Fuel Charges in Reference Levels

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Agenda

- What is a Generator Reference Level?
- Examples of Reference Calculation
- Incorporating Authorized Fuel Charges into Reference Levels and NYISO Monitoring
- Concerns on Gaming and Non-Competitive Behavior

What is a Generator Reference level?

- The representation of a Generator's short run marginal costs.
- Section 23.3.1.4 of MST Attachment H gives a method hierarchy of:
  - *Bid-based → LBMP-based → Cost-based*
- The ISO's calculation of a Generator's cost-based reference level includes an assessment of the Generator's expected incremental operating costs in accordance with the following formula:

*((heat rate * fuel costs) + (emissions rate * emissions allowance price) + other variable operating and maintenance costs))*

Examples of Reference Calculation

Simple Example

- **A 150 MW maximum output generator is scheduled at 100 MW, with the following costs associated with that incremental energy output:**
  - ***Heat Rate = 10 MMBtu/MWh***
  - ***Fuel Costs = $6.00/MMBtu***
  - ***Other variable operating and maintenance costs = $5.00/MWh***
  - ***Assume no emissions costs for this particular generator***

Reference Level = ((10 MMBtu/MWh * $6.00/MMBtu) + 0 + $5.00/MWh) = $65.00/MWh

Gas Balancing Example

- Assume the 150 MW maximum output unit has a 100 MW DAM schedule, and is able to nominate enough gas to meet the DAM schedule.
- During HB 10-16 of the electric day, it is assumed that the generator could nominate any additional gas needed to satisfy real-time dispatch above DAM schedule.
- During HB 17-09 of the electric day(s), the generator could reflect authorized real-time balancing charges in its reference level if the unit is unable to procure additional gas and is dispatched above its DAM schedule.

Numerical Gas Balancing Examples

- **Single Steam Unit Portfolio Example**
  - ***100 MW DAM schedule for 8 hours***
  - ***Nominated 7,600 MMBtu (enough to satisfy 8 hours of operation at the DAM schedule)***
  - ***Example looks at the 8th hour of operation***

	MW	Heat Rate	Incremental MMBtu	Cumulative MMBtu per hour	Fuel Cost	VOM	Reference
Mingen	50	9	450	450	$ 6.00	$ 5.00	$ 59.00
DAM Schedule	100	10	500	950	$ 6.00	$ 5.00	$ 65.00
Max	150	11	550	1500	$ 8.10	$ 5.00	$ 94.10

Numerical Gas Balancing Examples

- **Ten GT portfolio example**
  - ***All 10 units are identical***
  - ***Nine are DAM scheduled and have been online for 5 hours each***

	MW	Heat Rate	Hours Online	MMBtu	Fuel Cost	VOM	Reference
DAM Scheduled	360	12	5	21,600	$ 6.00	$ 5.00	$ 77.00
Not Scheduled	40	12		480	$ 7.50	$ 5.00	$ 95.00

