



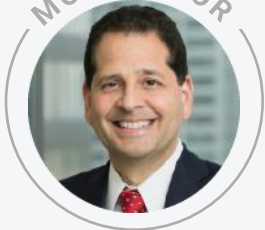
**WEBINAR**



**NORTH AMERICA  
REGION  
DISCUSSION**

# WSG N. America Region Discussion: War in Ukraine - Impacts on the Energy Industry, Cybersecurity & Sanctions Enforcement

MODERATOR



**Ricardo  
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Partner  
Haynes and Boone, LLP

GUEST SPEAKER



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Managing Director and  
Global Leader of  
Cybersecurity and  
Investigations Practice  
BRG

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**Manny Vedi**  
Senior Vice President  
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## Discussion Overview

- War in Ukraine - Impacts on the Energy Industry, Cybersecurity & Sanctions Enforcement

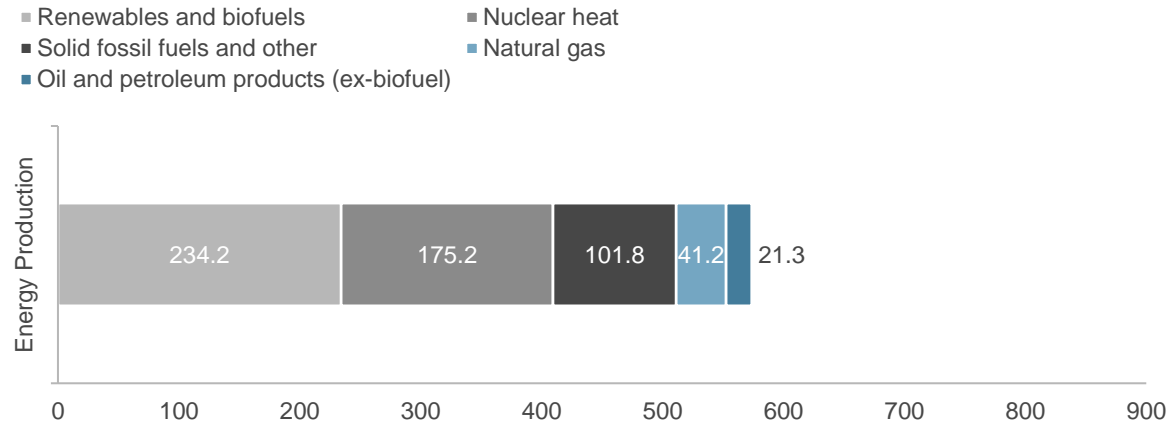
# WSG Panel Outline

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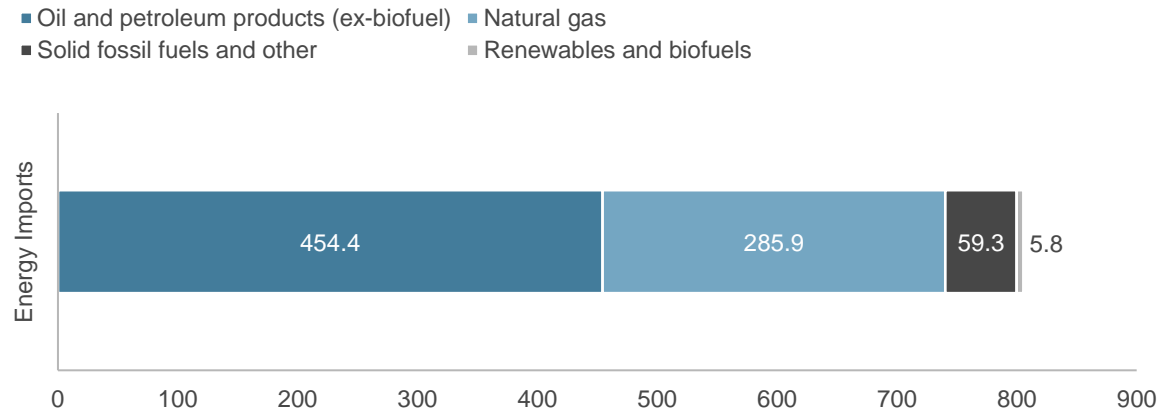
JUNE 9, 2022

# EU Energy Mix

## 2020 Energy Production (million tons oil equivalent)

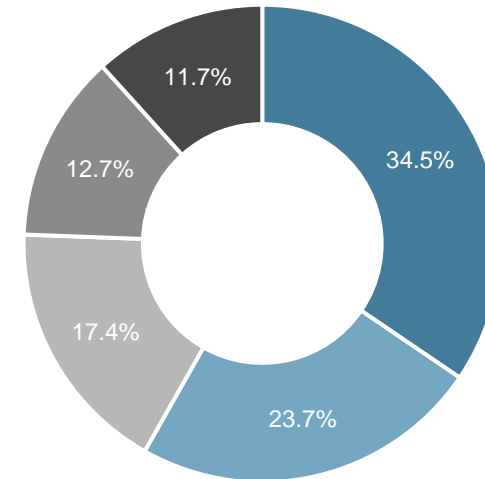


## 2020 Energy Imports (million tons oil equivalent)



## 2020 EU Energy Mix

- Oil and petroleum products (ex-biofuel)
- Natural gas
- Renewables and biofuels
- Nuclear heat
- Solid fossil fuels and other

