

Tagging Essentials For Etag 1.7

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Table of Contents

Introduction and Purpose	1
General Background	5
Efforts to Resolve System Reliability Problems.....	6
How Do Tags Work?	8
Overview of the Process	9
Tag Agent Service	9
Tag Authority Service.....	9
Tag Approval Service	10
Security Analysis Services.....	10
Submitting and Processing a Tag.....	11
General Information Requirements.....	11
Specific Information Requirements (using the fax form as an example).....	11
Transaction Administrative Information Requirements:.....	11
WSCC Prescheduled.....	11
Test Tag	11
Transaction Type	11
TagID -Interchange Transaction ID.....	12
Contact Name	12
Contact Phone	12
Contact FAX.....	12
Notes.....	12
Time Zone.....	12
Transaction Information	12
Market Information/Market Path	12
Contract Number	12
Generation.....	12
PSE Code.....	12
POR/POD Codes	12
Load	13
Profile	13
Energy Profile and Ramp.....	13
Transmission Allocation	13
Correction ID	13
Segment ID	13
Loss Accounting	13
Product Definitions	13
Miscellaneous Information	14
Processing the Tag	15
Request States	15
Delivery States.....	15
Approval States.....	15
Approval State Types.....	16
Tag Agent Service	16
Tag Authority Service.....	16
Tag Approval Service	17
Audit Information	18
Message Rejection Log.....	18
Historical Tag Archive.....	18
Statistics.....	18
Authority Off-Line Archive	18
Timing Requirements	19
Submittals	19
Approvals.....	19
Default Approval/Denial.....	19
Changing A Tag.....	20

Corrections.....	20
Withdraw	20
Profile Changes.....	20
Tagging Examples	22
Example A - OnPeak/OffPeak Tag.....	22
Energy Profile 1	22
Example B – Stacked Transmission and Transmission Allocation Profiles greater than Energy Profile	27
Selected Reference Materials.....	30

Introduction and Purpose

The electronic Transaction Information System (TIS) implemented by NERC is a process of electronically communicating a request for, securing approval of, and recording an energy transaction via the Internet. The process is more commonly referred to as Electronic Tagging, or ETAG. The use of the word “Tag” throughout this document refers to the collection of information in the electronic form of request and subsequent responses, not the earlier fax or e-mail versions. Introduction to Electronic Tagging is an entry level document intended for persons who will have to work with tags but who may not be familiar with the tagging process, or have not attended any of the NERC sponsored tagging workshops. The document will attempt to explain the tagging process in a conceptual, narrative, non-technical way.

The document is not intended to be a comprehensive tagging manual. While the tagging process and basic types of information required will be discussed, specific instructions for filling a tag out are not. There are several reasons for this. The NERC functional specification for the implementation of ETAG, which identifies information and data exchange needs, services to be provided, and protocols to be used does not impose any restrictions on who may provide the services, what sort of computer graphical interface must be used, or what type of software is required. This means that procedures for submitting tags and specific vendor instructions for tagging services will vary among users, depending on the vendor providing these services and local practices. For the time being, specific tag instructions must be the responsibility of the reader’s respective organization.

Once you have read this document, and desire additional knowledge, you should refer to the NERC Electronic Tagging’s latest Functional Specification and Schema documents available on the NERC website (<http://www.nerc.com>). For quick access, go to the NERC website and select “E-Tag” from the drop-down selections under ‘NERC Fast Links’.

The following definitions relate to terms used in this document and the NERC Electronic Tagging – Functional Specification document. Many of the terms are probably new to you at this point, and their definitions may be difficult to grasp. As you encounter the terms when you read through the document, their meanings will become clearer. Terms are grouped as they relate to one another, rather than alphabetical order, to help understanding.

Control Area (CA)	An electric system or systems, bounded by interconnection metering and telemetry, capable of controlling generation to maintain its interchange schedule with other control areas and contributing to frequency regulation of the Interconnection. Identifying the source, sink, and intermediate Control Areas is essential in defining the geographic nature of a tagging transaction.
Security Coordinator (SC)	An entity that provides the security assessment and emergency operations coordination for a group of control areas.
Sending Control Area (SCA)	Any control area delivering power to the transmission grid.
Receiving Control Area (RCA)	Any control area receiving power from the transmission grid.
Load	An end-use device or customer that receives power from the electric system.
Point of Delivery (POD)	A point on the electric system where a power supplier or wheeling entity delivers electricity to the receiver of that energy or to another wheeling entity. This point could include an interconnection with another system or a substation where the transmission provider’s transmission and distribution systems are connected to another system.
Sink	Final Point of Delivery for the transaction: the actual load.

Tagging Essentials

Sink (Load) Control Area (LCA)	Control area in which the sink (load) is located. This is the geographic end of the tagged energy transaction. The LCA is responsible for providing Tag Authority Services for tags for which it is designated as the LCA.
Point of Receipt (POR)	A point on the electrical system where an entity receives electricity from a power supplier or wheeling entity. This point could include an interconnection with another system or generator bus bar.
Source	The Initial Point of Receipt for the transaction; the actual generation facility.
Source (Generation) Control Area (GCA)	The control area in which the source (generation) is located for an interchange transaction. This is the geographic starting point of a tagged energy transaction.
Purchasing Selling Entity (PSE)	An entity that is eligible to purchase or sell energy or capacity and reserve transmission services. The PSE is the entity that is generally responsible for originating a tag. May just be represented in the market segment.
Generation Providing Entity (GPE)	An entity that has rights to sell energy from a generation source. GPE is a special PSE. GPE is the first PSE in the list of PSE's involved in a transaction. GPE will have approval rights when 1.7 is implemented; however, the GPE can elect to have its host Control Area act on its behalf.
Load Selling Entity (LSE)	An entity that sell energy to load. LSE is a special PSE. LSE is the last PSE in the list of PSE's involved in a transaction. LSE or its agent is responsible for making a request for starting a new tag. LSE will have approval rights when 1.7 is implemented; however, the LSE can elect to have its host Control Area act on its behalf.
Transmission Provider (TP)	Any public entity that owns operates, or controls facilities used for the transmission of electric energy in interstate commerce.
Interchange	Energy transfers that cross control area boundaries.
Transaction	An agreement between Purchasing-Selling Entities to transfer energy and/or capacity from a seller to buyer.
Interchange Transaction	A transaction that crosses a control area boundary.
Contract Path	A specific contiguous electrical path from a Point of Receipt to a Point of Delivery for which transfer rights have been contracted.
OASIS (Open Access Same-Time Information System)	An Internet based, electronic posting and reservation system for transmission access data and ancillary services which allows prospective transmission customers to simultaneously view service offerings and submit reservations for those services.
Schedule	An agreed-upon transaction size (megawatts), start and end time, beginning and ending ramp times and rate, and type required for delivery and receipt of power and energy between the contracting parties and the control area(s) involved in the transaction.
Schedule Confirmation	The process of verifying the accuracy of an interchange schedule(s) between all the entities to the transaction.

