

Overview of NYISO Demand Response Programs

The NYISO has developed rules and procedures that permit demand side resources to participate in the day-ahead energy and installed capacity markets. The Day-Ahead Demand Response Program (DADRP) permits interruptible load resources to schedule load reductions in the day-ahead energy market. Demand side resources can participate in the NYISO's installed capacity market as Special Case Resources (SCRs). In addition, the NYISO provides a reliability-based Emergency Demand Response Program (EDRP) that pays for load reductions under reserve shortage or major emergency conditions. When activated, both EDRP and SCR resources are eligible to set the real-time marginal price if, but for the use of these resources, reserves in any given dispatch interval are deficient.

What was the experience with demand response during 2006, particularly during the summer heat events?

In 2006, the NYISO activated the EDRP and SCR resources on five different days:

July 18:

EDRP and SCR resources were activated in the Lower Hudson Valley, New York City, and Long Island, Zones H-K (see Figure 1), from 1 pm to 10 pm and provided an average 485 MW load relief to address low voltage concerns in the Lower Hudson Valley.

Transfers across the UPNY-ConEd interface (Zone G-Zone H) were limited for the lower Hudson Valley area 345kV voltages from noon to 5 pm. Also, the NYISO-PJM total transfer capability (TTC) was reduced from the normal 2500MW limit from noon to 9 pm for Hudson Valley area 345kV voltages. System peak load reached 32,060 MW.

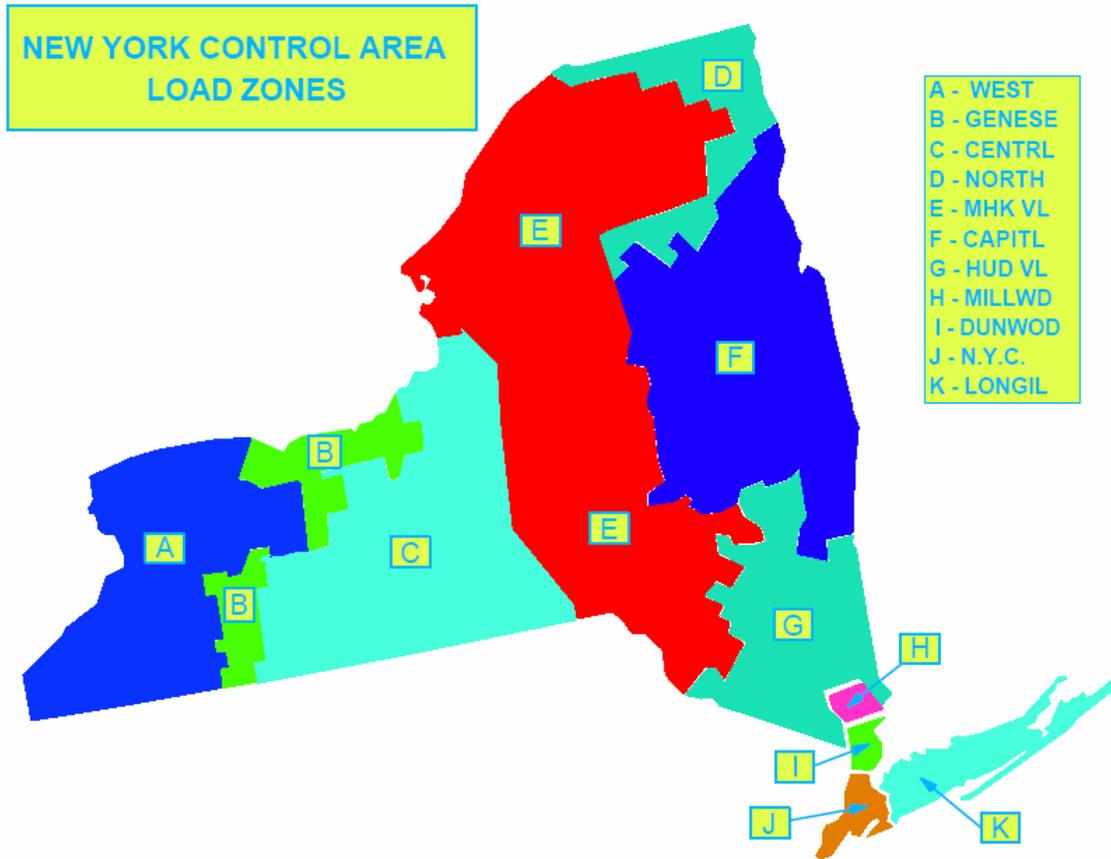


Figure 1 – New York Control Area Load Zones

July 19:

