
new . york . independent . system . operator



nyiso
Emergency Demand Response
Program Manual

revised: 01 . 19 . 2001

1.0 Definitions and Acronyms

Billing Credits - Credits to a customer's electric bill for load reduced during a curtailment period.

Capability Period - Six (6) month periods which are established as follows: (1) from May 1 through October 31 of each year ("Summer Capability Period"); and (2) from November 1 of each year through April 30 of the following year ("Winter Capability Period").

Congestion Loss Component - The component of the LBMP measured at a location or the Transmission Usage Charge between two locations that is attributable to the cost of Transmission Congestion.

Curtailment Customer Aggregator (or Aggregator) – An organization qualified as a CSP that enters into contracts with EDRP Loads to either interrupt load or start up Local Generation under the EDRP.

Curtailment Program End Use Customer (EUC) – An end-use customer qualified as a CSP that can either interrupt load or start up Local Generation under the EDRP.

Curtailment Services Provider (CSP) – A qualified provider that can produce real-time, verified reductions in NYCA Load, of at least 100 kW, pursuant to the Emergency Demand Response Program ("EDRP") and related ISO procedures.

Customer Base Load (CBL) – Average hourly energy consumption as calculated in Section 6, used to determine the level of load curtailment provided.

Day-Ahead Zonal LBMP – The price (in \$/MWh) for combined energy, losses, and transmission congestion determined on an hourly basis in the day-ahead electricity market.

Direct Customer – (get from ?)

Economic Condition - An abnormal high market price of energy that occurs over a period that could be the direct result of a large demand for electricity by the consumer during a time when a low supply of energy is available.

EDRP – Emergency Demand Response Program, described in this manual.

EDRP Loads – End use customers that provide load reduction and have been registered through a CSP to participate in the Emergency Demand Response Program.

Emergency Condition - Any abnormal system condition as specified by the ISO that requires immediate automatic or manual action to prevent or limit loss of transmission facilities or Generators that could adversely affect the reliability of the electric system.

Emergency Generation - An electrical generator installed to handle emergency outages at a facility, for short periods of time.

In-Day Peak Hour Forecast – (get from SOP).

Installed Capacity (ICAP) - A Generator or Load facility that complies with the requirements in the Reliability Rules and is capable of supplying and/or reducing the demand for energy in the New York Control Area for the purpose of ensuring that sufficient energy and capacity are available to meet reliability rules. The Installed Capacity requirements, established by the New York State Reliability Council, includes a margin of reserve in accordance with the Reliability Rules.

Interval Metering - A metering device which records electricity usage for each fifteen minute period during a billing period.

Limited Customer – ??

Load Curtailment (or Reduction) - A reduction in energy usage at a customer facility that is the result of the customer either reducing the energy consumed or operating an on-site generator.

Load Serving Entity (LSE) – Any entity, including a municipal electric system and an electric cooperative, authorized or required by law, regulatory authorization or requirement, agreement, or contractual obligation to supply Energy, Capacity and/or Ancillary Services to retail customers located within the NYCA, including an entity that takes service directly from the ISO to supply its own Load in the NYCA.

Local Generator - A generator operated by or on behalf of loads offering load reductions pursuant to the Emergency Demand Response Program. Such generators are not synchronized to a utility's local distribution system or, if synchronized to the local distribution system, support a load that is equal to or in excess of the generator's capacity; *i.e.* when operating, the local generator supplies energy only to the end use customer whose load it is being operated to serve and does not supply energy to the distribution system.

Locational Based Marginal Price (LBMP) - The price of energy bought or sold in the LBMP Markets at a specific location or zone.

Marginal Energy Component - The Energy component of the LBMP that is bid, produced, purchased, consumed, sold or transmitted over a period of time and measured in kilowatt or megawatt hours.

Marginal Loss Component - The component of the LBMP at a bus that accounts for the Energy Losses, as measured between that bus and the reference bus.

Metering Authority – ??

New York Independent System Operator (NYISO) - Not for profit organization created to supply New York's electric power needs and to facilitate the power market equitably.

NYCA –The Control Area that is under the control of the NYISO which includes transmission facilities listed in the ISO/TO Agreement Appendices A-1 and A-2, as amended from time-to-time, and Generation located outside the NYS Power System that is subject to protocols (e.g., telemetry signal biasing) which allow the ISO and other Control Area operator(s) to treat some or all of that Generation as though it were part of the NYS Power System.

NYISO Services Tariff – The document that sets forth the provisions applicable to the services provided by the ISO related to its administration of competitive markets for the sale and purchase of Energy and Capacity and for the payments to Suppliers who provide Ancillary Services to the ISO in the ISO Administered Markets and provision of Control Area Services, including services related to ensuring the reliable operation of the NYS Power System.

NYS DEC – New York State Department of Environmental Conservation.

Operating Reserve Shortage – get from SOP.

Real-Time Zonal LBMP – The price (in \$/MWh) for combined energy, losses, and transmission congestion determined on a roughly five-minute basis in the real-time electricity market.

Remote Metering - Metering equipment which is connected to a telephone modem which allows for remote collection of metering data.

Self Generation - Using an on-site electrical generator to meet all or part of a facility's electricity needs.

Special Case Resource - Loads capable of being interrupted upon demand, and distributed generators, rated 100 kW or higher, that are subject to special rules set forth in the NYISO Services Tariff, in order to facilitate their participation in the Installed Capacity market as Installed Capacity Suppliers.

System Electrical Demand - The total load of all the electricity using devices and equipment that are turned on at one time on an electrical distribution system.

System Electrical Peak Demand - The largest hourly electrical load on an electrical distribution system during the summer or winter periods.

Transmission Congestion - A condition on an electrical transmission system during times of peak electrical demand which prevents the transmission of additional electricity through the transmission system.

Weather Sensitive Load - Electrical load which increases as the outdoor temperature either increases or decreases.

Zone -

2.0 Program Summary

The *Emergency Demand Response Program* (EDRP) provides a mechanism for load reduction during emergency conditions, more specifically defined in this document, thereby facilitating the reliability of the New York State bulk power system.

