



NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

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

Coordinate Interchange Standard Drafting Team

Thursday, July 14, 2005 — 8 a.m.–5 p.m.
Friday, July 15, 2005 — 8 a.m.–12 Noon

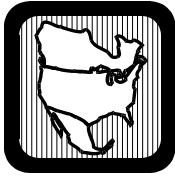
Hyatt Hotel
Chicago, Illinois

Meeting Agenda

- 1. Administrative**
 - a. Welcome and Introductions — Chairman
 - b. Arrangements — Secretary
 - c. Antitrust Guidelines — Chairman (**Attachment 1**)
- 2. Standard Authorization Committee Directives**
 - a. The SAC requests the Version 1 SDTs change the ‘RA’ to ‘RC’ in all Version 1 Standards. The SAC also requested that each V1 SDT develop an updated project schedule for submission to the SAC in September. (**Attachment 2** — SAC Meeting Highlights — May, 2005)
- 3. Functional Model Impact on Coordinate Interchange Standards**
 - a. Review proposed use of Functional Model as a ‘goal’
- 4. Update Coordinate Interchange Standards**
 - a. Update latest draft of standards to conform to new use of Functional Model (**Attachments 3.1, 3.2, 3.3, 3.4, 3.5, and 3.6**)
- 5. Coordinate Interchange Reference Document**
 - a. Update the CI Reference Document (**Attachment 4**)
- 6. Coordinate Interchange V1 Business Practices — Roman Carter**
 - a. Provide an update on Version 1 Business Practice Standards that relate to the Coordinate Interchange Standards
- 7. Second Posting CI Standard**
 - a. Prepare questionnaire for second posting of Standards
- 8. Future Meetings — Secretary**
 - a. Calendar for 2005

A New Jersey Nonprofit Corporation

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NERC ANTITRUST COMPLIANCE GUIDELINES

I. GENERAL

It is NERC's policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. This policy requires the avoidance of any conduct that violates, or which might appear to violate, the antitrust laws. Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that unreasonably restrains competition.

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.

Antitrust laws are complex and subject to court interpretation that can vary over time and from one court to another. The purpose of these guidelines is to alert NERC participants and employees to potential antitrust problems and to set forth policies to be followed with respect to activities that may involve antitrust considerations. In some instances, the NERC policy contained in these guidelines is stricter than the applicable antitrust laws. Any NERC participant or employee who is uncertain about the legal ramifications of a particular course of conduct or who has doubts or concerns about whether NERC's antitrust compliance policy is implicated in any situation should consult NERC's General Counsel immediately.

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

From time to time decisions or actions of NERC (including those of its committees and subgroups) may have a negative impact on particular entities and thus in that sense adversely impact competition. Decisions and actions by NERC (including its committees and subgroups) should only be undertaken for the purpose of promoting and maintaining the reliability and adequacy of the bulk power system. If you do not have a legitimate purpose consistent with this objective for discussing a matter, please refrain from discussing the matter during NERC meetings and in other NERC-related communications.

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

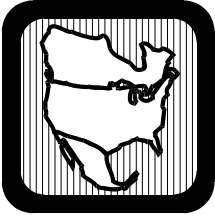
In addition, all discussions in NERC meetings and other NERC-related communications should be within the scope of mandate for or assignment to the particular NERC committee or subgroup, as well as within the scope of the published agenda for the meeting.

No decisions should be made nor any actions taken in NERC activities for the purpose of giving an industry participant or group of participants a competitive advantage over other participants. In particular, decisions with respect to setting, revising, or assessing compliance with NERC reliability standards should not be influenced by anti-competitive motivations.

Subject to the foregoing restrictions, participants in NERC activities may discuss:

- 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.



NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

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

Standards Authorization Committee

May 24–25, 2005
Philadelphia, PA

Meeting Highlights

Reliability Standards Process Manual (Version 4) — Authorized a July 2005 ballot of Version 4 of the Reliability Standards Process Manual and directed a 30-day pre-ballot posting beginning June 1.

Use of Reliability Coordinator in Standards — Instructed the Organization Certification Standards Drafting Team, as well as all other SAR and standard drafting teams, to refer to reliability coordinators, in lieu of reliability authorities, consistent with the existing approved standards.

Organization Certification — Authorized posting of the reliability coordinator, balancing authority, and transmission operator organization certification standards for a 30-day comment period beginning June 1. Requested the drafting team post the organization certification standards and an implementation plan for another 45-day comment period prior to submitting the standards for ballot in the fall.

Phase III-IV Planning Standards — Extended the comment period for draft 1 of the Phase III-IV planning standards one additional week until June 13, 2005.

Cyber Security — Postponed the due date for comments on draft 3 of the cyber security standards until 30 days after the drafting team's response to draft 2 comments are publicly posted.

Nuclear Offsite Power Reliability — Authorized the nuclear offsite power reliability SAR for development as a standard. Appointed the existing drafting team to serve as the standard drafting team members and requested a public solicitation of nominations to add new members.

Vegetation Management — Requested staff provide additional resources to expeditiously complete draft 2 of the vegetation management standards and a response to comments for draft 1.

Determine Facilities Ratings — Instructed the drafting team to develop a markup of existing standards to be deleted or modified coincident with adopting the new standards, and to post the markup and the implementation plan for a 45-day comment period prior to submitting the standards for ballot. Requested staff to update the ballot pool in preparation for the ballot.

Balancing Resources and Demand — Requested a timely decision by the Operating Committee regarding the reliability impacts of the field test of the balancing resources and demand standard.

Coordinate Operations — Authorized the coordinate operations standards for ballot in September 2005, conditioned on changing reliability authority to reliability coordinator and revising the implementation plan to show an effective date of January 1, 2006.

Assess Transmission Future Needs and Develop Transmission Plans — Requested the SAR drafting team to assess and report to the SAC any priority topics within the SAR that should still be developed, considering the planning standards that became effective on April 1 and those in development as the Phase III-IV planning standards.

System Personnel Training SAR — Remanded the SAR to the drafting team to provide a more complete response to stakeholder comments and to consider revisions to the SAR that would be responsive to those comments.

TTC/ATC/AFC SAR and CBM/TRM SAR — Remanded the two SARs to the standards process manager to work with the requester to clarify several issues regarding the scope and intended audience of the standards.

Compliance Elements in Existing Standards — Requested the Compliance and Certification Managers Committee to serve as the SAR drafting team for the purpose of responding to stakeholder comments and identifying the expertise needed to develop the missing compliance elements to be completed in 2005.

Budget and Cost Allocation Subcommittee Request — Determined there is no justification for a non-standard allocation of costs for NERC standards development among the regions.

Registered Ballot Body — Requested staff to review and update Registered Ballot Body information, including a review to ensure the membership within each segment is consistent with the existing segment criteria.

Standards Process — Clarified that each standard drafting team must post for at least one round of stakeholder comments an implementation plan and a markup of any existing standards to be deleted or modified coincident with adopting the new standards. Clarified that responses to stakeholder comments on a SAR or draft standard shall be posted no later than the posting of a subsequent draft for comment.

Project Status — Directed drafting teams to develop project schedules to identify milestones for completion of major steps in bringing their standards to ballot and to begin reporting progress quarterly against those schedules.

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

1. SAC approves SAR for posting (March 10, 2002).
2. Drafting Team posts Draft SAR for comment (April 2 – May 3, 2002) (August 29 – September 30, 2002) (January 31 – March 7, 2003)
3. SAC approves development of standard (May 21, 2003)
4. JIC assigns development of standard to NERC (June 2, 2003)
5. Drafting Team posts Drafts for comment (December 15 – February 12, 2004)

Description of Current Draft:

Draft 2 is to be posted for a 45-day posting for public comment. This draft includes revisions based on industry comments received during the posting of Draft 1 and is in the new format for reliability standards.

Future Development Plan:**Anticipated Actions****Anticipated Date**

- | | |
|---|------------------|
| 1. Post final draft of standard for 30-day review prior to 1 st ballot | To be determined |
| 2. First ballot of Version 0 standards. | To be determined |
| 3. Recirculation ballot of Version 0 standards. | To be determined |
| 4. 30-day posting before board adoption. | To be determined |
| 5. Board adopts Version 0 standards. | To be determined |
| 6. Effective date. | To be determined |

DEFINITIONS OF TERMS USED IN STANDARD

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

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. through the state when the IA actually receives the RFI becomes confirmed or denied.

