Regional Allocation Review Task Force Report

January 2012

SPP Southwest Power Pool

Regional Allocation Review Task Force Report

Executive Summary

This Report contains the recommendations of the Regional Allocation Review Task Force (RARTF) as to how Southwest Power Pool (SPP) should review the Highway/Byway transmission cost allocation methodology per Attachment J, Section III.D of SPP's Open Access Transmission Tariff (OATT). The RARTF recommends that this review be called the "Regional Cost Allocation Review".

The RARTF makes a number of recommendations as to how SPP should conduct the Regional Cost Allocation Review. This includes a recommendation of applying ten principles, used by the RARTF, as a guide to conducting the review. These principles include: simplicity; acknowledgment of the "roughly commensurate" legal standard; equity over time; the use of the best quantifiable information available; consistency; transparency; stakeholder input; the use of real dollars values; and the inclusion in the review of Board approved transmission plans with more weight being given to nearer term projects. Applying these principles the RARTF recommends that:

- The review contains two evaluations; (1) as required by SPP's OATT, the evaluation of the benefits and costs of all SPP Board approved transmission projects for which a Notification to Construct (NTC) has been issued since June 2010 and (2) the evaluation of the benefits and costs of all SPP Board approved transmission projects for which a NTC has been issued since June 2010 plus Board approved transmission projects that have received an Authorization to Plan (ATP) with in-service dates of ten years or less. The RARTF recommends a 0.75 weighting for ATP projects due to the less certain nature of these projects as well as their costs and benefits.

- The review be integrated with the 10 Year ITP Plan schedule and be undertaken after its completion.

- The review use the aggregate value of dollars for all projects studied under the SPP Highway/Byway cost allocation methodology in dollars current to the year the review is conducted.

- To remain consistent with SPP's OATT, the review use a 40-year horizon to evaluate all transmission projects in the review.

- The information used in the review be the most up to date and that all assumptions be vetted through SPP's stakeholder process.

- Through the work of the Economic Studies Working Group (ESWG) certain benefits be measured in the review. These benefits include: adjusted production costs; positive impact on capacity required for losses; improvements in reliability; remedy benefits in future reviews; reduction of emission rates and values; reduced operating reserves benefits; improvements to import/export limits; and public policy benefits.

Additionally, the Report contains a recommendation regarding the establishment of a Benefit to Cost (B/C) threshold. The recommended B/C threshold would be the basis for SPP staff and stakeholders to evaluate remedies for any zone falling below the threshold. Specifically, the Report recommends:

- That a threshold be set at a B/C ratio of 0.8. With this benchmark, if the review shows that any zones fall below this threshold; SPP Staff will study and report on potential remedies for these zones.

- A list of recommended mitigation remedies for SPP staff to study and report for any zone below the 0.8 threshold. The recommended list of remedies in preferential order includes, but is not limited to: (1) acceleration of planned upgrades; (2) issuance of new upgrades; (3) applying highway funding to one or more byway projects; (4) applying highway funding to one or more seams projects; (5) zonal transfers (similar to balanced portfolio transfers) to offset costs or a lack of benefits to a zone; (6) exemptions for cost associated with the next set of projects; and (7) changes to cost allocation percentage.

Finally, the Report contains a recommended timeline and action plan with four additional recommendations for implementation of the Regional Cost Allocation Review process.

Regional Allocation Review Task Force: Recommendations

In approving the Highway/Byway cost allocation methodology for the Southwest Power Pool, Inc. (SPP) Regional Transmission Organization (RTO), the Federal Energy Regulatory Commission (FERC) also approved a requirement that SPP conduct a review of the "reasonableness of the regional allocation methodology and factors (X% and Y%) and the zonal allocation methodology at least once every three years."[1] This review is required to "determine the cost allocation impacts of the Base Plan Upgrades with Notifications to Construct (NTC) issued after June 19, 2010 to each pricing Zone within the SPP Region."[2] Thus, the purpose of this analysis is to measure the "cost allocation impacts" of SPP's Highway/Byway methodology by zones. The review is hereinafter referred to as the "Regional Cost Allocation Review."

SPP's Open Access Transmission Tariff (Tariff or OATT) specifically requires that "the Markets and Operations Policy Committee (MOPC) and Regional State Committee (RSC) will define the analytical methods to be used" in conducting the Regional Cost Allocation Review.[3] As a result, the Regional Allocation Review Task Force (RARTF) was created as part of the SPP stakeholder process to develop the "analytical methods" used for the review.

The RARTF membership is composed of three representatives from the RSC, three SPP Members, and one member from the independent SPP Board of Directors. The RSC President Jeff Davis and MOPC Chairman Bill Dowling jointly selected the members of the RARTF. The members of the RARTF are:

RARTF Members	
Chairman Michael Siedschlag	Nebraska Public Review Board
Vice-Chairman Richard Ross	American Electric Power
Commissioner Thomas Wright	Kansas Corporation Commission
Commissioner Olan Reeves	Arkansas Public Service Commission
Bary Warren	Empire District Electric
Philip Crissup	Oklahoma Gas & Electric
Harry Skilton	SPP Board of Director

Pursuant to the mandate in the RARTF Charter, the RARTF prepared this White Paper which includes its recommendation as to how to define the "analytical methods" to be used in the Regional Cost Allocation Review.

SECTION 1: OVERVIEW

1.1 Overview of SPP Tariff Requirements

Attachment J, Section III.D to the SPP OATT establishes a four-step process for the Regional Cost Allocation Review. These steps are:

[1] Attachment J, Section III.D.1 of SPP's OATT.
[2] Attachment J, Section III.D.2 of SPP's OATT.
[3] Attachment J, Section III.D.4(i) of SPP's OATT.

Step 1: One year prior to each three-year planning cycle (starting in 2013) the MOPC and RSC will define the analytical methods to be used to report under this Section III.D and suggest adjustments to the RSC and Board of Directors on any imbalanced zonal cost allocation in the SPP footprint.[4]

Step 2: For each review conducted in accordance with Section III.D.1, the Transmission Provider shall determine the cost allocation impacts of the Base Plan Upgrades with NTC issued after June 19, 2010 to each pricing Zone within the SPP Region. The Transmission Provider in collaboration with the RSC shall determine the cost allocation impacts utilizing the analysis specified in Section III.8.e of Attachment O and the results produced by the analytical methods defined pursuant to Section III.D.4(i) of this Attachment J.[5]

Step 3: The Transmission Provider shall review the results of the cost allocation analysis with SPP's Regional Tariff Working Group (RTWG), MOPC, and the RSC. The Transmission Provider shall publish the results of the cost allocation impact analysis and any corresponding presentations on the SPP website.[6]

Step 4: The Transmission Provider shall request the RSC provide its recommendations, if any, to adjust or change the costs allocated under this Attachment J if the results of the analysis show an imbalanced cost allocation in one or more Zones.[7]

1.2 Overview of RARTF Charter

In addition to the requirements contained in the SPP's OATT, the RARTF's Charter contains additional work and deliverables for the RARTF. Specifically, the Charter states:

> The RARTF will make final recommendations to the MOPC and the RSC regarding the analytical methods to be used to review the reasonableness of the regional allocation methodology for the approval of both the MOPC and RSC. In addition to developing the analytical methods to be used in the analysis, the RARTF will provide SPP Staff guidance as to the Task Force's expectation for the threshold for an unreasonable impact or cumulative inequity. The RARTF shall prepare and issue the report by December 20, 2011.