Tagging Essentials

Schedule Implementation	The process of entering the details of a negotiated schedule into the control system(s) of the control area(s) involved in a transaction of power and energy.
Schedule Period	The length of time between the nominal starting and ending time of each schedule.
Curtailment	A reduction in the scheduled capacity or energy delivery.
Interchange Distribution Calculator (IDC)	The process by which the impact of an energy schedule on the transmission grid is calculated, utilizing power transfer distribution factors.
TAG	As used in this document, refers to the collection of information in the electronic request for an energy schedule and subsequent responses utilized in the electronic Transaction Information System (TIS) implemented by NERC.
Tag Author	Entity that creates and submits a tag.
Approval State Type	Description of manner in which Approval Entity's State was set, i.e. Active, Passive or Overridden
Tag Agent Service	The software component of tag processing that is usually used by a Purchasing-Selling Entity to generate and submit tags to a Tag Authority.
Tag Authority Service	The software component of tag processing that receives Tag Agent submissions and forwards them to the appropriate Tag Approval Services. The Authority also maintains a master copy of each tag and its status, and responds to queries regarding tags in its possession. The Tag Authority Service is associated with the Sink (Load) Control Area.
Tag Approval Service	The software component used to indicate individual path approvals when requested by the Tag Authority Service. Providing Tag Approval Services is the responsibility of any entity along a transaction path that has (or may ultimately have) the right to verify the contents of and approve or deny a tag/transaction.
Tag ID	A unique identifying number assigned to each tag by the Tag Agent, currently represented by combining the codes for the Source (Generation) Control Area, Purchasing-Selling Entity, and Sink (Load) Control Area together with a unique number.
Tag Key	A unique identifying number used to authenticate tag transmissions. One tag key is assigned to the initial transmission of each tag by the Tag Agent. A separate tag key is assigned by the Tag Authority Service in the initial transmission of the tag to the Tag Approval Services.
Approval State	The individual status of each approval entity along a transaction path, i.e. Pending, Approved, Denied, or Study.
Request Status	The overall status of a transaction/tag, generated by the Tag Authority Service, i.e. PENDING, IMPLEMENTED or DEAD
Delivery State	Indicates the status of the delivery request.
Universal Coordinated Time (UTC)	Time standard used by the Electronic Tagging System for communication purposes; also referred to as Greenwich Mean Time (GMT).
UTC	See Universal Coordinated Time

Tagging Essentials

Title Transfer	An exchange of energy ownership; may or may not be associated with a physical delivery of energy.
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General Background

The scheduling of energy transfers has historically been done on a coordinated basis between control areas. The path chosen, where more than one adjacent control area was involved, was arranged in a sequential manner from control area to control area (contract path). However, since electricity follows the laws of physics and not economics, some of the energy transferred would flow through other systems not involved in the “contract path”, resulting in what are called “parallel flows” on those systems.

The shortcomings of the contract path approach were known to utilities from its inception. However, the limitations were acceptable because the transfers were limited and small in nature. As energy transfers became more numerous and complex, however, the parallel flows on systems off the contract path began to cause serious economic and operational problems. Many utilities began experiencing overloads on their transmission lines without any idea of the source of the additional flows. Firm and non-firm energy schedules had to be canceled, resulting in lost revenues, because the origin of non-compensated flows was unknown.

Prior to FERC Order 888, transmission service from integrated utilities was bundled with energy under energy schedules between utilities. In other words, no separate arrangements were made for transmission service when an entity scheduled an energy transfer with the respective control area operators. Order 888 changed all that by requiring that transmission service be reserved separately, on a comparable basis. Now, before arranging for an energy transfer schedule, an entity must first reserve the necessary transmission service between source and sink. At the same time various control areas lost the ability to know even the transactions that were within their own control area.

The requirement to reserve transmission service separately did not resolve any of the shortcomings of the contract path. Parallel flows are still not accounted for. The determination of available transfer capability (ATC) will never be made with any degree of certainty because transactions are based on contract path commitments, not actual usage. Many of the concerns raised over the operation of the OASIS and its interaction with transaction scheduling can be traced to the fact that it is, in most areas, a contract path based system and cannot therefore accurately reflect real world conditions.

The use of the contract path approach has resulted in economic distortions through over/under compensation relative to system use and in system reliability problems due to parallel flows. A further economic impact is the unnecessary curtailment of energy schedules. When an overload on a transmission line occurs due to parallel flows, the primary relief available to the system operator is the curtailment of energy schedules. Unfortunately, the operator generally does not have full knowledge of all schedules impacting the line. Those known to the operator, and those which are likely to be curtailed, are generally the ones that are paying for the use of the system. The identity of the parallel flows generally is not known. This problem is particularly severe in the highly networked Eastern Interconnection. In the Western Interconnection, where the transmission grid is configured in a more open, loop-shaped fashion, an unscheduled flow mitigation procedure has been developed for their specific situation.

Efforts to Resolve System Reliability Problems

NERC has implemented a Transaction Information System (TIS) in an effort to provide system operators with the identity of the source of parallel flows impacting their systems. Each energy transaction is identified through a “tag” and its impact on the transmission grid calculated utilizing power transfer distribution factors in a process called the Interchange Distribution Calculator (IDC). This calculation generally is performed “after the fact” in case of an overload, and not before the transaction is initiated. The object is to provide a rational and economically equitable basis for curtailing transactions. While minimizing the need for curtailments, the process does not, however, eliminate the need for them.

The first attempt to secure energy transaction information was by means of an Excel spreadsheet-based tag entry and retrieval system, which utilized faxes and Internet e-mail to transport tags between parties involved in a transaction. This program was replaced by NERCtag, a Visual Basic based program, in October 1998. Although easier to use, NERCtag still relied on e-mail and operator intervention for data exchange. Industry experience with both of these programs was less than satisfactory. E-mail had inherent problems with timely delivery of the tag information and the concern that multiple copies of the tag were distributed and sometimes corrupted or changed. At the same time the specification of the tag information was not rigorous and thus the data could be interpreted in different ways.

What was needed was an electronic system, which would ensure that tags get sent, received, and approved in a timely, reliable manner. Such a system would take full advantage of automation of processes such as data validation and reduce the need for operator intervention.

In its November, 1998 resolution adopting the Constrained Path Method (CPM) as the basis for determining interchange transaction curtailment priorities as part of the Transmission Line Loading Relief (TLR) procedure, the NERC Operating Committee directed that such an electronic system be developed. A document, Electronic Tagging – Functional Specifications, was subsequently produced by the NERC Transaction Information System Working Group. The document describes the functional requirements and detailed technical specifications for the implementation of ETAG. The document did not specify the type of software or graphical interfaces to be used, leaving these up to the vendor community. Numerous vendors are currently offering ETAG products and a list of them can be found on the NERC website.

