

# **Emergency Demand Response Program**

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#### **Demand Response In-Depth**

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### **Session Objectives**

- Define the purpose of Emergency Demand Response Program (EDRP)
- Identify program eligibility requirements
- Summarize the process for enrollment
- Define and explain how Customer Baseline Load (CBL) is calculated
- Describe the method for measuring and reporting performance
- Explain the event notification process and customer response to an event
- Describe the reporting process for Event Response details
- Describe verification process for CBL after an event
- Describe settlement for an EDRP Event Response

### **Emergency Demand Response Program**



- Part of NYISO's reliability-based Demand Response programs
- Load reduction through interruptible loads, or loads with a qualified behind-the-meter Local Generator, or both
- Load reduction during a reliability event is <u>voluntary</u>
- Enrolled by Curtailment Service Providers (CSP)
  - Serves as interface between the NYISO and resource

### Purpose - Emergency Demand Response Program



<u>Purpose</u>: Provide load reductions in response to NYISO instructions for a discrete period of time, to supplement generation when Operating Reserves are forecast to be short or when there is an actual Operating Reserve Deficiency or other system emergency

### **Operating Reserves**



- Generation and/or Demand Response available to supply Energy or reduce demand in the event of a real time power system Contingency
  - Operating Reserves must be available from Generators or Demand Side Resources located within the NYCA and within specific regions in order to respond adequately to contingencies
- The NYCA's total Operating Reserve must be greater than or equal to 1<sup>1</sup>/<sub>2</sub> times the single largest contingency (in MW)
- NYISO procures 2620 MW of Operating Reserves every operating day
  - 2620 MW = 2 x single largest contingency (1310 MW)

2620 MW NYCA Operating Reserves

### **Operating Reserve Shortage**



- Failure to maintain the minimum Operating Reserves requirement in the day-ahead forecast or in real time (in-day)
  - As defined in the NYISO Emergency Operations Manual
  - Determined NYCA wide as well as at a locational level
- NYISO calls for activation of EDRP resources either NYCA wide or at a zonal level to provide load reduction



### NYISO can deploy EDRP

- a) NYCA wide
- b) At a zonal level
- c) Both



### Load reduction for EDRP resources <u>cannot</u> be provided by:

- a) Interruptible loads
- b) Loads with a qualified behind the meter local generator
- c) Loads outside of NYCA
- d) Resources that use both interruptible load and a local generator



## **Program Eligibility Requirements**

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# Eligibility Criteria – Curtailment Services

- For EDRP, wholesale electricity market participants called the Curtailment Service Providers (CSPs) enroll retail end users who provide load reduction
- Four classes of CSPs
  - 1. Load Serving Entities (LSEs)
  - Currently serving retail end-users capable of load reduction, or
  - Enrolls another LSE's load solely for participating in EDRP
  - 2. Individual retail customers enrolled who take service directly from the NYISO to supply its Load in NYCA
  - 3. NYISO approved Curtailment Customer Aggregators of retail end users capable of Load Reduction
    - Aggregators can join NYISO as a NYISO Limited Customer
  - 4. NYISO approved Curtailment Program End Use Customers (EUC), end use customers whose Load is normally served by an LSE but who participate directly with the NYISO solely for purposes of EDRP.
    - An EUC must join the NYISO as a NYISO Limited Customer



### **Minimum Qualifications for CSPs**

To serve as a CSP, an entity must:

- Be a NYISO Customer, or a NYISO Limited Customer
- Be able to cause a Load Reduction from the NYS Transmission System and/or local distribution system at direction of NYISO
- Be capable of reducing a minimum of 100 kW of NYCA Load in a single Load Zone
- Be capable of responding within two hours of notice from the NYISO
- Follow enrollment procedures defined in the EDRP manual
- Comply with metering requirements set forth by NYISO and provide hourly interval metering data to validate performance

# Eligibility Requirements – Individual

- Individual Demand Side Resources can enroll in either EDRP or the SCR program-, but not both
- Individual Demand Side Resources cannot enroll the same metered load with more than one CSP
- Local Generators that operate to fully serve their Load do not qualify for EDRP
- Demand Side Resources using a Local Generator to provide load relief through EDRP are subject to all applicable environmental rules and regulations
  - Demand Side Resources not complying with environmental requirements will not be permitted to participate in the EDRP

### **Metering Requirements**



- Registered EDRP resources typically require an hourly interval billing meter to report event data and measure performance
- Interval metering devices could be
  - Hourly Revenue-grade, or
  - Non-revenue-grade meters that meet the ±2% accuracy threshold
- Resources that use alternate non-interval meter based metering standards, to measure performance, may participate in EDRP through the Small Customer Aggregation (SCA) program



 A CSP must identify a "Response Type" for each EDRP resource it enrolls in DRIS based on

(i) How the EDRP resource reduces its load during an event, and(ii) The meter configuration of the EDRP resource's facility

# Metering Configuration Requirements

Response Type	Type of Load Reduction	Meter Configura Loa		
C - Curtailment	Curtailing the resource facility's load	Entire facility's net meter data	NYS Transmission and/or Local Distribution Systems Net Meter Load	Meter(s) used to report meter data into DRIS as evidence of Load Reduction
G - Generator	Use of a Local Generator	Local Generator's meter data	NYS Transmission and/or Local Distribution Systems Net Meter Load Local Generator	



## Small Customer Aggregations (SCA)

- The Small Customer Aggregation program allows Demand Side Resources to participate in EDRP using alternate non-interval meter based metering and performance measurement standards
  - NYISO review and approval required
- Small customer aggregations must be at least 0.5 MW per load zone
- Approval process includes the development, and NYISO approval of, a sampling plan or measurement methodology that assigns an initial estimate of response per site in order to drive the sample size

### SCA – Performance Measurement Methods

- Proposals for measuring SCA performance can involve:
  - Approved whole-premises kW metering devices on a sample of resources
  - Approved end-use devices or process kW metering devices on a sample of resources
  - Provision for supplying verifiable behavioral actions, equipment operating logs, or other data that is deemed to be sufficient, indicating the load level the customer would have otherwise consumed, but for the EDRP event participation
  - Other measurements systems that indicate load level the customer otherwise would have consumed, but for the EDRP event participation

