

# Agenda

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1. Welcome and Introductions  
Camilo Amezquita, VP & GM Northwest Pipeline
2. Executive Perspective  
Chad Teply, SVP Transmission and Gulf of Mexico
3. Natural Gas Market Overview  
David McKellips, Director Strategy and Market Intelligence
4. Williams New Energy Ventures (NEV) Overview  
Brian Hlavinka, VP New Energy Ventures
5. Williams Northwest Pipeline Update  
Gary Venz, Director Commercial Services
6. Q&A and Closing Comments  
Camilo Amezquita, VP & GM Northwest Pipeline



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# Welcome and Introductions

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Camilo Amezquita, VP & GM Northwest Pipeline

# Williams Team in Napa



Chad Teply



Camilo Amezquita



Gary Venz



David McKellips



Brian Hlavinka



Candyce Fly Lee



Bela Patel

## Sequent Delegation



Berney Aucoin



Erica Curran

## Williams MVPs



Helen Dworsky



Sandy Trevino



# Williams Transmission Gulf of Mexico Leadership Team



Chad Teply  
SVP Transmission and Gulf  
of Mexico



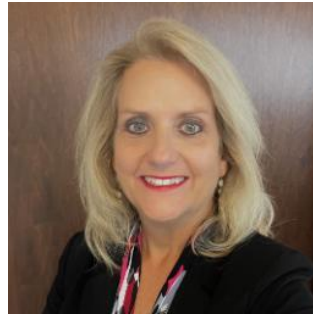
Helen Dworsky  
Sr. Executive Assistant  
Houston



Tammy Pace  
Sr. Executive Assistant  
Tulsa



Steven Tramonte  
VP Commercial Eastern  
Interstates



Martha Janousek  
Director Commercial  
Technology



Glen Jasek  
VP GM Eastern Interstates



Mark Cizek  
VP GM Gulf of Mexico



Robert Biffle  
VP Commercial Gulf of  
Mexico



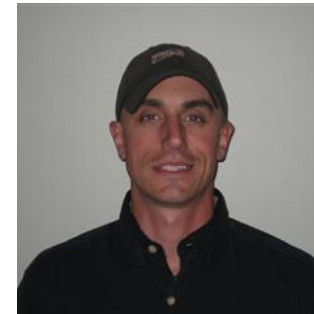
Camilo Amezcuita  
VP GM Northwest Pipeline



Candyce Fly Lee  
VP GM MountainWest



Bela Patel  
Director Rates & Regulatory



Eric Schmidt  
Director Technical Services



Kristi Evans  
Director Field Safety  
Environmental & Training



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# Executive Perspective

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Chad Teply, SVP Transmission and Gulf of Mexico

# Williams natural gas infrastructure

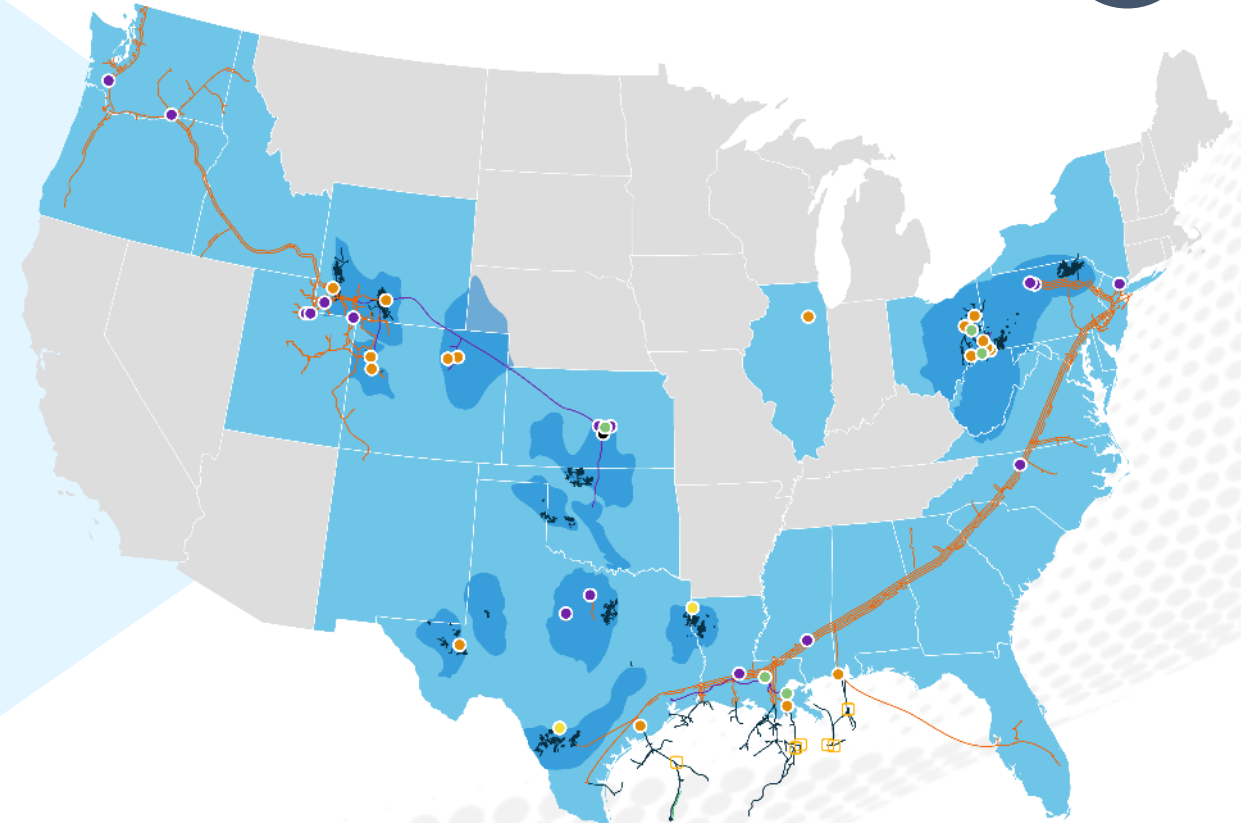
Handle  
**~1/3<sup>rd</sup>**  
of U.S. natural  
gas production  
across **25** states

**Fee-based**  
natural gas G&P  
business serving  
**14** key supply  
areas

Natural gas pipeline  
capacity with  
**take-or-pay**  
contracts serving  
**high demand**  
areas

Growing natural  
**gas storage**  
capacity, an  
increasingly  
important piece  
of the energy mix

**Scale. Reliability. Growth.**

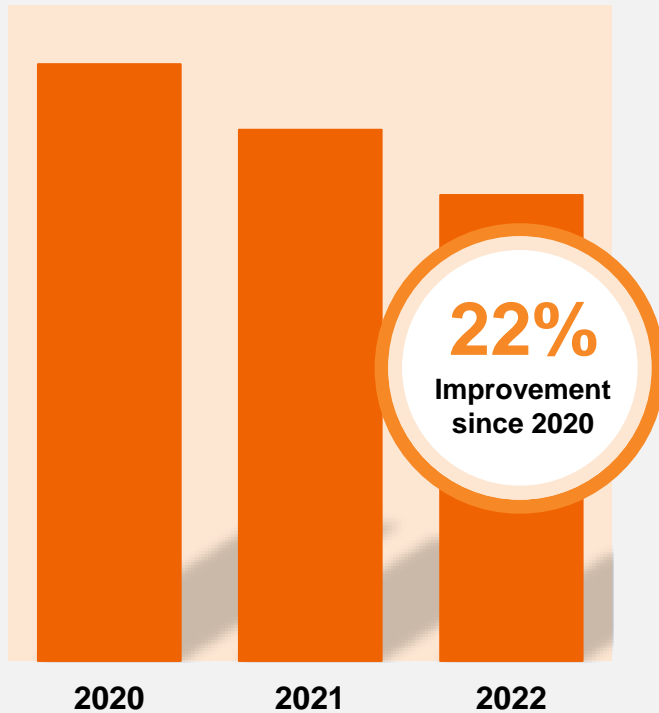


Notes: Statistics as of 12/31/2022 and includes acquired MountainWest assets, which closed on 02/14/2023. Map as of February 2023.

# Safety is core to our operations

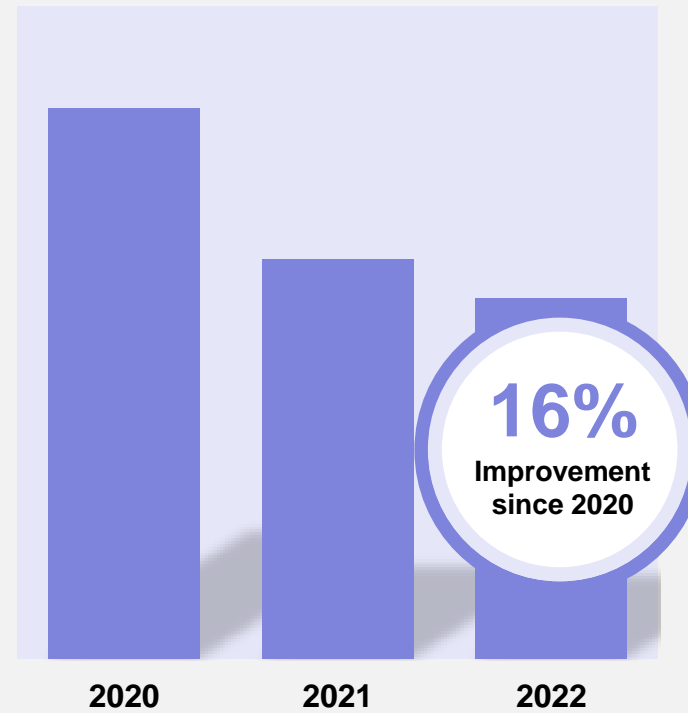
## Williams' Total Recordable Incident Rate (TRIR) Trend<sup>1</sup>

Since 2020



## Williams' Loss of Primary Containment (LOPC) Trend

Since 2020



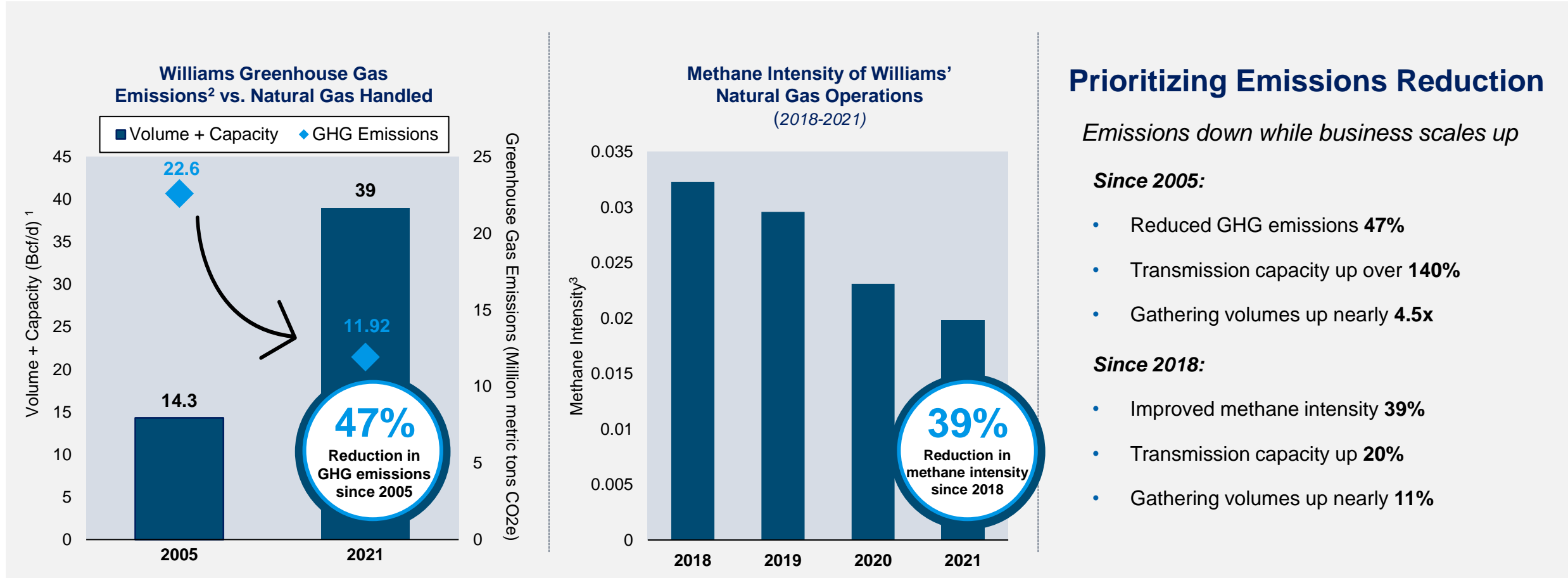
## Prioritizing Safe Operations

*Aligning organization to focus on continuous improvement in best-in-class safety culture*

- 2022 Annual Incentive Plan incorporated additional ESG metrics that included behavior-based, leading indicator safety metrics
  - 15% of total performance for all employees is tied to ESG metrics
- Driving frontline employee action to address environmental and safety opportunities
- Enterprise-wide goals help communicate company focus on reducing environmental, safety and operational risks
- Prioritizing learning and continuous improvement to drive towards zero incidents

<sup>1</sup>TRIR excludes COVID-19 data to allow for more accurate year-over-year representation. Notes: TRIR = Total number of recordable injuries and/or illnesses x 200,000/number of work hours. An LOPC is defined as an unplanned or uncontrolled loss of containment from processing or pipeline equipment.

