



# Country Analysis Brief: Saudi Arabia

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## Overview

**Table 1. Saudi Arabia's energy overview, 2022**

	Crude oil and other petroleum liquids	Natural gas	Coal	Nuclear	Hydro	Other renewables	Total
Primary energy consumption (quads)	6.9	4.5	0.0	0.0		0.0	11.4
Primary energy consumption (percentage)	60%	39%	0%	0%		0%	100%
Primary energy production (quads)	25.1	4.5	0.0	0.0		0.0	29.7
Primary energy production (percentage)	85%	15%	0%	0%		0%	100%
Electricity generation (TWh)	171.0	259.6	0.0	0.0	0.0	1.3	431.9
Electricity generation (percentage)	40%	60%	0%	0%	0%	0%	100%

Data source: U.S. Energy Information Administration, International Energy Statistics database

Note: We aggregate hydroelectricity and renewables as *other renewables* for primary energy production and consumption. We aggregate crude oil and other petroleum liquids, natural gas, and coal fuel sources as *fossil fuel-derived fuel sources* for electricity generation. Quads=quadrillion British thermal units, TWh=terawatthours

- Saudi Arabia was the world's third-highest crude oil and condensate producer, the world's top crude oil exporter, and OPEC's top crude oil producer in 2023.<sup>1</sup>
- As part of its OPEC+ membership, Saudi Arabia agreed to 0.5 million barrels per day (b/d) in additional crude oil production cuts that began in May 2023. In June 2024, OPEC+ extended these cuts through December 2025. Saudi Arabia unilaterally cut an additional 1.0 million b/d of OPEC+ production starting in July 2023, which (at the time of writing) it plans to gradually restore from November 2024 through the end of 2025.<sup>2</sup>
- Saudi Arabia seeks to increase its electricity generation capacity from natural gas and renewable energy sources as part of the country's [Vision 2030](#).<sup>3</sup> The Saudi Power Procurement Company (SPPC) awarded bids for four natural gas-fired power plant projects in October 2023 and began receiving bids for four additional projects in January 2024. Each project has 1.8 gigawatts (GW) of additional capacity.<sup>4</sup> Saudi Arabia's government has over 21 GW in planned renewable energy projects as of mid-2024, the majority of which are for solar power.<sup>5</sup>

Figure 1. Map of Saudi Arabia



Data source: U.S. Central Intelligence Agency, [CIA World Factbook–Saudi Arabia](#)

## Petroleum and Other Liquids

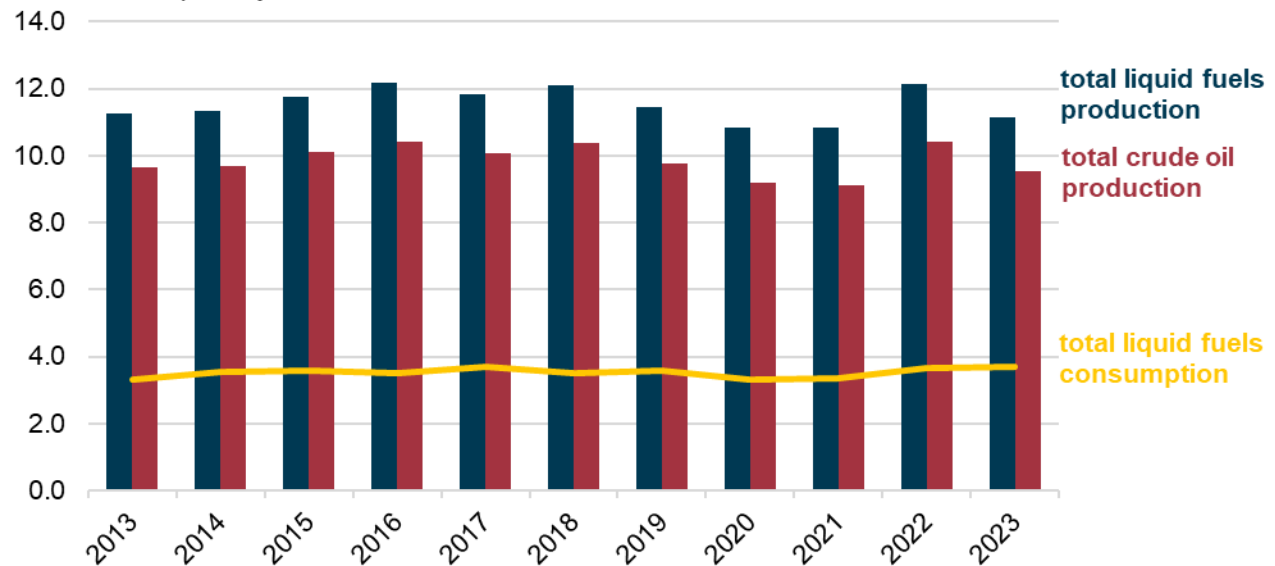
- Saudi Arabia produced 9.5 million b/d of crude oil in 2023, a 9% decrease from 10.4 million b/d in 2022. This decrease reflects OPEC+ production cuts from 2023 intended to balance the market amid increased production from non-member countries. Total liquid fuels production in Saudi Arabia decreased 8%, from 12.1 million b/d in 2022 to 11.1 million b/d in 2023 (Figure 2).<sup>6</sup>
- Saudi Arabia produces five grades of crude oil: Arabian Heavy, Arabian Medium, Arabian Light, Arabian Extra Light, and Arabian Super Light. In general, the majority of Saudi Arabia's crude oil is considered sour because its sulfur content is greater than 1% (Table 2).<sup>7</sup>
- In January 2024, Saudi Aramco, Saudi Arabia's national oil company (NOC), halted plans to expand crude oil production capacity to 13 million b/d by 2027, which would have been a 1 million b/d increase from its stated capacity of 12 million b/d in 2023.<sup>8</sup> Saudi Aramco had large expansion projects scheduled for the Safaniya, Manifa, Zuluf, Marjan, and Berri oil fields as part of previously planned capacity increases. Saudi Aramco canceled the bid process for Safaniya and Manifa development projects. However, construction and engineering activity continued for the Majan, Berri, and Zuluf oil fields, which Saudi Aramco plans to use to maintain maximum sustainable capacity at 12 million b/d while allowing currently producing reservoirs to decline more quickly (Table 3).<sup>9</sup>
- Saudi Arabia accounted for nearly 40% of the Middle East's oil consumption in 2023 and was the world's fifth-highest consumer of liquid fuels after the United States, China, India, and Russia. Total

liquid fuels consumption in Saudi Arabia increased 2% year over year, from 3.6 million b/d in 2022 to 3.7 million b/d in 2023.<sup>10</sup>

