

# *Installed Capacity Manual*

*February 2017*

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## 4. INSTALLED CAPACITY REQUIREMENTS APPLICABLE TO INSTALLED CAPACITY SUPPLIERS

### 4.1 Overview

Resources must follow certain procedures and provide pertinent information to the NYISO on or before a specified date and time in order to qualify as Installed Capacity Suppliers. The requirements necessary to qualify as an Installed Capacity Supplier can be found in Sections [4.2](#) and [4.3](#) below, and include Dependable Maximum Net Capability (DMNC) and for BTM:NG Resources Dependable Maximum Gross Capability (DMGC) testing and maintenance schedule reporting.

After completing the procedures listed above, Resources that have qualified as Installed Capacity Suppliers must fulfill certain additional requirements provided by the NYISO in order to retain all of the privileges to which an Installed Capacity Supplier is entitled. These requirements are provided in detail in Sections [4.4](#) through [4.8](#) below. The requirements include reporting Operating Data; planned or scheduled maintenance and forced outage notification requirements; the Installed Capacity certification requirements; and bidding, scheduling, and notification responsibilities.

Certain Installed Capacity Suppliers must fulfill alternative or additional requirements provided by the NYISO in addition to or in place of the requirements found in Sections [4.2](#) through [4.8](#). These alternative or additional requirements can be found in Sections [4.9](#) through [4.13](#). Each of these sections addresses a different individual Resource.

Installed Capacity Suppliers that fail to fulfill the requirements detailed in Sections 4.2 through 4.13 are subject to sanctions, as provided in Section 5.12.12 of the *NYISO Services Tariff* (available from the NYISO Web site at the following URL: [http://www.nyiso.com/public/documents/tariffs/market\\_services.jsp](http://www.nyiso.com/public/documents/tariffs/market_services.jsp)).

Section [4.14](#) details the procedures for requesting, granting and applying UDRs.

Resources may be physically located in the NYCA, or in an External Control Area that meets the recall and Curtailment requirements and the locational limitations specified in Section [2.7](#) of this *ICAP Manual*.

### 4.2 DMNC and DMGC Procedures (Section 5.12.8 *NYISO Services Tariff*)

As specified in Section [4.2.2](#) below, in order to establish a DMNC, or for BTM:NG Resources only, DMGC, rating, Installed Capacity Suppliers must submit results from a DMNC/DMGC test or data from actual operation (“DMNC/DMGC Demonstration”) from within the DMNC Test Periods (“in-period”) specified in Section [4.2.1](#) below, to the NYISO no later than the time specified in the ICAP Event Calendar on the sixtieth (60) calendar day following the end of each DMNC Test Period. Refer to Section [4.12](#) of this

*ICAP Manual* for additional information about requirements for Special Case Resources (SCRs). The submittal must provide the NYISO with the required documentation of the DMNC or DMGC test data or data from actual operation and be in accordance with the procedures described below (unless exempt in accordance with the provisions of Section [4.4.3](#) of this *ICAP Manual*). In addition, Section 5.12.8 of the *NYISO Services Tariff* (available from the NYISO Web site at the following URL:

[http://www.nyiso.com/public/documents/tariffs/market\\_services.jsp](http://www.nyiso.com/public/documents/tariffs/market_services.jsp)) provides for submitting DMNC or DMGC test data or data from actual operation from outside the DMNC Test Period ("out-of-period") and prior to the next Capability Period. Failure to submit DMNC or DMGC test data or data from actual operation may result in financial sanctions pursuant section 5.12.12 of the *NYISO Services Tariff* (available from the NYISO Web site at the following URL:

[http://www.nyiso.com/public/documents/tariffs/market\\_services.jsp](http://www.nyiso.com/public/documents/tariffs/market_services.jsp)).

