



NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Princeton Forrestal Village, 116-390 Village Boulevard, Princeton, New Jersey 08540-5731

Coordinate Interchange Standard Drafting Team Meeting

Monday, October 25, 2004 — 1–5 p.m.
Tuesday, October 26, 2004 — 8 a.m.–5 p.m.

Marriott Portland Downtown
1401 SW Naito Parkway
Portland, Oregon 97201
Phone: 503-226-7600

Agenda

1. **Administrative** **10 minutes**
 - a. Welcome and Introductions – Chairman
 - b. Arrangements – Secretary
 - c. Antitrust Guidelines – Chairman **[Attachment 1]**
 - d. Approval of Agenda – Chairman

2. **Status of Standard 400 – Coordinate Interchange – Mike Oatts** **15 minutes**
 - a. Review of September 8–9, 2004 Chicago meeting
 - i) Action items
 - b. Moving forward with CI Standard Version 1
 - i) Purpose and deliverables

3. **Interchange Authority Function Task Force – John Simonelli** **15 minutes**
 - a. Update on Interchange Authority Function Report to Interchange Subcommittee
 - i) Recommendation to Operating Committee
 - ii) Report to become attachment to Interchange Reference Document
 - (1) Version 1.0, dated October 18, 2004 **[Attachment 2]**

4. **Status of Version 0 Standards – Ed Davis** **15 minutes**
 - a. Proposed numbering convention for NERC standards

Current Standard Number	Title	Proposed Standard Number
010	Interchange Transaction Tagging	INT-001-0
011	Interchange Transaction Tag Communications and Reliability	INT-002-0
012	Interchange Transaction Implementation	INT-003-0
013	Interchange Transaction Modifications	INT-004-0



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NERC ANTITRUST COMPLIANCE GUIDELINES

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It is the responsibility of every NERC participant and employee who may in any way affect NERC's compliance with the antitrust laws to carry out this commitment.

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II. PROHIBITED ACTIVITIES

Participants in NERC activities (including those of its committees and subgroups) should refrain from the following when acting in their capacity as participants in NERC activities (e.g., at NERC meetings, conference calls and in informal discussions):

- Discussions involving pricing information, especially margin (profit) and internal cost information and participants' expectations as to their future prices or internal costs.
- Discussions of a participant's marketing strategies.
- Discussions regarding how customers and geographical areas are to be divided among competitors.
- Discussions concerning the exclusion of competitors from markets.
- Discussions concerning boycotting or group refusals to deal with competitors, vendors or suppliers.

Approved by NERC Board of Trustees
June 14, 2002

III. ACTIVITIES THAT ARE PERMITTED

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You should also ensure that NERC procedures, including those set forth in NERC's Certificate of Incorporation and Bylaws are followed in conducting NERC business. Other NERC procedures that may be applicable to a particular NERC activity include the following:

- Organization Standards Process Manual
- Transitional Process for Revising Existing NERC Operating Policies and Planning Standards
- Organization and Procedures Manual for the NERC Standing Committees
- System Operator Certification Program

In addition, all discussions in NERC meetings and other NERC-related communications should be within the scope of mandate for or assignment to the particular NERC committee or subgroup, as well as within the scope of the published agenda for the meeting.

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- Reliability matters relating to the bulk power system, including operation and planning matters such as establishing or revising reliability standards, special operating procedures, operating transfer capabilities, and plans for new facilities.
- Matters relating to the impact of reliability standards for the bulk power system on electricity markets, and the impact of electricity market operations on the reliability of the bulk power system.
- Proposed filings or other communications with state or federal regulatory authorities or other governmental entities.
- Matters relating to the internal governance, management and operation of NERC, such as nominations for vacant committee positions, budgeting and assessments, and employment matters; and procedural matters such as planning and scheduling meetings.

Any other matters that do not clearly fall within these guidelines should be reviewed with NERC's General Counsel before being discussed.



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Interchange Authority Function Task Force Report to the Interchange Subcommittee

**Version 1.0
October 18, 2004**

Introduction

The Operating Committee charged the Interchange Subcommittee with operationally defining the Interchange Authority (IA) function. The Interchange Authority Function Task Force (IAFTF)¹ was formed to compile and address the outstanding issues surrounding the IA function, and define how the IA function would operate with the adoption of standards related to the NERC Reliability Functional Model (FM). This white paper:

- Defines how the tasks of an Interchange Authority could be performed operationally.
- Provides a common vision of the Interchange Authority.
- Describes how the Interchange Authority function interrelates with other functions – both market and reliability.
- Discusses the issues, options, and concerns surrounding the Interchange Authority function.

Executive Summary

Today, Interchange Authority tasks are performed by entities within the control area. The IA function as described in the FM is a concept — a listing of tasks — that requires detail before the industry places the IA into operation. The purpose of this paper is to describe a process to implement the concept of an IA into an industry that “operates” within the Functional Model. The paper defines the task force’s vision of how the IA will operate, and how the IA will communicate and interrelate with the other FM functions.

The white paper discusses, and attempts to resolve, the issues surrounding the IA function. These issues are summarized in **Appendix D**, and have also been identified during the public postings of the FM, meetings of the Coordinate Interchange groups,² and various industry forums.

The IAFTF summarized its vision of the IA and includes a recommendation to apply the IA function for Version 1 Standards. The majority of the group believes that the recommendation represents the most logical and efficient way to fulfill the functions of the IA. The paper describes other options for a future IA that were considered as part of the discussions (**Appendix B**).

Interchange Authority Vision

Interchange Authority Purpose

The IA function serves as a gateway to translate the Purchase-Selling Entity’s (PSE) or the PSE designee’s Requests for Interchange (RFI) into physically implemented schedules between Balancing Authorities (BA). The standards for the business and commercial aspects of the RFI

¹ The IAFTF roster is **Appendix A**.

² The Coordinate Interchange groups are NERC’s Interchange Subcommittee and Coordinate Interchange Standards Drafting Team and NAESB’s Coordinate Interchange Business Practice Task Force. This white paper was discussed at the Coordinate Interchange Standard DT meeting on September 8–9, 2004 (members of the NAESB Coordinate Interchange BP TF attended the meeting) and the discussion resulted in revisions to the paper. No action to “approve” the paper was taken at the meeting.

are covered under the NASEB Coordinate Interchange Business Practice Standard, Version 1. The reliability entity responsibilities for facilitating the physical movement of energy will be covered under the NERC Coordinate Interchange Standard, Version 1.

Interchange Authority Functions

At a high level, the IA functions are:

1. Provide a methodology to accept RFI's for physical implementation.
2. Distribute and obtain confirmation of the RFIs from the reliability entities.
3. Authorize implementation of physical interchange transactions by the BAs.
4. Enter physical interchange transactions into any appropriate reliability assessment systems.
5. Maintain auditable records of physical interchange transactions.

A detailed description for each of these functions is contained in **Appendix C**.³

Interchange Authority Interactions and Communications

The diagram in Figure 1 (**Appendix E**) illustrates how the IA will interact and communicate to facilitate interchange. This diagram is based on Version 1 of the NAESB Coordinate Interchange Business Practices Standards and the NERC Coordinate Interchange Standard:

- The PSE or PSE's designee assembles all energy purchases, sales, and transmission service arrangements prior to communicating with the IA (NAESB RFI Standard 2.1).
- The PSE or PSE's designee verifies all energy purchase, sale, and transmission service market arrangements prior to communicating with the IA (NAESB RFI Standard 2.1).
- Upon receipt of all necessary market verifications, the PSE or PSE's designee submits a balanced RFI to the IA (NAESB RFI Standard 2.0).
- The IA will submit the balanced RFI to the reliability entities (RA, BA, TSP) for validation (NERC CI Standard 402).
- The reliability entities will confirm or deny the RFI for the IA (NERC CI Standard 403).
- After all necessary reliability confirmations, the IA will send the individual confirmed RFI(s) along with appropriate net interchange information for all RFIs managed by that IA to the affected BAs for implementation (NERC CI Standard 401).
- After confirmation, the IA will also send the individual confirmed RFI(s) along with appropriate net interchange information for all RFIs managed by that IA to the appropriate reliability assessment systems as identified by the reliability entities (NERC CI Standard – TBD).

³ Information on the development of the Coordinate Interchange Standard may be found on the NERC website at: <http://www.nerc.com/~filez/standards/Coordinate-Interchange.html> and NAESB Version 1 Business Practice Standards for Coordinate Interchange (RFI) may be found on the NAESB website at: http://www.gisb.org/weq/weq_cibp.asp

Recommended Option for Fulfilling the Interchange Authority Function

Successful completion of IA tasks is critical to implementing bilateral interchange between BAs. Accurate and timely coordination of Interchange by the IA is also crucial to system reliability. The IA must be able to accept the market's RFI from the PSE or the PSE's designee, distribute the RFI to affected reliability entities i.e., BA, TSP, RA, receive approvals from the reliability entities, and receive modifications to the RFI from market and reliability entities. IA communication on the status of Interchange to both market and reliability entities is of paramount concern to NERC because of its potential to affect system reliability.

The IAFTF believes the sheer volume, complexity, and multiple combinations of communication required to perform the tasks of the IA presents a coordination challenge to the industry. The IAFTF believes the most efficient way to meet the reliability needs and expeditiously communicate the necessary data to all parties involved in physically moving energy between BAs for a Version 1 implementation is through today's E-Tag system, and for a future implementation the creation of single Interconnection-wide IA tools.

When considering industry efficiency, the IAFTF looked at the relevant experiences in implementing OASIS and E-Tag. One of the biggest problems encountered during these implementations was interoperability of systems due to variations in interpreting system functionality and technical specifications. The IAFTF believes the best way to avoid the interoperability problems that the industry might face with many IAs is to develop a single Interconnection-wide IA tool.

The IAFTF recommends that a single sourced Interchange Coordination tool be developed as an interconnection-wide medium for communications with the reliability entities. (See Interchange Authority Options section – Option 3.) Although the IAFTF has identified communication and coordination challenges with this option the group feels it represents less risk than the other options. Using an Interconnection-wide medium is logical, and consistent, because the system exists today and is deeply ingrained within the industry.

Interconnection-wide IA tools would:

- Minimize electronic communications between all involved parties. Multiple IA tools (or other methods of communication) will introduce unnecessary complexities, time delays, and decreased flexibility. A single IA tool will inherently improve reliability of the interconnected system.
- Reduce response time between affected RA and BA entities when system emergencies arise that are directly affected by BA-to-BA transactions by reducing the number of communications required.
- Avoid interoperability problems by having a single interpretation of functionality definitions and supporting technical specifications.
- Require an IA tool design that would be highly reliable and fully redundant.
- Allow for an expedited rollout by eliminating interoperability testing and reducing the development and startup effort by the vendor.

- Allow for greater accessibility by various industry backend systems because of standardization.

The IAFTF attempts to consolidate the majority opinion of the group, and the options have been captured in **Appendix B**.

