Qualifications as An Economic Upgrade Eligible for Regional Cost Allocation

CAWG Meeting
October 24, 2007

Various Authors

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• Gene Anderson
• Mike Proctor
  – Forgot to present at September CAWG meeting.
Qualification Tests for an Economic Project

In order for an economic project to receive regional cost allocation, it:

(1) Must be included in a portfolio of economic projects that has a benefit to cost ratio of 1.25 or greater;

(2) Must include a single upgrade or a group of upgrades that are not a Base Plan Upgrade or a Zonal Reliability Upgrade; and

(3) Includes all facility upgrades that are required to reliably deliver the economic benefits of the project regardless of their operating voltages, but the costs of facilities below 345 kV in the project that are included for regional cost allocation are capped at the costs of 345 kV and above facilities included in that same project.

The only exceptions to these qualifications are upgrades added to the portfolio in order to produce a portfolio having benefits that exceed costs in every SPP pricing zone.
Alternatives to Postage Stamp Rate When Economic Portfolio is Unbalanced

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Unbalance Portfolio

• An unbalanced portfolio of economic upgrades is one in which the estimated benefits to any zone are less than the costs allocated via a region-wide postage stamp rate.
• An unbalance portfolio is inferior to a balance portfolio and is only considered when a balance portfolio cannot be achieved.
Achieving A Balanced Portfolio of Economic Upgrades

Level 1: SPP attempts to use qualifying economic upgrade projects to design a balanced portfolio.

Level 2: If a balanced portfolio cannot be achieved in level 1, then SPP attempts to balance the portfolio by adding lower voltage economic upgrade projects to the portfolio.

Level 3: If a balanced portfolio cannot be achieved in level 2, the following alternative cost allocations will be considered.

Alternative 1
Roll In Other Upgrade Costs

• Transmission customers in each zone will have transmission revenue requirements assigned to them or to their zone from prior cost allocations for transmission upgrades (either reliability or economic).
• Redirect $X from direct assignments and zonal rate in zone with C>B to postage stamp rate, where $X brings zone to C=B without causing C>B in any other zone.
### Example 1.a

#### Portfolio Results

<table>
<thead>
<tr>
<th>Zone</th>
<th>Benefit</th>
<th>Cost</th>
<th>B/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$140</td>
<td>$100</td>
<td>1.4</td>
</tr>
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<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>$570</td>
<td>$500</td>
<td>1.14</td>
</tr>
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</table>

#### Calculation of Reallocation

<table>
<thead>
<tr>
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<th>B-C</th>
<th>LR%</th>
<th>Xi</th>
</tr>
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<tbody>
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<td>$200</td>
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<td>2</td>
<td>-$45</td>
<td>30%</td>
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<tr>
<td>3</td>
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<td>$75</td>
</tr>
<tr>
<td>4</td>
<td>$45</td>
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<td>$450</td>
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</table>

Minimum = X = $64

#### Reallocation of Costs

<table>
<thead>
<tr>
<th>Zone</th>
<th>LR%</th>
<th>$X</th>
<th>$X*LR%</th>
<th>$Adj</th>
<th>B-C</th>
<th>Total</th>
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<tbody>
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<td>200</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
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<td>-45</td>
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<td>0</td>
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<td>4</td>
<td>10%</td>
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<td>-6</td>
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<td>$64</td>
<td>0</td>
<td>$70</td>
<td>$70</td>
</tr>
</tbody>
</table>

#### Net Benefits

- \( B_i - C_i \) if \( B_i \geq C_i \)
- \( C_i - (B_i - C_i) \times LR_i \) if \( C_i > B_i \)

\( X_i = \min \{ X \} \)

\( B_i = \$ \) benefit to zone i
\( C_i = \$ \) cost to zone i
\( LR_i = \) load ratio share for zone i
\( X_i = \) maximum increase to zone i if \( B_i \geq C_i \)
\( X_i = \) reallocation to balance zone i if \( C_i \geq B_i \)

### Example 1.a continued

#### Portfolio Adjusted Results

<table>
<thead>
<tr>
<th>Zone</th>
<th>Benefit</th>
<th>$Adj</th>
<th>Adj Cost</th>
<th>B/C</th>
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<tr>
<td>Total</td>
<td>$570</td>
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<td>$500</td>
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</tr>
</tbody>
</table>

This reallocation of cost does not lower the overall B/C to the portfolio because zone 3’s costs are lowered. Moreover, it is equivalent to a redistribution of the costs of the upgrades.
### Example 1.b

In this example, the cost still exceed benefits in zone 2, and a possibility to correct this is to now add dollars from zone 3 in the reallocation.

#### Portfolio Results

<table>
<thead>
<tr>
<th>Zone</th>
<th>Benefit</th>
<th>Cost</th>
<th>B/C</th>
</tr>
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<td>$105</td>
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<td>0.7</td>
</tr>
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<td>$220</td>
<td>$200</td>
<td>1.1</td>
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<tr>
<td>4</td>
<td>$95</td>
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<tr>
<td>Total</td>
<td>$560</td>
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#### Calculation of Reallocation

<table>
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<td></td>
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<tr>
<td>4</td>
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<td>Min</td>
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#### Reallocation of Costs

<table>
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#### Portfolio Adjusted Results

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### Example 1.b continued

#### Reallocation of Costs

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### Portfolio Results

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<td>$560</td>
<td>$50</td>
<td>$500</td>
<td>1.12</td>
</tr>
</tbody>
</table>
Alternative 2: Reallocate Costs to make B ≥ C in all zones

- Allocate the difference between Costs and Benefits in deficient zones back to other zones in proportion to their share of Benefits minus Costs.

