



# Aggregate Facility Study SPP-2012-AG3-AFS-9

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SPP Engineering, SPP Transmission Service Studies



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## Executive Summary

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Pursuant to Attachment Z1 of the Southwest Power Pool, Inc. (SPP) Open Access Transmission Tariff (OATT), 366 MW of long-term transmission service requests have been studied in this Aggregate Facility 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. A highly tangible benefit of studying transmission requests aggregately under the SPP OATT Attachment Z1 is the sharing of costs among Transmission Customers using the same facility. Facility upgrade costs are allocated on a prorated basis to all requests positively impacting any individual overloaded facility.

Attachment Z2 further provides for facility upgrade cost recovery by stating: “Transmission Customers paying Directly Assigned Upgrade Costs for Service Upgrades or that are in excess of the Safe Harbor Cost Limit for Network Upgrades associated with new or changed Designated Resources and Project Sponsors paying Directly Assigned Upgrade Costs for Sponsored Upgrades shall receive revenue credits in accordance with Attachment Z2. Generation Interconnection Customers paying for Network Upgrades shall receive credits for new transmission service using the facility as specified in Attachment Z1.”

- The AFS determined that \$5 million in Engineering and Construction (E&C) costs are assigned to Transmission Customers. Additionally, no third party facility upgrades are assigned to Transmission Customers.
- Total upgrade levelized revenue requirements for all transmission requests after consideration of potential base plan funding is \$0 dollars.

To accommodate the requested SPP Transmission Service, third-party facilities must be upgraded when the third-party transmission provider determines that they are constrained. Third-party facilities include both first-tier neighboring facilities outside SPP and Transmission Owner facilities within SPP that are not under the SPP OATT. In this AFS, no third-party facilities were identified. Total E&C cost estimates for required third-party facility upgrades are applicable.

According to the provisions of the SPP Tariff, this study is now concluded with SPP’s study posting on July 14, 2014. SPP will notify the Customer via email regarding the next steps required in order to confirm service. If the Customer does not intend to confirm service, SPP must receive notice from the Customer via email within five (5) business days or by July 19, 2014. Service Agreements for each request for service will be tendered identifying the terms and conditions of the confirmed service.

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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Important milestones and dates in SPP's Aggregate Transmission Study process:

- In 2005, the Federal Energy Regulatory Commission (FERC) accepted SPP's proposed Aggregate Transmission Study procedures in Docket ER05-109.
- All requests for long-term transmission service with a signed study agreement received before October 1, 2012 for 2012-AG3 have been included in this third Aggregate Transmission Service Study (ATSS) of 2012.

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. The [OATT](#) may be accessed at SPP's website by going to [SPP.org>Org Groups>Governing Documents](#).

To understand the extent to which Base Plan Upgrades may be applied to both Point-to-Point (PTP) and Network Transmission Services, it is necessary to highlight the definition of Designated Resource. Per Section 1.9a of the SPP OATT, a Designated Resource is:

“[a]ny 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.”

Network and PTP service has 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 Transmission Customer must provide SPP information necessary to verify that the new or changed Designated Resource meets the following conditions:

1. Transmission 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 Transmission Customer, the accredited capacity of the Transmission Customer's existing Designated Resources plus the lesser of:
  - a. The planned maximum net dependable capacity applicable to the Transmission Customer or
  - b. The requested capacity; shall not exceed 125% of the Transmission Customer's projected system peak responsibility determined pursuant to SPP Criteria 2.

According to Attachment Z1 Section VI.A, PTP customers pay the higher of the monthly transmission access charge (base rate) or the monthly revenue requirement associated with the assigned facility upgrades, including any prepayments for redispatch required during construction.

Network Integration Service Customers pay the total monthly transmission access charges and the monthly revenue requirement associated with the facility upgrades, including any prepayments for redispatch during construction.

Transmission 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. The year that each Network Upgrade is required to accommodate a request is determined by interpolating between the applicable model years given the respective loading data. 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. As a result, the lowest seasonal allocated ATC within the requested reservation period will be offered to the Transmission Customer on an applicable annual basis as listed in Table 1. 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, the Transmission Provider, 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. This table also includes constrained facilities in the current planning horizon that limit the rollover rights of the Transmission Customer. Table 6 lists possible redispatch pairs to allow start of service prior to completion of assigned Network Upgrades.

By taking the transmission service subject to interim redispatch, the Transmission Customer agrees to provide interim redispatch. Once the Transmission Provider identifies the possible redispatch pairs, the Transmission Customer can enter into bilateral agreements to provide redispatch. Should the need to implement redispatch arise in order to maintain Network reliability, it is up to the Transmission Customer to contact parties with whom they have entered into redispatch agreements to implement that service. Such redispatch shall occur in advance of curtailment of other firm reservations impacting these constraints. In the absence of implementation of interim redispatch as requested by the Transmission Provider for Transmission Customer transactions resulting in overloads on limiting facilities, the Transmission Provider shall curtail the Transmission Customers 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 2, Redispatch, in the Aggregate Completion 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 Transmission Customer shall 1) pay the total E&C costs and other annual operating costs associated with the new facilities, and 2) receive credits associated with the depreciated book value of removed usable facilities; salvage value of removed non-usable facilities; and the carrying charges, excluding depreciation, associated with all removed usable facilities based on their respective book values.

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 displaced or deferred by an earlier in service date for a requested upgrade, achievable base plan avoided revenue requirements shall be determined per Attachment J, Section VII.B methodology. 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.

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## **Third-Party Facilities**

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For third-party facilities listed in Table 3 and Table 5, the Transmission Customer is responsible for funding the necessary upgrades of these facilities per Section 21.1 of the Transmission Provider's OATT. In this AFS, no third-party facilities were identified. Total E&C cost estimates for required third-party facility upgrades are applicable. The Transmission Provider will undertake reasonable efforts to assist the Transmission 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 leveled revenue requirements for SPP system Network Upgrades.