Certification – Training – Next Steps

Certification

How will the IA functionality be certified? The IAFTF recommends:

- Certification based upon the IA tool used to perform IA functions.
- Create a default IA tool for use by reliability entities.
- Certify the IA tool, by complying with a series of measures defined in a test procedure, and technical requirements document.
- If an entity registers to perform the IA functions and has registered a URL to the certified IA tool, then they would be considered certified and would meet requirements for proper practices as measured by the local reliability organization. .

Education

The IAFTF is concerned with the education and training of the industry regardless of the disposition of open issues. Adequate time must be allowed to address training for successfully employing the IA function.

Integration

The IAFTF believes that adequate time must be allowed to provide industry participants the ability to integrate their various systems with the IA tool. This can be accomplished by publishing interface protocols and providing an integration test environment available to all industry participants well in advance of implementation.

Next Steps

The Interchange Subcommittee requests the Operating Committee use this white paper as a means to solicit further comments on the IA from NAESB, the ISO/RTO Council, NERC Functional Model Working Group, and other industry groups. Further, we recommend the Operating Committee remand the whitepaper to the NERC Interchange Subcommittee to further development of detailed functionality and recommendations for tools.

Appendix A

NERC Interchange Authority Function Task Force (IAFTF)

John M. Simonelli, Chairman	ISO New England Inc.
Pete Harris	ISO New England Inc.
Deanna M. Phillips	Bonneville Power Administration
Albert M. DiCaprio	PJM Interconnection, L.L.C.
J. Roman Carter	Southern Company Services, Inc.
Donald P. Lacen	Public Service Company of New Mexico
Gordon Scott	NERC
Douglas E. Hils	Cinergy Corporation
Jim McIntosh	California ISO
Andy Rodriguez	PJM Interconnection, L.L.C.
Ed Davis	Entergy Services, Inc.
Al Boesch	Nebraska Public Power District
Mike Oatts	Southern Company Services, Inc.
Jim Hartwell	NPCC
Bert Gumm	Idaho Power
Jim Hansen	Seattle City Light
Bob Harshbarger	PSE
Karl Tammar	New York ISO
Larry Goins	TVA
Tim Ponseti	TVA
Joel Mickey	ERCOT

Appendix B

Interchange Authority Options

Option 1 – Tagging Extension Approach

Option 1 would build the IA around the E-Tag Authority concept. Today, Control Areas are responsible for maintaining an E-Tag Authority and that E-Tag Authority performs essentially all of the IA functions described in the FM. Each BA would register as an IA and perform both the BA and IA functions.

NAESB would prescribe the commercial functions needed for assembling an interchange transaction (See Market Period in **Attachment E, Figure 1**). The submitting Purchasing-Selling Entity or PSE's designee would send the completed balanced RFI to the ultimate Sink Balancing Authority's Interchange Authority (E-Tag Authority). That IA would be responsible for (See Reliability Period in **Attachment E, Figure 1**):

- Distributing the RFI to all affected reliability entities.
- Obtaining confirmation of the RFI from the reliability entities.
- Distributing status of the confirmation process.
- Authorizing implementation of physical interchange by the affected BAs.
- Forwarding individual confirmed RFI(s) along with appropriate net interchange information to the appropriate reliability assessment systems e.g., Interchange Distribution Calculator (IDC).
- Maintaining records of physical interchange.

Pros:

1. Allow for continuity with current business practices and backend application software.
2. Minimizes industry wide implementation issues because of its similarities to today's paradigm.
3. Gives the same "look and feel" to the commercial sector of the industry.

Cons:

1. Requires that all BAs perform the IA function.
2. Requires the BA receive interchange schedules from potentially many IAs to determine their net interchange, which introduces a communication and coordination challenge.
3. There could be compliance and auditability issues with multiple IAs in that a single IA would be unable to determine, communicate, and record the absolute net interchange to any particular BA.
4. May carry over some of the interoperability and implementation issues experienced in current tagging processes.

Option 2 – Distributed Approach

Option 2 would allow any entity that passes the Interchange Authority Certification and registers with NERC to perform the IA functions. Upon completion of the commercial functions as prescribed by NAESB during the Market Period, the submitting Purchasing-Selling Entity would send the completed balanced RFI to the IA of its choice. Each IA would be responsible for those functions described in Option 1.

Pros:

1. Allow for industry flexibility in determining whom to use to provide IA functionality.
2. Allow for the IA to provide creative, innovative, and value added services.

Cons:

1. Requires the BA to receive interchange schedules from potentially many IAs, which introduces a communication and coordination risk.
2. There could be compliance and auditability issues with multiple IAs in that a single IA would be unable to determine, communicate, and record the absolute net interchange to any particular BA.
3. May create interoperability and implementation issues based on the multitude of different entities providing IA functionality.

Option 3 – Consolidated Approach

Option 3 would create a single NERC wide or interconnection wide IA. Upon completion of the commercial functions as prescribed by NAESB during the Market Period, the submitting PSE would send the completed balanced RFI to a defined IA. This IA would be responsible for those functions described in Option 1.

Pros:

1. A single IA would reduce the volume of communication between:
 - a. Potentially the multiple IAs that would necessarily exist in alternate implementations to provide electronic coordination of interchange. Note: only if IA to IA exchange is mandated in the other options as a way to allow a single net composite interchange to be sent to each BA.
 - b. IAs and reliability entities.
 - c. IAs and market entities.
2. Allow the BAs to receive and communicate all individual RFI(s) with a single entity as opposed to multiple entities, reducing the communication and coordination risk.
3. Allows each BA and the IA to independently compute net interchange from individual RFI(s), providing for mutual checks and balances.
4. The IA having knowledge of each BAs net interchange can perform an interconnection-wide assessment of balanced interchange.

5. Allow for a single vendor to deal directly with those entities developing the functional definitions and technical specifications, reducing interoperability and implementation issues.

Cons:

1. Could jeopardize reliability by exposing the industry to loss of a single entity that would be performing all IA functions.
2. Could put the industry at financial risk in relying on a single entity to perform all IA functions.
3. May stymie creativity and flexibility within the industry by forcing everyone to use the same centralized IA service.

Appendix C

Interchange Authority Functions

1. Validity Checking Function

Ensuring balanced, valid Interchange Transactions. The IA function ensures that the RFI is balanced and valid prior to physical delivery of energy. The defined validation checks below are taken from the NERC Functional Model. The checks are performed by reliability entities on the contract path identified in the RFI (Reliability Authority, Balancing Authority, Transmission Service Provider). Validation checks include:

1. The source MW must be equal to the sink MW allowing for loss accounting.
2. The Transactions are between valid sources and sinks.
 - a. Verify that the BAs correlate with the Sink Point and Source Point in the interchange transaction.
 - b. Verify that there is one, and only one, BA or Scheduling Agent (SA) listed per POR/POD segment.
3. There is a (continuous) transmission arrangement from the Source to the Sink.
 - a. Verify that the POR/POD pairs are valid for the TSP.
 - b. Verify that for each TSP and POR/POD segment that the BA is valid.
 - c. Verify that the BAs shown as adjacent in the interchange transaction are adjacent to each other.
4. Ensure the requested up and down ramp rates can be met. This will be accomplished by providing the affected BA's with net schedule information so they may review and ensure that they have the physical assets available to meet the requested ramp.

The NERC Operating Manual defines a Transaction as “An agreement arranged by a Purchasing-Selling Entity to transfer energy from a seller to a buyer.” Adequate information must be provided to enable the RA to properly assess the impact of a Transaction ready to “go physical” on the Interconnection.

When the IA receives approvals from the TSP, BA, and RA, those entities responsibility for performing validations, the responsible IA directs the BAs on the contract path to implement the Transaction. If any of these entities performing the validations does not approve the Transaction the responsible IA cannot authorize the implementation of the transaction.

2. Distributes and Receives Interchange Transaction Verification

Collect and disseminate Interchange Transaction approvals, changes, and denials. The IA will receive, collect, validate, maintain, and distribute the RFI status from the reliability entities (RA, BA, TSP) on the contract path. The status will be visible to all reliability entities as well as the requesting PSE or PSE's designee (i.e., author of the RFI).

When the IA receives approvals from the TSP, BA, and RA, those entities responsibility for performing validations, the responsible IA directs the BAs on the contract path to implement the Transaction. If any of these entities performing the validations does not approve the Transaction the responsible IA cannot authorize the implementation of the transaction.

3. Authorize Implementation of Interchange Transactions

Instruct appropriate BA's to Implement the Interchange Transaction. Once the IA has collected all necessary approvals, the IA will communicate the desired net interchange schedules that it has accumulated to the affected BAs for implementation.

The IA tool shall communicate to each BA:

- ⇒ The new net Interchange Schedule for the BA (in the case if multiple IA's no one single IA would have the absolute net for any particular BA).
- ⇒ The new net Interchange Schedule by external interface for the BA.
- ⇒ The new individual Interchange Transactions list by external interface for the BA.

The IA will also communicate the final approval status and implementation of the individual RFI's to the requesting PSE or PSE's designee (i.e., author of the RFI).

4. Enter Interchange Transactions into Appropriate Reliability Assessment Systems

Ensure all required reliability data is communicated to Appropriate Reliability Assessment Systems. Once the IA has obtained all necessary approvals, the IA shall communicate the interchange schedules to the BA's for implementation and forward the interchange schedule to designated reliability assessment systems as required by the various FM reliability entities (e.g., the IDC.).

5. Maintain Records of the Interchange Transactions

The IA will make RFI information available to RAs, BAs, TPs, and Market Monitors (as mandated by Governmental Authorities, Provincial and State entities or specific Market Operators). The IA will serve as the source of net interchange, net interchange by external interface, and individual interchange transactions for each BA. The IA must retain information communicated to the BAs to facilitate the enforcement of audit and compliance measures ensuring the IA has properly communicated balanced confirmed schedules to the BAs.

Appendix D

Interchange Authority Issues

Defining the Interchange Authority as a Tool

The Functional Model defines the WHAT functions the IA will perform, this leaves open the operational questions regarding HOW these functions will be performed. Would an IA tool:

- Actually perform each IA function?
- Perform some of the IA functions while allowing the responsible reliability entities to perform the remaining IA functions?
- Simply allow the responsible reliability entities to perform all of the IA functions?

For example, an IA requirement is the validation of ramp capability. Does the IA tool perform this function by checking ramp rates supplied by BAs against the ramp rate in the RFI, or does the IA tool forward the necessary data to the appropriate BAs who perform the actual ramp capability check? The Functional Model does not specify which entity would perform the IA tasks; it simply requires that the tasks be completed. As a tool, the E-Tag Authority does not perform all E-Tag functions as much as it facilitates the validations and approvals by entities on the E-Tag.

An IA tool could be envisioned to be involved during three distinct time periods:

Ahead of Time⁴

1. Receives request from Purchasing-Selling Entities and/or Market Assembler to implement RFI.
2. Submits all RFI's to the Reliability Authorities, Balancing Authorities, and Transmission Service Providers for approvals.
 - Receives confirmation from Transmission Service Providers of transmission arrangement(s).
 - Receives confirmation from Balancing Authorities of the ability to meet ramping requirements for submitted Interchange Schedules.
 - Receives confirmation from Reliability Authorities on the ability of the interconnected system to support the RFI.
3. Provides approved, valid, and balanced physical Interchange Schedules to the Balancing Authorities for implementation on a forward-looking time frame.

