

**SUGGESTED CONTENT FOR  
AN ELECTRONIC INFORMATION NETWORK  
TO ASSIST IN PERFORMING  
TRANSMISSION SERVICE TRANSACTIONS**

**Submitted to  
Federal Energy Regulatory Commission  
October 16, 1995**

**Pursuant to FERC Docket Number RM95-9-000**

**Submitted by  
Electronic Information Network “What” Working Group**

**Facilitated by  
North American Electric Reliability Council**

## EIN “WHAT” WORKING GROUP<sup>1</sup>

### Working Group Members

Paul F. Barber	Citizens Lehman Power LP
Gerald W. Burrows	Kansas City Power & Light Company
C. Terry Callender	NGC Corporation
Peter A. Daly	Power System Engineering Inc. (APPA)
James R. Dauphinais	Northeast Utilities Service Company
Chris Ellison	Ellison and Schneider (IEPCA)
Leigh Fingar	Southern Company Services, Inc.
Gary L. Fulks	Associated Electric Cooperative, Inc.
Arthur R. Garfield	Ohio Edison Company
Dean R. Gosselin	Equitable Power Services Company
John Griffin	Pacific Gas & Electric Company
Darrell Hayslip	Destec Energy, Inc.
William J. Head	Mid-Continent Area Power Pool
B. Jeanine Hull	LG&E Power, Inc.
Sam R. Jones	City of Austin Electric Utility Department
Kenneth W. Laughlin	PJM Interconnection Association
Mark Mitchell	Arizona Power Authority
Carl A. Monroe	Entergy Services, Inc.
Scott P. Moore	Central & South West Corporation
Steven Naumann	Commonwealth Edison Company
Jeff Parish	Alabama Electric Cooperative, Inc.
Richard S. Shapiro	ENRON Capital & Trade Resources
Steven K. Sorey	Sacramento Municipal Utility District
Steven L. Walton	PacifiCorp
Donald S. Watkins	Bonneville Power Administration
John Wulf	Snohomish County PUD No. 1
<b>Liaisons</b>	
Derek R. Cowbourne	Ontario Hydro (Canada)
Gerry Cauley	Electric Power Research Institute
William Booth	Federal Energy Regulatory Commission
James E. Neeley	Texas Public Utility Commission (NARUC)
<b>Observers</b>	
Kurt Conger	American Public Power Association
David L. Swanson	Edison Electric Institute
Margaret A. Welsh	Electric Generation Association
C.M. Mennes	NERC EIN Task Force
William Cowan	National Independent Energy Producers
Ron Greenhalgh	National Rural Electric Cooperative Assn.
<b>Facilitators</b>	
David R. Nevius	North American Electric Reliability Council
Eugene F. Gorzelnik	North American Electric Reliability Council

<sup>1</sup> This document was developed by the Working Group as a product of industry consensus making. However, this does not imply full endorsement by individual members or their organizations.

**TABLE OF CONTENTS**

**I. INTRODUCTION ..... 5**

1. BACKGROUND ..... 5

2. ASSUMPTIONS ..... 5

3. EIN OBJECTIVES ..... 6

**II. SCOPE AND DEFINITIONS ..... 9**

1. NEAR-TERM AND FAR-TERM TRANSMISSION SERVICE REQUESTS ..... 9

2. TRANSMISSION PATH ..... 9

3. AVAILABLE TRANSFER CAPABILITY (ATC) ..... 10

4. TRANSMISSION SERVICE ATTRIBUTE DEFINITIONS ..... 16

5. TRANSMISSION PRODUCT DEFINITIONS ..... 17

6. MANDATED ANCILLARY SERVICES ..... 19

7. RESALE ..... 19

8. MECHANISM FOR DISCOUNTING TRANSMISSION SERVICES ..... 20

9. DISCUSSION OF GENERATION INFORMATION RELATED TO REDISPATCH/OPPORTUNITY COSTS ..... 20

**III. POSTING TRANSACTION INFORMATION..... 23**

1. TRANSACTION INFORMATION POSTING REQUIREMENTS: ..... 23

    a. Available Transmission Capacity Information ..... 23

    b. Transmission Products ..... 26

    c. Specific Transmission Requests ..... 27

    d. Informal Transmission Communications ..... 30

2. POSTING RESPONSIBILITIES ..... 31

3. TRANSACTION ANONYMITY ..... 32

4. SCHEDULING PROCESS ..... 33

5. AUDITING TRANSMISSION SERVICE INFORMATION ..... 33

**Explanatory Notes:**

Boxed text in this document signifies unresolved issues among the Working Group. An effort is made to capture the arguments and flavor of the discussion rather than draw conclusions or outline solutions.

The original document is produced in Microsoft Word Version 6.0 for Windows (DOS) for printing on a Hewlett Packard LaserJet 4. Other file formats were produced directly from the original without additional page formatting or graphic changes.

The official electronic copy of this document (EINFINAL.DOC) resides at Power System Engineering Inc. (PSE). The version posted on the NERC BBS is protected from changes within Microsoft Word version 6.0.

10/16/95 FINAL

Acknowledgment is due Kirstin Ault of PSE for her efforts working with the writers of this document and bringing it to this final form.

# I. INTRODUCTION

## **1. Background**

On March 29, 1995 the Federal Energy Regulatory Commission (FERC) issued its Notice of Proposed Rulemaking (NOPR) on comparable transmission access. At the same time, FERC issued a Notice of Technical Conference on Real-time Information Networks (RINs) to be held on July 27, 1995 to investigate the means of providing information on transmission availability to potential Transmission Customers. At that Technical Conference, participants agreed to the formation of two working groups, one to be facilitated by the North American Electric Reliability Council (NERC) to cover “what” information was to be included in RINs and the other to be facilitated by the Electric Power Research Institute on “how” RINs should be implemented. Both work groups were to submit their recommendations to FERC by October 16, 1995. FERC issued a Notice of Timetable and Opportunity for Participation in Industry Working Groups on August 10, 1995 which confirmed the discussion which took place in the Technical Conference.

This document is the product of the “what” working group facilitated by NERC. It summarizes the functional requirements for Electronic Information Networks (EINs) to facilitate open access to the transmission system as provided for in FERC regulation. The purpose of the EINs is to provide the information necessary for each Transmission Customer to make sound and accurate decisions regarding the availability of transmission capacity. This information is to be provided to all interested parties on an open, equal, and same-time basis so that open and equal access to transmission services can be achieved.

In this report, the term Electronic Information Network (EIN) is used, rather than EBB, RIN, or TSIN. This convention was adopted in order to avoid confusion with the concept of “real-time information” that is used in electric utility energy management systems, and to convey the concept that the proposed EINs are “same-time” information systems. EINs will be electronic networks based on the same standards across the entire nation that will be capable of two-way electronic communication between Transmission Providers and Transmission Customers. Information will be provided at the same time to all users, although that information may not be posted in “real-time”.

## **2. Assumptions**

There are a number of underlying assumptions which were made during the creation of this document. To avoid needless repetition, the assumptions stated here apply to all sections of this document, unless otherwise stated.