EDRP and SCR resources were activated in New York City, Zone J, from approximately 11 am to 7 pm in response to the local Transmission Owner request in the NYC Zone (J) to address network feeder outages. There were concerns that these outages could impact station service to nearby generation. These resources provided an average 327 MW of load relief.

August 1:

EDRP and SCR resources were activated in New York City and Long Island, Zones J&K, from 2 pm to 7 pm and provided an average of 314 MW of load relief. The Sprain Brook / Dunwoodie Interface series reactors were bypassed throughout the Aug 1-3 period. The NYISO-PJM TTC was reduced from the normal 2500MW limit from 1 pm to 10 pm for Western NY area voltages, and the Fraser static var compensator (SVC) operating limits were widened to improve Oakdale voltage. The peak load on August 1 was 33,879 MW.

August 2:

On August 2, EDRP and SCR were activated in response to two separate conditions. EDRP and SCR resources were activated in Zones J&K from 1 pm to 7 pm for local reliability and operating reserve concerns, and the West, Genesee, and Central Zones, A, B & C, were activated from 2 pm to 7 pm for low voltage conditions upstate. These resources provided an combined average 948 MW of load relief, and prevented operating reserve deficiencies from 2 pm through 7 pm.. The all-time system peak of 33,393 MW was reached between 1 and 2 pm. The Fraser static var compensator (SVC) and Leeds SVC operating limits were widened to improve Oakdale and Ramapo voltage. 1,300MW of Emergency Energy was supplied to ISO-NE in Hour Beginning13; ISO-NE was in 5% voltage reduction at the time.

Figure 2 compares the actual New York control area load (lower curve) and a calculation of what the load would have been without the load reduction provided by demand response resources (upper curve).

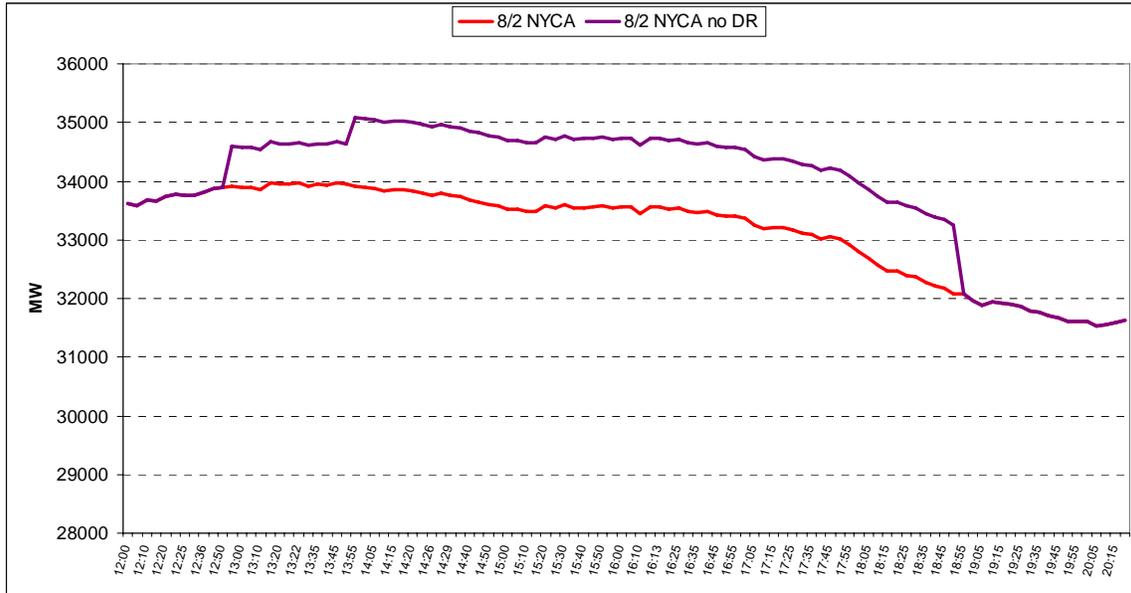


Figure 2 – Demand Response Impact on August 2, 2006

August 3:

