



*In the Community
to Serve®*

North Dakota

Informal Hearing

Case No. PU-21-101

**Gas Supply Purchasing
Strategy**

GAS SUPPLY
PURPOSE

Sustainably keep our customers' "Cost of Gas" at the most affordable price possible while maintaining a reliability of service that meets customer expectations.

BENCHMARKS

Natural gas costs at or below regional market prices

Ensure delivery of gas is available to all firm customers in all demand circumstances

PRESENTATION
PURPOSE

- *Present MDU's supply purchasing strategy entering each heating-season*
 - *Present performance targets and model inputs*
- *Overview of strategy execution*

MDU SUPPLY PURCHASING STRATEGY:
KNOWN FACTORS

- Demand Forecast

State	Heating Season Normalized Demand	Service Point Count
MT	7,439,292	88,106
ND	12,968,283	113,976
SD	5,306,190	63,797
WY	1,870,692	19,795
Total	27,584,457	285,674

- Contracted Storage

- Heating Season Normalized Demand
 - 27,600,000 Dth
- Design Day Demand
 - 410,000 Dth/day
- Base Demand
 - 100,000 Dth/day
- Approximately 13.1 Million Dth of Firm Storage Capacity
- Approximately 229,000 Dth/day of Firm Storage Withdrawal Capacity
- MDU must use (cycle) >80% of beginning firm storage balance by March 31

MDU SUPPLY PURCHASING STRATEGY: TARGETS

- Storage
 - Beginning of Heating Season Target
 - ~13.1 Million Dth Firm Storage
 - ~2.0 Million Dth Interruptible Storage
 - End of Heating Season Target (safety stock)
 - ~ 2.0 Million Dth Firm Storage
 - **Target Withdrawal = 13.1 Million Dth**
- Supply
 - Right-size physical purchase quantity to meet storage target
 - Total Demand 27.6 Million Dth
 - Target Withdrawal 13.1 Million Dth
 - Remaining Physical Purchase 14.5 Million Dth
 - 14.5 Million Dth = approximately 96,000 Dth/day November through March