A. Introduction

1. **Title:** Interchange Authority Distributes Arranged Interchange
2. **Number:** INT-005-1
3. **Purpose:** To ensure that the implementation of Interchange between Source and Sink Balancing Authorities is distributed by an Interchange Authority such that Interchange information is available for reliability assessments.
4. **Applicability**
 - 4.1. Interchange Authority
5. **Effective Date:** Date of NERC Board of Trustees adoption.

B. Requirements

- R1. Prior to the expiration of the time period defined in the Timing Table, Column A, the Interchange Authority shall distribute to all reliability entities involved in the Interchange the Arranged Interchange information for reliability assessment.

C. Measures

- M1. For each Arranged Interchange, the Interchange Authority shall provide evidence that it has distributed the Arranged Interchange information to all reliability entities involved in the Interchange within the applicable time frame.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organization

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.

Subsequent to the initial compliance review, compliance may be:

- 1.1.1 Verified by audit at least once every three years.
- 1.1.2 Verified by spot checks in years between audits.
- 1.1.3 Verified by annual audits of noncompliant Interchange Authorities, until compliance is demonstrated.
- 1.1.4 Verified at any time as the result of a specific complaint of failure to perform Reliability Standard INT-005-1_R1. Complaints must be lodged within 60 days of the incident. The Compliance Monitor will evaluate complaints.

1.2. Compliance Monitoring Period and Reset Timeframe

The Performance-Reset Period shall be twelve months from the last noncompliance to Reliability Standard INT-005-1_R1.

1.3. Data Retention

The Interchange Authority shall keep three months of historical data. The Compliance Monitor shall keep audit records for a minimum of three calendar years.

1.4. Additional Compliance Information

For clarity – c
adding a footn
first use of ‘Ar
Interchange’ to
this may be fo
or a revised Ar
Interchange

1.4.1 Each Interchange Authority shall make the following available for inspection by the Compliance Monitor upon request:

1.4.1.1 For compliance audits and spot checks, all data and system log records for the audit period which indicate the Interchange Authority’s distribution of all Arranged Interchange information to all reliability entities involved in an Interchange. The Compliance Monitor may request up to a three month period of historical data ending with the date the request is received by the Interchange Authority.

1.4.1.2 For specific complaints, only those data and system log records associated with the specific Interchange event contained in the complaint which indicate that the Interchange Authority distributed the Arranged Interchange information to all reliability entities involved in that specific Interchange.

2. Levels of Non-Compliance

- 2.1. Level 1:** One incident (as determined in Reliability Standard INT-005-1_D) of not distributing information to all involved reliability entities prior to the expiration of the time period defined in the Timing Table, Column A.
- 2.2. Level 2:** Two incidents (as determined in Reliability Standard INT-005-1_D) of not distributing information to all involved reliability entities prior to the expiration of the time period defined in the Timing Table, Column A.
- 2.3. Level 3:** Three incidents (as determined in Reliability Standard INT-005-1_D) of not distributing information to all involved reliability entities prior to the expiration of the time period defined in the Timing Table, Column A.
- 2.4. Level 4:** Four incidents (as determined in Reliability Standard INT-005-1_D) of not distributing information to all involved reliability entities prior to the expiration of the time period defined in the Timing Table, Column A or if evidence is not available or not provided as defined in Reliability Standard INT-005-1_D.1.3.

E. Regional Differences

- 1. None

Version History

Version	Date	Action	Change Tracking
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Timing Table



	A	B	C	D
If Actual Arranged Interchange (RFI) is Submitted	IA Initial Distribution of Arranged Interchange	RA, IA, TSP Reliability Assessment	IA Compiles and Distributes Status	BA Implements Confirmed Interchange
≤ 1 hour prior to ramp start	≤ 1 minute from RFI submission	≤ 10 minutes from Arranged Interchange receipt from IA	≤ 1 minute from Reliability Assessment period	≥ 3 minutes prior to ramp start
> 1 hour to < 4 hours prior to ramp start	≤ 1 minute from RFI submission	≤ 20 minutes from Arranged Interchange receipt from IA	≤ 1 minute from Reliability Assessment period	≥ 35 minutes prior to ramp start
≥ 4 hours prior to ramp start	≤ 1 minute from RFI submission	≤ 2 hours from Arranged Interchange receipt from IA	≤ 1 minute from Reliability Assessment period	≥ 1 hour 55 minutes prior to ramp start

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 can be denied.

Standard Development Roadmap

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- | | |
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| 1. Post final draft of standard for 30-day review prior to 1 st ballot | To be determined |
| 2. First ballot of Version 0 standards. | To be determined |
| 3. Recirculation ballot of Version 0 standards. | To be determined |
| 4. 30-day posting before board adoption. | To be determined |
| 5. Board adopts Version 0 standards. | To be determined |
| 6. Effective date. | To be determined |

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Confirmed Interchange: The state where the Interchange Authority has verified the Arranged Interchange and is submitted to the Balancing Authorities for entry into the Area Control Error equation. |

A. Introduction

1. **Title:** Response to Interchange Authority
2. **Number:** INT-006-1
3. **Purpose:** To ensure that each the information associated with each Arranged Interchange is checked for reliability before it is implemented.
4. **Applicability**
 - 4.1. ~~Reliability Authority~~Reliability Coordinator
 - 4.2. Balancing Authority
 - 4.3. Transmission Service Provider
5. **Proposed Effective Date:** Date of NERC Board of Trustees adoption.

B. Requirements

- R1. Prior to the expiration of the reliability assessment period defined in the Timing Table, Column B, the ~~Reliability Authority~~Reliability Coordinator, Balancing Authority and Transmission Service Provider shall respond to a request from an Interchange Authority to transition an Arranged Interchange to a Confirmed Interchange.
 - R1.1. Each involved ~~Reliability Authority~~Reliability Coordinator shall evaluate the information associated with an Arranged Interchange with respect to ~~transmission~~ Bulk Electric System reliability.
 - R1.2. Each involved Balancing Authority shall evaluate the information associated with an Arranged Interchange with respect to the ramp.
 - R1.3. Each involved Transmission Service Provider shall evaluate the information associated with an Arranged Interchange with respect to the transmission service arrangements.

C. Measures

- M1. The ~~Reliability Authority~~Reliability Coordinator, Balancing Authority, and Transmission Service Provider shall each provide evidence that it responded to each request from an Interchange Authority (relative to transitioning an Arranged Inter change to a Confirmed Interchange) within the ~~applicable~~-time frame defined in the Timing Table, Column B

D. Compliance

1. Compliance Monitoring Process
 - 1.1. **Compliance Monitoring Responsibility**
Regional Reliability Organization
 - 1.2. **Compliance Monitoring Period and Reset Timeframe**
The Performance-Reset Period shall be twelve months from the last noncompliance to Reliability Standard INT-006-1_R1.
 - 1.3. **Data Retention**
The Balancing Authority, ~~Reliability Authority~~Reliability Coordinator, and Transmission Service Provider shall keep three months of historical data. The Compliance Monitor shall keep audit records for a minimum of three calendar years.
 - 1.4. **Additional Compliance Information**

The ~~Reliability Authority~~Reliability Coordinator, Balancing Authority and Transmission Service Provider 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.

Subsequent to the initial compliance review, compliance may be:

- 1.4.1 Verified by audit at least once every three years.
- 1.4.2 Verified by spot checks in years between audits.
- 1.4.3 Verified by annual audits of noncompliant Interchange Authorities, until compliance is demonstrated.
- 1.4.4 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.
- 1.4.5 The Balancing Authority, ~~Reliability Authority~~Reliability Coordinator, and Transmission Service Provider shall make the following available for inspection by the Compliance Monitor upon request:
 - 1.4.5.1 For compliance audits and spot checks, all data and system log records for the audit period which indicate a reliability entity identified in Reliability Standards INT-006-1_R1 responded to all instances of the Interchange Authority's communication under INT-005-1_R1 concerning the pending transition of an Arranged Interchange to Confirmed Interchange. The Compliance Monitor may request up to a three month period of historical data ending with the date the request is received by the Balancing Authority, ~~Reliability Authority~~Reliability Coordinator, or Transmission Service Provider.
 - 1.4.5.2 For specific complaints, only those data and system log records associated with the specific Interchange event contained in the complaint which indicates a reliability entity identified in INT-006-1_R1 has responded to the Interchange Authority's communication under INT-005-1_R1 concerning the pending transition of Arranged Interchange to Confirmed Interchange for that specific Interchange.

