

# **NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER**

## **FINAL – September 6, 2007**

### **I. COST ALLOCATION REQUIREMENTS OF ORDER NO. 890**

In Order No. 890, *Preventing Undue Discrimination and Preference in Transmission Service*, the Federal Energy Regulatory Commission (Commission or FERC) provided the following guidance regarding transmission cost allocation:

1. Transmission Providers must develop cost allocation principles that apply to regional projects that do not fit under the existing OATT cost allocation structures.
2. Each regional transmission planning process can develop its own cost allocation criteria and solution as long as it follows these three general principles:
  - a) Fairly assigns costs to those who caused the problem as well as to those who will benefit from the solution.
  - b) Provides adequate incentives to the Transmission Providers to construct.
  - c) Generally is supported by the states and participants across the planning region.
3. Each planning process must address the cost allocation principle upfront.

### **II. SUMMARY OF COST ALLOCATION PROPOSALS**

The NCTPC Participants have developed an “avoided cost” cost allocation methodology that applies to reliability projects where there is a demonstration that a regional transmission solution and regional approach to cost allocation results in cost savings. Such “Regional Reliability Projects” are projects that are proposed in lieu of “Reliability Projects,” which are projects required to preserve system reliability. The NCTPC Participants also have developed a “requestor pays” cost allocation methodology that applies to Regional Economic Transmission Paths (“RETPs”) which improve economic power transfers between control areas. These two cost allocation methodologies apply to projects that are within the scope of the planning performed by the NCTPC, which focuses on the bulk transmission system (i.e., 230 kV and above facilities and lower-voltage facilities that substantively affect the Reliability Planning Process and Enhanced Transmission Access Planning Process).

Please note that for purposes of the following cost allocation discussion, all monetary amounts are net present value (NPV) amounts, unless otherwise noted.

# NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER

## FINAL –September 6, 2007

### III. OATT COST ALLOCATION FOR RELIABILITY PROJECTS

A transmission system is a complex system where each Transmission Provider's system reliability is also dependent upon its neighboring transmission systems. In recognition of this interdependence, reliability issues affecting one transmission system may require transmission upgrades on an adjacent transmission system. In addition, the reliability needs of a transmission system will change over time as a result of network and native load growth, the addition of new generation resources, the retirement of generation, and the provision of additional long-term firm point-to-point transmission service. FERC's OATT requires that Transmission Providers construct the facilities necessary to maintain reliable service in light of these needs. Any such facilities that are integrated network transmission facilities are denominated "Reliability Projects" herein. The various types of "Reliability Projects" are described briefly below.

#### A. Generation Interconnection Network Upgrade Projects

Generation interconnection network upgrade projects are Reliability Projects that consist of the integrated transmission facilities required to reliably connect a new generating plant into the transmission system and reliably dispatch its output into the network. For these projects, the upfront costs are allocated to the generation developer in accordance with the OATT, subject to crediting when transmission service is obtained from the relevant resource.

#### B. Transmission Service Projects

It is each Transmission Provider's responsibility to plan and operate a reliable transmission system in accordance with NERC and its applicable regional reliability standards. Reliability Projects that are required to provide transmission service fall into two categories -- Existing Transmission Service Projects and New Transmission Service Projects.

Existing Transmission Service Projects include the transmission facilities required for maintaining system reliability to serve network and native load and to meet existing firm point-to-point service obligations. As load grows and the existing transmission facilities age, new projects and upgrades may be necessary to ensure reliable service. New Transmission Service Projects include facilities required to fulfill new long-term firm point-to-point transmission requests and projects related to requests to designate new Network Resources.

Currently, for both New and Existing Transmission Service Projects, the Transmission Provider is responsible for incurring those transmission costs and

# NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER

## FINAL –September 6, 2007

recovering its costs through its transmission revenue requirement under its existing OATT rate structures. For Network Customers, these transmission costs typically are allocated to all Network Load on a load-ratio share. Point-to-point customers pay the higher of a rolled-in rate or an incremental rate.

#### IV. “AVOIDED COST” COST ALLOCATION METHODOLOGY FOR RELIABILITY PROJECTS THAT QUALIFY AS “REGIONAL RELIABILITY PROJECTS”

##### A. Identification of Regional Reliability Projects Subject to Avoided-Cost Cost Allocation

While individual Reliability Projects may arguably (and alternately) benefit customers on a neighboring system or may benefit some customers on one system more than others on the same system, the NCTPC believes that Reliability Projects generally benefit all customers within the relevant service territory of the Transmission Provider and that therefore the costs should be allocated in accordance with the “or” pricing policy currently included in the Commission’s *pro forma* OATT. The NCTPC, however, recognizes an exception to the general rule that the costs of projects needed for reliability should be allocated to a particular Transmission Provider’s customers. Specifically, Regional Reliability Projects, which can be identified through the NCTPC’s regional planning process, should have their costs allocated on an avoided-cost basis.