⁴ Note: NERC standards have no role in the commercial ahead-of-time activities for the IA. A transaction can be agreed upon months ahead of time and this initial communications and conformations are not part of NERC's standards. The IAFTF provides the following to demonstrate the potential total performance requirements of such a system.

Real Time

1. Once Interchange Transactions have started, the IA will receive real-time Interchange Transactions changes curtailments and/or re-dispatch Interchange Transactions changes from:
 - Reliability Authorities to maintain reliability (e.g. IROL or OSL or frequency violations).
 - Balancing Authorities (e.g. interruptions due to generation loss or load interruption or excess generation).
 - Balancing Authorities or Market Operator as part of regional congestion management
2. The IA will inform all affected Transmission Service Providers, Reliability Authorities, Balancing Authorities and the requesting Purchasing-Selling Entities of curtailments and/or re-dispatch Interchange Transactions changes.

After the hour

1. Maintains and provides records of individual Interchange Transactions for the Balancing Authorities and Market Monitoring.
2. Accepts interchange transaction changes after the fact such as Emergency and Shared Reserve events.

Entity or Tool

The IA is a function comprised of several tasks. The entities performing these activities by default are responsible for ["by default" says they are responsible but "in part" implies they are not] performing the IA functions. The IAFTF believes that it is appropriate to specify the IA functions in terms of a physical standalone entity.

- Some support the concept that the IA is only a tool that will allow the designated entities to perform the IA functions. What the entity performing the IA functions is called is not relevant; therefore, one can conclude that any entity can simply designate their IA tool. For example, a Sink BA can designate their IA tool similar to how a CA can designate their Tag Authority Service today.
- Others believe the IA should be a standalone physically independent entity that will need to "own" the IA tool(s) and take responsibility for it, including financial responsibility in case the IA tool(s) fails to perform. The entity providing the IA functionality would then be subject to compliance and penalties.

Need for an IA Entity

Is the IA function actually needed under the FM since the BA can perform those functions? The IA, as defined in the FM, is a logical collection of actions or activities relating to the physical movement of energy between BAs. Since the CA in today's world performs these functions, why can't the BA under the FM perform these functions? The IAFTF believes that it is useful to specify the IA functions separately since they are associated with a specific set of actions and interactions.

- Supporters of the need for a unique IA believe its functions and ultimate responsibility under audit and compliance guidelines, requires a physically separate entity that can be held accountable. Folding the IA functions underneath another FM entity (most probably the BA) does not meet the definition and functional requirements of the BA. This would necessitate a change to the FM.
- Opponents of the requirement for an IA point out that BAs and only BAs should be responsible for the tasks, (note that today all BAs do serve as IAs), and therefore there is no need for an IA function and no foreseen problems if the IA is not established.

Singularity

One issue the IAFTF has struggled with is should there be a single interconnection-wide IA entity/tool? The Functional Model *allows for*, but does not mandate, a decentralized submission methodology. This could result in:

- Multiple E-Tagging type systems (Issue is with inter-operability of such systems).
- Non-electronic communications (Issues are:
 - Too many non-electronic communications would impede the industry's ability to deal with and implement all schedules.
 - Too many non-electronic communications would impede operator's ability to do complete analyses of the transactions.

The Functional Model also *allows for*, but does not mandate, a centralized submission methodology. This could result in only one transaction scheduling system.

- Issues are:
 - Monopoly power of 'submission system operator.'
 - Difficulty in matching diverse tariffs.
 - Difficulty in matching different Market rules
 - Difficulty in matching different congestion management approaches.
 - Lack of flexibility.

(See Recommendations and Options sections above).

- Some within the industry feel the IA function can be performed by any entity wishing to provide the service and demonstrating their ability to meet certification. In this case any number of legitimate entities can perform the IA functions. Supporters of the FM concept cite the NERC Board and the NERC SAR process that, "No commercial process be prohibited or mandated." They note that each Control Area today serves as its own IA under the E-Tag paradigm. This allows for a potential infinite number of IAs, which should not be precluded.
- Opponents point to the potential for "too many" IAs and the risk of creating an unimplementable technical paradigm and a potential risk to reliability. They feel a single IA (or interconnection-wide IAs) would:
 - Reduce the number of actual electronic communications that need to occur between all involved parties,

- Reduce response time between affected RA and BA entities when system emergencies arise.
- Allow for a single vendor to deal directly with those entities developing the functionality definitions and supporting technical specifications.
- Provide the most reliable and fully redundant system possible
- Allow for an expedited rollout of the IA by reducing the development, testing and startup effort by centralizing on a single vendor.

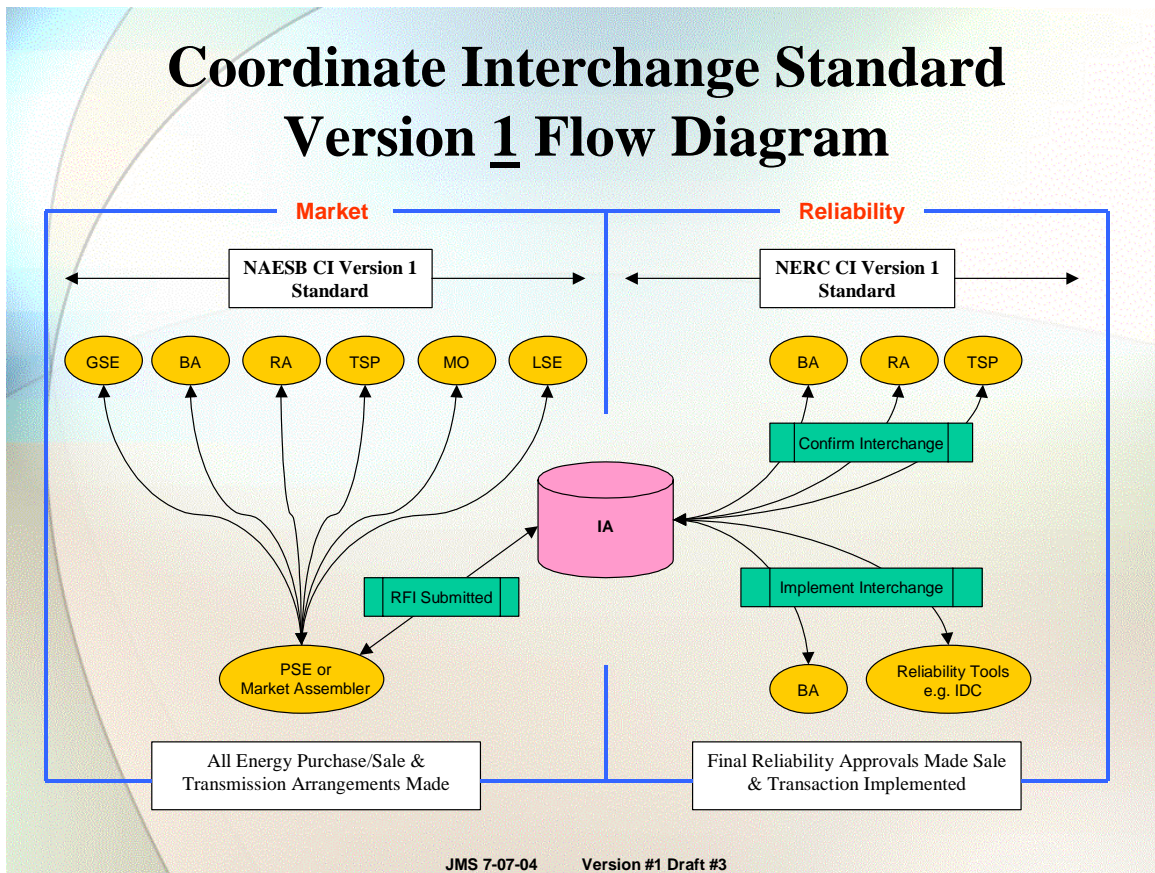
New Functions/Requirements

Are the IA functions performed today? Today, *reliability* is maintained by area-to-area net schedule checkout with the understanding that transaction by transaction information is available to crosscheck the total, all the activities associated with the IA function are carried out by today's sink control areas; the sink control area performs those responsibilities using the E-Tag system, control area scheduling systems, and the control area-to-adjacent control area checkout of Net Interchange Schedules. Others claim that all new tools and methodologies will be required to implement the IA functionality.

- Supporters of the FM concept claim that all the functions are carried out today and that the responsibility is assigned today to the sink control area (i.e. sink BA); and that the sink control area carries out those responsibilities using the current E-tag supplemented by control area to adjacent control area checkout of Net Interchange schedules. The FM does not introduce any additional functions over and above what is performed today.
- Opponents claim that the injection of an independent entity performing the IA functions will require a new level of communication and new tools and methodologies may be required to support the IA functionality

Appendix E

Interchange Authority Figure #1



[Attachment 3]

Discuss Revised Structure of Standard 400

The following discussion is from Mike Oatts on restructuring Standard 400.

- 1) Requirements were renumbered and reordered to make them "chronological"
- 2) Al Boesch supplied some compliance level suggestions
- 3) There is a single timing table that attempts to satisfy the East and West as best we could. The East timing was based on duration of Interchange and the West timing seemed to be based on when it was submitted during the day. We did not completely understand the basis for the West set up so we went with a duration based table for timing like the West. It may not fly or it may not even be laid out right but we're off a blank page.
- 4) I put in some words about passive approval but I think it will require some thought. The real issue will be how will the IA be able to determine a composite status from RA, TSP and BA responses in our new 403 if those entities can use passive approval (i.e. how does IA know it was meant to be passively approved versus non response was given - and thus the entity would have failed the requirement of 402).

Note: The track changes were left on (except for the reordering/renumbering of requirements).

[Attachment 4] Coordinate Interchange Standard 400 – Working Draft

These definitions will be posted and balloted along with the standard, but will not be restated in the standard. Instead, they will be included in a separate “Definitions” section containing definitions relevant to all standards that NERC develops.

Version 1

Definitions

Interchange: Energy transfers that cross Balancing Authority boundaries.

Arranged Interchange: The state where all arrangements necessary to submit the Interchange request to the Interchange Authority have been made.

Confirmed Interchange: The state where the Interchange Authority has verified the Arranged Interchange and is ready to submit it to the Balancing Authorities.

Implemented Interchange: The state where the Balancing Authority enters the Confirmed Interchange into its area control error equation.

400 — COORDINATE INTERCHANGE

~~401 Implementation of Interchange~~

~~402401 Interchange Confirmation Authority Disseminates Arranged Interchange~~

~~403402 Response to Interchange Authority~~

~~403 Interchange Authority Confirmation Disseminates Confirmations~~

~~404 Interchange Authority Disseminates Confirmations~~

~~404405 Implementation of Interchange~~

Purpose: To ensure that the implementation of Interchange between source and sink Balancing Authorities is coordinated by an Interchange Authority such that the following reliability objectives are met:

- (1) Each Interchange is checked for reliability before it is implemented.
- (2) The Balancing Authorities implement the Interchange exactly as agreed upon in the Interchange confirmation process.
- (3) Interchange information is available for reliability assessments.