DMNC and DMGC test data or data from actual operation that has been validated as described below constitutes a DMNC or DMGC rating for the purpose of establishing a generating Resource's Installed Capacity value. A subsequent adjustment is made pursuant to Section [4.5](#) and [Attachment J](#) of this *ICAP Manual* to determine each Resource's Unforced Capacity value.

DMNC and DMGC test data or data from actual operation must be complete and submitted in an acceptable format or it will be rejected. Until the DMNC/DMGC review function of the ICAP Market System goes live, the NYISO will use its best efforts to notify an Installed Capacity Supplier that its submission has been deemed incomplete within ten (10) business days of that submission. A validation and approval period starts with a determination that the data has been determined by the NYISO to be complete and in an acceptable format. Upon determination that the information that has been submitted is complete, the NYISO will validate and approve the DMNC or DMGC rating or reject it within 30 days. The NYISO will validate the DMNC and DMGC data received from Suppliers against NYISO billing information and will notify the Supplier if there is a discrepancy. Discrepancies must be resolved through the audit process described below within the 30-day validation and approval period or the DMNC/DMGC data will be rejected. If the NYISO approves the Installed Capacity Supplier's submittal, the submitted DMNC or DMGC value will be valid for the subsequent like Capability Period, and at the request of the Installed Capacity Supplier, may also serve as the valid DMNC or DMGC rating for the balance of the current Capability Period beginning in the month following approval.

If the NYISO rejects the submitted DMNC or DMGC value, the Installed Capacity Supplier may:

- a. resubmit DMNC/DMGC test results or data from actual operation from within the current DMNC Test Period, or
- b. accept the NYISO determined DMNC/DMGC value and resubmit it, or
- c. request an audit.

If the Installed Capacity Supplier requests an audit, the NYISO will work with the Installed Capacity Supplier to schedule the audit. If the audit results reveal that the Installed Capacity Supplier DMNC or DMGC rating is correct, the DMNC or DMGC test data or data from actual operation submitted by the Installed Capacity Supplier will remain in place. If the

audit reveals that the NYISO rating is correct, the NYISO will instruct the Installed Capacity Supplier to resubmit the DMNC or DMGC test data or data from actual operation with the DMNC/DMGC rating established through the audit and the Installed Capacity Supplier will be subject to deficiency charges, if applicable.

An Installed Capacity Supplier offering to supply Unforced Capacity as a System Resource must submit DMNC/DMGC test data or data from actual operation for each Generator that it seeks to aggregate.

All generating Resources must test using usual and customary industry practices. For example, the operating configuration and fuel mix used to test must be the same configuration and fuel mix expected to be used during the summer or winter peak Load conditions, as applicable. This requirement is not meant to exclude testing based on operating configurations of Capacity Limited Resources that have been approved by the NYISO and are in compliance with this *ICAP Manual* and [Attachment M](#) hereto.

All DMNC and DMGC tests on internal combustion, combustion units and combined cycle units must be temperature adjusted. For DMNC/DMGC test results applicable to Capability Periods prior to Summer 2017, the Average Ambient Temperature to be used for the temperature adjustment is the average of the ambient temperatures recorded at the time of the Transmission District's seasonal peak during the previous four like Capability Periods (as posted at the link given here), as recorded at the nearest approved weather station or recorded on an auditable recording device at the generator site. For DMNC/DMGC test results applicable to the Summer 2017 Capability Period and beyond, the Average Ambient Temperature to be used for the temperature adjustment is the average of the ambient temperatures recorded at the time of the Transmission District's seasonal peak during the previous four like Capability Periods if such peak occurs in June through September for Summer Capability Periods, or December through March for Winter Capability Periods (as posted at the link in this paragraph), as recorded at the nearest approved weather station or recorded on an auditable recording device at the generator site. If the Transmission District's seasonal peak occurs in April, May, October or November, the Average Ambient Temperature to be used in its place for that like Capability Period will be the next highest peak not occurring in such months. Once the decision is made where the temperature is obtained, that location may not change for future test data submittals. The dates and times of the Transmission District peak in each Capability Period are posted on the ISO website under Announcements at:

[http://www.nyiso.com/public/markets\\_operations/market\\_data/icap/index.jsp](http://www.nyiso.com/public/markets_operations/market_data/icap/index.jsp) Subject to applicable interconnection and deliverability requirements, existing Resources that have increased Capacity due to changes in their generating equipment may demonstrate the DMNC/DMGC of the incremental Capacity for and within a Capability Period by following the procedures described in Section [4.2.5](#).

