



Day-Ahead Market Operations



2025_10 Day Ahead Market Operations

Greetings and Introductions

Attendance

Questions

Presentation Materials



PROTOCOL DISCLAIMER

This presentation provides a general overview of the Texas Nodal Market as of December 5, 2025 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/>

Applicability to RTC+B

This presentation contains material that is effective upon implementation of Real-Time Co-Optimization plus Batteries in the ERCOT Market. Portions of this course are not relevant to the ERCOT Market before RTC+B implementation.

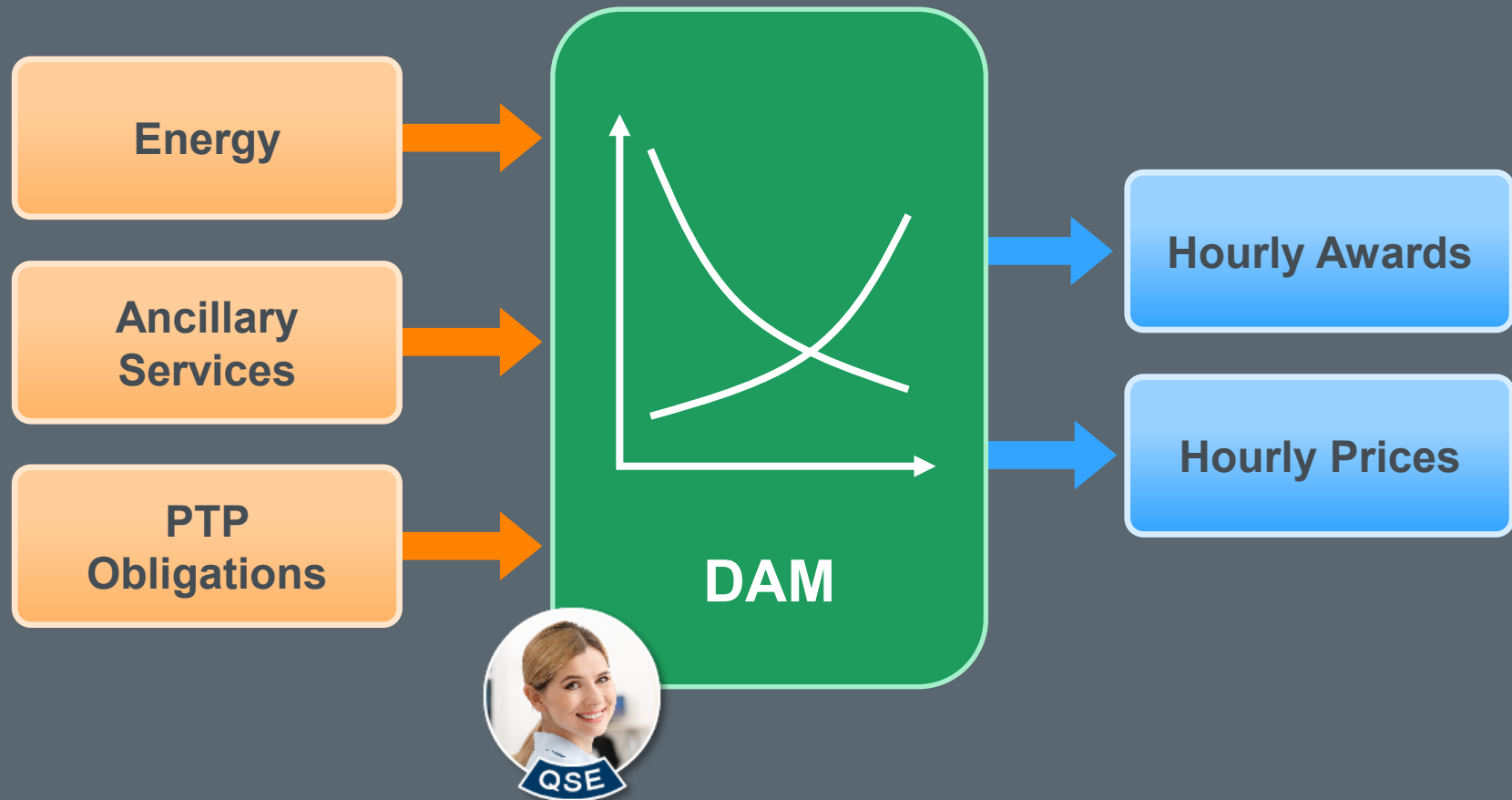
For more information, please view grey-boxed language in:

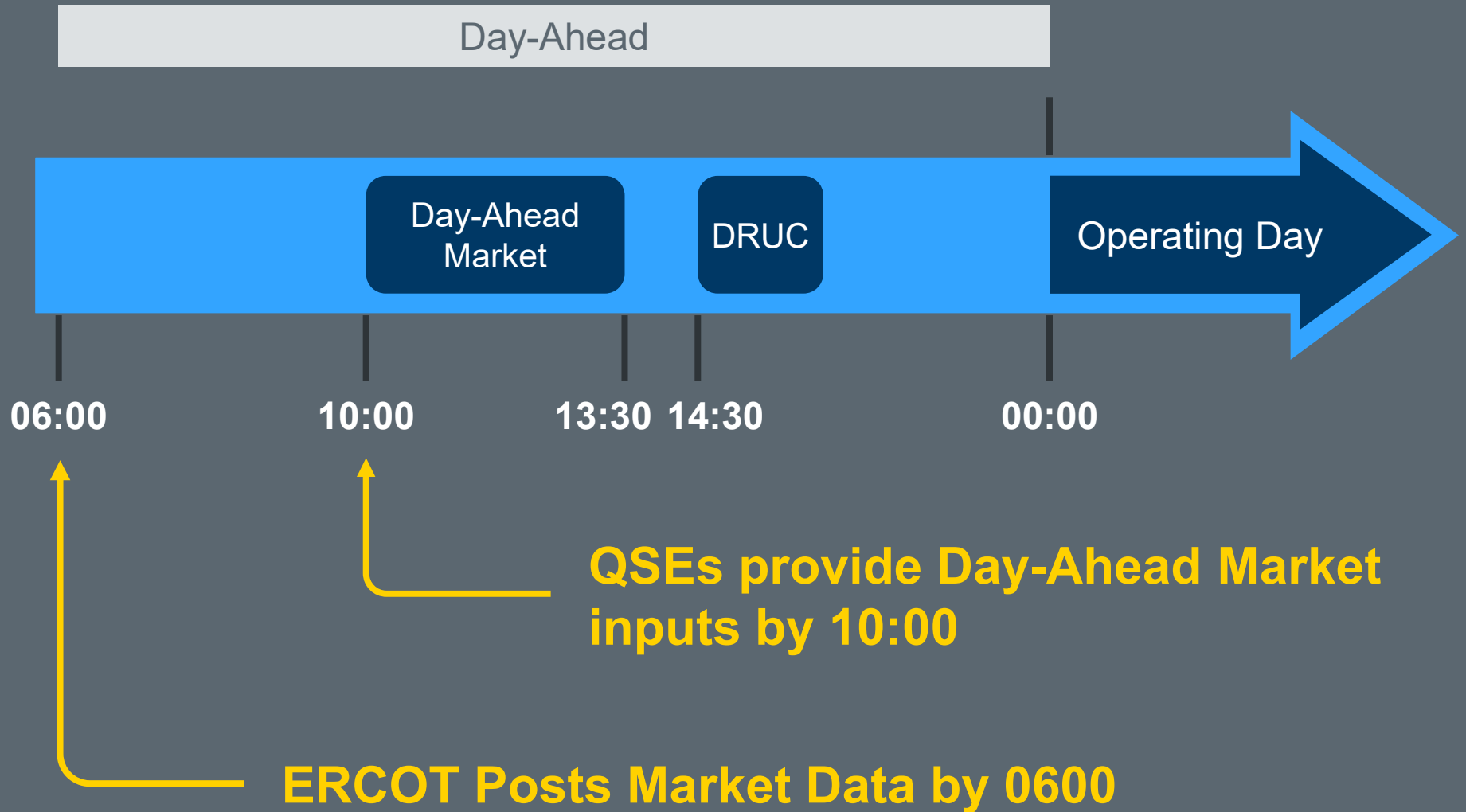
<http://www.ercot.com/mktrules/nprotocols/>

Format	Title
WBT	Wholesale Markets Overview

Format	Title	Topic
ILT	Day-Ahead Market Operations	Inputs
		Market Clearing
		Financial Impacts
	Reliability Unit Commitment	Overview
		Process
		Financial Impacts
	Real-Time Market Operations	Security Constrained Economic Dispatch
		Load Frequency Control
		Financial Impacts

ERCOT-Facilitated Forward Market





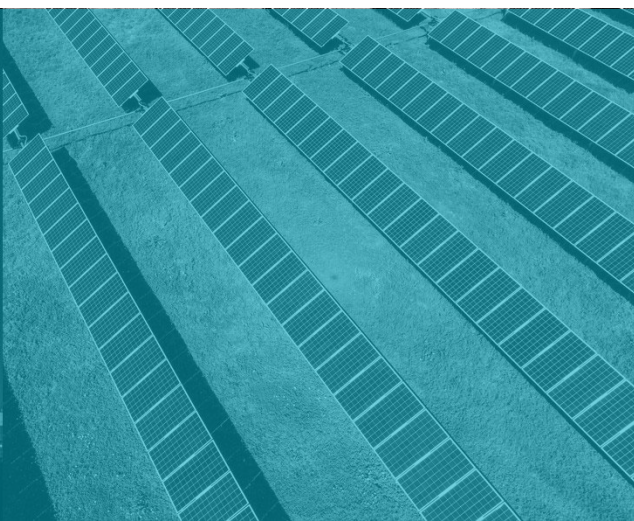
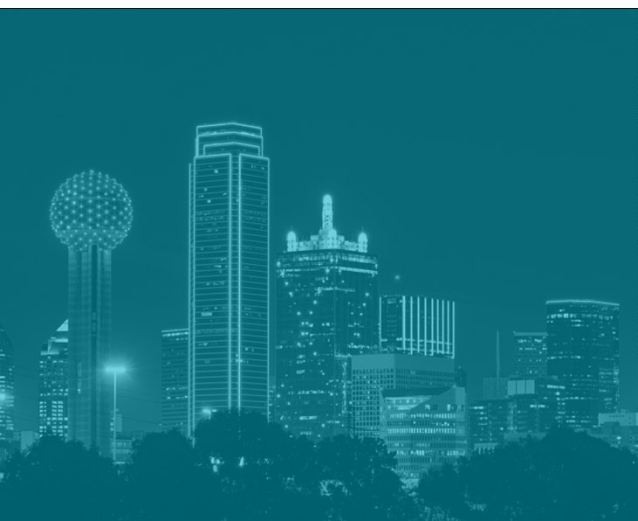
In accordance with PUCT Scarcity Pricing Mechanism,

ERCOT Market Caps		HCAP	LCAP*
Day-Ahead System Wide Offer Cap	DASWCAP	\$5000	\$2000
Real-Time System Wide Offer Cap	RTSWCAP	\$2000	\$2000
Value of Lost Load	VOLL	DASWCAP	

