Evolution and Value of the ERCOT Operating Reserve Demand Curve

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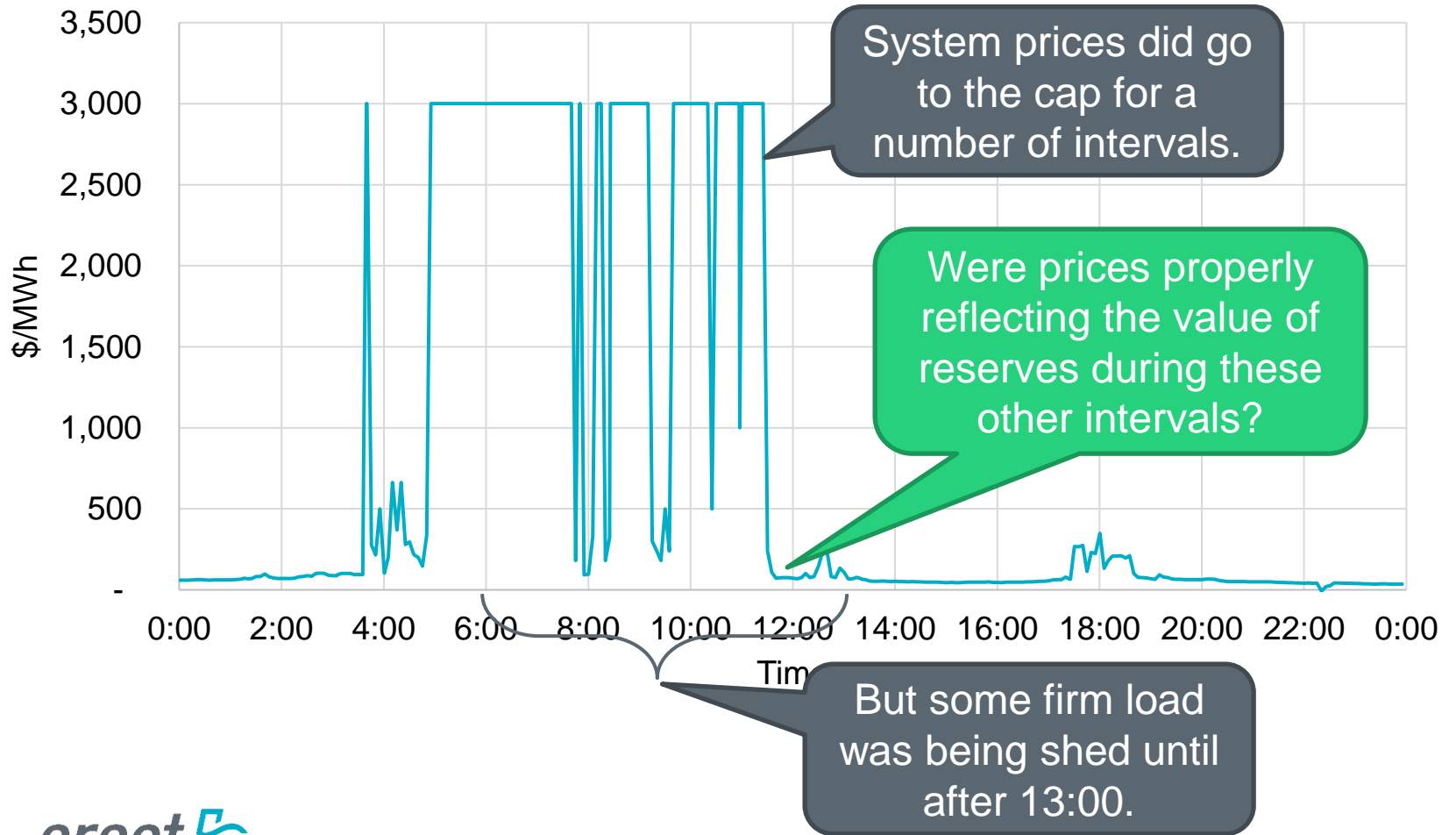Manager, Market Design, ERCOT

Agenda

- Role of ORDC and the value of reserves
- Evolution
- Future Development

Real-Life Example from 2011

Real-Time Market System Lambda on February 2nd, 2011

System prices did go to the cap for a number of intervals.

Were prices properly reflecting the value of reserves during these other intervals?

But some firm load was being shed until after 13:00.

How Do You Determine that Value?