All modeled facilities within the Transmission Provider 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 the Transmission Provider prior to tendering of a Transmission Service Agreement. These facilities also include those owned by members of the Transmission Provider who have not placed their facilities under the Transmission Provider's OATT. Upgrades on the Southwest Power Administration 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 for study of third party facilities for load that sinks outside the SPP footprint with the applicable Transmission Providers.

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## **Make-Whole Payment**

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Make-whole payment (MWP) is a potential cost that may be allocated to a Withdrawn Request inside an Aggregate Facilities Study (AFS). The MWP for the Withdrawn Request(s) is determined as the sum of the increase in Directly Assigned Upgrade Costs (DAUC) for the remaining requests in the AFS. If a MWP is required, the customer(s) with the Withdrawn Request(s) shall be obligated to pay such costs pursuant to the ACA.

If multiple requests are withdrawn at the conclusion of this study iteration, then the impact of each Withdrawn Request on the shared upgrades causing an increase in DAUC for the remaining requests in the AFS with shared costs shall be determined. Upgrade costs for facilities allocated solely to the Withdrawn Request(s) will not be included in the MWP calculation. If a MWP is required for a

Withdrawn Request, the customer shall enter into a Sponsored Upgrade Agreement with SPP in accordance with Attachment J and will be eligible for revenue credits in accordance with Attachment Z2. For additional details, refer to the Tariff language.

The MWP has not been calculated in this report posting. However, one can be assessed by the following:

1. Refer to Table 3 of the relevant AFS and identify the Service Upgrades allocated to the request.
2. For Service Upgrades where “Allocated E&C Cost” is less than the “Total E&C Cost,” sum the “Total Revenue Requirements.”
3. The sum calculated in (2) is the maximum potential MWP.

In most cases, the MWP will not include costs of non-shared upgrades. Non-shared upgrade costs may be included in the event that SPP grants service in a subsequent study that required the use of the non-shared upgrade.

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## 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 monitor 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 AEI, AMRN (Ameren), and



ENTR (Entergy) control areas. A 2 % TDF cutoff was applied to WAPA. 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 six seasonal models to study the aggregate transfers over a variety of requested service periods. The following SPP Transmission Expansion Plan 2012 Build 1 Cases were used to study the impact of the requested service on the transmission system:

- 2014 Summer Peak (14SP)
- 2014/15 Winter Peak (14WP)
- 2018 Summer Peak (18SP)
- 2018/19 Winter Peak (18WP)
- 2023 Summer Peak (23SP)
- 2023/24 Winter Peak (23SP)

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 2012 Series Cases. Scenario 5 includes transmission service not already included in the SPP 2012 Series Cases.

## **Transmission Request Modeling**

Network Integration Transmission Service requests are modeled as Generation to Load transfers in addition to Generation to Generation transfers. Network Integration Transmission Service requests are modeled as Generation to Load transfers in addition to Generation to Generation because the requested Network Integration Transmission Service is a request to serve network load with the new designated network resource, and the impacts on Transmission System are determined accordingly. Point-To-Point 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. Transfer distribution factor 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.

## **Curtailed 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 curtailment of existing confirmed service or 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 Transmission 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. Curtailment of existing confirmed service is evaluated to provide only interim service. Curtailment of existing confirmed service is only evaluated at the request of the transmission Customer.

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 Managing and Utilizing System Transmission (MUST). Relief pairs from the generation shift factors for the incremental and decremental units with a greater than 3% TDF 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. Transmission 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 SPP Reliability Coordinator would call upon the redispatch requirements before implementing NERC TLR Level 5a.

The Aggregate Study 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.

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## **Study Results**

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### **Study Analysis Results**

Tables 1 through 7 contain the AFS steady-state analysis results. 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 and season of first impact.

Table 2 identifies total E&C cost allocated to each Transmission 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), point-to-point base rate charge, total revenue requirements for assigned upgrades with consideration of potential base plan funding, and final total cost allocation to the Transmission Customer. In addition, Table 2 identifies SWPA upgrade costs which require prepayment in addition to other allocated costs.

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

Table 5 lists identified third-party constrained facilities.

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 lists all E&C costs per request for Service Upgrades allocated.

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 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. A footnote will provide the maximum resource designation allowable for base plan funding consideration per Customer basis per year.

Base plan funding verification requires that each Transmission Customer with potential for base plan funding provide SPP attestation statements verifying that the firm capacity of the requested Designated Resource is committed for a minimum five year duration.

### **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.

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## 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.

According to the provisions of the SPP Tariff, this study is now concluded with SPP's study posting on July 14, 2014. SPP will notify the Customer via email regarding the next steps required in order to confirm service. If the Customer does not intend to confirm service, SPP must receive notice from the Customer via email within five (5) business days or by July 19, 2014. Service Agreements for each request for service will be tendered identifying the terms and conditions of the confirmed service.

The Transmission Provider must receive an unconditional and irrevocable letter of credit in the amount of the total allocated E&C costs assigned to the Customer. This letter of credit is not required for those facilities that are fully base plan funded. The amount of the letter of credit will be adjusted down on an annual basis to reflect cost recovery based on revenue allocation. The Transmission Provider will issue notifications to construct Network Upgrades to the constructing Transmission Owner after filing of necessary service agreements at FERC.

