Computer-Based Training
Course Guide

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California ISO Provided Self-Paced Learning Resources

The California ISO has created a library of Computer-Based Training (CBT) courses to inform market participants and stakeholders on a wide range of topics. The CBTs listed in this document are available publicly. These CBTs are located on the following site:

- Public CBTs: Training Center on www.caiso.com.

The CBT courses are arranged into learning tracks, as shown below, and are defined on the following pages:

| Market and Operations |
| Western Energy Markets |
| Settlements and Metering |
| Congestion Revenue Rights |
| Scheduling Coordinator |
| Reference |

Additional Courses Available to ISO Customers Via Restricted Access

In addition to the CBTs listed in this document, there are a number of application and user-specific courses created for ISO customers and made available through online portals. Access to the ISO portals is restricted to ISO Scheduling Coordinators, and requires that an organization's User Access Administrator (UAA) provision access via a certificate.

- Application and user-specific courses can be accessed through the ISO customer portals:
  - Market Participant Portal
  - RC Portal
  - WEIM Portal

Learning Track: Market and Operations

Course	Description	Duration
Day-ahead overview	This course provides an overview of the Day-Ahead Market inputs, outputs, processes and timelines.	25 minutes
Demand response	This course explains how demand response supports the balancing of supply and demand. In this course, you learn about the demand response participation models that facilitate access to the wholesale market.	30 minutes
Economic bids and self-schedules	To participate in ISO markets, scheduling coordinators submit bids and self-schedules for supply and demand. This course explains the processes and requirements for submitting bids and self-schedules.	45 minutes
Emergency response and abnormal operations	This course provides examples of expected notification and responses to emergency or abnormal system conditions.	15 minutes
Forecasting	This course explains the forecasting services provided by the ISO, including: • How these services are carried out • Why they are important to participants • How forecasting requirements impact participants • You'll also learn about the different forecasting data sources that are available to the public on the caiso.com website.	20 minutes
Full network model	In this course, you will learn about the inputs and components that make up the full network model (FNM), how and when the model is updated, as well as resources to learn more about the model.	45 minutes
Generator Interconnection	This course explains the ISO's Generator Interconnection and Deliverability Allocation Procedures (GIDAP), which is the process for studying proposed energy generation infrastructure.	30 minutes
Interchange and e-Tagging ISO market awards	This course provides an overview of interchange transactions within the ISO market as well as the e-Tag submission process.	25 minutes
Market pricing	This course explains the purpose of market prices, how bid prices determine the price of energy, the concepts of nodal pricing and Locational Marginal Pricing (LMP).	35 minutes
Master File process	This course explains the Master File, which is a database that contains the operational attributes of resources participating in ISO markets. The course covers the Master File approval process as well as related data freeze windows.	16 minutes
Outages	This course covers the basics of managing outages for generation resources and transmission facilities/equipment.	20 minutes
Real-time overview	This course provides an overview of the Real-Time Market inputs, outputs, processes and timelines.	25 minutes

Course	Description	Duration
Resource adequacy	This course provides an overview of how California's Resource Adequacy (RA) program works, the process steps, and how RA capacity is incorporated into the energy market.	25 minutes
Resource performance expectations of dispatch and operating instructions	This course provides an overview of expectations for resource response to reduce the instances of Resources failing to follow dispatch and operating instructions.	30 minutes
Storage resources	This course provides an overview of what storage resources are and why there are important, how to differentiate between different market models for storage resources, and how they get set up and participate in the ISO Market.	20 minutes

Learning Track: Western Energy Markets

Course	Description	Duration
Extended Day-Ahead Market Overview	This video provides an overview of how the market is changing with the introduction of two significant initiatives titled Extended Day-Ahead Market and Day-Ahead Market Enhancements.	18 minutes
Base schedules foundational concepts	Explains a base schedule and why it is important to manage energy needs. • Base schedule basics: Learn about a base schedule and why it is important to manage energy needs. • Roles and responsibilities: Discover the people and tasks associated with creating and managing base schedules. • Resource sufficiency evaluations: learn about the tests that are run to ensure that BAs have adequate bids and base schedules to meet their needs.	35 minutes
Get ready to participate in EIM	This course prepares organizations to participate in WEIM. It covers topics such as: • Learn what the ISO is, its relationship to EIM, and your training path. • How EIM works and its benefits, as well as roles and responsibilities.	40 minutes
Leading the EIM transition	This course explains the agreements and process steps required to join EIM.	20 minutes

