

PacifiCorp Energy Supply Management Natural Gas



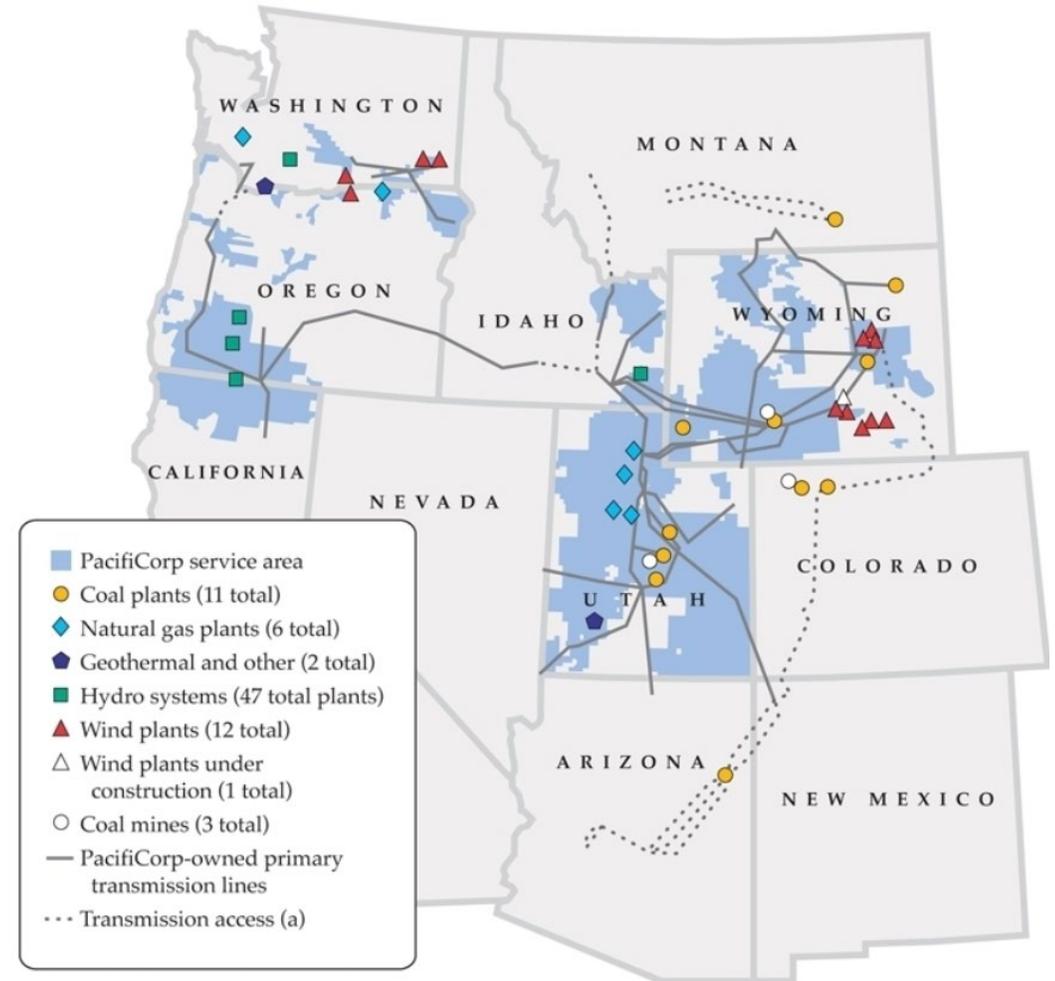
Discussion Topics

- Current processes to establish gas generation for day-ahead and real-time
- EDAM benefits and opportunities
- Concerns regarding impacts on gas hedging

