FCM Performance Incentives

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Today's Agenda

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

Broader Context

SPI
STRATEGIC PLANNING INITIATIVE

- **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

- **May 2012.** White Paper, *Using FCM to Meet Strategic Challenges*
  - Offered scope & timeframes

- **Oct. 2012.** ISO direction: *FCM Performance Incentives*
  - Primarily designed to address SPI Risks 1-3.

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 should be provided via FCM.

Incentive problems on shorter timeframes

- **Poor dispatch response in stressed system conditions**
  - ISO analysis: Avg. 60% unit response post-contingency (non-hydro)
  - Explanations for poor dispatch response are many (vary by generator)
- **No single technology 'solution'** to improving performance during scarcity conditions; varies by resource.
  - Communications, staffing/training, maintenance, operating practices…
- **Providing stronger financial incentives to perform** during scarcity conditions will help address this problem
  - Enable suppliers to make the business case for actions that improve response performance, and benefit by doing so.

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:
  - **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

Primary Incentive Properties

- **Similar performance & availability incentives** to an energy market with very high spot prices during scarcity conditions
- **Difference is the risk structure.** Under PFP:
  - **Loads** fully hedged against unexpectedly high performance pmts
    - Acquiring 'insurance' that improves reliability and incentives, for an up-front 'cost' set in FCA.
  - **Suppliers** receive a base payment (at FCA price), which provides a different risk profile than a spot market w/ high scarcity prices *(next).*
- **Also different:** Unlike high (uncapped) energy offers, PFP presents no concerns over increases in market power during scarcity.

Key Points on PFP Design

- **Removes all existing 'shortage event' exemptions:**
  - Available but not started
  - Generator on planned outage
  - Generator not performing due to transmission or forced outage
  - Intermittent and Demand Resources
  - Imports available but not scheduled
- **Mirroring energy market incentives:**
  - Revenue depends on performance; no 'not my fault' exceptions.
  - Non-performance causes are a supplier's business risks, whether within or beyond a supplier's control. Risks affect its FCA bid.
- **Fundamentally different approach** than existing FCM.

Key Points on PFP design (*con't*.)

- **Performance:** Supply energy or RT reserves during scarcity.
- **Performance incentives apply to all resources** during scarcity conditions (using same formulas), not just to CSO MW.

  Ex.: Supply without any CSO (top of unit or otherwise);
  Imports with no CSO (some netting may need to be done);
  Intermittents with CSO less than nameplate MW

- **Why?**
  - Efficient, non-discriminatory, and provides desirable incentives
  - Reliability: All resources motivated to respond quickly to reserve deficiencies, reducing duration and severity of these events.
  - May enable expanded supplier risk management options

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

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 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

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.

Questions

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