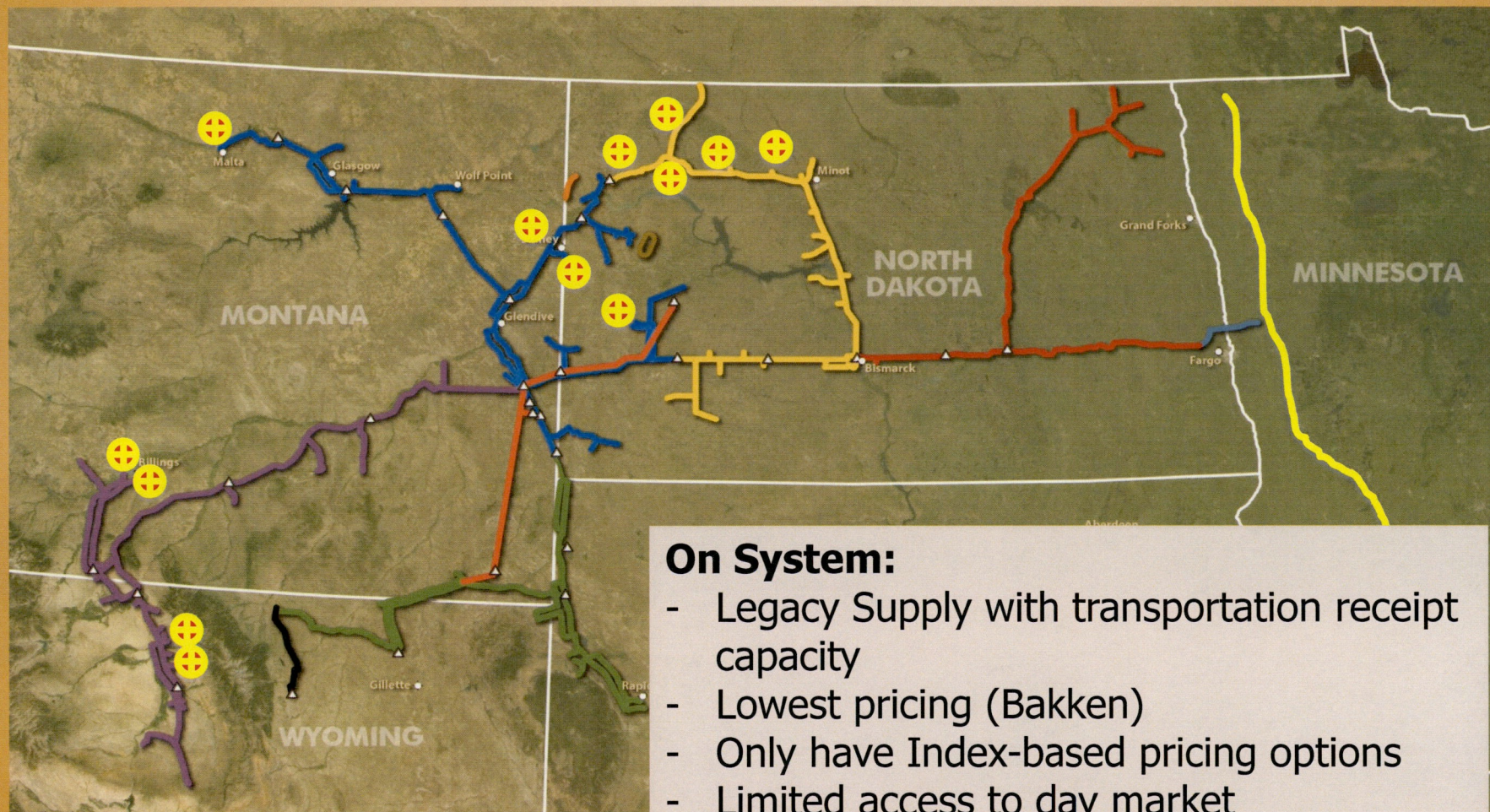
MDU SUPPLY PURCHASING STRATEGY: TARGETS

- Supply (cont.)
- Fixed Price Physicals
 - 25%-50% depending on offers comparison to futures market pricing
- Index-based Physicals
 - Priced against monthly market
- Open positions at liquid receipt locations
 - Purchased as needed at fixed price or daily index-based price as required

MDU SUPPLY PURCHASING STRATEGY: PORTFOLIO DESIGN

- Supply Mix
- Diversification of Supply
 - Regional Diversity
 - Supplier Diversity
 - Pricing Diversity
- Supply Receipt Types
 - On-system
 - Interconnect
 - Storage
- Supply Price Options
 - Fixed Price (term)
 - IFERC Index-based (monthly)
 - Storage
 - Gas Daily Index-based (daily)