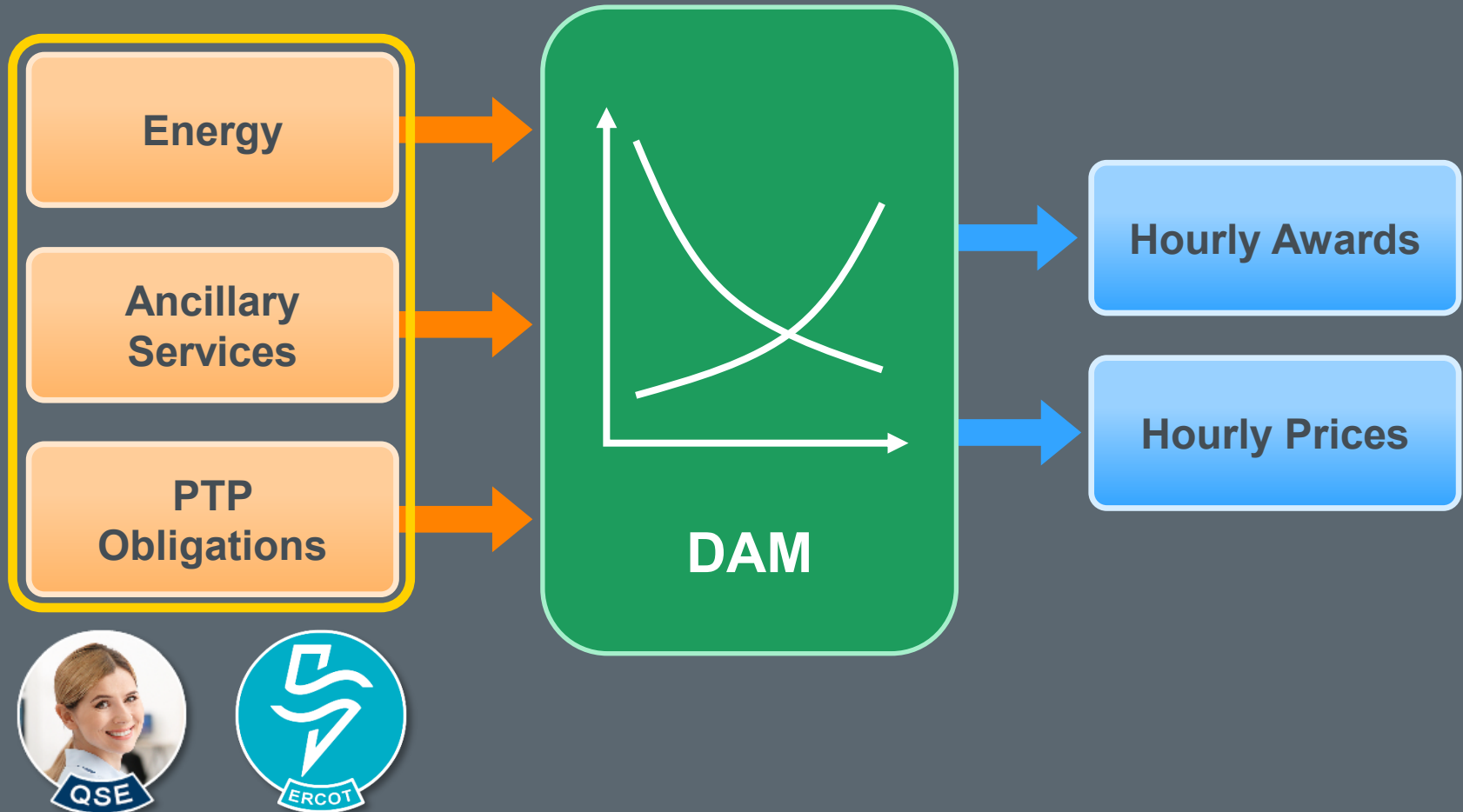
* Used when Peaker Net Margin exceeds annual threshold



Day-Ahead Market Inputs



QSEs and ERCOT provide economic Inputs





Energy Inputs	Ancillary Service Inputs	PTP Obligation Inputs
Energy Bids	Self-Arranged AS Quantities	PTP Obligation Bids
Energy-Only Offers	AS-Only Offers	
Resource-Specific Energy Offers	Resource-Specific AS Offers	
Current Operating Plans		



Ancillary Service Inputs
AS Demand Curves

DAM Energy Bid

Proposal to buy energy:

- Quantity
- Price
- Settlement Point

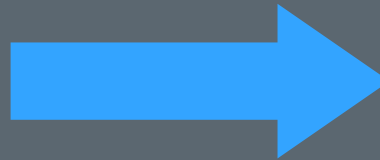
DAM Energy-Only Offer

Proposal to sell energy:

- Quantity
- Price
- Settlement Point

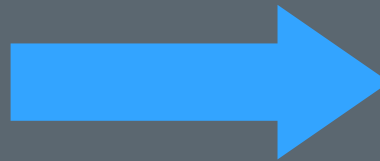


Purely Financial Transactions

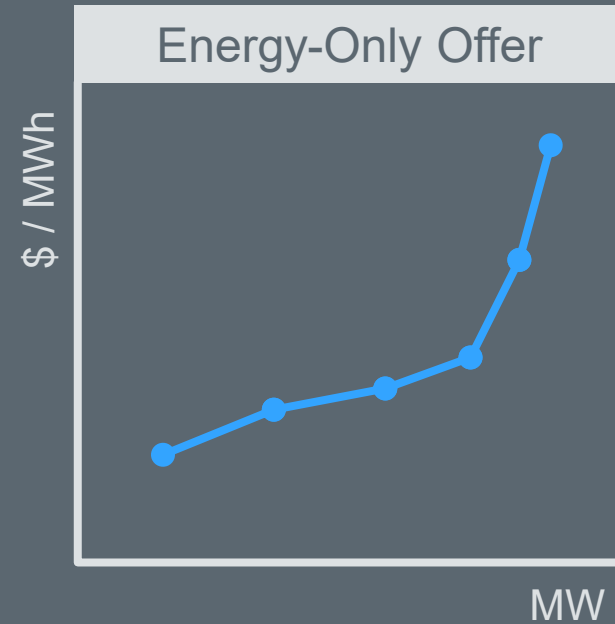
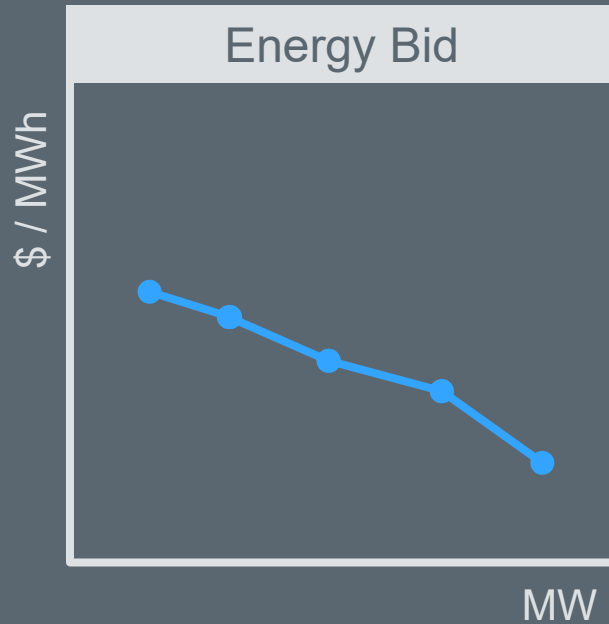




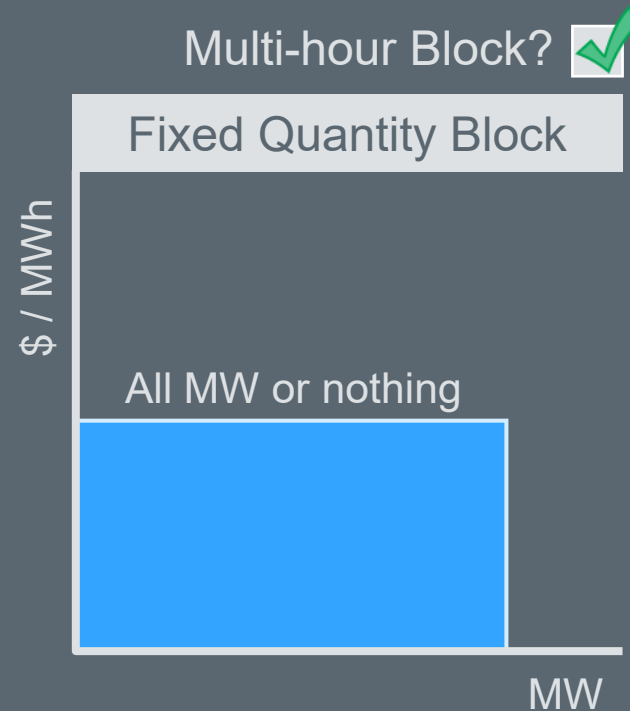
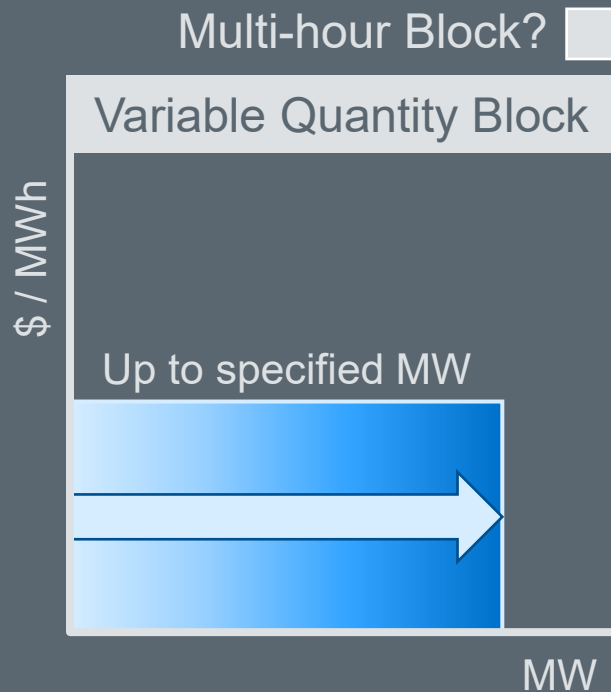
Purely Financial Transactions



Curve with up to 10 Price/Quantity Pairs



Block with Single Price/Quantity Pair



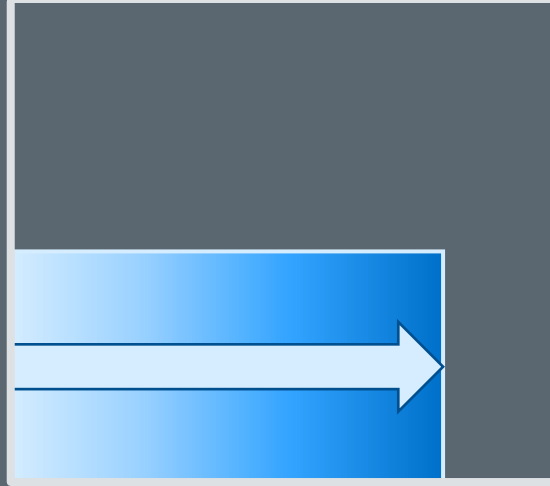


QSE submits the following Energy Bid for 0700-2200

Multi-hour Block? ☒

Variable Quantity Block

\$50/MWh



10MW

Day-Ahead Market Options?



QSE submits the following Energy Bid for 0700-2200

Multi-hour Block? ☒

Fixed Quantity Block

\$50/MWh



10MW

Day-Ahead Market Options?