Customers who agree to participate in the EDRP can be accommodated through one of four types of Curtailment Service Providers (CSPs):

- Load Serving Entities (LSEs), either that currently serving the load or another LSE,
- through NYISO-approved Curtailment Customer Aggregators
- as a Customer of the NYISO
- as a NYISO-approved Curtailment Program End Use Customer

CSPs should be able to provide load reduction of at least 100 kW per zone and be able to respond within two hours of emergency notification.

Participation in the EDRP is voluntary and no penalties attach if a CSP fails to respond to a NYISO notice to reduce load.

Customers participating in the EDRP may also participate in the NYISO's Special Case Resources Program.

CSPs will be given no less than two hours in advance of the time specified to reduce load and pursuant to NYISO emergency operations procedures. CSPs shall be paid the higher of \$500 per MWh or the Real Time Zonal LBMP per MWh of verified load reduction. If the CSP is required by the ISO to reduce load for four hours or less, payment will be the higher of the \$500 per MWh or the Real Time zonal LBMP per MWh of verified load reduction for the first two hours of verified load reduction and the Real Time zonal LBMP per MWh of verified load reduction for the second two hours. A detailed explanation of payments can be found in Section 6.

The program will be effective May 1, 2001 and will continue through October 31, 2002. At the end of each Capability Period, the program will be evaluated and changes recommended as necessary.

3.0 Eligibility Criteria / Participant Qualification

3.1 Effective Period of the Program

The program begins on May 1, 2001, and will continue through October 31, 2002. At the end of each Capability Period (May-October and November-April), program performance will be evaluated to see if any rules and procedures need to be modified.

Entities wishing to participate may apply for entry into the program at any time. If you are also planning to qualify as a Special Case Resource you should review the rules and regulations that apply to Installed Capacity (ICAP) suppliers found in [1], or contact NYISO Market Relations.

3.2 Who Can Participate?

The EDRP allows wholesale electricity market participants to subscribe customers able to provide Load Reduction (EDRP Loads) when called upon during emergency conditions. Wholesale market participants are grouped into four broad classes of *Curtailment Service Providers* (CSPs):

- *Load-Serving Entities* (LSEs) as defined in [2] that currently serve customers capable of load reduction, or an LSE that subscribes another LSE's load solely for the purpose of participating in the NYISO EDRP. LSEs may claim load reductions from their customers or the customers of another LSE. Load curtailment programs currently in place or under implementation may directly qualify for the EDRP (see 3.4 Restrictions below).
- *Direct Customers* of the NYISO as defined in [2] may claim their own load reductions.
- NYISO-approved *Curtailment Customer Aggregators* (Aggregators) of end users capable of load reduction. Aggregators may claim load reductions from EDRP Loads with which they have a contractual arrangement. An Aggregator is required to join the NYISO as a Limited Customer.
- NYISO-approved *Curtailment Program End Use Customers* (EUC), end-use customers whose load is normally served by an LSE but who wish to participate directly with the NYISO solely for purposes of the EDRP. EUCs must be capable of reducing at least 100 kW of load. An EUC is required to join the NYISO as a Limited Customer.

3.3 Minimum Qualifications for CSPs

To serve as a CSP, you must:

- 1) Be a Customer (in the case of LSEs or Direct Customers) or a Limited Customer (in the case of Aggregators and EUCs) of the NYISO and be able to pledge Load Reduction in the NYCA.
- 2) Be able to completely disconnect from the local distribution system and supply required load via local generators¹ or to reduce a measurable and verifiable portion of the load.
- 3) Be capable of reducing at least 100 kW of load per Zone.
- 4) Be capable of responding within two hours of notice from the NYISO.

¹ These generators either can be non-synchronized to the grid or synchronized to the grid with no net export to the grid while serving load.

- 5) Complete the appropriate sections (based on the CSP category for which you are registering) of the form provided in Attachment A.
- 6) CSPs are required to provide hourly interval metering to validate performance; specific metering requirements are given in Section 6 of this manual.

3.4 Restrictions

To participate in the program, an individual EDRP Load cannot subscribe the same metered load with more than one CSP.

Customers under a contract that prevents them from curtailing energy are prohibited from participating in the program. The NYISO will confirm with the appropriate LSE and Electric Distribution Company that the load to be reduced is not under any other specific contractual obligation that would prevent participation in the EDRP.

3.5 Requirements for Curtailment Customers With On-Site Generation

Owners of on-site and emergency generators including, but not limited to hospitals, data centers, office buildings, warehouses and industrial locations are eligible to participate in the EDRP. On-site generation will serve all or part of what otherwise would be NYISO load (i.e., the customer's specific load delivered from their LSE), thereby reducing the total NYISO load during declared emergencies. The requirements for participation are as follows:

- 1) The generator may operate non-synchronous or synchronous with the grid as long as there is no net electric export while serving the load.
- 2) Be capable of achieving full reduction within 2 hours of a request to reduce load.
- 3) Must have an integrated hourly or permanent recording meter as described in Section 6.1, Metering Requirements.
- 4) Be capable of receiving call notification from a Curtailment Service Provider (CSP).
- 5) Be compliant with the appropriate NYS DEC permitting / registration requirements.

It is anticipated that operation will only be requested during weekday daylight hours and participation is voluntary.

Nothing in the EDRP expands or reduces the rights or obligations a Local Generator may have to buy or sell energy into the wholesale market.

3.6 Compatibility with ICAP Special Case Resources

The EDRP pays for energy during times of emergency, but does not pay for capacity. The NYISO has a separate program called Special Case Resources (SCR) within Installed Capacity (ICAP) market that pays for capacity. SCR is available to generators and load reduction providers that meet testing, metering and other requirements. The capacity payments under SCR and the EDRP energy payments are additive. While there are no penalties for non-performance EDRP, the SCR program will reduce future capacity payment if the NYISO calls for operation and the SCR does not perform. See the ICAP Manual for more details located at www.nyiso.com/markets/icapinfo.html.

3.7 Compatibility with LSE-Sponsored Curtailment Programs

There are curtailment programs in New York State both currently in place and under development that are designed to help the local utility with distribution load management. Each program is

aimed at enhancing the reliability of the local electric system during time of high usage or outages. The EDRP is designed to be compatible with these programs.

