

Introduction to Demand Response

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Demand Response Reliability-Based Programs

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Remote Learning

Intro Session Objectives

- **Define Demand Response**
- **Distinguish between reliability-based and economic-based programs**
- **Differentiate the basic requirements of each of the programs**
- **Define Behind-the-Meter Net Generation Resources**
- **Identify NYISO systems for accessing, entering, updating, and reviewing Demand Response and other related information**

Demand Response Defined

Demand Response

- Demand Response (DR) is the act of reducing energy consumption from the grid at the direction of the NYISO
- Demand Response is provided by Demand Side Resources, which are:
 - Electricity consumers located in NYS that enroll to take part in a specific DR program
 - Capable of reducing the power consumed from the grid for discrete periods of time as directed by the NYISO
 - Examples:
 - Industrial companies
 - Commercial buildings
 - Big box stores
 - Small retail stores
 - Hospitals
 - Colleges/Universities

Demand Response

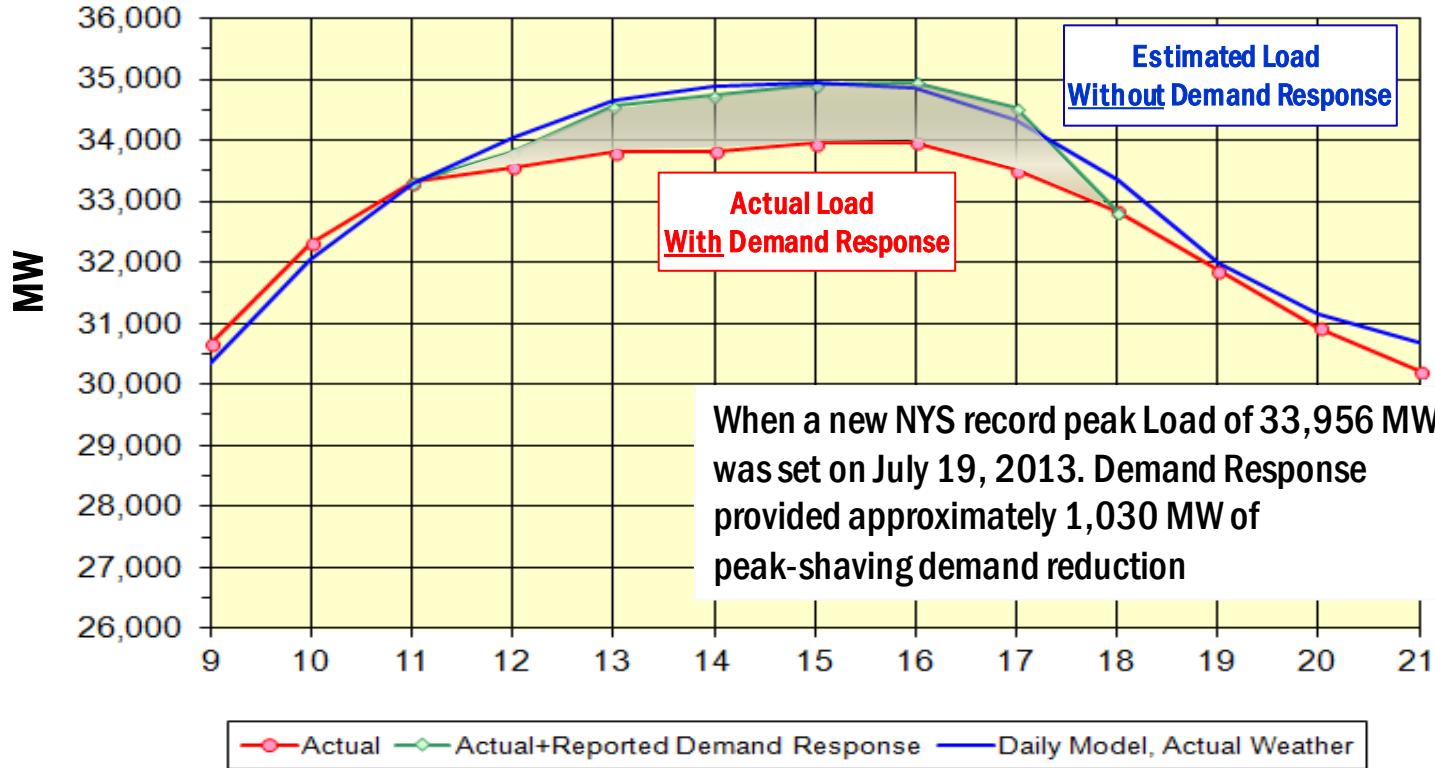
■ Demand Side Resource Response Types

Resources can reduce consumption from the grid by:	
Response Type C	<ul style="list-style-type: none">Decreasing power consumption in the facility (Interruptible loads)
Response Type G	<ul style="list-style-type: none">Using a qualified behind-the-meter Local Generator to supply part of the resource's load
Response Type B	<ul style="list-style-type: none">Using both load curtailment and a Local Generator

Demand Response

- Advantages of Demand Response Programs
 - **Contribute to maintaining system reliability by:**
 - Effectively increasing the supply available to manage peak demand periods
 - Allow qualified load to provide ancillary services to the wholesale electricity market
 - **Maintain price stability in the market by:**
 - Allowing qualified load to respond to wholesale market prices, which can moderate high prices in the NYISO Day-Ahead Market

Demand Response & System Reliability



Equivalent to the output of two medium-sized generating plants or the electricity needs of 300,000 - 400,000 households

Demand Response Primary Program Categories

Reliability-Based vs. Economic-Based

Categories of Demand Response Programs

Reliability-Based Programs – NYISO determines activation

- **Purpose: Reduce load 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**
 - Emergency Demand Response Program (EDRP)