- Phasing

The EIN(s) will be constructed in phases, with the initial phase consisting of core requirements and later phases increasing the functionality, efficiency, and/or effectiveness of the EIN. Except for elements specifically targeted for later phases, it is intended that all specifications included herein be implemented in the first phase. Future phases are envisioned to implement necessary changes to accommodate additional and unforeseen requirements. The EIN should be flexible so that it can adapt to the industry and technology changes of the future.

- **Functional Separation**

Functional separation means that the [Transmission Provider], in order to provide non-discriminatory open access to transmission and ancillary services information, must rely upon the same electronic network that its Transmission Customers rely upon to obtain transmission information about its system when buying or selling power.<sup>1</sup> This is to say that the merchant functions of the Transmission Provider (as defined by FERC) will not have preferential access to any transmission service information about the Provider's system from the Transmission Provider that is not available to all users of the Electronic Information Network.

- **Accessibility to the EIN**

The EIN will include viewing tools enabling equivalent, basic access to the data base for all EIN users. However, the working group assumes that many users will desire to customize their access to the data base and have the information presented in a variety of ways tailored to their individual needs. The EIN itself will not seek to satisfy this need. Instead, private software developers will be permitted and encouraged to develop and market customized viewing tools for the EIN .

- **Transmission Provider and Transmission Customer**

Transmission Provider and Transmission Customer are generally as defined by FERC in the final Open Access ruling, with the exception that, because this EIN contemplates services by both jurisdictional and non-jurisdictional entities, Transmission Provider, as used in this document, includes both jurisdictional and non-jurisdictional entities.

- **Transmission Provider's Tariff**

This term is used to encompass service provided under tariffs of public utilities under the Federal Power Act, transmission service provided under RTG agreements or other agreements to provide transmission service by non-jurisdictional entities.

### **3. EIN Objectives**

The Federal Energy Regulatory Commission has recognized that information is the gateway to transmission service comparability and a competitive electric market. The purpose of an Electronic Information Network (EIN) is to provide all market participants contemporaneous

---

<sup>1</sup> Description adopted from FERC's MegaNOPR, pp. 95-96.

access to the same level and quality of transmission system information that is essential to achieving a competitive electric market.

An EIN should:

1. allow Transmission Customers to make requests for transmission services offered by Transmission Providers
2. allow Transmission Customers to view necessary information regarding the transmission system to enable prudent business decision making
3. provide a mechanism for the exchange of information between customers and providers regarding available products and desired services
4. enable all Transmission Customers to clearly identify the degree to which their transmission service requests and/or schedules were denied or curtailed relative to those of their competitors
5. allow Transmission Customers to historically review transmission service requests and schedules for various audit purposes

In instances where requests are denied or transactions are curtailed, the EIN should provide a mechanism for Transmission Providers to communicate to Transmission Customers 1) the reason those transactions could not be accommodated and 2) the options, if any, for adjusting operation of the system to increase transfer capability in order to accommodate those transactions.

The four major types of information that will be found on the EIN are:

1. Available Transmission Capacity Information
2. Transmission Providers' Product Offerings and Prices
3. Specific Transmission Service Requests
4. Informal Transmission Communications

## II. SCOPE AND DEFINITIONS

### 1. Near-Term and Far-Term Transmission Service Requests

The EIN should support the posting of available transmission capacity and the processing of requests electronically, for both near-term and far-term transmission service. For near-term service, the EIN should provide a mechanism to enable Transmission Providers and Customers to rapidly communicate requests and responses to buy and sell available transmission capacity offered under the Transmission Providers' tariffs. For far-term service, posting and request queuing should be performed on the EIN; however, the consummation of transactions may require off-line work (which must at a minimum conform with the existing requirements of any RTG and FERC "Good Faith" request processes, study requirements, etc.).

It does not seem possible to post the availability of Network Integration Service Transmission on an EIN. Therefore, the EIN should be designed with the goal of handling point(s)-to-point(s) transmission service requests and availability postings. However, requesters should be able to use the EIN as a medium for requesting Network Integration Service Transmission, both for convenience and for electronic time stamping of the request.

If Network Integration Service Transmission is requested using a medium other than the EIN, the request shall be entered into the EIN by the Transmission Provider who receives the request so that the request information and its time stamp may be entered into the audit database.

### 2. Transmission Path

A Transmission Path (Path) is a cutset<sup>2</sup> including one or more electrical connections, links, lines, or combinations deemed necessary to complete a commercial transmission transaction. Examples of a Path are electrical connections or interfaces between two specific areas, control areas, transmission systems, or utilities. A Path also can be internal to a single utility's system. Interconnection points and present or future known constrained internal transmission cut-planes also may be Paths. Examples of existing commercial Paths on the Western Interconnection are the California-Oregon Border (COB), and Path 15 (south of Los Banos). On the Eastern Interconnection, Northern Illinois (NI) to the Wisconsin-Upper Michigan Systems (WUMS), Central-East Interface (in New York), and Southern Company to Florida are also examples of existing or potential commercial Paths. In ERCOT, Texas Utilities (TU) to STEC/MEC is an example of a commercial Path.

Any commercial transmission transaction will utilize a combination of one or more Paths. A Contract Path may be a single Path or sequence of contiguous Paths that form a continuous

---

<sup>2</sup> As used here, a cutset is defined as the set of parallel electrical elements cut by a line or a trace marking some interface of interest.

electrical connection between the parties to a transaction. Although a Contract Path can be the basis for a commercial transmission transaction, in alternating current systems, electricity will not flow solely on the Contract Path, but will flow on the entire transmission system of the Interconnection in accordance with the laws of physics. Appropriate provision must be made to properly account for “unscheduled flow” through each Path resulting from each known transaction. Transmission Providers are urged to develop regionally accepted methods of attributing all contributions of loading to each Path including the effects of the real flow contribution of all transactions.

### **3. Available Transfer Capability (ATC)**

The purpose of posting the Available Transfer Capability (ATC) and Total Transfer Capability (TTC) that is expected to be available on a Transmission Path of the Transmission Provider's system is for the Transmission Provider to inform all participants simultaneously in the wholesale market of the transfer capability that is expected to be available on the Transmission Provider's system.<sup>3</sup> Transmission Providers are obligated to post the availability of that transmission capability for which they have responsibility. The Transmission Provider may delegate this responsibility to a suitable third-party, such as an Independent System Operator (ISO), a Regional Transmission Group (RTG) or a Regional Reliability Council (RRC). As used in this document, the Responsible Party is the Transmission Provider or a third party to whom the Transmission Provider has delegated this responsibility.

This information includes the quantities of transmission capacity available, as well as other relevant information (curtailment priorities, etc.), by Path, type (Firm, Non-firm, etc.) and time. As currently conceived, this information would be organized by Path (which would be based on regional practices), and would generally be posted daily for each hour of the next seven days, with hourly updates as required, and posted less frequently for longer future periods.

The ATC/TTC shall be calculated by the Responsible Party (the Transmission Provider or its designated agent) according to the filed, consistently applied practices, standards and criteria of the Transmission Provider, power pool (if applicable), Regional Reliability Council and NERC. The amount of ATC posted shall be that amount that the Responsible Party expects, in good faith, to be available on a specific interface or Path in a specific direction, based on engineering analysis and other information that is available to the Responsible Party at the time of the posting. Curtailment provisions associated with ATC must be incorporated in the posting and must be made available to all Transmission Customers.