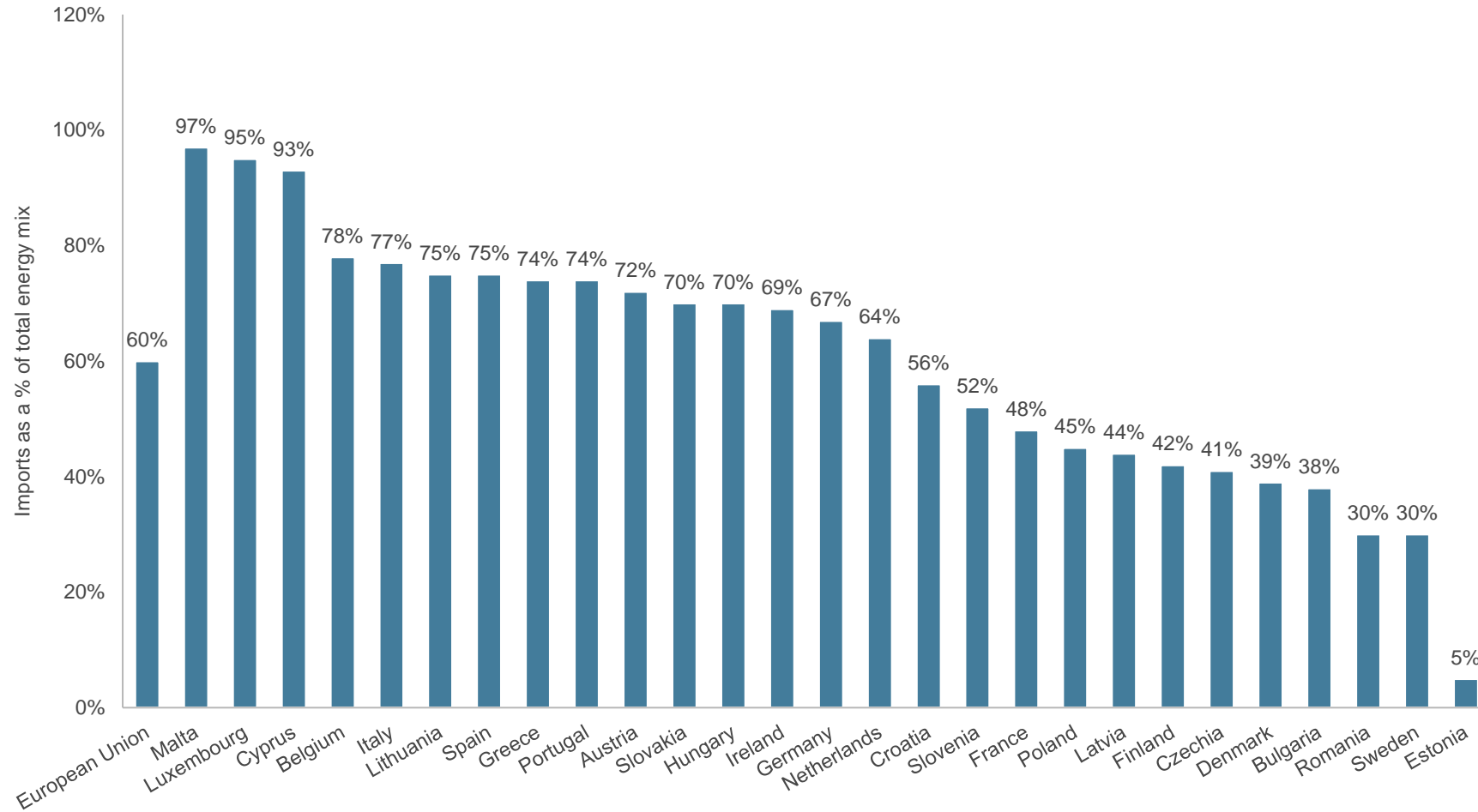


Total 2020 EU Energy Mix: 1,379 million tons oil equivalent

Source: Wall Street research.  
Note: The EU does not import any nuclear energy.