Additionally, the Charter contains a list of key deliverables for the RARTF which states:

> The RARTF scope of work and key deliverables include the following:

[4] *Id.*
[5] Attachment J, Section III.D.2 of SPP's OATT.
[6] Attachment J, Section III.D.3 of SPP's OATT.
[7] Attachment J, Section III.D.4 of SPP's OATT.

1. Development of and recommendation for a methodology to be used to determine the current and cumulative long-term equity/inequity of the currently effective cost allocation for transmission construction/upgrade projects on each SPP Pricing Zone and/or Balancing Authority.

2. Develop a recommendation regarding a threshold for determining an unreasonable impact or cumulative inequity on an SPP Pricing Zone or Balancing Authority.

3. Develop a list of possible solutions for SPP staff to study for any unreasonable impacts or cumulative inequities on an SPP Pricing Zone or Balancing Authority.

4. Final report containing such recommendations to be prepared and issued by December 20, 2011.

1.3 Overview of Legal Standards

Pursuant to the RARTF Charter, the RARTF has been tasked to "[d]evelop a recommendation regarding a threshold for determining an unreasonable impact or cumulative inequity on an SPP Pricing Zone or Balancing Authority." In researching and discussing how to establish a threshold, SPP staff and the RARTF reviewed and considered the legal significance and relevance of the 7th Circuit decision in the *Illinois Commerce Commission (ICC) v. FERC*.[8]

In this review, the RARTF found that the term "roughly commensurate" was used for the first time by the 7th Circuit in the *ICC v. FERC* case. Other than the *ICC* case, the term "roughly commensurate" has never been used in an appellate case reviewing a FERC order, nor has FERC ever used the term prior to the *ICC* remand. Since the *ICC* opinion was issued, FERC cited the 7th Circuit's roughly commensurate standard in approving SPP's Highway/Byway cost allocation methodology,[9] Midwest Independent Transmission System Operator's (MISO) multi-value project ("MVP"), and California Independent Transmission System Operator's convergence bidding proposal, although none of these orders elaborates on the exact meaning of "roughly commensurate." Additionally, FERC, subsequent to the establishment of the RARTF, used the term in Order No. 1000,[10] as well as FERC's Orders on Rehearing for SPP's Highway/Byway cost allocation methodology[11] and on MISO's MVP cost allocation methodology. Specifically, as quoted by FERC in its October 20, 2011 Order on Rehearing in, the 7th Circuit stated that the

[8] 576 F.3d 470 (7th Cir. 2009).
[9] *Southwest Power Pool, Inc*., 137 FERC ¶ 61,075 (2011).
[10] *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, 136 FERC ¶ 61,051 (2011).
[11] *Southwest Power Pool, Inc*., 137 FERC ¶ 61,075 (2011).

legal standard is that "an articulable and plausible reason to believe that the benefits are at least roughly commensurate with those utilities."[12]

The RARTF notes a couple of important aspects of the orders from the 7th Circuit and FERC dealing with the "roughly commensurate" standard. First, it appears that "roughly commensurate" is not "cost-beneficial" so that something less than a 1.0 Benefit/Cost (B/C) ratio may comply with the standard and that FERC has said that "the question becomes not whether the Highway/Byway methodology matches cost to the benefits on a utility-by-utility or zone-by-zone basis, but whether it will provide sufficient benefits to the entire SPP region to justify a regional allocation of costs."[13]

Additionally, the RARTF notes that the *ICC* case and the precedent on which the 7th Circuit relied in its decision did articulate certain principles that a cost allocation method must satisfy. These include:

- A cost allocation mechanism may tracks costs less than perfectly.
- A cost allocation mechanism need not calculate benefits to the last penny or, for that matter, to the last million or ten million or perhaps hundred million dollars.
- A pricing scheme may not require payments from those that derive no benefits or benefits that are trivial in relation to the costs.
- Rates must reflect, to some degree, the costs actually caused by the customer who must pay them.
- Benefits do not necessarily need to be quantified, but there must be an articulable and plausible reason to believe that benefits received by customers are at least roughly commensurate with the costs allocated to customers.
- FERC must compare the costs assessed against a party to the burdens imposed or benefits drawn by that party.

The RARTF considered the research of the *ICC v. FERC* and related cases, as well as subsequent FERC orders citing the 7th Circuit's "roughly commensurate" standard, in the task force's deliberation and conclusions found in Section 4 below.

1.4 Cost Allocation Challenges for Transmission Upgrades

The allocation of costs for public projects with significant and widespread public benefits is very challenging and difficult. This is particularly true for electric transmission projects, as has been stated by the FERC:

> Determining the costs and benefits of adding transmission infrastructure to the grid is a complex process, particularly for projects that affect multiple systems and therefore may have multiple beneficiaries. At the same time, the expansion of regional

[12] *Southwest Power Pool, Inc*., 137 FERC ¶ 61,075 at P 22 (2011).
[13] *Southwest Power Pool, Inc*., 137 FERC ¶ 61,075 at P 22 (2011).

> power markets and the increasing adoption of renewable energy requirements have led to a growing need for transmission projects that cross multiple utility and RTO systems. There are few rate structures in place today that provide the allocation and recovery of costs for these intersystem projects, creating significant risk for developers that they will have no identified group of customers from which to recover the cost of their investment.[14]

The difficulties of implementing cost allocation methods for transmission projects are evident. Because of the many challenges associated with regional transmission cost allocation and its accompanying critics, it is critical that SPP's Regional Cost Allocation Review be based upon reasonable, sound, and defensible methods.

