



Forward Markets 101



2026_07 Forward Markets 101



Greetings and Introductions

Attendance

Questions

Presentation materials

Recording for internal purposes

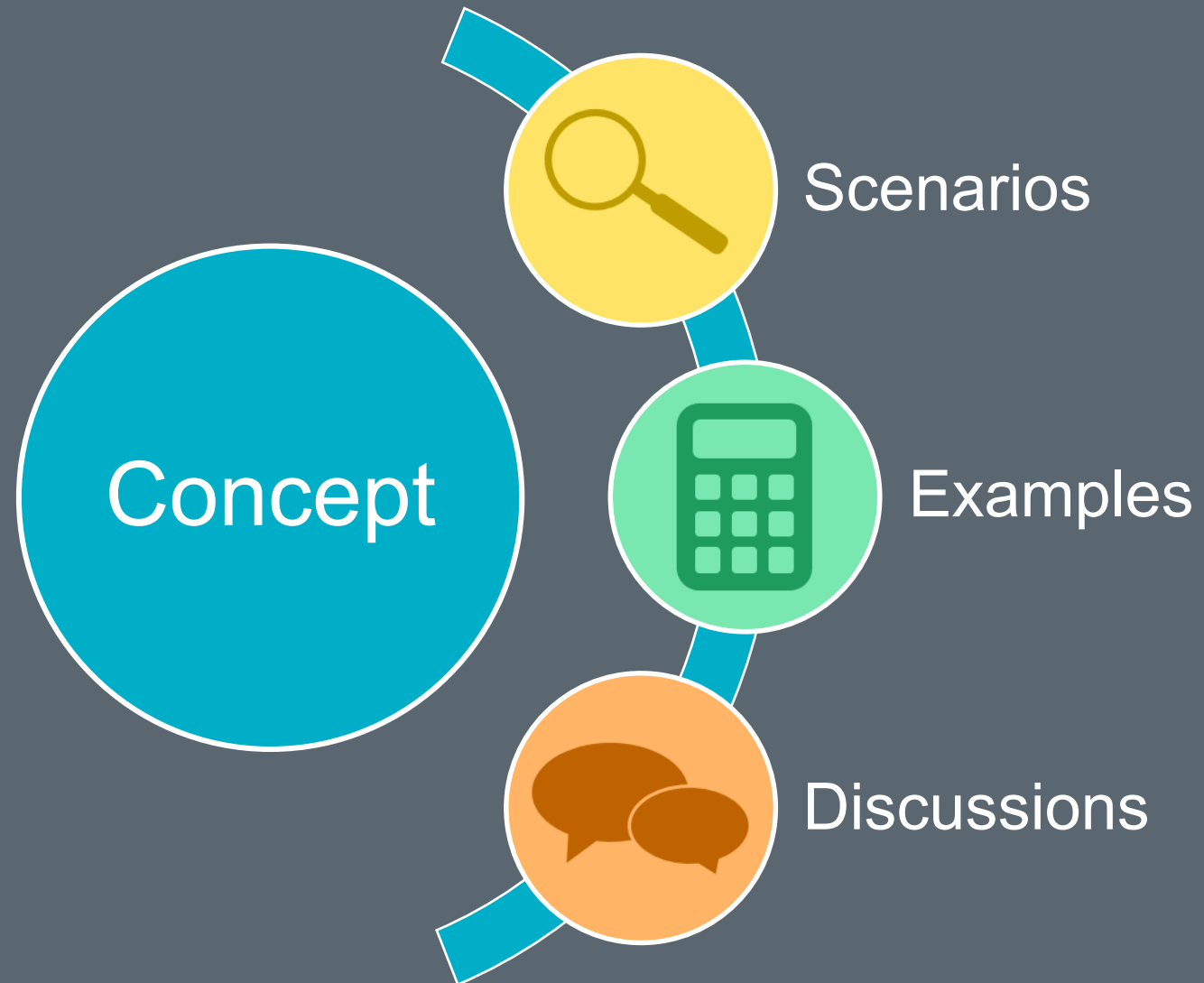


PROTOCOL DISCLAIMER

This presentation provides a general overview of the Texas Nodal Market and is not intended to be a substitute for the ERCOT Protocols, as amended from time to time. If any conflict exists between this presentation and the ERCOT Protocols, the ERCOT Protocols shall control in all respects.

For more information, please visit:

<http://www.ercot.com/mktrules/nprotocols/>



Topics in this course include:

1

Introduction

2

Forward Markets

3

System Capacity

4

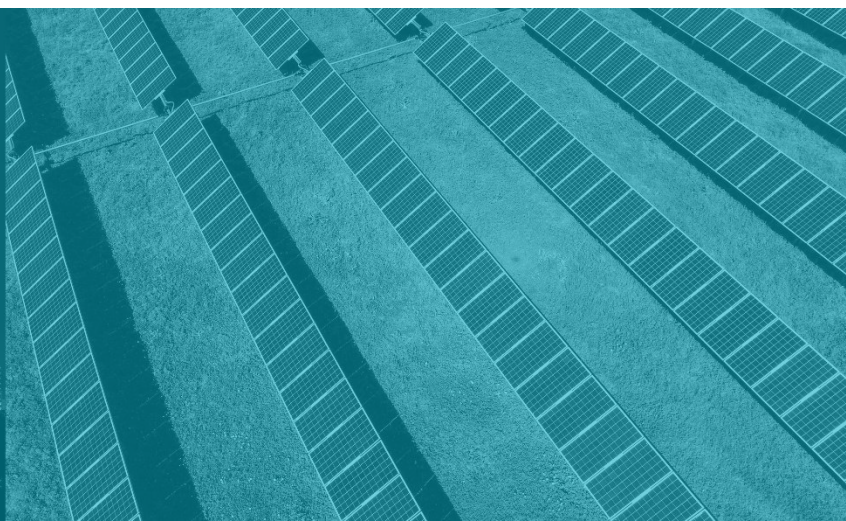
Congestion Instruments

5

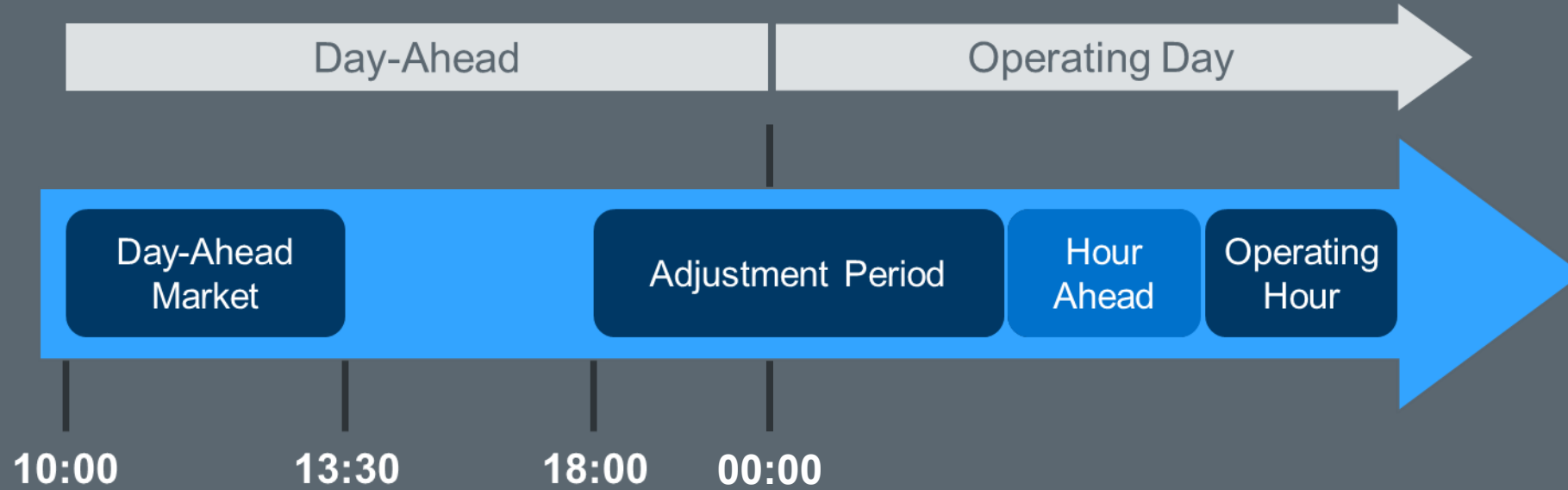
Summary and Conclusion

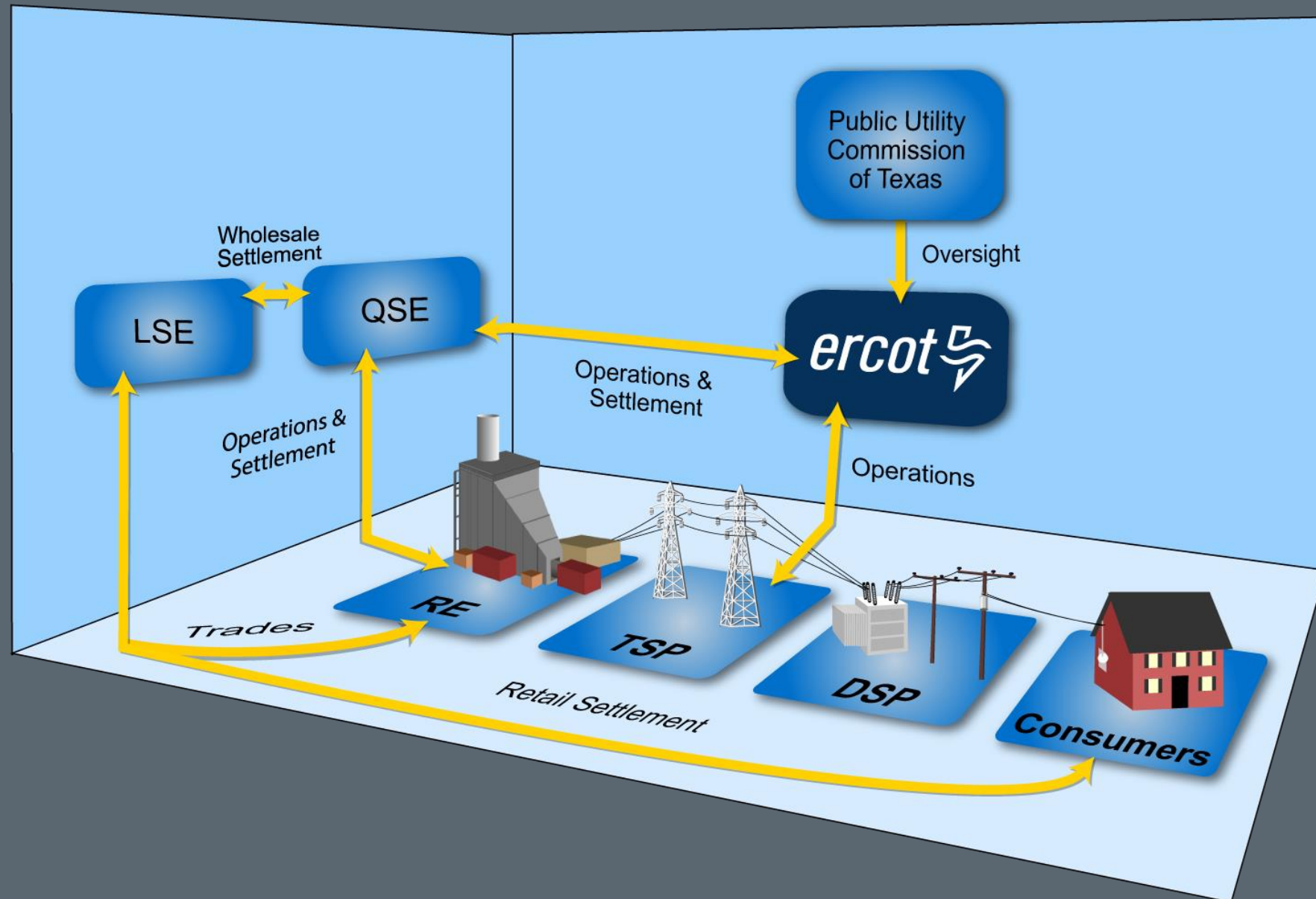


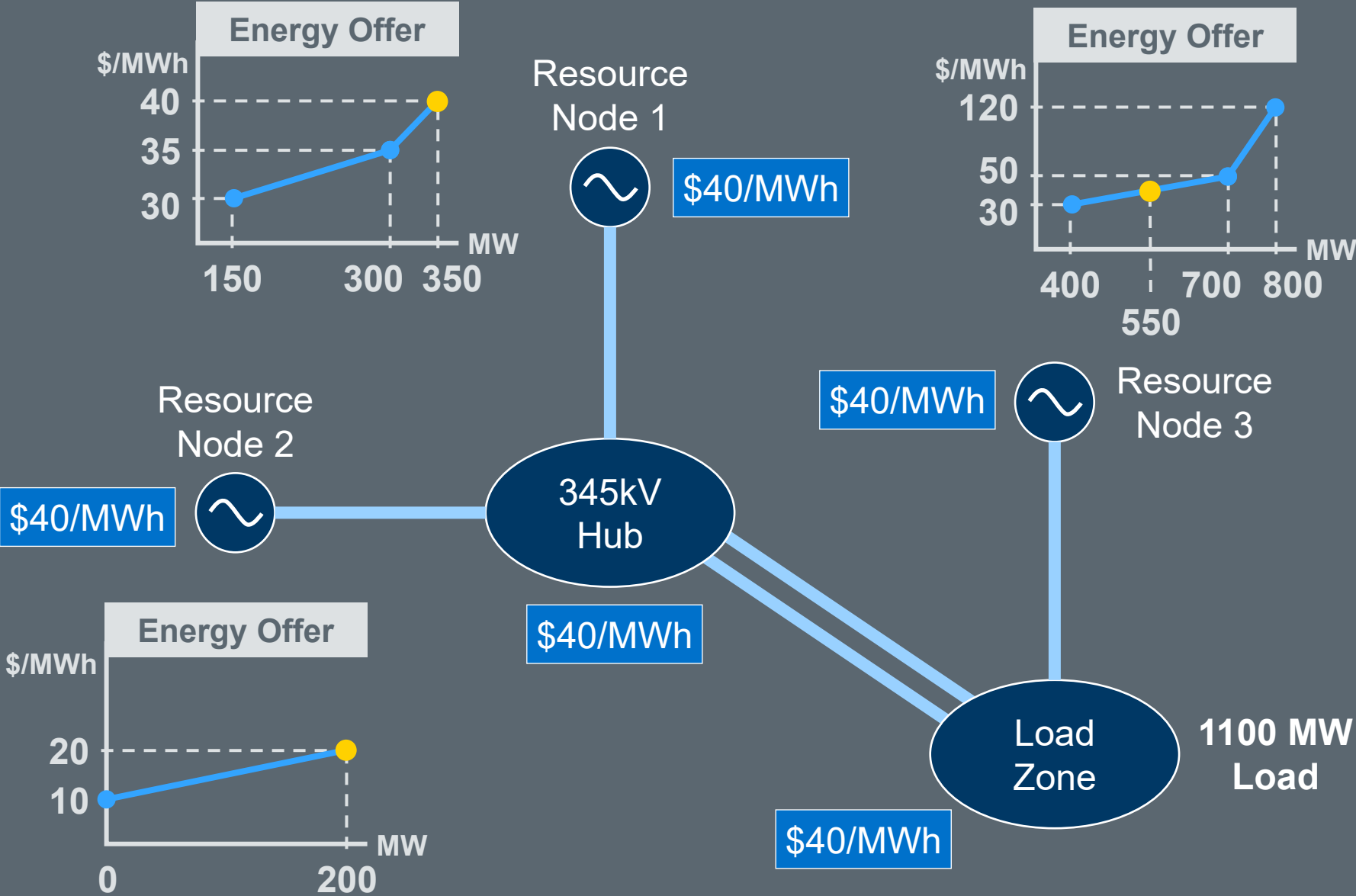
Introduction



In general, . . .