Effective Period: This standard will become effective upon the date of NERC Board of Trustees adoption.

Applicability: This standard applies to entities performing various electric system functions, as defined in the most recent version of the North American Electric Reliability Council Functional Model. NERC is now developing standards and procedures for the identification and certification of such entities. Until that identification and certification is complete, these standards apply to the existing entities (such as control areas, transmission owners and operators, and generation owners and operators) that are currently performing the defined functions.

Clarifying documents: For more information see the North American Electric Reliability Council Functional Model and the Coordinate Interchange Standard Reference Document.

In this standard, the terms *Balancing Authority*, *Interchange Authority*, *Reliability Authority*, *Purchasing/Selling Entity*, and *Transmission Service Provider* refer to the entities performing these functions as defined in the Functional Model.

401 Interchange Authority Disseminates Arranged Interchange**(a) Requirement**

Prior to the expiration of the time period defined in the Timing Table, Column A, the Interchange Authority shall communicate to all reliability entities involved in the Interchange the Arranged Interchange information for reliability assessment.

(1)

(2) Prior to distribution to the reliability entities, the Interchange Authority shall verify data content has been provided for the following Arranged Interchange attributes:

(i) Source MW, sink MW and , if appropriate, losses

(ii) Certified Source Balancing Authority and sink Balancing Authority

(iii) Transmission arrangements information

(iv) MW magnitude

(v) Ramp start and stop times

(vi) Interchange duration

(a) Measures

(1) For each Arranged Interchange, the Interchange Authority shall provide evidence that it has communicated the Arranged Interchange information to all reliability entities involved in the Interchange and did so within the applicable time frame.

(b) Regional Differences

(1) This requirement does not apply in the ERCOT Region because ERCOT operates as a single Balancing Authority, asynchronous to the Eastern and Western Interconnections. This difference shall be applied on an Interconnection-wide basis in ERCOT.

(c) Compliance Monitoring Process

(1) Each Interchange Authority shall demonstrate compliance to the Compliance Monitor within the first year that this standard becomes effective or the first year the entity commences operation by self-certification to the Compliance Monitor.

(2) Subsequent to the initial compliance review, compliance will be:

(i) Verified at any time as the result of a complaint. Complaints must be lodged within 60 days of the incident. The Compliance Monitor will evaluate complaints.

(3) The performance-reset period shall be twelve months from the last noncompliance to 401(a). Interchange Authorities found noncompliant shall keep data until deficiencies resulting in noncompliance are resolved. Each Interchange Authority shall make the following available for inspection by the Compliance Monitor upon request:

(i) Rolling three months worth of hourly Interchange records that indicate that each Interchange Authority request was responded to.

- (4) The Compliance Monitor shall verify Interchange Authority data by comparing it to corresponding Balancing Authority, Reliability Authority, Purchasing/Selling Entity, and Transmission Service Provider data.

(e) **Levels of Noncompliance**

- (1) Level one: One incident of not communicating to all involved entities in a three month period
- (2) Level two: Two incidents of not communicating to all involved entities in a three month period
- (3) Level three: Three incidents of not communicating to all involved entities in a three month period
- (4) Level four: Four incidents of not communicating to all involved entities in a three month period or evidence not available or not provided.

(f) **Sanctions**

Sanctions for noncompliance shall be applied consistent with the NERC compliance and enforcement matrix (attached to the end of this standard for reference). In cases where financial penalties are assigned for noncompliance, these penalties shall be the fixed dollar sanctions listed in the matrix, not the per MW sanctions.

402 Response to Interchange Authority**(a) Requirement**

- (1) Prior to the expiration of the appropriate reliability assessment period defined in the Timing Table , Column C, the The Reliability Authority, Balancing Authority and Transmission Service Provider shall respond to a request from an Interchange Authority to transition an Arranged Interchange to a Confirmed Interchange by acknowledging that the Arranged Interchange is acceptable and reliable with respect to their functional responsibilities.
 - i. A Balancing Authority shall, at a minimum, validate ramp is acceptable and reliable
 - ii. A Transmission Service Provider shall, at a minimum, validate the Arranged Interchange provides an acceptable contiguous path with adjacent Providers
- (2) If a reliability entity desires to have the option to passively approve “on-time” Arranged Interchanges and/or passively deny “late” Arranged Interchanges, then it must notify the Interchange Authority of that desire along with the period of time it will be in effect. The use of passive approval or denial does not remove the reliability entity of its responsibility to operate in a reliable manner.

(b) Measures

- (1) The Reliability Authority, Balancing Authority, and Transmission Service Provider shall provide evidence that they responded to each request from an Interchange Authority and did so within the applicable time frame.-

(c) Regional Differences

- (1) This requirement does not apply in the ERCOT Region because ERCOT operates as a single Balancing Authority, asynchronous to the Eastern and Western Interconnections. This difference shall be applied on an Interconnection-wide basis in ERCOT.

(e)(c) Compliance Monitoring Process

- (1) The responsible entity shall demonstrate compliance to the Compliance Monitor within the first year that this standard becomes effective or the first year the entity commences operation by self-certification to the Compliance Monitor.
- (2) Subsequent to the initial compliance review, compliance will be:
 - (i) Verified at any time as the result of a complaint. Complaints must be lodged within 60 days of the incident. Complaints will be evaluated by the Compliance Monitor.
- (3) The Performance-reset Period shall be twelve months from the last noncompliance to ~~4023~~(a). Responsible entities found noncompliant shall keep data until deficiencies resulting in noncompliance are resolved. The responsible entity shall make the following available for inspection by the Compliance Monitor upon request:
 - (i) Rolling three months worth of hourly Interchange records that indicate that each Interchange Authority request was responded to.

- (4) The Compliance Monitor shall verify Balancing Authority Reliability Authority, Purchasing/Selling Entity, and Transmission Service Provider data by comparing it to corresponding Interchange Authority data.

(e) Levels of Noncompliance

- (1) Level one: ~~Not specified~~ One incident of not responding during the three month period
- (2) Level two: ~~Not specified~~ Two incidents of not responding during the three month period
- (3) Level three: ~~Not specified~~ Three incidents of not responding during the three month period
- (4) Level four: Four incidents of not responding during the three month period or Evidence-evidence not available or not provided.

(f) Sanctions

- (1) Sanctions for noncompliance shall be applied consistent with the NERC compliance and enforcement matrix (attached to the end of this standard for reference). In cases where financial penalties are assigned for noncompliance, these penalties shall be the fixed dollar sanctions listed in the matrix, not the per MW sanctions.

4032 Interchange Confirmation**(a) Requirement**

- (1) The Interchange Authority shall verify that Arranged Interchange is balanced and valid prior to transitioning Arranged Interchange to Confirmed Interchange.

(b) Measures

- (1) For each Arranged Interchange transitioned to Confirmed Interchange, the Interchange Authority shall show evidence that ~~it has~~ the following items are verified: ~~that:~~
 - (i) Source MW= sink MW (plus losses, if appropriate)
 - ~~(ii) Interchange is between a source Balancing Authority and a sink Balancing Authority~~
 - (iii) There is a contiguous transmission arrangement across Transmission Service Providers from the source to the sink Balancing Authorities
 - ~~(iv) MW magnitude is defined~~
 - ~~(v) Ramp start and stop times are defined~~
 - ~~(vi) Interchange duration is defined~~
 - (vii) Each Reliability Authority, Balancing Authority, and Transmission Service Provider has provided approval.
 - vii(1) For a reliability related change requested by a Reliability Authority, no other entity approvals are required.

(e)(d) Regional Differences

- (1) This requirement does not apply in the ERCOT Region because ERCOT operates as a single Balancing Authority, asynchronous to the Eastern and Western Interconnections. This difference shall be applied on an Interconnection-wide basis in ERCOT.

(d)(e) Compliance Monitoring Process

- (1) Each Interchange Authority shall demonstrate compliance to the Compliance Monitor within the first year that this standard becomes effective or the first year the entity commences operation by self-certification to the Compliance Monitor.
- (2) Subsequent to the initial compliance review, compliance will be:
 - (i) Verified by audit at least once every three years.
 - (ii) Verified by spot checks in years between audits.
 - (iii) Verified by annual audits of noncompliant Interchange Authorities, until compliance is demonstrated.
 - (iv) Verified at any time as the result of a complaint. Complaints must be lodged within 60 days of the incident. Complaints will be evaluated by the Compliance Monitor.
- (3) The performance-reset period shall be twelve months from the last noncompliance to 4032(a). Interchange Authorities found noncompliant shall keep data until deficiencies resulting in noncompliance are resolved.

- (4) Each Interchange Authority shall make the following available for inspection by the Compliance Monitor upon request:
 - (i) Rolling three months worth of Interchange-related data, as listed in ~~4032~~(b)(1).
- (5) The Compliance Monitor shall verify Interchange Authority data by comparing it to corresponding Balancing and Reliability Authority, Purchasing/Selling Entity, and Transmission Service Provider data.

(e) Levels of Noncompliance

- (1) Level one: ~~90 to 99%~~ One item of ~~the~~ Interchange-related data ~~includes all items~~ listed in 402(b)(1) ~~are is not verified~~.
- (2) Level two: ~~80 to 89%~~ Two items of ~~the~~ Interchange-related data ~~includes all items~~ listed in 402(b)(1) ~~are not verified~~.
- (3) Level three: ~~Less than 80%~~ Three items of the Interchange-related data ~~includes all items~~ listed in 402(b)(1) ~~are not verified~~.
- (4) Level four: Four items of the Interchange-related data listed in 402(b)(1) are not verified or No records available to review.

(f) Sanctions

- (1) Sanctions for noncompliance shall be applied consistent with the NERC compliance and enforcement matrix (attached to the end of this standard for reference). In cases where financial penalties are assigned for noncompliance, these penalties shall be the fixed dollar sanctions listed in the matrix, not the per MW sanctions.

404 Interchange Authority Disseminates Confirmation**(a) Requirement**

~~(1)(2)~~ Prior to the expiration of the time period defined in the Timing Table, Column D, tThe Interchange Authority shall communicate to all entities involved in the Interchange -whether the Arranged Interchange has transitioned to a Confirmed Interchange ~~to all entities involved in the Interchange.~~

(b) Measures

- (1) For each Arranged Interchange, the Interchange Authority shall provide evidence that it has communicated the appropriate final status to all entities involved in the Interchange and did so within the applicable time frame.
- (2) For each Arranged Interchange that includes a DC tie, the Interchange Authority shall provide evidence that it has communicated the appropriate final status to the Balancing Authorities on both sides of the DC tie, even if the Balancing Authorities are neither the source or sink for the Interchange.