- Saudi Arabia held an estimated 17% of the world’s proved oil reserves and 22% of OPEC’s proved reserves in 2023, according to OPEC data. Saudi Arabia’s reserves include Ghawar and Safaniya, the world’s largest onshore and offshore oil fields, respectively (Figure 3).<sup>11</sup>
- Petroleum product output in Saudi Arabia declined 9% from 2.8 million b/d in 2022 to 2.5 million b/d in 2023, a 76% average utilization rate for Saudi Aramco’s 3.3 million-b/d domestic refining capacity (Table 4). Gasoline and distillates made up 67% of Saudi Arabia’s petroleum product output in 2023. This proportion increased by an average of 1.5% each year in the 10-year period from 2014 to 2023, which was primarily driven by increased middle distillate production from Saudi Arabia’s SATORP, YASREF, and Jazan refineries, which came online in 2014, 2015, and 2021, respectively (Figure 4).<sup>12</sup>

**Figure 2. Total annual petroleum and other liquids production and consumption in Saudi Arabia, 2013–2023**

million barrels per day



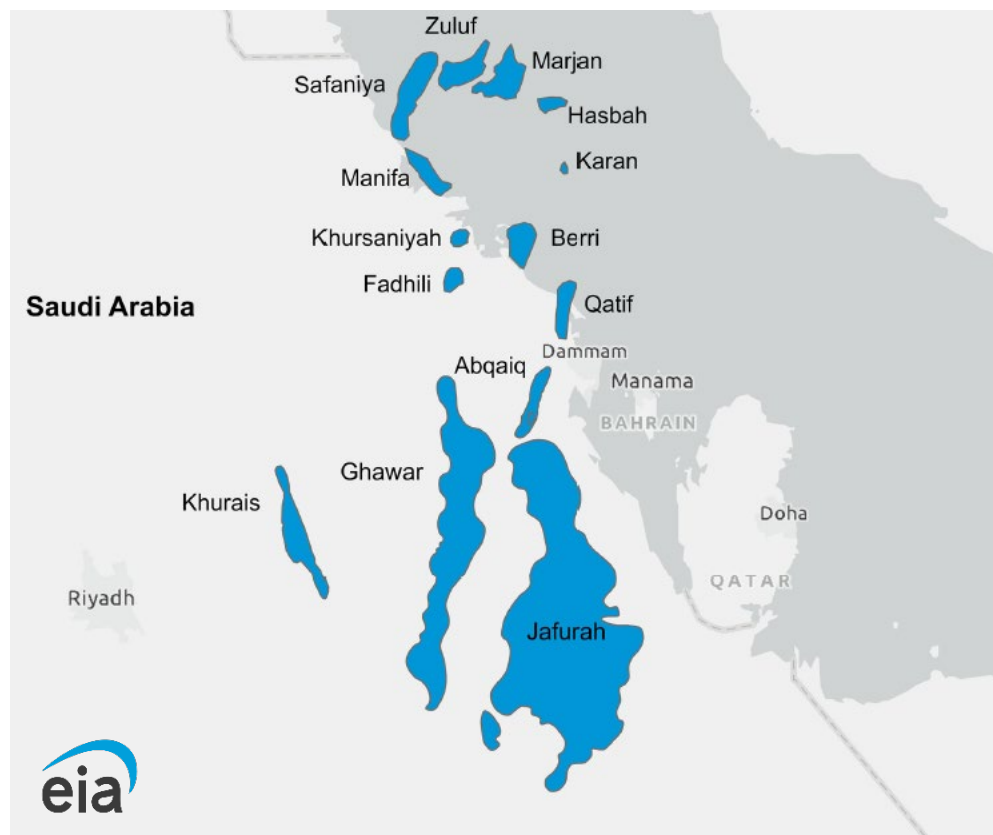
**eia** Data source: U.S. Energy Information Administration, International Energy Statistics database and *Short-Term Energy Outlook* Data Browser

**Table 2. Crude oil grades from Saudi Arabia**

	API gravity index	Sulfur content	Percentage of crude oil reserves
Arabian Heavy	Less than 29	More than 2.9%	35%
Arabian Medium	29 to 32	2.2% to 2.9%	17%
Arabian Light	32 to 36	1.3% to 2.2%	34%
Arabian Extra Light	37 to 40	0.5% to 1.3%	13%
Arabian Super Light	More than 40	Less than 0.5%	1%

Data source: Saudi Aramco

**Figure 3. Map of major oil and natural gas fields in Saudi Arabia**



Data source: Saudi Aramco, Esri, HERE Technologies, Garmin, United Nations Food and Agriculture Organization, U.S. National Oceanic and Atmospheric Administration, U.S. Geological Survey, and Rystad Energy

**Table 3. Top oil field development projects in Saudi Arabia, 2024**

Oil field	Location	Type	Pre-existing capacity thousand barrels per day	Additional capacity thousand barrels per day	Total capacity thousand barrels per day	Expected completion year
Zuluf	Northeastern coast	Offshore	800	600	1,400	2026
Marjan	Northeastern coast	Offshore	500	300	800	2025
Berri	Eastern coast	Offshore and onshore	250	250	500	2025

Data source: *Middle East Economic Survey*, Energy Intelligence, Offshore Technology, and Oilfield Technology

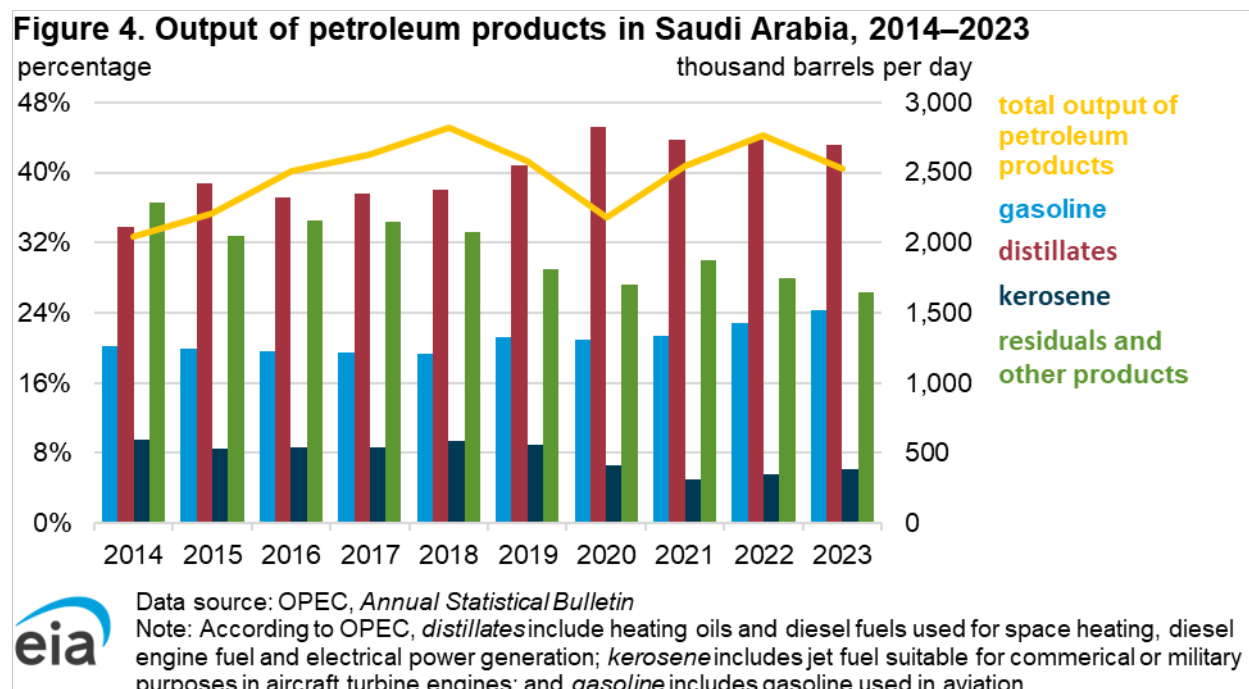
Note: Saudi Aramco expects Marjan to provide an additional 2.6 billion cubic feet per day in natural gas production and 360,000 barrels per day in ethane and natural gas liquids.

