

# **2020 Demand Response Forum**

2/18/20



## **DR Forum Agenda**

- Commercial Demand Response Programs
- Competitive Procurement Plan
- Rider R Participation
- Gas Demand Response Pilot
- Residential Demand Response Program (BYOT)
- Commercial & Industrial (C&I) Programs
- Advanced Metering Infrastructure (AMI) Project Update
- Green Button Connect
- Demand Response Management Systems





## **Commercial Demand Response Programs**

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## Agenda

- What is Demand Response?
- Overview of DR Programs
- Ways to Participate in DR
- Incentives and Expectations
- How to Enroll in DR



## What is Demand Response?





## Transmission (Wholesale) vs. Distribution





## Wholesale vs. Distribution DR Programs

- Goal of NYISO Demand Response Programs
  - Resource adequacy
- Goals of Con Edison Demand Response Programs
  - 2-Hour Notification Program (DLRP Distribution Load Relief Program)
    - Increase electric service reliability
  - 21-Hour Notification Program (CSRP Commercial System Relief Program)
    - Peak shaving



## **Understanding Con Edison's DR Programs**

#### **DLRP: 2-Hour Notification Program**

- Called on a network basis for an isolated need
- For example, image below shows localized stress in the Battery Park network



- DLRP could be called in Battery Park City to provide at least 4 hours of load relief
- Customers receive notification 2 hours in advance of a DLRP event

#### CSRP: 21-Hour Notification Program

- Called in response to system-wide peak demand
- For example, image below shows networks peaking across New York



- CSRP customers called to provide 4 hours of load relief depending on peak time of the local network
- Customers receive notification at least 21 hours in advance of a CSRP event



#### Peak Day Loads by Network



## Why Should a Customer Enroll in DR?

- Potential source of revenue
- Incentivizes customers to better manage their electric demand
- Improves electric service reliability for the customer and neighborhood



## **How Much Load Do Customers Enroll?**





## How Do Customers Provide Load Relief? Curtailment and Generation

- Load Reduction
  - HVAC
  - Lighting
  - Unnecessary Equipment
  - Elevator Banks
  - Production Lines

- Distributed Generation
  - Gas-Fired
  - Diesel (conditional)
  - Batteries



# Who is Enrolling in Demand Response?





## **DR Program Highlights**

Program	CSRP	DLRP	
Capability Period	May – September	May – September	
Number of Test Events	1	1	
Test Event Duration	1 hour	2 hours	
Average Number of Actual Events	3	0	
Event Duration	4 hours	4-6 hours	
Total # of DR Event Hours	13	1	
	Total Annual DR Commitment ~14 hours		



## **Incentive Rates Reservation Payment**

CSRP Reservation Rates (\$ / kW-month)		
All Other Regions	Westchester & SI	
\$18	\$6	

DLRP Reservation Rates (\$ / kW-month)			
Tier 1	Tier 2		
\$18	\$25		



### Incentive Rates Reservation Payment

CSRP Reservation Rates (\$ / kW-month)		
All Other Regions	Westchester & SI	
\$18	\$6	

DLRP Reservation Rates (\$ / kW-month)		
Tier 1	Tier 2	
\$18	\$25	

100 kW pledge in Bowling Green (May – September)

#### Reservation Payment

- **CSRP:** \$18/kW *x* 100 *kW x* 5 *months* = \$9,000
- **DLRP:** \$18/kW x 100 kW x 5 months = \$9,000
- Assumes 100% performance in all events
  - Lower performance will reduce reservation payment accordingly



## **Incentive Rates Reservation Payment**





## Incentive Rates Performance Payment

Performance Rates (\$ / kWh)		
Reservation Voluntary		
\$1	\$3	

- Performance Payment
  - 1 event (4-hour duration)
  - Assumes 100% performance
  - $-100 \, kW \, x \, 4 \, hours \, x \, 1/kWh = 400$
- Lower event performance will reduce reservation payments



## Eligibility Requirements Metering

- Customer must have an interval meter or an AMI meter
  - All customers will have AMI by 2023
  - See the Con Edison Smart Meter website for more details
- Customers >500 kW Demand
  - Con Edison may provide an interval meter at no cost
- Customers <500 kW Demand</li>
  - The customer is responsible for interval meter costs



