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|  California ISO | Operating Procedure | Procedure No. | 2550 |
| | | Version No. | 6.6 |
| | | Effective Date | 4/09/26 |
| Inadvertent Interchange ATEC Payback | | Distribution Restriction: None | |

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Purpose

This document describes the California ISO (CAISO) process for Accumulated Primary Inadvertent Interchange (PIIaccum) payback using the WECC Automatic Time Error Correction (ATEC) process consistent with BAL-004-WECC.

1. Responsibilities

| | |
|---------------------------------------|---|
| CAISO Transmission Dispatcher | Monitor Inadvertent Interchange using the Interchange transaction scheduler (ITS) and WECC Interchange Tool (WIT). |
| CAISO Generation Dispatcher | Determine the need and if necessary implement Intertie meter error adjustments. |
| After-the-Fact (ATF) Personnel | Review Primary Inadvertent Interchange totals in WIT daily (WIT is the Program of Record in the WECC for Primary Inadvertent Interchange accumulations). Monitor Accumulated Primary Inadvertent Interchange (PIIaccum) in EMS and compare with WIT to ensure totals of On-Peak and/or Off-Peak PIIaccum are consistently used as sole method to calculate ATEC. For any identified Tie meter data failures or errors that contributed to erroneous Accumulated |

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| | <p>Primary Inadvertent Interchange (PIIaccum). Check respective check box in the WIT to provide an audit trail after validating. Logs any disagreements with and any discrepancies to the electronic confirmation process.</p> <p>Log any abnormal after-the- fact changes made.</p> |
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2. Scope/Applicability

2.1. Background

The WECC ATEC process is used to help maintain Interconnection frequency and to ensure that inadvertent payback and time error corrections are effectively conducted in a manner that does not adversely impact the reliability of the Interconnection.

Inadvertent Interchange is the difference between Actual (metered) Net Interchange (NIA) for all Balancing Authority (BA) Area Interconnections and Scheduled Net Interchange (NIS), for the Operating Hour. Primary Inadvertent Interchange (PII) results from a BA's inability to regulate precisely to Scheduled Interchange throughout the Operating Hour. Secondary Inadvertent Interchange results from a BA's efforts to support Interconnection frequency, offsetting other BA's contributions to Primary Inadvertent Interchange.


NERC and WECC Standards mandate that Inadvertent Interchange be calculated and recorded on an hourly basis. Inadvertent Interchange is accumulated separately for off-peak and on-peak periods, and the running Accumulated Primary Inadvertent Interchange (PIIaccum). Totals are continuously paid back using the WECC ATEC Inadvertent Interchange payback process.

Primary Inadvertent Interchange (PII) is paid back during the period it was accumulated (either off or on-peak). PII accumulated on-peak is paid back during on-peak, and PII accumulated off-peak is paid back during off-peak.

The CAISO EMS/AGC system receives the Accumulated Primary Inadvertent Interchange (PIIaccum) from WIT in Real-Time. The Accumulated Primary Inadvertent Interchange (PIIaccum) is used as the sole method to calculate ATEC. Primary and Secondary Inadvertent Interchange is automatically "paid back" via the EMS AGC ATEC algorithm, using the running PIIaccum totals, hourly.

EMS/AGC uses this Accumulated Primary Inadvertent Interchange (PIIaccum) data to continuously "payback" any positive or negative accumulations, for both on and off-peak times, consistent with the WECC ATEC equation.

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Note: Please refer to the WECC ATEC Equation and PII payback process below in the Image Section

2.2. Scope/ Applicability

This procedure applies to the monitoring and validation of Inadvertent Interchange.

3. Procedure Detail

3.1. Inadvertent Interchange ATEC Payback Process


Take the following steps to monitor and manage CAISO Inadvertent Payback using the WECC ATEC Process:

- Inadvertent Interchange needs to be monitored no later than 50 minutes after each hour, by the Transmission Dispatcher using the Interchange transaction scheduler (ITS) and the WECC Western Interchange Tool (WIT).
- Manual Adjustments may also be required to account for any subsequently identified hourly Intertie “Revenue” meter failures or for telemetry data errors, which contributed to the calculated hourly inadvertent accumulation.
- Similarly, the CAISO Generation Dispatcher is responsible for periodically correcting the EMS AGC calculation for any Real-Time 4-second “tie meter” deviations from the hourly revenue meter NIA.

