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# Early Innings of a Potential Multiyear Bullish Energy Market

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**FUNDAMENTAL EQUITY: LIQUID REAL ASSETS TEAM**

JANUARY 2023

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## Setting the Stage: Energy Equity Markets

# 2022 Review & 2023 Predictions

While recession concerns may continue to create volatility in markets, we remain constructive on energy fundamentals and midstream equities

## 2022 Market Review

- Energy equities delivered strong returns in 2022, with broad energy (IXE Index) up 64% and midstream (AMUS Index) up 29%.
- The energy sector had a strong year of performance relative to the S&P 500 (down 18%) and now comprises 5%+ of the Index (vs. ~2% in 2020).
- Public energy companies continued to implement investor friendly capital allocation policies by utilizing strong free-cash-flow generation to reduce leverage, repurchase stock and grow dividends.
- Commodity fundamentals remained tight in 2022, largely due to years of underinvestment, which was exacerbated by the Russia-Ukraine crisis, with Europe experiencing the worst natural gas shortage in decades.
- The Russia-Ukraine crisis resulted in Brent crude oil prices rallying 64% to \$128/bbl through March. Prices remained elevated above \$100 through August, but ultimately fell with recession/demand concerns, finishing 2022 up 10% at \$86/bbl.
- Lost Russian gas supply sparked a 295% rally in European natural gas prices (Dutch TTF) through August. Mild weather, demand destruction and higher imports dragged prices down late in the year and ultimately finished flat compared to year-end 2021 levels.

## 2023 Market Predictions

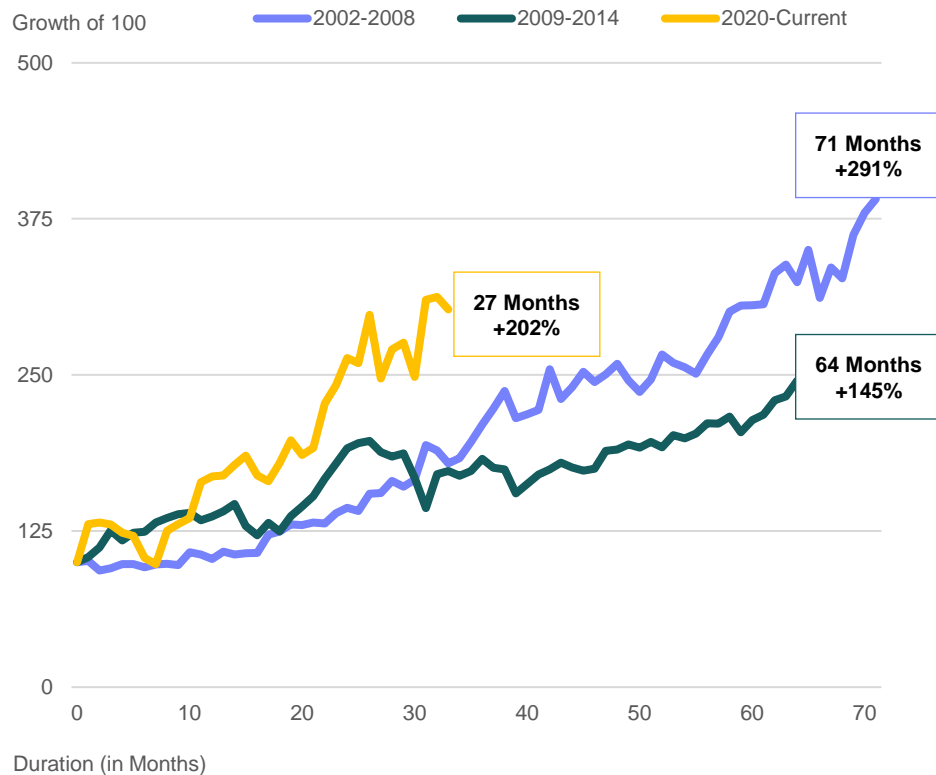
- Despite the 2022 rally, we continue to see upside in energy and midstream equities predicated on a combination of cheap valuations, healthy balance sheets, elevated commodity prices, and asset class tailwinds during inflationary periods (contracted assets, fixed costs, etc).
- Midstream valuations are trading at a significant EV/EBITDA discount relative to their own history and broader equities. The sector also trades with 9-11% 2023 free-cash-flow yields, with MLPs trading at the higher end of the range.
- We believe companies will continue to generate strong free-cash-flow that can be used to further reduce debt if needed and return capital to investors through dividend increases and stock buybacks.
- We also forecast that oil fundamentals will remain tight given long-term underinvestment in new projects, Russian export bans, and recovering Chinese demand, which we believe will result in Brent crude oil prices trading in the \$80-100/bbl range in 2023.
- Recession headlines may create volatility, but energy demand has historically been resilient during recessionary periods with all recessions since 1970 implying only a 1.5% average decline in oil demand.

Sources: Goldman Sachs Asset Management and Bloomberg. Data as of December 31, 2022. MLPs: Master Limited Partnerships. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation. Goldman Sachs does not provide accounting, tax or legal advice. Please see additional disclosures at the end of this presentation. For illustrative purposes only **Past performance does not guarantee future results, which may vary.**

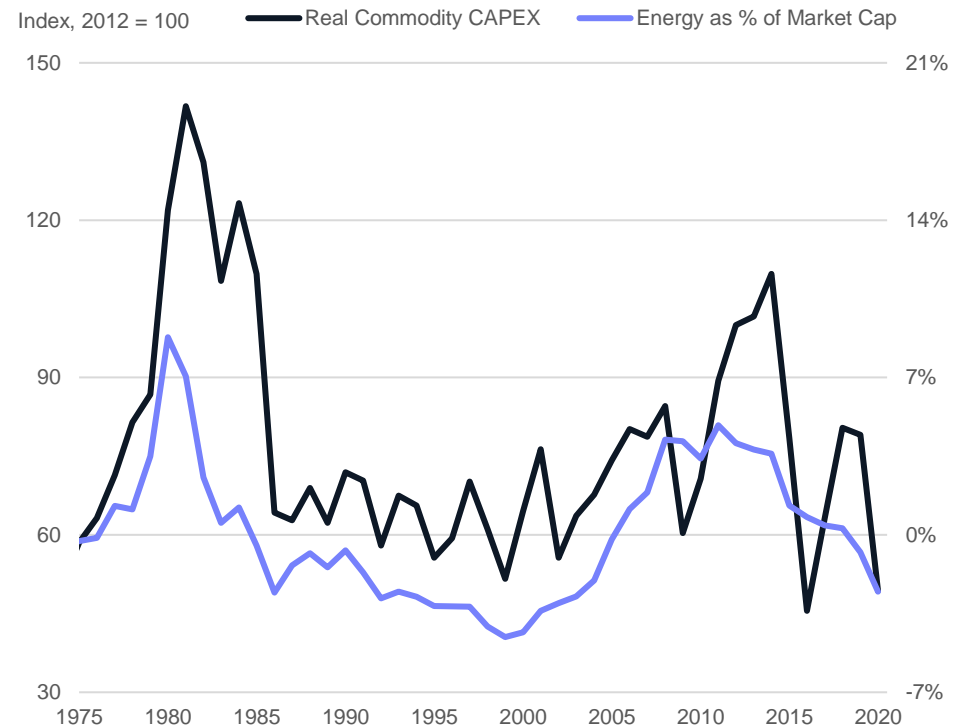
# The Energy Sector Still Has Room to Run

Using the past as prologue, it appears that we may still be in the early stages of a multiyear bull market in energy equity markets

## ENERGY BULL MARKET RETURNS & DURATION (IXE INDEX)



## COMMODITY CAPEX RISES WHEN PRODUCERS SEE VALUATIONS RISE<sup>1</sup>

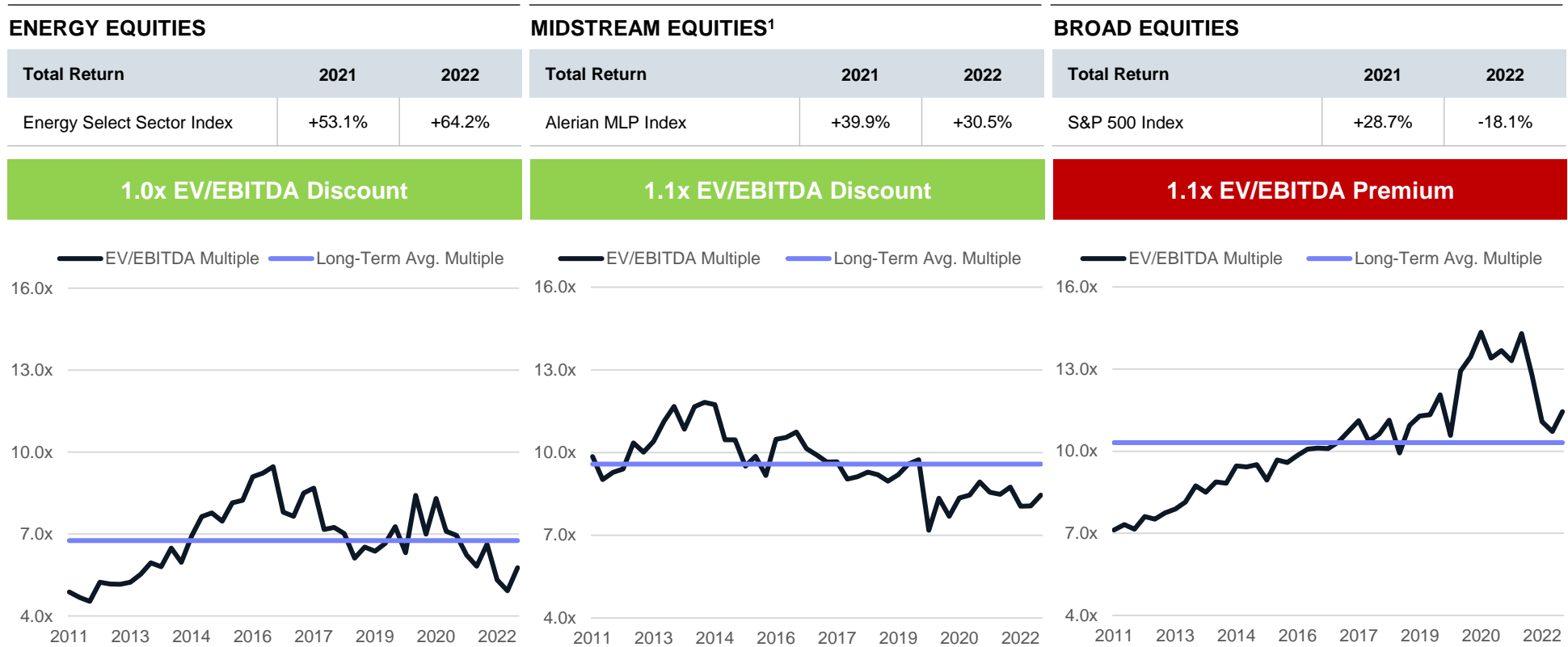


Historically, a significant increase in new oil & gas investment precedes the end of an energy equity bull market. Thus far, E&P management teams have remained disciplined with U.S. production only expected to grow 3-5% per annum for the foreseeable future, suggesting this energy bull market may still be in its infancy and could even outlast previous cycles.