Incorporating Authorized Fuel Charges into Reference Levels and NYISO Monitoring

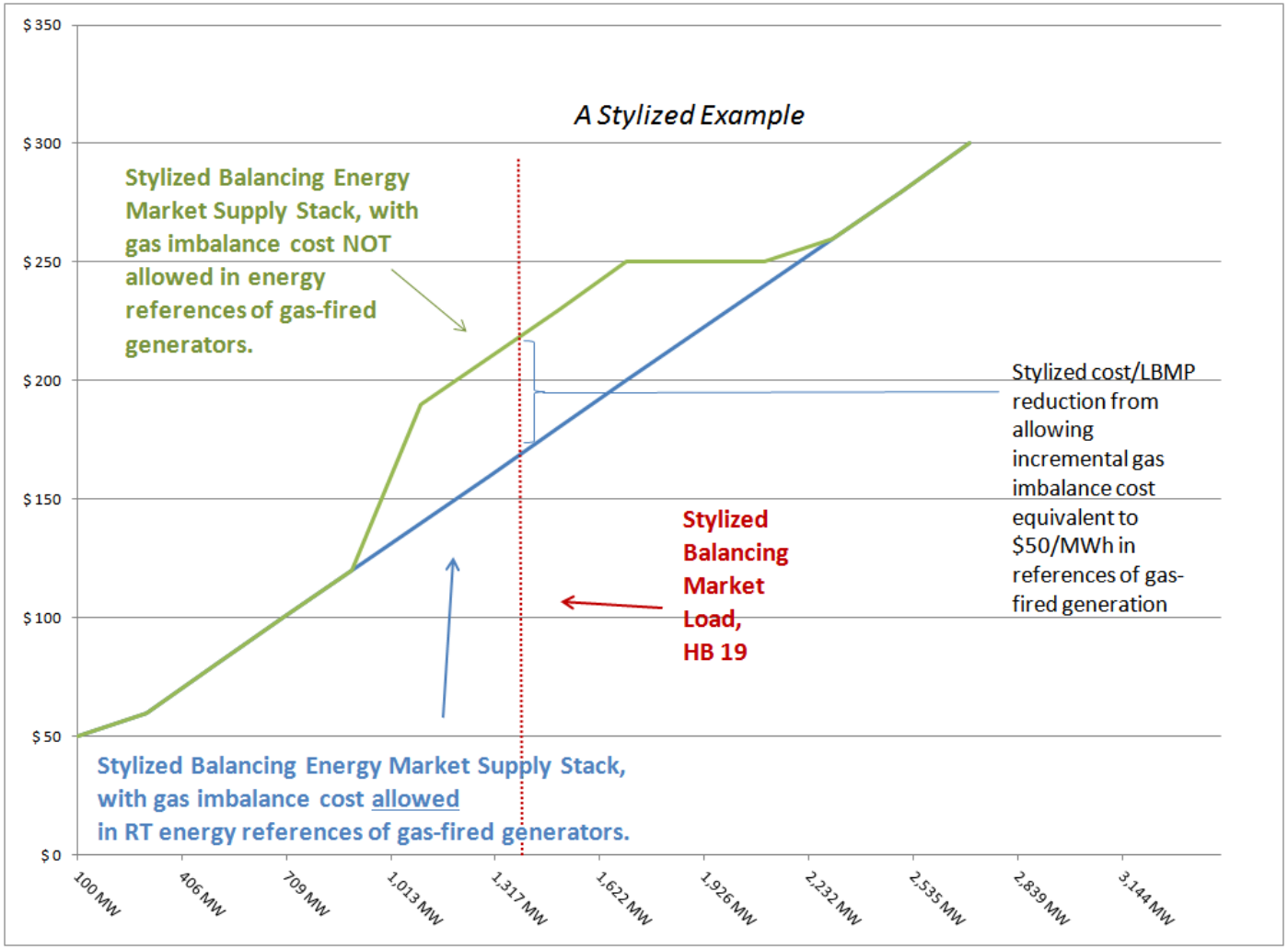
Incorporating Authorized Fuel Charges into Reference Levels

- Gas balancing charges are anticipated to be included only during periods when nominations are unavailable.
- No gas balancing charges will be allowed in DAM reference levels.
- Authorized gas balancing charges will be allowed in RTM reference levels.
- The Market Participant should
  - *Utilize Fuel Price or Type Adjustment capability on their HAM bid(s), if necessary*
  - *Request a secondary Fuel Cost Adjustment threshold, if necessary*
  - *Retain fuel price, burn, and nomination data (daily/hourly)*

Why?

- NYISO believes allowing recover of authorized fuel charges in reference levels lowers the cost to consumers for electric service.
- Absent the opportunity to recover incremental gas balancing costs, resources would not offer additional generation into the RTM. This would cause NYISO to dispatch higher cost resources to meet RTM load, which would increase RTM energy prices and/or uplift charges.

Effect on RT Energy Prices of Allowing Incremental Gas Imbalance Costs in References



Unauthorized charges

- The NYISO expects competitive suppliers to comply with federal and state laws, rules, regulations and orders, and to comply with valid rules and orders that are issued by the NYISO to ensure the reliable operation of the electric system, or by gas Local Distribution Companies (LDC) or pipelines to ensure the reliable delivery of natural gas.
- NYISO will not permit the inclusion in generator reference levels of charges associated with violations of Operational Flow Orders or instructions restricting the use of gas imbalance service.
  - *See proposed Attachment 1 to the Reference Level Manual.*
  - *LDCs or Pipelines may propose additional unauthorized levels by notifying the NYISO, as outlined in the Attachment.*
- NYISO expects incremental generating capability that is unable to procure gas, except by using gas that is unauthorized (as outlined in Attachment 1 to the Reference Level Manual), will not offer into the RT market.

Example of Unauthorized Fuel Charge Submission

- **OFO charges**
  - ***If requesting a generator specific secondary Fuel Cost Update threshold for the purpose of including OFO penalty costs in reference levels, MMA would not approve this request.***
  - ***If an OFO prevents a <u>scheduled</u> Generator from securing gas to meet its schedule, and there is no available alternative fuel, the NYISO would expect the Generator to take a forced outage.***

Concerns About Possible Gaming and Non-Competitive Behavior

Under Nomination Example #1

- **Generator receives a 50 MW DAM schedule and DAM LBMP is $100 (Generator is marginal)**
  - ***For that hour, the forward energy contract payment = 50 MW * $100 = $5,000***
  - ***In Real-Time, the generator uses IBRT to increase its energy offer to $150 because it under nominated gas and tries to reflect fuel charges on its day-ahead scheduled MWs.***
  - ***The generator is backed off in Real-Time, and the marginal unit sets LBMP at $120 for the hour.***
  - ***The generator must buy out its 50 MW at the $120 LBMP. Net result is the generator takes a $1,000 loss by receiving a DAM settlement of $5,000 and buying out in Real-Time for $6,000.***

