How Might Nowcasting Impact Market Rules – What's happening in MISO

2018 ESIG Forecasting workshop

Session 7: Advances in Forecast Applications and Market Design

6/21/2018

Purpose and Key Takeaways

Purpose

Discuss proposed settlement changes for wind units

Key Takeaways

MISO uses Market Participant submitted wind forecast

MISO wind forecast is used as a backup to Market Participant

MISO proposes to void Excessive/Deficient Energy charges if Market Participants use MISO's forecast and follow dispatch

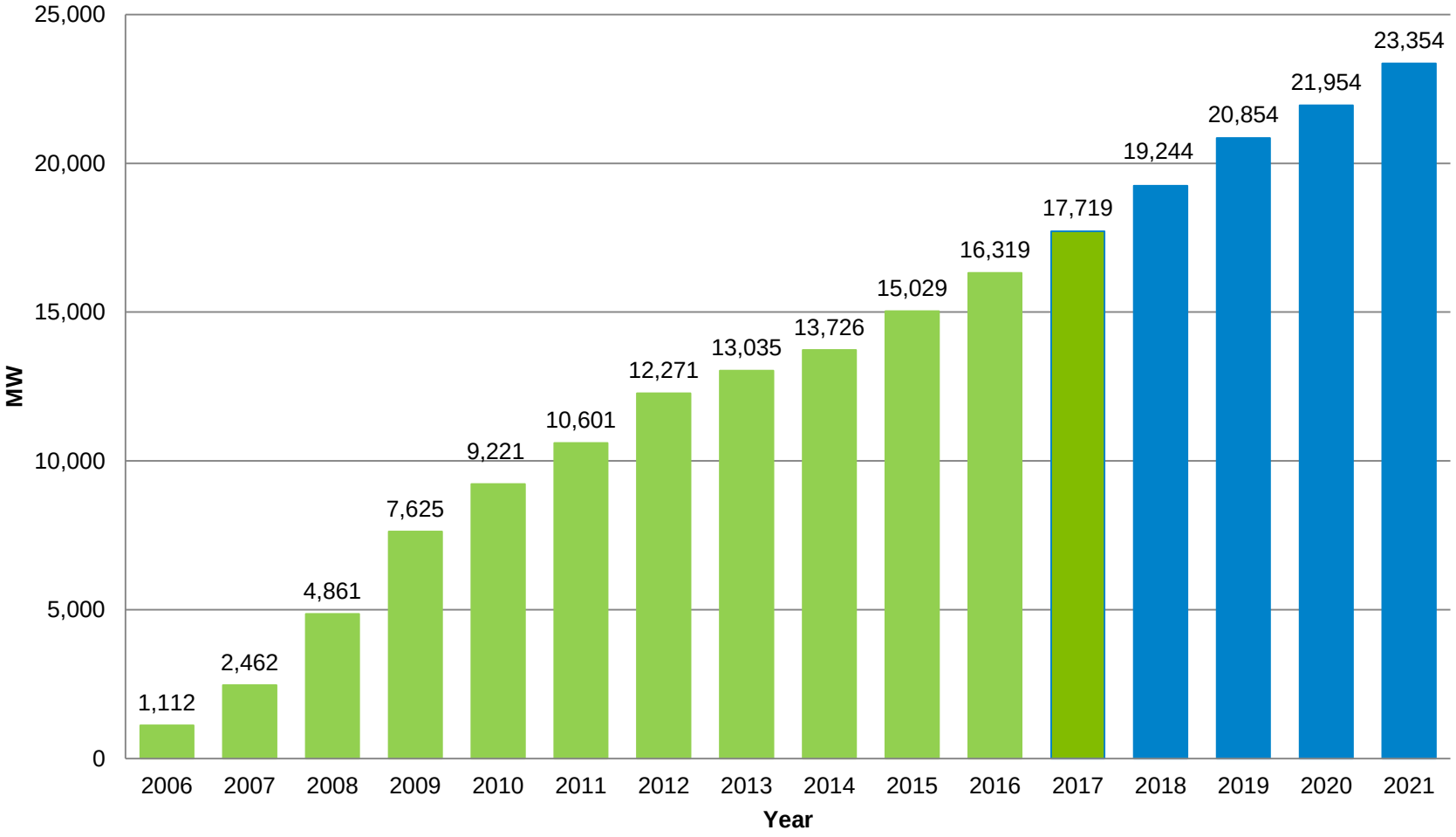
MISO is an independent, non-profit organization in 15 U.S. States and a Canadian province