Sufficient real-time reserves help avoid load-shedding events

There is value in avoiding load-shedding events

Value of real-time reserves = *Value* of avoiding load-shed

Utilization of an ORDC results in the price of energy reflecting the opportunity cost of reserve scarcity

ORDC: Right Price at the Right Time

The price of reserves increases to reflect the increased risk
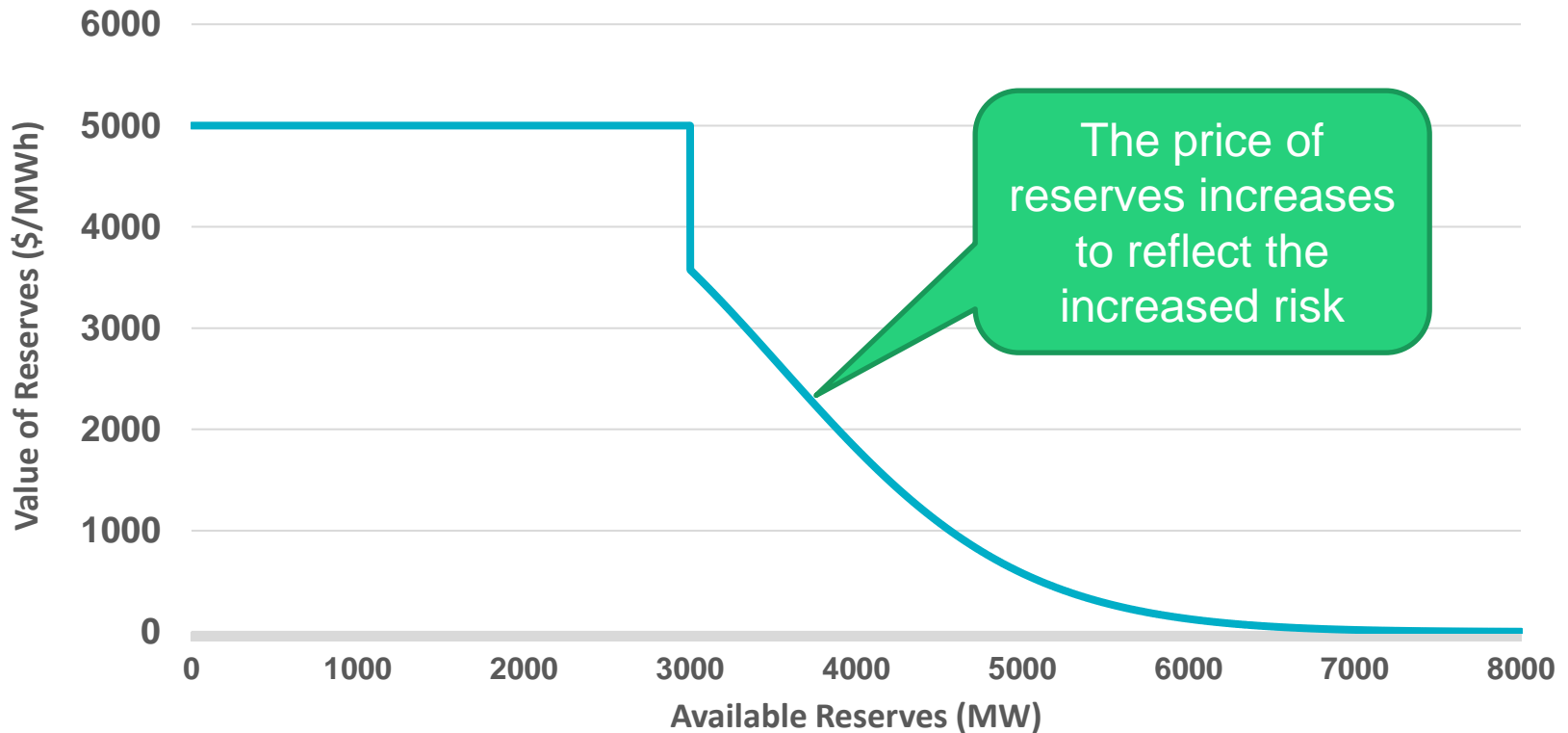
- Less concerned with what AS products are needed

- More about *value of reserves* during scarcity

ORDC Evolution

Administrative adjustments to ORDC to incent changes in behavior in support of long-term adequacy:

