



Country Analysis Brief: Guyana

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Overview

Table 1. Guyana's energy overview, 2022

	Crude oil and other petroleum liquids	Natural gas	Coal	Nuclear	Hydro	Other renewables	Total
Primary energy consumption (quads)	0.03	0.00	0.00	0.00	0.00	0.00	0.03
Primary energy consumption (percentage)	99.2%	0.4%	0.0%	0.0%	0.0%	0.3%	100.0%
Primary energy production (quads)	0.61	0.00	0.00	0.00	0.00	0.00	0.61
Primary energy production (percentage)	99.9%	0.0%	0.0%	0.0%	0.0%	0.02%	100.0%
Electricity generation (terawatthours)	1.10	0.02	0.00	0.00	0.00	0.02	1.14
Electricity generation (percentage)	96.7%	1.4%	0.0%	0.0%	0.0%	1.9%	100.0%

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

Note: Other renewables contain solar and biomass and waste. Quads=quadrillion British thermal units

- Guyana's petroleum production has grown rapidly, increasing from 15,000 barrels per day (b/d) in December 2019, when crude oil production in the country began, to 630,000 b/d in January 2024.¹ Three additional projects are underway with the potential to reach a combined production capacity of 1.3 million b/d of crude oil by 2027.²
- As a result, the country has had an economic boom, with double-digit GDP growth reported since 2020, including a 62% increase in 2022. The oil and natural gas industry accounted for 56% of GDP growth, and the non-oil industries accounted for 6%.³ The International Monetary Fund forecasts continued double-digit GDP growth over its outlook period, between 2023 and 2028.⁴
- ExxonMobil, leading a consortium, has discovered over 30 oil reserves since 2015 in the offshore Stabroek Block; the latest discoveries are the Fangtooth SE-1 and Lancetfish-1 wells in 2023 and the Bluefin well in 2024.^{5, 6}
- Petroleum and other liquids account for 99.2% of Guyana's energy production and 99.9% of its energy consumption. The remainder is made up of natural gas and renewables such as wood and sugar cane residue.⁷
- In December 2022, Guyana's government passed the [Local Content Act 2021](#) for the country's expanding oil and natural gas industry, requiring companies to use local goods, services, and labor in 40 different sectors. The law specifies minimums for local content, ranging from 5% to 100%. Although some of the requirements are lower than those

outlined in an earlier version of the bill, the government also introduced additional provisions covering government monitoring procedures, reporting requirements, and penalties for non-compliance.^{8, 9}

- In December 2023, Venezuela held a referendum on whether or not to recognize Essequibo, an oil and natural gas-rich territory belonging to Guyana, as part of Venezuela and to authorize the government to annex the territory. In March 2024, Venezuela's National Assembly passed a law stating that Essequibo is a Venezuelan state, prohibiting maps of the country without the territory. Guyana has condemned Venezuela's new law as a violation of international law and an escalation of tensions. In February 2024, Guyana's government announced that it would not approve oil exploration in acreage north of the Venezuelan 70-degree line, which cuts through the Stabroek and Kaieteur blocks, until the UN court rules on the borders. As of May 2024, this issue has not limited Guyana's oil production or projects currently in development.^{10, 11, 12, 13, 14, 15}

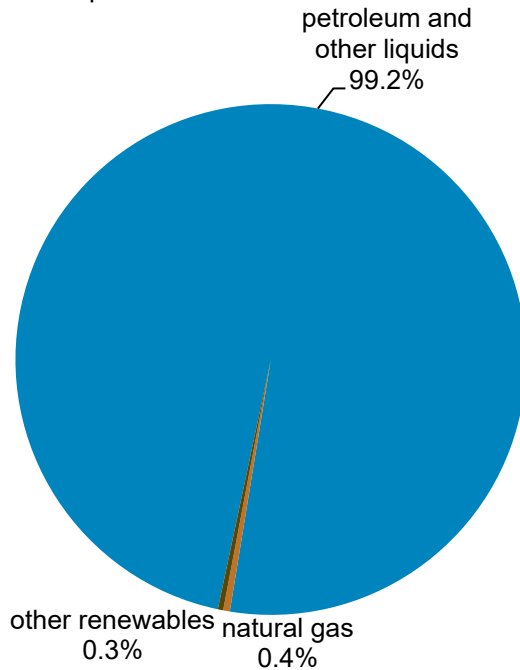
Figure 1. Map of Guyana



Data source: U.S. Central Intelligence Agency, [CIA World Factbook—Guyana](#)