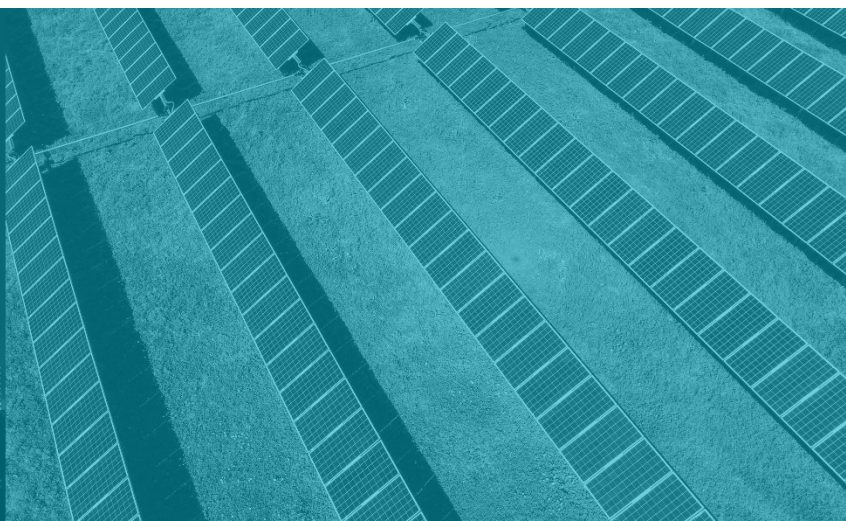








Forward Markets



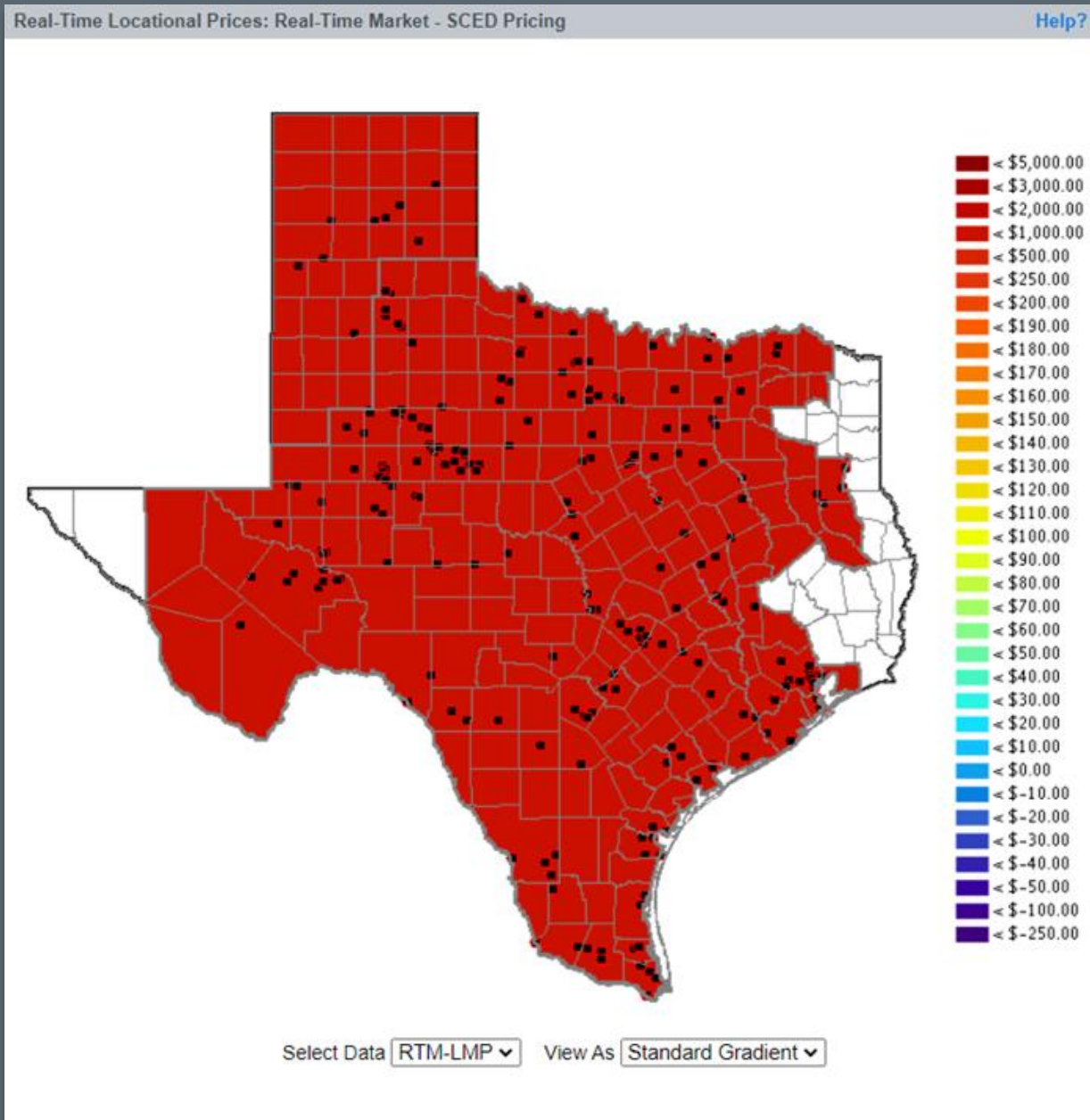
Hedging is transacting at
a known price now ...

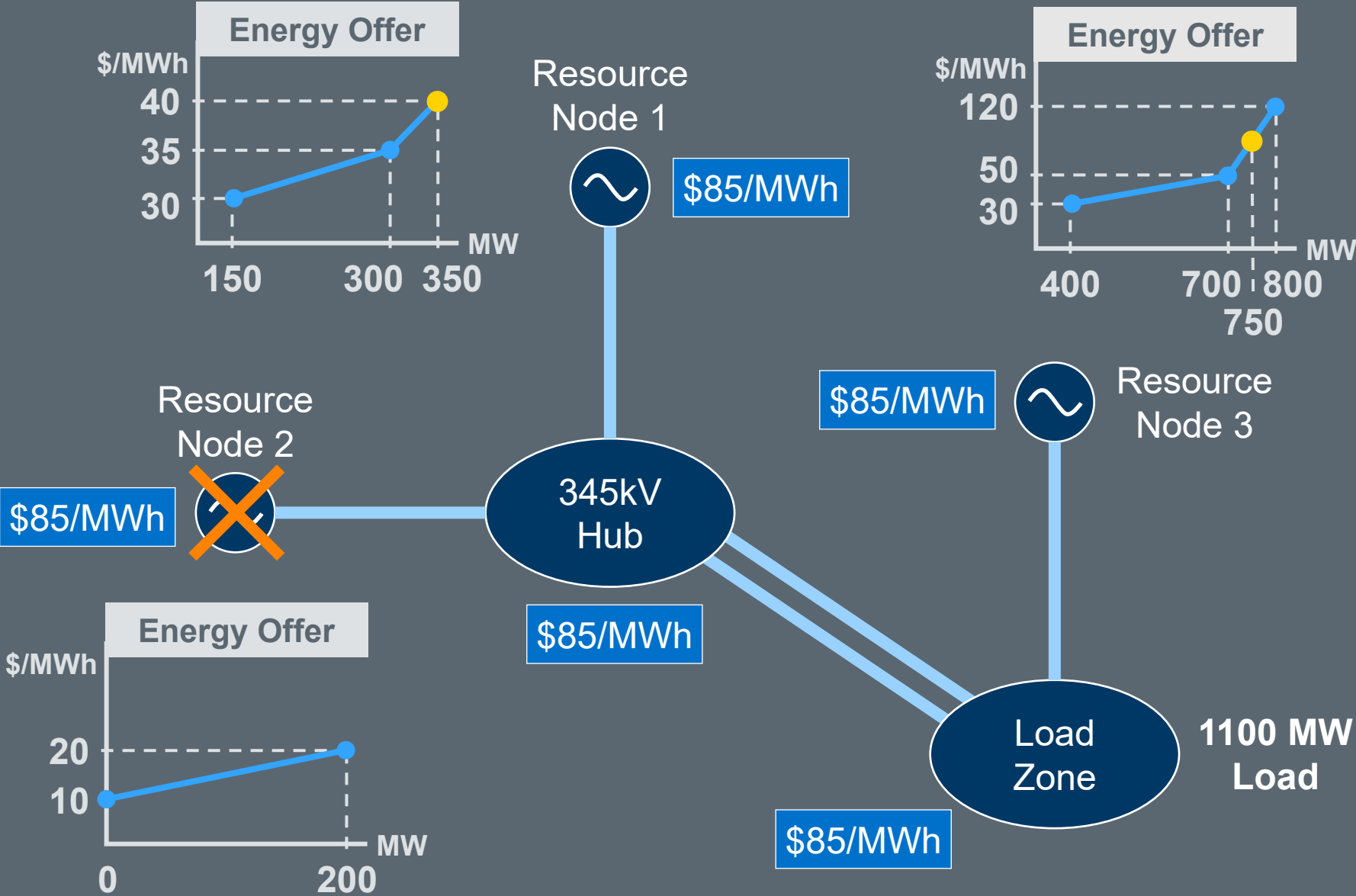


... to protect from having to transact
at an unknown price later.



Discussion: Hedging for High Prices





Day-Ahead Market



Bilateral Trades

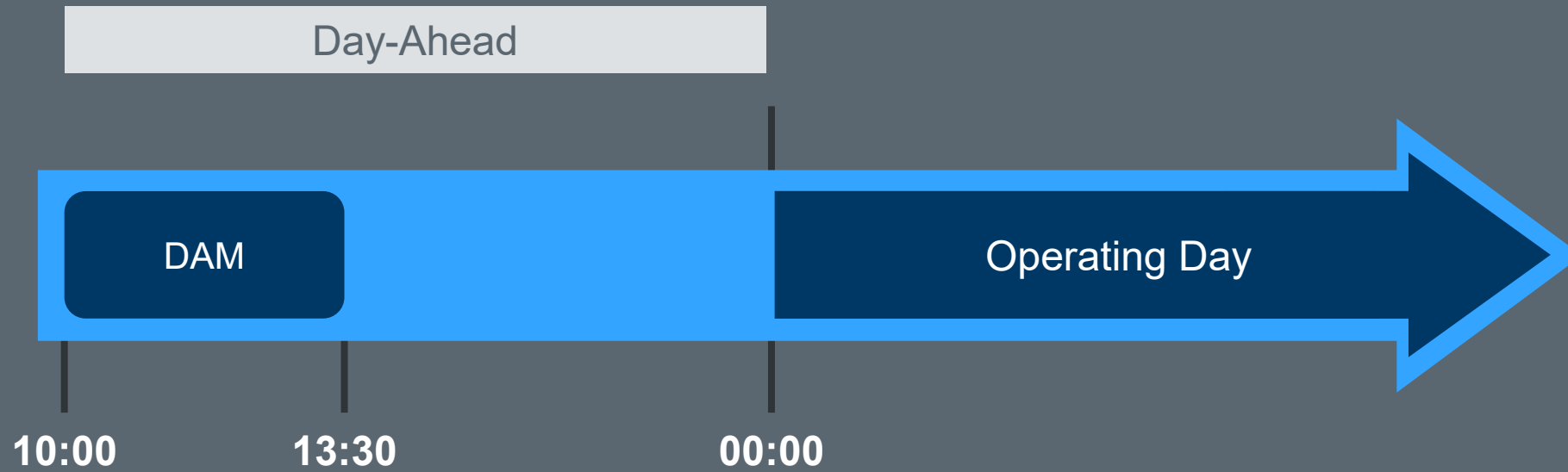


Centralized Forward Market

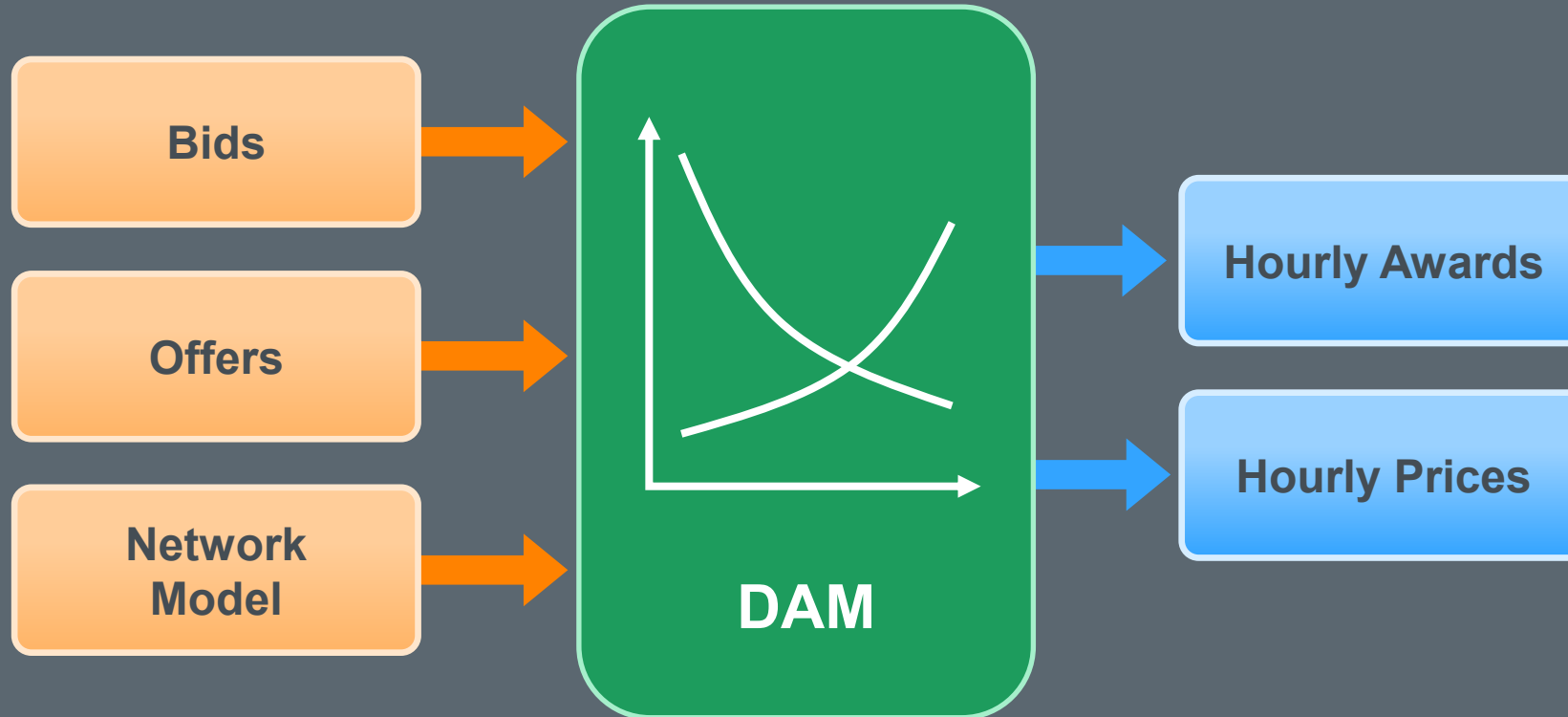
- Conducted daily
- Facilitated by ERCOT