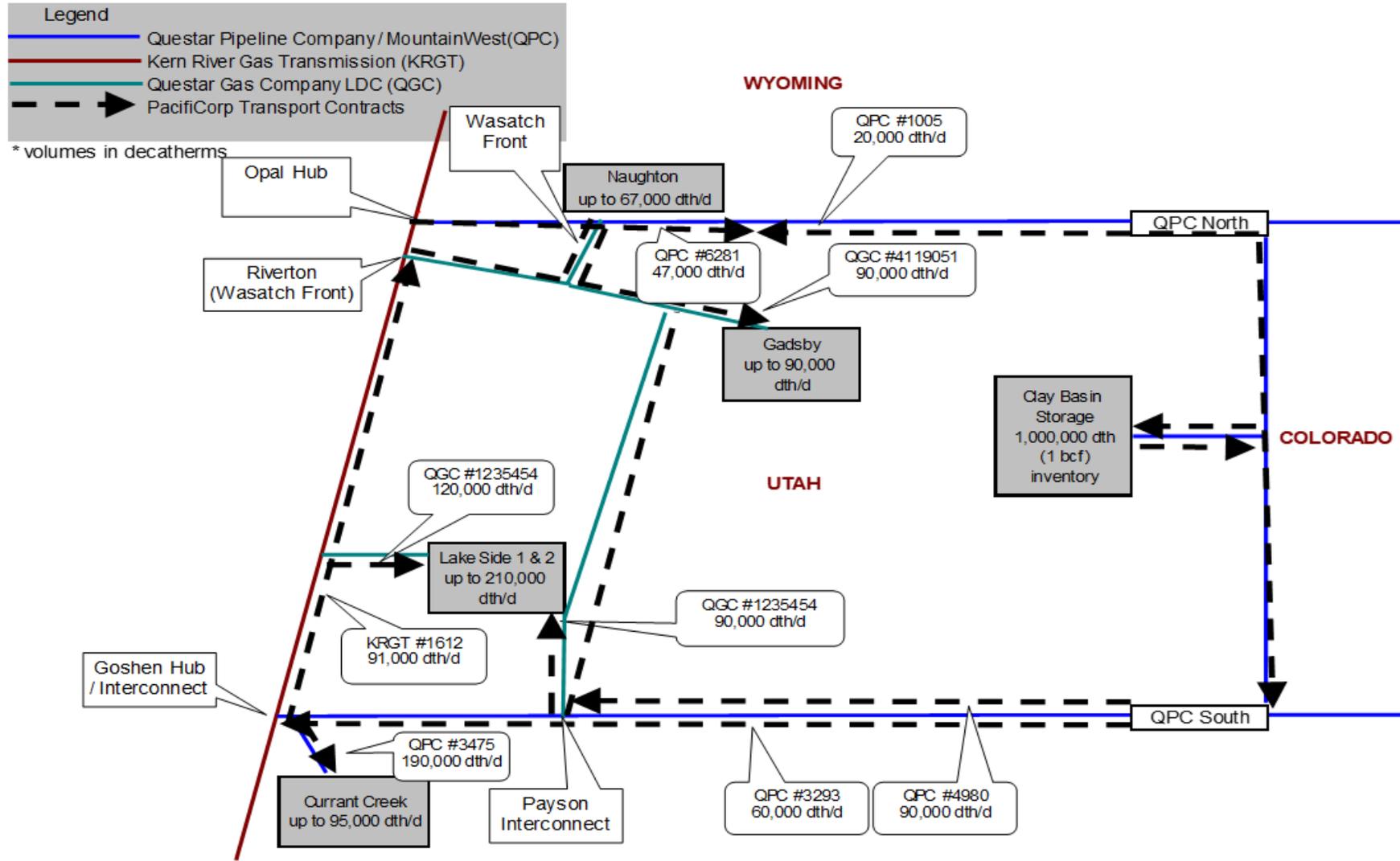


PacifiCorp System Overview

- 1.8 million customers across 6 states
- Two balancing authority areas
- 63,000mi of distribution lines
- 16,500mi of transmission lines
- 12,685 MW peak demand load
- 72 generating units
 - Thermal
 - Hydro
 - Wind
 - Solar
- Over 200 interconnections and regulated by six state public utility Commissions



