Coordinate Interchange Standard Reference Document

Version 1

Introduction

This document explains the assumptions the Coordinate Interchange Standard Drafting Team (SDT) used to create Version 1 of the Coordinate Interchange Standard (CI Standard).

Standard Focuses on Reliability

To date, both reliability and business concerns have driven the development of NERC's existing Operating Policies. The Coordinate Interchange Standard focuses on the reliability issues surrounding the process of approving and implementing energy transfers across Balancing Authorities (BA) boundaries (Interchange). Each BA uses Interchange values in calculating its area control error (ACE). This Standard does 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 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.

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 now required in NERC Policy 3 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 Operating Policy 3

This Standard is not intended as a replacement for all of Operating 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 NERC Director of Compliance and the Standards Authorization Committee (SAC) will decide 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 by NAESB. 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 Interchange Authority (IA) of an Implemented Interchange to the existing Interchange Distribution Calculator (IDC) tool. Such a communication is not part of the requirements in the SAR and thus is not included in the standard.

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

Relationship to Functional Model

The standard is based on Version 2 of the NERC Reliability 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 employed 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.

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 and does not attempt to specify a minimum or optimum number of IAs.

Internal Interchange Activities

The Functional Model does not treat internal interchange that occurs within an energy market or within an RTO's 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 NERC Reliability 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 in the past. 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 graphics in **Appendix B** that shows the various stages in the life cycle of Interchange as addressed in this standard.

The following definitions are proposed in the draft 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.

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

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

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.

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.

Timing

Is the timing of the data exchange between entities addressed in this standard?

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

How will the practicalities of timing be addressed?

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

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

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

Dynamic Transfers

Are dynamic transfers addressed in this standard?

Dynamic schedules are 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 qualities 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 document, "Interchange Scheduling Process — Figure 7," see **Appendix C**. In that document, all bilateral schedules are equal and opposite in direction for the source and sink BAs and losses settled as energy are merely an interchange "component" of a larger "composite" interchange involving the generation, load, and intermediate BAs.

Interchange Changes

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

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

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

Similarly, Figure 4 of Appendix B shows the steps required to change an Interchange during the Implemented state which occurs for reliability reasons. As in the scenario for a reliability change during the Confirmed state, only a BA, RA or TOP 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
BA shall confirm (with the IA) its approval or denial of the requested Interchange Schedule.	**403 — Response to Interchange Authority** 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.	The Reliability Authority, Balancing Authority, and Transmission Service Provider must provide evidence that they responded to each request from an Interchange Authority.	Included
BAs shall implement Interchange Schedules exactly as agreed upon in the interchange confirmation process.	**401 — Implementation of Interchange** The Balancing Authority shall implement Confirmed Interchange exactly as agreed upon in the interchange confirmation process.	The Balancing Authority shall provide evidence that Implemented Interchange matches Confirmed Interchange with involved Interchange Authorities. 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.	Included

SAR Requirement	Standard Requirement	Standard Measurement	Comment
The IA shall confirm the approvals from all involved parties (RAs, BAs, TSPs) and shall authorize, upon confirming approvals, the implementation of Interchange Schedules.	**402 — Interchange Confirmation** The Interchange Authority shall verify that Arranged Interchange is balanced and valid prior to transitioning Arranged Interchange to Confirmed Interchange.	For each Arranged Interchange transitioned to Confirmed Interchange, the Interchange Authority shall show evidence that it has verified that: – 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 - For a reliability related change requested by a Reliability Authority, no other approvals are required.	Included in the measure for this requirement

SAR Requirement	Standard Requirement	Standard Measurement	Comment
The IA shall confirm that Interchange Transactions are balanced and valid prior to physical delivery.	**402 — Interchange Confirmation** The Interchange Authority shall verify that Arranged Interchange is balanced and valid prior to transitioning Arranged Interchange to Confirmed Interchange.	For each Arranged Interchange transitioned to Confirmed Interchange, the Interchange Authority shall show evidence that it has verified that: – 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 - For a reliability related change requested by a Reliability Authority, no other approvals are required.	Included
The IA shall communicate implementation status to all parties (with which the Interchange Transaction must be coordinated).	**404 — Interchange Authority Disseminates Confirmation** The Interchange Authority shall communicate whether the Arranged Interchange has transitioned to Confirmed Interchange to all parties involved in the Interchange.	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.	Included

