

Capacity Market Overview

James Dolan

February 27, 2012

NEMSTF

Capacity vs. Energy

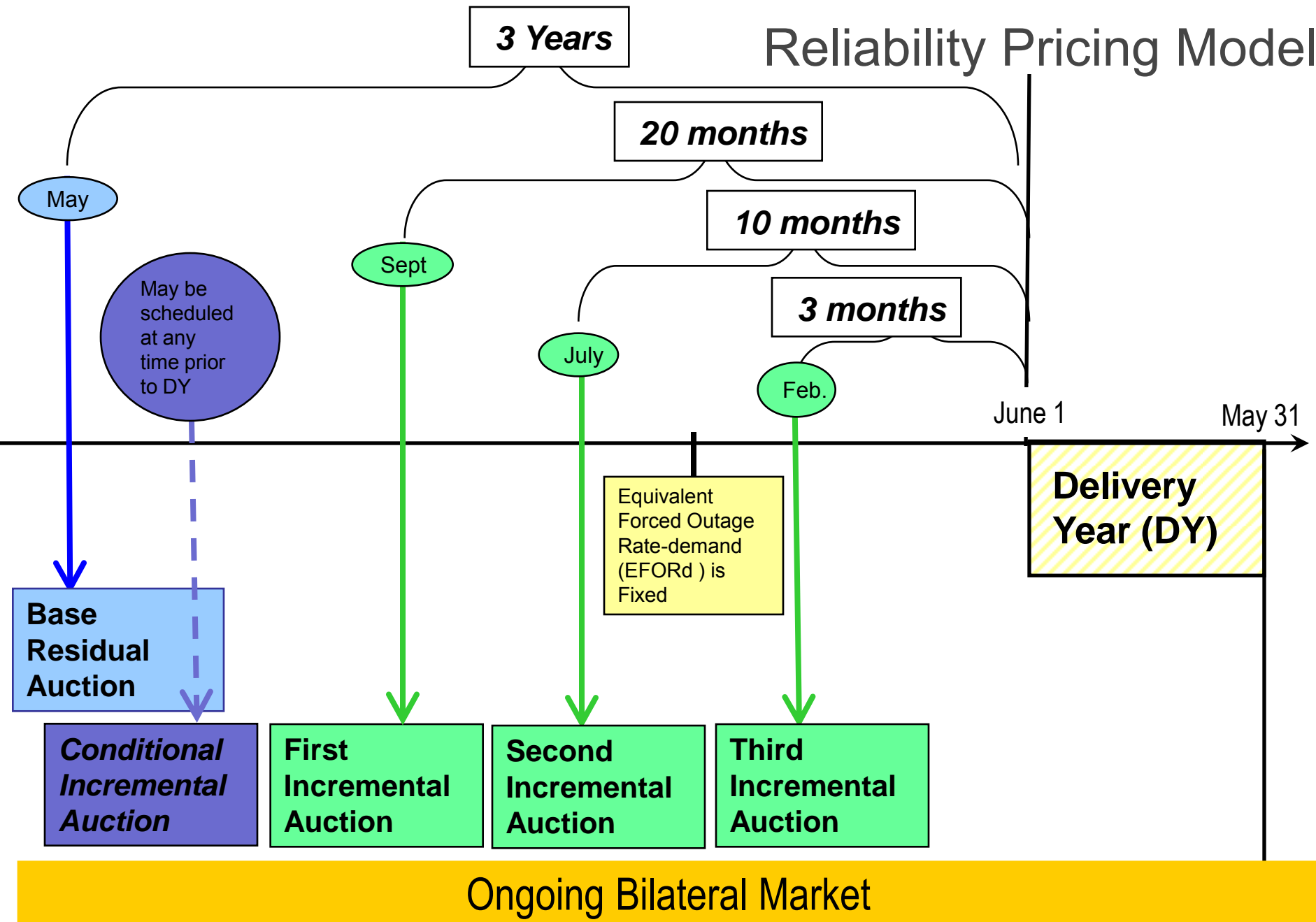
Capacity

- A commitment of a resource to provide energy during PJM emergency under the capped energy price.
- Capacity revenues paid to committed resource whether or not energy is produced by resource.
- Daily product

Energy

- Generation of electrical power over a period of time
- Energy revenues paid to resource based on participation in PJM's Day-Ahead & Real-Time Energy Markets
- Hourly product

Reliability Pricing Model



Interconnection Process

- A generator is pre-certified by PJM as meeting the generation deliverability test. PJM's Interconnection Process for internal generating resources for energy-only and capacity resource are described in the Tariff and the Operating Agreement.
 - Attachment BB - Inverter-Based Generating Facility
 - Attachment EE - ARR Upgrade Request
 - Attachment FF - Initial Study Agreement
 - Attachment Y - Generation Interconnection of 2 MW or Less
 - Attachment N - Generation Interconnection Request
 - Attachment S - Merchant Transmission Request

Interconnection Process

- Application for Capacity Interconnection Request:
 - Attachment N - Generation Interconnection Request
- Application for Energy-Only Interconnection Request include:
 - Attachment BB - Inverter-Based Generating Facility
 - Attachment Y - Generation Interconnection of 2 MW or Less
- Capacity Injection Rights (CIRs) are subject to limitations of injection rights to the bus to which the facility is currently or about to be connected to through the interconnection process.

Attachment N is the only interconnection request attachment that grants Capacity Injection Rights.

Peak Load Contribution (PLC)

- The prior year's zonal weather-normalized RTO-coincident summer peak load is allocated to the wholesale and retail customers in the zone using EDC-specific methodologies that typically employ the customer's shares of RTO actual peaks. These allocations are referred to as Peak Load Contributions, used in the determination of the customer's capacity obligation.
- Any behind the meter or load management can reduce the peak load if they are employed during the RTO actual peaks.
- The peak load reductions are added back if the behind the meter or load management participated as a capacity resource in the capacity markets.

Generators as RPM Capacity Resources

- Generators are required to reside in the eRPM resource portfolio of a signatory to the PJM Operating Agreement.
- Generators that have an RPM Resource Commitment must offer into the Day Ahead Energy Market.
- Generators are required to report outage data (i.e. eGADS, eDART).
- Generators are required to submit seasonal test data.
- Generators are subject to RPM performance assessment penalties.

Generators as RPM Capacity Resources

- Solar and wind generation are classified as Intermittent Resources. Rules for Intermittent Resources are described in **Appendix B: Calculating Capacity Values for Intermittent Capacity Resources** of PJM manual **M-21**.
- Installed Capacity (ICAP) value is based on the summer net dependable rating of a generating unit as determined in accordance with PJM's Rules and Procedures.

RPM Demand Resource

- Participants may wish to offer behind the meter generation into PJM Capacity Market as a Demand Resource (DR) to receive capacity revenues.
- DR is required to submit compliance event data, or in the case there are no events, submit test compliance data.
 - Failure to submit compliance data results in penalties.
- DR option for NEM is questionable.
 - When PJM calls for implementing DR in a capacity emergency, the NEM must be started (or the output must be increased) to reduce the net load on the grid from the end-use customer. NEM resource that is operating at its maximum output either meeting the customer load and/or injecting into the grid cannot function as DR.
 - NEM based on solar or wind also cannot function as DR due to the variable nature of the output.
 - DR may not reduce their load below zero (i.e., export energy into the system) RAA, Schedule 6, Section L.