Example 2.a

<table>
<thead>
<tr>
<th>Zone</th>
<th>Benefit</th>
<th>Cost</th>
<th>B/C</th>
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<tbody>
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<td>1.9</td>
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<td>Total</td>
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<td>$500</td>
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<table>
<thead>
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<th>Zone</th>
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<table>
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Example 2.b

<table>
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<th>Zone</th>
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<tr>
<td>Total</td>
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<table>
<thead>
<tr>
<th>Portfolio Adjusted Results</th>
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<tbody>
<tr>
<td>Zone</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<tr>
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<table>
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<th>Portfolio Results</th>
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<tbody>
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<td>Zone</td>
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<td>------</td>
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<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Conclusions

- Alternative 1 requires more detailed calculations, but the result is that the cost allocation can remain in a postage stamp form – simpler for SPP.
- Alternative 2 requires less detailed calculations, but the result is that the cost allocation will be in the form of a specific assignment of costs to each zone rather than in a region-wide postage stamp rate.
Reconsideration of Cost Allocation for Designated Renewable Resources

CAWG Meeting
October 24, 2007

Content

• Purpose – to describe various alternative cost allocation proposals for renewable energy DRs within the SPP

• Background:
  – Three Issues Described

• Possible Solutions:
  – Alternatives Described for Each Issue
Two Driving Issues

A. Issue concerning current cost allocation method related to safe harbor condition of a limit of $180,000/MW of summer accredited capacity for wind power.
   ✓ Result is a low level of Base Plan Funding for wind power (renewables) compared to other generation.

B. Issue regarding the allocation of costs using the Positive MW-mile impacts for zones that supply wind power.
   ✓ Result is a higher level of cost allocation to exporting (supply) zones than is consistent with the true level of benefits from the upgrade going to the loads within those zones.

Issue A: Accredited Capacity vs. MWs of Transmission Service

• Comparability: For traditional resources, the summer rated capacity is used as the transmission service request MWs. Not using transmission service request MWs puts wind at a disadvantage to traditional resources.
• Consistency: 1) Summer accredited capacity is the MW metric used when calculating the 125% reserve margin limit. 2) Summer accredited capacity is consistent with reliability upgrades.
• Policy: Does the SPP RSC want to promote wind power as a renewable resource? Where are the various states with respect to renewable portfolio standards (RPS)?
Background

Issue B: Cost Causer vs. Beneficiary

• Cost Causer: The current cost allocation only allocates costs to the cost causer to the extent that the MW-mile calculations determine benefit to the cost causer.
  – This may be an issue where a large investment in transmission is needed near the source of the wind power.
  – Even if this is not the case for the specific circumstances such as EDE, it is likely to be an issue sometime in the future.
• Beneficiary: If a large amount of wind power is located in a single zone, the Positive MW-mile metric will over estimate the benefits to the transmission customers in that zone.
• To further understand the cost causer issue consider a similar concern regarding exports (next slide).

Issue C: Exporting Wind Power

• Exporting in this context simply means a request by someone outside SPP for a wind DR that is located within SPP.
• If more and more states or the US Congress passes RPS, it is highly likely that the demand for wind power from regions within the SPP (TX, OK & KS) will occur, and could occur at a high level.
Cost Allocation for Exports

• It appears that the current tariff would process a request for an export as a request for PTP transmission service from the resource to the SPP border.
• Currently, the definition of Base Plan Funded Projects in the SPP tariff includes requests for PTP transmission service for DRs and appears to be restricted to requests for DRs to serve load within the SPP.

1.9a Designated Resource: 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.

• If the above is correct, cost allocation for exports would not include requests for PTP transmission service for DRs that are exported.

EHV Proposed Expansion

• The EHV proposed expansion is only viable with significant exports of wind power from the SPP region, and as such, is the subject of ongoing discussion.
• The problem for DR requests within the SPP that occur prior to an EHV policy is that some of the upgrades required may not be necessary if the EHV system is put into place.
Basic Alternatives to Consider

A. Alternatives for Issue A
   • Move to Transmission Service MWs for safe harbor calculation on all DR requests.
   • MISO approach – DR requestor pays 50% of the cost of the upgrade.
   • Conditional Firm Service – use a lower rating for firm service with requests above that level treated as non-firm.
   • Eliminate safe-harbor limits for renewable DRs.

B. Alternatives for Issue B
   • For renewables, exclude source zones from positive MW-mile impacts.
   • Limit positive MW-mile impacts to a specified level.
   • Postage stamp rate for all renewable DRs

C. Alternatives for Exports
   1. Continue current policy of directly assigning costs of upgrades to DR requestor for exports – same as other PTP transmission service requests.
   2. Work out joint planning with neighbors that includes a cost allocation policy.

Other Basic Alternatives?

• Discuss treating DR requests for renewables as economic upgrades

• Other Alternatives?

• Consider combinations of basic alternatives.
Description of Alternatives

• The purpose of the following is to describe various alternatives that we will discuss in greater detail at subsequent meetings.
• As we go through these slides, edits to the original slides may occur.

Alternative A.1: Move to Transmission Service MWs

• Whatever MW level SPP uses to determine the transmission upgrades needed to serve renewables would be used for the calculation of the safe-harbor limit in the $180,000/MW formula.
  a) Keep accredited capacity for 125% limit.
  b) Also use transmission service MWs for reserve limit – may have to increase the limit to accommodate renewables.
**Alternative A.2**
MISO’s Approach to DRs

- Instead of placing a safe harbor limit, the MISO cost allocation simply places 50% of the cost on the requestor (cost causer).
- MISO Type alternatives
  a) Keep the safe harbor limit, use transmission service request MWs (alt. A.1) and put a 50% limit on costs allocated to transmission service requestor.
  b) Keep the safe harbor limit, continue to use accredited capacity and put a 50% limit on costs allocated to transmission service requestor.
  c) Do away with the safe harbor limit and go strictly to the 50% allocation of costs to the transmission service requestor.