---

<sup>3</sup> This sentence is not meant to prejudge the issue that has been raised in FERC's NOPR (pp.98-99) as to whether to unbundle and post the transmission service that a Transmission Provider provides to itself in its retail sales function.

### *Calculation of ATC*

There is no single method of calculating ATC/TTC that is applicable throughout the entire nation. As stated above, calculations should be based on the published standards, criteria and guides of the individual Transmission Provider (as filed with FERC as part of FERC Form 715 and as filed in transmission tariffs). These calculations must be consistent with the regional and NERC standards, and these standards must be available for review on the EIN. There are differences in planning and operating practices and standards between regions (and even between individual utilities within a region). A multiplicity of factors—thermal limits, voltage limits and stability limits—can limit transfer capability. While different limits may predominate in different regions, some regions and some individual transmission systems experience multiple limits at different times and under different circumstances. Furthermore, these limits can occur anywhere on the transmission system of the interconnection, not necessarily on the interface or even on the Transmission Provider’s transmission system or on the transmission systems of those utilities on the contract Path. The Responsible Party should be required to post, or otherwise make public, the identification of the limiting element and the cause of the limit (e.g., thermal, voltage, stability). Whatever method is used to determine capability will be applied equally to all potential customers of that posted Path.

ATC is the transmission capability of a Path for a specific direction, utilizing the entire transmission system of the interconnection that is expected to be available for new transmission service requests. TTC is the total capability of the defined Path. There are two fundamental approaches to calculating TTC. In some regions, TTC is directly calculated using engineering studies. ATC is then determined by subtracting transmission service commitments from TTC. In other regions, TTC is calculated as the ATC plus any transmission commitments on the defined Path, due to the difficulty of accounting for loop flows. Basically, ATC is the best engineering calculation of capability that is not committed to other uses during the scheduling interval for which service is requested. In any case, the contracted-for transfer (plus all existing transfers) may not exceed the total installed transmission capacity of owned or arranged for transmission facilities between two areas, even if the capability of the entire transmission network is greater.<sup>4</sup>

Figure 1, “Electric Power Transfer Concepts” illustrates the general relationships between Path capabilities and uses. Firm (Non-Recallable) commitments over a planning horizon include uses such as firm transmission service to retail load, firm network service and committed firm transmission service including emergency import requirements for generation deficiencies in order to meet regional or utility generation adequacy standards.<sup>5</sup> Non-firm (recallable) commitments include those transfers that are recallable in favor of subsequent requests for Firm transmission service. However, Non-firm (Recallable) commitments have precedence over subsequent requests for Non-firm (Recallable) transmission service, unless the tariff or contract provisions specify otherwise.<sup>6</sup> Engineering calculations are used to determine thermal, voltage or stability

---

<sup>4</sup> See NERC Operating Manual Guide I.D, Interchange Scheduling (May 24, 1994) Policy 3.A, Interchange, at P3-1; Policy 3.B, “Transfer Capability,” Requirement 1, at P3-2 (May 23, 1995).

<sup>5</sup> These firm commitments do not include pending requests for firm transmission service (including network service).

<sup>6</sup> The attributes of Firm and Non-firm transmission service are those as defined in the nondiscriminatory open access transmission service tariffs.

limits above these base loading levels, within the applicable reliability criteria (e.g., first contingency, second contingency, selected second contingencies). The Transmission Provider (or its designated agent) calculates the additional transfer capability that is available without violating reliability limits. Because of uncertainties in system conditions the Transmission Provider must calculate an appropriate transmission margin. Transmission margin calculations should be based on the published standards, criteria and guides, and operating experience of the individual Transmission Provider (as filed with FERC as part of FERC Form 715 and as filed in transmission tariffs). These calculations must be consistent with the regional and NERC standards, and these standards must be available for review on the EIN.

Figure 1 graphically illustrates that the Firm (Non-Recallable) ATC is the difference between the TTC minus Transmission Margin, and the Firm (Non-Recallable) commitments. Of course, as the Transmission Provider commits to new Firm (Non-recallable) uses, other transactions not involving the Transmission Provider are scheduled (parallel flows), or existing Firm (Non-recallable) uses terminate, ATC will change. Similar ATC and TTC calculations are performed in the shorter time frame of the operating horizon.<sup>7</sup> Non-firm (Recallable) ATC, which is applicable in the operating horizon, is the difference between TTC, and the sum of Firm (Non-Recallable) commitments and Non-firm (Recallable) commitments, plus unscheduled Firm commitments. If there are substantial prior Non-firm (Recallable) commitments, the Non-firm (Recallable) ATC may be lower than Firm (Non-Recallable) ATC (this is illustrated in Figure 1). Due to reduced uncertainties over the shorter time horizon, it would be expected that under normal conditions the transmission reserve component would decrease from that required in the longer time horizon.

Path capabilities should be posted as business needs arise. In some regions, selected interconnection Paths are minor ties between utilities or control areas that presently are not rated for transfer capability and on which no constraint to competing commercial activity is anticipated. These Paths need not be posted until a business need<sup>8</sup> arises, at which time ATC must be determined and posted. ATC shall be calculated and posted for all defined Paths with expected limitations and all other Paths, which have the potential to be constrained, for which a good faith transmission service request has been made. Paths that no longer meet this criteria may be withdrawn from posting. If customers require ATC information on additional Paths, the Responsible Party must provide such information on the EIN.

---

<sup>7</sup> Because of differences in the planning and operating environment, there may not always be a smooth transition in ATC/TTC between the planning and operating numbers. This is shown in Figure 1.

<sup>8</sup> A “business need” is signified by a request from a Transmission Customer concerning information or a reservation on a Path which has the potential to be constrained.

