



FCM Performance Incentives: A Strategic Planning Initiative

New England Gas-Electric Focus Group

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FCM Performance Incentives

- **Problems We're Trying to Solve**
- **Proposed Direction: FCM Performance Incentives**
 - Rationale, Key Elements, Benefits and Costs
- **Next Steps: Stakeholder Input**

Broader Context

- **Five Challenges in Strategic Planning Initiative**
 - **Risk 1:** Resource performance and flexibility
 - **Risk 2:** Increasing reliance on gas-fired capacity
 - **Risk 3:** Retirement of generators
 - **Risk 4:** Integration of greater intermittent/variable resources
 - **Risk 5:** Alignment of markets and (transmission) planning
- **ISO direction:** Oct. 2012 White Paper, [FCM Performance Incentives](#)
 - Primarily designed to address SPI Risks 1-3.
- **Strategic Planning Initiative - materials:**
 - <http://www.iso-ne.com/spi> > Materials

PERFORMANCE CONCERNS AND INCENTIVES

The Problems We're Trying to Solve

Several problems, different timeframes

- **Reliability risks** of growing gas dependence [NE Gas Studies](#)
 - No catastrophes, yet. Why?
 - ISO manages risks, *when anticipated*, using oil-steam and coal units
- **Two pressing concerns**
 - These are 50+ year old units, and may not perform as needed
 - These units are 'at risk' for retirement (2018+/- timeframe).
- **What then?** *Without new incentives:*
 - Little confidence that remaining and new capacity will perform better than they do today. Puts system reliability at increasing risk.
- **Incentives must be addressed now** for 2018/19 investment

Incentives for investment and availability

- **No single, least-cost technology solution**
 - For gas: dual-fuel, non-interruptible transport, backup LNG supply...
 - Best options vary by unit, its costs, location in gas network, etc.
 - Other possible investments: Fast-responding DR, greater liquid fuel storage & re-supply chains at non-gas units, and so on.
- **Problem: Current FCM provides little economic incentive to undertake and maintain these capital investments**
 - Useful for limited hours per year; revenue for incremental capital investments in these solutions is insufficient for a supplier to justify it.
- **Implication:** Markets can motivate suppliers to deliver least-cost solutions, but this requires changes to FCM's incentives.

Problems on day-to-day timeframes

- **Resources increasingly fail to meet** (new or revised) intra-day dispatch schedules.
 - Often, but not always, for fuel-related reasons
- **Broad problem:** Availability incentives are insufficient.
 - **Efficient energy market:** (Very) high RT energy price during scarcity conditions, provides strong incentive for performance & availability.
 - **Actual energy market:** RT LMP based on system marginal cost and admin reserve price during scarcity conditions results in a lower price.
 - See [White Paper, Section 2](#)
- **Implication:** Greater performance incentives are needed during scarcity conditions. They must be provided via FCM.

Issue Summary

- **Core problems**
 - System increasingly reliant on resources w/ uncertain availability
 - Insufficient incentives for suppliers to reduce this uncertainty
 - ‘Systemic risk’ if too many units cannot perform simultaneously
- **Manifest in several timeframes and ‘needs’**
 - 1. Future capacity investments** must help reduce system’s risks
 - Must address incentives now for FCA 9+ outcomes.
 - 2. Existing resources:** Incremental operational-related investment must take place to reduce uncertainty over performance & availability
 - 3. Operational practices:** Stronger incentives for intra-day availability and performance during stressed system conditions.

ISO DIRECTION:

FCM Performance Incentives

Design Objectives

- **Objective 1:** Improve resource performance and availability by addressing the reliability risks described earlier (*slide 10*):
 - **New capacity investments** to help reduce system's risks;
 - **Incremental investments** to improve resources' availability;
 - **Incentives** to perform well during stressed system conditions.
- **Objective 2:** Meet resource adequacy criteria overall, using FCM to replace the “missing money”
 - This objective is the same as today.
- **Achieve these objectives with most cost-effective solutions**



Conceptual Approach

- **Create strong performance & availability incentives that:**
 - An efficient energy market *would* provide (with very high spot energy prices during scarcity conditions),
 - The region’s actual energy and ancillary service markets cannot
 - See [White Paper, Section 2](#)
- **Insights.** We can restore these “missing” incentives via FCM
 - Pay for Performance (PFP) makes a resource’s FCM revenue (“missing money”) contingent on its performance during scarcity conditions.
 - Mirrors how markets *should* work during scarcity conditions.
 - See [White Paper, Section 4](#)