The EDRP and local reliability programs may ask participants to curtail back to back, concurrently or have times that overlap. During the times when the EDRP and the local reliability programs have requested concurrent or overlapping load reduction the price paid shall be the highest price offered between the two programs.

4.0 CSP Registration Procedures

To qualify as a Curtailment Service Provider (CSP) you must be an LSE, Direct Customer, Curtailment Customer Aggregator or Curtailment Program End Use Customer. The registration form is posted on the NYISO web site (www.nyiso.com) and included in Attachment A to this manual. The general requirements for each CSP class are as follows:

4.1 Load Serving Entities (LSE)

(Just need to fill out Attachment A and one copy of Attachment B for each participating load).

4.2 Direct Customers

(Fill out Attachment A and one copy of Attachment B).

4.3 Curtailment Customer Aggregators

Curtailment Customer Aggregators are companies that work with owners of generation and load reduction to make it easier to participate in the NYISO Emergency Demand Response program. They do not require customers to become members of the NYISO, will handle all the NYISO administrative activities and may offer other benefits or incentives. Registration to become an Curtailment Customer Aggregator includes:

1. Becoming a NYISO Customer or **[Limited Customer]**. If applying for NYISO Customer status as an Curtailment Customer Aggregator and will only be a seller to the NYISO please note this in Section A of the application found in Attachment B. There is no charge to become a NYISO Customer (**other fees?**) and the application process can take up to 60 days (**can this be shorter**).
2. Register each Customer site with the NYISO after signing a contract using the EDRP Certification form provided in Attachment A.
3. The NYISO will notify the LSE of the new participant in the EDRP within 2 days after receipt of the EDRP Certification form.
4. The EDRP participant registration is deemed approved in 3 business days after notification is provided to the LSE unless the NYISO contacts the Curtailment Customer Aggregator via phone or e-mail to the contrary (**what are the concerns?**).

4.4 Curtailment Program End Use Customer (EUC)

An EUC is any Local Generation owner or customer capable of interrupting load that can reduce at least 100kW in a zone and wants to participate in the EDRP directly with the NYISO. Registration to become an EUC includes:

1. Becoming a NYISO Customer or **[Limited Customer]** using the application form found under www.nyiso.com/services/relations/cregistration/index.html. If applying for NYISO Customer status as an EUC and will only sell to the NYISO please note this in Section A of the application found in Attachment A. Register each site with the NYISO using Section D if a generator (**maybe**) and submit the EDRP Certification form. There is no charge to become a NYISO Customer (**other fees**) and the application process can take up to 60 days (**can this be shorter?**).
2. NYISO will notify the LSE serving your electric requirement of your participant in the EDRP within 2 days of the submission of the EDRP Certification form.

3. The EDRP participant registration is deemed approved in 3 business days after submission unless the NYISO contacts the EUC via phone or e-mail to the contrary (**concerns?**)

4.5 Procedure to Apply for Limited Customer Status

All provisions as required for full Customer status except:

- Status expires at the end of the EDRP program (Oct 31, 2002)
- No financial assurance obligations (Aggregators will not be buying energy or other services)
- Non-voting membership
- No registration, application fees

5.0 Operating Mechanism / Implementation

5.1 When Will the Program be Called?

The EDRP is limited to when called by the NYISO as a part of the In-day Peak Hour Forecast response to an Operating Reserve Peak Forecast Shortage as defined in [3]. The EDRP may be called in conjunction with Special Case Resources in situations where 24-hour advance notice is possible.

The NYISO will invoke the EDRP as one of its emergency procedures in conjunction with the In-day Peak Hour Forecast response to an Operating Reserve Peak Forecast Shortage, as defined in [3], or in response to the Major Emergency state as defined in [4]. Day-ahead notice of a potential operating reserve shortage shall be provided to CSPs when possible. The program is intended to support the New York State power system during emergency periods and the NYISO reserves the right to use its discretion in calling upon EDRP resources to relieve system or zonal emergencies.

5.2 Procedures for Contacting Participants

Each CSP will designate a contact person responsible for interfacing between the NYISO and the CSP. The NYISO will contact this individual to initiate a curtailment within the program. The CSP will be responsible for establishing procedures to communicate with load reduction customers.

minimum duration of curtailment

6.0 Metering, Verification, Billing and Settlement

6.1 Metering Requirements

CSPs are required to provide hourly interval metering to validate performance. EDRP participants must have metering equipment that provides integrated hourly kWh values for market settlement purposes. These requirements can be met by using either:

- 1) metering capable of recording integrated hourly values for the actual net generation; or
- 2) metering that provides load change by measuring actual load before and after the reduction request, such that there is a valid integrated hourly value for the hour prior to the event and each hour during the event.

(Need a statement about metering on emergency generation).

6.2 Calculation of Customer Baseline

1. The otherwise applicable load shall be determined by taking the simple average, by hour, of the 10 previous weekdays, excluding holidays and NYISO-declared curtailment days.
2. The following 6 days shall be considered holidays (when the holiday falls on a weekday) and excluded from the average for this method: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.
3. The average by hour for weekdays shall be computed as follows: the simple average, by hour, for 10 previous consecutive weekdays prior to the day of the actual event when there are no holidays or NYISO curtailment events in the 10 previous consecutive weekdays (Example 2.3 in Attachment D).
4. Exclusions from the rolling average for weekdays:
 - 4.1 If a holiday or curtailment day occurs within the 10 previous consecutive weekdays prior to the day of the actual event, the holiday or curtailment day is eliminated from the simple average. In this case, the simple average by hour is produced from the remaining number of days as long as there is a minimum of 7 days in the average (Example 2.4.1 in Attachment D).
 - 4.2 If there are less than 7 weekdays in the average due to multiple curtailment days and/or holidays, go back to include previous weekdays until there are 7 previous weekdays in the average (Example 2.4.2 in Attachment D).
 - 4.3 Exclude the value from any hour in which the actual load in that hour is more than 50% greater or more than 50% less than the corresponding hourly rolling average after all other exclusions. There must be a minimum of 7 and a maximum of 10 hourly weekday values for every hour (Example 2.4.3 in Attachment D).²
5. Weekend calculation: the rolling average by hour for a weekend Emergency Demand Response Program event shall include the 6 weekend days (Saturdays and Sundays) prior to the weekend event (Example 2.5 in Attachment D).
 - 5.1 Exclusions: Any weekend day that contains an Emergency Demand Response Program event shall be excluded from the rolling average by hour calculation and shall not be replaced (Example 2.5.1 in Attachment D).