MISO by-the-numbers	
High Voltage Transmission	65,250 miles
Installed Generation	205,759 MW
Installed Generation	1,594 Units
Peak System Demand	133,368 MW
Wind Installed Generation	18,204 MW
Wind Installed Generation	209 Units
Wind Peak Generation	15,544 MW

Mission

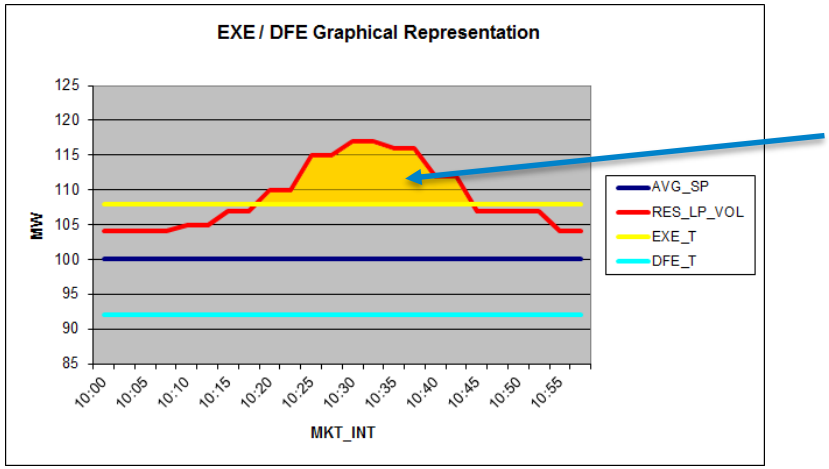
The most reliable, value creating regional transmission organization (RTO).

Wind Capacity Growth in MISO



Background

- MISO has rules in place to ensure resources follow real time dispatch instructions
- Rules are in place to charge over performers



Excessive Energy is assessed certain charges and paid at the lower of the energy offer or the RT LMP

- Market Roadmap (#30) initiative was started to review the current uninstructed deviation rules and recommend next steps