Sources: Goldman Sachs Asset Management, Bloomberg, and <sup>1</sup>Goldman Sachs Global Investment Research (GIR). Data as of December 31, 2022. **Past performance does not guarantee future results, which may vary.**

# Energy Equities Have Outperformed But Remain Cheap

On a total return basis, energy equities have outperformed the S&P 500 by 146% since 2020, but still trades at an EV/EBITDA valuation discount while broader equities trade with a premium



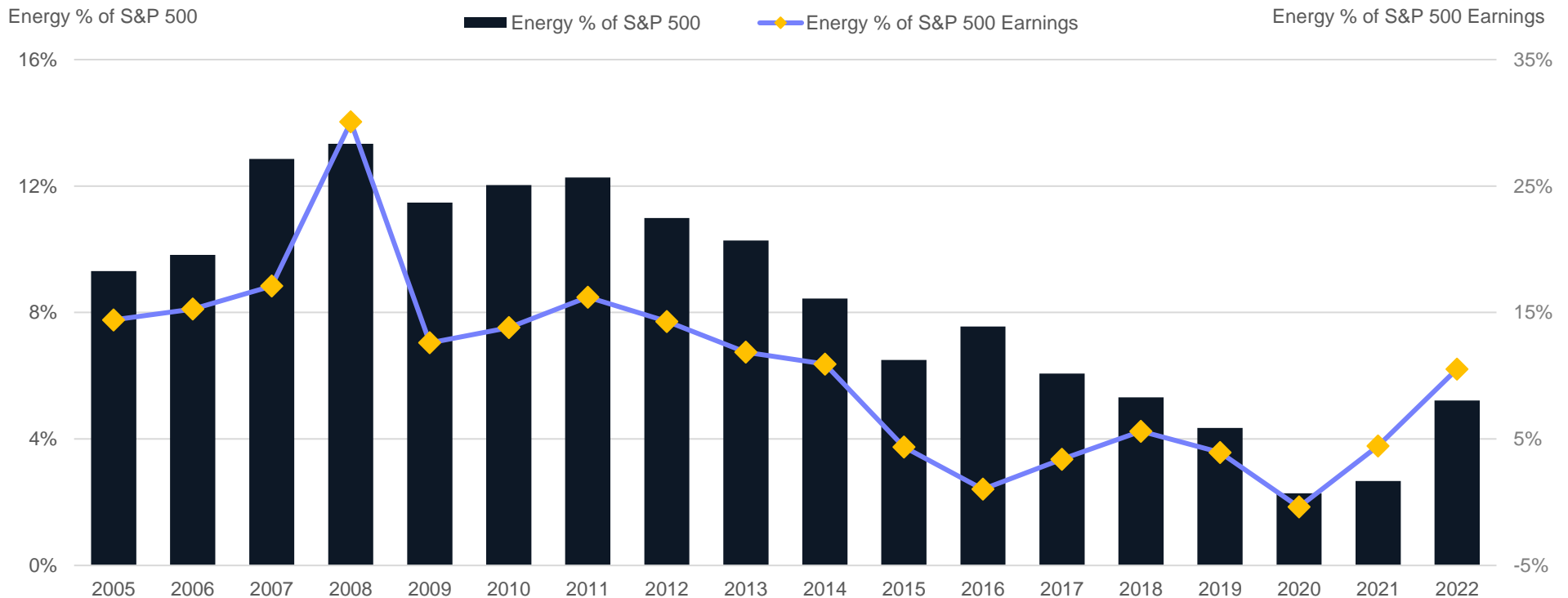
We'd note that since the end of 2014, the year the midstream sector peaked, the AMZ Index is still down -10% on a total return basis, while the S&P 500 has returned +117%.

Sources: Goldman Sachs Asset Management and Bloomberg. <sup>1</sup>Midstream is represented through the oldest vintage energy infrastructure industry index, the Alerian MLP Index. Data as of December 31, 2022. Past performance does not guarantee future results, which may vary.

# Energy Represented ~11% of S&P 500 Earnings in 2022

Strong performance for energy equities over the past two years has brought the weighting in the S&P 500 from 2% in 2020 (lowest level in decades) to more than 5%

## ENERGY SECTOR'S REPRESENTATION IN THE S&P 500 INDEX



A greater proportion of the S&P 500's earnings (energy represented ~11% of the Index's earnings in 2022) may serve as a positive catalyst for equity prices as investors that have historically been underweight the sector, start to increasing exposure accordingly.

Sources: Bloomberg and Goldman Sachs Global Investment Research (GIR). Data as of December 31, 2022. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation. **Past performance does not guarantee future results, which may vary.**

# Strong Equity Yields with Growing Dividends

While fixed income yields crept higher in 2022, we'd highlight that midstream equities still trade with 250bps of excess yield over the 10-year treasury and have payouts growing in the high single digits

## TOP 15 U.S. MIDSTREAM COMPANIES (AMUS INDEX)

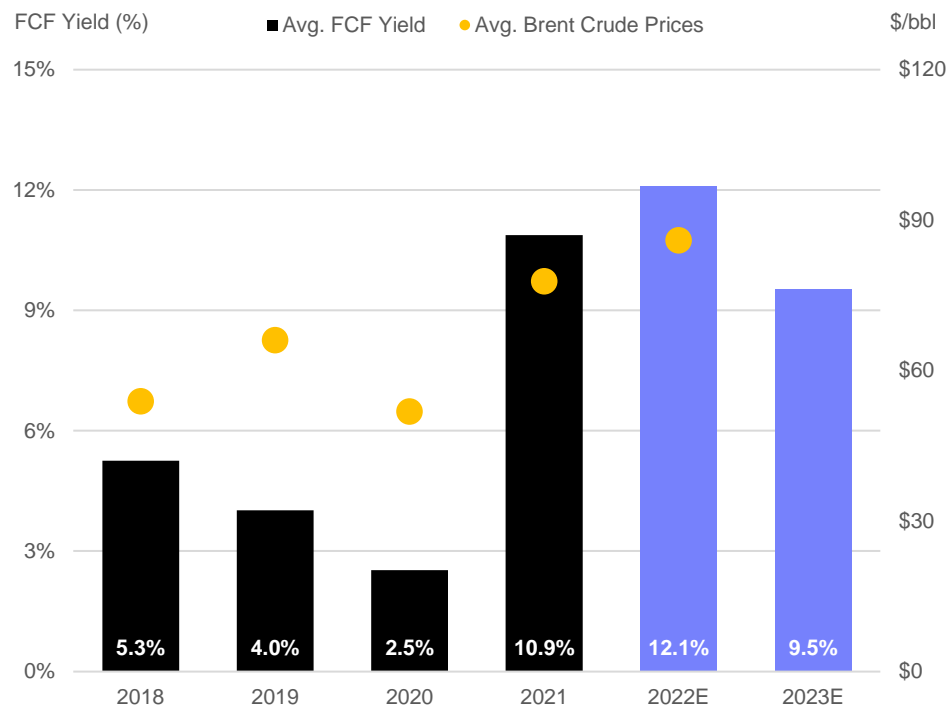
Ticker	Name	Index Weight	Dividend Yield	2023 Expected DPS Growth	2023 Expected FCF Yield
OKE	ONEOK Inc	10.2%	5.7%	2.1%	5.4%
KMI	Kinder Morgan Inc	10.1%	6.1%	1.8%	5.4%
ET	Energy Transfer LP	10.1%	8.9%	22.6%	16.7%
EPD	Enterprise Products Partners LP	10.0%	7.9%	6.2%	9.6%
WMB	Williams Cos Inc/The	9.9%	5.2%	5.2%	5.9%
LNG	Cheniere Energy Inc	9.1%	1.1%	10.0%	11.4%
TRGP	Targa Resources Corp	8.1%	1.9%	14.3%	4.6%
MPLX	MPLX LP	5.7%	9.4%	8.1%	11.6%
MMP	Magellan Midstream Partners LP	5.0%	8.3%	1.3%	7.8%
DTM	DT Midstream Inc	2.6%	4.6%	6.1%	5.0%
PAA	Plains All American Pipeline LP	2.6%	7.4%	16.3%	16.9%
WES	Western Midstream Partners LP	2.6%	7.4%	10.0%	11.9%
ENLC	EnLink Midstream LLC	1.9%	3.7%	10.5%	10.2%
DCP	DCP Midstream LP	1.7%	4.4%	0.0%	10.3%
AM	Antero Midstream Corp	1.7%	8.3%	0.0%	9.7%
<b>Total/Average</b>		<b>91.3%</b>	<b>6.0%</b>	<b>7.6%</b>	<b>9.5%</b>

Sources: Goldman Sachs Asset Management and Bloomberg. Data as of December 31, 2022. DPS: Distribution per share. FCF: Free-cash-flow. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation. Goldman Sachs does not provide accounting, tax or legal advice. Please see additional disclosures at the end of this presentation. Any reference to a specific company or security does not constitute a recommendation to buy, sell, hold or directly invest in the company or its securities. For illustrative purposes only **Past performance does not guarantee future results, which may vary.**

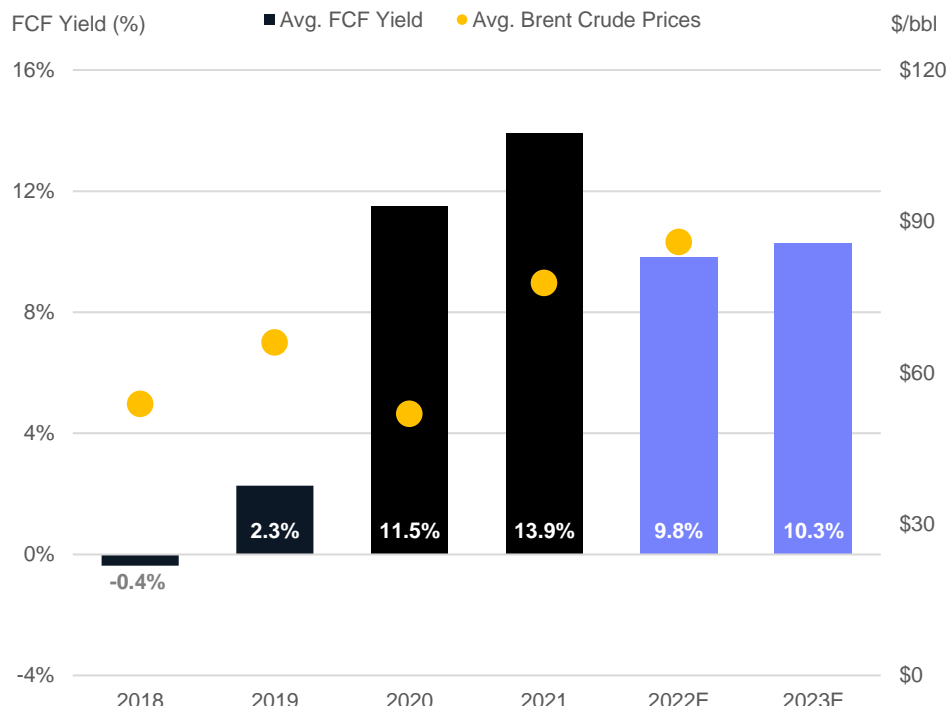
# Energy Equities Are Trading With Attractive FCF Yields

Crude prices trading steadily over \$70/bbl paired with meaningfully reduced CAPEX budgets and growing EBITDA has allowed energy companies to generate a significant amount of free-cash-flow

## TOP 15 BROAD ENERGY FCF YIELDS (IXE INDEX)



## TOP 15 U.S. MIDSTREAM FCF YIELDS (AMUS INDEX)



The midstream sector, which was once cash flow negative, is now trading with FCF yields in the 9-11% range as management team's reset their focus during COVID-19 and are now intently focused on returning capital to shareholders through dividend increases and special dividends.