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## Appendix A

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### 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**

Customer	Study Number	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date without interim redispatch (ACA Parameter 3)	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
EXGN	2012-AG3-057	78865941	ERCOTN	ERCOTN	198	5/1/2014	5/1/2019	9/1/2014	9/1/2019	Note 4	Note 4	198	14SP
GSECGS	2012-AG3-032	77401449	SPS	SPS	7	6/1/2013	1/1/2039	9/1/2014	4/1/2040	9/1/2014	4/1/2040	0	14SP
GSECGS	2012-AG3-033	77401452	SPS	SPS	7	6/1/2013	1/1/2039	9/1/2014	4/1/2040	9/1/2014	4/1/2040	0	14SP
GSECGS	2012-AG3-034	77401453	SPS	SPS	7	6/1/2013	1/1/2039	9/1/2014	4/1/2040	9/1/2014	4/1/2040	0	14SP
GSECGS	2012-AG3-036	77402184	SPS	SPS	203	1/1/2015	1/1/2041	6/1/2018	6/1/2044	1/1/2015	1/1/2041	0	18SP
KBPU	2012-AG3-029	77155691	WR	KACY	2	4/1/2013	8/1/2030	9/1/2014	1/1/2032	9/1/2014	1/1/2032	0	14SP
KPP	2012-AG3-024	77398979	WR	WR	15	6/1/2013	6/1/2023	9/1/2014	9/1/2024	9/1/2014	9/1/2024	0	14SP
KPP	2012-AG3-025	77405406	SPA	WR	1	6/1/2013	6/1/2023	9/1/2014	9/1/2024	9/1/2014	9/1/2024	1	14SP
KPP	2012-AG3-026	77405413	KACY	WR	3	6/1/2013	6/1/2023	9/1/2014	9/1/2024	9/1/2014	9/1/2024	3	14SP
KPP	2012-AG3-027	77405416	WR	WR	9	6/1/2013	6/1/2023	9/1/2014	9/1/2024	9/1/2014	9/1/2024	9	14SP
KPP	2012-AG3-028	77405426	WR	WR	4	6/1/2013	1/1/2015	9/1/2014	4/1/2016	9/1/2014	4/1/2016	4	14SP
MIDW	2012-AG3-013	77410531	WR	WR	28	6/1/2015	6/1/2038	6/1/2015	6/1/2038	6/1/2015	6/1/2038	28	18SP
SPSM	2012-AG3-009	77341873	WFEC	SPS	36	6/1/2017	6/1/2047	6/1/2017	6/1/2047	6/1/2017	6/1/2047	0	23SP
SPSM	2012-AG3-010	77341881	WFEC	SPS	44	6/1/2017	6/1/2047	6/1/2017	6/1/2047	6/1/2017	6/1/2047	0	23SP
					366								

**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:** Customer withdrew request 78865941 after posting of the final iteration report and the study was deemed complete. No make-whole payment is required.



**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 (ACA Parameter 5)	<sup>2</sup> Potential Base Plan Engineering and Construction Funding Allowable	Notes	<sup>4</sup> Additional Engineering and Construction Cost for 3rd Party Upgrades (ACA Parameter 2)	<sup>3,5</sup> Total Revenue Requirements for Assigned Upgrades Over Term of Reservation WITH Potential Base Plan Funding Allocation	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) (ACA Parameter 1)
EXGN	2012-AG3-057	78865941	\$0	\$0	\$0		\$0	\$0	\$22,250,171	\$22,250,170	
GSECGS	2012-AG3-032	77401449	\$30,866	\$0	\$30,866		\$0	\$0	\$0	Schedule 9 & 11 Charges	
GSECGS	2012-AG3-033	77401452	\$30,866	\$0	\$30,866		\$0	\$0	\$0	Schedule 9 & 11 Charges	
GSECGS	2012-AG3-034	77401453	\$30,866	\$0	\$30,866		\$0	\$0	\$0	Schedule 9 & 11 Charges	
GSECGS	2012-AG3-036	77402184	\$3,735,178	\$0	\$3,735,178		\$0	\$0	\$0	Schedule 9 & 11 Charges	
KBPU	2012-AG3-029	77155691	\$0	\$0	\$0		\$0	\$0	\$371,904	\$371,904	
KPP	2012-AG3-024	77398979	\$0	\$0	\$0		\$0	\$0	\$0	Schedule 9 & 11 Charges	
KPP	2012-AG3-025	77405406	\$0	\$0	\$0		\$0	\$0	\$0	Schedule 9 & 11 Charges	
KPP	2012-AG3-026	77405413	\$0	\$0	\$0		\$0	\$0	\$0	Schedule 9 & 11 Charges	
KPP	2012-AG3-027	77405416	\$0	\$0	\$0		\$0	\$0	\$0	Schedule 9 & 11 Charges	
KPP	2012-AG3-028	77405426	\$0	\$0	\$0		\$0	\$0	\$0	Schedule 9 & 11 Charges	
MIDW	2012-AG3-013	77410531	\$0	\$0	\$0		\$0	\$0	\$0	Schedule 9 & 11 Charges	
SPSM	2012-AG3-009	77341873	\$346,177	\$0	\$346,177		\$0	\$0	\$0	Schedule 9 & 11 Charges	
SPSM	2012-AG3-010	77341881	\$366,350	\$0	\$366,350		\$0	\$0	\$0	Schedule 9 & 11 Charges	
<b>Grand Total</b>			<b>\$4,540,303</b>		<b>\$4,540,303</b>			<b>\$0</b>			

**Note 1:** 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 & 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.

**Note 2:** 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.

**Note 3:** 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.

**Note 4:** 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 & 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.

**Note 5:** 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.

**Note 6:** Customer withdrew request 78865941 after posting of the final iteration report and the study was deemed complete. No make-whole payment is required.

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

Customer Study Number  
 EXGN 2012-AG3-057

Customer	Reservation	RQR	RQD	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
EXGN	78865941	ERCOTN	ERCOTN	198	5/1/2014	5/1/2019	9/1/2014	9/1/2019	\$	\$ 22,250,171	\$	\$
									\$	\$ 22,250,171	\$	\$

Reservation	Upgrade-Name	BUN	EOC	Earliest-Start-Date	Redispatch-Available	Allocated-E-&-C-Cost	Total-E-&-C-Cost	Total-Revenue-Requirements
78865941	None					\$	\$	\$
						\$	\$	\$
					Total	\$	\$	\$

\*Credits may be required for applicable generation interconnection network upgrades.  
 \*Customer withdrew request 78865941 after posting of the final iteration report and the study was deemed complete. No make-whole payment is required.

