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Independent System Operator

Bidding Rules and Bidding Template updates – ESR

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Agenda

- **Background**
- **Changes to Upload/Download Templates**
  - New fields being added
- **Bidding Rules for ESR**
- **Summary**
- **Q&A**

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Background

Previous Presentations

Date	Working Group	Discussion points
04-26-18	MIWG	ESR Participation Model: Energy Level Management
06-19-18	MIWG	ESR Metering
06-25-18	MIWG	ESR Settlements: Charges when deviating from NYISO Base Points
07-10-18	MIWG	Energy Market Mitigation Measures for ESRs
7-24-18	MIWG	ESR Market Design Update
7-24-18	MIWG	ESR Settlements - DAMAP, RRAC, RRAP, and Balancing Energy
08-07-18	MIWG	Capacity Market Rules for ESRs
08-14-18	MIWG	Day-Ahead Margin Assurance Payments for ESRs
08-23-18	MIWG	Capacity Market Rules for Energy Storage Resources
08-30-18	MIWG	Scheduling ESRs
08-30-18	MIWG	ESR: Consumer Impact Analysis
09-21-18	MIWG	Capacity Market Rules for ESRs
04-15-19	MIWG	ESR Bidding Changes
03-18-20	BIC	Tariff Modifications Required for the ESR Participation Model

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Bid Parameters

Bid Parameters

- All ESRs must submit values for the following parameters with their with their economic offers:

- Normal Upper Operating Limit (MW)
- Emergency Upper Operating Limit (MW)
- **Lower Operating Limit (MW)**
- **Upper Storage Limit(MWh)**
- **Lower Storage Limit(MWh)**

- Incremental Bid Curve
- Market Choice(DAM/RTM)
- Unit Operation
- **Beginning Energy Level (DAM Only) (MWh)**
- **ESR Energy Management Mode (ISO/Self)**
- **ESR Outage Type ("N", "P" or "F")**
- Opportunity Cost
  - Up to 11 points
  - Optional for all Generators
  - Corresponds to the $/MWh on the bid curve

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Submitting ESR Bids

- ESR bids will be managed using same bidding screens and templates as existing Generator Bids
- There is no impact to existing Generator Bidding* if they are not bidding Opportunity Cost.

*Host Load for BTM:NG Resource (Behind-the-Meter Net Generation) is moved to the end of the Upload/Download template. See format on slide 15

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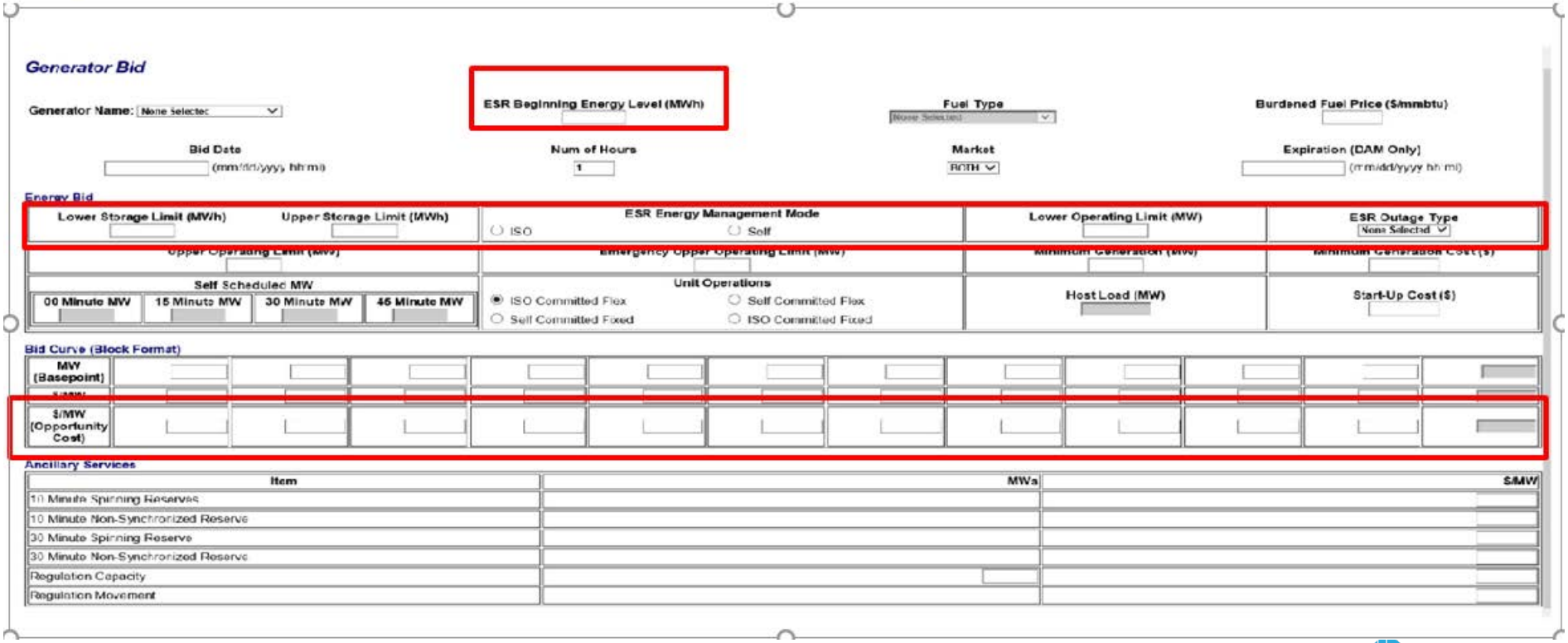
Submitting ESR Bids