SAR Requirement	Standard Requirement	Standard Measurement	Comment
The RA shall receive and confirm Interchange Transaction information with the IA.	**403 — Response to Interchange Authority** 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.	The Reliability Authority, Balancing Authority, and Transmission Service Provider must provide evidence that they responded to each request from an Interchange Authority.	Included
The RA shall approve or deny the request from the IA based on reliability perspectives.	**403 — Response to Interchange Authority** 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.	The Reliability Authority, Balancing Authority, and Transmission Service Provider must provide evidence that they responded to each request from an Interchange Authority.	Included

SAR Requirement	Standard Requirement	Standard Measurement	Comment
TSP shall receive and confirm Interchange Transaction information with the IA.	**403 — Response to Interchange Authority** 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.	The Reliability Authority, Balancing Authority, and Transmission Service Provider must provide evidence that they responded to each request from an Interchange Authority.	Included
The TSP shall approve or deny the request from the IA.	**403 — Response to Interchange Authority** 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.	The Reliability Authority, Balancing Authority, and Transmission Service Provider must provide evidence that they responded to each request from an Interchange Authority.	Included

SAR Requirement	Standard Requirement	Standard Measurement	Comment
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: - Desire to transfer energy - Megawatt magnitude - Ramp start and stop times - Interchange transaction's duration - Sufficient information for all approval entities	**402 — Interchange Confirmation** The Interchange Authority shall verify that Arranged Interchange is balanced and valid prior to transitioning Arranged Interchange to Confirmed Interchange.	For each Arranged Interchange transitioned to Confirmed Interchange, the Interchange Authority shall show evidence that it has verified that: – 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 - For a reliability related change requested by a Reliability Authority, no other approvals are required.	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).
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 requirements with the IA.			Communication between the PSE and the IA is addressed in Standard Requirement 404.