PacifiCorp East Firm Natural Gas Transportation Contracts

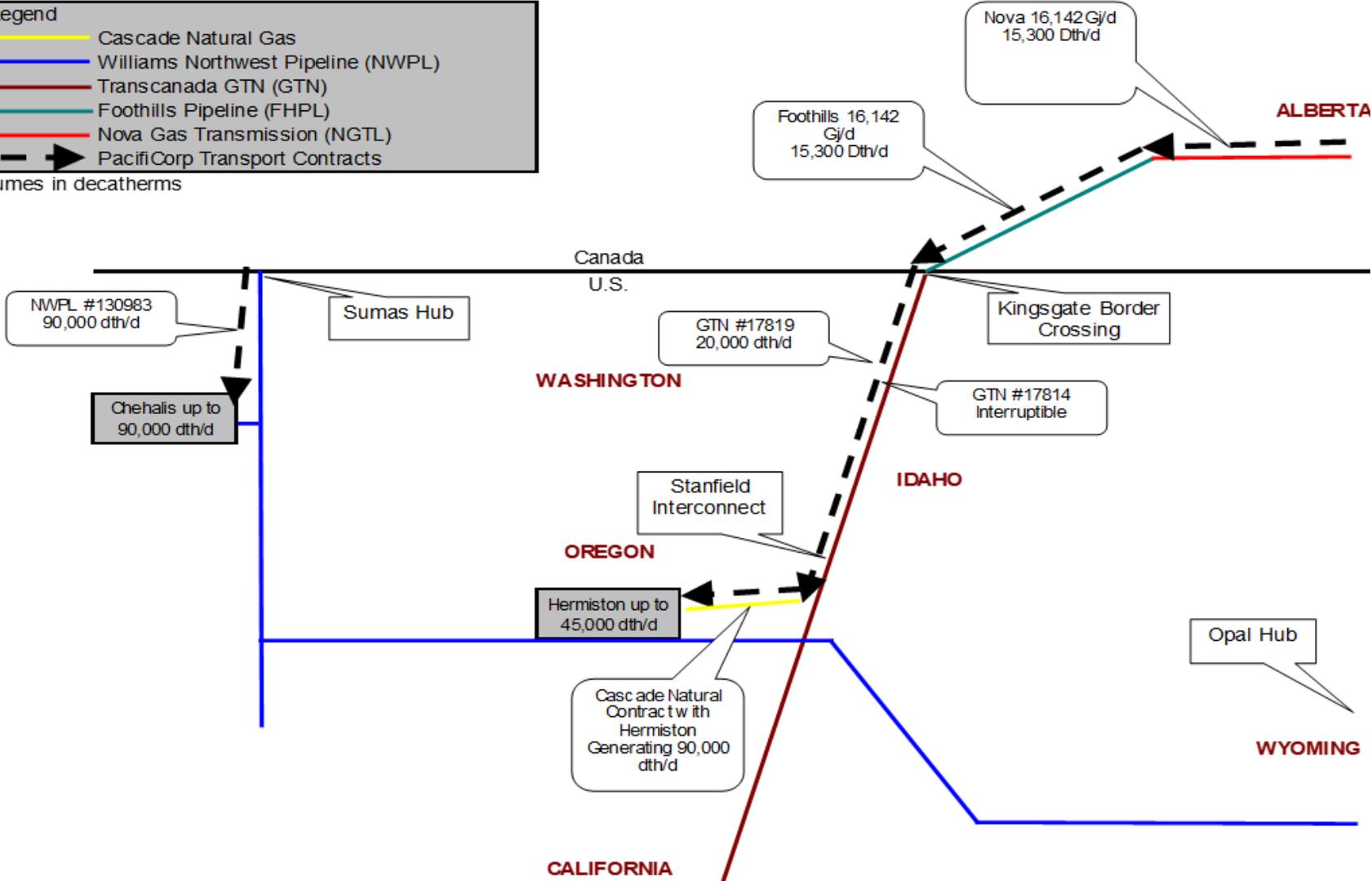


PacifiCorp West Firm Natural Gas Transportation Contracts

Legend

- Cascade Natural Gas
- Williams Northwest Pipeline (NWPL)
- Transcanada GTN (GTN)
- Foothills Pipeline (FHPL)
- Nova Gas Transmission (NGTL)
- - - PacifiCorp Transport Contracts

* volumes in decatherms



PacifiCorp ESM Responsibilities

Strategy

- Physically balance and financially hedge PacifiCorp's natural gas fleet
- Schedule physical natural gas on each pipeline

Modeling

- Utilize PCI to model forward and short-term natural gas positions
- Key variables include:
 - Expected natural gas and power prices
 - Available resources
 - Forecasted loads
 - Firm transmission
 - Reserve requirements

Natural Gas Resources:

<u>Plant</u>	<u>Max Capacity</u>	<u>Location</u>
Currant Creek	530 MW Capacity (w/ duct fire)	Utah
Lakeside 1	525 MW Capacity (w/ duct fire)	Utah
Lakeside 2	620 MW Capacity (w/duct fire)	Utah
Gadsby 1-6	358 MW Capacity	Utah
Naughton	247 MW Capacity	Wyoming
Hermiston	240 MW Capacity	Oregon
Chehalis	510 MW Capacity	Washington