**Alternative A.3**
Conditional Firm Service

- DR requestor specifies the level of firm service for renewables in the transmission service request
  - For example: Suppose the capacity factor for wind power is ~ 40%. The DR requestor could request that SPP run its aggregate study at 40% of the rated capacity of the wind.
- Any service provided above the 40% level would be for non-firm service, and would have priority over other forms of non-firm service.
- Safe Harbor Limit
  a) Apply safe harbor limit using requested TS MWs.
  b) Apply safe harbor limit using accredited capacity.
Alternative A.4
Remove Safe Harbor Limit for Renewable Energy Sources

• Any DR from a generation source that is renewable is not subject to the safe harbor limit placed on traditional generation sources.

  a) SPP study could follow current practice regarding MWs of transmission service.
  b) SPP study could allow conditional firm service as in Alternative A.3.

Alternative B.1
For Renewables No Allocation from Positive MW-mile Impact to Supply Zone

• For example, the Positive MW-mile impacts could be:

  Standard + MW-mile Impacts
  Zones + MW-miles % Allocation
  1 1,200 30% Requestor
  2 2,200 55% Supplier
  3 600 15% Between
  4 0 0% Others
  Total 4,000 100%

• If Zone 2 is the supply zone for the renewable, then the allocation would change to:

  a) Supplier @ 0 & Requestor Pays
  1 3,400 85% Requestor
  2 0 0% Supplier
  3 600 15% Between
  4 0 0% Others
  Total 4,000 100%

  b) Supplier @ 0 & Prorated
  1 1,200 67% Supplier
  3 600 33% Between
    Total 1,800 100%

  c) Supplier @ 0 and Postage Stamp
  1 1,200 30% Requestor
  2 0 0% Supplier
  3 600 15% Between
  4 0 0% Others
  Total 4,000 100%

• Can be combined with any of Alternatives A.1-4.
Alternative B.2
Limit Positive MW-mile Impacts

- Set a limit on the amount of unused MW-miles on a facility that counts for allocating the cost of an upgrade. For example: A facility has MW-mile impacts of 85% before the upgrade and 75% after the upgrade. If the limit is set at 80%, then only half of the positive MW-mile impact is allocated to the zone in which it occurs.

<table>
<thead>
<tr>
<th>Zones</th>
<th>MW-miles</th>
<th>% Allocation</th>
<th>Zones</th>
<th>MW-miles</th>
<th>% Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,200</td>
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<td>2</td>
<td>2,200</td>
<td>55%</td>
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<td>27.5%</td>
</tr>
<tr>
<td>3</td>
<td>600</td>
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<td>3</td>
<td>600</td>
<td>15.0%</td>
</tr>
<tr>
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<td>0</td>
<td>0%</td>
<td>4</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td>4,000</td>
<td>100%</td>
<td>Excess</td>
<td>1,100</td>
<td>27.5%</td>
</tr>
</tbody>
</table>

- The amount of cost associated with positive MW-mile impacts above the limit will need to be allocated elsewhere:

<table>
<thead>
<tr>
<th>Zones</th>
<th>MW-miles</th>
<th>% Allocation</th>
<th>Zones</th>
<th>MW-miles</th>
<th>% Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>15%</td>
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<td>3</td>
<td>15%</td>
<td>5.7%</td>
</tr>
<tr>
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<td>0%</td>
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<td>0%</td>
<td>0.0%</td>
</tr>
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<td>28%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>27.5%</td>
<td>Total</td>
<td>100%</td>
<td>27.50%</td>
</tr>
</tbody>
</table>

- Can be combined with any of alternatives A.1-4.

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Alternative B.3
Region-Wide Postage Stamp for Renewable Energy DRs

- Transmission upgrade costs from renewable resources that qualify for BPF (Alternatives A) would be rolled into a region-wide postage stamp rate.

- Any portion of upgrade cost that don’t qualify for BPF would be directly assigned to requestor.

- To determine qualification for BPF, B.3 can be combined with any of Alternatives A.1-4.
Alternative C.1

- Requests for PTP service from a DR for load outside the SPP would be directly assigned its share of the costs of any upgrades and be eligible for revenue credits.
- This would treat DR requests for renewables for loads outside SPP the same as all other PTP service requests (the same as current tariff).
- Could be combined with various alternatives from A and B.

Alternative C.2

Joint Planning for EHV Facilities

- In conjunction with other regions, perform a planning study for wind power to determine the aggregate demand for wind and an appropriate cost allocation for EHV upgrades.
  - Example: The SPP portion of the costs of the EHV system could be determined by measuring the costs from SPP BPF upgrades that would have been required absent the EHV system.
  - Joint planning meeting (SPP, MISO, PJM, TVA) on November 1 from 10:00 a.m. to 2 p.m. at the Pittsburgh Airport Marriott.
For November Meeting

• Submit ranking of Basic Alternatives A.1-4, B.1-3 and C.1-2 with a brief description of reasons for highest (pros) and lowest (cons) rankings to mike.proctor@psc.mo.gov by November 9.
  – See slide on next page
  – Also send combinations of alternatives (e.g., alternatives A.1.a with B.1.a with C.1) that you can support.
  – Rankings of Basic Alternative and submitted combinations will be compiled and distributed prior to the CAWG meeting scheduled for November 28.