Customer Study Number  
 GSECGS 2012-AG3-032

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

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
GSECGS	77401449	SPS	SPS	7	6/1/2013	1/1/2039	9/1/2014	4/1/2040	\$ 30,866	\$ -	\$ 30,866	\$ 87,928
									\$ 30,866	\$ -	\$ 30,866	\$ 87,928

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77401449	TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	6/1/2019	6/1/2019			\$ 30,866	\$ 3,837,924	\$ 87,928
<b>Total</b>						\$ 30,866	\$ 3,837,924	\$ 87,928

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
77401449	BAILEY COUNTY INTERCHANGE - CURRY COUNTY INTERCHANGE 115KV CKT 1	9/1/2014	10/1/2016		
	DEAF SMITH COUNTY INTERCHANGE (I) 230/115/13.8KV TRANSFORMER CKT 1	9/1/2014	3/1/2015		
	DEAF SMITH COUNTY INTERCHANGE (I) 230/115/13.8KV TRANSFORMER CKT 2	9/1/2014	3/1/2015		
	GRASSLAND INTERCHANGE (I) 230/115/13.2KV TRANSFORMER CKT 1	9/1/2014	6/1/2015		
	Hobbs - Yoakum 345 kV Ckt 1	6/1/2020	6/1/2020		
	LUBBOCK SOUTH INTERCHANGE 230/115/13.2KV TRANSFORMER CKT 2	9/1/2014	1/1/2015		
	Multi - Pleasant Hill- Potter 230 kV Ckt 1	9/1/2014	1/1/2015		
	NEWHART INTERCHANGE PROJECT	9/1/2014	1/1/2015		
	OCHILTREE - TRI COUNTY REC-COLE 115KV CKT 1	9/1/2014	1/1/2016		
	Tuco - Yoakum 345 kV Ckt 1	6/1/2020	6/1/2020		

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
 GSECGS 2012-AG3-033

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
GSECGS	77401452	SPS	SPS	7	6/1/2013	1/1/2039	9/1/2014	4/1/2040	\$ 30,866	\$ -	\$ 30,866	\$ 87,928
									\$ 30,866	\$ -	\$ 30,866	\$ 87,928

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77401452	TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	6/1/2019	6/1/2019			\$ 30,866	\$ 3,837,924	\$ 87,928
					Total	\$ 30,866	\$ 3,837,924	\$ 87,928

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
77401452	BAILEY COUNTY INTERCHANGE - CURRY COUNTY INTERCHANGE 115KV CKT 1	9/1/2014	10/1/2016		
	DEAF SMITH COUNTY INTERCHANGE (I) 230/115/13.8KV TRANSFORMER CKT 1	9/1/2014	3/1/2015		
	DEAF SMITH COUNTY INTERCHANGE (I) 230/115/13.8KV TRANSFORMER CKT 2	9/1/2014	3/1/2015		
	GRASSLAND INTERCHANGE (I) 230/115/13.2KV TRANSFORMER CKT 1	9/1/2014	6/1/2015		
	Hobbs - Yoakum 345 kV Ckt 1	6/1/2020	6/1/2020		
	LUBBOCK SOUTH INTERCHANGE 230/115/13.2KV TRANSFORMER CKT 2	9/1/2014	1/1/2015		
	Multi - Pleasant Hill- Potter 230 kV Ckt 1	9/1/2014	1/1/2015		
	NEWHART INTERCHANGE PROJECT	9/1/2014	1/1/2015		
	OCHILTREE - TRI COUNTY REC-COLE 115KV CKT 1	9/1/2014	1/1/2016		
	Tuco - Yoakum 345 kV Ckt 1	6/1/2020	6/1/2020		

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
 GSECGS 2012-AG3-034

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
GSECGS	77401453	SPS	SPS	7	6/1/2013	1/1/2039	9/1/2014	4/1/2040	\$ 30,866	\$ -	\$ 30,866	\$ 87,928
									\$ 30,866	\$ -	\$ 30,866	\$ 87,928

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77401453	TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	6/1/2019	6/1/2019			\$ 30,866	\$ 3,837,924	\$ 87,928
					Total	\$ 30,866	\$ 3,837,924	\$ 87,928

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
77401453	BAILEY COUNTY INTERCHANGE - CURRY COUNTY INTERCHANGE 115KV CKT 1	9/1/2014	10/1/2016		
	DEAF SMITH COUNTY INTERCHANGE (I) 230/115/13.8KV TRANSFORMER CKT 1	9/1/2014	3/1/2015		
	DEAF SMITH COUNTY INTERCHANGE (I) 230/115/13.8KV TRANSFORMER CKT 2	9/1/2014	3/1/2015		
	GRASSLAND INTERCHANGE (I) 230/115/13.2KV TRANSFORMER CKT 1	9/1/2014	6/1/2015		
	Hobbs - Yoakum 345 kV Ckt 1	6/1/2020	6/1/2020		
	LUBBOCK SOUTH INTERCHANGE 230/115/13.2KV TRANSFORMER CKT 2	9/1/2014	1/1/2015		
	Multi - Pleasant Hill- Potter 230 kV Ckt 1	9/1/2014	1/1/2015		
	NEWHART INTERCHANGE PROJECT	9/1/2014	1/1/2015		
	OCHILTREE - TRI COUNTY REC-COLE 115KV CKT 1	9/1/2014	1/1/2016		
	Tuco - Yoakum 345 kV Ckt 1	6/1/2020	6/1/2020		

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
 GSECGS 2012-AG3-036

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
GSECGS	77402184	SPS	SPS	203	1/1/2015	1/1/2041	6/1/2018	6/1/2044	\$ 3,735,178	\$ -	\$ 3,735,178	\$ 11,633,889
									\$ 3,735,178	\$ -	\$ 3,735,178	\$ 11,633,889