# EU Energy Mix (cont.)

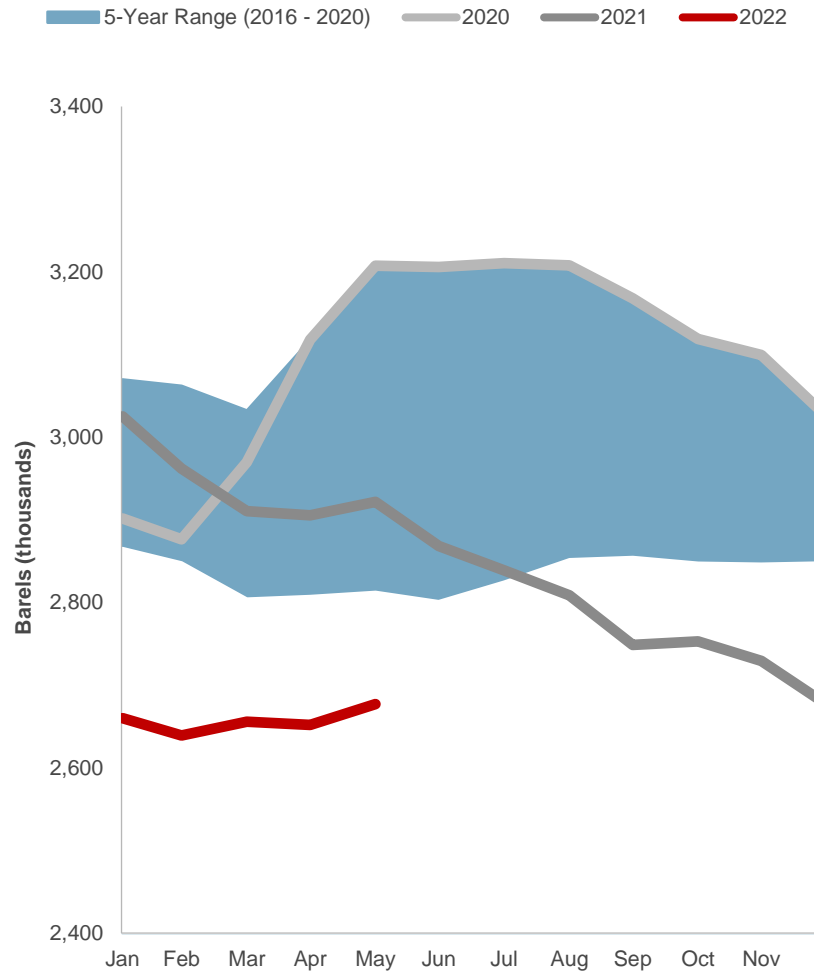
## Imports as a % of Total Energy Mix



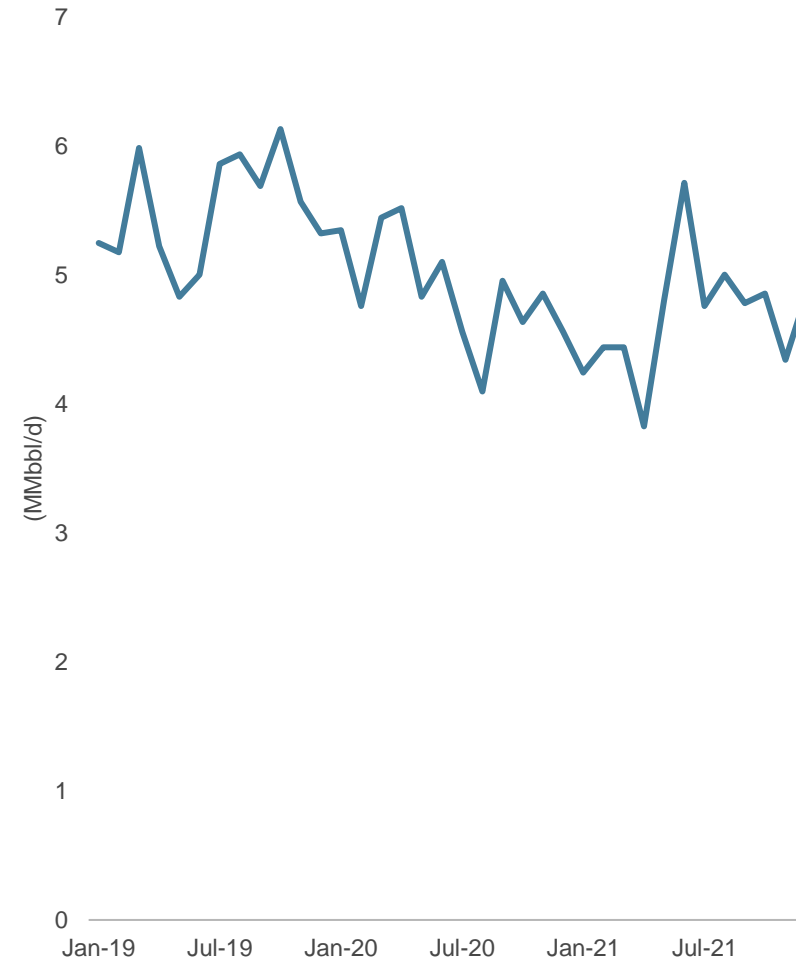
Source: Wall Street research.

