# Intermittent Power Resources: Frequently Asked Questions

### What is an Intermittent Power Resource?

A resource that: (1) is renewable; (2) cannot be stored by the facility owner or operator; and (3) has variability that is beyond the control of the facility owner or operator. In New York, resources that depend upon wind, solar energy or landfill gas for their fuel have been classified as Intermittent Power Resources (IPRs). Each Intermittent Power Resource that depends on wind as its fuel shall include all turbines metered at a single scheduling point identifier (PTID).

### 2. In which wholesale markets can Intermittent Power Resources participate?

IPRs interconnected and electrically located within the New York Control Area can participate in the Day-Ahead Market (DAM), Real-Time Market (RTM) and Capacity Market, provided they satisfy the other qualification requirements. IPRs that receive DAM schedules are subject to RTM balancing like any other supplier. Like all other Resources, IPRs must comply with the applicable Tariff provisions and ISO Procedures.

### 3. How can wind resources participate in the energy markets?

The NYISO utilizes a dispatch model specific to wind plants. For specific rules on wind plant participation in the DAM or RTM, see technical bulletin 154 and the NYISO Market Administration and Control Area Services Tariff (NYISO Market Services Tariff).

### 4. How can solar resources participate in the energy markets?

Solar plants may offer energy into the NYISO's DAM and RTM. In the DAM, solar plants are treated like all other generators. In the RTM, solar plants can offer in their full nameplate capability, and the NYISO dispatches other flexible generators around the current level of output being provided by the solar plants. Unlike wind plants, solar plants are not incorporated into the NYISO's dispatch model as flexible resources, although the NYISO is pursuing changes via its Large-Scale Solar on Dispatch effort.

### 5. What happens if an Intermittent Power Resource produces more or less in real-time than the NYISO expected?

IPRs are paid for all of their output, even if it exceeds the amount expected by NYISO. An exception to this exists when wind plants are instructed to reduce their output through NYISO's economic dispatch. In addition, IPRs are exempt from under-generation charges for instances when their output falls short of the amount expected by NYISO. Please refer to the definition of *Compensable Overgeneration* in Section 2.3 and *Persistent Undergeneration Charges* in Section 15.3.A.2 of the NYISO Market Services Tariff.

### 6. Does the NYISO require forecasts from Intermittent Power Resources?

The NYISO procures a centralized energy forecast for wind and solar plants. Wind and Solar plants are also required to provide site-specific data. Specific data requirements include those in the NYISO Market Services Tariff Section 5.8, the Installed Capacity Manual and the Transmission and Dispatch Operations Manual. An additional reference is the Wind and Solar Plant Operator Data User's Guide.

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**7. How does the NYISO use Intermittent Power Resource data?**

An example of how the NYISO uses the data is to aid in the execution of the DAM and RTM. For more information on the use of wind forecasts in the energy markets refer to the following document: Wind Forecast Usage in SCUC and Wind Forecast Usage in RTS.

The NYISO uses its behind-the-meter zonal solar forecasts to adjust its load forecast. The NYISO also uses its individual grid connected solar plant forecasts to provide its operators with situational awareness.

The NYISO also uses site-specific meteorological data provided by individual grid connected wind and solar plants to improve NYISO's forecast models.

**8. How can Intermittent Power Resources participate in the capacity market?**

IPRs that depend on wind or solar energy as their fuel that may qualify as Installed Capacity Suppliers are not subject to the daily bidding and scheduling requirements under NYISO Market Services Tariff Section 5.12.7. To qualify as Installed Capacity Suppliers, Intermittent Power Resources electrically located within the New York Control Area must meet the qualification requirements, for example, those under the NYISO Market Services Tariff Section 5.12.1 and the Installed Capacity Manual. They must comply with the notification requirements of NYISO Market Services Tariff Section 5.12.7. Intermittent Power Resources located outside of the New York Control Area are not eligible to qualify as Installed Capacity Suppliers. For more information on IPR requirements to participate as an Installed Capacity Supplier, refer to Sections 5.12.1, 5.12.7 and 5.12.11.4 of the NYISO Market Services Tariff and the Installed Capacity Manual.

**9. What efforts are currently underway at the NYISO regarding Intermittent Power Resources?**

The NYISO is working with stakeholders on the market requirements for participation of IPRs that rely on solar energy. Refer to the Large Scale Solar Participation effort for more information.

**10. What are the metering requirements for IPRs?**

All energy suppliers, including IPRs, must have revenue-grade hourly metering and 6-second telemetry. For additional information on metering requirements refer to the NYISO's Control Center Requirements Manual.

**11. Can Intermittent Power Resources (IPR) and energy storage facilities participate as a single hybrid resource?**

The NYISO's market rules currently do not allow for grid connected IPRs and energy storage to participate in the ISO-Administered Markets as a single hybrid resource with one PTID.

NYISO's Planning Department evaluates the interconnection of all resources subject to the NYISO interconnection procedures (i.e., generators proposing to participate in the wholesale market that propose to interconnect to transmission or FERC-jurisdictional distribution facilities). Currently co-located resources of different technology types cannot be evaluated under a single Interconnection Request; however, potential market rules being discussed in the NYISO stakeholder process would permit such co-located resources to be studied under one Interconnection Request, under certain circumstances.