EDRP and SCR resources were activated in New York City and Long Island, Zones J&K, from 1 pm to 7 pm and provided an average 399 MW of load relief; system peak load was 32,492 MW. Demand response was necessary during this entire period to alleviate operating reserve deficiencies.

Can demand response replace operating reserves, and, if not, what are the obstacles?

The NYISO believes that demand response resources can provide both reserves and regulation services. We are currently designing the changes necessary to permit these resources to participate in our two-settlement market for regulation and all categories of reserve products. Given the complexity of the NYISO’s co-optimized market design, the

conceptual design has been a time-consuming process, but we plan to have these additional products available to demand response resources by the end of Q3-2007.

What is the amount of potential demand response available during system emergencies in your regions? How do you know what is a potential demand response? How much of this capability was utilized in 2006?

From May 2001 to March 2007, the scope of the NYISO's reliability-based demand response programs has grown from approximately 200 MW to 1615 MW. The number of end-use customers participating in these programs has increased from approximately 200 in March 2002, to over 2500 today. Roughly one-half of these customers representing one-third of the total MW load reduction is located in New York City. Figure 3 shows the growth in program registrations over that period of time.

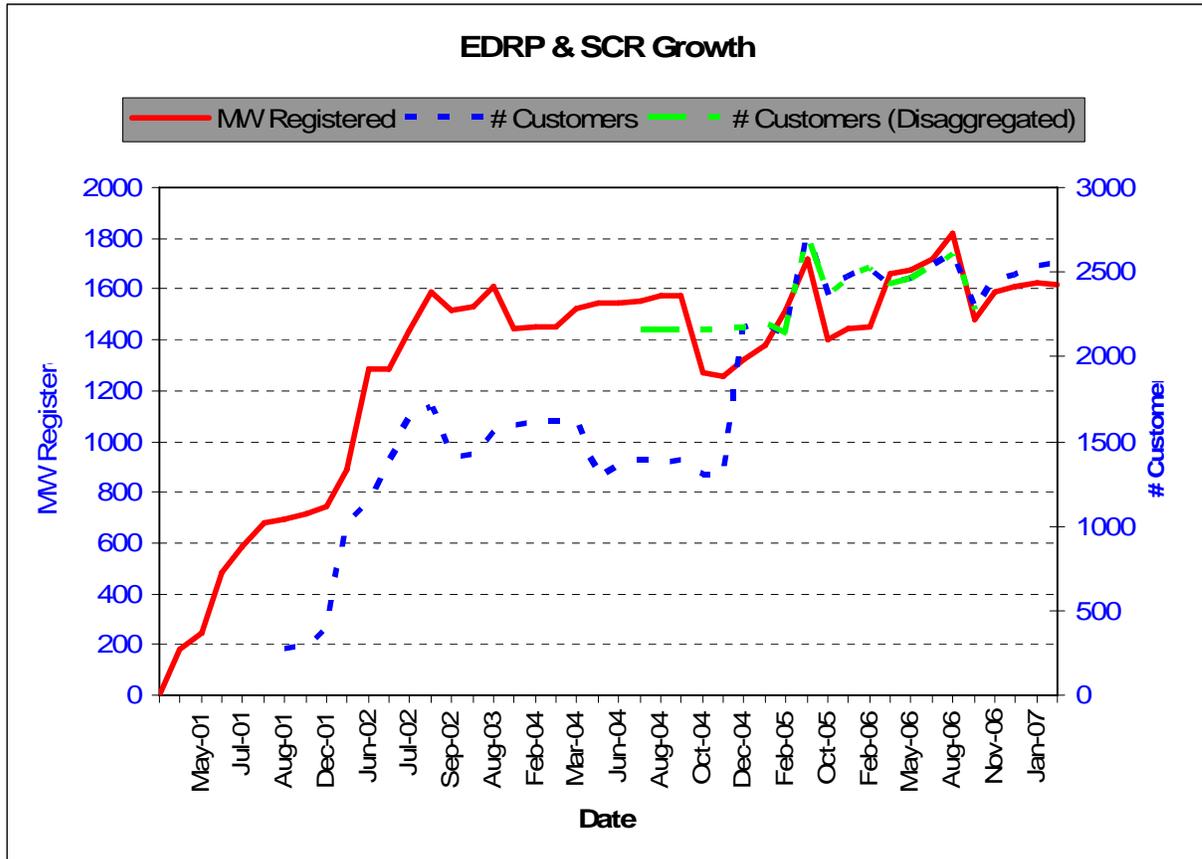


Figure 3 – Registered MW and Number of Customers in EDRP & SCR

Over the past five years, the NYISO’s demand response programs have grown by approximately seven percent annually. Future growth in the NYISO’s reliability-based demand response programs can be expected to continue at a similar pace. Participation in the NYISO’s future ancillary services markets is expected to add, over the longer term, 100 to 200 MW of demand response resources, judging by the interest expressed by potential participants.

It is difficult to estimate the potential demand response that could be available for future demand response, particularly given the importance of real-time metering to successful participation. Based on 2006 performance, the NYISO’s reliability-based programs delivered 73 percent of the registered megawatts in Zones A, B, C, J and K.

Several years of experience with ISO demand response programs are now available. Based on this experience, what is your evaluation of these programs?