# Crude Oil Inventory Trends

## OECD Inventory



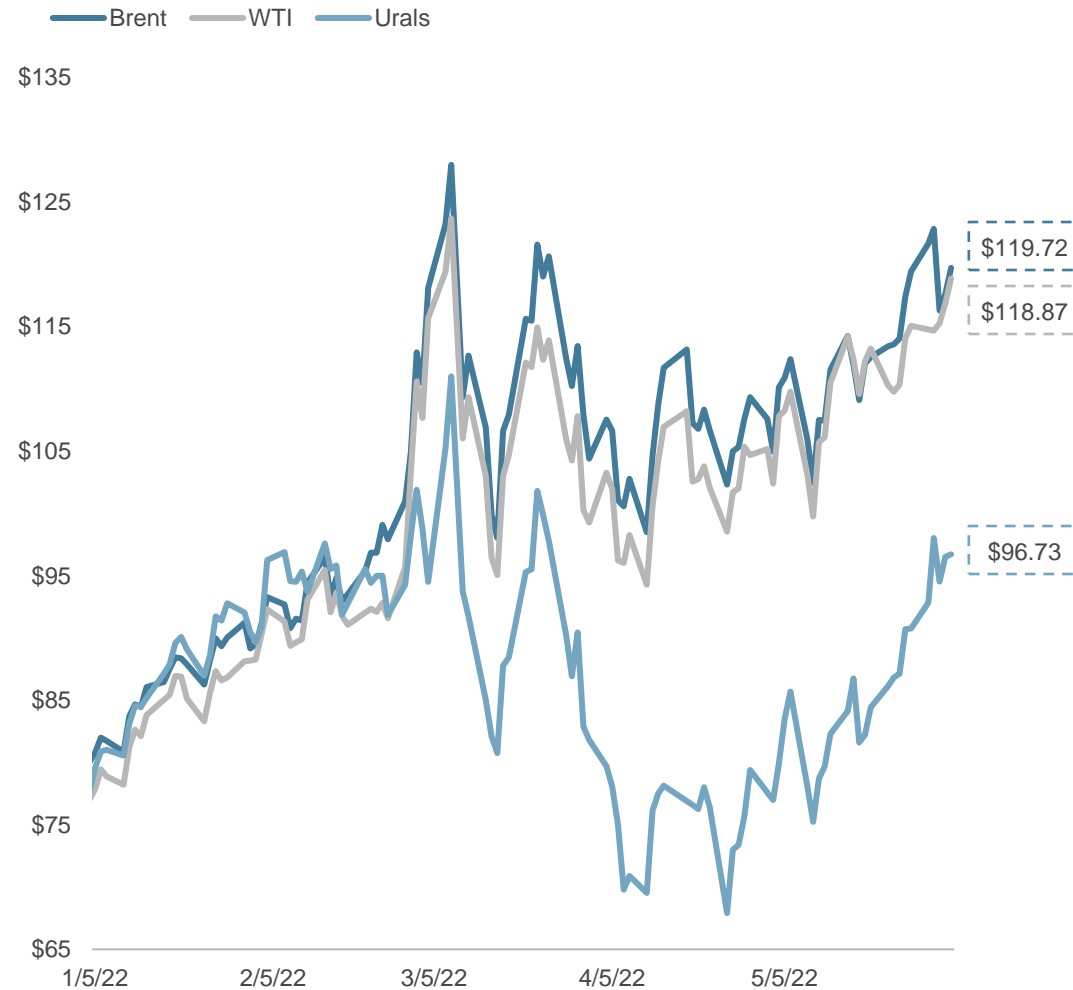
## Russian Crude Oil Exports



OECD refers to Organization for Economic Cooperation and Development.  
Source: GIE, Bloomberg as of June 6, 2022.

# Oil Spot Pricing and Spread Trends

## Spot Pricing (\$/bbl)



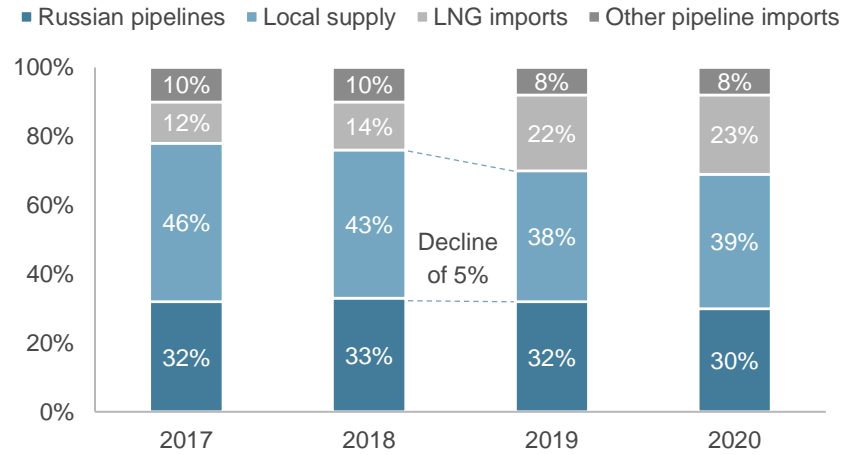
## Average Differentials vs. WTI

Year	Brent – WTI	Urals – WTI
2018	\$6.91	\$5.06
2019	\$7.03	\$7.34
2020	\$3.87	\$2.12
2021	\$2.84	\$1.14
YTD 2022	\$3.10	(\$12.43)
Current	\$0.85	(\$22.14)
<b>Median (2018-2020)</b>	<b>\$5.70</b>	<b>\$4.85</b>
<b>Average (2018-2020)</b>	<b>\$5.92</b>	<b>\$4.84</b>

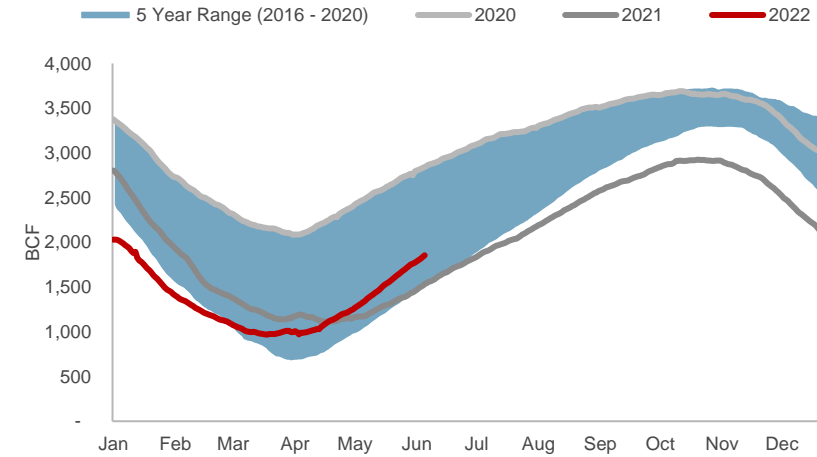
Note: Spot Pricing data is collected on a daily basis for the line chart and historical differentials. WTI refers to West Texas Intermediate. Brent refers to Brent Crude. Urals refers to Russian Urals Crude. Source: Eikon as of June 6, 2022.