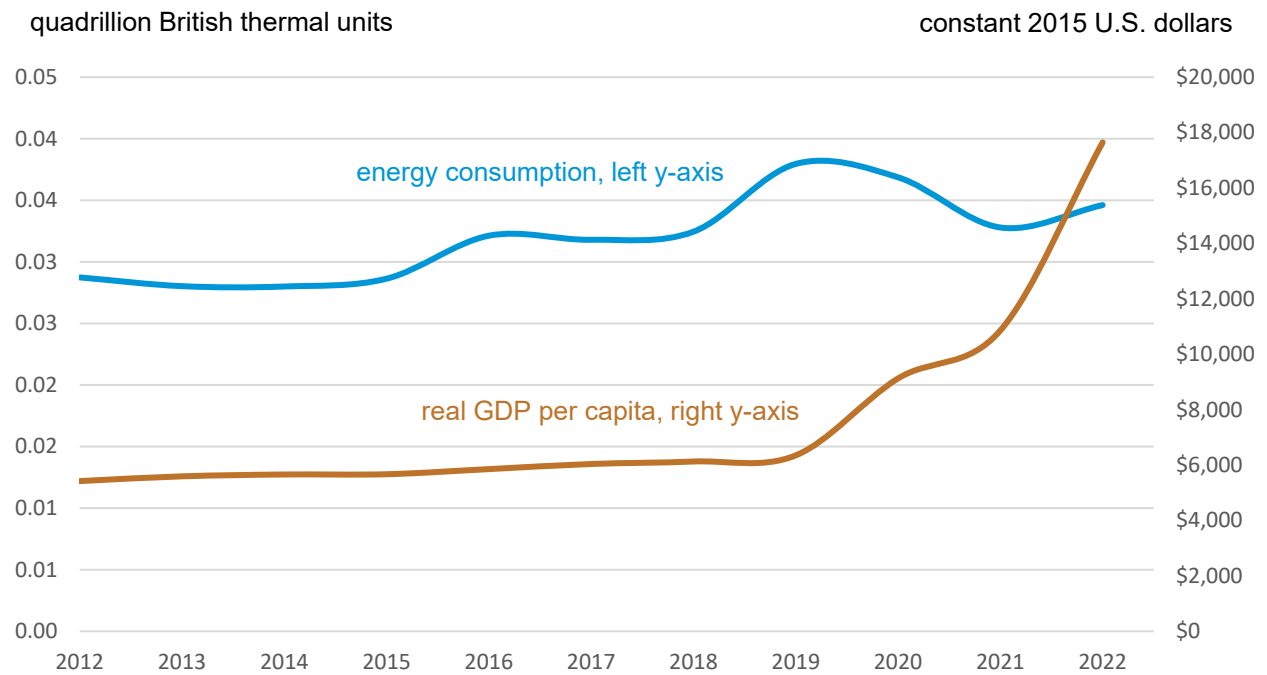
Figure 2. Guyana's total energy consumption by fuel type, 2022

percentage of total energy consumption



Data source: U.S. Energy Information Administration, International Energy Statistics
 Note: Total may differ because of rounding.

Figure 3. Guyana's total energy consumption and inflation-adjusted GDP per capita, 2012–2022



Data source: U.S. Energy Information Administration, International Energy Statistics; World Bank, *World Development Indicators*