## Eligibility Requirements Load Relief Pledge





## **Enrollment Timeline**

#### Enrollment Deadline

- All enrollments must be submitted by application deadline
- Interval meters be installed by application deadline
- Interval meters must be communicating by program start date
- Enrollments available in early March 2020 via DR Portal

Enrollment Deadline	Program Start Date
April 1, 2020	May 2020
May 1, 2020	June 2020



## Summary

- Demand response is a <u>temporary reduction</u> in energy demand upon request
- Distribution Load Relief Program (DLRP)
  - Network grid reliability, 2-hour notification
- Commercial System Relief Program (CSRP)
  - Peak system load shaving, 21-hour notification
- Participate in both programs for maximum revenue
- Companies exist (aggregators) to help you enroll and perform
  - Get the list of approved aggregators at <u>www.coned.com/DR</u>



# **Competitive Procurement Plan**

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## 12.13.2018 Energy Storage Order

#### **3-5 year competitive procurement with penalties**

- Continue to operate a tariff program
- Offered at a premium or discount as appropriate based on most recent load forecasting
- Penalties for non participation

#### Establish auto-DLM resource category

- Require higher performance factors
- Require stringent availability

#### **Orderly transition from Tier 2 to NWS**

Energy Storage Order p. 30 - 36



## Stakeholder Engagement

- 9.11.2019 & 11.7.2019 Stakeholder Session
- Feedback:
  - Auto-DLM
    - Communication through aggregators
    - Respond to DLRP like events, within 10 minutes
  - Practical and financial considerations
    - Procurements should be 18 months ahead of participation
    - Enabling auto-DLM and energy storage will result in upfront costs
    - The price certainty will ultimately bring down financing costs
  - More stringent requirements
    - Require meaningful financial assurance tied to performance
    - Penalties for failing to deliver



## **Two New Similar Programs**

		Day-Ahead-DLM	Auto-DLM	
Dispatch Criteria	Mandatory	21 Hours Notice + 88% forecast <u>or</u> DLRP Criteria	Day-Ahead-DLM calls and/or 10 Minutes Notice + 88% forecast <u>or</u> DLRP Criteria	
Incentive	Reservation (kW)	Rate per kW per year based on RFP response	Rate per kW per year based on RFP response	
	Performance (kWh)	N/A	N/A	
Tiers	High	Identified in RFP	Identified in RFP	
	Low			
Test Event		21 hours notice for 4 hours	10 minutes notice for 4 hours	
Penalty		PF < 80% declines at 2% per % below 80%	PF < 80% declines at 2% per % below 80%	



# Deviations meant to provide reasonable flexibility and reflect commitment level

- Incentive set via RFP vs Tariff
- Call windows more flexible
- Day-Ahead dispatch option at lower threshold plus option to call with for contingencies
- Auto-DLM dispatched via automated dispatch signal
- 70% of contract paid after successful first year
- Financial assurance required



# Timeline

	Action	2021 Procurement	2022 Procurement
1	Release RFP	October 2020	October 2020
2	Aggregators submit clarification questions	October 2020	October 2020
3	The Companies responds to clarification questions	October 2020	October 2020
4	Deadline for Aggregator enablement in the	October 2020	October 2020
	Company's Oracle system		
5	RFP response deadline	November 2020	November 2020
6	RFP award/notification	November 2020	November 2020
7	Contract execution date	January 2021	January 2021
8	Security requirement due for awarded	February 2021	February 2021
	Aggregations		
9	Deficiency notification	N/A	December 2021
10	Early Exit Fee payment due	N/A	January 2022
11	Enrollment deadline	April 2021	April 2022
12	Capability Period start	May 2021	May 2022



# **Rider R Participation**

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## **Rider R topics**

- Distributed Energy Resources (DER) at Con Edison
- Business models for DER
- Value of DER rates (VDER)
- The Value Stack
- Dual participation with Demand Response



## **DER at Con Edison**



As of 12/31/19; CHP is not eligible for Rider R



## **Business models for DER**





# Value of DER crediting (VDER)

#### **Net Metering**

- Volumetric bill credit equivalent to host \$/kWh rates
- Primarily reduces \$/kWh charges
- Excess credit carries over as a kWh credit to offset future kWh consumption



#### The Value Stack

- Monetary bill credit based on avoided costs & other incentives
- Usage behind the meter reduces \$/kWh charges
- Excess credit carries over as a monetary value which offsets future Electric charges
- Grid export is valued and offsets <u>all</u> Electric charges
- Electric Energy Storage (e.g., batteries) eligible for Value Stack
- Available for NYPA customers