² This provision accounts for exclusion of shutdowns and also for hours when extreme operating conditions may occur from recovery operations or equipment testing. Excluding hours where the actual load is less than 50% of the rolling average for the hour prevents the customer's performance from being understated. Windfalls are prevented by excluding hours where the difference between actual load and the rolling average is greater than 50%.

6.3 Start and End of Performance Period

Performance is measured as the difference between the baseline (rolling average by hour) and the actual metered usage by hour during the event.

$$P_h = BL_h - AL_h$$

Where P_h = performance in the hour

BL_h = baseline for the hour as calculated using the rolling average method described above

AL_h = actual load in the hour

6.3.1 Initial Compliance

Initial Compliance (P-IC) is measured as the first event hour in which performance in the hour is greater than zero (actual load is less than baseline).

6.3.2 Final Compliance (Restored Load)

Final Compliance (P-FC) is measured as the last hour in which performance is greater than zero, following an hour in which performance is greater than zero, or the last hour of the EDRP event, whichever is earlier.

6.3.3 Compliance Period

The Compliance Period includes every hour in the EDRP event in which performance was greater than zero, beginning with the Initial Compliance hour and ending with the Final Compliance hour or the end of the EDRP event, whichever is earlier.

Table 6.1 illustrates examples of Initial Compliance and Final Compliance.

Table 6.1 - Examples of Performance during an EDRP Event

		NYISO EDRP Event								
		10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
Customer 1										
BL	125	125	125	125	150	150	150	150	150	125
AL	130	120	110	100	100	125	150	160	160	140
Performance		5	15	25	50	25	0			
			P-IC	P	P	P-FC				
Compliance Period										
Customer 2										
BL	200	200	250	250	250	200	200	200	200	200
AL	200	200	250	225	200	175	175	175	175	200
Performance			0	25	50	25	25	25	25	
				P-IC	P	P	P-FC			
Compliance Period										
Customer 3										
BL	300	300	350	350	350	300	300	300	300	300
AL	300	300	350	325	325	325	275	275	275	300
Performance			0	25	25	-25	25	25	25	
				P-IC	P-FC					
Compliance Period										
Legend	BL = BaseLine			IC = Initial Compliance					P = Performance	
	AL = Actual Load			FC = Final Compliance						

6.4 Settlement Procedures

CSPs shall provide verification of load reduced within 45 days of the emergency by providing interval billing meter data to the NYISO. Verification of load reduction not received by the NYISO within 45 days of the emergency may not be compensated pursuant to this program. All load reduction is subject to NYISO audit, and market monitoring unit review.

6.4.1 Data Submission

A CSP will submit the response(s) of the EDRP Load(s) that participated in the emergency event to the NYISO within 45 days of the event being called. Failure to so provide such data will result in a CSP not receiving payment for its participation in the EDRP. Upon receipt of the data by the NYISO, the NYISO will immediately forward the data to the Metering Authority (in most, if not all, cases the Transmission Owner) for optional review. After 5 business days the NYISO will accept the data as submitted unless challenged by the Metering Authority. The ISO maintains the ability to subsequently review the data through the Market Monitoring Unit.

6.5 Energy Payments

6.5.1 Calculation of Payments

The NYISO will calculate the payment to CSPs using the following formula:

If the Emergency is four hours or longer:

$\Sigma (B - R) * L * (\text{Greater of } \$500, \text{ Real-Time Zonal LBMP})$ for each hour of the emergency
(maybe (1-L) depending upon how loss factor is defined by NYISO)

If the Emergency is less than four hours:

The greater of 2 hours or the length of the emergency:

$\Sigma (B - R) * L * (\text{Greater of } \$500, \text{ Real-Time Zonal LBMP})$ for each hour of the emergency

$\Sigma (B - R) * L * (\text{Real-Time Zonal LBMP})$ for the amount of time between the end of the emergency and four hours from the start of the customer's response (Given that the end use customer responds within two hours after the emergency was issued.)

B = Baseline Usage in MWh

R = Usage During Response to Emergency (MWh)

L = Appropriate Transmission and Distribution Loss factor

In most cases, NYISO Operators will specify a start and end time for the curtailment event. This information will be provided at least two hours prior to the starting time. EDRP Loads will be expected to begin curtailment at the specified starting time, with reasonable allowance made for early startup. The four hour minimum run time will begin at the time when the NYISO directs the customer to reduce load or, if load reduction is requested as soon as possible, when the customer begins his load reduction response.

CSPs that fail to provide load reduction when requested by the NYISO incur no penalties for failure to respond to the EDRP.

6.5.2 Distribution of Payments

Payments will be made directly to the CSPs.

Payments will be made by the ISO as part of the monthly bill generated by the ISO. The bill will record the payment as an emergency energy payment and will break down the payment by total kWh by zone, hourly zonal price, and total payment. These payments will be made to the CSPs for all emergencies which have had data submitted in accordance with the data policy prior to the end of the month.

6.6 Assessment of Program Charges

The costs for the program will equal the sum of all payments to customers calculated and paid out under Section 6.4.1.

6.6.1 Local Emergency

For a local emergency costs will be allocated to all LSEs serving load in that zone according to the formula:

Σ Total of Hourly Emergency Payments * (LSE_{load}/Aggregate Zonal Load) for each hour of emergencies in the billing month. *(Question: what value of LSE load do we use? RT, RT+DAM, or some base value? Shouldn't we also include generators who are short in RT?)*

This charge will appear as a distinct line item on the LSE's bill and will have supporting material that will include the amount of load response for each hour of the emergency.