Existing Resources submitting DMNC or DMGC Demonstration results from outside the normally applicable DMNC Test Period ("out-of-period") must verify the approved "out-of-period" DMNC/DMGC rating during the next DMNC Test Period. If the supplier is unable to verify the "out-of-period" DMNC/DMGC rating in the next DMNC Test Period, then deficiency charges shall be applied at no more than the absolute difference between the Generator's Unforced Capacity based upon the previous approved in-period DMNC or

DMGC test and the amount of Unforced Capacity the Generator supplied for the obligation month. The NYISO's Market Monitoring Unit will verify the DMNC and DMGC test data received from Suppliers against NYISO billing information and will notify the Supplier if there is a discrepancy. Approval will be indicated via the ICAP Market System.

DMNC data submitted for External Resources will be verified with the External Control Area in which the Resource is electrically located. DMNC data for External Resources must be in accordance with procedures as required in this Installed Capacity Manual. If External Control Area does not possess DMNC data for the Resource as required by this ICAP Manual, the Resource shall provide the NYISO with additional information upon request so that the NYISO can validate the information. External Resources must also demonstrate that the submitted DMNC MW amount of capacity is available (net of sales in other Control Areas) on a prospective basis for export to the NYISO during the proposed Capability Period. That amount of MW must be validated by the External Control Area.

#### **4.2.1 DMNC Test Periods**

The DMNC Test Period for the Summer Capability Period is June 1st through September 15th and for the Winter Capability Period is November 1st through April 15th. Pursuant to Section 2.4 of the NYISO Services Tariff, BTM:NG Resources that are required to perform a DMGC test will perform such test during the DMNC Test Periods.

#### **4.2.2 Resource Specific Test Conditions**

The Resources listed below must meet the applicable DMNC test conditions specified below hereto in order to be qualified as Installed Capacity Suppliers. Resources must also report DMNC test results to the NYISO. As used in this Section 4.2.2, DMNC shall mean the power delivered to the transmission system on a clock-hour basis (top-of-hour to top-of-hour), net of station service Load necessary to deliver that power, as described in Section [4.2.3](#) of this *ICAP Manual*. The resource specific test conditions of this section 4.2.2 are applicable to BTM:NG Resources performing DMGC tests.

##### ***Fossil Fuel and Nuclear Stations***

Valid DMNCs for fossil fuel or nuclear steam units are determined by the following:

- a. The unit's sustained maximum net output averaged over a four (4) consecutive hour period
- b. For common-header turbine-generators, the DMNC is determined on a group basis. Each such turbine-generator is assigned a rating by distributing the combined Capacity among them.
- c. The sum of the DMNC of individual turbine-generators in a generating station cannot be greater than the capacity of the station taken as a whole; also the sum of the DMNC of individual turbine-generators under a single PTID cannot be greater than the DMNC of the PTID taken as a whole station. Each such turbine-generator is assigned a rating by distributing the combined Capacity among the units comprising the PTID.

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**Hydro Stations**

Valid DMNCs for hydro units are determined by the following:

- a. The sustained net output averaged over a four (4) consecutive hour period using average stream flow and/or storage conditions within machine discharge Capacity.
- b. For a multi-unit hydro station, the DMNC is determined as a group and each hydro unit in such a station is assigned a rating by distributing the combined station DMNC among them.
- c. The sum of the DMNC of individual units in a multi-unit hydro station cannot be greater than the capacity of the station taken as a whole; also the sum of the DMNC of individual hydro units under a single PTID cannot be greater than the DMNC of the PTID taken as a single station. Each such hydro unit is assigned a rating by distributing the combined Capacity among the units comprising the PTID.

