

Natural Gas Marketing Primer

September 14, 2021

Producer Prospective

- Oklahoma Fundamentals
- Interstate Transportation
- Role of Storage
- Gas Contracting
- Price Discovery
- Price Volatility
- Outlook

Oklahoma Natural Gas Fundamentals

Advantage for Oklahoma!

Production

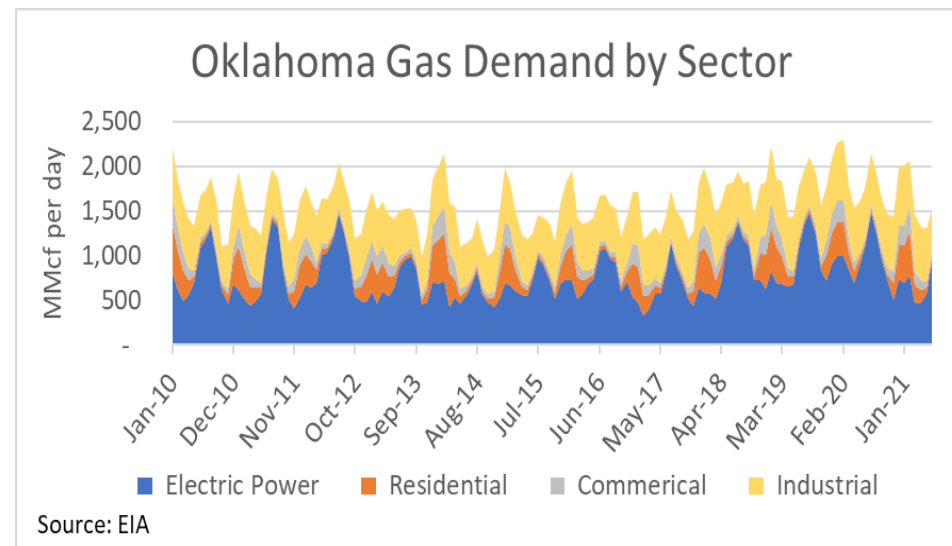
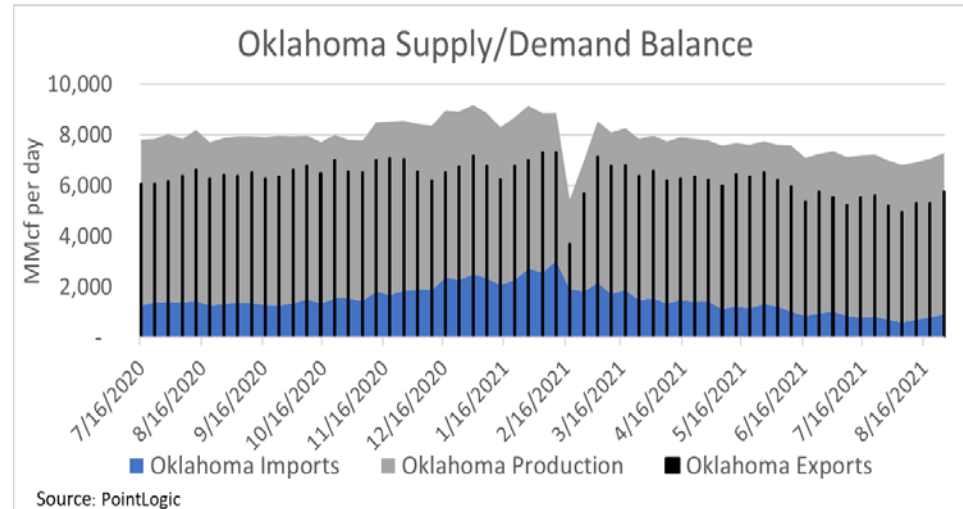
- Stable 24/7/365 production profile
- Export over 5 Bcf per day

Demand

- Power accounts nearly 50% Oklahoma gas demand
- Hourly and Daily variable load profile

Interstate Transportation

- Sufficient interstate pipeline available to meet production levels
- Interstate gas flows provides gas supply to meet variable load profiles for utility/power