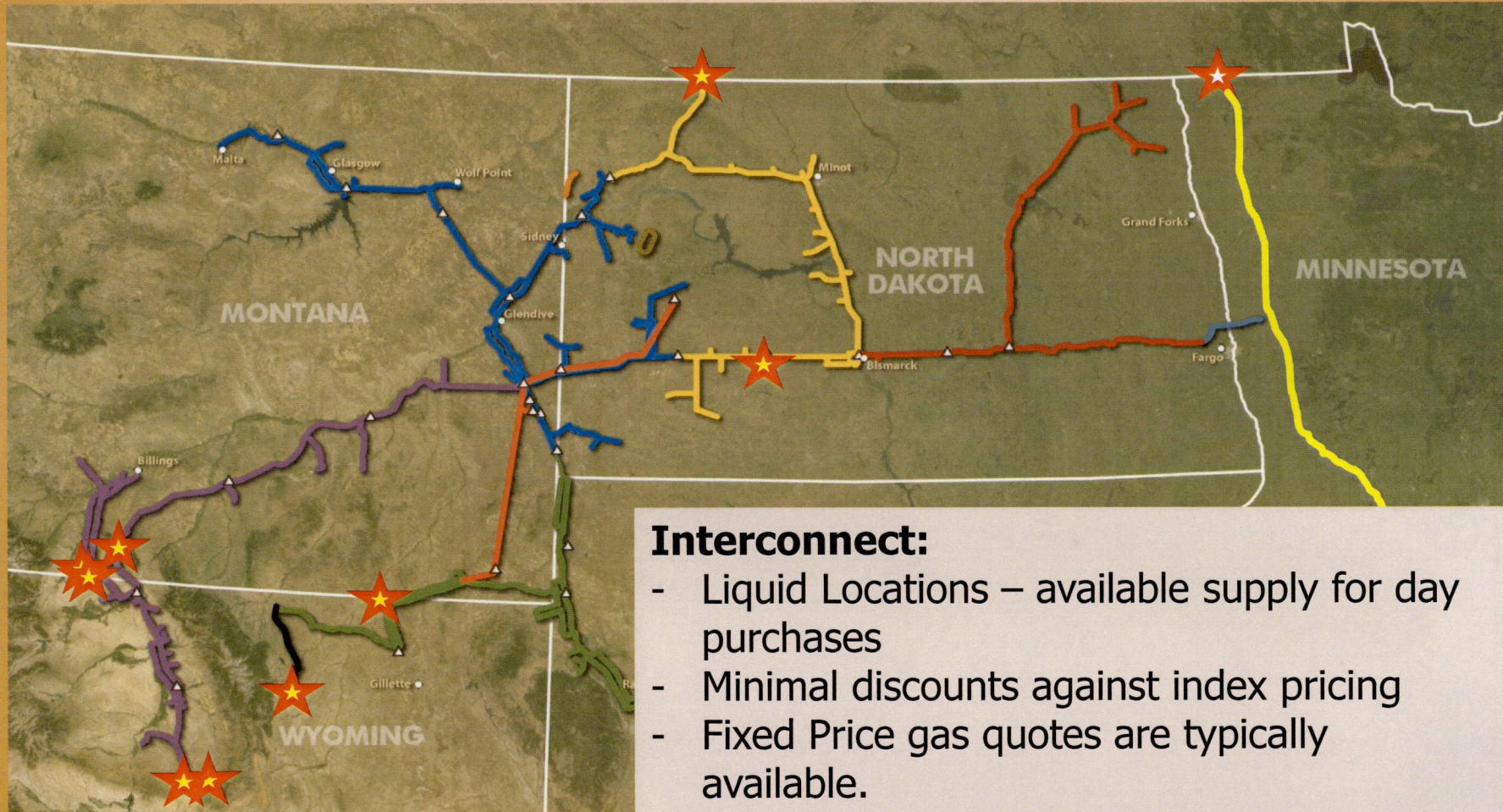
Regional Diversity



On System:

- Legacy Supply with transportation receipt capacity
- Lowest pricing (Bakken)
- Only have Index-based pricing options
- Limited access to day market
- Maximize this supply take when possible