(c) Regional Differences

- (1) This requirement does not apply in the ERCOT Region because ERCOT operates as a single Balancing Authority, asynchronous to the Eastern and Western Interconnections. This difference shall be applied on an Interconnection-wide basis in ERCOT.

(f) Compliance Monitoring Process

- (1) Each Interchange Authority shall demonstrate compliance to the Compliance Monitor within the first year that this standard becomes effective or the first year the entity commences operation by self-certification to the Compliance Monitor.

~~(2)(3)~~ Subsequent to the initial compliance review, compliance will be:

- (i) Verified at any time as the result of a complaint. Complaints must be lodged within 60 days of the incident. The Compliance Monitor will evaluate complaints.

~~(3)(4)~~ The performance-reset period shall be twelve months from the last noncompliance to 404(a). Interchange Authorities found noncompliant shall keep data until deficiencies resulting in noncompliance are resolved. Each Interchange Authority shall make the following available for inspection by the Compliance Monitor upon request:

- ~~(4)(ii)~~ Rolling three months worth of hourly Interchange records that indicate that each Interchange Authority request was responded to.

- (4) The Compliance Monitor shall verify Interchange Authority data by comparing it to corresponding Balancing Authority, Reliability Authority, Purchasing/Selling Entity, and Transmission Service Provider data.

(e) Levels of Noncompliance

~~(4)(5)~~ Level one: ~~Not specified~~ One incident of not communicating to all involved entities in a three month period

~~(2)(6)~~ Level two: ~~Not specified~~ Two incidents of not communicating to all involved entities in a three month period

~~(3)(7)~~ Level three: ~~Not specified~~ Three incidents of not communicating to all involved entities in a three month period

~~(4)(8)~~ Level four: ~~Evidence not available or not provided.~~ Four incidents of not communicating to all involved entities in a three month period or evidence not available or not provided.

(f) Sanctions

- (1) Sanctions for noncompliance shall be applied consistent with the NERC compliance and enforcement matrix (attached to the end of this standard for reference). In cases where financial penalties are assigned for noncompliance, these penalties shall be the fixed dollar sanctions listed in the matrix, not the per MW sanctions.

4051 Implementation of Interchange**(a) Requirement**

- (1) The Balancing Authority shall implement Confirmed Interchange exactly as agreed upon in the Interchange confirmation process.

(b) Measures

- (1) The Balancing Authority shall provide evidence that Implemented Interchange matches Confirmed Interchange as submitted by the Interchange Authority.
 - (i) Evidence shall demonstrate that the Interchange was implemented in the Balancing Authority's area control error equation, or the system that calculates the area control error equation. Evidence may be on a net basis or an individual Interchange basis.
 - (ii) **Balancing Authorities that are interconnected with a DC tie shall demonstrate that the Interchange was implemented in the area control area equation or modeled as an equivalent generator / load within its area.**

(c) Regional Differences

- (1) This requirement does not apply in the ERCOT Region because ERCOT operates as a single Balancing Authority, asynchronous to the Eastern and Western Interconnections. This difference shall be applied on an Interconnection-wide basis in ERCOT.

(d) Compliance Monitoring Process

- (1) Each Balancing Authority shall demonstrate compliance to the Compliance Monitor within the first year that this standard becomes effective or the first year the entity commences operation by self-certification to the Compliance Monitor.
- (2) Subsequent to the initial compliance review, compliance will be:
 - (i) Verified by audit at least once every three years.
 - (ii) Verified by spot checks in years between audits.
 - (iii) Verified by annual audits of noncompliant Balancing Authorities, until compliance is demonstrated.
 - (iv) **Verified at any time as the result of a complaint. Complaints must be lodged within 60 days of the incident. The Compliance Monitor will evaluate complaints.**
- (3) The Performance-reset Period shall be twelve months from the last noncompliance to requirement 4051(a). Balancing Authorities found noncompliant shall keep data until deficiencies resulting in noncompliance are resolved.
- (4) The Balancing Authorities shall make the following available for inspection by the Compliance Monitor upon request:
 - (i) Rolling three months worth of Balancing Authorities' Implemented Interchange values as submitted to them by the Interchange Authorities.
 - (ii) Indication of whether Interchange data is block or ramp schedule.

- (5) The Compliance Monitor shall verify Balancing Authority data by comparing it to corresponding Interchange Authority data.

(e) Levels of Noncompliance

- ~~(1)(2)~~ Level one: ~~90 to 99% of the r~~Records confirm that Implemented Interchange ~~does not~~ matches corresponding Interchange Authority Interchange for one hour during a month.
- ~~(2)(3)~~ Level two: ~~80 to 89% of the r~~Records confirm that Implemented Interchange ~~does not~~ matches corresponding Interchange Authority Interchange for two hours during a month.
- ~~(3)(4)~~ Level three: ~~Less than 80% of the r~~Records confirm that Implemented Interchange ~~does not~~ matches corresponding Interchange Authority Interchange for three hours during a month.
- ~~(4)(5)~~ Level four: ~~No records available to review.~~Records confirm that Implemented Interchange ~~does not~~ match corresponding Interchange Authority Interchange for four hours during a month or no records available to review.

(f) Sanctions

- (1) Sanctions for noncompliance shall be applied consistent with the NERC compliance and enforcement matrix (attached to the end of this standard for reference). In cases where financial penalties are assigned for noncompliance, these penalties shall be the fixed dollar sanctions listed in the matrix, not the per MW sanctions.

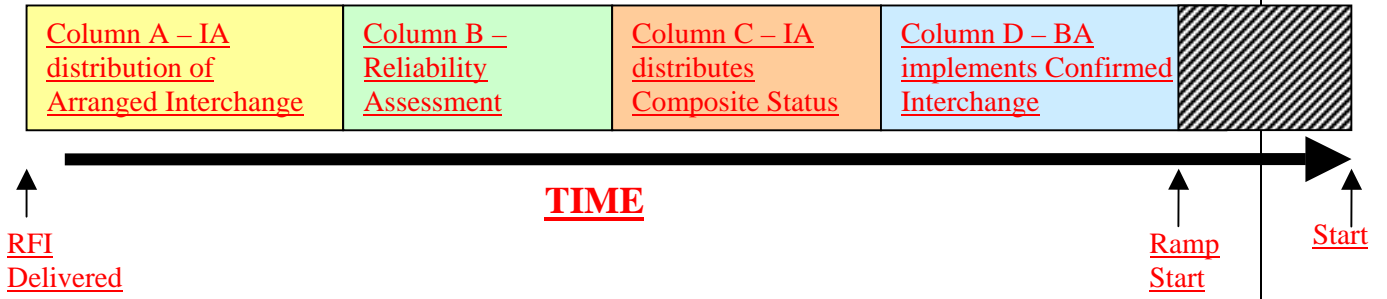
Timing Table

		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
<u>Arranged Duration</u>	<u>Actual Arranged Interchange (RFI) Submission Time</u>	<u>IA Validation and distribution period</u>	<u>Reliability Assessment period</u>	<u>IA status compilation and distribution period</u>	<u>BA implementation period</u>
<u>Less than 24 hours</u>	<u><1 hour prior to ramp start</u>	<u>< 1 minute from RFI submission</u>	<u>< 10 minutes from Arranged Interchange receipt from IA</u>	<u>< 1 minute from Reliability Assessment period</u>	<u>> 3 minutes prior to ramp start</u>
	<u>>1 hour to < 4 hours prior to ramp start</u>		<u>< 20 minutes from Arranged Interchange receipt from IA</u>		<u>> 35 minutes prior to ramp start</u>
	<u>> 4 hours prior to rampstart</u>		<u>< 2 hours from Arranged Interchange receipt from IA</u>		<u>> 1 hour 55 minutes prior to ramp start</u>
<u>24 hours or Longer</u>	<u>> 4 hours prior to start</u>	<u>< 1 minute from RFI submission</u>	<u>< 2 hours from Arranged Interchange receipt from IA</u>	<u>< 1 minute from Reliability Assessment period</u>	<u>> 1 hour 55 minutes prior to ramp start</u>
<u>Any duration</u>	<u>< 15 minutes prior to ramp start</u>	<u>< 1 minute from RFI submission</u>	<u>5 minutes from Arranged Interchange receipt from IA</u>	<u>< 1 minute from Reliability Assessment period</u>	<u>Submission time prior to ramp start minus maximum time of 7 minutes</u>

Notes:

- 1) RFI submittal is considered "on time" if it permits the maximum time allocation for columns A-C and minimum time allocation for Column D in the applicable row.
- 2) RFI submittal is considered "late" if it does not meet the condition in Note 1 and thus will be denied if not explicitly approved by all reliability parties.
- 3) The relative position of the timing periods is described by Figure A.

Figure A



Sanctions Table

The following table is an approved table of Compliance Sanctions. This table of sanctions was developed by the Compliance Subcommittee as part of the NERC Compliance Enforcement Program and was approved by the NERC Board of Trustees. The enforcement matrix is divided into four levels of increasing noncompliance vertically and the number of violations in a defined period at a given level horizontally. In the enforcement matrix, note that there are three sanctions that can be used: a letter, a fixed fine, and a \$\$ per MW fine.

Letter

The letter is a sanction used to notify company executives, Regional officers, and regulators when an entity is noncompliant. The distribution of the letter varies depending on the severity of the noncompliance. It is used first to bring noncompliance the attention of those who can take action to bring the entity into compliance.

- Letter (A) — Letter to the entity's vice president level or equivalent informing the entity of noncompliance, with copies to the data reporting contact, and the entity's highest ranking Regional Council representative.
- Letter (B) — Letter to the entity's chief executive officer or equivalent, with copies to the data reporting contact, the entity's highest ranking Regional Council representative, and the vice president over the area in which noncompliance occurred.
- Letter (C) — Letter to the entity's chief executive officer and chairman of the board, with copies to the NERC president, regulatory authorities having jurisdiction over the noncompliant entity if requested by such regulatory authorities, the data reporting contact, the entity's highest ranking Regional Council representative, and the vice president over the area in which noncompliance occurred.

Fixed Dollars

This sanction is used when a letter is not enough and a stronger message is desired. Fixed dollars are typically assigned as a one-time fine that is ideal for measures involving planning-related standards. Many planning actions use forward-looking assumptions. If those assumptions prove wrong in the future, yet they are made in good faith using good practices, entities should not be harshly penalized for the outcome.

Dollars per MW

Dollars per MW sanctions are oriented toward operationally based standards. The MW can be load, generation, or flow on a line. Reasonableness of a sanction needs to be figured into assessing \$/MW penalties. Assessing large financial penalties is not the goal, but sending a message with proper emphasis on \$\$\$ can be controlled with the multiplier.

