



Dispatch Operating Target Tariff (DOTT) Clarification Training Webinar

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Objectives

- After this training, the attendee will be able to:
 - Identify changes coming in ADS with the Dispatch Operating Target Tariff (DOTT) Clarification project, <http://www.caiso.com/Documents/BusinessRequirementSpecificationv11Clean-DispatchOperatingTargetTariffClarification.pdf>
 - Identify what information can be identified when an Operating Instruction is sent to ADS by ISO operator
 - Identify upcoming dates for implementation

Review terminology: Eligible Intermittent Resources (EIR)

- Eligible Intermittent Resource (EIR)
 - A Variable Energy Resource (VER) that is a Generating Unit or Dynamic System Resource subject to a Participating Generator Agreement (PGA), Net Scheduled PGA, Dynamic Scheduling Agreement for Scheduling Coordinators, or Pseudo-Tie PGA

Review terminology: Operation Instruction

A command by operating personnel responsible for the Real-time operation of the interconnected Bulk Electric System to change or preserve the state, status, output, or input of an Element of the Bulk Electric System, a Facility of the Bulk Electric System or the facilities of a Participating Generator. An Operating Instruction will be communicated consistent with the practices described in NERC Reliability Standard COM-002-4.

To review, in 2018 -

- Eligible Intermittent Resources (a form of Variable Energy Resources) at times can pose an operational risk when certain system conditions persist:
 - Overgeneration, transmission constrained
- Updates and clarifications on Tariff Section 34.13.1 Response Required by Resources to Dispatch Instructions and BPM Appendices to Market Operations A.12.1 **EIR Self-Schedules, Economic Bids, and Dispatch**
- Stakeholder Initiative – comments/revisions/FERC approval
 - <http://www.caiso.com/StakeholderProcesses/Dispatch-operating-target-tariff-clarification>

Dispatch Operating Target Tariff (DOTT) Clarification Project for implementation with Fall Release 2020

- Operating Instructions currently given through verbal instruction
- Project includes changes to allow for EIRs to receive Operating Instructions for EIRs in ADS
- Project to incorporate changes to allow EIRs to automate responses to operational instructions that may require a resource to not exceed their DOT
- [Business Requirements Specification 1.1](#)

Tariff section 34.13.1

- Notwithstanding the requirements to comply with and respond to Dispatch Instructions, *when an Eligible Intermittent Resource's Dispatch Operating Target is equal to its forecasted output, it may produce to its capability.* An Eligible Intermittent Resource in the process of developing a CAISO forecast pursuant to Section 3.1 of Appendix Q may produce to its capability when its Dispatch Operating Target is equal to its scheduled output.



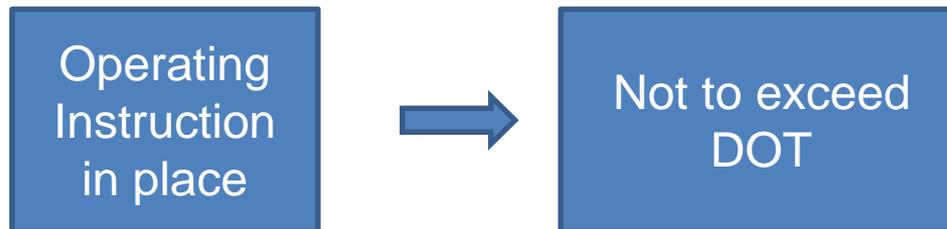
BPM – Appendices to Market Operations BPM A.12.1

- Consistent with Section 34.13.1 of the Tariff, the *EIR must not exceed its Dispatch Operating Target when the SUPP component of the Dispatch Instruction is negative.* Scheduling Coordinators that repeatedly and intentionally deviate from their Dispatch Operating Target may be investigated and referred to FERC for violations of the CAISO tariff. See section 7.8.3.1.3 of the Market Operations BPM for more information about SUPP component of the DOT