SECTION 2: SPP STAFF RESEARCH

2.1 SPP Staff Research

In preparing for the work of the RARTF, SPP staff gathered information that would be helpful to SPP stakeholders in developing analytical methods to review both the cost and the benefits of SPP transmission projects. SPP staff researched how transmission costs are allocated in different regions of the United States and the various ways that benefits are calculated for transmission projects. A summary of SPP staff's research is provided below. The research helps to illustrate the difficulty of allocating cost of transmission projects and the number of methods available for use in measuring the benefits of transmission projects. The RARTF believes that this information can help SPP stakeholders to develop sound analytical methods to determine the impacts of SPP's Highway/Byway cost allocation methodology that are reasonable, sound, and defensible.

2.2 Transmission Cost Allocation Methods in the United States and SPP

The difficulties of transmission cost allocation are demonstrated by the wide variety of methods used in the various regions of the United States. This difficulty is further demonstrated by the inability of most regions to adopt transmission cost allocation methodologies for regional overlay projects. This is effectively illustrated in Figure 1, below, which presents a summary of the various transmission cost allocation methods in the United States, as prepared by the Brattle Group.

[14] *Transmission Planning Processes Under Order No.* 890, Notice of Request for Comments at 5, Docket No. AD09-8-000 (Oct. 8, 2009).

Summary of Current Cost Allocation Methodologies

LP = License Plate Tariffs; PS = Postage Stamp Tariffs or Postage Stamp Allocation; M = Merchant Lines; GI = Generation Interconnection Tariffs;
✓ = workable approach; n/a = workable approach not yet available

RTO/ Region	General Tariff Methodology	Reliability	"Economic" Projects	Renewables	Regional/Overlay Projects
CAISO	PS 100% ≥200kV; otherwise LP or M	✓	✓	✓ GI and location-constrained resource tariff (Tehachapi)	✓ Not specifically discussed, but 100% PS of all network facilities
ERCOT	PS or M	✓	✓	✓ CREZ (100% PS)	✓ Not specifically discussed, but 100% PS of all network facilities
SPP	Before 6/19/10: 33% PS+67% LP w/ Beneficiary Analysis After 6/19/10: 100% PS ≥300kV; 33% PS+67% LP >100kV to <300kV; 100% LP ≤100kV	✓	✓	✓ GI; Highway/Byway PS treatment	✓ Highway/Byway PS treatment
Southeast	LP (utility specific tariffs)	✓	n/a	n/a (GI only)	n/a
ISO-NE	PS 100% ≥115kV; otherwise LP or M	✓	too narrowly defined	n/a (GI only)	n/a
PJM	PS sharing 100% ≥500kV; otherwise LP allocation (beneficiary pays) or M	✓	too narrowly defined	n/a (GI only)	n/a
MISO	PS sharing 20% ≥345kV; rest LP allocation (beneficiary pays) or M; MVP approach	✓	too narrowly defined	Multi Value Project ("MVP") PS treatment	MVP PS treatment
PJM-MISO	Sharing of reliability project based on net flows/beneficiaries	✓	too narrowly defined	n/a	n/a
NYISO	LP allocation (based on beneficiary pays) or M	✓	too narrowly defined	n/a (GI only)	n/a
WECC (non-CA)	LP; often with cost allocation based on co-ownership	✓	✓ (differs across WECC subregions)	✓ GI (*e.g.*, BPA open season); under discussion in WREZ	n/a – under discussion in WREZ

Figure 1. Cost Allocation Methodologies of Regions of the United States[15]

As has been done in the various regions of the United States, SPP has developed a variety of cost allocation methodologies. Since SPP's recognition as an RTO and the establishment of the RSC,[16] the SPP Region has developed and implemented differing transmission cost allocations in an evolutionary manner through the RSC. These methods are summarized below in Figure 2.

[15] Reprinted with permission by The Brattle Group, Inc.: Delphine Hou and Johannes P. Pfeifenberger, "Financing Transmission Expansion: The Impact of Cost Allocation," presented to EUCI, March 8-9, 2011. (Slide 9 updated July 2011).

[16] Through SPP's governance structure, the SPP RSC has been delegated authority to establish cost allocations that the SPP Board of Directors must file at FERC as a Section 205 filing of under the Federal Power Act.

Summary of Southwest Power Pool's Cost Allocation Methods						
Date Range	**Upgrade Type**	**Zonal**	**Regional**	**Customer**	**Sponsor**	**Comments**
Pre-2005	**Pre-BPF Needs**	**100%**				**Before regional cost sharing**
	Other	**100%**				
Original Base Plan Funding 2005 - NTC Issue Date of June 19, 2010	**Sponsored**				**100%**	
	Reliability	**67%**	**33%**			**Based on Need-By Date - Zonal on MW-MI beneficiary %**
	Generation Interconnection			**100%**		
	NITS Service Upgrade costs covered by Safe Harbor limit	**67%**	**33%**			**Zonal on MW-MI**
	NITS Service Upgrade costs *NOT* covered by Safe Harbor limit or did not qualify for Base Plan Funding			**100%**		**Safe Harbor Limit: E&C Cost <=$180,000/MW Requested**
	PtP Service Upgrade costs that do not qualify for Base Plan Funding			**100%**		**Costs in excess of PtP Rate**
	Balanced Portfolio		**100%**			
	Sponsored				**100%**	
NTC Issue Date of June 19, 2010 through the Present	**Reliability/Economic Upgrade Voltage**	**0%**	**100%**			
	Reliability/Economic Upgrade Voltage over 100 kV and under 300 kV	**67%**	**33%**			
	Reliability/Economic Upgrade Voltage under 100 kV	**100%**	**0%**			
	Upgrades related to delivery of power from a Wind Projects Outside TSR Customer's load Zone and less than 300 kV		**67%**	**33%**		
	Upgrades related to delivery of power from a Wind Projects greater than than 300 kV		**100%**			
	NITS Service Upgrade costs covered by Safe Harbor limit	***Voltage Dependent:* >300kV=100% Regional, 100kV-299KV=33%**				**"Highway/Byway" method, upgrade >300kV 100% Regional in all cases**
	NITS Service Upgrade costs *NOT* covered by Safe Harbor limit or did not qualify for Base Plan Funding			**100%**		
	PtP Service Upgrade costs that do not qualify for Base Plan Funding			**100%**		**Costs in excess of PtP Rate**
	Generation Interconnection			**100%**		

Figure 2. SPP Cost Allocation Methods

The most recent method established by the RSC and approved by FERC is the Highway/Byway cost allocation methodology. The Highway/Byway method assigns 100% of all 300 plus kV transmission upgrades' Annual Transmission Revenue Requirement (ATRR) to the SPP zones on a regional basis using the Load Ratio Share (LRS), as a percentage of the whole of regional loads, of each zone multiplied by the total ATRR of the new upgrade. New upgrades with a voltage rating between 100 kV and 300 kV are allocated 33% to all zones in the region on a LRS

basis and 67% to the host zone's Transmission Customers (TCs). New upgrades under 100 kV are allocated 100% to the TCs of the host zone.