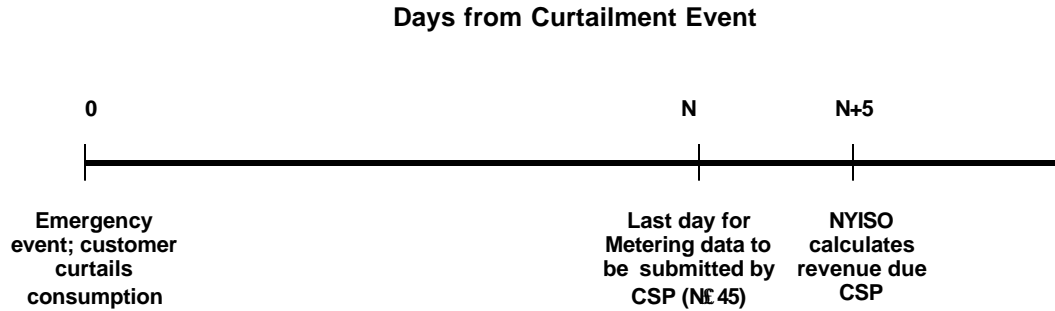
6.6.2 System Emergency

For a system emergency costs will be allocated to all LSEs according to the formula:

Σ Total of Hourly Emergency Payments * (LSE_{load}/Aggregate NYCA Load) for each hour of emergencies in the billing month.

This charge will appear as a distinct line item on the customer bill and will have supporting material that will include the amount of load response for each hour of the emergency.

6.7 Timeline for Settlement



For the month immediately following the calculation of revenues to be paid to the CSP:

- Approximately on 8th of following month NYISO bills are generated; costs and revenues will be posted to the CSP and LSE Billing Statements
- Approximately on 16th payments are due from the LSEs
- Approximately on 22nd revenues will be due from the ISO to the CSPs

7.0 References

- [1] latest ICAP manual.
- [2] OATT (or Services Tariff) where NYISO members are defined.
- [3] Section 4.4.1 of the NYISO Emergency Operations Manual.
- [4] Section 3.2 of the Emergency Operations Manual.

Attachment A – Curtailment Service Provider (CSP) Registration

Emergency Demand Response Program (EDRP)

The requirements for EDRP suppliers are controlled by the New York Independent System Operator's Services Tariff ("ISO Services Tariff") and the "NYISO Emergency Demand Response Program Manual".

EDRP Suppliers may only supply an EDR that has not been previously committed in the New York market or in any market. This form must be faxed to **518-356-XXXX** or **emailed to xxxxxxxx attention: Manager EDRP**

All inquires, notices and communications by the NYISO will be sent to the address provided below.

Name: _____
Organization: _____
Address: _____

Phone: _____
Fax: _____
E-mail: _____

Circle Only One – Which type of organization are you?

Aggregator Load Serving Entity Direct Customer End Use Customer

Is your organization a current NYISO Customer? (circle one) Yes No
(If no, you must become a NYISO Customer to participate in this program. See Manual Section XX for more application requirements)

Please list all the LBMP zone(s) you plan on providing an EDR: _____

The CSP certifies that it meets the requirements to be an CSP supplier and that the information contained in this form and its attachments is complete and correct.

IN WITNESS WHEREOF, this Curtailment Service Provider's Emergency Demand Response Program Registration has been submitted on this, the _____ day of _____, 20__.

NAME OF CSP SUPPLIER: _____

By: _____

Name: _____

Title: _____

Authorized Representative

Attachment B - Emergency Demand Response Program – End Use Customer Registration

(use one form for each End Use Customer Registered by the CSP)

Emergency Demand Response Program (EDRP) Load Certification

Owner / Operator of EDRP Load: _____

Location of EDRP Load: _____
Address City State

Name of Local Distribution Company (LDC): _____

LDC's Electric Account Number (s) for EDRP Load: _____

Maximum demand recorded in past 12 months for above account: _____ KW

LBMP Zone of EDRP Load: _____

Capacity Rating of EDRP Load _____ MW (rounded to nearest 0.1 MW)

Type of EDR (check one) _____ on-Site Generator _____ Interruptible Load

Transmission District System Line Loss: _____ (?)

NOTE: EDRP Load can not exceed Capacity Rating x (1 + line loss) or Maximum recorded demand (?)

Type of metering (check all that apply) –

_____ Existing utility interval meter;

_____ Permanent recording meter on generator / interrupted load – attach 15 minute metering data

_____ Permanent interval meter on generator, if new date installed or to be installed _____

_____ Permanent visual (non recording) meter–attach operator logs identifying reading every 15 minutes

_____ Temporary visual (non recording) meter–attach operator logs identifying reading every 15 minutes

For On-Site Generators, provide:

Generator Manufacturer, Model number, serial number and nameplate rating(s)

_____/_____/_____/_____

Identify types of loads that will be transferred to generation or interrupted

_____ Entire facility load

_____ Specific Equipment (identify load, transfer switches etc) _____

Curtailed Customer Aggregator (Aggregator) or LSE Information

Name of Aggregator or LSE supplying EDRP Load: _____

Period for which Aggregator or LSE will supply EDRP Load: ____/____/____ to ____/____/____

Contact information for ISO notification of curtailments:

Phone Number (____) ____-____; Pager (____) ____-____; E-Mail _____

Authorized Representative of Owner / Operator of EDRP Load

Authorized Representative of Curtailed Customer Aggregator or LSE, if applicable

Attachment C - Example Settlement Calculation

An emergency is issued on July 1, 2001 at 4pm
 The customer responds by reducing their demand by 10MW
 The emergency lasts for 4 hours
 The emergency was activated to relieve a local system emergency in zone J

The market prices are:

Hour ending:
 5 PM \$600
 6 PM \$600
 7PM \$600
 8PM \$400

Using the formulas from above the revenues are:
 $(10 * 600) + (10*600) + (10*600) + (10*400) = \$22,000$

Data is submitted to the ISO on July 3rd by the CSP
 The ISO sends to data to the TO on July 5th
 The TO does not object to the data within 5 business days
 On approximately August 8th the bill is sent to the CSP with a credit of \$22,000
 The payment is transferred to the CSP on approximately August 26th.