 - ICAP-Special Case Resources (SCR)
 - Targeted Demand Response Program (TDRP)

Categories of Demand Response Programs

Economic-Based Programs – Resource determines when to participate (through supply offers)

- **Purpose:** Load reduction, competing with generation, is scheduled by NYISO based upon economic offers
 - Day-Ahead Demand Response Program (DADRP)
 - Demand-Side Ancillary Service Program (DSASP)

Summary of Demand Response Programs

Program Name	Program Type	Performance Requirement	Size Requirement	Enrolled By	Metering	Payment Type
EDRP	Reliability-based	Voluntary	<ul style="list-style-type: none"> • Minimum 100 kW Reduction 	Curtailment Service Provider	Hourly Interval Meter	Performance Payment
SCR	Reliability-based	Mandatory if notification timeline is met	<ul style="list-style-type: none"> • Minimum 100 kW Reduction • Grouping by zone allowed 	Responsible Interface Party	Hourly Interval Meter	Performance Payment <u>and</u> Monthly ICAP Payment
DADRP	Economic-based	Mandatory when scheduled	<ul style="list-style-type: none"> • Minimum 1 MW Reduction • Grouping by zone and LSE allowed 	DADRP Provider	Hourly Interval Meter	Performance Payment
DSASP	Economic-based	Mandatory when scheduled	<ul style="list-style-type: none"> • Minimum 1 MW Reduction • Grouping by zone allowed 	DSASP Provider	Six Second Real-Time Metering	Reserve Capacity Payment <u>and/or</u> Regulation Capacity and Movement Payments

How Program Participants Enroll

Retail
Consumer

Participates in NYISO
wholesale markets through



Registered NYISO Market
Participant

Retail Consumers may be:

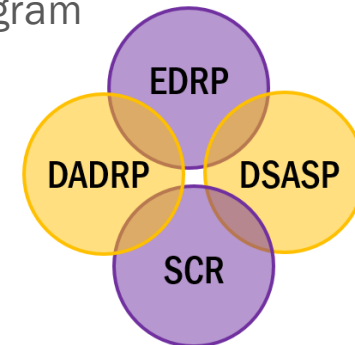
- *Industrial companies*
- *Big box stores*
- *Commercial buildings*
- *Hospitals*
- *Colleges/Universities*

Market Participants include:

- *Transmission Owner – local distribution utility*
- *Load-Serving Entity – competitive energy supplier*
- *Aggregator – company that transacts with NYISO on behalf of retail consumers*

Mutually Exclusive Participation

- Demand Side Resources may participate in one reliability-based program and one economic-based program simultaneously
- If a reliability event is called and a resource is participating in both a reliability-based program and an economic based program:
 - The resource's real time dispatch schedule in the economic based program will be terminated for the duration of the event
 - Only the resource performance above its Day-Ahead Market schedule for the economic based program will be considered for the reliability-based program settlements