**Table 4. Saudi Aramco refining operations in Saudi Arabia, 2023**

Refinery	Capacity thousand barrels per day	Partner
Ras Tanura	550	N/A
SATORP	460	TotalEnergies
YASREF	430	Sinopec
SAMREF	400	ExxonMobil
Rabigh	400	Sumitomo
Jazan	400	N/A
SASREF	305	N/A
Yanbu	220	N/A
Riyadh	126	N/A
<b>Total</b>	<b>3,291</b>	

Data source: OPEC, Saudi Aramco, and SATORP

Note: Includes only domestic refining operations. N/A=not applicable



## Natural Gas

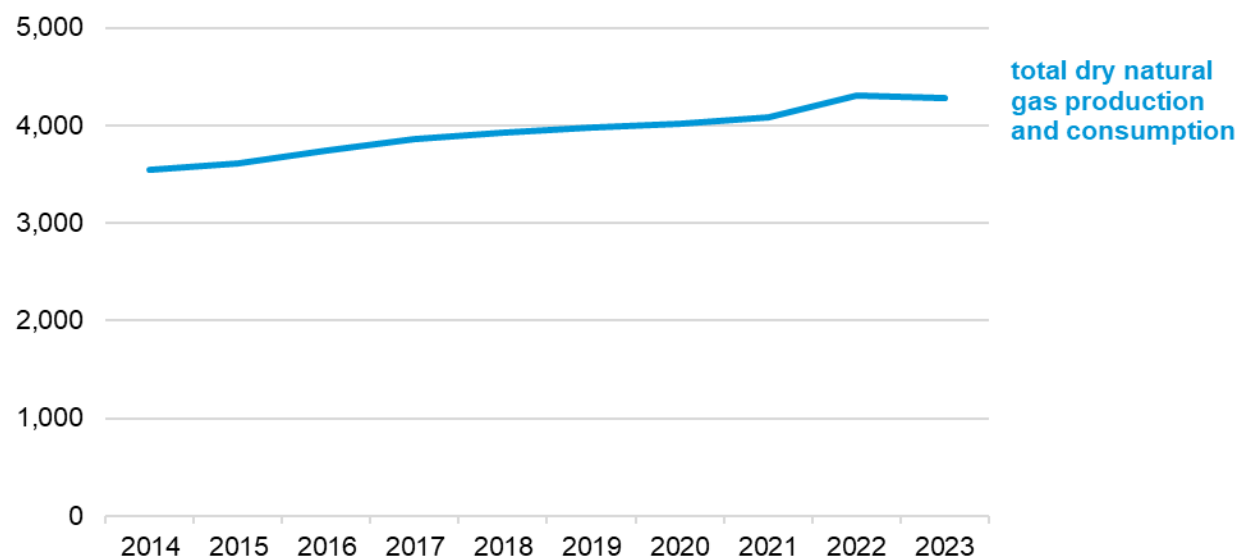
- Saudi Arabia meets all of its natural gas consumption with domestic production. The country produced 4.3 trillion cubic feet (Tcf) of dry natural gas in 2022 and 2023, remaining flat year over year because of decreased crude oil production and associated natural gas production (Figure 5).<sup>13</sup>
- As of 2021, Saudi Aramco expected domestic demand for natural gas to grow 3.7% per year until 2030 because of increased demand for natural gas-fired power generation.<sup>14</sup> In 2023, nonassociated natural gas, which has been generally increasing as share of total natural gas production since 2003, represented 51% of natural gas production in Saudi Arabia, up from 48% in 2022.<sup>15</sup> Nonassociated natural gas allows Saudi Arabia to meet domestic natural gas demand despite shifts in crude oil production that limit associated natural gas output.<sup>16</sup>
- Saudi Arabia holds the world's sixth-largest proved natural gas reserves after Russia, Iran, Qatar, the United States, and Turkmenistan.<sup>17</sup>
- Jafurah, the largest unconventional natural gas field in Saudi Arabia, contains 229 Tcf in natural gas reserves, which includes 15 Tcf of additional proved reserves announced by the Saudi government in early 2024. Jafurah is under development, and initial start-up is planned for late 2025. Saudi Aramco expects natural gas production to reach 2.0 billion cubic feet per day (Bcf/d) by 2030 (Figure 3).<sup>18</sup>
- Saudi Arabia has six major natural gas processing facilities (Table 5). Saudi Aramco's Fadhili natural gas plant is the company's first nonassociated natural gas plant for both onshore and offshore fields, and in April 2024, Saudi Aramco awarded contracts to increase the Fadhili plant's processing capacity from 2.5 Bcf/d to 4 Bcf/d by the end of 2027. The plant became fully operational in 2021, and Saudi Aramco expects the planned increase to support Saudi Arabia's goal to increase natural gas production.<sup>19</sup>



- Saudi Arabia ranked as the 10th-highest natural gas flaring country by volume for 2023. That year, it flared 88 billion cubic feet (Bcf) of associated natural gas at an average intensity of 25 cubic feet per barrel (cf/b), up from 66 Bcf at an average intensity of 17 cf/b in 2022.<sup>20</sup>

**Figure 5. Total annual dry natural gas production and consumption in Saudi Arabia, 2014–2023**

billion cubic feet



Data source: U.S. Energy Information Administration, International Energy Statistics database  
 Note: All natural gas consumption is met with domestic production.