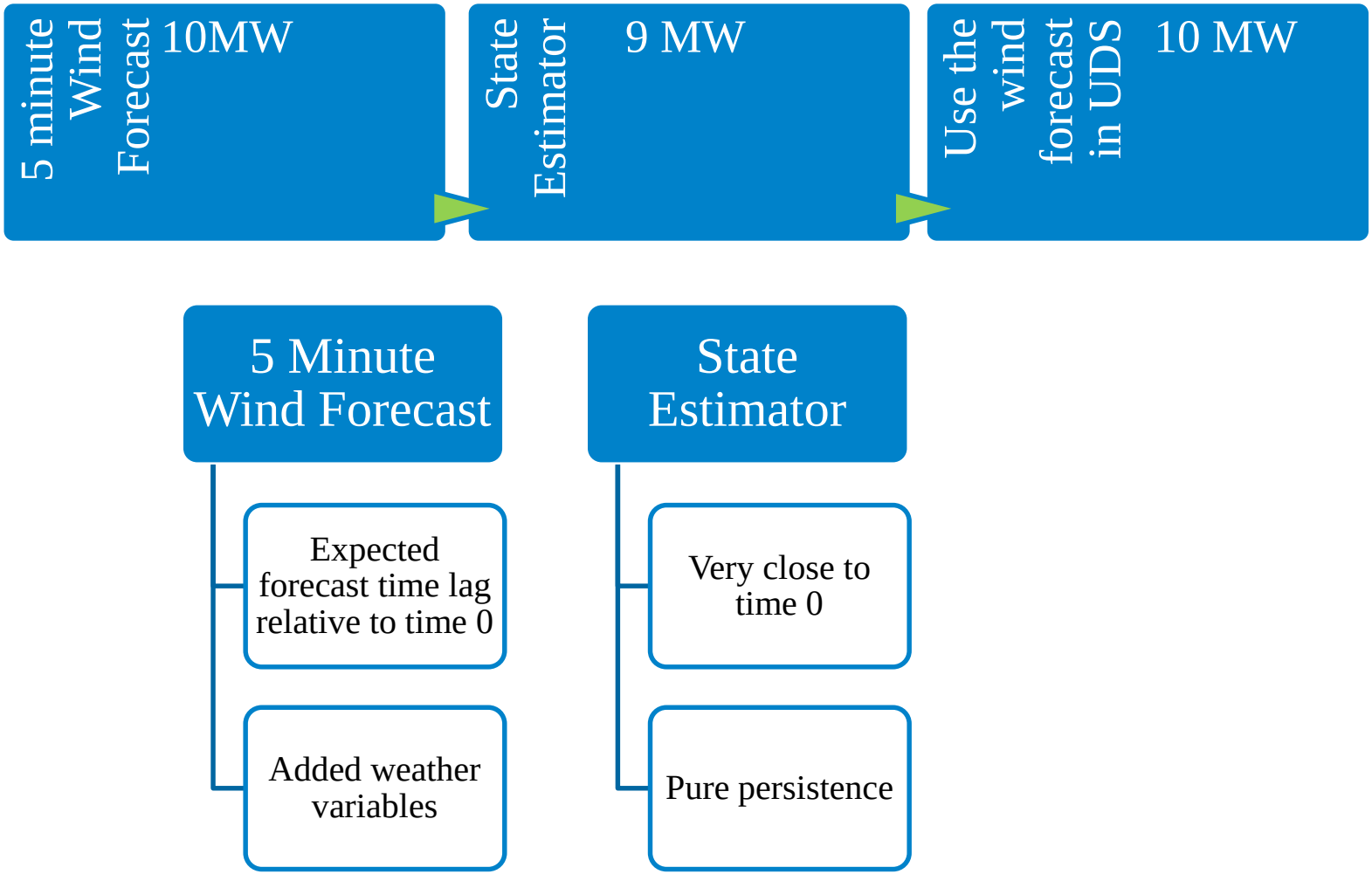
Current treatment of Dispatchable Intermittent Resource (DIR) units in MISO

MISO uses Market Participant submitted forecast if available and uses the higher value between the MISO generated forecast and State Estimator otherwise

The forecasts are used as an economic maximum parameter by Unit Dispatch System to send instructions to the units

Units violating the tolerance limit, are assessed Excessive/Deficient Energy Deployment charges and units become ineligible for Price Volatility Make-Whole Payments for the hour

Five Minute MISOs DIR forecast is used today!



DIR exception to Uninstructed Deviation

Dispatchable Intermittent Resources (DIR)

- DIRs which use the MISO Dispatch Interval forecast will only be assessed EXE/DFE in intervals in which the resource is dispatched below the forecast
- Must have 4 or more consecutive intervals of EXE and/or DFE
- DIRs using their own forecast will be assessed EXE/DFE the same as conventional Generation Resource

So what is really changing?