Fixed Block price will not set clearing price

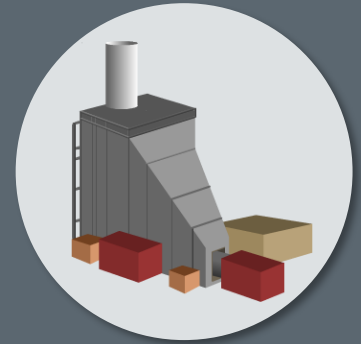


Energy Inputs	Ancillary Service Inputs	PTP Obligation Inputs
Energy Bids	Self-Arranged AS Quantities	PTP Obligation Bids
Energy-Only Offers	AS-Only Offers	
Resource-Specific Energy Offers	Resource-Specific AS Offers	
Current Operating Plans		



Ancillary Service Inputs
AS Demand Curves

Energy Offer from Generation Resource



Optional

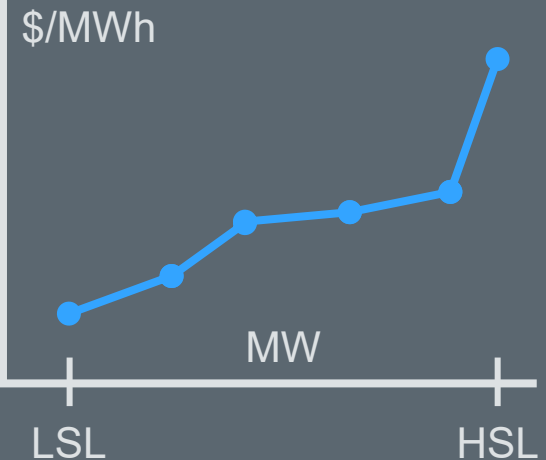
Startup Offer

\$/Start

Minimum Energy Offer

\$/MWh

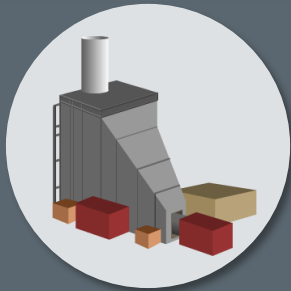
Energy Offer Curve



LSL – Low Sustained Limit

HSL – High Sustained Limit

Where are the three parts used?



	Three-Part Supply Offer		
	Startup Offer	Minimum Energy Offer	Energy Offer Curve
Day-Ahead Market	✓	✓	✓
RUC-Commitment	✓	✓	
Real-Time Dispatch			✓



Energy “Offer” from an Energy Storage Resource



HSL = High Sustained Limit
LSL = Low Sustained Limit



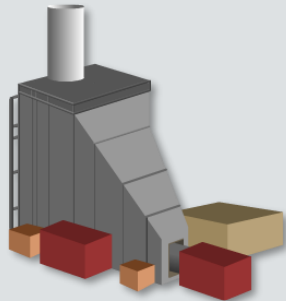
Energy Inputs	Ancillary Service Inputs	PTP Obligation Inputs
Energy Bids	Self-Arranged AS Quantities	PTP Obligation Bids
Energy-Only Offers	AS-Only Offers	
Resource-Specific Energy Offers	Resource-Specific AS Offers	
Current Operating Plans		



Ancillary Service Inputs
AS Demand Curves

A QSE may have Advisory Ancillary Service Obligations

Self-Arrange



Allow ERCOT to procure



May choose to Self-Arrange before DAM



QSE has Regulation Up Obligations for a range of hours

Hour	Advisory AS Obligation	Self-Arranged Quantity	Net Obligation	ERCOT action on QSE's behalf
1500	7 MW			
1600	6 MW			
1700	5 MW			
1800	3 MW			

A Few Rules:

QSE Action	Rules
Self-Arrangement	May not exceed their Advisory AS Obligation per service
	Paid for Self-Arranged Quantity that exceeds their Final AS Obligation
Negative Self-Arrangement	Limited to Net AS Trade Sales Up to 500 MW per Service



Energy Inputs	Ancillary Service Inputs	PTP Obligation Inputs
Energy Bids	Self-Arranged AS Quantities	PTP Obligation Bids
Energy-Only Offers	AS-Only Offers	
Resource-Specific Energy Offers	Resource-Specific AS Offers	
Current Operating Plans		



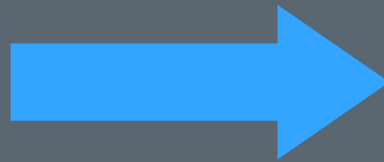
Ancillary Service Inputs
AS Demand Curves

Financial 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

... subject to \$0 / MW price floor

Purely Financial Transactions





Energy Inputs	Ancillary Service Inputs	PTP Obligation Inputs
Energy Bids	Self-Arranged AS Quantities	PTP Obligation Bids
Energy-Only Offers	AS-Only Offers	
Resource-Specific Energy Offers	Resource-Specific AS Offers	
Current Operating Plans		



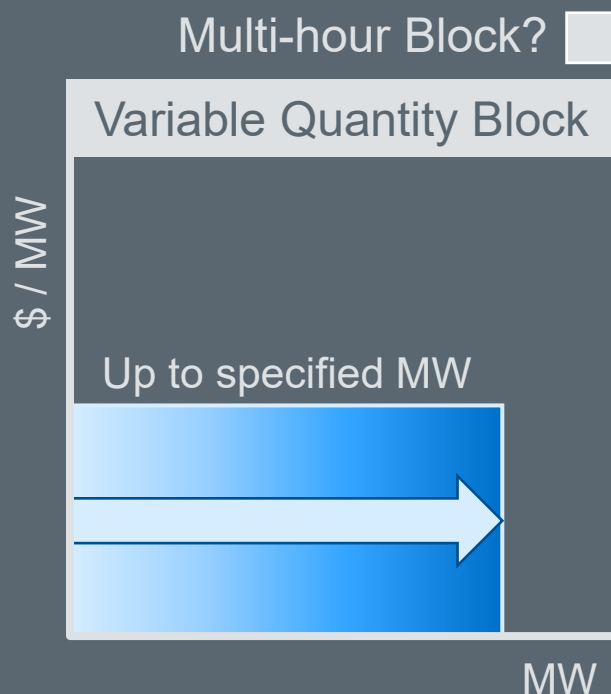
Ancillary Service Inputs
AS Demand Curves

Resource-Specific Offers for Each Service

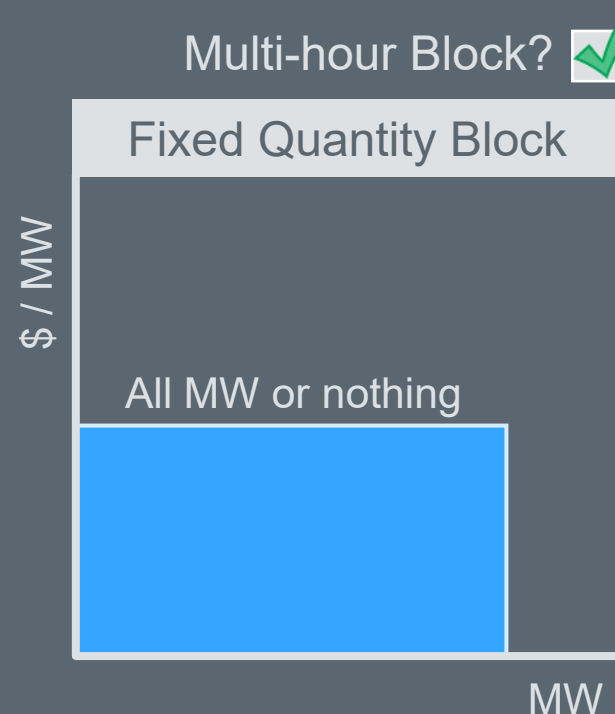
Type of Service	Offer	
Regulation Up	MW	\$ / MW
Regulation Down	MW	\$ / MW
Responsive Reserve	MW	\$ / MW
Contingency Reserve	MW	\$ / MW
Non-Spinning Reserve	MW	\$ / MW

... subject to \$0 / MW price floor

Block with Single Price/Quantity Pair



Any qualified Resource



Load Resources Only



Energy Inputs	Ancillary Service Inputs	PTP Obligation Inputs
Energy Bids	Self-Arranged AS Quantities	PTP Obligation Bids
Energy-Only Offers	AS-Only Offers	
Resource-Specific Energy Offers	Resource-Specific AS Offers	
Current Operating Plans		



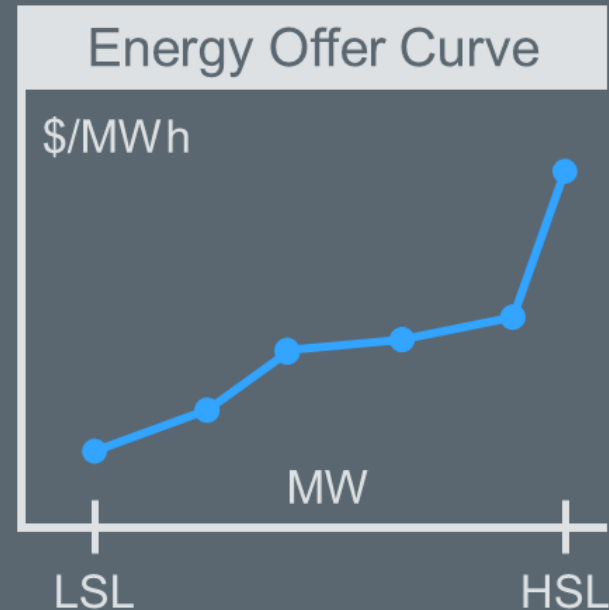
Ancillary Service Inputs
AS Demand Curves

What does DAM need from Current Operating Plans?

Current Operating Plan											
Resource Name	Resource Status	Resource Limits		ESR SOC Limits			Ancillary Service Capabilities				
		HSL	LSL	Min	Max	Hour Beginning	Reg-Up	Reg-Dn	Responsive	ECRS	NSRS
GEN1	ON	600	120	-	-	-	20	20	40	40	120
GEN2	OFF	100	25	-	-	-	0	0	0	0	0
ESR3	ON	40	-40	0	40	40	0	0	40	20	10

Single Resource may be offered for multiple products

AS Type	Offer	
Reg-Up	MW	\$ / MW
Reg-Down	MW	\$ / MW
Responsive	MW	\$ / MW
ECRS	MW	\$ / MW
Non-Spin	MW	\$ / MW



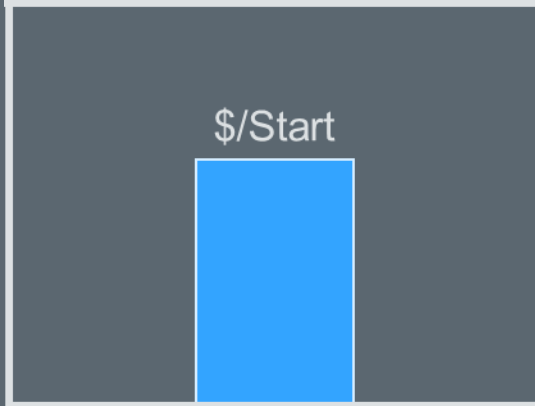
Total DAM award will not exceed
Resource's Capacity



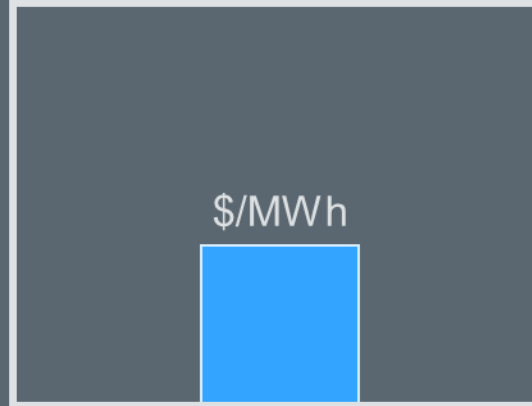
**But how would the
Day-Ahead Market
handle this?**