The NCTPC Planning Process results in a set of projects that satisfy the reliability criteria of the Transmission Providers who are a party to the NCTPC agreement (i.e., Reliability Projects). Through this process, a project may be identified that meets a reliability need in a more cost-effective manner than if each Transmission Provider were only considering projects on its system to meet its reliability criteria. For purposes of eligibility, a Regional Reliability Project can be defined as any reliability project that requires an upgrade to a Transmission Provider’s system that would not have otherwise been made at that time based upon the reliability needs of the Transmission Provider. For example, assume that there is a reliability issue on the system of Duke, and this issue can be addressed by: Option 1 - a project that consists of upgrades solely on the system of Duke; Option 2 - a project that consists of upgrades solely on the system of Progress; or Option 3 - a project that encompasses upgrades on both the Duke and Progress systems. Options (2) and (3) would qualify as Regional Reliability Projects, if they are lower cost than Option (1). In both cases, there is an upgrade that is not needed to maintain reliability on the transmission system of at least one of the Transmission Provider’s whose system is being upgraded. In addition, if accelerating a Reliability Project on the Progress system results in the elimination of an upgrade

**NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER  
FINAL –September 6, 2007**

on the Duke system, the cost of the acceleration will be designated a Regional Reliability Project. A Regional Reliability Project must have a cost of at least \$1 million to be subject to the cost allocation proposal described below. The costs of a Regional Reliability Project with a cost of less than \$1 million would be borne by each Transmission Provider based on the costs incurred on its system.

**B. Avoided Cost Methodology**

As noted, unless a Regional Reliability Project is determined by the NCTPC to be the most cost-effective solution to a reliability need, it will not be selected to be included in the Plan of the NCTPC. But, if a Regional Reliability Project is included, it will have its costs allocated based on an avoided cost approach, whereby each Transmission Provider looks at the next-best approach to maintaining reliable service and shares the savings on a pro-rata basis. These cost responsibility determinations will then be reflected in transmission rates. Each Transmission Provider will be reimbursed for its investment for the Regional Reliability Project based on a transmission leveled fixed charge rate filed with FERC. Where practical, Regional Reliability Projects may be grouped to net out allocations across Transmission Provider borders.

**C. Example 1: A Regional Reliability Project on system of one Transmission Provider solves reliability issue on system of other Transmission Provider.**

<b>(1) Transmission Provider</b>	<b>(2) Cost to Meet Reliability Needs on a Stand Alone Basis (MM)</b>	<b>(3) Cost of Regional Reliability Project (MM)</b>	<b>(4) Avoided Transmission Project Cost (MM)</b>	<b>(5) Costs to Meet Reliability Needs on a Regional Basis (MM) (2) + (3) - (4) = (5)</b>
Duke	\$500	0	\$50	\$450
Progress	\$400	\$30	0	\$430
<b>Total</b>	<b>\$900</b>	<b>\$30</b>	<b>\$50</b>	<b>\$880</b>

In this example, Duke needs to spend \$500 million to meet all of its Reliability Project needs, assuming it does not have the option of meeting its reliability need with a project on system of Progress. The \$500 million

**NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER  
FINAL –September 6, 2007**

includes \$50 million for a Reliability Project on its system. But, by Progress spending \$30 million on a Regional Reliability Project, Duke could avoid building that \$50 million project. Progress needs to spend \$400 million for Reliability Projects on its system to meet its needs. Progress also will spend an additional \$30 million on its system to meet the Duke reliability need.

The avoided cost methodology for allocating cost responsibility would apply as follows:

(Duke’s Avoided Cost/Total Avoided Cost) \* cost of Regional Reliability Project

$$(\$50 \text{ million}/\$50 \text{ million}) * \$30 \text{ million} = \$30 \text{ million}$$

(Progress Avoided Cost/Total Avoided Cost) \* cost of Regional Reliability Project

$$(\$0 \text{ million}/\$50 \text{ million}) * \$30 \text{ million} = \$0$$

In sum, from a cost incurrence perspective, Duke spends \$450 million and Progress spends \$430 million. But, from a cost responsibility perspective Duke is allocated \$30 million of Progress’ costs.

**D. Example 2: A Regional Reliability Project on system of two Transmission Providers solves reliability issue on system of one Transmission Provider.**

(1) Transmission Provider	(2) Cost to Meet Reliability Needs on a Stand Alone Basis (MM)	(3) Cost of Regional Reliability Project (MM)	(4) Avoided Transmission Project Cost (MM)	(5) Costs to Meet Reliability Needs on a Regional Basis (MM) (2) + (3) - (4) = (5)
Duke	\$500	\$20	\$50	\$470
Progress	\$400	\$10	0	\$410
<b>Total</b>	<b>\$900</b>	<b>\$30</b>	<b>\$50</b>	<b>\$880</b>

In this example, Duke needs to spend \$500 million to meet all of its Reliability Project needs, assuming it does not have the option of meeting

**NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER  
FINAL –September 6, 2007**

its reliability need with a project on system of Progress. The \$500 million includes \$50 million for a Reliability Project on its system. But, by Progress spending \$10 million on a Regional Reliability Project and Duke spending \$20 million on the same project, Duke could avoid building that \$50 million project. Progress needs to spend \$400 million for Reliability Projects on its system to meet its needs. Progress also will spend an additional \$10 million on its system to meet the Duke reliability need.

The avoided cost methodology for allocating cost responsibility would apply as follows:

(Duke’s Avoided Cost/Total Avoided Cost) \* cost of Regional Reliability Project

$$(\$50 \text{ million}/\$50 \text{ million}) * \$30 \text{ million} = \$30 \text{ million}$$

(Progress Avoided Cost/Total Avoided Cost) \* cost of Regional Reliability Project

$$(\$0 \text{ million}/\$50 \text{ million}) * \$30 \text{ million} = \$0$$

In sum, from a cost incurrence perspective, Duke spends \$470 million and Progress spends \$410 million. But, from a cost responsibility perspective Duke is allocated \$10 million of Progress’ costs.

