



# **AGGREGATE FACILITIES STUDY**

**SPP-2016-AG1**

Published on 11/11/2016

By SPP Engineering, SPP Transmission Service Studies

## REVISION HISTORY

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION	COMMENTS
11/11/2016	SPP	Original	
2/24/2017	SPP	1 <sup>st</sup> Revision	

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## EXECUTIVE SUMMARY

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This study report provides preliminary results for Southwest Power Pool, Inc. (SPP) Aggregate Transmission Service Study (ATSS) SPP-2016-AG1. Pursuant to Attachment Z1 of the SPP Open Access Transmission Tariff (OATT), 983 MW of long-term transmission service requests have been studied in this Aggregate Facilities Study (AFS).

The principal objective of the AFS is to identify system problems and potential modifications necessary to facilitate these transfers while maintaining or improving system reliability, as well as summarizing the operating limits and determination of the financial characteristics associated with facility upgrades. Facility upgrade costs are allocated on a prorated basis to all requests positively impacting any individual overloaded facility.

Transmission Customers (Customer) requesting service in this study specified five parameters under which they agreed to confirm service. The five parameters are:

1. Directly Assigned Upgrade Cost
2. Third-Party Upgrade Cost
3. Latest Deferred Start Date
4. Interim Re-dispatch Acceptance
5. Letter of Credit Amount

This final study report provides details and indicates for each request whether any of the five parameters were exceeded. The specific parameters defined by the Customer are confidential and will not be included in this report.

SPP will accept the requests in which the specified study parameters were met and will tender a Service Agreement for each of these requests identifying the terms and conditions of the confirmed service. SPP has refused all requests in which the parameters were exceeded.

All allocated revenue requirements for facility upgrades are assigned to the Customer in the AFS data tables. Potential base plan funding allowable is contingent upon validation of designated resources meeting Attachment J, Section III B criteria.

## INTRODUCTION

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All requests for long-term transmission service with a Completed Application received before June 1, 2016 have been included in this ATSS.

The results of the AFS are detailed in Tables 1 through 7. Detailed results depict individual upgrade costs by study and potential base plan allowances determined by Attachments J and Z1 of the SPP OATT.

To understand the extent to which Base Plan Upgrades may be applied to both Point-to-Point (PTP) and Network Integration Transmission Services (NITS), it is necessary to highlight the definition of Designated Resource. Per Section 1 of the SPP OATT, a Designated Resource is:

“Any designated generation resource owned, purchased or leased by a Transmission Customer to serve load in the SPP Region. Designated Resources do not include any resource, or any

portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Transmission Customer's load on a non-interruptible basis.”

Both NITS and PTP service have potential for base plan funding if the conditions for classifying upgrades associated with designated resources as Base Plan Upgrades as defined in Section III.B of Attachment J are met.

Pursuant to Attachment J, Section III.B of the SPP OATT, the Customer must provide SPP information necessary to verify that the new or changed Designated Resource meets the following conditions:

1. Customer’s commitment to the requested new or changed Designated Resource must have duration of at least five years.
2. During the first year the Designated Resource is planned to be used by the Customer, the accredited capacity of the Customer’s existing Designated Resources plus the lesser of:
  - a. The planned maximum net dependable capacity applicable to the Customer or
  - b. The requested capacity; shall not exceed 125% of the Customer’s projected system peak responsibility determined pursuant to SPP Criteria 2.

According to Attachment Z1 Section V.A, PTP Customers pay the higher of the monthly transmission access charge (base rate) or the monthly revenue requirement associated with the directly assigned portion of the Service Upgrade, if any.

NITS Customers pay the total monthly transmission access charges and the monthly revenue requirement associated with the directly assigned portion of the Service Upgrade, if any.

Customers paying for a directly assigned Network Upgrade shall receive credits for new transmission service using the facility as specified in Attachment Z2.

Facilities identified as limiting the requested Transmission Service have been reviewed to determine the required in-service date of each Network Upgrade. Both previously assigned facilities and the facilities assigned to this request for Transmission Service were evaluated.

In some instances, due to lead times for engineering and construction, Network Upgrades may not be available when required to accommodate a request for Transmission Service. When this occurs, the ATC with available Network Upgrades will be less than the capacity requested during either a portion of or all of the requested reservation period. The ATC may be limited by transmission owner planned projects, expansion plan projects, or Customer assigned upgrades.

Some constraints identified in the AFS were not assigned to the Customer because SPP determined that upgrades are not required due to various reasons or the Transmission Owner has construction plans pending for these upgrades. These facilities are listed by reservation in Table 3. Table 6 lists possible generation pairs that could be used to allow start of service prior to completion of assigned Network Upgrades by utilizing interim re-dispatch. Table 7 lists the costs allocated per request for each Service Upgrade assigned in this AFS.

By taking the transmission service subject to interim redispatch, the Customer agrees to any limitations to Auction Revenue Rights that may result. In the absence of implementation of interim redispatch as requested by SPP for Customer transactions resulting in overloads on limiting facilities, SPP may curtail the Customer’s schedule.

## FINANCIAL ANALYSIS

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The AFS utilizes the allocated Customer's E&C cost in a present worth analysis to determine the monthly levelized revenue requirement of each facility upgrade over the term of the reservation. In some cases, Network Upgrades cannot be completed within the requested reservation period, thus deferred reservation periods will be utilized in the present worth analysis. If the Customer chose Option 5, Use of Interim Redispatch, in Appendix 1 of the Aggregate Facilities Study Agreement, the present worth analysis of revenue requirements will be based on the deferred term with redispatch in the subsequent AFS. The upgrade levelized revenue requirement includes interest, depreciation, and carrying costs.

Each request for Transmission Service is evaluated independently as the cost associated with each Network Upgrade is assigned to a request. When facilities are upgraded throughout the reservation period, the Customer will pay the total E&C costs and other annual operating costs associated with the new facilities.

In the event that the engineering and construction of a previously assigned Network Upgrade may be accelerated, with no additional upgrades, to accommodate a new request for Transmission Service, the levelized present worth of only the incremental expenses though the reservation period of the new request, excluding depreciation, shall be assigned to the new request. These incremental expenses, excluding depreciation, include:

1. The levelized difference in present worth of the engineering and construction expenses given the change in date to complete construction to account for additional interest expense and reduced engineering and construction expense due to inflation,
2. The levelized present worth of all expediting fees, and
3. The levelized present worth of the incremental annual carrying charges, excluding depreciation and interest, during the new reservation period taking into account both:
  - a. The reservation in which the project was originally assigned, and
  - b. A reservation, if any, in which the project was previously accelerated.

In the case of a Base Plan Upgrade being deferred or displaced by an earlier in service date for a requested upgrade, the methodology for achievable base plan avoided revenue requirements shall be determined per Attachment J, Section VII.A or Section VII.B, respectively. A deferred Base Plan Upgrade is defined as a different requested Network Upgrade needed at an earlier date that negates the need for the initial Base Plan Upgrade within the planning horizon. A displaced Base Plan Upgrade is defined as the same Network Upgrade being displaced by a requested upgrade needed at an earlier date.

A 40-year service life assumption is utilized for Base Plan funded projects, unless another assumption is provided by the Transmission Owner. A present worth analysis of revenue requirements on a common year basis between the Base Plan and Requested Upgrades was performed to determine avoided Base Plan revenue requirements due to the displacement or deferral of the Base Plan Upgrade by the Requested Upgrade. The difference in present worth between the Base Plan and Requested Upgrades is assigned to the transmission requests impacting this upgrade based on the displacement or deferral.

## MAKE-WHOLE PAYMENT

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Make-whole payment (MWP) is a potential cost that may be allocated to a Request in a completed AFS meeting the Study Completion Conditions but with unresolved third party impacts. For a Request with identified third party impact(s) where the Customer has not notified SPP of a successful conclusion to the third-party negotiation by the deadline described in Section III.D.2 of Attachment Z1 in the OATT, SPP will deem the Request to be terminated and withdrawn and the Customer may be subject to a MWP in accordance with Section III.D.4 of Attachment Z1 in the OATT. The calculation of the Customer's MWP shall include any impacts to subsequent completed AFS(s).

The MWP assigned to a withdrawn Request will be any reallocated upgrade costs that are in excess of the sum of (i) the DAUC and (ii) the amounts included in rates, for any remaining confirmed Request(s).

If there is more than one withdrawn Request then the MWP, if any, shall be assigned to the withdrawn Customers based upon the impact of the withdrawal of each withdrawn Customer's request on those upgrades for which the DAUC increased for the confirmed requests, thereby resulting in the MWP. Upgrade costs for facilities only required by the withdrawn Customer's request(s) shall not be included as part of the calculation of the MWP. A Customer required to pay a MWP will enter into a Sponsored Upgrade Agreement with SPP in accordance with Attachment J of the OATT and will be eligible for revenue credits in accordance with Attachment Z2 of the OATT.

## THIRD-PARTY FACILITIES

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For third-party facilities listed in Table 3 and Table 5, the Customer is responsible for funding the necessary upgrades of these facilities per Section 21.1 of SPP's OATT. Total E&C cost estimates for required third-party facility upgrades are not applicable. SPP will undertake reasonable efforts to assist the Customer in making arrangements for necessary engineering, permitting, and construction of the third-party facilities. Third-party facility upgrade E&C cost estimates are not utilized to determine the present worth value of levelized revenue requirements for SPP system Network Upgrades.