# Significant improvements in emissions efficiency



## Prioritizing Emissions Reduction

*Emissions down while business scales up*

**Since 2005:**

- Reduced GHG emissions **47%**
- Transmission capacity up over **140%**
- Gathering volumes up nearly **4.5x**

**Since 2018:**

- Improved methane intensity **39%**
- Transmission capacity up **20%**
- Gathering volumes up nearly **11%**

Implementing operating practices focused on safety and emissions reductions



Modernizing equipment and investing in new technologies

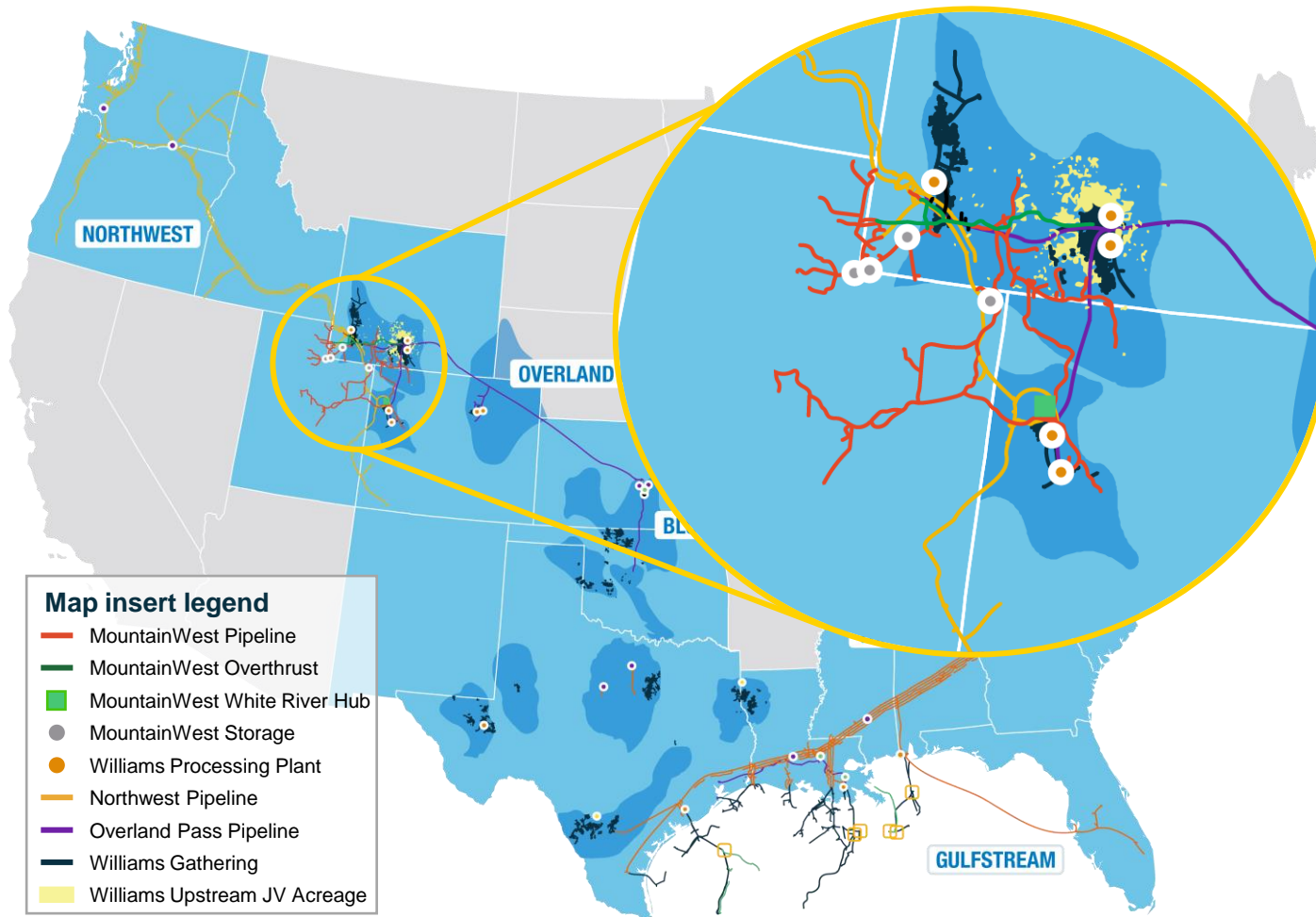


Improving overall operations efficiency

<sup>1</sup>For 2005, E&P net volumes: 0.7 Bcf/d; Firm reserved transmission capacity (Transco, NWP and Gulfstream): 10 Tbtu/d; Gathering volumes: 3.4 Tbtu/d; gas used in power tolling agreements: 0.2 Bcf/d. For 2021, Firm reserved transmission capacity (Transco, NWP and Gulfstream): 24.4 Tbtu/d; Gathering volumes: 15.18 Bcf/d. Tbtu converted to Bcf at 1,000 btu per cf. <sup>2</sup>Total Scope 1 and 2 GHG emissions in million metric tons CO<sub>2</sub>e from assets under operational control by Williams. <sup>3</sup>Methane Intensity (mt CH<sub>4</sub> emissions/CH<sub>4</sub> throughput\*100) includes Scope 1 methane emissions from assets under operational control by Williams.



# Key infrastructure in Rocky Mountain basins



## MountainWest at a glance

### MountainWest Pipeline

**Total Capacity: 2,587 MDth/d**

Located within six major producing areas including Green River, Uinta and Piceance with supply connectivity to Salt Lake City

### Overthrust Pipeline

**Total Capacity: 2,830 MDth/d**

Serves producers in Green River, Wamsutter, and other Rockies basins with interconnects to major interstate pipelines

### White River Hub (50/50 JV)

**Total Capacity: 2,614 MDth/d**

Hub service for major pipes including NWP, REX, TransColorado, CIG and WIC

### Storage Assets

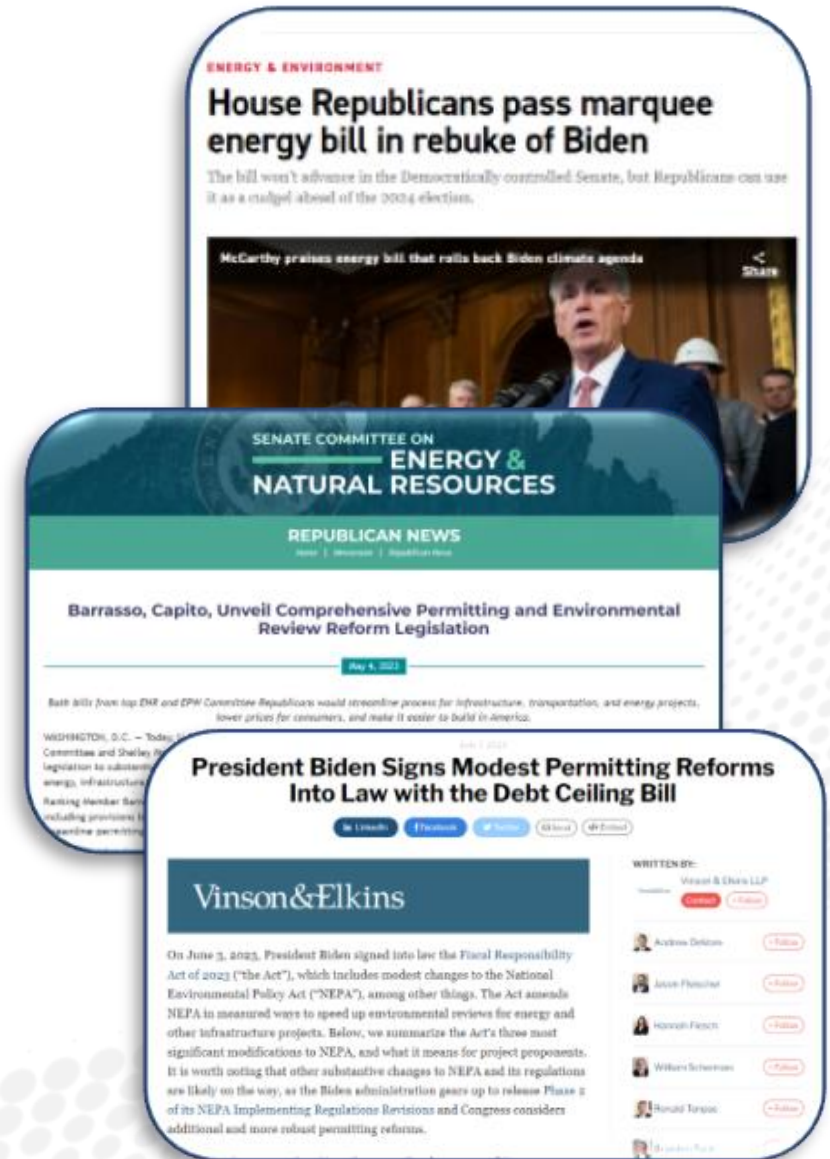
**Total Capacity: 56 Bcf**

Including Clay Basin, a 54 Bcf underground storage reservoir in the Rockies, consistently fully contracted at max rates

**Rocky Mountain energy hub with interconnections to multiple interstate pipelines, integrated storage assets and access to multiple regional supply basins**

# Meeting future energy needs - permitting reform focus

- Early 2023: INGAA, Williams and our midstream peers successful in securing language in H.R. 1 and H.R. 2811 that passed the House which restores the balance intended by the Natural Gas Act.
- “SPUR Act” (S. 1456) includes the industry supported Sec. 401 provision and beneficial judicial review reform language.
- Limited NEPA reform provisions included as part of the debt suspension legislation – **more is needed.**
- July 26 Senate ENR testimony and hearing
- **Williams Next Steps:**
  - Educate congressional staff on INGAA’s permitting reform priorities.
  - Keep momentum going by encouraging Senate action and Senate/House collaboration.
  - Push for a compromise House/Senate permitting reform package that has “teeth” and includes INGAA-supported provisions.





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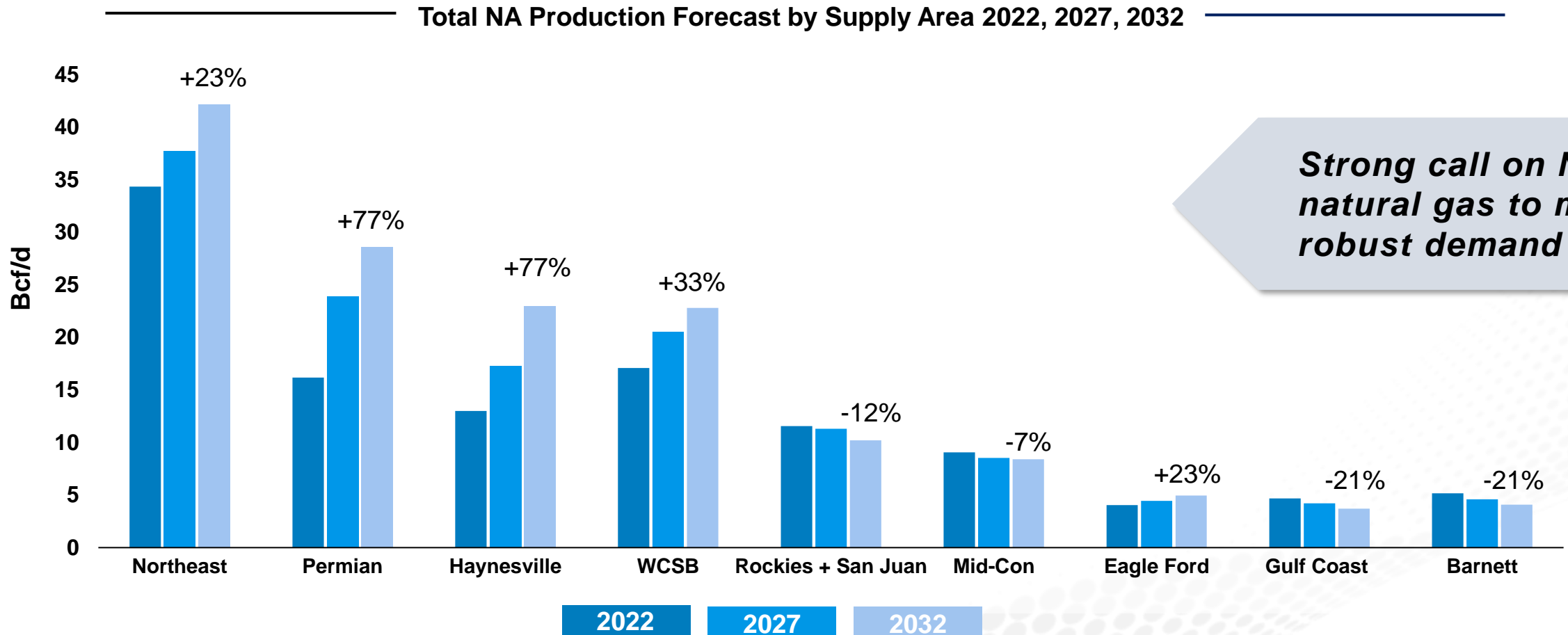
# Natural Gas Market Overview

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David McKellips, Director Strategy and Market Intelligence

# Nearly 30% of NA production is met by US Northeast through 2032

*The big 4: Northeast, Permian, Haynesville and Western Canada (WCSB) supply over 70% of NA natural gas production through 2032*