AS Type	Offer	
Reg-Up	MW	\$ / MW
Responsive	MW	\$ / MW

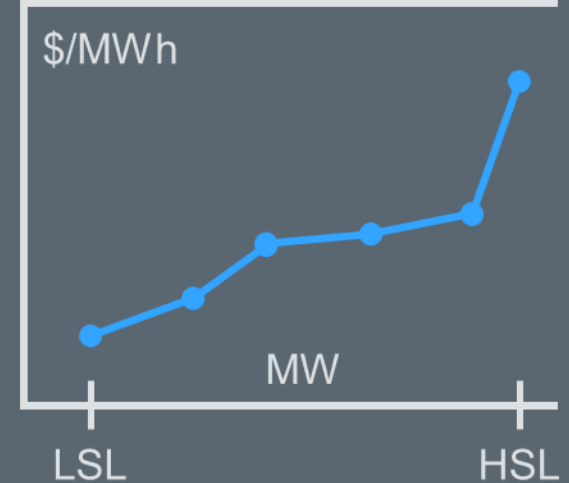
Startup Offer



Minimum Energy Offer



Energy Offer Curve



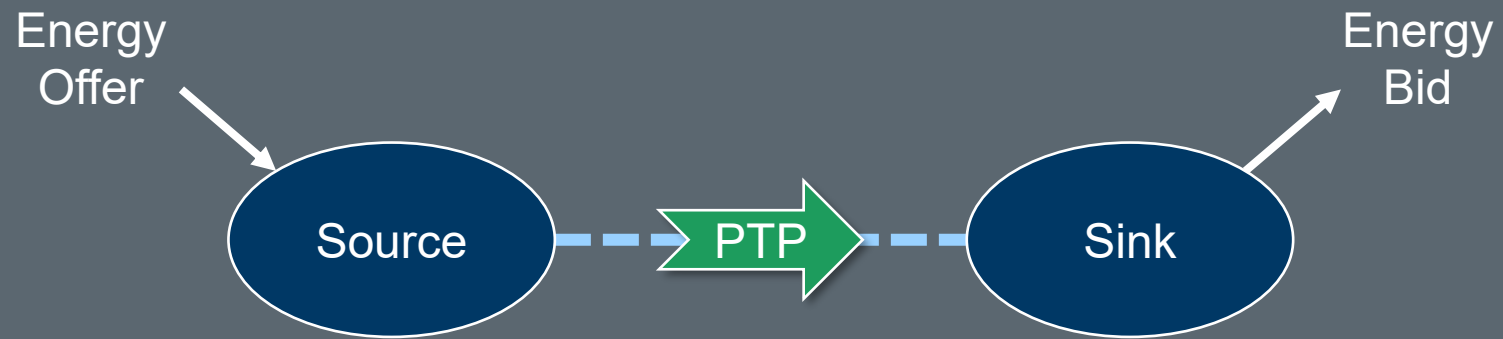


Energy Inputs	Ancillary Service Inputs	PTP Obligation Inputs
Energy Bids	Self-Arranged AS Quantities	PTP Obligation Bids
Energy-Only Offers	AS-Only Offers	
Resource-Specific Energy Offers	Resource-Specific AS Offers	
Current Operating Plans		



Ancillary Service Inputs
AS Demand Curves

Like a coupled Energy-Only Offer and Energy Bid



Charge
(If Awarded) =

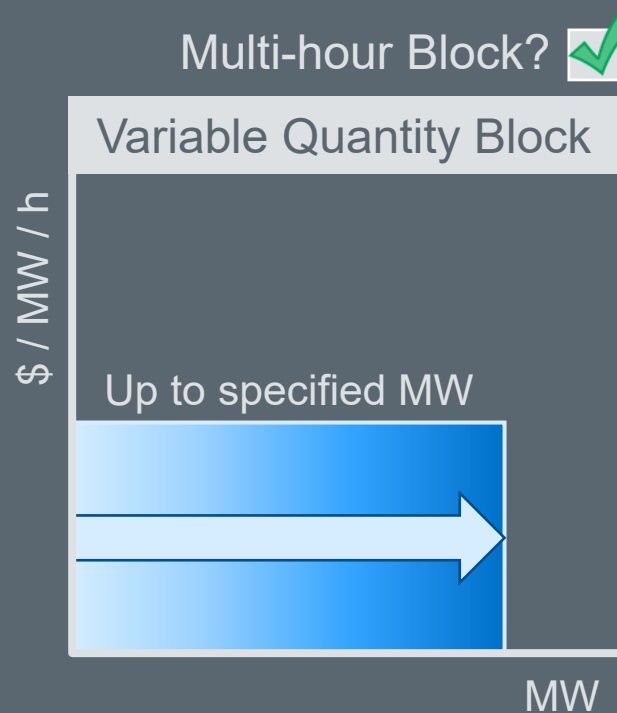
?

SPP = Settlement Point Price

Submitted between any two Settlement Points

Source	Sink	Bid	
Hub	Load Zone	MW	\$ / MW / h
Resource Node	Load Zone	MW	\$ / MW / h
Resource Node	Hub	MW	\$ / MW / h
Load Zone	Resource Node	MW	\$ / MW / h
Load Zone	Hub	MW	\$ / MW / h

Block with Single Price/Quantity Pair



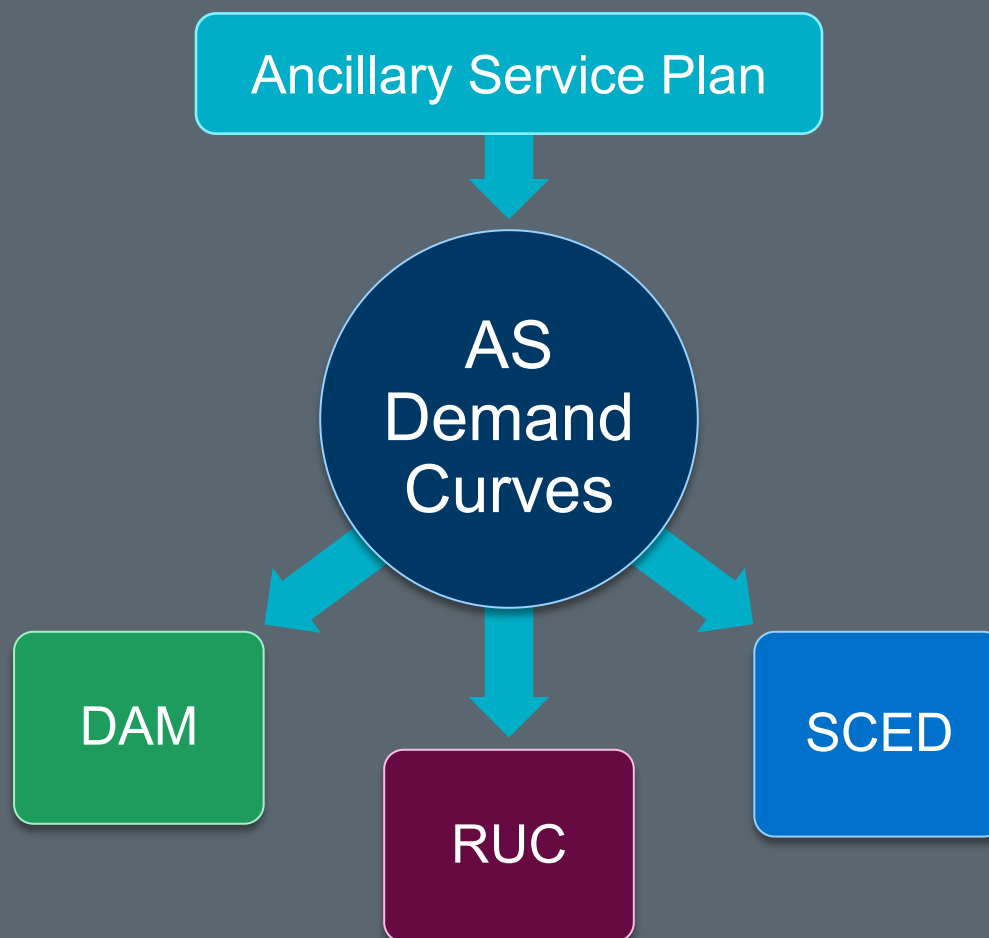


Energy Inputs	Ancillary Service Inputs	PTP Obligation Inputs
Energy Bids	Self-Arranged AS Quantities	PTP Obligation Bids
Energy-Only Offers	AS-Only Offers	
Resource-Specific Energy Offers	Resource-Specific AS Offers	
Current Operating Plans		



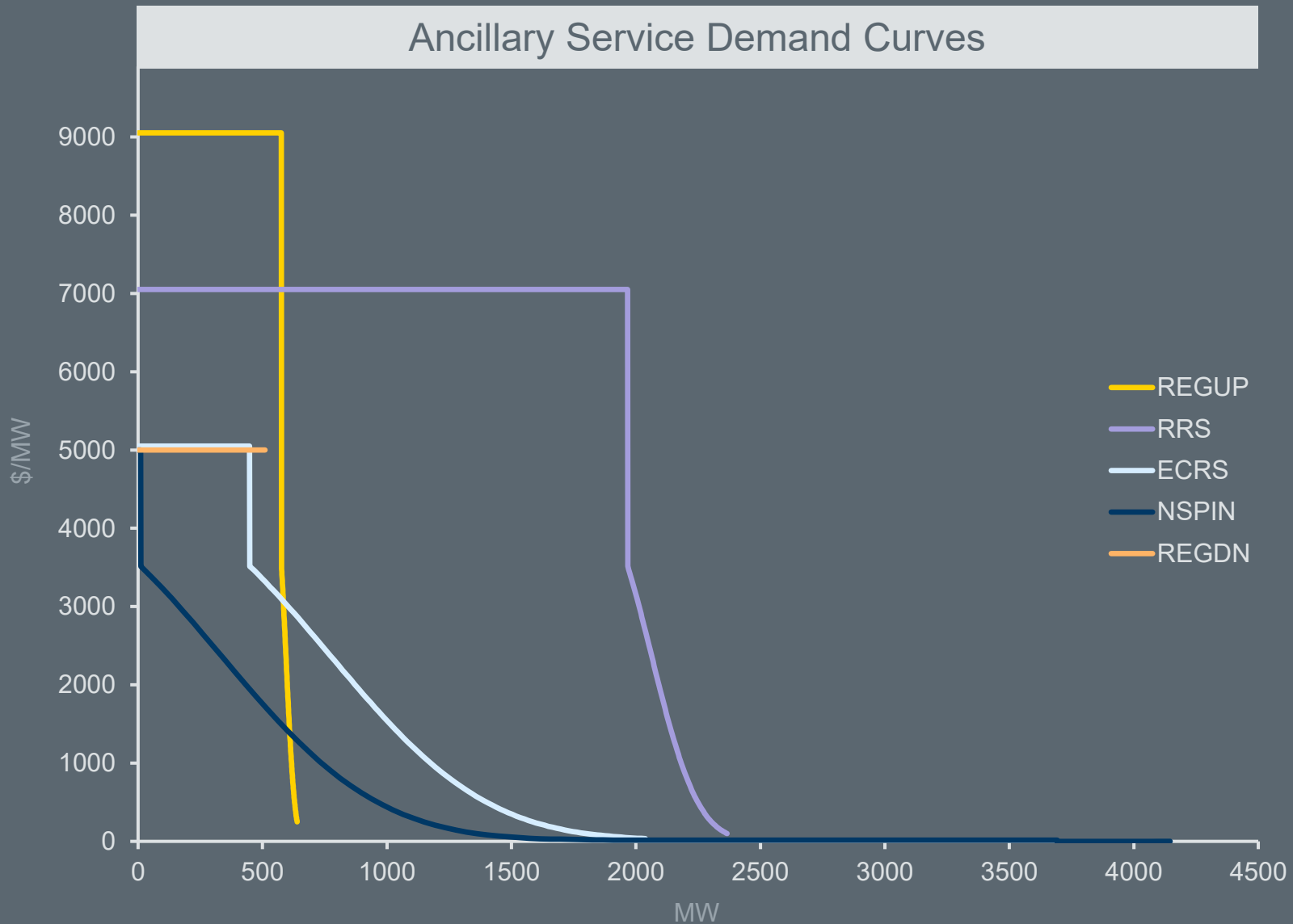
Ancillary Service Inputs
AS Demand Curves