Under Nomination Example #2

- **Two 50 MW unit portfolio. One generator is gas-only and one is dual fuel.**
  - ***Gas-only unit is DAM scheduled and marginal at $150***
  - ***No gas is nominated, so the DAM scheduled Generator uses IBRT to increase its energy offers $300 to reflect expected gas imbalance charges***
  - ***The DAM scheduled unit is backed down, and the dual fuel unit is marginal in real-time while bidding on oil at $275.***
  - ***The resulting portfolio settlement is $7,500, and it cost the dual fuel unit $13,750 to produce 50 MW.***

	MW	DAM LBMP	RT LBMP	DAM Settlement	RT Settlement	Net Settlement
Unit 1 (gas-only)	50	$ 150	$ 275	$ 7,500	$ (13,750)	$ (6,250)
Unit 2 (dual fuel)	50	n/a	$ 275	$ -	$ 13,750	$ 13,750
Portfolio				$ 7,500	$ -	$ 7,500

Cost to Produce Energy	$ 13,750
Settlement	$ 7,500
Net Loss	$ (6,250)

Under Nominating Day-Ahead Schedule

- Under nominating gas for day-ahead scheduled MWs, and subsequently utilizing both IBRT and Fuel Cost Update capability would have no financial impact if the DA-scheduled unit is not backed down in real-time, since the MWs are settled in the day-ahead market.
  - *NYISO expects suppliers to procure fuel DA to meet their generators' DAM commitments*
- If backed down, the DA-scheduled generator needs to buy back the MWs at the real-time price. The real-time price would ordinarily be higher than the day-ahead price, since the act of utilizing IBRT would push the supply stack out. Therefore, the generator would, most often, lose money by taking this action.
- Note that using energy IBRT precludes the generator from receiving DAMAP.
- Both the MMU (Potomac Economics), and the NYISO's MMA monitor and investigate suppliers operating in a manner apparently inconsistent with costs.
- MMA may refer behavior inconsistent with a competitive supplier to the MMU and the market party may subsequently be referred to FERC.

NYISO Validation and Monitoring

- **MMA may request any or all of the following after a successful Fuel Cost Update**
  - ***Gas nomination and burn data (by gas day or hour)***
  - ***Gas flow confirmations***
  - ***Commodity gas prices and invoices***
- **In addition, MMA reviews RT offers of day-ahead scheduled MWs to check for systematic energy IBRTs**

If NYISO Validation and Monitoring Reveals Inclusion of Unauthorized Fuel Charges

- **Seven-day bias test (Section 23.3.1.4.7.8 of MST Attachment H)**
  - ***A Fuel Cost Update submission is considered bias if the submitted fuel was not the most economic fuel type available to the Generator, or if the unauthorized fuel prices used to develop reference levels for that Generator exceeded what the ISO would have used to develop reference levels by greater than 10%, on average, over a seven-day period.***
    - **For purposes of calculating the seven-day average, only hours in which the fuel price submitted exceeds the ISO's indexed fuel price will be considered. The Day-Ahead and Real-Time Markets are considered separately for purposes of this analysis.**
  - ***Failure of the seven-day bias test results in revocation of Fuel Cost Update functionality for 60 days on the first instance. Each subsequent instance results in revocation for 180 days.***

If NYISO Validation and Monitoring Reveals Inclusion of Unauthorized Fuel Charges

- **Sanction**
  - ***If inaccurate fuel type and/or fuel price information was submitted by or for a Market Party, and the reference level that the ISO developed based on that inaccurate information impacted guarantee payments or market clearing prices paid to the Market Party, then the Market Party may be subject to financial sanction, as outlined in Section 23.4.3.3.3 of MST Attachment H.***
- **MMA may refer behavior inconsistent with a competitive supplier to the MMU (Potomac Economics), and the market party may subsequently be referred to FERC.**

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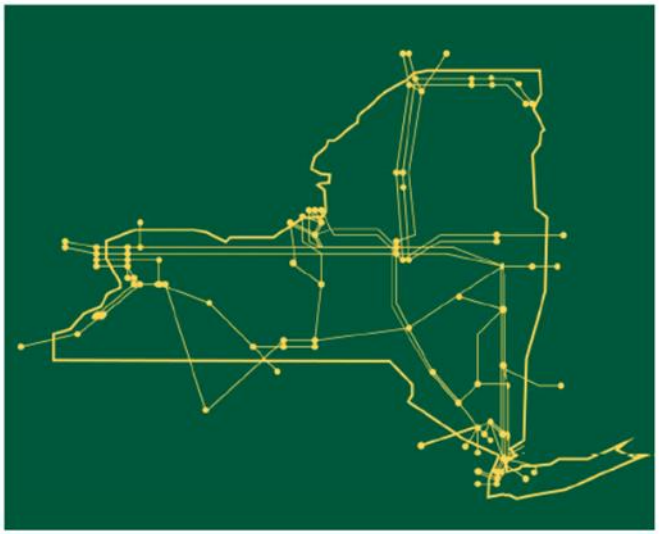

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