Nomination and Hedging

- ESM is responsible for scheduling/nominating all purchases

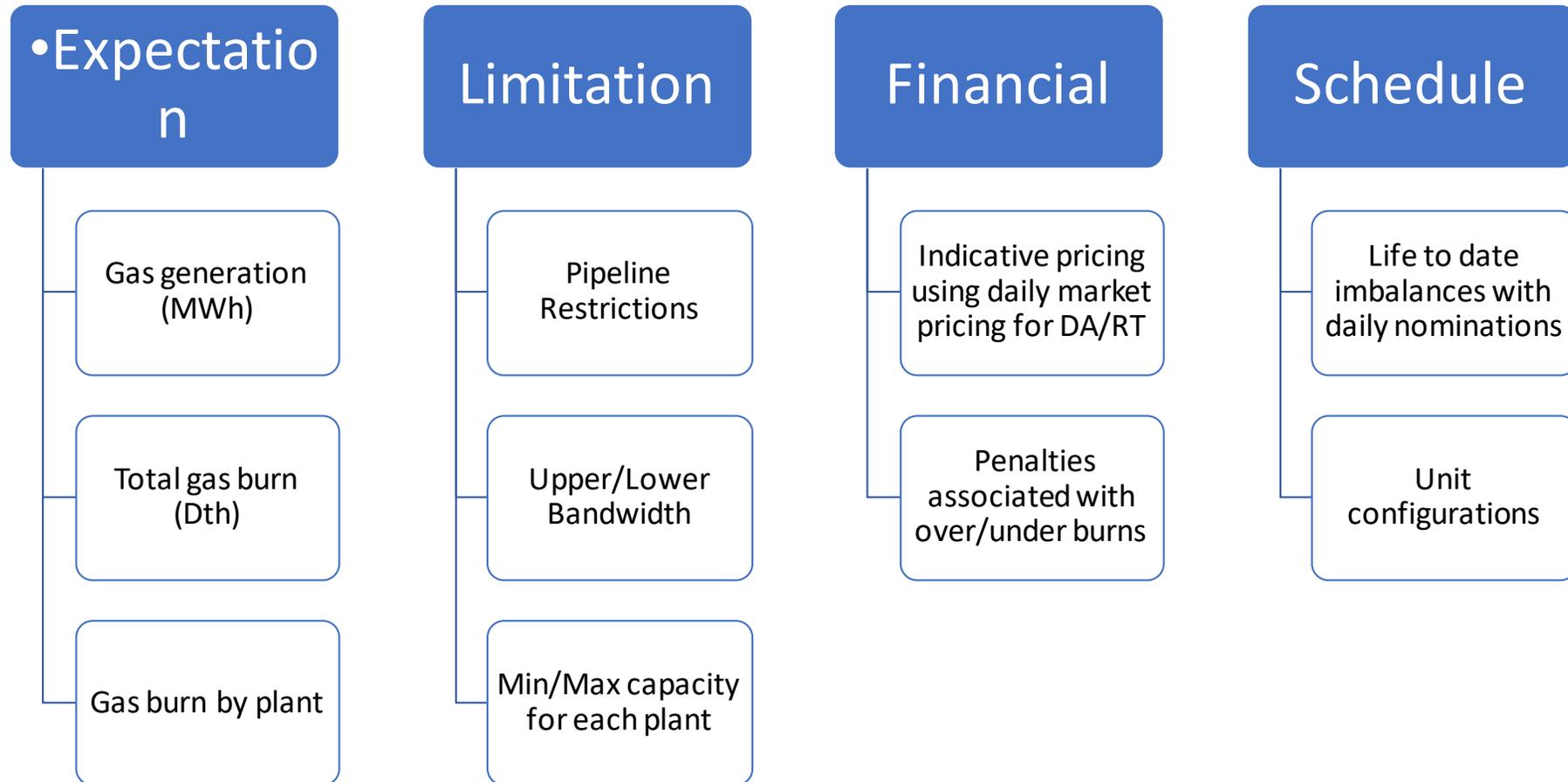
	Nom Deadline (PPT)	Schedule Published (PPT)	Start of Flow (PPT)	% Flow since Timely
Timely (cycle 1)	<u>1100 day 1</u>	<u>1500 day 1</u>	0700	0
Evening (cycle 2)	<u>1600 day 1</u>	<u>1900 day 1</u>	0700	0
ID1 (cycle 3)	0800	1100	1200	20.834
ID2 (cycle 4)	1230	1530	1600	37.500
ID3 (cycle 5)	1700	2000	2000	54.167