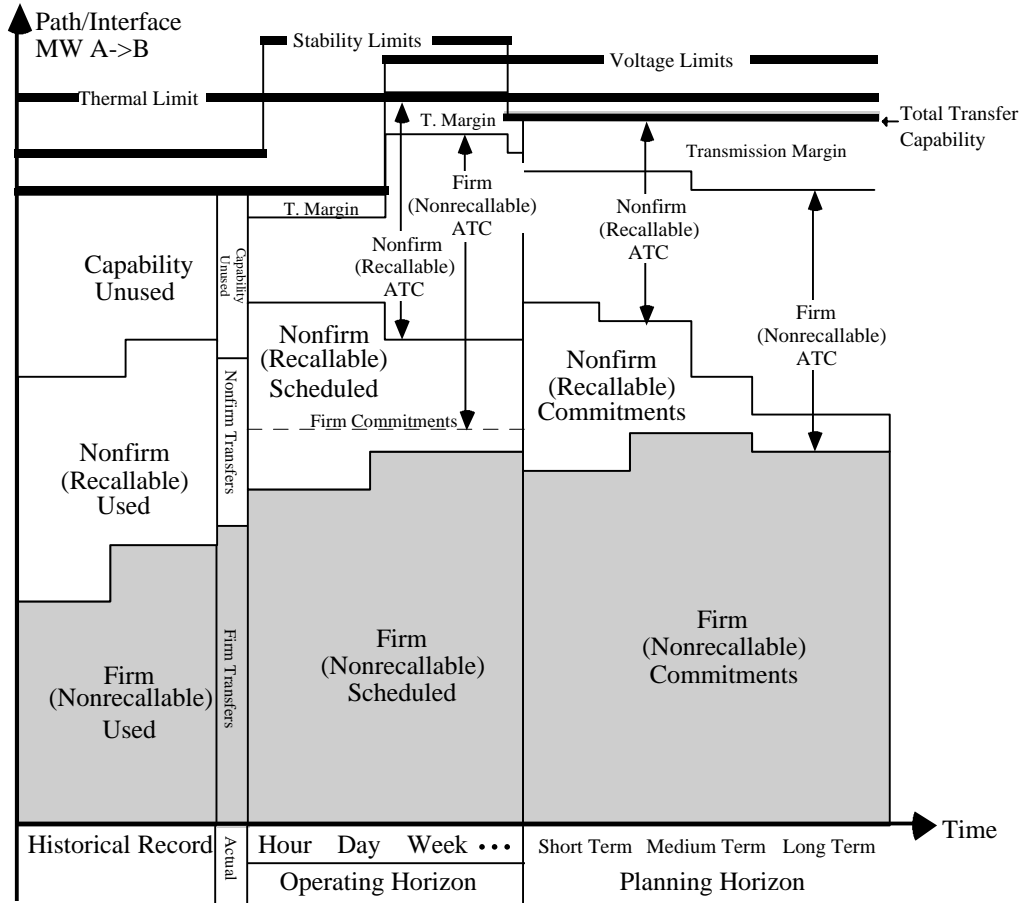
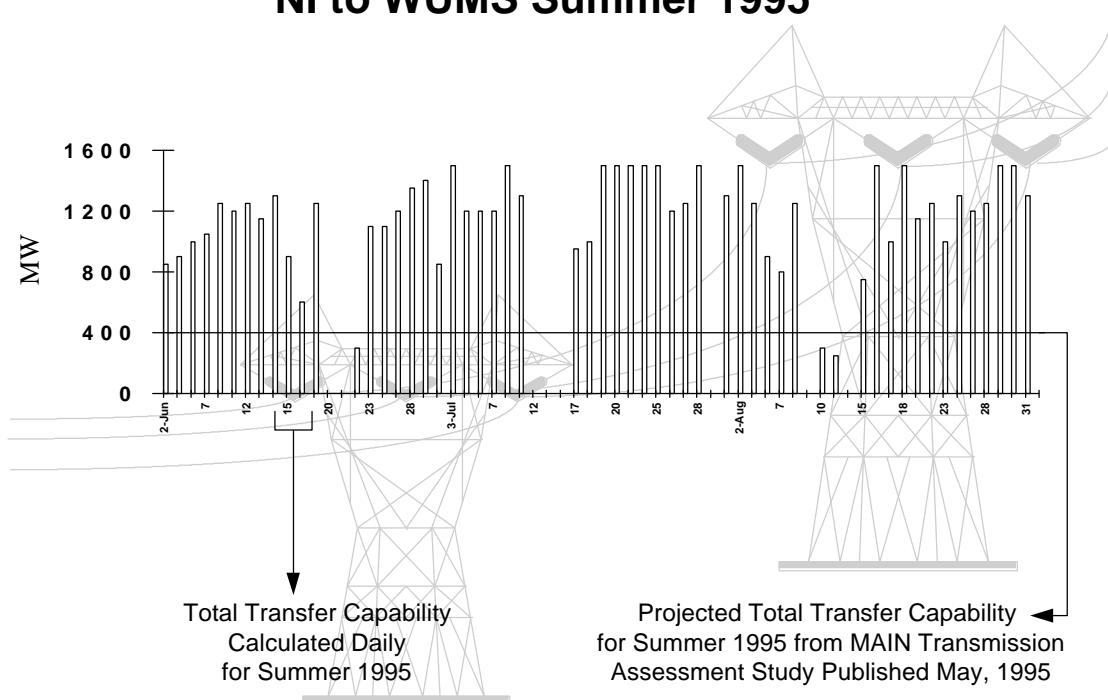


Figure 1 Electric Power Transfer Concepts

Time Horizon

The longer the length of time in advance of service that the Responsible Party calculates estimates can change. Planned transmission facilities may or may not be installed on time and some may not receive permits or certificates. Generation maintenance schedules and may impact a given interface pre-empting what appears to be available transfer capability. As the planning horizon becomes shorter, uncertainties decrease and the ATC/TTC those Transmission Providers that use dynamic line ratings, ATC/TTC could change hourly, even if there are no changes in ongoing transactions. Figure 2 is a comparison of the start of the summer season by the Mid-America Interconnected Network (MAIN) for an interface between Northern Illinois and Wisconsin. This figure shows the variation of (daily) calculations.

**First Contingency Total Transfer Capability  
NI to WUMS Summer 1995**



**Figure 2 Comparison Between Seasonal and Daily Studies**

### Parallel Flows

In many regions of the United States, transactions of third parties can cause major changes in ATC due to parallel flows. To accurately calculate ATC for this condition, the Transmission Provider needs to be informed of all planned transactions (planning horizon), including those transactions to which the Transmission Provider is not a party and all scheduled transactions (operating horizon).

Substantial problems can occur when different parties request transmission service within a short time interval over different interfaces where the transactions have a substantial impact on both interfaces. It is not clear which party has priority and regional solutions are necessary. This brings up the importance of reporting of planned transactions on an interconnection-wide basis (Eastern, Western, ERCOT) in some regions. Where there are problems with identifying the impacts of commitments and thus the possibility of oversubscribing transmission segments, provision must be made for an effective means of communicating transmission commitments between provider and operators or some sort of security center implementation to assess and control commitments.

### Variations in Assumptions

Another concern is that parties on either side of an interface will calculate different ATC values because each is using different engineering assumptions. In the absence of agreement between the parties, the lower ATC must be used.

### Regional Calculations

These issues point to the benefit of calculations of ATC by regional entities. Although it is expected that such regional entities will develop naturally (either because of the necessity to maintain reliability or to reduce the total cost of calculating and posting ATC), it is important that both the Commission and the Transmission Providers take no actions that would inhibit formation of such regional providers. While such providers may not be ISOs or RTGs, they would still perform a valuable service to the industry and facilitate expanded generation competition by improving the accuracy of ATC projections.