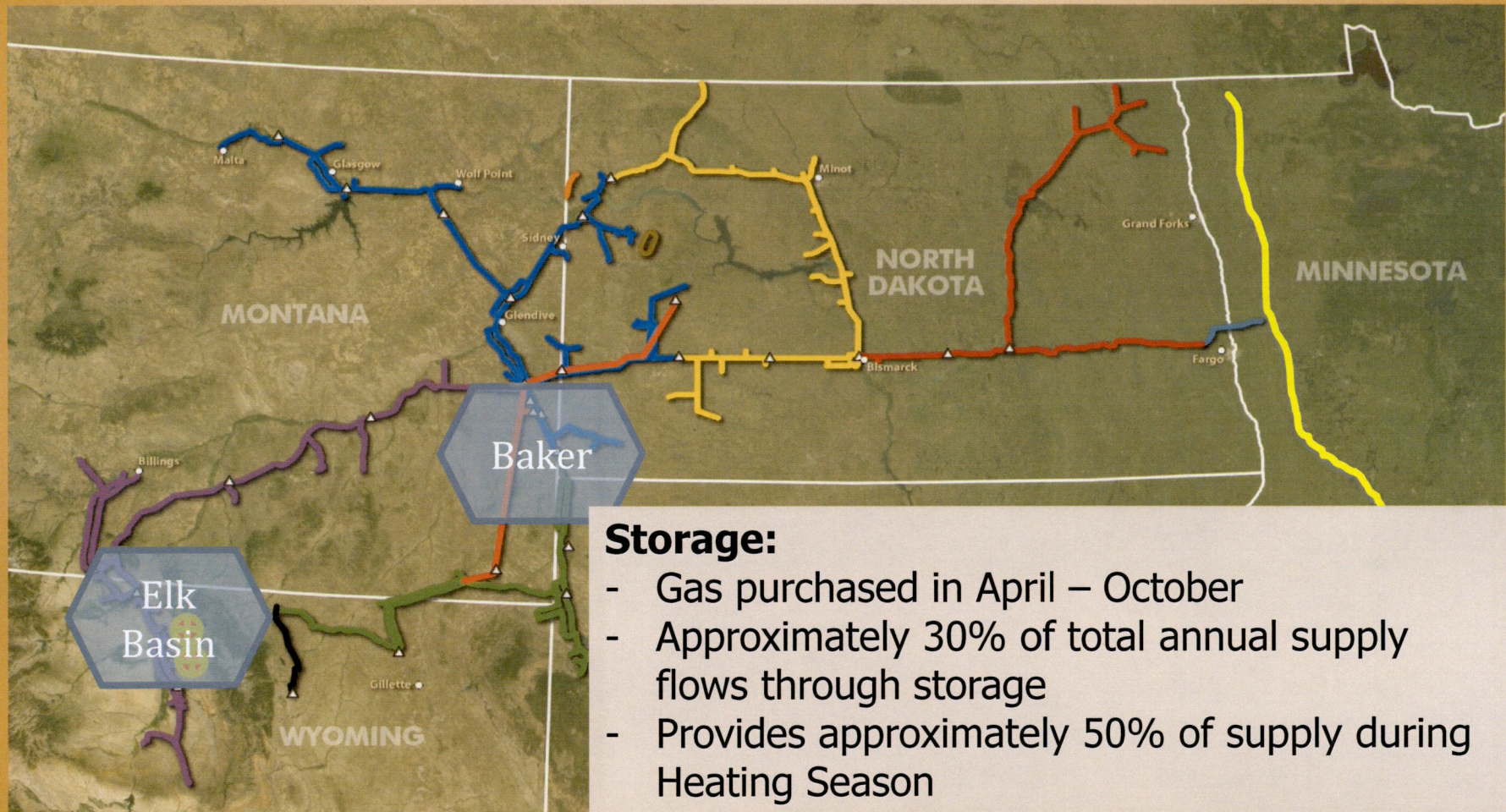
Regional Diversity



Interconnect:

- Liquid Locations – available supply for day purchases
- Minimal discounts against index pricing
- Fixed Price gas quotes are typically available.
- Only locations from which Day/Spot gas is available

Regional Diversity



SUPPLIER DIVERSITY

- Supplier Mix
 - Purchased gas from 24 suppliers since 2017-2018 Heating Season
 - Range from small producing wells or plants to large multi-national marketing companies
 - Reduced exposure to supplier default
- Facility/Supplier Limitations
 - Target maximum of <10% of total supply take from single plant to reduce facility outage risk
 - Interconnects may be higher
 - Target maximum of <20% from single supplier to reduce exposure to supplier default

PRICING DIVERSITY

BASIN-RELATED PRICING – AECO (CANADIAN), CIG (ROCKIES), VENTURA (MIDCONTINENT)

- Fixed Price
 - Term deals typically > 1 year
 - Suppliers actively bid
 - Limits exposure to negative pricing events
 - Stabilizes pricing
- Index-based Monthly Pricing
 - Solicit bids through RFP process (2x per year)
 - Standard pricing mechanism at well-head or plant tailgate
- Storage
 - Filled during typically lower price summer season
 - Provides price stabilization
- Index-based Daily Pricing
 - Open positions at liquid receipt locations
 - Purchased as needed at fixed price or daily index-based price as required

DAILY INDEX-BASED PHYSICAL PURCHASES

- When?
 - Daily Demand > Flowing Supply + Storage Supply
 - (96,000 Dth + 229,000 Dth = 325,000 Dth)
 - 17 occurrences since start of 2017/2018 heating season (2% of Heating Season days)
 - Storage inventories fall below prescribed storage targets
 - As needed to fill short positions at specific locations
- Process
 - Identify need for future period purchase
 - Establish currently posted market pricing on Intercontinental Exchange (ICE)
 - Solicit Fixed Price (when available) and Gas Daily Index quotes, act on best available.

DAILY INDEX-BASED PHYSICAL PURCHASES

- When?

Year	Count of Days > 325,000 Dth Demand
2017	2
2018	1
2019	2
2020	2
2021	10
Total	17

- Process

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ADVANTAGES OF BALANCED SUPPLY PORTFOLIO

- Balanced Portfolio
 - Guarantee of supply from storage in cases of supply shortage
 - Protection from high-impact, low-probability events
 - Flexibility to take advantage of favorable pricing
 - Allows MDU to adapt to dynamic weather conditions
 - Supply avoids must-take situation without demand requirement

**STRATEGY EXECUTION 2020-2021
(BEGINNING OF SEASON)**

- Storage
 - Start-of-season Balance = 14.2 Million Dth
 - Target of 2.0 Million Dth Ending balance left withdrawal target of 12.2 Million Dth
- Supply Requirement
 - 27.6 Million Dth (demand)
(-) 12.2 Million Dth (storage)
15.4 Million Dth (normal flowing requirement)
→ ~102,000 Dth/day requirement
 - Winter weather outlook suggested *warmer-than-normal* conditions.
 - Contracted for 95,120 Dth/day with option to add monthly deals if necessary