On August 8th a bill is sent out to all LSE with a charge of $\$22,000 * (LSE_{load}/Aggregate\ Zonal\ Load)$

On August 16th the LSEs pay \$22,000
 On August 22nd the NYISO pays the CSPs \$22,000

Curtailment Incentive Worksheet (per event) ISO Emergency Program - Energy Only Event Duration Equals 4 Hours

Customer Name: _____
 Customer Contact: _____
 Customer Phone: _____
 Curtailment Service Provider: _____
 Utility or Meter Service Provider _____
 Customer Account # _____

kW Nominated by Customer 10,000
 ISO Program Payment per kWh (Emergency): (higher of \$0.50 per kWh or LBMP)
 Emergency Duration and Time Called 4 hours beginning at 4:00 PM
 Zone Customer is located in: J

Date	Hour	Customer Historic KW/hr	Customer Actual KW/hr	Customer KW - Curtailed per Hr.	Incentive Awarded per KW/hr	Payment	Curtailment Type
07/01/00	05:00 PM	14000	4000	10000	\$0.6000	\$6,000.00	ISO Emergency
07/01/00	06:00 PM	14000	4000	10000	\$0.6000	\$6,000.00	ISO Emergency
07/01/00	07:00 PM	14000	4000	10000	\$0.6000	\$6,000.00	ISO Emergency
07/01/00	08:00 PM	14000	4000	10000	\$0.4000	\$4,000.00	ISO Emergency
ISO Payment to CSP						\$22,000.00	

Curtailment Incentive Worksheet (per event)
ISO Emergency Program - Energy Only
Event Duration Equals 6 Hours

Customer Name: _____
 Customer Contact: _____
 Customer Phone: _____
 Curtailment Service Provider: _____
 Utility or Meter Service Provider: _____
 Customer Account #: _____

kW Nominated by Customer: 500
 ISO Program Payment per kWh (Emergency): (higher of \$0.50 per kWh or LBMP)
 Emergency Duration and Time Called: 6 hours beginning at 1:00 PM
 Zone Customer is located in: J

<u>Date</u>	<u>Hour</u>	<u>Customer Historic KW/hr</u>	<u>Customer Actual KW/hr</u>	<u>Customer KW - Curtailed per Hr.</u>	<u>Incentive Awarded per kW/hr</u>	<u>Payment</u>	<u>Curtailment Type</u>
07/01/00	01:00 PM	1275	675	600	\$0.5000	\$300.00	ISO Emergency
07/01/00	02:00 PM	1325	700	625	\$0.5000	\$312.50	ISO Emergency
07/01/00	03:00 PM	1211	700	511	\$0.5000	\$255.50	ISO Emergency
07/01/00	04:00 PM	1434	725	709	\$0.6250	\$443.13	ISO Emergency
07/01/00	05:00 PM	1550	900	650	\$0.7515	\$488.48	ISO Emergency
07/01/00	06:00 PM	1500	1050	450	\$0.5000	\$225.00	ISO Emergency
ISO Payment to CSP						\$2,024.60	

Attachment D - Example Customer Base Load Calculations

Simple Rolling Average with no Holidays or EDRP

NYISO
Event *Example 2.3.1*

April 2001							May 2001							June 2001							July 2001							August 2001							September 2001						
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7	29	30	1	2	3	4	5	27	28	29	30	31	1	2	1	2	3	4	5	6	7	29	30	31	1	2	3	4	26	27	28	29	30	31	1
8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11	2	3	4	5	6	7	8
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	9	10	11	12	13	14	15
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	23	24	25	26	27	28	29
29	30	1	2	3	4	5	27	28	29	30	31	1	2	24	25	26	27	28	29	30	29	30	31	1	2	3	4	26	27	28	29	30	31	1	30	1	2	3	4	5	6

Event occurs on May 3, 2001

Average includes April 19, 20, 23, 24, 25, 26, 27, 30, May 1 and May 2 (10 weekdays prior to day of event)

For each hour, the average will be made up of the sum of the loads for the hour divided by 10 (or the number of days to be included as described in items 2.3.2 and 2.3.1). For example, the average for hour ending 01:00 will be the sum of the loads from the hour ending 01:00 for each of the 10 days, divided by 10.

Time	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00
Day #1	100	150	200	250	300	350	400	450
Day #2	150	150	150	150	150	150	150	150
Day #3	100	100	100	100	100	100	100	100
Day #4	100	150	200	250	300	350	400	450
Day #5	150	150	150	150	150	150	150	150
Day #6	100	100	100	100	100	100	100	100
Day #7	100	150	200	250	300	350	400	450
Day #8	150	150	150	150	150	150	150	150
Day #9	100	100	100	100	100	100	100	100
Day #10	200	200	200	200	200	200	200	200
Sum	1,250	1,400	1,550	1,700	1,850	2,000	2,150	2,300
Average	125	140	155	170	185	200	215	230

Simple Rolling Average with a Holiday

Example 2.3.2

April 2001	May 2001	June 2001	July 2001	August 2001	September 2001
Su Mo Tu We Th Fr Sa	Su Mo Tu We Th Fr Sa	Su Mo Tu We Th Fr Sa	Su Mo Tu We Th Fr Sa	Su Mo Tu We Th Fr Sa	Su Mo Tu We Th Fr Sa
1 2 3 4 5 6 7	29 30 1 2 3 4 5	27 28 29 30 31 1 2	1 2 3 4 5 6 7	29 30 31 1 2 3 4	26 27 28 29 30 31 1
8 9 10 11 12 13 14	6 7 8 9 10 11 12	3 4 5 6 7 8 9	8 9 10 11 12 13 14	5 6 7 8 9 10 11	2 3 4 5 6 7 8
15 16 17 18 19 20 21	13 14 15 16 17 18 19	10 11 12 13 14 15 16	15 16 17 18 19 20 21	12 13 14 15 16 17 18	9 10 11 12 13 14 15
22 23 24 25 26 27 28	20 21 22 23 24 25 26	17 18 19 20 21 22 23	22 23 24 25 26 27 28	19 20 21 22 23 24 25	16 17 18 19 20 21 22
29 30 1 2 3 4 5	27 28 29 30 31 1 2	24 25 26 27 28 29 30	29 30 31 1 2 3 4	26 27 28 29 30 31 1	23 24 25 26 27 28 29

