
Increase in Capacity Payments	\$106,836	\$106,836	\$106,836	\$106,836	\$106,836	\$106,836	\$2,186,469
Kingman Loss Savings	\$65,466	\$65,794	\$66,123	\$66,454	\$66,787	\$67,121	\$1,292,015
Kingman Generation Savings	\$118,740	\$118,740	\$118,740	\$118,740	\$118,740	\$118,740	\$2,374,793
Kingman Capacity Sale Revenue	\$376,471	\$376,471	\$376,471	\$376,471	\$376,471	\$376,471	\$7,529,412

RESOLUTION NO. 2017-4

A RESOLUTION SUPPORTING THE ACQUISITION, CONSTRUCTION AND EQUIPPING OF A NEW SUBSTATION AND INTERCONNECTION FACILITIES TO SERVE THE CITY OF KINGMAN, KANSAS.

WHEREAS, the availability, capacity and reliability of electric energy to the City of Kingman, Kansas (the "City") is vital to City residents, City businesses and the surrounding community; and

WHEREAS, the future growth and economic development of the City is dependent upon the availability of reliable and abundant electric power; and

WHEREAS, the City is one of the twenty-four member cities which purchase power from The Kansas Power Pool (KPP), a municipal energy agency (the "KPP"); and

WHEREAS, the City purchases a substantial portion of its power from the KPP in order to serve the many commercial and residential customers of the City with abundant, cost effective and reliable electric power; and

WHEREAS, the City will directly realize economic benefit from improved transmission resources; and

WHEREAS, the City will also indirectly realize indirect economic benefit (as a member city of the KPP) upon the KPP constructing a new 115-34.5 kV substation and interconnection facilities to serve the City (the "Project"); and

WHEREAS, any imposition of a penalty or facility switching fee upon the KPP for its Project would impose an economic hardship upon the City and would only work to limit and increase the costs of the resources available to the City for its future growth and economic development.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF KINGMAN, KANSAS, AS FOLLOWS:

The City of Kingman, Kansas supports the construction of a new 115-34.5 kV substation and interconnection facilities by The Kansas Power Pool (KPP), a municipal energy agency to serve said City and its citizens.

ADOPTED AND APPROVED by the governing body of the City of Kingman, Kansas
on the 27th day of July, 2017.



CITY OF KINGMAN, KANSAS

By Merlin McFarland
Merlin McFarland, Mayor

By Cindy Conrardy
Cindy Conrardy, City Clerk

EXCERPT OF MINUTES

The governing body of the City of Kingman, Kansas met in regular session at the usual meeting place in the City on July 27, 2017 at 7:00 p.m., with the Mayor Charlus Bishop presiding, and the following members of the governing body present:

Mayor McFarland, Commissioner Arensdorf, Commissioner Hacker

and the following members absent:

Commissioner Neville, Commissioner Bishop

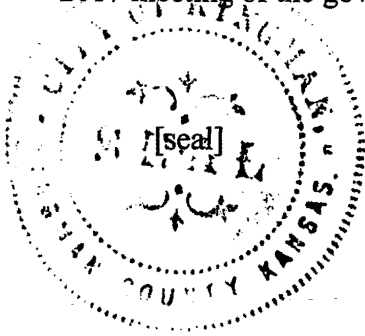
A Resolution was considered by the governing body entitled:

A RESOLUTION SUPPORTING THE ACQUISITION, CONSTRUCTION
AND EQUIPPING OF A NEW SUBSTATION AND INTERCONNECTION
FACILITIES TO SERVE THE CITY OF KINGMAN, KANSAS.

The Resolution was considered and discussed; and on motion of
Hacker, seconded by McFarland, the Resolution
was adopted by the members present and was assigned No. 2017-4.

CITY CLERK'S
CERTIFICATION OF EXCERPT OF MINUTES

I hereby certify that the foregoing is a true and correct Excerpt of Minutes of the July 27,
2017 meeting of the governing body of the City of Kingman, Kansas.




Cindy Conrardy, City Clerk