2. Levels of Non-Compliance

- 2.1. **Level 1:** One incident (as determined in Reliability Standard INT-006-1_D) of not responding to the Interchange Authority within the time frame defined in the Timing Table Column B
- 2.2. **Level 2:** Two incidents (as determined in Reliability Standard INT-006-1_D) of not responding to the Interchange Authority within the time frame defined in the Timing Table Column B
- 2.3. **Level 3:** Three incidents (as determined in Reliability Standard INT-006-1_D) of not responding to the Interchange Authority within the time frame defined in the Timing Table Column B
- 2.4. **Level 4:** Four incidents (as determined in Reliability Standard INT-006-1_D) of not responding to the Interchange Authority within the time frame defined in the Timing Table Column B or if evidence is not available or not provided as defined in INT-006-1_D1.4.

E. Regional Differences

1. None

Version History

Version	Date	Action	Change Tracking
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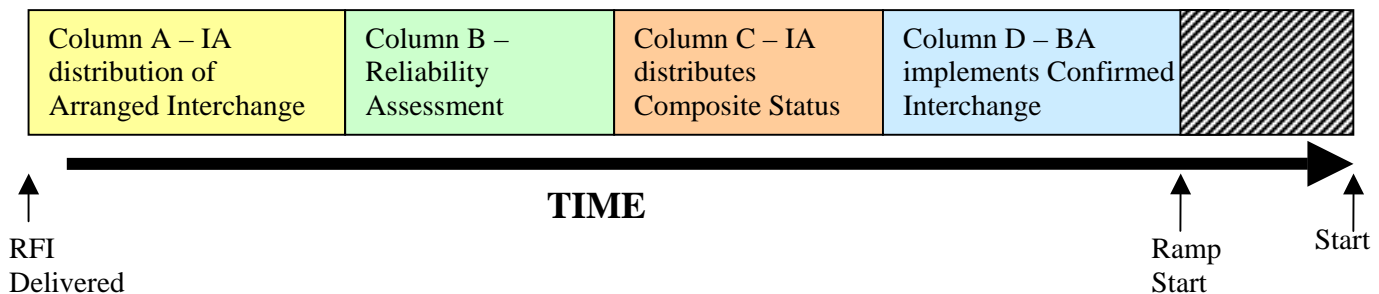
Timing Table

	A	B	C	D
Actual Arranged Interchange (RFI) Sub. Time	Interchange Authority initial distribution period	Reliability Assessment period	Interchange Authority status compilation and distribution period	Balancing Authority implementation period
≤ 1 hour prior to ramp start	≤ 1 minute from RFI submission	≤ 10 minutes from Arranged Interchange receipt from IA ≤ 5 minutes for WECC	≤ 1 minute from Reliability Assessment period	≥ 3 minutes prior to ramp start
> 1 hour to < 4 hours prior to ramp start		≤ 20 minutes from Arranged Interchange receipt from IA		≥ 35 minutes prior to ramp start
≥ 4 hours prior to ramp start		≤ 2 hours from Arranged Interchange receipt from IA		≥ 1 hour 5. minutes prior to ramp start
≥ 4 hours prior to start	≤ 1 minute from RFI submission	≤ 2 hours from Arranged Interchange receipt from IA	≤ 1 minute from Reliability Assessment period	≥ 1 hour 5. minutes prior to ramp start

Notes:

- 1) Request For Interchange (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 can be denied.
- 3) The relative position of the timing periods is described by Figure A.

Figure A



Standard Development Roadmap

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| 2. First ballot of Version 0 standards. | To be determined |
| 3. Recirculation ballot of Version 0 standards. | To be determined |
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| 5. Board adopts Version 0 standards. | To be determined |
| 6. Effective date. | To be determined |

DEFINITIONS OF TERMS USED IN STANDARD

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No terms introduced in this standard.

A. Introduction

1. **Title:** Interchange Confirmation
2. **Number:** INT-007-1
3. **Purpose:** To ensure that each Arranged Interchange is checked for reliability before it is implemented.
4. **Applicability**
 - 4.1. Interchange Authority
5. **Proposed Effective Date:** Date of NERC Board of Trustees adoption.

Should this be done according to the Timing Table?
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B. Requirements

- R1. The Interchange Authority shall verify that the Arranged Interchange information indicates a is balanced and valid Interchange prior to transitioning from Arranged Interchange to Confirmed Interchange by verifying the following:
 - R1.1. Source Balancing Authority megawatts equal sink Balancing Authority megawatts (plus losses, if appropriate)
 - R1.2. Interchange is between registered Balancing Authorities
 - R1.3. Generation source and load sink (This needs some criteria)
 - R1.4. There are contiguous transmission service arrangements across Transmission Service Providers from the Source to the Sink Balancing Authorities
 - R1.5. Megawatt profile is defined
 - R1.6. Ramp start and stop times are defined
 - R1.7. Interchange duration is defined
 - R1.8. Each ~~Reliability Authority~~Reliability Coordinator, Balancing Authority, and Transmission Service Provider has provided approval. If an Interchange Schedule change is directed by the ~~Reliability Authority~~Reliability Coordinator for reliability-related reasons, (as authorized in NERC Reliability Standards), then the ~~Reliability Authority~~Reliability Coordinator's approval is the only approval that is required.

C. Measures

- M1. For each Arranged Interchange, the Interchange Authority shall provide evidence that it has verified the Arranged Interchange information prior to the dissemination of the Confirmed Interchange.

D. Compliance

1. **Compliance Monitoring Process**
 - 1.1. **Compliance Monitoring Responsibility**

Regional Reliability Organization
 - 1.2. **Compliance Monitoring Period and Reset Timeframe**

The Performance-Reset Period shall be twelve months from the last noncompliance to Reliability Standard INT-007-1_R1.

1.3. Data Retention

The Interchange Authority shall keep three months of historical data. The Compliance Monitor shall keep audit records for a minimum of three calendar years.

1.4. Additional Compliance Information

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.

Subsequent to the initial compliance review, compliance may be:

- 1.4.1 Verified by audit at least once every three years.
- 1.4.2 Verified by spot checks in years between audits.
- 1.4.3 Verified by annual audits of noncompliant Interchange Authorities, until compliance is demonstrated.
- 1.4.4 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.
- 1.4.5 Each Interchange Authority shall make the following available for inspection by the Compliance Monitor upon request:
 - 1.4.5.1 For compliance audits and spot checks, all data and system log records for the audit period which indicate an Interchange Authority's verification that all Arranged Interchange was balanced and valid as defined in Reliability Standard INT-007-1_R1. The Compliance Monitor may request up to a three-month period of historical data ending with the date the request is received by the Interchange Authority.
 - 1.4.5.2 For specific complaints, only those data and system log records associated with the specific Interchange event contained in the complaint which indicate an Interchange Authority's verification that an Arranged Interchange was balanced and valid as defined in Reliability Standard INT-007-1_R1 for that specific Interchange

2. Levels of Non-Compliance

- 2.1. **Level 1:** One item of Interchange-related data listed in Reliability Standard INT-007-1_R1 is not verified as defined in Reliability Standard INT-007-1_D.
- 2.2. **Level 2:** Two items of Interchange-related data listed in Reliability Standard INT-007-1_R1 are not verified as defined in Reliability Standard INT-007-1_D.
- 2.3. **Level 3:** Three items of the Interchange-related data listed in Reliability Standard INT-007-1_R1 are not verified as defined in Reliability Standard INT-007-1_D.
- 2.4. **Level 4:** Four items of the Interchange-related data listed in Reliability Standard INT-007-1_R1 are not verified or no records available to review as defined in Reliability Standard INT-007-1_D.