### SCA – Alternate Methods for Performance Measurement





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### SCA – NYISO Review and Approval Process

- Each initial proposal or significant revision for SCAs will be reviewed by NYISO and the Price Responsive Load Working group
- Must be approved by a majority of the Chairs and Vice-Chairs of the Management Committee and Business Issues Committee and the Chairman of the Price Responsive Load Working group
- The Small Customer Aggregator is responsible for all costs associated with developing and administering the alternate performance methodology





# Can an End Use Retail Customer providing load reduction be their own CSP?



### Metering options for EDRP resources could include:

- a) Revenue grade interval meter
- b) Non-revenue grade interval meters meeting ±2% accuracy

c) Alternate, non-interval based metering and performance measurement standards that are reviewed and approved by NYISO (SCA)

d) Any of the above



## **EDRP – Enrollment Process**



### **Enrollment Process - Overview**

- Demand Side Resources must be enrolled for participation in EDRP through the NYISO Demand Response Information System (DRIS) by the Curtailment Service provider (CSP)
- Before the CSP can enroll EDRP resources in DRIS:
  - CSP must be registered in the NYISO MIS as eligible to participate in EDRP and reflect a Qualified MIS status in DRIS
    - To register as a Curtailment Service Provider (CSP), the organization must be
      - $-\,$  A NYISO Customer, or
      - A NYISO Limited Customer
- List of documents required for a CSP to complete the NYISO registration process found in the Member Relations Application to Register, Annex RR

# EDRP Resource Enrollment in DRIS



- CSPs must set up and assign one or more Admin Contacts, and one or more Event-Responder Contacts in DRIS before individual resources can be enrolled
- CSPs must obtain authorization from each EDRP Resource in order to enroll the resource in the EDRP
  - CSP ensures compatibility with other Demand Response programs before enrolling resources

# EDRP Resource Enrollment in DRIS



- The CSP enrolls resources every Capability Period in accordance with the applicable time frame for resource open enrollment provided in the DRIS Event calendar
  - Summer Capability Period
    - May through October
  - Winter Capability Period
    - November through April
- Any changes to enrollment information can be made during the monthly open enrollment period, such as separating a resource from a CSP's portfolio
- Resources must be re-enrolled in DRIS every capability period for participation in EDRP

### **EDRP Enrollment-DRIS Event Calendar**



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Market Training



### **EDRP Enrollment in DRIS**

- Resource enrollment data can be imported into DRIS as either a .csv or an .xls file
- Information required for enrolling a resource in DRIS include:
  - Resource ID (assigned by the NYISO)
  - Resource name
  - TO account number (assigned by the transmission owner)
  - Load Zone where resource is located
  - Transmission owner Abbreviation
  - Address
  - Generator Type (for resources that are Response Type G and B) (optional)
  - Generator Name Plate Reading (for resources that are Response Type G and B) (optional)



### **EDRP Enrollment in DRIS**

- CBL method
  - A for Average day
  - W for Weather Sensitive
- Response Type (C,G or B)\*
- Subscribed Load (Curtailment Declared Value in kW/h)
- Subscribed Gen (Generation Declared Value in kW/h)

	A	В	С	D	E	F	G	Н		J	K	L	M	N	0	Р
1	Effective Date	)=														
2	Program=EDF	RP&														
												Generator				
			TO		Transmission							Name				
		Resource	Account		Owner					Zip	Generator	Plate	CBL	Response	Subscribed	Subscribed
3	Resource ID	Name	Num	Zone	Abbreviation	Street	Street 2	City	State	Code	Type ID	Rating	Method	Туре	Load	Gen

\* CSPs enrolling a Response Type G or B resource must certify that the Local Generator complies with all federal, state, and local laws and regulatory requirements with respect to the operation of the Local Generator, and must provide documentation of compliance upon request of the NYISO

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### **EDRP Enrollment Status**

- Status categories displayed for EDRP resources once the enrollment period closes:
  - Approved
    - Resource is enrolled by NYISO
  - Separated
    - When resource is no longer part of the CSP's portfolio
    - Resource can be separated by the CSP or NYISO
    - Once separated, the resource cannot participate unless it is re-enrolled by the same or a different CSP, via an import file
  - Denied

### **EDRP Enrollment Status**



- Pending/Under Review
  - When resource enrollment is pending validation by NYISO
  - Resources are placed in this status automatically by DRIS if the information in any of the Monitored fields has changed from the last enrollment period to the current

Fields Monitored for both SCR and EDRP Enrollments						
Zone						
Transmission Owner						
Transmission Owner Account Number						
Resource Facility Street						
Resource City						
Resource Zip Code						
Response Type*						

- Once NYISO requested documentation has been received and reviewed, the resource status could be changed by the NYISO to approved or denied
- If denied, the CSP can re-enroll the resource in the following month's enrollment open period or the same month if the open enrollment period has not ended



### **EDRP Enrollment – Summer 2017**



As reported in NYISO's semi-annual report to FERC (June 1, 2017: Docket # ER01-3001-000).

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### How often does each resource need to be enrolled into DRIS?