Course	Description	Duration
Metering foundational concepts	Provides key information related to the metering process. • Metering basics: Learn about the basics of metering and how it impacts settlements. • Physical metering: See more about resource metering and how your portfolio impacts data submission. • Meter data submission and timelines: See how settlement quality data is created, and how important the timeline is to your business.	25 minutes
Settlements foundational concepts (EIM)	Introduces learners to the key concepts of settlements and settlement validation. • Settlement basics: Learn about the settlements process, what goes into a settlement statement and deadlines related to settlements. • Validating settlements: Learn about some of the tools and terms you'll need to know to help you validate settlements. • Resolving common issues: Learn about the importance of using timely and accurate data in settlements.	35 minutes
System outages foundational concepts	Provides basic information about outage concepts, including timelines and process rules. • System outage basics: Learn about the basics of outages. • Process rules: See more about outage timelines and modifying or canceling outages. • Outage scenarios: Practice what you know with real life outage scenarios.	20 minutes
The basics of the real-time market	Explains the ISO market to new WEIM participants. • Real-time concepts: learn about the inputs required and outputs produced in WEIM. • Timeline and processes: Gain a better understanding of how market inputs and outputs fit in the WEIM timeline processes, including the flexible ramping product.	40 minutes

Learning Track: Settlements and Metering

Course	Description	Duration
Commitment costs	This course explains bid cost components such as start-up and minimum load costs, transition costs, energy bid costs, as well as eligibility for bid cost recovery when bid cost components exceed eligible market revenues.	20 minutes
Convergence bidding settlements	In this course, you will learn about the common settlements that convergence bidding SCs could see on their settlements statement.	30 minutes
Day-ahead settlements	In this course, you'll learn about day-ahead settlements, which are settlements SCs get when they receive an award in the day-ahead market.	25 minutes
Energy settlements validation	This course covers financial settlements, charge code timelines, as well as resources to use to validate settlements statements.	45 minutes
Energy settlements validation practice	This course provides a number of learner scenarios to reinforce the elements covered in the Energy Settlements Validation course.	40 minutes
Metering overview	This course covers metering basics, process and timeline, rules of conduct, as well as settlement quality meter data plans.	20 minutes
Post-market settlements	In this course, you'll learn about post-market settlements, which are settlements SCs get after the trading day has passed and meter data and e-Tags have been submitted.	25 minutes
RC customer settlements	This course covers the topics of submitting net energy data, how to access RC and HANA statements and invoices, as well as reviewing RC and HANA publication status.	20 minutes
Real-time settlements	In this course you will learn about real-time settlements which are the payments and charges that arise from SC's participation in the real-time market.	25 minutes
Settlements foundational concepts (EIM)	This course provides a high-level look at the settlements process, as well as the relevant terms and concepts.	35 minutes
Settlements process	This course explains settlement statements, invoices, and timelines based on the ISO's charge code calculations.	30 minutes

Learning Track: Congestion Revenue Rights

Course	Description	Duration
Congestion revenue rights	Congestion Revenue Rights (CRR) are financial instruments used to manage variability in congestion costs that occur under day-ahead locational marginal pricing. In this course, you will learn about the CRR allocation and auction processes and timelines.	30 minutes
Congestion revenue rights MUI and SRS overview	This course provides an overview of the various CRR processes in order to participate in the CRR allocation and/or auction. The course provides an overview of the market user interface and the high level features as well as information on the secondary registration system.	30 minutes
Congestion revenue rights MUI training - allocation	This course focuses on the use of the market user interface as it relates to the CRR allocation processes.	30 minutes
Congestion revenue rights MUI training - auction	This course focuses on the use of the market user interface as it relates to the CRR auction processes.	30 minutes
Congestion revenue rights overview	This course provides an overview of the various CRR processes in order to participate in the CRR allocation and/or CRR auction.	30 minutes

Learning Track: Scheduling Coordinator

Course	Description	Duration
Credit management	In this course, you will learn about a Scheduling Coordinator's responsibility to follow credit management requirements related to liabilities and collateral.	45 minutes
Ongoing obligations of scheduling coordinators	This course explains the Scheduling Coordinator's obligation to inform the ISO of any changes or updates submitted to the ISO as part of the application process, as well as the timing and procedures for notification.	40 minutes
Scheduling coordinator certification process overview	This course explains the process and requirements to become a certified Scheduling Coordinator in order to bid or self-schedule resources in the ISO markets as well as handle the related settlements process.	30 minutes
Scheduling coordinators in the ISO	This course explains the role of Scheduling Coordinators within the ISO markets, what they do and why they are necessary.	25 minutes