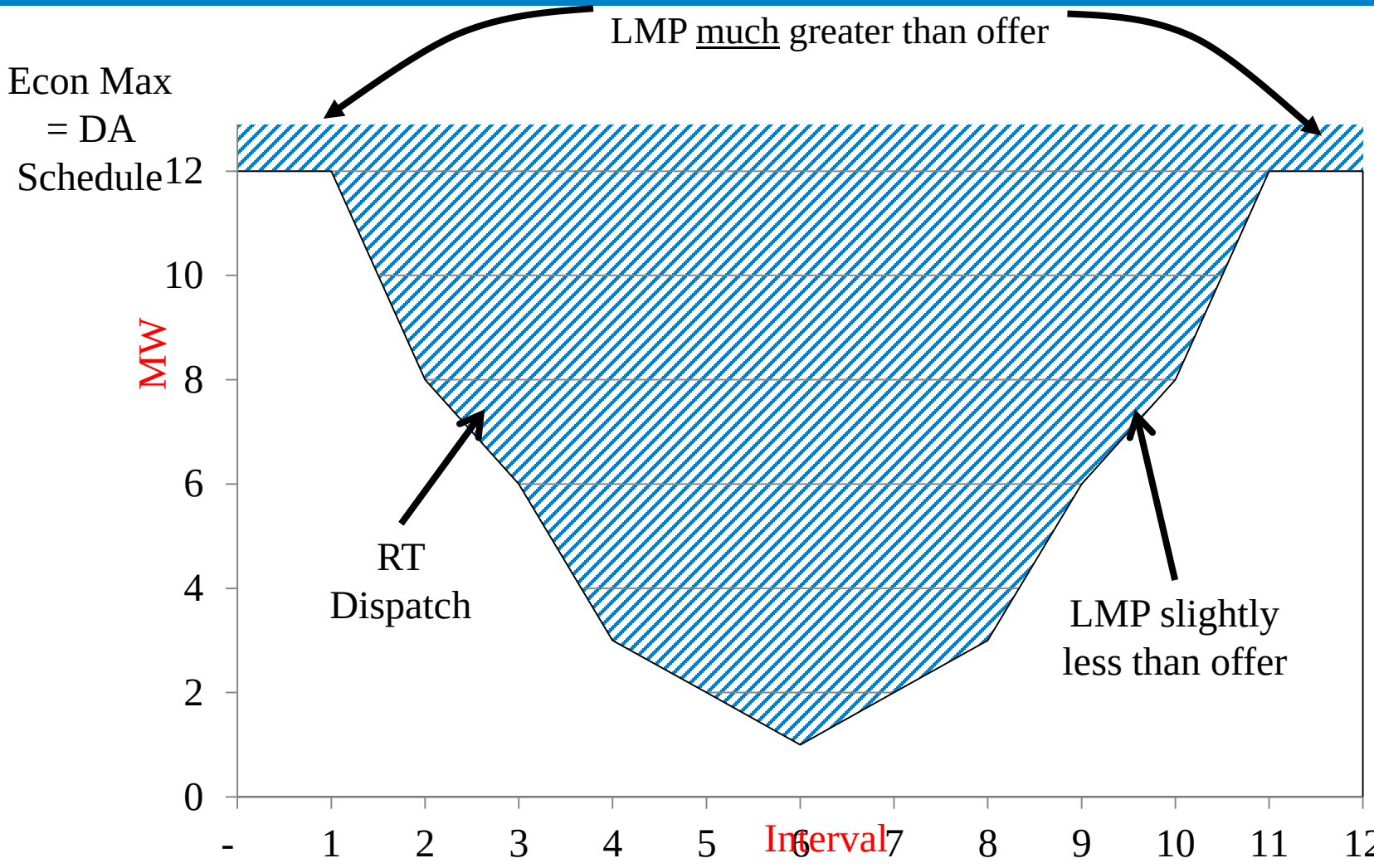
Current process	Proposed changes
EXE/DFE evaluated in every dispatch interval	DIRs using MISO forecast will only be evaluated for EXE/DFE in intervals in which they are dispatched below forecast
Thresholds = AVG_SP +/- (8% * AVG_SP + Ramp Add) min of 6 MW and max of 30 MW	Thresholds = AVG_SP +/- min(5 * Ramp Rate, 12% * AVG_SP) min of 6 MW and max of 30 MW
Resource would be ineligible for PVMWP for a failed hour	Hourly EXE/DFE does not result in RT PVMWP ineligibility
Excessive Energy Price is the minimum of Offer Price or RT LMP	Excessive Energy Price for DIRs being changed to be a percentage of RT LMP

Summary and Next Steps

- If the new proposal is accepted by FERC, DIRs who
  - Use MISO DIR forecast will be assessed charges only if dispatched below the forecast
  - Do not use MISO DIR forecast will be assessed charges like other generation resources
- Expected effective date is Quarter 1 of 2019