### ***Relationship Between Posted ATCs and Requests for Transmission Service***

As stated above, ATC and TTC are based on engineering calculations. These values represent the transmission capacity that a Transmission Provider (or its delegated representative) believes at the time of posting that it can likely provide based on all information reasonably known at that time. Transmission tariffs provide an application procedure for Transmission Customers to request transmission service. At the time of the application, and in accordance with the provisions of those tariffs, the Transmission Provider (or its designated agent) will inform the requester if the Transmission Provider can honor the request. If not, the Transmission Provider will provide an explanation of new information (such as the specific nature of the request and changes in system conditions) or senior pending requests preventing acceptance of the full request, regardless of the posted ATC/TTC values. It is expected that for shorter time horizon requests, the actual ATC

will have smaller variations from the posted ATC as system conditions become better known. However, customers and providers should understand that in the interval between postings wide variations between actual and posted ATC can occur due to an influx of requests and changes in schedules. Because posted ATC values are not necessarily final commitments of what can be sold, it is expected that customers may request service for transmission capability above values posted on the EIN. Such requests must be fully evaluated in the same manner as any other request. In the final analysis, it is the responsibility of the Transmission Provider to determine whether a request for transmission service can be honored. If a Transmission Customer disagrees with the evaluation, the transmission tariffs should contain procedures for dispute resolution.

#### **4. Transmission Service Attribute Definitions**

Recognized definitions of the attributes which make up transmission services are needed so that reasonably consistent expectations can be made regarding the services that are being purchased. These definitions should be broad enough to encompass current and future transmission services including services defined in the FERC Final Rule or approved by FERC as a result of subsequent applications. The objective of clearly defining standardized transmission attributes is to:

- provide recognized, nationally accepted definitions that describe transmission products more precisely than the current concept of “firmness”.
- provide Transmission Customers with a simple and certain method for quickly comparing diverse transmission services from different Transmission Providers.
- provide an efficient method of conveying tariff provisions on an Electronic Information Network where simplicity of data and ease of use are important concepts.

It is important to note that the primary attributes that characterize transmission service are recallability and curtailability. The former is what distinguishes “Firm” (or “Non-recallable”) service from “Non-firm” (or “Recallable”) service. Because the terms “Firm” and “Non-firm” are used very loosely today, confusion is created as to the basic nature of transmission services. The following new attributes are proposed to define transmission service more precisely, not to replace the concepts of Firm and Non-firm.

Recallability: The right of a Transmission Provider to interrupt all or part of a transmission service for any reason that is not unduly discriminatory and that is consistent with FERC policy and the provider’s tariff. Service may be recalled with a minimum notice period that is set by the Transmission Provider’s tariff and posted on the EIN. Other elements of Recallable service which will be posted on the EIN include: permissible reasons for recall, recall procedures, reinstatement provisions and placement in the request queue as applicable.

Curtilability: The right of a Transmission Provider to interrupt all or part of a transmission service due to conditions which reduce the capability of the Transmission Path to provide that transmission service. Such conditions include, but are not limited to, outages of one or more elements of the Transmission Path, nomogram restrictions, simultaneous transfer limits, and unscheduled flows (also known as “loop flow”). When such conditions no longer restrict the

capability of the Transmission Path, the transmission service will be resumed. It is clearly understood that service is to be curtailed only in cases where system reliability is threatened and/or emergency conditions exist. Curtailment does not apply to situations in which service is discontinued for economic reasons. Curtailment information which will be posted on the EIN as part of the product definition includes: permissible reasons for curtailment, notice required, curtailment procedures, and curtailment priority relative to other classes and other customers in the same class if necessary due to FERC curtailment queuing policy.

## **5. Transmission Product Definitions**

Transmission Providers must post the salient prices, terms and conditions associated with the transmission products which they offer to Transmission Customers. Providers must also provide a downloadable file of their complete tariff in a format generally accepted by all utilities in the region.

While Transmission Providers should have the flexibility to offer different transmission services, they should be able to describe their product offerings in terms of the following basic attributes of transmission services:

1. Recallability (as defined above)
2. Curtailability (as defined above)
3. Service Timing (e.g. minimum duration, maximum duration, maximum number of back-to-back increments, minimum reservation period, and maximum reservation period)
4. Customer Payment (e.g. reservation fee, if any; payment obligation - e.g., take-or-pay; and rates)
5. Service Swapping and Assignability (e.g. allowable conditions for swapping for different points of delivery and receipt, and assignability requirements)
6. Capacity Increase Obligation (e.g. provider obligations, if any, to construct upgrades and/or redispatch, and who pays)
7. Losses and Other Ancillary Service Obligations (e.g. who is obligated to supply, options for alternative provision by other parties, and rates)
8. Additional Customer Requirements
9. Additional Provider Options (e.g. performance guarantees)

***Example Display of Transmission Product Descriptions***

The following table is an example of possible transmission product descriptions as they may be represented on an EIN, using standard definitions as outlined in previous sections.

<b>Attribute</b>	<b>FERC PRO FORMA NON-FIRM</b>	<b>FERC PRO FORMA FIRM</b>	<b>OTHER PRODUCTS...</b>
<b>Recallability</b> – Permissible Reasons – Minimum Notice – Recall Queue Order – Resumption Obligation			
<b>Curtailability</b> – Permissible Reasons – Minimum Notice – Curtail Queue Order – Resumption Obligation			
<b>Service Timing</b> – Minimum Duration – Maximum Duration			
<b>Customer Payment</b> – Reservation Fee :			
<b>Assignability / Swapping</b> :			
<b>Capacity Increase Obligation</b> :			
<b>Losses / Other Obligations</b> :			
<b>Additional Customer Requirements</b>			
<b>Additional Provider Options</b>			

## **6. Mandated Ancillary Services**

To the extent that FERC mandates in its final ruling that a Transmission Provider must offer ancillary services, the Transmission Provider will post such offers on the EIN. Other entities offering the same ancillary services shall have a comparable right to post offers in the “Informal Transmission Communications” section of the EIN.

It has not been decided what attributes of ancillary services must be posted on the EIN. In addition, it has not been resolved whether those entities other than the Transmission Provider posting offers to provide ancillary services should or should not be required to contribute to the costs of the EIN.

## **7. Resale**

There is an unresolved issue concerning the responsibilities and/or obligations of rights-holders to provide and post unused capacity for resale. Much of this issue revolves around the question of whether 1) rights-holders have the ability to restrict access to capacity which they are not currently using or 2) unused capacity reverts back to the Transmission Provider for resale on the EIN on a non-firm basis. However, at a minimum, entities possessing rights to transmission services should have the ability to voluntarily post transmission capacity for resale on the EIN.

Consistent with the final rule, the rights that the Transmission Customer originally acquired, as defined by the magnitude and start/end/duration of the requested service, may, subject to the provisions of the tariff, be subdivided and offered separately or in part as long as the Path and other characteristics of the acquired transmission service rights remain identical. The Transmission Customer may offer the same or a lower grade of service “firmness” than originally acquired, but cannot offer a higher grade of service firmness.

If the Transmission Customer resells its rights, in whole or in part, whether by posting them itself, having the Transmission Provider post them, or by private arrangement, it must promptly notify the Transmission Provider, or the Transmission Provider’s agent, of the new owner of the rights, any subdivision of these rights that may have occurred, and any changes in the terms and conditions of these rights, subject to the terms and conditions of the tariff.

