Price Responsive Demand

Real-Time Operational Expectations

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Acronyms

ARD	asset-related demand	**PRD**	price-responsive demand	
BL	baseline	**RT**	real-time	
DA	day-ahead	**RTU**	remote terminal unit	
DDE	demand-designated entity	**TMNSR**	10-minute nonsynchronized (nonspinning) reserves	
DDP	desired dispatch point	**TMOR**	30-minute operating reserves	
DRR	demand-response resource	**TMSR**	10-minute synchronized (spinning) reserves	
ED	electronic dispatch	**UCM**	unit control mode	
NCPC	Net Commitment-Period Compensation			

Purpose

Describe the interactions and expectations associated with demand-designated entities (DDEs) when dispatching demand-response resources (DRRs) during real time operations

Topics

- DRR Communication Paths
- Dispatch Message Types
- Expectations for Response to Normal Dispatch
- Expectations for Response to Emergency Dispatch
- DRR Resubmittals (Redeclarations)
- DRR Startup and Shutdown Scenarios
- DRR Audit Communications
- Question & Answer Session
  - Focus: real-time system operations

Communication Paths

ISO-NE ⟷ DDE

Communication Paths

- ISO-NE ↔ DDE
  - Electronic dispatch (ED) through remote terminal unit (RTU)
  - Voice communications through
    - Automatic ringdown (ARD) *or*
    - Dedicated 24/7 phone numbers
- Phone numbers are identified during DDE registration
- DDE should inform the ISO control room of communication issues in a timely manner

Dispatch Message Types

Dispatch Message Types

Purpose

- Displayed on the RTU
- Provide additional context to the desired dispatch point (DDP)

Message Types

- Normal
- Emergency
- Startup
- Shutdown

Normal Dispatch Message

- Not an emergency
- You will see this type of message most of the time

Emergency Dispatch

Definition of Emergency

> "…an abnormal system condition on the bulk power systems of New England or neighboring control areas requiring manual or automatic action to maintain system frequency, or to prevent the involuntary loss of load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property…"

Tariff Section I.2.2

Startup and Shutdown Message Types

Startup

- Instruction to start reducing load
- Electronic dispatch instruction applicable to fast-start DRRs

Shutdown

- Instruction to stop reducing load
- Electronic dispatch instruction applicable to fast-start DRRs

Responding to Normal Dispatch Messages

Normal Dispatch Instruction Response

- Transmitted electronically to each DDE every 5 minutes or less
  - Frequency of transmission depends on system conditions

- Manual acknowledgement is **not** required
  - DDE shall comply with normal dispatch instruction in accordance with offer data without delay

Fast-Start DRR Startup & Shutdown Message Response

DDE shall acknowledge within 60 seconds

- Requires physical action by DDE staff

- ISO may waive requirement on a case-by-case basis

- Indicates intent to immediately comply

Do not restore load **without first receiving a reduced dispatch message or a shutdown message**

Non-Fast-Start DRR Commitment

Non-fast-start DRRs are committed in:

- **Day-Ahead Energy Market** or

- **Real-Time Energy Market** based on system conditions

Non-Fast-Start DRR Startup Message Response
DA Commitment

- Call from the ISO control room to confirm the **DA award** and time when the DRR will start reducing and release for dispatch
- Will normally occur after the **DA** is approved but prior to the notification time window (normally between 1900-2400)

Non-Fast-Start DRR Startup Message Response
RT Commitment

ISO control room will contact the DDE as soon as the **RT commitment** has been issued to discuss

- Commitment
- Time to start reducing
- Release for dispatch
- Expected commitment window
  - How long the DRR will be reducing

Non-Fast-Start DRR Shutdown Message Response

Once non-fast-start DRR has reached the end of DA or RT award and the DRR is no longer needed

- DRR will be released from dispatch
  - Sometimes referred to as "released for shutdown"
- Normally communicated electronically
- Indications on the DDE end:
  - DDP = 0 MW
  - Unit control mode (UCM) →UCM2
    - Indicates that the DRR can stop reducing