E. Regional Differences

1. None

Version History

Version	Date	Action	Change Tracking
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Standard Development Roadmap

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Description of Current Draft:

Draft 2 is to be posted for a 45-day posting for public comment. This draft includes revisions based on industry comments received during the posting of Draft 1 and is in the new format for reliability standards.

Future Development Plan:

Anticipated Actions

Anticipated Date

- | | |
|---|------------------|
| 1. Post final draft of standard for 30-day review prior to 1 st ballot | To be determined |
| 2. First ballot of Version 0 standards. | To be determined |
| 3. Recirculation ballot of Version 0 standards. | To be determined |
| 4. 30-day posting before board adoption. | To be determined |
| 5. Board adopts Version 0 standards. | To be determined |
| 6. Effective date. | To be determined |

DEFINITIONS OF TERMS USED IN STANDARD

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

No terms introduced in this standard.

A. Introduction

1. **Title:** Interchange Authority Distributes Confirmation
2. **Number:** INT-008-1
3. **Purpose:** To ensure that the implementation of Interchange between Source and Sink Balancing Authorities is coordinated by an Interchange Authority.
4. **Applicability**
 - 4.1. Interchange Authority
5. **Proposed Effective Date:**

B. Requirements

- R1. Prior to the expiration of the time period defined in the Timing Table, Column C, the Interchange Authority shall distribute to all Balancing Authorities (including Balancing Authorities on both sides of a direct current tie), ~~Reliability Authorities~~ Reliability Coordinators, Transmission Service Providers and Purchasing-Selling Entities involved in the Arranged Interchange whether the Arranged Interchange has transitioned to a Confirmed Interchange.
 - R1.1. For Confirmed Interchange, the Interchange Authority shall also communicate:
 - R1.1.1. Start and stop times, ramps, and megawatt profile to Balancing Authorities.
 - R1.1.2. Necessary Interchange information to NERC-identified reliability analysis services.

C. Measures

- M1. For each Arranged Interchange, the Interchange Authority shall provide evidence that it has distributed the final status and Confirmed Interchange information specified in Reliability Standard INT-008-1_R1 to all Balancing Authorities, ~~Reliability Authorities~~ Reliability Coordinators, Transmission Service Providers and Purchasing-Selling Entities involved in the Arranged Interchange within the ~~applicable time frame~~ time period defined in the Timing Table, Column C. If denied, the ~~Interchange Authority~~ shall tell all involved parties that approval has been denied.
 - M1.1 For each Arranged Interchange that includes a direct current tie, the Interchange Authority shall provide evidence that it has communicated the final status to the Balancing Authorities on both sides of the direct current tie, even if the Balancing Authorities are neither the Source nor Sink for the Interchange.

D. Compliance

1. **Compliance Monitoring Process**
 - 1.1. **Compliance Monitoring Responsibility**

Regional Reliability Organization
 - 1.2. **Compliance Monitoring Period and Reset Timeframe**

The Performance-Reset Period shall be twelve months from the last non-compliance to Reliability Standard INT-008-1_R1.
 - 1.3. **Data Retention**

The Interchange Authority shall keep three months of historical data. The Compliance Monitor shall keep audit records for a minimum of three calendar years.

1.4. Additional Compliance Information

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.

Subsequent to the initial compliance review, compliance may be:

- 1.4.1 Verified by audit at least once every three years.
- 1.4.2 Verified by spot checks in years between audits.
- 1.4.3 Verified by annual audits of noncompliant Interchange Authorities, until compliance is demonstrated.
- 1.4.4 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.
- 1.4.5 Each Interchange Authority shall make the following available for inspection by the Compliance Monitor upon request:
 - 1.4.5.1 For compliance audits and spot checks, all data and system log records for the audit period which indicate the Interchange Authority's distribution of all Arranged Interchange final status and Confirmed Interchange information to all entities involved in an Interchange per Reliability Standard INT-008-1_R1. The Compliance Monitor may request up to a three-month period of historical data ending with the date the request is received by the Interchange Authority
 - 1.4.5.2 For specific complaints, only those data and system log records associated with the specific Interchange event contained in the complaint which indicate that the Interchange Authority distributed the Arranged Interchange final status and Confirmed Interchange information to all entities involved in that specific Interchange.

2. Levels of Non-Compliance

- 2.1. **Level 1:** One incident (as defined in Reliability Standard INT-008-1_D) of not distributing final status and information to all involved entities within the time period specified in the Timing Table Column C.
- 2.2. **Level 2:** Two incidents (as defined in Reliability Standard INT-008-1_D) of not distributing final status and information to all involved within the time period specified in the Timing Table Column C
- 2.3. **Level 3:** Three incidents (as defined in Reliability Standard INT-008-1_D) of not distributing final status and information to all involved within the time period specified in the Timing Table Column C.
- 2.4. **Level 4:** Four incidents (as defined in Reliability Standard INT-008-1_D) of not distributing final status and information to all involved within the time period specified in the Timing Table Column C or if evidence is not available or not provided as defined in Reliability Standard INT-008-1_D1.4.

E. Regional Differences

1. None

Version History

Version	Date	Action	Change Tracking
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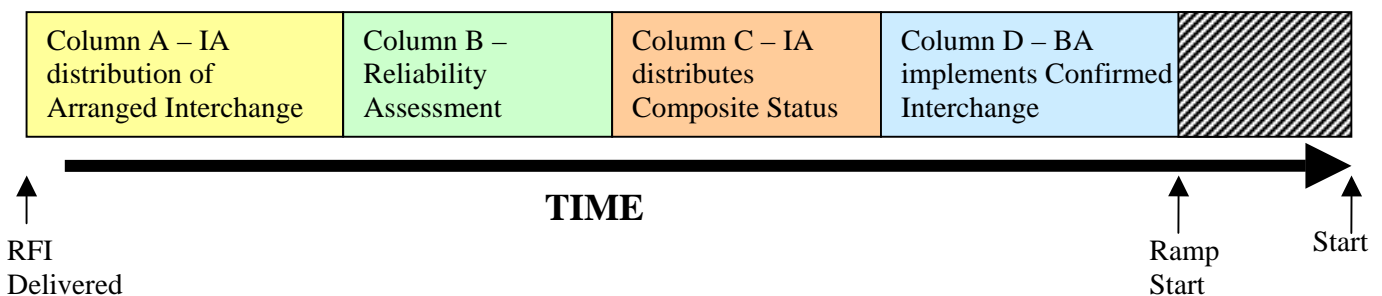
Timing Table

	A	B	C	D
Actual Arranged Interchange (RFI) Sub. Time	Interchange Authority initial distribution period	Reliability Assessment period	Interchange Authority status compilation and distribution period	Balancing Authority implementation period
≤ 1 hour prior to ramp start	≤ 1 minute from RFI submission	≤ 10 minutes from Arranged Interchange receipt from IA ≤ 5 minutes for WECC	≤ 1 minute from Reliability Assessment period	≥ 3 minutes prior to ramp start
> 1 hour to < 4 hours prior to ramp start		≤ 20 minutes from Arranged Interchange receipt from IA		≥ 35 minutes prior to ramp start
≥ 4 hours prior to ramp start		≤ 2 hours from Arranged Interchange receipt from IA		≥ 1 hour 55 minutes prior to ramp start
≥ 4 hours prior to start	≤ 1 minute from RFI submission	≤ 2 hours from Arranged Interchange receipt from IA	≤ 1 minute from Reliability Assessment period	≥ 1 hour 55 minutes prior to ramp start

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 can be denied.
- 3) The relative position of the timing periods is described by Figure A.

Figure A



Standard Development Roadmap

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Implemented Interchange: The state where the Balancing Authority enters the Confirmed Interchange into its Area Control Error equation.

We are using three different phrases to mean the same thing – ‘as received’, ‘as submitted’, ‘as distributed’. Can we use one phrase in requirements, measures and non-compliance?

A. Introduction

- 1. **Title:** Implementation of Interchange
- 2. **Number:** INT-009-1
- 3. **Purpose:** To ensure that the implementation of Interchange between Source and Sink Balancing Authorities is coordinated by an Interchange Authority such that the Balancing Authorities implement the Interchange exactly as agreed upon in the Interchange confirmation process.
- 4. **Applicability**
 - 4.1. Balancing Authority
- 5. **Proposed Effective Date:** Date of NERC Board of Trustees adoption.