Behind-the-Meter Net Generation Resources Defined

Behind-the-Meter Net Generation Resources

- **BTM:NG Resources are -**
 - Facilities with on-site generation routinely serving host load
 - Having net generation after serving host load to offer in to NYISO markets
 - Examples:
 - Factories
 - Co-Ops
 - Colleges/Universities

NYISO Systems

ICAP AMS

MIS

DRIS

Accessing NYISO Systems

- Initial Requirements
 - Organization Specific System Administrator
 - Valid NAESB Digital Certificate
 - User Account
 - Assigned user ID and password



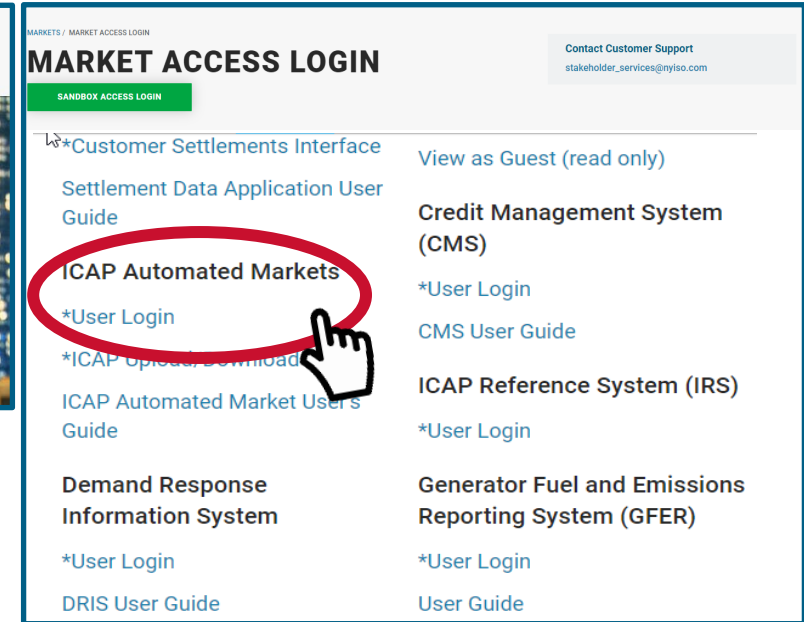
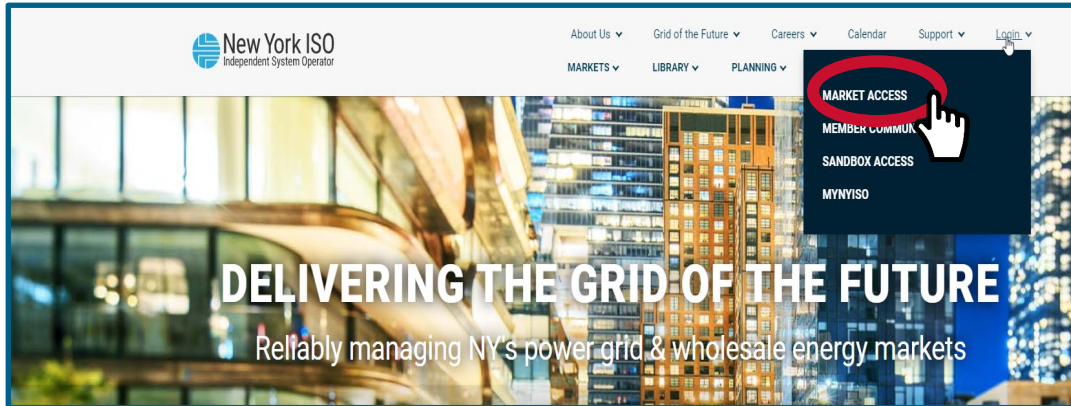
ICAP Automated Market System

■ ICAP AMS

- NYISO's automated system for supporting Installed Capacity (ICAP) market
- Information may be viewed for SCRs and BTM:NG Resources:
 - Upload/download ICAP market related information
 - Bids and Offers
 - Auction details
 - Settlement related information to support customer invoicing
 - Event Calendar