Highway Byway Cost Allocation Overview		
Upgrade Voltage	**Region Pays**	**Local Zone Pays**
300 kV and above	**100%**	**0%**
above 100 kV and below 300 kV	**33%**	**67%**
100 kV and below	**0%**	**100%**

Figure 3. Highway/Byway Cost Allocation Overview

The ATRRs assigned to the zones are collected from their respective TCs using the previous year's 12 month Coincident Peak LRS.

Cost allocation of new construction is the focus of Attachment J to the SPP OATT. The recovery of the ATRR is through Schedule 11 of the OATT and booked by each zone in Attachment H of the OATT.

2.3 Methods of Measuring Transmission Upgrade Benefits

Just as SPP staff's research found that many different transmission cost allocation methods are used in the United States, staff's research has found that a number of methods can be used to determine the amount of benefits transmission projects provide to society.

Based upon this research, the RARTF recommends that the benefits to be assessed for the Regional Cost Allocation Review should not be limited to a single methodology. Instead, the RARTF recommends that in order to study a broader scope of benefits in the region, multiple methodologies should be used. Staff believes that a very narrow focus on only one benefit type over a very narrow timeframe does not provide a large enough sample size to reasonably determine the impact of SPP's Highway/Byway cost allocation methodology. Additionally, because different benefits are valued differently by various people and segments of society, the RARTF believes that in order to provide for a reasonable, fair, and acceptable review of the Highway/Byway, numerous methods should be used in this review as opposed to a single narrowly- focused method. The RARTF's recommendations are outlined in this Report.

As illustrated below in Figure 4, a number of benefits can be gained from transmission projects.

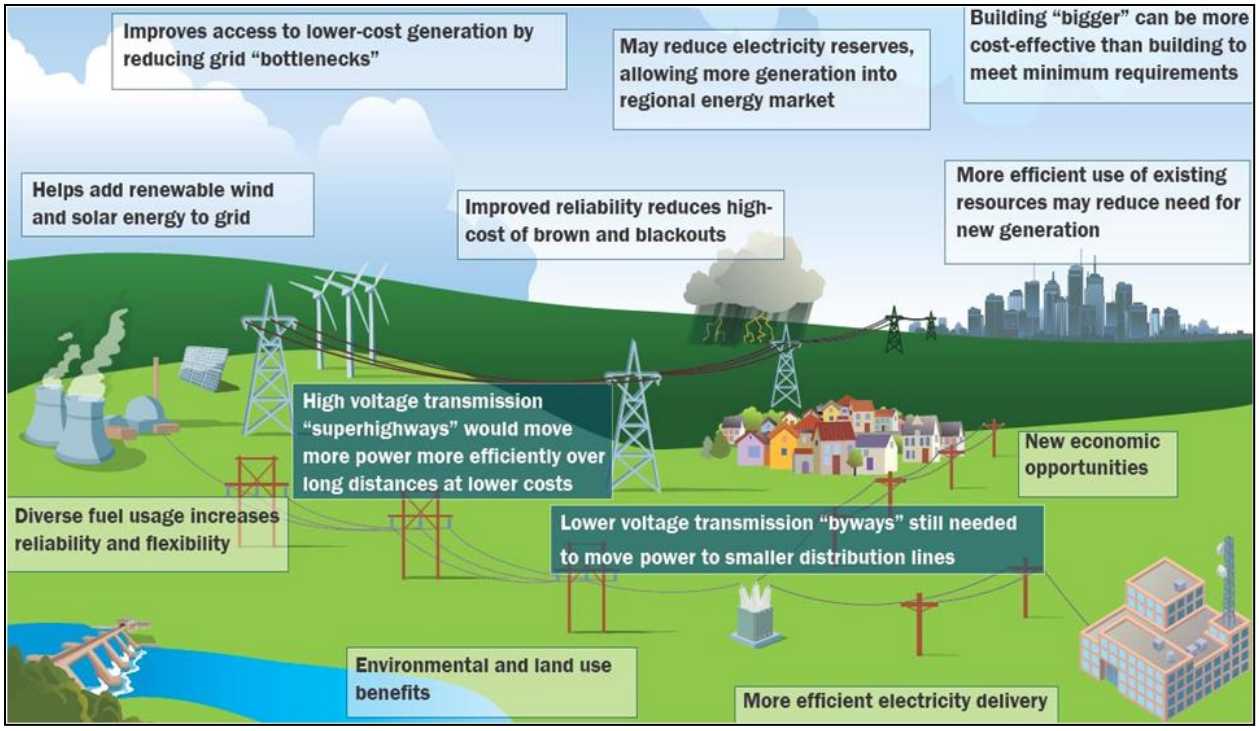

Figure 4. Benefits of a Robust Transmission System

SPP staff's research has found that a number of benefits exist that can be measured under a benefit to cost analysis. Although the RARTF does not recommend using all of these benefits for the Regional Cost Allocation Review, they are included below for educational purposes.

Adjusted Production Cost

Adjusted Production Cost (APC) has quickly become the "standard" that utilities are employing to measure the benefit of transmission expansion. APC is a measure of the impact on production cost savings by Locational Marginal Price (LMP), taking into account purchases and sales of energy between areas of the transmission grid. APC is determined using a production cost modeling tool that accounts for 8,760 hourly commitment and dispatch profiles for one simulation year. Nodal analysis from the production cost model is aggregated on a zonal basis.

APC captures the monetary cost associated with fuel prices, run times, grid congestion, ramp rates, energy purchases, energy sales, and other factors that are directly related to energy production by generating resources in the SPP footprint.

References to an APC-based B/C (Adjusted Production Cost-based Benefit-to-Cost ratio) refer to the reduction in APC due to a project divided by the cost of that project.

Meeting State and Utility Goals and Standards

This metric links a transmission project to meeting the goals and standards set forth by the utilities and states that are in a study analysis. Simply put – does a transmission project or

portfolio positively contribute to the success of an entity in meeting its stated goals or standards. Traditionally, utilities have looked at standards or goals for renewable energy, but this metric could be extended to plans such as Demand Side Management, Energy Efficiency and SMART grid initiatives.