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77402184	CANYON WEST SUB - DAWN SUB 115KV CKT 1	1/1/2015	6/1/2018		Yes	\$ 10,257,454	\$ 10,257,454	\$ 31,523,947
	CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	10/1/2015	6/1/2016		Yes	\$ 541,035	\$ 702,378	\$ 2,135,930
	DAWN SUB - Panda Energy Substation Hereford 115KV CKT 1	1/1/2015	6/1/2018		Yes	\$ 5,692,435	\$ 5,692,435	\$ 17,494,402
	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	1/1/2015	6/1/2018		Yes	\$ 3,050,644	\$ 3,050,644	\$ 9,375,459
	TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	6/1/2019	6/1/2019			\$ 3,194,143	\$ 3,837,924	\$ 9,497,959
					Total	\$ 3,735,178	\$ 4,540,302	\$ 11,633,889

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
77402184	ALLEN SUB - LUBBOCK SOUTH INTERCHANGE 115KV CKT 1	6/1/2019	6/1/2019		
	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1	1/1/2015	6/1/2016		Yes
	CANYON EAST SUB - RANDALL COUNTY INTERCHANGE 115KV CKT 1	1/1/2015	6/1/2017		Yes
	Chisholm - Gracemont 345kv Ckt 1 (AEP)	1/1/2015	3/1/2018		Yes
	Chisholm - Gracemont 345kv Ckt 1 (OGE)	1/1/2015	3/1/2018		Yes
	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	6/1/2019	6/1/2019		
	Hobbs - Yoakum 345 kv Ckt 1	6/1/2020	6/1/2020		
	Tuco - Yoakum 345 kv Ckt 1	6/1/2020	6/1/2020		

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
77402184	CANYON EAST SUB - CANYON WEST SUB 115KV CKT 1	1/1/2015	6/1/2017		Yes

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
KBPU 2012-AG3-029

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
KBPU	77155691	WR	KACY	2	4/1/2013	8/1/2030	9/1/2014	1/1/2032	\$ -	\$ 371,904	\$ -	\$ -
									\$ -	\$ 371,904	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77155691	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
77155691	IATAN - NASHUA 345KV CKT 1	9/1/2014	6/1/2015		

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
77155691	LACYGNE - WEST GARDNER 345KV CKT 1	6/1/2006	6/1/2006		
	SUB 110 - ORONOGO JCT. - SUB 167 - RIVERTON 161KV CKT 1	6/1/2011	6/1/2011		

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
KPP 2012-AG3-024

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
KPP	77398979	WR	WR	15	6/1/2013	6/1/2023	9/1/2014	9/1/2024	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77398979	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
77398979	Cowskin - Westlink 69 kV Ckt 1	9/1/2014	12/1/2015		
	Hoover South - Tyler 69 kV Ckt 1	9/1/2014	9/1/2014	6/1/2014	
	Tyler - Westlink 69 kV Ckt 1	9/1/2014	6/1/2015		

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
77398979	ALEXANDER - PRATT 115KV CKT 1	12/1/2009	6/1/2013		
	ALEXANDER - SAWYER 3 115.00 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER - MEDICINE LODGE 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER - SAWYER 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER (BARBER 4) 138/115/2.72KV TRANSFORMER CKT 1	12/1/2009	6/1/2013		
	CIRCLE - RICE_CO 230KV CKT 1	10/1/2012	11/15/2012		
	CLIFTON - GREENLEAF 115KV CKT 1	6/1/2011	6/1/2013		
	DEARING 138KV Capacitor	6/1/2012	6/1/2012		
	FLATRDG3 138.00 - MEDICINE LODGE 138KV CKT 1	12/1/2009	6/1/2013		
	FLATRDG3 138.00 - HARPER 138KV CKT 1	12/1/2009	6/1/2013		
	GREENLEAF - KNOB HILL 115KV CKT 1 MKEC	6/1/2013	6/1/2013		
	LACYGNE - WEST GARDNER 345KV CKT 1	6/1/2006	6/1/2006		
	LYONS - RICE_CO 115KV CKT 1	10/1/2012	4/1/2013		
	LYONS - WHEATLAND 115KV CKT 1 #1	10/1/2012	7/15/2013		
	LYONS - WHEATLAND 115KV CKT 1 #2	10/1/2012	7/15/2013		
	NORTHWEST - TATONGA 345KV CKT 1	1/1/2010	1/1/2010		
	RICE_CO 230/115KV TRANSFORMER CKT 1	10/1/2012	11/15/2012		
	TATONGA - WOODWARD 345KV CKT 1	1/1/2010	1/1/2010		

\*Credits may be required for applicable generation interconnection network upgrades.



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

Customer Study Number  
KPP 2012-AG3-025

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
KPP	77405406	SPA	WR	1	6/1/2013	6/1/2023	9/1/2014	9/1/2024	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

  

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77405406	None					\$ -	\$ -	\$ -
Total						\$ -	\$ -	\$ -

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
KPP 2012-AG3-026

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
KPP	77405413	KACY	WR	3	6/1/2013	6/1/2023	9/1/2014	9/1/2024	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77405413	None					\$ -	\$ -	\$ -
Total						\$ -	\$ -	\$ -

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
77405413	ALEXANDER - PRATT 115KV CKT 1	12/1/2009	6/1/2013		
	ALEXANDER - SAWYER 3 115.00 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER - SAWYER 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER (BARBER 4) 138/115/2.72KV TRANSFORMER CKT 1	12/1/2009	6/1/2013		
	FLATRDG3 138.00 - MEDICINE LODGE 138KV CKT 1	12/1/2009	6/1/2013		

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
KPP 2012-AG3-027

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
KPP	77405416	WR	WR	9	6/1/2013	6/1/2023	9/1/2014	9/1/2024	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77405416	None					\$ -	\$ -	\$ -
Total						\$ -	\$ -	\$ -

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
77405416	ALEXANDER - PRATT 115KV CKT 1	12/1/2009	6/1/2013		
	ALEXANDER - SAWYER 3 115.00 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER - SAWYER 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER (BARBER 4) 138/115/2.72KV TRANSFORMER CKT 1	12/1/2009	6/1/2013		
	FLATRDG3 138.00 - MEDICINE LODGE 138KV CKT 1	12/1/2009	6/1/2013		
	FLATRDG3 138.00 - HARPER 138KV CKT 1	12/1/2009	6/1/2013		