**Table 5. Major natural gas processing facilities in Saudi Arabia, 2023**

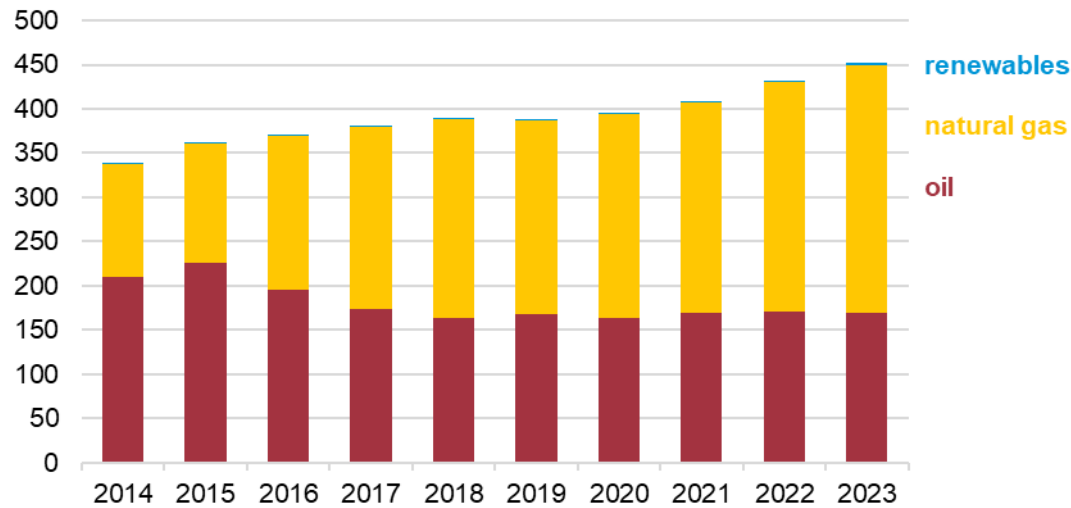
	Estimated capacity billion cubic feet per day	Location
Hawiyah	3.6	Eastern province south of Al Hofuf
Khursaniyah	2.8	East coast near Al Jubail
Fadhili	2.5	East coast near Al Jubail
Wasit	2.5	East coast near Al Jubail
Shaybah	2.4	Empty Quarter
Shedgum	2.2	Eastern province north of Al Hofuf
Haradh	1.8	Eastern province south of Al Hofuf
Berri	1.4	East coast near Al Jubail

Data source: Saudi Aramco and Oil & Gas News

## Electricity

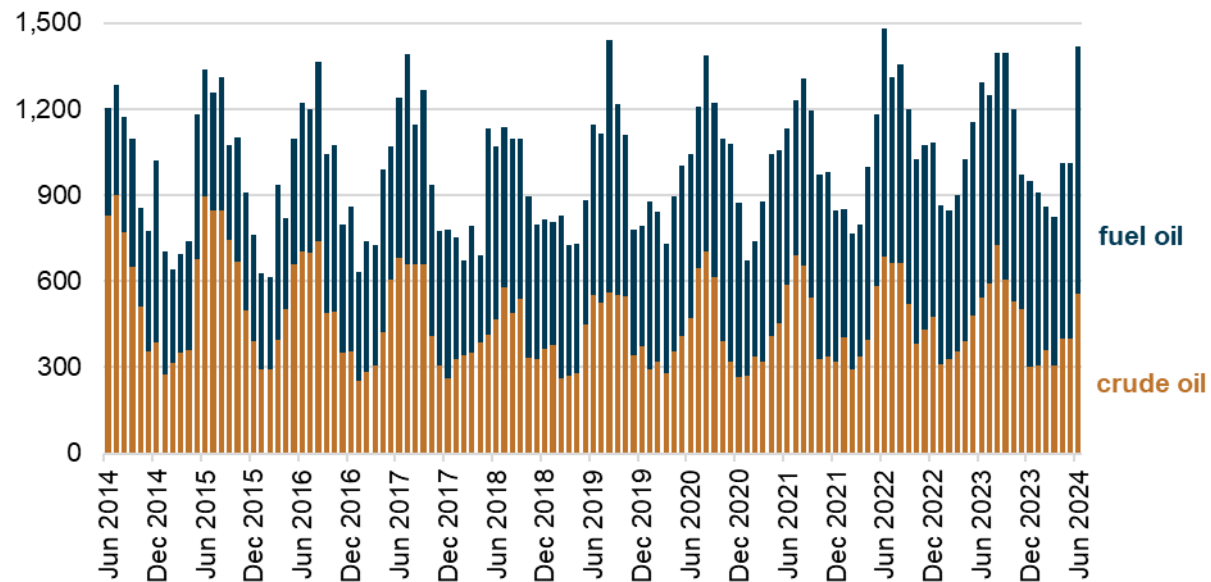
- Saudi Arabia generated an estimated 453 terawatt-hours (TWh) of electricity in 2023, with 62% from natural gas, 38% from oil, and less than 1% from renewables. Natural gas-fired electricity generation increased 8% year over year, from 260 TWh in 2022 to 280 TWh in 2023. Renewable-based electricity generation increased 153% year over year, from 1 TWh to 3 TWh. Oil-fired electricity generation remained relatively flat (Figure 6).<sup>21</sup>
- Total electricity consumption in Saudi Arabia increased 6% year over year, from 372 TWh in 2021 to 393 TWh in 2022. The *Middle East Economic Survey* reports that annual electricity consumption increased another 5% in 2023 and increases continued through the first half of 2024.<sup>22</sup>
- Increases in Saudi Arabia's electricity consumption, especially during peak summer season, have led to greater oil-fired power generation. Monthly burn of crude oil and fuel oil in Saudi Arabia reached 1.419 million b/d in June 2024, the country's highest since June 2022 (1.481 million b/d) (Figure 7). Oil-fired power generation supplements natural gas-fired power and renewables-based power to help meet demand for electricity, especially during peak summer months, despite continued increases in capacity from other sources.<sup>23</sup>
- Water desalination represented 6% of Saudi Arabia's electricity consumption in 2020, and the Saudi Water Authority (SWA) expects water desalination capacity to exceed 3.4 billion gallons per day (gal/d) across 43 operating desalination plants in 2024. In 2021, Saudi Arabia desalinated nearly 1.6 billion gal/d of water across 32 plants.<sup>24</sup>
- Saudi Arabia plans to increase the country's natural gas power plant capacity from 46% of total power generation capacity in 2022 to 50% by 2030, continuing operations of its existing natural gas power plants and constructing several planned power plants (Table 6 and Table 7).<sup>25</sup>
- Saudi Arabia's National Renewable Energy Program (NREP) had 5 GW in planned project capacity for renewables in 2020, mostly for solar power. Five of these projects (2.8 GW) represented Saudi Arabia's installed renewable energy capacity at the end of 2023 (Table 8).<sup>26</sup>
- Saudi Arabia's government seeks to have renewable energy sources represent 50% of electricity generation capacity by 2030, up from 3% at the end of 2023, with over 21 GW in planned renewable energy projects as of mid-2024. From those projects, 9.7 GW are planned for completion through 2026 (Table 9).<sup>27</sup>
- In June 2024, Saudi Arabia launched NREP's Geographic Survey Project for Renewable Energy. The survey will install 1,200 solar and wind energy measuring stations across more than 328,000 square miles to identify potential development sites for renewable energy projects.<sup>28</sup>