- a) Every capability year resource wants to participate in EDRP
- b) Every capability period resource wants to participate in EDRP
- c) Once. The first time the resource starts participating in EDRP
- d) Every time a resource changes from one CSP to another
- e) B and D



# Baselines for Performance Measurement



### **Customer Baseline Load ( CBL)**

- Customer Baseline Load (CBL)
  - Baseline used for EDRP resources, also used for DADRP resources and SCR energy calculations to calculate energy response during a demand Response event/test
  - Reference period used: Highest five consumption days of last ten "like" days where DR event or schedule did not occur
- CBL Calculation and Response Type:
  - Response type B and C: Load supported by any behind the meter Local Generator or supply source, is not included in the metered Load used to calculate resource CBL
  - Response type G: Base-load portion of generation is excluded from actual performance of generator used in CBL calculation



### Selecting a CBL method

- CBL method:
  - A for Average day
  - W for Weather adjusted
- The CSP selects the CBL formula when it enrolls a resource with the NYISO in the EDRP
  - The choice of CBL becomes effective when enrollment is accepted by NYISO
- CSP may elect either Average Day CBL or Weather Adjusted CBL formula
- Change in the CBL formula can be made during the next open enrollment period


SUN	MON	TUE	WED	THU	FRI	SAT
Jun 8	Jun 9	Jun 10	Jun 11	Jun 12	Jun 13	Jun 14
	Day 30	Day 29	Day 28	Day 27	Day 26	Day 25
Jun 15	Jun 16	Jun 17	Jun 18	Jun 19	Jun 20	Jun 21
Day 24	Day 23	Day 22	Day 21	Day 20	Day 19	Day 18
Jun 22	Jun 23	Jun 24	Jun 25	Jun 26	Jun 27	Jun 28
Day 17	Day 16	Day 15	Day 14	Day 13	Day 12	Day 11
Jun 29	Jun 30	Jul 1	Jul 2	Jul 3	Jul 4	Jul 5
Day 10	Day 9	Day 8	Day 7	Day 6	Day 5	Day 4
Jul 6	Jul 7	Jul 8	Jul 9	Jul 10	Jul 11	Jul 12
Day 3	Day 2	Day 1	EDRP Event			







#### **<u>1.Establish the CBL Window for weekdays</u>:**

Step 1: Determine resource's peak load for the last 30 days that corresponds to the hours that cover the event



SUN	1	MO	N	TUE		WE	D	TH	U	FR		SAT	
Jun 8		Jun 9		Jun 10		Jun 11		Jun 12		Jun 13		Jun 14	
		Day 30		Day 29		Day 28		Day 27		Day 26		Day 25	
			9		9		8		8		10		7
Jun 15		Jun 16		Jun 17		Jun 18		Jun 19		Jun 20		Jun 21	
Day 24		Day 23		Day 22		Day 21		Day 20		Day 19		Day 18	
	5		8		9		10		13		11		6
Jun 22		Jun 23		Jun 24		Jun 25		Jun 26		Jun 27		Jun 28	
Day 17		Day 16		Day 15		Day 14		Day 13		Day 12		Day 11	
	5		10		7		8		8		12		7
Jun 29		Jun 30		Jul 1		Jul 2		Jul 3		Jul 4		Jul 5	
Day 10		Day 9		Day 8		Day 7		Day 6		Day 5		Day 4	
	5		11		8		12		9		5		6
Jul 6		Jul 7		Jul 8		Jul 9		Jul 10		Jul 11		Jul 12	
Day 3		Day 2		Day 1		EDR	P						
	5		11		11	Ever	nt						

Maximum Load Value during Event hours

Peak Load hour = 13 (Day 20)



Step 2: Within the chosen 30 days prior to the event for which CBL is being calculated, beginning with the day prior to the event, exclude:

- Any holidays, as specified by the NYISO
- Days and the days prior when NYISO declared as SCR, EDRP or a TDRP event for which the resource was eligible for payment for a curtailment
- Days and the days prior in which the resource's DADRP curtailment bid was accepted in the DAM, whether or not the resource actually curtailed



SUN		MO	N	TUE		WE	D	TH	U	FR		SAT	-
Jun 8		Jun 9		Jun 10		Jun 11		Jun 12		Jun 13		Jun 14	
		Day 30		Day 29		Day 28		Day 27		Day 26		Day 25	
			9		9		8		8		10		7
Jun 15		Jun 16		Jun 17		Jun 18		Jun 19		Jun 20		Jun 21	
Day 24		Day 23		Day 22		Day 21		Day 20		Day 19		Day 18	
	5		8		9		10		13		11		6
Jun 22		Jun 23		Jun 24		Jun 25		Jun 26		Jun 27		Jun 28	
Day 17		Day 16		Day 15		Day 14		Day 13		Day 12		Day 11	
	5		10		7		8		8		12		7
Jun 29		Jun 30		Jul 1		Jul 2		Jul 3		Jul 4		Jul 5	
Day 10		Day 9		Day 8		Day 7		Day 6		Holid	lay	Day 4	
	5		11		8		12		9				6
Jul 6		Jul 7		Jul 8		Jul 9		Jul 10		Jul 11		Jul 12	
Day 3	5	Day 2	11	Ineligible Day (Day Befo	e pre)	EDR Evei	RP nt						

Maximum Load Value during Event hours

Peak Load hour = 13 (Day 20)



**Step 3: Calculate the initial seed value:** 

Initial seed value = 25% x Maximum peak load hour value

= 25% x 13 = 3.25

Step 4: For each remaining weekday that is not excluded, within the last 30 days, calculate Average Daily Event Period Usage (simple average of resource's usage over hours defining the event)

If Average Daily Event Period Usage < Initial Seed Value, exclude that day



Step 5: After all exclusions, establish the CBL window (reverse order selection of the last 10 days prior to the event for which CBL is being calculated)

- After all exclusions, if there are fewer than 10 days, but no less than 5 days, establish those days as part of the CBL window
- If fewer than 5 days remain, contact NYISO Stakeholder Services



SUN	MON	TUE	WED	THU	FRI	SAT
Jun 8	Jun 9	Jun 10	Jun 11	Jun 12	Jun 13	Jun 14
Jun 15	Jun 16	Jun 17	Jun 18	Jun 19	Jun 20	Jun 21
Jun 22	Jun 23	Jun 24	Jun 25	Jun 26	Jun 27	Jun 28
	CBL Day 10 For July 9	CBL Day 9 For July 9	CBL Day 8 For July 9	CBL Day 7 For July 9	CBL Day 6 For July 9	
Jun 29	Jun 30	Jul 1	Jul 2	Jul 3	Jul 4	Jul 5
	CBL Day 5 For July 9	CBL Day 4 For July 9	CBL Day 3 For July 9	CBL Day 2 For July 9	Holiday	
Jul 6	Jul 7	Jul 8	Jul 9	Jul 10	Jul 11	Jul 12
	CBL Day 1 For July 9	Ineligible Day (Day Before)	EDRP Event			



