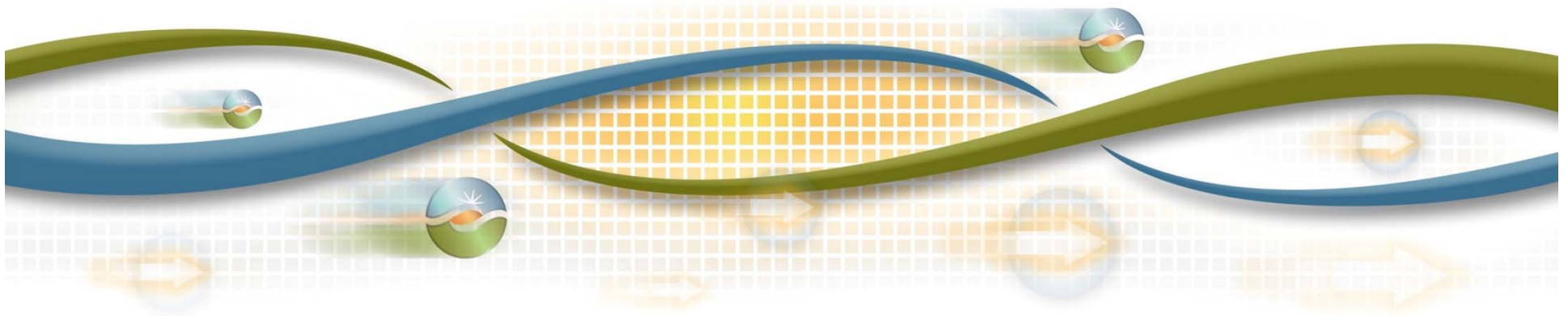# New Local Market Power Mitigation/ Dynamic Competitive Path Assessment Performance

MSC Meeting

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Overview

- Accuracy of LMPM Enhancements in day ahead market.

- Accuracy of LMPM enhancements in the real time market.

- Discussion of potential future analysis.

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Enhancements implemented in Phase 1

- LMPM/DCPA Phase 1

    – Implemented on April 11, 2012

    – Day-ahead: complete implementation, with both DCPA and LMPM, no historical static CPA is needed

    – Real-time: LMPM implemented in HASP only, no DCPA, static CPA still needed for path competitiveness designation

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LMPM functions in Day-Ahead

- LMPM/DCPA Phase 1 in day-ahead market

  – DCPA produces hourly path competitiveness designation

  – Mitigation trigger based on congestion price decomposition

    - Mitigate resource bids if positive component from non-competitive path at resource location

  – Mitigation run uses inputs similar to market run

    - Convergence bids are incorporated in MPM run

    - Bid-in demand is used in MPM run (was forecast load)

Identification of local market power through congestion prediction

- Local market power in IFM is created by congestion → needs to be detected in mitigation run to accurately trigger mitigation.

- Congestion consistency between MPM and IFM greatly improved

Mitigation Run vs Market Run	2011 Q2	2012 Q2
Consistent	45%	93%
Over-identified	18%	3%
Under-identified	37%	4%

- Based on constraint-intervals binding either in MPM or IFM (or both)

- Improvement due to better parity in inputs between MPM and market runs

  - Convergence bids and bid-in demand now in both MPM and IFM

Accuracy of residual supplier index applied in MPM run

- Benchmark designations from MPM run against calculated designations in IFM.

As Measured in the Mitigation Run			As Measured in the Market Run	
			Competitve	Non-competitive
Static CPA	Competitive		1%	17%
	Non-competitive		51%	31%
			52%	48%
Dynamic CPA	Competitive		51%	14%
	Non-competitive		1%	34%
			52%	48%

- Improved identification of competitive paths compared to static CPA.

- Comparable identification of non-competitive paths.

- Less mitigation triggered from "over-identification" of local market power.

- The Market Run result is the benchmark base: Green color means matching results; Blue and Red color means non-matching results.

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Impact of mitigation on bid prices

- Mitigation did not change the bid price for 94 percent * of instances where resources were subject to mitigation.**

- For the remaining 6 percent, most had bid price reduced by $10 or less. More extreme bid prices also impacted more frequently.

Input bid change	Unit-hours
($0-$5]	815
($5-$10]	224
($10-$25]	68
($25-$100]	199
$100+	473

* There were 1,172,832 unit-hours in the study period, 29,576 (2.5%) unit-hours subject to mitigation, and 1,779 (0.15%) unit-hours with bid change.

** Based on bid price change at point of market dispatch.

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LMPM functions in Real-Time

- LMPM/DCPA Phase 1 in real-time market

    - No DCPA implementation (scheduled for Phase 2); static CPA is used

    - Mitigation still in HASP; no 15-minute RTPD mitigation yet (scheduled for Phase 2)

    - Mitigation trigger based on congestion price decomposition

        - Mitigate resource bids if positive component from non-competitive path at resource location

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Real-time LMPM performance

- **HASP MPM congestion prediction**

  – Risk of "under-identification"

- **Path designation:**

		RTD	
		Cong	**Not Cong**
HASP MPM	**Cong**	43%	11%
	Not Cong	46%	OK

  – 19% competitive under static CPA vs. 72% DCPA

  – Lower frequency of "competitive" as measured in RTD

- **Mitigation**

  - Frequency (mitigated unit hour) by price impact.

Resource Hours		66,346
Subject to Mitigation		
ΔPRC_{bid}		
$0		95%
($0 , -$5]		1%
(-$5 , -$25]		2%
(-$25 , -$50]		0%
(-$50 , -$100]		0%
< -$100		2%

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Discussion of potential further analysis

- Correctly identified and over-identified local market power

  – Use effective counter-flow supply curve from MPM run (unmitigated bid) and market run (mitigated bid).

  – Apply demand for counter-flow to unmitigated curve to measure potential price change.

- Under-identified local market power

  – Don't have mitigated bid curve to use as counter-factual.

  – Can identify dispatch of effective resources on bid prices > DEB and measure mark-up.

  – Alternatively, can approximate mitigation using DEB and proceed with approximate "re-dispatch" and pricing w/ effective supply curve.

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