**Figure 6. Electricity generation by fuel type in Saudi Arabia, 2014–2023**  
terawatt-hours



**eia** Data source: U.S. Energy Information Administration, International Energy Statistics database and Energy Institute, *Statistical Review of World Energy*

**Figure 7. Total monthly oil burn in Saudi Arabia, 2014–2024**  
thousand barrels per day



**eia** Data source: Joint Organisations Data Initiative, Oil World Database  
Note: We assume all fuel oil consumption is burned.

**Table 6. Major operating power plants in Saudi Arabia, 2024**

	Capacity megawatts	Primary fuel	Stakeholder
Shoaiba Thermal Power Plant	5,600	Oil	Saudi Electricity Company
Ghazlan Power Plant	4,128	Natural gas	Saudi Electricity Company
Qurayyah IPP	3,927	Natural gas	Saudi Electricity Company, MENA Infrastructure Fund, Samsung C&T, and ACWA Power
Jazan IGCC	3,800	Oil	Saudi Aramco, ACWA Power, and Air Products
Qurayyah II Combined Cycle Power Plant	3,230	Natural gas	Saudi Electricity Company
South Jeddah Power Plant	2,892	Oil	Saudi Electricity Company
Marafiq Jubail IWPP	2,744	Natural gas	Marafiq, ACWA Power, ENGIE, Gulf Investment Corporation, and Saudi Electricity Company
Shuqaiq Steam Power Plant	2,640	Oil	Saudi Electricity Company

Data source: Power Technology, ACWA Power, Bank of Bahrain and Kuwait, and Global Energy Monitor

**Table 7. Major planned thermal power plant projects in Saudi Arabia, 2024**

	Type	Additional capacity megawatts	Fuel	Region	Announced completion year	Bid status
Qassim 1 and 2	New	3,600	Natural gas	Central	--	Awarded
Taiba 1 and 2	New	3,600	Natural gas	Western	--	Awarded
Rumah 1 and 2	New	3,600	Natural gas	Central	2026	Bidding
al-Nairyah 1 and 2	New	3,600	Natural gas	Eastern	--	Bidding
Riyadh 16	New	3,600	Natural gas	Central	--	Received
Al-Rais	New	2,400	Natural gas	Western	--	Received
Rabigh	Expansion	1,200	Natural gas	Western	--	Awarded

Data source: GE Vernova, *Middle East Economic Survey*, Siemens Energy, and Saudi Gulf Projects

Note: --=not available

**Table 8. Renewable energy capacity in Saudi Arabia, 2023**

Project	Type of project	Capacity megawatts	Date of operation year
Sudair	Solar	1,500	2023
Dumat Al-Jandal	Wind energy	400	2022
Sakakah	Solar	300	2020
South Jeddah	Solar	300	2023
Rabigh 1	Solar	300	2023
<b>Total</b>		<b>2,800</b>	

Data source: Kingdom of Saudi Arabia, General Authority for Statistics; and *Middle East Economic Survey*

**Table 9. Planned renewable energy projects in Saudi Arabia, 2024**

Project	Type of project	Project capacity megawatts	Planned completion year
Al-Shuaibah 2	Solar	2,060	2025
Rass 2	Solar	2,000	2026
Al-Sadawi	Solar	2,000	--
Haden	Solar	2,000	--
Al-Muwaih	Solar	2,000	--
Al-Khushaybi	Solar	1,500	--
Al-Kahfa	Solar	1,425	2026
Saad 2	Solar	1,125	2026
Al-Henekiyah	Solar	1,100	2025
Al-Masa'a	Solar	1,000	--
Rass 1	Solar	700	2024
Yanbu	Wind energy	700	--
Al-Ghat	Wind energy	600	--
Al-Shuaiba 1	Solar	600	2025
Waad Al-Shamal	Wind energy	500	--
Tubarjal	Solar	400	2025
Al-Henakiyah 2	Solar	400	--
Rabigh 2	Solar	300	--
Saad 1	Solar	300	2024
Amaala	Solar	250	--
Qurayyat	Solar	200	--
Wadi ad-Dawasir	Solar	120	2025
Layla	Solar	80	--

Medina	Solar	50	--
Rafha	Solar	20	--
<b>Total</b>		<b>21,430</b>	<b>--</b>

Data source: Kingdom of Saudi Arabia, General Authority for Statistics; Blackridge Research & Consulting; Power Technology; Saudi Gulf Projects; and *Middle East Economic Survey*

Note: *Planned* renewable energy projects represent projects reported by the Kingdom of Saudi Arabia's General Authority for Statistics as of 2020 and major project announcements from other sources through June 2024. --=not available