# European Gas Supply

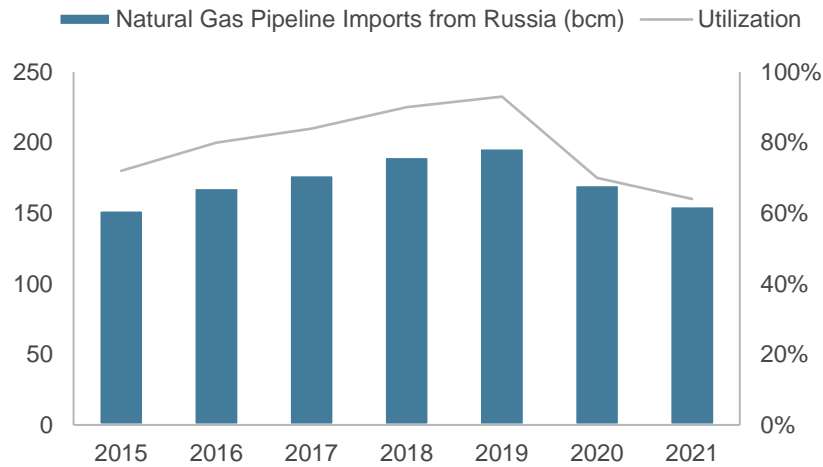
## European Gas Supply by Source



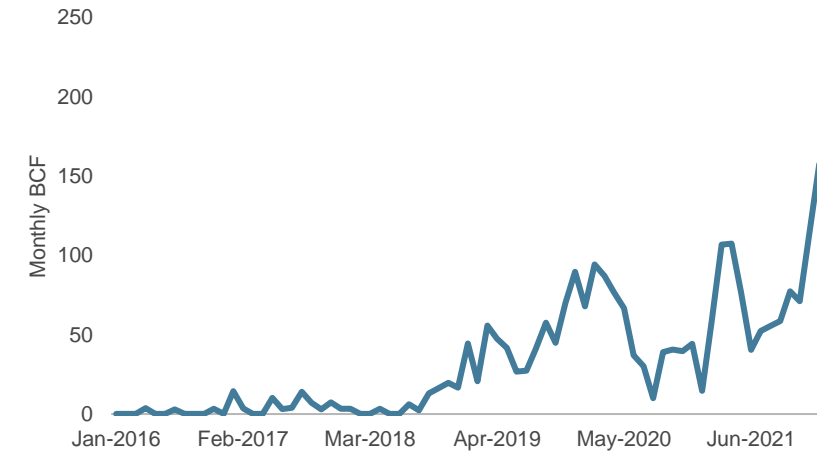
## European Natural Gas Inventory



## Russia to European Union Gas Flows



## U.S. LNG Exports to EU (2016-2022)



Source: Wall Street Journal, Wall Street Research, Eurostat, and EIA.



# Natural Gas Spot Pricing and Future Pricing Trends

## Spot Pricing (\$/MMbtu)



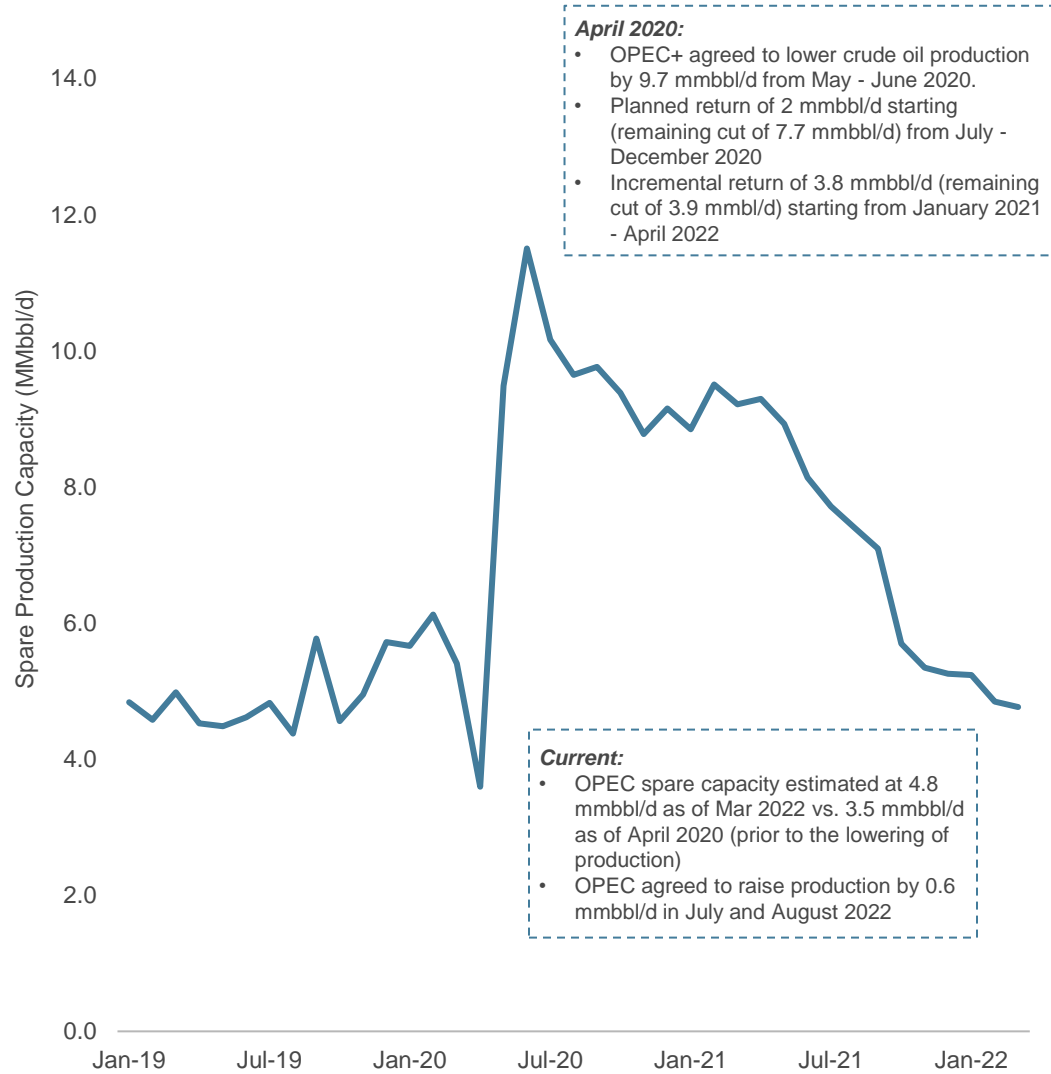
Note: Spot Pricing data is collected on a daily basis for the line chart and historical differentials. JKM refers Japan Korea Marker. TTF refers to the Dutch Title Transfer Facility. Source: Bloomberg as of June 6, 2022.