ICAP Automated Market System

■ Accessing ICAP AMS from NYISO Home Page



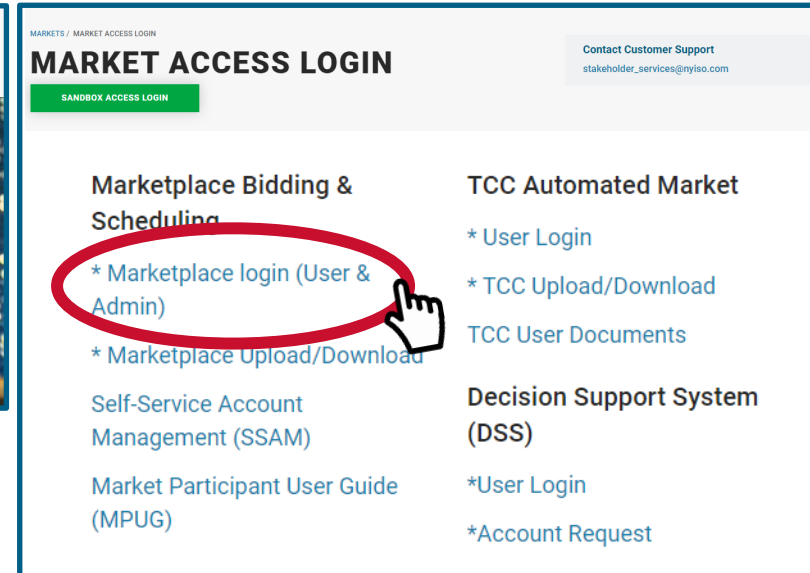
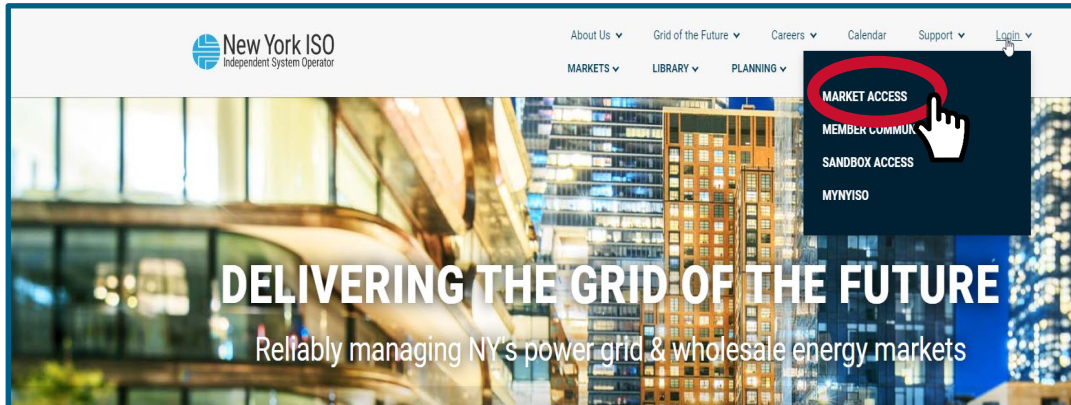
Market Information System

■ MIS

- Web-based interface between NYISO and Market Participants
- Used to manage administration of organization and resource details, and the following additional Energy and Ancillary Services market data:
 - Offer/bid submittals
 - Offer/bid updates
 - Accepted schedules