Improvements in Reliability (value of improving the ability to keep the lights on)

This metric has three distinct components:

- *Value of delaying or eliminating the need for previously approved reliability projects*: This component monetizes (quantifies) the reliability benefit as the avoided cost (or additional cost) in dollars of delaying, canceling, or accelerating previously approved reliability projects.
- *Value of improved Available Transfer Capabilities (ATCs) of the SPP grid*: This component provides a non-monetized (qualitative) assessment of the added flexibility for the potential redirection of power flows within SPP made possible by ATC increases. The challenge in defining this metric is the development of a meaningful weighting structure of ATC defined for multiple combinations of points of receipt and points of delivery.
- *Value of providing a backstop to a catastrophic event*: This component provides a qualitative assessment of improved grid reliability and its ability to withstand the impact of catastrophic events. This component requires the assessment of catastrophic events and the determination of their probability.

Enable Efficient Location of New Generation Capacity

This metric is a quantitative measure of the ability of a transmission project or portfolio to provide for efficient location of new generation capacity. For wind resources, SPP measured distance from the transmission hubs to high wind resource zones. SPP has not yet determined a methodology to use for conventional generation.

Reduced Losses

Transmission expansion has an impact on total system losses. This metric serves as a first step in calculating Positive Impact on Capacity required for losses, described below, and gives a quantitative measure for evaluating the relationship between a reduction in losses and the monetary and physical savings from reduced capacity and capital costs.

Increased Effective Capacity Factor

This metric is a measure of the value of adding transmission to reduce congestion on curtailed resources. The capacity factor may change due to a reduction in congestion.

Ability to Reduce Cost of Capacity

This metric captures the value from reducing the cost of capacity. This metric is an opportunity to capture value which is not currently being captured. SPP does not currently utilize this metric, and it will require additional tools to calculate which are not currently being used by SPP.

Positive Impact on Capacity Required for Losses

This metric captures a value for the generation capacity that may no longer be required due to a reduction in losses. Due to a lower amount of losses on the system, there is a lower need for generation capacity to support system loses, improving capacity margins.

Levelization of Locational Marginal Price (LMP)

This metric provides a qualitative indicator of the impact an alternate transmission topology could make on regional generation owners' ability to compete on equal grounds. In the absence of congestion and losses on the system, any generator has the potential to serve any load, and there will be a single system price in each hour. A transmission system with no constraints and low losses makes the electricity market more competitive, as it provides an equal opportunity to all generators with similar costs to compete for loads.

In such transmission systems, the market for new entry will also be more competitive. An increase in congestion and losses places generators at certain locations at a disadvantage relative to other similar-cost generators, making the market less competitive. This metric measures the levelization of LMPs for each transmission topology using the standard deviation of LMPs across locations for the SPP footprint. All else being equal, a decrease in the value of this metric indicates an improvement in the competitiveness of the SPP market.

Improved Access to Economical Resources Participating in SPP Markets

This metric provides a qualitative measure of competitiveness across the SPP footprint. It analyzes a generating unit's ability to compete within its own technology type. Capacity-weighted LMPs are calculated for generating plants of different technology types on an hourly basis, and then averaged across 25% of the largest hourly standard deviations.

Change in Operating Reserves

This metric provides a measure for the impact on operating reserves due to transmission expansion. Calculation of this metric requires a capacity expansion model which SPP does not currently license. This metric could provide an opportunity to capture value from reducing operating reserves.

Transmission Loading Relief (TLR) Reduction - Enabling Market Solutions

This metric has been utilized in the past to determine the impact on TLR Reduction for transmission expansion plans; however, with the implementation of the Integrated Marketplace

(SPP's Day Ahead market) in SPP, the need for TLR calls between SPP Balancing Authorities will be eliminated. Congestion will be managed by economic security constrained unit commitment and dispatch.

Improvements to Import/Export Limits

This metric quantifies the change in ATC that corresponds to an alternative topology in the Cost-Effective Plan. Three categories of ATC changes are of interest and addressed by this metric:

- *From major generation centers within SPP to key delivery points on the boundary of SPP*. This category relates to export capability improvements.
- *From key external receipt points at the boundary of SPP to load centers within SPP*. This category relates to import capability improvements.
- *From key external receipt points at the boundary of SPP to key delivery points on the boundary of SPP*. This category relates to improvements in the ability of SPP to accommodate wheel-through transactions.

Improved Economic Market Dynamics Not Measured in the Security Constrained Economic Dispatch Model

This metric quantifies the impacts on market dynamics that are not captured in a traditional production cost tool. This metric has not been calculated by SPP; however, it should be evaluated for use in future assessments as there is the potential to calculate value not currently being captured by other metrics.

Improved Economic Market Dynamics Measured in the Nodal Security Constrained Economic Dispatch Model

This metric measures the impacts on market dynamics as seen in production cost analysis. However, because this metric requires calculating the generation loading distribution factor for every hour, SPP has not yet been able to calculate this metric. Future assessments should evaluate this metric to capture additional value.

Reduction in Market Price Volatility

This metric measures the reduction of market price volatility for transmission expansion projects. This metric requires using a stochastic model which SPP does not currently have the ability to process. Future assessments should reevaluate this metric to determine a calculation method which could be used to capture reductions in market price volatility.

Reduction of Emission Rates and Values

If an alternative topology results in a lower fossil fuel burn (or less coal-intensive generation), then SO_2, NO_X, CO_2, and Hg emissions would be lower with the alternative topology in place. APC captured the cost savings associated with reduced SO_2, NO_X, and CO_2 emissions because the allowance prices for these pollutants were inputs to the production cost model simulations.

However, since mercury is not a pollutant subject to an allowance price, changes in coal generation and the corresponding changes in mercury emissions are not currently captured.

This metric addresses that analytical deficiency and quantifies the changes in mercury emissions. This metric also quantifies the changes in SO2, NOX, and CO2 emissions so that they may be represented as stand-alone values, separate from APC.

Transmission Corridor Utilization

Transmission expansion plans that effectively utilize existing right-of-way (ROW) and have topology that largely avoids environmentally sensitive areas are preferable to those that do not, all else being equal.

The metric is comprised of two sub-metrics. The first sub-metric measures the proportion of transmission expansion plan costs that do not effectively utilize existing ROW. The second sub-metric measures the proportion of transmission expansion plan costs that traverse environmentally sensitive areas.

Ability to Reduce Cycling of Base Load Units

This metric evaluates the benefit derived from reducing cycling of large base load generating plants. For purposes of this metric, a cycle occurs each time a unit's output crosses or reaches the average output, then recedes below this average minus a tolerance during any start-up to shut-down period. A transmission project that reduces the total number of cycles for a base load unit would reduce maintenance costs and prolong the unit's life span.