## Average Differentials vs. Henry Hub

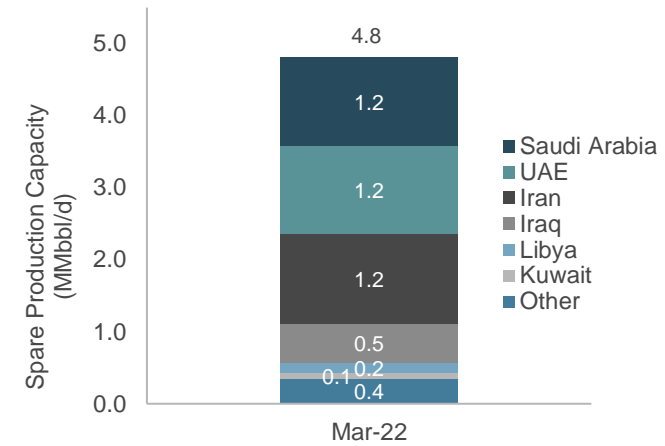
Year	JKM – Henry Hub	TTF – Henry Hub
2018	\$6.54	\$4.72
2019	\$3.06	\$2.23
2020	\$2.10	\$1.22
2021	\$15.86	\$14.03
YTD 2022	\$22.84	\$23.12
Current	\$14.40	\$14.82
<b>Median (2018-2020)</b>	<b>\$3.33</b>	<b>\$2.43</b>
<b>Average (2018-2020)</b>	<b>\$3.82</b>	<b>\$2.66</b>

# OPEC Spare Capacity Trends

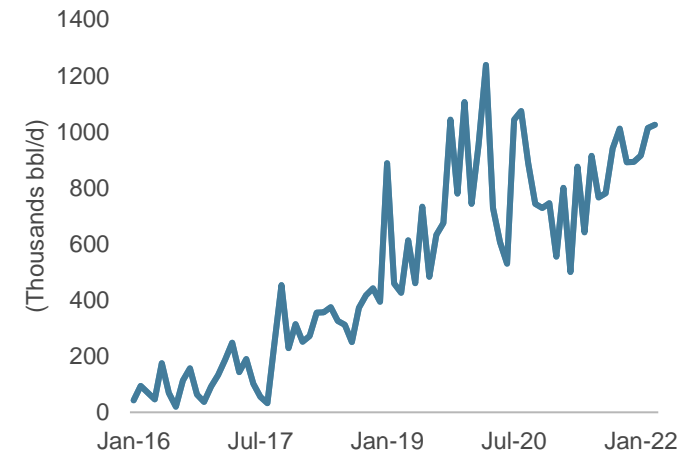
## OPEC Spare Capacity Over Time



## Current OPEC Spare Capacity by Country



## U.S. Crude Exports to E.U.



OPEC refers to the Organization of Petroleum Exporting Countries.  
Source: EIA, Bloomberg as of March 31, 2022.