Market Information System

- Accessing MIS from NYISO Home Page



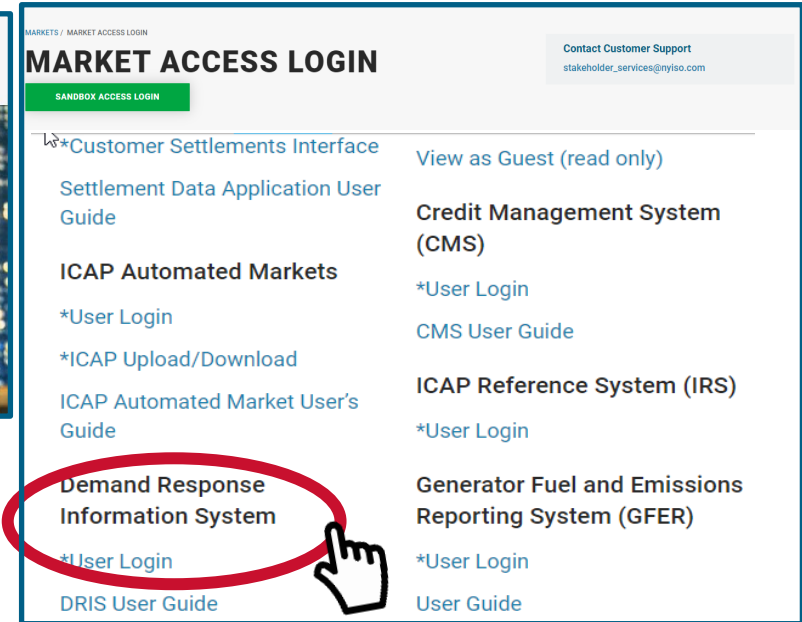
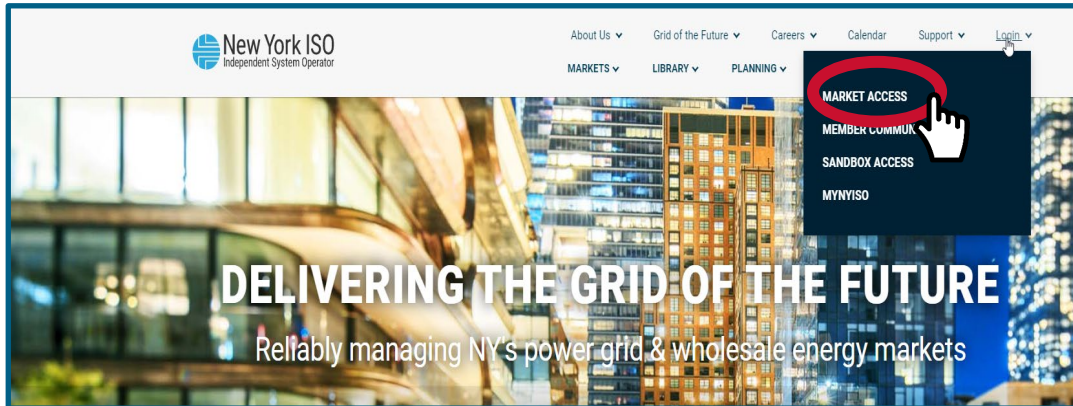
Demand Response Information System

■ DRIS

- NYISO's automated system for enrollment and management of Demand Response resources
- Accessible by Market Participants to enroll and manage the following data for their Demand Side Resources:
 - Enrollment information
 - Aggregations
 - Performance
 - Event/Test notification & responses
 - Event/Test response reporting
 - Settlement information
 - Event Calendar