> ⚠️ **Do not restore load without first receiving a reduced dispatch message or a shutdown message**

Responding to an Emergency Dispatch

Emergency Dispatch Instructions

- Issued when an emergency requires immediate response by DRRs
- Transmitted electronically every 5 minutes or less
- DDE must acknowledge message within (60) seconds of receipt
- DDE shall respond (follow instruction) without delay

Fast-Start DRR Emergency Dispatch

Fast-start DRRs called on to interrupt load

- Receive emergency message + DDP instead of a start-up message
  - Dictates desired response from DRR
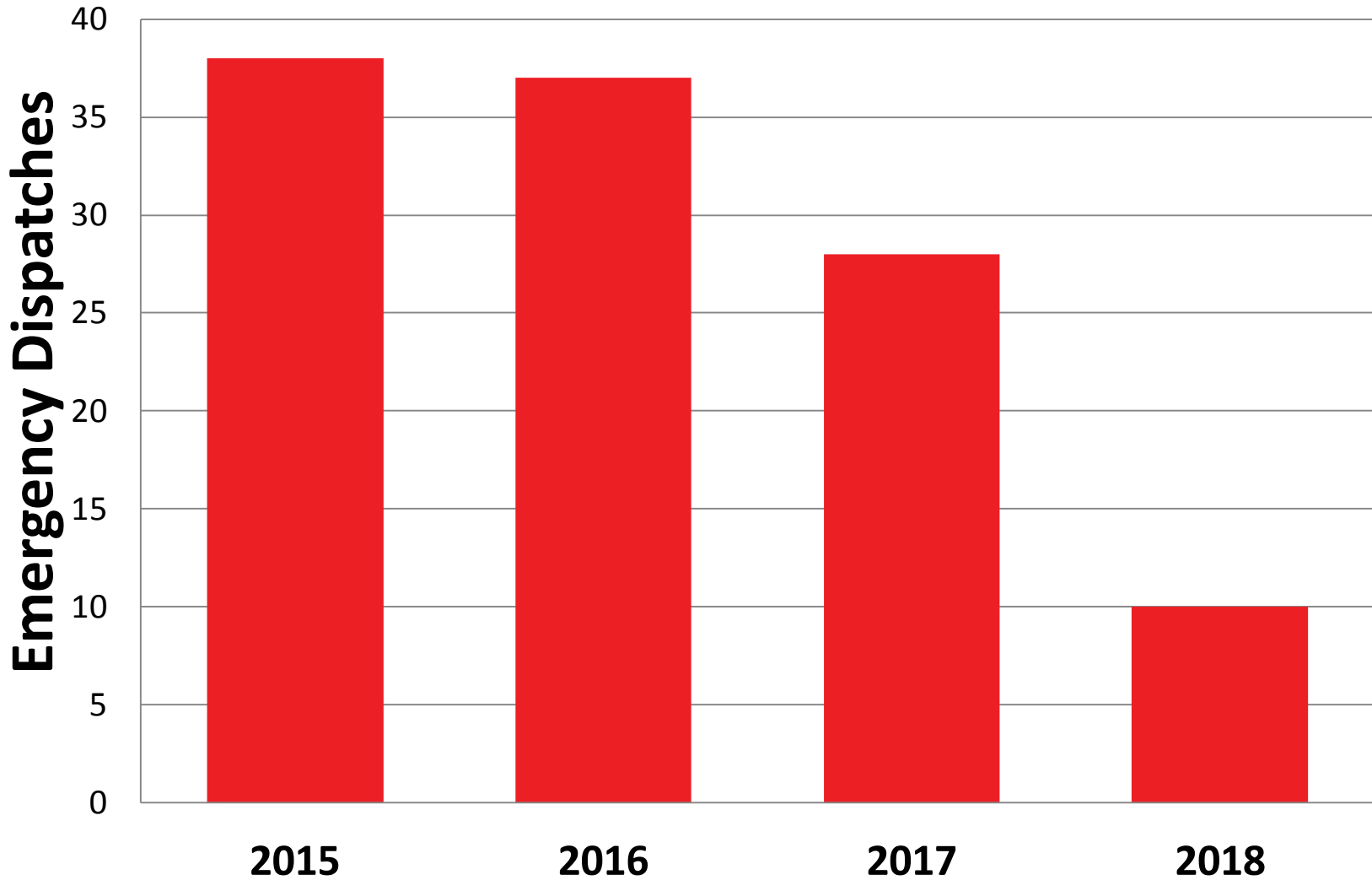- DDE follows emergency dispatch in accordance with offer data