Pay for Performance – Major Elements

- **Standard Incentive Contract**
 - Base Payment, and a Performance Payment
- **Performance payment**
 - Determined by a resource's performance during scarcity conditions
 - May be positive or negative (on top of Base Payment)
- **Resource Neutral**
 - All resources have same Base and Performance payment rate
 - During scarcity conditions, performance is what matters
- **Who pays what?**
 - **Loads** pay the Base Payment set by FCA clearing price (like today).
 - **Performance payments** are transfers among suppliers

Consequences: Reliability Improvements

- **PFP provides strong incentives** for suppliers to improve their individual resources' performance and availability.
 - Investments or operating practices can increase 'upside' performance payments *and* mitigate non-performance risks:
 - Dual-fuel capability to protect against fuel shortage
 - Non-interruptible fuel supply
 - Staffing improvements
 - Faster unit startup capability to reduce performance deficiency hours
 - More rapid price-responsive demand, with more times available
 - And so on.
 - See [White Paper, Section 3](#)
- **Outcome:** Suppliers will resolve availability and ongoing performance issues in the most cost-effective ways possible

Expectations for Resource Mix Evolution

- **Strong incentives for investment in capacity that is:**
 - (1) Low-cost and highly reliable (nearly always operating); or
 - (2) Highly flexible and highly reliable (gets online quickly and reliably)
- **Result:** System that is highly reliable at lowest possible cost
 - Most reliable resources will profit the most from these incentives
- **Exit:** May hasten retirement of non-flexible, non-baseload resources; non-performance risk may price them out of FCM.
- **Entry:** Expect most new capacity would be type (1) or (2) above, with reliable fuel to operate during scarcity conditions
 - Addresses retirement & future investment concerns ([see slides 6-7](#)).

Benefits of Performance Incentive Design

- **Greater operational-related investments** to improve resource performance and availability at existing resources
 - Esp.: Fuel availability and/or secondary fuel supplies
 - Examples: See [slide 13](#) and [White Paper, Section 3](#).
- **Increase Resource Flexibility**
 - Reduced start-up times, improved operational flexibility, etc.
 - New investment in more flexible capacity resources over time
- **Cost-effective solutions**
 - Rewards suppliers that improve availability in most cost-effective ways
- **Efficient Resource Evolution**
 - Trend toward more reliable resource mix over time ([slide 14](#))

Costs of Performance Incentive Design

- **FCA clearing prices are likely to increase somewhat**
 - FCA bids will reflect expected *net* performance payments in CCP
- **For marginal resource that sets FCA 9 clearing price:**
 - Apt to be a resource that performs *worse* than the average capacity resource's performance (given current fleet);
 - Thus would expect net negative performance payments, and reflect that cost in its FCA bid.
- **PFP may spur earlier entry by new and more reliable resources earlier** than would occur without PFP.
- **ISO will provide greater information** on its estimates of FCA impacts in the Major Initiative impact assessment.

Costs of PFP, *cont'd.*: The Big Picture

- **Plummeting fuel prices** have reduced total wholesale costs to load dramatically, falling nearly \$6 B (40%) from 2008 peak.
- **With the shift to a 'just in time'** fuel delivery system, and future growth in intermittents, we have new reliability risks.
- **Ensuring reliability** in this environment brings some new costs:
 - **Region must acquire 'insurance'** against fuel non-availability risks, performance uncertainties, etc., that are more likely than in past.
- **Perspective.** This incremental 'insurance' cost is a necessary step to sustain the enormous savings from cheaper, cleaner sources and a reliable power system.

WHAT'S NEXT?

Logistics & Timing

- **ISO Direction:** ISO White Paper (October 2012) on [FCM Performance Incentives](#)
at: <http://www.iso-ne.com/spi> > Materials
- **Stakeholder Input:**
 - Dec-Jan-Feb: Informal stakeholder input
 - MC: Spring through Fall 2013
 - MC and PC Votes: Fall 2013
 - FERC Filing: Fall 2013
- **Implement:** For 2014 FCA (FCA 9, CCP of 2018/19)

Questions

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