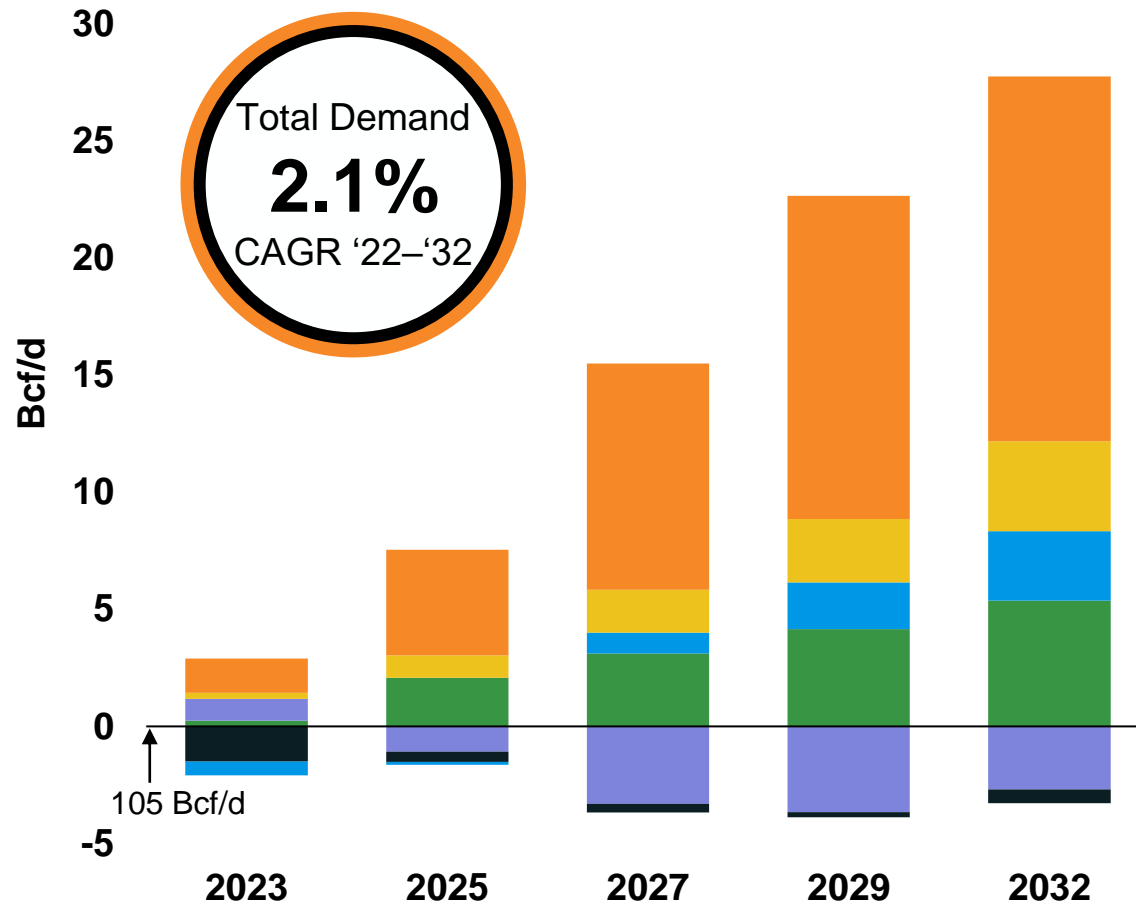


Source: Wood Mackenzie March 2023 Long-term Outlook, The data and information provided by Wood Mackenzie should not be interpreted as advice and you should not rely on it for any purpose. You may not copy or use this data and information except as expressly permitted by Wood Mackenzie in writing. To the fullest extent permitted by law, Wood Mackenzie accepts no responsibility for your use of this data and information.



# Projected lower-48 natural gas demand grows by 24.5 Bcf/d through 2032

Projected Lower-48 Natural Gas Cumulative Demand Growth By Sector ('22-'32)



## Expected growth '22-'32



LNG Exports, +15.6 Bcf/d



Mexican Exports, +3.8 Bcf/d



Transport/Other, +3.0 Bcf/d



Industrial+Blue Hydrogen +5.4 Bcf/d



Residential/Commercial, -0.6 Bcf/d



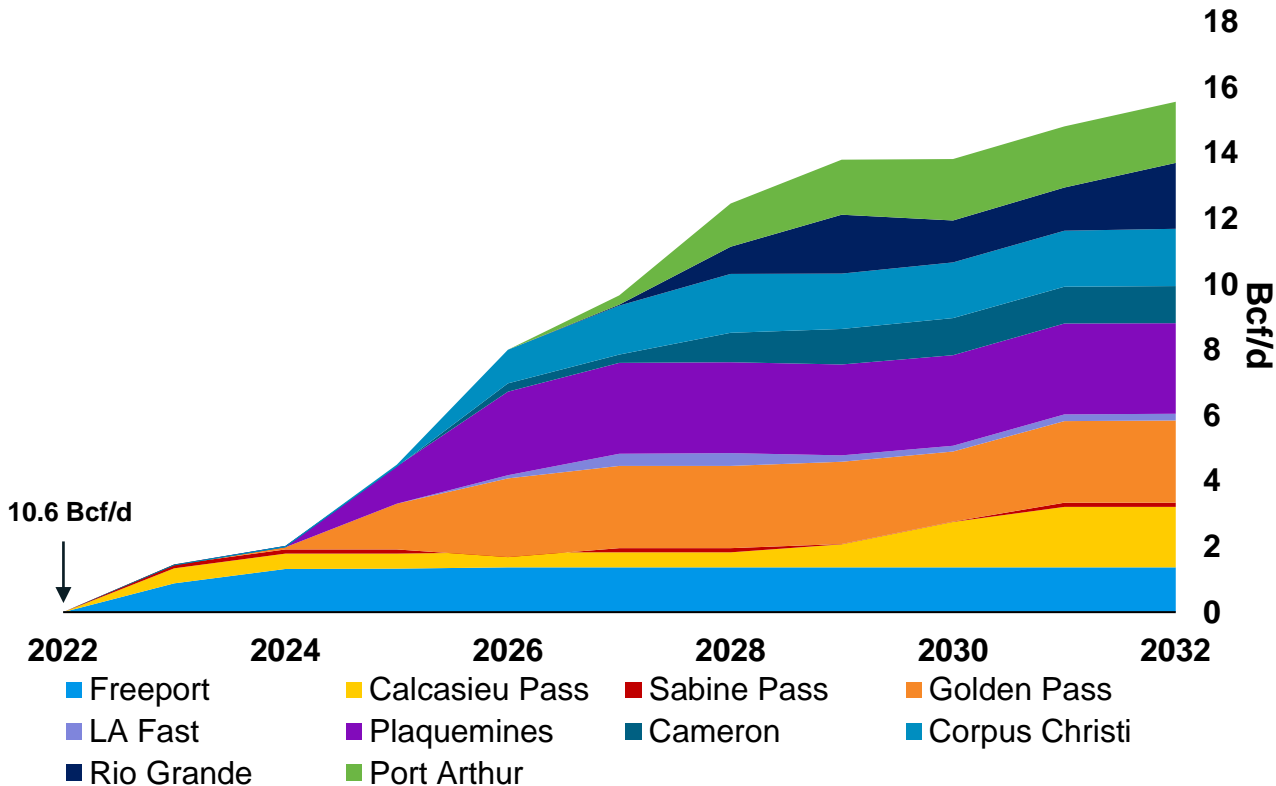
Power, -2.7 Bcf/d

Source: Wood Mackenzie North America Gas Strategic Planning Outlook March 2023. The data and information provided by Wood Mackenzie should not be interpreted as advice and you should not rely on it for any purpose. You may not copy or use this data and information except as expressly permitted by Wood Mackenzie in writing. To the fullest extent permitted by law, Wood Mackenzie accepts no responsibility for your use of this data and information.

# LNG export volumes expected to more than double through 2032

## All approved LNG export facilities within Transco corridor

Forecasted U.S. L-48 LNG Export Annual Volume Cumulative Growth (2022 – 2032)



U.S. L-48 Large Scale Approved Liquefaction Facilities Per EIA<sup>1</sup>

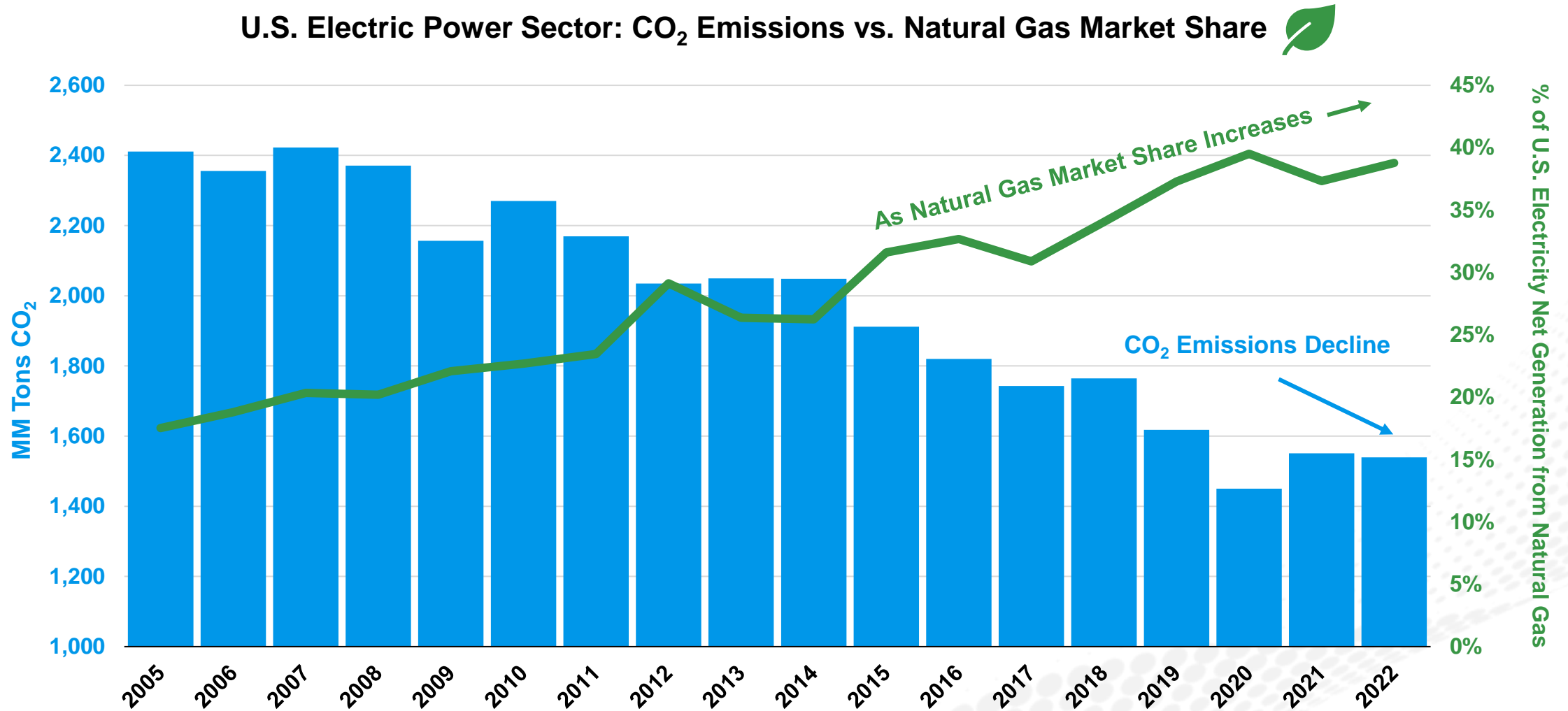
Project Name	Bcf/d <sup>2</sup>	Project Name	Bcf/d <sup>2</sup>
<i>Operational</i>		<i>Awaiting FID</i>	
Sabine Pass Trains 1-6	4.6	Cameron Train 4	1.4
Cove Point	0.8	Delfin	1.8
Corpus Christi Trains 1-3	2.4	Driftwood	3.9
Cameron Trains 1-3	2.1	Freeport Train 4	0.7
Elba Island	0.4	Gulf LNG	1.5
*Freeport Trains 1-3	2.4	Lake Charles	2.3
<i>Operational/Commissioning</i>		<i>Under construction</i>	
Calcasieu Pass Trains 1-18	1.7	Golden Pass Trains 1-3	2.6
<b>26.1 Bcf/d</b>		Plaquemines Phase 1 & 2	3.4
<b>Operational or in execution</b>		Corpus Christi Stage III	1.6
		Rio Grande Phase 1	2.3
		Port Arthur Trains 1 & 2	1.9
		<b>14.7 Bcf/d</b>	
		<b>Possible LNG export projects awaiting FID</b>	
		Texas LNG	0.6

Source: Wood Mackenzie North America Gas Strategic Planning Outlook March 2023  
 The data and information provided by Wood Mackenzie should not be interpreted as advice and you should not rely on it for any purpose. You may not copy or use this data and information except as expressly permitted by Wood Mackenzie in writing. To the fullest extent permitted by law, Wood Mackenzie accepts no responsibility for your use of this data and information.

<sup>1</sup>Projects need to receive two major sets of regulatory approvals from U.S. DOE & FERC/MARAD.  
<sup>2</sup>LNG export terminal capacity is the U.S. DOE-authorized maximum export quantity to non-FTA countries.  
 Source (tables on right side of slide): U.S. Energy Information Administration as of 8/28/2021 \*Freeport authorized to restart full operations on March 8, 2023; Rio Grande Phase 1 announced FID on July 12, 2023.

# Natural gas plays critical role in reducing emissions

## U.S. Electric Power Sector: CO<sub>2</sub> Emissions vs. Natural Gas Market Share



Source: U.S. Energy Information Administration, Monthly Energy Review, May 2023.