- Increase price adders to help address shrinking reserve margins

- Increase MCL which causes prices to rise more quickly as reserves fall

Jun. 1, 2014 - ORDC Implemented, NPRR 568

Mar. 1 2019/20 – Phased in .25 standard deviation shift in the loss of load probability (LOLP) with an additional .25 shift the following year
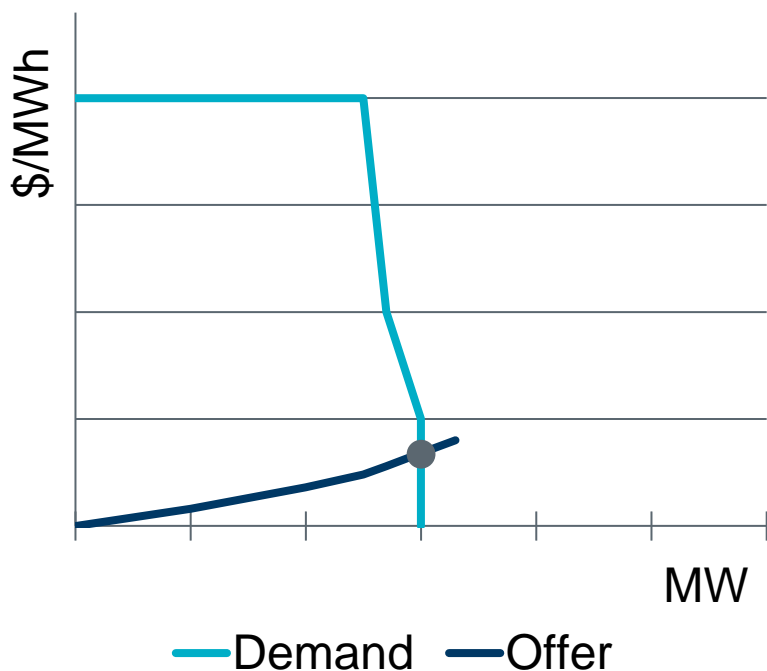
Jan. 1, 2022

- Minimum contingency level (X) changed from 2000 to 3000 MW
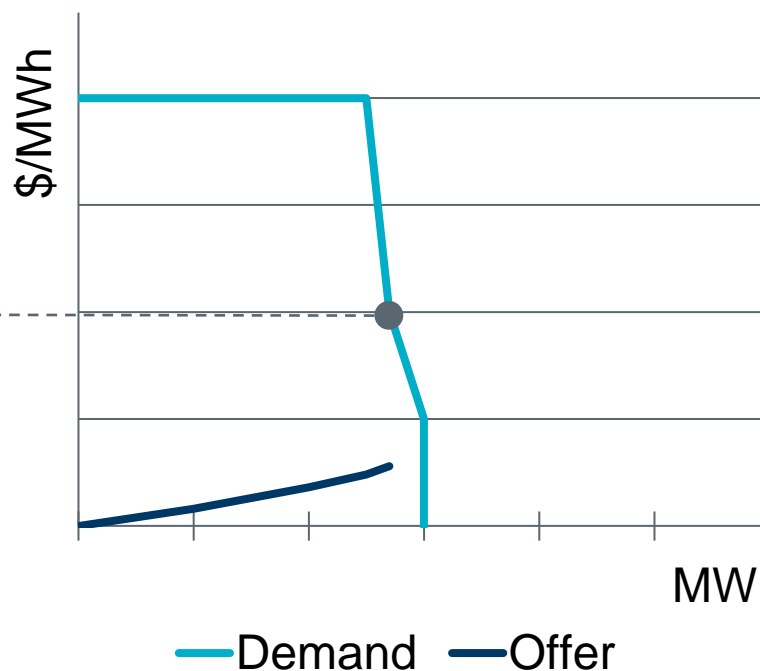
- VOLL set to $5000

"Back to the Future" – Real-Time Co-Optimization

Instead of using the ORDC, under RTC, scarcity pricing and the value of reserves is set by individual AS Demand Curves (ASDCs)

Sufficient remaining capacity and offers

Insufficient remaining capacity or offers

Value of the AS product in shortage

ASDCs will be based on the shape and pricing outcomes of the current ORDC mechanism

ASDCs allows RTC to better distinguish and prioritize between various AS products

Legend:
- REGUP
- RRS
- ECRS
- NSPIN

Y-axis: Price ($/MWh)
X-axis: Reserves (MW)

The prioritization is set by the AS Demand Curve price

Note: Non-Spinning and ERCOT Contingency Reserve Service (NSPIN and ECRS) will be fully exhausted before Regulation Up and Responsive Reserve Service (REGUP and RRS) are fully exhausted