Do not restore load without first receiving a reduced dispatch message or a shutdown message

Limit phone communications to questions about dispatch instructions only

Emergency Dispatch History

Does this happen often?

All Dispatch Instructions

Normal* and *Emergency

DDE shall

- Notify ISO as soon as possible if it cannot control demand in accordance with offer data

- Use its best efforts to forecast DRR capabilities based on daily local conditions and submit parameters appropriately

Precedence of Communication

> ⚠️ **Verbal communication from ISO takes precedence over ALL other forms of communication**

- If a verbal dispatch is issued, control room operators will inform the DDE when they should go back to following the electronic DDP

- If warranted an Emergency Notification System (ENS) message may be issued, communicating any technical issues with electronic dispatch
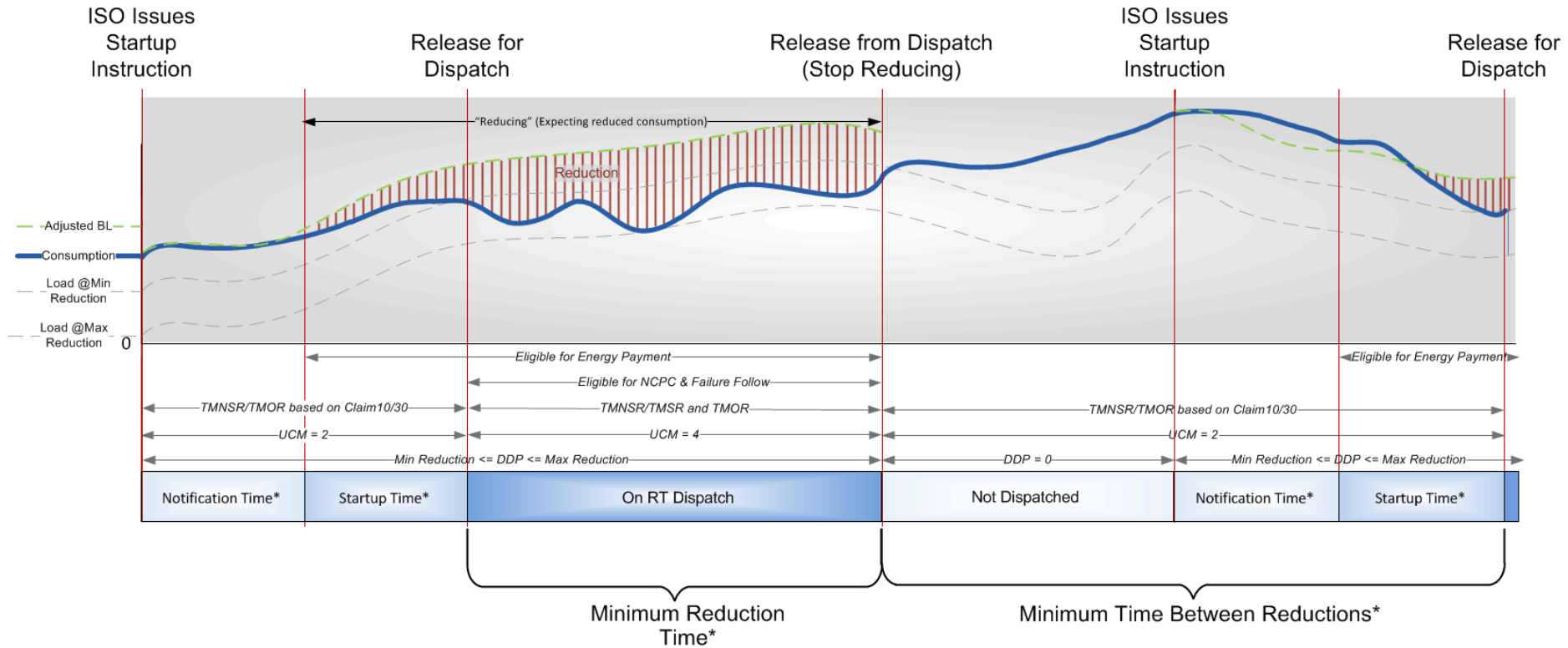
DRR Real-Time Offer Resubmittals