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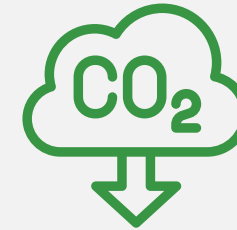
10/23/2023 | 17

# Opportunity to further reduce CO<sub>2</sub> emissions by replacing coal with gas

There are **230** operating coal plants in the US today



Replacing existing US coal plants with natural gas-fired generation could:

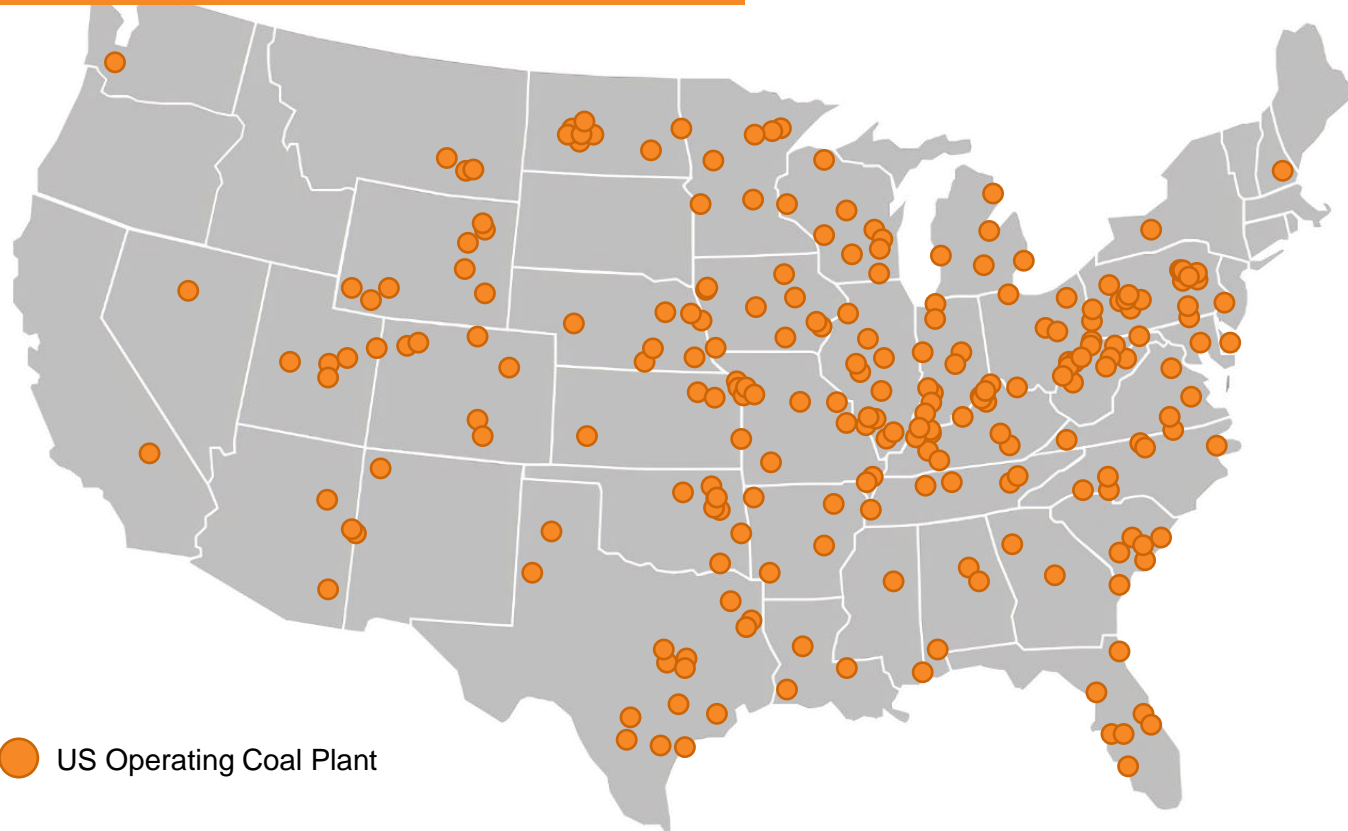


Cut CO<sub>2</sub> power emissions by **34%**

Equivalent to



Removing **all US gasoline cars** off the road today



● US Operating Coal Plant

Sources: Coal plant data per Wood Mackenzie; Coal and natural gas plants emissions rates and heat rate assumptions per US Energy Information Administration; Metric tons of CO<sub>2</sub> emitted by a typical passenger vehicle per year per Environmental Protection Agency. As of January 2023. The data and information provided by Wood Mackenzie should not be interpreted as advice and you should not rely on it for any purpose. You may not copy or use this data and information except as expressly permitted by Wood Mackenzie in writing. To the fullest extent permitted by law, Wood Mackenzie accepts no responsibility for your use of this data and information.



# Growing power demand spurs need for additional contracted capacity

The need for reliability

## Natural gas will continue to play a critical role in the power sector



### Growing demand for natural gas

Annual demand for natural gas has steadily grown ~4% CAGR since 2015



### Setting new peak day records

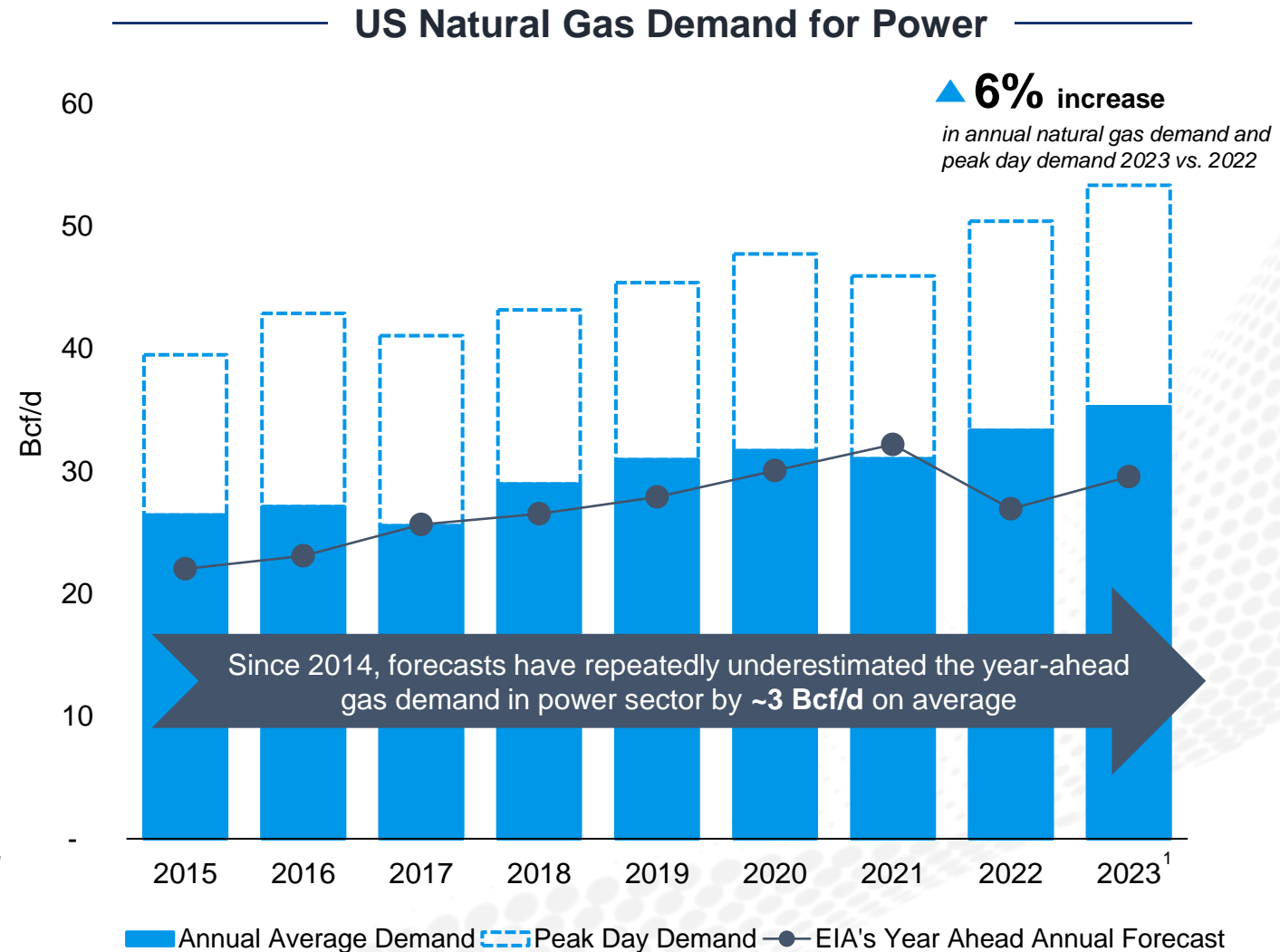
Hit record day demand for natural gas in July 2023 of 53 Bcf/d



### Forecasters underestimating the need for gas

Year ahead forecasts historically underestimate gas demand and dramatically missed 2022 annual demand by 24%

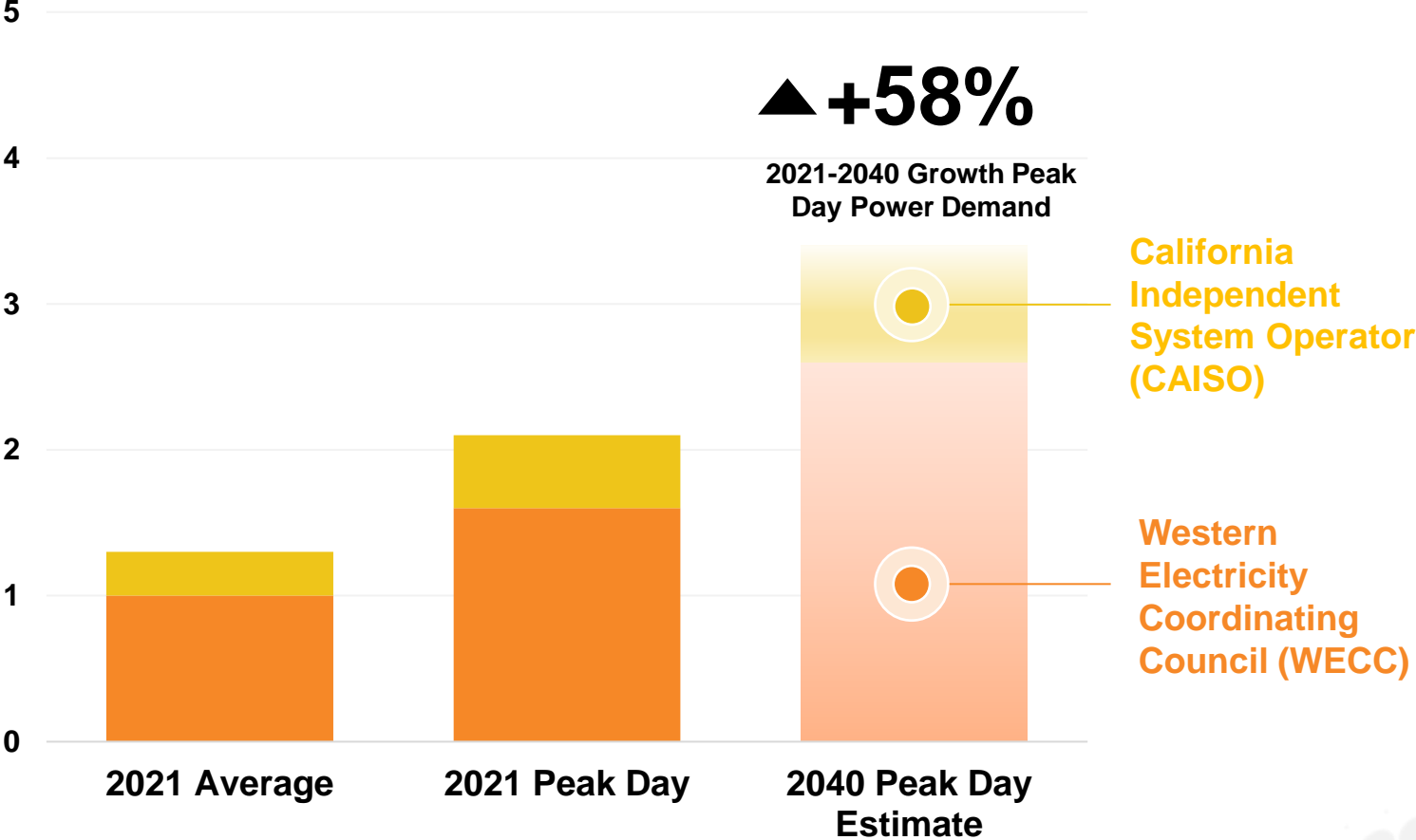
**Natural gas pipeline contracted capacity is critical to ensure electric grid reliability on peak days**



Source: S&P Global Commodity Insights ©2023 and U.S. Energy Information Administration. <sup>1</sup>2023 annual average demand uses rolling 12-month EIA monthly data for June 2022-May 2023.

# Natural gas needed to ensure power grid reliability during peak demand

2021 Average and Peak Day Power Demand versus 2040 Estimated Peak Day Power Demand<sup>1</sup> for Western Power Markets (in terawatt-hours of gas-fired generation per day)



*Natural gas plays critical role of reliability in the west*



Western peak day gas demand for power gen expected to increase due to growth in electrification



Natural gas pipeline contracted capacity is critical to ensure reliability

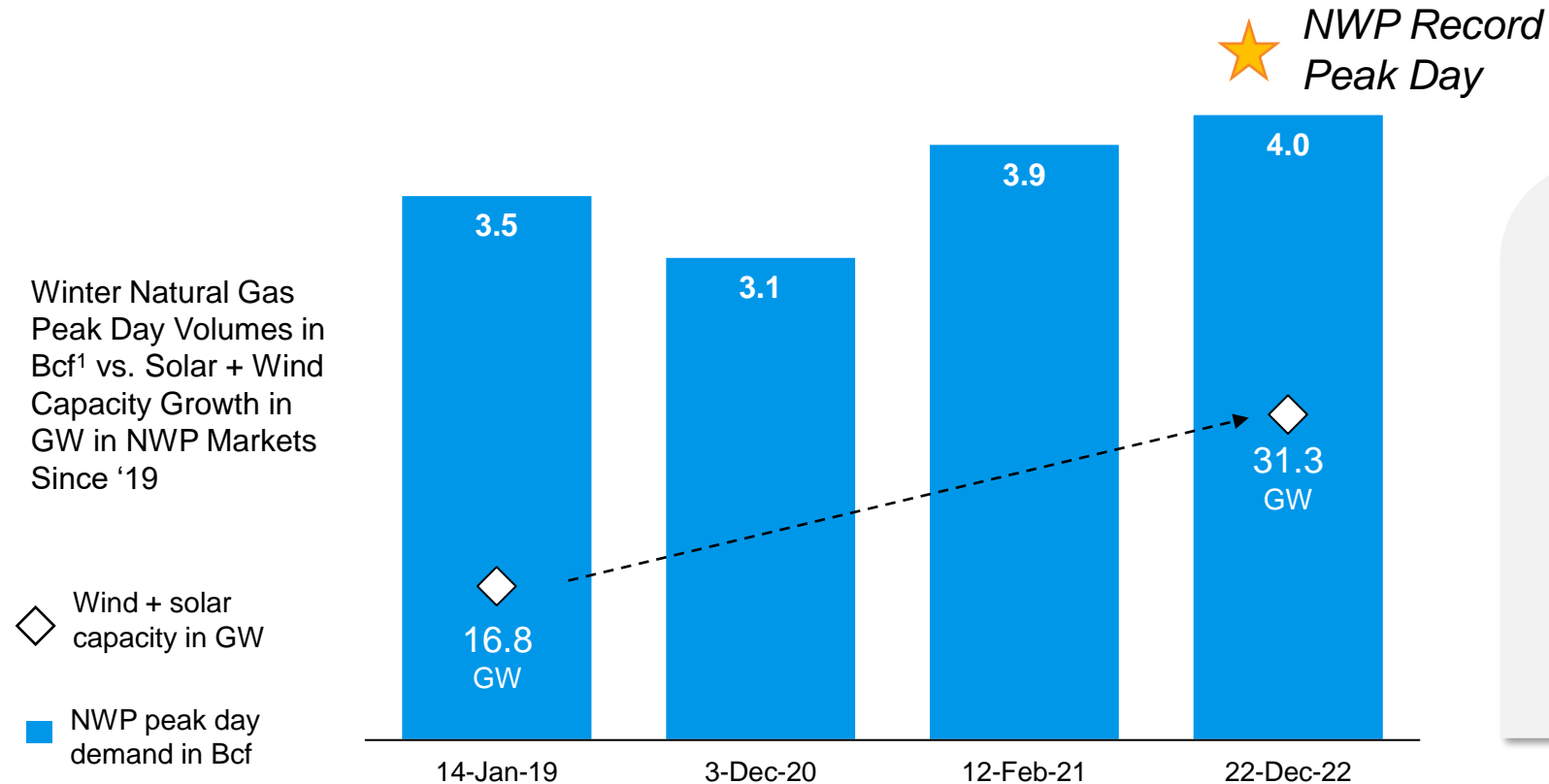


Williams' assets well-positioned support growing need for reliability in the west