**STRATEGY EXECUTION 2020-2021
(BEGINNING OF SEASON)**

Period	Fixed Price WACOG	IFERC CIG	IFERC Vent
Nov-20	\$ 2.57	\$ 2.77	\$ 2.93
Dec-20	\$ 2.57	\$ 2.41	\$ 2.59
Jan-21	\$ 2.57	\$ 2.42	\$ 2.47
Feb-21	\$ 2.57	\$ 2.40	\$ 2.68
Mar-21	\$ 2.57	\$ 2.86	\$ 2.84

**STRATEGY EXECUTION 2020-2021
(END OF SEASON)**

- Storage
 - End-of-season Balance = 2.3 Million Dth
 - (+300K to target)
 - Total Actual Withdrawal = 11.9 Million Dth

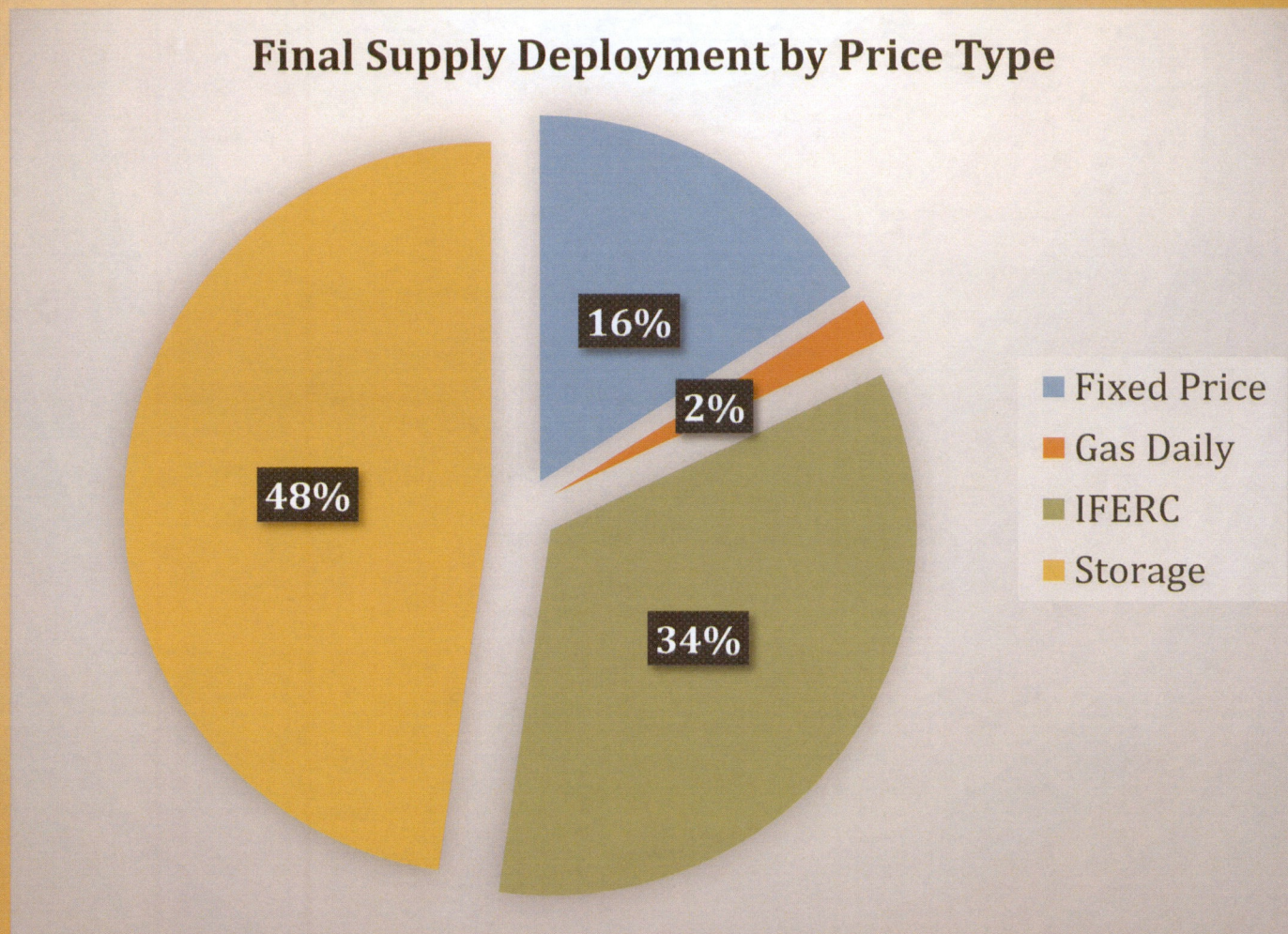
- Deliveries
 - Total November – March = 26.8 Million Dth
 - (-0.8 Million Dth to Normal)
 - *Warmer-than-normal*