**E. Example 3: A Regional Reliability Project on system of two Transmission Providers solves reliability issues on systems of both Transmission Providers.**

(1) Transmission Provider	(2) Cost to Meet Reliability Needs on a Stand Alone Basis (MM)	(3) Cost of Regional Reliability Project (MM)	(4) Avoided Transmission Project Cost (MM)	(5) Costs to Meet Reliability Needs on a Regional Basis (MM) (2) + (3) - (4) = (5)
Duke	\$500	\$20	\$50	\$470
Progress	\$400	\$10	\$5	\$405
<b>Total</b>	<b>\$900</b>	<b>\$30</b>	<b>\$55</b>	<b>\$875</b>

**NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER  
FINAL –September 6, 2007**

In this example, Duke needs to spend \$500 million to meet all of its Reliability Project needs, assuming it does not have the option of meeting its reliability need with a project on system of Progress. The \$500 million includes \$50 million for a Reliability Project on its system. But, by Progress spending \$10 million on a Regional Reliability Project and Duke spending \$20 million on the same project, Duke could avoid building that \$50 million project. Progress needs to spend \$400 million for Reliability Projects on its system to meet its needs. But, as a result of the same Regional Reliability Project, Progress can avoid spending \$5 million to meet its own reliability needs.

The avoided cost methodology for allocating cost responsibility would apply as follows:

(Duke's Avoided Cost/Total Avoided Cost) \* cost of Regional Reliability Project

$$(\$50 \text{ million}/\$55 \text{ million}) * \$30 \text{ million} = \$27.3 \text{ million}$$

(Progress Avoided Cost/Total Avoided Cost) \* cost of Regional Reliability Project

$$(\$5 \text{ million}/\$55 \text{ million}) * \$30 \text{ million} = \$2.7 \text{ million}$$

In sum, from a cost incurrence perspective, Duke spends \$470 million and Progress spends \$405 million. But, from a cost responsibility perspective Duke is allocated \$7.3 million of Progress' costs.

**NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER  
FINAL –September 6, 2007**

**F. Example 4: Accelerating a Reliability Project on one Transmission Providers’ system solves reliability issues on another Transmission Providers’ system.**

(1) Transmission Provider	(2) Cost to Meet Reliability Needs on a Stand Alone Basis (MM)	(3) Cost of Regional Reliability Project (MM) (Cost of Acceleration)	(4) Avoided Transmission Project Cost (MM)	(5) Costs to Meet Reliability Needs on a Regional Basis (MM) (2) + (3) - (4) = (5)
Duke	\$500	\$20	\$0	\$520
Progress	\$400	\$0	\$50	\$350
<b>Total</b>	<b>\$900</b>	<b>\$20</b>	<b>\$55</b>	<b>\$870</b>

In this example, Duke needs to spend \$500 million to meet all of its Reliability Project needs. The \$500 million includes \$120 million for a Reliability Project on its system. Progress needs to spend \$400 million to meet all of its Reliability Project needs, including \$50 million for a Reliability Project on its system. However, if Duke accelerates the \$120 million project by 5 years, Progress could avoid building its \$50 million project. The cost of accelerating the Reliability Project by 5 years is a lower cost solution and thus is designated as a Regional Reliability Project. The cost of the Regional Reliability Project is the cost of the 5-year acceleration of the \$120 million Reliability Project, or \$20 million, which is calculated by subtracting the NPV of completing the project in 5 years from the NPV of completing the project in 10 years.

The avoided cost methodology for allocating cost responsibility would apply as follows:

(Duke’s Avoided Cost/Total Avoided Cost) \* cost of Regional Reliability Project

$$(\$0 \text{ million}/\$50 \text{ million}) * \$20 \text{ million} = \$0$$

(Progress Avoided Cost/Total Avoided Cost) \* cost of Regional Reliability Project



**NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER**  
**FINAL –September 6, 2007**

(\$50 million/\$50 million) \* \$20 million = \$20 million

In sum, from a cost incurrence perspective, Duke spends \$520 million and Progress spends \$350 million. But, from a cost responsibility perspective Progress is allocated \$20 million of Duke’s costs.

**G. Regional Reliability Projects that Include Transmission Providers Outside the NCTPC Footprint**

If a Regional Reliability Project that is suitable for this alternate cost allocation approach involves a Transmission System(s) outside the NCTPC, the costs should be fairly allocated among the affected Transmission Providers based on good-faith negotiation among the parties involved. It would be the intent of the NCTPC Participants that the “avoided cost” approach outlined above be used as a starting point in the negotiations. The resulting transmission costs and the associated revenue requirements of each Transmission Provider will be recovered through their respective existing rate structures at the time. In the event that the affected Transmission Providers are unable to reach a negotiated solution then the NCTPC would propose that the parties utilize the Commission’s Dispute Resolution Service to settle any issues.

**V. “REQUESTOR PAYS” COST ALLOCATION METHODOLOGY FOR PROJECTS ASSOCIATED WITH REGIONAL ECONOMIC TRANSMISSION PATHS (“RETPs”)**

**A. Background**

In Order 890, FERC asked Transmission Providers to develop a cost allocation methodology intended to apply to economic projects that do not fit under the existing OATT structure and that will reduce congestion or enable groups of customers to access new generation. The NCTPC is not proposing a cost allocation methodology for “economic projects” within a single Transmission Provider’s system because there are no internal constraints within the Duke or Progress systems as demonstrated by the fact that ATC values are posted only at their interfaces with other control areas. That is, there is no need for a cost allocation methodology that would apply to projects that relieve constraints within a single Transmission Provider’s control area. Thus, the relevant “economic projects” are those projects required to permit Transmission Providers to ensure that point-to-point (PTP) transmission service can be provided over the systems of two or more Transmission Providers.

# NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER

## FINAL –September 6, 2007

The NCTPC has designated “projects” that would ensure that PTP service can be provided over the Duke and/or Progress systems as Regional Economic Transmission Paths (“RETPs”). NCTPC stakeholders will be permitted to propose that RETPs be created and the costs of the projects necessary to create such RETPs will be subject to the “requestor pays” cost allocation methodology described herein. The creation of an RETP would permit energy to be transferred on a PTP basis from an interface (or a Point of Receipt) on one Transmission Provider’s system to an interface on another Transmission Provider’s system (or a Point of Delivery) for a specific period of time. In the discussion below, the NCTPC Participants define how this methodology could be applied in the NCTPC.

As just noted, RETPs are defined as multi-Transmission Provider point-to-point transmission paths. But, NCTPC cannot impose the RETP concept and requestor-pays cost allocation methodology discussed below on Transmission Providers outside the NCTPC footprint. NCTPC will share this proposal with other Transmission Providers with the goal of having it adopted on a broader basis. Other Transmission Providers and inter-regional processes outside the NCTPC footprint, however, may develop their own approaches, which may or may not be able to accommodate the NCTPC approach.

The NCTPC Participants are expecting to actively participate in a coordinated effort that will be referred to herein as the Inter-Regional Planning Process (IRPP). This effort is in the very early stages of development. It is thus unlikely any regional economic cost allocation approach will be finalized prior to the December 7<sup>th</sup> Attachment K filings. If a process cannot be formalized by such date, the proposal below, as it evolves through NCTPC stakeholder input, will apply to the NCTPC. If Transmission Providers outside the NCTPC do not adopt the RETP concept and/or seek to apply other cost allocation mechanisms, it should be possible for Duke and Progress to coordinate with other Transmission Providers and study and create paths that are larger than the NCTPC footprint.

In sum, until the RETP concept is reviewed and considered by others outside the NCTPC, it should be understood that only the NCTPC Transmission Providers are committed to the further development of the conceptual framework for this process and cost-allocation methodology described below.

### **B. Identification and Initial Study of RETPs**

It is envisioned that stakeholders will identify RETPs that they would like studied and that they would do so through the relevant stakeholder process. If an RETP is limited to the NCTPC footprint, it would be brought to the TAG. If the IRPP adopts the RETP or a similar concept, the IRPP stakeholder process would have a

# **NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER**

## **FINAL –September 6, 2007**

similar process for the identification of projects that would impact that regional footprint.

There would be a need for an Initial Study of an RETP (“Initial RETP Study”). If a proposed regional path would impact Transmission Providers outside the NCTPC that are not willing to participate in a uniform RETP process, there will need to be coordination of such an initial study with other transmission neighbors.. Because it cannot be predicted which Transmission Providers outside the NCTPC might consider the RETP approach, the discussions herein of the study process, Open Season, and cost allocation largely assume that the RETP concept will spread beyond the NCTPC. This assumption is merely for convenience.

The Initial RETP Study would identify any transmission system problems/limitations related to all Transmission Providers along the RETP providing PTP service and would identify the transmission solutions/upgrades that would be needed to accommodate the RETP. An RETP would be evaluated in the Initial RETP Study as if it was a request for PTP transmission service from a source control area (Point of Receipt) to a sink control area (Point of Delivery) over a specific period of time (the stakeholders requesting the study would determine the time period). The Point of Receipt and Point of Delivery can be interfaces. (If those points are interfaces, entities seeking to use the RETP would have to separately request transmission service, if necessary, to move power from their generating resources to the interfaces. Given the unconstrained nature of the Transmission Systems in the NCTPC, such service should typically be available.)

The Initial RETP Study would only provide preliminary information on the projected cost and scope of the facilities that would be needed to create the RETP, and the time it would take to complete the RETP. Each Transmission Provider along the RETP would identify its own estimated costs. The reason that the study must be preliminary in nature is that the study request will not be treated as if it is a queued transmission service request; later transmission requests may impact the cost estimates. It would be premature to “queue” the proposed RETP (thus potentially taking existing ATC “off the market”), until the decision to hold an Open Season is made.

Once the Initial RETP Study is complete, the relevant stakeholder processes would determine if there is sufficient interest in the project to move the RETP from the “initial study” mode to the establishment of an “Open Season” for the RETP. This decision would have to be carefully considered by the stakeholders, as it could result in ATC being made unavailable for what may be several months. For example, assume an RETP is proposed as a 1000 MW path from an interface on the Florida-Southern border to an interface on the Duke-PJM border that would be

# NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER

## FINAL –September 6, 2007

operational in 2015. Assume further that on the Duke system, 300 MW of existing ATC is available in 2015, but that Duke would have to upgrade its system to ensure the remaining 700 MW of the 1000 MW path. Once the Open Season commences, Duke will assume in reviewing new transmission service requests (and rollover rights of such new requests) that the 300 MW of ATC is no longer available in 2015.

### **C. Open Season for RETPs**

After an RETP has been identified, the Initial RETP Study completed, and it is determined by the relevant stakeholder body that there is sufficient interest in moving this project to the next level of consideration; an “Open Season” will be established to determine if there is sufficient interest in funding the upgrades necessary to create the RETP.