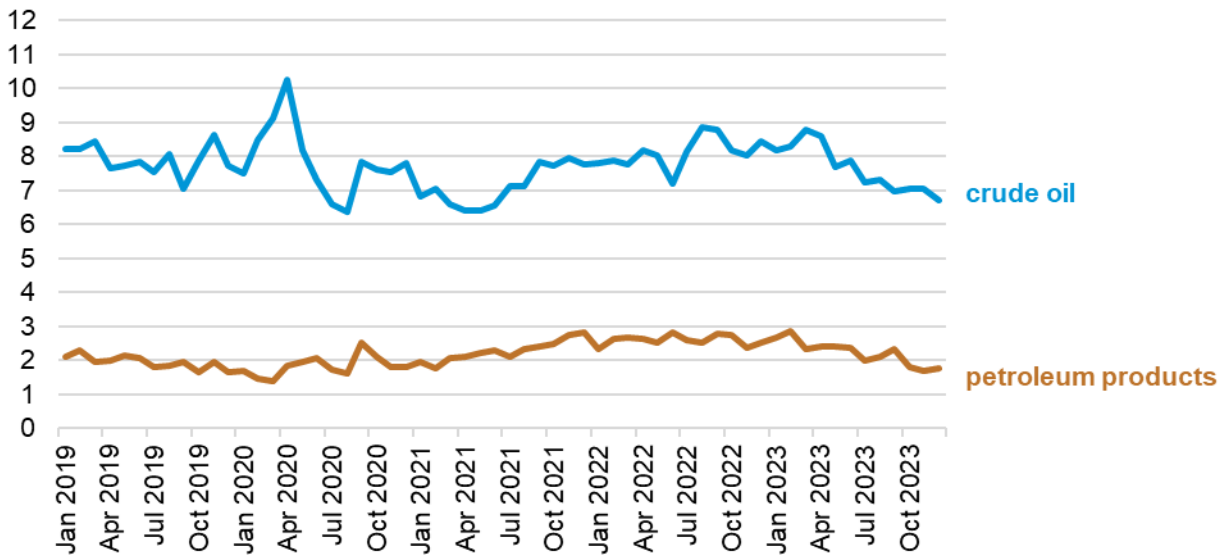
## Energy Trade

- Crude oil and petroleum product exports from Saudi Arabia represented 34% and 26%, respectively, of OPEC exports in 2023. Saudi Arabia exported 7.0 million b/d of crude oil in 2023, down 5% from 7.4 million b/d in 2022, because of decreased oil production. Saudi Arabia's petroleum product exports declined 8% year over year, from 1.4 million b/d in 2022 to 1.3 million b/d in 2023 (Figure 8).<sup>29</sup>
- Asia is Saudi Arabia's primary export market for crude oil, receiving 75% of Saudi Arabia's total annual crude oil exports in 2023. China, Japan, South Korea, and India were its top crude oil importers (Figure 9).<sup>30</sup>
- Saudi Arabia shipped 42% (6.2 million b/d) of the crude oil that transited the [Strait of Hormuz](#) in 2023. The Strait of Hormuz is the seaborne entrance to the Persian Gulf and one of the world's most important oil transit chokepoints. Most exports of petroleum and natural gas from the Persian Gulf to Europe and North America pass through several chokepoints, including the Strait of Hormuz, the [Suez Canal or the SUMED pipeline, and the Bab el-Mandeb](#) (Figure 10).<sup>31</sup>
- Saudi Arabia can circumvent the Strait of Hormuz and Bab El-Mandeb by transporting crude oil to the Red Sea via the country's 5 million b/d East-West crude oil pipeline, which is temporarily expandable to 7 million b/d when needed (Figure 10).<sup>32</sup>
- The proportion of seaborne crude oil exports from Saudi Arabia originating from Yanbu, the country's primary crude oil export terminal on the Red Sea, reached a record 18% in the second quarter of 2024 (Figure 11).<sup>33</sup> In early 2024, Saudi Aramco began exporting Arab Heavy from Yanbu, which is usually exported from Saudi Arabia's gulf coast, to circumvent ongoing threats of Houthi attacks on cargo vessels going through the Bab el-Mandeb.<sup>34</sup>
- Saudi Arabia imported 375,000 b/d of seaborne fuel oil in June 2024, a monthly record since at least 2019 and a 57% increase year over year from 239,000 b/d in June 2023 (Figure 12). Driven by domestic electricity demand and discounted prices, fuel oil imports from Russia to Saudi Arabia began to increase in the summer of 2022, until Russia banned fuel exports in 2023. After Russia's export ban was lifted in early 2024, by July 2024, over 40% of Saudi Arabia's monthly seaborne fuel oil imports originated from Russia.<sup>35</sup>
- Saudi Arabia exported 0.4 TWh of electricity in 2022 and imported 0.3 TWh of electricity, each remaining flat compared with 2021.<sup>36</sup> Electricity from Saudi Arabia can be traded through

interconnected electricity grids between member states of the Gulf Cooperation Council (GCC), including Saudi Arabia, Kuwait, Bahrain, Qatar, United Arab Emirates, and Oman.<sup>37</sup>

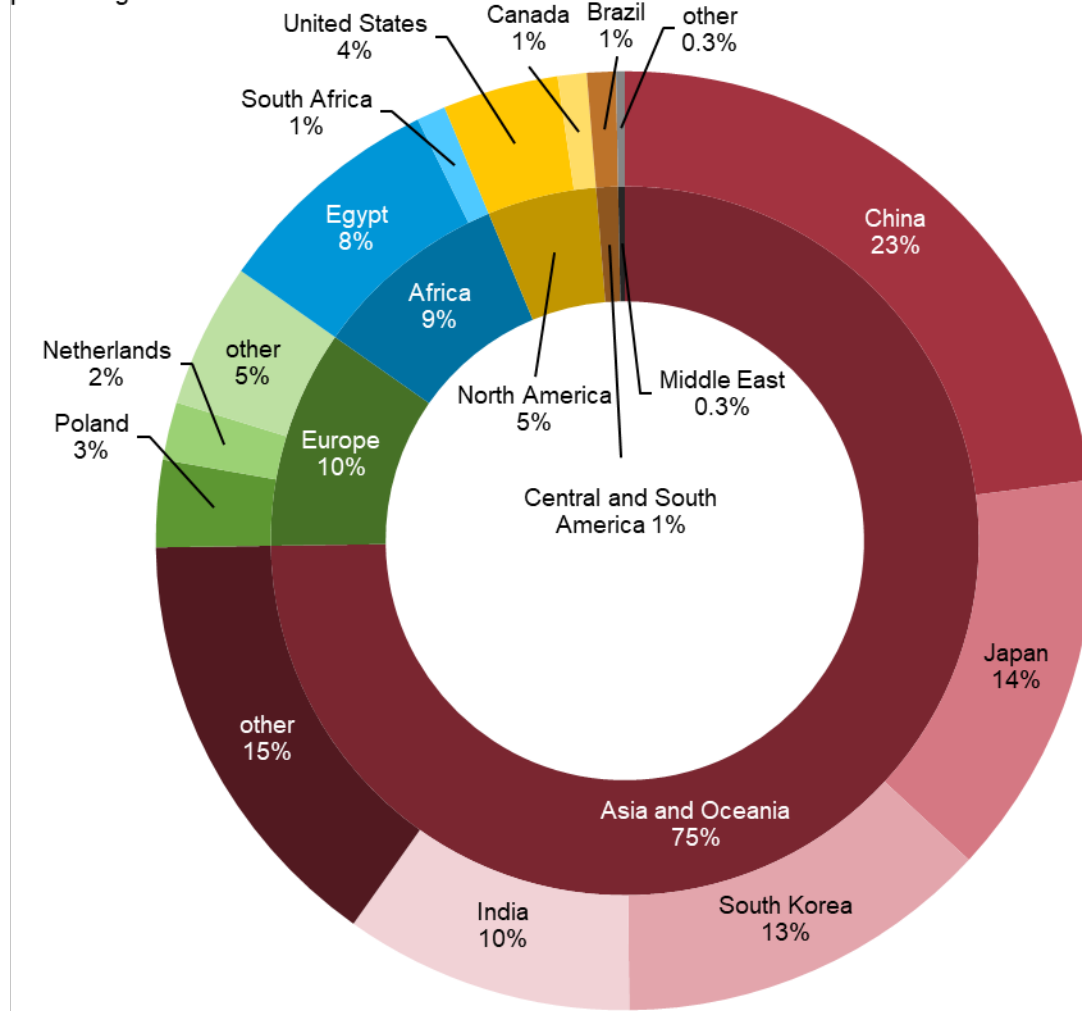
- In partnership with the Gulf Cooperation Council Interconnection Authority (GCCIA), Saudi Arabia officially launched a 1-GW electricity interconnection project with Iraq in 2023, connecting Arar, in northern Saudi Arabia, with Baghdad.<sup>38</sup> Saudi Arabia expects an electricity interconnection project with Egypt to be fully operational by 2026. The project, initially launched in 2022, could transmit up to 3 GW of electricity between the two countries.<sup>39</sup>