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
KPP 2012-AG3-028

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
KPP	77405426	WR	WR	4	6/1/2013	1/1/2015	9/1/2014	4/1/2016	\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77405426	None					\$ -	\$ -	\$ -
Total						\$ -	\$ -	\$ -

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
77405426	ALEXANDER - PRATT 115KV CKT 1	12/1/2009	6/1/2013		
	ALEXANDER - SAWYER 3 115.00 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER - SAWYER 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER (BARBER 4) 138/115/2.72KV TRANSFORMER CKT 1	12/1/2009	6/1/2013		
	FLATRDG3 138.00 - MEDICINE LODGE 138KV CKT 1	12/1/2009	6/1/2013		
	LACYGNE - WEST GARDNER 345KV CKT 1	6/1/2006	6/1/2006		

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
MIDW 2012-AG3-013

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
MIDW	77410531	WR	WR	28	6/1/2015	6/1/2038			\$ -	\$ -	\$ -	\$ -
									\$ -	\$ -	\$ -	\$ -

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77410531	None					\$ -	\$ -	\$ -
Total						\$ -	\$ -	\$ -

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
77410531	ALEXANDER - PRATT 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER - SAWYER 115KV CKT 1	12/1/2009	6/1/2013		
	BARBER (BARBER 4) 138/115/2.72KV TRANSFORMER CKT 1	12/1/2009	6/1/2013		
	CIRCLE - RICE_CO 230KV CKT 1	10/1/2012	11/15/2012		
	FLATRDG3 138.00 - MEDICINE LODGE 138KV CKT 1	12/1/2009	6/1/2013		
	LACYGNE - WEST GARDNER 345KV CKT 1	6/1/2006	6/1/2006		
	LYONS - RICE_CO 115KV CKT 1	10/1/2012	4/1/2013		
	LYONS - WHEATLAND 115KV CKT 1 #1	10/1/2012	7/15/2013		
	LYONS - WHEATLAND 115KV CKT 1 #2	10/1/2012	7/15/2013		
	NORTHWEST - TATONGA 345KV CKT 1	1/1/2010	1/1/2010		
	RICE_CO 230/115KV TRANSFORMER CKT 1	10/1/2012	11/15/2012		
	TATONGA - WOODWARD 345KV CKT 1	1/1/2010	1/1/2010		

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
SPSM 2012-AG3-009

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
SPSM	77341873	WFEC	SPS	36	6/1/2017	6/1/2047			\$ 346,177	\$ -	\$ 346,177	\$ 1,501,111
									\$ 346,177	\$ -	\$ 346,177	\$ 1,501,111

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77341873	CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	10/1/2015	6/1/2016			\$ 87,722	\$ 702,378	\$ 466,251
	TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	6/1/2019	6/1/2019			\$ 258,455	\$ 3,837,924	\$ 1,034,860
					Total	\$ 346,177	\$ 4,540,302	\$ 1,501,111

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
77341873	ALLEN SUB - LUBBOCK SOUTH INTERCHANGE 115KV CKT 1	6/1/2019	6/1/2019		
	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	6/1/2019	6/1/2019		
	Hobbs - Yoakum 345 kV Ckt 1	6/1/2020	6/1/2020		
	Tuco - Yoakum 345 kV Ckt 1	6/1/2020	6/1/2020		

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
77341873	BLUE CANYON - PARADISE 138KV CKT 1	6/1/2010	6/1/2013		
	NORTHWEST - TATONGA 345KV CKT 1	1/1/2010	1/1/2010		
	TATONGA - WOODWARD 345KV CKT 1	1/1/2010	1/1/2010		
	WOODWARD - WOODWARD EHV 138KV CKT 1	1/1/2010	1/1/2010		
	WOODWARD 345/138KV TRANSFORMER CKT 1	1/1/2010	1/1/2010		

\*Credits may be required for applicable generation interconnection network upgrades.

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

Customer Study Number  
SPSM 2012-AG3-010

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
SPSM	77341881	WFEC	SPS	44	6/1/2017	6/1/2047			\$ 366,350	\$ -	\$ 366,350	\$ 1,563,397
									\$ 366,350	\$ -	\$ 366,350	\$ 1,563,397

Reservation	Upgrade Name	DUN	EOC	Earliest Start Date	Redispatch Available	Allocated E & C Cost	Total E & C Cost	Total Revenue Requirements
77341881	CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	10/1/2015	6/1/2016			\$ 73,621	\$ 702,378	\$ 391,303
	TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	6/1/2019	6/1/2019			\$ 292,729	\$ 3,837,924	\$ 1,172,094
					Total	\$ 366,350	\$ 4,540,302	\$ 1,563,397

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
77341881	Hobbs - Yoakum 345 kV Ckt 1	6/1/2020	6/1/2020		
	Multi - Kilgore Switch - South Portales - Market St. - Portales 115 kV	6/1/2018	6/1/2018		
	Tuco - Yoakum 345 kV Ckt 1	6/1/2020	6/1/2020		

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
77341881	BLUE CANYON - PARADISE 138KV CKT 1	6/1/2010	6/1/2013		
	NORTHWEST - TATONGA 345KV CKT 1	1/1/2010	1/1/2010		
	TATONGA - WOODWARD 345KV CKT 1	1/1/2010	1/1/2010		
	WOODWARD - WOODWARD EHV 138KV CKT 1	1/1/2010	1/1/2010		
	WOODWARD 345/138KV TRANSFORMER CKT 1	1/1/2010	1/1/2010		