	CBL Window Selection- Single Weekday Event Example									
Event date	Day 1	Day 2	Day3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
9-July	7-July	3-July	2-July	1-July	6/30	6/27	6/26	6/25	6/24	6/23



#### • Example of CBL Window selection if there are multiple events

SUN	MON	TUE	WED	THU	FRI	SAT
Jun 8	Jun 9	Jun 10	Jun 11	Jun 12	Jun 13	Jun 14
Jun 15	Jun 16	Jun 17	Jun 18	Jun 19	Jun 20	Jun 21
				CBL Day 10 for July 9	CBL Day 9 for July 9	
Jun 22	Jun 23	Jun 24	Jun 25	Jun 26	Jun 27	Jun 28
	CBL Day 8 for July 9	CBL Day 7 for July 9	CBL Day 6 for July 9	CBL Day 5 for July 9	CBL Day 4 for July 9	
Jun 29	Jun 30	Jul 1	Jul 2	Jul 3	Jul 4	Jul 5
	Ineligible Day (Day Before)	DADRP Schedule	CBL Day 3 for July 9	CBL Day 2 for July 9	Holiday	
Jul 6	Jul 7	Jul 8	Jul 9	Jul 10	Jul 11	Jul 12
	CBL Day 1 for July 9	Ineligible Day (Day Before)	EDRP Event			

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		CBL W	indow Se	election-	Multiple	Weekday	v Event Ex	ample		
Event date	Day 1	Day 2	Day3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
9-July	3-July	2-July	2-July	27-June	26-June	25-June	24-June	23-June	20-June	19-June



#### 2. Establish the CBL Basis:

CBL window	HB 12	HB 13	HB 14	HB 15	Total Event Period usage	Avg Event Period usage	Rank
CBL DAY 1	10	11	7	5	33	8.33	4
CBL DAY 2	8	6	9	6	29	7.25	7
CBL DAY 3	9	12	9	7	37	9.30	1
CBL DAY 4	7	8	6	6	27	6.75	8
CBL DAY 5	10	11	9	7	37	9.25	2
CBL DAY 6	12	8	9	7	36	9.00	3
CBL DAY 7	5	8	8	6	27	6.75	8
CBL DAY 8	7	8	8	7	30	7.50	6
CBL DAY 9	7	6	6	5	24	6.00	10
CBL DAY 10	8	10	9	6	33	8.25	5

Step 1: Rank the days from the CBL window according to the Average Daily Event period usage level

• The EDRP event on July 9 was from 12 noon to 4 pm (HB 12 to HB 15) The MWh consumption for those 4 hours for the days that form the CBL window are given above



Step 2: Select the top 5 ranked days. These days will form the CBL basis

CBL window	HB 12	HB 13	HB 14	HB 15	Total Event Period usage	Avg Event Period usage	Ra	ınk
CBL DAY 1	10	11	7	5	33	8.33	4	4
CBL DAY 3	9	12	9	7	37	9.30	1	1
CBL DAY 5	10	11	9	7	37	9.25	2	2
CBL DAY 6	12	8	9	7	36	9.00	3	3
CBL DAY 10	8	10	9	6	33	8.25	Ę	ō



#### 3. Calculate CBL for each hour:

Using the 5 highest ranked days selected (simple average for each hour)

CBL window	HB 12	HB 13	HB 14	HB 15
CBL DAY 1	10	11	7	5
CBL DAY 3	9	12	9	7
CBL DAY 5	10	11	9	7
CBL DAY 6	12	8	9	7
CBL DAY 10	8	10	9	6

Time	HB 12	HB 13	HB 14	HB 15
Avg day CBL	9.8	10.4	8.6	6.5



- For weather adjusted CBL calculation, the CBL would be adjusted upward or downward based on the actual usage for 2 hours, starting 4 hours prior to start of event
  - CBL is adjusted using the Gross Adjustment Factor



Adjustment Basis Average Usage : Average of actual usage for 2 hours, starting 4 hours prior to start of Event Adjustment Basis Average CBL: Average of CBL calculated for 2 hours, starting 4 hours prior to start of Event







Adjustment Basis Average CBL: Average of the MWh for HB8 and HB9 over the 5 days chosen for CBL calculation (CBL basis)





Adjustment Basis Average Usage : Average of actual load MWh in HB8 and HB9 on the day of the event (2 hours prior to event notification)

	HB 8	HB 9
Event Day-Actual Load	4	5

Adjustment Basis Average Usage = (4+5)/2 = 4.5



Gross Adjustment Factor = 4.5/4.2 = 1.07

#### The CBL is weather adjusted <u>upward</u> by 7%

Time	HB 12	HB 13	HB 14	HB 15
Avg day CBL	9.8	10.4	8.6	6.5
Weather Adjusted CBL	10.5	11.1	9.2	7.0

Note: If the average of actual usage in the 2 specified hours is <u>lower</u> than the Adjustment Basis Average CBL, the ratio will be less than 1, and therefore CBL would be adjusted <u>downward</u>

\* Up to ±20%



#### **Average Day CBL- Weekends**

SUN	MON	TUE	WED	THU	FRI	SAT
Jun 8	Jun 9	Jun 10	Jun 11	Jun 12	Jun 13	Jun 14
Jun 15	Jun 16	Jun 17	Jun 18	Jun 19	Jun 20	Jun 21
Jun 22	Jun 23	Jun 24	Jun 25	Jun 26	Jun 27	Jun 28
Jun 29	Jun 30	Jul 1	Jul 2	Jul 3	Jul 4	Jul 5
						EDRP Event
Jul 6	Jul 7	Jul 8	Jul 9	Jul 10	Jul 11	Jul 12