Petroleum and Other Liquids

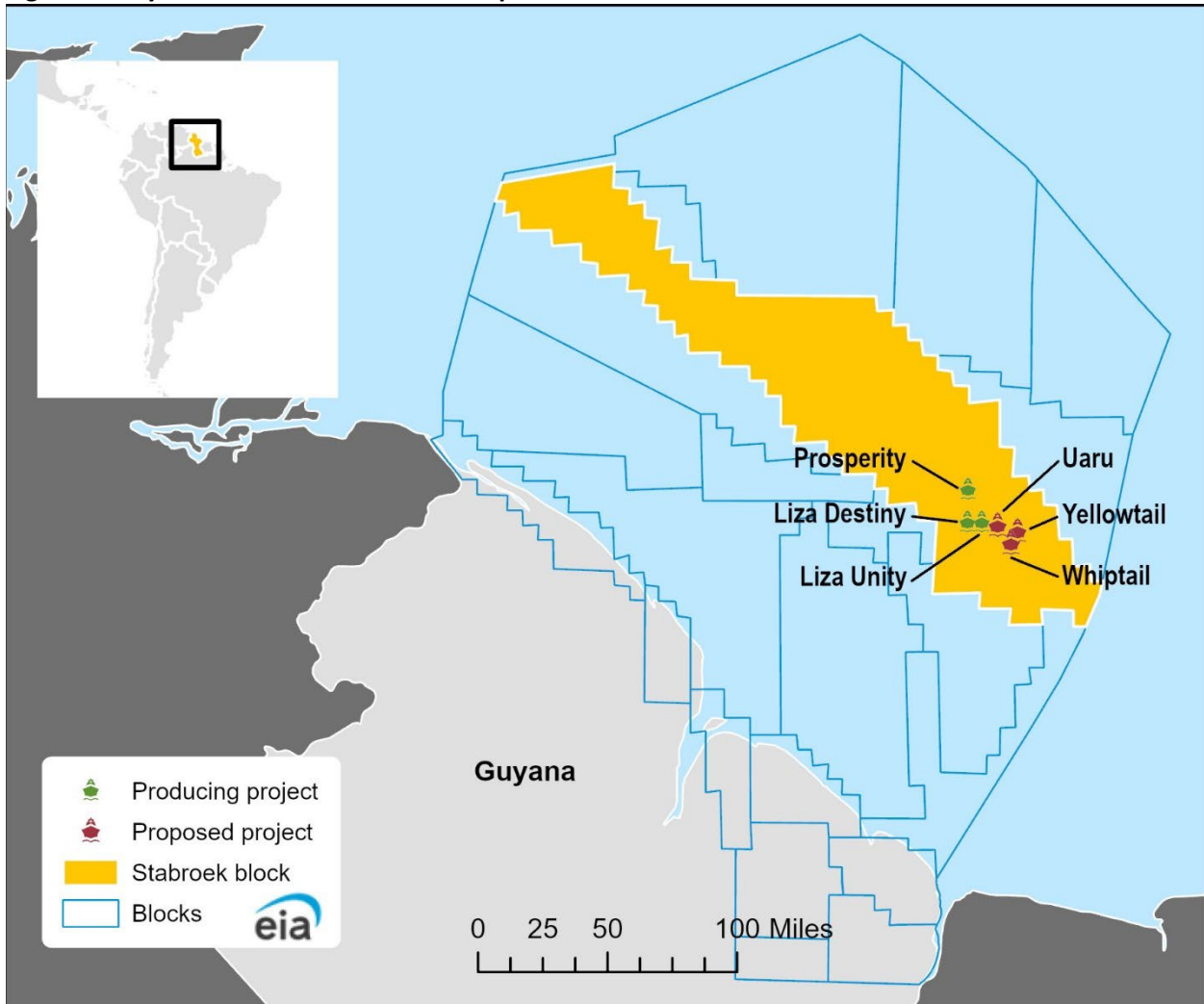
- Guyana had an estimated 11 billion barrels (b) of proved oil reserves as of January 2024.¹⁶ The most significant offshore exploration program started in 2008 when ExxonMobil started collecting and analyzing seismic data, focusing on the Stabroek Block (Figure 4). The Stabroek Block spans 6.6 million acres off Guyana's Atlantic coast. The block is operated by ExxonMobil, which holds 45% of the working interest. The remaining stake is divided between Hess (30%) and CNOOC (25%). In 2015, the ExxonMobil-led consortium discovered the Liza field, a significant formation with more than 295 feet of high-quality oil-bearing sandstone reservoirs.^{17, 18} Sandstones are highly porous and, therefore, often serve as ideal reservoirs for natural gas or crude oil. Reservoir quality varies based on the location within the sandstone formation. Thick channel sandstones form high-quality reservoirs in the middle, and poor reservoirs are found in the upper or lower parts because of intense compaction and cementation.^{19, 20} Guyana's current break-even prices range from US \$25/b to US \$35/b, according to estimates from Hess, making it one of the most attractive projects globally.²¹
- All projects currently producing crude oil as well as those under development are in the Stabroek Block (Figure 4). ExxonMobil has made over 30 discoveries in the Stabroek Block offshore of Guyana since 2015, including the Payara, Snoek, Liza Deep, Turbot, Ranger, Pacora, Longtail, Hammerhead, Pluma, and Tilapia discoveries, since the Liza field discovery. In 2024, ExxonMobil announced the Bluefin discovery, located 5.3 miles southeast of the Sailfin-1 well, as the first discovery for 2024. The Bluefin well has about 197 feet of hydrocarbon-bearing sandstone and a reservoir of about 66 feet of oil and natural gas.^{22, 23, 24}
- The Orinduik Block is strategically located near the prolific Stabroek Block, just 6.8 miles away from ExxonMobil's Liza discovery. In 2019, Tullow Oil discovered two new oil fields in the offshore Orinduik Block (Jethro-1 and Joe-1), which contain 180 feet of heavy crude oil with a high sulfur content. The Jethro-1 well could be the first crude oil production project in Guyana outside the Stabroek Block. The Orinduik Block is situated 105.6 miles away from Guyana's shore and has a shallow water range of 223 feet–4,593 feet. Eco Atlantic Oil & Gas Ltd. has acquired a 60% operating interest in the block from Tullow Oil, increasing its total interest to 75%. Having the majority share allows Eco Atlantic to take a leading role in exploring and developing the block's potential.^{25, 26, 27}
- Repsol operates the Kanuku Block with a 37.5% working interest, Tullow Guyana also holds a 37.5% stake, and Total E&P Guyana owns the remaining 25% interest. The block is about 93.2 miles offshore of Guyana in water depths of 230 feet–328 feet. In January 2020, Tullow Oil discovered light oil at the Carapa-1 well. However, the reservoir was smaller than the company had expected, and the discovery was determined to be non-commercial. In August 2022, Tullow Oil completed the drilling on the Beebei-Potaro exploration well in the Kanuku Block, but the primary and secondary targets were found to be water-bearing.^{28, 29}
- Guyana also has onshore resources. The onshore Guyana Basin boundary extends 150 miles from the coastline into the land.³⁰ The eastern part of the basin has the thickest sediment, reaching up to 8,202 feet. Since 1916, 13 wells have been drilled in the onshore Guyana Basin, and only two of those wells, Rose Hall-1 and Drill-1, encountered crude oil, in 1941 and 1967, respectively.³¹ Offshore estimates of the Guyana Basin suggest the presence of more than 10 billion barrels of crude oil and 30 trillion cubic

feet of natural gas.³² For this reason, exploration efforts have shifted from onshore to offshore Guyana Basin.³³