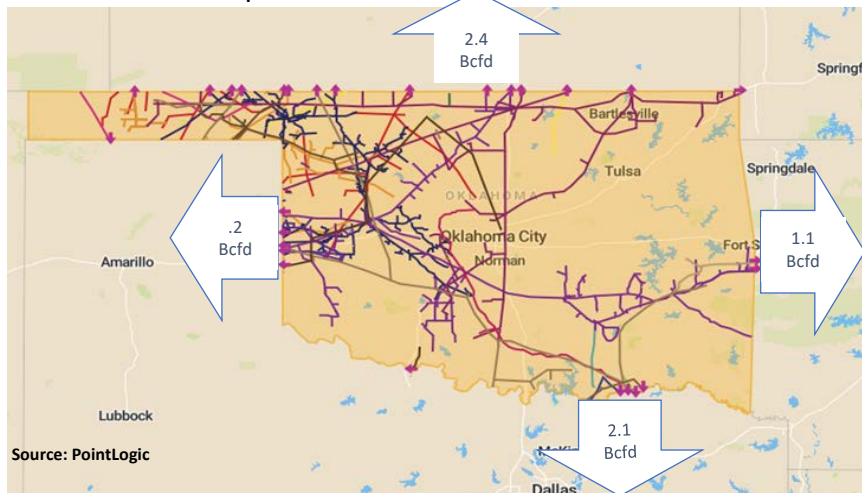


Oklahoma Natural Gas Surplus

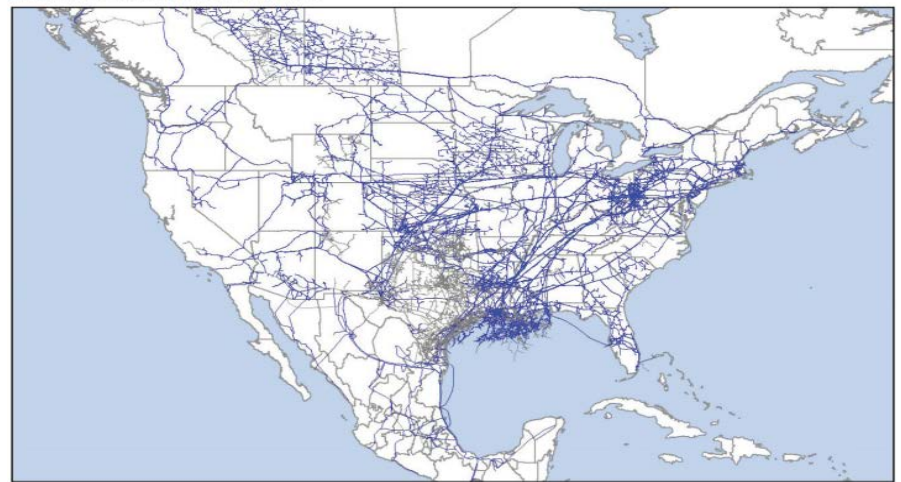
Interstate Transportation Network

- Today, producers have pipeline access to multiple interstate markets
- But access comes with long-term commitments:
 - Delivery obligations to gas purchasers
 - Capacity commitments to pipelines
- Creates constraints on a producer's ability to divert gas to short-term local buyer given the scope of the pipeline grid

Oklahoma Current Gas Exports



Natural Gas Transportation System

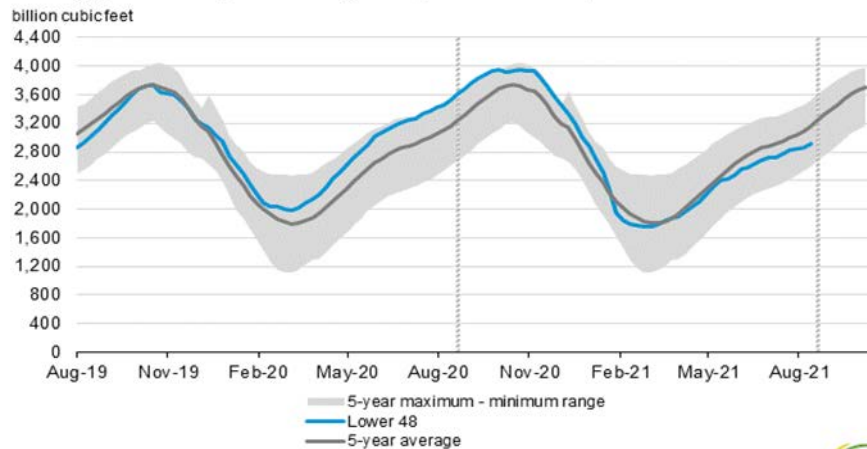


Wholesale Natural Gas Marketing

Role of Gas Storage

- Critical to balance large seasonal demand swings
- Producers limited use of storage
- Gas in storage in November is a key benchmark
- Limited increase in working storage capacity

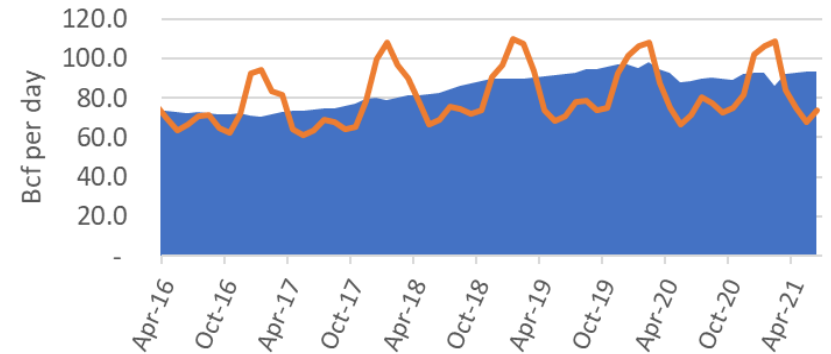
Working gas in underground storage compared with the 5-year maximum and minimum