Sources: Goldman Sachs Asset Management, Bloomberg, and Goldman Sachs Global Investment Research (GIR). Data as of December 31, 2022. 2023 Brent Price forecast provided by GIR. **Past performance does not guarantee future results, which may vary.**



# We Believe Midstream is Fundamentally Undervalued

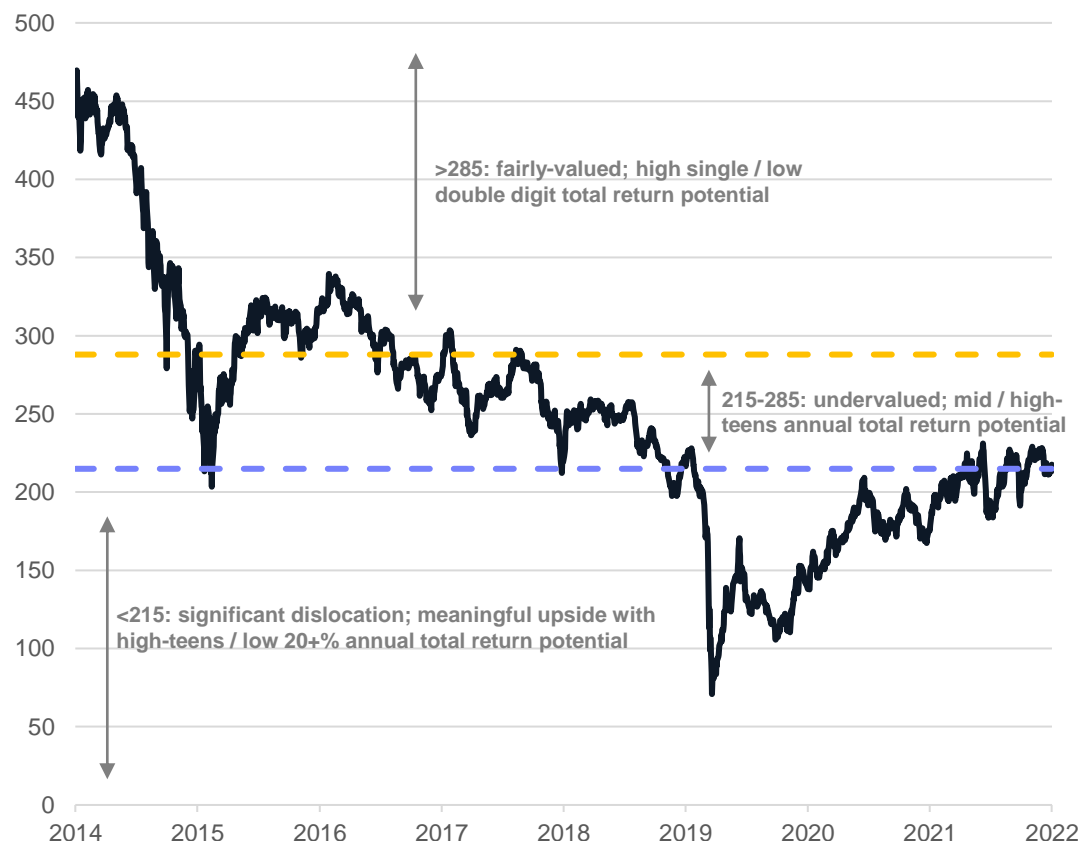
The sector is currently trading with 9-11% FCF yields and 6-7% dividend yields; based on a fundamental analysis, we believe the sector has significant upside potential

## Sector Highlights<sup>1</sup>

Current Yield	6-7%
2023E FCF Yield	9-11%
2023E Distribution Growth	6-8%
2023E EPS Growth	7-8%

- **Strong Fundamentals:** global oil & gas capex is down ~70% since 2014. This, coupled with robust demand and disciplined supply, suggests continued strength in commodity prices.
- **Attractive Valuations:** cheap vs. history and broader equities
- **Macro Tailwinds:** increased global focus on energy security
- **Inflation Benefits:** commodity exposure and dividend growth
- **Downside Mitigants:** cheap vs. history while other equities are historically expensive; previous recessions have only had a moderate demand impact

## AMZ Index Level Signals

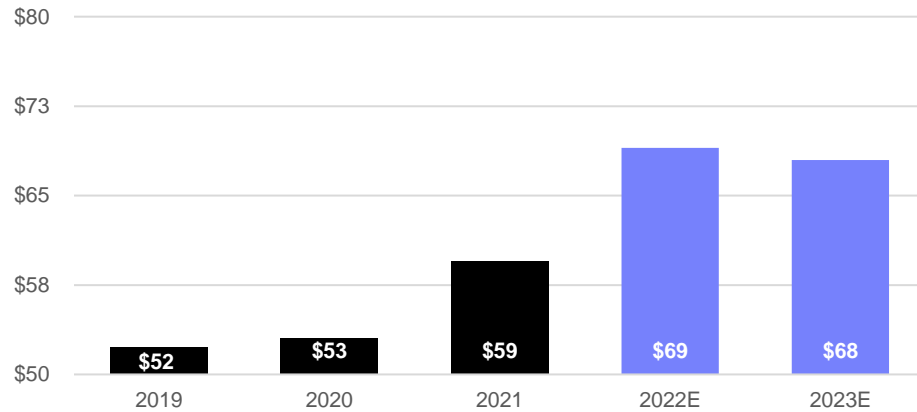


Sources: Goldman Sachs Asset Management and Bloomberg. Data as of December 31, 2022. <sup>1</sup>The low end of the range is represented by the Alerian US Midstream Energy Index (AMUS) and the high end of the range is represented by Alerian MLP Index (AMZ) which is an MLP-only Index. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation. For illustrative purposes only. **Past performance does not guarantee future results, which may vary.**

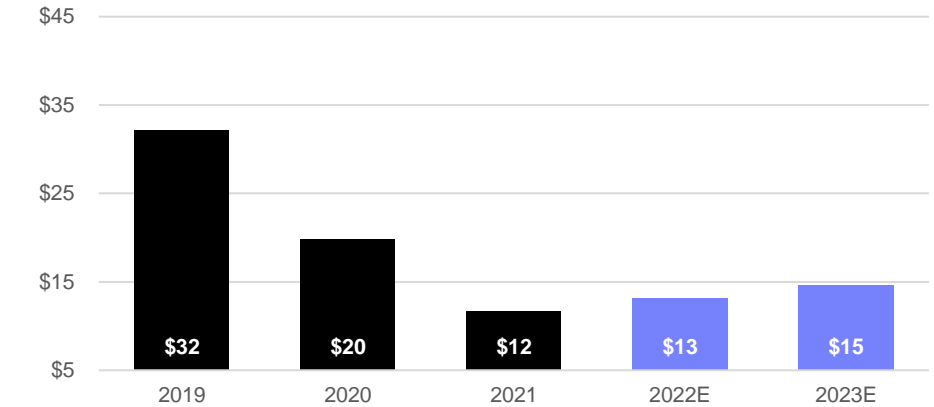
# Midstream Fundamentals Are The Strongest on Record

Relative to 2020 levels, EBITDA is expected to be up 28% in 2023, CAPEX down 25%, leverage down nearly one turn and free-cash-flow up 74%

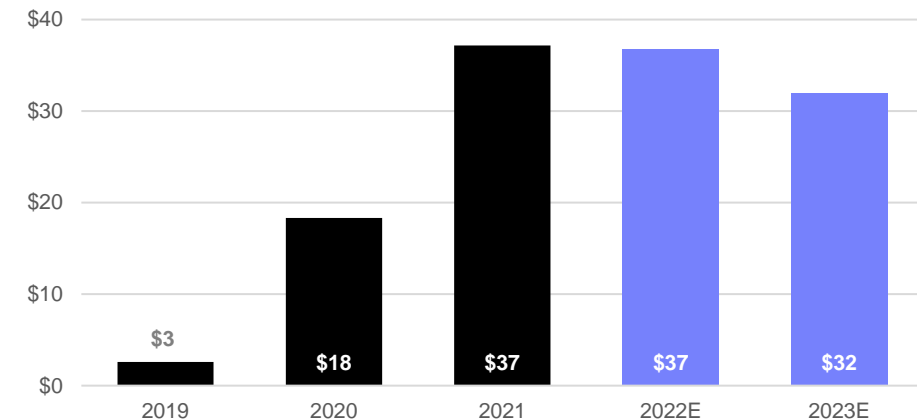
TOP 15 U.S. MIDSTREAM EBITDA (AMUS INDEX, \$BN)



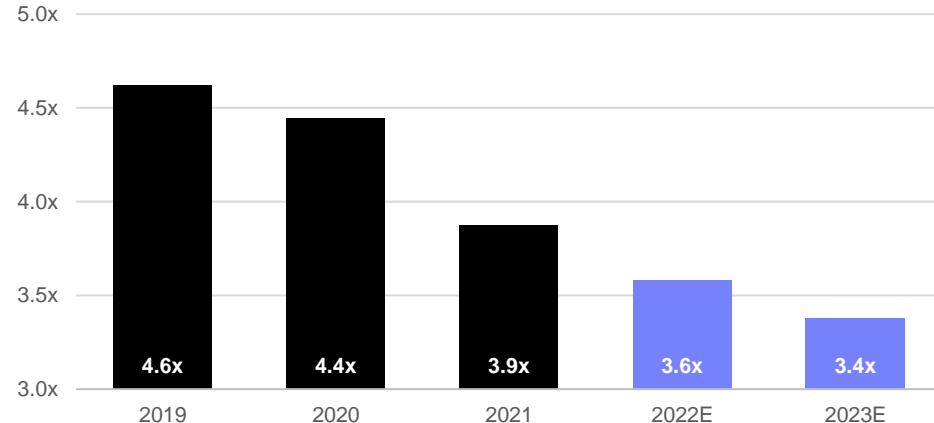
TOP 15 U.S. MIDSTREAM CAPITAL SPENDING (AMUS INDEX, \$BN)