- The Takutu Basin is in the southwestern part of Guyana and extends across the border into the Brazilian state of Roraima. Four wells have been drilled in the Takutu Basin: Lethem-1 (1980), Turantsink-1 (1992), Karanambo-1 (1982), and Apoteri K2I (2011). Of these wells, the Karanambo-1 well yielded the best results. The tests of oil samples from the Karanambo-1 well indicated a light, sweet oil (42 degrees API gravity), containing less than 0.5% sulfur. Home Oil Company drilled the Karanambo-1 well, and although they found crude oil, the commercial viability did not materialize at the time. In 2011, a private Canadian oil and natural gas company, Groundstar Resources, resumed an exploratory campaign in Takutu Basin, drilling one well (Apoteri K2) with limited production success.^{34, 35}
- Crude oil production in Guyana began in December 2019 in the Liza 1 field, ExxonMobil's first offshore discovery in the country. Esso Exploration and Production Guyana, an affiliate of ExxonMobil, operates the Liza 1 field and produces from a floating production, storage, and offloading (FPSO) vessel called the Liza Destiny. The vessel produces more than 120,000 b/d and has a storage capacity of 1.6 million barrels. The Liza 1 project has four drilling centers and 17 wells, including eight oil and natural gas production wells, six water injection wells, and three natural gas injection wells. In December 2023, Liza 1 peaked at 163,000 b/d, exceeding its original capacity. The Liza Phase 1 conventional oil field has recovered 24.9% of total recoverable reserves, with a production peak in 2021. As of February 2024, the oil field accounted for about 30% of the country's daily production.^{36, 37, 38, 39}
- In May 2019, ExxonMobil announced the final investment decision for the Liza Phase 2 project in offshore Guyana after receiving all necessary approvals. The Liza Phase 2 project involves a second FPSO, Liza Unity, and was designed to produce up to 220,000 b/d and was later optimized to produce 250,000 b/d. The project includes six drilling centers with approximately 30 wells, consisting of 15 oil production wells, 9 water injection wells, and 6 natural gas injection wells. Esso Exploration and Production Guyana delivered the first crude oil from Liza Phase 2 ahead of schedule in mid-February 2022. Since then, the project's production has grown rapidly.^{40, 41, 42}
- ExxonMobil began production at the Payara field in November 2023. The Payara field is the third offshore oil development in the Stabroek Block and is operated by Esso Exploration and Production Guyana. The Prosperity FPSO has an initial production capacity of approximately 220,000 b/d. With the addition of the Payara field, Guyana's total oil production capacity increased to approximately 620,000 b/d. This project includes 10 drilling centers with 40–45 wells, of which about 20 wells would be used for oil production. As of February 2024, the field accounted for approximately 8% of the country's daily production.^{43, 44, 45, 46, 47}
- The American Bureau of Shipping gave the SUSTAIN-1 designation to the Liza Unity and the Prosperity FPSOs. This designation recognizes the strength of the FPSO's sustainable design, documentation, and operating procedures.^{48, 49}
- Three grades of crude oil are produced in Guyana: Liza, Unity Gold, and Payara Gold. Liza has an API gravity of 32 degrees and 0.58% sulfur content, making it a medium-sweet crude oil. Unity Gold crude oil, which is a lighter and sweeter grade than Liza, has a 35.3-degree API gravity and 0.39% sulfur content. Payara Gold, which started shipping in December 2023, has a 28-degree API gravity and 0.58% sulfur content.⁵⁰

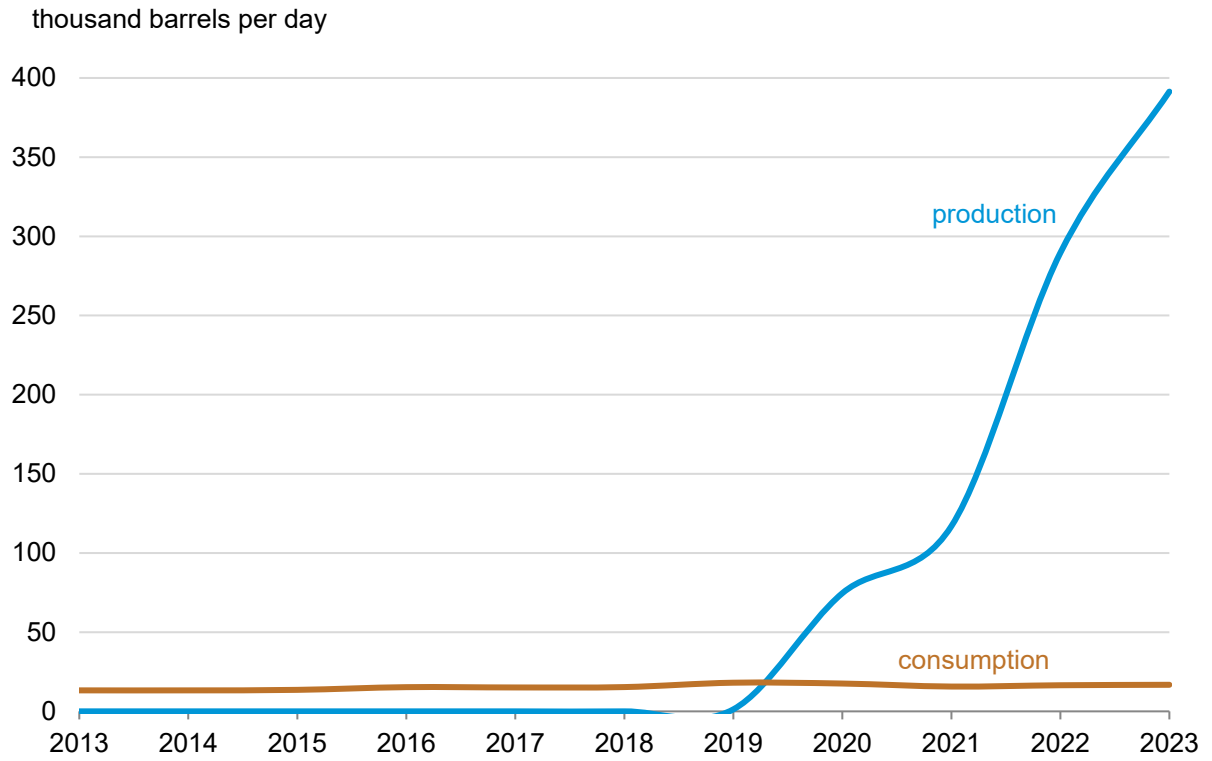
- As of May 2024, Guyana relies on imported fuels because it has no refining capacity. Therefore, it exports its crude oil to other countries for refining. However, Guyana is actively working toward establishing its oil refinery. The country aims to meet regional demand and market crude oil components for various uses, including transportation, paving roads, electricity generation, and chemical manufacturing.^{51, 52}
- Guyana has three major fuel distributors: Guyana Oil Co, Sol Petroleum, and Rubis. The latter two operate in the wider Caribbean region, and Guyana Oil has the largest network of service stations in the country, with over 50 stations.⁵³