Real-Time Offer Resubmittals

- DRR offer parameters can only be changed in eMarket
  - Must meet all applicable market rules for intraday hourly overrides for current and future hours
- ISO control room operators do not have the ability to change any of the DRR offer parameters
- If a DRR becomes unavailable and the applicable offer parameters can't be update in eMarket, due to technical issues, the ISO control room should be informed as soon as possible
- If necessary, the ISO operators have the ability to disable the DRR, which is the same as the DRR being bid unavailable
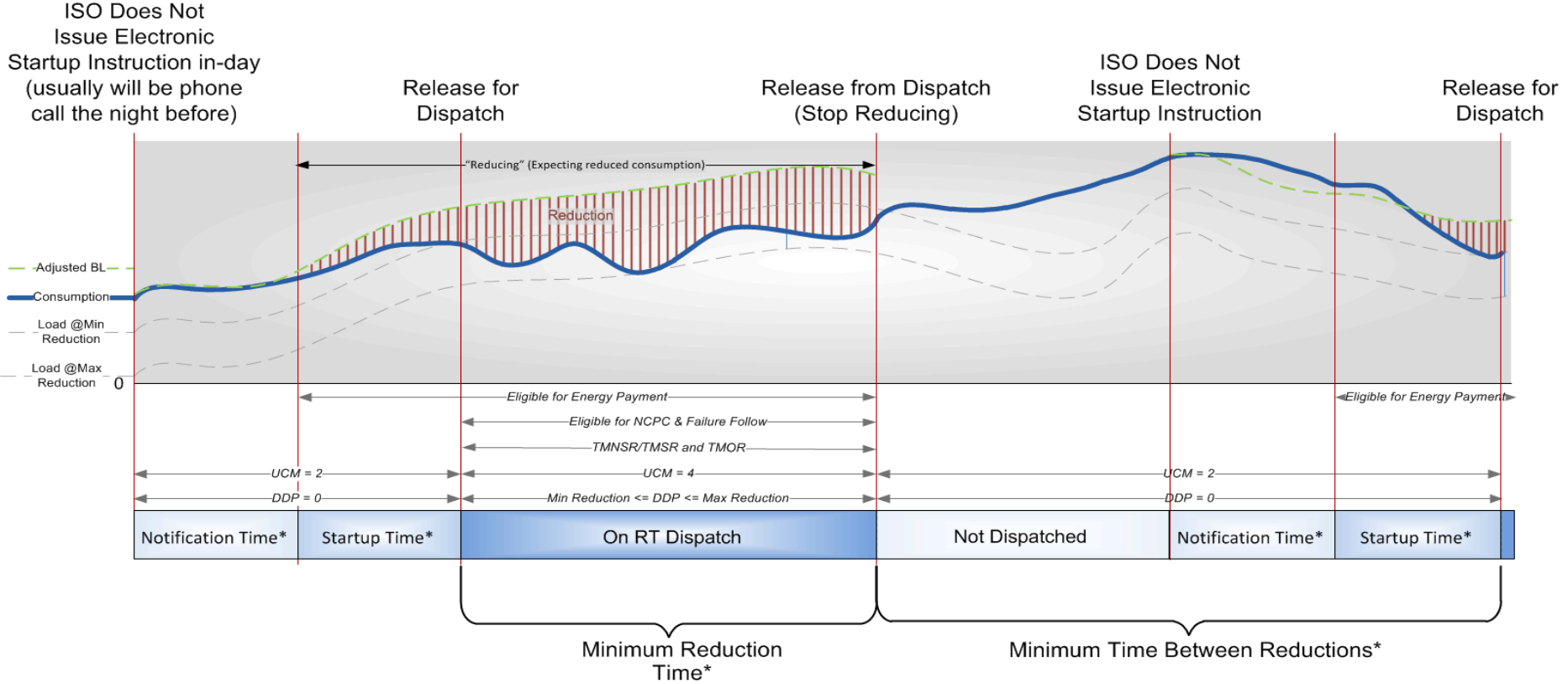
DRR Startup and Shutdown Scenarios