All modeled facilities within the SPP system were monitored during the development of this study, as well as certain facilities in first-tier neighboring systems. Third-party facilities must be upgraded when it is determined that they are overloaded while accommodating the requested Transmission Service. An agreement between the Customer and third party owner detailing the mitigation of the third party impact must be provided to SPP prior to tendering of a Transmission Service Agreement. These facilities also include those owned by members of SPP who have not placed their facilities under SPP's OATT. Upgrades on the Southwest Power Administration (SWPA) network requires prepayment of the upgrade cost prior to construction of the upgrade.

Third-party facilities are evaluated for only those requests whose load sinks within the SPP footprint. The Customer must arrange with the applicable Transmission Providers for study of third party facilities for service that sinks outside the SPP footprint.

## STUDY METHODOLOGY

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### *DESCRIPTION*

The facility study analysis was conducted to determine the steady-state impact of the requested service on the SPP and first tier non-SPP control area systems. The steady-state analysis was performed consistent with current SPP Criteria and NERC Reliability Standards requirements. SPP conforms to NERC Reliability Standards, which provide strict requirements related to voltage violations and thermal overloads during normal conditions and during a contingency. NERC Standards require all facilities to be within normal operating ratings for normal system conditions and within emergency ratings after a contingency.

Normal operating ratings and emergency operating ratings monitored are Rate A and B in the SPP Model Development Working Group (MDWG) models, respectively. The upper bound and lower bound of the normal voltage range monitored is 105% and 95%. The upper bound and lower bound of the emergency voltage range monitored is 105% and 90%. Transmission Owner voltage monitoring criteria is used if more restrictive. The SPS Tuco 230 kV bus voltage is monitored at 92.5% due to pre-determined system stability limitations. The WERE Wolf Creek 345 kV bus voltage is monitored at 103.5% and 98.5% due to transmission operating procedure.

The contingency set includes all SPP control area branches and ties 69 kV and above; first tier non-SPP control area branches and ties 115 kV and above; any defined contingencies for these control areas; and generation unit outages for the control areas with SPP reserve share program redispatch. The monitored elements include all SPP control area branches, ties, and buses 69 kV and above, and all first tier non-SPP control area branches and ties 115 kV and above. Voltage monitoring was performed for SPP control area buses 69 kV and above.

A 3% transfer distribution factor (TDF) cutoff was applied to all SPP control area facilities. For first tier non-SPP control area facilities, a 3% TDF cutoff was applied to AECL, AMRN (Ameren), and ENTR (Entergy) control areas. For voltage monitoring, a 0.02 per unit change in voltage must occur due to the transfer or modeling upgrades to be considered a valid limit to the transfer.

### *MODEL DEVELOPMENT*

SPP used the following 2015 Integrated Transmission Planning (ITP) models, used in the 2016 ITP Near Term, to study the aggregate transfers over a variety of requested service periods and to determine the impact of the requested service on the transmission system:

- 2016 Summer Peak (16SP)
- 2016/17 Winter Peak (16WP)
- 2017 Summer Peak (17SP)
- 2017/18 Winter Peak (17WP)
- 2020 Summer Peak (20SP)
- 2020/21 Winter Peak (20WP)
- 2025 Summer Peak (25SP)
- 2025/26 Winter Peak (25WP)

The Summer Peak models apply to June through September and the Winter Peak models apply to December through March.



The chosen base case models were modified to reflect the current modeling information. One group of requests was developed from the aggregate to model the requested service. From the seasonal models, two system scenarios were developed. Scenario 0 includes projected usage of transmission included in the SPP 2015 Series Cases. Scenario 5 includes transmission service not already included in the SPP 2015 Series Cases.

### ***TRANSMISSION REQUEST MODELING***

NITS requests are modeled as Generation to Load transfers in addition to Generation to Generation transfers. NITS requests are modeled as Generation to Load transfers in addition to Generation to Generation because the requested NITS is a request to serve network load with the new designated network resource, and the impacts on Transmission System are determined accordingly. PTP Transmission Service requests are modeled as Generation to Generation transfers. Generation to Generation transfers are accomplished by developing a post-transfer case for comparison by dispatching the request source and redispatching the request sink.

### ***TRANSFER ANALYSIS***

Using the selected cases both with and without the requested transfers modeled, the PSS/E Activity ACCC was run on the cases and compared to determine the facility overloads caused or impacted by the transfer. TDF cutoffs (SPP and 1<sup>st</sup>-Tier) and voltage threshold (0.02 change) were applied to determine the impacted facilities. The PSS/E options chosen to conduct the analysis can be found in Appendix A.

### ***CURTALMENT AND REDISPATCH EVALUATION***

During any period in which SPP determines that a transmission constraint exists on and may impair Transmission System reliability, SPP will take whatever actions are reasonably necessary to maintain reliability. If SPP determines Transmission System reliability can be maintained by redispatching resources, it will evaluate the interim redispatch of units to provide service prior to completion of any assigned Network Upgrades. Any redispatch may not unduly discriminate between the Transmission Owners' use of the Transmission System on behalf of their Native Load Customers and any Customer's use of the Transmission System to serve its designated load. Redispatch was evaluated to provide only interim service during the time frame prior to completion of any assigned Network Upgrades.

SPP determined potential relief pairs to relieve the incremental MW impact on limiting facilities as identified in Table 6. Using the selected cases where the limiting facilities were identified, potential incremental and decremental units were identified by determining the generation amount available for increasing and decreasing from the units' generation amount, maximum generation amount, and minimum generation amount. If the incremental or decremental amount was greater than 1 MW, the unit was considered as a potential incremental or decremental unit.

Generation shift factors were calculated for the potential incremental and decremental units using the Siemens power flow analysis tool, Managing and Utilizing System Transmission (MUST). Relief pairs from the generation shift factors for the incremental and decremental units with a TDF greater than 3% on the limiting constraint were determined from the incremental units with the lowest generation shift factors and decremental units with highest generation shift factors. If the aggregate redispatch amount for the potential relief pair was determined to be three times greater than the lower of the increment or decrement, then the pair was determined not to be feasible and

is not included. Customers can request SPP to provide additional relief pairs beyond those determined. The potential relief pairs were not evaluated to determine impacts on limiting facilities in the SPP and first tier systems.

The AFS analyzes the most probable contingencies and does not account for every situation that may be encountered in real-time operation. Because of this, it is possible that the Customer may be curtailed under certain system conditions to allow system operators to maintain the reliability of the transmission network.

## STUDY RESULTS

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### *STUDY ANALYSIS RESULTS*

Tables 1 through 7 contain the AFS steady-state analysis results.

#### **TABLE 1**

Table 1 identifies the participating long-term Transmission Service requests included in the AFS. This table lists deferred start and stop dates both with and without redispatch (based on Customer selection of redispatch if available) and the minimum annual allocated ATC without upgrades, the season of first impact, and indicates which requests, if any, had parameters that were exceeded.

#### **TABLE 2**

Table 2 identifies total E&C cost allocated to each Customer, letter of credit requirements, third party E&C cost assignments, potential base plan E&C funding (lower of allocated E&C or Attachment J Section III B criteria), PTP base rate charge, total revenue requirements for assigned upgrades with consideration of potential base plan funding, and final total cost allocation to the Customer. In addition, Table 2 identifies SWPA upgrade costs which require prepayment in addition to other allocated costs.

#### **TABLE 3**

Table 3 provides additional details for each request including all assigned facility upgrades required, allocated E&C costs, allocated revenue requirements for upgrades, upgrades not assigned to the Customer but required for service to be confirmed, credits to be paid for previously assigned AFS or Generation Interconnection Network Upgrades, and any required third party upgrades.

#### **TABLE 4**

Table 4 lists all upgrade requirements with associated solutions needed to provide Transmission Service for the AFS, earliest date upgrade is required (DUN), estimated date the upgrade will be completed and in service (EOC), and estimated E&C cost.

**TABLE 5**

Table 5 lists identified third-party constrained facilities.

**TABLE 6**

Table 6 identifies potential redispatch pairs available to relieve the aggregate impacts on identified constraints to prevent deferral of start of service. MW amounts listed for redispatch are maximum values observed in a long term study and may only be available in a reduced amount or unavailable at any given time.

**TABLE 7**

Table 7 lists costs allocated per request for Service Upgrades assigned in this AFS.

**BASE PLAN UPGRADES**

The potential base plan funding allowable is contingent on meeting each of the conditions for classifying upgrades associated with designated resources as Base Plan Upgrades as defined in Section III.B of Attachment J. If the additional capacity of the new or changed Designated Resource exceeds the 125% resource to load forecast for the year of start of service, the requested resource is not eligible for base plan funding of required Network Upgrades and the full cost of the upgrades is assignable to the Customer.