- Supply Purchases

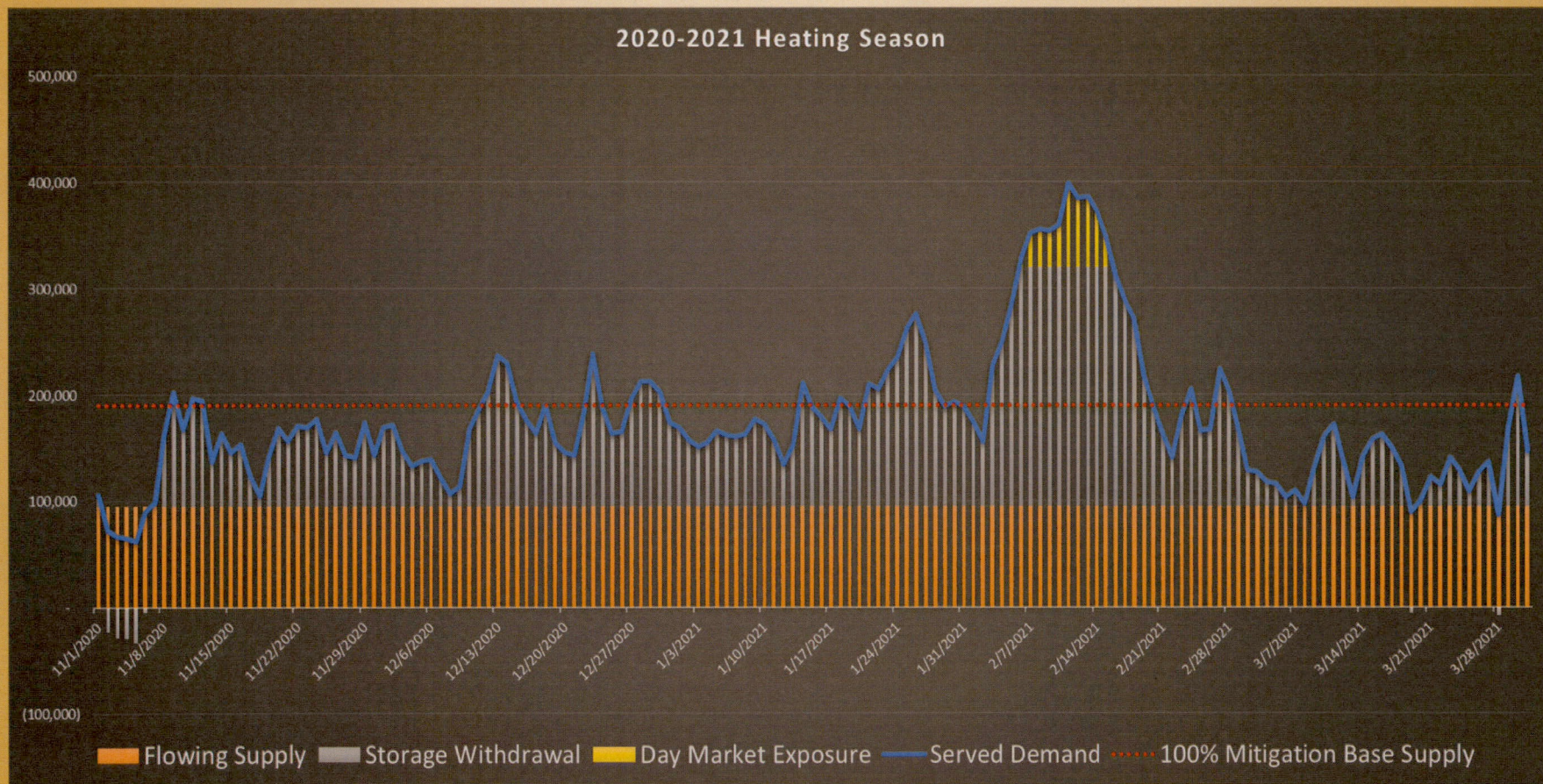
Deal Type	Fixed Price	IFERC	Gas Daily	Grand Total
Daily	81,000	0	527,299	608,229
Monthly	4,373,915	9,483,785	0	13,857,700
Grand Total	4,454,915	9,483,785	527,299	14,465,999