→ *Posted by 0600 Day-Ahead*



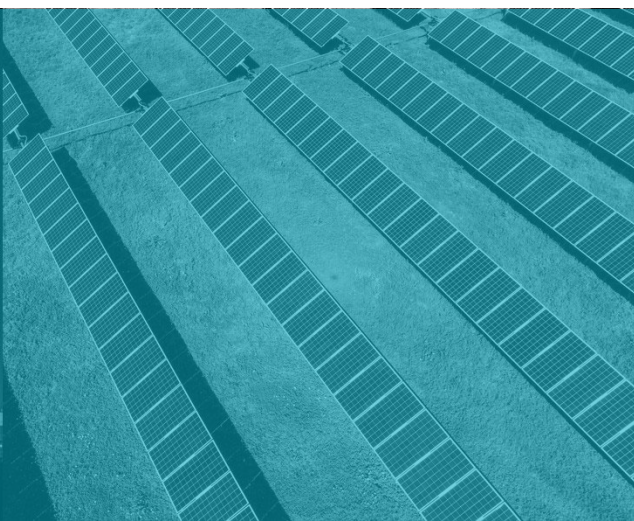
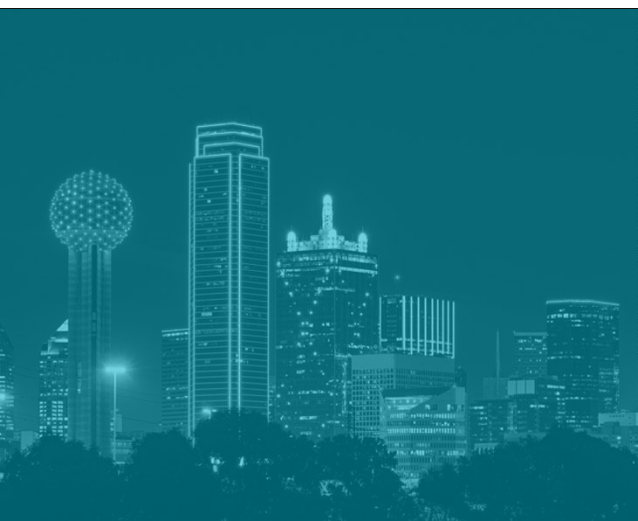


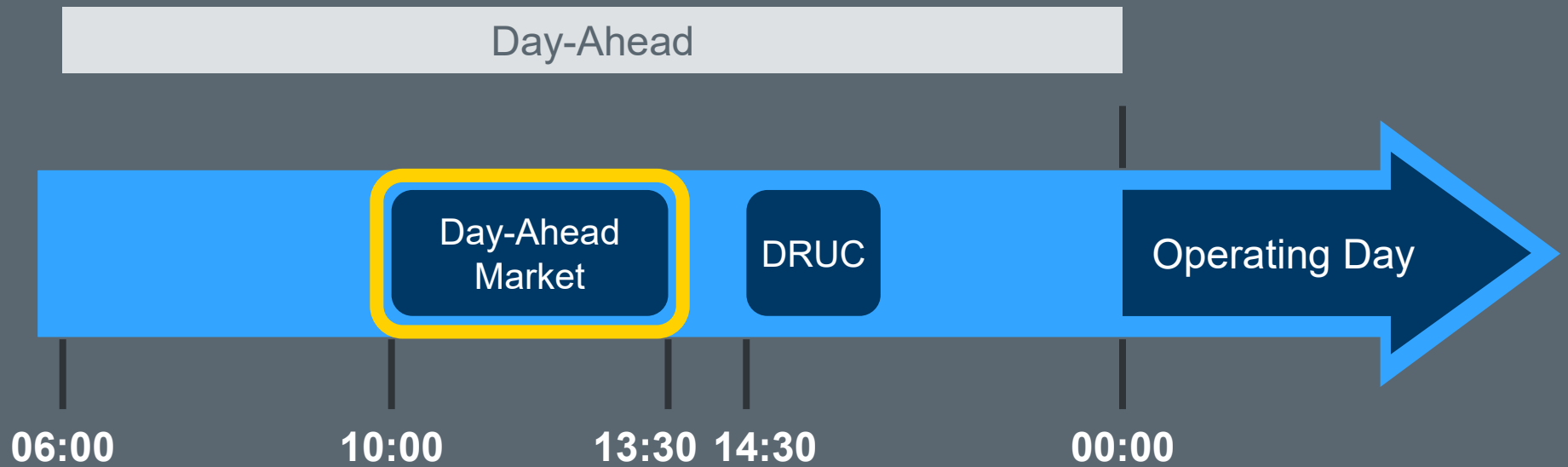
Discussion: What do they do?