If SPP had data on the relationship between the number of cycles and operations and maintenance cost, or had a dollar value associated with excessive versus normal or ideal cycling, this metric could be monetized to determine a value to generators from reduced cycling.

Generation Resource Diversity

Transmission topology that results in a more diverse generation capacity expansion plan would add benefit because the power system could respond more flexibly to relative fuel price changes.

This is a semi-quantitative metric based on generation mix (energy basis) from the production cost model simulation. For a given future, this metric is a comparison of the generation mixes (energy basis) from the cost-effective topology and an alternative topology. Both the annual generation mix and the fuel-on-the-margin mix are considered. Of particular interest is whether gas-fired generation approaches or exceeds a specific percentage of the generation mix, because the level and volatility of gas prices is typically relatively high compared to the level and volatility of coal and nuclear fuel prices. Excessive dependence on gas-fired generation, to the detriment of a more balanced dispatch of gas, oil, coal, and nuclear energy, exposes ratepayers to greater fuel price risk.

Ability to Serve Unexpected New Load

This metric measures the ability of an alternative transmission topology to serve new load at levels that are different from those considered in APC. The metric tests two types of load changes: an overall incremental load in proportion to load forecast used in the development of each future and load shifts between major load centers.

Part of overall EHV Overlay Plan

This metric serves as an indicator to determine how a project fits in with the overall EHV Overlay Plan. If a project keeps appearing across multiple studies, it is a strong candidate for future development. This metric applies value for projects that fit in well with the overall goals of EHV expansion for a region.

SECTION 3: RECOMMENDED REVIEW METHODOLOGY

3.1 RARTF Recommended Principles for the Regional Cost Allocation Review

Based upon research, stakeholder input and extensive discussion, the RARTF recommends that the Regional Cost Allocation Review be conducted utilizing the following principles:

(1) Simplicity – The Regional Cost Allocation Review should be as simple as possible so that the report has a distinct understandability.

(2) Roughly Commensurate – The Regional Cost Allocation Review should use the principle of "roughly commensurate" as the legal framework and a guidepost when evaluating the reasonable and long-term equity of SPP regional transmission upgrades under the Highway/Byway cost allocation methodology.

(3) Use Best Information Available – The Regional Cost Allocation Review should use the most up to date and best available information for the review.

(4) Consistency – The Regional Cost Allocation Review should be consistent.

(5) Transparency – The assumptions, inputs, and data used in the Regional Cost Allocation Review should be transparent to SPP stakeholders.

(6) Stakeholder Input - The assumptions, inputs, and data used in the Regional Cost Allocation Review should be vetted through SPP's open and transparent stakeholder process.

(7) Real Dollars – The Regional Cost Allocation Review Analysis and Report should use dollar values of the year in which the report will be issued.

(8) Consideration Given to Certain Plans – The Regional Allocation Cost Review should give considerations to certain plans that have been approved by the SPP Board of Directors. This includes projects that have been issued an NTC since June 2010 and all projects that have

received an Authorization to Plan (ATP) that have an in-service date of ten years or less from the year of the report.

(9) More Weight Should be Given to Nearer Term Projects than Future Projects – Although the Regional Cost Allocation Review should give consideration to certain plans approved by the SPP Board of Directors, less weight should be given to plans which have been given an ATP as opposed to a NTC.

(10) Equity Over Time – The Regional Cost Allocation Review should adhere to the long term view of the Highway/Byway cost allocation methodology to strive toward regional cost allocation equity over time.

3.2 Regional Cost Allocation Review Methodologies

Because the Regional Cost Allocation Review is for projects that will be built under SPP's Highway/Byway cost allocation methodology, the RARTF recommends that certain projects and plans which are approved by the Board of Directors be evaluated. However, due to the less certain nature of the some projects, the RARTF recommends that emphasis of the review be placed on Board of Director approved plans that have in-service dates of ten years or less .

Since both a too conservative approach and a too broad approach to analyzing benefits of transmission projects can be problematic, the RARTF proposes using a single methodology for assessing the benefits and costs of under SPP transmission projects under the Highway/Byway cost allocation methodology. With this methodology, SPP staff would issue two evaluation reports to assess the impacts of the Highway/Byway cost allocation methodology. The two evaluations would include an assessment of:

(1) NTCs: All SPP projects that have been issued an NTC since June 2010;[17] and

(2) NTCs and Projects within 10 years: All SPP projects that have been issued an NTC[18] since June 2010 and all projects that have received an Authorization to Plan (ATP) that have an in-service date of ten years or less from the year of the report.

[17] Attachment J, Section III.D.2 of SPP's OATT, requires that the Regional Allocation Review "shall determine the cost allocation impacts of the Base Plan Upgrades with Notifications to Construct issued after June 19, 2010." The RARTF views that the report in Section 3.2(1) will comply with the Tariff. However, the RARTF believes that additional analyses need to be considered by SPP stakeholders in light of the fact the Highway/Byway applies to future projects that have yet to receive an NTC. Hence the RARTF recommends additional studies as stated in 3.2(2) so that the focus is not exclusively on the first projects that fall under SPP's Highway/Byway. As FERC noted in the October 20, 2011 Order on Rehearing, "the Priority Projects are just one set of projects to be constructed over the years of transmission development in SPP." *Southwest Power Pool, Inc*., 137 FERC ¶ 61,075 at P 32 (2011).

[18] Conditional Notices to Construct or CNTCs are considered NTCs and therefore should be included and evaluated as a NTC as contained and provided in this Report.

3.3 RARTF Recognition of Weighting Given to Projects without NTCs.

When conducting the Regional Cost Allocation Review described in Section 3.2(2) above, the RARTF recommends that projects with ATPs with an in-service of 10 years or less, but without NTCs, be considered in the Review. However, in considering these projects, the RARTF recommends a reduced weighting of the valuation of the costs and benefits at seventy-five percent (75%) of the total value. The RARTF makes this 0.75 weighting recommendation due to the less certain nature of these projects as well as their costs and benefits.

3.4 RARTF Recommended Baseline for the Regional Cost Allocation Review

Because the Regional Cost Allocation Review is for projects that will be built under SPP's Highway/Byway cost allocation methodology, the RARTF recommends that the baseline used to measure the benefits should include all projects which were in-service or received an NTC prior to June 2010. The baseline used in the first Regional Cost Allocation Review should be the same baseline used in all future reviews.