Alternatives

### Ranking of Alternatives

<table>
<thead>
<tr>
<th>Alternatives A</th>
<th>H &amp; L</th>
<th>Reasons for 1 and 4 Rankings</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1 SH using MWs of Trans Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Keep accredited cap for 125%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Use TS MW for 125%/raise %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.2 SH using MWs of Trans Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) SH using accredited capacity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Remove SH limit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.3 SH using MWs of Trans Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) SH using accredited capacity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.4 Remove SH Limit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) SPP Study stays the same</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) SPP Study allows CF service</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

1. For alternatives A and B, only rank highest (H) and lowest (L).
2. If your choice of a basic alternative (e.g., A.1 - A.4) is dependent on a specific option under that alternative (e.g., a – c), discuss that in your reasons.
3. For C, mark Y or N for both alternatives.
2007 STEP

Being finalized
• Transmission Summit August 15th
  1. focused on 100 kV+ and included sub-regional breakouts
• Western half of X Plan (345 kV) deferred until 2020 based on n-1 criteria but justified on economic benefits sooner
• Numerous opportunities identified based on Economic Upgrade screens
• Sub-regional 69 kV plans shared October 8th
• 2007 STEP projects through 2017 amount to $2.18B without recent commitments

Reflects EHV Overlay/Ozarks Study recommendations
• Flint Creek – Centerton – Osage Creek 345 kV in AR
  1. Centerton 345/161 kV in 2014
  2. Osage Creek 345/161 kV in 2016
• Brookline – Summit 345 kV in MO
  • Still studying alternatives

Does not include AECl/KAMO’s proposed 2010 Blackberry – Chouteau – GRDA 1 345 kV line

Commitments for Spearville – Comanche Co – Wichita and Spearville – Knoll – Axtell EHV projects to MOPC/RSC/BOD in October
• Build out of Comanche Co – Wichita at 765 kV recommended in original EHV Overlay Study
STEP vs EHV Overlay

STEP – 10 year independent assessment focusing primarily on reliability needs based on firm commitments, and identifies potentially beneficial economic expansion projects

EHV Overlay – 20+ year visionary blueprint to shape near term planning and incorporate into collaborative, inter-regional assessments

CAWG Economic Portfolio – investigates economically beneficial projects within SPP to shape efficient grid expansion and associated cost recovery

Next Steps to Redo EHV Overlay Study

- Stakeholders to share strategic plans (Ongoing)
- Stakeholders rank pending federal initiatives, e.g., RPS (survey in development, completed Nov 15)
- Conclude EHV conceptual design (Dec)
- Perform benefits analysis of design (Jan)
- Conduct state-by-state road shows (Feb-Apr)
- Seams Agreements and cost allocations (Oct – Apr)
EHV Overlay Presentations

- Shared with over 1,000 stakeholders to date
- Several national transmission planning conferences
- SPP regulators/legislative groups, e.g., FERC technical conferences and staff briefings, PUCT, KETA, OEPTTF, etc.
- Industry forums, e.g., EPRI, OSU Frontiers of Power, NERC Long Term Reliability Assessment Workshop, ERCOT RPG, etc.
- Numerous wind conferences, e.g., UWIG, NWCC, Wind Energy Conference, etc.

Convergences are Exciting

- SPP with support of BOD & RSC are looking at postage stamp rates for economic expansion at 345 kV+ in SPP
- Transmission Ownership / Construction Task Force
- Unprecedented support from states to facilitate renewable energy development and focus on opportunities to improve grid efficiencies and enhanced regional planning, e.g., OEPTTF
- FERC Order 890
- 2008 Eastern Interconnection Wind Integration Study sponsored by DOE with NREL involving SPP, MISO, PJM, TVA and potentially others to identify long range transmission expansion needs to accommodate large wind development and deliveries in the Eastern Interconnection, in addition to the associated impacts on grid operations
Recent EHV Commitments are Remarkable

Westar moving forward on Wichita – Reno Co – Summit 345 kV. KCC approves route in May.

SPP BOD approved waiver for Rose Hill – Sooner 345 kV with subsequent Westar and OG&E commitment to build as directed by SPP. Westar and OG&E held open houses/“town hall” meetings on line beginning in June.

ITC Great Plains letter July 16th to build Spearville – Comanche Co – Wichita 345 and/or 765 kV as directed by SPP. Westar has indicated interest in this project.

KETA announcement July 25th and subsequent ITC Great Plains letter to build Spearville – Knoll – Axtell 345 kV tie to Nebraska. Meeting with parties held September 13th in Omaha, with next meeting set for October 23rd in Lincoln.

Recent EHV Commitments are Remarkable (cont.)

OG&E letter August 10th to build the western half of the X Plan into the Texas Panhandle, at 345 – 765 kV design as directed by SPP

ITC Great Plains letter August 14th to build Comanche – Mooreland – Northwest 345 and/or 765 kV

ITC Panhandle Texas letter August 14th to build Mooreland – Texas Panhandle 345 and/or 765 kV

AEP letter August 22nd indicates interest in building all 500 and 765 kV EHV overlay in SPP subject to socialized cost recovery for facilities
Staff Analysis on Spearville–Comanche Co–Wichita

- Project at 345 or 765 kV design was evaluated for any impact on the 2007 STEP.

- SPP analyses demonstrate:
  1. no displacements/deferrals of projects in STEP and
  2. no adverse reliability impacts.

- Displacement/deferral of western half of X plan would be dependent upon additional transmission expansion into SPS

WWW.SPP.ORG
Staff Analysis on Spearville-Knoll-Axtell

- Project was identified as preferred project in KETA study.
- KETA issues Motion to Proceed on July 25th.
- Project at 345 kV design was evaluated for any impact on the 2007 STEP.
- SPP analyses demonstrate:
  1. no displacements/deferrals of projects in STEP and
  2. no adverse reliability impacts.