If the request is for wind generation, the total requested capacity of wind generation plus existing wind generation capacity shall not exceed 20% of the customer's projected system peak responsibility in the first year the Designated Resource is planned to be used by the customer. If the five-year term and 125% resource to load criteria are met, (as well as the 20% wind resource to load criteria for wind generation requests) the requested capacity is multiplied by \$180,000 to determine the potential base plan funding allowable. The maximum potential base plan funding allowable may be less than the potential base plan funding allowable, due to the E&C cost allocated to the customer being lower than the potential amount allowable to the Customer. The Customer is responsible for any assigned upgrade costs in excess of potential base plan E&C funding allowable. Network Upgrades required for wind generation requests located in a zone other than the Customer's Point of Delivery (POD) shall be allocated as 67% base plan region-wide charge and 33% directly assigned to the Customer.

Regarding application of base plan funding for PTP requests, if PTP base rate exceeds upgrade revenue requirements without taking into effect the reduction of revenue requirements by potential base plan funding, then the base rate revenue pays back the Transmission Owner for upgrades and no base plan funding is applicable as the access charge must be paid as it is the higher of "OR" pricing.

However, if initially the upgrade revenue requirements exceed the PTP base rate, then potential base plan funding would be applicable. The test of the higher of "OR" pricing would then be made against the remaining assignable revenue requirements versus PTP base rate. Examples are as follows:

**Example A:**

E&C allocated for upgrades is \$74 million with revenue requirements of \$140 million and PTP base rate of \$101 million. Potential base plan funding is \$47 million, with the difference of \$27 million E&C assignable to the Customer. If the revenue requirements for the assignable portion is \$54 million and the PTP base rate is \$101 million, the Customer will pay the higher amount (so-called “or pricing”) of \$101 million base rate of which \$54 million revenue requirements will be paid back to the Transmission Owners for the upgrades, and the remaining revenue requirements of \$86 million (\$140 million less \$54 million) will be paid by base plan funding.

**Example B:**

E&C allocated for upgrades is \$74 million with revenue requirements of \$140 million and PTP base rate of \$101 million. Potential base plan funding is \$10 million with the difference of \$64 million E&C assignable to the Customer. If the revenue requirements for this assignable portion is \$128 million and the PTP base rate is \$101 million, the Customer will pay the higher amount of \$128 million revenue requirements to be paid back to the Transmission Owners, and the remaining revenue requirements of \$12 million (\$140 million less \$128 million) will be paid by base plan funding.

**Example C:**

E&C allocated for upgrades is \$25 million with revenue requirements of \$50 million and PTP base rate of \$101 million. Potential base plan funding is \$10 million. Base plan funding is not applicable as the higher amount of PTP base rate of \$101 million must be paid and the \$50 million revenue requirements will be paid from this.

The 125% resource to load determination is performed on a per-request basis and is not based on a total of Designated Resource requests per Customer.

## **STUDY DEFINITIONS**

- The date upgrade needed date (DUN) is the earliest date the upgrade is required to alleviate a constraint considering all requests.
- End of construction (EOC) is the estimated date the upgrade will be completed and in service.
- Total engineering and construction cost (E&C) is the upgrade solution cost as determined by the Transmission Owner.
- The Transmission Customer’s allocation of the E&C cost is based on the request (1) having an impact of at least 3% on the limiting element, and (2) having a positive impact on the upgraded facility.
- Minimum ATC is the portion of the requested capacity that can be accommodated without upgrading facilities.
- Annual ATC allocated to the Transmission Customer is determined by the least amount of allocated seasonal ATC within each year of a reservation period.

## CONCLUSION

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The results of the AFS show that limiting constraints exist in many areas of the regional Transmission System. Due to these constraints, Transmission Service cannot be granted unless noted in Table 3.

SPP will accept the requests in which the specified study parameters were met and will tender a Service Agreement for each of these requests identifying the terms and conditions of the confirmed service. SPP has refused all requests in which the parameters were exceeded.

## APPENDIX A

### PSS/E CHOICES IN RUNNING LOAD FLOW PROGRAM AND ACCC

#### *BASE CASE SETTINGS:*

- Solutions: Fixed slope decoupled Newton-Raphson solution (FDNS)
- Tap adjustment: Stepping
- Area Interchange Control: Tie lines and loads
- Var limits: Apply immediately
- Solution Options:
  - Phase shift adjustment
  - Flat start
  - Lock DC taps
  - Lock switched shunts

#### *ACCC CASE SETTINGS:*

- Solutions: AC contingency checking (ACCC)
- MW mismatch tolerance: 0.5
- System intact rating: Rate A
- Contingency case rating: Rate B
- Percent of rating: 100
- Output code: Summary
- Min flow change in overload report: 3mw
- Excl'd cases w/ no overloads from report: YES
- Exclude interfaces from report: NO
- Perform voltage limit check: YES
- Elements in available capacity table: 60000
- Cutoff threshold for available capacity table: 99999.0
- Min. contng. Case Vltg chng for report: 0.02
- Sorted output: None
- Newton Solution:
- Tap adjustment: Stepping
- Area interchange control: Tie lines and loads (Disabled for generator outages)
- Var limits: Apply immediately
- Solution options:
  - Phase shift adjustment
  - Flat start
  - Lock DC taps
  - Lock switched shunts

**Table 1 - Long-Term Transmission Service Requests Included in Aggregate Facility Study**

**Accepted Requests**

Customer	Study Number	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date without interim redispatch (Parameter)	Deferred Stop Date without interim redispatch	Start Date with interim redispatch	Stop Date with interim redispatch	Minimum Allocated ATC (MW) within reservation period	Season of Minimum Allocated ATC within reservation period	<sup>5</sup> One or More Study Parameters Exceeded
BEPM	AG1-2016-001	82845813	WAUE	WAUE	150	12/1/2016	12/1/2046	12/31/2019	12/31/2049	12/1/2016	12/1/2046	0	17SP	NO
GRDX	AG1-2016-002	82847925	OKGE	GRDA	90	1/1/2018	1/1/2023	1/1/2018	1/1/2023	1/1/2018	1/1/2023	0	20SP	NO
KMEA	AG1-2016-003	82660004	SECI	SECI	10	1/1/2017	1/1/2045	1/1/2017	1/1/2045	1/1/2017	1/1/2045	0	17SP	NO
KMEA	AG1-2016-004	82660011	SECI	SECI	10	1/1/2017	1/1/2045	3/1/2017	1/1/2045	3/1/2017	1/1/2045	0	17SP	NO
KMEA	AG1-2016-005	82660014	SECI	SECI	10	1/1/2017	1/1/2045	1/1/2017	1/1/2045	1/1/2017	1/1/2045	0	17SP	NO
KMEA	AG1-2016-006	82660256	WR	KCPL	7	12/1/2016	5/1/2036	12/1/2016	5/1/2036	12/1/2016	5/1/2036	0	17SP	NO
KMEA	AG1-2016-007	82660625	SECI	SECI	8	1/1/2017	1/1/2037	1/1/2017	1/1/2037	1/1/2017	1/1/2037	8	17SP	NO
KMEA	AG1-2016-008	82660640	SECI	SECI	8	1/1/2017	1/1/2037	1/1/2017	1/1/2037	1/1/2017	1/1/2037	8	17SP	NO
KMEA	AG1-2016-009	82810186	SPA	SECI	1	1/1/2017	1/1/2027	1/1/2017	1/1/2027	1/1/2017	1/1/2027	1	17SP	NO
MEAN	AG1-2016-010	82565917	WAUE	NPPD	10	12/1/2016	12/1/2021	6/1/2019	6/1/2024	12/1/2016	12/1/2021	0	17SP	NO
MEAN	AG1-2016-011	82846373	NPPD	MEC	10	1/1/2017	1/1/2018	1/1/2017	1/1/2018	1/1/2017	1/1/2018	10	17SP	NO
MIDW	AG1-2016-012	82847414	WR	WR	20	1/1/2017	1/1/2037	1/1/2017	1/1/2037	1/1/2017	1/1/2037	0	17SP	NO
MOWR	AG1-2016-013	82439058	KCPL	KCPL	4	12/1/2016	6/1/2025	12/1/2016	6/1/2025	12/1/2016	6/1/2025	0	17SP	NO
MOWR	AG1-2016-014	82554176	KCPL	KCPL	19	12/1/2016	6/1/2020	12/1/2016	6/1/2020	12/1/2016	6/1/2020	19	17SP	NO
OPPM	AG1-2016-015	82791986	MPS	OPPD	50	6/1/2017	6/1/2022	6/1/2017	6/1/2022	6/1/2017	6/1/2022	50	17SP	NO
OPPM	AG1-2016-016	82792188	OPPD	OPPD	50	6/1/2017	6/1/2019	6/1/2017	6/1/2019	6/1/2017	6/1/2019	50	17SP	NO
OPPM	AG1-2016-017	82793031	MPS	OPPD	140	6/1/2017	6/1/2022	6/1/2017	6/1/2022	6/1/2017	6/1/2022	140	17SP	NO
OTPW	AG1-2016-018	82829852	OTP	WAUE	46	1/1/2017	1/1/2018	1/1/2017	1/1/2018	1/1/2017	1/1/2018	22	17SP	NO
OTPW	AG1-2016-019	82829858	OTP	WAUE	15	1/1/2017	1/1/2018	1/1/2017	1/1/2018	Note 4	Note 4	8	17SP	NO
SPSM	AG1-2016-020	82806156	BLKW	SPS	15	5/1/2017	5/1/2022	6/1/2019	6/1/2024	5/1/2017	5/1/2022	0	17SP	NO

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**Requests with Study Parameters Exceeded**

WRGS	AG1-2016-021	182805137	WR	WR	200	1/1/2017	10/1/2025	6/1/2019	10/1/2025	1/1/2017	10/1/2025	0	17SP	YES
WRGS	AG1-2016-021	282805137	WR	WR	80	1/1/2017	10/1/2025	6/1/2019	10/1/2025	1/1/2017	10/1/2025	0	17SP	YES
WRGS	AG1-2016-022	82810962	WR	WR	30	1/1/2017	1/1/2022	1/1/2017	1/1/2022	1/1/2017	1/1/2022	0	17SP	YES

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**Note 1:** Start and Stop Dates with interim redispatch are determined based on customers choosing option to pursue redispatch to start service at Requested Start and Stop Dates or earliest date possible.