3.5 RARTF Recommended Calculation of Benefits to Cost Ratios.

The RARTF recommends using a methodology in which each assessment report uses the aggregate value of dollars for all projects studied under the SPP Highway/Byway cost allocation methodology in dollars current to the year the review is conducted. Using the aggregate value of dollars instead of the average B/C ratios provides a more comprehensive view of the total benefits to individual zones over the course of multiple studies.

3.6 RARTF Recommends Use of a 40-Year Project Evaluation.

To remain consistent with SPP's OATT, the RARTF recommends using a 40-year assessment to evaluate all transmission projects in the Regional Cost Allocation Review. Pursuant to SPP's OATT, the last 20 years of benefits should have a terminal value.

3.7 RARTF Recommendation on the Calculation of Costs.

When conducting the Regional Cost Allocation Review the RARTF recommends using the most up to date ATRR for each zone.

3.8 RARTF Recommendation on Benefits to be Calculated.

The RARTF recommends that the set of benefit categories listed below in this section be used in the Regional Cost Allocation Review process. It is further recommended that before the Regional Cost Allocation Review is conducted, the development of specific metrics that quantify the benefits in dollars using the procedures defined by the MOPC through the work of the Economic Studies Working Group (ESWG) be completed. For metrics without dollar amount but in other terms (MW, MWh, Tons, etc.), the ESWG should consider recommending a range of values that

can be used to monetize those metrics without hard dollar values. As part of the benefit evaluation, the most conservative or lowest number in any range provided by the ESWG will be used in the Regional Cost Allocation Review. For those metrics that the ESWG does not endorse monetizing, the ESWG will not provide a monetized value for use in the Regional Cost Allocation Review process. In defining these benefits, the ESWG and the MOPC should also develop a method to distribute these benefits by SPP zones. For those benefits that cannot be distributed to all zones but shared by fewer than all zones, if the benefited zones agree to an alternative method for allocating the benefits, then the agreed upon method will be used.

When conducting the Regional Cost Allocation Review, the RARTF recommends using the list of benefits in this section to assess the benefit to cost ratio. Additionally, the Regional Cost Allocation Review should consider the use of any additional benefits that may be defined and quantified in dollar values or can be converted into dollar values by the EWSG and approved by the MOPC.

The list of benefits the RARTF recommends be used in the Regional Cost Allocation Review are:

- **APC Benefits** – APC captures the monetary cost associated with fuel prices, run times, grid congestion, ramp rates, energy purchases, energy sales, and other factors that are directly related to energy production by generating resources in SPP. APC is calculated by adding a zones production cost to the zones purchases and subtracting out their sales.

- **Positive Impact on Capacity Required for Losses**– This captures a value for the generation capacity that may no longer be required due to a reduction in losses.

- **Improvements in Reliability** – There are five parts to improvements in reliability:

    - Benefits of avoided projects which are no longer needed due to additional transmission development.

    - From major generation centers within SPP to key delivery points on the boundary of SPP. This category relates to export capability improvements.

    - From key external receipt points at the boundary of SPP to load centers within SPP. This category relates to import capability improvements.

    - From key external receipt points at the boundary of SPP to key delivery points on the boundary of SPP. This category relates to improvements in the ability of SPP to accommodate wheel-through transactions.

    - Reliability projects provide more value than just reliability; reliability projects can provide measurable economic benefit. The ESWG will continue to develop this portion of the reliability metric in early 2012.

- **Remedy Benefits** – The value of previously approved remedies will be captured as a benefit during all following Regional Allocation Reviews.[19]

- **Reduction of Emission Rates and Values** – This metric addresses the analytical deficiency and quantifies the changes in mercury emissions. This metric also quantifies the changes in SO_2, NO_X, and CO_2 emissions so they may be represented as stand-alone values, separate from APC.

- **Reduced Operating Reserves Benefits** – As additional transmission is put in service it may reduce the amount of operating reserves needed in the SPP footprint. This metric captures the value of reduction in reserves.

- **Improvements to Import/Export Limits** – This metric quantifies the change in ATC that corresponds to an alternative topology.

- **Public Policy Benefits** – This metric captures the value of meeting the requirements of public policy. This metric is still under evaluation by the ESWG and will continue to be developed throughout early 2012.[20]

3.9 RARTF Recommendation on Assumptions to be Used.

The RARTF recommends that the assumptions used in the Regional Cost Allocation Review should be vetted through SPP's open and transparent stakeholder process.

SECTION 4: REPORT THRESHOLDS

4.1 RARTF Recommends a Remedy Threshold

Pursuant to the RARTF Charter, the RARTF recommends that a threshold be established to determine when it is warranted for SPP staff to study possible remedies to address an imbalance based upon the results of a Regional Cost Allocation Review. This threshold defines when SPP staff should study a zonal mitigation. If a zone is determined to be below this threshold, mitigation may be necessary to create equity.

The RARTF recommends that a threshold be set at a 0.8 benefit to cost ratio for projects that are a part of the assessment report stated in Section 3.2(2) above.[21] Section 3.2(2) calls for a report on "all SPP projects that have been issued an NTC since June 2010 and all projects that have

[19] This benefit would only be applicable in subsequent reviews for any mitigation that was implemented as a result of a previous Regional Cost Allocation Review.

[20] The RARTF notes that although it is SPP's current practice is to plan for public policy objectives, under FERC Order 1000 SPP is required to plan for public policy objectives. Consequently, the evaluation and measurement of these benefits are consistent with the requirement to plan for them.

[21] The RARTF notes that the 0.8 B/C ratio recommended in this report based upon the ESWG and SPP Stakeholder approving a method to measure the benefits listed in Section 3.8. Additionally, the RARTF notes that the 0.8 B/C may not be appropriate or practical if a Review produces a B/C ratio for all projects lower than anticipated by the RARTF.

received an Authorization to Plan (ATP) that have an in-service date of ten years or less from the year of the report."

The RARTF finds that during the first Regional Cost Allocation Review, few, if any, projects will actually be in service;[22] and that consideration should be given to all Board of Directors approved projects contained in plans that have an in-service date of ten years or less from the year of the report. The importance of considering future plans is highlighted by FERC's Order on Rehearing in Docket No. ER10-1069-001 in which FERC noted that the Highway/Byway cost allocation methodology will be applied to projects other than the Priority Projects.[23]

4.2 RARTF Recommendation for Zones Above Threshold but Below 1.0 B/C.

Pursuant to the RARTF Charter, the RARTF recommends that a threshold be established to determine when it is warranted that SPP staff study possible remedies as stated in Section 4.1.

Additionally, the RARTF recommends that any Regional Cost Allocation Review, which shows that a zone is above the 0.8 threshold in Section 4.1, but below a 1.0 benefit to cost ratio, should be used and considered as a part of SPP's transmission planning process in the future.