<sup>1</sup>"The role of natural gas in the move to cleaner, more reliable power," McKinsey & Company, September 1, 2023; figures based on the Further Acceleration decarbonization scenario assuming 6-fold increase in renewables power generation by 2040

# Increasing demand on Williams' natural gas transmission systems

Need for gas infrastructure to supply grid reliability in growing renewables market exemplified by increasing peak days of gas demand on Northwest pipeline

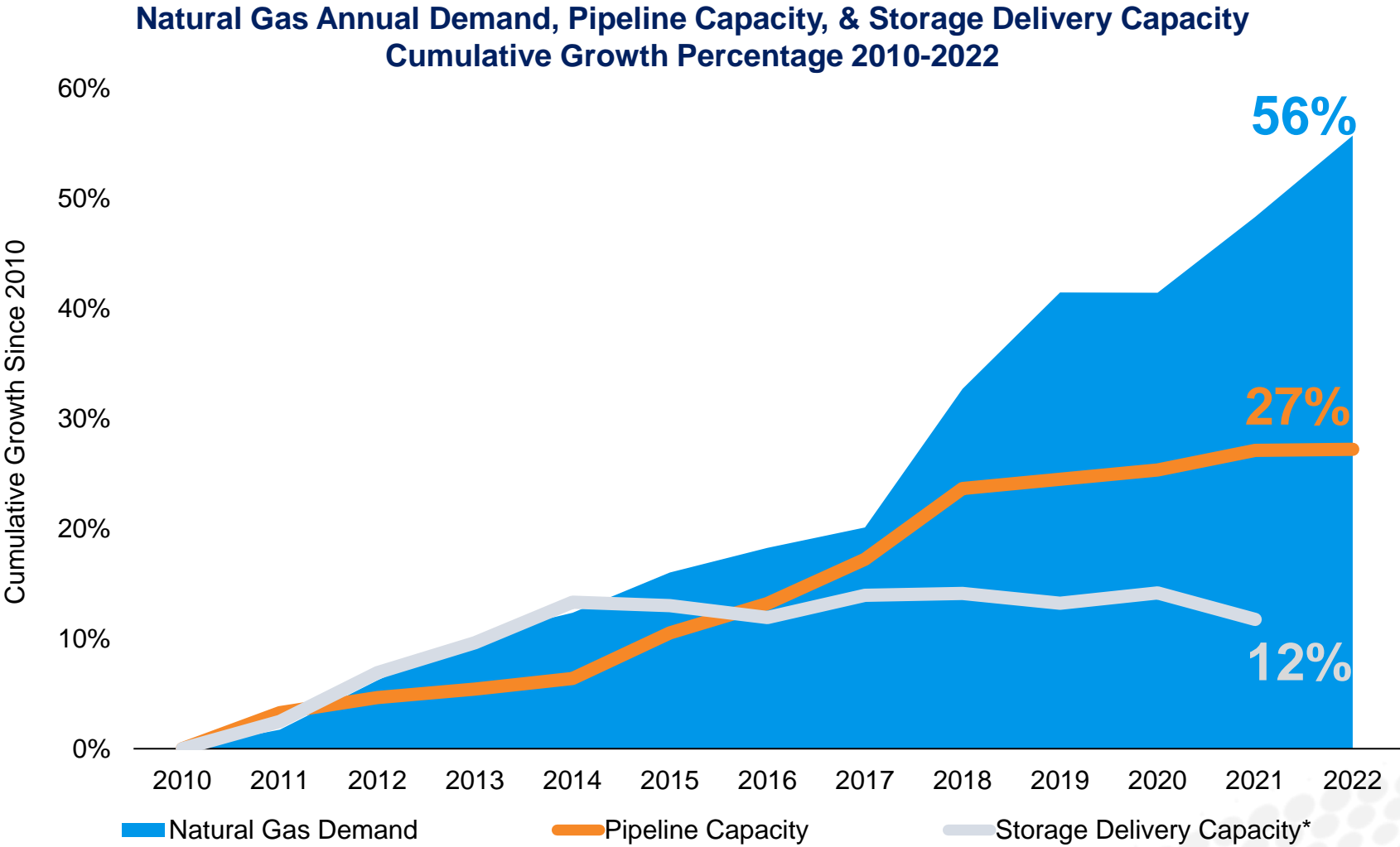


Wind + solar capacity<sup>2</sup> grew **86%** along the NWP corridor '19-'22

Northwest Pipeline

Source: U.S. Energy Information Administration for wind and solar capacity data. <sup>1</sup> Dekatherms converted to cubic feet at 1,000 cubic feet = 1 dekatherm. <sup>2</sup> Net summer capacity at utility scale wind and solar facilities in gigawatts.

# The growing need for reliable infrastructure investment



Since 2010 demand for gas has grown by **56%** while infrastructure to deliver gas has increased by **27%**

Storage delivery capacity has been steady or declining since 2014, while consumption of gas has grown over **40%**

Sources: S&P Global Commodity Insights ©2023 and U.S. Energy Information Administration (EIA) \*EIA 2022 storage delivery capacity not yet released



# Key takeaways

**Natural gas and renewables are complimentary**

1

Natural gas is a dispatchable, fast-ramp power source making it a perfect compliment to the growing intermittent renewable capacity in the west

**Natural gas required to meet peak days of demand**

2

Natural gas pipeline contracted capacity is critical to ensure electric grid reliability on peak days of demand in the west

**Natural gas infrastructure remains critical**

3

Natural gas storage and pipelines in the west increasing in importance and value to meet base load and peak day demand requirements



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# Williams New Energy Ventures (NEV) Overview

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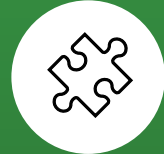
Brian Hlavinka, VP New Energy Ventures

# New Energy Ventures: advancing the next generation of energy

Distinct principles guide investment decisions toward a low carbon future



Achieve **emissions reductions** for ourselves, customers and partners



Create **economic value** with actionable investments

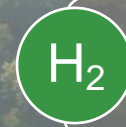


Target opportunities that leverage **strong competitive advantage**



Provide **scalable** options for the future

Adding value today and exploring opportunities for the future



Hydrogen



CCUS



Corporate  
Venture Capital



RNG



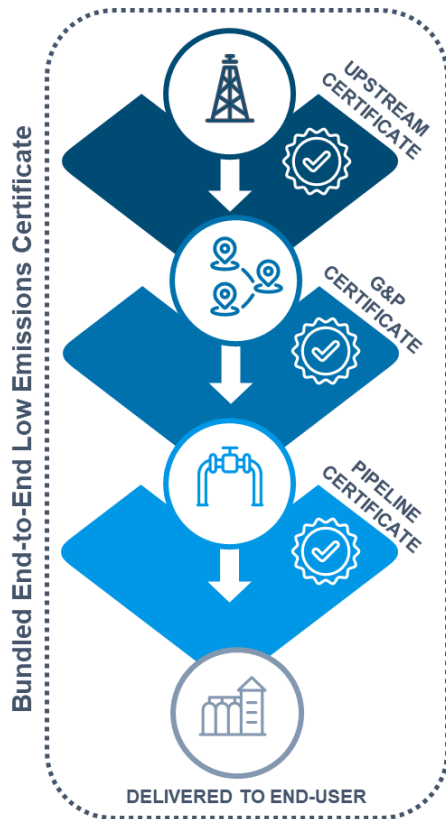
NextGen Gas



Solar

# NextGen Gas: powering the clean energy economy

Williams defines “NextGen Gas” as natural gas that has been independently certified as low emissions across all segments of the value chain.



NextGen Gas provides a **credible and affordable reduced emissions product** to help customers meet their climate commitments

## Executing a Low Carbon Wellhead to Market Strategy

- Demonstrating success with industry’s first end-to-end transaction between Coterra, Williams and Dominion
- Using Sequent, NextGen Gas offers trusted emissions profiles, with ability to bundle offsets for net zero certified deliveries
- Technology developed in partnership with Context Labs combines multiple data sources, a blockchain carbon ledger and environmental attribute registry to provide certified natural gas, verified by KPMG
- Ability to provide low-emission pathways for each segment of gathering, processing, and transmission
- Development and offering of trusted low-carbon solutions through the CLEAR Path Registry to register, transfer, or retire certificates on behalf of customer
- Only certification to meet internationally recognized OGMP 2.0 Level 5 protocol and GTI Veritas for trusted quantification of methane emissions

 **Completed first certified NextGen Gas delivery in 2022**



# Investing in energy innovation

## Integrating Corporate Venture Capital investments with our operations



*Network of hyperspectral satellites to provide monitoring services and solutions across energy and other industries*

**Next Steps:** OSK will launch 4 satellites in 2023 to begin monitoring WMB assets



*Decarbonization as a Service platform that incorporates machine learning, AI, and blockchain technology for efficient asset mapping and data ingestion/integration related to emissions monitoring*

**Next Steps:** Continued enterprise implementation with detailed monitoring at additional WMB sites



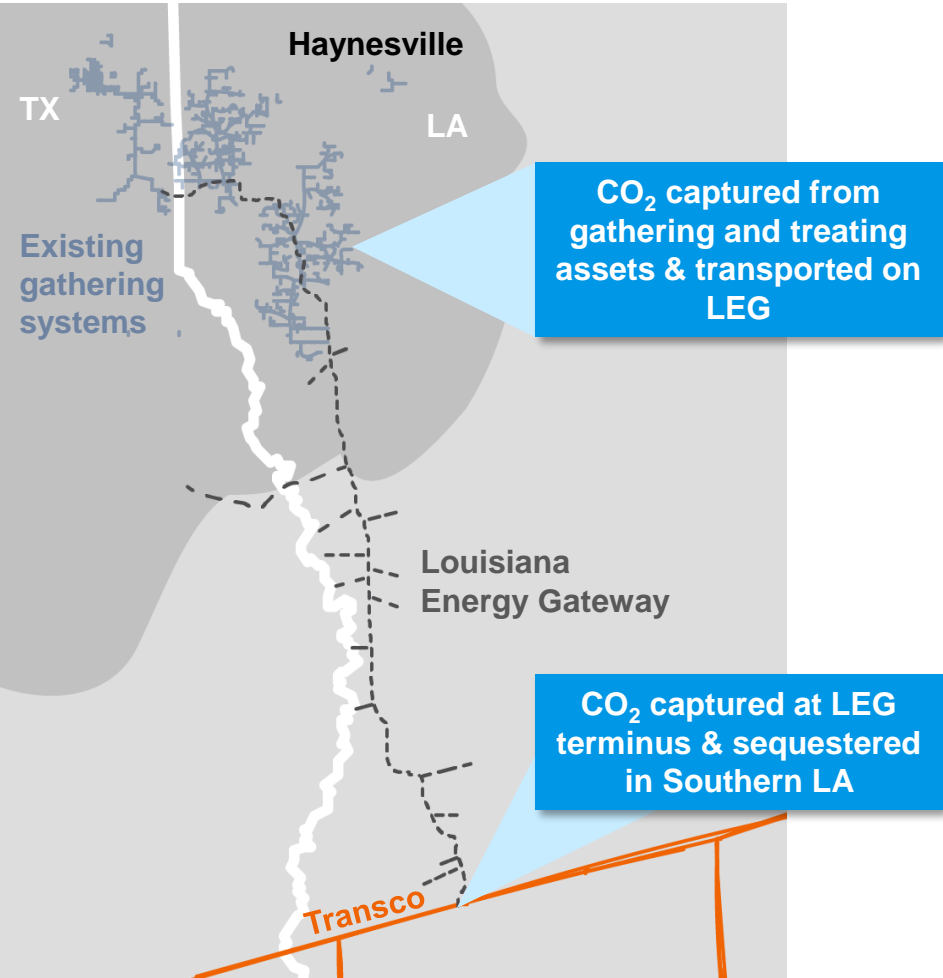
*Long-range laser networks to provide low-cost methane detection and quantification of specific emissions sources*

**Next Steps:** Implementing remote continuous methane monitoring at several of WMB's facilities

**Committed over *\$50MM* in capital to new energy technologies through CVC investment program**

# Decarbonizing the natural gas value chain

Integrating **carbon capture and storage** with Louisiana Energy Gateway to deliver clean energy



## Scope of project

- New treating, compression, capture equipment, and CO<sub>2</sub> pipeline
- Targeted in-service aligned with Louisiana Energy Gateway
- Project returns supported by increased 45Q credit included in Inflation Reduction Act