The NYISO's reliability-based programs (EDRP and SCR) have proven to be an invaluable tool in maintaining reliability under operating reserve deficiency situations. Our Day-Ahead Demand Response Program (DADRP) has seen limited participation, but market impacts as measured by transfer payments, net social welfare, and participant payments, have shown a net benefit, ranging from a few thousand dollars per year to over \$300,000 over the period 2002-2006. The NYISO's semi-annual demand response evaluation filings with the Commission (under Dockets ER01-3001-016 and ER03-647-009) provide a comprehensive summary of our experience with these programs.

What is the status of efforts to coordinate wholesale ISO demand response programs or market designs with retail demand response?

From the inception of NYISO's demand response programs, the New York State Public Service Commission (NYSDPS) has been instrumental in ensuring that utilities such as ConEd offer programs consistent with NYISO program designs. In April 2006, the NYSDPS issued an Order in Case 03-E-0641 adopting mandatory hourly pricing requirements for NY investor-owned utilities. In addition, the New York State Energy Research and Development Authority (NYSERDA) has offered innovative programs to assist program participants with load reduction strategies such as interval metering and emergency generator tune-up and emissions testing.

What new efforts, market designs or programs are underway within your regions to further integrate demand response?

In addition to opening up the reserves and regulation markets to demand response resources, the NYISO is also implementing a targeted demand response program for New York City. Both EDRP and SCR programs currently can be called statewide or by zone, but not selectively within a zone. Following the 2006 summer outages on the Con Edison distribution system, NYISO staff and stakeholders began work on rules that would permit the NYISO to activate demand response down to the network substation level in New York City. Eight sub-load pockets have been identified; work is presently underway to permit the NYISO to activate demand response resources in one or more of these sub load pockets in response to a request from Con Edison. This effort was approved by the NYISO Board of Directors in April and will shortly be filed with FERC; the program is expected to be in place for this summer.

What needs to be done in the future to fully integrate demand response?

The single most significant driver to increased demand response participation must occur at the retail level: customers need to be exposed to wholesale market prices and have the ability to see and react to those prices in real time. Wholesale market designs can best deal with customers who are enabled with the proper real-time interval metering and whose load is either directly (through LBMP) or indirectly (through contracts for differences) subject to wholesale market pricing. Not all loads need be exposed at this level; if fifteen to twenty percent of customers were able to react to wholesale prices, this

would likely provide enough demand elasticity to put demand and supply on equal footing.