TOP 15 U.S. MIDSTREAM FREE-CASH-FLOW (AMUS INDEX, \$BN)



TOP 15 U.S. MIDSTREAM LEVERAGE (AMUS INDEX, DEBT/EBITDA)



Sources: Goldman Sachs Asset Management, Wells Fargo, and Bloomberg. Data as of December 31, 2022. Midstream is represented through the top 15 constituents of the Alerian US Midstream Energy Index (AMUS) excluding DTM. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation. **Past performance does not guarantee future results, which may vary.**

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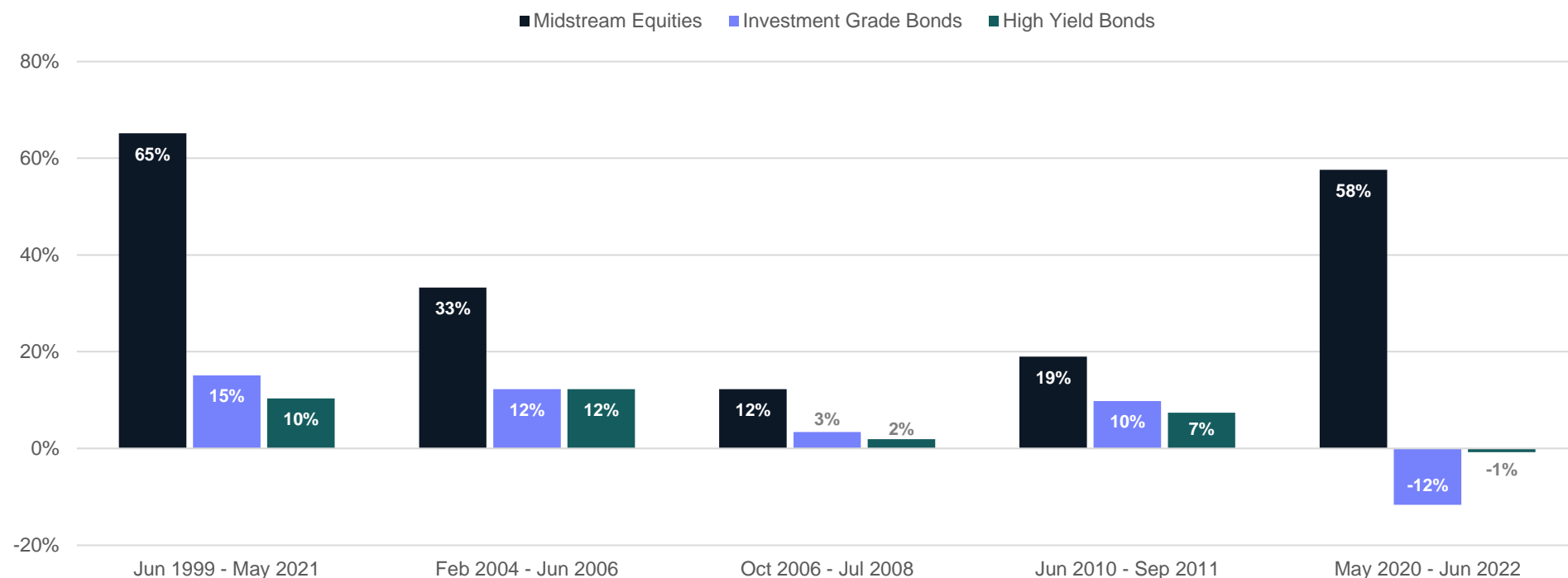
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## Macro Forces In Play: Inflation, Interest Rates, and Recessionary Concerns

# High Inflation: Midstream Historically Outperforms Bonds

As seen during recent periods of rising inflation, the midstream sector has demonstrated significant outperformance when compared to high yield and investment grade bonds

## TOTAL RETURN DURING PERIODS OF RISING INFLATION<sup>1</sup>



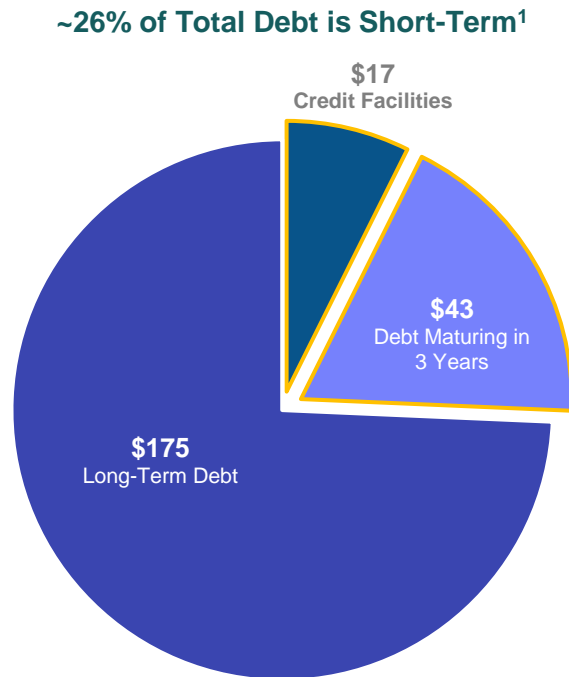
While income represents an important part of the midstream equity returns, its outperformance vs. bonds can be largely attributed to the sector's resilient earnings profile and fixed cost structures with inflation escalators integrated into revenue streams.

Sources: Goldman Sachs Asset Management and Bloomberg. Data as of December 31, 2022. <sup>1</sup>Midstream is represented through the oldest vintage energy infrastructure industry index, the Alerian MLP Index. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation. Goldman Sachs does not provide accounting, tax or legal advice. Please see additional disclosures at the end of this presentation. For illustrative purposes only **Past performance does not guarantee future results, which may vary.**

# Rising Interest Rates: Limited Impact to Midstream

The overall impact to interest expense from rising rates is a manageable headwind as only 26% of the sector's total debt is sensitive to interest rate changes

TOP 15 U.S. MIDSTREAM TOTAL DEBT (AMUS INDEX, \$BN)



TOP 15 U.S. MIDSTREAM TOTAL FCF 2023E-2025E (AMUS INDEX, \$BN)










Rising rates are less of a concern for midstream companies given that 1) 26% of debt is short-term and not up for refinancing and 2) companies still have sufficient excess FCF after dividends to pay down short-term debt and/or cover increased financing costs.

Sources: Goldman Sachs Asset Management, Bloomberg, and Wells Fargo. Data as of December 31, 2022. <sup>1</sup>Short-term debt: credit facilities and debt maturing in 3 years (2023-2025). FCF: Free-cash-flow. Past performance does not guarantee future results, which may vary.

# Recession Concerns: Demand Impact Muted Historically

Potential weakness in demand due to a recession is not unmanageable with the all recessions since 1970 implying an average year-over-year decline of 1.5% or 1.5 MMbpd

Recession Period	Peak Unemployment Rate	Cumulative Change in Oil Demand	% Change from Pre-Recession Level	Other Factors
1970-71	6.1%	 +3.6 MMbpd	+8.6%	--
1974-75	9.0%	 -1.2 MMbpd	-2.2%	Oil Crisis
1980-82	10.8%	 -6.2 MMbpd	-9.7%	Oil Crisis
1991-92	7.8%	 +1.0 MMbpd	+1.5%	Gulf War
2001-03	6.3%	 +2.5 MMbpd	+3.3%	Tech Bubble
2008-09	10.0%	 -2.1 MMbpd	-2.5%	Great Financial Crisis
2020	14.7%	 -9.0 MMbpd	-9.3%	COVID-19 Pandemic

History would suggest that a deep and prolonged recession is necessary to materially impair crude oil demand, historically unemployment rates in excess of 8% coincide with this, while more shallow recessions such as 1970-71, 1991-92, and 2001-03 experienced a more muted reaction.

Sources: Goldman Sachs Asset Management, Bloomberg, BP Statistical Review, and Federal Reserve Bank of St. Louis. Data as of December 31, 2022. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation. **Past performance does not guarantee future results, which may vary.**

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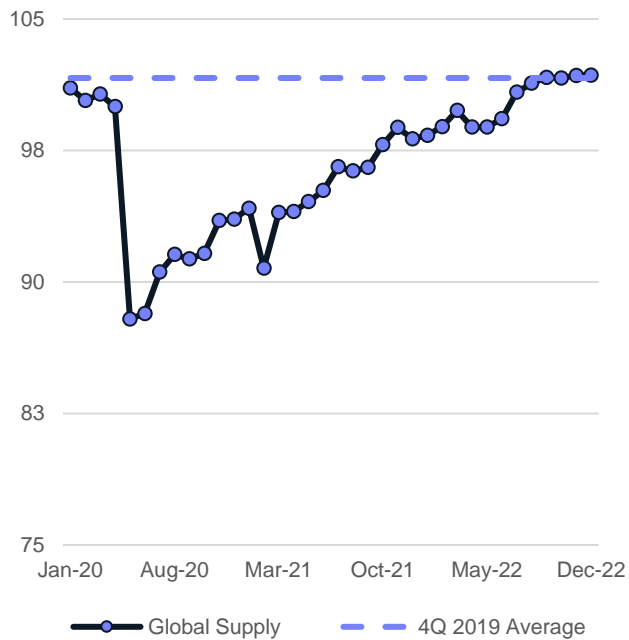
## Commodity Markets: Supply and Demand Dynamics

# The Global Oil Market is Largely Balanced

While supply and demand have recovered to pre-COVID levels, oil inventories remain significantly below historical averages

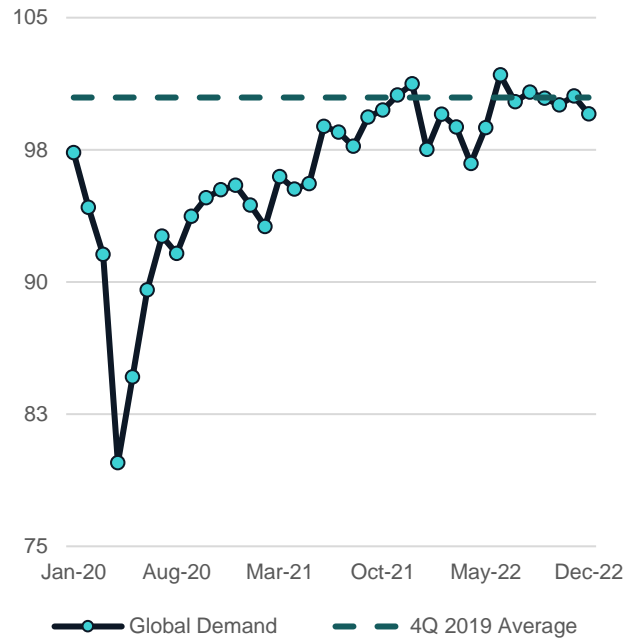
GLOBAL CRUDE OIL SUPPLY (MMBPD)