MOPC Recommendation

MOPC endorses the addition of the Spearville - Comanche Co - Wichita and Spearville - Knoll - Axtell transmission projects into the STEP as approved technically viable economic upgrades.
Quote from MISO RECB Order
Issued July 23, 2007

“We need a true nationwide transmission version of our interstate highway system; a grid of extra-high voltage backbone transmission lines reaching out to remote resources and overlaying, reinforcing, and tying together the existing grid in each interconnection to an extent never before seen. . . . Indeed I would tend to assume that a large multi-state 500 or 765 kV transmission line would not have much difficulty showing net benefits over a very broad region. . .”

- Suedeen Kelly, FERC Commissioner

Future Opportunities

Several upcoming studies provide excellent opportunities to perform effective inter-regional and interconnection wide planning

- MISO/PJM/SPP/TVA collaborative joint planning initiative to kick off with Nov 1 meeting 10AM with meeting at Pittsburgh airport. Teleconferencing is available. Register at www.spp.org.

- 2008 Eastern Interconnection Wind Integration Study

- 2009 DOE Congestion Study

Demonstration of the value of bulk network transmission will only be limited by the non-existent/ineffective seams agreements and associated fair cost allocation mechanisms
Group Organizational Chart

- **Southwest Power Pool**

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**Corporate Governance Committee**
Chair: Nick Strain
Secretary: Stacy D'Outtrel

**Finance Committee**
Chair: Amy Denton
Secretary: John Gunem

**Human Resources Committee**
Chair: Cheryl Wiser
Secretary: Brenda Johnson

**Strategic Planning Committee**
Chair: Richard Brenner
Secretary: Michael Daniels

**Market and Operations Policy Committee**
Chair: John Gunem
Secretary: Curt Montero

**Regional Board of Directors**
Chair: John Gunem
Secretary: Stacy D’Outtrel

**Homeland Security WC**
Chair: Sec'y

**Reliability WG**
Chair: Sec'y

**Operations WG**
Chair: Sec'y

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**SPP Operations**

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**Executive**

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**SPP Board of Directors**
Chair: John Gunem
Secretary: Stacy D’Outtrel

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**SPP EDP**

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**Planning WG**
Chair: Sec'y

**ITWG**
Chair: Sec'y

**Transmission WG**
Chair: Sec'y

**Transmission Planning WG**
Chair: Sec'y

**Transmission Operation WG**
Chair: Sec'y

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**Contacts**

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**SPP**

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**Southwest Power Pool**

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Jay Caspary
Director, Engineering
501.614.3220
jcaspary@spp.org
Helping our members work together to keep the lights on... today & in the future

SPP STAFF POLICY RECOMMENDATIONS - WAIVER EQUEST

Empire District Electric Company
SUMMARY of WAIVER REQUEST

• Review of EDE Request
  • EDE reservation 1222640 studied by SPP in SPP-2007-AG1-AFS-3 & 4.
  • EDE requesting 100 MW from Cloud County Wind farm.
  • Base plan funding maximum calculated as 10 MW x $180,000/MW = $1,800,000.
  • August 23, 2007 Letter - EDE requests waiver.
  • Submittal to SPP Board of Directors within 120 days per the tariff required not later than Dec 21, 2007. SPP Board of Directors meeting Dec. 11, 2007.

Waiver Request Discussion

• Attachment J Section B.3: The cost of Network Upgrades associated with the new or changed Designated Resource shall be classified as Base Plan Upgrades if the are less than or equal to $180,000/MW times the lesser of: (a) the planned maximum net dependable capacity applicable to the Transmission Customer or (b) the requested capacity (the “Safe Harbor Cost Limit”).
Net Dependable Capacity - Generally

- This net capability is referenced in many NERC documents as net dependable capacity, that is the maximum capacity a unit can sustain over a specified period modified for seasonal limitations and reduced by the capacity required for station service or auxiliaries. The summer net capability of each unit may be used as the winter net capability without further testing, at the option of the member. (See SPP, FERC Electric Tariff, Fifth Revised Volume No. 1, Original Sheet No. 941)

Waiver Request Discussion

SPP Criteria 12.1.5.3 Rating Adjustments
g. The net capability established for wind plants shall be determined on a monthly basis, as follows:
   i) Assemble up to the most recent ten years, with a minimum of the most recent five years, of hourly net power output (MW) data, measured at the system interconnection point. Values may be calculated from wind data, if measured MW values are not yet available. Wind data correlated with a reference tower beyond fifty miles is subject to Generation Working Group approval. For calculated values, at least one year must be based on site specific wind data.
   ii) Select the MW values occurring during the top 10% of load hours for the SPP region for each month (e.g., 72 hours for a typical 30 day month).
   iii) Select the MW value that can be expected from the plant at least 85% of the time.
   iv) A seasonal or annual net capability may be determined by selecting the appropriate monthly MW values corresponding to the host control area’s peak load month of the season of interest.
   v) The net capability calculation shall be updated at least once every three years.
Waiver Request Discussion

- Attachment J Section C.2.ii allows all or part of the excess above the Safe Harbor Cost Limit to be classified as Base Plan Upgrade Cost taking into account the extent to which the commitment to the new or changed DR exceeds a five-year commitment.
  - EDE reservation 1222640 is a 20 year reservation
  - EDE is committing to the Cloud County Wind farm as noted in their letter to SPP dated August 23, 2007.
  - Based on the same calculation used for the OGE and the GSEC waiver and assuming one zone benefiting on this commitment SPP recommends an increase of $16,740