To be effective, ETAG requires full support by all market participants. Although etagging has been operational for the past two years, there are significant improvements that will make it more useful. Version 1.7 includes those additional features. Version 1.7 also moves etagging to latest electronic data exchange standard (XML) and aligns the system more closely with the market business practices and the latest NERC policies. The new features in 1.7 are:

- PSE Corrections – the ability of a PSE to make changes to a previously submitted tag, prior to the tag being implemented or dead, without the need to complete a new tag. Correctable fields are specified in NERC Operating Manual, Appendix 3A4. In order to get this from the web, go to <http://www.nerc.com> and select “NERC Operating Manual” from the NERC Fast Links selections.
- PSE Adjustments – the ability of a PSE to request changes to the energy and/or transmission profile of a previously approved tag.
- PSE Extensions – the ability of a PSE to request a Tag’s energy profile to be extended past its originally approved ending time. Extensions to the stop time will be implemented on March 6,2002. Front-end extension of the start time to a time earlier than originally approved, however, should not be submitted and this functionality should not be used on March 6,2002. Front-end extension functionality will be implemented at a later date.
- Change Acknowledgement – the ability of operational entities to confirm intent to implement a tag or change to a tag.
- Loss Accounting – the ability to document changes in individual interchange schedules to properly capture transmission losses in the event of energy Profile Changes.

Tagging Essentials

- Transmission Stacking – the ability of a PSE to specify flexible uses of transmission service. Tagging currently accommodates vertical stacking of transmission, which is using multiple OASIS reservations associated with the MW level of the tag. Version 1.7 includes the ability to use horizontal stacking which is the use of multiple OASIS reservations across time.
- Tag Recovery – the ability of a valid E-Tag participant to request tag information which was lost, not received, or otherwise not in their possession. This is designed for emergency use only.
- Market Segments – represent transfer of title from one entity to another for those parties that are not the transmission owner, GPE, LSE or Scheduling Entity.
- Approval Rights- the newly granted authority for these entities to approve or deny tags.

How Do Tags Work?

Submitting a tag is an electronic request for the movement of energy over a prescribed physical path, for a given duration, for given energy profile(s). The physical path consists of one generation entity, one load entity and one to many transmission entities. Submitting a tag also delineates the market path through use of Market Segments. These are the financial components of a tag. A Physical Segment always is associated with a Market Segment; however, Market Segments can exist without a Physical Segment.

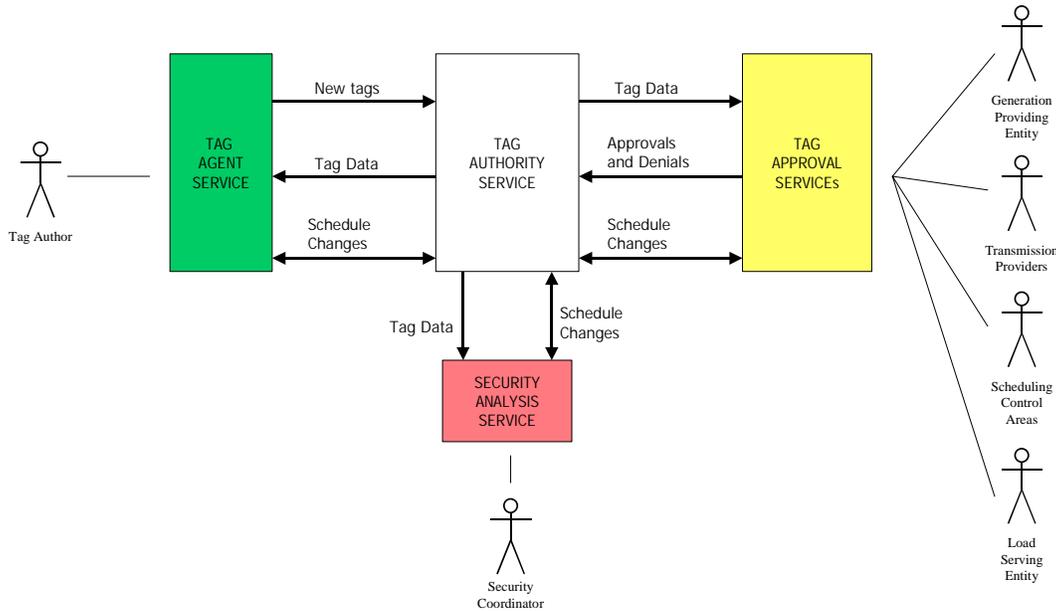
This movement is implemented by an “energy schedule”, and requires coordination with and approval from all entities involved – generation control area, generation serving entity, transmission providers, scheduling entities, load control area, and load serving entity. It should be noted that the generation serving entity and load serving entity might elect to have their control area act on their behalf. Tags are transmitted via computer-to-computer, point-to-point method using protocols defined in the latest (1.7) NERC Electronic Tagging – Functional Specification document. Making a request for “new” tag is the first step in the tagging process. Only when all entities concerned have given their active or passive approval is the tag “Implemented” and the energy is “scheduled”

Before you can request a tag, however, you must have confirmed transmission reservations on OASIS or have some form of existing transmission rights. A discussion of the process for obtaining transmission reservations on OASIS is outside the scope of this document. Suffice it to say, the transmission paths over which OASIS reservations are acquired become the energy paths identified by POD/POR in the tag and the parameters of the transmission reservation (MW, duration, time, etc.) become the boundaries of the tag. This information will be available in the NERC Registry. In other words, the parameters of the proposed energy schedule must fit within those of the transmission reservations. Etag 1.7 defines the energy and transmission rights information as a market (energy) segment and a physical (transmission) segment respectively. Transmission segments may use one or more transmission allocations for the tag.

Tagging is designed to be a computerized process with little or no human intervention. The human interface to the tagging process is via user and/or vendor provided special applications. These applications provide displays for the users to create, correct, approve, deny or adjust tags. Because it is a computerized process, the applications must ensure that all required is entered completely and correctly. Many data entry mistakes will cause a tag to be rejected, thus delaying or possibly preventing a “deal,” something everyone would like to avoid. Some data entry mistakes will necessitate a correction by the tag author prior to approvals.

Tagging also requires “everyone to play.” In other words all requests for energy schedules will have to be made via tagging. All Control Areas must have Tag Authority and Tag Approval Services and all PSE’s must utilize a Tag Agent Service. Etag 1.7 also requires that the Generating and Load PSE’s have approval capability to be able to approve any adjustment or change requests for a tag. Use of fax will be allowed only as an emergency backup in case of a breakdown in the electronic connection.

Overview of the Process



Three tagging “services” have been defined in the ETAG 1.7 Functional Specification, Tag Agent, Tag Authority, and Tag Approval. The interaction of these services is the heart of the tagging process. Although defined as software components of the tagging process, each has a distinct manner of operation and level of autonomy.