## **The Value Stack**

Component	Description		
Energy	Day Ahead Hourly LBMP		
Installed Capacity	<ul> <li>Avoided NYISO ICAP</li> <li>May be credited per kWh or kW depending on generator type</li> </ul>		
Environmental	NYSERDA REC or social cost of carbon		
Distribution Relief Value (DRV)	<ul> <li>Utility's avoided distribution costs</li> <li>Credited weekdays June 24 – Sept 15 during project's CSRP call window hours</li> </ul>		
Locational System Relief Value (LSRV)	<ul> <li>Additional incentive in high load growth areas</li> <li>Resources will be called 10x per summer, min. performance during call event determines credit</li> </ul>		
Community Credit (CC)	<ul> <li>Additional credit for Community DG business model</li> <li>Available for certain technologies</li> </ul>		





## Value Stack and DR dual participation

- The Value Stack's DRV and LSRV components compensate for Avoided T&D values
- Value Stack accounts can be enroll in Rider T programs <u>or</u> take DRV and LSRV, as applicable
- An account's enrollment in Rider T represents a one-time and irrevocable decision to opt-out of DRV and LSRV
- A Value Stack customer's enrollment in Rider T, either direct or via aggregator, will preclude the customer from receiving DRV and LSRV compensation for the remainder of the customer's Value Stack term
- A Value Stack/DR dual participant is eligible for other Value Stack components (Energy, Capacity, Environmental, Community Credit; as applicable)



# Comparison of Distribution benefits in the Value Stack and in CSRP/DLRP

	Value Stack (Rider R)		DR (Rider T)
	DRV	LSRV	CSRP/DLRP
Participation	Direct		Direct and Aggregators
Eligibility	Value Stack projects Value Stack in high-value areas, not on Rider T		See Rider T
Design	Performance during preset days & hours	Performance during events	Performance during Events
<b>Capability Period</b>	June 24 – September 15		May 1 – September 30
# of Events	58 or 59 per season	10 per season	Variable
Event criteria	All non-holiday weekdays	System Forecast	System Forecast
Performance measurement	kWh Export	Minimum export during 4 hour event	kW reduction from baseline; including export if Value Stack
Notice	n/a	<u>&gt;</u> 21 hours	≥ 21 hour Advisory
Compensation	Credits on Electric bill		Payment


### Compensation for reduced import, export

Under dual participation, DR compensates Value Stack customers for reduced grid import and grid export



#### Note: DR customers that participate in Rider R, including Value Stack, are restricted from performance payments



### Resources

- coned.com/solar
- coned.com/dg
- coned.com/rates
- nyserda.ny.gov



### **Gas Demand Response Pilot**

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#### **Gas DR Pilot Objectives and Timelines**

Objective: Incentivize customers to reduce natural gas demand during the coldest days of winter



- Customers can participate by:
  - Switching from gas to electric or CE steam
    OR
  - Curtailing gas consumption for all or a portion of the event day



**Approved Timeline:** 2019/2020 winter season is the 2<sup>nd</sup> season of an initial 3-year offering



### **Pilot Eligibility**



**50** Minimum enrollment value: 50 Therms



**All Customer segments** 



Interval metering: One hour readings



No fuel switching to liquid fossil fuels



### **Eligible Zones**

- Zones A and B are eligible
  - Zone A:
    - Central and Lower Westchester
    - North Bronx
    - North Manhattan
  - Zone B:
    - Queens
    - Southern Manhattan





#### **General Rules**

Capability Period	November 1 - March 31
Event Trigger	18 F
Notification Time	Day-ahead: 21 hours in advance Day-of: 2 hours in advance
Call Window	24-hour period (10:00 a.m. to 10:00 a.m.)



#### **Possible Participation Strategies**

- **Switch to Electric**
- Switch to CE Steam
- **Space Heating**
- **Water Heating**
- **Process Load**

#### CHP

**Note:** If reduced use of CHP results in natural gas consumption of a different account changing, all impacted gas accounts must be enrolled in the program.