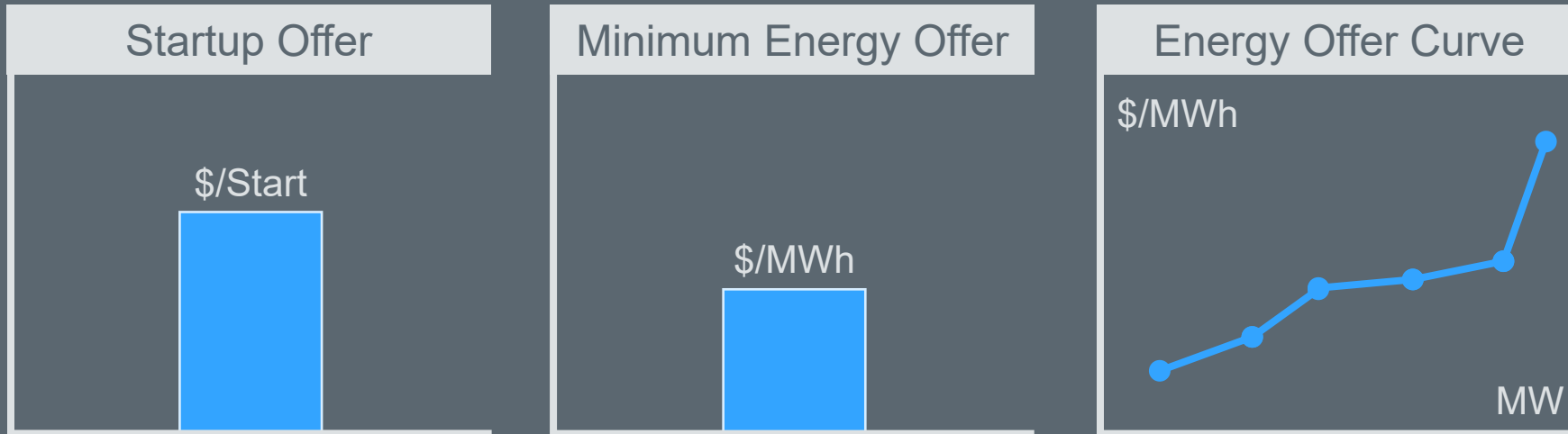
Timing



Transactions



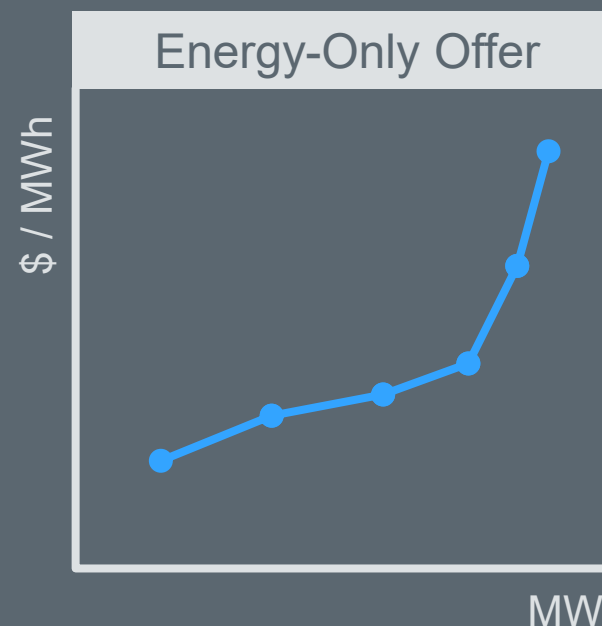
Three-Part Supply Offer



Financial obligation in Real-Time

Day-Ahead Market Energy-Only Offer

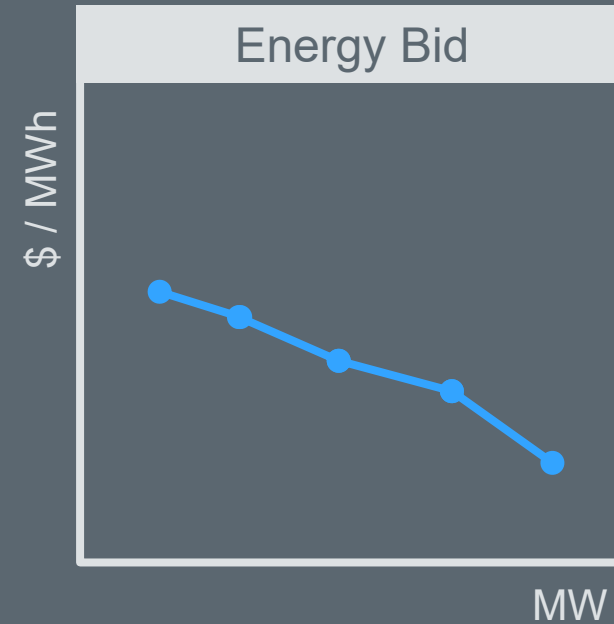
- Proposal to sell energy in DAM
- Offered at any Settlement Point



Financial obligation in Real-Time

Day-Ahead Market Energy Bid

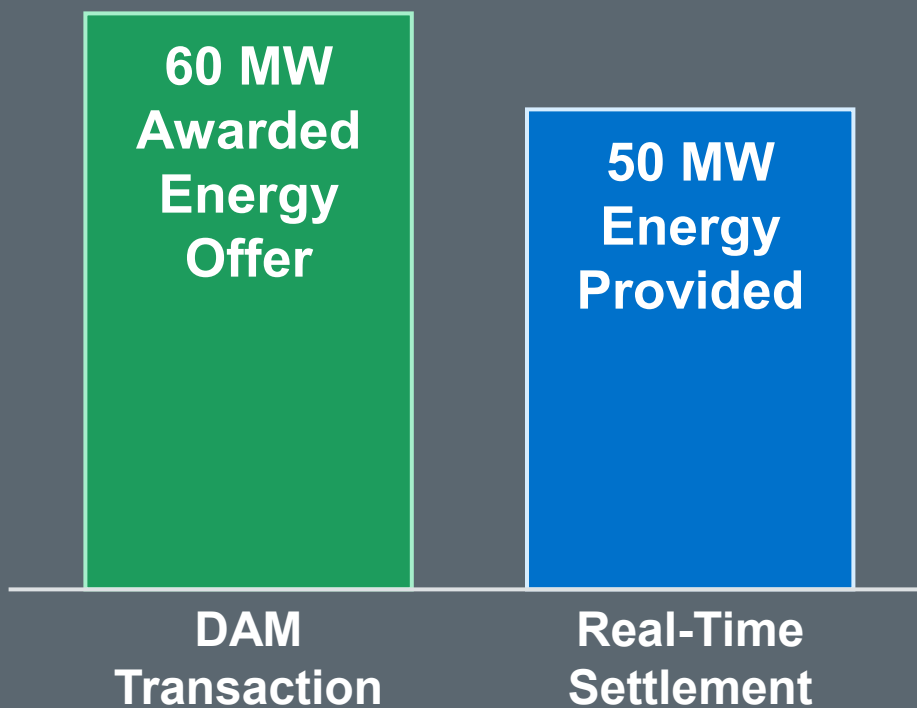
- Proposal to buy energy in DAM
- Submitted at any Settlement Point