**Note 2:** Start dates with and without redispatch are based on the assumed completion dates of previous Aggregate Transmission Service Studies currently being conducted. Actual start dates may differ from the potential start dates upon completion of the previous studies.

**Note 3:** Request is unable to be deferred due to fixed stop dates.

**Note 4:** Transmission customer did not select "remain in the study using interim redispatch" option.

**Note 5:** Request parameters have been exceeded.

**Table 2 - Total Revenue Requirements Associated with Long-Term Transmission Service Requests**

Customer	Study Number	Reservation	Engineering and Construction Cost of Upgrades Allocated to Customer for Revenue Requirements	<sup>1</sup> Letter of Credit Amount Required (Parameter)	<sup>2</sup> Potential Base Plan Engineering and Construction Funding Allowable	Notes	<sup>4</sup> Additional Engineering and Construction Cost for 3rd Party Upgrades (Parameter)	<sup>3,5</sup> Total Revenue Requirements for Assigned Upgrades Over Term of Reservation WITH Potential Base Plan Funding Allocation	<sup>6,7</sup> Total Gross CPOs Over Reservation Period	Point-to-Point Base Rate Over Reservation Period	<sup>4</sup> Total Cost of Reservation Assignable to Customer Contingent Upon Base Plan Funding	Directly Assigned Upgrade Cost (DAUC) (Parameter)
BEPM	AG1-2016-001	82845813	\$5,030,769	\$5,030,769	\$0		\$0	\$0	\$ 7,531,596	\$0	Schedule 9 & 11 Charges	\$5,030,769
GRDX	AG1-2016-002	82847925	\$3,422,633	\$48,876	\$3,373,757		\$0	\$0	\$ 4,191,099	\$0	Schedule 9 & 11 Charges	\$ 48,876
KMEA	AG1-2016-003	82660004	\$0	\$0	\$0		\$0	\$0	\$ -	\$0	Schedule 9 & 11 Charges	\$ -
KMEA	AG1-2016-004	82660011	\$42,340	\$0	\$42,340		\$0	\$0	\$ 77,368	\$0	Schedule 9 & 11 Charges	\$ -
KMEA	AG1-2016-005	82660014	\$0	\$0	\$0		\$0	\$0	\$ -	\$0	Schedule 9 & 11 Charges	\$ -
KMEA	AG1-2016-006	82660256	\$392,731	\$129,007	\$263,724		\$0	\$0	\$ 584,912	\$0	Schedule 9 & 11 Charges	\$ 129,007
KMEA	AG1-2016-007	82660625	\$0	\$0	\$0		\$0	\$0	\$ -	\$0	Schedule 9 & 11 Charges	\$ -
KMEA	AG1-2016-008	82660640	\$0	\$0	\$0		\$0	\$0	\$ -	\$0	Schedule 9 & 11 Charges	\$ -
KMEA	AG1-2016-009	82810186	\$15,400	\$0	\$15,400		\$0	\$0	\$ 56,990	\$0	Schedule 9 & 11 Charges	\$ -
MEAN	AG1-2016-010	82565917	\$42,233	\$42,233	\$0		\$0	\$0	\$ 123,900	\$0	Schedule 9 & 11 Charges	\$ 42,233
MEAN	AG1-2016-011	82846373	\$0	\$0	\$0		\$0	\$0	\$ -	\$291,151	\$291,151	\$ -
MIDW	AG1-2016-012	82847414	\$3,085,908	\$25,522	\$3,060,386		\$0	\$0	\$ 4,744,558	\$0	Schedule 9 & 11 Charges	\$ 25,522
MOWR	AG1-2016-013	82439058	\$0	\$6,605	\$0		\$0	\$0	\$ 44,447	\$810,190	\$810,190	\$ -
MOWR	AG1-2016-014	82554176	\$0	\$15,789	\$0		\$0	\$0	\$ 86,714	\$1,584,636	\$1,584,636	\$ -
OPPM	AG1-2016-015	82791986	\$0	\$0	\$0		\$0	\$0	\$ -	\$0	Schedule 9 & 11 Charges	\$ -
OPPM	AG1-2016-016	82792188	\$0	\$0	\$0		\$0	\$0	\$ -	\$0	Schedule 9 & 11 Charges	\$ -
OPPM	AG1-2016-017	82793031	\$0	\$0	\$0		\$0	\$0	\$ -	\$0	Schedule 9 & 11 Charges	\$ -
OTPW	AG1-2016-018	82829852	\$0	\$0	\$0		\$0	\$0	\$ -	\$0	Schedule 9 & 11 Charges	\$ -
OTPW	AG1-2016-019	82829858	\$0	\$0	\$0		\$0	\$0	\$ -	\$0	Schedule 9 & 11 Charges	\$ -
SPSM	AG1-2016-020	82806156	\$116,444	\$0	\$116,444		\$0	\$0	\$ 130,437	\$0	Schedule 9 & 11 Charges	\$ -
<b>Grand Total</b>			<b>\$12,520,699</b>		<b>\$6,869,292</b>			<b>\$0</b>				
<b>Requests with Study Parameters Exceeded</b>												
WRGS	AG1-2016-021	182805137	\$0	\$4,103,518	\$31,211		\$0	\$0	\$7,651,929	\$0	Schedule 9 & 11 Charges	\$ 4,103,518
WRGS	AG1-2016-021	282805137	\$0	\$1,197,358	\$26,864		\$0	\$0	\$2,533,445	\$0	Schedule 9 & 11 Charges	\$ 1,197,358
WRGS	AG1-2016-022	82810962	\$0	\$0	\$2,460,086		\$0	\$0	\$3,213,438	\$0	Schedule 9 & 11 Charges	\$ 113,833
<b>Grand Total</b>			<b>\$0</b>		<b>\$2,518,162</b>			<b>\$0</b>				



**Table 2 - Total Revenue Requirements Associated with Long-Term Transmission Service Requests**

<p><b>Note 1:</b> Letter of Credit required for financial security for transmission owner for network upgrades is determined by allocated engineering and construction costs less engineering and construction costs for upgrades when network customer is the transmission owner less the E &amp; C allocation of expedited projects. Letter of Credit is required for upgrades assigned to PTP requests. The amount of the letter of credit will be adjusted down on an annual basis to reflect cost recovery based on revenue allocation. This letter of credit is not required for those facilities that are fully base plan funded. The Letter Of Credit Amount listed is based on meeting OATT Attachment J requirements for base plan funding.</p>
<p><b>Note 2:</b> If potential base plan funding is applicable, this value is the lesser of the Engineering and Construction costs of assignable upgrades or the value of base plan funding calculated pursuant to Attachment J, Section III B criteria. Allocation of base plan funding is contingent upon verification of customer agreements meeting Attachment J, Section II B criteria. Not applicable if Point-to-Point base rate exceeds revenue requirements.</p>
<p><b>Note 3:</b> Revenue Requirements (RR) are based upon deferred end dates if applicable. Deferred dates are based upon customer's choice to pursue redispatch. Achievable Base Plan Avoided RR in the case of a Base Plan upgrade being displaced or deferred by an earlier in service date for a Requested Upgrade shall be determined per Attachment J, Section VII.C methodology. Assumption of a 40 year service life is utilized for Base Plan funded projects. A present worth analysis of RR on a common year basis between the Base Plan and Requested Upgrades was performed to determine avoided Base Plan RR due to the displacement or deferral of the Base Plan upgrade by the Requested Upgrade. The incremental increase in present worth of a Requested Upgrade on a common year basis as a Base Plan upgrade is assigned to the transmission requests impacting the upgrade based on the displacement or deferral. If the displacement analysis results in lower RR due to the shorter amortization period of the requested upgrade when compared to a base plan amortization period, then no direct assignment of the upgrade cost is made due to the displacement to an earlier start date.</p>
<p><b>Note 4:</b> For Point-to-Point requests, total cost is based on the higher of the base rate or assigned upgrade revenue requirements. For Network requests, the total cost is based on the assigned upgrade revenue requirement. Allocation of base plan funding will be determined after verification of designated resource meeting Attachment J, Section II B Criteria. Additionally E &amp; C of 3rd Party upgrades is assignable to Customer. This includes prepayments required for any SWPA upgrades. Revenue requirements for 3rd Party facilities are not calculated. Total cost to customer is based on assumption of Revenue Requirements with confirmation of base plan funding. Customer is responsible for negotiating redispatch costs if applicable. Customer is also responsible to pay credits for previously assigned upgrades that are impacted by their request. Credits can be paid from base plan funding if applicable.</p>
<p><b>Note 5:</b> RR with base plan funding may increase or decrease even if no base plan funding is applicable to a particular request if another request that shares the upgrade is now full base plan funded resulting in a different amortization period for the upgrade and thus different RR.</p>
<p><b>Note 6:</b> RR for creditable upgrades.</p>
<p><b>Note 7:</b> CPOs may be calculated based on estimated upgrade cost and are subject to change</p>