#### No fuel switching to liquid fossil fuels!





### **Thank You!**

### For more information, contact us at DR@coned.com



### Residential Demand Response Program

### Bring Your Own Thermostat (BYOT)

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### Bring Your Own Thermostat (BYOT) Central A/C Program

#### **Operations Overview**

- **Devices:** Honeywell Home (includes Company-Provided Thermostats), Google Nest
- Incentives: \$85 upfront, \$25 3-year participation bonus, \$75 extra in NWS areas
- Event-Calling: CSRP, DLRP

	2019 Results				
Enrolled Thermostats	Max Event Reduction (MW)	Average Reduction per Thermostat (kW)			
35,000	18.3	0.63			

#### 2020 Strategy

- Integrate additional manufacturers
- Increase BYOT-only marketing
- Test event-calling strategies
- Consider how AMI rollouts will create additional opportunities for residential Demand Response







## Commercial & Industrial Energy Efficiency Program 2020

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### **C&I Program Overview & Eligibility**

Incentives available for efficient equipment that reduces annual electric and gas energy use in existing buildings.

**Commercial Customers** 

• Must be a Con Edison customer with active commercial account

Con Ed Account type

- Electric: Must have an average billed demand over 100kW
- Gas: Firm or Interruptible (NEW!)



### **C&I 2019 Accomplishments**





kWh annual savings



Equates to...

### 73,150

**Metric Tons of CO2** 



### **Program Highlights**

- Program Deadline
  - Projects must be completed by November 15<sup>th</sup> 2020
- Higher Incentive Rates for Electric and Gas Measures
  - Increased Incentive levels per measure
  - Cover up to 70% of project cost
- Participating Contractor Tools Incentive Navigator Updates
  - 2020 Measures Available
  - Helpful Tools and Tips
  - Q1 Up Coming Updates
- Additional detailed requirements are listed on our website
  - <u>www.coned.com/largecommercial</u>



### **Future Webinars**

- Q1– Multiple Webinars
  - 2<sup>nd</sup> Kick Off Webinar Feb 28<sup>th</sup>
  - Steam Trap & Linear Pipe Insulation Project Submission
    Process March 5<sup>th</sup>
  - Incentive Navigator, Estimator and Scheduler
  - Participating Contractor Training



#### **Thank You!**



C&I Inquiries Email commercial@coned.com

Website ConEd.com/largecommercial

Incentive Navigator Incentivenavigator.coned.com





### Advanced Metering Infrastructure (AMI)

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### **Smart Meter Project Overview**

- Full scale AMI implementation
  - 4.8 million meters
  - 3.6 million electric & 1.2 million gas meters
  - Cost of project: \$1.285 billion
- Meter installation status
  - Approx. 2.8 million meters installed
  - Mass deployment completed in:
    - Staten Island
    - Westchester
    - Rockland and NJ (O&R)





### **Deployment Plan**





### **Communications Network**

• Relays, Access Points (APs)

#### Socket AP







### **Electric Smart Meters**

- Communicate with communication network devices as well as other smart meters
- Relay regular interval reads and a daily register read
- Collects:
  - ✓ 15 Minute usage data for residential customers\*
  - ✓ 5 Minute usage data for commercial customers\*
    - ✓ Transmitted every 15 minutes\*
  - Voltage data
  - ✓ Outage data
  - ✓ Diagnostic notifications ("events and alarms")

#### • Does not collect:

- Customer identifying information
- Usage data on individual appliances or lights





### **Smart Gas Modules**

- Generally attached to existing gas meters
- Record hourly interval gas readings
  - 24 interval reads per day
  - One register read at midnight
- Wake to transmit once per day
  - Battery life
  - Not part of the mesh network
  - Estimated 20-year battery life





# Enables Digital Customer Experience, and REV goals





Reduced Operating Risk



Future Operating Benefits



#### Enabled Electricity Market

• Foundation for demand response growth



#### Environmental Benefits

• Reduced CO2 emissions & fuel consumption



### **Natural Gas Detector**

- First-of-its-kind device
- Monitors the atmosphere near where gas service enters a building.
- Detects as little as 10% of the Lower Explosive Limit (LEL) of methane gas
- Audible alarm when triggered
- Uses AMI communications network to send a ticket to the Con Edison Gas Emergency Response Center (GERC), who will notify the fire department to respond jointly
- Pilot program began in October 2018. 8000 units in Westchester, 1000 in Manhattan.
- Full deployment to begin in 2020





### **Green Button Connect**

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### **Green Button Overview**