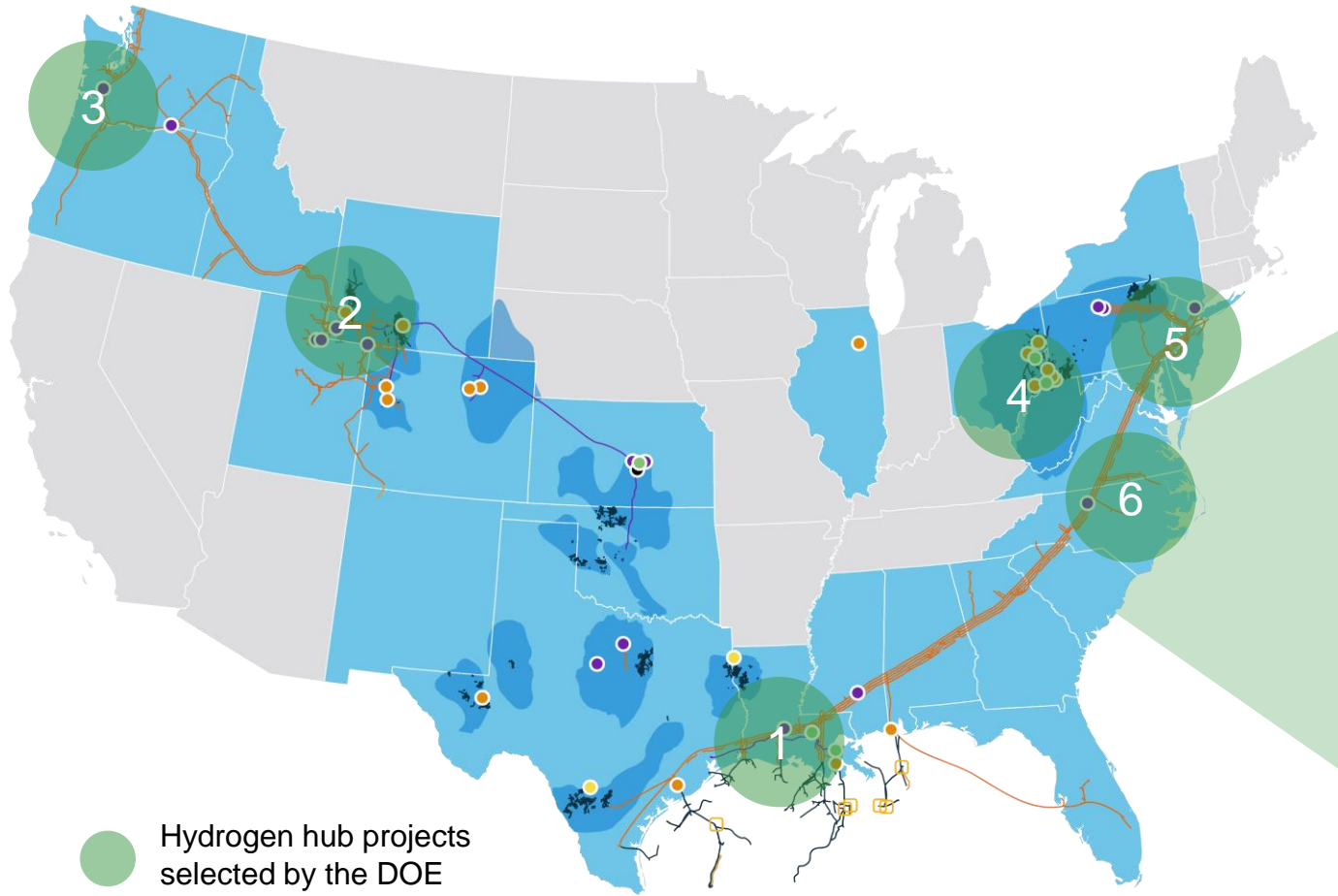
## Utilizing the strength of our assets

- Leveraging existing gathering and treating assets as well as Louisiana Energy Gateway gathering project to capture, transport and sequester a minimum of 2 million tons per year of CO<sub>2</sub>

## Supporting a clean energy future

- Supports wellhead to market strategy
- Creates additional opportunities to aggregate 3rd party CO<sub>2</sub> across Haynesville basin

# Exploring the role of Hydrogen



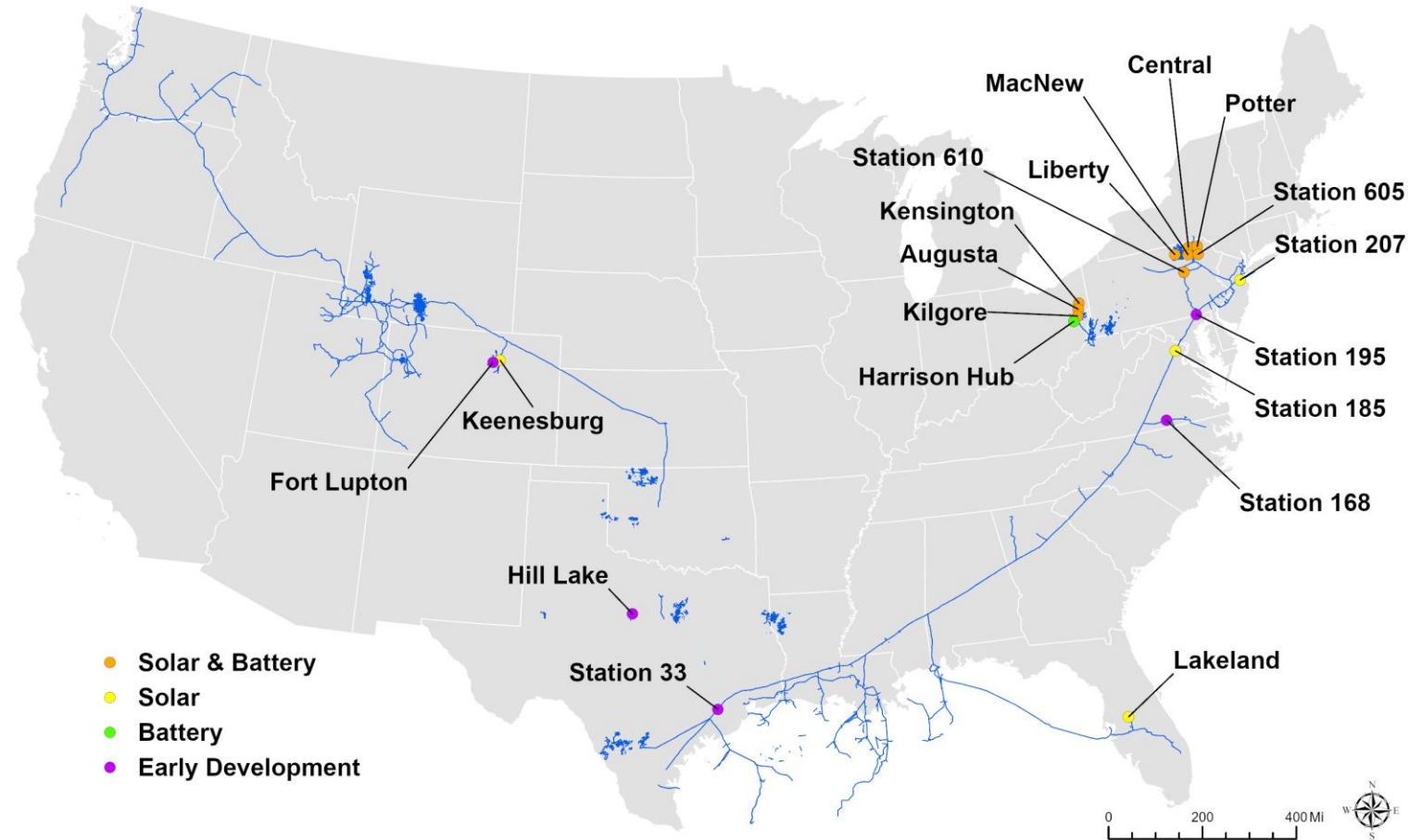
## Continued focus on the research and development of hydrogen hubs

- ✓ Williams is participating in 6 hydrogen hub applications, with all 6 projects encouraged by DOE to move forward
- ✓ 4 additional NEV project applications submitted to DOE
- ✓ Focused on existing infrastructure that provides competitive advantages
- ✓ Partnering with existing Williams' customers to ensure project success
- ✓ Additional hydrogen projects being developed outside the DOE hubs

# Solar and Storage Development Program

*Expanding opportunities across the Williams footprint, including battery projects and utility scale solar*

- ✓ 2 projects reached FID Q2 2023 (ISD Summer 2024)
- ✓ 3 projects advancing to Gate 3 Fall 2023 (approx. 175 MW)
- ✓ 9 projects in intermediate development
- ✓ Evaluating NorTex and MountainWest opportunities
- ✓ Exploring additional opportunities including utility scale





Solving global energy  
challenges starts here.



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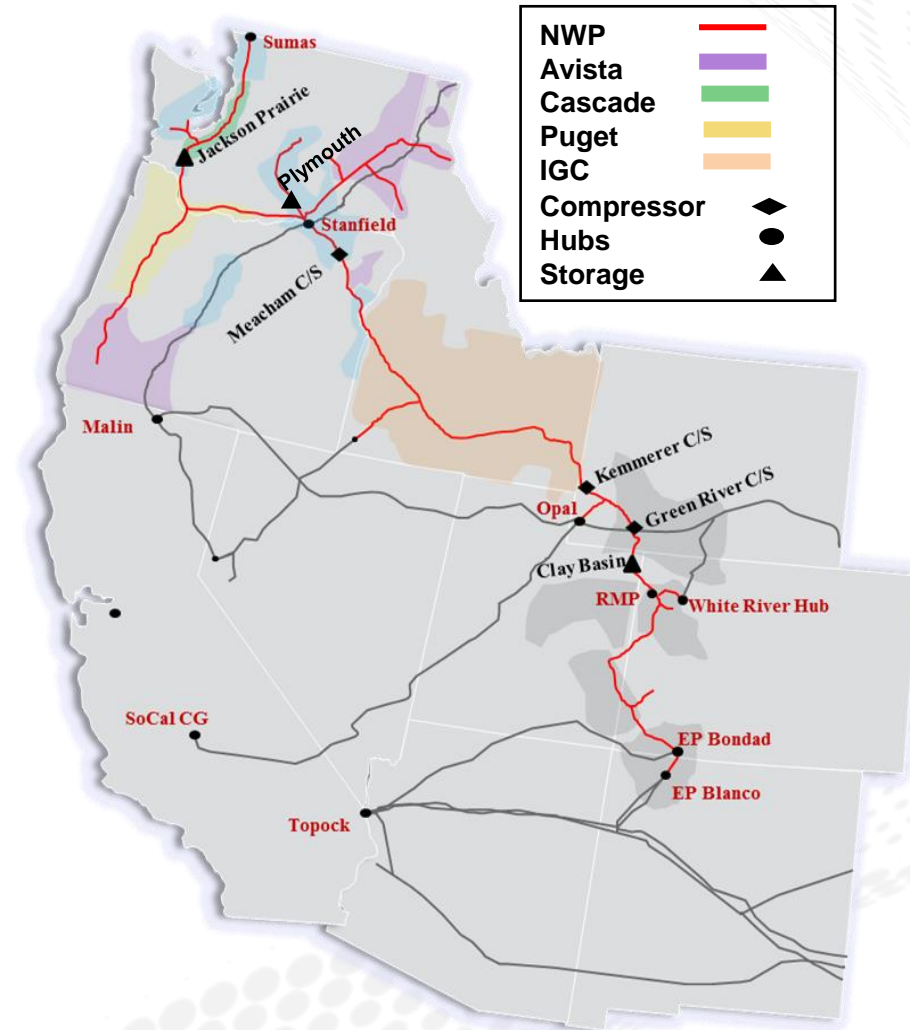
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# Williams Northwest Pipeline Update

Gary Venz, Director Commercial Services

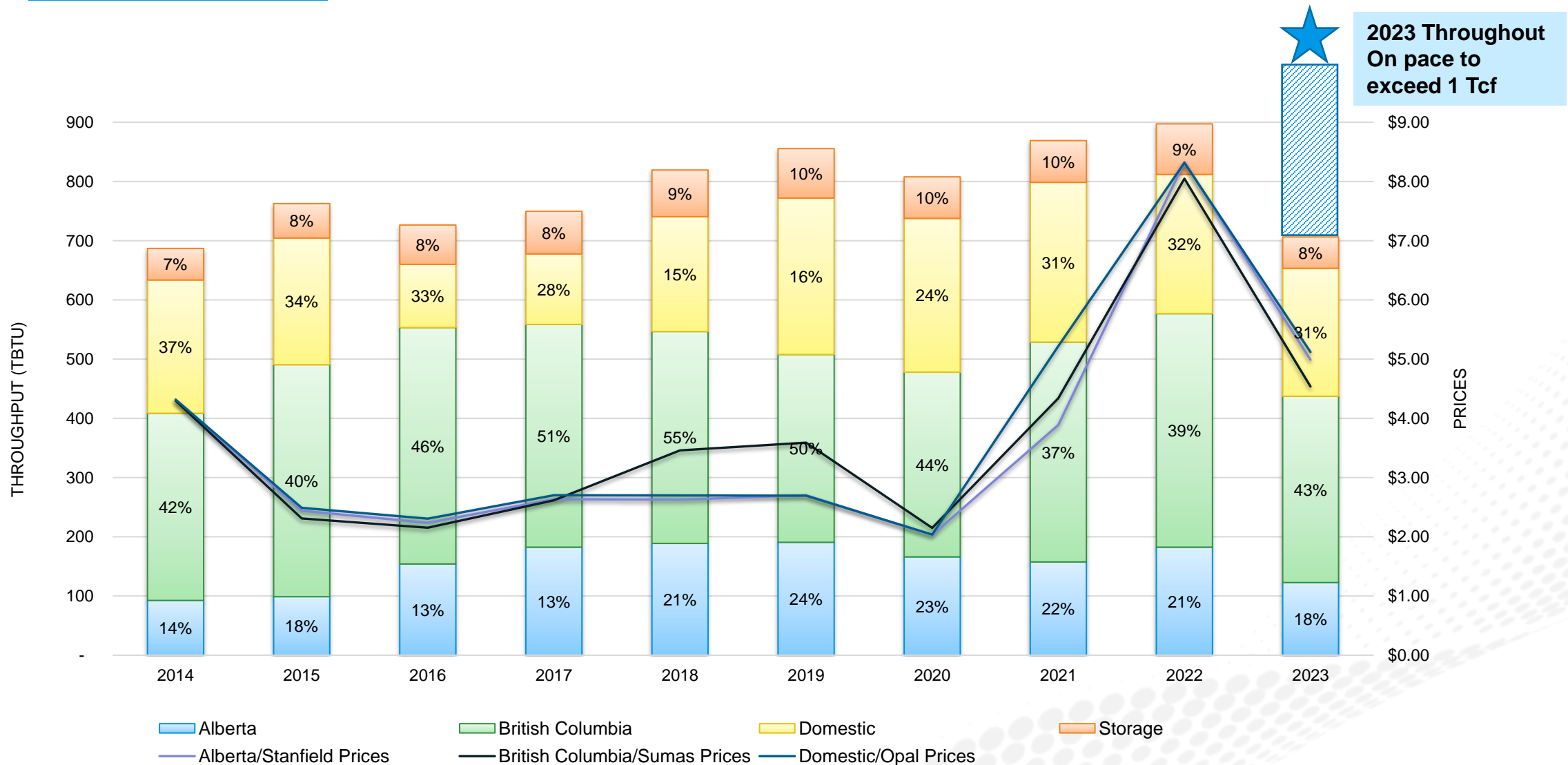
# Northwest Pipeline - Backbone of the Pacific Northwest