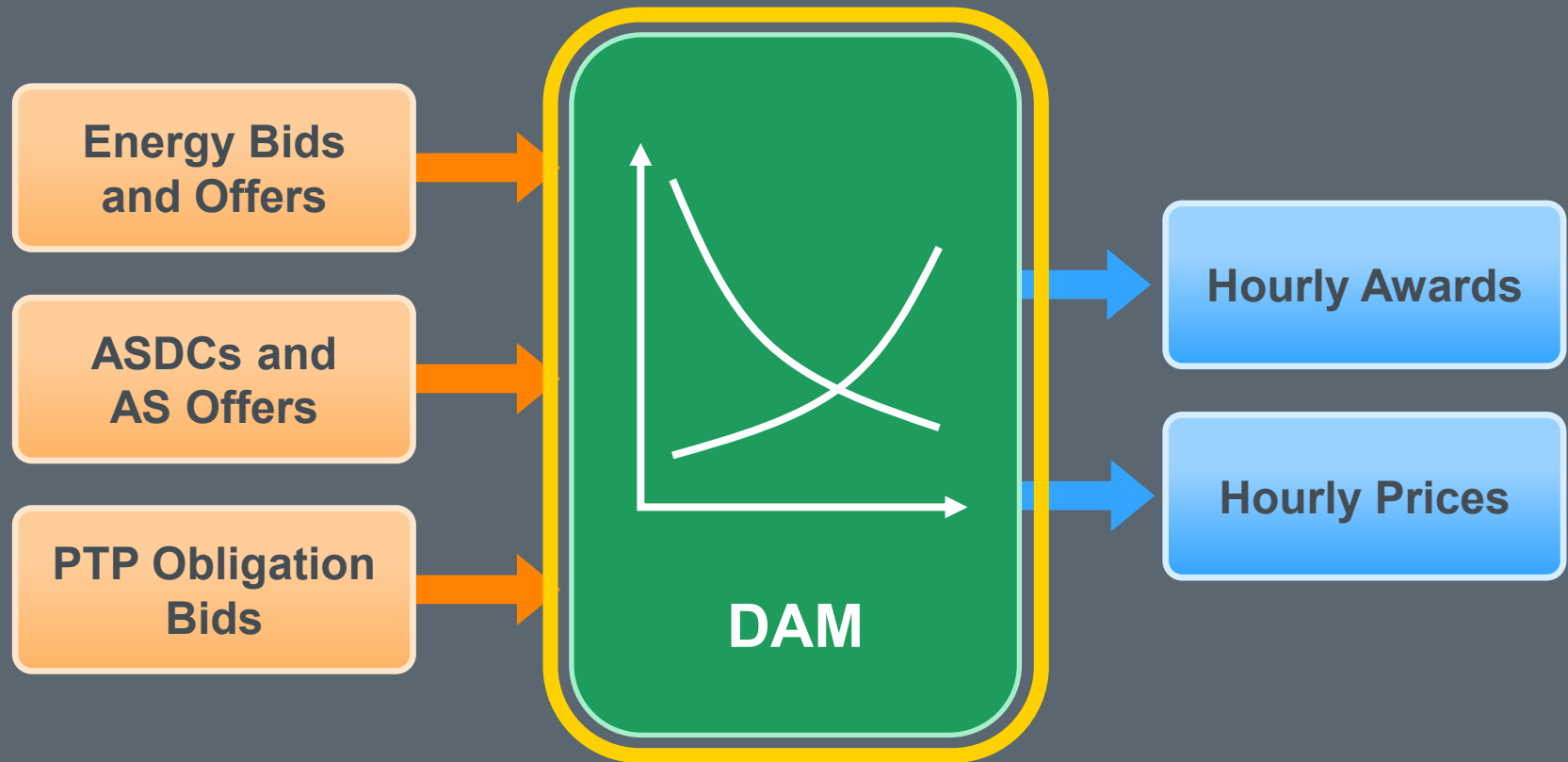


Day-Ahead Market Clearing

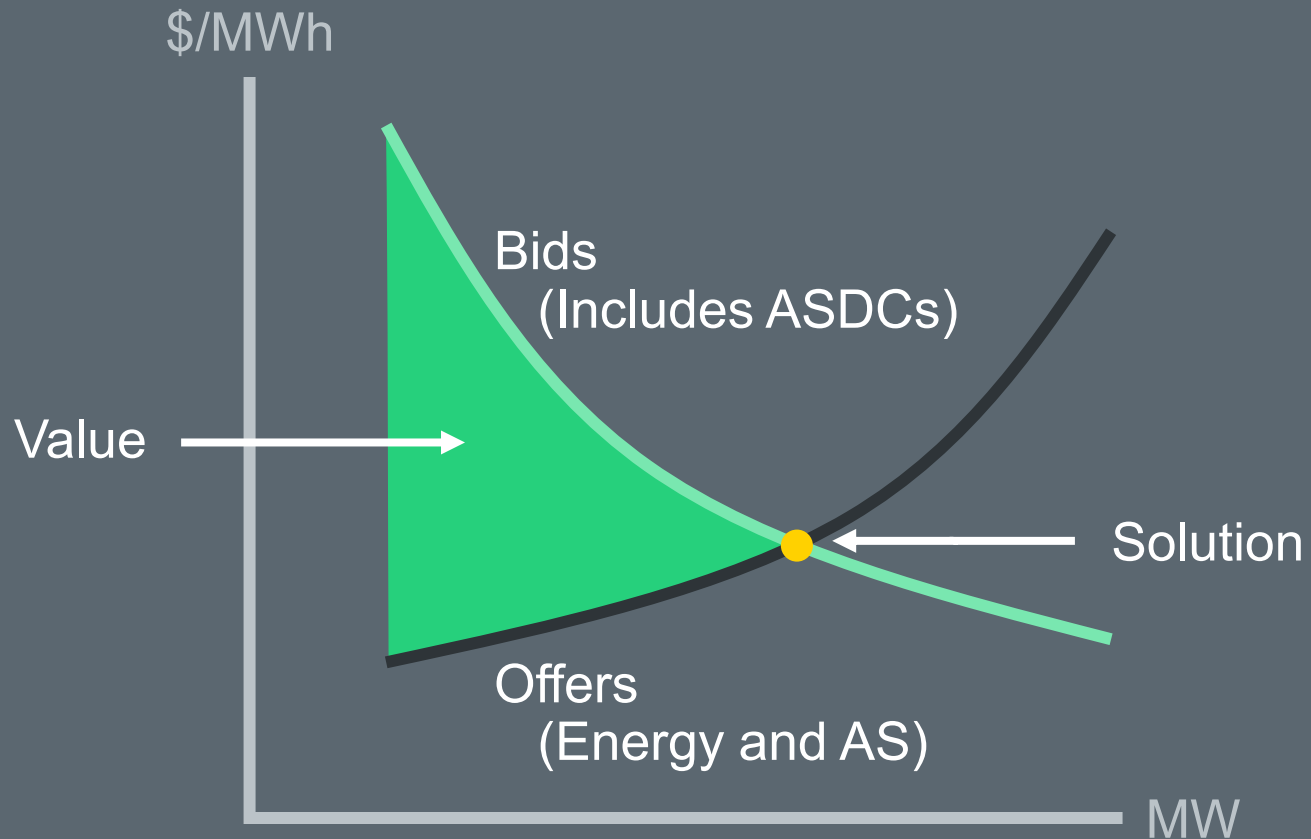




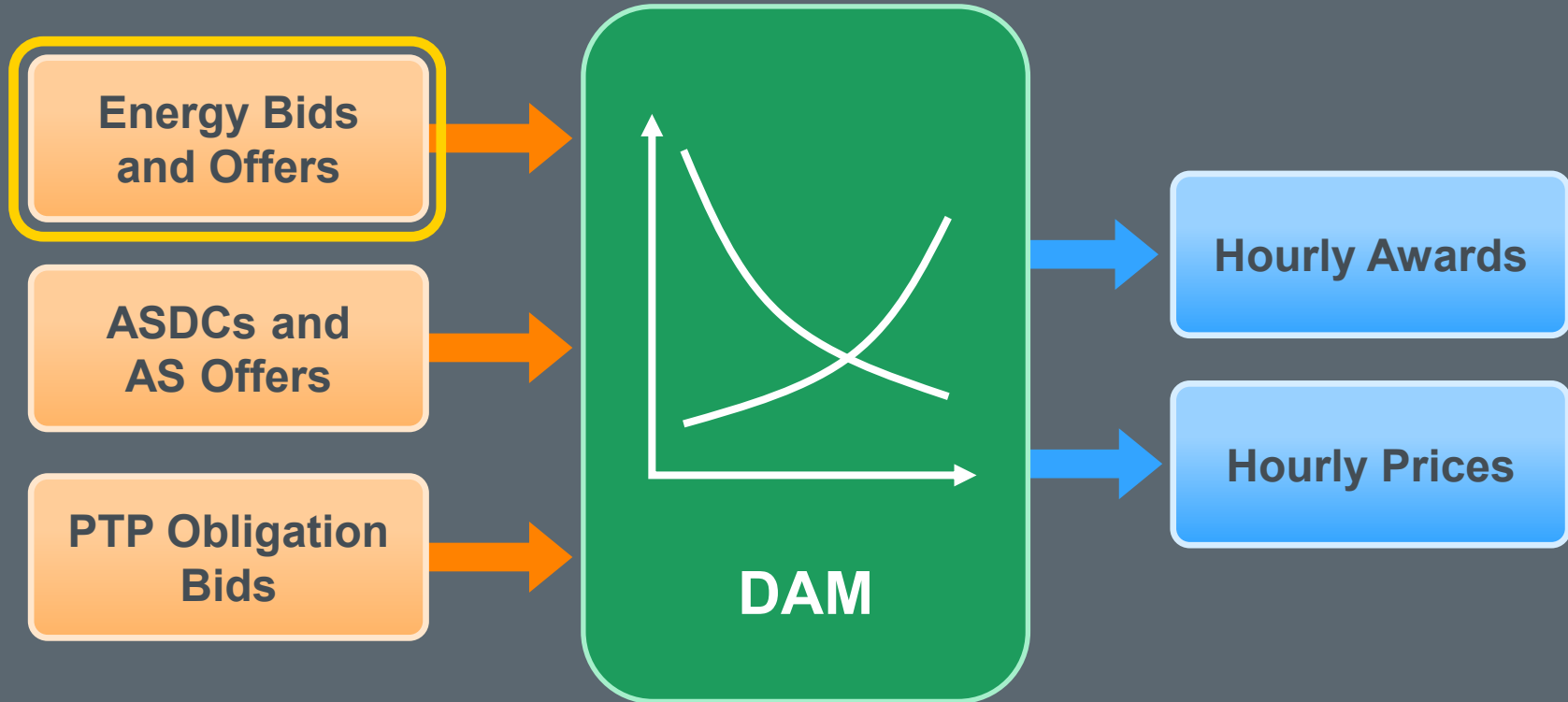
Economically optimized subject to constraints



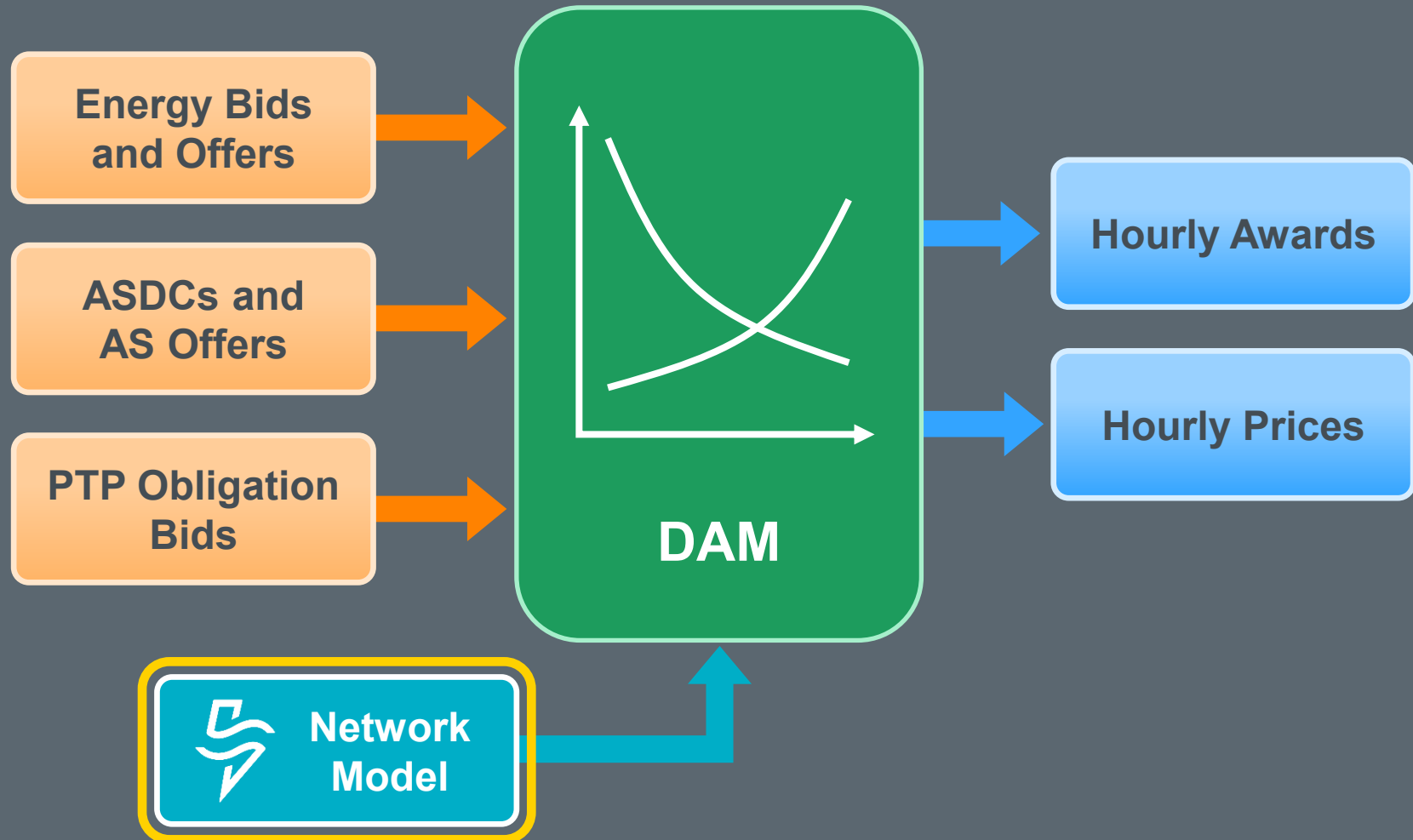
Maximize Bid-Based Revenues minus Offer-Based Costs



Energy Offers must equal Energy Bids

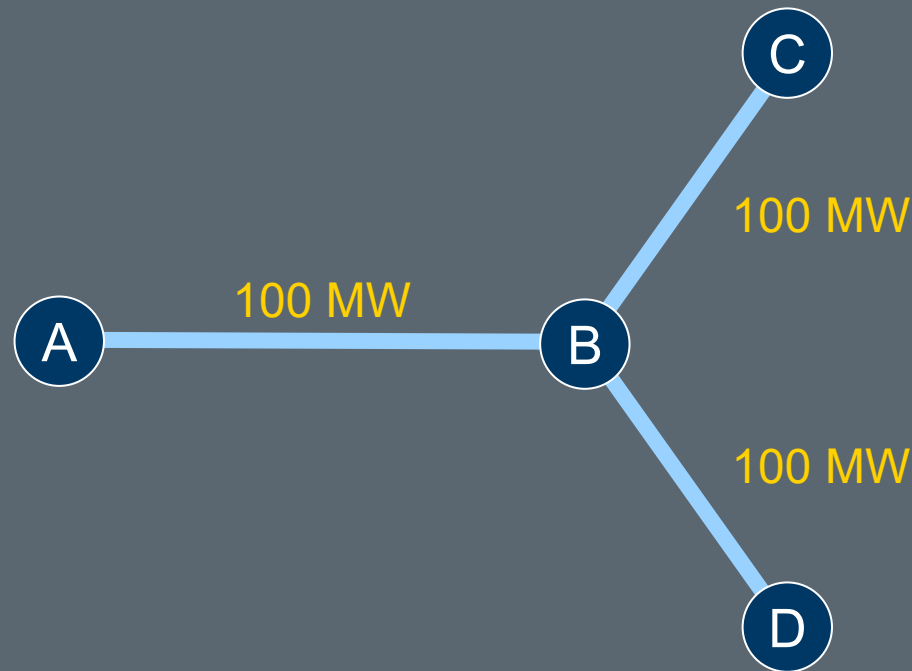


Solution must represent allowable power flow





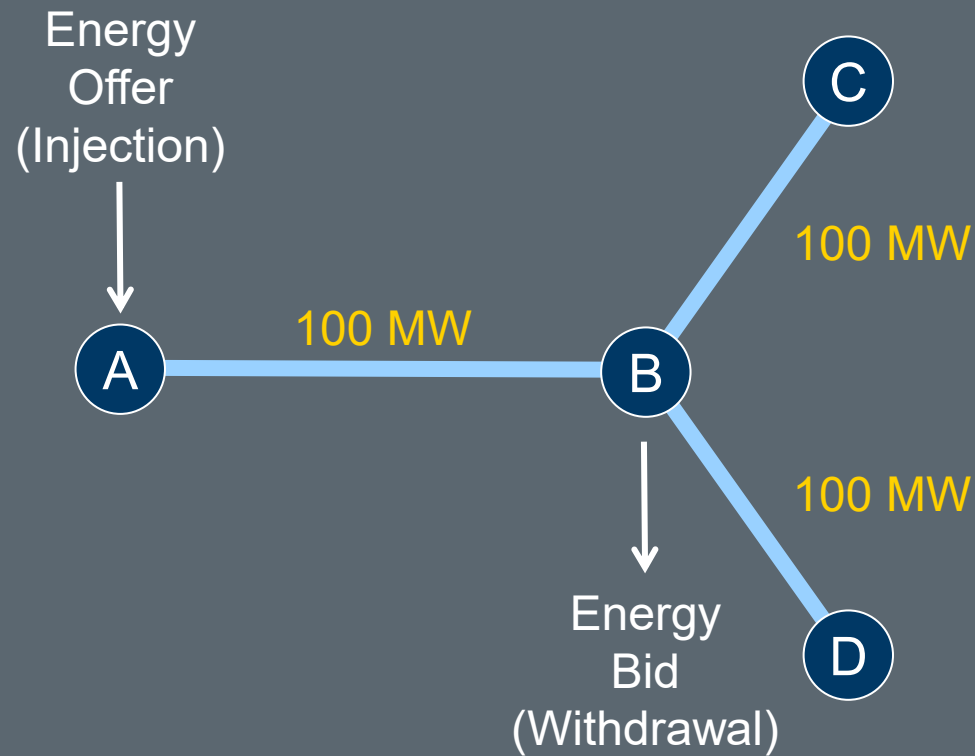
Introducing a simple Network Model ...