**STRATEGY EXECUTION 2020-2021
(END OF SEASON)**

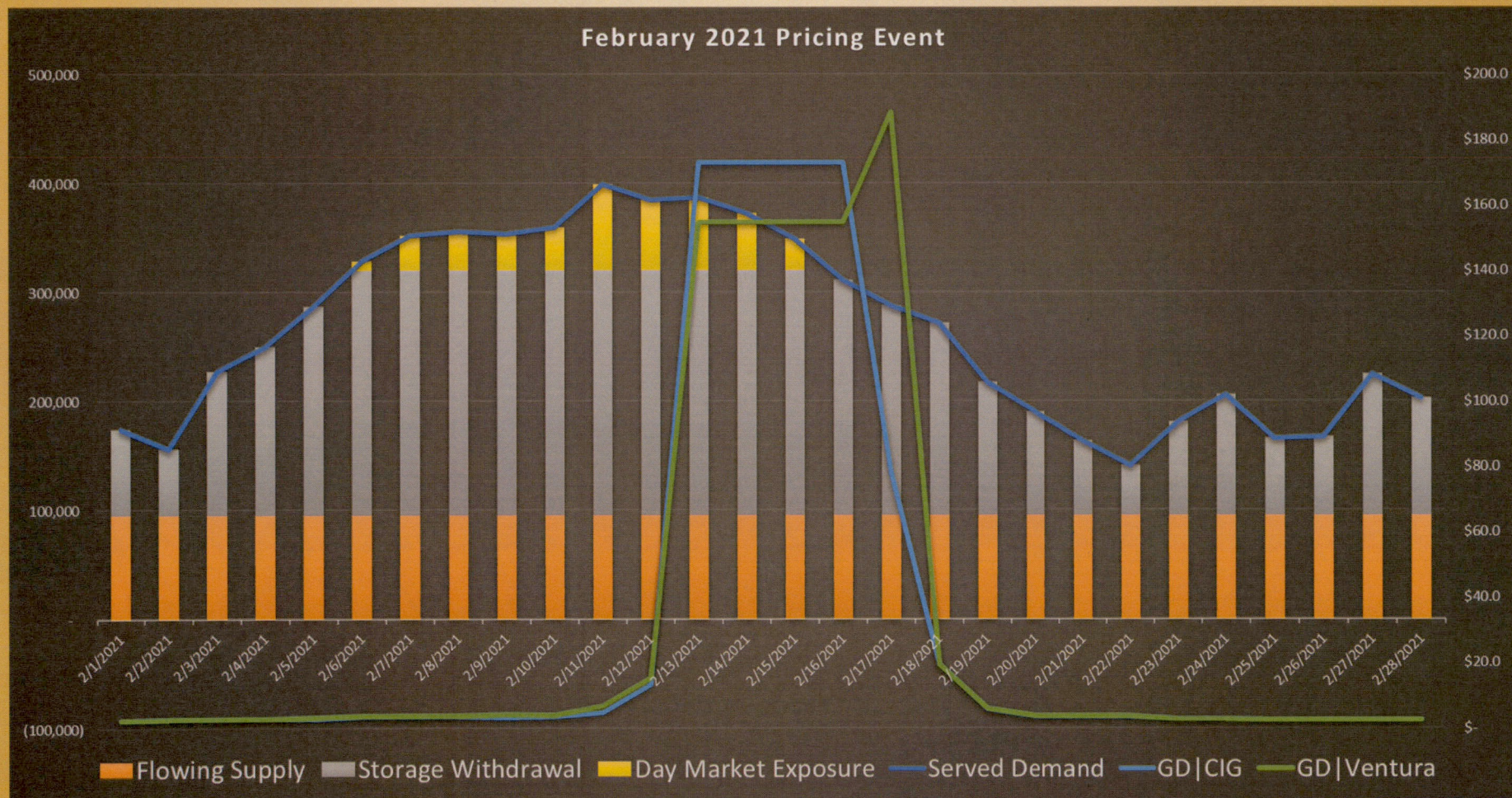
- Supply Purchases (cont.)