Tag Agent Service

The Tag Agent Service refers to the electronic interface between the Purchasing-Selling Entity and the tagging process. PSE’s are responsible for providing this service or they may arrange to have a third party provide it. The Agent Service provides the graphical interface on which the required tag information is entered. The Agent Service validates the information and if everything is in order, sends a “new” tag request in XML format, via the Internet, to the Tag Authority Service associated with the Sink (Load) Control Area identified in the tag. The Tag Agent is responsible for submission of any corrections and/or profile change requests by the PSE’s.

The Agent Service is also responsible for assigning and maintaining tagID and Security Key, querying authorities for the current State of each transaction submitted by the user, providing the means for the user to withdraw any pending transaction or requests submitted by the user, tag updates, and curtailment warnings.

The detail of requirements can be found in the Electronic Tagging Functional Specifications, Section 2 - Tag Agent Functional Requirements.

Tag Authority Service

The Tag Authority Service provides the focal point for all interactions with a tag and maintains the single authoritative “copy of record” for each tag received. Every Load Control Area is responsible for providing this service directly or by arranging with a third party to provide this service as its agent. The Tag Authority Service forwards all valid received tag requests to the Tag Approval Service associated with each entity identified in the transaction as having “approval” or “viewing” rights over that request, and collects approvals/denials issued by these Tag Approval Services. Based on time and/or the messages received from the Tag Approval Services, the Tag Authority arbitrates and sends the final disposition of the request to the originating Agent and all Tag Approval Services associated with the transaction, and to that CA’s designated forwarding location (e.g., SAS or

CA's Security Coordinator). The Tag Authority Service also provides the capability for both Agent and Tag Approval Services to interrogate the current approval state of any transaction request on demand.

The detail of requirements for this service can be found in the Electronic Tagging Functional Specifications, Section 3 -Tag Authority Functional Requirements.

Tag Approval Service

The Tag Approval Service receives tag requests submitted by Agents via the appropriate Authority. It also provides a means for an entity to receive notification of transaction in which they are involved, as well as send an approve, deny or study response to an Authority's presentation of a valid request (if they have approval rights over the request. Finally, it allows them to curtail or otherwise modify the profile of an existing tag (if they have rights to do so). Control Areas, Transmission Providers, and Purchasing-Selling Entities are responsible for providing this service directly or for arranging with a third party to provide this service as their agent.

An approved tag received by a PSE via its Tag Agent Service is confirmation that the requested transaction has been approved and scheduled. Once scheduled, a tag can be withdrawn, adjusted, cancelled or terminated early, depending on whether the schedule has begun or not. If the schedule has begun (transaction implemented) the tag can only be terminated early, terminations require approvals; if the schedule has not begun (transaction not yet implemented) the tag can be withdrawn. If the schedule has not started (energy not yet flowing) the tag can be cancelled: cancellations have a special cancellation approval exception if received by specific deadlines. Cancellations are effected by the PSE zeroing the schedule for all hours. Adjustments and extensions to tags may be requested by the PSE's. At this time, extension adjustments should only be made to extend the stop time. These are handled through Profile Changes or "change requests". These requests require approval from the affected entities and are subjected to approval timing deadlines. The profile changes will be distributed to all effected parties. Extension adjustments are effected by the PSE adding hours and transmission allocation for a given time period.

Front-end extensions (extending the start time earlier than originally indicated) should not be submitted on March 6,2002. Front-end extension functionality will be implemented after March 6, 2002.

Adjustments/Curtailments to the tags may be requested by a Security Coordinator, load control area or sink control area for implementing reliability constraints. The tag authority will distribute the current or adjusted energy profile for the tag.

Throughout the tag submission and approval process, the security of each tag is maintained by a combination of unique Tag ID and Tag Key numbers.

The detail of requirements for this service can be found in the Electronic Tagging Functional Specifications, Section 4 -Tag Approval Functional Requirements.

Security Analysis Services

Security Analysis Services (SAS) receive IMPLEMENTED requests from Authorities. These tags inform the Security Analysis Service of the expected flows a transaction will create and are used by Security Coordinators to mitigate constraints should the need arise.

Submitting and Processing a Tag

It is usually the responsibility of the Purchasing-Selling Entity to fill out and submit the tag. Although the format for submitting the data will depend on the particular Tag Agent Service being used and local procedures, the type of information required from each PSE would be the same. However, information required for new tags will be different from the information required for correction, adjustment or extension tags.

General Information Requirements

The information required to submit a tag can be summarized as follows:

- Detailed information regarding the Purchasing-Selling Entity (PSE) making the request (contacts, phone and fax numbers, e-mail, Registry Code, etc.);
- Identification of market segments, and physical segments (generation, transmission and load) and their relationship to each other;
- Profile Type(s) for the energy transaction (Market Level, Reliability Limit, Dynamic Minimum Energy, Dynamic Maximum Energy, and Current Level.), and;
- Transmission allocation for the transmission physical segments. Horizontal and vertical transmission stacking is supported for the transmission reservation to support the capacity given in referenced transmission physical segment.

This is essentially the information required when you obtained your transmission reservation on OASIS. The Registry Code or ID refers to the unique identification that an entity has registered with the NERC TSIN Registration database located at <http://www.tsin.com>. The following entities must register:

- Transmission Customer (TC)
- Purchasing-Selling Entity (PSE)
- Transmission Provider (TP)
- Control Area (CA)
- Security Coordinator (SC)
- OASIS Node Information Provider (TSIP)
- Tag Agents
- Tag Approvals
- Tag Authorities

Specific Information Requirements (using the fax form as an example)

In the event that electronic communications fail between the Tag Agent, Authority, or Approval Services, or the Services themselves fail, faxing may be used for communication of tag information. A form for this purpose is included on the NERC web site. An explanation of the information requirements and terms used in this form will help you to better understand the data requirements for tag submission.

Transaction Administrative Information Requirements:

WSCC Prescheduled

For WSCC tags, indicates if tag is prescheduled per NERC Operating Manual Appendix 3A1.

Test Tag

Indicates if this is a test tag.

Transaction Type

Most transaction types will be Normal. This type includes schedules that use point-to-point, network integrated transmission service, or grand fathered service under a regional tariff. These schedules are included in

the IDC and are subject to TLR curtailment. Other transaction types are Dynamic, Emergency, Market ReDispatch, Loss Supply and Capacity.

TagID -Interchange Transaction ID

The unique identifying number assigned to each tag, normally by the Tag Agent, but in the case of a faxed tag request, by the PSE. The ID consists of the registered codes for the Source (Generation) Control Area and Purchasing-Selling Entity, a tag code (unique seven (7) character transaction identifier made up of upper alpha characters or the digits 0 through 9), and the registered code for the Sink (Load) Control Area.

Contact Name

Originating (tag author) contact name.

Contact Phone

Originating contact phone.

Contact FAX

Originating contact FAX.

Notes

Small section for note information that is limited to 128 characters.