**In-Line with Pre-COVID levels**



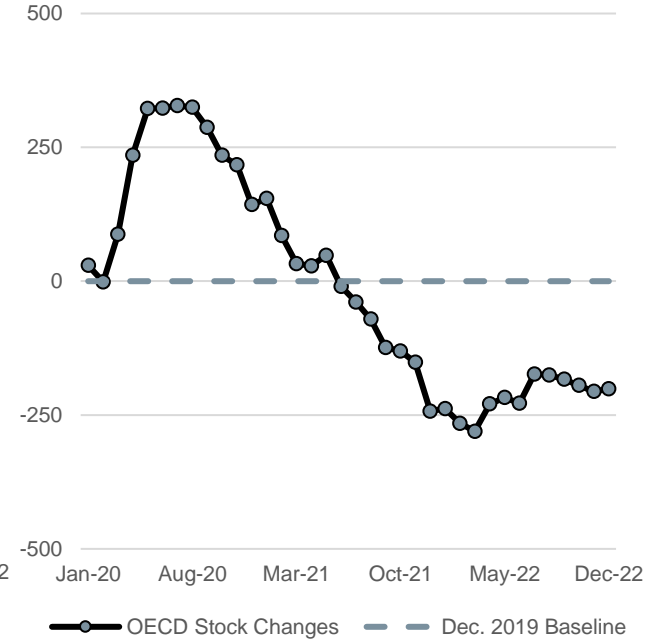
GLOBAL CRUDE OIL DEMAND (MMBPD)

**In-Line With Pre-COVID levels**



OECD STOCK CHANGES VS. DEC. 2019

**200 MMbbls Below Pre-COVID levels**



As Chinese demand continues to recover, an additional 1.0 MMbpd of demand could come online in 2023. At the same time, Russian supply is expected to fall by more than 0.5 MMbpd. The combination suggests further oil market tightness and provides upside support for crude oil prices.

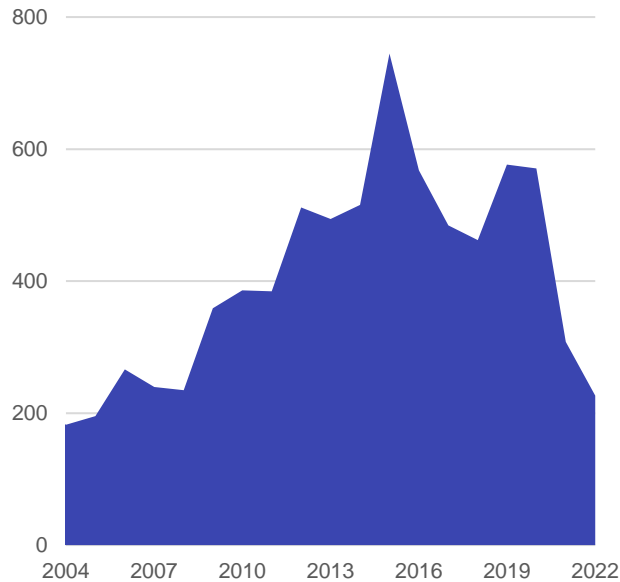
Sources: Goldman Sachs Asset Management, Goldman Sachs Global Investment Research (GIR), and Bloomberg. Latest data as of December 31, 2022. For illustration purposes only.



# The Global Supply Picture Remains Relatively Tight

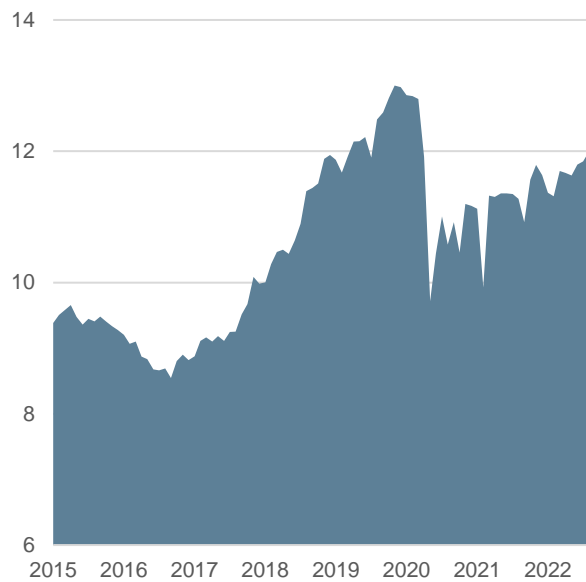
Years of underinvestment in the energy sector, muted U.S. production growth, and scant OPEC+ spare capacity has led to a tight oil market with the potential for further tightness as demand improves

GLOBAL CRUDE OIL CAPEX (\$BN)



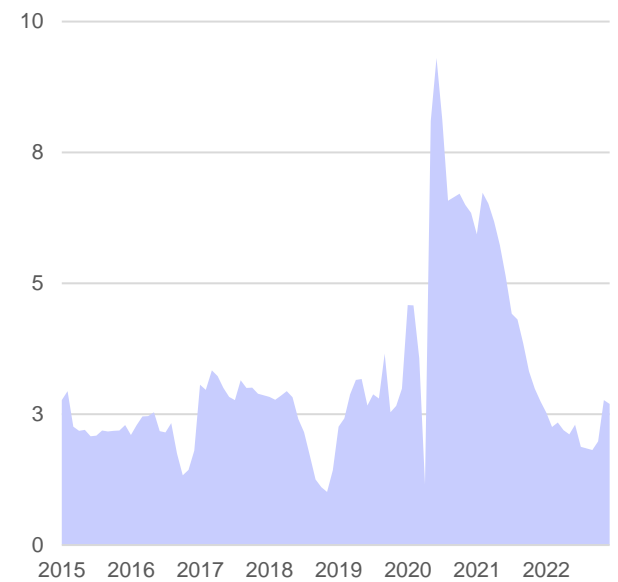
Global oil & gas investment is down ~70% since 2014, limiting meaningful global supply increases for the foreseeable future.

U.S. PRODUCTION (MMBPD)



We expect continued U.S. production discipline from management teams with production growth of only 3-5% in 2023.

OPEC SPARE CAPACITY (MMBPD)

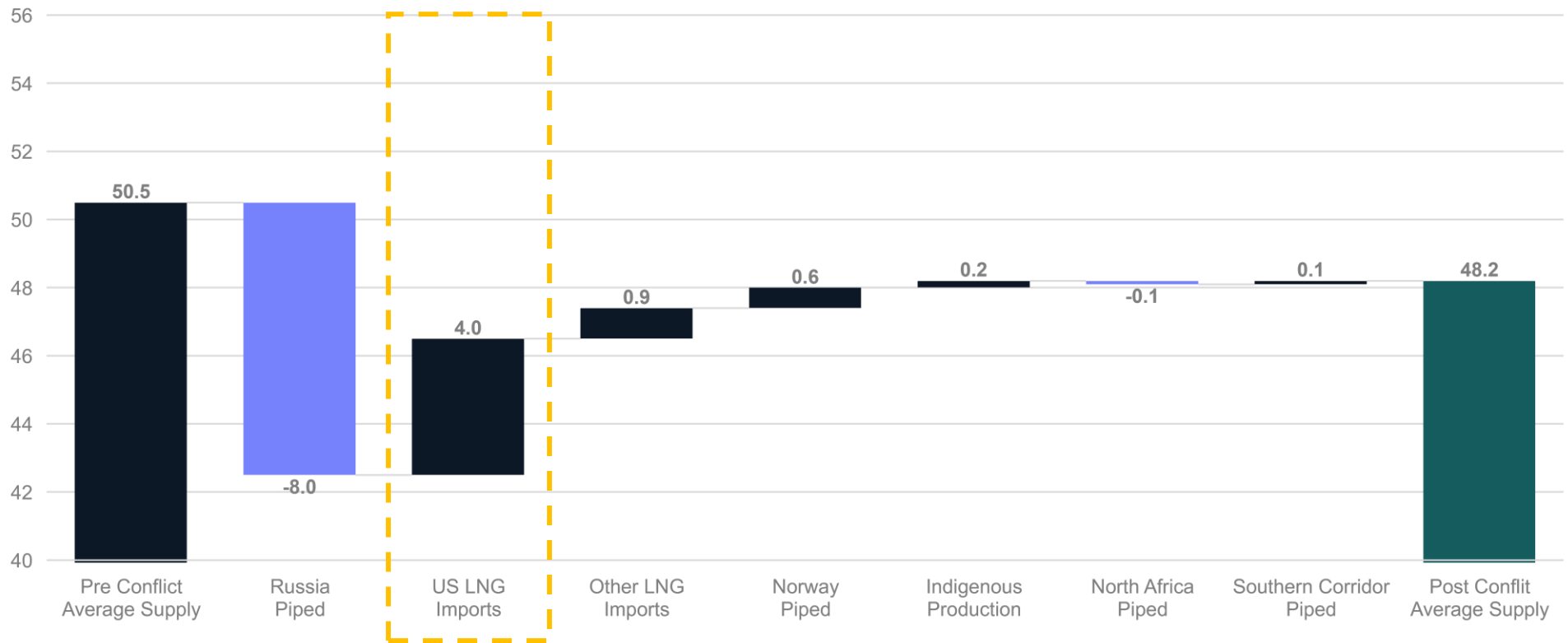


We believe OPEC production growth will remain highly price sensitive with no incremental growth beyond market needs.

# Major Shifts in European Gas Imports Since Start of Hostilities

Since the February 2022 Russian invasion of Ukraine, an increase in US LNG imports has played a major role in addressing declining Russian gas availability in Europe

PRE VS. POST CONFLICT SOURCES OF EUROPEAN NATURAL GAS (BCF/DAY)



Natural gas shortages in Europe have led to a steep increase in prices, which in turn has resulted in demand destruction of 5.4 bcf/d.