Financial credit in Real-Time

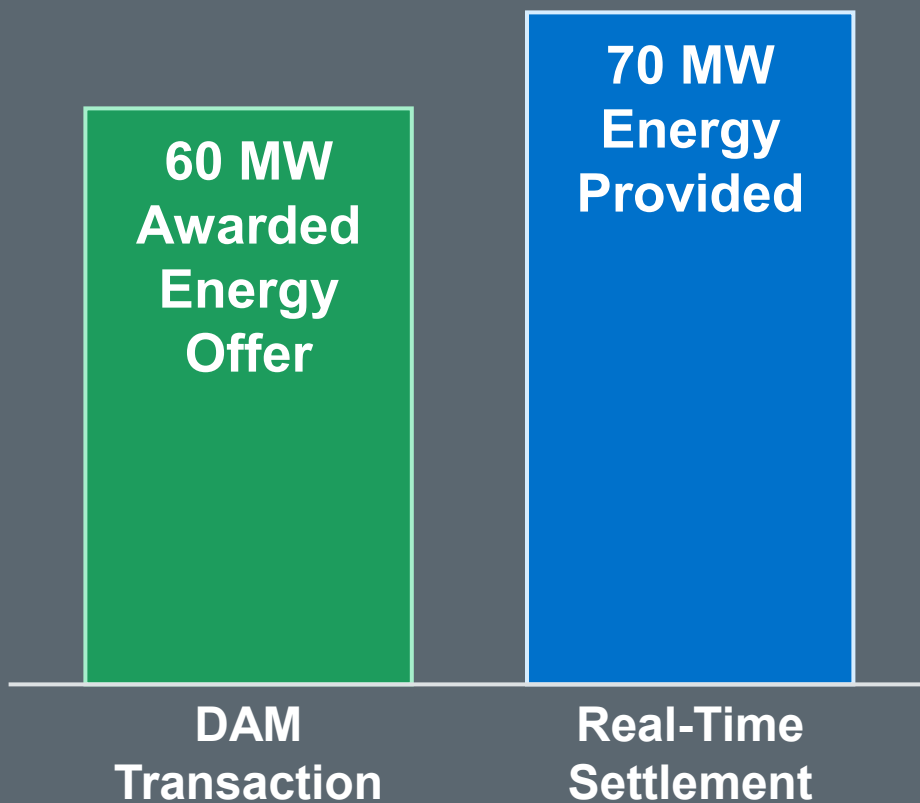


QSE awarded Energy Offer in DAM



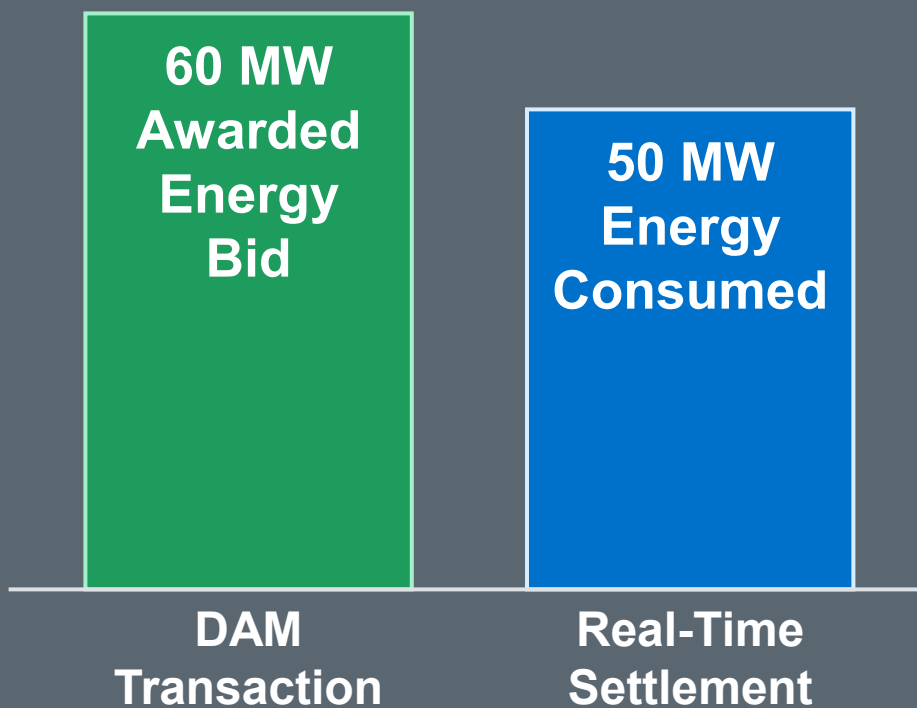


QSE awarded Energy Offer in DAM



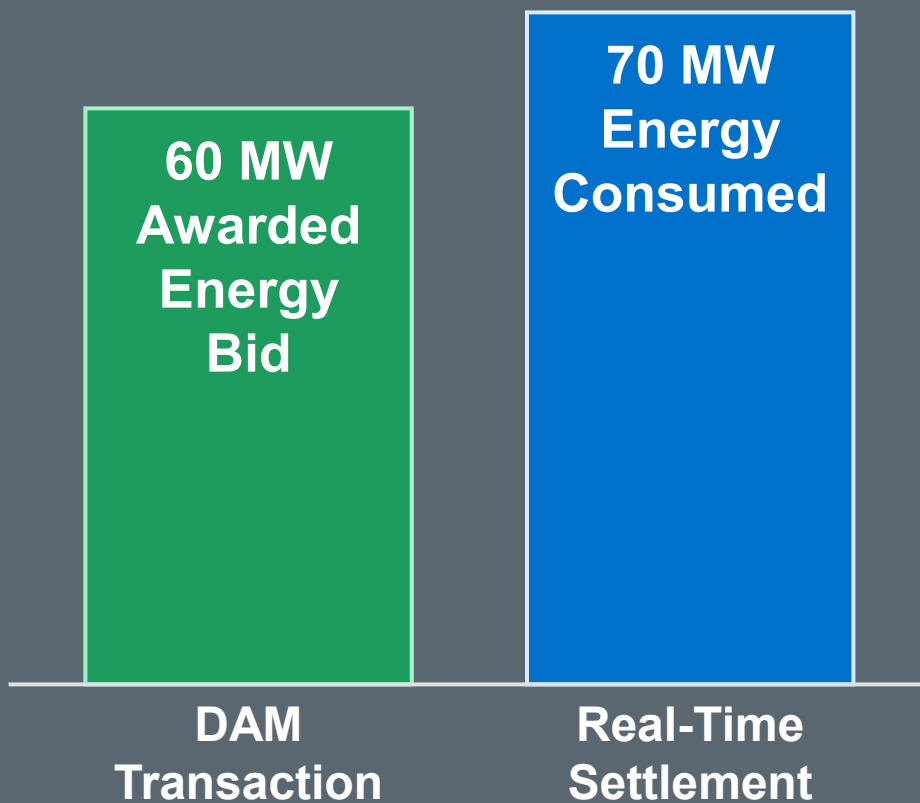


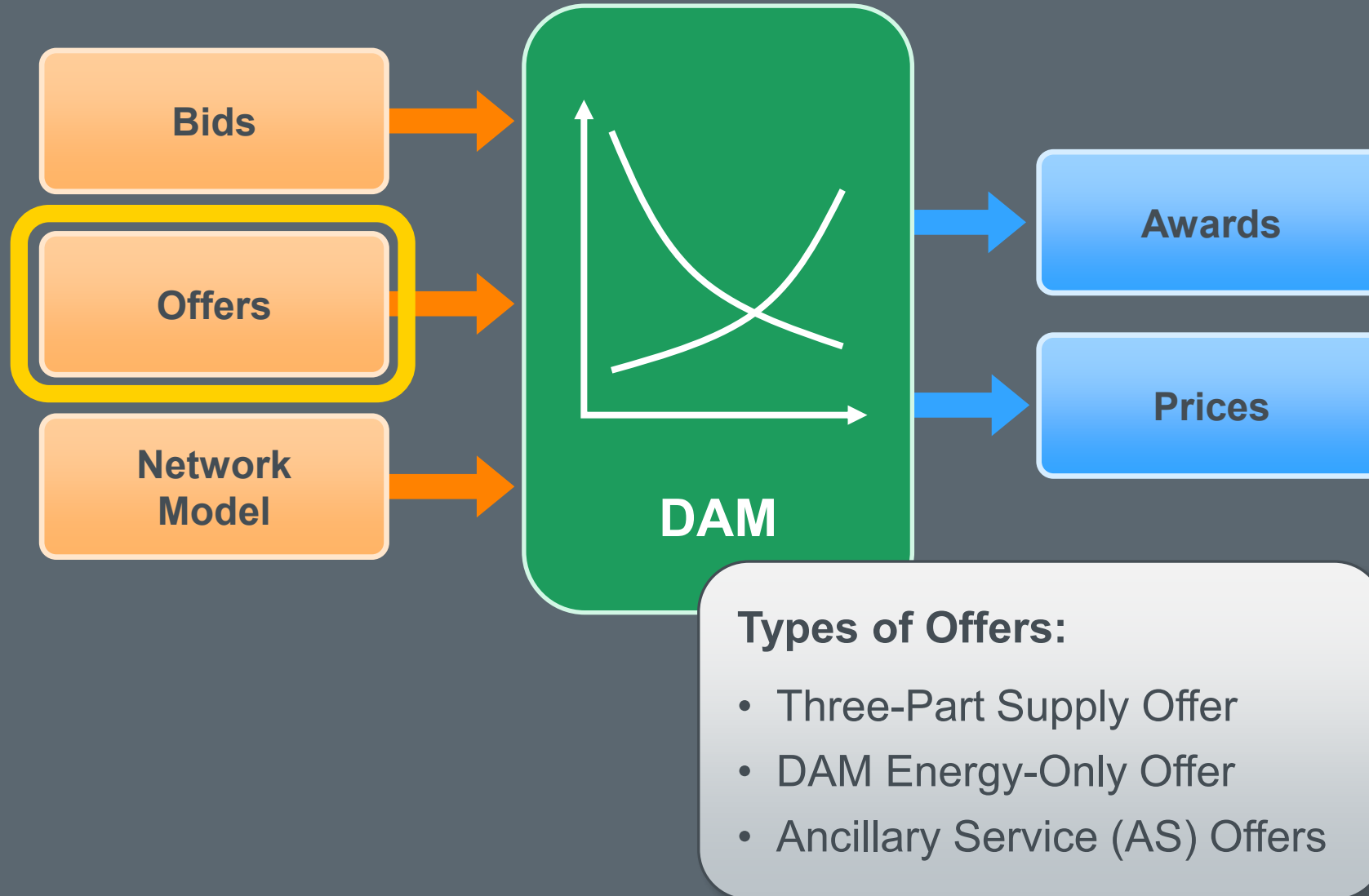
QSE awarded Energy Bid in DAM





QSE awarded Energy Bid in DAM





Resource-Specific AS Offers for Each Service

Type of Service	Offer	
Regulation Up	MW	\$ / MW
Regulation Down	MW	\$ / MW
Responsive Reserve	MW	\$ / MW
Contingency Reserve	MW	\$ / MW
Non-Spinning Reserve	MW	\$ / MW

Multiple offers from single Resource:

- Multiple Ancillary Services
- May be combined with Energy Offers

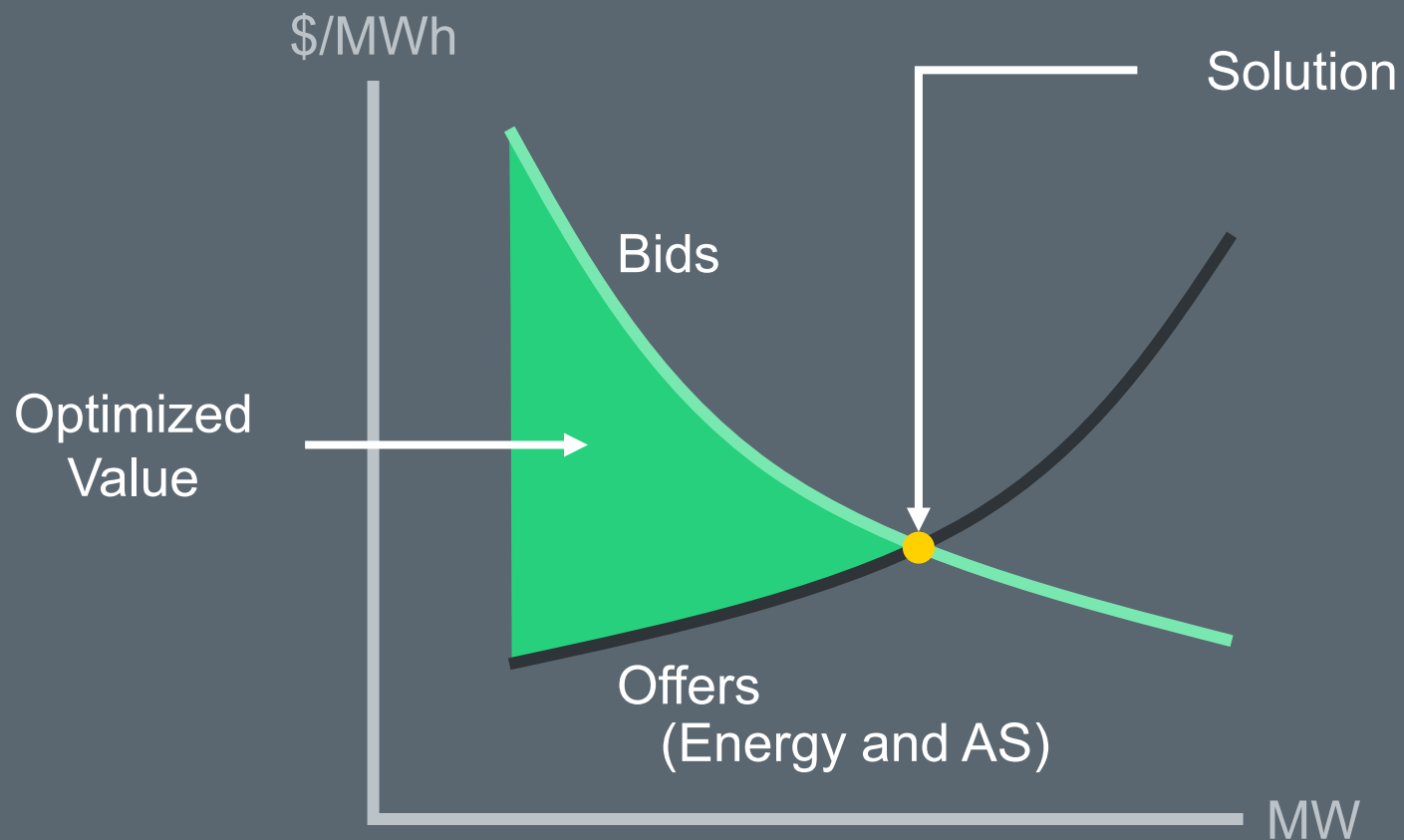
Financial AS Offers for Each Service

Type of Service	Offer	
Regulation Up	MW	\$ / MW
Regulation Down	MW	\$ / MW
Responsive Reserve	MW	\$ / MW
Contingency Reserve	MW	\$ / MW
Non-Spinning Reserve	MW	\$ / MW

Financial AS Transactions:

- Paid DAM AS Prices
- Charged Real-Time AS Prices

Energy and Ancillary Services are co-optimized



Day-Ahead Market



Bilateral Trades



Decentralized Forward Market

- QSE-to-QSE transactions
- Transfers settlement responsibility



Buyer and Seller QSE must confirm Trades

One QSE reports

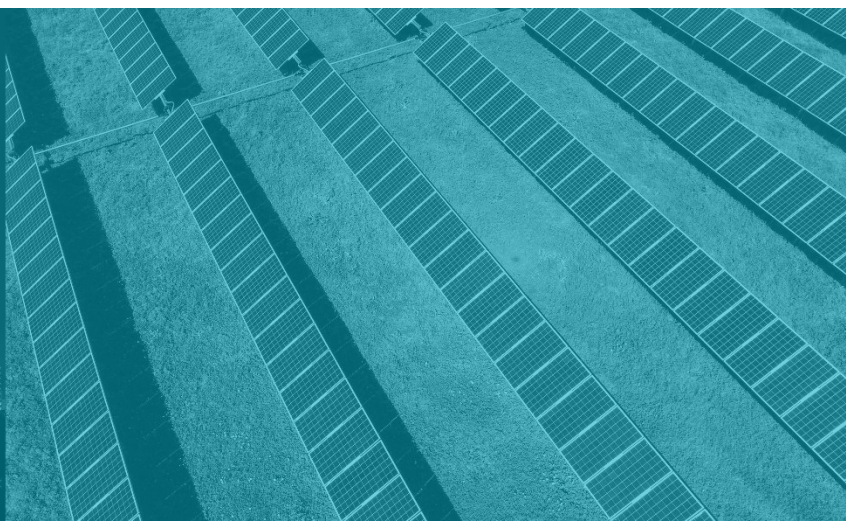


Other QSE confirms

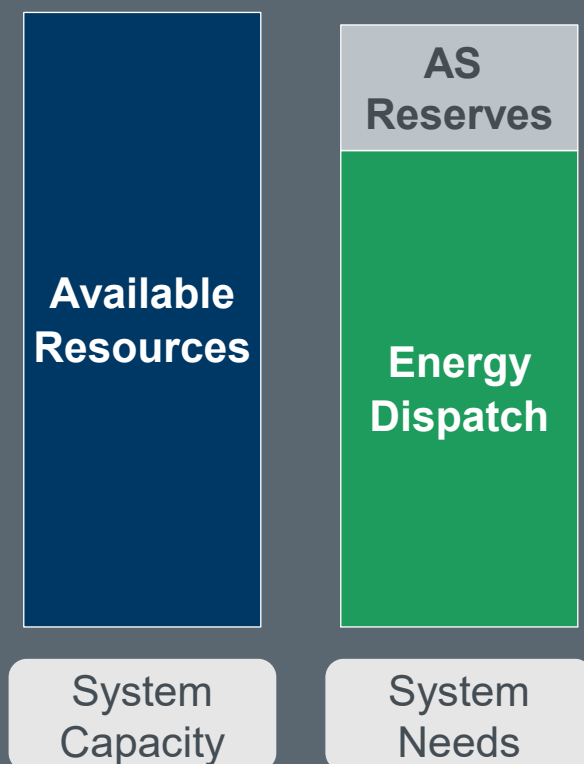




System Capacity



Real-Time Co-Optimization requires sufficient capacity



Requirements:

- Serve Load
- Award Ancillary Services
- Manage Congestion

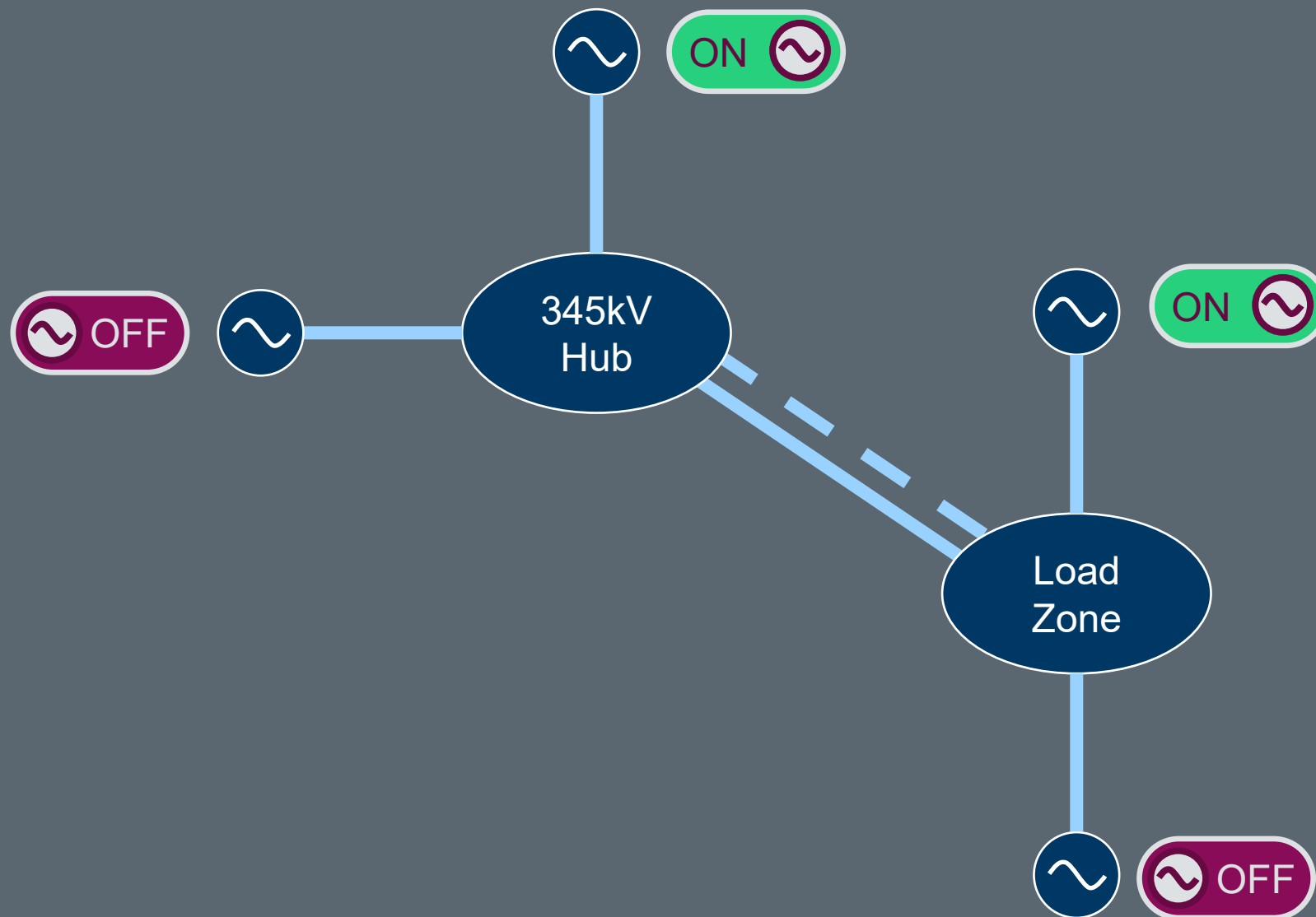
Current Operating Plan (COP)