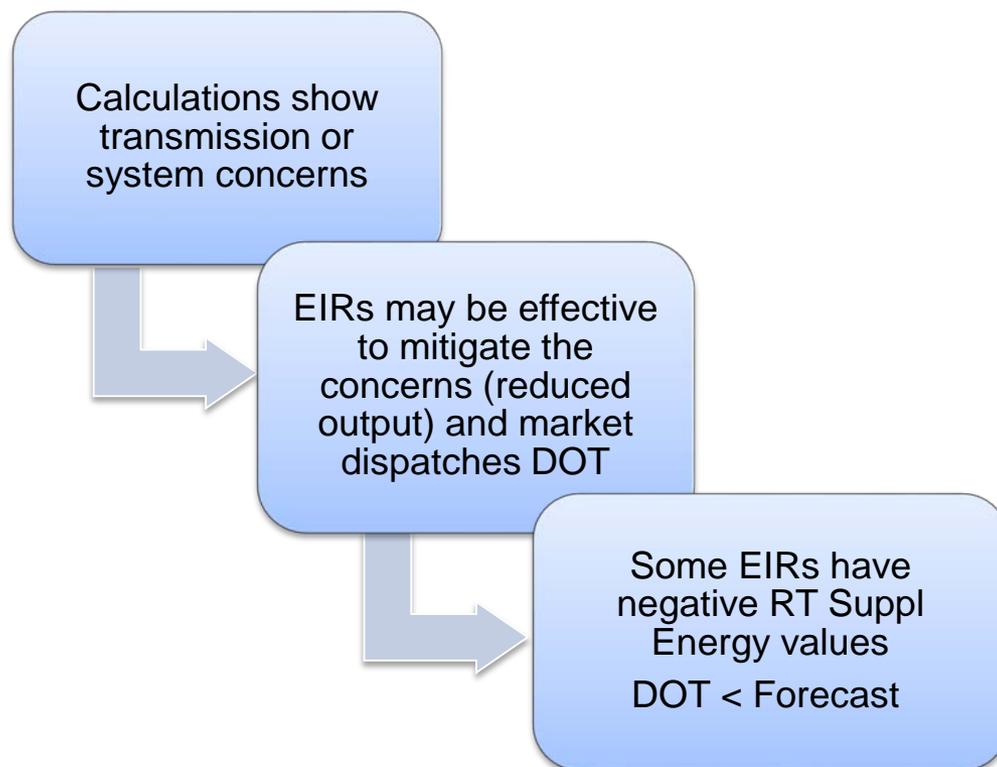


BPM – Appendices to Market Operations A.12.1

- The CAISO may issue an Operating Instruction directing an Eligible Intermittent Resource not to exceed its Dispatch Operating Target if necessary to maintain system reliability consistent with Section 7.6 or 7.7 of the CAISO tariff.* Operating Instructions are communicated pursuant to NERC Standard COM-002-4. The CAISO will issue written or verbal communications to relevant Scheduling Coordinators when an Operating Instruction directs EIRs not to exceed Dispatch Operating Targets. Failure to follow an Operating Instruction is a violation of the CAISO Rules of Conduct (CAISO Tariff Section 37).



Example:



*See Appendices for **Market Operations BPM section A.12.1** and **Market Operations BPM sections 7.2.3.4 and 7.8.3.1.3** for more information about **dispatch instructions** and the **SUPP** component of the **DOT***

If experiencing system issues, CAISO generation desk may issue Operating Instructions

The operator may issue an Operating Instruction to not exceed DOTs.