SECTION 5: POTENTIAL REMEDIES TO BE STUDIED

5.1 RARTF Recommended Zonal Remedies

If the results for a zone following a Regional Cost Allocation Review are below the threshold in Section 4.1, the RARTF recommends that the SPP staff should evaluate, and recommend possible mitigation remedies for the zone. In Figure 5, there is a list of mitigation remedies that the RARTF recommends SPP staff consider for study and to be made part of the report. The purpose of the evaluations is to determine potential remedies that bring the zone above the threshold.

The potential list of remedies, listed in order of preference, that SPP staff could evaluate include, but are not limited to:

[22] The Tulsa Reactor from Priority Projects is estimated to be the only project in service by June 2012.
[23] As FERC noted in the October 20, 2011 Order on Rehearing, "the Priority Projects are just one set of projects to be constructed over the years of transmission development in SPP." *Southwest Power Pool, Inc*., 137 FERC ¶ 61,075 at P 32 (2011).

Remedy	Entity with Authority/Duty to Implement
(1) Acceleration of planned upgrades;	SPP BOD
(2) Issuance of NTCs for selected new upgrades;	SPP BOD
(3) Apply Highway funding to one or more Byway Projects;	RSC, SPP BOD & FERC
(4) Apply Highway funding to one or more Seams Projects;	RSC, SPP BOD & FERC
(5) Zonal Transfers (similar to Balanced Portfolio Transfers) to offset costs or a lack of benefits to a zone;	RSC, SPP BOD & FERC
(6) Exemptions from cost associated with the next set of projects;	RSC, SPP BOD & FERC
(7) Change Cost Allocation Percentages.	RSC, SPP BOD & FERC

Figure 5. Potential remedies.

SECTION 6: TIMELINE

6.1 Proposed Regional Cost Allocation Review Timeline

The RARTF recommends the Action Plan, identified in Figure 6 below, be followed to conduct the Regional Cost Allocation Review. The ESWG's determination of the metric and values of all benefits to be studied as stated in Sections 3.9 and 7.1 is critical to the timeline.

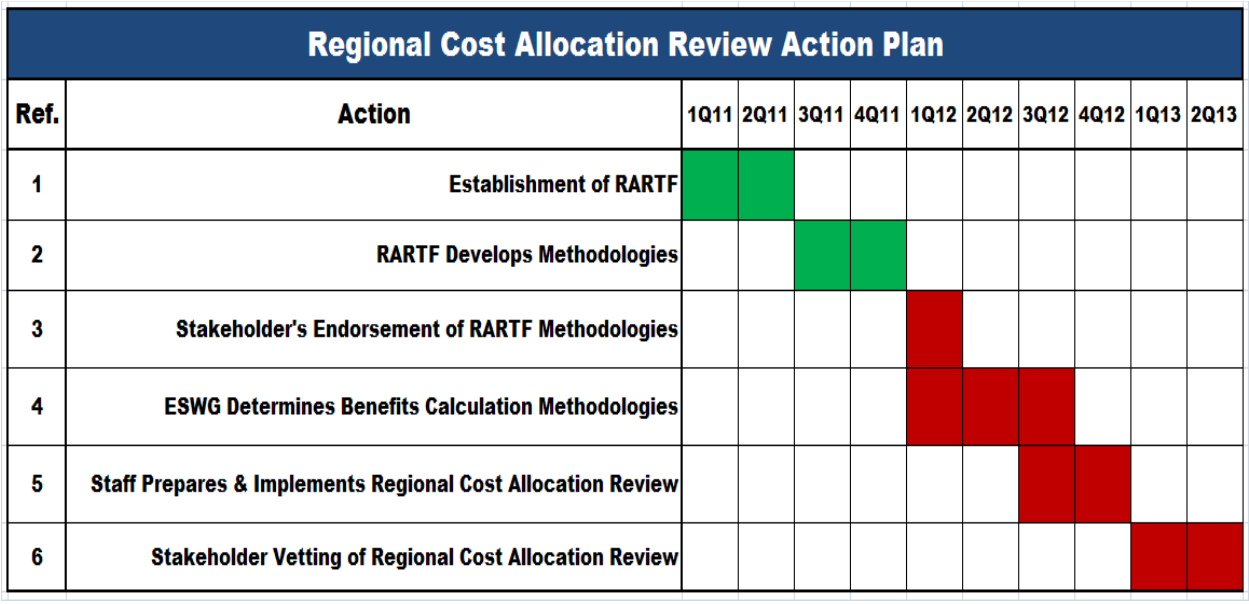

Figure 6. RARTF Proposed Action Plan

SECTION 7: ADDITIONAL RECOMMENDATIONS/CONSIDERATIONS

7.1 Recommendations Going Forward

The RARTF makes four additional recommendations:

First, the Regional Cost Allocation Review should not be conducted until the ESWG completes its work in defining how the benefits described in Section 3.8 are calculated. As stated in Figure 6, the RARTF recommends that the ESWG define the benefits by the end of the third quarter of 2012. This will allow for Regional Cost Allocation Review to be conducted pursuant the methods recommended by the RARTF.

Second, the RARTF recommends that the SPP Board of Directors approve the RARTF Report, and SPP stakeholders develop and revise Business Practices, the ITP Manual, and, as necessary the OATT, to effectively implement the Regional Cost Allocation Review process and potential remediation actions as contained in this Report. Once the Regional Cost Allocation Review process and potential remedies are a part of SPP's Business Practices or ITP Manual any subsequent changes to the procedures detailing this process must be reviewed by the MOPC and RSC and approved by the Board. The RARTF finds that many of the issues addressed in the RARTF Report may serve as valuable and useful additions to SPP's Business Practices, the ITP Manual, as well as the language of the OTT, for existing transmission planning processes and future Regional Cost Allocation Reviews.

Third, as required by SPP's OATT, the Regional Cost Allocation Review must be conducted at least every three years. Because this three year requirement can be synchronized with SPP's three year ITP planning cycle, the RARTF recommends that that the Regional Cost Allocation Review be conducted simultaneous with SPP's three-year planning cycle. This coordination can assist SPP and its stakeholders in evaluating past and conducting future three-year planning cycles.

Fourth, the RARTF found the process of developing the recommended methodology under which the Regional Cost Allocation Review will be performed to be a very informative and collaborative process. As a result, the RARTF recommends that the task force be reconvened before subsequent Regional Cost Allocation Reviews are performed. This will enable the SPP stakeholders to review lessons learned from prior Regional Cost Allocation Reviews and to suggest improvements to the methodology recommended in this report.