- Launched in 2012 as a national data sharing standard
- Provides customers with easy access to their energy usage data in consumer-friendly and computer-friendly format





### **Share My Data**

- Available Data
  - > Meter Number
  - Energy or Net Energy Usage (kWh, net kWh,ccf)
  - Reactive Power (kVAR)
  - Total Electric Utility Bill Cost for current billing period
  - > Total Gas Utility Bill Cost for current billing period
  - ICAP Tag
  - > Billing History (total electric and gas utility bill cost for previous bill periods)

Customer Category	Usage Data Available
Electric Commercial Customers with AMI Meters	5 minute intervals
Electric Residential Customers with AMI Meters	15 minute intervals
Electric Customers with Legacy Interval Meters*	15 minute intervals
All Gas Customers with AMI Meters	1 hour intervals
All customers with Non-interval Meters	Monthly



### Share My Data

- Third-Party Registration/Technical Onboarding
  - Submit online registration form
  - Data Security Agreement must be signed
  - Self-Attestation
  - Technical Onboarding
  - Once completed Third Party will be:
    - Listed for customers to see as a DERS option in My Account
    - Ready to receive customer data





### Con Edison Demand Response Management System

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### Agenda

1. We've Heard Your Feedback

2. Overview of Demand Response Portal

- User Access
- Account Lookup
- Enrollments
- Geospatial Maps
- Events
- Settlements
- APIs
- 3. DR Forum Booths



#### We've heard your feedback

#### **Most requested features**

- More comprehensive account lookup tool with meter status
- Retain copy/paste from Excel as it's the most common method of interaction
- Text messages and M2M dispatch signals would be useful enhancements to event notifications
- Learn from NYISO DRIS e.g. make everything exportable and intuitive



80%+ of survey respondents would utilize APIs if they were available



#### **Overview of Demand Response Portal**

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	Look Up Account	Add an Aggregator Contact	Enroll a Customer	

### Single Sign On

#### What's New

- Single Log In for all Con Edison Applications
- Multi-Factor Authentication
  - Increased Security
  - Customer Protection





# Configuring Users: We'll be taking feedback for additional roles

#### What's New

 Defined aggregator user roles – Admin & Operations

#### To come

- Additional roles: Finance, Engineering, Facility Ops
- Based on Stakeholder feedback

Aggregator Contac	t Entry			
create an aggregator contact by filling out the below form.				
First Name				
Last Name				
Home Phone				
Work Phone				
Extension				
Cell Phone				
SMS				
Service Provider			~	
Email				
er me user reelinier Yes				
			2	
Yes		 3	~	
User Role*			~	



#### Account Lookup (New):

#### What's New

- Identify any account, network, CSRP callwindow, DLRP tier, and meter information
- AMI Meter accounts automatically added in enrollment process




## **Major changes to Enrollments**





#### Minimum enrollment now 10 watts instead of 1 kilowatt

Bulk upload via excel & CSV



## **Enrollment Submission (New)**

#### What's New

- Enroll customers: manually, copy/paste, file upload
- Individual resources enrolled as asset: better reporting & forecasting
- More detailed information on enrollment status & issues

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## Portfolios Enrollments (New)

#### What's New

 Customer accounts can be assigned to portfolios





## Greater Accuracy with Geospatial Map (New)

#### What's New

 Geospatial mapping to locate enrollments and customers by network





## **Event Scheduling & Handling**

#### What's New

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 Scheduled events menu with interactive feedback to confirm participation and provide notes to improve operational reporting / availability estimates

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- Fast-polling AMI Meters instead of MV90 Legacy Meters
- See more data sooner



## **Event Performance Graph**





## **Event Notifications**

#### What's New

- Text (need carrier)
- HTTP push message (to web service endpoint)

### **Still Available:**

- Phone call
- Email





## **Settlements**

#### Live

• Excel file uploads like current process

#### **Future**

- More detailed screens
- Backup information to validate & identify aggregator results

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# All functionality available via APIs



**Built to Scale with APIs** 



# All functionality available via APIs



**Built from ground up** 



## **Overview of APIs**



## Booths at 2020 DR Forum



- **Booth A + B DR Portal Functionality**
- Booth C + D DR Portal API's
- Booth E AMI, DCX, DR
- Booth F NWS, NPS
- **Booth G Refreshments**

#### Visit our booths: Each have different focus area

Questions? Visit a booth or email: DR@coned.com