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

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)	Estimated Engineering & Construction Cost
SPS	CANYON WEST SUB - DAWN SUB 115KV CKT 1	Remove the existing W40 circuit and construct a new 115-kV transmission line between Canyon West and Dawn using the existing ROW. The total line length is 15.2 miles. Tubular steel monopoles will be utilized to support new 795 ACSR Drake conductor.	1/1/2015	6/1/2018	\$10,257,454.00
SPS	CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	Replace the wave trap at Carlisle to increase the line rating to at least 416MVA. Replace the wave trap on the Carlisle line terminal at Tuco substation.	10/1/2015	6/1/2016	\$702,378.00
SPS	DAWN SUB - Panda Energy Substation Hereford 115KV CKT 1	Remove the existing W40 circuit and construct a new 115-kV transmission line between Dawn and Panda Tap using the existing ROW. The total line length is 8.4 miles. Tubular steel monopoles will be utilized to support new 795 ACSR Drake conductor.	1/1/2015	6/1/2018	\$5,692,435.00
SPS	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	Remove the existing W40 circuit and construct a new 115-kV transmission line between Panda Tap to Deaf Smith using the existing ROW. The total line length is 3.5 miles, with 2.4 miles being wrecked out and rebuilt. Tubular steel monopoles will be utilized.	1/1/2015	6/1/2018	\$3,050,644.00
SPS	TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	Replace 1st 230/115 kV transformer at Tuco with 230/115 kV 288 MVA transformer.	6/1/2019	6/1/2019	\$3,837,924.00

**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)
SPS	CANYON EAST SUB - CANYON WEST SUB 115KV CKT 1	Rebuild 3.73 mile 115 kV line.	1/1/2015	6/1/2017



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

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)
AEPW	Chisholm - Gracemont 345kV Ckt 1 (AEP)	Build new single circuit 345 kV line from new Chisholm substation to point of interconnection with Oklahoma Gas & Electric Co. (OGE) towards Gracemont. The approximate line length for the Chisholm - Gracemont 345 kV line is 100 miles, of which AEP will construct approximately 70 miles from Chisholm to the OGE interconnection point.	1/1/2015	3/1/2018
KACP	IATAN - NASHUA 345KV CKT 1	Tap Nashua 345kV bus in Hawthorn - St. Joseph 345 kV line. Build new 345 kV line from Iatan to Nashua, Add Nashua 345/161 kV	9/1/2014	6/1/2015
OKGE	Chisholm - Gracemont 345kV Ckt 1 (OKGE)	Build new 30-mile single circuit 345 kV line from the Gracemont substation to the interconnection point with American Electric Power, toward the new Chisholm substation. Install any necessary terminal equipment at Gracemont.	1/1/2015	3/1/2018
SPS	ALLEN SUB - LUBBOCK SOUTH INTERCHANGE 115KV CKT 1	Rebuild 6 miles of 115 kV line from Lubbock South Interchange to Allen Substation.	6/1/2019	6/1/2019
SPS	BAILEY COUNTY INTERCHANGE - CURRY COUNTY INTERCHANGE 115KV CKT 1	40 miles 115 kV between Bailey and Curry.	9/1/2014	10/1/2016
SPS	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1	Upgrade 800A wave trap at both Bushland Interchange and Deaf Smith Interchange to at least 428 MVA Winter Rate B. Deaf Smith - Replace existing wave trap so that the limiting factor of K-11 terminal at Deaf Smith will be no less than 1200 A.	1/1/2015	6/1/2016
SPS	CANYON EAST SUB - RANDALL COUNTY INTERCHANGE 115KV CKT 1	Rebuild 13.5-mile 4/0 segment of 115 kV line from Canyon East Sub to Randall County Interchange with 795 ACSR conductor.	1/1/2015	6/1/2017
SPS	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	Upgrade transformer to 250 MVA.	6/1/2019	6/1/2019
SPS	DEAF SMITH COUNTY INTERCHANGE () 230/115/13.8KV TRANSFORMER CKT 1	Upgrade Deaf Smith County Interchange 230/115 kV Ckt 1 transformer to 250 MVA.	9/1/2014	3/1/2015
SPS	DEAF SMITH COUNTY INTERCHANGE () 230/115/13.8KV TRANSFORMER CKT 2	Upgrade Deaf Smith County Interchange 230/115 kV Ckt 2 transformer to 250 MVA.	9/1/2014	3/1/2015
SPS	GRASSLAND INTERCHANGE () 230/115/13.2KV TRANSFORMER CKT 1	Upgrade Grassland 230/115 kV transformer Ckt 1 to 250 MVA.	9/1/2014	6/1/2015
SPS	Hobbs - Yoakum 345 kV Ckt 1	Construct new 52-mile 345 kV line from Hobbs to Yoakum.	6/1/2020	6/1/2020
SPS	LUBBOCK SOUTH INTERCHANGE 230/115/13.2KV TRANSFORMER CKT 2	Install a second 230/115/13.2 kV transformer at Lubbock South.	9/1/2014	1/1/2015
SPS	Multi - Kilgore Switch - South Portales - Market St. - Portales 115 kV	Build 115 kV line from Zodiac-S Portales-Market-Portales and install necessary terminal equipment.	6/1/2018	6/1/2018
SPS	Multi - Pleasant Hill- Potter 230 kV Ckt 1	Build new 16 mile Pleasant Hill - Oasis 230 kV line., Build new 26 mile Pleasant Hill - Roosevelt County 230 kV line., and Add 230/115 kV transformer 250/250 MVA CKT 1	9/1/2014	1/1/2015
SPS	NEWHART INTERCHANGE PROJECT	Tap the Potter Interchange - Plant X Station 230 kV line for new Newhart Substation and install 230/115 kV, 150/173 MVA transformer. New 15 mile Lampton Interchange - Hart Industrial Substation 115 kV line. New 19 mile Swisher County Interchange - Newhart	9/1/2014	1/1/2015
SPS	OCHILTREE - TRI COUNTY REC-COLE 115KV CKT 1	Rebuild 16.9-mile 115 kV line from Ochilree to Tri-County REC Cole Ckt 1.	9/1/2014	1/1/2016
SPS	Tuco - Yoakum 345 kV Ckt 1	Construct new 107-mile 345 kV line from Tuco to Yoakum.	6/1/2020	6/1/2020

**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)
WERE	Cowskin - Westlink 69 kV Ckt 1	Rebuild 2.1-mile 69 kV line from Cowskin to Westlink.	9/1/2014	12/1/2015
WERE	Hoover South - Tyler 69 kV Ckt 1	Rebuild 1.96-mile 69 kV line from Tyler to Hoover.	9/1/2014	9/1/2014
WERE	Tyler - Westlink 69 kV Ckt 1	Rebuild 2.65-mile 69 kV line from Westlink to Tyler. Install terminal equipment at Tyler.	9/1/2014	6/1/2015

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

Network Upgrades requiring credits per Attachment 22 of the SPP OATT.