**Internal Combustion Units and Combustion Turbines**

Valid DMNCs for internal combustion units and combustion turbines are determined by the following:

- a. The sustained maximum net output for a one (1) hour period.
- b. The unit's winter DMNC rating is determined on the basis of the average ambient and cooling system temperature experienced at the time of the Transmission District's winter peak as described in Section 4.2 of this manual.
- c. The unit's summer DMNC is determined on the basis of the average ambient and cooling system temperature experienced at the time of the Transmission District's summer peak as described in Section 4.2 of this manual.
- d. The sum of the DMNC of individual units in a multi-unit station cannot be greater than the capacity of the station taken as a whole; also the sum of the DMNC of individual units under a single PTID cannot be greater than the DMNC of the PTID taken as a single station. Each unit in the station is assigned a rating by distributing the combined Capacity among the units comprising the PTID.

**Combined Cycle Stations**

Valid DMNCs for combined cycle stations are determined by the following:

- a. The sustained maximum net output over four (4) consecutive hours.
- b. A combined cycle station's winter DMNC rating is determined on the basis of the average ambient and cooling system temperature experienced at the time of the Transmission District's winter peak as described in Section 4.2 of this manual.
- c. A combined cycle station's summer DMNC rating is determined on the basis of the average ambient and cooling system temperature experienced at the time of the Transmission District's summer peak as described in Section 4.2 of this manual.

- d. In cases where the sum of the DMNC rating of individual units in a combined cycle plant is greater than the DMNC of the plant taken as a single station, each unit is assigned a rating by distributing the plant DMNC among the units.

***Intermittent Power Resources***

The DMNC value of Intermittent Power Resources will be the combined nameplate capacity of all units (usually aggregated in groups of small individual units) in each station, net of any station service Load required for operation and delivery to the NYCA transmission system. The sum of the DMNC values of all units under a single PTID cannot be greater than the DMNC of the PTID taken as a single unit. Each such individual unit is assigned a rating by distributing the combined Capacity among the units comprising the PTID.

***Limited Control Run-of-River Hydro Resources***

The DMNC value of Limited Control Run-of-River Hydro Resources is the combined nameplate capacity of all units in each PTID, net of any station service Load required for operation and delivery to the NYCA transmission system. The sum of the DMNC values of all units under a single PTID cannot be greater than the DMNC of the PTID taken as a single unit. The NYISO will determine the rating of each such individual unit by distributing the combined Capacity among the units comprising the PTID.

***Special Case Resources***

A Special Case Resource must demonstrate its Load reduction capability as specified in Sections [4.12.4.5](#) and [4.12.4.8](#) of this ICAP Manual.

***Energy Limited and Capacity Limited Resources***

Valid DMNCs for Energy Limited and Capacity Limited Resources are determined by the following:

- a. The sustained maximum net output averaged over a four (4) consecutive hour period, with the exception of Internal Combustion units or Combustion Turbines that are approved as Energy Limited or Capacity Limited Resources, which will instead use the sustained maximum net output for a one (1) hour period.
- b. For a multi-unit station, the DMNC is determined for the group and each unit in such a station is assigned a rating by distributing the combined station DMNC among them.
- c. The sum of the DMNCs of individual units in a multi-unit station cannot be greater than the capacity of the station taken as a whole; also the sum of the DMNC of individual units under a single PTID cannot be greater than the DMNC of the PTID taken as a single plant. Each such unit is assigned a rating by distributing the combined Capacity among the units comprising the PTID.

**4.2.3 Treatment of Station Service Load**

In general, the DMNC rating for a Resource is the amount of power delivered to the transmission grid. The DMNC rating should reflect a reduction in gross output of the

Resource for station service Load. In most cases, this determination is straightforward because the Resource is connected to the Transmission System, and the amount of power provided to the Transmission System reflects the station service Load reduction.