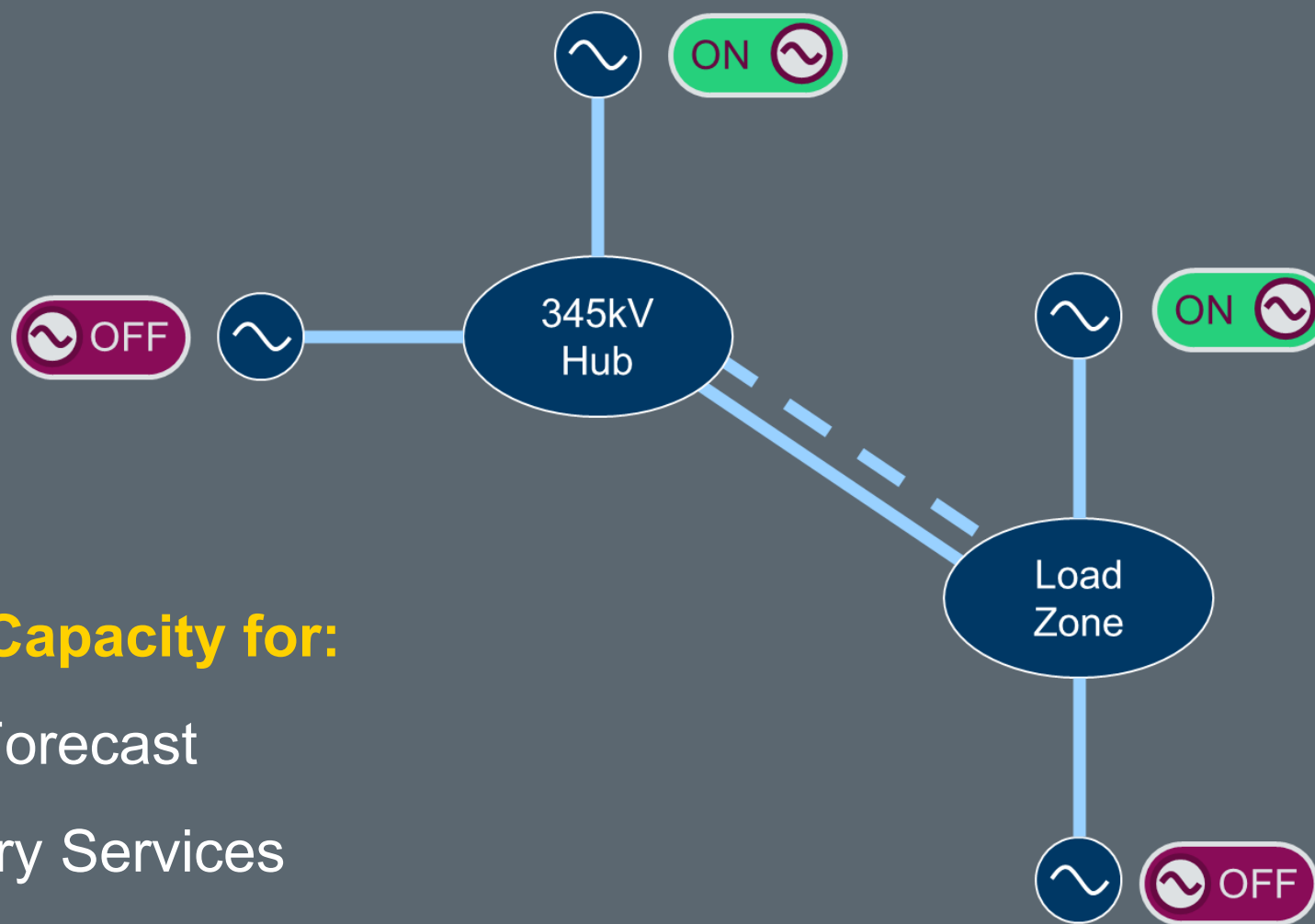
Anticipated Resource operating conditions

- Resource Status
- Resource Limits
- Ancillary Service Capabilities



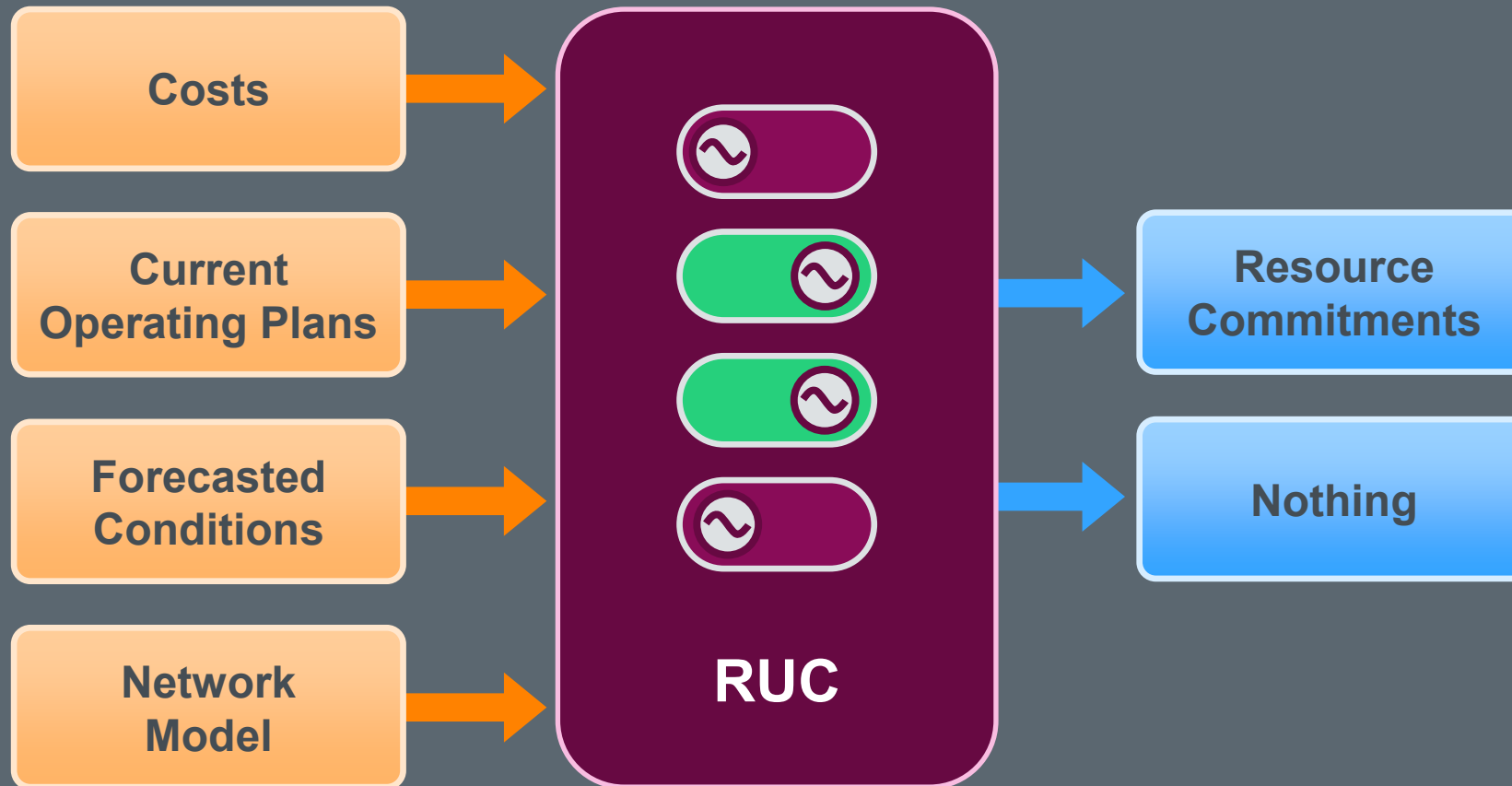
Resource QSEs must maintain a COP for each hour of the next 7 days



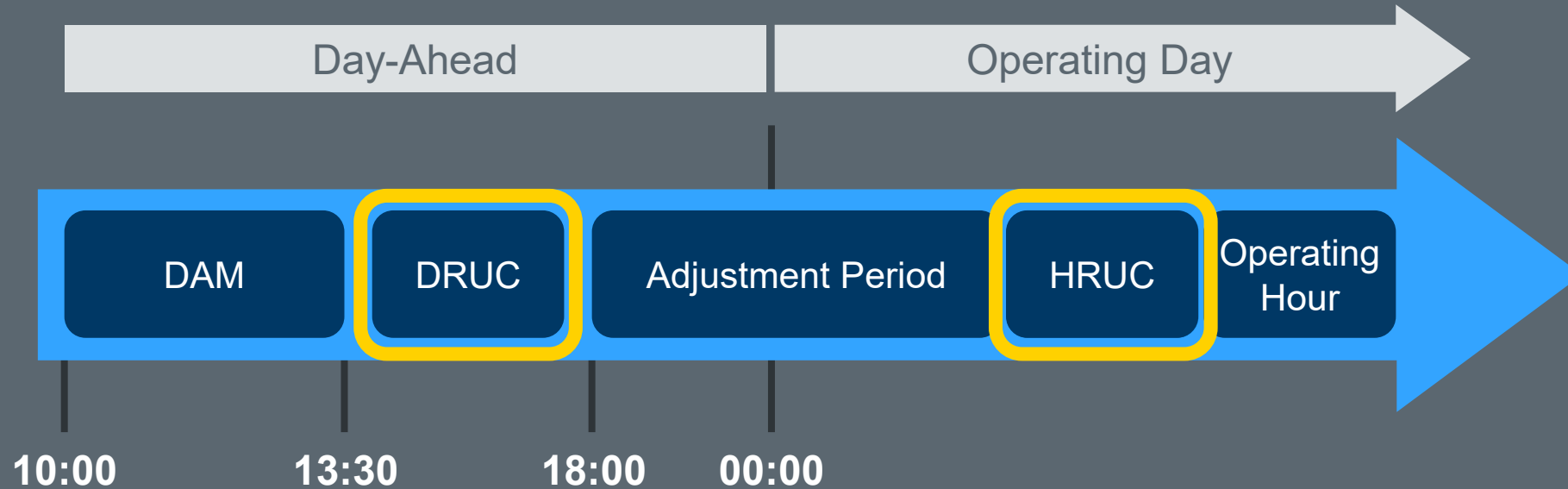


Ensures Capacity for:

- Load Forecast
- Ancillary Services
- Congestion Management



Timing

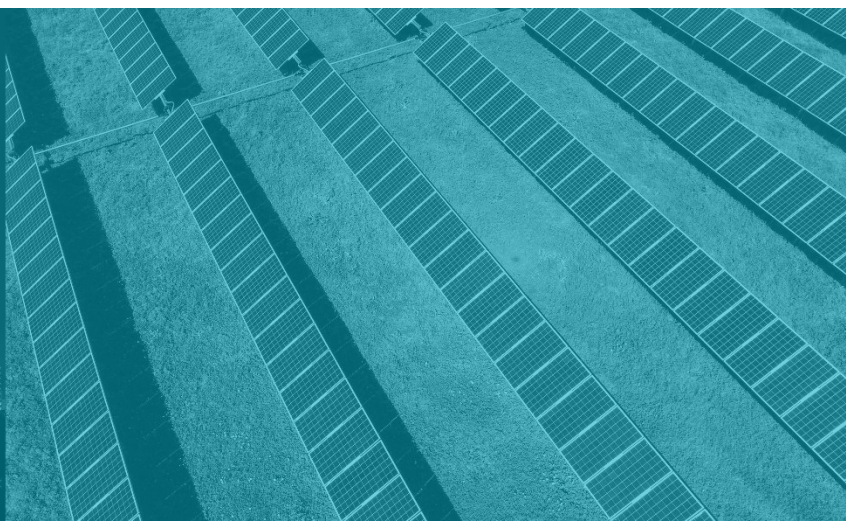


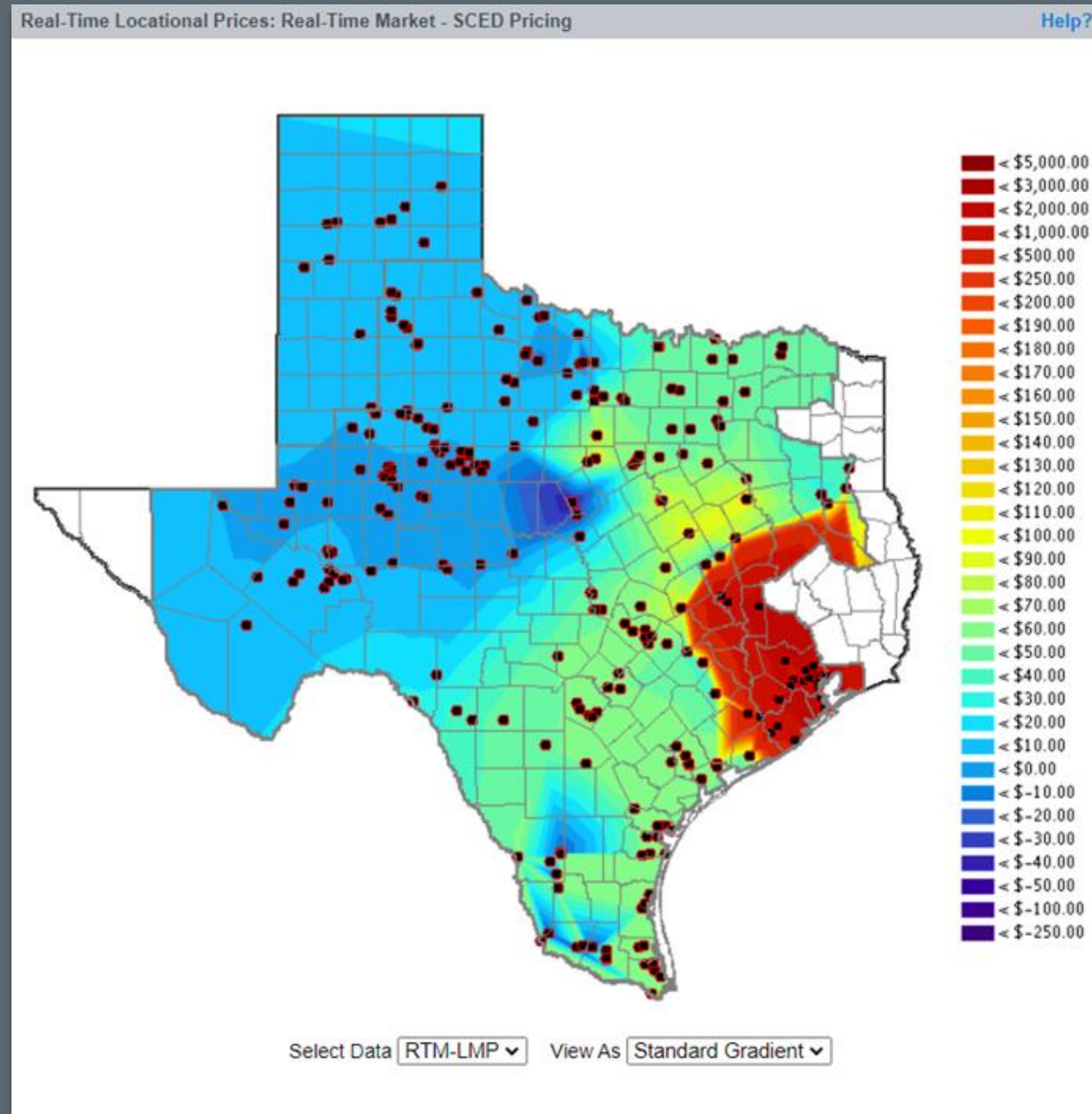
DRUC = Day-Ahead Reliability Unit Commitment