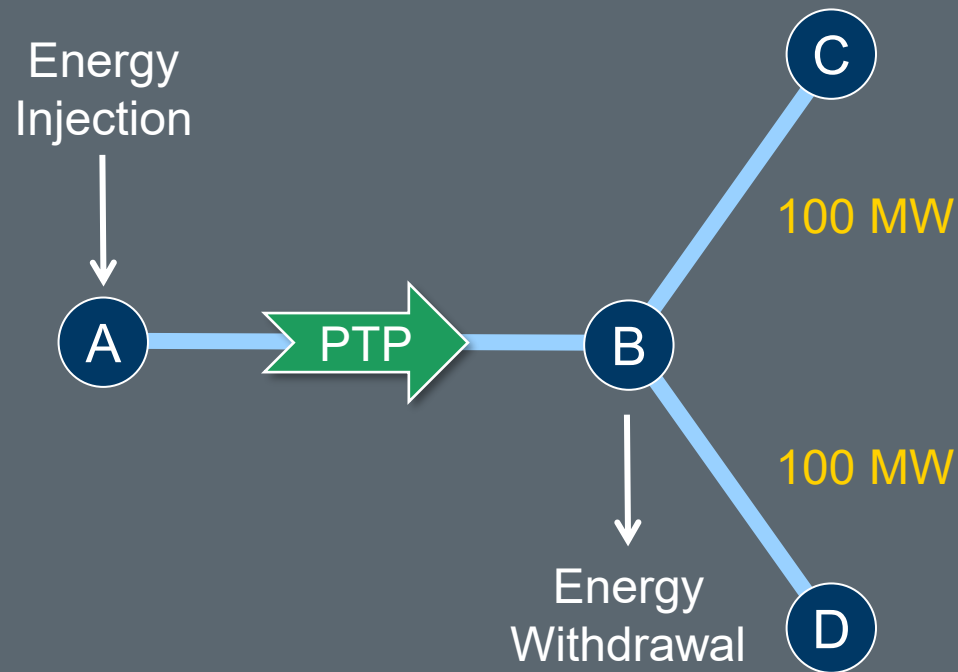
= Settlement Point

MW = Transmission Capacity

Energy Bids and Offers

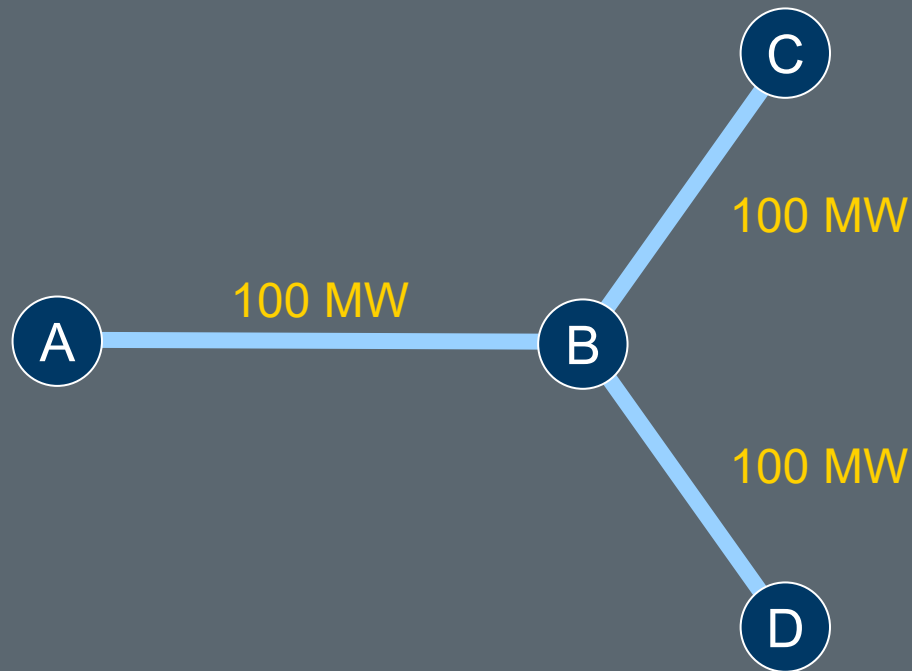


PTP Obligations Bids





Ancillary Service Offers and Demand Curves?

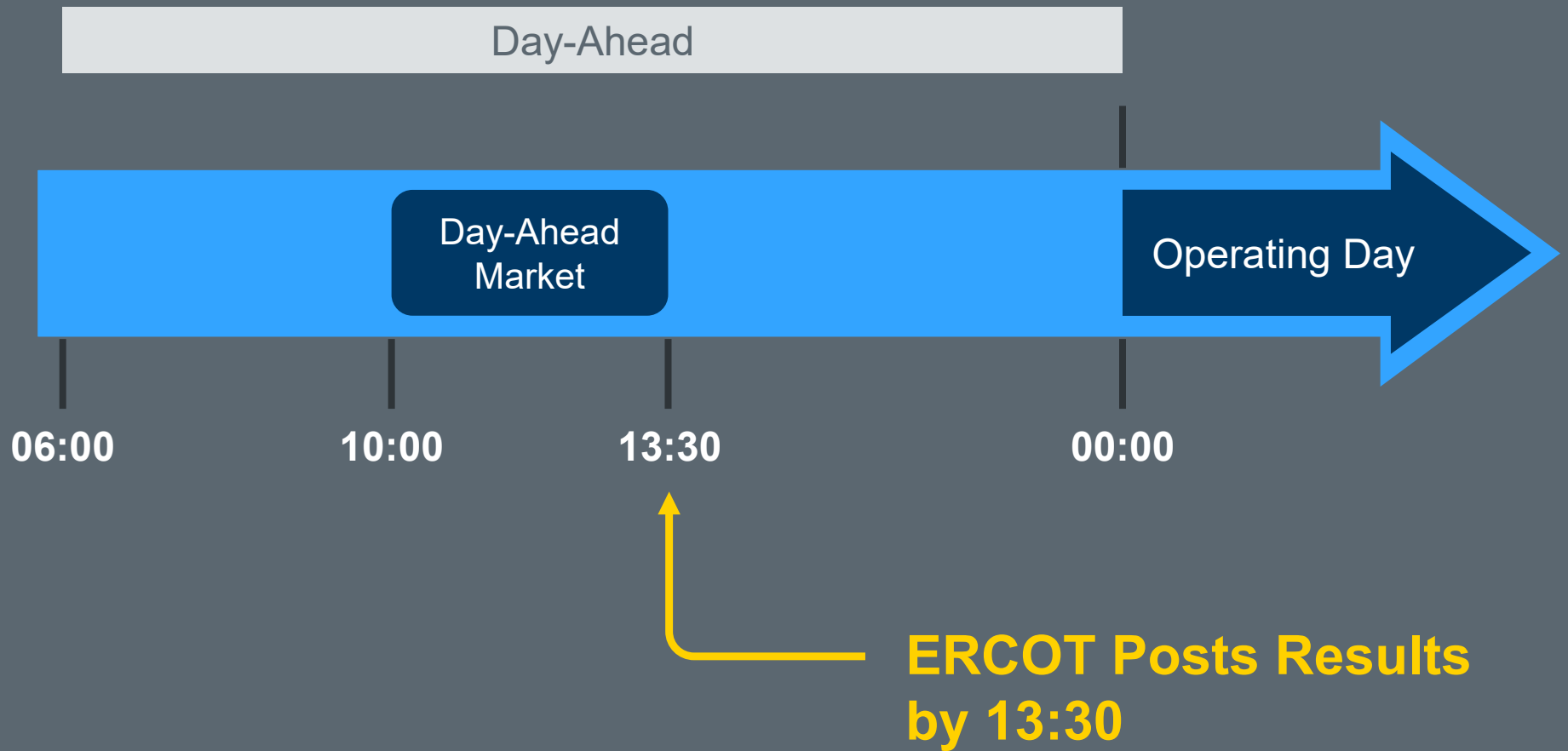


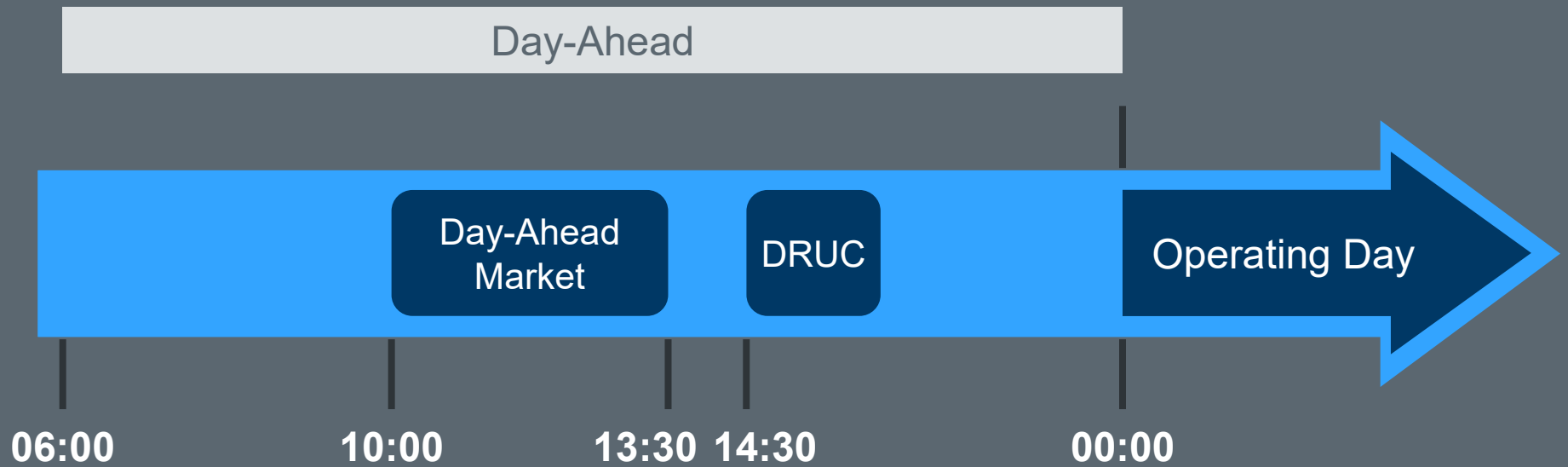
**ERCOT
System**





Use RTC_DAM
Clearing Workbook

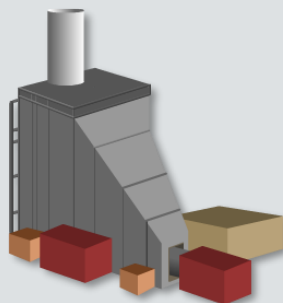




**QSE may need to
act on DAM Results**

Self-Arranged Ancillary Services

Self-Arranged AS Quantities



... must be arranged by 14:30

Current Operating Plan											
Resource Name	Resource Status	Resource Limits		ESR SOC Limits			Ancillary Service Capabilities				
		HSL	LSL	Min	Max	Hour Beginning	Reg-Up	Reg-Dn	Responsive	ECRS	NSRS
GEN1	ON	600	120	-	-	-	20	20	40	40	120
GEN2	OFF	100	25	-	-	-	0	0	0	0	0
ESR3	ON	40	-40	0	40	40	0	0	40	20	10