All Transmission Providers impacted by the RETP would establish the same “Open Season” for the RETP. The Open Season will have a similar impact to someone queuing a PTP service request for the entire proposed MW of the RETP from the source control area to the sink control area for the relevant time period. To the extent that there is ATC available that will form part of the new RETP, this ATC would be available only to Open Season participants, not to Transmission Customers who hold transmission queue positions based on service requests submitted after the start date of the Open Season. Thus, returning to the example of the new 1000 MW Florida-PJM RETP, to the extent Duke planned to use 300 MW of ATC that were otherwise available in 2015, Duke would consider this 300 MW unavailable to requestors in its transmission queue that post-dated the Open Season. This approach would be important to ensure that Transmission Customers who were familiar with the RETPs that were under consideration would not be able to cherry-pick PTP transmission reservations along the path of an RETP. If the Open Season resulted in the RETP not going forward, the 300 MW of ATC would again be available to those that entered the transmission queue after the date of the Open Season.

During this Open Season all potential Transmission Customers would have a 30 to 60-day window to put in their request to subscribe to all or a portion of the MW of service being made available along the RETP. The OSC with input from the TAG would determine the length of the Open Season. If the RETP was not fully subscribed (i.e., 100% of the MW reserved), the Open Season will be extended by another 30 days if there is a subscription to 80% of the MW or higher. If the RETP was oversubscribed, then the RETP subscription would be distributed in a *pro rata* fashion. When oversubscription occurs, the participating Transmission Customers will be notified. All of these Transmission Customers will be given the

# NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER

## FINAL –September 6, 2007

opportunity to proceed with a firm PTP transmission subscription based on these pro rata allocations of the transmission service. However, one or more of the participating Transmission Customers may choose not to move forward due to their determination that fulfilling only a portion of their desired transmission allocation would not meet their business needs. To accommodate this situation, a “reallocation window” would be established to allow for the Transmission Customer to withdraw or adjust their transmission allocation requests. All Transmission Customers are eligible to participate in this reallocation window. Since this is an iteration on the first Open Season for the same project, the reallocation window would be no greater than 30 days. All such processes will be open and transparent, which will allow Transmission Customers to work among themselves to determine how they can get the RETPs built.

### **Example:**

- RETP was identified as a transmission path between Entergy and PJM with a 500 MW capacity.
- Through the RETP Initial Study, all of the Transmission Providers identify their estimated costs and potential rate impacts on transmission service so that Transmission Customers can evaluate the financial impact of subscribing to the RETP.
- Potential Transmission Customers are given a 60 day window to identify their desire to be a subscriber for this RETP.
- Open Season Results:
  - Sufficient Subscription – Case 1. Transmission Customer 1 – Willing to subscribe for entire amount – 500 MW of PTP service. Sufficient subscription, RETP moves forward.
  - Sufficient Subscription – Case 2. Transmission Customer 1 – Willing to subscribe for 250 MW. Transmission Customer 2 – Willing to subscribe for 250 MW of PTP service. Sufficient subscription, RETP moves forward.
  - Insufficient Subscription – Case 1. Transmission Customer 1 – Willing to subscribe for 250 MW. No other Transmission Customers agree to subscribe to the RETP, therefore RETP does not move forward.

**NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER**  
**FINAL –September 6, 2007**

- Insufficient Subscription – Case 2. Transmission Customer 1 – Willing to subscribe for 450 MW. No other Transmission Customers agree to subscribe to the RETP. Reallocation window of 30 days because RETP 90% subscribed (greater than 80% threshold).
  - Case 2.a – No one responds to reallocation window:
    - Transmission Customer 1 is offered the opportunity to subscribe to the other 50 MW (i.e., pay the full price of the upgrade). If the customer accepts, the RETP goes forward. If the customer does not accept, the RETP does not go forward.
  - Case 2.b – Transmission Customer 2 is willing to subscribe to 30 MW of the 50 unsubscribed MW.
    - Transmission Customer 1 and 2 are offered the opportunity to subscribe to the other 20 MW on a pro rata basis (Transmission Customer 1 would receive an additional 19 MW; Transmission Customer 2 would receive an additional 1 MW). If the Customers accept, the RETP goes forward. If the customers do not accept, the RETP does not go forward.
  - Case 2.c – Transmission Customer 2 is willing to subscribe to 30 MW and Transmission Customer 3 is willing to subscribe to 30 MW
    - The Customers are offered a pro rata share (25 MW each). If the Customers accept, the RETP goes forward. If the customers do not accept, the RETP does not go forward.
- Over-subscription.

Initial Open Season Iteration: Transmission Customer 1 – Willing to subscribe for 250 MW. Transmission Customer 2 – Willing to subscribe for 250 MW. Transmission Customer 3 – Willing to subscribe for 250 MW. Pro-rata subscription is provided and Transmission Customers 1, 2 and 3 all get 167 MW. Transmission Customers would be free to negotiate with each other on a different

# NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER

## FINAL –September 6, 2007

allocation. Transmission Customers 1, 2 and 3 are given the opportunity to move forward with this RETP at their prorated allocation levels. If one or more of these customers choose not to move forward, then the reallocation window would be started.