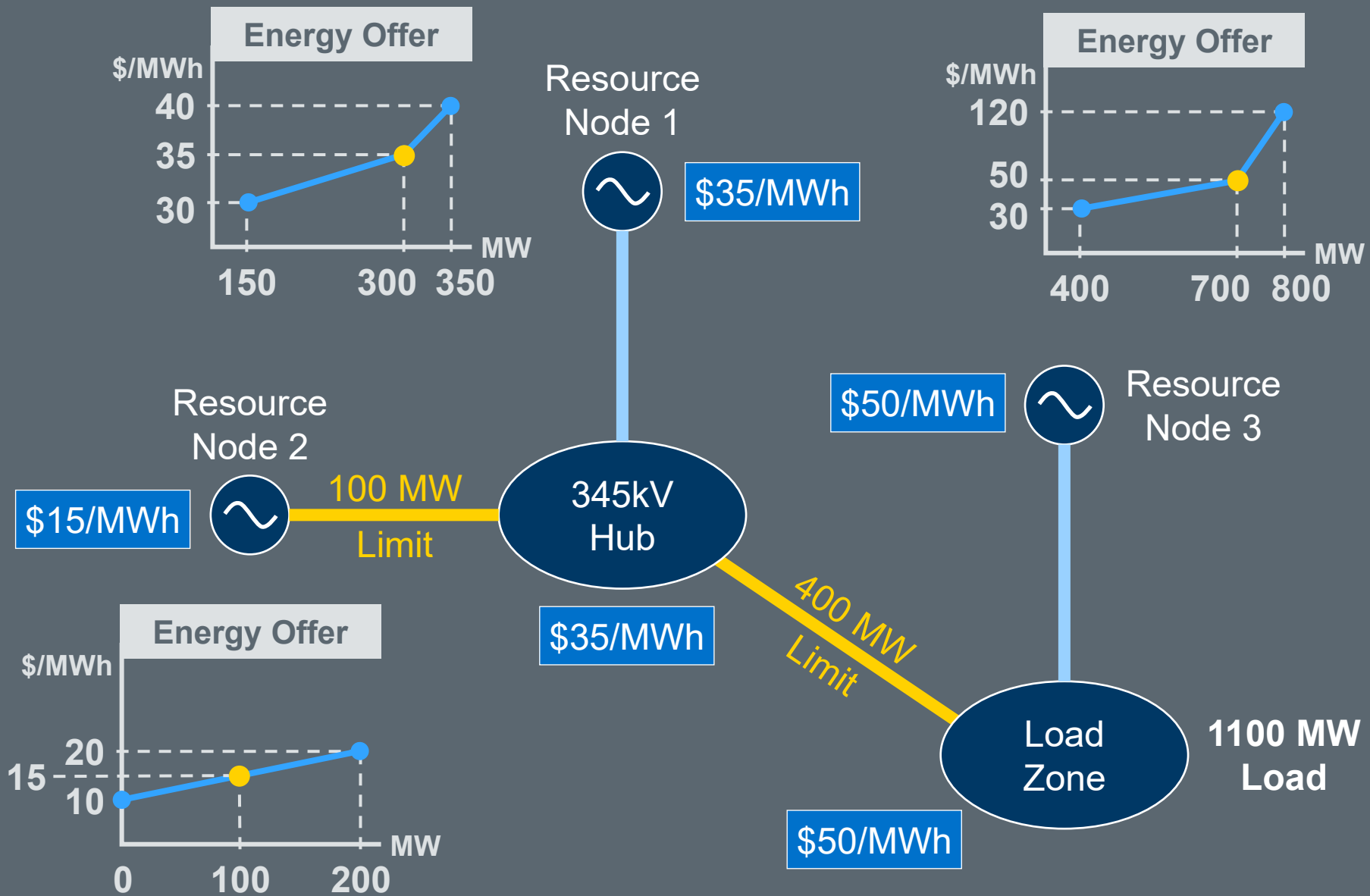
HRUC = Hourly Reliability Unit Commitment

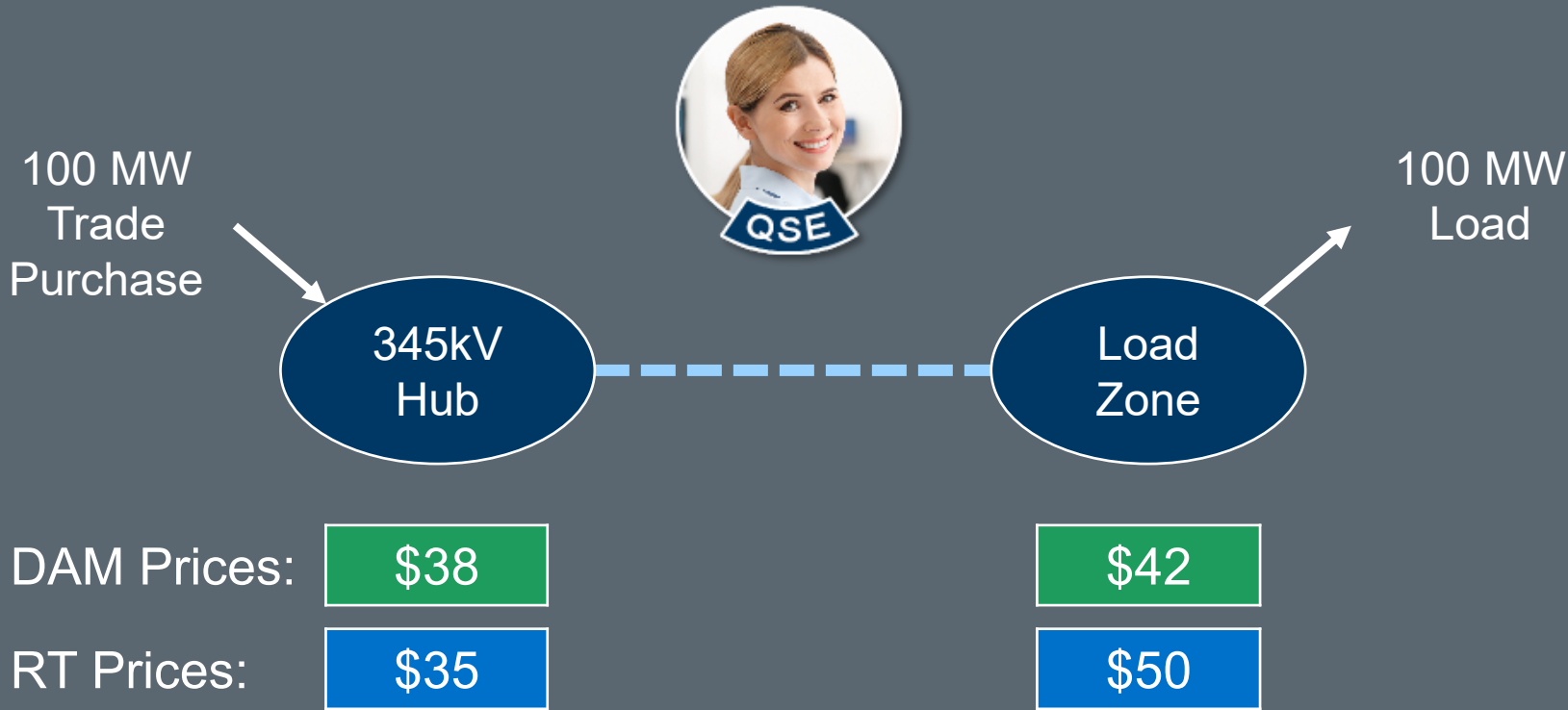


Congestion Instruments



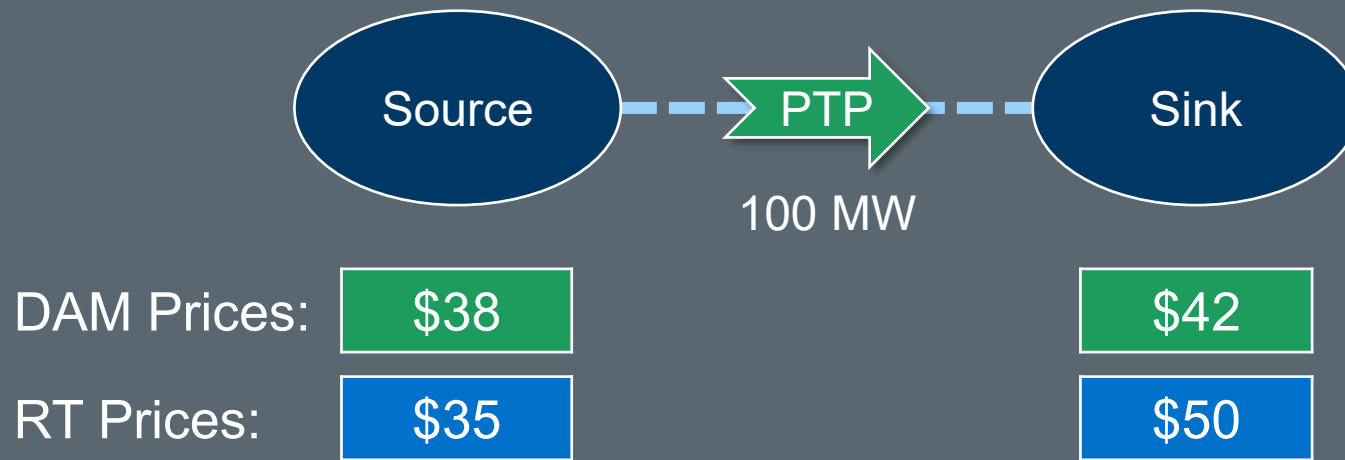






Settlement	Payment at Hub	Charge at Load Zone	Net Amount

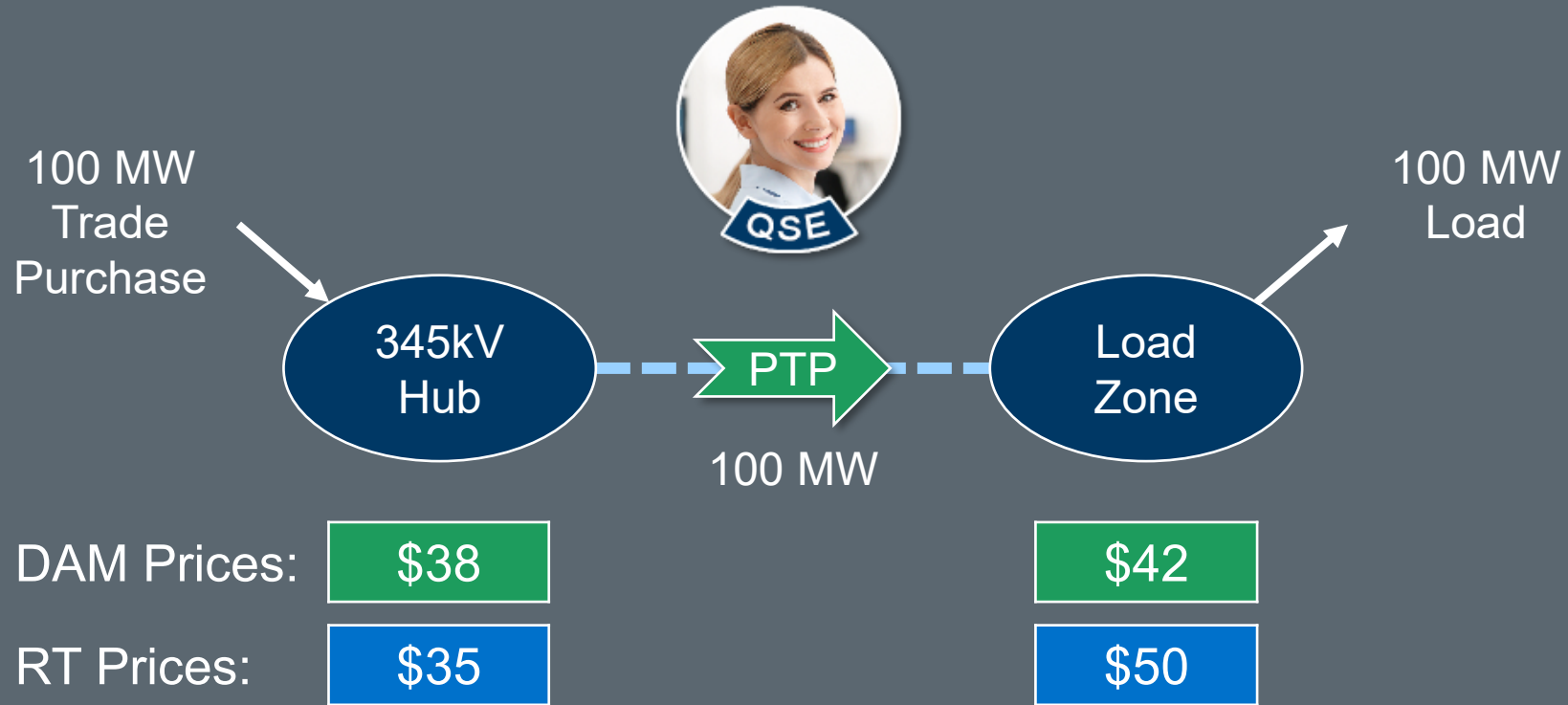
Introducing DAM Point-to-Point Obligations



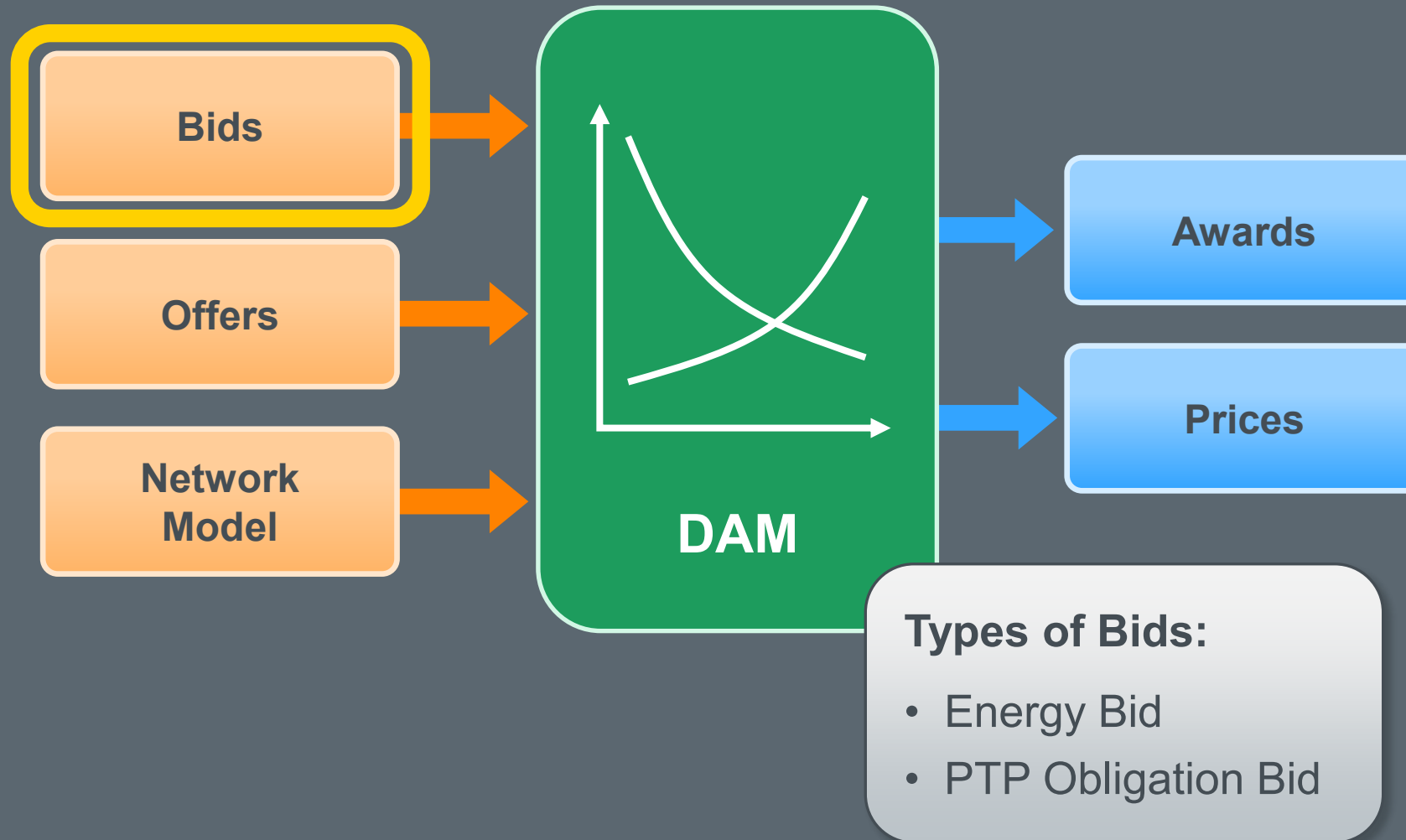
Settlement	Sink minus Source Price	PTP Obligation Amount
DAM		
RT		