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 BEPM AG1-2016-001

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
BEPM	82845813	WAUE	WAUE	150	12/1/2016	12/1/2046	12/31/2019	12/31/2049	\$ -	\$ -	\$ 5,030,769	\$ 7,531,596
									\$ -	\$ -	\$ 5,030,769	\$ 7,531,596

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82845813	None					\$ -	\$ -	\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -	\$ -	\$ -

Expansion Plan - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82845813	Kummer Ridge - Roundup 345kV Ckt 1	6/1/2017	12/31/2019		Yes

Reliability Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82845813	BLAISDELL 4230.00 (BLAISDL KV2A) 230/115/13.8KV TRANSFORMER CKT 1	10/1/2021	10/1/2021		
	NESET 4 230.00 () 230/115/13.8KV TRANSFORMER CKT 1	10/1/2021	10/1/2021		

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total Revenue Requirements
82845813	Daglum - Dickinson 230kV CKT 1	3/1/2019	3/1/2019			\$ -	\$ 4,806,986	\$ 4,806,986	\$ 7,196,569
	Dickinson 230/115/13.8kV CKT 2	3/1/2019	3/1/2019			\$ -	\$ 223,783	\$ 223,783	\$ 335,027
	Hanlon 69kV Reactive Support	3/1/2018	3/1/2018			\$ -	\$ 375,000	\$ 375,000	\$ 581,324
						\$ -	\$ 5,030,769	\$ 5,030,769	\$ 7,531,596

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
GRDX AG1-2016-002

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
GRDX	82847925	OKGE	GRDA	90	1/1/2018	1/1/2023	1/1/2018	1/1/2023	\$ 3,373,757	\$ -	\$ 3,422,632	\$ 4,191,099
									\$ 3,373,757	\$ -	\$ 3,422,632	\$ 4,191,099

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82847925	None					\$ -	\$ -	\$ -	\$ -	\$ -
						\$ -	\$ -	\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -	\$ -	\$ -

Expansion Plan - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82847925	CPPXF#22 69 kV Terminal Upgrades	6/1/2018	6/1/2018		

Reliability Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82847925	<del>COLCORD TAP - KANSAS 69KV CKT 1</del>	<del>6/1/2021</del>	<del>6/1/2021</del>		
	<del>GRDA1 - MAIDTP2 - 69.000 69KV CKT 1</del>	<del>6/1/2018</del>	<del>6/1/2018</del>		
	HANCOCK - MUSKOGEE 161KV CKT 1	6/1/2021	6/1/2021		
	<del>HUNT - MAIDTP2 - 69.000 69KV CKT 1</del>	<del>6/1/2018</del>	<del>6/1/2018</del>		

Planned Projects

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82847925	SWISSVALE - WEST GARDNER 345KV CKT 1 WERE	6/1/2018	6/1/2018		

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total Revenue Requirements
82847925	Kingfisher Co. Tap - Mathewson 345kV CKT 1	3/1/2018	3/1/2018			\$ 97,257	\$ -	\$ 97,257	\$ 105,823
	NORTHWEST - WOODWARD 345KV CKT 1	1/1/2010	1/1/2010			\$ 99,232	\$ 48,876	\$ 148,108	\$ 597,946
	Tap Woodring - Mathewson 345kV - Kingfisher Co. Addition (NU)	3/1/2018	3/1/2018			\$ 3,177,267	\$ -	\$ 3,177,267	\$ 3,487,330
						\$ 3,373,757	\$ 48,876	\$ 3,422,632	\$ 4,191,099

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 KMEA AG1-2016-003

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
KMEA	82660004	SECI	SECI	10	1/1/2017	1/1/2045	1/1/2017	1/1/2045	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82660004	None					\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
KMEA AG1-2016-004

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
KMEA	82660011	SECI	SECI	10	1/1/2017	1/1/2045	3/1/2017	1/1/2045	\$ 42,340	\$ -	\$ 42,340	\$ 74,638
									\$ 42,340	\$ -	\$ 42,340	\$ 74,638

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82660011	None					\$ -	\$ -	\$ -
						\$ -	\$ -	\$ -
						\$ -	\$ -	\$ -

Reliability Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82660011	GARDEN CITY (GRDNCTY) 115/69/13.8KV TRANSFORMER CKT 1	6/1/2017	6/1/2019		Ne

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total Revenue Requirements
82660011	FLATRDG3 - MEDICINE LODGE 138KV CKT 1	12/1/2009	6/1/2013			\$ 968	\$ 8,096
	Ft. Dodge - North Ft. Dodge 115 kV Ckt 2	5/1/2015	5/1/2015			\$ 22,764	\$ 36,697
	MEDICINE LODGE 138/115KV TRANSFORMER CKT 1	12/1/2009	6/1/2013			\$ 336	\$ 3,120
	North Ft. Dodge - Spearville 115kV Ckt 2	5/1/2015	5/1/2015			\$ 6,860	\$ 11,059
	Spearville 345/115 kV Transformer CKT 1	5/1/2015	5/1/2015			\$ 11,412	\$ 18,397
						\$ 42,340	\$ 77,368

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 KMEA AG1-2016-005

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
KMEA	82660014	SECI	SECI	10	1/1/2017	1/1/2045	1/1/2017	1/1/2045	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82660014	None					\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
KMEA AG1-2016-006

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
KMEA	82660256	WR	KCPL	7	12/1/2016	5/1/2036	12/1/2016	5/1/2036	\$ 263,724	-	\$ 392,731	\$ 584,912
									\$ 263,724	\$ -	\$ 392,731	\$ 584,912

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82660256	None					\$ -	\$ -	\$ -	\$ -	\$ -
Total						\$ -	\$ -	\$ -	\$ -	\$ -

Planned Projects

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82660256	SWISSVALE - WEST GARDNER 345KV CKT 1 WERE	6/1/2018	6/1/2018		

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total Revenue Requirements
82660256	Marshall Co. POI NUs	9/19/2014	9/19/2014			\$ 261,923	\$ 129,007	\$ 390,930	\$ 567,108
	LACYGNE - WEST GARDNER 345KV CKT 1	6/1/2006	6/1/2006			\$ 1,801	\$ -	\$ 1,801	\$ 17,804
						\$ 263,724	\$ 129,007	\$ 392,731	\$ 584,912

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 KMEA AG1-2016-007

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
KMEA	82660625	SECI	SECI	8	1/1/2017	1/1/2037	1/1/2017	1/1/2037	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82660625	None					\$ -	\$ -	\$ -
Total						\$ -	\$ -	\$ -



**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 KMEA AG1-2016-008

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
KMEA	82660640	SECI	SECI	8	1/1/2017	1/1/2037	1/1/2017	1/1/2037	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82660640	None					\$ -	\$ -	\$ -
Total						\$ -	\$ -	\$ -

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 KMEA AG1-2016-009

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
KMEA	82810186	SPA	SECI	1	1/1/2017	1/1/2027	1/1/2017	1/1/2027	\$ 15,400	\$ -	\$ 15,400	\$ 56,990
									\$ 15,400	\$ -	\$ 15,400	\$ 56,990

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82810186	None					\$ -	\$ -	\$ -
<b>Total</b>						\$ -	\$ -	\$ -

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total Revenue Requirements
82810186	FLATRDG3 - MEDICINE LODGE 138KV CKT 1	12/1/2009	6/1/2013			\$ 1,759	\$ 7,567
	LACYGNE - WEST GARDNER 345KV CKT 1	6/1/2006	6/1/2006			\$ 240	\$ 1,721
	MEDICINE LODGE - PRATT 115KV CKT 1	12/1/2009	6/1/2013			\$ 5,762	\$ 23,944
	MEDICINE LODGE 138/115KV TRANSFORMER CKT 1	12/1/2009	6/1/2013			\$ 611	\$ 2,917
	NORTHWEST - WOODWARD 345KV CKT 1	1/1/2010	1/1/2010			\$ 3,621	\$ 16,246
	Rice County 230/115 kV transformer Ckt 1	10/1/2012	10/1/2012			\$ 3,408	\$ 4,596
<b>Total</b>						\$ 15,400	\$ 56,990

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
MEAN AG1-2016-010

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
MEAN	82565917	WAUE	NPPD	10	12/1/2016	12/1/2021	6/1/2019	6/1/2024	\$ -	\$ -	\$ 42,233	\$ 123,900
									\$ -	\$ -	\$ 42,233	\$ 123,900

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82565917	None					\$ -	\$ -	\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -	\$ -	\$ -

Reliability Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82565917	BROKEN BOW (BRKN.BOW T1) 115/69/13.8KV TRANSFORMER CKT 1	6/1/2017	6/1/2019		Yes
	BROKEN BOW (BRKN.BOW T2) 115/69/13.8KV TRANSFORMER CKT 2	6/1/2017	6/1/2019		Yes