Time Zone

Universal Coordinated Time (UTC) is the reference time for all tags and shall be used in the transmission of tag data to/from the tag services. Your Tag Agent Service's software may permit entering data in local time. To correlate UTC to your own time zone, use: <http://atm.geo.nsf.gov/ieis/time.html>

Transaction Information

The transaction information in 1.7 is organized into market segment and physical segments. These segments combined contain all the transaction path and energy title transfer information.

Market Information/Market Path

The market segment contains title turns and can reference a corresponding physical segment. Each market segment may not have a physical segment, but each physical segment has a market segment.

Contract Number

An alphanumeric reference to an agreement for service (i.e. energy contract, transmission reservation, etc.).

Generation

There is only one generation segment.

PSE Code

The five (minimum) to six (maximum) character identification number that the Purchasing-Selling Entity has registered with NERC.

POR/POD Codes

The Registry defined codes for the points of receipt and delivery.

Load

There is only one load segment.

Profile

Reference to an energy profile or a transmission allocation profile.

Energy Profile and Ramp

Designates start date and time, stop date and time, MW level, and ramp (optional). Ramp information is accepted in the Eastern Interconnect to be a 10 minute ramp across the top of the hour unless otherwise specified; ramp is accepted in the Western Interconnect to be a 20 minute ramp across the start date and time, unless otherwise specified. Does NOT give transmission OASIS references as these are found in the transmission allocation.

Transmission Allocation

Transmission allocation contains parent physical segment reference, transmission product per NERC registry, OASIS reservation number, and transmission customer code. If there are corrections to the transmission allocation, the correction number is also given. Also included are transmission allocation profiles with start and stop times and MW level.

Correction ID

Sequential correction number. Initial tag has 0 correction ID.

Segment ID

Physical segments are given in sequential order starting with the load physical segment as “1”, the first transmission segment is “2” and so forth.

Loss Accounting

The Loss Accounting information is optional at the Transmission Providers’ discretion. If used, specify segment used, date time interval and loss type. The Loss Accounting information is not used in WSCC.

Product Definitions

Product Description	Product Code
Generator, Firm	G-F
Generator-NonFirm	G-NF
Load	L
Non-Firm Secondary	1-NS
Non-Firm Hourly	2-NH
Non-Firm Daily	3-ND
Non-Firm Weekly	4-NW
Non-Firm Monthly	5-NM
Non-Firm Network	6-NN
Firm	7-F
WSCC Unit Contingent Firm energy and capacity	G-FC
WSCC Firm energy and capacity recallable within 1 hour	G-F1
WSCC Firm energy and capacity recallable within 2 hours	G-F2
WSCC Firm energy and capacity recallable	G-FX

Tagging Essentials

within 'X' hours G-FX	
WSCC Firm energy and capacity non-recallable G-FS	G-FS
WSCC 'Exchange' or 'displacement' energy delivered directly from a resource remote from the control area. G-EX	G-EX
WSCC Firm Transmission	F
WSCC Non-firm Transmission	NF
WSCC Schedule node used primarily to schedule on the Mead/Phoenix transmission system	N
Next hour at market	0-NX

Miscellaneous Information

The Miscellaneous Information fields are optional. They are provided for the PSE to include additional comments or remarks along with the basic tag information. The PSE must identify itself with its registered code. Comments are in plain text.

Processing the Tag

Communications among the three, Agent, Authority, and Approval, services is based upon sending messages in the form of requests for service. The protocol for Etag 1.7 is based upon remote procedure calls. A request is generated and sent, the request for these services is examined and executed by the appropriate method, a response is sent with the message that contains the information requested by the requester.

New tags are requests to implement a profile. Adjustments, extensions, cancellations, terminations, curtailments, and reloads are all requests to modify a profile. In addition to the Request State, there are two additional states that each request contains: Delivery State, and Approval State. The Request State begins as PENDING and based on resolution will change to either a DEAD or IMPLEMENTED state.

Request States

Request States specify the disposition of a particular request. There are three specific states:

PENDING	The request has not yet been moved to a final state.
IMPLEMENTED	The request has been approved by all parties (either actively or passively) and should be implemented.
DEAD	The request has been denied by at least one party (either actively or passively) and should not be implemented.

Delivery States

Delivery States specify the completion of a request delivery to its approver. There are four specific states:

QUEUED	The request is scheduled for delivery, but has not yet been successfully delivered
DELIVERED	The request was successfully delivered to the party associated with the State
INVALID	The request was not successfully delivered to the party associated with the State; the recipient claims there is a syntax or rules violation that prevents it's successful processing of the request.
COMMFAIL	The request was not successfully delivered to the party associated with the State; the recipient was either not available for response or responded in an unexpected manner.

Approval States

Approval States specify the disposition of a particular request set by its approver. There are five specific states:

NA	Special state indicating that the entity does not have approval rights over the request.
PENDING	The message has been distributed and is awaiting processing by the Approver.
APPROVED	The approver, either actively or passively, has agreed to implement the request.
DENIED	The approver, either actively or passively, has decided not to implement the request.
STUDY	The approver has actively decided to defer their decision to approve or deny until a later time within their approval window, but wishes to communicate their acknowledgement of the request back to the sender.

Note: There is not a CORRECTED Approval State. Additionally, there exist Approval State Types. Approval State Types characterize how the Approval State was deduced.

Approval State Types

NA	Not Applicable – The current state is neither active nor passive
ACTIVE	The provider has specifically indicated their willingness or unwillingness to implement a particular request
PASSIVE	The provider was unable to state their intentions within a reasonable amount of time and the system has made an automated decision on their behalf
OVERRIDE	The state was manually overridden by the entity providing the Authority.

Tag Agent Service

After the PSE (Purchase-Selling Entity) enters the required information, the Tag Agent Service will first validate the information. If the information fails validation, the PSE will be notified of the failure and apparent cause in the form of an error code. If everything is correct, the Agent Service, using the entity, POD, and POR code IDs from the NERC registry, will forward the tag as a submit request to the Tag Authority Service at the Sink (Load) Control Area. To protect the security of the tag, the Agent Service will generate a Tag ID based on the:

- Source (Generation) Control Area Code;
- PSE originating the tag Code;
- A unique transaction identifier number, and
- Sink (Load) Control Area Code.

The electronic exchange of tag information shall require the assignment of unique “Security Keys” to be associated with the transaction. Security Keys control communication between the Agent, Authority, Approval, and SAS (Security Analysis Service).

The Agent Service will also generate a Security Key consisting of the following information:

- A 1-6 character code associated with the entity initiating the tag; and
- A unique 12 character alphanumeric (0-9, A-Z, a-z; case sensitive) security token.

The Agent generates a unique Security Key to associate with the tag at the time of submission. All subsequent messages exchanged between the Agent and the Authority in regard to the tag shall refer to both the Tag ID and Security Key assigned by the Tag Author’s Agent.