Note: NERC standard BAL-004-WECC-4, requirement 4, mandates that we keep ATEC in service, with an allowable exception period of less than or equal to an accumulated 24 hours per calendar quarter for ATEC to be out of service.

| CAISO Transmission Dispatcher |
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| <p>Note: “Large” is defined as an amount equal to or greater than the largest current Dynamic Schedule.</p> <ol style="list-style-type: none"> 1. Monitor the raw CAISO Inadvertent Interchange quantity (NIA – NIS) as calculated and recorded by Interchange transaction scheduler hourly for each previous hour, to determine if there are any large inadvertent Interchange accumulations. 2. If the hourly inadvertent accumulation is equal to or greater than the MW value of the largest Dynamic Schedule or the accumulation for the last few hours has not decreased: <ul style="list-style-type: none"> • Verify the WIT and EMS accumulation numbers, <u>and do</u> the following: <ul style="list-style-type: none"> ○ Verify actuals with adjacent BA. |


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| CAISO Transmission Dispatcher |
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| <ul style="list-style-type: none"> ○ Determine if there is a metering problem by consulting with the Gen Dispatcher and Manager, Balancing Authority (BA) Operations. ○ Notify EMS staff. ○ Log the event. <p><i>Note: The CAISO WECC ATEC payback is presently limited by EMS staff to no more than the L10. After notifying the generation dispatchers of the metering problem, do the following:</i></p> <ul style="list-style-type: none"> ● Log any Intertie meter failures or telemetry data errors not reflected in the hourly NIA check-out numbers, so that personnel carrying out ATF responsibilities can make the necessary corrections and maintain accurate PIIaccum. <p><i>Note: Telemetry or Intertie “revenue” meter failures can be confirmed with the adjacent BA for each tie. Hourly tie meter data failures or errors should be a rare exception.</i></p> |

| CAISO Generation Dispatcher |
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| <ol style="list-style-type: none"> 1. Determine if a Real-Time (4-second) “meter adjustment” is warranted. 2. Implement any Real-Time Intertie meter adjustments directly into the EMS AGC system using the System/ACE Summary screen. 3. Manually enter the RT Meter adjustment on the “Meter Error Correction” line. <p><i>Note: Real-time Intertie meter data failures or errors are infrequent. Manual IME adjustments by the Generation Dispatcher should only be made in the event of a protracted, identified RT meter data failure that is significantly contributing to CAISO inadvertent in RT.</i></p> <ol style="list-style-type: none"> 4. Log any such RT Intertie meter data error adjustments to the EMS/AGC ATEC calculation in SLIC. 5. Operate the CAISO AGC in ATEC mode, limiting non-ATEC mode operation for maintenance and testing to a maximum of 24 hours per calendar quarter. 6. Notify the Western Interconnection, via Grid Messaging System (GMS) message, anytime the CAISO is not operating in ATEC mode. |

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3.2. After the Current Operating Hour Accumulated Inadvertent Adjustments

Take the following actions after each Operating hour has completed and the ATEC process has completed for the operating hour:

| CAISO Transmission Dispatcher |
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| <ol style="list-style-type: none"> 1. Review EMS, ITS, WIT, SLIC and Intertie meter data to help ensure accurate Accumulated Primary Inadvertent Interchange (PIIaccum) and PII WECC ATEC payback. When done and in agreement with adjacent BA, check respective check box in the WIT. 2. If there are any issues, <ul style="list-style-type: none"> • Review final checked out NIA and NIS using WIT and ITS to identify any discrepancies that may require subsequent ATF PII modifications. • Review SLIC logs for any Intertie meter related PII adjustments for prior Operating Day(s). • Process any corrections to ATF tags that may impact the CAISO Accumulated Primary Inadvertent Interchange (PIIaccum) number. • Log any disagreements with and any discrepancies to the electronic confirmation process and any abnormal After-the-Fact changes made in SLIC (Scheduling Logging in California). <p>Note: NERC inadvertent reports are submitted automatically by WIT, as the official record of checked out NIS and NIA between BAs, for the Western Interconnection. WIT submits Accumulated Primary Inadvertent Interchange (PIIaccum) reports to the NERC "CERTS" system.</p> 3. If the running primary inadvertent accumulation total is equal to or greater than 50 % of last year's peak system demand, <ul style="list-style-type: none"> • Notify the EMS group of a possible metering or telemetry data error. <p>Notes:</p> <ul style="list-style-type: none"> - <i>Telemetry or Intertie "revenue" meter failures can be confirmed with the adjacent BA for each tie. <u>Hourly Tie meter data failures or errors should be infrequent.</u></i> - <i>Intertie meter failure of telemetry data corrections is directional and the sign convention used should offset the original error caused by the actual Intertie meter data error.</i> |


| CAISO After-the-Fact Personnel |
|---|
| <ol style="list-style-type: none"> 1. At the beginning and end of each week, compare the Accumulated Primary Inadvertent Interchange (PIIaccum) value in WIT to the value used in EMS/AGC PII, to ensure that values used in EMS are coupled with PIIaccum in WIT. <ul style="list-style-type: none"> • If there is a discrepancy in the magnitude or direction of payback between the inadvertent in WIT and EMS, proceed to Step 2. |