Occurrence Period Category	Number of Violations in Occurrence Period at a Given Level			
	1 st Period of Violations (Fully Compliant Last Period)	1	2	3
2 nd Consecutive Period of Violations		1	2	3 or more
		\$ Sanction from Table; Letter (C) only if Letter (B) previously sent		
3 rd Consecutive Period of Violations		1	2 or more	
		\$ Sanction from Table; Letter (C) only if Letter (B) previously sent		
4 th or greater Consecutive Period of Violations		1		
		\$ Sanction from Table; Letter (C)		

Level of Noncompliance	Sanctions Associated With Noncompliance			
	Level 1	Letter (A)	Letter (A)	Letter (B) and \$1,000 or \$1 Per MW
Level 2	Letter (A)	Letter (B) and \$1,000 or \$1 Per MW	Letter (B) and \$2,000 or \$2 Per MW	Letter (B) and \$4,000 or \$4 Per MW
Level 3	Letter (B) and \$1,000 or \$1 Per MW	Letter (B) and \$2,000 or \$2 Per MW	Letter (B) and \$4,000 or \$4 Per MW	Letter (B) and \$6,000 or \$6 Per MW
Level 4	Letter (B) and \$2,000 or \$2 Per MW	Letter (B) and \$4,000 or \$4 Per MW	Letter (B) and \$6,000 or \$6 Per MW	Letter (B) and \$10,000 or \$10 Per MW

Interpreting the Tables:

- These tables address penalties for violations of the same measure occurring in consecutive compliance reporting periods.
- If a participant has noncompliant performance in consecutive compliance reporting periods, the sanctions applied are more punitive.

[Attachment 5]

Coordinate Interchange Standard Reference Document Draft Version 4

- Introduction - Philosophy
- Relationship to the SAR
- Relationship to the Functional Model
- Terminology
- Timing
- Dynamic Transfers
- DC Ties
- Settlement of Losses
- Interchange Changes
- Appendix A – SAR and draft Standard requirement comparison
- Appendix B – Life Cycle Stages of Interchange
- Appendix C – Functional Model Technical Document - Losses

Introduction

This document explains the assumptions the Coordinate Interchange Standard Drafting Team (SDT) used to create the draft Standard.

Standard Focuses on Reliability

To date, both reliability and business concerns have driven the development of NERC's Policies. The Coordinate Interchange SAR focused on the reliability issues surrounding the process of approving and implementing energy transfers across BA boundaries (Interchange). Each BA uses Interchange values in calculating its ACE. The SAR did not delve into any of the business practices associated with Interchange since developing standards for business practices is outside the scope of NERC's Reliability Standards. [Business Practices for energy transfers across BA boundaries are to be developed by NAESB](#). The SDT has been working cooperatively with its counterparts in NAESB to ensure that, to the extent practical, this new Coordinate Interchange Standard will not conflict with any associated business practices being developed by NAESB.

The NAESB Coordinate Interchange Business Practice (CIBP) Standard identifies market-supported processes to facilitate fair & equitable competitive interchange practices. The NAESB CIBP Standard requires that commercial and reliability data including the necessary front-end business arrangements be obtained by the PSE prior to the Interchange request being submitted to the IA. Upon receiving this information, the IA will then utilize the NERC CI Standard to transition the Interchange request from the Market period to the Reliability period as shown in Appendix B Figure 1.

Standard is Performance-based

Because the Standard is written as a "performance-based," standard, it does not require the use of specific tools, formats or methods to achieve compliance with the standard's requirements. For example, the E-Tagging process addressed NERC Policy is not required in the standard, neither is its use precluded. Similarly, manual processes such as the use of email, a phone, a fax, or any

other mechanism is not precluded. This is consistent with the Standard's goal of focusing on reliability performance, rather than the processes that support that performance.

Standard is not a Replacement for Policy 3

This Standard is focused in its scope and is not intended to be a replacement for Policy 3. The requirements associated with this standard are intended to address reliability issues; therefore, the standard does not address issues associated with certification of Functional Model entities. The standard's requirements are assumed to be those associated with bilateral interchange (i.e. between a source and a sink, occurring at the same time in equal and opposite directions). The standard contains only those reliability requirements measurable for compliance.

The Director-Compliance and the SAC will decide on the need for field testing this standard. The SDT will develop an implementation plan that gives consideration to the practicalities of implementing this standard and may recommend waiting to implement this standard until some of the associated business practices or tools have been developed. The SDT will be seeking industry feedback on its implementation plan, as this standard is refined.

Relationship to the SAR

The SDT, as defined by the NERC Standards Development process, used the content of the Standard Authorization Request (SAR) as the basis for the corresponding Standard. SDTs are required to draft a standard that is within the scope of the associated SAR.

An example of an issue which some may consider part of "Coordinate Interchange" is communication by the IA of an implemented interchange to the existing Interchange Distribution Calculator (IDC) tool. Such a communication is not part of the requirements in the SAR and thus is not included in the standard.

Appendix A is a table that compares the Coordinate Interchange SAR's requirements to the requirements in the draft Coordinate Interchange Standard.

Relationship to Functional Model

The standard is based on Version 2 of the Functional Model.

Terms

The Standard (as well as the SAR from which it is derived) uses the terms defined in the NERC Functional Model. The Functional Model responsible entities used in the Standard or its companion Reference Document are:

- Interchange Authority (IA)
- Balancing Authority (BA)
- Reliability Authority (RA)
- Transmission Service Provider (TSP)
- Purchasing/Selling Entity (PSE)
- Transmission Operator (TOP)

Bilateral Interchange

Under the Functional Model, Interchange Authorities must be used to coordinate interchange that is 'bilateral' (i.e. between a source and a sink, occurring at the same time in equal and opposite directions). This standard focuses solely on bilateral interchange.

It has been discussed in various forums how many Interchange Authorities can exist. Neither the Functional Model nor this Standard imposes any upper or lower limit on the number of Interchange Authorities that can exist.

Number of Interchange Authorities

The Functional Model does not impose any limits on the number of Interchange Authorities that can exist. This standard only requires that an Interchange Authority be involved in coordinating Interchange.

Internal Interchange Activities

The Functional Model does not treat internal interchange that occurs within an energy market or within an RTO interchange in a special manner. For example, a Scheduling Agent that provides approved interchange instructions to internal BAs within an RTO market structure is assumed in this Standard to function as a BA's agent in its interactions with the IA. (See Functional Model Version 2 companion Technical Document Section 2.6 – Technical Discussion – Managing Bilateral Transactions – Scheduling Agents).

The relationships of the functions included in this Standard are consistent with those in the Functional Model. For example, in this Standard the BA is only to obtain the Implemented Interchange information from a single IA for each Confirmed Interchange. This does not preclude one physical entity from being certified by NERC to represent multiple functions in the interchange process. If certified, the same entity performing PSE activities could also perform IA activities and provide interchange information to the BAs for implementation.

Terminology

A major problem faced by both the Coordinate Interchange SAR DT and Standard DT has been terminology. The terminology problem is partially a result of the industry's inconsistent use of terms "*interchange*" "*transactions*" and "*schedules*". These terms have been used interchangeably to mean very different things. The SDT tried to correct the misunderstandings associated with these terms by developing precise definitions associated with the various steps in the decision making process that results in the data that is entered into the **NET SCHEDULED INTERCHANGE** term of the ACE equation.

Any discussion of **INTERCHANGE** must start with the use of the term as it applies to the control performance measure Area Control Error (ACE). ACE uses **INTERCHANGE** as a power flow (either agreed to obligation for power or metered power). Currently control areas perform the balancing function of the Functional Model and implement the agreement under the terms and conditions specified. NERC must ensure that Balancing Authorities implement the same agreement at the same time and in equal and opposite directions using criteria in the Functional Model.

ACE = (Net Scheduled Interchange – NET Actual Interchange) + B (Scheduled Frequency – Actual Frequency)

In order to understand the terminology used by this standard, refer to the graphic in **Appendix B** that shows the various stages in the life cycle of Interchange as addressed in this standard.

Interchange:^[N1] Energy transfers that cross Balancing Authority boundaries.

Arranged Interchange: The state where the Purchasing/Selling Entity has obtained all necessary approvals to submit the Interchange to the Interchange Authority.

Confirmed Interchange: The state where the Interchange Authority has validated approvals and is ready to submit the Interchange to the Balancing Authorities.

Implemented Interchange: The state where the Balancing Authority enters the Confirmed Interchange into its area control error equation.

The Proposed Interchange stage of this process is outside the scope of this standard. In the Proposed Interchange stage, the PSE puts together the business arrangements for the interchange with TSPs, Generators and LSEs and obtains preliminary reliability approvals from RAs. At this stage, agreements (including transmission reservations) can be put together in a piecemeal fashion – but these business arrangements don't become an 'Arranged Interchange' until all the involved RA's and BA's give their preliminary approval to the PSE. These preliminary steps in the process weren't included in the scope of the SAR and aren't included in this draft standard.

The Standard covers the reliability-related aspects of the Confirmed Interchange and Implemented Interchange steps. The standard implies that prior to becoming an Arranged Interchange all business requirements associated with receiving agreement are settled; otherwise, the PSE would not receive consent from all the entities and the life cycle of the proposal would end before entering the reliability stages — those stages directly addressed by this standard.

Timing

Is the timing of the data exchange between entities addressed in this standard? No.

From a reliability perspective, it is only important that the required data be exchanged – not when the exchange occurs (except that the exchange must occur before the defined start date/time provided in the Arranged Interchange data).

How will the practicalities of timing be addressed?

The entities involved in this interchange process must address practical timing requirements such as minimum lead times so everyone involved has enough time to accomplish their tasks. The appropriateness of these times however, is a business issue and is outside the scope of this standard. If a function's timing is not met, it is assumed its approval will not be provided and the Interchange will not become an Implemented Interchange.

Will entities be held hostage to their approvals? What if an entity holds out so long as to render another entity's approval invalid?

"Approval" is more than just saying, 'YES' or 'NO'. While this standard does not specify the level of detail that must be included in each approval, most approvals are expected to be given in the form of 'conditional' approvals {e.g. "This proposed agreement has my approval up to 5 minutes before the hour. If the IA has not returned its validation then the proposal is denied"}. These conditional approvals will prevent an entity holding another set of entities hostage as the latter group awaits the former entities' response to a proposed interchange.

Dynamic Transfers

Are dynamic transfers addressed in this standard?

The use of dynamics schedules is a type of bilateral interchange that is covered by the requirements of this standard. The Implemented Interchange defined by the telemetered quantities associated with a dynamic schedule is applied to the Net Scheduled Interchange term of the ACE equation.

The use of pseudo-ties requires that both Balancing Authorities include the actual telemetered quantities in the Net Actual Interchange component of the ACE equation; therefore, pseudo-ties are not included in the standard.

DC Ties

Are DC ties addressed in this standard?

That depends on how the Balancing Authorities involved on either side of the DC tie handle the tie in their ACE equation.

- If a Balancing Authority is directly connected to a DC tie and includes the DC tie flow in its Net Scheduled Interchange component of the ACE equation, then, the DC tie Interchange is treated the same as any other Interchange.
- If a Balancing Authority is directly connected to a DC tie and models the tie as another load or generator in its area, the DC tie is not included in the Net Scheduled Interchange component of the ACE equation and is not addressed in this standard. (In this case, the Interchange is balanced internally like any other load or generation and doesn't cross Balancing Authority boundaries.)
- In the case of "flow through" Interchange, the BA connected directly to a DC tie would need to include the Interchange in its Net Scheduled Interchange component of its ACE equation, because it would be receiving or delivering energy with other BAs across AC interfaces. In this case, the DC tie's Interchange will be submitted by the IA as a Confirmed Interchange to the BAs connected to the DC tie and is subject to this standard.