Appendix B — Life Cycle Stages of Interchange

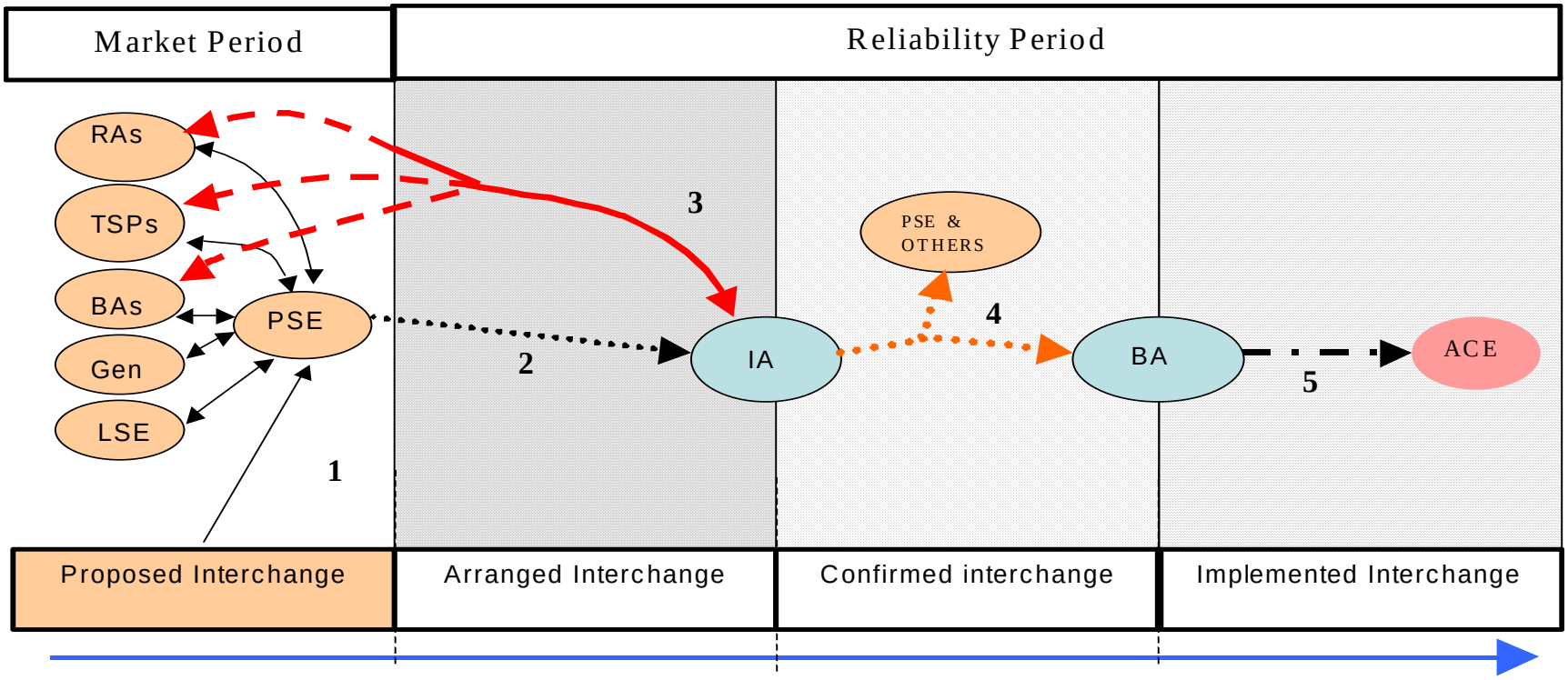

Figure 1 — Initial Creation of Interchange

Data Flow:

1. PSE receives request for Proposed Interchange.
2. After receiving all required business agreements, PSE communicates Arranged Interchange to IA.
3. IA requests and receives approvals in order to perform required validation. (Requirements 402 and 403)
4. Upon validation, IA created Confirmed Interchange and communicates. (Requirement 404)
5. BA's create Implemented Interchange with entry into ACE equation. (Requirement 401)