- **Low-cost, primary service provider in the Pacific Northwest (PNW)**
  - 4,000 -mile system with 3.9 Bcf/d peak design capacity
  - ~135 Bcf of access to storage along pipeline, with high injection and deliverability capability in market area
  - Fully Contracted with > 9-year average contract life
- **Postage stamp rates**
  - New rates went into effect January 1, 2023
- **Bi-directional design**
  - Provides flexibility (Rockies to market and Sumas to market)
  - Cheapest supply drives flow patterns
- **Numerous supply sources**
  - 61 receipt points totaling 11.6 Bcf/d of supply from Rockies, Sumas, Western Canadian Sedimentary Basin (WCSB), San Juan, emerging shales
- **Significant market options**
  - 366 delivery points totaling 9.7 Bcf/d of delivery capacity
  - Interconnects with 9 interstate pipelines



Source: Williams Northwest Pipeline

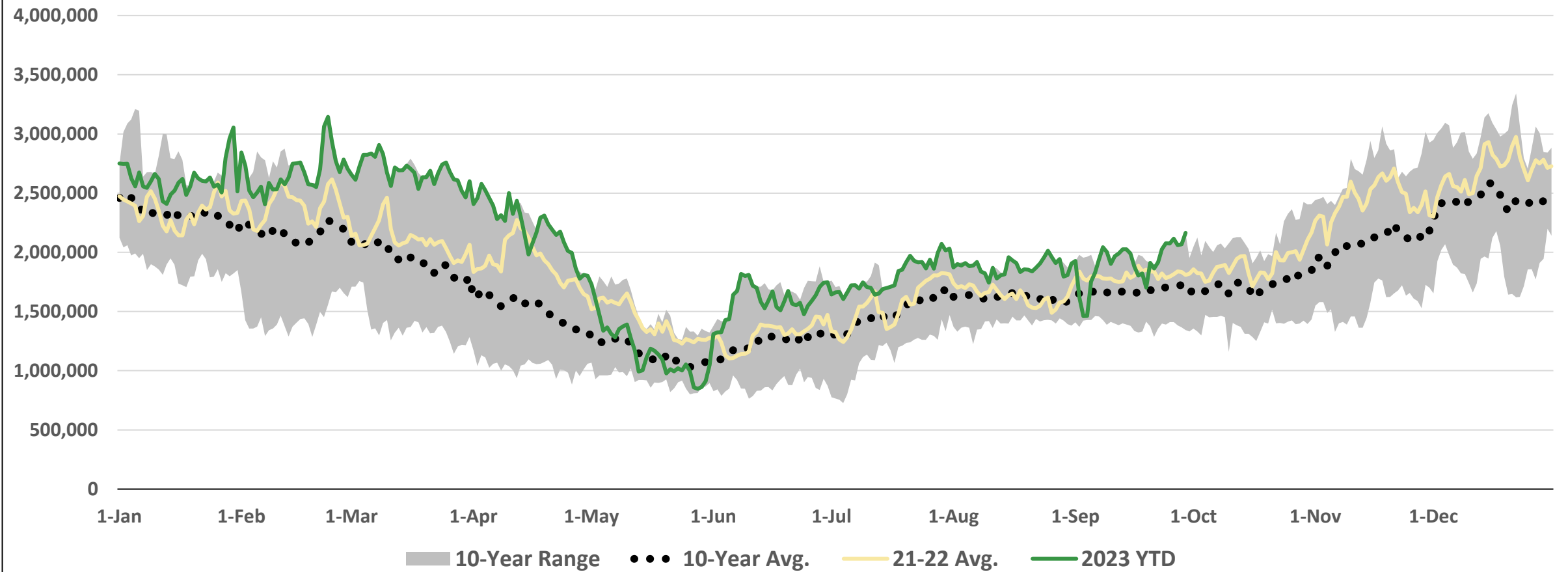
# Northwest Pipeline Supply Diversity



Source: Williams Northwest Pipeline

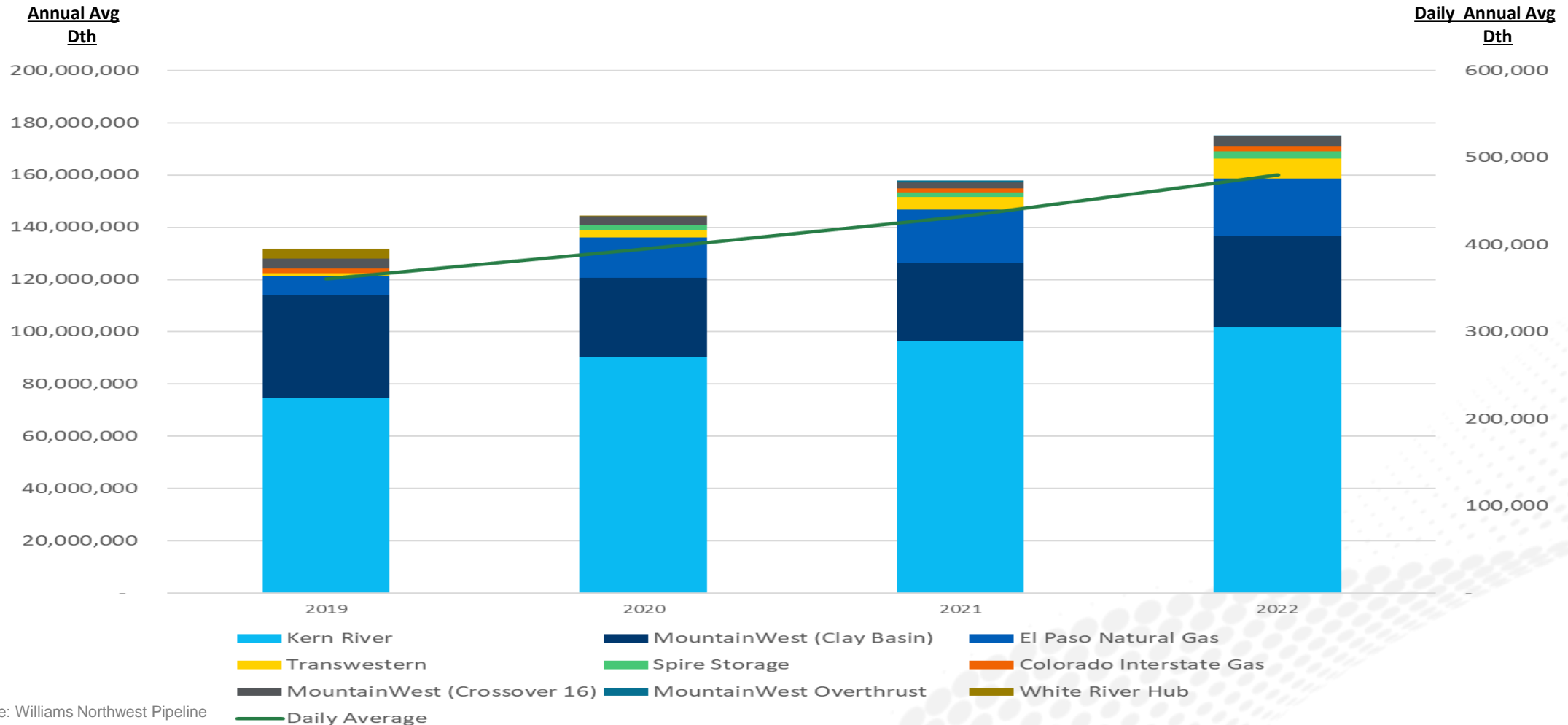
# PacNW Natural Gas Demand (WA, OR, ID)

## Total Pacific Northwest Gas Deliveries (Dth)



Source: Energy Velocity natural gas deliveries WA, OR, ID

# Northwest Pipeline Delivered Volumes - South End of System



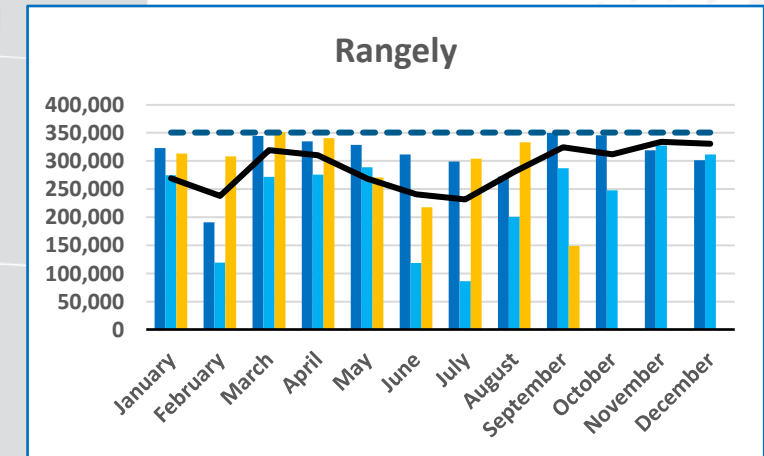
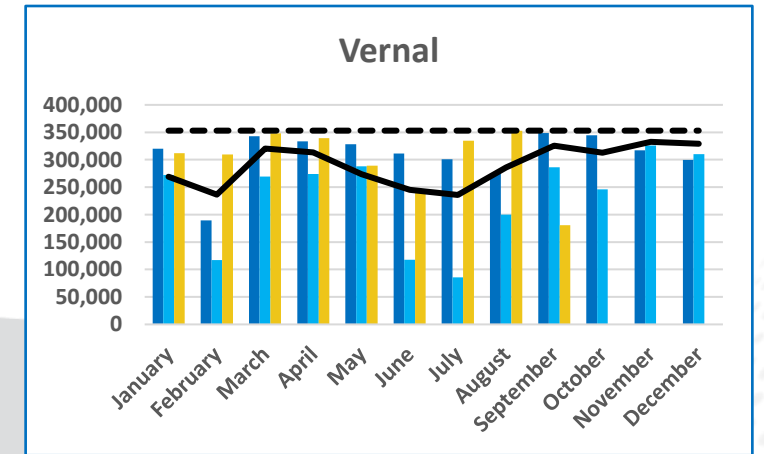
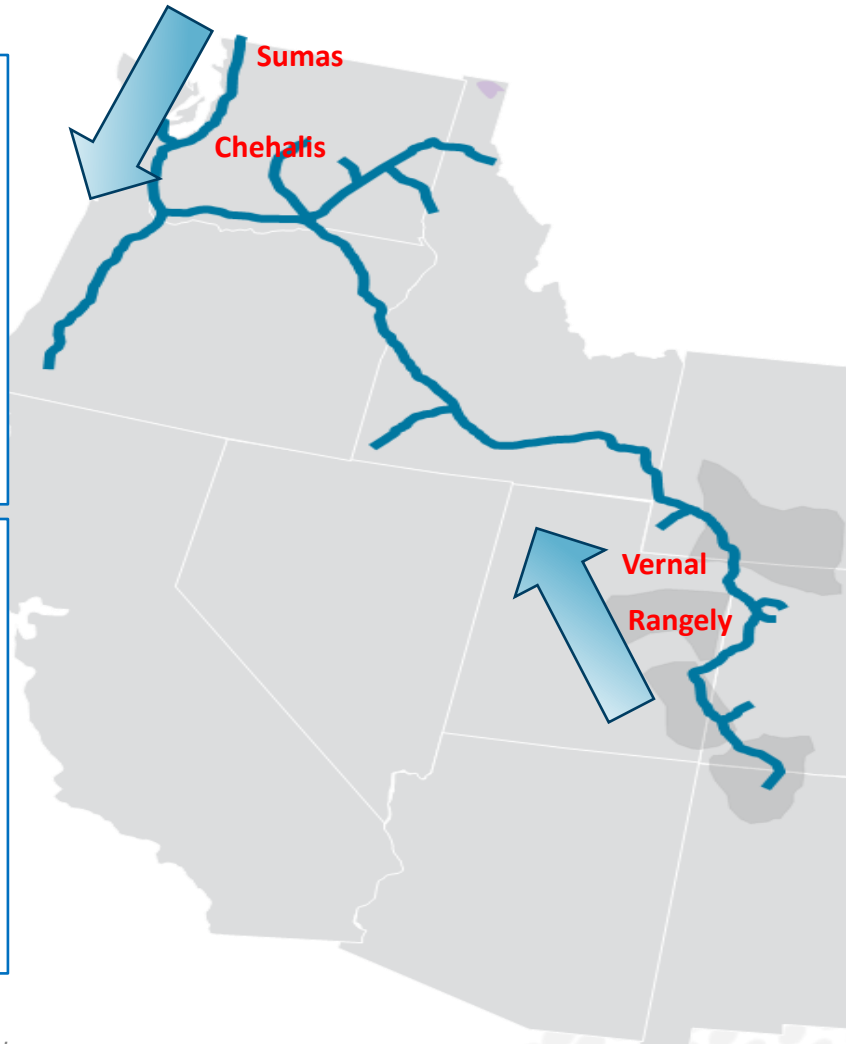
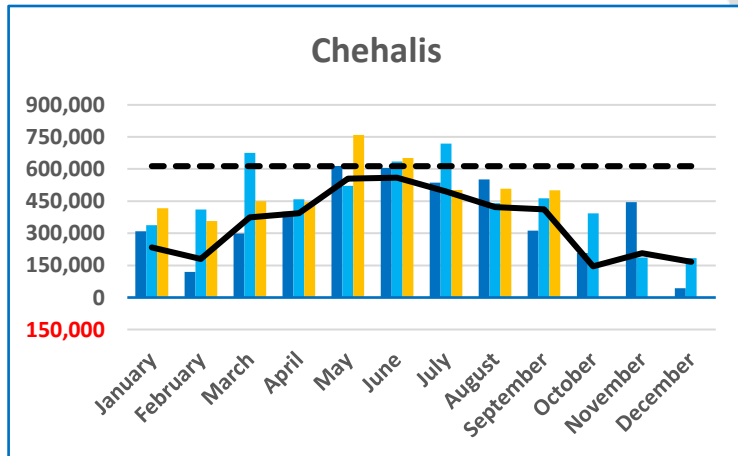
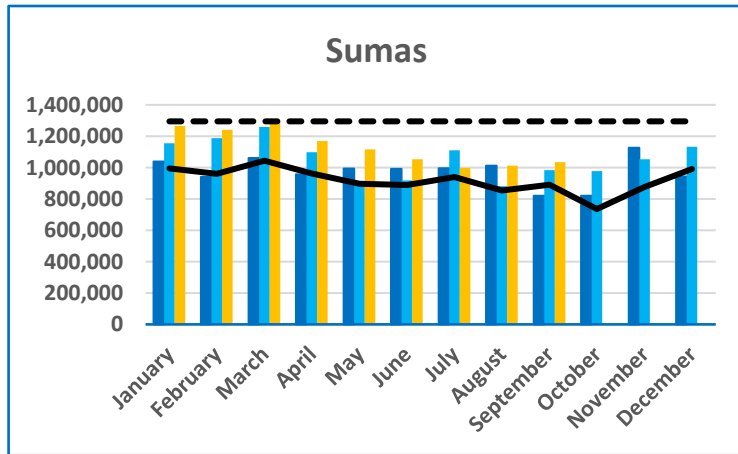
Source: Williams Northwest Pipeline