Fast-Start DRR Startup and Shutdown Scenario

Non-Fast-Start DRR Startup and Shutdown

Communications During a DRR Audit

Fast-Start DRR Audit Communications

- Issued and terminated electronically
- No verbal communications will occur between the DDE and ISO control room operators

Offline Non-Fast-Start DRR Audit Communications

If the non-fast-start DRR is offline and scheduled for a claim capability audit (CCA) the DDE will be contacted to discuss the following information:

- Identify that a claim capability audit is being performed
- Time expect to start reducing
- Expectation to go to max reduction
- Start time of the CCA
- Duration of the CCA (1 hour for DRRs)

Online Non-Fast-Start DRR Audit Communications

- If the non-fast-start DRR is already online no verbal communications are expected except if the audit results in an extension to the pre-existing commitment decision

DRR Audit Termination

In the event ISO determines that a DRR audit needs to be terminated early the DDE will be contacted

Summary

Summary

- The DDE is responsible for ensuring all DRR offer parameters stay up to date to reflect current capabilities to reduce load
- If a DRR is not capable of reducing load in accordance with its offer data, the DDE shall notify the ISO as soon as practicable
- During emergency dispatch, voice communication to ISO should be limited to clarifying the dispatch instructions only
- ISO control room operators cannot redeclare any DRR operating parameters
  - Resubmittals need to occur in eMarket
- Verbal dispatch instructions take precedence over all other forms of communication

More Information

- OP-14: Technical Requirements For Generators, Demand Response Resources, Asset Related Demands, and Alternative Technology Regulation Resources
- Resource Operator OP-14 Training (ROOT [*formerly SROT/DROT*]) Announcement

Price-Responsive Demand Training

Release Date	Training Title
Oct 23, 2017	Demand Resources Working Group: Fully Integrated Price Responsive Demand Presentation
Nov 7, 2017	Price-Responsive Demand Overview
Feb 28, 2017	Energy Market Offers & Asset Management
March 8, 2018	Q1 Settlements Forum
March 22, 2018	Demand Response Registration
March 27, 2018	Demand Response Auditing
March 29, 2018	Passive Demand Resource Registration and Auditing
Today	Real-Time Operational Expectations

Question and Answer

Customer Support Information

Ask ISO (preferred)

- Self-service interface for submitting inquiries

- Accessible through the SMD Applications Homepage

- Requires a valid digital certificate with the role of Ask ISO/External User (Contact your security administrator for assistance)

Other Methods of Contacting Customer Support		
Method	**Contact Information**	**Availability**
Email	custserv@iso-ne.com	Anytime
Phone*	(413) 540-4220	Monday through Friday 8:00 a.m. to 5:00 p.m. (EST)
Pager (emergency inquiries)	(877) 226-4814	Outside of regular business hours

* *Recorded/monitored conversations*