Operating Instructions require communication per *NERC Standard COM-002-4

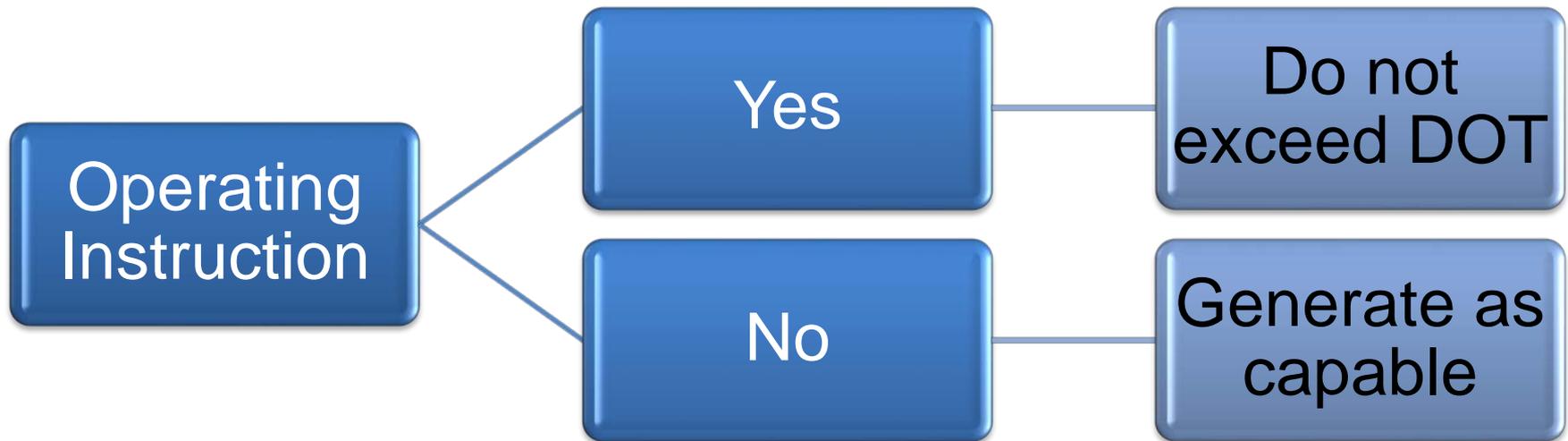
Resources must not exceed DOTs until the Operating Instruction is changed.

*Operating Instructions have NERC compliance implications

With DOT Tariff Clarification Project, two new flags introduced in new ADS Replacement

- Operating Instruction Flag
 - Indicating an Operating Instruction is in place
- Follow DOT Flag
 - Indicated scenario where EIR not to exceed DOT
 - Can flag in two scenarios:
 - Flags for **market optimization** Resource DOT < Forecast (i.e Negative SUPP) *OR*
 - When an Operating Instruction in place

Under challenging local or system conditions, additional needed control of resources can trigger an operating instruction by the ISO operator



Operating Instruction issued and sent from RTM to ADS

Operating Instruction placed into Real Time Market by Operator

- **Resources**

- Individual EIR resources
- EIRs by group (Trans Access Charge Area/Trading hub)
- All EIRs in system (CAISO BAA)

- **Reason**

- Congestion
- System Reliability
- Over generation

- **Start/End Time**

Operating Instruction Received by ADS

- **New Instruction Type: OP Instruction**
- **Message Notification/Pop up in UI**
 - Will remain until acknowledged
 - Acknowledgement recorded
 - If any changes are made, this would re-appear
- **Operating Instruction Flag**
- **Reason**
 - Congestion
 - System Reliability
 - Over generation
- **Start Time**
- **End Time**

h	Opr Ins Start Time	Opr Ins End Time	Opr Ins Reason	Opr Ins Flag	P
0					1

Note: API v8 will have similar notification type with these data fields

Operating Instruction Example

Operator identifies operational issue on Resource A at 0850 PPT and issues an operating instruction to the resource through 1900 PPT.

SC for Resource A sees the operating instruction in the ADS UI, the data populates to the Opr Ins Start Time, Opr Inst End Time and also sees the Opr Inst Flag to Y and Follow DOT Flag.