Figure 4. Guyana's oil blocks reference map



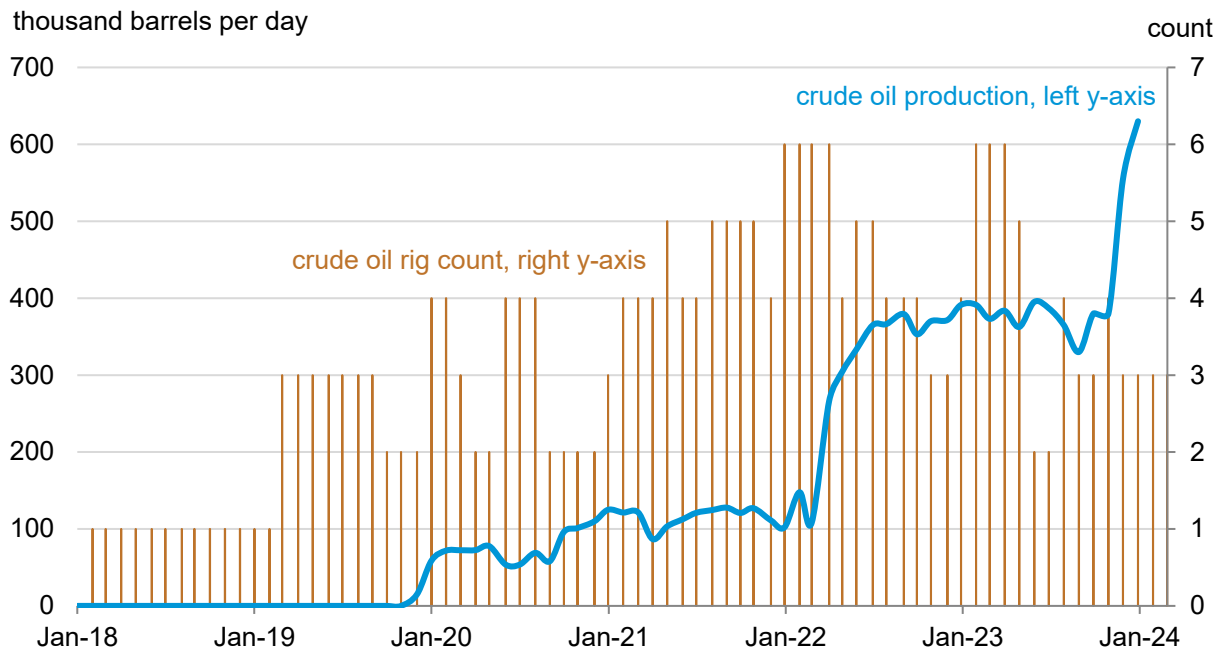
Data source: U.S. Energy Information Administration, World Bank, and [Guyana Geology and Mines Commission](#)
 Note: FPSO=floating production, storage, and offloading vessel

Figure 5. Guyana's total petroleum and other liquids production and consumption, 2013–2023



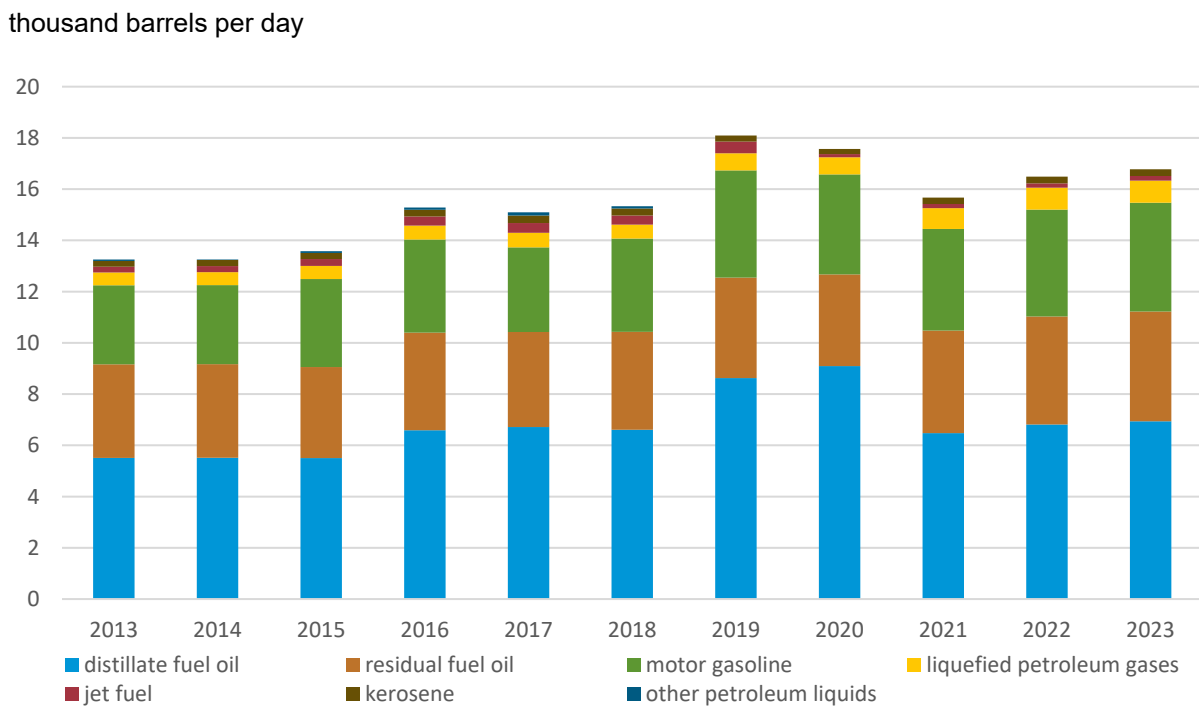
Data source: U.S. Energy Information Administration, International Energy Statistics and Short-Term Energy Outlook