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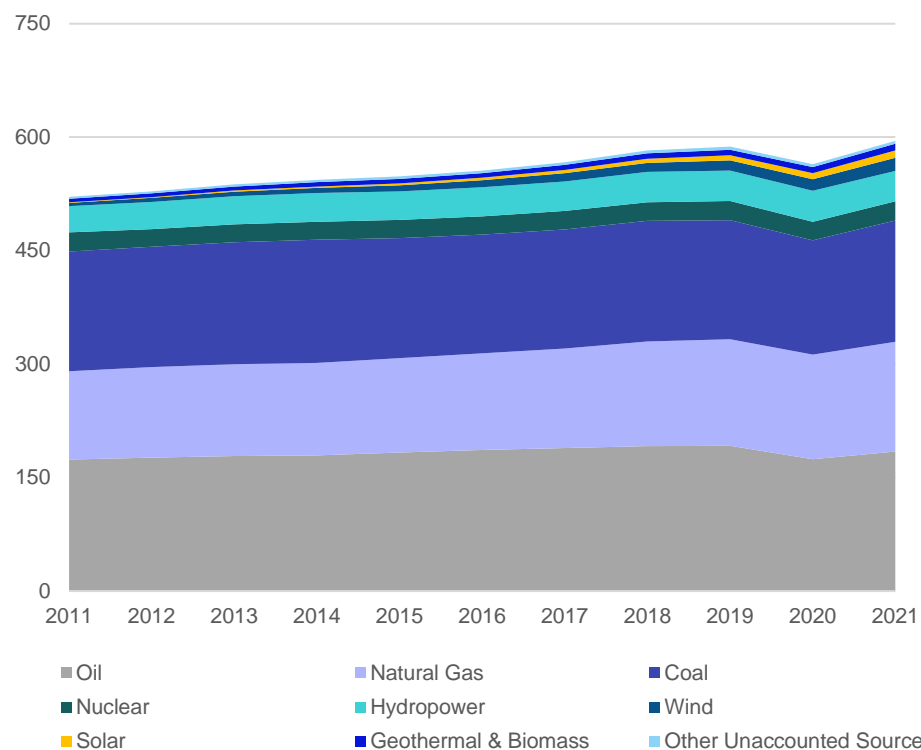
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## Appendix & Disclosures

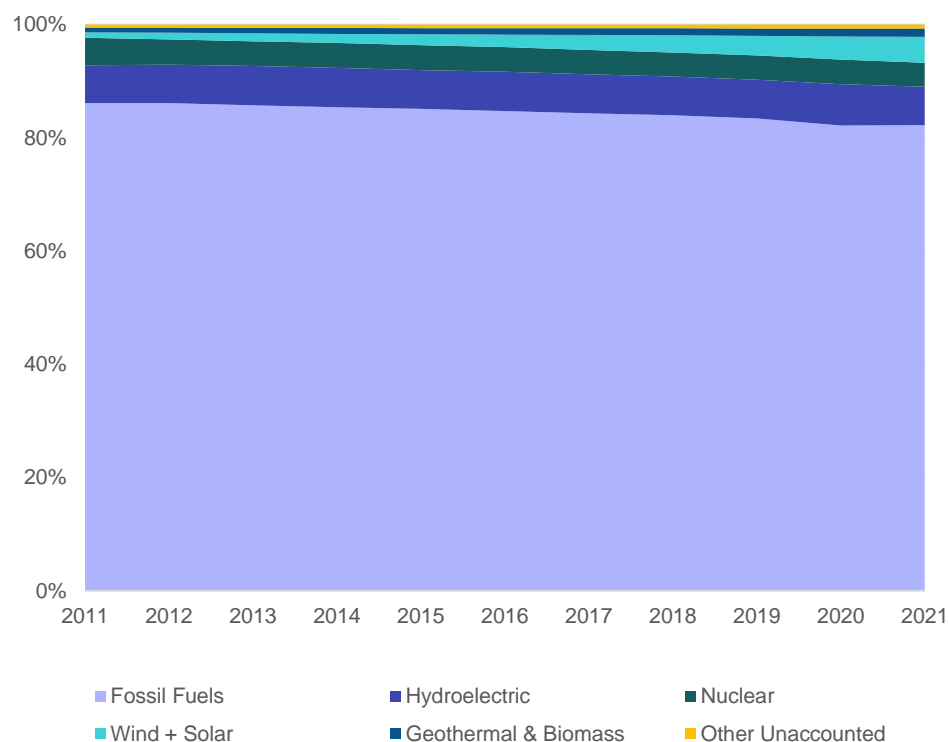
# Crude Oil: Global Energy Consumption

Fossil fuels have accounted for more than 80% of total energy consumption globally over the past 10 years and are expected to remain over 70% of the energy mix through 2050

PRIMARY ENERGY CONSUMPTION BY FUEL 2011-2021 (EXAJOULES)



SHARE OF TOTAL ENERGY CONSUMPTION 2011-2021



Over the past decade, oil and gas consumption has fallen 4% and renewables have only gained 4% of market share despite over \$5 Tn of cumulative clean energy investment from 2017-2021.

Total energy consumption is expected to grow 43% from 2020 to 2050 with fossil fuels still accounting for 73% of total consumption in 2050, which is ~24% growth in absolute fossil fuel demand vs 2020 levels – supporting the claim that peak oil demand could be decades away.

Sources: Goldman Sachs Asset Management, BP, International Energy Agency (IEA). Latest data as of December 31, 2022. Past performance does not guarantee future results, which may vary.

# Crude Oil: A Critical Global Commodity

Recent energy crisis has precipitated a change in perception of fossil fuels with rising consumer power prices being weighed against the pace of decarbonization initiatives

## Growth in Population & Prosperity

We believe there is significant support, and growth, for oil demand through 2035 supported by population & prosperity growth and the consequential rise in energy consumption:

- Most of the the world's population (**63%**) consumes less than **4 barrels** of oil per person, annually<sup>1</sup>.
- For context, the developed world (**U.S. Europe, Japan, etc.**) consumes **10-21 barrels** of oil per person, annually<sup>1</sup>.
- World **population is expected to grow to 8.8 billion by 2035** vs. 7.6 billion in 2019<sup>2</sup>.
- **Rising population & prosperity increases oil demand**, a trend we expect to continue, and be particularly strong in China & India.
- In our view, growing electric vehicle (**EV**) penetration is not a **threat to oil demand growth** (example: Norway).

## North America Is A Key Global Supplier

North America is well positioned to be a leading supplier of crude oil across the globe:

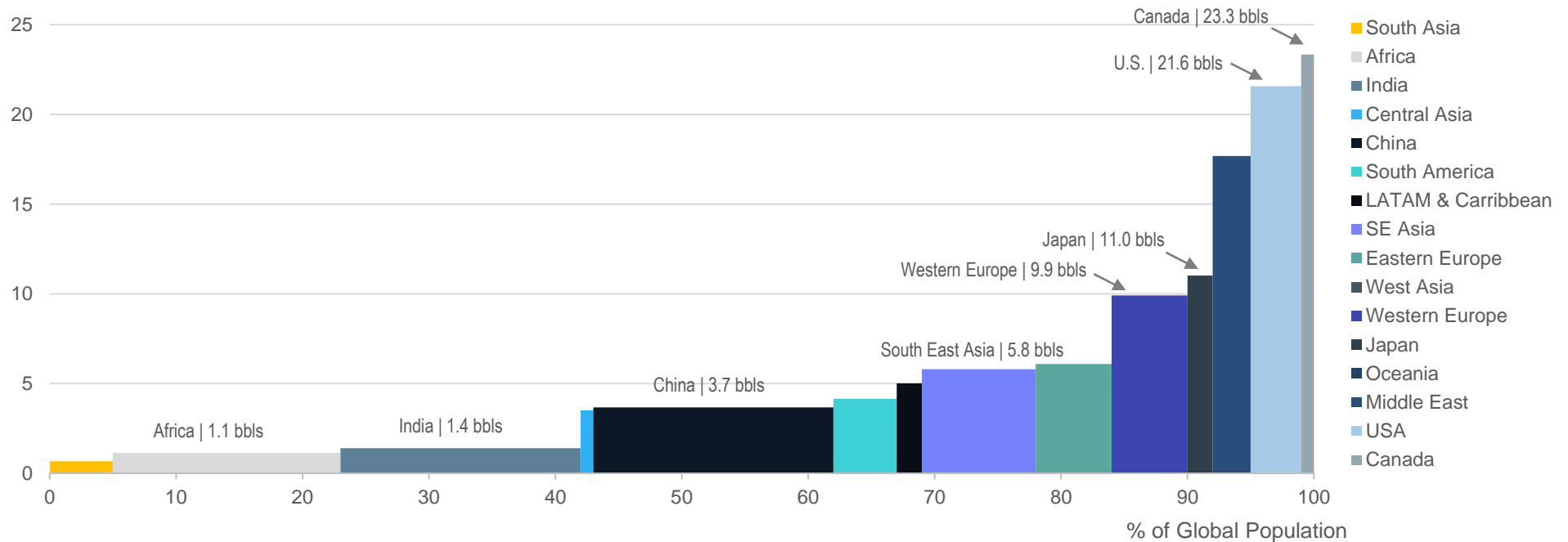
- **Limited OPEC+ spare capacity** and **years of global underinvestment**, suggests continued tightness in global oil markets, especially as Chinese demand normalizes.
- Global supply disruptions due to **geopolitical tensions** and years of **significant infrastructure underinvestment**.
- North America has a significant amount of **proved, untapped oil reserves**, which can backfill lost Russian production and help other countries **diversify energy supply**.
- Significant support from the Permian Basin in West Texas, which is expected to experienced **58% production growth** through 2027 and already has **sufficient infrastructure capacity to satisfy this growth**<sup>3</sup>.

Sources: Goldman Sachs Asset Management, <sup>1</sup>BP Statistical Review, <sup>2</sup>U.S. Census Bureau, and <sup>3</sup>Wells Fargo. Latest data as of December 31, 2022. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation.

# Crude Oil: Majority of the World Is Still “Energy Poor”

63% of the world’s population has per capita oil consumption of less than 4.0 bbls; a normalization to even half that of Western Europe, suggests significant long-term demand growth

PER CAPITA OIL CONSUMPTION (BARRELS PER YEAR)



As a point of reference, on an annual basis, Western Europe consumes **9.9 barrels** of oil per person, while the U.S. consumes **21.6 barrels** per person, and Japan consumes **11.0 barrels** per person.

Sources: Goldman Sachs Asset Management and BP Statistical Review. Latest data as of December 31, 2022.

# Natural Gas: Critical for Energy Supply & Decarbonization

North American gas plays a critical role in global energy markets, as the world seeks to decarbonize while also providing safe, reliable, and affordable energy to consumers

## Energy Equality

- **13% of the global population lives without electricity.**
- **33% lack access to clean cooking fuel** relying on biomass that leads to household pollution and sickness.
- Lack of resources inhibits energy buildout; **importing reliable LNG/LPG is critical** to aiding “energy poor” regions<sup>1</sup>.

## Energy Security

- Russian/Ukraine conflict and subsequent surge in energy costs has made **energy security a top priority for many countries.**
- **The EU announced a deal with the U.S.** to import 1.5 bcf/day of LNG this year and ramp to 5.0 Bcf/d by 2030.
- **Energy security concerns extend beyond Europe** with major economies focusing on long-term clean, reliable, and affordable sources of energy sources.

## Energy Decarbonization

- **Government net-zero policies are squarely focused on reducing greenhouse gas (GHG) emissions.**
- **Natural Gas is the cleanest burning hydrocarbon** and emits about 50% less GHG than coal for electricity use.
- Increasing U.S. LNG capacity in order to replace coal usage has the **potential to be the leading solution for CO2 emissions reduction** across the world.