The Authority shall also generate unique Security Keys to be associated with the Tag on the initial transmission of the tag to each of the appropriate Approvals. All subsequent messages exchanged between the Authority and a given Approval in regard to the Tag shall refer to both the Tag ID and Security Key assigned by the LCA’s Authority.

In certain situations, Security Keys can exist independent of Tag IDs.

Tag Authority Service

Upon receipt of a tag request, the Authority Service will also validate the information before processing it and respond to the agent with status of “SUCCESS” or “FAIL”. If the tag fails validation, the authority’s response to the PSE, via the Agent Service, will indicate the cause of failure in the form of an error code. If everything is correct, the Authority Service will then generate its own unique Tag Keys to be associated with the tag on the initial transmission of the tag approval request to each of the appropriate Approval Services. Each of these Tag Keys shall consist of the Sink (Load) Control Area code and a unique 12 character token. All subsequent messages exchanged between the Authority Service and a given Approval Service in regard to this tag shall refer to both the Tag ID assigned by the Agent Service and the Tag Key assigned by the Authority Service.

The Authority Service maintains the “master copy” of each tag and its status. Two types of status descriptors are maintained: Approval Status and Request status. Individual Approval Status values are maintained for each Approval Service that received the tag and reflect information the Authority Service receives in its

communications with the Approval Service. Request status values reflect a composite of all current Approval Status values. The Request status of a tag will be reported to the Agent Service when the Agent Service queries for the status. The Authority Service may deliver unsolicited request messages to providing the Agent Service with changes to the Request status.

Tag Approval Service

All market participants and reliability entities will provide tag Approval Service.

Upon receipt of an approval request, the Approval Service will validate the information in the tag. The information to be validated includes, but is not limited to:

- Contract path through the entity;
- Curtailment priority of transmission products arranged with the entity;
- OASIS transmission reservation identifiers and associated usage levels; and
- Loss information.

Any data validation or internal consistency errors shall be communicated to the Authority Service with an “INVALID” delivery state of the request. If the request is valid, then the Delivery status should be set to “Delivered” and the approval service should proceed to process the approval of the tag and respond back with the appropriate approval status and the approval type.

The Approval Service shall provide a user and/or programmatic interface to allow the approval entity to communicate to the Authority Service whether the tag request is approved or denied. The Approval Service will maintain an up to date Request status for the tag based on information communicated by the Authority Service and provide the capability to interrogate the Authority Service for updated status on demand.

Audit Information

All three services are expected to keep track of all the communications. These audits are expected to be available for inspection by other parties for problem resolutions. Types of logs to be kept are:

Message Rejection Log

Any service that rejects a message as containing a Fault or an Error should log the type of rejection, the date/time of the rejection, the sending entity (if identifiable), and the Tag ID (if identifiable). This information must be kept available by written request for a minimum of ninety (90) days after the rejection.

Historical Tag Archive

Every service shall keep available for retrieval every tag and associated messages received by the service until that tag's stop date/time is more than ninety (90) days in the past. Authorities should have this information available to Approval and Agent systems through standard E-Tag querying mechanisms throughout the ninety-day period, as well as through written request by other parties who may require data but not be participants listed on the tag (i.e., NERC). Tag Agent and Approvals must have these tags available by written request.

Statistics

Every service shall maintain statistical information as defined below. This information should be logged, as it occurs, NOT after the fact. In this manner, services may accurately reflect data before it is modified through overrides or updates. This information must be available by written request for a minimum of ninety (90) days in the form of reports. These reports should be written based on the requests processed in one week (00:00 UTC Sunday to 23:59:59 UTC Saturday). This information must be available to parties who may require data but not be participants to any specific tag (i.e., NERC).

- Number of LATE Requests, by requester
- Number of return values of INVALID, by entity
- Number of return values of COMMFAIL, by entity
- Number of returned Faults, by entity
- Number of request Approval State Type of PASSIVE, by approver

Authority Off-Line Archive

All Authorities shall archive all message dialogues (all received and issued messages and their associated responses) associated with a particular tag. These message logs need not be available for online query, however, upon written request from NERC, Authority operators must be able to supply written reports within a reasonable amount of time (within one working week) listing message traffic for a particular entity or transaction. This information shall be kept from the implementation of the 1.7.01 Specification forward until such time this requirement is removed.

Timing Requirements

All times communicated through Etag shall be noted in Universal Coordinated Time (UTC). This does not require a particular interface display only UTC; however, it does require that any system using time zones other than UTC properly convert those times into UTC prior to communicating with other systems.

Timing Requirements are defined by Appendix 3A1 – Tag Submission and Response Timetables – are sub sectioned by Western Interconnection, Eastern Interconnection and ERCOT Interconnection.

Submittals

ETAG system accepts tags with a start time up to one hour prior to the current time. Submittals of tags with a start time older than one hour will be rejected as invalid. The enforcement of these timing requirements is the responsibility of the Authority Service. The requirements are:

- Tags submitted in accordance with Appendix 3A1 PSE Submit deadline shall be deemed “on-time” and accepted and processed by the Authority Service with the initial Request status of PENDING. These tags may be given conditional approval.
- Tags submitted that do not meet Appendix 3A1 PSE Submit deadline timing requirements are considered LATE and will be denied if not explicitly approved by all parties.

Approvals

ETAG timing requirements for the collection of approvals for a submitted tag are specified in Appendix 3A1 on a per Interconnection basis.

Default Approval/Denial

If no action has been taken to update a tag’s Request status to a value other than PENDING within the approval time limit, and the tag is not a LATE tag, and no Approval Status has been set to ERROR, INVALID, or REFUSED, the Authority Service shall set the Request status to IMPLEMENT and issue the appropriate notifications. This enforces the rule that tags submitted in compliance with on-time submittal deadlines are assumed to be a “go” unless explicitly denied by one or more parties.

If no action has been taken to update a tag’s Request status to a value other than LATE within the approval time limit, and no Approval Status has been set to ERROR, INVALID, or REFUSED, the Authority Service shall set the Request status to DEAD and issue the appropriate notifications. This enforces the rule that tags submitted after the submittal deadline require explicit approval by all parties to be considered

Changing A Tag

Corrections

Prior to implementation, the PSE can make corrections to a tag. The affected entities must re-approve the tag with the new corrections. The energy profile and transmission allocation MW profile of the tag cannot be corrected, however, there are several correctable elements that may be changed. These fields are itemized in Appendix 3A4 of the NERC Operating Manual and include: PSE contact name, PSE phone number, PSE FAX number, PSE deal reference, source phone number, source FAX number, sink phone number, sink FAX number, notes or remarks section, transaction path POR, transaction path POD, transaction path product, OASIS assignment reference, miscellaneous information, miscellaneous reference, and supply reference. Loss supply can be corrected but cannot be changed to or from “in kind”.

Withdraw

The PSE may withdraw a request at any time up until the tag has been IMPLEMENTED or is DEAD. Once the withdraw request is received, the Tag Authority will mark the tag as DEAD and process accordingly.