Valid	Resource ID	Res Type	Opr Ins Start Time	Opr Ins End Time	Opr Ins Reason	Opr Ins Flag	Follow DOT Flag
		GEN					
		GEN					Y
		GEN	08:50	19:00	Congestion	Y	Y
		GEN					

Instruction grid after selecting resource in the Resource data grid

Instructions - Resource ID:

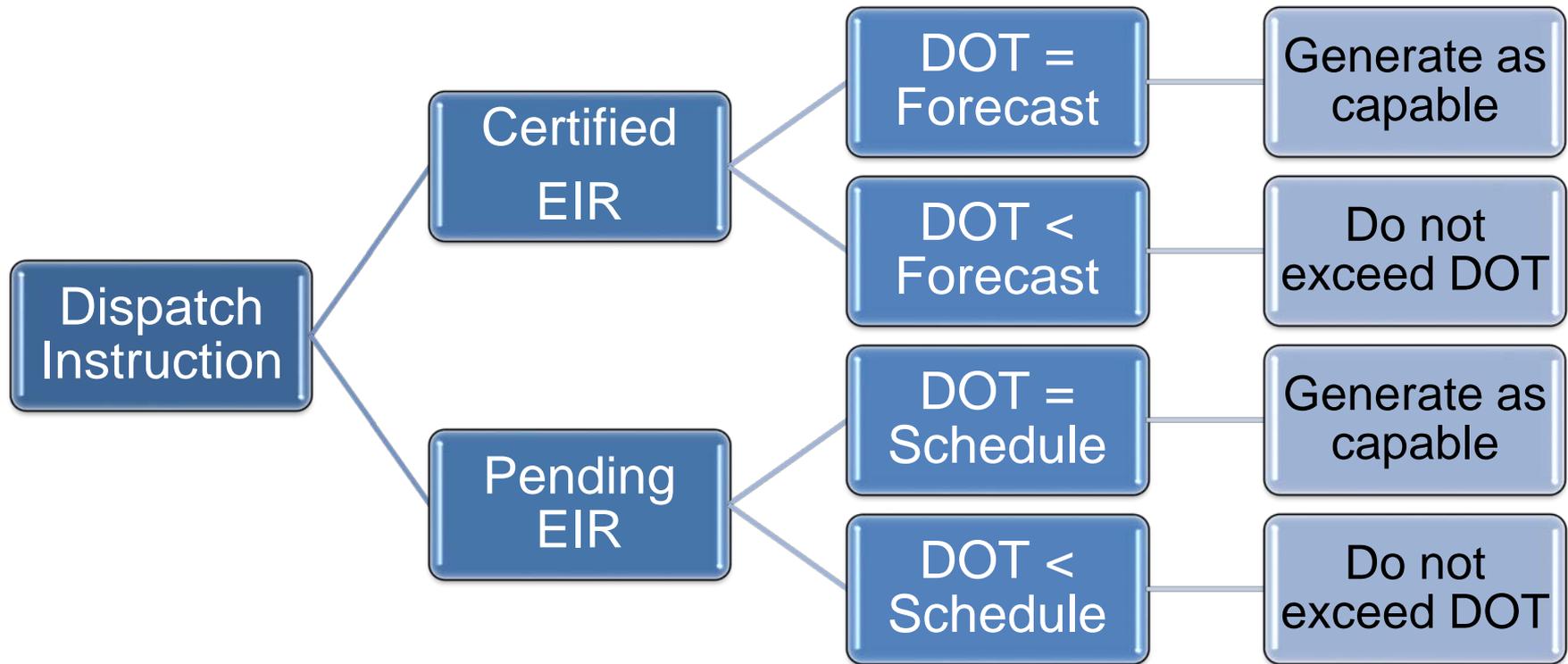


The screenshot shows a table with the following columns: Valid, Instruction Type, Accept DOT, Accept Status, Award MW, ED Energy Code, Instr MW, Min Accept, Self Sched MW, Start Time, End Time, and Prev Goto. The first 11 rows have 'DOT' in the Instruction Type column. The 12th row is highlighted in red and contains 'OP Instruction' in the Instruction Type column. A callout box with a red border and an arrow pointing to this row contains the text 'Instruction Type: OP Instruction'.

