



# California ISO

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## Dynamic Transfers

- Dynamic Schedules
  - Pseudo-Ties

Document Owner: Infrastructure Contracts & Management  
(Regulatory Contracts)

 <b>California ISO</b>	<b>Infrastructure Contracts and Management</b>	<b>ISO Version:</b>	<b>1.1</b>
<b>Dynamic Transfers</b>		<b>Effective Date:</b>	<b>07/18/17</b>

## REVISION HISTORY

<b>VERSION NO.</b> <small>(Must match header)</small>	<b>DATE</b>	<b>REVISED BY</b>	<b>DESCRIPTION</b>
1.1	07/18/17	ICM	Procedure developed and posted to CAISO website

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## 1.0 Purpose

The purpose of this document is to develop clarity of the requirements and procedures for Dynamic Schedules and Pseudo-Ties for dynamic transfers. In addition, to assign a *Dynamic Transfers Team* who will schedule an introductory coordination meeting with pertinent external parties who are interested in the dynamic transfer arrangement. This team will provide answers and guidance about the process which includes imports to and exports from the CAISO Balancing Authority Area. This process will ensure that agreement schedules, tariff requirements, and procedures for these types of arrangements are discussed with internal and external parties collectively, reviewed and approved or denied based on a formal and consistent review practice.

## 2.0 Background

Historically, imported power from other regions throughout the west serves a portion of California’s electricity demand. Most of this imported energy is provided by fixed hourly schedules on the transmission interties between neighboring regions. This is the standard scheduling practice for the west. However, there are limited cases where certain intertie schedules between the CAISO and other balancing authorities<sup>1</sup> are allowed to vary within the hour, a practice referred to as “dynamic transfers.”


The California renewable portfolio standard requires that some of retail energy sales be met by renewable energy. These standards triggered a tremendous surge in renewable energy resource development throughout California and the rest of the west. In the process, this surge in development raised practical concerns about the ability and responsibility of each Balancing Authority to balance the variable output from renewable resources, particularly if the output is being exported out of the Balancing Authority where the resource resides (Host Balancing Authority or Native Balancing Authority).

California’s renewable portfolio standard also raised significant interest among renewable resource developers for enhanced opportunities to import renewable energy to the CAISO Balancing Authority. To clarify tariff provisions for dynamic transfers, two mechanisms for dynamic transfers were introduced, a “dynamic schedule” and a “pseudo-tie.”

A Dynamic Schedule transfers the resource’s energy schedule, but not the resource itself, while a Pseudo-Tie effectively transfers the external generation resource into the CAISO Balancing Authority Area. Dynamic transfers are a category of market participation, and the term “dynamic transfer” is a general term that applies to either Dynamic Schedules or Pseudo-Ties. (“dynamic import” and “dynamic export” refer to

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<sup>1</sup> A balancing authority is the responsible entity that integrates resource plans and maintains the load-resource balance within a balancing authority area. A balancing authority is the collection of generation, transmission, and loads with the metered boundaries of the balancing authority.

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dynamic transfers in a specific direction.) The dynamically scheduled resource remains under the control of the Host Balancing Authority where the source of transfer is electrically located, and the Host Balancing Authority includes the resource’s output in its balancing of supply and demand. A Pseudo-Tie effectively transfers the external generation resource into the CAISO Balancing Authority Area. In a Pseudo-Tie transfer, the source is accounted for in the CAISO’s balance, and the CAISO also performs other balancing area functions for the Pseudo-Tie resource.

### 3.0 Definitions

**Attaining Balancing Authority Area:** The Balancing Authority Area where the output of a Pseudo-Tie generating unit is fully included for purposes of calculation of Area Control Error and meeting Balancing Authority Area load responsibilities.

**Balancing Authority:** The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports interconnection frequency in real time.

**Balancing Authority Area:** The collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.

**Delivery Point:** The point where a transaction between Scheduling Coordinators is deemed to take place. It can be either the Generation input point, a Demand Take-Out Point, or a transmission bus at some intermediate location.

**Dynamic Schedule:** A telemetered reading or value which is updated in Real-Time and which is used as an Interchange Schedule in the CAISO Energy Management System calculation of Area Control Error and the integrated value of which is treated as an Interchange Schedule for Interchange accounting purposes.


**Dynamic Scheduling Agreement for Scheduling Coordinators (“DSASC”):** An agreement between the CAISO and a Scheduling Coordinator regarding the terms by which a Scheduling Coordinator may submit Dynamic Schedules, a pro forma version of which is set forth in Appendix B.5.

**Dynamic Scheduling Host Balancing Authority Operating Agreement (“DSHBAOA”):** An agreement entered into between the CAISO and Host Balancing Authority governing the terms of the dynamic scheduling between the Host Balancing Authority and the CAISO in accordance with the Dynamic Scheduling Protocol set forth in Appendix M, a pro forma version of which agreement is set forth in Appendix B.9.