The Transmission Customer that is posting its capacity rights for resale, whether such posting is of a voluntary or mandatory nature, shall post the following information:

- Path
- Original Transmission Provider
- Original Transaction Number
- Amount of capability offered for resale (MW)
- Start/End/Duration of the offered resale
- Price
- Terms and Conditions
- Rights holder contact name, company, phone (24 hour), fax, e-mail

### **8. Mechanism for Discounting Transmission Services**

There is agreement that there should be a mechanism on the EIN that provides for the posting of discounted transmission services by the Transmission Provider. Some have argued that all transmission discounts should be posted on the EIN on the basis that a competitive market can only be achieved through non-discriminatory discounting. Others contend that only discounts that a Transmission Provider provides to itself or its affiliates should be posted on the EIN since the risk of self-dealing and affiliate favoritism are not at risk in other transactions.

### **9. Discussion of Generation Information Related to Redispatch/Opportunity Costs**

Fundamentally, opportunity or redispatch costs are meant to compensate a party that gives up a vested right to transmission service so that another party can take service. Opportunity costs have also been defined as lost economic opportunities that may result from redispatch or, perhaps, failure to be able to purchase and thereby dispatch economy power. The elements of opportunity costs include the difference between the cost of an economy purchase and the cost of redispatched generation, lost profits on an economy sale, or a combination thereof. The debate focuses on which, if any, of these costs should be paid by the Transmission Customer and is concerned primarily with economy-purchase and sales-related

opportunity costs.

The opportunity/redispach costs associated with increasing the ATC of a constrained Transmission Path will depend upon the time, duration and nature of the requested transmission use because the dynamics of system loads, economic dispatch, outages, loop flow, the types of generation resources involved, the availability and cost of energy storage, and other operating conditions expected during the time of use differ with each transaction. An unresolved issue which has arisen is whether the ability of the Transmission Provider to impose these costs on the Transmission Customer requires the posting of generator run status and cost information.

- Argument for Requiring Access to Generator Cost/Status Information

Some market participants have argued that access to information on the status and operating costs of a Transmission Provider's generation units that are the basis for the imposition of opportunity costs will be necessary insofar as the transmitting utility is authorized to charge Transmission Customers for opportunity costs. Opportunity cost recovery, as it relates to economy purchase and sales related opportunity costs, is at war with service comparability. The ability to unilaterally assess and recover generation related costs in the form of opportunity costs for the provision of transmission service is a product of vertical integration and would not be possible in a competitive market. Notwithstanding their opposition to the recovery of opportunity costs, these market participants have argued that if such costs are to be imposed, they must be made known with specificity and certainty before they are incurred. They also must be verifiable. This will necessitate posting on the EIN the status and operating costs of the generating units that are available to the Transmission Provider seeking opportunity cost recovery. Only if this information is posted will a Transmission Customer have an opportunity to avoid or mitigate opportunity cost charges by altering its own uses of the system or by contracting with other system users or power suppliers for other mitigation options, such as load shedding or reconfiguring generation. Further, some form of reporting on the status and operating costs of generating units will be necessary if the Transmission Customer is to have an opportunity to audit whether claimed redispach or other opportunity costs were incurred or were actually necessary.

- Argument for Not Requiring Access to Generator Cost/Status Information

Other market participants contend that there is no reason for Transmission Providers to post generator run status and cost information on the EIN. First, from a technical standpoint, this information is of no practical value to the Transmission Customer in determining opportunity costs. Determination of redispach costs is a complex analysis based on a combination of trial and error and knowledge based on years of experience with how different components of the Transmission Provider's system interact with each other. Currently, system operators do not have a program that automatically determines the optimal generation shift or redispach to increase transfer capability across a constrained Path by a specific MW amount requested by the Transmission Customer. Second, from a policy standpoint, the Commission should not require

Transmission Providers to post competitively-sensitive information that could be used by competitors to gain an advantage in bulk power markets. In a competitive generation market, generation-related information is without question commercially sensitive. It is particularly inappropriate to require the disclosure of generator-related information from jurisdictional utilities but not from all market participants such as federal power marketing agencies, independent power producers, municipalities, cooperatives, marketers and other non-jurisdictional entities. In developing information standards, the Commission should adopt an approach that is genuinely pro-competitive and does not confer advantages on certain competitors. Finally, the cost impacts of constraint control (represented by redispatch or opportunity costs) would be posted on the EIN, and the tariffs would explain the calculation methodology and provide for verification of data after the fact to ensure compliance with appropriate standards.

### III. POSTING TRANSACTION INFORMATION

#### **1. Transaction Information Posting Requirements:**

Four major types of information will be posted on the EIN:

- a. Available Transmission Capacity Information
- b. Transmission Provider's Product Offerings
- c. Specific Transmission Service Requests/Responses
- d. Informal Transmission Communications

The information requirements for each type are as follows:

#### **a. Available Transmission Capacity Information**

The following is the data which needs to be posted to provide information regarding available transmission capacity.

1. Path Identity
  - Path Name
  - Point of Delivery (POD)/Point of Receipt (POR)(direction)
  - Identification of Transmission Provider

Path Name is a unique identifier for the posted Path. Existing Path names should be used when possible (e.g. PACI, NI to WUMS). The naming of a Path should include the names of the control areas, the specific switchyard (when this is a relevant piece of information), or the names of the transmitter and receiver, as well as the bus name, if applicable. The EIN should as much as possible use existing naming conventions. A dictionary may need to be posted for Transmission Customers to be able to understand the identification of the posted Path Name. There may be a need to add a regional identifier to enable existing names, which might be duplicated in different regions, to be used nation-wide. Either POD/POR or Direction (to/from) should be posted depending on regional practice.

#### 2. ATC/TTC Data

ATCs and TTCs as required in the Posting Schedule should be posted in MW. Rounding shall follow regional practices (e.g., nearest 50 MW). The EIN should provide the ability to footnote ATC/TTC data with explanatory remarks by category such as Path, equipment and emergencies.

### 3. Explanatory Remarks

The fields for explanatory remarks as referenced by the ATC/TTC footnotes contain other information such as contingent system conditions, explanation of major changes from prior postings, generation source and load sink assumptions, nomograms, simultaneous transfer information, and deratings due to outages.

#### **Discussion of Providing Additional Information Beyond ATC/TTC**

- Argument for Providing Additional Information

Due to uncertainty over true functional separation, the lack of accepted standards of conduct for inter-affiliate transactions, and the potential for self-dealing, some Transmission Customers contend that while outages/deratings and transmission service curtailment information provide insight to actual limitations on system operations, additional information may be necessary to increase the confidence of Transmission Customers in the validity of the ATC posted by the Transmission Provider and to insure equal access to information about factors that affect ATC.

Owners of generators that have a **significant and direct impact** (+/-) on ATC should provide the following information so that all market participants have the same information about the system:

- Run Status: On/Off
- Actual MW, MVAR output and generator bus voltages
- MW and MVAR Available

The information used to predict potential limitations comes from measurements communicated to control center personnel over a SCADA (or similar) system. Loadings at particular system components may indicate that a constraint is developing. This information will help Transmission Customers anticipate with greater certainty whether to attempt to request and schedule resources that may be subject to curtailment due to projected loading trends on certain system components. The following data elements are requested for constrained Paths:

- Actual line loadings in MW and MVARs
- Voltages at line/bus connections
- If measured and controlled by SCADA: Reactor/Capacitor Switch Settings such that any reactive compensation utilized and available is known.
- If measured and controlled by SCADA: Transformer Tap Settings (voltage boost/buck and phase shift)

[Note: Lines and Devices should be referred to by their common to/from bus names. A table correlating bus names to bus numbers used in regional power flow models is also required.]