Should this be implemented within the Timing Table Column D?

B. Requirements

- R1. The Balancing Authority shall implement Confirmed Interchange information as received from the Interchange Authority.

C. Measures

- M1. The Balancing Authority shall provide evidence that its Implemented Interchange information matches the Confirmed Interchange information as submitted by the Interchange Authority.
 - M1.1 Evidence shall demonstrate that the Interchange information was implemented in the Balancing Authority’s Area Control Error (ACE) equation, or the system that calculates the ACE equation. Evidence may be on a net basis or an individual Interchange basis.
 - M1.2 Balancing Authorities that are interconnected with a direct current tie shall demonstrate that the Interchange information was implemented in the ACE equation or modeled as an equivalent generator / load within its area.

D. Compliance

- 1. **Compliance Monitoring Process**
 - 1.1. **Compliance Monitoring Responsibility**

Regional Reliability Organization
 - 1.2. **Compliance Monitoring Period and Reset Timeframe**

The Performance-Reset Period shall be twelve months from the last noncompliance to requirement Reliability Standard INT-009-1_R1.
 - 1.3. **Data Retention**

The Balancing Authority and Interchange Authority shall each keep three months of historical data. The Compliance Monitor shall keep audit records for a minimum of three calendar years.
 - 1.4. **Additional Compliance Information**

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.

Subsequent to the initial compliance review, compliance may be:

- 1.4.1 Verified by audit at least once every three years.
- 1.4.2 Verified by spot checks in years between audits.
- 1.4.3 Verified by annual audits of noncompliant Balancing Authorities, until compliance is demonstrated.
- 1.4.4 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.
- 1.4.5 The Balancing Authorities shall make the following available for inspection by the Compliance Monitor upon request:
 - 1.4.5.1 For compliance audits and spot checks, all data and system log records for the audit period which indicate a Balancing Authority implemented all instances of the Interchange Authority’s communication under Reliability Standard INT-009-1_R1 concerning the implementation of a Confirmed Interchange. The Compliance Monitor may request up to a three month period of historical data ending with the date the request is received by the Balancing Authority
 - 1.4.5.2 For specific complaints, only those data and system log records associated with the specific Interchange event contained in the complaint which indicates a Balancing Authority implemented the Interchange Authority’s communication under Reliability Standard INT-009-1_R1 concerning the implementation of the Confirmed Interchange for that specific Interchange.

~~1.4.7 Indication of whether Interchange data is block or ramp schedule.~~

2. Levels of Non-Compliance

- 2.1. **Level 1:** One incident (as defined in Reliability Standard INT-009-1_D) of not implementing a Confirmed Interchange as distributed by the Interchange Authority
- 2.2. **Level 2:** Two incidents (as defined in Reliability Standard INT-009-1_D) of not implementing a Confirmed Interchange as distributed by the Interchange Authority
- 2.3. **Level 3:** Three incidents (as defined in Reliability Standard INT-009-1_D) of not implementing a Confirmed Interchange as distributed by the Interchange Authority
- 2.4. **Level 4:** Four incidents (as defined in Reliability Standard INT-009-1_D) of not implementing a Confirmed Interchange as distributed by the Interchange Authority or no records are available to review as defined in Reliability Standard INT-009-1_D.

E. Regional Differences

- 1. None

Version History

Version	Date	Action	Change Tracking
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A. Introduction

1. **Title:** **Impact of Capacity Shortages or Imminent Reliability Risks on Arranged Interchange**
2. **Number:** **INT-010-0**
3. **Purpose:** To ensure that the implementation of Interchange between Source and Sink Balancing Authorities is coordinated by an Interchange Authority such that the Balancing Authorities implement the Interchange exactly as agreed upon in the Interchange confirmation process.
4. **Applicability**
 - 4.1. Balancing Authority
 - 4.2. ~~Reliability Authority~~Reliability Coordinator
5. **Effective Date:** Date of NERC Board of Trustees adoption.

B. Requirements

- R1. The Balancing Authority that has a loss of generation shall submit an Arranged Interchange for any Interchange that exceeds 60 minutes following the initiation of an energy sharing Agreement¹.
 - R1.1. The Interchange shall begin no later than either 60 minutes from the initiation of the energy sharing procedure or the completion of the use of the energy sharing procedure, whichever occurs first.
- R2. The ~~Reliability Authority~~Reliability Coordinator that directs a modification to an existing Interchange, for imminent reliability-related reasons, shall submit an Arranged Interchange for that Interchange if the total duration of the modification will exceed 60 minutes. The Arranged Interchange shall be submitted no later than either
 - R2.1. The ~~Reliability Authority~~Reliability Coordinator shall submit the modification to the Arranged Interchange within 60 minutes of the initiation of the event.
 - R2.2. The RA shall immediately restore the Interchange for previously directed modification to an appropriate level after the need for the Interchange modification has passed.

C. Measures

- M1. The Balancing Authority that uses its energy sharing agreement to cover a capacity loss shall have evidence it submitted Arranged Interchange per INT-010-1_R1.
- M2. The ~~Reliability Authority~~Reliability Coordinator that directs a modification to an existing Interchange shall have evidence it submitted Arranged Interchange per INT-010-1_R2.

D. Compliance

1. Compliance Monitoring Process

¹ These agreements may be reliability-related Reserve Sharing Agreements or other Regional, Local or Regulatory Agreements.

1.1. Compliance Monitoring Responsibility

Regional Reliability Organization

1.2. Compliance Monitoring Period and Reset Timeframe

The Performance-Reset Period shall be twelve months from the last noncompliance to Reliability Standard INT-010-1.

1.3. Data Retention

The Balancing Authority and ~~Reliability Authority~~Reliability Coordinator shall each keep three months of historical data. The Compliance Monitor shall keep audit records for a minimum of three calendar years.

1.4. Additional Compliance Information

Each Balancing Authority and ~~Reliability Authority~~Reliability Coordinator 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.

Subsequent to the initial compliance review, compliance may be:

1.4.1 Verified by audit at least once every three years.

1.4.2 Verified by spot checks in years between audits.

1.4.3 Verified by annual audits of noncompliant Balancing Authorities and ~~Reliability Authorities~~Reliability Coordinators, until compliance is demonstrated.

1.4.4 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.

1.4.5 The Balancing Authority and ~~Reliability Authority~~Reliability Coordinator shall make the following available for inspection by the Compliance Monitor upon request:

1.4.5.1 For compliance audits and spot checks, all data and system log records for the audit period which indicate a Balancing Authority or ~~Reliability Authority~~Reliability Coordinator acted in compliance with INT-010-1. The Compliance Monitor may request up to a three month period of historical data ending with the date the request is received by the Balancing Authority

1.4.5.2 For specific complaints, only those data and system log records associated with the specific Interchange event contained in the complaint which indicates a Balancing Authority or ~~Reliability Authority~~Reliability Coordinator failed to act in compliance with INT-010-1.

2. Levels of Non-Compliance

2.1. Level 1: One incident (as defined in Reliability Standard INT-010-1_D) of not submitting an Arranged Interchange within the defined time period for the applicable system conditions.

- 2.2. Level 2:** Two incidents (as defined in Reliability Standard INT-010-1_D) of not submitting an Arranged Interchange within the defined time period for the applicable system conditions.
- 2.3. Level 3:** Three incidents (as defined in Reliability Standard INT-010-1_D) of not submitting an Arranged Interchange within the defined time period for the applicable system conditions.
- 2.4. Level 4:** Four incidents (as defined in Reliability Standard INT-010-1_D) of not submitting an Arranged Interchange within the defined time period for the applicable system conditions or no records are available to review as defined in Reliability Standard INT-010-1_D.

E. Regional Differences

- 1. None

Version History

Version	Date	Action	Change Tracking
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Coordinate Interchange Standard Reference Document Draft Version [54](#)

- Introduction - Philosophy
- Relationship to the SAR
- [Relationship to Version 0 Standards](#)
- 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
- [Appendix D – Interchange Authority Function Task Force Report](#)

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 Version 0 Standards](#)

[Because these standards introduce relationships with and activities performed by the Interchange Authority responsible entity of the Functional Model which were previously omitted in the drafting of version 0 standards, they will in effect replace most if not all of the Version 0 Interchange Standards.](#)

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.