Waiver – Fuel Diversity

- EDE has requested that a waiver be granted in order to foster fuel diversity
- SPP Staff will not recommend changing SPP policy to grant a waiver based on a request to encourage fuel diversity because it would be premature to do so.
  - FERC rejected language in SPP’s Attachment J that would have permitted a waiver in order to foster fuel diversity. SPP must be able to show how parties paying the costs associated with the waiver benefit from increased fuel diversity. Southwest Power Pool, Inc., 112 FERC ¶ 61,319 (2005), P. 19.
  - EPAct 2005 directs states to take up the issue and consider the value of fuel diversity. PURPA Section 111(d) (12) of Section 1251 of EPAct 2005.
  - Most of the states in the SPP region are addressing this issue, but they are not all at the same stage in their investigations.
    1. Missouri, Case No. EO-2006-0494
    2. Kansas, Docket No. 07-GME-578-GIE
    3. Arkansas, Docket No. 06-028-R
    4. Texas, Project No. 33872
  - There is a significant sentiment within the industry that integrated resource planning, including the consideration of fuel diversity, is driven by specific issues within the load serving entity.
SPP Staff Conclusions & Recommendation – EDE Waiver Request

• SPP uses a stakeholder process
• The SPP tariff is clear that Net Dependable Capacity is used for calculating the Safe Harbor Cost Limit for wind resources.
• SPP can not waive the tariff
• SPP Staff will not recommend a change in the waiver policy to encourage fuel diversity.
• Waiver For Commitment in Excess of Five Years - Total Base Plan funding increase $ 16,740.00

John Mills
Manager, Tariff Studies
501-614-3356
jmills@spp.org
October 12, 2007

Mr. John Mills
Manager, Tariff Studies
Southwest Power Pool, Inc.
415 North McKinley Street
#140 Plaza West
Little Rock, Arkansas 72205

Re: Response to SPP October 4, 2007 Request For Information
   Empire Waiver Request For OASIS Reservation #1222640
   Cloud County/Meridian Way Wind Farm Designated Resource

Dear Mr. Mills,

In reference to your correspondence of October 4, 2007 requesting additional information, The Empire District Electric Company (Empire) is providing the following response.

In our August 23, 2007 request (attached), Empire sets forth the SPP Open Access Transmission Tariff (OATT) provisions, justifications, and circumstances that we believe warrant the granting of the requested waiver. Empire believes that the SPP has sufficient authority to grant Empire’s waiver request just as the SPP has done with previous waivers for additional base plan funding.

We want to re-emphasize that Empire’s twenty (20) year commitment to the designated resource, the Cloud County/Meridian Way wind farm, significantly exceeds the five (5) year minimum commitment for base plan funding eligibility and will bring added fuel diversity to Empire and the region.

With respect to SPP’s authority to grant this waiver as requested, Attachment J of the tariff and the related FERC Order are sufficiently clear and give SPP the authority to grant additional base plan funding in whole or in part for network upgrades.

Empire would also like to clarify that our request for waiver is for “up to” an additional $16,200,000 (capped) of base plan funding eligibility, allowing for a total of $18,000,000 ($1,800,000/MW of accredited capacity or $180,000/MW of transmission service requested) for the required transmission system upgrades which would be comparable to any fossil fuel designated resource serving load within the footprint. Based upon the SPP’s August 30, 2007 posting of SPP-2007-AG1-AFS-4, the allocated Engineering and Construction (E&C) costs associated with Empire’s portion of the Meridian Way wind farm are estimated to be approximately $6.3 Million, but could be changed depending upon the customer service requests that are finalized as part of the SPP 2007-AG1 process.
Each of the waiver requests that have been submitted to date, including this waiver, should not be considered as setting any precedent, as each involves unique factors and circumstances that have to be evaluated on a case by case basis.

Policy Discussion

Empire’s waiver has generated much discussion related to SPP’s base plan funding policy for designated resources and modeling procedures, zonal MW-Mile allocation impacts, the 125% capacity reserve margin condition, and the overall impact of the Attachment J provisions for wind as a designated resource. If the RSC and SPP believe a general policy change is appropriate, then it may be fitting to proceed with the granting of our waiver and codify such change within the SPP tariff for similar requests in the future.

Empire encourages the SPP staff, CAWG, RSC, MOPC and Board of Directors to 1) finalize its evaluation and discussion, and grant Empire’s waiver prior to SPP’s deadline (yet to be determined) for confirming the requested transmission service, and 2) pro-actively address policy changes that would be appropriate for future transmission service requests related to wind as designated resources serving load within the SPP region.

Empire had requested that the SPP render its decision on the waiver, with input from the RSC, at its October 30, 2007 Board of Directors meeting – even though the provisions of the SPP tariff allow for up to 120 days (December 23, 2007) for such a decision to be made.

SPP has been delayed in the posting of SPP-2007-AG1-AFS-5 due to the recent events regarding a proposed designated resource in Oklahoma. This event has affected the transmission requests in aggregate study SPP-2006-AG3, and could have an affect on the estimated E&C costs allocated to customers in AG1-AFS-5 and all succeeding service requests. In addition to the event in Oklahoma, there are other key decisions pending regarding another proposed designated resource that impact other SPP members also participating in the SPP-2007-AG1 aggregate study.

These key events are unusual and could be significant that may delay the Aggregate Study results beyond the December 23, 2007 (120 day) waiver decision deadline. Empire could support giving SPP staff, the CAWG, RSC, MOPC, and the SPP Board of Directors additional time beyond December 23, 2007, unless Empire is faced with rendering its decision on whether to commit to transmission service to SPP prior to the Waiver request being finalized. It appears that additional time beyond the 120 day decision period may afford better opportunity for discussions on our Waiver request during the January cycle of meetings, as well as changes in future SPP policy and strategy related to base plan funding for designated resources serving load within the SPP footprint.