Reallocation window: Potential Transmission Customers are given a 30-day window to identify their desire to be a participant in this iteration. Transmission Customers 1 and 2 decide to move forward, even if limited to 167 MW; Transmission Customer 3 decides to withdraw. The 167 MW of Transmission Customer 3's is "re-opened." Transmission Customer 4 decides to enter the Open Season and:

- Transmission Customer 1 – Willing to subscribe for 83 MW (i.e., the 83 MW it did not get in first Open Season).
- Transmission Customer 2 – Willing to subscribe for 167 MW (i.e., the 83 MW it did not get in first Open Season plus additional 84 MW).
- Transmission Customer 4 – Willing to subscribe for 167 MW.
- Pro-rata subscription is provided as follows (rounded to whole MW):
  - Transmission Customers 1 – 33 MW
  - Transmission Customer 2 – 67 MW
  - Transmission Customer 4 – 67 MW
  - Transmission Customers would be free to negotiate with each other on a different allocation.
- Transmission Customers 1, 2 and 4 are given the opportunity to move forward with this RETP at their pro-rated allocation levels. If all of these Transmission Customers agree to move forward with this RETP at their pro-rated amounts then the project moves forward with firm PTP transmission reservations being granted at the allocated levels. If one or more of these customers choose not to move forward, then the RETP will not move forward.

If an RETP is fully subscribed, the more detailed studies, i.e., a Facilities Study will be performed by each impacted Transmission Provider that must provide service along the RETP.

# NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER

## FINAL –September 6, 2007

Once the Facilities Study is complete, the Transmission Customers may opt out of their subscriptions if such notice is received within 15 days of the completed study. If Transmission Customers whose initial requests were only filled pro rata are willing to step in, they will have first priority to any capacity made available (on a pro-rata basis as necessary). If the RETP is not fully subscribed after such step, another 30-day iteration should be held if to determine if other entities are willing to fill the subscription. If not, the RETP will not move forward.

### **D. “Requestor Pays” Cost Allocation Approach**

“Requestor Pays” is the proposed approach to cost allocation under which the Transmission Customer(s) that are subscribing to the RETP would provide the up-front funding of any transmission construction that was required to ensure that the path was available for the relevant time period. These “requestor(s)” would be the Transmission Customers that were awarded the MW as a result of the successful subscription during the Open Season process. Four examples are provided in Section V.G. At least on the Duke and Progress systems, subscribers would pay for firm PTP transmission service on each Transmission System along the path of the RETP at the embedded cost rate. If the RETP concept is adopted beyond the NCTPC, other Transmission Providers could propose alternate cost allocation approaches for their segments of the RETP, although such approaches would have to be consistent with the NCTPC approach.

On the Duke and/or Progress systems, the Transmission Customer would receive a levelized repayment of this initial funding amount from Duke and/or Progress in the form of monthly transmission credits over a maximum 20-year period. The Transmission Providers will be permitted to work with the Transmission Customers to provide shorter or different crediting. As credits are paid, Duke and Progress could have the opportunity to include the costs of upgrades that were needed for the RETP in transmission rates, similar to the Generator Interconnection pricing/rate approach.

Transmission projects that are constructed for particular transmission expansion needs typically results in additional “head-room” being created in the transmission system as a result of the transmission construction. There is no attempt within this requestor pays cost allocation methodology to provide compensation to the “funders” of the RETPs for the head-room that would be created on the Transmission System. This is comparable and equitable to how other transmission expansion projects are handled within the normal transmission planning environment. Moreover, there will be situations in which one particular Transmission Provider along the RETP evaluation does not have to incur transmission construction in order to satisfy the provision of service on its portion



# **NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER**

## **FINAL –September 6, 2007**

of the RETP. In that situation, the Transmission Customer would not be assessed any transmission expansion cost for that particular portion of the path. In those situations, the Transmission Customer would be benefiting from some of the “head-room” that was created in the system as a result of other transmission projects. Hence this treatment of the potential “head-room” created by RETPs is comparable and equitable to other transmission expansion performed by the Transmission Providers.

### **E. Adjustments to Costs to Reflect Impacts of RETPs on Reliability Projects Included in Transmission Plans**

The total project cost for the transmission expansion required due to an RETP will be adjusted to provide compensation for the positive impacts that the RETP would provide, given the existing Collaborative Transmission Plan. Specifically, if the RETP resulted in the delay of Reliability Projects, the net present value of this would be computed and subtracted from the net present value of the computed total project cost for the transmission expansion. For example, if the cost for the RETP on the system of one Transmission Provider was computed to be \$100 million, but this project would eliminate the need for a \$25 million Reliability Project, then this positive impact would be subtracted from the total estimated cost of the RETP and requestor(s) would be assessed a transmission expansion funding amount equivalent to \$75 million NPV (\$100 million - \$25 million).

### **F. Additional Coordination Needed**

In order to implement this cost allocation proposal, coordination of RETPs studies is necessary. The NCTPC expects that the IRPP would address this for the southern Transmission Provider neighbors. Additional coordination would be needed with PJM, as the PJM system adjoins the transmission systems of Duke and Progress.

Also, additional coordination would need to be provided to support a single “Open Season” for an RETP. The Transmission Providers would need to develop a coordination procedure that could be utilized each time an Open Season was needed for a particular RETP. The coordination procedure would define how the Open Season would be conducted and coordinated. This level of coordination is needed to ensure that the impacted Transmission Providers are all evaluating the RETP within the same timeframe which is very important due to the impact that these projects could have on other transmission requests that would be in the transmission queue.

# NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER

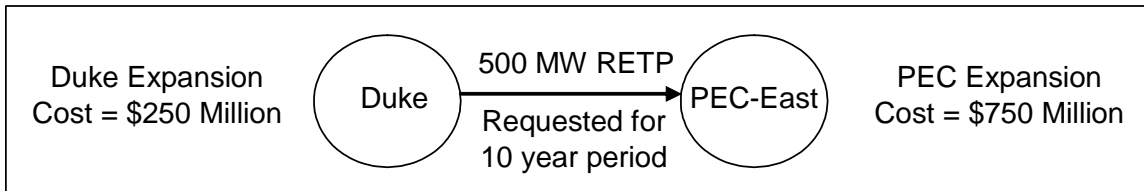
## FINAL –September 6, 2007

### G. Examples

Four examples are provided to show how the NCTPC would be utilized in the following scenarios: RETPs that flow “into” the NCTPC footprint; RETPs that flow “out of” the NCTPC footprint; RETPs that “pass-through” the NCTPC footprint; and RETPs that are contained totally “within” the NCTPC footprint. All of these examples assume that all impacted Transmission Providers have agreed to use the Open Season process for RETPs projects. The examples described below build on each other, so the order of the examples is as follows:

1. Example 1 – “Within NCTPC” – Duke to PEC-East – Increase interface by 500 MW
2. Example 2 – “Into NCTPC” – Into PEC-East – Increase PEC-East interface with SCE&G by 500 MW (uses info from Example 1)
3. Example 3 – “Out of NCTPC” – Duke to PJM of 500 MW (uses info from Example 1)
4. Example 4 – “Through NCTPC” – Entergy to PJM of 1,000 MW

#### 1. Example 1 – “Within NCTPC” – Duke to PEC-East – Increase interface by 500 MW



- Assumptions:
  - This RETP will require projects that increase the Duke to PEC-East interface capability by 500 MW for 10 years.
    - Transmission Customer 1 subscribes to 200 MW.
    - Transmission Customer 2 subscribes to 300 MW.
  - Total up-front funding requirement of \$1 billion
    - Duke investment of \$250 million
    - Progress investment of \$750 million
  - Transmission Customer allocations for this funding:

# NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER

## FINAL –September 6, 2007

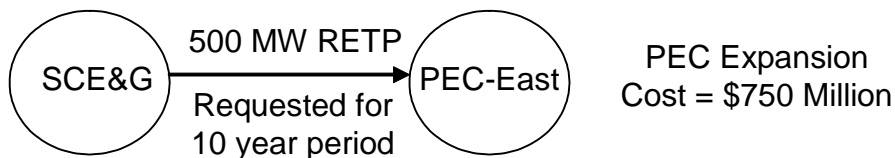
- TC 1 pays up-front payment of \$400 million with a payment of 25% of these funds (\$100 million) going to Duke and 75% of these funds going to Progress (\$300 million)
- TC 2 pays up-front payment of \$600 million with a payment of 25% of these funds (\$150 million) going to Duke and 75% of these funds going to Progress (\$450 million)
- RETP would be identified through the NCTPC TAG, approved for initial study by the OSC, and evaluated through the NCTPC study process. NCTPC process would determine the project cost (on both the Duke and Progress system), scope of the solution, and timing requirements for the implementation of the necessary upgrades as identified above in the “Identification and Initial Study of RETPs” section.
- Transmission cost considerations for this project –
  - Transmission Customers would be asked to provide the up-front funding of this transmission construction – total of \$1 billion.
- NCTPC TAG stakeholder process would determine if there was sufficient interest to move the RETP from study mode to holding an Open Season. If the stakeholder group determines that an Open Season should be conducted the below steps would be taken.
- Open Season
  - Duke would hold an Open Season process for the 500 MW PTP Transmission Service reservation for the defined 10-year period from Duke into PEC-East.
  - Transmission Customers would have 60 days to determine if they want to participate in this Open Season.
  - For this example we will assume that there were adequate subscriptions as listed below:
    - Transmission Customer 1 – Willing to subscribe for 200 MW of PTP service
    - Transmission Customer 2 – Willing to subscribe for 300 MW of PTP service
    - Sufficient subscription, RETP moves forward.
  - Transmission Customer 1 is granted 200 MW of firm PTP Transmission Service from Duke to PEC-East for the 10 year period.

**NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER**  
**FINAL –September 6, 2007**

- Transmission Customer 2 is granted 300 MW of firm PTP Transmission Service from Duke to PEC-East for the 10 year period.
- Transmission Customers pay the up-front transmission construction costs – \$250 million to Duke and \$750 million to PEC.
- Transmission Customer pays Duke for the PTP Transmission Service each month at the Duke embedded cost transmission rate.
- Transmission Customers would receive credits back as follows:
  - Duke and Progress would both provide an annualized repayment of the initial funding of the transmission projects on their respective systems.
  - Duke will net their annualized repayment of the initial funding against the Transmission Customers charges for their PTP service that they take PTP service each month.
- Impact to Duke and Progress transmission rate base:
  - Duke and Progress will have the opportunity to include within their respective transmission rate bases the transmission that was constructed for the RETPs as the initial funding is repaid to the Transmission Customers over a 20 year period.

**2. Example 2 – “Into NCTPC” – Into PEC-East – Increase PEC-East interface with SCE&G by 500 MW**

Example assumes SCE&G/IRPP adopts RETP concept.