In all cases noted above, the BA that operates the DC tie would receive the Interchange information and be subject to the standard and responsible for notifying the IA of a DC tie trip and the associated Interchange change.

Settlement of Losses

Are loss settlements addressed in this standard?

The settlement of losses incurred when implementing interchange can be handled either as financial or as energy "payment in kind." In either case, loss settlement is primarily a business issue and only involves reliability when losses are handled as Interchange.

Losses will be handled conceptually in this standard as outlined in Version 1 of the Functional Model's Technical Discussion 1 document, "Interchange Scheduling Process — Figure 7," **Appendix C**. In that document, all bilateral schedules are equal and opposite in direction for the source and sink BAs and losses settled as energy are merely an interchange "component" of a larger "composite" interchange involving the generation, load, and intermediate BAs.

Interchange Changes

Once an Interchange has transitioned to the Confirmed or Implemented state, it is entirely possible that the Interchange parameters (i.e. MW, ramp start and stop, duration, etc.) may need to change due to business or reliability reasons. The change to an Interchange in one of these states does not eliminate the necessity for coordination to take place. While Figure 1 of Appendix B shows the coordination communications that take place when an Interchange is initially established, the subsequent figures in Appendix B reflect the similar coordination steps to effect a change in an Interchange.

Figure 2 of Appendix B shows a change (e.g., cancel, increase MW, decrease MW, change ramp or duration info, etc.) initiated by the PSE for non-reliability reasons once the Interchange has transitioned to a Confirmed Interchange. In this case, the PSE would make the same type business and reliability arrangement communications that it did prior to first requesting the Interchange. Subsequent steps also follow the same process. Although not shown, if an Interchange has already transitioned to an Implemented state, the same steps taken during the original coordination would be taken by the PSE and IA to affect the change requested by the PSE.

Figure 3 of Appendix B shows the steps required to change an Interchange during the Confirmed state, which occurs for reliability reasons. In this scenario, only a BA or RA can initiate the change and only the RA can communicate the requested change to the IA. The IA will still verify the interchange parameters are valid but the other entities do not have the opportunity to deny the transition from Arranged to Confirmed because it is for reliability reasons. The IA then communicates the Confirmed state of the Interchange to all parties as in the other scenarios.

Similarly, Figure 4 of Appendix B shows the steps required to change an Interchange during the Implemented state which occurs for reliability reasons. As in the scenario for a reliability change during the Confirmed state, only a BA or RA may initiate the change and only the RA can communicate the requested change to the IA. The remaining coordination to implement the reliability-based change occurs as described previously.

Examination of the coordination to affect a change to an Interchange which has already gone Confirmed or Implemented shows that they reflect the same requirements which are required for the initial creation of the Interchange except that requirement 403 is not required for a reliability-based change.

Appendix A — SAR and Draft Standard Requirement Comparison

SAR Requirement	Standard Requirement	Standard Measurement	Comment
<p>BA shall confirm (with the IA) its approval or denial of the requested Interchange Schedule.</p>	<p>403 — Response to Interchange Authority 1.1The Reliability Authority, Balancing Authority, and Transmission Service Provider shall respond to a request from an Interchange Authority to transition an Arranged Interchange to a Confirmed Interchange. Approval is an acknowledgement by these entities that the Arranged Interchange is acceptable and reliable with respect to their functional responsibilities.</p>	<p>The Reliability Authority, Balancing Authority, and Transmission Service Provider must provide evidence that they responded to each request from an Interchange Authority.</p>	<p>Included</p>
<p>BAs shall implement Interchange Schedules exactly as agreed upon in the interchange confirmation process.</p>	<p>401 — Implementation of Interchange The Balancing Authority shall implement Confirmed Interchange exactly as agreed upon in the interchange confirmation process.</p>	<p>The Balancing Authority shall provide evidence that Implemented Interchange matches Confirmed Interchange with involved Interchange Authorities.</p> <p style="margin-left: 40px;">a. Evidence shall demonstrate that the Interchange was implemented in the Balancing Authority’s area control error equation, or the system that calculates the area control error equation. Evidence may be on a net basis or an individual interchange basis.</p>	<p>Included</p>
<p>The IA shall confirm the approvals from all involved parties (RAs, BAs, TSPs) and shall</p>	<p>402 — Interchange Confirmation 1.1The Interchange Authority shall verify that Arranged Interchange is</p>	<p>For each Arranged Interchange transitioned to Confirmed Interchange, the Interchange Authority shall show evidence that it has</p>	<p>Included in the measure for this requirement</p>

SAR Requirement	Standard Requirement	Standard Measurement	Comment
authorize, upon confirming approvals, the implementation of Interchange Schedules.	balanced and, valid prior to transitioning Arranged Interchange to Confirmed Interchange.	verified that: <ul style="list-style-type: none"> – Source MW= sink MW (plus losses, if appropriate) – Interchange is implemented by the source Balancing Authority and the sink Balancing Authority – There is a contiguous transmission arrangement across Transmission Service Providers from the source to the sink Balancing Authorities – MW magnitude is defined – Ramp start and stop times are defined – Interchange duration is defined – Each Reliability Authority, Balancing Authority, and Transmission Service Provider has provided approval 	
The IA shall confirm that Interchange Transactions are balanced and valid prior to physical delivery.	402 — Interchange Confirmation 1.1. The Interchange Authority shall verify that Arranged Interchange is balanced and, valid prior to transitioning Arranged Interchange to Confirmed Interchange.	For each Arranged Interchange transitioned to Confirmed Interchange, the Interchange Authority shall show evidence that it has verified that: <ul style="list-style-type: none"> – Source MW= sink MW (plus losses, if appropriate) – Interchange is implemented by the source Balancing Authority and the sink Balancing Authority – There is a contiguous transmission arrangement across Transmission Service Providers from the source to the sink Balancing Authorities – MW magnitude is defined – Ramp start and stop times are defined 	Included

SAR Requirement	Standard Requirement	Standard Measurement	Comment
		<ul style="list-style-type: none"> – Interchange duration is defined – Each Reliability Authority, Balancing Authority, and Transmission Service Provider has provided approval 	
<p>The IA shall communicate implementation status to all parties (with which the Interchange Transaction must be coordinated).</p>	<p>404 — Interchange Authority Disseminates Confirmation</p> <p>The Interchange Authority shall communicate whether the Arranged Interchange has transitioned to Confirmed Interchange to all parties involved in the Interchange.</p>	<p>For each Arranged Interchange, the Interchange Authority shall provide evidence that it has communicated the appropriate final status to all parties involved in the interchange.</p>	<p>Included</p>
<p>The RA shall receive and confirm Interchange Transaction information with the IA.</p>	<p>403 — Response to Interchange Authority</p> <p>The Reliability Authority, Balancing Authority, and Transmission Service Provider shall respond to a request from an Interchange Authority to transition an Arranged Interchange to a Confirmed Interchange. Approval is an acknowledgement by these entities that the Arranged Interchange is acceptable and reliable with respect to their functional responsibilities.</p>	<p>The Reliability Authority, Balancing Authority, and Transmission Service Provider must provide evidence that they responded to each request from an Interchange Authority.</p>	<p>Included</p>
<p>The RA shall approve or deny the request from the IA based on reliability perspectives.</p>	<p>403 — Response to Interchange Authority</p> <p>The Reliability Authority, Balancing Authority, and Transmission Service Provider shall respond to a request</p>	<p>The Reliability Authority, Balancing Authority, and Transmission Service Provider must provide evidence that they responded to each request from an Interchange Authority.</p>	<p>Included</p>

SAR Requirement	Standard Requirement	Standard Measurement	Comment
	<p>from an Interchange Authority to transition an Arranged Interchange to a Confirmed Interchange. Approval is an acknowledgement by these entities that the Arranged Interchange is acceptable and reliable with respect to their functional responsibilities.</p>		
<p>TSP shall receive and confirm Interchange Transaction information with the IA.</p>	<p>403 — Response to Interchange Authority</p> <p>The Reliability Authority, Balancing Authority, and Transmission Service Provider shall respond to a request from an Interchange Authority to transition an Arranged Interchange to a Confirmed Interchange. Approval is an acknowledgement by these entities that the Arranged Interchange is acceptable and reliable with respect to their functional responsibilities.</p>	<p>The Reliability Authority, Balancing Authority, and Transmission Service Provider must provide evidence that they responded to each request from an Interchange Authority.</p>	<p>Included</p>
<p>The TSP shall approve or deny the request from the IA.</p>	<p>403 — Response to Interchange Authority</p> <p>The Reliability Authority, Balancing Authority, and Transmission Service Provider shall respond to a request from an Interchange Authority to transition an Arranged Interchange to a Confirmed Interchange. Approval is an acknowledgement by these entities that the Arranged</p>	<p>The Reliability Authority, Balancing Authority, and Transmission Service Provider must provide evidence that they responded to each request from an Interchange Authority.</p>	<p>Included</p>