We emphasize that our support for an extension is based on our belief that Empire would not be put into a position of having to legally confirm SPP firm transmission service for this designated resource without knowing the outcome of our waiver request - which could substantially affect the applicable base plan funding and direct assignment of transmission upgrade costs identified in SPP-2007-AG1.
The entirety of the facts, justifications, and issues regarding our request has not been set forth in this correspondence, but rather are more fully described in the accompanying letter of August 23, 2007.

We understand the policy issues that our waiver request has raised as well as events that have occurred which are affecting SPP’s transmission service request process. However, we respectfully request that our waiver be decided upon as expeditiously as possible and within a time frame that may exceed the December 23, 2007 deadline, but prior to Empire being faced with its commitment decision on the transmission service requested.

If additional information and/or explanation is needed, please do not hesitate to contact me or Bary Warren.

Again, thank you for your consideration and services.

Respectfully submitted,

Rick McCord
Director, Supply Management
August 23, 2007

Mr. John Mills  
Manager, Tariff Studies  
Southwest Power Pool, Inc.  
415 North McKinley Street  
#140 Plaza West  
Little Rock, Arkansas 72205

Re: Empire Request For Waiver (#2) Per Attachment J of the SPP OATT  
For OASIS Request: #1222640 – Cloud County Wind Farm Designated Resource

Dear John,

Pursuant to Section III C.1 (Waiver Process) of Attachment J of the Southwest Power Pool (SPP) Open Access Transmission Tariff, The Empire District Electric Company (Empire) respectfully requests a waiver for up to an additional $16,200,000 in Base Plan funding related to Engineering and Construction costs of SPP determined direct assignment Network Upgrade facilities associated with Empire’s 100 MW of firm transmission service OASIS request:

#1222640(Cloud County -100 MW): SPP-2007-AG1-AFS-3

The transmission service requested is to deliver power from a designated resource, a 100 MW wind farm nearing construction in the proximity of Concordia, Kansas and within the Balancing Authority area of Mid Kansas Electric Company (subsidiary of Sunflower Electric Power Corporation and formally Aquila-West Plains) associated with the requested 100 MW of network integrated transmission service to Empire.

On June 19, 2007, Empire and Cloud County Wind Farm, LLC, a subsidiary of Horizon Wind Energy, entered into a twenty (20) year power purchase agreement. Empire anticipates that the wind farm will be fully operational in late 2008 or early 2009 and begin receiving energy under the terms of the power purchase agreement at that time.

The current results of SPP-2007-AG1-AFS-3 for Empire’s Cloud County designated resource indicate the following:

i) the estimated Engineering and Construction transmission costs, directly assignable to Empire, are projected to be from $8,000,000 to $80,000,000, depending on who and what facilities remain in the SPP-2007-AG1-AFS process;

ii) additional/undetermined 3rd party (1st tier non-SPP transmission owning members) required upgrades and;

iii) potential for additional SPP re-dispatch service costs required of Empire to begin service as requested.

1 SPP-2007-AG1-AFS-4 is currently being completed and expected to be posted by SPP in late August/early September.
Based on Attachment J, III. B. 3. (a) and (b), Empire’s designated resource would be eligible for only $1,800,000 (10 MW (100 MW x 10% - SPP’s default value for dependable capacity of a wind farm - x $180,000/MW)) of the maximum Safe Harbor Limit amount of $18,000,000.

Empire is requesting a waiver of the application of the “lesser of” provision of the $180,000/MW Safe Harbor Limit in Attachment J, III. B. 3. (a) – the planned maximum net dependable capacity applicable to the Transmission Customer. Empire requests that the Safe Harbor Cost Limit be determined using only Attachment J, III.B.3. (b) – the requested capacity (meaning the transmission reservation capacity amount (100MW)).

Approval to waive the “net dependable capacity provision” would place Empire’s Cloud County designated resource on equal footing with other fossil fuel designated resources and transmission only reliability upgrades in terms of regional funding.

Pursuant to Attachment J III. C. iv. – “If a request for a waiver is received by SPP based on other circumstances, such waiver request shall also be considered…” Empire believes that the Cloud County Wind Farm resource, as a designated resource, should be eligible for the full Safe Harbor Limit of $180,000/MW based on its requested transmission service capacity of 100 MW. It is important to note that SPP models all designated resources - regardless of fuel type (wind, natural gas, hydro, coal, nuclear) - in a similar manner/nameplate - and not solely based on “expected” net dependable capacity.

Empire believes that the SPP footprint includes a prominent wind resource sub-region that could be important to the United States power industry. It is important to proactively encourage the development of these wind resources now. The continued reduction/disadvantage in Base Plan Funding for the use of such intermittent resources will only discourage such development.

Empire has re-evaluated its position on the eligibility requirements for the Safe Harbor Limit and believes that the Base Plan Funding eligibility should apply to any designated resources.

The addition of the 100 MW power purchase agreement with Cloud County Wind Farm, LLC will increase Empire’s wind energy capability from wind farm power purchase agreements from 150 MW to 250 MW, thus generating approximately 15% of our annual energy requirements in the year 2009. This resource, like the Empire energy output purchase from the Elk River Wind Farm, is expected to produce a capacity or utilization factor of approximately 40% on an annualized basis. This annualized capacity or utilization factor exceeds most peaking resources within the SPP region and rivals most intermediate natural gas fired combined cycle resources in expected annual capacity utilization factor. The delivery of energy to load is one of the primary purposes of the transmission system, and therefore designated resources with this level of annual capacity or utilization factor should be an additional consideration for Base Plan Funding eligibility.