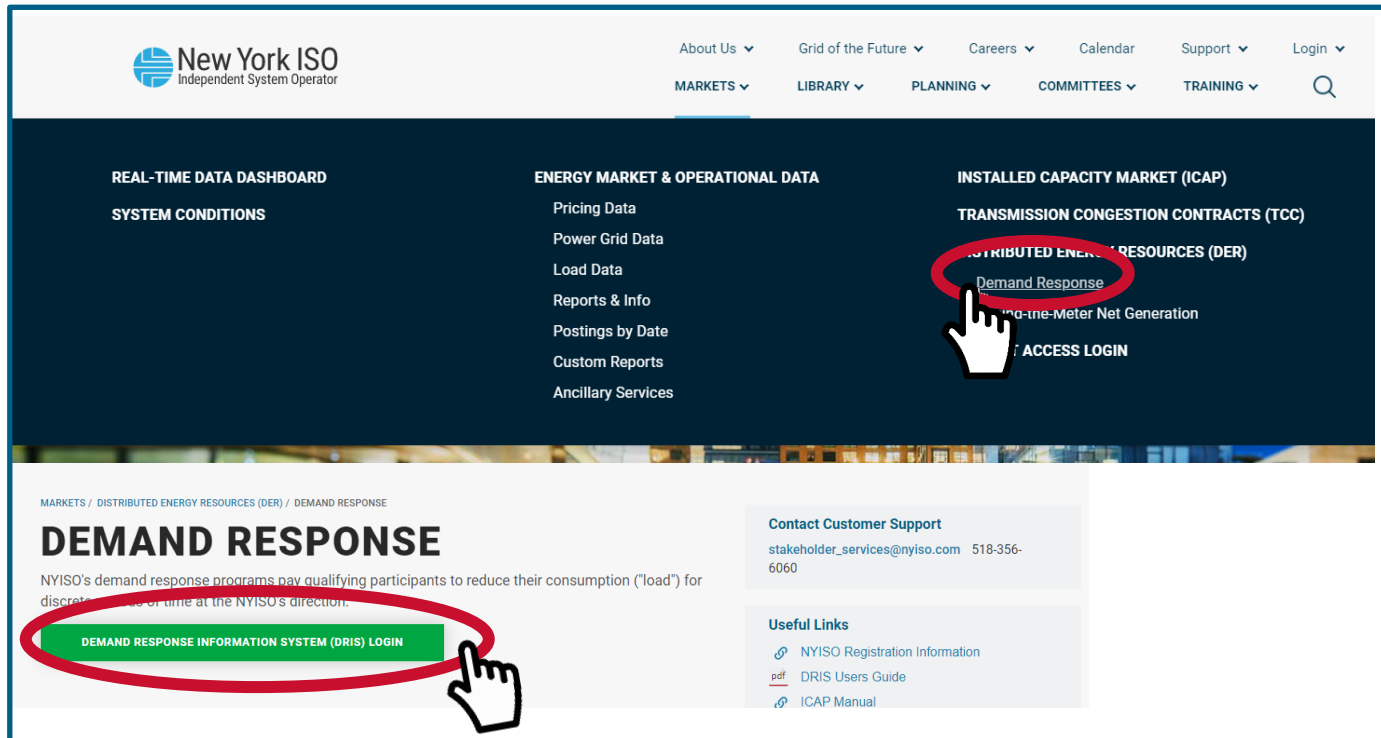
Demand Response Information System

- Accessing DRIS from NYISO Home Page



Demand Response Information System

■ Accessing DRIS from DER Home Page



The screenshot shows the New York ISO website navigation. The top navigation bar includes links for About Us, Grid of the Future, Careers, Calendar, Support, and Login. Below this is a secondary navigation bar with Markets, Library, Planning, Committees, and Training. The main content area is divided into three columns: REAL-TIME DATA DASHBOARD, ENERGY MARKET & OPERATIONAL DATA, and INSTALLED CAPACITY MARKET (ICAP). Under the ENERGY MARKET & OPERATIONAL DATA column, the link for DISTRIBUTED ENERGY RESOURCES (DER) is circled in red, with a hand icon pointing to it. Below this, the link for Demand Response is also circled in red. The bottom section of the page shows the breadcrumb trail: MARKETS / DISTRIBUTED ENERGY RESOURCES (DER) / DEMAND RESPONSE. The main heading is DEMAND RESPONSE, followed by a brief description. A green button labeled DEMAND RESPONSE INFORMATION SYSTEM (DRIS) LOGIN is circled in red, with a hand icon pointing to it.

REAL-TIME DATA DASHBOARD
SYSTEM CONDITIONS

ENERGY MARKET & OPERATIONAL DATA
Pricing Data
Power Grid Data
Load Data
Reports & Info
Postings by Date
Custom Reports
Ancillary Services

INSTALLED CAPACITY MARKET (ICAP)
TRANSMISSION CONGESTION CONTRACTS (TCC)
DISTRIBUTED ENERGY RESOURCES (DER)
Demand Response
Behind-the-Meter Net Generation
ACCESS LOGIN

MARKETS / DISTRIBUTED ENERGY RESOURCES (DER) / DEMAND RESPONSE

DEMAND RESPONSE

NYISO's demand response programs pay qualifying participants to reduce their consumption ("load") for discrete periods of time at the NYISO's direction.

DEMAND RESPONSE INFORMATION SYSTEM (DRIS) LOGIN

Contact Customer Support
stakeholder_services@nyiso.com 518-356-6060

Useful Links
[NYISO Registration Information](#)
[DRIS Users Guide](#)
[ICAP Manual](#)

Demand Response Information System

- DRIS Login Page



Demand Response Information System

Login Required

You are attempting to access a protected resource.