Valid	Instruction Type	Accept DOT	Accept Status	Award MW	ED Energy Code	Instr MW	Min Accept	Self Sched MW	Start Time	End Time	Prev Goto
	DOT										
	DOT										
	DOT										
	DOT										
	DOT										
	DOT										
	DOT										
	DOT										
	DOT										
	DOT										
	DOT										
	OP Instruction								08:50	19:00	

*If you registered for Market Sim participation, validate viewing this data as part of structured scenario
Data supported in new ADS UI & ADS v8 API*

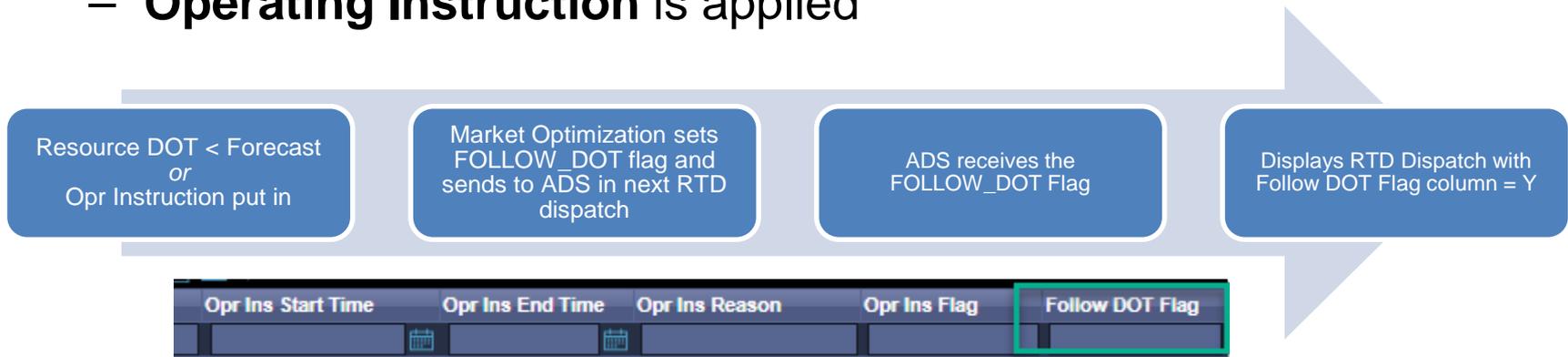
Under normal system conditions, market dispatch is able to control supply/demand balance (Tariff section 34)



See Tariff Section 34, Appendices for **Market Operations BPM section A.12.1** and Market Operations BPM sections 7.2.3.4 and 7.8.3.1.3 for more information about dispatch instructions and the SUPP component of the DOT

Follow DOT Flag (previously described as EIR flag)

- FOLLOW_DOT flag is set by the **market optimization**
 - **When resource DOT < Forecast** due to reasons such as (but not limited to):
 - Congestion
 - Overgeneration
 - **Operating Instruction** is applied



Note: if for some reason, the resource DOT < Forecast due to an outage or de-rate, it is not expected for the FOLLOW_DOT flag to be set

*See Tariff Section 34, Appendices for **Market Operations BPM section A.12.1** and Market Operations BPM sections 7.2.3.4 and 7.8.3.1.3 for more information about dispatch instructions and the SUPP component of the DOT*

Example 1

Scenario for RES_A_SLR	
Actual Output	17 MW
Market DOT	15 MW
Forecast	15 MW
Current time	0850 PPT

RES_A_SLR is generating as capable. Operator recognizes an operational system condition and issues an operating instruction for Resource A from 0850 -1900 PPT via the market UI due to Reason: Congestion

What does ADS UI show in the next RTD Dispatch?

Example 1

Scenario for RES_A_SLR	
Actual Output	17 MW
Market DOT	15 MW
Forecast	15 MW
Current time	0850 PPT

What does ADS UI show?