Learning Track: Reference

Course	Description	Duration
How to gain access to CAISO applications	This course will help you determine which of the California ISO applications you need for your role and how to access them.	15 minutes
Interacting with the ISO	The topics covered in this course provide guidance on when, who, and how to engage with the California ISO.	20 minutes
Open Access Same-time Information System (OASIS)	This course provides an overview of the ISO's OASIS, including examples of the type of information that is available and how you might use it.	30 minutes
Participate with the ISO section on the new CAISO website	This course takes you on a tour of the Participate with the ISO section on the California ISO's website.	15 minutes
Resource owners/operators desk reference guide	This interactive desk reference guide is provided to help you locate suitable resources that streamline your tasks and simplify your role as they relate to your interactions with the California ISO. It covers topics such as resource performance, responsibilities of Scheduling Coordinators, and new resource implementation.	20 minutes
The about section on the new CAISO website	This course takes you on a tour of the About section on the California ISO's website.	15 minutes
The legal and regulatory section on the new CAISO website	This course takes you on a tour of the Legal and Regulatory section on the California ISO's website.	15 minutes
The library section on the new CAISO website	This course takes you on a tour of the Library section on the California ISO's website.	15 minutes
The meetings and events section on the new CAISO website	This course takes you on a tour of the Meetings and Events section on the California ISO's website.	15 minutes
The systems and applications section on the new CAISO website	This course takes you on a tour of the Systems and Applications section on the California ISO's website.	15 minutes
Welcome to the ISO	This course explains the role and function of the California ISO, provides an overview of energy, and highlights resources that provide additional information about key topics.	45 minutes
Where to find things on the ISO website	This course will help you locate key resources on the California ISO's website.	30 minutes

Course Matrix Recommended by Customer Role – Scheduling Coordinator

Training Categories	Real-Time Operations Staff / Plant Operators	Marketers / Traders / Schedulers	Outage / IT / Planning / Support Staff	Settlements
Market and Operations				
CBT: Day-ahead overview	X	X	X	X
CBT: Demand response	X	X	X	X
CBT: Economic bids and self-schedules	X	X	X	X
CBT: Emergency response and abnormal operations	X			
CBT: Forecasting	X	X	X	
CBT: Full network model	X	X	X	
CBT: Generator Interconnection	X	X	X	
CBT: Interchange and e-Tagging ISO market awards	X	X	X	X
CBT: Market pricing		X		X
CBT: Master File process	X	X	X	
CBT: Metering overview	X		X	X
CBT: Outages	X	X	X	
CBT: Real-time overview	X	X	X	X
CBT: Resource adequacy		X	X	
CBT: Resource performance expectations of dispatch and operating instructions	X		X	
CBT: Storage resources	X	X	X	
DRG: Resource Owners/Operators Desk Reference Guide	X		X	
Settlements				
CBT: Commitment costs				X
CBT: Convergence bidding settlements				if applicable
CBT: Day-ahead settlements	X	X	X	X
CBT: Energy settlements validation				X
CBT: Metering overview				X
CBT: Post-market settlements				X
CBT: RC customer settlements				X
CBT: Real-time settlements	X	X	X	if applicable
CBT: Settlements process	X	X	X	X
CBT: Settlements validation practice				X
Congestion Revenue Rights				
CBT: Congestion revenue rights			if applicable	if applicable
CBT: Congestion revenue rights MUI and SRS overview			if applicable	if applicable
CBT: Congestion revenue rights MUI training - allocation			if applicable	if applicable
CBT: Congestion reveune rights MUI training - auction			if applicable	if applicable
CBT: Congestion revenue rights overview			if applicable	if applicable
Scheduling Coordinator				
CBT: Credit management			X	
CBT: Ongoing obligations of scheduling coordinators			X	
CBT: Scheduling coordinator certification process overview			X	
CBT: Scheduling coordinators in the ISO			X	
Reference				
CBT: How to gain access to CAISO applications	X	X	X	X
CBT: Interacting with the ISO	X	X	X	X
CBT: Open Access Same-time Information System (OASIS)	X	X	X	X
CBT: Welcome to the ISO New!	X	X	X	X
CBT: Where to find things on the ISO website	X	X	X	X

Note: The above matrix does not include the Western Energy Markets track as that is not applicable for all Scheduling Coordinators.