If the request has already been IMPLEMENTED, the request **cannot** be withdrawn. Instead, the desired change must be implemented through a new profile change request, subject to the applicable timing and approval process. See Profile Changes below.

Profile Changes

Profile Changes can be requested by several different parties and for three primary reasons:

- To implement market-based modifications to commitments of capacity (i.e. the use of reserved transmission capacity to support the transaction);
- To implement market-based desires to modify (Cancellation/Adjustments) or extend energy flow past its stop time (Extensions); and
- To implement reliability-based desires to modify energy flow (i.e. Curtailments and Reloads).

In each case, the Profile Change process consists of:

- Request;
- Evaluation;
- Approval; and
- Implementation.

To make these changes to an existing tag, there are different types of change requests.

A **Cancellation Request** is a request to zero the tag’s MW Level for all hours **prior** to the start of the transaction. It is a form of Adjustment. Cancellations may be eligible for a special exception for timing requirements. To qualify for the special exception, the tag’s cancellation request must be received at least 20 minutes prior to the transaction start time in the West and at least 15 minutes prior to the transaction start time in the East. If the request is received by these deadlines, the approval process requirements are waived: if the request is not received by these deadlines, the request must go through the approval process.

An **Adjustment Request** is a request that modifies energy flow and/or transmission capacity of an Interchange Transaction in order that such a change may be implemented and resources committed. The PSE specifies the changing times and energy levels for the transaction. This is performed due to changes in market conditions.

An **Extension Request** is a request that includes energy flow and/or transmission capacity for unscheduled hours of an Interchange Transaction, in order that such a change may be implemented and resources committed. The PSE specifies the added times, energy levels, and necessary transmission. All extension requests must follow timing guidelines.

A **Curtailment Requests** are made to limit a tag's energy flow. Appropriate Generation or Load Control Area or Security Coordinator limiting the Interchange Transaction accomplishes this. The GCA, LCA and Control Areas controlling DC-Ties between the East, West and ERCOT must approve all reliability profile changes.

A **Reload Request** is a request to release an Interchange Transaction limit previously requested through a Curtailment Request. Reloads are accomplished by appropriate Generation or Load Control Area or Security Coordinator adjustment the tag for a certain amount of time at the generator.

Note: All requests (includes Curtailment and Reload Requests) are fundamentally treated as a profile change and, in general, all changes are subject to timing requirements and approval process.

Tagging Examples

Example A - OnPeak/OffPeak Tag

Starting on March 25, 2002 (Monday) run an off peak and on peak tag for 2 business days - Monday and Tuesday. It is desired to run 25 MW off peak and 75 MW on peak. (For this example, on peak is from 6:00-22:00). This is a WSCC prescheduled tag scheduled in MST. For this tag, there are 3 OASIS reservations to be used for 2 transmission providers. There are 2 marketers that are involved in this transaction. For this example, the ramp will be standard WSCC ramp. The WSCC ramp is 20 minutes total; the ramp starts 10 minutes before the start date and time. It is understood that an omitted ramp start time denotes a standard ramp rate. Therefore, in this example, the ramp start time is omitted. This is a relatively simple tag designed to show the on peak and off peak energy with one energy profile as per E-Tag specifications 1.7.

Enter off peak and on peak schedule into your user interface. User interface will translate your time zone into UTC (Universal Time Coordinate). For this example, the tag is created to run 25MW off peak and 75MW on peak. The user enters off peak hours as 22:00 hours through 06:00 hours the following day; the user enters on peak hours as 06:00 through 22:00 hours for the same day. The transmission allocation MW level is the same as the energy profile in this example. How the user enters this information is dependent on the user interface provided by the Tag Agent Service’s software.

For purposes of this discussion, the time is MST and the example tag name will be GCAA_PSEMS2UNIQID1_LCAA. The energy profile for the tag will include the blocks for on peak and off peak scheduling and the date times. Using offsets against the date time’s blocks of energy representing the desired timeframe can be created.

In this example the energy profile, energy profile 1, has 0 seconds (PT0S) applied to start time of 03/25/2002 at 00:00:00 and runs for 6 hours (PT6H) at 25MW. This gives the first block; continue for the off peak and on peak hours for the given days.

Your service provider may provide an interface with information containing the energy blocks for this profile:

<i>Energy Profile 1</i>					
	Start date	Start time	Stop date	Stop time	MW Level
	03-25-2002	00:00:00	03-25-2002	06:00:00	25
	03-25-2002	06:00:00	03-25-2002	22:00:00	75
	03-25-2002	22:00:00	03-25-2002	00:00:00	25
	03-26-2002	00:00:00	03-26-2002	06:00:00	25
	03-26-2002	06:00:00	03-26-2002	22:00:00	75
	03-26-2002	22:00:00	03-26-2002	00:00:00	25

Your service provider may create something like the following offsets to represent the energy profile.

Date times: 2002-03-25T00:00:00Z
 2002-03-26T00:00:00Z

Block1: StartTimeOffset PT0S
 MWLevel 25
 StopTimeOffset PT6H

Block2: StartTimeOffset PT6H
 MWLevel 75
 StopTimeOffset PT22H

Tagging Essentials

Block3: StartTimeOffset PT22H
 MWLevel 25
 StopTimeOffset PT24H

Using the tag FAX backup form, the transaction may look like the following:

Tagging Essentials

TagID: **GCAA_PSEMS2UNIQID1_LCAA** DateTime Prepared:10/29/01 08:32
 StartDate: 3/25/2002 StopDate: 3/26/2002 Sch.Type: NORMAL TestTag=N WSCC Preschedule:Y TimeZone:MST
 Contact: Preschedulers Desk Phone: (602)230-1111 Fax: (602)230-222 (602)230-2222

Generation

PSE	Point	Profile	Contracts	Cor.ID	SegID
PSEMS1	Gen01	E1		0	P1

Transmission

Trans	TP	S.Entity	POR	Profile	POD	Profile	Profile	Cor.ID	SegID
	TP01		NV	E1	WW	E1	E1	0	P2
	TP01		WW	E1	PV	E1	E1	0	P3
	TP02		PV	E1	DEV	E1	E1	0	P4

Load

PSE	Point	Profile	Contracts	Cor.ID	SegID
PSEMS2	Load01	E1		0	P5

MarketPath

PSE	Product	Contracts	P.Segments	POR	POD	Cor.ID	SegID
PSEMS1			P1, P2,P3			0	M1
PSEMS2			P4, P5			0	M2

Expanded Energy Profiles

ProfileID: E1	AppliesTo: P1,P2,P3,P4,P5			Request: 0
StartDate	StartTime	StopDate	StopTime	Cur.MW RampDur
3/25/2002	0:00	3/25/2002	6:00	25
StartDate	StartTime	StopDate	StopTime	Cur.MW RampDur
3/25/2002	6:00	3/25/2002	22:00	75