#### **Average Day CBL- Weekends**

SUN	MON	TUE	WED	THU	FRI	SAT
Jun 8	Jun 9	Jun 10	Jun 11	Jun 12	Jun 13	Jun 14
						CBL Day 3 For July 5
Jun 15	Jun 16	Jun 17	Jun 18	Jun 19	Jun 20	Jun 21
						CBL Day 2 For July 5
Jun 22	Jun 23	Jun 24	Jun 25	Jun 26	Jun 27	Jun 28
						CBL Day 1 For July 5
Jun 29	Jun 30	Jul 1	Jul 2	Jul 3	Jul 4	Jul 5
						EDRP Event
Jul 6	Jul 7	Jul 8	Jul 9	Jul 10	Jul 11	Jul 12
Day 3	Day 2					

## **CBL Calculation Method - Local Generator Resources**







#### The CSP can change the resource's CBL during the monthly open enrollment period

a) True

b) False



# What are the different CBL methods that a resource can enter during enrollment to calculate baseline?

#### **Let's Review**



# An EDRP event is called on June 27. Choose if the following days will be included or excluded in the establishment of the 10 day CBL window.

	SUN	J	MON	TUE	WED	THU	FRI	SAT	
							Jun 22	Jun 23	
	Jun 24		Jun 25	Jun 26	Jun 27				
				DADRP	EDRP				
				schedule	Event				
D	Day Included/Excluded			Reason for exclusion					
Jun	e 26								
Jun	e 25								
Jun	e 24								
Jun	e 23								
Jun	e 22								



## **Performance Measurements**

## Performance Measurement for Energy Payments



Resource Response Type	Performance Measurement for each hour
Response Type C (Curtailment only)	CBL – Actual Net Load using net meter
Response Type G (Local Generator only)	Metered Generator Output – CBL <sub>G</sub>
Response Type B (Both)	CBL – Actual Load <sub>using Net meter</sub> Or [Metered Generator Output – CBL <sub>G</sub> ] + [CBL – Actual Load <sub>using load meter</sub> ]

Note: Average Day or Weather adjusted CBL based on resource enrollment Weekday or weekend CBL calculation based on actual event day

# Performance Measurement - Examples Market Training

Response Type C: (Curtailment Only)

NYS Transmission NYS Transmission and/or Local and/or Local Distribution Systems **Distribution Systems** Meter(s) used to Net Meter Net Meter report meter data 20 MW 15 MW into DRIS for Load Reduction Load 20MW Load 15MW Normal Day **During an EDRP Event** CBL = 20 MW

#### Performance measurement (for this hour) = CBL – Actual Net Load = 20 MW –15 MW = 5 MW

\* For 1 example hour

# Performance Measurement Examples Market Training

#### Response Type G (Local Generation only)



#### Performance measurement (for this hour) = Metered Generator Output – $CBL_G$ = 12 MW-10 MW = 2 MW

## Performance Measurement - Examples

• Response Type B ( Curtailment and Local Generator)



#### Performance measurement (for this hour) = CBL – Actual Net Load = 10 MW –6 MW = 4 MW

## Performance Measurement - Examples Market Training

Response Type B ( Curtailment and Local Generator)



Performance Measurement = [Metered Generator Output – CBL<sub>G</sub>] + [CBL – Actual Load <sub>using load meter</sub>]

- = [12 MW 10 MW] + [20 MW 18 MW]
- = 2 MW + 2MW
- = 4MW



# For a resource type C (Curtailment only) EDRP Resource, calculate performance for each hour during an event

Time	HB 12	HB 13	HB 14	HB 15
Avg day CBL	9.8	10.4	8.6	6.5
Event Day- Actual net Load	2	3	3	4
Performance for the hour				



## **EDRP Events** Notification and Customer Response

## **EDRP Event Deployment**



- An EDRP event activation is one of the emergency procedures in response to an Operating Reserve Forecast Shortage
- EDRP resources may be deployed in conjunction with SCR resources, as part of a NYISO activated Reliability Demand Response
- Responsibilities of EDRP resources during a Demand Response Event:
  - Receiving Event Notifications
  - Reporting expected curtailment values by zone
  - Performing load reduction during the event
# **Event Notification**



- Notification types: Notification types include but are not limited to:
  - Day-Ahead Advisory
  - In-day advisory
  - Activation (2-hour Notice)
  - Immediate activation
  - Extension of Event or
  - Early termination of Event
- Notification from the NYISO will take place via two communications media:
  - Burst e-mail messages to all CSP Event-Responder e-mail contacts specified in DRIS
  - Automated phone call to all CSP Event-Responder phone contacts specified in DRIS

# **Event Notification**



- Both e-mail and automated phone Event Notifications contain the following parameters:
  - Notification Type: NYISO Event, Targeted Demand Response Program Event, Performance Test 1 or 2
  - Program: EDRP or SCR
  - Message type: Notification type as listed in previous slide
  - Zone(s) or Subload Pocket(s)
  - Start Time of Event
  - End Time of Event
- E-mail notification will indicate the "From" address as <u>edrp-scr@nyiso.com</u>

# **Event Notification- CSP Response**



- After receiving an EDRP Notification, the CSP shall take the following steps:
  - 1. Assess whether or not the CSP has resources that can respond, and the kW level of the response by zone
  - 2. Provide the expected kW response (expected curtailment value) by load zone in accordance with the instructions in the notification into DRIS
- If CSP has missed the deadline to enter the expected curtailment value, they can provide the information to NYISO's Stakeholder Services
- If the NYISO does not receive the response before the Response expiration date/time, it may call upon additional CSP contact numbers to make a connection

# Viewing Event Notification Response Deadline in DRIS



Market Training



# **Event Notification- CSP Response**

- CSPs should respond with the expected curtailment values for each zone indicated in the Event Notification for which the resources are enrolled in DRIS, according to instructions provided in the DRIS user's Guide (Section 11.3)
- CSPs may provide multiple updates to the expected curtailment value; the value with the most recent submittal time will be saved in DRIS