Holiday	→	←	NYISO Event
---------	---	---	-------------

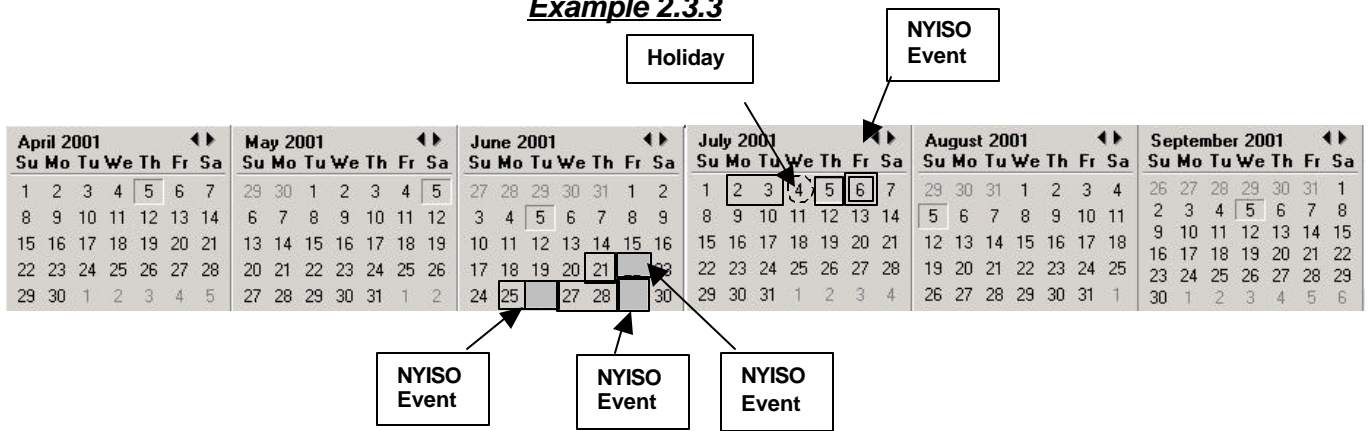
Event occurs on May 30, 2001

Average includes May 16, 17, 18, 21, 22, 23, 24, 25 and May 29 (9 weekdays prior to day of event – Memorial Day, May 28, 2001 is excluded from average)

Time	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00
Day #1	100	150	200	250	300	350	400	450
Day #2	150	150	150	150	150	150	150	150
Day #3	100	100	100	100	100	100	100	100
Day #4	100	150	200	250	300	350	400	450
Day #5	150	150	150	150	150	150	150	150
Day #6	100	100	100	100	100	100	100	100
Day #7	100	150	200	250	300	350	400	450
Day #8	150	150	150	150	150	150	150	150
Day #9	100	100	100	100	100	100	100	100
Sum	1,050	1,200	1,350	1,500	1,650	1,800	1,950	2,100
Average	116.67	133.34	150	166.67	183.34	200	216.67	233.34

Simple Rolling Average with a Holiday and Multiple EDRP Events Within the 10 Days Prior to Another EDRP Event

Example 2.3.3



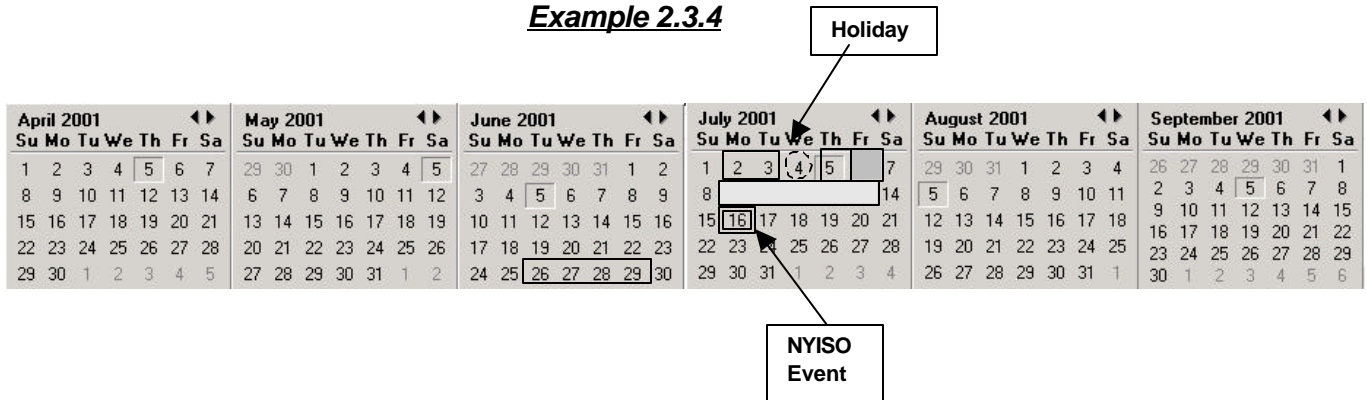
Event occurs on July 6, 2001

Average includes June 21, 25, 27, 28, July 2, 3, and 5 (7 weekdays prior to day of event – Excluded from average: NYISO events of 6/22, 6/26 and 6/29 plus holiday - Independence Day, 7/4)

Time	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00
Day #1	100	150	200	250	300	350	400	450
Day #2	150	150	150	150	150	150	150	150
Day #3	100	100	100	100	100	100	100	100
Day #4	100	150	200	250	300	350	400	450
Day #5	150	150	150	150	150	150	150	150
Day #6	100	100	100	100	100	100	100	100
Day #7	100	150	200	250	300	350	400	450
Sum	800	950	1100	1,250	1,400	1,550	1,700	1,850
Average	114.29	135.71	157.14	178.57	200	221.43	242.86	264.29

Simple Rolling Average with High/Low Usage Hour Exclusions

Example 2.3.4



Event occurs on July 16, 2001

Shutdown occurs from July 9 through July 13, 2001

Average includes June 26, 27, 28, 29 and July 2, 3, and 5 (7 weekdays prior to day of event – Excluded from average: holiday - Independence Day, 7/4 and July 6)

July 6 is excluded because actual load in one or more hours fell below 50% of rolling average for minimum number of days required in average

In this example, the average for each hour will be made up of the sum of the loads for the hour divided by 7. For example, the average for hour ending 01:00 will be the sum of the loads from the hour ending 01:00 for each of the 7 days, divided by 7.