Tagging Essentials

StartDate	StartTime	StopDate	StopTime	Cur.MW	RampDur
3/25/2002	22:00	3/25/2002	0:00	25	
StartDate	StartTime	StopDate	StopTime	Cur.MW	RampDur
3/26/2002	0:00	3/26/2002	6:00	25	
StartDate	StartTime	StopDate	StopTime	Cur.MW	RampDur
3/26/2002	6:00	3/26/2002	22:00	75	
StartDate	StartTime	StopDate	StopTime	Cur.MW	RampDur
3/26/2002	22:00	3/26/2002	0:00	25	

TransmissionAllocationProfiles

TP: TP01		POR: NV		E1	POD: WW		E1	E1	P2
StartDate	StartTime	StopDate	StopTime	MWLevel	TC	Product	OASIS#	OASIS#	
3/25/2002	0:00	3/25/2002	6:00	25	PSEMS1	7-F	11115714	0	A1
3/25/2002	6:00	3/25/2002	22:00	75					
3/25/2002	22:00	3/25/2002	0:00	25					
3/26/2002	0:00	3/26/2002	6:00	25					
3/26/2002	6:00	3/26/2002	22:00	75					
3/26/2002	22:00	3/26/2002	0:00	25			66342		
TP: TP01		POR: WW		E1	POD: PV		E1	E1	P3
StartDate	StartTime	StopDate	StopTime	MWLevel	TC	Product	OASIS#	OASIS#	
3/25/2002	0:00	3/25/2002	6:00	25	PSEMS1	7-F	11116733	0	
3/25/2002	6:00	3/25/2002	22:00	75					
3/25/2002	22:00	3/25/2002	0:00	25					
3/26/2002	0:00	3/26/2002	6:00	25					
3/26/2002	6:00	3/26/2002	22:00	75					
3/26/2002	22:00	3/26/2002	0:00	25			66342		A2
TP: TP02		POR: PV		E1	POD: DEV		E1	E1	P4
StartDate	StartTime	StopDate	StopTime	MWLevel	TC	Product	OASIS#	OASIS#	
3/25/2002	0:00	3/25/2002	6:00	25	PSEMS2	7-F	JLKMN_001	0	
3/25/2002	6:00	3/25/2002	22:00	75					

Tagging Essentials

3/25/2002	22:00	3/25/2002	0:00	25		
3/26/2002	0:00	3/26/2002	6:00	25		
3/26/2002	6:00	3/26/2002	22:00	75		
3/26/2002	22:00	3/26/2002	0:00	25	66342	A3

Example B – Stacked Transmission and Transmission Allocation Profiles greater than Energy Profile

This tag is designed to show stacked reservations and transmission profile allocations greater than an energy profile. For this example, the tag ID is GCAA_PSEMS1UNIQID2_LCAA.

Propose a transaction starting on midnight March 24, 2002 and running for 24 hours. Allocate transmission profiles with 75 MW capacities and run tag initially with 50 MW per hour. The transmission allocation is done in this manner for later use with increased generation. This is a WSCC prescheduled, non-test tag with a standard ramp. The Generation Control Area is the Scheduling Entity for the Transmission Providers.

There are 5 physical segments (generation, three transmission segments, and load). For the second transmission segment, it is necessary to stack OASIS reservations, as there is not enough capacity available on one OASIS reservation. The second transmission provider, TP02, has advised to use OASIS reservation #8873 for up to 35MW and use OASIS reservation #999634 for any remainder.

Your service provider may provide an interface with information containing the energy blocks for this profile:

EnergyProfile1	Start date	Start time	Stop date	Stop time	MWLevel
	03-24-2002	00:00:00	03-25-2002	00:00:00	50

Your service provider may create something like the following offsets to represent the energy profile:

Date time: 2002-03-24T00:00:00Z

Block1: StartTimeOffset PT0S
MWLevel 50
StopTimeOffset PT24H

Using the FAX backup form, your proposed transaction may look like the following example. Losses are not included within the transaction.

Tagging Essentials

TagID: **GCAA_PSEMS3UNIQID2_LCAA** Prepared:02/11/2002
 StartDate: **3/24/2002** StopDate: **3/25/2002** Sch.Type: NORMAL TimeZone:MST
 Contact: Preschedulers Desk Phone: (602)230-1111 Fax:(6023)230-2222
 TestTag=N WSCC Preschedule:Y

Generation

PSE	Point	Profile	Contracts	Cor.ID	Seg.ID
PSEMS1	Gen01	E1		0	P1

Transmission

Trans	TP	S.Entity	POR	Profile	POD	Profile		
	TP01	GCAA	Gen01	E1	LMN	E1	0	P2
Trans	TP	S.Entity	POR	Profile	POD	Profile		
	TP02	GCAA	LMN	E1	PQR	E1	0	P3
Trans	TP	S.Entity	POR	Profile	POD	Profile		
	TP03	GCAA	PQR	E1	Load01	E1	0	P4

Load

PSE	Point	Profile	Contracts		
PSEMS1	Load01	E1		0	P5

MarketPath

PSE	Product	Contracts	P.Segments	POR	POD		
PSEMS1		LT39278-2002, LT734-2002	P1-P5			0	M1

Expanded Energy Profiles

ProfileID: E1	AppliesTo: P1-P5	Request: 0			
StartDate	StartTime	StopDate	StopTime	Cur.MW	RampDur
3/24/2002	0:00	3/25/2002	0:00	50	

TransmissionAllocation Profiles

TP: TP01	POR: Gen01	E1	POD: LMN	E1	P2		
StartDate	StartTime	StopDate	StopTime	MWLevel	TC	Product	OASIS#

Tagging Essentials

3/24/2002	0:00	3/25/2002	0:00	75	PSEMS1 7-F	55000	0	A1
TP: TP02		POR: LMN		E1	POD: PQR	E1	P3	
StartDate	StartTime	StopDate	StopTime	MWLevel	TC	Product	OASIS#	
3/24/2002	0:00	3/25/2002	0:00	35	PSEMS1 7-F	8873	A2	
3/24/2002	0:00	3/25/2002	0:00	40	PSEMS1 7-F	999634	0	A3
TP: TP03		POR: PQR		E1	POD: Load01	E1	P4	
StartDate	StartTime	StopDate	StopTime	MWLevel	TC	Product	OASIS#	
3/24/2002	0:00	3/25/2002	0:00	75	PSEMS1 7-F	124443	0	A4

Selected Reference Materials

All of these references may be found from the NERC web site <http://www.nerc.com>.

- NERC Policy 3 – Interchange
- NERC Appendix 3A1 – Tag Submission and Response Timetables
- NERC Electronic Tagging – Functional Specifications, Version 1.7
- NERC Electronic Tagging – Etag 1.7 Schema
- NERC Electronic Tagging – Etag 1.7 Schema Documentation
- Cutover Plan (current etag version to 1.7)
- Backup FAX Form
- What's New in E-Tag 1.7
- Registry 1.7 Specification