Source: U.S. Energy Information Administration



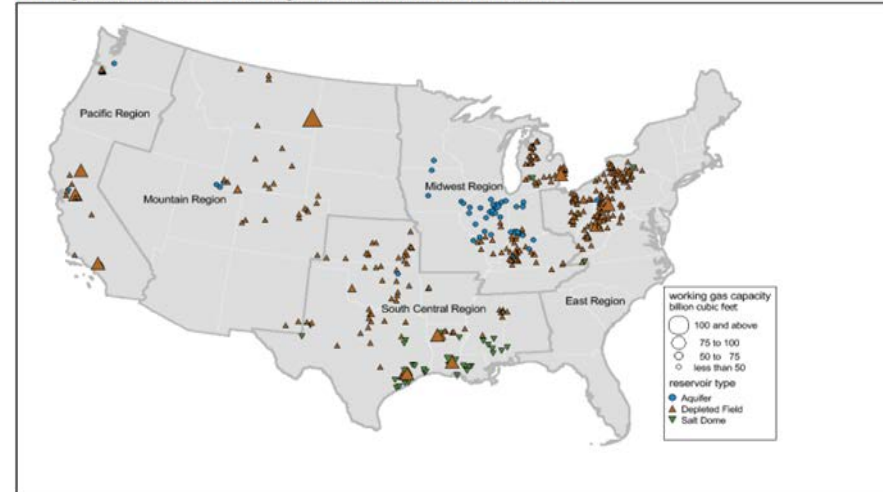
U.S. Production vs. Consumption



Source: EIA

■ Dry Production — Consumption

Underground Natural Gas Storage Facilities in the Lower 48 States



Wholesale Natural Gas Marketing

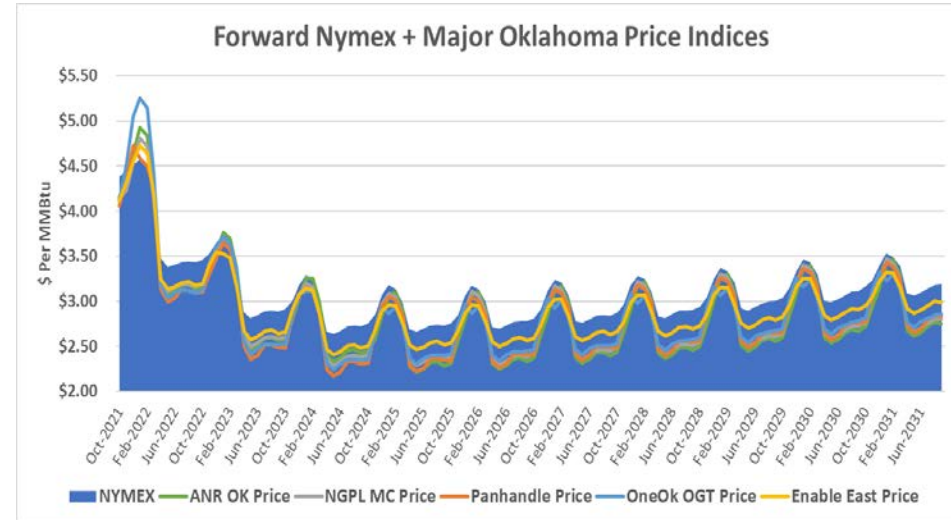
Price Discovery

Financial Markets

- Nymex Henry Hub remains key U.S. benchmark
- Price management through hedging is critical business requirement for most producers

Physical Markets

- Prices based on actual competitive trades driven by fundamentals at Hubs
- Producers heavily use Month Ahead index pricing
- Day Ahead pricing transactions utilized for production volume fluctuations



Hubs for Physical Trading on ICE



Source: ABB, Velocity SuiteTM

Wholesale Natural Gas Marketing

Gas Contracting – Winter

Producer Contracts

- Wide range of access to markets and purchasers with good liquidity
- Contracts with broad range of terms - price, location, duration, etc.
- Producer develops a portfolio of contracts, but a requirement is 24/7/365 flow
- Winter marketing contracts:
 - Reduce baseload Month Ahead commitments
 - Maintain redelivery flexibility with interstate deliveries