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)
EMDE	SUB 110 - ORONOJO JCT. - SUB 167 - RIVERTON 161KV CKT 1	Reconductor Oronogo 59467 to Riverton 59469 with Bundled 556 ACSR	6/1/2011	6/1/2011
KACP	LACYGNE - WEST GARDNER 345KV CKT 1	KCPL Sponsored Project to Reconductor Line to be In-Service by 6/1/2006	6/1/2006	6/1/2006
MIDW	CIRCLE - RICE_CO 230KV CKT 1	Convert from 115kV to 230kV operation	10/1/2012	11/15/2012
MIDW	LYONS - RICE_CO 115KV CKT 1	Rebuild 11.7 mile line	10/1/2012	4/1/2013
MIDW	RICE_CO 230/115KV TRANSFORMER CKT 1	Add 230/115kV Transformer	10/1/2012	11/15/2012
MKEC	ALEXANDER - PRATT 115KV CKT 1	Rebuild line	12/1/2009	6/1/2013
MKEC	ALEXANDER - SAWYER 3 115.00 115KV CKT 1	Rebuild line	12/1/2009	6/1/2013
MKEC	BARBER - MEDICINE LODGE 115KV CKT 1	Rebuild line	12/1/2009	6/1/2013
MKEC	BARBER - SAWYER 115KV CKT 1	Rebuild line	12/1/2009	6/1/2013
MKEC	BARBER (BARBER 4) 138/115/2.72KV TRANSFORMER CKT 1	Upgrade transformer	12/1/2009	6/1/2013
MKEC	CLIFTON - GREENLEAF 115KV CKT 1	Rebuild 14.4 miles	6/1/2011	6/1/2013
MKEC	FLATRDG3 138.00 - MEDICINE LODGE 138KV CKT 1	Rebuild 8.05 mile line	12/1/2009	6/1/2013
MKEC	FLATRDG3 138.00 - HARPER 138KV CKT 1	Rebuild 24.15 mile line	12/1/2009	6/1/2013
MKEC	GREENLEAF - KNOB HILL 115KV CKT 1 MKEC	Rebuild 43.5% Ownership of 20.9 miles	6/1/2013	6/1/2013
OKGE	NORTHWEST - TATONGA 345KV CKT 1	Build 345 kV line	1/1/2010	1/1/2010
OKGE	TATONGA - WOODWARD 345KV CKT 1	Build 345 kV line	1/1/2010	1/1/2010
OKGE	WOODWARD - WOODWARD EHV 138KV CKT 1	Build .5 miles of 138 kV and install terminal equipment	1/1/2010	1/1/2010
OKGE	WOODWARD 345/138KV TRANSFORMER CKT 1	Install 345/138 kV XF	1/1/2010	1/1/2010
WERE	DEARING 138KV Capacitor	Dearing 138 kv 20 MVAR Capacitor Addition	6/1/2012	6/1/2012
WERE	LYONS - WHEATLAND 115KV CKT 1 #1	Replace CTs	10/1/2012	7/15/2013
WERE	LYONS - WHEATLAND 115KV CKT 1 #2	Rerate circuit to 1000 amps	10/1/2012	7/15/2013
WFEC	BLUE CANYON - PARADISE 138KV CKT 1	Upgrade Paradise to Blue Canyon to 1113	6/1/2010	6/1/2013

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 - Cost Allocation Per Service Upgrade**

Upgrade Name	Customer	Study Number	Reservation	Allocation Percentage	Allocated E & C Cost
CANYON WEST SUB—DAWN SUB 115KV CKT 1	GSECGS	2012-AG3-036	77402184	100.00%	\$10,257,454
				<b>Total:</b>	\$10,257,454

**Table 7 - Cost Allocation Per Service Upgrade**

<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>
CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	SPSM	2012-AG3-009	77341873	12.49%	\$87,722
CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	SPSM	2012-AG3-010	77341881	10.48%	\$73,621
CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	GSECGS	2012-AG3-036	77402184	77.03%	\$541,035
				<b>Total:</b>	<b>\$702,378</b>

**Table 7 - Cost Allocation Per Service Upgrade**

Upgrade Name	Customer	Study Number	Reservation	Allocation Percentage	Allocated E & C Cost
DAWN-SUB—Panda Energy Substation Hereford 115KV CKT 1	GSECGS	2012-AG3-036	77402184	100.00%	\$5,692,435
				<b>Total:</b>	\$5,692,435

**Table 7 - Cost Allocation Per Service Upgrade**

Upgrade Name	Customer	Study Number	Reservation	Allocation Percentage	Allocated E & C Cost
DEAF SMITH COUNTY INTERCHANGE—Panda Energy Substation Hereford 115KV CKT 1	GSECGS	2012-AG3-036	77402184	100.00%	\$3,050,644
				<b>Total:</b>	\$3,050,644



**Table 7 - Cost Allocation Per Service Upgrade**

<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>
TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	SPSM	2012-AG3-009	77341873	6.73%	\$258,455
TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	SPSM	2012-AG3-010	77341881	7.63%	\$292,729
TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	GSECGS	2012-AG3-032	77401449	0.80%	\$30,866
TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	GSECGS	2012-AG3-033	77401452	0.80%	\$30,866
TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	GSECGS	2012-AG3-034	77401453	0.80%	\$30,866
TUCO INTERCHANGE (GE M102345) 230/115/13.2KV TRANSFORMER CKT 1	GSECGS	2012-AG3-036	77402184	83.23%	\$3,194,143
				<b>Total:</b>	<b>\$3,837,924</b>