- All nominations must be submitted prior to deadline

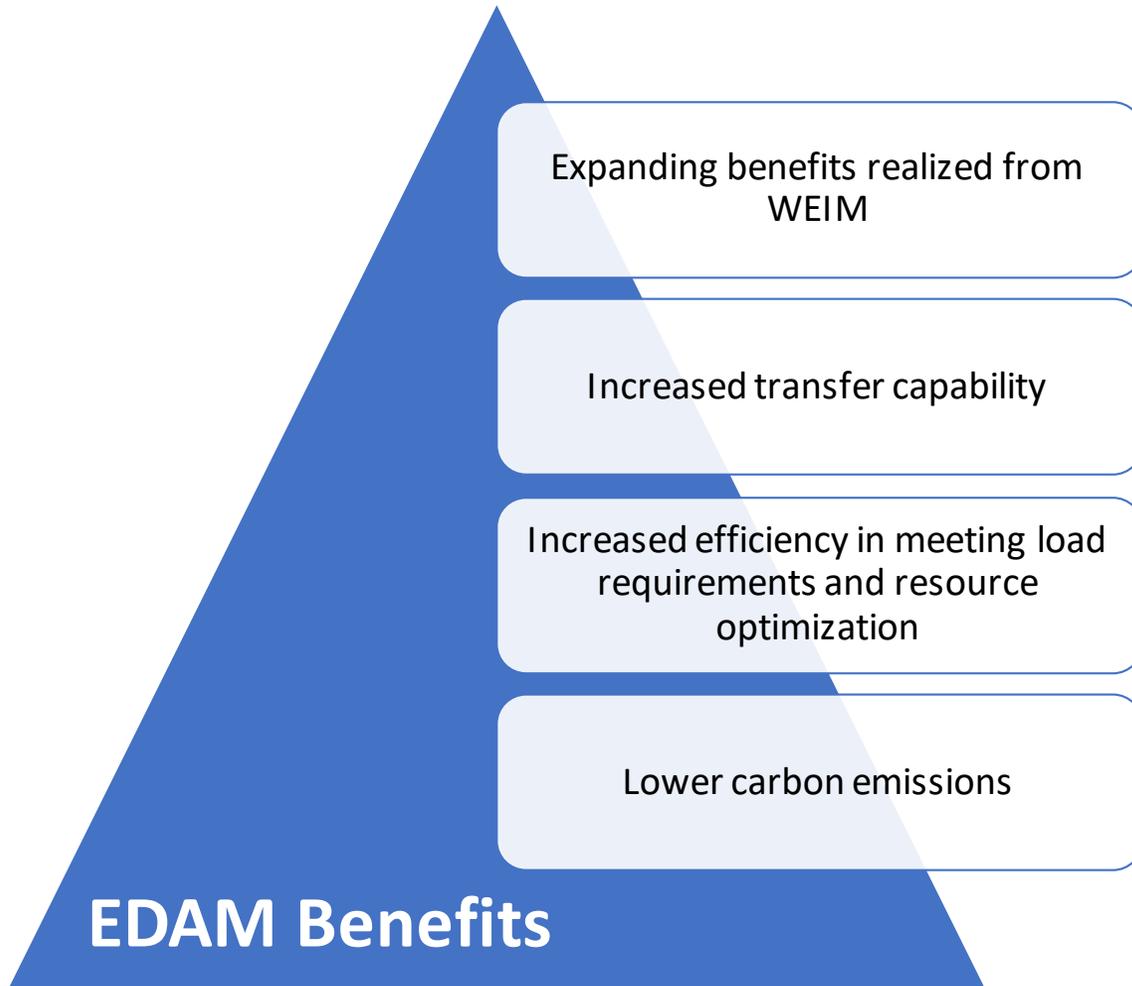
Example																																	
Trade Day	Tuesday																																
Delivery	Wednesday																																
		Wed												Thurs																			
		HE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	1	2	3	4	5	6	7
DAY Ahead	Natural Gas	Monday Hedging							Wed HE 8- Thu HE 7																								
	Power	Wed HE 1- HE 24																															

Position Set-Up

Daily coordination with ESM Gas Desk and RT Generation Desk to discuss the following:



EDAM Participation



Open Questions/Concerns:

- Mismatched timeframe regarding gas vs. power day
- Timing of published awards and gas nominations
 - “Day-Ahead Estimated” variance
- Potential loss of firm transportation
 - Transportation providers look to market unutilized firm transport
- Ability to accurately reflect OFO, balancing restrictions from pipelines, & cuts on economic purchases
- Risk of additional hedging in limited liquidity markets and differences of index prices

Thank you

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