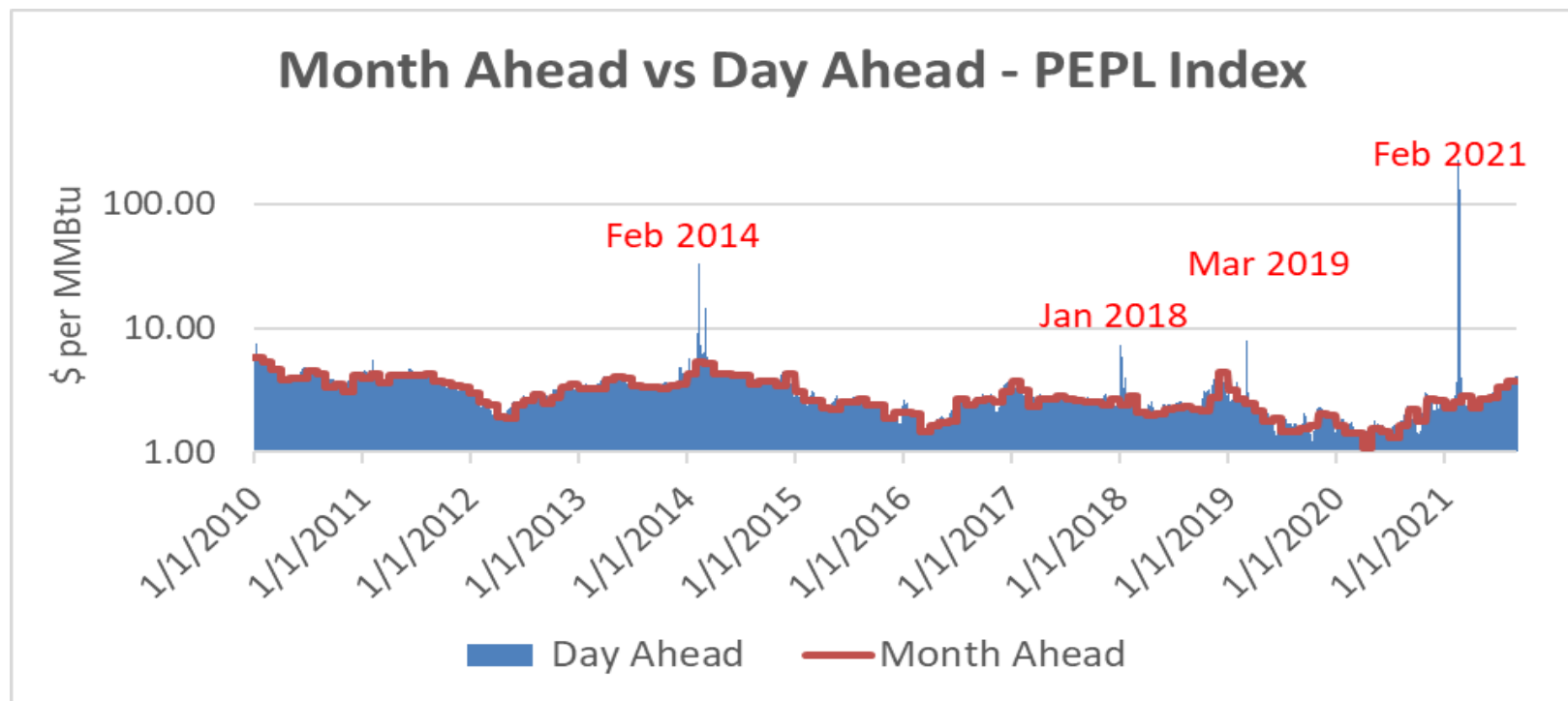
Utility RFP

- Limited baseload contracting given unknown dispatchability of generation mix
 - Wanting baseload reliability and cost with intermittent flexibility
- Process minimizes flexibility for supplier:
 - Limited occurrences (1-2 year)
 - Term of agreement (short-term)

Oklahoma Natural Gas Prices

Risk using Day Ahead Pricing

- Higher volatility occurs with Day Ahead natural gas pricing
- Prices impacted by extreme winter storms, been short-term in duration
- Over the long-term, Month Ahead and Day Ahead indices have provided similar price results until Feb 2021



Oklahoma Natural Gas Outlook

- Shifting 2021 price trends in Oklahoma natural gas market
- Forward markets show stronger Oklahoma regional basis to Henry Hub
- North American has relied on gas-to-coal switching to balance market. Price elasticity may be diminishing:
 - Loss of coal generation facilities
 - Replaced with intermittent renewable generation
 - Growing baseload U.S. LNG exports

KEY TAKEAWAYS

Natural gas is an affordable, abundant, reliable resource in OK, but has become a “peaker” as grid profile changes

Producers and Utilities are not aligned with the growing intermittent natural gas demand

- Producers forced to find alternative export markets
- Who will be the future buyers of Oklahoma natural gas?

Areas for collaboration

- Reduction in Day Head/Hourly price exposure for Utilities
- Additional baseload contracting
- Ensure non-intermittent generation included in dispatch
- Develop secondary gas supply pipelines
- Additional gas storage access