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total Revenue Requirements
82565917	Albion - Petersburg 115kV Ckt 1 Petersburg Upgrade	12/31/2012	12/31/2012			\$ -	\$ 4,129	\$ 4,129	\$ 5,125
	CLIFTON - GREENLEAF 115KV CKT 1	6/1/2011	6/1/2013			\$ -	\$ 25,806	\$ 25,806	\$ 97,327
	GREENLEAF - KNOB HILL 115KV CKT 1 (MKEC)	6/1/2013	6/1/2013			\$ -	\$ 2,744	\$ 2,744	\$ 10,349
	Hoskins - Dixon County 230kV Line Upgrade	10/24/2015	10/24/2015			\$ -	\$ 1,856	\$ 1,856	\$ 1,900
	Kelly - Madison County 230kV Ckt 1	11/1/2014	11/1/2014			\$ -	\$ 7,697	\$ 7,697	\$ 9,199
						\$ -	\$ 42,233	\$ 42,233	\$ 123,900

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer      Study Number  
 MEAN          AG1-2016-011

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
MEAN	82846373	NPPD	MEC	10	1/1/2017	1/1/2018	1/1/2017	1/1/2018	\$ -	\$ 291,151	\$ -	\$ -
									\$ -	\$ 291,151	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82846373	None					\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
MIDW AG1-2016-012

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
MIDW	82847414	WR	WR	20	1/1/2017	1/1/2037	1/1/2017	1/1/2037	\$ 3,060,386	\$ -	\$ 3,085,908	\$ 4,744,558
									\$ 3,060,386	\$ -	\$ 3,085,908	\$ 4,744,558

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82847414	None					\$ -	\$ -	\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -	\$ -	\$ -

Construction Pending - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82847414	HEIZER (HEIZER T4) 115/69/12.5KV TRANSFORMER CKT 4	6/1/2021	6/1/2021		

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total Revenue Requirements
82847414	FLATRDG3 - MEDICINE LODGE 138KV CKT 1	12/1/2009	6/1/2013			\$ 12,266	\$ 6,041	\$ 18,307	\$ 116,599
	Kingfisher Co. Tap - Mathewson 345kv CKT 1	3/1/2018	3/1/2018			\$ 1,644	\$ -	\$ 1,644	\$ 2,201
	LACYGNE - WEST GARDNER 345KV CKT 1	6/1/2006	6/1/2006			\$ 2,925	\$ -	\$ 2,925	\$ 29,678
	MEDICINE LODGE - PRATT 115KV CKT 1	12/1/2009	6/1/2013			\$ 35,291	\$ 17,382	\$ 52,673	\$ 323,976
	MEDICINE LODGE 138/115KV TRANSFORMER CKT 1	12/1/2009	6/1/2013			\$ 4,260	\$ 2,098	\$ 6,358	\$ 44,957
	Rice County 230/115 kV transformer Ckt 1	10/1/2012	10/1/2012			\$ 80,695	\$ -	\$ 80,695	\$ 126,290
	Tap Wichita - Thistle 345 kV Ckt 1 & 2 - Pratt Co Addition (NU)	10/16/2016	10/16/2016			\$ 2,921,934	\$ -	\$ 2,921,934	\$ 4,098,943
	Tap Wichita - Thistle 345 kV Ckt 1 & 2 - Pratt Addition (NU)	12/31/2016	12/31/2016			\$ 1,371	\$ -	\$ 1,371	\$ 1,913
						\$ 3,060,386	\$ 25,522	\$ 3,085,908	\$ 4,744,558

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
MOWR AG1-2016-013

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
MOWR	82439058	KCPL	KCPL	4	12/1/2016	6/1/2025	12/1/2016	6/1/2025	\$ -	\$ 810,190	\$ 44,447	\$ 44,447
									\$ -	\$ 810,190	\$ 44,447	\$ 44,447

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82439058	None					\$ -	\$ -	\$ -
						\$ -	\$ -	\$ -

Reliability Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82439058	HOYT - JEFFREY ENERGY CENTER 345KV CKT 1	6/1/2021	6/1/2021		

Planned Projects

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82439058	SWISSVALE - WEST GARDNER 345KV CKT 1 WERE	6/1/2018	6/1/2018		

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total Revenue Requirements
82439058	LACYGNE - WEST GARDNER 345KV CKT 1	6/1/2006	6/1/2006			\$ 44,447	\$ 44,447
						\$ 44,447	\$ 44,447

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
MOWR AG1-2016-014

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
MOWR	82554176	KCPL	KCPL	19	12/1/2016	6/1/2020	12/1/2016	6/1/2020	\$ -	\$ 1,584,636	\$ -	\$ 86,714
									\$ -	\$ 1,584,636	\$ -	\$ 86,714

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82554176	None					\$ -	\$ -	\$ -
						\$ -	\$ -	\$ -
						\$ -	\$ -	\$ -

Planned Projects

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82554176	SWISSVALE - WEST GARDNER 345KV CKT 1 WERE	6/1/2018	6/1/2018		

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total Revenue Requirements
82554176	LACYGNE - WEST GARDNER 345KV CKT 1	6/1/2006	6/1/2006			\$ 86,714	\$ 86,714
						\$ 86,714	\$ 86,714

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 OPPM AG1-2016-015

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
OPPM	82791986	MPS	OPPD	50	6/1/2017	6/1/2022	6/1/2017	6/1/2022	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82791986	None					\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -



**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 OPPM AG1-2016-016

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
OPPM	82792188	OPPD	OPPD	50	6/1/2017	6/1/2019	6/1/2017	6/1/2019	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82792188	None					\$ -	\$ -	\$ -
Total						\$ -	\$ -	\$ -

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 OPPM AG1-2016-017

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
OPPM	82793031	MPS	OPPD	140	6/1/2017	6/1/2022	6/1/2017	6/1/2022	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82793031	None					\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 OTPW AG1-2016-018

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
OTPW	82829852	OTP	WAUE	46	1/1/2017	1/1/2018	1/1/2017	1/1/2018	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82829852	None					\$ -	\$ -	\$ -
						\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -

Expansion Plan - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82829852	Kummer Ridge - Roundup 345kV Ckt 1	6/1/2017	12/31/2019		

**Note:** Kummer Ridge - Roundup 345kV ckt 1 has a greater than 3% TDF but less than 1 MW impact. Therefore, redispatch was not required for this request.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
 OTPW AG1-2016-019

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
OTPW	82829858	OTP	WAUE	15	1/1/2017	1/1/2018	1/1/2017	1/1/2018	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82829858	None					\$ -	\$ -	\$ -
						\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -

Expansion Plan - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82829858	Kummer Ridge - Roundup 345kV Ckt 1	6/1/2017	12/31/2019		

**Note:** Kummer Ridge - Roundup 345kV ckt 1 has a greater than 3% TDF but less than 1 MW impact. Therefore, redispatch was not required for this request.

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
SPSM AG1-2016-020

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
SPSM	82806156	BLKW	SPS	15	5/1/2017	5/1/2022	6/1/2019	6/1/2024	\$ 116,444	\$ -	\$ 116,444	\$ 130,437
									\$ 116,444	\$ -	\$ 116,444	\$ 130,437

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82806156	None					\$ -	\$ -	\$ -
						\$ -	\$ -	\$ -
						\$ -	\$ -	\$ -

Expansion Plan - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82806156	INTREPDW_TP3115.00 - POTASH JUNCTION INTERCHANGE 115KV CKT 1	6/1/2017	11/16/2018		
	SEMINOLE (GE M101687) 230/115/13.2KV TRANSFORMER CKT 1&2	6/1/2017	6/1/2018		

Reliability Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82806156	COX INTERCHANGE - HALE CO INTERCHANGE 115KV CKT 1	6/1/2021	6/1/2021		
	HOCKLEY COUNTY INTERCHANGE - LAMB COUNTY INTERCHANGE 115KV CKT 1	6/1/2021	6/1/2021		
	MUSTANG - SEMINOLE 115 kV	6/1/2017	6/1/2018		
	Plant X 230/115 kV Ckt 2 Transformer	6/1/2021	6/1/2021		
	Tolk - Yoakum Tap 230/115 kV Substation and Transformer	6/1/2017	6/1/2019		Yes
	TUCO - YOAKUM 345 kV CKT 1 with YOAKUM 345-230 KV TRANSFORMER CKT 1	6/1/2017	6/1/2018		

Construction Pending - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82806156	EDDY CO 230kV Bus Tie	6/1/2017	12/15/2018		Yes

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total Revenue Requirements
82806156	Harrington Mid - Nichols 230 kV Ckt 2	12/1/2012	12/1/2012			\$ 18,943	\$ 23,766
	Harrington West - Nichols 230kV Ckt 1	12/1/2012	12/1/2012			\$ 19,515	\$ 24,485
	Plant X - Tolk 230kV rebuild circuit #1	12/31/2017	12/31/2017			\$ 25,874	\$ 27,267
	Plant X - Tolk 230kV rebuild circuit #2	12/31/2017	12/31/2017			\$ 25,817	\$ 27,208
	TUCO Interchange 345/230kV CKT 1 Replacement	6/1/2018	6/1/2018			\$ 26,295	\$ 27,712
						\$ 116,444	\$ 130,437