In other cases, a portion of the station service Load may be provided from sources other than the Resource. In these cases, separate measurements must be made of the station service Load and subtracted from the Resource's gross output measured at the generator leads at the time of the DMNC test.

In the event of disagreement concerning the station service Load for facilities that fall into the later category, the relevant Transmission Owners will provide to the NYISO any information available to it, which relates to the configuration of the Resource and its station service Load. If the disagreement concerning the station service Load is not resolved by the additional information the Transmission Owners provide, the NYISO Expedited Dispute Resolution Procedures [as set forth in Section 5.16 of the *NYISO Services Tariff* (available from the NYISO Web site at the following URL:

[http://www.nyiso.com/public/documents/tariffs/market\\_services.jsp](http://www.nyiso.com/public/documents/tariffs/market_services.jsp)) shall be used to determine the station service Load in dispute.

If the station service Load of a BTM:NG Resource is separately metered from all other Load of the resource, such that the station service Load can be independently measured and verified, the Generator of a BTM:NG Resource may elect to perform a DMNC Test instead of a DMGC Test pursuant to Services Tariff section 5.12.6.1.1 (see also section 4.2 of this ICAP Manual). Such election must be made in writing to the NYISO prior to the start of the DMNC Test Period.

The term "separately metered" means, for the purposes of this section, that the Station Power (as defined in Services Tariff section 2.19) of the Generator serving the BTM:NG Resource is metered by an individual meter located at the Generator such that it measures only the Station Power consumed by the Generator.

If the meter measures any Load that is not required for the operation of the Generator or the incidental need of the station house, the BTM:NG Resource must perform a DMGC test.

If a BTM:NG Resource elects to perform a DMNC Test, the station service Load measured during such DMNC Test shall not be included in the Resource's Host Load as described in Section 4.15.2.5 of this ICAP Manual. A BTM:NG Resource's DMNC value for the Capability Period shall be used in lieu of a DMGC value in the calculation of the resource's Adjusted DMGC for the purposes of Sections 4.15.3.1.

#### **4.2.4 Required DMNC Generating Capability Test Data**

An entity that wants to establish a DMNC rating for its Resources must report the DMNC test data for each of its Resources to the NYISO using the ICAP Market System. The *ICAP Automated Market User's Guide* can be found at:

[http://www.nyiso.com/public/markets\\_operations/market\\_data/icap/index.jsp](http://www.nyiso.com/public/markets_operations/market_data/icap/index.jsp)



#### **4.2.5 New Resources and Resources Returning from an Inactive State**

New Resources and Resources returning from an Inactive state must qualify as Installed Capacity Suppliers based on the results of an appropriate DMNC Demonstration or Special Case Resource (SCR) registration before participating as an Installed Capacity Supplier in the NYISO Installed Capacity market. DMNC test data or data from actual operation must be received by the NYISO as prescribed by this *ICAP Manual* by the date and time specified in the [ICAP Event Calendar](#). They will also be subject to validation requirements as set forth herein. All simple-cycle gas turbine and combined cycle units must temperature-adjust the results of their DMNC test data or data from actual operation using the procedures noted in this *ICAP Manual* or in the *ICAP Automated Market User's Guide* as noted above. New Resources and Resources returning from an Inactive state approved as qualified Installed Capacity Suppliers after submitting the necessary DMNC test data or data from actual operation from outside the normally applicable DMNC Test Period ("out-of-period") must verify the approved "out-of-period" DMNC rating during the next DMNC Test Period. If the supplier is unable to verify the "out-of-period" DMNC rating in the next DMNC Test Period, then deficiency charges shall apply to any shortfall between the Installed Capacity equivalent of the UCAP sold from the unit and the results of the "in-period" test.