**Figure 8. Crude oil and petroleum product exports from Saudi Arabia, 2019–2023**  
million barrels per day



Data source: Global Trade Tracker and Vortexa

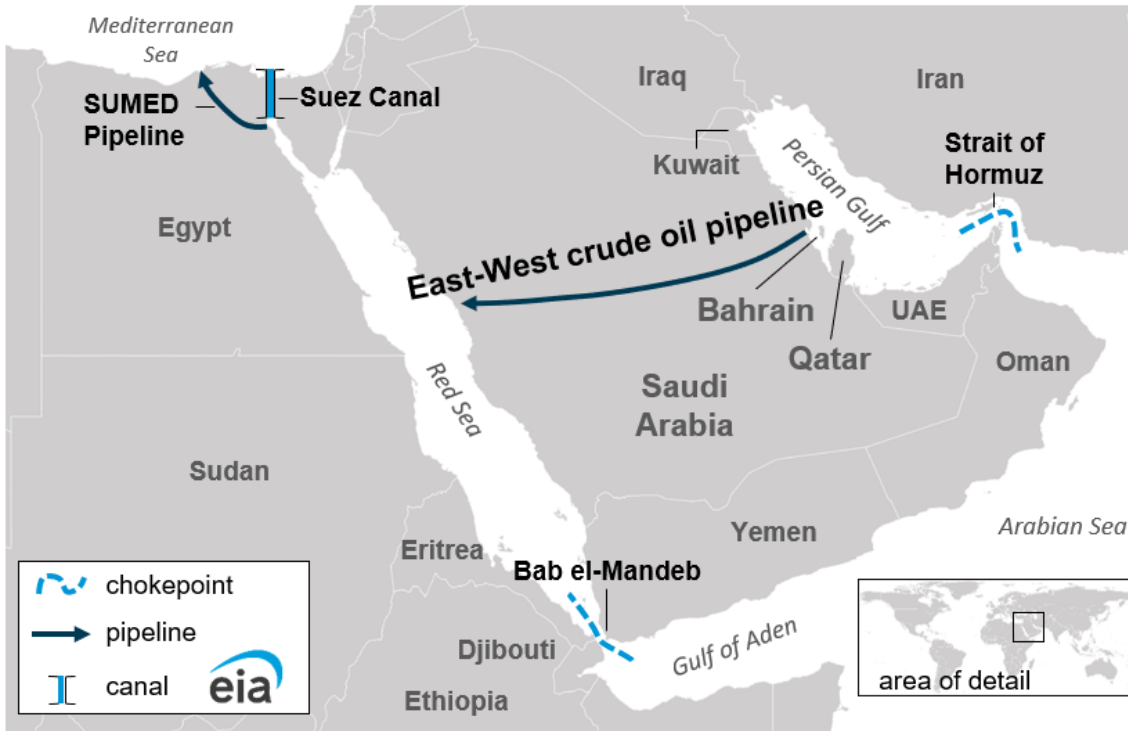
**Figure 9. Saudi Arabia crude oil exports by region and country, 2023**  
percentage



Data source: Global Trade Tracker and Vortexa  
Note: Individual percentages might not add to the total because of rounding.