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ESR Bids – Beginning Energy Level

- When submitting a DAM bid, user must specify a "Beginning Energy Level" for ISO Managed ESR units.
  - The submitted Beginning Energy Level must be equal to greater than the Lower Storage level and must be Less than or equal to the Upper Storage level.
- Beginning Energy Level value is applicable for any and all hours of the day in Day- Ahead Market . In Real-Time Market, metered value will be used for Energy Level.
- The Beginning Energy Level is for a Market Day

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ESR Bids – Energy Level Management Mode

- When submitting a bid the user must specify a 'ESR Energy Level Management Mode':
  - ISO-Managed
  - Self-Managed
- Indicates if the Energy Level will be evaluated or not. Only if the User specifies "ISO-Managed" will the Energy Level be evaluated.
- "Self-Managed" will be the default on the UI screen. It has to be specified on the Upload/ Download template.
- User can change Energy Level Management Mode in Real-Time Market and within hours of Real-Time Market

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ESR Bids – Upper Storage Limit and Lower Storage Limit

- **When submitting a bid the user must specify:**
  - Upper Storage Limit
  - Lower Storage Limit
    - USL < = Physical USL and LSL>= Physical LSL from registration
    - USL must be greater than LSL

Note: The submitted "Beginning Energy Level" has to be greater than or equal to the Lower Storage level and Less than or equal to the Upper Storage Level.

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ESR Bids – ESR Outage Type

- When submitting DAM Bid, the user must specify a "ESR Outage Type" of "N" Normal, "P" for Planned Outage and "F" for Forced Outage.
- Storage Outage must be reported through the bidding platform.
  - Can choose "P", Planned only if the outage is more than 48 hours from the Market day. Otherwise it has to be "F", Forced, if the outage is less than 48 hours or "N", Normal, if there is no outage.

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All Bids – Opportunity Cost

- All Units can submit Opportunity Cost.
- Opportunity Cost have to be paired with the Bid MW and $/MWh
- They can be bid in the same value or have to be incremental. They cannot be decremantal.