## Energy Transition

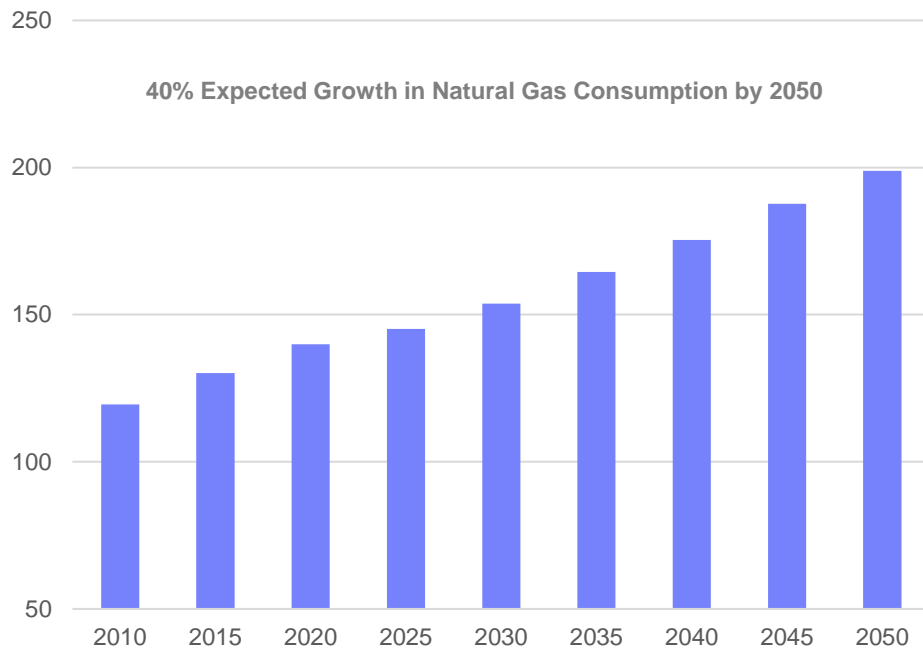
- **Renewables** mainly power electricity (>20% of global energy demand) and **cannot satisfy all world energy needs today.**
- EIA estimates **rapid growth in renewables over the next 30 years**, but also 40% growth in natural gas consumption.
- **Natural gas is a leading non-intermittent, relatively cleaner baseload source of energy** and works in partnership with renewables, compensating for dips in wind/solar output.

Sources: Goldman Sachs Asset Management, BP Statistical Review, Energy Information Administration (EIA), and International Energy Agency (IEA). Latest data as of December 31, 2022. <sup>1</sup>LNG: Liquefied Natural Gas. LPG: Liquefied Petroleum Gas. The economic and market forecasts presented herein have been generated by Goldman Sachs Asset Management for informational purposes as of the date of this presentation. They are based on proprietary models and there can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation.

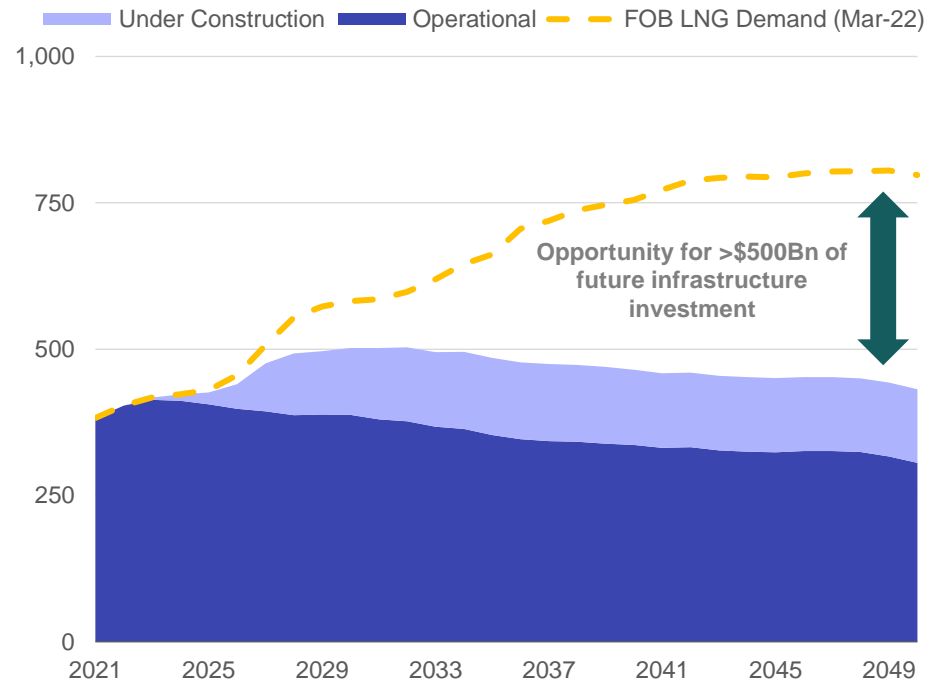
# Natural Gas: Consumption Expectations

Global demand for natural gas is expected to grow 40% with liquified natural gas (LNG) estimated to increase at 2.6% per annum through 2050, ultimately more than doubling relative to 2021 levels

**NATURAL GAS CONSUMPTION EXPECTATIONS (QUADRILLION BTU)**



**GLOBAL LNG DEMAND FORECAST (MMTPA)**



Europe, Asia Pacific and South Asia are expected to drive increased demand for LNG led by factors such as economic and population growth, local supply shortages and coal-to-gas switching.

This demand growth will require significant infrastructure investment across natural gas production, pipelines, storage, liquefaction, regasification and local distribution.

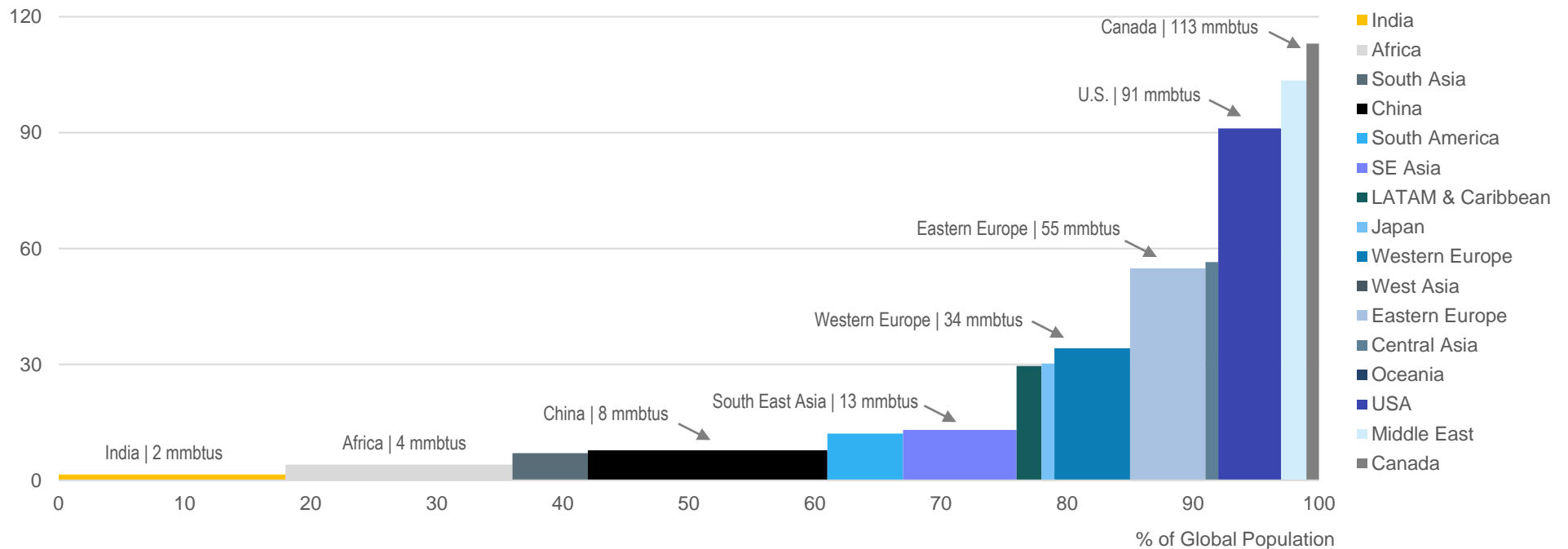
Sources: Goldman Sachs Asset Management, Energy Information Administration (EIA), and Wood Mackenzie. Latest data as December 31, 2022. BTU: British Thermal Unit. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation.



# Natural Gas: Developing Nations Drive Secular Growth

60% of the world's population today consumes 91% less natural gas than the average American on a per capita basis

PER CAPITA CONSUMPTION OF NATURAL GAS (MMBTU/YEAR)



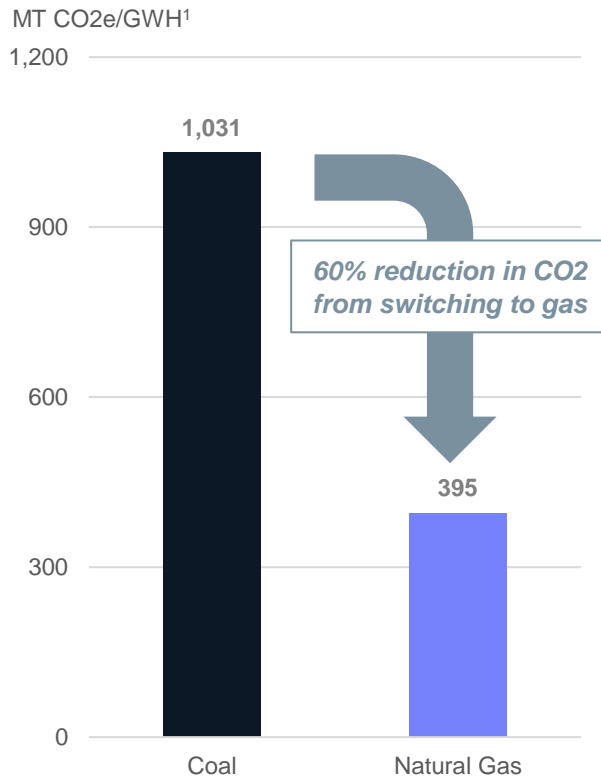
About 13% of the global population lives without electricity, and over 33% lack access to clean cooking fuel. U.S. LNG and LPGs. Over the next 30 years this group is expected account for 77% of global population growth, creating a meaningful opportunity for U.S. LNG exports

Sources: Goldman Sachs Asset Management and BP Statistical Review. Latest data as of December 31, 2022. Mmbtu/year: Metric million British thermal units per year. The economic and market forecasts presented herein have been generated by Goldman Sachs Asset Management for informational purposes as of the date of this presentation. They are based on proprietary models and there can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation.