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade

Requests with Study Parameters Exceeded

Customer Study Number  
WRGS AG1-2016-021

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
WRGS	182805137	WR	WR	200	1/1/2017	10/1/2025	6/1/2019	10/1/2025	\$ 31,211	\$ -	\$ 4,134,730	\$ 7,651,929
WRGS	282805137	WR	WR	80	1/1/2017	10/1/2025	6/1/2019	10/1/2025	\$ 26,864	\$ -	\$ 1,224,222	\$ 2,533,445
									\$ 58,076	\$ -	\$ 5,358,952	\$ 10,185,374

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
182805137	None					\$ -	\$ -	\$ -	\$ -	\$ -
282805137	None					\$ -	\$ -	\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -	\$ -	\$ -
					Total	\$ -	\$ -	\$ -	\$ -	\$ -

Expansion Plan - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
182805137	Cherry Co. - Gentleman 345 kV Ckt 1	6/1/2017	10/1/2018		Yes
	Multi - Viola 345/138kV Transformer and 138 kV Lines to Clearwater and Gill	6/1/2017	6/1/2019		Yes
	Multi - Woodward District EHV - Tatonga - Matthewson - Cimarron 345 kV	6/1/2017	7/1/2018		Yes
282805137	Cherry Co. - Gentleman 345 kV Ckt 1	6/1/2017	10/1/2018		Yes
	Multi - Viola 345/138kV Transformer and 138 kV Lines to Clearwater and Gill	6/1/2017	6/1/2019		Yes
	Multi - Woodward District EHV - Tatonga - Matthewson - Cimarron 345 kV	6/1/2017	7/1/2018		Yes

Credits are required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total Gross CPOs Over Reservation Period
182805137	FLATRDG3 - HARPER 138KV CKT 1					\$ -	\$ 194,643	\$ 194,643	\$ 842,714
	Ironwood 345 kV Substation GEN-2005-012 Addition					\$ -	\$ 2,488,221	\$ 2,488,221	\$ 3,060,641
	LACYGNE - WEST GARDNER 345KV CKT 1					\$ -	\$ 38,929	\$ 38,929	\$ 268,388
	NORTHWEST - WOODWARD 345KV CKT 1					\$ -	\$ 568,500	\$ 568,500	\$ 2,434,920
	Rice - Lyons 115 kV Ckt 1					\$ -	\$ 494,488	\$ 494,488	\$ 643,695
	Wheatland 115 kV #2					\$ 31,211	\$ -	\$ 31,211	\$ 40,959
	Woodward EHV 138kV Phase Shifting Transformer circuit #1					\$ -	\$ 318,736	\$ 318,736	\$ 360,612
282805137	FLATRDG3 - HARPER 138KV CKT 1					\$ -	\$ 77,858	\$ 77,858	\$ 337,087
	Ironwood 345 kV Substation GEN-2005-012 Addition					\$ -	\$ 551,237	\$ 551,237	\$ 678,050
	LACYGNE - WEST GARDNER 345KV CKT 1					\$ -	\$ 15,572	\$ 15,572	\$ 107,355
	NORTHWEST - WOODWARD 345KV CKT 1					\$ -	\$ 227,402	\$ 227,402	\$ 973,976
	Rice - Lyons 115 kV Ckt 1					\$ -	\$ 197,795	\$ 197,795	\$ 257,478
	Wheatland 115 kV #2					\$ 26,864	\$ -	\$ 26,864	\$ 35,254
	Woodward EHV 138kV Phase Shifting Transformer circuit #1					\$ -	\$ 127,495	\$ 127,495	\$ 144,245
					Total	\$ 58,076	\$ 5,300,876	\$ 5,358,952	\$ 10,185,374

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

\*\* Note: The CPOs covered under Base Plan Funding have a Total E&C of less than \$100,100 and are there for covered by Zonal funding 100%

Parameters Exceeded

**Table 3 - Additional Details for Each Request Including All Facility Upgrades Required and Allocated Costs for Each Upgrade**

Customer Study Number  
WRGS AG1-2016-022

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date Without Redispatch	Deferred Stop Date Without Redispatch	Potential Base Plan Funding Allowable	Point-to-Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
WRGS	82810962	WR	WR	30	1/1/2017	1/1/2022	1/1/2017	1/1/2022	\$ 2,460,086	\$ -	\$ 2,573,918	\$ 3,213,438
									\$ 2,460,086	\$ -	\$ 2,573,918	\$ 3,213,438

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
82810962	None					\$ -	\$ -	\$ -	\$ -	\$ -
Total						\$ -	\$ -	\$ -	\$ -	\$ -

Reliability Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available
82810962	HOYT - JEFFREY ENERGY CENTER 345KV CKT 1	6/1/2021	6/1/2021		

Parameters Exceeded

Credits may be required for the following Network Upgrades in accordance with Attachment Z2 of the SPP OATT.

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Base Plan Funding for Wind	Directly Assigned for Wind	Allocated E & C Cost	Total Gross CPOs Over Reservation Period
82810962	FLATRDG3 - HARPER 138KV CKT 1	12/1/2009	6/1/2013			\$ 33,755	\$ 16,625	\$ 50,380	\$ 183,492
	FLATRDG3 - MEDICINE LODGE 138KV CKT 1	12/1/2009	6/1/2013			\$ 8,449	\$ 4,161	\$ 12,610	\$ 43,208
	LACYGNE - WEST GARDNER 345KV CKT 1	6/1/2006	6/1/2006			\$ 7,425	\$ -	\$ 7,425	\$ 44,127
	MEDICINE LODGE - PRATT 115KV CKT 1	12/1/2009	6/1/2013			\$ 27,383	\$ 13,487	\$ 40,870	\$ 135,239
	MEDICINE LODGE 138/115KV TRANSFORMER CKT 1	12/1/2009	6/1/2013			\$ 2,937	\$ 1,447	\$ 4,383	\$ 16,676
	NORTHWEST - WOODWARD 345KV CKT 1	1/1/2010	1/1/2010			\$ 12,892	\$ 6,350	\$ 19,241	\$ 71,329
	RICE - LYONS 115 KV CKT 1	4/1/2013	4/1/2013			\$ 91,133	\$ 44,887	\$ 136,020	\$ 167,011
	RICE COUNTY 230/115 KV TRANSFORMER CKT 1	10/1/2012	10/1/2012			\$ 54,567	\$ 26,876	\$ 81,443	\$ 101,632
	TAP WICHITA - THISTLE 345KV CKT 1 & 2 - GEN-2015-024 (NU)	10/16/2016	10/16/2016			\$ 2,178,660	\$ -	\$ 2,178,660	\$ 2,398,225
	TAP WICHITA - THISTLE 345KV CKT 1 & 2 - GEN-2015-025 (NU)	12/31/2016	12/31/2016			\$ 4,091	\$ -	\$ 4,091	\$ 4,477
	WHEATLAND 115 KV #2	12/31/2012	12/31/2012			\$ 38,795	\$ -	\$ 38,795	\$ 48,022
Total						\$ 2,460,086	\$ 113,833	\$ 2,573,918	\$ 3,213,438

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 4 - Upgrade Requirements and Solutions Needed to Provide Transmission Service for the Aggregate Study**

**Construction Pending Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.**

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)
MIDW	HEIZER (HEIZER T4) 115/69/12.5KV TRANSFORMER CKT 4	Add new Transformer T4	6/1/2021	6/1/2021
SPS	EDDY CO 230kV Bus Tie	Build the 230kV main and transfer bus to a double breaker double bus.	6/1/2017	12/15/2018

**Planned Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.**

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)
WERE	SWISSVALE - WEST GARDNER 345KV CKT 1 WERE	Replace Terminal Equipment	6/1/2018	6/1/2018

**Expansion Plan Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.**

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)
BEPC	Kummer Ridge - Roundup 345kV Ckt 1	Construct new 345 kV line from Kummer Ridge to Roundup.	12/1/2016	12/31/2019
GRDA	CPPXF#22 69 kV Terminal Upgrades	Upgrade 69 kV terminal equipment at CPPXF#22 (Modification of an existing NTC)	6/1/2018	6/1/2018
SPS	INTREPDW_TP3115.00 - POTASH JUNCTION INTERCHANGE 115KV CKT 1	Rebuild 1.5-mile 115 kV line from Intrepid West Tap to Potash Junction.	6/1/2017	11/16/2018
SPS	SEMINOLE (GE M101687) 230/115/13.2KV TRANSFORMER CKT 1&2	Upgrade Seminole Interchange 230/115 kV transformers 1 and 2	6/1/2017	6/1/2018