### **Event Notification – CSP Response**



	DINEW YORK DINDEPENDENT SYSTEM OPERAT	Den om omorrowToday No	nand Response otification Summary	Infori '	mation Syste	т				
Main + MP+ Res	ource• SCR• Perfor	mance Factors + DR Event	Mitigation - Tables - Notificat	tion - DSAS	P• BTM•					
Capability Period Events From Date Notification Summa	: Summer 2016 : ry	Notification Type:     Program:	EDRP EDRP	ummary esponse Sun iew Available kpected MW	nmary e MW Values for Scarcity Pricing	Display				
Capability Period	Notification Type	Notice Date/Time	Message Type	Prog	gram Date/Time	Event End Date/Time	Zones	Response Expiration Date/Time	Notification Created By	
Summer 2016	NYISO Event	08/12/2016 09:47	Activation(2 Hour Notice)	EDRP	08/12/2016 13:00	08/12/2016 18:00	A, B, C, D, E, F, G, H, I, J, K	08/12/2016 10:47	NYISO	
Summer 2016	TDRP Event	08/14/2016 07:17	Activation(2 Hour Notice)	EDRP	08/14/2016 14:00	08/14/2016 22:00	J1, J2, J3, J4, J5, J6, J7, J	08/14/2016 08:17	NYISO	
Summer 2016	TDRP Event	08/15/2016 11:58	Activation(2 Hour Notice)	EDRP	08/15/2016 14:00	08/15/2016 22:00	J1, J2, J3, J4, J5, J6, J7, J	08/15/2016 12:58	NYISO	

Total ount: 3 Respond Excel

### **Event Notification – CSP Response**



Notifica Email N Sent:	ation Respo	Emergency Dema (A, B, C, D, E, F, Information Syste for reliability purp This constitutes a notice please con	and Response Program resources G, H, I, J, K) are subject to this r em (DRIS) and entering the load poses. an official EDRP Event Activation <sup>–</sup> itact NYISO Stakeholder Services	are needed today starting at 1 notice. Please respond within o reduction levels (kWs) expected Two Hour notice. If any questio at 518-356-6060.	3:00 and ending at ne hour by logging d to be achieved on ns arise concerning	18:00. EDRP reso into the NYISO Do the system in eac this EDRP Event a	burces located in zones emand Response ch zone. This data is used Activation Two Hour
Notific	ation Resp	onses					
Zone	MP Name	e	Total kW Available	Expected kW Commitment	Not Participating	Response User	Response Date/Time
A	Market Pa	articipant	300				08/12/2016 09:59:59
С	Market Pa	articipant	800				08/12/2016 09:59:59
D	Market Pa	articipant	900		(m)		08/12/2016 09:59:59
E	Market Pa	articipant	700		<b></b>		08/12/2016 09:59:59
F	Market Pa	articipant	1,700				08/12/2016 09:59:59
н	Market Pa	articipant	5,550				08/12/2016 09:59:59
Save	Cancel	Total count: 6					a Excel

# Load Reduction during EDRP Event

- EDRP resources can reduce load during the hours of the Event, even if CSP has not entered the expected curtailment values before the Response Expiration Date/Time
- CSPs will receive a separate Event Notification for Events that are either extended or terminated early from original event end time for one or more zones or sub load pockets on the original Event Notification
- The expected curtailment kW values for the original Event Notification will be used as the value for extended Events

# Sample Load Reduction Plan for an EDRP Resource



Sample Load Reduction Plan for a resource enrolled as Response Type B, with an expected curtailment value of 300 kW:

Time with respect to the EDRP Event	Action	Load Reduction Achieved (kW)
2 hours prior	Pre-cool the office area from 70 degrees to 65 degrees	
15 minutes prior	Turn off the HVAC	150 kW
15 minutes prior	Transfer critical load to backup generator	100 kW
At the start	Dim the office lights	50 kW
15 minutes post	Return to normal operations	

# **Event Summary**



- After the Event has taken place, event details can be found in DRIS
  - DR Event Summary has information about proper resource data that needs to be reported for the event

	DINDEPEND SYSTEM OF	C ENT PERATOR Is Of Tomo	De TrowToday	mand Res Summary of I	Sponse Information Demand Response Event	System s								
Main • MP• Resource• SCR• Performance Factors• DR Event• Haigebiev• Tables• Notification• DSASP• BTM• Capability Period: Summer 2016 v Zone: Auction Month: v Program: v Program: v Display														
Event Summary														
Capability Period	Event Type	Progr	Event Start Date	Event End Date	Zones	Approved	First Hour of Payment	Last Hour of Payment	First Hour of Performance	Last Hour of Performance	CBL Start Date	CBL End Date	Response Submittal End Date	Auto Created
Summer 2016	NYISO Event	EDRP	08/12/2016 13:00	08/12/2016 18:00	A, B, C, D, E, F, G, H, I, J, K	<b>V</b>	08/12/2016 13:00	08/12/2016 17:00			07/13/2016 00:00	08/10/2016	10/26/2016 17:00	



#### The CSP for an EDRP resource does not enter the Expected Curtailment value within the Expiration time. Can this resource still provide load reduction during the Event?

- a) Yes
- b) No



# **Post-Event Reporting**

### **Event Response**



- Resources submit Event Response data through DRIS within a pre-established time frame
  - Format specified in the DRIS User's Guide
- The Response submittal End date/time is 5:00P.M, 75 days after Event deployment
  - Response submittal end date can be found in the Event Summary page under DR Event in DRIS, and also in the DR event calendar

	NEW YORK INDEPEND SYSTEM OF Ig The Energy Merker	ENT ERATOR S OI Tomo	De rowToday	emand Res Summary of I	Sponse Information Demand Response Event	System s								
Main + MP+ Resource+ SCR+ Performance Factors+ DREvent+ Mitigation+ Tables+ Notification+ DSASP+ BTM+														
Capability Perio	Capability Period: Summer 2016 V Auction Month: Verification Verificat													
Event Summary														
Capability Period	Event Type	Progr	Event Start Date	Event End Date	Zones	Approved	First Hour of Payment	Last Hour of Payment	First Hour of Performance	Last Hour of Performance	CBL Start Date	CBL End Date	Response Submittal End Date	Auto Creater
Summer 2016	NYISO Event	EDRP	08/12/2016 13:00	08/12/2016 18:00	A, B, C, D, E, F, G, H, I, J, K		08/12/2016 13:00	08/12/2016 17:00			07/13/2016 00:00	08/10/2016	10/26/2016 17:00	V