7-day rolling average including July 6

Time	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00
June 27 (Day #1)	150	150	150	150	200	200	200	200
June 28 (Day #2)	100	150	200	250	200	350	400	450
June 29 (Day #3)	100	150	200	250	300	350	400	450
July 2 (Day #4)	100	150	200	250	300	350	400	450
July 3 (Day #5)	150	150	150	150	200	200	200	200
July 5 (Day #6)	100	150	200	250	300	350	400	450
July 6 (Day #7)	75	75	75	75	75	100	100	100
Sum	775	975	1175	1375	1575	1900	2100	2300
Average	110.71	139.29	167.86	196.43	225.00	271.43	300.00	328.57
50% Avg.	55.36	69.64	83.93	98.21	112.50	135.71	150.00	164.29
Exclude	none	none	July 6	July 6	July 6	July 6	July 6	July 6

Revised 7-day rolling average – excluding July 6

Time	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00
June 26 (Day #1)	100	150	200	250	300	350	400	450
June 27 (Day #2)	150	150	150	150	200	200	200	200
June 28 (Day #3)	100	150	200	250	200	350	400	450
June 29 (Day #4)	100	150	200	250	300	350	400	450
July 2 (Day #5)	100	150	200	250	300	350	400	450
July 3 (Day #6)	150	150	150	150	200	200	200	200
July 5 (Day #7)	100	150	200	250	300	350	400	450
Sum	800	1050	1300	1550	1800	2150	2400	2650
Average	114.29	150.00	185.71	221.43	257.14	307.14	342.86	378.57
50% Avg.	57.14	75.00	92.86	110.71	128.57	153.57	171.43	189.29
Exclude	none	none	none	none	none	none	none	none

Simple Rolling Average Calculation for Weekend Days

April 2001							May 2001							June 2001							July 2001							August 2001							September 2001						
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7	29	30	1	2	3	4	5	27	28	29	30	31	1	2	1	2	3	4	5	6	7	29	30	31	1	2	3	4	26	27	28	29	30	31	1
8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11	2	3	4	5	6	7	8
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	9	10	11	12	13	14	15
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	16	17	18	19	20	21	22
29	30	1	2	3	4	5	27	28	29	30	31	1	2	24	25	26	27	28	29	30	29	30	31	1	2	3	4	26	27	28	29	30	31	1	30	1	2	3	4	5	6

**NYISO EDRP
Event**

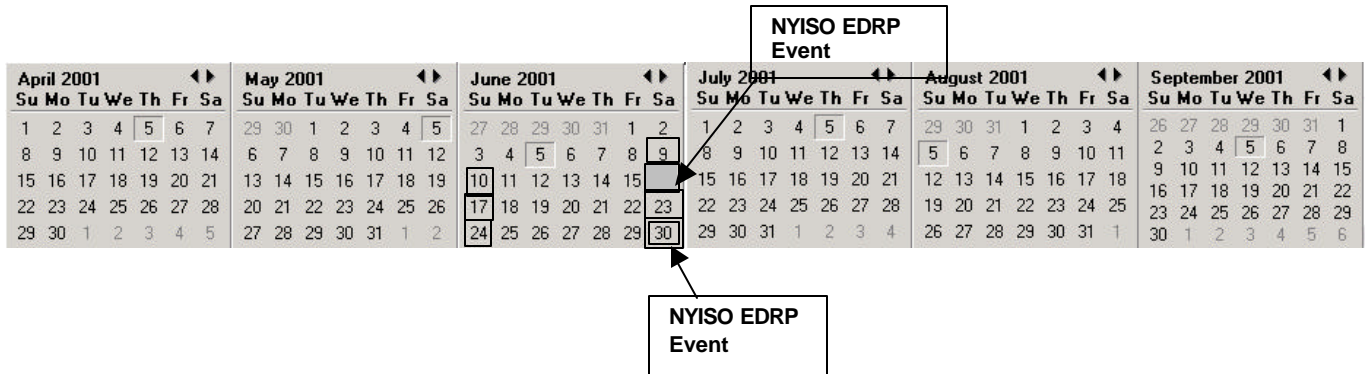
Event occurs on June 16, 2001

Average includes May 26, 27, June 2, 3, 9, and June 10 (6 weekend days prior to day of event)

For each hour, the average will be made up of the sum of the loads for the hour divided by 6 (or the number of days to be included as described in items 2.5.1). For example, the average for hour ending 01:00 will be the sum of the loads from the hour ending 01:00 for each of the 6 days, divided by 6.

Time	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00
Day #1	100	150	200	250	300	350	400	450
Day #2	150	150	150	150	150	150	150	150
Day #3	100	100	100	100	100	100	100	100
Day #4	100	150	200	250	300	350	400	450
Day #5	150	150	150	150	150	150	150	150
Day #6	100	100	100	100	100	100	100	100
Sum	700	800	900	1000	1100	1200	1300	1400
Average	116.67	133.33	150	166.67	183.33	200	216.67	233.33

Simple Rolling Average Calculation for Weekend Days with Weekend EDRP Events Within 3 Weeks of One Another



Event occurs on June 30, 2001

Average includes June 9, 10, 17, 23 and June 24 (5 weekend days prior to day of event – Excluded from average: June 16 because another NYISO EDRP event occurred on that weekend day).

Time	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00
Day #1	100	150	200	250	300	350	400	450
Day #2	150	150	150	150	150	150	150	150
Day #3	100	100	100	100	100	100	100	100
Day #4	100	150	200	250	300	350	400	450
Day #5	150	150	150	150	150	150	150	150
Sum	600	700	800	900	1000	1100	1200	1300
Average	120	140	160	180	200	220	240	260