[Although the standard itself does not impose any expectations on the implementation of the Interchange Authority, some type of standard industry practice is expected to evolve. At this point in time, the “single Interchange Authority per Interconnection” paradigm proposed in late 2004 by the Interchange Authority Function Task Force. A description of the basis for this implementation can be found in the October, 2004 report to the Operating Committee \(Main report less report’s appendices found in Appendix D of this document\)](#)

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 Bi-lateral 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: 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~~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 verified the Arranged Interchange and is ready to submit it to the Balancing Authorities~~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). Yes, to a degree. The industry indicated in its comments to the drafting team that some guidance was expected concerning the times allowed to complete the requirements of a standard. The current timing table was used as a guide to establish time frames among the interchange coordination activities in the requirements which would permit sufficient time to complete a task a still permit remaining subsequent activities time to be completed. The primary basis of the establishment of timing was to provide structure so that one entity would not cause another entity to fail in subsequent requirement due to deliberate or inadvertent delays

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. The timing periods provided in the standard are there to provide requested guidance and structure to ensure entities are typically given sufficient time to perform the required reliability activities. There will be times that completion of a task can not be completed due to extenuating circumstances. In these cases, 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. In addition, local agreements (e.g. pre-approvals or even denials) for handling timing issues which still comply with other reliability standards' obligations yet which still ensure coordinated interchange during constrained timing compliance situations are not prohibited by these standards.

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 from 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</p> <p>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</p> <p>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>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</p> <p>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
<p>authorize, upon confirming approvals, the implementation of Interchange Schedules.</p>	<p>balanced and, valid prior to transitioning Arranged Interchange to Confirmed Interchange.</p>	<p>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>The IA shall confirm that Interchange Transactions are balanced and valid prior to physical delivery.</p>	<p>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.</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 	<p>Included</p>

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>
The PSE shall request approval for interchange transactions from the IA.	Not Included		This requirement is redundant to the requirement to submit the data.
The PSE shall confirm interchange transaction			Communication between the PSE and the IA is

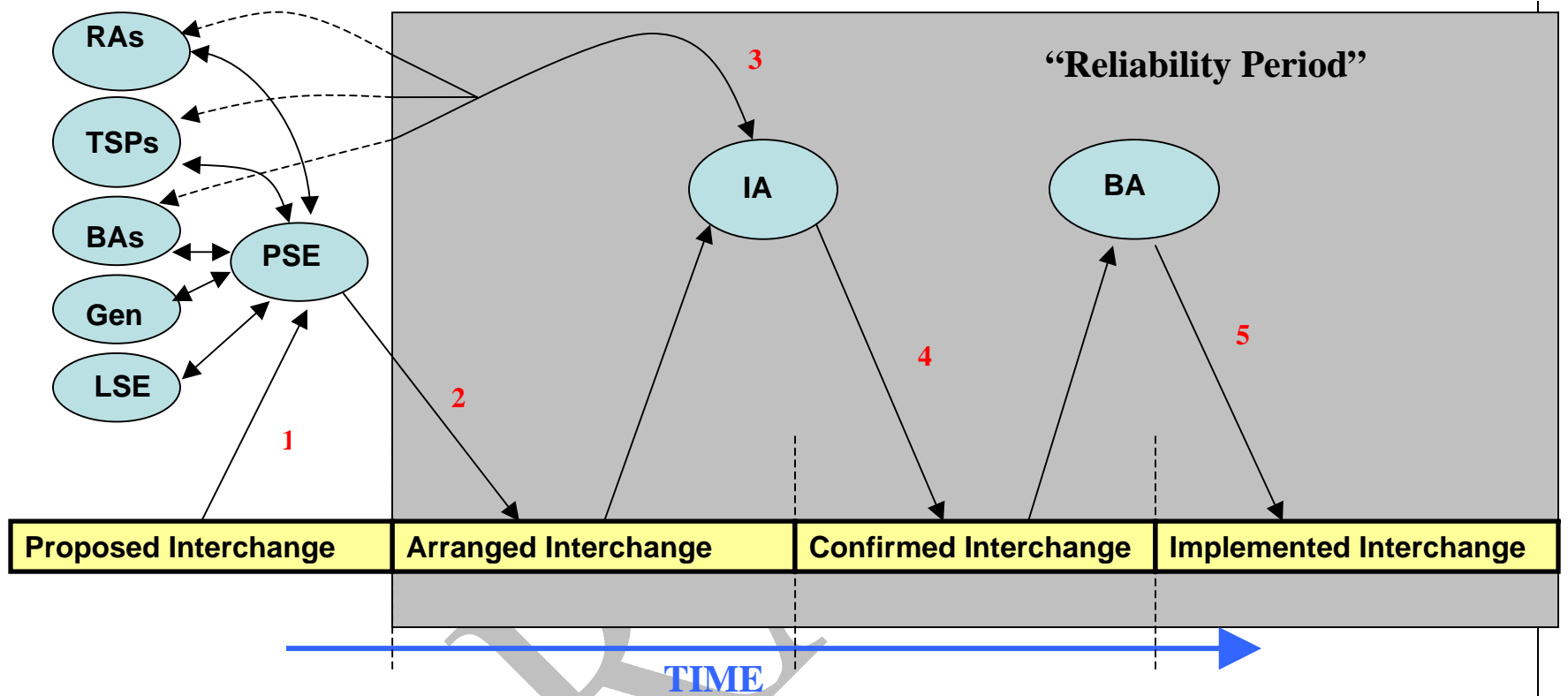
SAR Requirement	Standard Requirement	Standard Measurement	Comment
requirements with the IA.			addressed in Standard Requirement 404.

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Figure 1

APPENDIX B — Life Cycle Stages of Interchange

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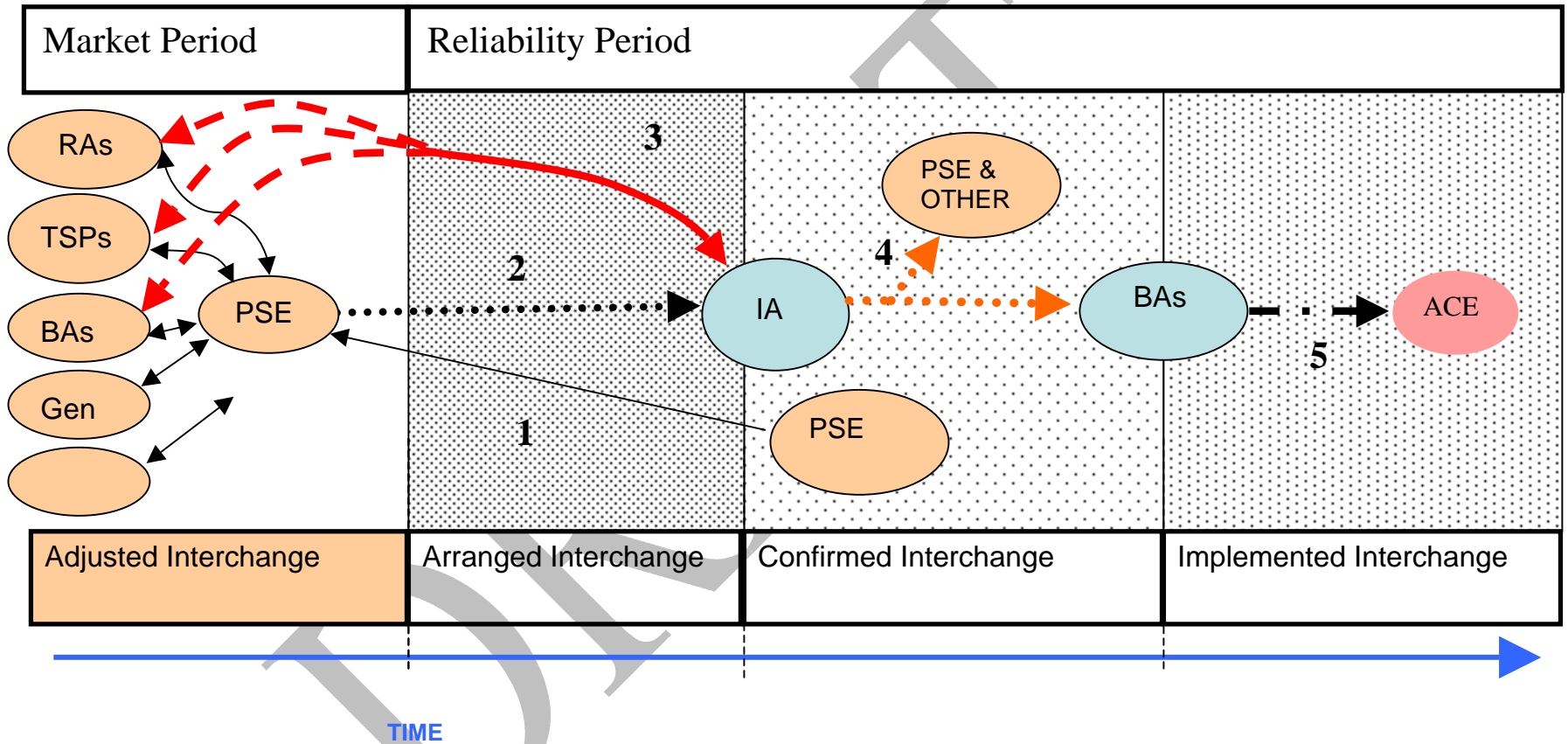