**Host Balancing Authority Area:** The Balancing Authority Area in which a System Resource is connected to the electric grid. The Host Balancing Authority Area may, or may not, be directly interconnection with the CAISO Balancing Authority Area.

**Intermediary Balancing Authority:** The Balancing Authority that operates an Intermediary Balancing Authority Area.

**Intermediary Balancing Authority Area:** The Balancing Authority Area between a Host Balancing Authority Area and the CAISO Balancing Authority Area. An Intermediary Balancing Authority Area may, or may not, be directly interconnected with the CAISO Balancing Authority Area.

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**Intertie:** A transmission corridor that interconnects the CAISO Balancing Authority Area with another Balancing Authority Area.

**Native Balancing Authority Area:** The Balancing Authority Area where a Pseudo-Tie generating unit is physically interconnected to the electric grid.

**Point(s) Of Delivery (POD) Or Withdrawal:** Point(s) within the CAISO Balancing Authority Area or, for purposes of scheduling and operating the Real-Time Market only, the EIM Area where Energy and Ancillary Services are made available to a receiving party under this CAISO Tariff.

**Point(s) Of Receipt (POR) Or Injection:** Point(s) within the CAISO Balancing Authority Area or, for purposes of scheduling and operating the Real-Time Market only, the EIM Area where Energy and Ancillary Services are made available by a delivering party under this CAISO Tariff.

**Pseudo-Tie:** A functionality by which the output of a generating unit physically interconnected to the electric grid in a Native Balancing Authority Area is telemetered to and deemed to be produced in an Attaining Balancing Authority Area that provides Balancing Authority services for and exercises Balancing Authority jurisdiction over the Pseudo-Tie generating unit.

**Pseudo-Tie Participating Generator Agreement:** An agreement between the CAISO and a Participating Generator with a Pseudo-Tie Generating Unit, a pro forma version of which is set forth in Appendix B.16.

**Scheduling Coordinator (“SC”):** An entity certified by the CAISO for the purposes of undertaking the functions specified in Section 4.5.3, including any entity certified by the CAISO as an EIM Entity Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator for the purposes of undertaking the functions specified in Section 29.

**SCA:** Scheduling Coordinator Agreement.

## 4.0 Agreements Required

### Dynamic Schedules:


1. Dynamic Scheduling Host Balancing Authority Operating Agreement (“DSHBAOA”)
  - a. This is a pro forma negotiated between the CAISO and the Host Balancing Authority which does not require a FERC Filing unless the intent of the pro forma language has been altered in any way. If the Host BA already holds a DSHBAOA then schedules can be revised with agreement between the parties.

or:

  - a. Dynamic Transfer Balancing Authority Operating Agreement (“DTBAOA”)
    - a. This is a non-pro forma agreement between the CAISO and the Host or Native Balancing Authority which requires a FERC filing. This agreement incorporates both Dynamic Schedule and Pseudo-Tie requirements to enable these services. If the Host BA or Native BA already holds a DTBAOA then it is possible that the agreement may allow for revisions to schedules without a FERC filing. However, if an

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amendment is required to the body of the agreement then this will require a FERC filing. (60-days)

- b. The Host or Native BA will have to be certified with WECC if it is a new BA and registered with NAESBE for dynamic transfer.
- 2. Scheduling Coordinator Agreement (“SCA”)
  - a. To participate in the CAISO market, a company must be a certified Scheduling Coordinator or retain the services of a certified SC to act on their behalf.
- 3. Dynamic Scheduling Agreement for Scheduling Coordinators (“DSASC”)
  - a. This is a pro forma agreement between the CAISO and a Scheduling Coordinator regarding the terms by which a Scheduling Coordinator may submit Dynamic Schedules.

**Pseudo-Tie: imports to the CAISO. (Pseudo-Ties are modeled inside the CAISO BA)**

- 1. Dynamic Transfer Balancing Authority Operating Agreement (“DTBAOA”)
  - a. This is a non-pro forma agreement negotiated between the CAISO and the Native Balancing Authority and requires a FERC Filing. If the Native BA already holds a DTBAOA then it is possible that the agreement may allow for revisions to schedules without a FERC Filing. However, if an amendment is required to the body of the agreement then this will require a FERC Filing. (60-days)
  - b. The Native Balancing Authority will have to be certified with WECC, if it is a new BA, and registered with NAESBE.
- 2. Pseudo-Tie Participating Generator Agreement (“PPGA”)
  - a. This is a pro forma agreement between the CAISO and Participating Generator.
- 3. Meter Service Agreement for CAISO Metered Entities (“MSACAIOME”) or Meter Service Agreement for Scheduling Coordinators (MSASC)
  - a. The MSACAIOME is a pro forma agreement between the CAISO and the CAISO metered entity.
  - b. The MSASC is a pro forma agreement between the CAISO and the SC.
- 4. Scheduling Coordinator Agreement (“SCA”)
  - a. To participate in the CAISO market, a company must be a certified Scheduling Coordinator or retain the services of a certified SC to act on their behalf.