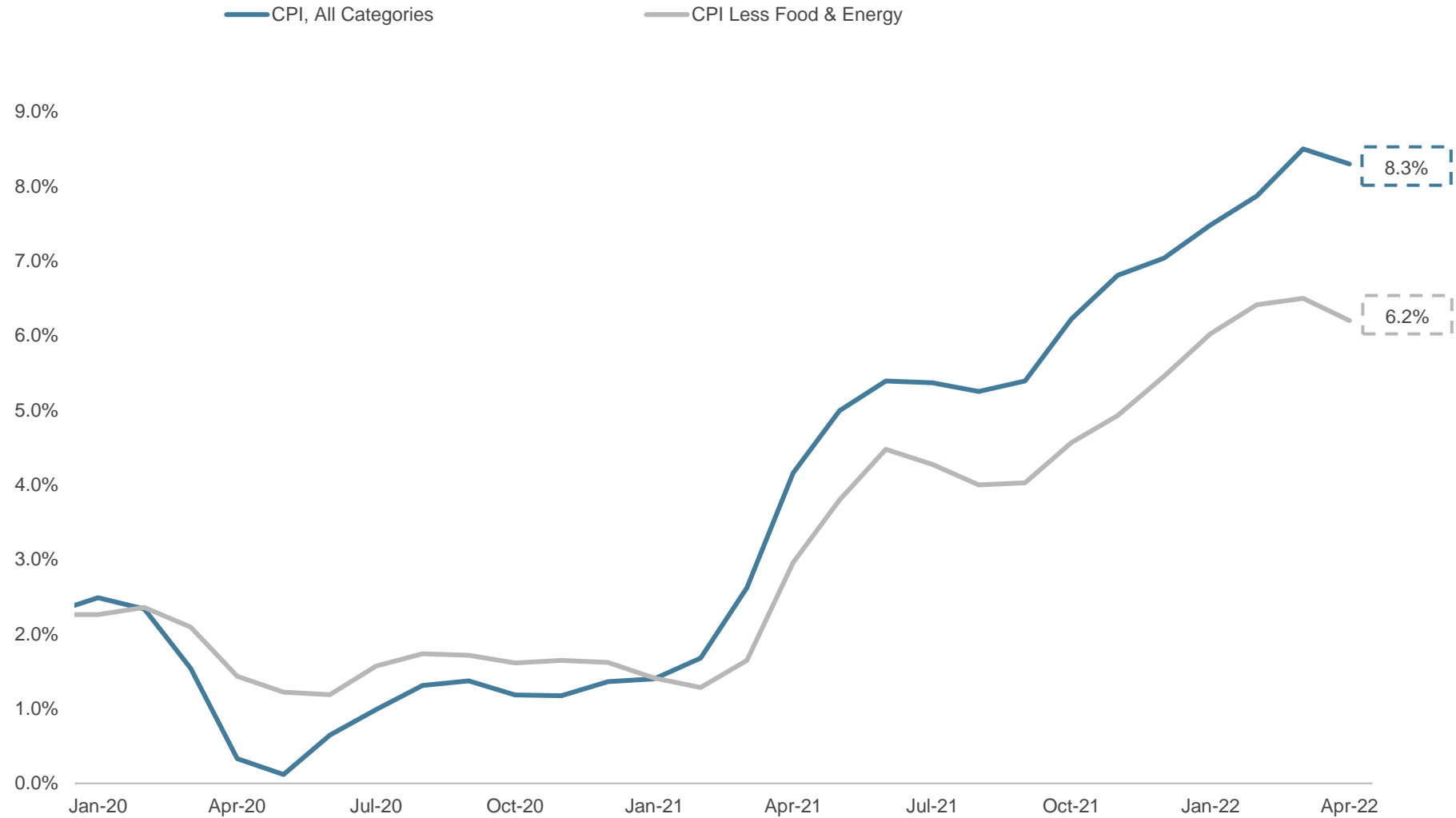
# EU Energy Mix (cont.)

## Fuel Exposure by Country

Fuel type as a percent of total energy mix

	Natural Gas	Solid fossil fuels (incl. coal)	Oil and petroleum products (excl. biofuel)	Renewables and biofuels	Nuclear
Belgium	26.3%	4.1%	45.0%	8.5%	14.5%
Germany	26.1%	15.6%	35.2%	16.4%	5.8%
Ireland	32.8%	3.2%	45.9%	12.7%	0.0%
Spain	23.6%	2.9%	44.0%	16.2%	12.8%
France	15.5%	2.4%	29.3%	12.7%	41.0%
Croatia	30.3%	4.3%	33.7%	26.4%	0.0%
Italy	40.5%	3.5%	32.9%	20.4%	0.0%
Cyprus	0.0%	0.5%	87.1%	11.0%	0.0%
Lithuania	25.2%	1.7%	39.2%	21.2%	0.0%
Luxembourg	15.7%	1.0%	60.4%	10.0%	0.0%
Hungary	33.5%	6.4%	28.6%	11.3%	15.5%
Malta	10.8%	0.0%	86.0%	1.9%	0.0%
Netherlands	37.6%	4.9%	46.9%	8.4%	1.1%
Poland	16.9%	39.6%	28.8%	12.5%	0.0%
Portugal	23.5%	2.6%	43.7%	28.9%	0.0%
Romania	30.0%	10.8%	30.0%	18.6%	9.0%
Sweden	2.7%	3.0%	22.9%	48.6%	25.2%
UK (2019)	36.1%	3.2%	39.8%	11.9%	7.2%

# U.S. Consumer Price Index



Source: Bloomberg as of June 6, 2022.