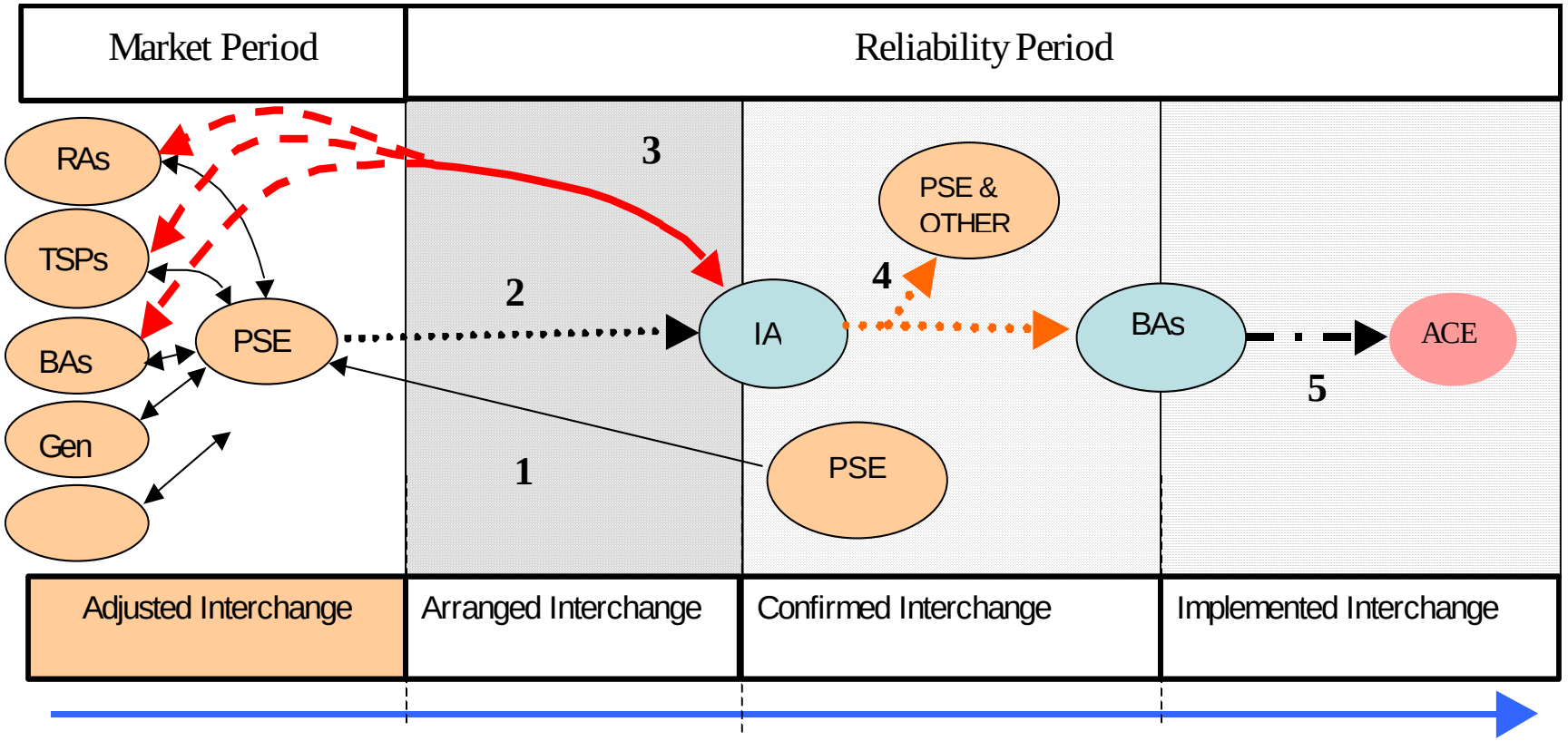

Figure 2 — Adjustment of a Confirmed Interchange by PSE

Data Flow:

1. PSE determines need to adjust Confirmed Interchange for non-reliability reasons
2. After receiving all required business agreements, PSE communicates 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)