Upload/Download Templates

- Format of the upload/download templates is being revised to accommodate new fields for ESR

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Submit Generator Bids Upload – Upload Request Data

- The data format for each row is as follows:
  - Generator, date & time, duration, market, expiration, upper operating limit, emergency upper operation limit, fuel type, Burdened Fuel Price, start up cost ($), bid schedule type id, self committed MWs 00, self committed MWs 15, self committed MWs 30, self committed MWs 45, fixed min gen MW, fixed min gen cost, dispatch curve MW 1, dispatch curve MW 2, dispatch curve MW 3, dispatch curve MW 4, dispatch curve MW 5, dispatch curve MW 6, dispatch curve MW 7, dispatch curve MW 8, dispatch curve MW 9, dispatch curve MW 10, dispatch curve MW 11, dispatch curve $/MW 1, dispatch curve $/MW 2, dispatch curve $/MW 3, dispatch curve $/MW 4, dispatch curve $/MW 5, dispatch curve $/MW 6, dispatch curve $/MW 7, dispatch curve $/MW 8, dispatch curve $/MW 9, dispatch curve $/MW 10, dispatch curve $/MW 11, 10 min non-synch cost, 10 min spinning cost, 30 min non-synch cost, 30 min spinning cost, regulation capacity MWs, regulation capacity cost, regulation movement cost, Opportunity curve $/MW 1, Opportunity curve $/MW 2, Opportunity curve $/MW 3, Opportunity curve $/MW 4, Opportunity curve $/MW 5, Opportunity curve $/MW 6, Opportunity curve $/MW 7, Opportunity curve $/MW 8, Opportunity curve $/MW 9, Opportunity curve $/MW 10, Opportunity curve $/MW 11, ESR Beginning Energy Level, Lower Storage Limit, Upper Storage Limit, Energy Management Mode, Lower Operating Limit, ESR Outage Type, Host Load

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Submit Generator Bids Upload – Upload Response Data

- Response files will contain the following data:

  Generator name, Generator PTID, date & time, market, expiration, upper operating limit, emergency upper operating limit, fuel type, Burdened Fuel Price, start-up cost ($), bid schedule type id, self committed MWs 00, self committed MWs 15, self committed MWs 30, self committed MWs 45, fixed min gen (MW) fixed min gen cost ($), dispatch curve MW 1, dispatch curve MW 2, dispatch curve MW 3, dispatch curve MW 4, dispatch curve MW 5, dispatch curve MW 6, dispatch curve MW 7, dispatch curve MW 8, dispatch curve MW 9, dispatch curve MW 10, dispatch curve MW 11, dispatch curve MW 12, dispatch curve $/MW 1, dispatch curve $/MW 2, dispatch curve $/MW 3, dispatch curve $/MW 4, dispatch curve $/MW 5, dispatch curve $/MW 6, dispatch curve $/MW 7, dispatch curve $/MW 8, dispatch curve $/MW 9, dispatch curve $/MW 10, dispatch curve $/MW 11, dispatch curve $/MW 12, 10 min non-synch cost, 10 min spinning cost, 30 min non-synch cost, 30 min spinning cost, regulation capacity MWs, regulation capacity cost, regulation movement cost, bid id, bid status, message, Opportunity curve $/MW 1, Opportunity curve $/MW 2, Opportunity curve $/MW 3, Opportunity curve $/MW 4, Opportunity curve $/MW 5, Opportunity curve $/MW 6, Opportunity curve $/MW 7, Opportunity curve $/MW 8, Opportunity curve $/MW 9, Opportunity curve $/MW 10, Opportunity curve $/MW 11, Opportunity curve $/MW 12, ESR Beginning Energy Level, Lower Storage Limit, Upper Storage Limit, Energy Management Mode, Lower Operating Limit, ESR Outage Type, Host Load

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Summary

Summary

- ESR will have the following new Bidding Parameters and associated rules
  - Lower Operating Limit (MW)
  - Upper Storage Limit (MWh)
  - Lower Storage Limit (MWh)
  - Beginning Energy Level (DAM Only) (MWh)
  - ESR Energy Management Mode (ISO/Self)
  - ESR Outage Type (Storage) (Normal -"N" , Planned -"P" or Forced -"F")
- All Generators will have the option of providing Opportunity Cost
  - Up to 11 points
  - Corresponding to the $/MWh on the bid curve

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Next Steps

- Markets Trials for Bidding starting on April 28th, 2020 and running through April 30th, 2020.
- More detail communication about the trails to follow

Questions?