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## 5.0 Procedure

<b>CONSIDERING DYNAMIC TRANSFER</b>	
<b>Action by:</b>	<b>Procedure:</b>
Customer	1. Per the instructions on the webpage, contact a Customer Service Representative to set-up a coordination meeting
Customer Service	2. Schedule introductory coordination meeting conference call with: Dynamic Transfers Team, affected Balancing Authorities, Participating Generator Owner, Scheduling Coordinator
Dynamic Transfers Team	3. Standard topics during introductory coordination meeting: <ul style="list-style-type: none"> <li>a. Project characteristics</li> <li>b. Project name</li> <li>c. Intertie at the CAISO Balancing Authority Area boundary</li> <li>d. Pseudo-tie (generating unit's substation (pseudo-tie))</li> <li>e. Transmission route</li> <li>f. Transmission rights to CAISO</li> <li>g. Intermediary BAs / Transmission Service, level of need to curtail the flows will determine if an operating agreement is required between the CAISO and Intermediary BA</li> <li>h. E-tag testing 10-days prior to delivering energy</li> <li>i. Project completion</li> <li>j. Agreements required</li> <li>k. FERC filings, if necessary for non-pro forma agreements</li> <li>l. WECC Certified (BA)</li> <li>m. NAESB Registered (new Pseudo-Tie, existing Dynamic Schedule)</li> </ul>



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<b>ELECTING DYNAMIC TRANSFER</b>	
<b>Action by:</b>	<b>Procedure:</b>
Customer	<ol style="list-style-type: none"> <li>1. Enter New Resource Implementation by submitting a Project Details Form to <a href="mailto:NRI@caiso.com">NRI@caiso.com</a></li> <li>2. Complete the required applicable agreement Information Request Sheets and associated Pseudo-Tie Schedule 1, if applicable, and forward to Regulatory Contracts (eventually this will all be captured in the Project Details Form and Information Request Sheets eliminated)</li> <li>3. Negotiate DSHBAOA or DTBAOA with <a href="mailto:RegulatoryContracts@caisoc.com">RegulatoryContracts@caisoc.com</a></li> </ol>
New Resource Implementation	<ol style="list-style-type: none"> <li>4. Requirements / Bucket Item Documentation (items will all be listed within the New Resource Implementation process): <b>(DYNAMIC)</b> <ol style="list-style-type: none"> <li>a. Interconnection Agreement with Native BA (Pseudo-Tie) or Letter of Intent in lieu of interconnection agreement. Need to verify transmission rights to connect to ISO control area.</li> <li>b. Intertie at the CAISO Balancing Authority Area boundary</li> <li>c. SC association letter</li> <li>d. Final Generator Resource Data Template</li> <li>e. Metering documentation (MSVS and POR Calc)</li> <li>f. Email request for Dynamic Approval Request to NRI</li> </ol> </li> <li>Requirements / Bucket Item Documentation (items will all be listed within the New Resource Implementation process): <b>(PSEUDO TIE)</b> <ol style="list-style-type: none"> <li>a. All Bucket 1 -5 Items (<a href="#">See Checklist</a>)</li> <li>b. POD (generating unit's substation (pseudo-tie)) Email request for Pseudo-Tie Approval to NRI</li> </ol> </li> </ol>
Regulatory Contracts	<ol style="list-style-type: none"> <li>5. Requirements / Documentation: <ol style="list-style-type: none"> <li>a. Information Request Sheets for agreements as outlined above. Non-pro forma agreements do not have Information Request Sheets and direction will be provided at the coordination meeting.</li> </ol> </li> </ol>
Operational Readiness	<ol style="list-style-type: none"> <li>6. Requirements / Documentation: <ol style="list-style-type: none"> <li>a. E-tag testing</li> </ol> </li> </ol>
EMS	<ol style="list-style-type: none"> <li>7. Requirements / Documentation: <ol style="list-style-type: none"> <li>a. EMS Signal testing</li> <li>b. Resource ID designation</li> </ol> </li> </ol>


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## 6.0 Roles and Responsibilities

**Customer Service / Client Representative:** Responsible for scheduling introductory coordination conference call with pertinent parties and the internal CAISO Dynamic Transfers Team.

**Regulatory Contracts:** Responsible for negotiating agreements with the Balancing Authority and Customer.

**NRI:** Responsible for guiding the customer through the required deliverables in the New Resource Implementation process

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## 7.0 Contacts

### Questions?

Please contact the following groups for assistance:

**Customer Representative:** *For setting up initial coordination meeting.*

Contact No.: 916-608-7320

**Regulatory Contracts:** *For questions related to agreements required to facilitate dynamic transfer to the CAISO grid.*

[RegulatoryContracts@caiso.com](mailto:RegulatoryContracts@caiso.com)

**NRI:** *For questions related to New Resource Implementation process.*

[NewResourceImplementation@caiso.com](mailto:NewResourceImplementation@caiso.com)