Example: Hedging Real-Time Congestion Costs



Settlement Type		Amount
DAM	PTP Obligation	
RT	Energy	
	PTP Obligation	
Total		



Submitted between any two Settlement Points

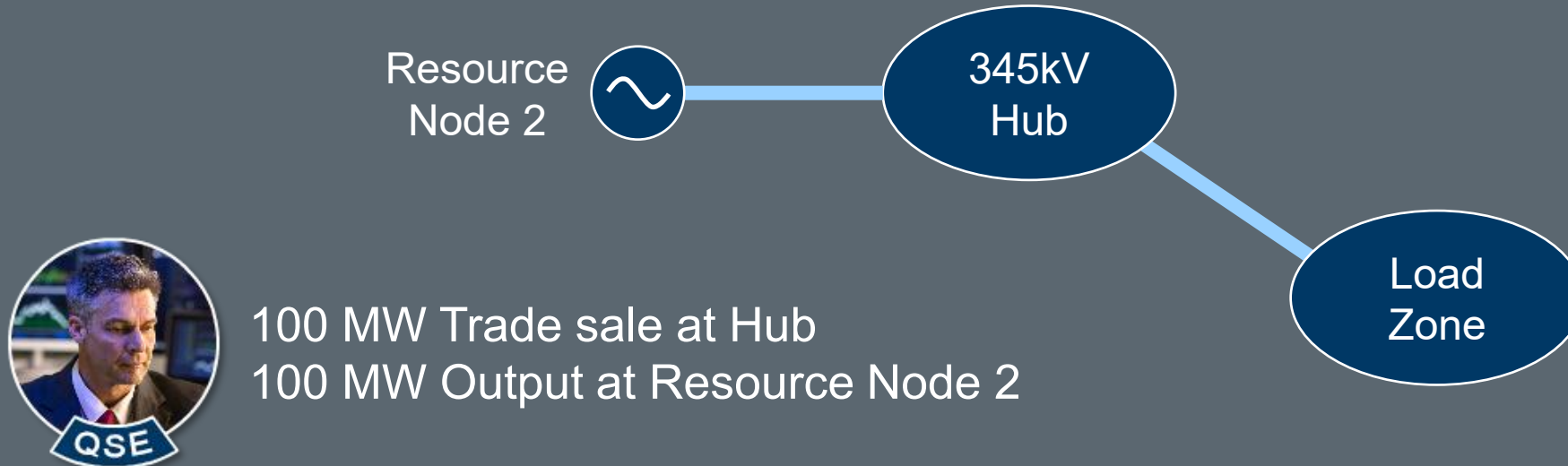
Source	Sink	Bid	
345kV Hub	Load Zone	MW	\$ / MW
Resource Node 1	Load Zone	MW	\$ / MW
Resource Node 2	Resource Node 3	MW	\$ / MW
Resource Node 1	345kV Hub	MW	\$ / MW



Payment or charge in Real-Time!

Optimize QSE's Revenues using DAM PTP Obligations

	Resource Node 2	345kV Hub	Load Zone
DAM SPP	\$36/MWh	\$38/MWh	\$42/MWh
Average RT SPP	\$15/MWh	\$35/MWh	\$50/MWh

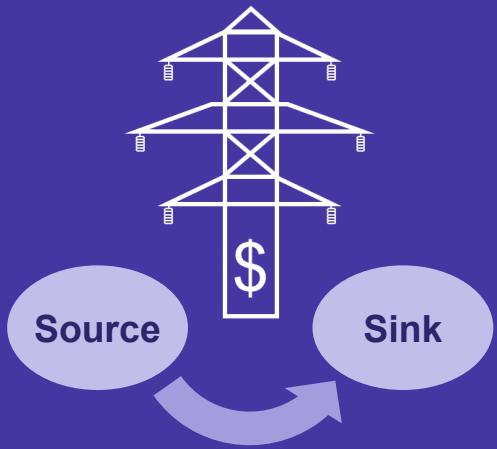




Hourly Financial instruments

- Purchased at DAM price spread
- Settled at Real-Time price spread

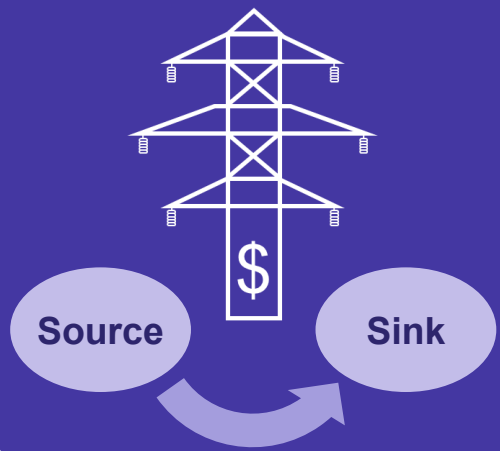
Congestion Revenue Rights



Monthly Financial instruments

- Purchased at Auction Price
- Settled at DAM price spread

Congestion Revenue Rights



Two types of instruments

Point-to-Point Obligation

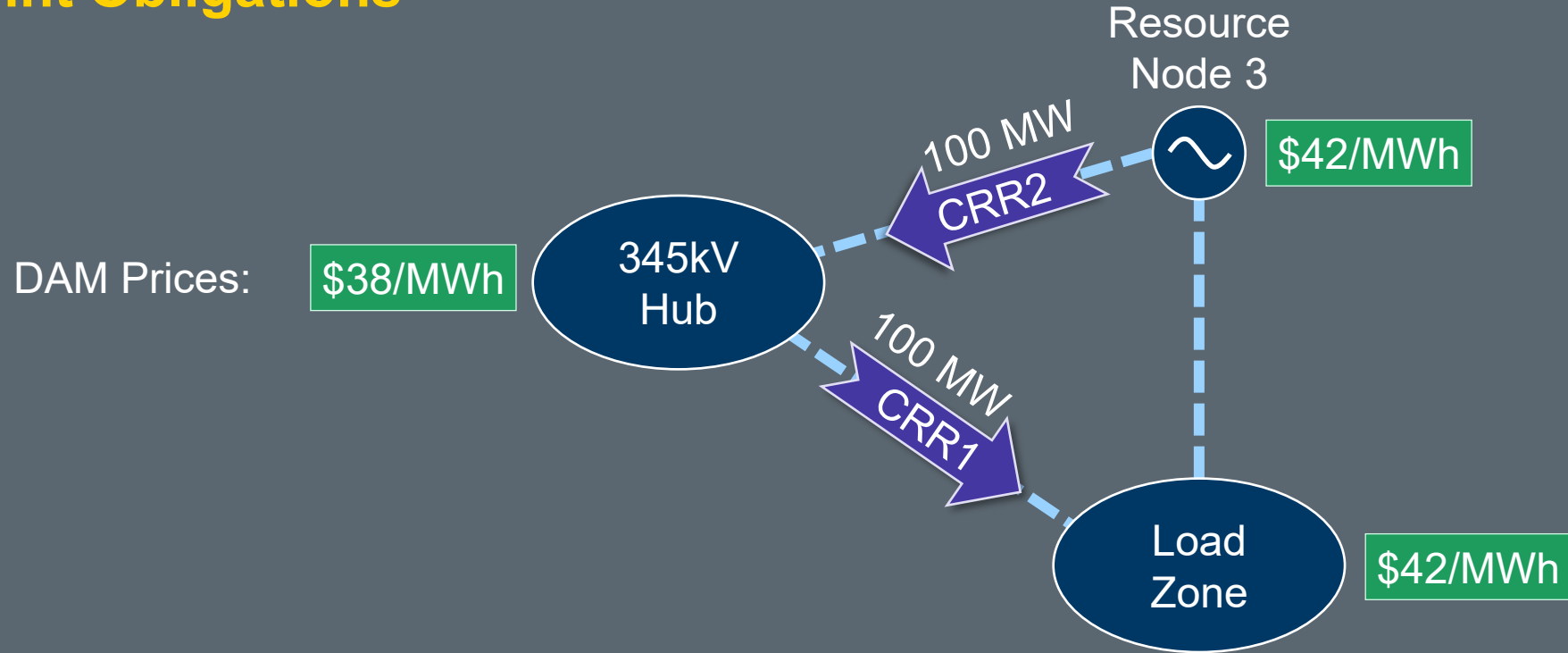
Payment or Charge in DAM

Point-to-Point Option

Payment only in DAM



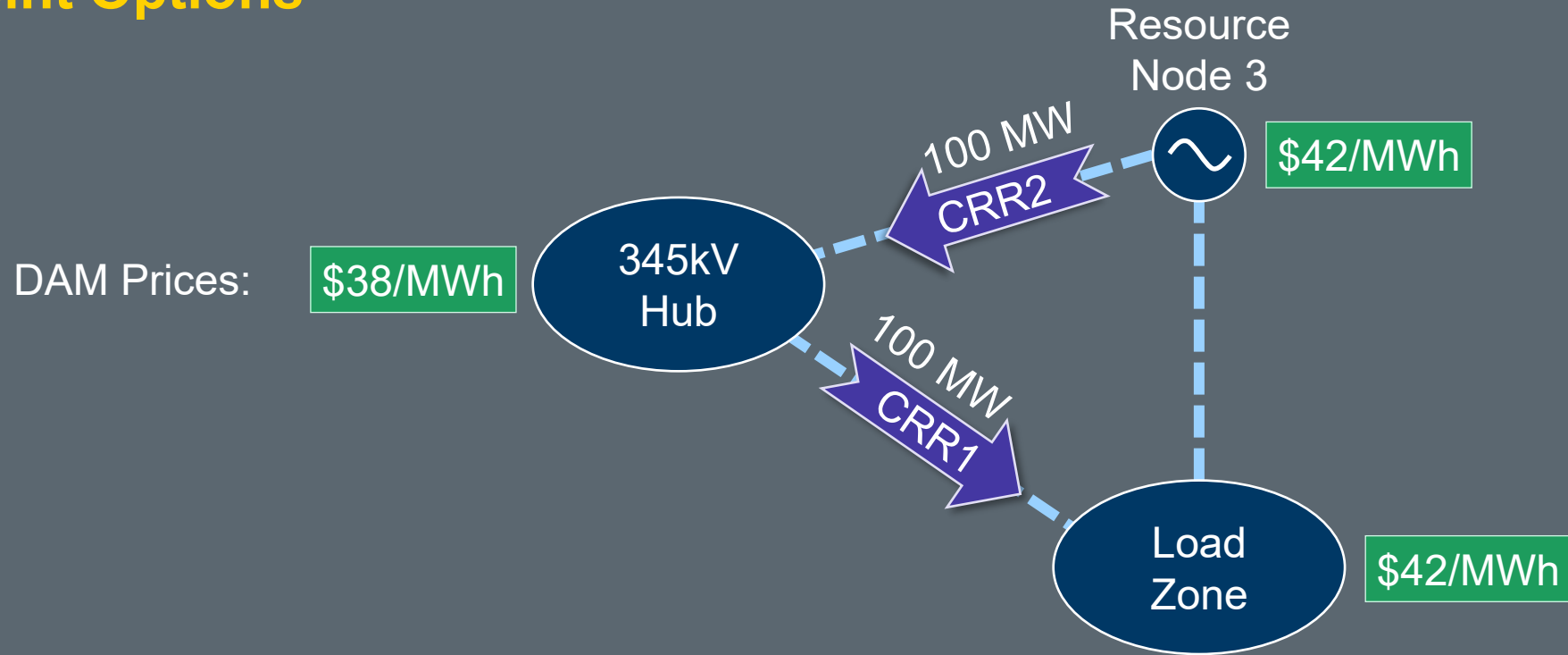
Point-to-Point Obligations



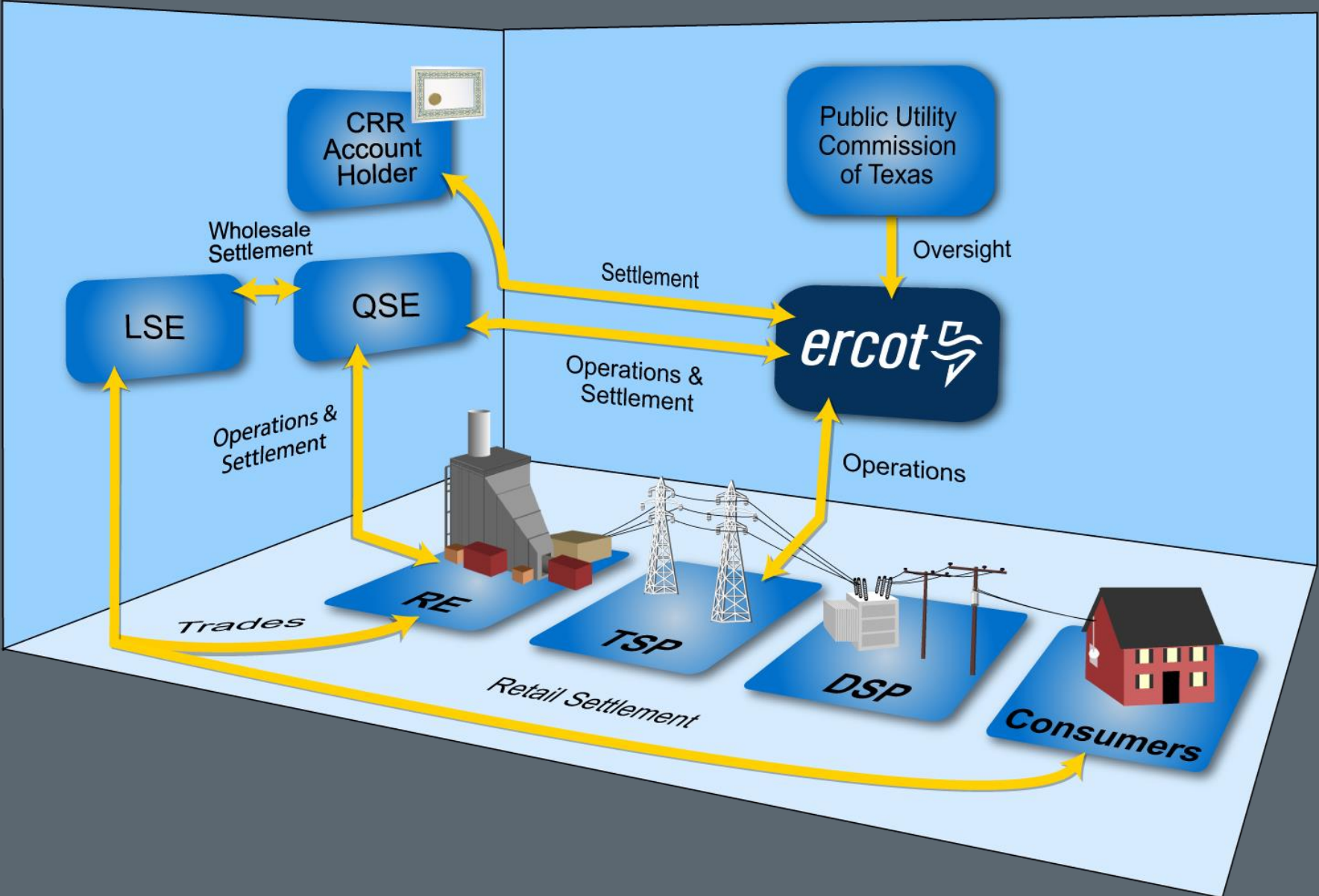
Settlement	Sink minus Source Price	CRR Amount
CRR1		
CRR2		