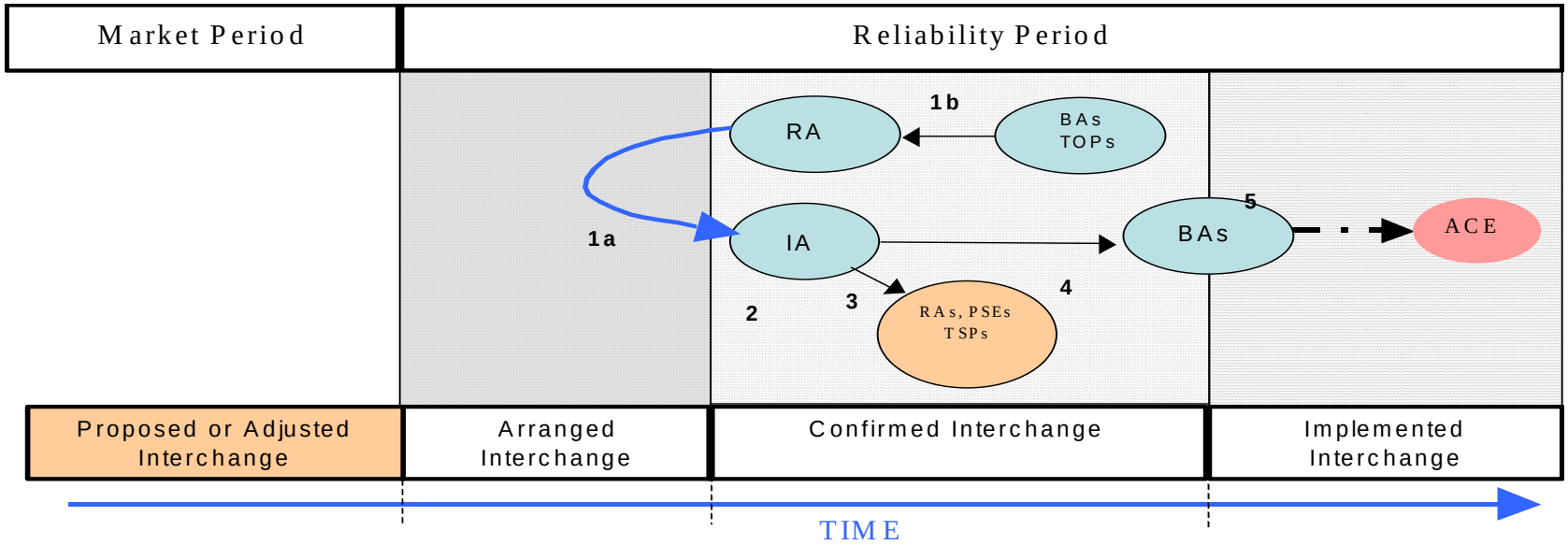

Figure 3 — RA Cancel/Adjust Interchange before Implement

Data Flow:

Note: RA, BA, or TOP needs to cancel or adjust for reliability reasons a previously approved and subsequently Confirmed Interchange prior to its becoming Implemented.

1a. RA determines need to cancel or adjust Confirmed Interchange based on reliability assessment and notifies IA prior to Interchange implementation. RA goes through reliability-related communications with other RAs to arrange new Interchange parameters prior to contacting IA.

or

1b. BA or TOP determines need to cancel or adjust Confirmed Interchange based on reliability assessment and notifies RA prior to Interchange implementation. IA requests and receives approvals in order to perform required validation. (Requirements 402 and 403)

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 to IA. (Requirement 404)

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)

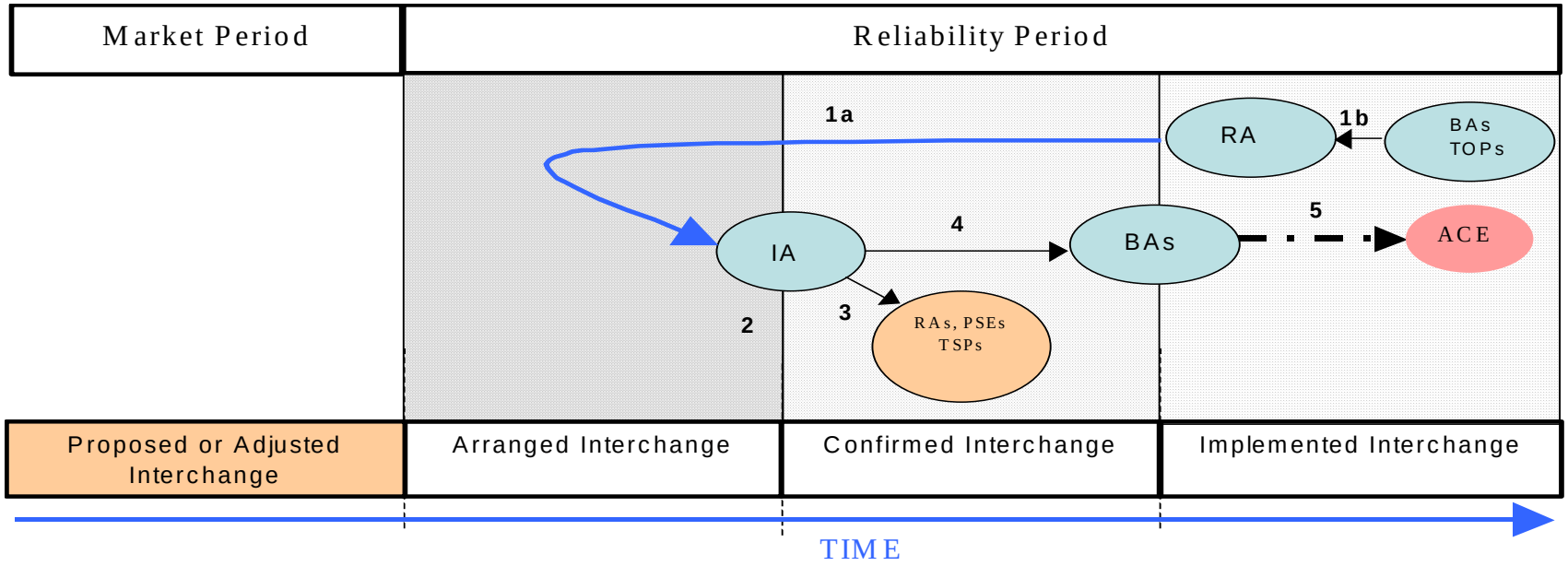

Figure 4 — RA Cancel/Adjust Interchange during Implement

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 Interchange implementation. RA goes through reliability-related communications with other RAs to arrange new Interchange parameters prior to contacting IA.