# **Importing Event Response Details** for an EDRP Resources



View Details Modified

06/03/2016

09/05/2012

09/05/2012

150	For Market Participants Careers at NYISO Services & Support	Contact Us Login Search Q		
About Us 👻	Markets & Operations 👻 Planning For The Future 🚽	Media Archive		
		Markets & Operations •		
ket & Operational Data [+]	Distributed Energy Resources (DEF	२)		
stributed Energy Resources	DER are poised to transform New York's wholesale electric system by helping grid fuel diversity. DERs can help lower consumer prices, improve market efficiency, an DER miproves our environment through increased renewables and use of energy sl for Reforming the Energy Vision (REV) and Clean Energy Standard goals.	DER Documents & Resources		
Illary Services rregional Data tem Conditions	The NYISO's <u>DER Roadmap</u> identifies a clear path toward integrating DER into the <b>Pilot Program</b> Guided by the DEP Roadman with a focus on informion wholesale market design of	why DER	Filter:	٩
	integration.	General Information     General Case Resource Program     Demand-Side Ancillary Service Program     Demand Response Activations     General Case Resource ICAP Program     Demand Response Activations	Type	Document Name gency Demand_Response_Program Emergency Demand Response Program (EDRP) provides a mechanism for load reduction during emergency conditions, more specifically defined in this document. DRIS EDRP Event Response Import Template - csv format DRIS EDRP Event Response Import Template - xls format
		Monthly Net Benefit Offer Floor      Behind the Meter Net Constant		

1CA ► D



# **Event Response Import Template**

- Header data:
  - Event type
  - DR program
  - Event start date and time
- Resource data required in the Event Response file includes:
  - CBL Dates (1-10) Customer baseline calculation date (1-10)
  - CBL Include Indicator (1-10) Field to indicate if the CBL date will be included in the CBL calculation
  - CBL kW (HB0-HB23) Resource hourly CBL calculation for each Event hour
  - Metered kW (HB0-HB23) Resource hourly metered load for each Event hour
- Instructions to import the Event Response file can be found in the DRIS User's Guide (Section 11.7)



# **Viewing Event Response Details**

 Once the CSP has submitted the Event Response file, details can be viewed on the Event Response Details page in DRIS

Sundang the Energy Markets Of TomorrowToday	Demand Resp Event Response	onse Info • Details	ormati	on S	ystem							
Main MP+ Resource+ SCR+ Performance Factors+	DR Event - Mitigation - Tables	- Notification - DS	SASP - BTN	•								
Capability Period: Summer 2016 Zone: Event: NYISO Event - EDRP - MP:	DR Event Summary Event Response Details			¥ ▼ Aggre	Status: gation:	<b>v</b>	Reporting:	<b>V</b> Dist	play			
Resource Responses to Events	Resource Responses to Events											
14 4 Page 1 of 2 🕨 🕅 🍣												
Event Information		Performance Hour	ly Meter Data	a Enrolln	nent Hourly M	eter Data CBL Dates	Hourly Billing Da	ata				
Type: NYISO Event Program: EDRP	Zones: A, B, C, D, E, F, G, H,	Resource Hour A	Net ACL	Verified ACL	CBL kW	Metered kW En	ergy Reduction kW D	eclared Value/Test Value	Capacity Reduction			
Event Dates Performance Hours	Response Submittal Dates	13	0		3500	300	3200	500	0			
Start: 08/12/2016 13:00 First:	Start: 08/16/2016 08:00	14	0		3525	310	3215	500	0			
End: 08/12/2016 18:00 Last:	End: 10/26/2016 17:00	15	0		3495	290	3205	500	0			
		18	0		3500	300	3200	500	0			
Payment Hours	CBL Dates	17	•		3495	305	3190	500	5			
Filst. 08/12/2010 13:00	Start. 07/15/2010											
Last: 08/12/2016 17:00	End: 08/10/2016											





#### When is the deadline for Response submittal for Event Reporting?



# Verification

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# **EDRP Verification**

- Curtailment Service providers must report load reduction data to the NYISO on or before the 75<sup>th</sup> day after deployment
- EDRP resource performance is validated by hourly interval metering data or nonrevenue interval metering devices that meet an overall accuracy of ±2%
- Load reductions for which all required settlement and performance data is not entered into DRIS by 75 days after the date of deployment will not be compensated pursuant to the EDRP
- Load reduction settlement and performance data is subject to NYISO audit and Market Mitigation and Analysis review and verification
- For any erroneous payments made to the CSP, NYISO has the right to recover it either by reducing other payments to the CSP or by other lawful means



# **Historical Operating Data**

- Upon request, CSPs must provide historical metering, meter information and operating data for each resource enrolled that is consistent with the enrolled meter configuration
- CSPs must retain all interval meter readings upon which it bases its certification of compliance for a period of three years



# **EDRP Settlements**

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## **EDRP Settlement Procedures**



- Upon deployment of an EDRP event by the NYISO, CSPs are eligible to be paid for verified Load reductions made during each hour of the payment eligibility period
- The first hour of the payment eligibility period will begin at the top of the hour within which the deployment event is to start as identified by NYISO
  - For immediate deployment events, the NYISO-identified start time is the time of the deployment message
- The payment eligibility period ends at the later of:
  - The third consecutive hour following the first hour of the payment eligibility period or
  - The deployment event end time identified in the deployment message, if longer than four hours
- The end time of a deployment event may be adjusted by the NYISO after the initial deployment message