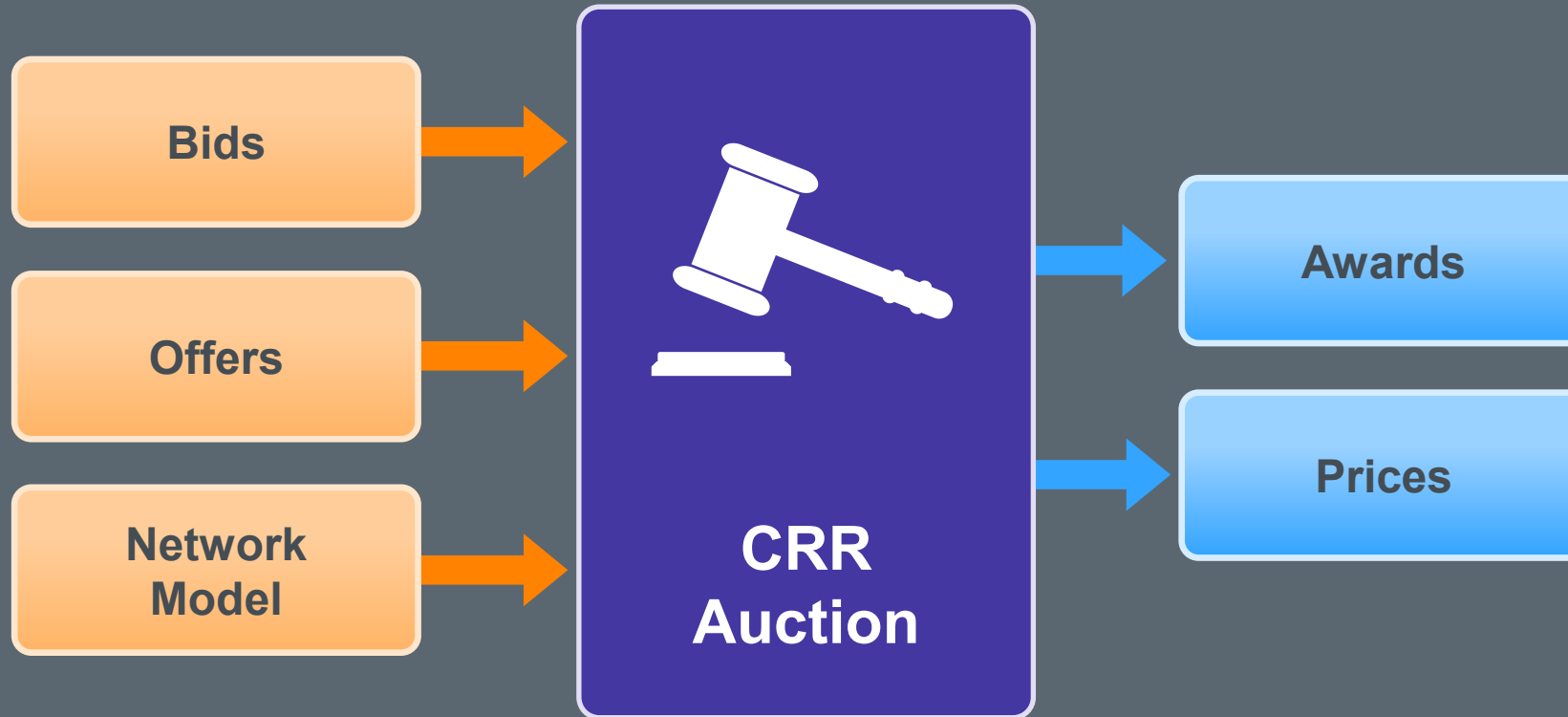
Point-to-Point Options



Settlement	Sink minus Source Price	CRR Amount
CRR1		
CRR2		



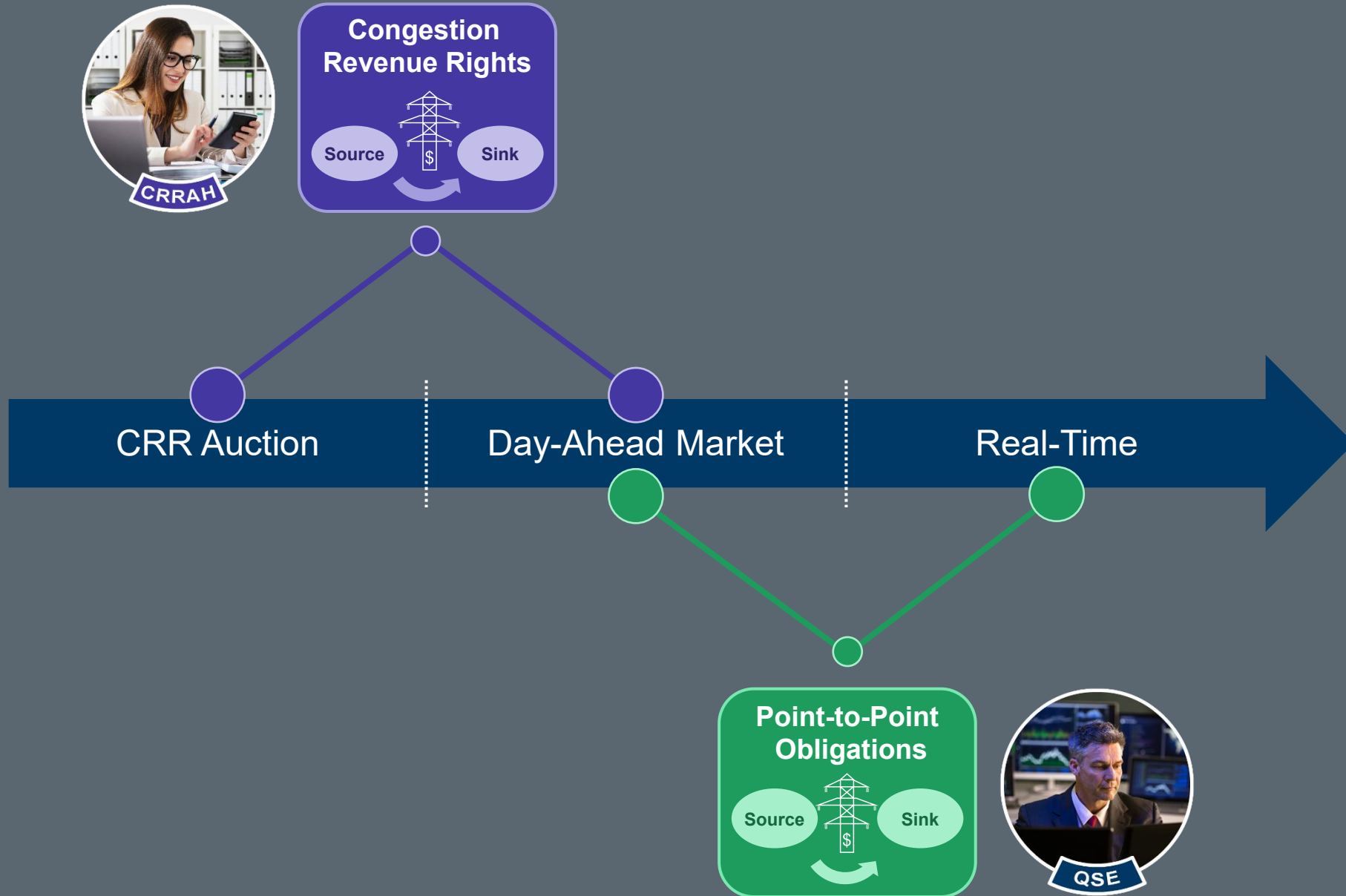
CRR Auction Transactions



CRRs are auctioned by:

- Time-of-Use Blocks
- One-month strips

Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Off-Peak (0100 – 0600)						
Peak Weekday (0700 – 2200)					Peak Weekend (0700 – 2200)	
Off-Peak (2300 – 0000)						

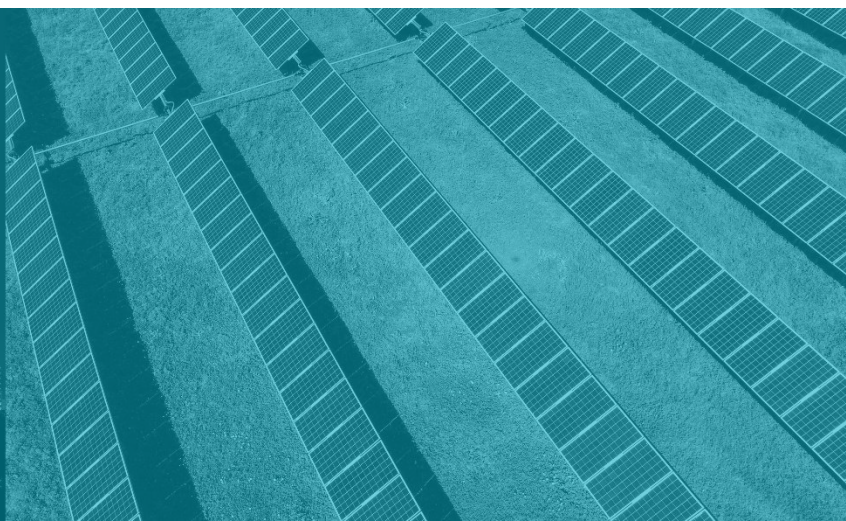


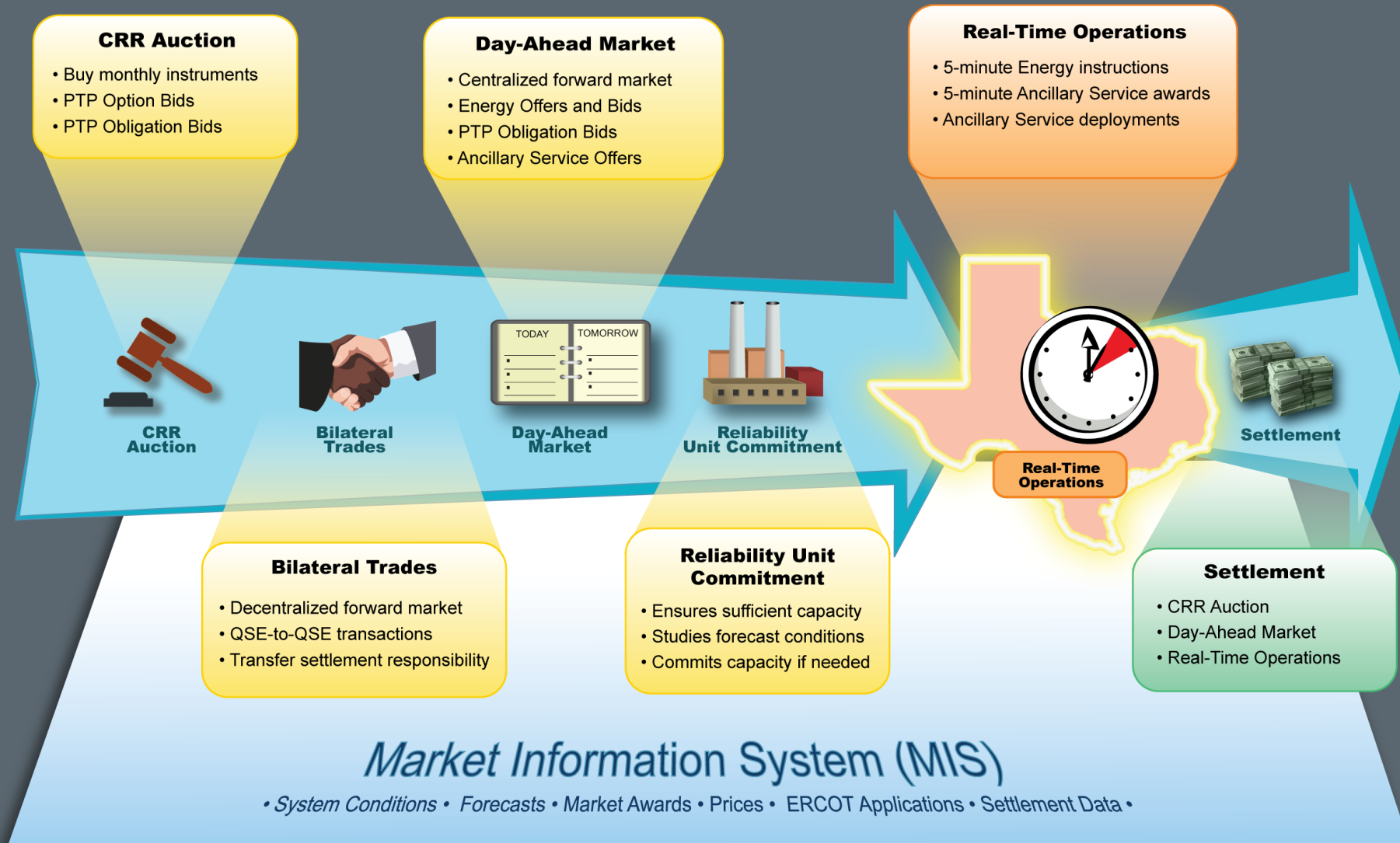
	PTP Obligation (CRR)	DAM PTP Obligation
How acquired:	Auction / Allocation	DAM
Who Purchases:	CRR Account Holder	QSE
Tradable:	Yes	No
How Purchased:	TOU Blocks	Hourly
Initial Investment:	Auction clearing price	Day-Ahead SPPs (Sink – Source)*
Target Payout:	Day-Ahead SPPs (Sink – Source)	Real-Time SPPs (Sink – Source)

* Other DAM charges may apply



Summary and Conclusion







Available to
the General
Public



Available to
all Market
Participants



Available to
specific Market
Participant

ERCOT Training Information

<http://www.ercot.com/services/training/>

Course Recommendations

<https://www.ercot.com/services/training/recommendations>

Market Education Contact

Training@ercot.com

ERCOT Client Services Contact

Clientservices@ercot.com

ERCOT Mailing Lists

<http://lists.ercot.com/>

Scan this QR code to take the course survey!

<https://www.surveymonkey.com/r/ERCOTILT>