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| CAISO After-the-Fact Personnel |
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| <p>2. Process any required ATF EMS/AGC PII adjustments to correct CAISO Primary Inadvertent Interchange (PII) numbers, for on and off-peak periods.</p> <ul style="list-style-type: none"> • Offset the value in EMS to match WIT values (Same sign as WIT) for on-Peak and/or off-Peak via the Primary Inadvertent Adjustment in EMS, <ul style="list-style-type: none"> ○ Ensuring that the payback is in the same direction and same magnitude as WIT. • Log any ATF PII actions taken in SLIC with sufficient detail regarding the adjustments made to the ATF ATEC inadvertent payback PII Adjustments made to EMS/AGC Accumulated Primary Inadvertent Interchange (PIIaccum) and to the ITS Accumulated Primary Inadvertent Interchange (PIIaccum) numbers. • Contact EMS group to investigate and correct any payload issues between EMS and WIT to ensure connection between EMS and WIT. <p>3. If ATF meter or telemetry data errors are discovered and confirmed with the adjacent BA ATF that would have adversely impacted PII accumulations for prior Operating Hours,</p> <ul style="list-style-type: none"> • Manually update the EMS/AGC Accumulated Primary Inadvertent Interchange (PIIaccum) for any identified Intertie meter failure or telemetry data error quantities, for either the on or off-peak periods, in the same manner as for the hourly PII adjustments. • Log all Intertie meter related Accumulated Primary Inadvertent Interchange (PIIaccum) adjustments made to the EMS/AGC system with sufficient detail of the Intertie meter failure or telemetry data error. • Review Accumulated Primary Inadvertent Interchange (PIIaccum) in WIT to ensure that any ATF meter adjustments are reflected in the applicable On or Off-Peak totals. <p>Example: <i>An under-metered Intertie net import (NIA) would result in a positive Accumulated Primary Inadvertent Interchange (PIIaccum) error. Therefore, the corrected Accumulated Primary Inadvertent Interchange (PIIaccum) quantity should be negative (Import under-metered) and thus subtracted from the running Accumulated Primary Inadvertent Interchange (PIIaccum) total, to offset the initial Accumulated Primary Inadvertent Interchange (PIIaccum) error.</i></p> |

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4. Supporting Information

Operationally Affected Parties

Shared with the Public.

References

Resources studied in the development of this procedure and that may influence some steps taken herein include but are not limited to:

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|---------------------------|---------------------------------------|
| CAISO Tariff | |
| CAISO Operating Procedure | |
| NAESB Requirements | WEQ-007 |
| NERC Standards | BAL-004-WECC-4 R1, R2, R4, R6, R7, R8 |
| WECC Criterion | |
| Other References | |


Definitions

Unless the context otherwise indicates, any word or expression defined in the Master Definitions Supplement to the CAISO Tariff shall have that meaning when capitalized in this Operating Procedure.

The following additional terms are capitalized in this Operating Procedure when used as defined below:

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|-------------|-------------------------------------|
| ATEC | Automatic Time Error Correction |
| PII | Primary Inadvertent Interchange |
| NIS | Scheduled Net Interchange |
| AI | Accumulated Inadvertent Interchange |
| WIT | Western Interchange Tool |
| NIA | Actual Net Interchange |

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Version History

| Version | Change | Date |
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| 6.0 | Periodic Review: Moved components of the procedure detail to the background information. Updated display names, changed “after the fact” to “after the current operating hour,” and updated the monitoring to 50 minutes after the hour. Removed the Transmission Desk task #4, as it is redundant. Updated references to After-the-Fact throughout for consistency and added “Personnel” in Responsibilities section. Minor format and grammar updates. | 3/31/20 |
| 6.1 | Updated units for PIIaccum in Section 3.2. Minor edits in References section, Operationally Affected Parties, Review Criteria, Frequency, and removed history prior to five years. Updated CAISO references throughout. | 2/10/22 |
| 6.2 | Section 3.2: Updated to align with BAL-004-WECC-3 RSAW evidence. Minor format and grammar edits. | 12/06/22 |
| 6.3 | Periodic Review: Replaced Reliability messaging system with Grid Messaging System (GMS) message and minor formatting. | 4/20/23 |
| 6.4 | Updated from Transmission and Generation "Desk" to "Dispatcher" and from Shift Manager to Manager of Real-Time Operations. | 9/11/23 |
| 6.5 | Updated to align with BAL-004-WECC-4 standard update, incorporating requirements of calculating ATEC on 10/01/25. Updated from Manager of Real-Time Operations to Manager, Balancing Authority (BA) Operations. Minor formatting and grammar edits and removed history prior to five years. | 10/01/25 |
| 6.6 | Periodic Review: Minor formatting and grammar edits and corrected BAL-004-WECC version reference in Version History for Version 6.5. | 4/09/26 |

5. Periodic Review Procedure


Review Criteria & Incorporation of Changes

There are no specific criteria for reviewing or changing this document, follow instructions in CAISO Operating Procedure 5510.

Frequency

Every three (3) Years.

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Appendix

No references currently.