Based on the current market rules, two co-located assets of different technologies would be required to have separate meters and bid independently, with unique PTIDs, as any two individual resources would today.

The NYISO's DER Participation Model, pending FERC acceptance, will allow Aggregations of the same or multiple technology types to participate in the wholesale market. DER participation is for facilities with injection capabilities no greater than 20MW—storage and generation assets at one facility within this size range will be able to participate jointly as part of an Aggregation. More information on Aggregations can be found in the NYISO's DER Participation Model tariff filing with FERC.

For facilities with greater than 20MW of injection capability, the NYISO will be working through the stakeholder process in 2020 to develop a market design concept for introducing hybrid storage resource opportunities to the wholesale market. For further information, please refer to the MIWG/ICAP January 13th Hybrid Storage Model presentation.

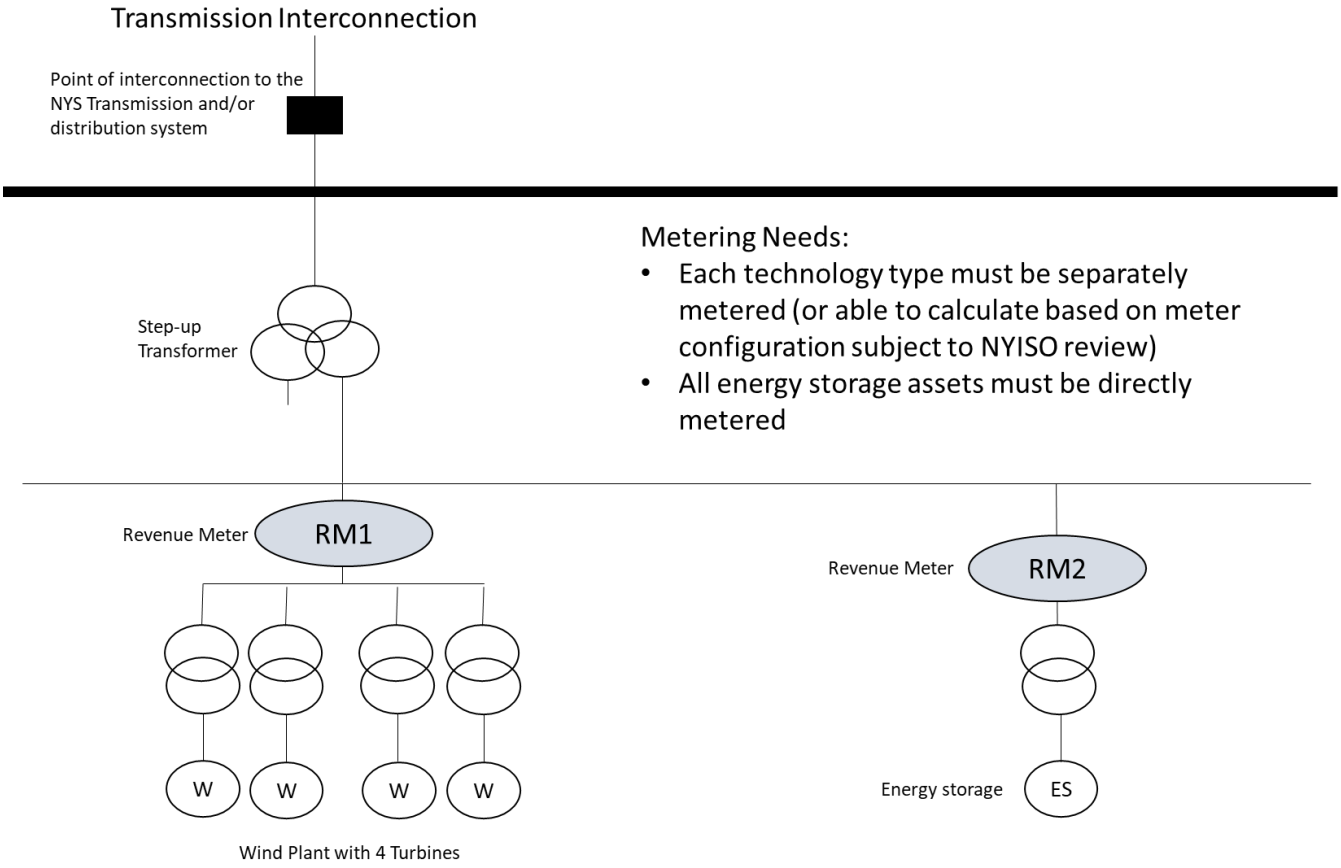
See Figure 1 for a diagram of a potential configuration of co-located Intermittent Power Resources and energy storage.

**12. Where can I find additional information?**

The NYISO's Stakeholder Services representatives are available to respond to questions.

Hybrid Storage Model Key Topic Tracker

**Figure 1. Diagram of Potential Co-Located IPR and Energy Storage**

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