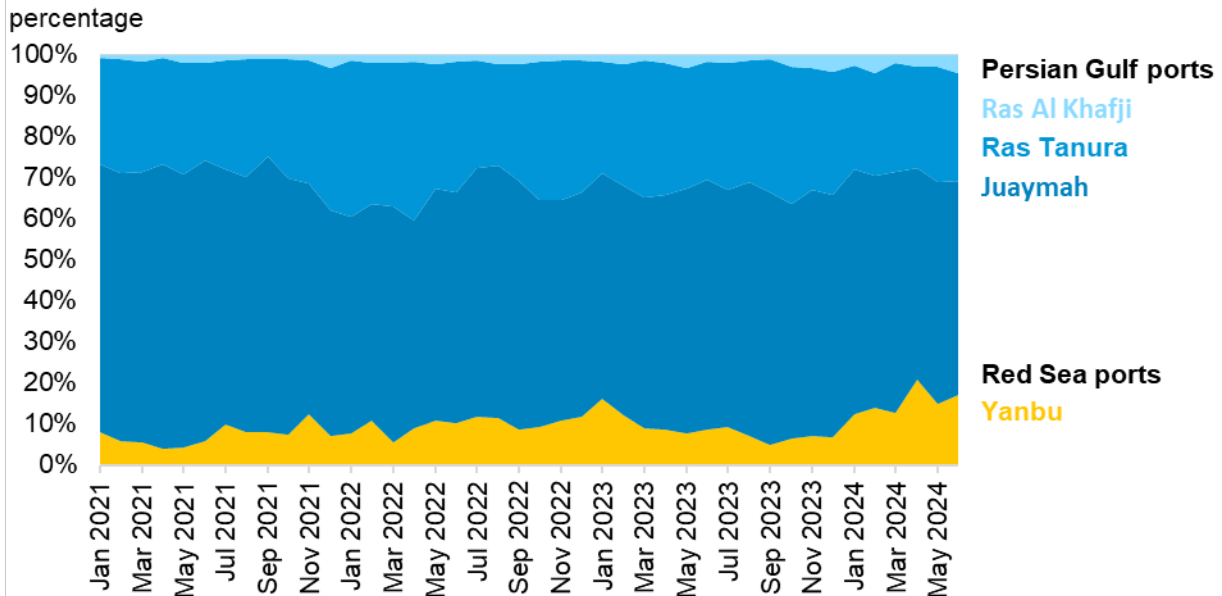


**Figure 10. Map of maritime chokepoints near Saudi Arabia**



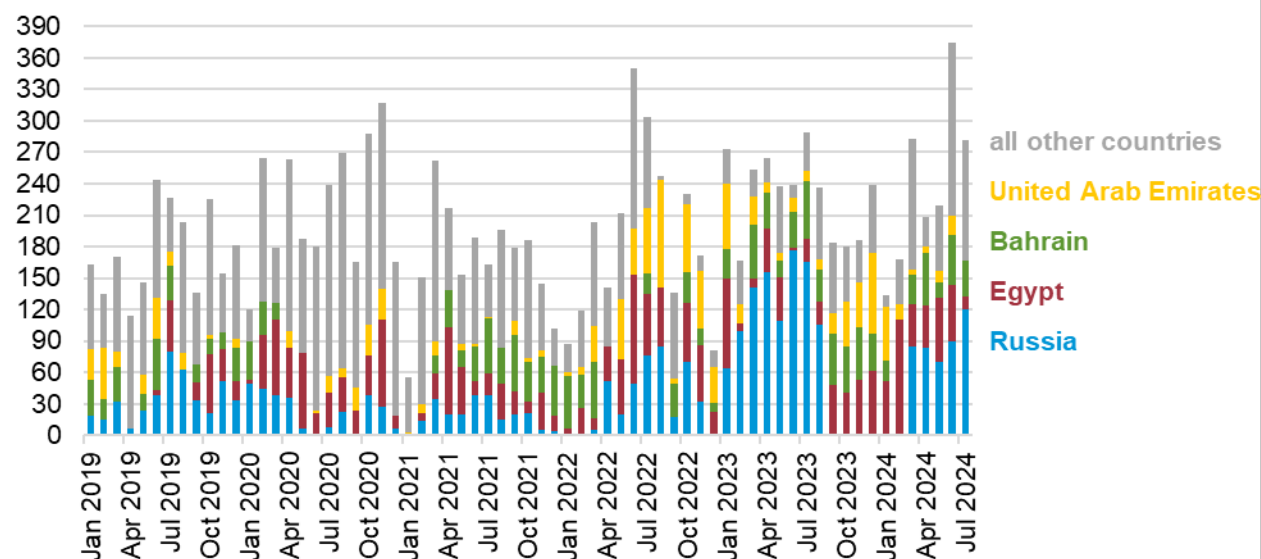
Data source: U.S. Energy Information Administration

**Figure 11. Seaborne crude oil exports from Saudi Arabia by port, January 2021–June 2024**



Data source: Vortexa  
 Note: Red Sea ports other than Yanbu are excluded and represent less than 0.1% of monthly exports.

**Figure 12. Seaborne fuel oil imports in Saudi Arabia, January 2019–July 2023**  
thousand barrels per day



Data source: Vortexa

<sup>1</sup> U.S. Energy Information Administration, International Energy Statistics database (accessed August 2024); OPEC, Annual Statistical Bulletin, [Data download](#), *Crude oil production in OPEC and non-OPEC DoC Members* (accessed August 2024); OPEC, Annual Statistical Bulletin, [Data download](#), *World crude oil exports by country* (accessed August 2024).

<sup>2</sup> OPEC, “Saudi Arabia, Russia, Iraq, the United Arab Emirates, Kuwait, Kazakhstan, Algeria, and Oman met in person in Riyadh on the sidelines of the 37th OPEC and non-OPEC Ministerial Meeting (ONOMM),” June 2, 2024; OPEC, “Several OPEC+ countries announce extension of additional voluntary cuts of 2.2 million barrels per day for the second quarter of 2024,” March 3, 2024; Olesya Astakhova, Alex Lawler and Ahmad Ghaddar, Reuters, [OPEC+ unlikely to change oil output policy at Aug 1 JMMC meeting, sources say](#), July 18, 2024; TD Ameritrade, “OPEC+ Extends Cuts and Plans for Production Increases,” June 3, 2024; Enerdata, “OPEC+ announces new 1.66 mb/d crude oil production cuts,” April 4, 2023; OPEC, “Saudi Arabia, Russia, Iraq, the United Arab Emirates, Kuwait, Kazakhstan, Algeria, and Oman extend voluntary cuts,” September 5, 2024.

<sup>3</sup> Kingdom of Saudi Arabia, [Vision 2030](#) (accessed August 2024).

<sup>4</sup> *Middle East Economic Survey, Weekly Energy, Economic & Geopolitical Outlook*, “Saudi Arabia Plans 7.2GW New Gas-Fired Power Plants,” January 12, 2024, Vol. 67 No. 2; *Middle East Economic Survey, Weekly Energy, Economic & Geopolitical Outlook*, “Saudi Arabia Awards 8.4GW Gas-Fired Capacity,” November 3, 2023, Vol. 66 No. 44.

<sup>5</sup> Blackridge Research & Consulting, “Saudi Arabia Announces Multi-Billion Dollar Greenfield Solar Projects,” June 24, 2024; Power Technology, “Top five solar PV plants in development in Saudi Arabia,” February 15, 2024; Power Technology, “Saudi Arabia announces qualified bidders for 3.7GW solar projects,” February 12, 2024; Saudi Gulf Projects, “Saudi Arabia signs Agreements for 5,500 MW Solar PV Projects,” June 25, 2024.

<sup>6</sup> U.S. Energy Information Administration, International Energy Statistics database (accessed July 2024); U.S. Energy Information Administration, [Short-Term Energy Outlook Data Browser](#) (accessed July 2024); Ahmad Ghaddar, Alex Lawler, and Maha El Dahan, Reuters, “OPEC+ extends deep oil production cuts into 2025,” June 2, 2024; OPEC, “Several OPEC+ countries announce extension of additional voluntary cuts of 2.2 million barrels per day for the second quarter of 2024,” March 3, 2024.

- <sup>7</sup> Saudi Aramco, *Base Prospectus*, June 7, 2021; U.S. Energy Information Administration, Today in Energy, “[Changing quality mix is affecting crude oil price differentials and refining decisions](#),” September 21, 2017.
- <sup>8</sup> U.S. Energy Information Administration, Today in Energy, “[United States produces more crude oil than any country, ever](#),” March 11, 2024; Maha El Dahan and Yousef Saba, Reuters, “[Saudi Arabia orders Aramco to lower oil capacity target](#),” January 30, 2024; Ruxandra Iordache, CNBC, “[Saudi energy minister pins Aramco’s oil capacity halt on green transition](#),” February 12, 2024.
- <sup>9</sup> American Journal of Transportation, “[Saudi Arabia takes a pause - Rystad Energy’s Oil Market Update](#),” February 8, 2024; Zawya, “[Project Updates: Aramco’s Marjan and Berri crude oil increments to come onstream by 2025](#),” March 21, 2024; *Middle East Economic Survey, Weekly Energy, Economic & Geopolitical Outlook*, “[Aramco Drops Expansion Capacity Plans](#),” February 2, 2024, Vol. 66 No. 5.
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