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# Northwest Pipeline Capacity Constraints

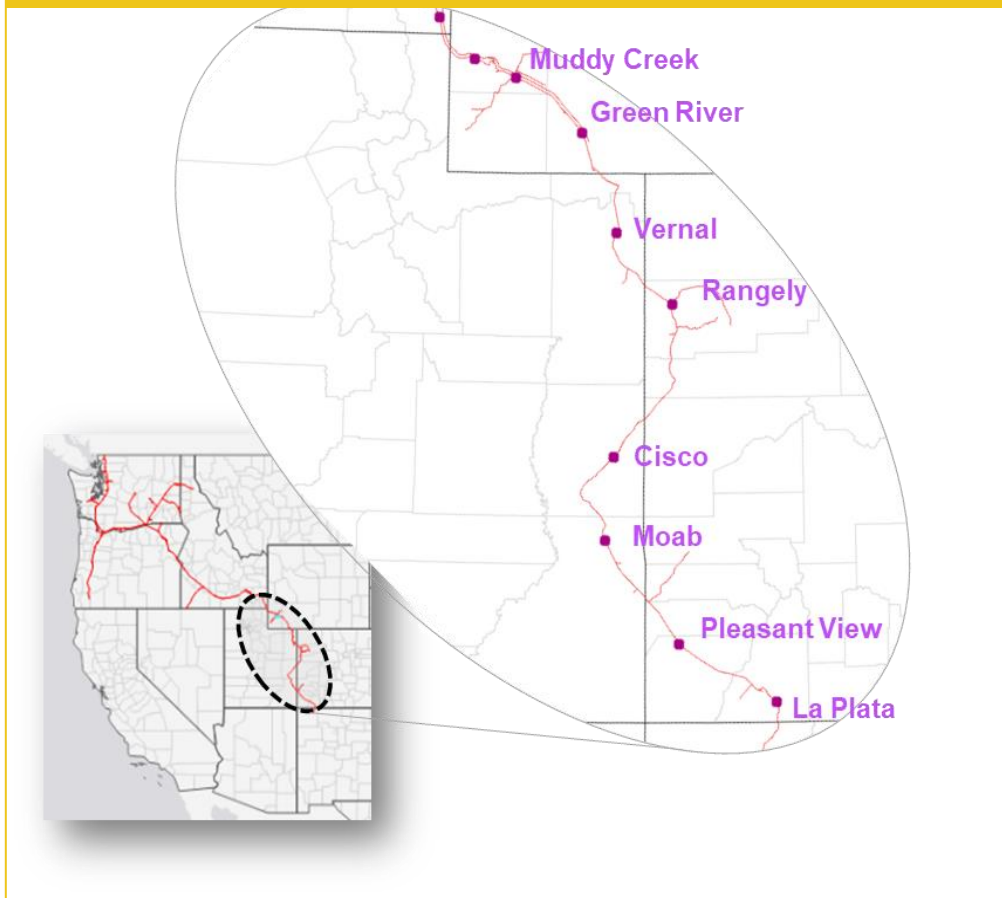
2021 █ 2022 █ 2023 █



Source: Williams Northwest Pipeline

# Southend Displacement Fix Effective April 2024

## No More OFO's Between Green River and LaPlata



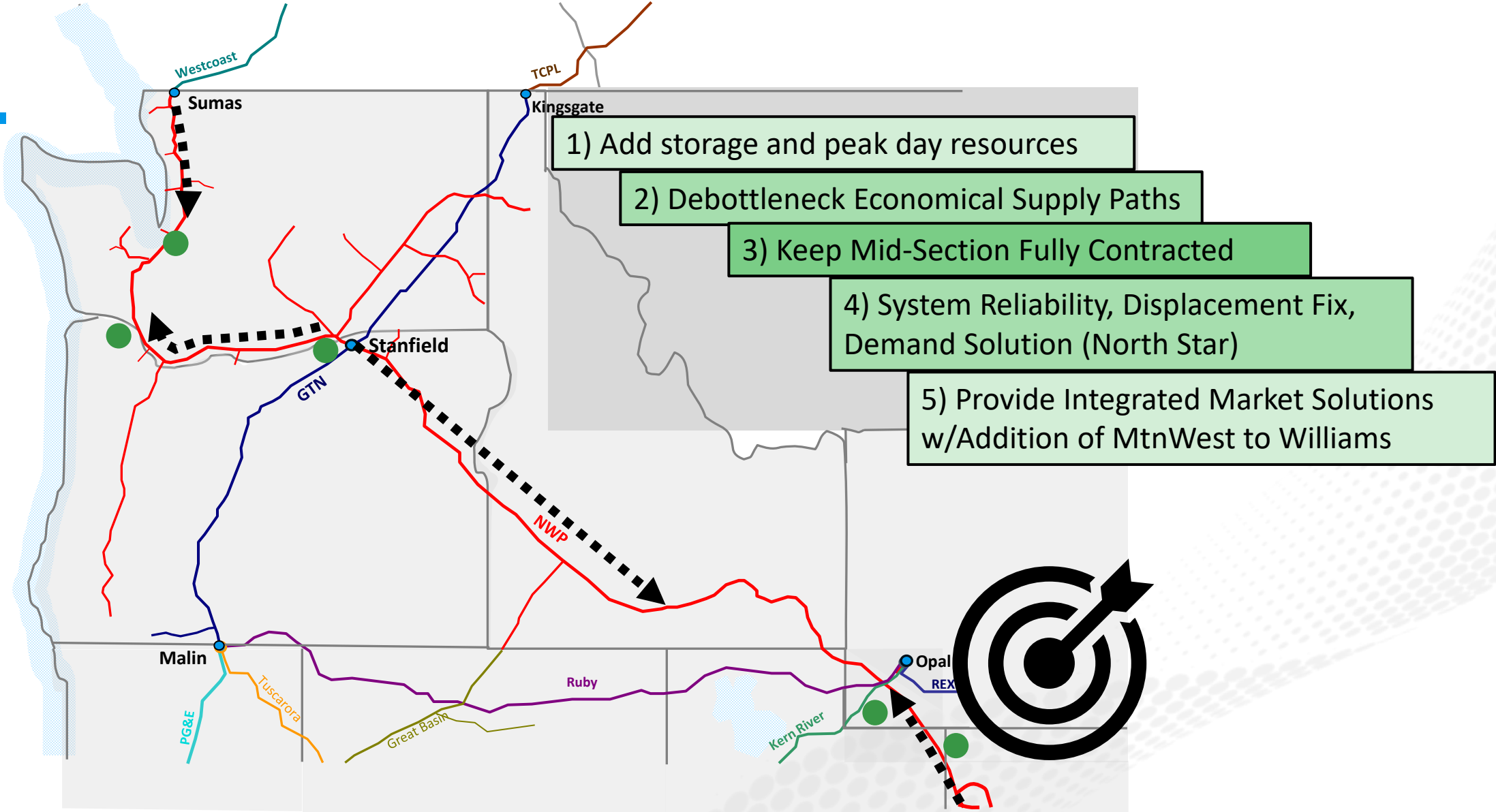
## South Flow Contracted Capacity Changes

	<u>31-Mar-24</u>	<u>1-Apr-24</u>	<u>Change</u>
Muddy Creek	693,673	693,673	-
Green River	660,673	599,673	(61,000)
Vernal	384,876	318,876	(66,000)
Rangely	358,761	292,761	(66,000)
Cisco	371,089	354,089	(17,000)
Moab	369,019	352,019	(17,000)
Pleasant View	367,966	350,966	(17,000)
LaPlata	365,426	348,426	(17,000)

## North Flow Contracted Capacity Changes

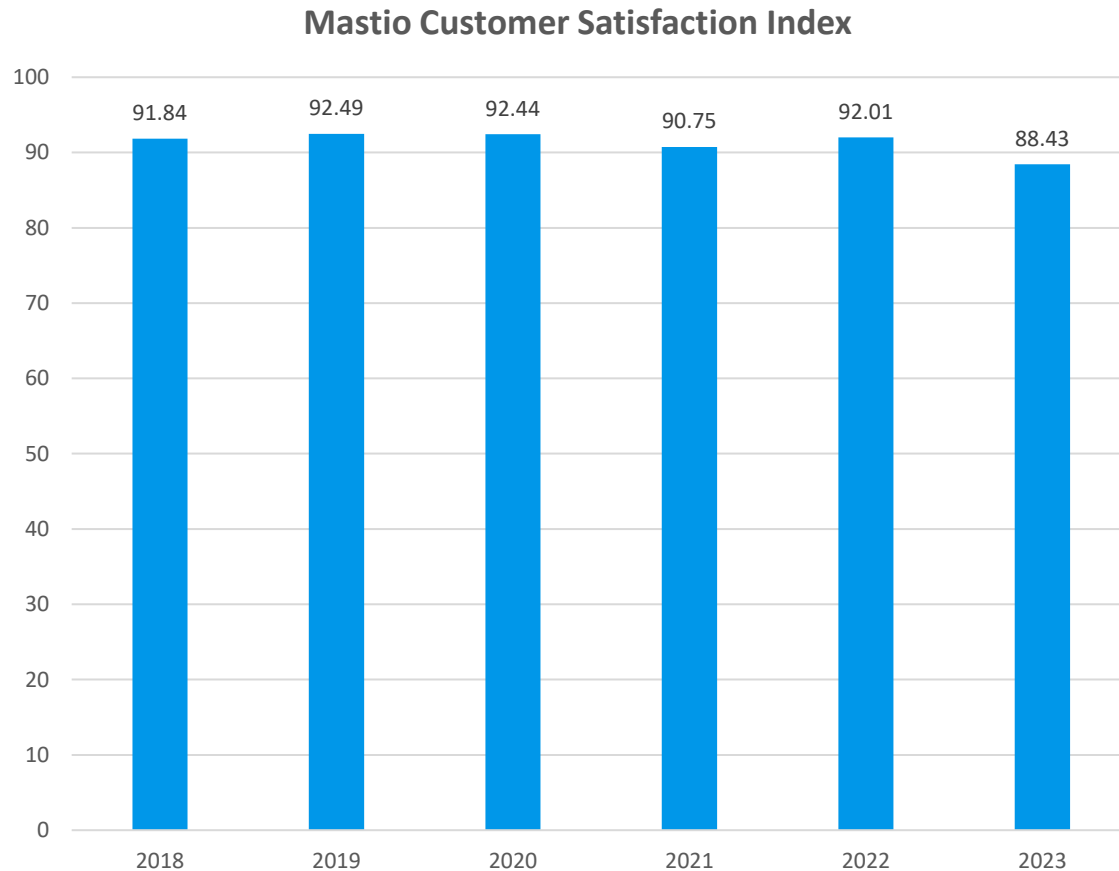
	<u>31-Mar-24</u>	<u>1-Apr-24</u>	<u>Change</u>
Muddy Creek	720,812	720,812	-
Green River	567,980	465,980	(102,000)
Vernal	452,855	350,855	(102,000)
Rangely	454,655	352,655	(102,000)
Cisco	384,802	282,802	(102,000)
Moab	388,910	286,910	(102,000)
Pleasant View	379,315	277,315	(102,000)
LaPlata	380,051	278,051	(102,000)

# Northwest Pipeline Strategic Imperatives





# Mastio Customer Survey Feedback



Source: Mastio

## Areas for Improvement

- Fewer OFO's
- Increase system reliability and balancing flexibility
- Understand customers' business
- Build team's bench – Newer team
- Enhanced communications and customer training opportunities





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# Q&A and Closing Comments

Camilo Amezquita, VP & GM Northwest Pipeline