Program Deployment Duration (Hours)	Applicable Hours	Calculation	Hourly Settlement (\$)			
$\leq$ 2 Hours (Starts at	1 <sup>st</sup> 2 hours	Step1: Verified Load Reduction per hour (MWh) x Max[\$500/MWh, Real Time Zonal LBMP(\$)]	Step 1 +Step 2			
the top of the hour)	Next 2 hours	Next 2 hoursStep2: Verified Load Reduction per hour (MWh) x RTD Zonal LBMP (\$)				
$\leq$ 2 Hours (Starts after the top of the	1 <sup>st</sup> 3 hours	Step1: Verified Load Reduction per hour (MWh) x Max[\$500/MWh, Real Time Zonal LBMP (\$)]	Step 1+Step 2			
nour)	Remaining hours	Step2: Verified Load Reduction per hour (MWh) x RTD Zonal LBMP (\$)				
$> 2$ and $\leq 3$	1 <sup>st</sup> 3 hours	Step1: Verified Load Reduction per hour (MWh) x Max[\$500/MWh, RTD Zonal LBMP(\$)]	Step 1+Step 2			
	Remaining hours	Step2: Verified Load Reduction per hour (MWh) x Real Time Zonal LBMP (\$)	-			
>3	All hours		Verified Load Reduction per hour (MWh) x Max[\$500/MWh/ Real Time Zonal LBMP (\$)]			

### Settlement for EDRP Resources Participating in other DR Programs



- EDRP resources that are scheduled to perform in either the DADRP or DSASP during an EDRP event will have their Load Reduction payments adjusted to reflect the payments made for performance under DADRP or DSASP
- The EDRP resource will be paid for the response to the program only if and to the extent that the resource performed above its commitment to the DADRP or DSASP DAM schedule

Resource's performance eligible \_ for EDRP payment (kWh)

Verified Load Reduction reported by resource (kWh)

DADRP or DSASP DAM contribution (kWh)

### **Hourly Billing Data-DRIS**



	N YORK EPENDENT TEM OPERATO MERCES OFFO	on morrowToday	Demand Resp Event Response	onse l • Detail:	nforma ;	tion	System					
Main MP+ Resource+	SCR - Perform	nance Factors -	DR Event - Mitigation - Tables	- Notification	I▼ DSASP▼ I	этм 🕶						
Capability Period: Summe Event: NYISO	r 2016 Event - EDRP	Zone:	DR Event Summary Event Response Details			Y Ag	Status:	~	Reporting:	Dis	play	
Resource Responses to Eve	ents											
4   Page 1 of 2 ▶ ▶	2											
vent Information				Performanc	e Hourly Meter	Data Enr	ollment Hourly M	leter Data CBL Dat	Hourly Billing	Data		
Type: NYISO Event	Program: EDRP		Zones: A, B, C, D, E, F, G, H,	Resource	Hour 🔶 Net ACL	Verified A	CL CBL kW	Metered kW E	nergy Reduction kW	Declared Value/Test Value	Capacity Reduction	Reason for Under Review
Event Dates	Performance Ho	ours	Response Submittal Dates		13 0		3500	300	3200	500	0	
Start: 08/12/2016 13:00	First:		Start: 08/16/2016 08:00		14 0		3525	310	3215	500	0	
End: 08/12/2016 18:00	Last:		End: 10/26/2016 17:00		15 0		3495	290	3205	500	0	
					17 0		3500	300	3200	500	0	
Payment Hours			CBL Dates				3495	305	3190	500	Ŭ.	
Last: 00/12/2016 13:00			Statt: 07/13/2010									
ent Information					Perform	nance Hou	rly Meter Data	a Enrollment Ho	urły Meter Data	CBL Dates Ho	urly Billing Data	
Type: NYISO Event	Program:	EDRP	Zones: A, B, C,	D, E, F, G, H	Resource	Hour	Status	Settlements k	V Zonal LBMP	Net Energy Pay	yment Adjusted	for Market
Event Dates	Perform	ance Hours	Response Submitta	Dates	Invoic	ed						
tart: 08/12/2016 13:00	First:		Start: 08/16/20:	16 08:00		13	Invoiced	3200	100	1600	1	177
End: 08/12/2016 18:00	Last:		End: 10/26/201	16 17:00		14	Invoiced	3215	95	1607.	50	10
	Luse					15	Invoiced	3205	105	1602.	50	
avment Hours			CBL Dates			16	Invoiced	3200	90	1600		10
aymentriours			Start: 07/13/201	16		17	Invoiced	3190	102	1595		100
First: 08/12/2016 13:00			broker or / ro/ ro									in the second seco
First: 08/12/2016 13:00 Last: 08/12/2016 17:00			End: 08/10/20:	16								



# **EDRP Settlement Related Reports**

#### DRIS:

**DR Event** 

- Event Response Details
- <u>Customer Settlements Interface (CSI):</u>

**Consolidated Invoice** 

- Invoice Summary Report
- → Invoice Detail Report
- Decision Support System (DSS):

Corporate Reports

Hourly and Daily Advisory files

### **Let's Review**



# Calculate the hourly settlement for load reduction during an EDRP event for this resource

	Hour	Energy Reduction kW	LBMP (\$)	Settlement (\$)
Event Information	HB 13	3000 kW	95	
Event Dates         Performance Hours         Response Submittal Dates           Start:         08/12/2016 13:00         First:         Start:         08/16/2016 08:00           End:         08/12/2016 18:00         Last:         End:         10/26/2016 17:00	HB 14	3100 KW	100	
Payment Hours         CBL Dates           First:         08/12/2016         13:00	HB 15	3000 kW	600	
Last: 08/12/2016 17:00 End: 08/10/2016	HB 16	2500 kW	275	
	HB 17	2800 kW	135	



# **Session Objectives**

- Define the purpose of Emergency Demand Response Program (EDRP)
- Identify program eligibility requirements
- Summarize the process for enrollment
- Define and explain how Customer Baseline Load (CBL) is calculated
- Describe method for measuring and reporting performance
- Explain the event notification process and customer response to an event
- Describe the reporting process for Event Response details
- Describe verification process for CBL after an event
- Describe settlement for an EDRP Event Response



## References

- Market Services Tariff (MST)
- Emergency Demand Response Program Manual
- Emergency Operations Manual
- Ancillary Services Manual
- Market Participant User's Guide
- Demand Response Information System (DRIS) User's Guide