or

1b. BA or TOP determines need to cancel or adjust Confirmed Interchange based on reliability assessment and notifies RA after Interchange 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 back to IA. (Requirement 404)

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. (Requirement

Appendix C —Functional Model Technical Document — Losses

Note: This discussion of losses is from the Technical Document related to the Functional Model version 1. The presentation is currently no in the current Technical Document related to the NERC Reliability Function Model version 2.

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 1):

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 1, 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.

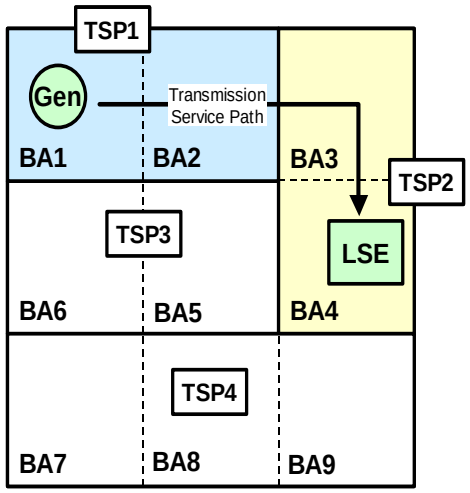

Figure 1 – The portion of the losses caused by the Transaction from the Generator in BA1 to the Load-Serving Entity in BA4 appear as a load change in all the Balancing Authorities 1–9.

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 TSP2[1].
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 2. 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.

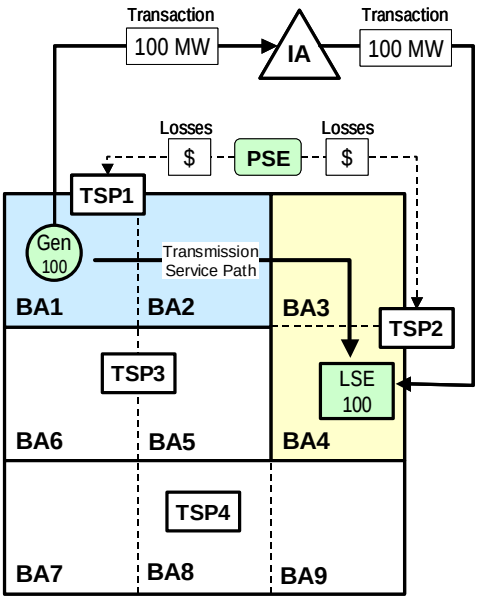

Figure 2 – The PSE may compensate the TSPs with monetary payment.

[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 3. 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.

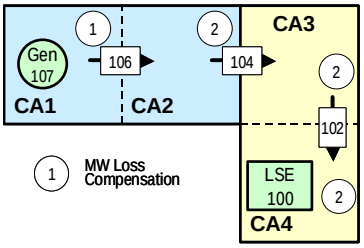

Figure 3 – Present practice for self-provision of losses.

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 4. 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.

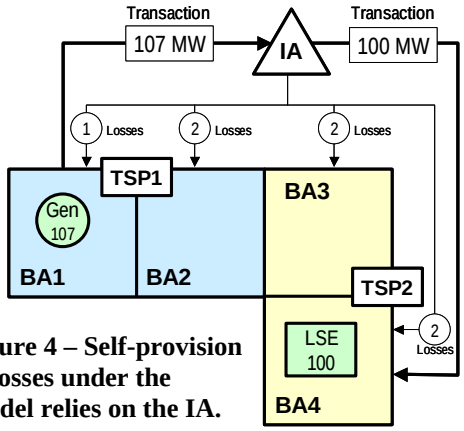

Figure 4 – Self-provision of losses under the Model relies on the IA.

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.