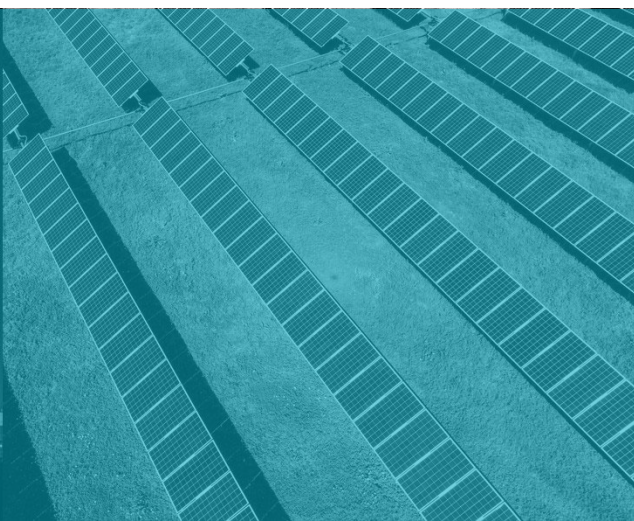
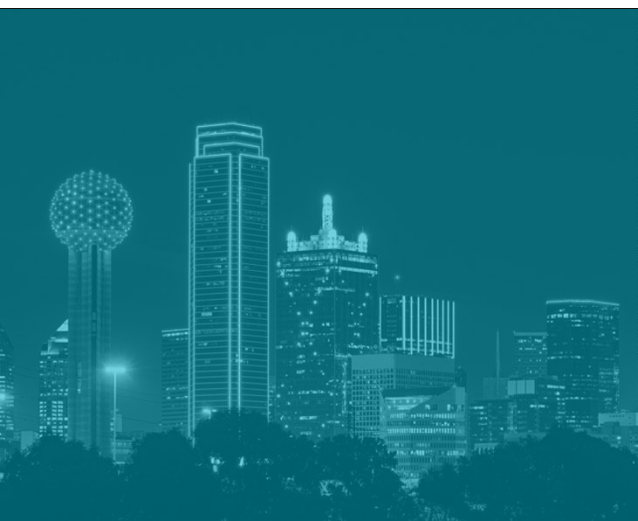
A QSE has an awarded Energy or AS Offer in DAM



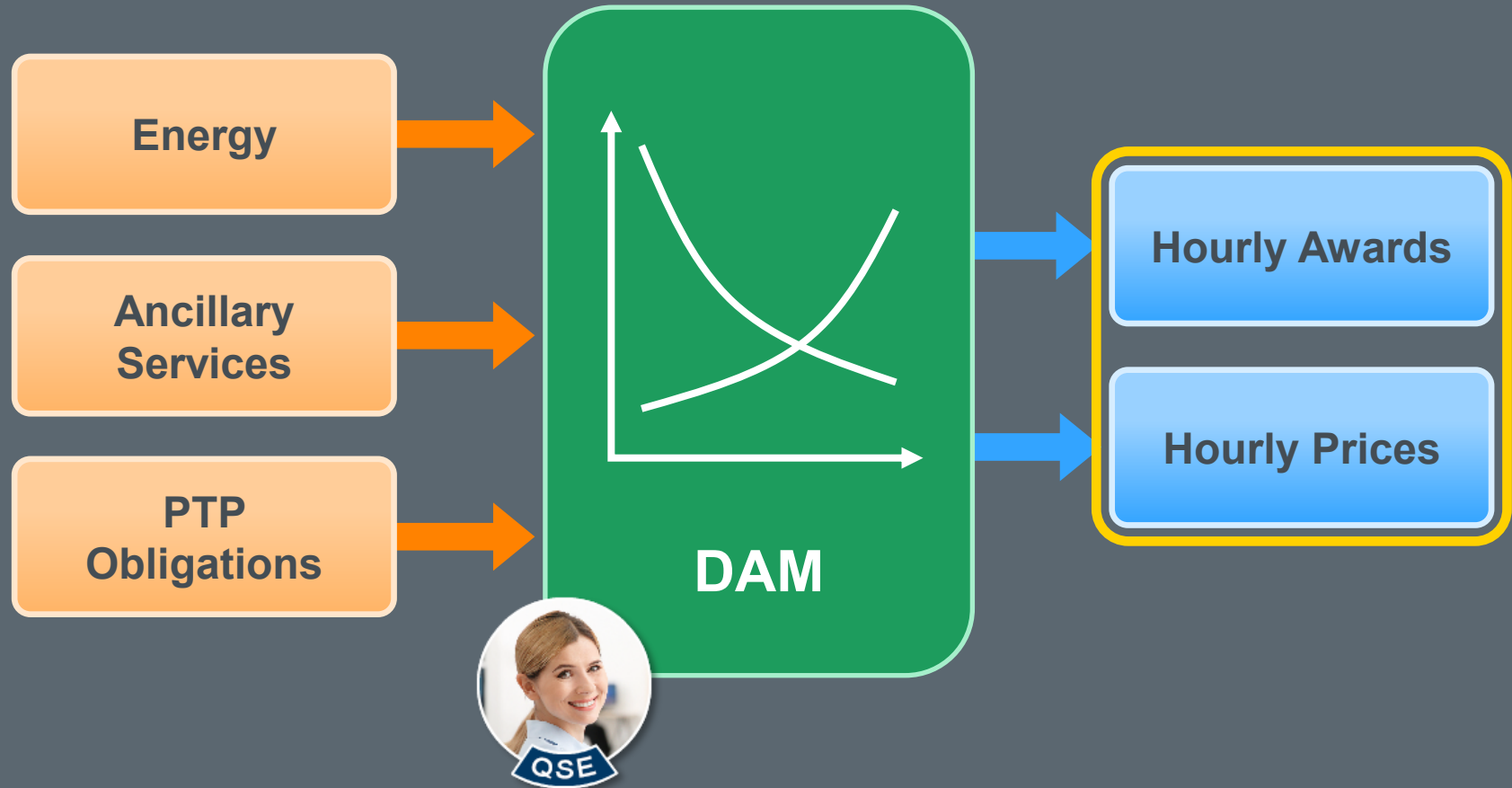
What is required?



Day-Ahead Market Financial Impacts



ERCOT settles with QSEs



Day-Ahead Settlement Point Prices (DASPPs)

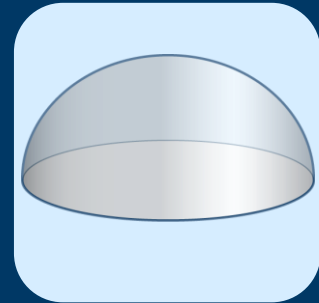
**Resource
Nodes**



**Load
Zones**



Hubs



Formed from Locational Marginal Prices

Market Clearing Prices for Capacity (MCPCs) *

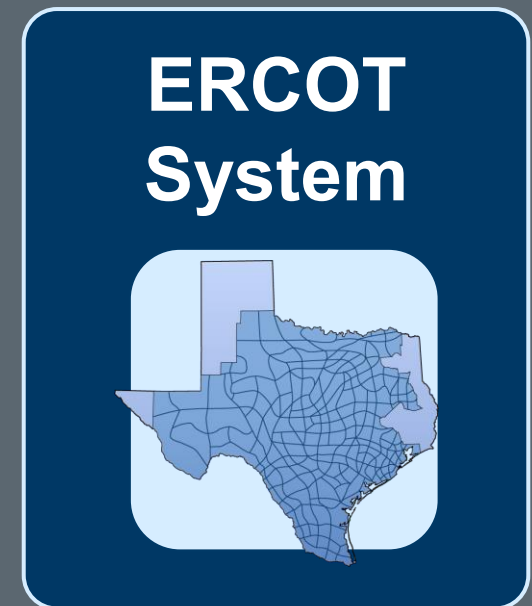
MCPCRU – Regulation-Up

MCPCRD – Regulation-Down

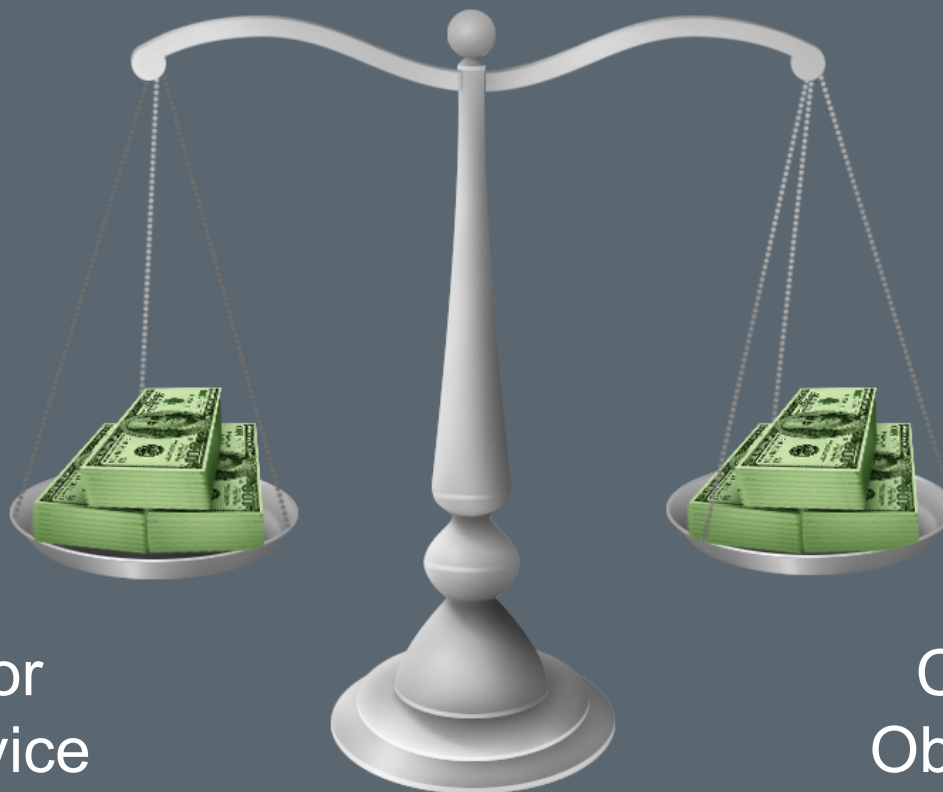
MCPCRR – Responsive Reserve

MCPCECR – Contingency Reserve

MCPCNS – Non-Spin Reserve



* All MCPCs capped at VOLL



Payments for
Ancillary Service
Awards

Charges for
Obligations not
Self-Arranged



Course Wrap-Up



Format	Title
WBT	Wholesale Markets Overview

Format	Title	Topic
ILT	Day-Ahead Market Operations	Inputs
		Market Clearing
		Financial Impacts
	Reliability Unit Commitment	Overview
		Process
		Financial Impacts
	Real-Time Market Operations	Security Constrained Economic Dispatch
		Load Frequency Control
		Financial Impacts

ERCOT Training

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

Course Recommendations

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

Market Education Contact

Training@ercot.com

ERCOT Client Services

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>