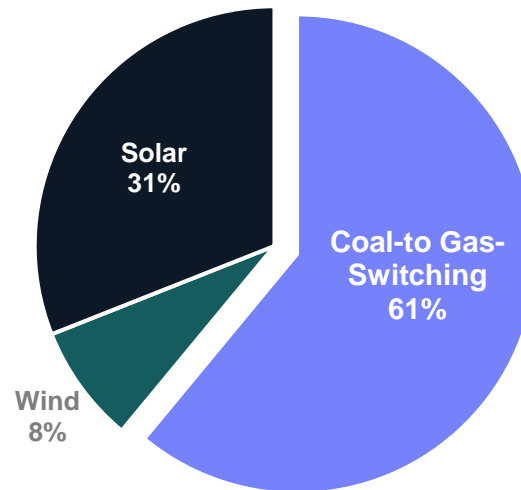
# Natural Gas: Proven Effective in Lowering Emissions

The U.S. has led all countries across the globe in CO2 emission reductions since 2005, with most of this effort achieved by coal-to-gas switching in over 200 locations

## EXAMPLE OF COAL-TO-GAS SWITCHING<sup>1</sup>



## U.S. CO2 REDUCTION BY SOLUTION 2005-2019<sup>2</sup>



## CO2 REDUCTION 2005 – 2019<sup>3</sup> (MMT OF CO2)

Country	CO2 Reduction
<b>United States</b>	<b>-959</b>
United Kingdom	-188
Italy	-147
Germany	-144
Japan	-122
Ukraine	-120
Spain	-104
France	-77
Venezuela	-51
Greece	-39

Sources: Goldman Sachs Asset Management, EQT Corporation, Energy Information Administration (EIA), International Energy Agency (IEA). Latest data as of December 31, 2022. MMT of CO2: Million Metric Tons of CO2. <sup>1</sup>EIA electricity data and power plant emissions 2020, EIA carbon dioxide emissions coefficients, EIA average operating heat rate. <sup>2</sup>Data obtained from EIA's U.S. Energy-Related Carbon Dioxide Emissions, 2019 report, splitting wind and solar proportionally to their increased in power generation from 2005 to 2019 per EIA's renewable generation data. <sup>3</sup>Data obtained from IEA World Energy outlook 2021; EIA emissions data; EIA form 80 retired plant data and EQT analysis. Performance may not add to 100% due to rounding. For illustrative purposes only.

# General Definitions

*It is not possible to invest directly in an unmanaged index.*

**Midstream:** Midstream investments include both Master Limited Partnership (MLP) and C-Corporation (C-Corp) structured companies that are engaged in the treatment, gathering, compression, processing, transportation, transmission, fractionation, storage and terminalling of natural gas, natural gas liquids, crude oil, refined products or coal. Midstream companies may also operate ancillary businesses including marketing of energy products and logistical services.

**Upstream:** exploration & production companies (E&Ps); generally engaged in the exploration, recovery, development and production of crude oil, natural gas and natural gas liquids.

**MLPs Only** – Alerian MLP Total Return Index (AMZ) – the leading gauge of energy Master Limited Partnerships (MLPs). The float-adjusted, capitalization-weighted index, whose constituents represent approximately 85% of total float-adjusted market capitalization, is disseminated real-time on a price-return basis (AMZ) and on a total-return basis (AMZX). “Alerian MLP Index”, “Alerian MLP Total Return Index”, “AMZ” and “AMZX” are trademarks of Alerian and their use is granted under a license from Alerian or “Source: Alerian”.

**US Midstream (MLPs + C-Corps)** – Alerian US Midstream Energy Index (AMUS) – The Alerian US Midstream Energy Index is a broad-based composite of US energy infrastructure companies. The capped, float-adjusted, capitalization-weighted index, whose constituents earn the majority of their cash flow from midstream activities involving energy commodities, is disseminated real-time on a price-return basis (AMUS) and on a total-return basis (AMUSX).

**Broad Energy Equities** – Energy Select Sector Index (IXE) – a modified market capitalization-based index intended to track the movements of companies that are components of the S&P 500 and are involved in the development or production of energy products.

**Utilities** – PHLX Utility Sector Index (UTY) – a market capitalization-weighted index composed of geographically diverse public utility stocks.

**10 Year Treasury** – BofA Merrill Lynch US Treasuries (10Y) Index – an unmanaged index that tracks the performance of the three most recently issued 10-year US Treasury notes.

**Natural Gas** – NG1 Contract – tracks the one month forward natural gas futures trading in units of 10,000 million British thermal unites (mmBtu). The price is based on delivery at the Henry Hub in Louisiana.

**WTI Crude Oil** – CL1 Contract – tracks the one month forward WTI crude oil futures contracts that trade in units of 1,000 barrels, and the delivery point is Cushing, Oklahoma, which is also accessible to the international spot markets via pipelines.

**Brent Crude Oil** – CO1 Contract – tracks the one month forward price of Brent crude oil. Current pipeline export quality Brent blend as supplied at Sullom Voe. ICE Brent Futures is a deliverable contract based on EFP delivery with an option to cash settle.

**Real Asset Classes:** Real assets are often defined as physical or tangible assets that tend to provide a “real return,” often linked to inflation. This definition encompasses a wide range of potential investments, including real estate, infrastructure, timberlands, agrilands, commodities, precious metals, and natural resources.

**Stocks:** Stock investments are subject to market risk, which means that the value of the securities may go up or down in response to the prospects of individual companies, particular sectors and/or general economic conditions.

**Bonds:** Fixed income investing involves interest rate risk. When interest rates rise, bond prices generally fall.

# General Definitions

**Free Cash Flow (FCF):** Operating Cash flow less Capital Expenditures (CAPEX). Free cash flow is the cash a company produces through its operations, less the cost of expenditures on assets. In other words, free cash flow (FCF) is the cash left over after a company pays for its operating expenses and capital expenditures.

**Capital Expenditures (CAPEX):** Funds used by a company to acquire, upgrade, and maintain physical assets such as property, buildings, an industrial plant, technology, or equipment.

**EV/EBITDA:** Enterprise Value (EV) divided by earnings before interest, taxes, depreciation, and amortization (EBITDA). EV is calculated as follows: Market Capitalization + Preferred Shares + Minority Interest + Debt – Total Cash.

**CAGR:** Compound annual growth rate is a business and investing specific term for the geometric progression ratio that provides a constant rate of return over the time period.

**Volatility:** a statistical measure of the dispersion of returns for a given security or market index.

**Share Buyback:** Issuer buys back its own outstanding shares to reduce the number of shares available on the open market

**OPEC+:** Organization of Petroleum Exporting Countries, and Russia.

**Spread:** A spread is the difference between two numbers, usually between two types of yields such as the yield of a security above a 10 year treasury bill.

**Basis point (BPS):** refers to a common unit of measure for interest rates and other percentages in finance. One basis point is equal to 1/100th of 1%, or 0.01%, or 0.0001, and is used to denote the percentage change in a financial instrument.

**Correlation:** is a measure of the amount to which two investments vary relative to each other.

# Risk Considerations

Equity investments are subject to market risk, which means that the value of the securities in which it invests may go up or down in response to the prospects of individual companies, particular sectors and/or general economic conditions. Different investment styles (e.g., “growth” and “value”) tend to shift in and out of favor, and, at times, the strategy may underperform other strategies that invest in similar asset classes. The market capitalization of a company may also involve greater risks (e.g. “small” or “mid” cap companies) than those associated with larger, more established companies and may be subject to more abrupt or erratic price movements, in addition to lower liquidity.

Because the strategy has exposure to the commodities markets, it may subject the strategy to greater volatility than investments in traditional securities. Investments in commodities may be affected by changes in overall market movements, changes in interest rates, or factors affecting a particular industry or commodity. Commodities are also subject to social, political, military, regulatory, economic, environmental or natural disaster risks.

Master Limited Partnerships (“MLPs”) may be generally less liquid than other publicly traded securities and as such can be more volatile and involve higher risk. Investments in securities of an MLP involve risks that differ from investments in common stocks, including risks related limited control and limited rights to vote on matters affecting the MLP, risks related to potential conflicts of interest between the MLP and the MLP’s general partner, cash flow risks, dilution risks and risks related to the general partner’s right to require unit holders to sell their common units at an undesirable time or price. MLPs are also generally considered interest-rate sensitive investments. During periods of interest rate volatility, these investments may not provide attractive returns.

MLPs may also involve substantially different tax treatment than other equity-type investments, and such tax treatment could be disadvantageous to certain types of investors, such as retirement plans, mutual funds, charitable accounts, foreign investors, retirement accounts or charitable entities. In addition, investments in MLPs may trigger state tax reporting requirements. Generally, a master limited partnership (“MLP”) is treated as a partnership for Federal income tax purposes. Therefore, investors in an MLP may be subject to certain taxes in addition to Federal income taxes, including state and local income taxes imposed by the various jurisdictions in which the MLP conducts business or owns property. In addition, certain tax-exempt investors in an MLP, such as tax-exempt foundations and charitable lead trusts, may incur unrelated business taxable income (“UBTI”) with respect to their investment. UBTI may result in increased Federal, and possibly state and local, tax costs, and may also result in additional filing requirements for tax exempt investors. Non-U.S. investors may be subject to U.S. taxation on a net income basis and have U.S. filing obligations as a result of investing in MLPs. The tax reporting information for MLPs generally is provided to investors on an annual IRS Schedule K-1, rather than an IRS Form 1099. To the extent the Schedule K-1 is delivered after April 15, you may be required to request an extension to file your tax returns.

# General Disclosures

Views are as of December 31, 2022 unless noted otherwise and are subject to change in the future.

## Index Benchmarks

Indices are unmanaged. The figures for the index reflect the reinvestment of all income or dividends, as applicable, but do not reflect the deduction of any fees or expenses which would reduce returns. Investors cannot invest directly in indices.

The indices referenced herein have been selected because they are well known, easily recognized by investors, and reflect those indices that the Investment Manager believes, in part based on industry practice, provide a suitable benchmark against which to evaluate the investment or broader market described herein. The exclusion of “failed” or closed hedge funds may mean that each index overstates the performance of hedge funds generally.

Master Limited Partnerships (“MLPs”) may be generally less liquid than other publicly traded securities and as such can be more volatile and involve higher risk. Investments in securities of an MLP involve risks that differ from investments in common stocks, including risks related limited control and limited rights to vote on matters affecting the MLP, risks related to potential conflicts of interest between the MLP and the MLP’s general partner, cash flow risks, dilution risks and risks related to the general partner’s right to require unit holders to sell their common units at an undesirable time or price. MLPs are also generally considered interest-rate sensitive investments. During periods of interest rate volatility, these investments may not provide attractive returns.

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Investments in MLPs are subject to certain risks, including risks related to limited control and limited rights to vote, potential conflicts of interest, cash flow risks, dilution risks, limited liquidity and risks related to the general partner’s right to force sales at undesirable times or prices.

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Exposure to the **commodities markets** may subject an investor to greater volatility than investments in traditional securities.

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# General Disclosures

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