**Table 4 - Upgrade Requirements and Solutions Needed to Provide Transmission Service for the Aggregate Study**

Reliability Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)
BEPC	BLAISDELL 4230.00 (BLAISDL KV2A) 230/115/13.8KV TRANSFORMER CKT 1	Add 2nd Transformer	10/1/2021	10/1/2021
BEPC	NESET 4 230.00 () 230/115/13.8KV TRANSFORMER CKT 1	Upgrade Transformer	10/1/2021	10/1/2021
GRDA	COLCORD TAP - KANSAS 69KV CKT 1	Reconductor 3.0 miles of line	6/1/2021	6/1/2021
GRDA	GRDA1 - MAIDTP2 69.000 69KV CKT 1	Replace Switch	6/1/2018	6/1/2018
GRDA	HUNT - MAIDTP2 69.000 69KV CKT 1	Replace Switch	6/1/2018	6/1/2018
NPPD	BROKEN BOW (BRKN.BOW T1) 115/69/13.8KV TRANSFORMER CKT 1	Upgrade transformers	6/1/2017	6/1/2019
NPPD	BROKEN BOW (BRKN.BOW T2) 115/69/13.8KV TRANSFORMER CKT 2	Upgrade transformers	6/1/2017	6/1/2019
OKGE	HANCOCK - MUSKOGEE 161KV CKT 1	Replace wavetrap at Muskogee.	6/1/2021	6/1/2021
SPS	COX INTERCHANGE - HALE CO INTERCHANGE 115KV CKT 1	Rebuild 19.88 miles of line	6/1/2021	6/1/2021
SPS	HOCKLEY COUNTY INTERCHANGE - LAMB COUNTY INTERCHANGE 115KV CKT 1	Replace Wavetrap	6/1/2021	6/1/2021
SPS	MUSTANG - SEMINOLE 115 kV	New Mustang-Seminole 115 kV line Terminal upgrades at Mustang 115 kV Terminal upgrades at Seminole 115 kV	6/1/2017	6/1/2018
SPS	Plant X 230/115 kV Ckt 2 Transformer	Install a second 230/115 kV transformer at Plant X.	6/1/2021	6/1/2021
SPS	Tolk - Yoakum Tap 230/115 kV Substation and Transformer	Tap the intersection of the 230 kV line from Tolk to Yoakum and the 115 kV line from Cochran to Lehman Tap and terminate all four ends into new substation. Install new 230/115 kV transformer at new substation.	6/1/2017	6/1/2019
SPS	TUCO - YOAKUM 345 kV CKT 1 with YOAKUM 345-230 KV TRANSFORMER CKT 1	New Tuco-Yoakum 345 kV line New 345/230 kV transformer at Yoakum 345 kV bus Terminal upgrades at Tuco 345 kV Terminal upgrades at Yoakum 345 kV	6/1/2017	6/1/2018
SUNG	GARDEN CITY (GRDNCTY) 115/69/13.8KV TRANSFORMER CKT 1	New Transformer	6/1/2017	6/1/2019
WERE	HOYT - JEFFREY ENERGY CENTER 345KV CKT 1	Rebuild 24.3 miles of line.	6/1/2021	6/1/2021

**Table 4 - Upgrade Requirements and Solutions Needed to Provide Transmission Service for the Aggregate Study**

Network Upgrades requiring credits per Attachment Z2 of the SPP OATT.

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)	Total Gross CPO Allocation
KCPL	LACYGNE - WEST GARDNER 345KV CKT 1	KCPL Sponsored Project to Reconductor Line.	6/1/2006	6/1/2006	\$180,576
MIDW	Rice County 230/115 kV transformer Ckt 1	Install 230/115 kV transformer at Rice County.	10/1/2012	10/1/2012	\$130,886
MKEC	CLIFTON - GREENLEAF 115KV CKT 1	Rebuild 14.4 miles	6/1/2011	6/1/2013	\$97,327
MKEC	FLATRDG3 - MEDICINE LODGE 138KV CKT 1	Rebuild 8.05 mile line	12/1/2009	6/1/2013	\$132,263
MKEC	Ft. Dodge - North Ft. Dodge 115 kV Ckt 2	Build approximately 0.5 mile 115 kV line	5/1/2015	5/1/2015	\$36,697
MKEC	GREENLEAF - KNOB HILL 115KV CKT 1 (MKEC)	Rebuild 43.5% Ownership of 20.9 miles	6/1/2013	6/1/2013	\$10,349
MKEC	MEDICINE LODGE - PRATT 115KV CKT 1	Rebuild 26 mile line	12/1/2009	6/1/2013	\$347,920
MKEC	MEDICINE LODGE 138/115KV TRANSFORMER CKT 1	Upgrade transformer	12/1/2009	6/1/2013	\$50,994
MKEC	North Ft. Dodge - Spearville 115kV Ckt 2	Build approximately 20 mile 115 kV line	5/1/2015	5/1/2015	\$11,059
MKEC	Spearville 345/115 kV Transformer CKT 1	Spearville Substation - Add 345/115kV autotransformer and 345kV and 115kV terminal positions for autotransformer.	5/1/2015	5/1/2015	\$18,397
NPPD	Albion - Petersburg 115kV Ckt 1 Petersburg Upgrade	Replace Breaker Switch 1106-D & jumpers; Replace Petersburg 115kV Substation main bus; Upgrade and replace transmission structures on 115kV lines TL1168 A & B to facilitate 100 degrees Centigrade line operation	12/31/2012	12/31/2012	\$5,125
NPPD	Hoskins - Dixon County 230kV Line Upgrade	Increase clearances to accommodate 320MVA facility rating to address loading issues	10/24/2015	10/24/2015	\$1,900
NPPD	Kelly - Madison County 230kV Ckt 1	Raise structures and line clearances as necessary to re-rate the transmission line to 320MVA	11/1/2014	11/1/2014	\$9,199
OKGE	Kingfisher Co Tap - Mathewson 345KV CKT 1	Replace terminal equipment to achieve conductor limit	3/1/2018	3/1/2018	\$108,023
OKGE	NORTHWEST - WOODWARD 345KV CKT 1	Build 345 kV line	1/1/2010	1/1/2010	\$614,192
OKGE	Tap Woodring - Mathewson 345kV - Kingfisher Co Addition (NU)	Build New 3 Breaker Ring Configuration Station & Add (3) 345 kV Breakers & Terminate Kingfisher Co	3/1/2018	3/1/2018	\$3,487,330
SPS	Harrington Mid - Nichols 230 kV Ckt 2	Reconductor Harrington Mid - Nichols 230kV. Replace switches and breakers to get circuit to 727/727 MVA rating. New limit should be bus rating.	12/1/2012	12/1/2012	\$23,766
SPS	Harrington West - Nichols 230kV Ckt 1	Reconductor Harrington West - Nichols 230kV. Replace switches and breakers to get circuit to 727/727 MVA rating. New limit should be bus rating.	12/1/2012	12/1/2012	\$24,485
SPS	Plant X - Tolk 230kV rebuild circuit #1	Rebuild Plant X – Tolk 230kV transmission circuit #1 which is approximately 10 miles in length. The existing 795 MCM ACSR conductor will be replaced with 995 MCM ACCS conductor along with upgrading associated disconnect switches, structural steel, foundat	12/31/2017	12/31/2017	\$27,267
SPS	Plant X - Tolk 230kV rebuild circuit #2	Rebuild Plant X – Tolk 230kV transmission circuit #2 which is approximately 10 miles in length. The existing 795 MCM ACSR conductor will be replaced with 995 MCM ACCS conductor along with upgrading associated disconnect switches, structural steel, foundat	12/31/2017	12/31/2017	\$27,208
SPS	TUCO Interchange 345/230kV CKT 1 Replacement	The existing 345/230kV 560/560MVA autotransformer at Tuco Substation will be replaced with a new transformer unit to match the other transformer at this site. The new transformer can be installed at Tuco Substation by removing the existing transformer fro	6/1/2018	6/1/2018	\$27,712
WAPA	Daglum - Dickinson 230kV CKT 1	Build new 230kV line from Daglum - Dickinson	3/1/2019	3/1/2019	\$7,196,569
WAPA	Dickinson 230/115/13.8kV CKT 2	Build new 230/115/13.8kV transformer circuit #2 at Dickinson	3/1/2019	3/1/2019	\$335,027
WAPA	Hanlon 69kV Reactive Support	Install (1) 10Mvar Capacitor Bank at Hanlon 69kV.	3/1/2018	3/1/2018	\$581,324
WR	Marshall Co POI NUs	115kV substation including: three (3) 115kV circuit breakers, switches, structures, associated equipment, inspection, controls modifications, and relaying changes.	9/19/2014	9/19/2014	\$567,108
WR	Tap Wichita - Thistle 345 kV Ckt 1 & 2 - Pratt Co Addition (NU)	345 kV Breaker and Half Substation (No metering or customer equipment); Eight (8) 345 kV Breakers; Twenty (20) 345 kV switches; Two (2) 345 kV reactor switches; Fourteen (14) VTs; Two (2) 345 kV 50 Mvar line reactors; New redundant primary relaying, relay	10/16/2016	10/16/2016	\$4,098,943
WR	Tap Wichita - Thistle 345 kV Ckt 1 & 2 - Pratt Addition (NU)	Pratt relaying settings changes at the new 345kV switching station identified for Pratt Co.	12/31/2016	12/31/2016	\$1,913

\*Note: CPOs may be calculated based on estimated upgrade cost and are subject to change.

**Table 5 - Third Party Facility Constraints**

Transmission Owner	UpgradeName	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)	Estimated Engineering & Construction Cost
None					

**Table 7- Service Upgrade Cost Allocation per Request**

<b>Upgrade Name</b>	<b>Customer</b>	<b>Study Number</b>	<b>Reservation</b>	<b>Allocation Percentage</b>	<b>Allocated E &amp; C Cost</b>
None	None	None	0	0.00%	\$0
				<b>Total:</b>	\$0