2020-2021 HEATING SEASON SUPPLY MIX VS. DEMAND

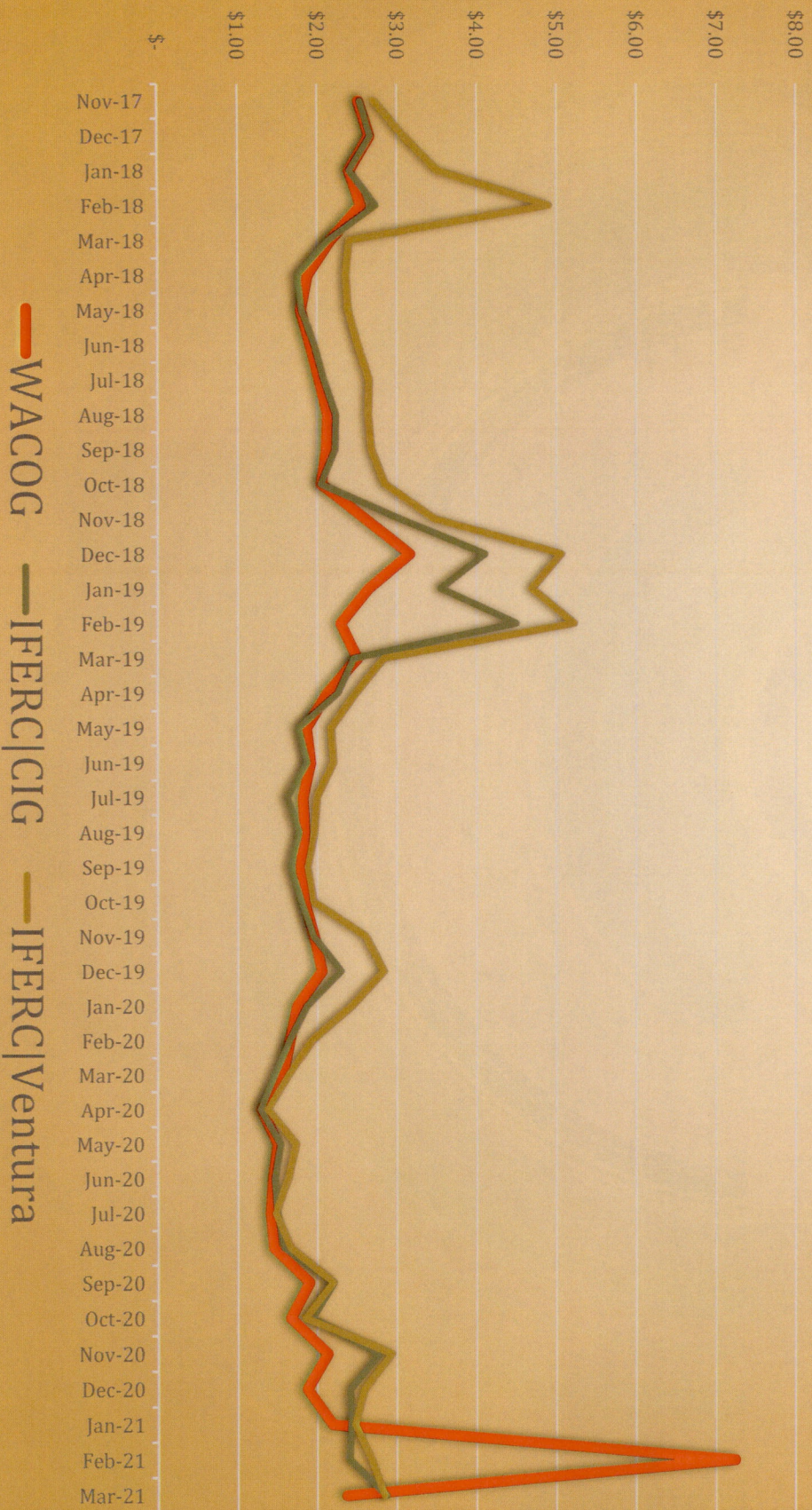


2020-2021 HEATING SEASON SUPPLY MIX VS. DEMAND



STRATEGY EXECUTION SINCE 2017/2018 HEATING SEASON

WACOG vs. Regional Indexes Since November 2017



IN REVIEW

- Risk Mitigation
 - MDU incorporates regional, supplier, and pricing diversity into its supply portfolio design
 - Contracted storage at almost 50% of heating season demand is instrumental to price risk mitigation
 - Gas supply portfolio design takes advantage of favorable pricing while minimizing exposure to high-impact, low-probability events
 - Portfolio design allows MDU to avoid oversupply situations when demand is lower-than-normal
 - No firm customer curtailments during this event



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