Empire continues to support the condition of 125% capacity resource margin for Base Plan Funding; however through the waiver process, consideration of the significant energy contribution of this type of resource should also be taken into account as a viable circumstance for waiver approval. All load serving entities are required to carry a 12% planning capacity margin and Empire has and will continue to meet and exceed that minimum requirement.
Fundamentally, we believe this Waiver raises the issue of **strategy** and **funding**.

- **Strategy** - in terms of the encouragement of the development and use of wind resources as designated resources for existing and prospective SPP members, and

- **Funding** - in terms of the regionalization of a portion of the transmission costs for wind resources in a manner similar to the way SPP funds transmission upgrades required for reliability (no resources involved), and transmission upgrades required for traditional fossil fuel generation resources.

If SPP models and grants transmission service for designated resources in the same manner – regardless of the fuel type - then it seems appropriate for the Safe Harbor Limit to be based on (b) the amount of transmission service requested/granted.

Therefore, The Empire District Electric Company respectfully requests the following:

a) SPP staff distribute the Waiver Request to the MOPC and CAWG as soon as possible;

b) Waiver of Attachment J, III. B.3 (a) and eligibility for the Safe Harbor Limit of up to $18,000,000 (an additional $16,200,000) pursuant to (b) – transmission reservation capacity - based on the following circumstances:

i) the current and future “favorable” circumstances within the SPP region and national outlook for renewable resources,

ii) the fact that wind resources in north central Kansas will bring additional fuel diversity to the SPP region and Empire,  

iii) the cumulative projected Base Plan Funding to Empire for this designated resource (up to $18,000,000) and the most recent Iatan II and Plum Point resources (projected to be approximately $12,000,000) would be $30,000,000 which is less than the $36,000,000 (200 MW x $180,000/MW) eligible funding for just the Iatan II, and Plum Point designated resources alone,  

iv) designated resources are modeled in the same manner by SPP regardless of the fuel source, and

v) the Cloud County Wind Farm is expected to have an annualized capacity utilization factor of approximately 40%, which is greater than and/or comparable to peaking/combined cycle natural gas fired units that are typically eligible for the full Safe Harbor Limit funding amount.

c) This Waiver request be reviewed by the CAWG, MOPC, and RSC and decided upon by the SPP Board of Directors no later than the October 30, 2007 SPP Board of Directors meeting in Tulsa, Oklahoma, and

d) That in the event this Waiver is denied and that similar waivers are approved in the future or tariff modifications/policy changes are made that would have affected this Waiver request, Empire requests that the SPP Board of Directors reconsider Empire’s Waiver request.
Empire appreciates the efforts of SPP staff, the CAWG, RSC, MOPC, and Board of Directors in carefully evaluating and discussing each waiver and the related policies. Empire representatives will be available to discuss this Waiver request at future CAWG, RSC, RTWG, MOPC and BOD meetings.

Thank you in advance for your assistance and timely consideration of this request.

Empire looks forward to SPP staff’s recommendation and the Board of Directors’ decision, and finalization of the service agreements related to this new and important designated resource for the customers of The Empire District Electric Company and the Southwest Power Pool region.

Sincerely,

Rick McCord
Director, Supply Management

cc. Harold Colgin II, Empire Vice President of Energy Supply
    Mike Palmer, Empire Vice President of Commercial Operations
    Bary Warren, Empire Director of Transmission Policy and Compliance
October 18, 2007

Sunflower Electric Power Corporation
Mr. Wayne Penrod
Senior Manager
301 W. 13th
Hays, KS 67601

Dear Mr. Penrod:

It is my duty as Secretary of the Kansas Department of Health and Environment, as authorized by the Kansas air quality act, K.S.A. 65-3001 et seq., to protect the public health and environment from actual, threatened or potential harm from air pollution.

The secretary has broad authority under the act and the regulations adopted thereunder to achieve protection of the health of the people and the environment. The secretary has authority under K.S.A. 65-3008a(b) to affirm, modify or reverse a decision on an air quality permit after the public comment period or public hearing. The secretary also has authority under K.S.A. 65-3012 as interpreted by the Attorney General of the state of Kansas, to take such action as is necessary to protect the health of persons or the environment, notwithstanding a permit applicant's compliance with all other existing provisions of the Kansas air quality act, upon receipt of information that the emission of air pollution presents a substantial endangerment to the health of person or the environment. The endangerment may be a threatened or potential harm as well as an actual harm.

The Supreme Court of the United States found in Massachusetts v. E.P.A., 127 S.Ct. 1438 (April 2, 2007) that carbon dioxide, a greenhouse gas, meets the broad definition of air pollutant under the Clean Air Act. The Kansas air quality act similarly has a broad definition of what constitutes air pollution. The Court also recognized the significant existing national and international information available on the deleterious impact of greenhouse gases on the environment in which we live.

I have given due consideration to the scientific and technical information related to carbon dioxide including but not limited to many oral and written comments submitted in the public hearing and comment period. The information provides support for the position that emission of air pollution from the proposed coal fired plant, specifically
carbon dioxide emissions, presents a substantial endangerment to the health of persons or to the environment.

Based on this information, the permit is denied. Pursuant to K.S.A. 65-3008b(c), the permit applicant has the right to appeal this decision within fifteen (15) days and request an administrative hearing under the Kansas administrative procedures act set forth at K.S.A. 77-501 et seq.

Sincerely,

Roderick L. Bremby
Secretary