Figure 6. Guyana's crude oil rig count and crude oil production, 2018–2024



Data source: U.S. Energy Information Administration, International Energy Statistics; Baker Hughes
 Note: Crude oil rig count data through March 2024; crude oil production data through January 2024

Figure 7. Guyana's refined petroleum products consumption, 2013–2023

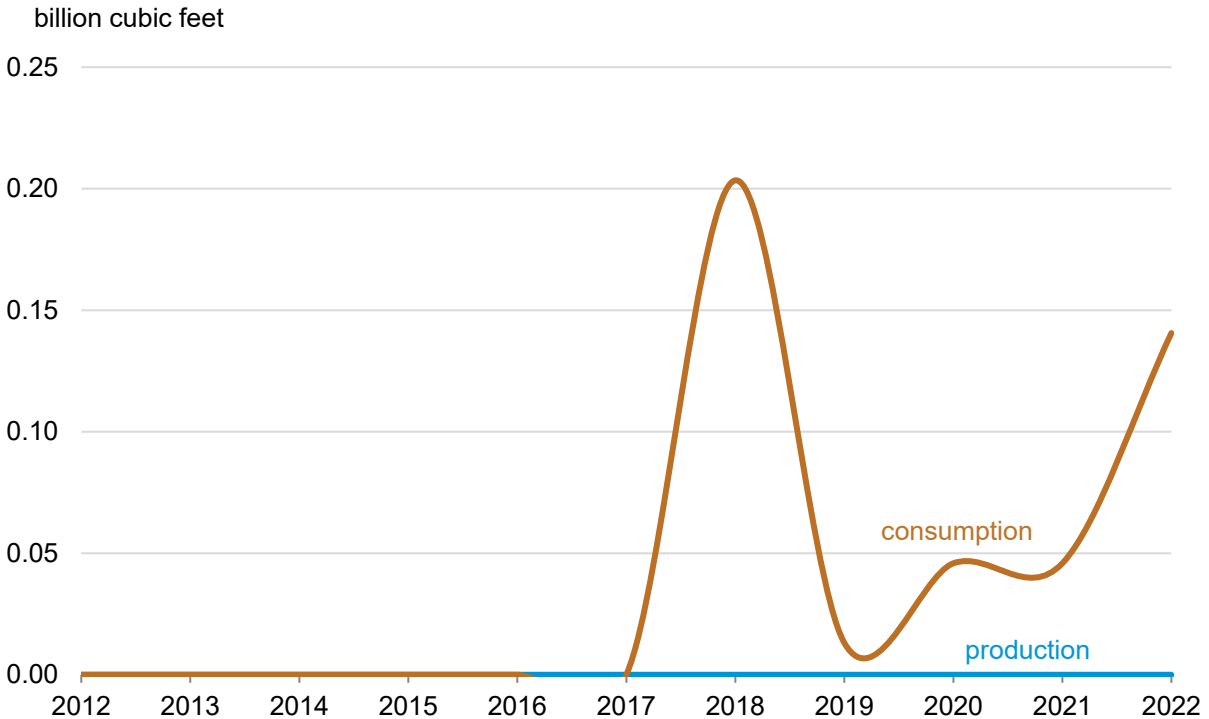


Data source: U.S. Energy Information Administration, International Energy Statistics and Short-Term Energy Outlook

Natural Gas and LNG

- Guyana’s proved natural gas reserves are estimated to be 16 trillion cubic feet (Tcf) as of January 2024.⁵⁴
- As of April 2024, Guyana has no natural gas pipelines. However, a proposed project called Gas-to-Shore (also sometimes called Gas-to-Energy) has been seeking investors since July 2021. This project aims to transport the associated natural gas production from Liza Destiny and Liza Unity FPSOs to the coast through a 140-mile-long natural gas offshore pipeline to feed a 300-megawatts (MW) combined-cycle power plant and a natural gas liquids (NGLs) facility. Among other goals, this project aims to reduce carbon emissions and diversify Guyana’s energy mix, which primarily uses fuel oil. The new power plant would be the first to use the associated gas produced from the oil field that, to date, has been reinjected underground.^{55, 56}

Figure 8. Guyana’s dry natural gas production and consumption, 2012–2022



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

Coal

- Guyana does not produce, consume, or import coal.