Upon notice of recall or curtailment, additional descriptive information is needed to determine resource replacement strategies. This information includes:

- Name of the facility (reference to both standard code and common name)
  - Date/time of outage/derating
  - Amount of outage/derating (MW)
  - Reason for outage/derating
  - Expected duration of outage/derating and return to service date/time
- 
- Argument Against Providing Additional Information

Some Transmission Providers contend that this information would be of little practical use, sufficiently voluminous to substantially reduce performance of the EIN, and burdensome to provide. The transmission information provided on an EIN must strike the appropriate balance between transmission information necessary to make informed decisions regarding available transfer capability and the effort required to develop and post the information to all users on a same-time basis. The usefulness of independent real-time calculation of ATC is questionable since the Transmission Provider, the party responsible for calculating ATC, will operate on the basis of the posted value. This value will be used by all customers, including the Transmission Provider's marketing activities, for making requests. Questions concerning the accuracy of posted ATC can be dealt with by suitable auditing provisions and by calculations based on static study data available through Form 715 filings. In addition, providing this data in real-time would require a physical interface to each Energy Management System (EMS) computer and communication equipment that can support high-speed data transmission. Many different interfaces would have to be individually designed due to the great diversity of EMS systems. Finally, some of the information requested above, such as generator status, rating and return dates, is competitive data, since knowledge of generator outages can affect the prices offered by other parties. Some market participants have asserted a need to have the means to collect adequate evidence to prove allegations of anti-competitive behavior. Reasonable requirements for Transmission Providers to maintain adequate record-keeping and record retention procedures along with the opportunity for transmission users to audit those records should resolve Transmission Customer concerns regarding verification of posted information. Other options such as dispute resolution through regional reliability councils or regional transmission groups or a formal complaint with the

Commission are also available to any transmission user that suspects anti-competitive behavior on the part of a Transmission Provider.

### ***Posting Schedule***

- All information should be updated when transactions are scheduled or end or as other system conditions change that significantly affect TTC/ATC but the update frequency should not be mandated to be greater than once each hour. However, during system emergencies, more frequent updates may be desirable, where possible without interfering with operator action to insure system reliability.
- All information will be date/time stamped
- Firm (Non-Recallable) ATC/TTC should be posted:
  - 24 hours per day for the next seven days, updating the next six days and adding day seven at a reasonable pre-specified time daily
  - On-peak and off-peak each day, for days 8-30, updating the next 29 days and adding day 30 at a reasonable pre-specified time daily.
  - By month, both on and off peak, for next 12 months updating the next 11 months and adding month 12 on the 15<sup>th</sup> of each month
  - Seasonal, by year, for years 1-10 (as available)
- Non-Firm (Recallable) ATC/TTC should be posted:
  - 24 hours per day for the next seven days, updating the next six days and adding day seven at a reasonable pre-specified time daily
  - On-peak and off-peak each day, for days 8-30, updating the next 29 days and adding day 30 at a reasonable pre-specified time daily.
  - Longer term as necessary

### **b. Transmission Products**

The product offerings are characterized on the EIN by the following information:

- Product Description  
See section II, 5 “Transmission Product Definitions” for specific product description elements
- Points of Receipt and Delivery or Path, whichever is appropriate
- Quantity Available (in MW)

Note that typically, the amounts should correspond to the amounts of Recallable or Non-Recallable ATC that are concurrently on the EIN.

- Price  
This includes prices and units of pricing as well as discounts, if applicable.
- Loss Factor  
In percent, unless otherwise specified.
- Other Ancillary Service Requirements  
These may include, for example, VAR requirements associated with scheduling the use of the product.
- Curtailment/Constraint Information  
This includes information on the conditions under which service will be curtailed, data on historical and projected curtailments of the service, and/or reference to any relevant nomograms.
- Additional Information  
This includes recall notice provisions (if relevant).
- Identification of Transmission Provider  
This includes a phone contact to obtain information about redispatch costs and answers to other questions regarding the product.

### ***Resale Transactions***

See Section II, 7 “Resale” for information that will be posted for resale on behalf of transmission rights-holders.

### **c. Specific Transmission Requests**

Transmission Customers may use the EIN to post requests to buy one or more specific Transmission Provider(s)’ specific transmission products , consistent with the availability of transmission capacity. Both the transmission service requests and the responses to such requests shall be consistent with the Transmission Provider’s tariff, the Federal Power Act, and FERC policy. See the Transaction Anonymity section for discussion on which parties are entitled to view specific information regarding requests/responses.

It is envisioned that requests would be submitted by customer electronic input to the EIN. In the early stages of EIN implementation, customer requests could also be submitted by phone or fax. For requests that are not submitted through the EIN, the Transmission Provider is responsible for placing the request information on the EIN with its accompanying date/time stamp.

All information at each step in the process will be date/time stamped.

Phase I of the EIN will be designed to support the requesting of transmission service via the EIN and the subsequent viewing of information for each request by any entity.

***Information Provided by Transmission Customer in Requesting Service***

- Request Identifier
  - Date/Time of Request
  - Request Transaction ID #  
Unique identifier assigned by the customer for its own reference
  - Name of Requester/Customer ID  
*(Appears only after request is confirmed)*  
Name of Requester, phone number, and contact person and phone number for customer's scheduling agent. (Note that each customer must be pre-qualified and have an assigned customer ID number.)
- Name of Transmission Provider  
to whom the transmission service request is directed.
- Product and Quantity Requested
- Path ID  
Must match ATC posting where a posted Path exists.
- Control areas containing the source and sink  
except that further detail may be required for some large control areas in order to perform an accurate engineering analysis
- Points of Receipt and Delivery and/or Interface(s) Used  
within the Provider's control area
- Product  
Type of product must match ATC posting (e.g., Recallable, Non-recallable) and reference Provider's tariff number and list required service attributes<sup>9</sup>
- Duration  
Start and end times/dates.  
This must correspond to full clock hour periods
- Quantity (in MW)
- Deal Identifier  
An identifier attached to a request which identifies it as part of a "package" of requests. This package may include time sequential requests, deals involving multiple providers, or transactions that have other common elements.

---

<sup>9</sup>See section II 5 "Transmission Product Definitions"

- Number of sequential transaction requests

If the FERC final rule provides for sequential transaction requests (to reserve Non-firm transmission service for a period of greater than 30 days pursuant to Section 3.1 of the Pro Forma Point-to-Point tariff), the number of sequential requests required will be indicated here.

- Other Information

Required by the tariff for a valid application

- Remarks

This may include other information relevant to the particular transmission product being requested.

***Information Provided by Transmission Provider in Response to Request for Service***

- Request Identifier

- Unique Identification Number for Request
- Date/Time Stamp.