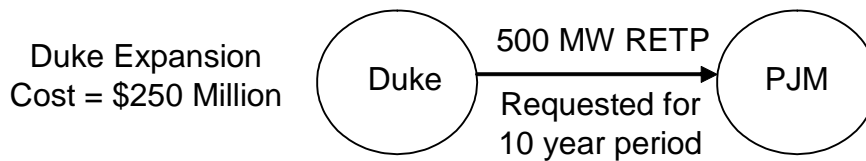
- This example builds off of Example 1. The differences in this example from Example 1 are as follows: Duke is not involved (i.e., Duke upgrades are not required and there is no Duke PTP service related to this example; and SCE&G is involved in the project (i.e., a Transmission Provider outside the NCTPC footprint). However, the Progress impacts are the same as were identified in Example 1.

**NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER**  
**FINAL –September 6, 2007**

- Since this example involves southeastern Transmission Providers outside of the NCTPC footprint (e.g. SCE&G), the IRPP would be used to evaluate this project and provide for an Open Season mechanism to determine if there was sufficient interest in moving forward with the RETP. Refer to Example 4 for an explanation of how those processes would work.

**3. Example 3 – “Out of NCTPC” – Duke to PJM of 500 MW**

Example assumes PJM adopts RETP concept.

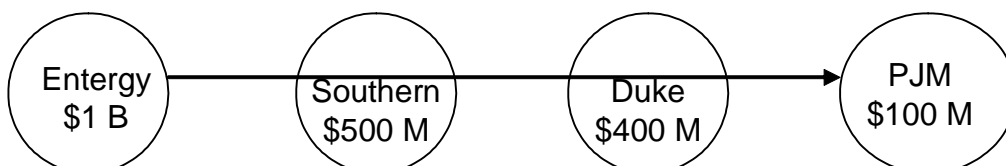


- This example builds off of Example 1. The differences in this example from Example 1 are as follows: Progress is not involved (i.e., there are no Progress upgrades required); and PJM is involved in the RETP (i.e., a northern Transmission Provider outside the NCTPC footprint). However the Duke impacts are the same as were identified in Example 1.
- Since this example involves Transmission Providers outside of the NCTPC footprint (i.e., PJM), Duke would work with PJM to evaluate this RETP and provide for an Open Season mechanism to determine if there was interest in moving forward with the project.

**4. Example 4 – “Through NCTPC” – Entergy to PJM of 1,000 MW**

Example assumes PJM/IRPP adopts RETP concept.

Entergy to PJM 1,000 MW RETP requested for a 20 year period.



# NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER

## FINAL –September 6, 2007

- **Assumptions:**
  - Through the IRPP process an RETP was identified. This RETP was for the 1,000 MW coming from Entergy and being delivered to PJM for a 20 year period. This RETP would result in a 1,000 MW of PTP transmission service to be provided by the following Transmission Providers for 20 years: Entergy, Southern, and Duke. However, PJM would also need to participate in the study evaluation to determine if they had sufficient transmission interface to support this transaction.
  - Three Transmission Customers sign-up to participate in the RETP
    - Transmission Customer 1 subscribes at a level of 200 MW
    - Transmission Customer 2 subscribes to 300 MW
    - Transmission Customer 3 subscribes to 500 MW
  - Total up-front funding requirement of \$2 billion
    - Entergy investment of \$1billion
    - Southern investment of \$500 million
    - Duke investment of \$400 million
    - PJM investment of \$100 million
    - The NCTPC only controls how Duke will handle the treatment of their initial funding of this economic project. The Transmission Customer would work with Entergy, Southern and PJM through this process concerning their initial funding requirements and potential rate impacts.
- RETP would be identified, approved, and evaluated through the IRPP. The IRPP would determine the RETP cost scope of the solution, and timing requirements for the implementation of the projects needed for the RETP as identified above in the “Identification and Initial Study of RETPs” section.
- Transmission cost considerations for Duke related to this project –
  - Transmission Customers would be asked to provide the up-front funding of the Duke transmission construction required by this RETP – \$400 million.
- IRPP would determine if there was sufficient interest to move the RETP from study mode to holding an Open Season for the RETP. If the stakeholder group determines that an Open Season should be conducted the below steps would be taken.

**NCTPC TRANSMISSION COST ALLOCATION WHITEPAPER**  
**FINAL –September 6, 2007**

- Open Season
  - A coordinated Open Season for this RETP would be held by Entergy, Southern and Duke for the 1,000 MW PTP Transmission Service reservation for the defined 20-year period from Entergy into PJM.
  - Transmission Customers would have 60 days to determine if they want to participate in this Open Season.
- For this example we will assume that there were adequate subscriptions as listed below:
  - Transmission Customer 1 subscribes at a level of 200 MW
  - Transmission Customer 2 subscribes to 300 MW
  - Transmission Customer 3 subscribes to 500 MW
- Transmission Customer 1 is granted 200 MW of firm PTP Transmission Service from Entergy to PJM for the 20 year period.
- Transmission Customer 2 is granted 300 MW of firm PTP Transmission Service from Entergy to PJM for the 20 year period.
- Transmission Customer 3 is granted 500 MW of firm PTP Transmission Service from Entergy to PJM for the 20 year period.
- The above three Transmission Customers would pay Duke for the PTP Transmission Service each month at the Duke embedded cost transmission rate.
- Transmission Customers would receive credits back as follows:
  - Duke would provide an annualized repayment of the initial funding of the transmission projects
  - Duke will net their annualized repayment of the initial funding against the Transmission Customers' charges for their PTP service that they take each month.
- Impact to the Duke transmission rate base:
  - Duke will have the opportunity to include within their transmission rate base the transmission that was constructed for the RETP as the initial funding is repaid to the Transmission Customers over a 20 year period.