Biofuels

- Guyana's biofuels sector is still in its early stages of development and accounts for 0.02% of total energy production.
- According to a study by CEPAL, Guyana has high biofuel potential, especially from sugarcane, which is a source of significant economic output in the country. The study suggested that if domestic vehicles used a blend of gasoline with 10% ethanol, Guyana could produce almost three times the expected demand for ethanol.⁵⁷
- In September 2023, Guyana became a member of the Global Biofuels Alliance (GBA). The GBA is a collaborative effort comprising 19 countries and 12 international organizations, including both G20 members and non-member countries. The goal of the alliance is to promote the use of biofuels. It was launched at the G20 Summit in India in September 2023, with India leading the effort along with the United States and Brazil.^{58, 59}

Electricity

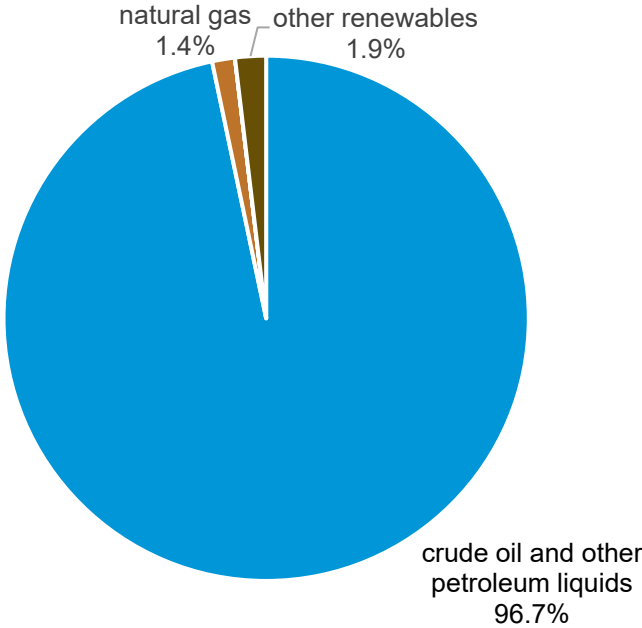
- Guyana primarily relies on heavy fuel oil for electricity generation (Figure 9). The vertically integrated, state-owned company called Guyana Power and Light (GPL) controls almost all of the country's electric power sector. Despite Guyana's potential in hydropower and bagasse-based power generation, Guyana's installed capacity comes primarily from diesel-engine-driven generators. This high use of fossil fuels makes the electric power sector expensive and unreliable; electricity costs average \$0.32 per kilowatt-hour, which is among the highest in the region. Electricity is unstable in many areas, and constant power outages affect business operations. Investors interested in renewable energy opportunities in Guyana face challenges because of current energy laws that give GPL a monopoly on power generation.⁶⁰
- As of May 2024, Guyana had only one operational biomass power plant—the Skeldon Biomass Power Plant in East Berbice-Corentyne. The power plant became operational in 2008 and is equipped with two steam turbines with 30 MW of generating capacity. Bagasse, a residue of sugarcane, is used as the primary fuel source for this power plant. The generated electricity is sold to GPL through a power purchase agreement.⁶¹
- Guyana's electricity transmission lines and power grid are in poor condition and need modernization. Inefficient grid systems mean that the GPL loses approximately 26% of its capacity, and the government is embracing microgrids as a potential clean energy solution to meet the energy needs of remote areas by reducing grid congestion and peak loads on the main grid.⁶²
- The Guyana Energy Agency (GEA) reported significant progress in solar projects in 2023, when it distributed 26,398 solar units. A total of 4.8 MW will be installed once the Home Energy Systems project adds 30,000 solar photovoltaic (PV) units. Two solar PV mini-grids were installed in Orealla and Siparuta, with capacities of 45 kilowatts each and battery storage systems. In March 2023, the government commissioned a second 1.5-MW utility solar power plant in Bartica as part of the Guyana Utility-Scale Solar Photovoltaic Program (GUY SOL), which plans to transition the country's grid to 19% renewable energy. In March 2024, Guyana signed a \$38 million contract with the Chinese company SUMEC to build solar energy farms in the regions of Pomeroun-

Supenaam, Mahaica-Berbice, and East Berbice-Corentyne, which will add about 10 MW of electricity to the country's grid.^{63, 64}

- One of Guyana's most important energy projects is developing the 165-MW Amalia Falls hydropower plant in the interior of the country. The project was originally awarded to China Railway Group Limited in January 2022, but it faced financing issues, leading the government of Guyana and China Railways to part ways in July 2022. Because of its extensive river networks, the government of Guyana is exploring other hydropower projects to meet the country's growing energy needs.^{65, 66}