# Selected Commodities of Global Significance

## Palladium



## Nickel



## Wheat



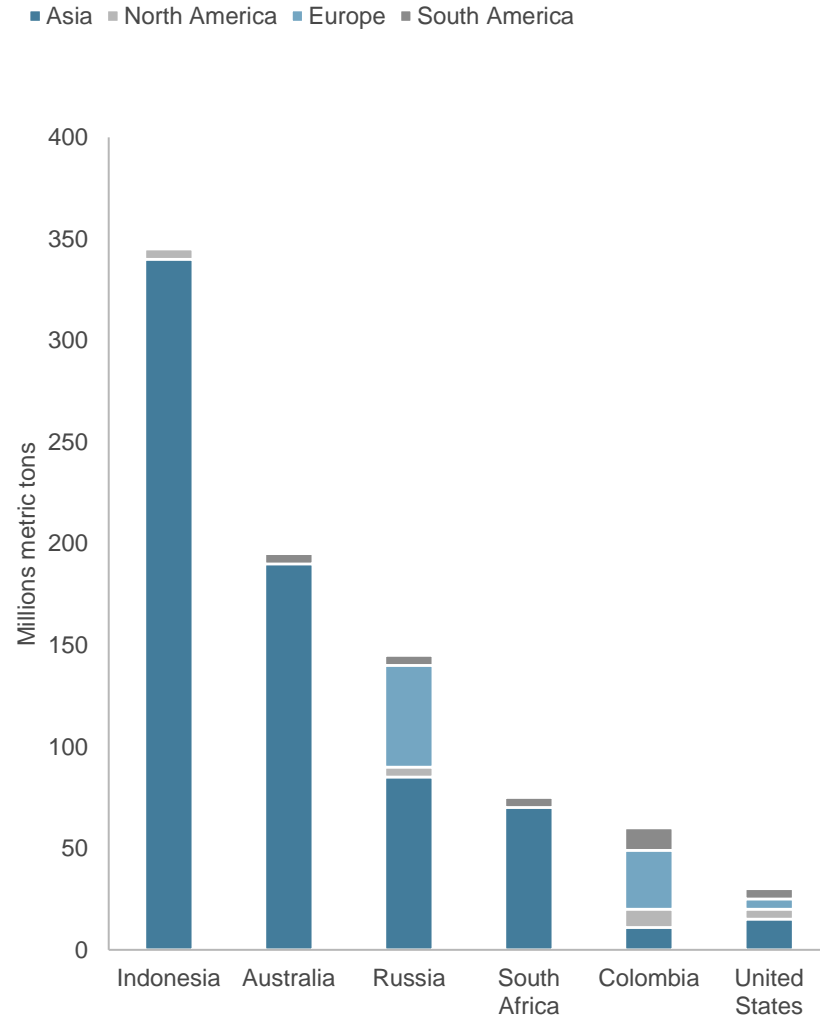
## Corn



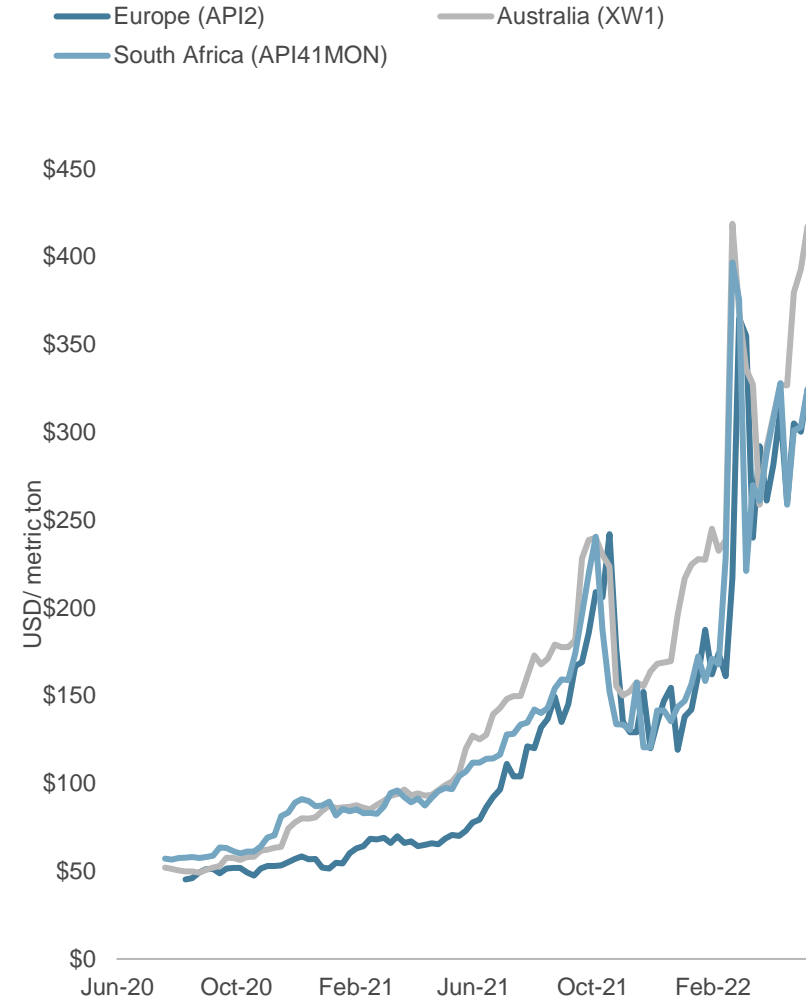
Note: Spot Pricing data is collected on a daily basis.  
Source: Bloomberg as of June 6, 2022.

# Thermal Coal Trends

## Exports by Country (2020)



## Global Thermal Coal Prices



Source: Wall Street research, Bloomberg as of June 6, 2022.

# Global Liquid Fuels Production vs. Demand



Note: Brent Crude pricing as of June 6, 2022.  
 Source: U.S. Energy Information Administration.

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FINANCIAL RESTRUCTURING  
FINANCIAL AND VALUATION ADVISORY**

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## Q&A

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# Thank You