- Operating Ins column = Y
- Opr Ins Reason column: Congestion
- Opr Ins Start time column: 08:50
- Opr Ins End time column: 19:00
- Follow DOT Flag: Y

Valid	Resource ID	Res Type	Opr Ins Start Time	Opr Ins End Time	Opr Ins Reason	Opr Ins Flag	Follow DOT Flag
		GEN					Y
		GEN	08:50	19:00	Congestion	Y	Y
		GEN					

Example 2

Scenario for RES_B_SLR	
Actual Output	20 MW
Market DOT	15 MW
Forecast	20 MW
Current time	0950 PPT

In this case, RES_B_SLR is generating as capable, and operational issues not observed by the operator. Market has began to economically dispatch $DOT < Forecast$ due to congestion.

***What does ADS UI show in the next RTD Dispatch?
Currently, what do you see in ADS?***

Example 2

Scenario for RES_B_SLR	
Actual Output	20 MW
Market DOT	15 MW
Forecast	20 MW
Current time	0955 PPT

What does ADS UI show?

- Operating Ins column = [Blank]
- Opr Ins Reason column: [Blank]
- Opr Ins Start time column: [Blank]
- Opr Ins End time column: [Blank]
- FOLLOW_DOT Flag: Y

Valid	Resource ID	Res Type	Opr Ins Start Time	Opr Ins End Time	Opr Ins Reason	Opr Ins Flag	Follow DOT Flag
		GEN					
		GEN					Y
		GEN	08:50	19:00	Congestion	Y	Y
		GEN					

Example 3

Scenario for RES_C_SLR	
Actual Output	20 MW
Market DOT	15 MW
Forecast	15 MW
Current time	1010 PPT

RES_C_SLR is generating as capable. Forecast and Market DOT are both 15 MW. No operational issues identified, no operation instruction issued.

What is seen in the ADS UI?

Example 3

Scenario for RES_C_SLR	
Actual Output	20 MW
Market DOT	15 MW
Forecast	15 MW
Current time	1010 PPT

What does ADS UI show?

- Operating Ins column = [Blank]
- Opr Ins Reason column: [Blank]
- Opr Ins Start time column: [Blank]
- Opr Ins End time column: [Blank]
- FOLLOW_DOT Flag: [Blank]

Valid	AGC	Res Type	Resource ID	Config ID	DOT Type	SC ID	RT Prev DOT	RT DOT	RT DOT Delta	Current DOT Delta	DOT Start Time	DOT End Time	AS Test Start Time	Opr Ins Start Time	Opr Ins End Time	Opr Ins Reason	Opr Ins Flag	Follow DOT Flag	
■	No	GEN			DOT		16.90	16.90	0.00		21:47								
■	No	GEN			DOT		33.70	33.70	0.00		21:47								
■	No	GEN			DOT		28.70	28.70	0.00		21:47								
■	No	GEN			DOT		61.30	61.30	0.00		21:47								

ADS Replacement Phases – UI and API v8 releases

Market Simulation

- July 27-September 4, 2020
- MAPStage Environment with Structured Scenarios
- *MAPStage Environment will remain available until Nov 4*

Parallel Operations

- September 1 - September 30
- Stage Environment, streaming Production data
- *Stage Environment will remain available until Nov 4*

Production Go-Live!

- October 1
- Production Environment
- *Current (old) ADS will be decommissioned on Feb 1st*

For more information on the transition, refer to ADS CPG from July 9, 2020
www.caiso.com >> Stay Informed >> Meetings >> Customer Partnership Group >> [ADS 7/9/2020](#)

Cutover activities at a glance by date and environment

Date	Activity	MAPStage Environment	Stage Environment	Production Environment
7/27/2020	New Code Available	New ADS UI ADS API V8 Begin Market Sim	-	-
7/27/2020	Hard Cut-Over *Decommissioning	ADS API V6	-	-
09/01/2020	New Code Available	-	New ADS UI ADS API V8 Begin Parallel Operations	-
09/01/2020	Hard Cut-Over	-	ADS API V6	-
09/04/2020	Milestone	End Market Sim	-	-
09/30/2020	Milestone	-	End Parallel Operations	-
10/1/2020	New Code Available	-	-	New ADS UI ADS API V8 Production Go-Live
10/1/2020	Hard Cut-Over *Decommissioning	-	-	ADS API V6
11/04/2020	Hard Cut-Over *Decommissioning	Current ADS Delphi Client	Current ADS Delphi Client	-
02/01/2021	Hard Cut-Over *Decommissioning	-	-	Current ADS Delphi Client