In addition to reporting appropriate DMNC Demonstration results, new generating Resources that want to participate in NYISO-administered auctions shall notify the NYISO in a letter. SCR notification is detailed in Section [4.12](#) of this *ICAP Manual*. The new generating Resource notification letter must include the unit's point ID (PTID) and shall state the intention of the Resource to seek qualification as an Installed Capacity Supplier, and include the Resource's name, location, and other information as the NYISO may reasonably request. This letter does not obligate a Resource to qualify as an ICAP Supplier; it allows the NYISO to prepare and be able to accommodate a Resource should that Resource request qualification and if the NYISO receives appropriate DMNC Demonstration results before an auction. A Resource shall notify the NYISO via a letter on or before 5:00:00 P.M. on the first business day of the month before that month in which it wishes to qualify as an Installed Capacity Supplier. For example, to qualify in the month of April to participate in the May Installed Capacity market, the NYISO must receive the notification letter no later than 5:00:00 P.M. on the first business day of March.

To qualify Installed Capacity for a Bilateral Transaction or for a self-supplying LSE, new Resources shall report to the NYISO the results of an appropriate DMNC Demonstration or Special Case Resource registration prescribed by this *ICAP Manual* by the date and time specified in the ICAP Event Calendar, which can be found at:

[http://icap.nyiso.com/ucap/public/evt\\_calendar\\_display.do](http://icap.nyiso.com/ucap/public/evt_calendar_display.do).

#### **4.2.6 NYISO Distribution of Resource Capacity Data to the NYCA Transmission Owners**

The NYISO provides the DMNC data collected pursuant to this ICAP Manual to the operating function unit of the appropriate Transmission Owners (TOs) sixty (60) days

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following the end of the capability period. Provision of generator reactive capability data to TOs is described in Section 3.6.4 of the Ancillary Services Manual.

### **4.3 Maintenance Scheduling Requirements (Sections 5.12.3 and 5.12.11 *NYISO Services Tariff*)**

All Resources intending to supply Capacity to the NYCA must comply with the following procedures, unless specific exceptions are noted below.

1. Notify the NYISO, in a confidential notice, of proposed outage schedules for the next two (2) calendar years on or before September 1 at 5:00:00 P.M. of the current calendar year.
2. If Operating Reserve deficiencies are projected to occur in certain weeks for the upcoming calendar year, based upon the ISO's reliability assessment, Resources may be requested to voluntarily reschedule planned maintenance.
3. The NYISO will provide the Resource with alternative acceptable times for the rescheduled maintenance.
4. If the Resource is a Generator that qualifies as an Installed Capacity Supplier that does not voluntarily re-schedule its planned maintenance within the alternative acceptable times provided by the NYISO, the NYISO will invoke mandatory re-scheduling using the procedures prescribed in the *NYISO Outage Scheduling Manual* (available from the NYISO Web site at the following URL: <http://www.nyiso.com/public/documents/manuals/operations.jsp?maxDisplay=20>).
5. A Resource that did not qualify as an Installed Capacity Supplier prior to the Obligation Procurement Period and that intends to be an Installed Capacity Supplier within the Obligation Procurement Period must provide the NYISO with its proposed outage schedule for the current Capability Year and the following two (2) calendar years, no later than 5:00:000 P.M. on the first business day of the month preceding the month in which it intends to supply Unforced Capacity, so that it may be subject to the voluntary and mandatory rescheduling procedures described above.

An Installed Capacity Supplier that does not accept the NYISO's forced rescheduling of its proposed outages shall not qualify as an Installed Capacity Supplier for that unit for any month during which it schedules or conducts an outage.

#### **4.3.1 (This Section intentionally left blank)**

#### **4.3.2 External System Resources**

The NYISO and the External Control Area in which the External System Resource is located will coordinate the maintenance schedules for the interconnections that link these Resources to the NYCA. External System Resources are not subject to the voluntary and mandatory re-scheduling procedures described above.