Data Flow:

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

Figure 1 – Initial Creation by PSE

Figure 2 - Adjustment of a Confirmed Interchange by PSE



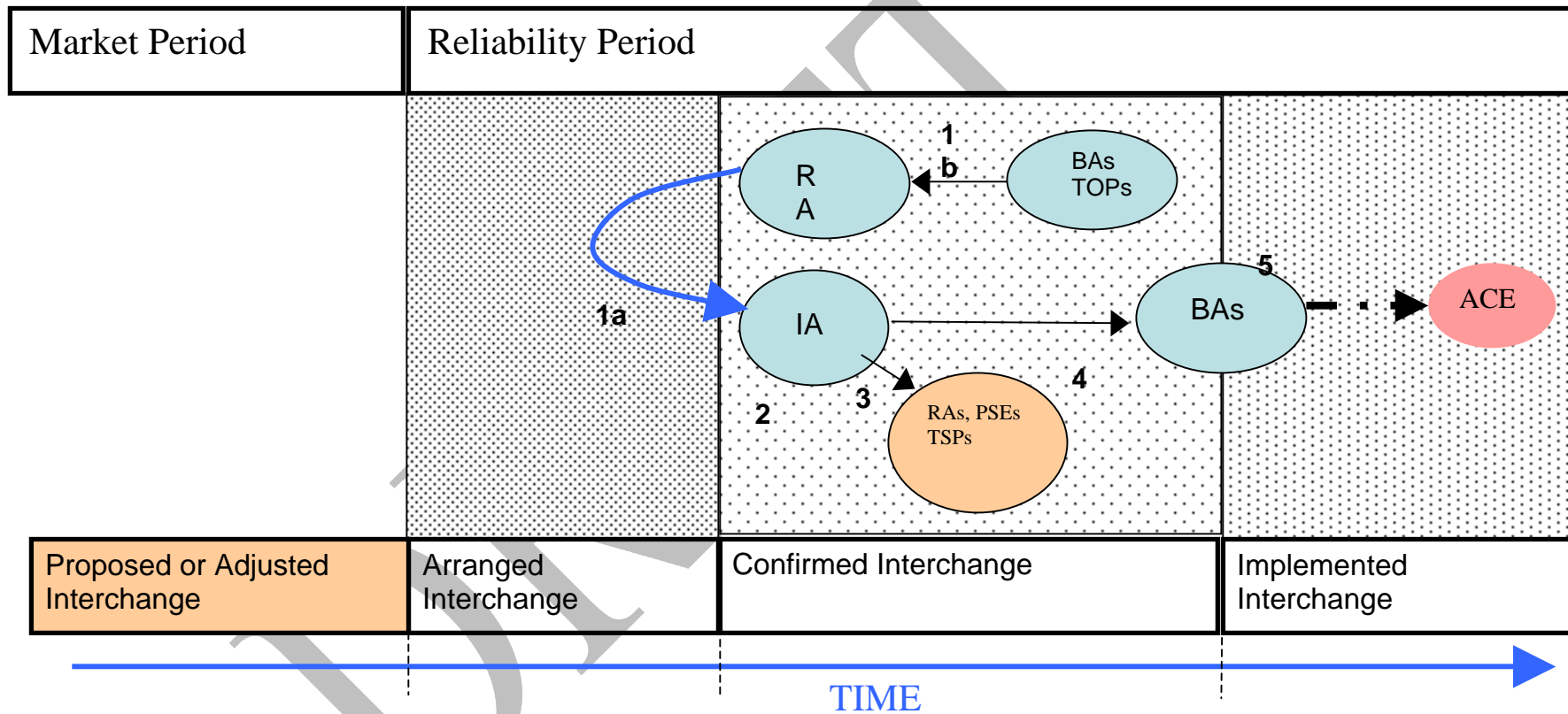
Data Flow:

- 1 PSE determines need to adjust Confirmed Interchange for non-reliability reasons

- 2 After receiving all required business agreements, PSE communicates new Arranged Interchange to IA
- 3 IA requests and receives approvals in order to perform required validation (Requirements 402 and 403)
- 4 Upon validation, IA creates Confirmed Interchange and communicates (Requirement 404)
- 5 If not cancelled, BA's create Implemented Interchange with entry into ACE equation (Requirement 401)

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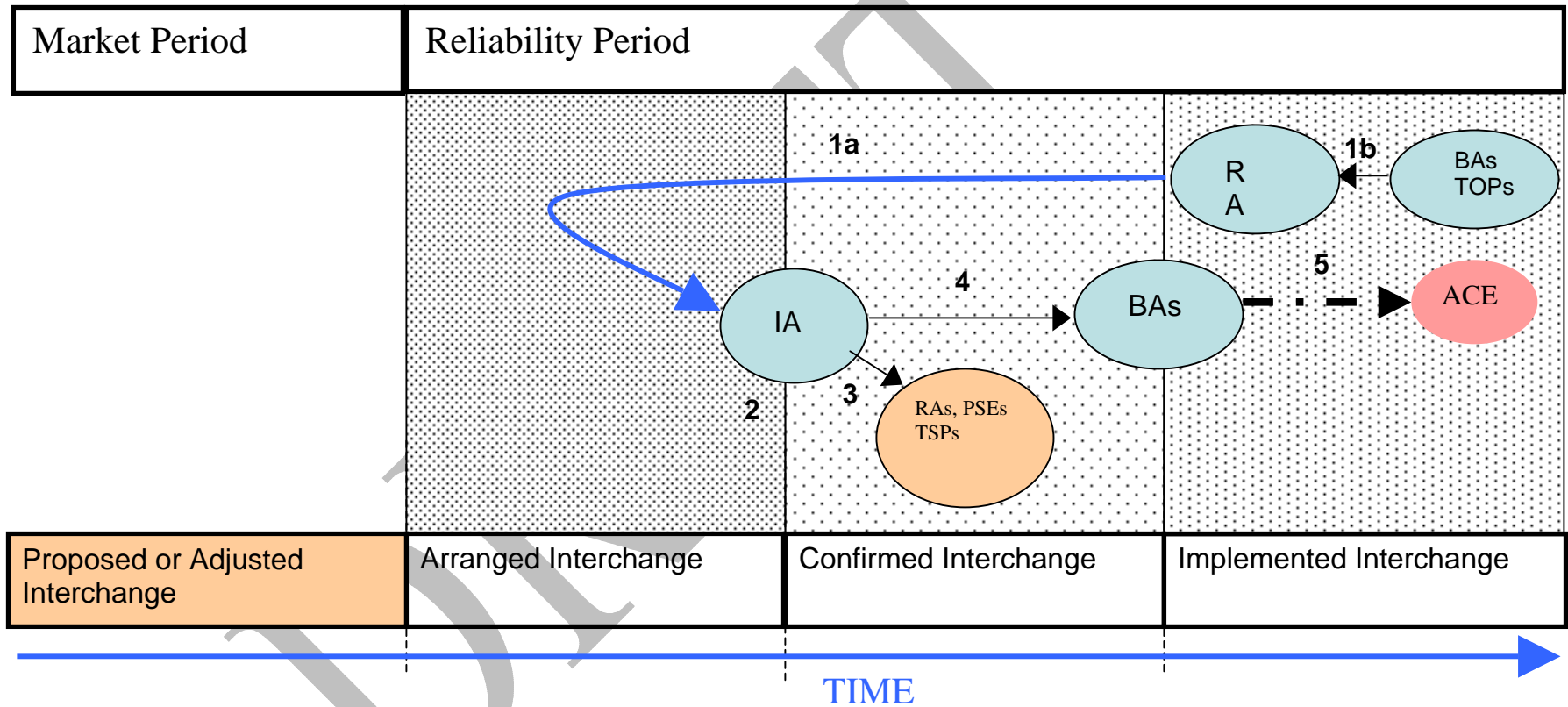
Figure 3 - RA Cancel/Adjust Interchange before Implement



Implemented.