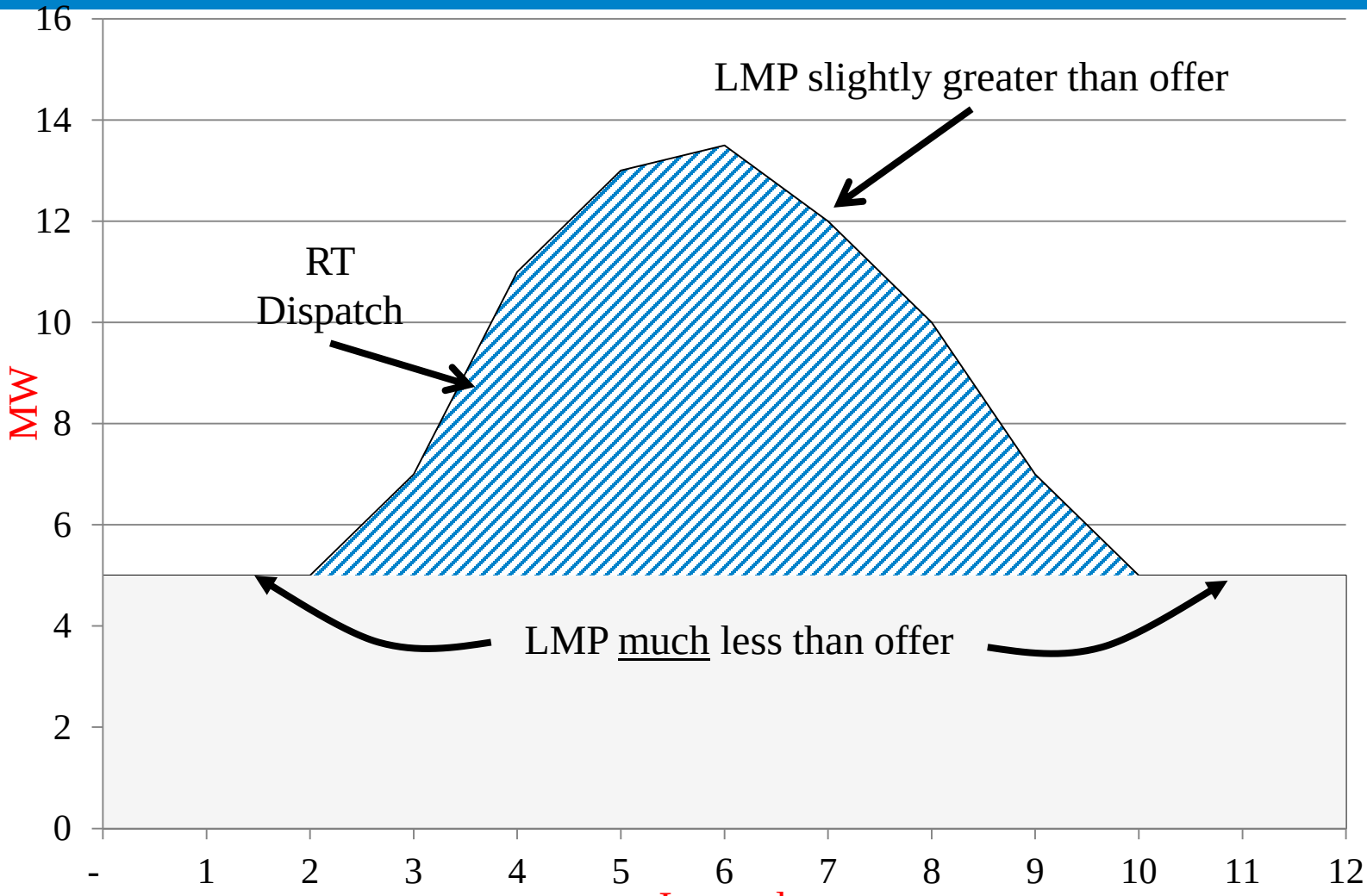
Questions?

What is price volatility make whole payment? Day Ahead Margin Assurance Payment



Hourly LMP → integrates to be greater than offer cost, but RT Dispatch < DA Schedule → Buyback at a loss Real Time

What is price volatility make whole payment? Real Time Offer Revenue Sufficiency guarantee



Econ Min = DA Schedule

Hourly LMP → integrates to be less than offer cost, but RT Dispatch > DA Schedule → Sell at a loss Real Time Offer Revenue Sufficiency Guarantee Payment