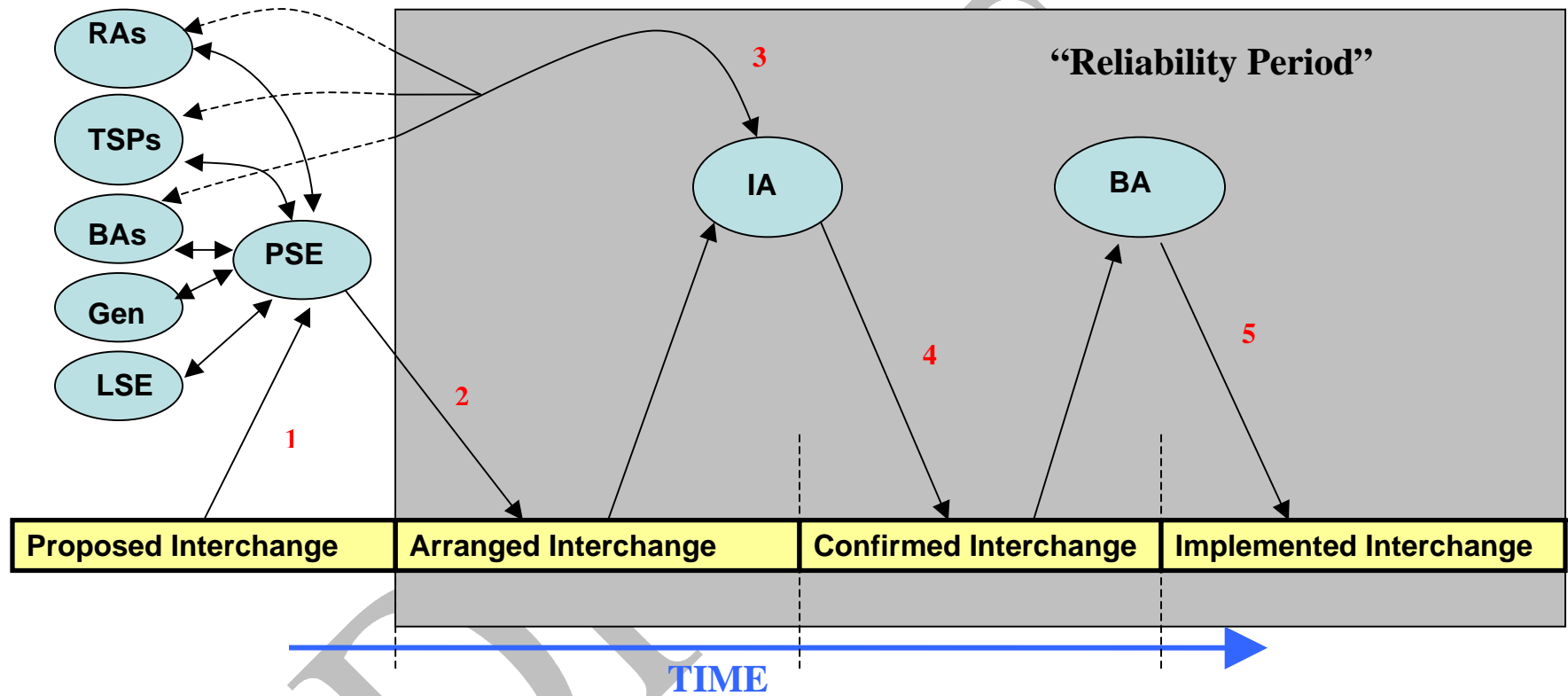
SAR Requirement	Standard Requirement	Standard Measurement	Comment
	Interchange is acceptable and reliable with respect to their functional responsibilities.		
<p>When an entity desires to transfer energy, the entity initiating the transaction shall submit, as a minimum, the following reliability-related transaction data to its IA:</p> <ul style="list-style-type: none"> - Desire to transfer energy - Megawatt magnitude - Ramp start and stop times - Interchange transaction's duration - Sufficient information for all approval entities 	<p>402 — Interchange Confirmation</p> <p>1.1.The Interchange Authority shall verify that Arranged Interchange is balanced and, valid prior to transitioning Arranged Interchange to Confirmed Interchange.</p>	<p>For each Arranged Interchange transitioned to Confirmed Interchange, the Interchange Authority shall show evidence that it has verified that:</p> <ul style="list-style-type: none"> - Source MW= sink MW (plus losses, if appropriate) - Interchange is implemented by the source Balancing Authority and the sink Balancing Authority - There is a contiguous transmission arrangement across Transmission Service Providers from the source to the sink Balancing Authorities - MW magnitude is defined - Ramp start and stop times are defined - Interchange duration is defined - Each Reliability Authority, Balancing Authority, and Transmission Service Provider has provided approval 	<p>Included in the measure for this requirement (note the standard does not address what should be submitted but it is included by default because these items are in the measure for requirement 402).</p>
<p>The PSE shall request approval for interchange transactions from the IA.</p>	<p>Not Included</p>		<p>This requirement is redundant to the requirement to submit the data.</p>
<p>The PSE shall confirm interchange transaction</p>			<p>Communication between the PSE and the IA is</p>

SAR Requirement	Standard Requirement	Standard Measurement	Comment
requirements with the IA.			addressed in Standard Requirement 404.

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Figure 1

APPENDIX B — Life Cycle Stages of Interchange



Data Flow:

1. PSE receives request for Proposed Interchange
2. After receiving all required business agreement, PSE communicates Arranged Interchange
3. IA requests and receives approvals in order to perform required validation
4. Upon validation, IA creates Confirmed Interchange and communicates
5. BA's create Implemented Interchange with entry into ACE equation

Appendix C —Functional Model Technical Document — Losses

Compensation for Losses. Before delving into how the Reliability Model handles compensation for losses, we need to review two physical properties of losses (see Figure 4):

1. **Losses occur when power flows over the transmission system, and these losses are simply part of the load within the Balancing Authority’s area.** The Balancing Authority cannot tell what part of its load is due to losses and what part is due to customers’ toasters and air-conditioners because load isn’t metered. Only generation and tie-lines are metered.
2. **Losses due to Transactions are not confined to the Balancing Authorities along the transmission service path.** In Figure 4, the incremental losses caused by the Transaction from the Generator in BA1 to the Load-Serving Entity in BA4 appears as a load change in all the Balancing Authorities 1–9.

Because losses are part of the Balancing Authority’s load, there must be compensation for serving that part of the load. We now need to review two fundamental assumptions regarding how losses are compensated:

1. **Loss compensation is only provided to the Balancing Authorities via their Transmission Service Providers who are providing the transmission service path.** In Figure 4, only BA1, 2, 3, and 4 are compensated through TSP1 and TSP2¹.
2. **Loss compensation may be in dollars (financial payment) or energy (“self-provision”).** This depends on the requirements in the Transmission Service Providers’ tariffs.

We now turn our discussion to the details of loss compensation.

Financial Compensation. The Purchasing-Selling Entity may compensate the Transmission Service Providers by monetary payment according to the transmission tariffs. The Transmission Service Providers, in turn, pass these payments to their Balancing Authorities who reimburse those Generators providing load-following service.

The financial loss compensation is shown in Figure 5. In this case, the total energy contracted for (100 MW) is delivered from the Generator in BA1 to the Load-Serving Entity in BA4, and the Purchasing-Selling Entity reimburses TSP1 and TSP2 according to their tariffs.

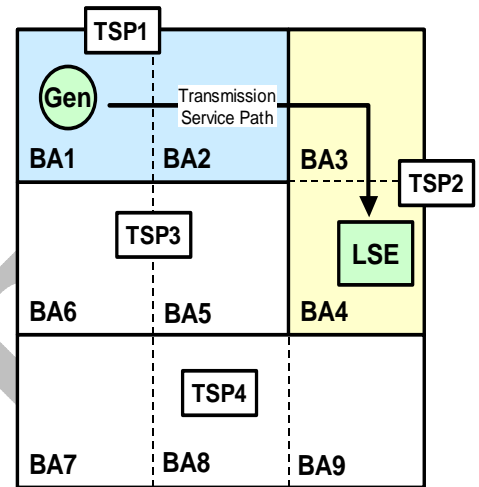


Figure 1 – The portion of the losses caused by the Transaction from the Generator in BA1 to the Load-Serving Entity in BA4 appear as a load change in all the Balancing Authorities 1–9.

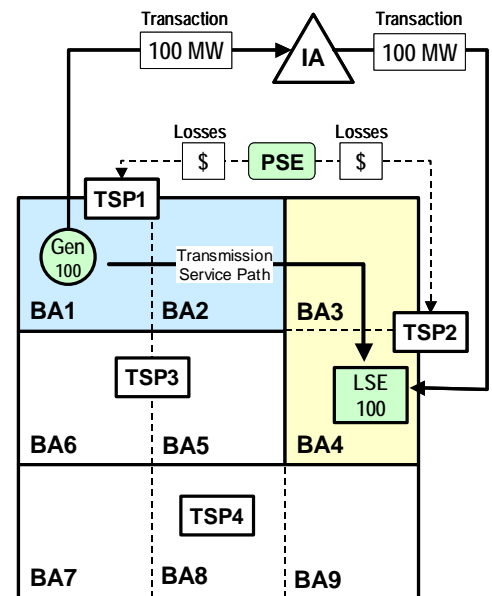


Figure 2 – The PSE may compensate the TSPs with monetary payment.

¹ This example assumes a “contract path.” A regional transmission arrangement might compensate Balancing Authorities who are parties to the arrangement on a flow basis.

“Self-provision” Compensation. If the Transmission Service Provider’s tariff allows, the Purchasing-Selling Entity may supply the energy losses himself as MW. This can be done two different ways:

Today, the most common way of self-provision involves the Purchasing-Selling Entity purchasing the Transaction energy plus losses energy from the Generator, and “dropping off” the losses along the transmission scheduling path as shown in Figure 6. Traditionally, this has been done between adjacent Control Areas, with each Control Area’s net interchange equal to its loss compensation. This compensation is determined by the Transmission Provider’s tariff. In the figure on the right, the Purchasing-Selling Entity has purchased 107 MW from the Generator in CA1, and has “dropped off” a total of 7 MW of losses within each Control Area along the scheduling path so that 100 MW arrives at the point of delivery to the Load-Serving Entity. The numbers in the white circle indicates the MW loss compensation.

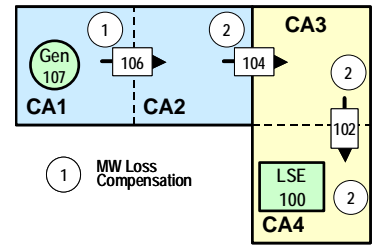


Figure 3 – Present practice for self-provision of losses.

The Task Force proposes a change in this method under the Reliability Model. As we explained above in the “Interchange” subsection, “intermediary” Balancing Authorities are not parties to Interchange Transactions between the source and sink Balancing Authorities. Therefore, self-provided losses cannot be simply “dropped” along the way by decrementing the Interchange Schedules from BA to BA. Instead, the Interchange Authority will serve as the loss distributor by setting up individual Transactions with the “intermediary” Balancing Authorities on behalf of the Purchasing-Selling Entity as shown in Figure 7. The Purchasing-Selling Entity notifies the Transmission Service Provider(s) of this loss compensation arrangement. The TSP, in turn, confirms the loss compensation arrangement with the IA when the IA approaches the TSP to confirm the transmission arrangements.

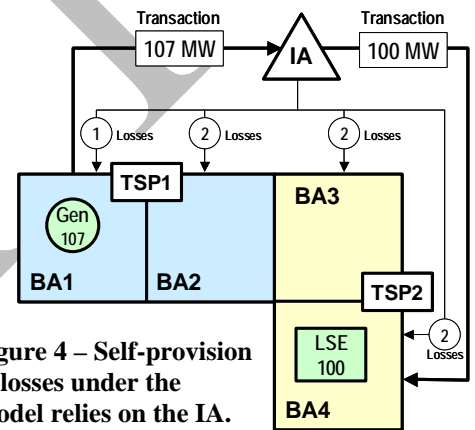


Figure 4 – Self-provision of losses under the Model relies on the IA.

Balancing Authority	Actual from Tie Meters	Schedule(s) with IA
BA1	+106 to BA2 NET = +106	+107 to IA -1 from IA for losses NET = +106
BA2	-106 from BA1 +104 to BA3 NET = -2	-2 from IA for losses NET = -2
BA3	-104 from BA2 +102 to BA4 NET = -2	-2 from IA for losses NET = -2
BA4	-102 from BA3 NET = -102	-100 from IA -2 from IA for losses NET = -102

The table above explains the resulting actual and scheduled interchange between the Balancing Authorities and the Interchange Authority.

The Purchasing-Selling Entity could also supply these losses from another Generator via separate Transactions.

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[N1]These definitions may change if the task group agrees to Mike Oatt's suggested revisions.