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

• **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
  - 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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