All information at each step in the request and scheduling process will be date/time stamped.

- Status

- Queue position of request
- Status of request

- \* Received

(Message returned to requester when the service provider has read request message)

- \* Under Study

- \* Accepted

(Transmission provider has determined that system is capable of providing the requested service.)

- \* Confirmed for Scheduling

(Requester ready to schedule, in accordance with tariff provisions for type service requested)

- \* Withdrawn

(Requester cancels request for service)

- \* Refused/Rejected

(Service provider has determined that the system is not capable of providing the requested service.)

- Discounts Provided

- Remarks

As Needed

***Typical Request and Response***

The steps of a typical transmission service request would be as follows, with the time for each step keyed to the service tariff:

Requester: Submits request, including all information, as required by the tariff.

Provider: Places request in queue and posts applicable information to the EIN. Posts request status and provides time/date stamps throughout the process.

Provider: Approves or denies request and provides reason, if denied. Posts result to the EIN. Tenders service offer.

Requester: Accepts service or withdraws request

Provider: If service accepted by Customer, adjusts ATC on the EIN

Requester: Holds for scheduling, arranges scheduling, or arranges for resale

**d. Informal Transmission Communications**

This section is intended to be a location where optional transmission-related requests and offers may be made. All postings made in this section carry no responsibility to respond on the part of any market participant. Entities that are not Transmission Providers may be required to pay a fee to post information in this section which advertise services for sale rather than place service requests.

***“Want ads”***

- Third party offers to sell ancillary services (ancillary services mandated by Transmission Provider’s tariff)
- Informal (general) requests for transmission service
- Informal (general) offers of transmission service
- Other requests/offers permissible under FERC tariffs and rules

***“Other Communications”***

Additional functions of this section may include acting as a conference space or providing messaging services between EIN users.

## 2. Posting Responsibilities

The following table summarizes posting responsibilities and options for each EIN user.

<b>EIN User</b>	<b>ATC</b>	<b>Specific Transmission Products &amp; Prices</b>	<b>Specific Transmission Requests &amp; Responses</b>	<b>Informal Transmission Communications</b>
Transmission Provider	Responsibility to post all ATC for relevant Paths on its system	Responsibility to post FERC mandated transmission products and ancillary services and their availability	Responsibility to respond to specific transmission service and mandated ancillary service requests	Option to post other transmission related products
Rights Holder (the entity which currently holds resaleable rights to the ATC on a given transmission Path.)	Possible responsibility to post unused capacity rights	Option (or possible responsibility) to post transmission service rights for resale here and respond to informal requests for transmission service		Option (or possible responsibility) to post transmission service rights for resale here and respond to informal requests for transmission service
Transmission Customer			Option to request specific transmission products and mandated ancillary services here	Option to request general transmission products and ancillary services here
3rd Party Ancillary Service Provider				EIN users may possibly post ancillary service offerings (that are not mandated by FERC to be provided by the Transmission Provider) here.

### **3. Transaction Anonymity**

#### **Discussion of Transaction Anonymity**

An unresolved issue is whether individual transmission requests and responses should be made known only to the Transmission Customer making the request, the Transmission Provider to whom the request was made and, to the extent necessary, the affected control area operators and/or security centers or to all users of the EIN on a real-time or same-time basis.

- **Argument for Not Limiting Access to Transaction Information**

Some market participants believe that, in the absence of organizational separation of the Transmission Provider merchant and transmission functions and standards of conduct for inter-affiliate transactions similar to those articulated by FERC in Order No. 497 for the Natural Gas industry, it is necessary to provide this information on a fully transparent basis. This will help create the necessary confidence that information provided by the Transmission Customer during the transaction request process is not made available on a discriminatory basis to the Transmission Provider's internal and affiliated merchant functions.

A similar concern expressed by these and other market participants is whether non-jurisdictional Transmission Providers will continue to provide preferential access to this information to their merchant functions, even if FERC were to order organizational separation and establish standards of conduct.

- **Argument for Limiting Access to Transaction Information**

Other market participants support limiting access to this transaction related information only to operating functions of Transmission Providers whose systems are significantly impacted by the transaction. Because of the commercial value of the information, it should not be made available to all EIN users on a real-time or same-time basis. The concern is that full disclosure can promote collusive and/or predatory commercial behavior.

- **Possible Actions**

Because each of these concerns is legitimate, some market participants believe the proper balance can only be struck by honoring the commercial sensitivity of transaction specific information (thereby not reporting in real-time transaction specific request and scheduling information) while at the same time eliminating the concern about the Transmission Provider having discriminatory access to this information by mandating organizational separation and establishing standards of conduct against preferences by Transmission Providers in favor of their internal and affiliate merchant functions.

A complementary, but perhaps only partial, remedy is creating the necessary audit trail to verify that the transaction information is not made available preferentially to the Transmission Provider's internal and affiliate merchant functions.

#### **4. Scheduling Process**

A transmission service request (i.e. reservation of transmission service capacity) is a separate process from transmission scheduling (i.e. the actual use of reserved service). Therefore, both are described in separate sections. The acquisition of transmission service rights and the scheduling of transactions using those rights are two distinct processes. There is broad consensus that the two processes be kept separate, at least during the initial stages of the EIN, and that assisting or performing scheduling on the EIN only be considered for later development. The EIN is an on-line tool whose purpose is to enable entities to negotiate arrangements for the use of the transmission system. It is a transmission service reservation system, and it does not relieve any of the customers of the transmission system, nor control area operators, of any of their obligations to implement interchange scheduling.

#### **5. Auditing Transmission Service Information**

All EIN database transactions<sup>10</sup> must be automatically copied, recorded in a log file, and date/time stamped. If there is a question concerning a transmission transaction, the log file may be accessed and data retrieved and sorted to identify the sequence of events concerning the transaction.

Even though scheduling will not be supported under the EIN Phase I, the EIN should support the auditing of actual transmission schedules to ensure fairness. As schedules will not be included in the initial phase of the EIN, schedule information must be recorded in a log file by the entity scheduling the transmission service for access and retrieval by interested parties. The data should have similar sort keys to those provided for EIN data. Schedules will be posted to the EIN within one week, unless otherwise reasonably requested by a party with a legitimate concern. It is proposed that all the following information be made available on the EIN for download via a file transfer mechanism:

- Transmission Provider Name
- Transmission Service Request ID #
- Transmission Service Customer Name
- Transmission Provider's Schedule ID #
- Tariff or Contract under which schedule is implemented
- Amount of schedule by hour (MW)
- Starting and Ending Time
- Recall or Curtailment Amount, Duration and Reason

---

<sup>10</sup> A database transaction is defined as each change made to database data, whether by Transmission Providers or Transmission Customers.

- Control areas involved in the scheduled interchange
- Arrangements for control area services, where applicable, either from the host control area, the Customer itself, or third-party provider

Commercially sensitive information will be masked until a standard release period elapses after which all audit information is available for scrutiny. This release period should be a standard period after which it is commonly recognized that most information is no longer commercially sensitive. A reasonable standard release period might be 30 days.

An unresolved issue is how and when commercially sensitive information will be released to concerned parties before the standard release period.