- 1a RA determines need to cancel or adjust confirmed interchange based on reliability assessment and notifies IA prior to implementation.
RA goes through reliability-related communications with other RAs to arrange new interchange parameters prior to implementation.
or
- 1b BA or TOP determines need to cancel or adjust confirmed interchange based on reliability assessment and notifies IA prior to implementation.
- 2 IA validates arranged interchange information before altering confirmed interchange (Requirement 402)
- 3 IA notifies RAs, PSEs and TSPs of cancellation or adjustment to confirmed interchange. Denials not permitted based on reliability assessment.
- 4 IA notifies BAs of cancellation or adjustment to confirmed interchange. (Requirement 404)
- 5 If not cancelled, BAs implement confirmed interchange communicated from IA. (Requirement 401)

Figure 4 - RA Cancel/Adjust Interchange during Implement



Data Flow:

Note: RA, BA or TOP needs to cancel or adjust Implemented Interchange for reliability reasons

- 1a RA determines need to cancel or adjust confirmed interchange based on reliability assessment and notifies IA after in
RA goes through reliability-related communications with other RAs to arrange new interchange parameters prior to co
or
- 1b BA or TOP determines need to cancel or adjust confirmed interchange based on reliability assessment and notifies R
- 2 IA validates arranged interchange information before altering confirmed interchange (Requirement 402)
- 3 IA notifies RAs, PSEs and TSPs of cancellation or adjustment to confirmed interchange. Denials not permitted back
- 4 IA notifies BAs of cancellation or adjustment to confirmed interchange. (Requirement
404)
- 5 BAs implement confirmed interchange (i.e. change to currently implemented interchange) communicated from IA. (R

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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.

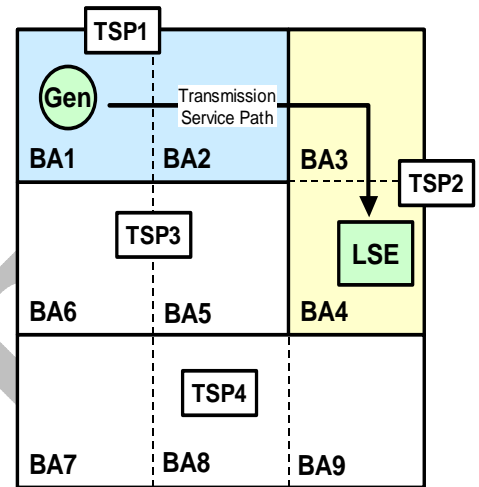


Figure 1 – The portion of the losses caused by the Transaction from the Generator in BA1 to the Load-Serving Entity in BA4 appear as a load change in all the Balancing Authorities 1–9.

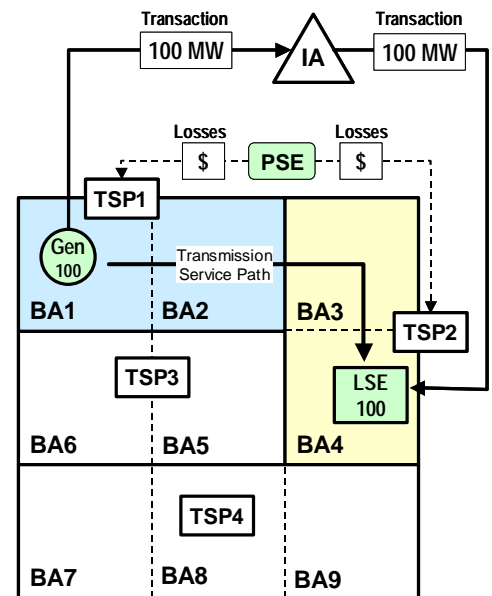


Figure 2 – The PSE may compensate the TSPs with monetary payment.

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.

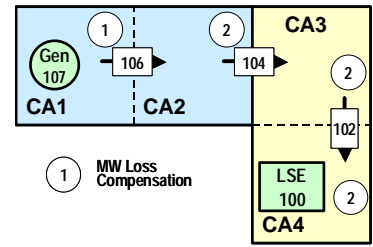


Figure 3 – Present practice for self-provision of losses.

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.

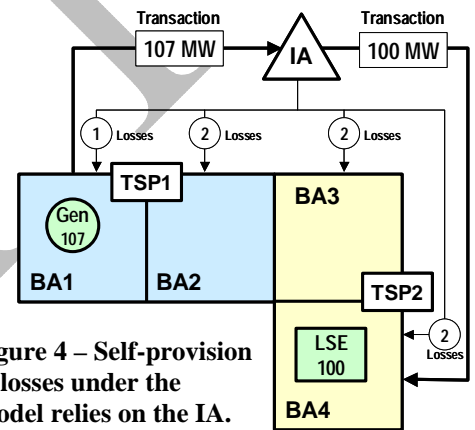


Figure 4 – Self-provision of losses under the Model relies on the IA.

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.

Appendix D

Interchange Authority Function Task Force Report to the Interchange Subcommittee

Version 1.0
October 21, 2004

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Introduction

The Operating Committee charged the Interchange Subcommittee to define how the Interchange Authority (IA) function may perform operationally. The Interchange Authority Function Task Force (IAFTF)² 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 will:

- Define how the tasks of an Interchange Authority could be performed operationally.
- Provide a common vision of the Interchange Authority.
- Describe how the Interchange Authority function interrelates with other functions — both market and reliability.
- Discuss 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. This paper describes a process to implement the concept of an IA into an industry that “operates” within the Functional Model, and 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 report discusses, and attempts to resolve, the issues surrounding the IA function, which are summarized in **Appendix D**, and have also been identified during the public postings of the FM, meetings of the Coordinate Interchange groups,³ and various industry forums.

The IAFTF states its vision of the IA, and provides a recommendation to apply the IA function for Version 1 Standards, in this report. The majority of the IAFTF believes that the recommendation represents the most logical and efficient way to fulfill the functions of the IA. Other options for a future IA are discussed in **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 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

High-level IA functions are:

² The IAFTF roster is **Appendix A**.

³ The Coordinate Interchange groups are NERC’s Interchange Subcommittee and Coordinate Interchange Standards Drafting Team and NAESB’s Coordinate Interchange Business Practice Task Force.

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**.⁴

Interchange Authority Interactions and Communications

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).

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. Interchange

⁴ 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

Authority 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 tool.

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 single Interconnection-wide IA tools.

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 to the scheduling process. 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 attempted to consolidate the options proposed by the group. Those options have been captured in **Appendix B**.

Certification – Training – Next Steps

Certification

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

- Certify 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 it 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 status of the IA issues described in **Appendix D**. For successful deployment of the IA function, adequate time must be allowed to address training.

Integration

The industry must have adequate time to integrate the IA tool into their systems. To accomplish this integration, published interface protocols and an integration test environment must be available to all industry participants well in advance of implementation.

Next Steps

The Interchange Subcommittee requests that the Operating Committee use this report 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 that the Operating Committee remand the report to the NERC Interchange Subcommittee to develop detailed functionality and recommendations for tools.