Stay tuned in the Release User Group- DOT Tariff Clarification Snapshot

Fall 2020 – Dispatch Operating Target Tariff Clarification

Project Info	Details/Date
Application Software Changes	<p>Scope: Allow Energy Intermittent Resources (EIRs) to automate their response to operational instructions that require the resource not to exceed their Dispatch Operating Target.</p> <p>Impacted Systems: RTM: Operator can select EIR resources, system to send Operating instruction Flag to ADS ADS: Receive Operating instruction flag for EIRs. Broadcast message to EIRs operator.</p>
BPM Changes	Market Instruments Market Operations
Tariff Change	Changes tariff language from “Operating Order” to “Operating Instruction” in multiple sections.

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Jul 26, 2018	✓
External BRS	Posted External BRS	Dec 26, 2018	✓
	Posted revised External BRS	Apr 30, 2020	✓
Config Guides	Design review - BPM and Tariff SMEs	N/A	
Tech Spec	Publish Technical Specifications	May 22, 2020	✓
Tariff	Draft Tariff	Sep 04, 2018	✓
	File Tariff	Oct 29, 2018	✓
BPMs	Post Draft BPM changes	Jul 20, 2020	
External Training	Deliver External Training	Jul 16, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Dispatch Operating Target Tariff Clarification	Oct 01, 2020	

Online References

- Training Webinars (DOTT & ADS Rep)
 - www.caiso.com → Participate → Learning Center → New Modules
- Project information - www.caiso.com → Stay Informed → Release Planning
 - [Business Requirements Specification](#) 1.1 (BRS 1.1)
 - [Market Simulation Structured Scenarios](#)
- Stakeholder Meetings/Materials (caiso.com → Stay informed)
 - Stakeholder [process](#) for this project, including initial DOT Tariff Clarification [Training](#)
 - [Release User Group](#) (Ongoing)
 - [ADS Customer Partnership Group](#) (July 9th, 2020)
 - [Technical User Group](#) (May 26, 2020) and ongoing
- API information/Technical Specifications
 - Developer.caiso.com >> Apps >> ADS
- Rules & procedures
 - Tariff: www.caiso.com → Rules → Regulatory
 - Business Practice Manuals: www.caiso.com → Rules → Business Practice Manuals



For more detailed information on anything presented, please
visit our website at:

www.caiso.com

Or send an email to:
CustomerReadiness@caiso.com

Q&A from the session:

- Q: If I am interested in participating in Market Simulation, but did not register in time – how can I find out if I can register late?
 - Please email marketsim@caiso.com to find out if you may still register to participate in Market Simulation.
- Q: I currently don't use ADS, but I'm wondering how to manage changing DOTs through the full Operating Instruction window for DOTs that may change every 5 minutes over the course of many hours
 - You may look into accessing ADS to view DOTs. The ADS instruction panel however, will only show your next 5 min DOT. Resource Owners/operators should work with your Scheduling Coordinator to determine how to best manage not exceeding the DOT during these time frames. Also, please note the forecast is available on OASIS.
- Q: Would an EIR resource see a Negative Supp to follow DOT based on 3 scenarios?
 - Two main scenarios, either based on market optimization or Operating Instruction. To reiterate though on the flag functionality - if the market **optimization** results in $DOT < Forecast$, then the Follow DOT flag column will display Y in ADS. If an operating instruction is issued through the interface, this will show both the OI & the Follow DOT flag columns as Y in ADS.
- Q: Will ADS continue to give us a visual curve regarding DOT instructions
 - The Trajectory plot is still provided in new ADS UI. Please refer to Part 1 training for more information on the new UI.