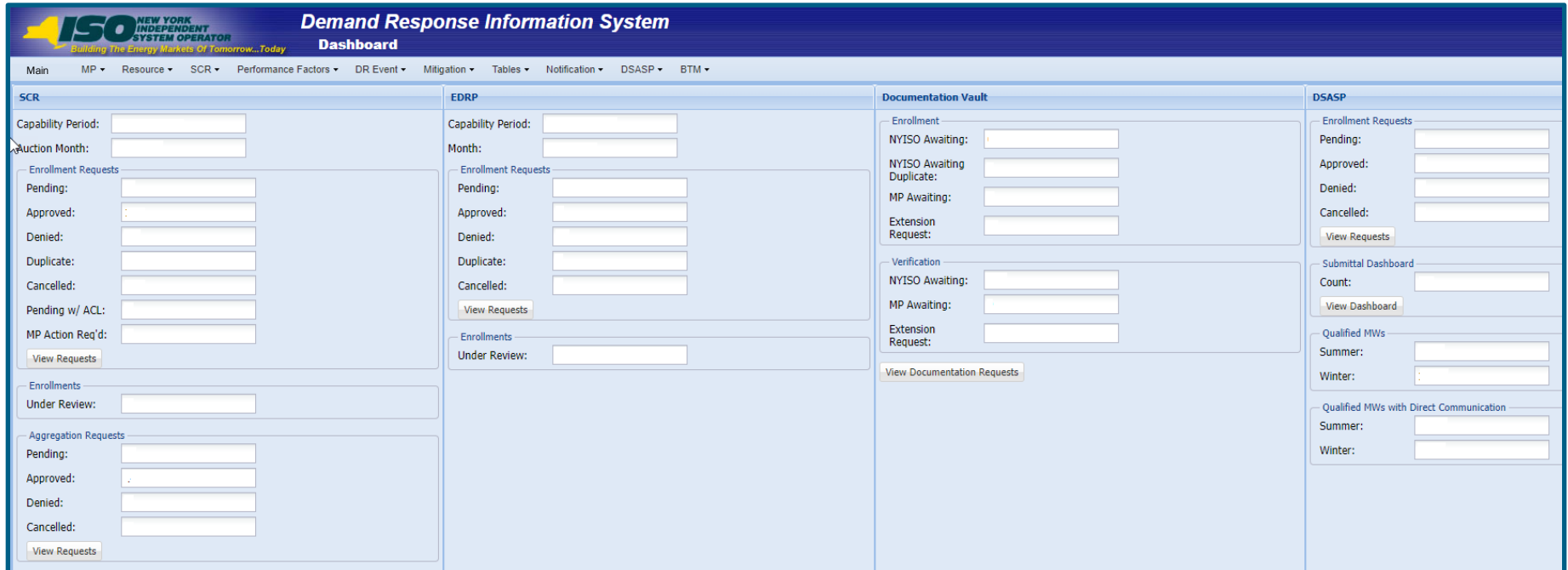
User ID:

Password:

Login

Demand Response Information System

■ DRIS Dashboard



1 ISO NEW YORK INDEPENDENT SYSTEM OPERATOR
Building The Energy Markets Of Tomorrow...Today

Demand Response Information System Dashboard

Main MP Resource SCR Performance Factors DR Event Mitigation Tables Notification DSASP BTM

SCR

Capability Period:

Auction Month:

Enrollment Requests

Pending:

Approved:

Denied:

Duplicate:

Cancelled:

Pending w/ ACL:

MP Action Req'd:

[View Requests](#)

Enrollments

Under Review:

Aggregation Requests

Pending:

Approved:

Denied:

Cancelled:

[View Requests](#)

EDRP

Capability Period:

Month:

Enrollment Requests

Pending:

Approved:

Denied:

Duplicate:

Cancelled:

[View Requests](#)

Enrollments

Under Review:

Documentation Vault

Enrollment

NYISO Awaiting:

NYISO Awaiting Duplicate:

MP Awaiting:

Extension Request:

Verification

NYISO Awaiting:

MP Awaiting:

Extension Request:

[View Documentation Requests](#)

DSASP

Enrollment Requests

Pending:

Approved:

Denied:

Cancelled:

[View Requests](#)

Submission Dashboard

Count:

[View Dashboard](#)

Qualified MWs

Summer:

Winter:

Qualified MWs with Direct Communication

Summer:

Winter:

Additional Resources

- **Tariffs –MST and OATT**
- **Day Ahead Demand Response Program Manual**
- **Emergency Demand Response Program Manual**
- **Behind-the-Meter: Net Generation On-Line Training**
- **Market Participant User's Guide**
- **Installed Capacity Manual**
- **ICAP Automated Market User's Guide**
- **DRIS Users Guide**