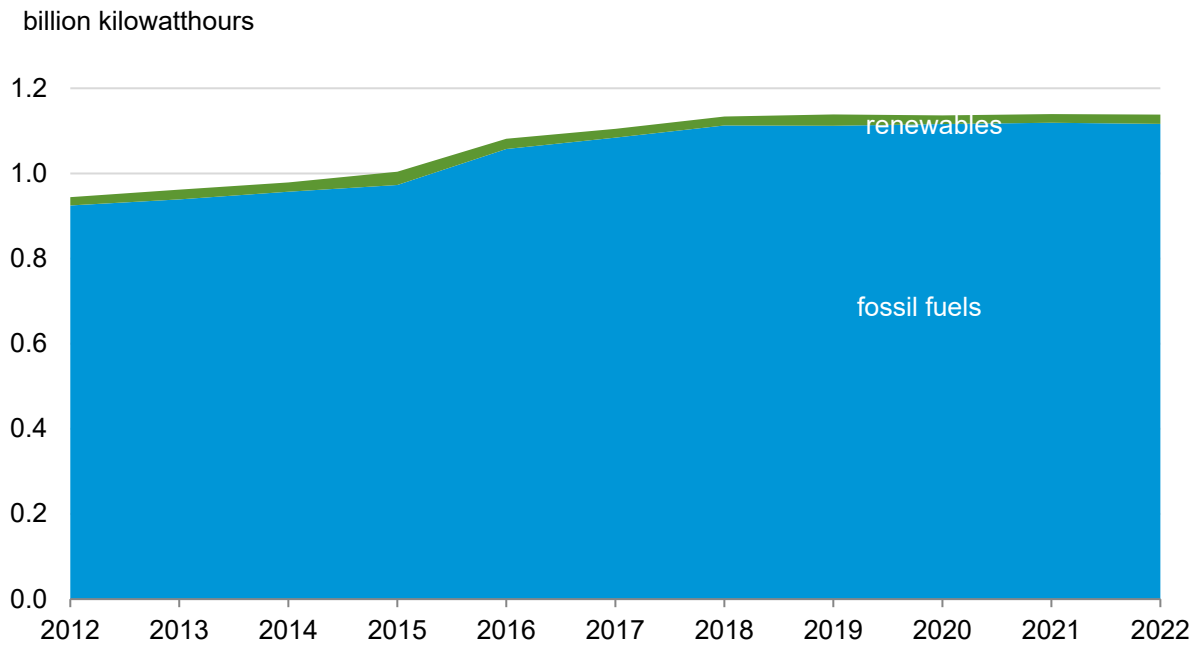
Figure 9. Guyana’s electricity generation supply, 2022

percentage of total electricity generation



Data source: U.S. Energy Information Administration, International Energy Statistics
Note: *Other renewables* contain solar and biomass and waste sources.

Figure 10. Guyana’s electricity generation by source, 2012–2022



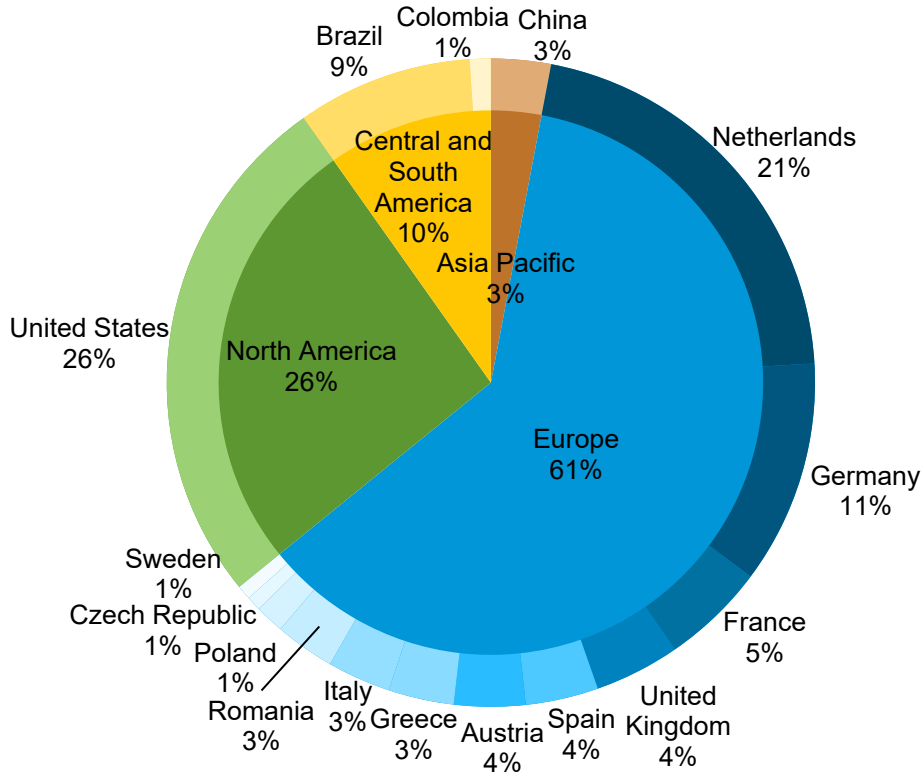
Data source: U.S. Energy Information Administration, International Energy Statistics

Energy Trade

- Guyana started producing crude oil from the Liza 1 field in late 2019 and has since become a net exporter of petroleum and other liquids. Between 2021 and 2023, the country's crude oil exports rose by an average of 82% annually, reaching 135 million barrels exported in 2023. As of 2023, Guyana’s primary crude oil export destinations were the United States (26%), the Netherlands (21%), and Germany (11%) (Figure 11).^{67, 68}
- In 2023, Guyana imported 3.9 million barrels of petroleum products and other liquids, most of which came from the United States. Petroleum products and other liquids imports declined by an average of 4% annually between 2021 and 2023. In 2023, gasoil made up the largest share of petroleum products and other liquids imports, accounting for 23% of the total, followed by finished gasoline (15%) and chemicals (10%) (Figure 13).^{69, 70}
- Despite its strategic geographic location, Guyana's infrastructure limitations are commonplace across the transport sector. The size of the main port and its freight capacity remain a challenge, limiting the volume and size of shipping vessels that can be fully used for fuel trade. Guyana's small inland waterways play a significant role in transporting goods, which is partly due to the low-quality road and rail infrastructure, as well as varied topography. Transshipping plays a large role in the volume of goods handled by the Port of Georgetown due to its geographical location.^{71, 72}

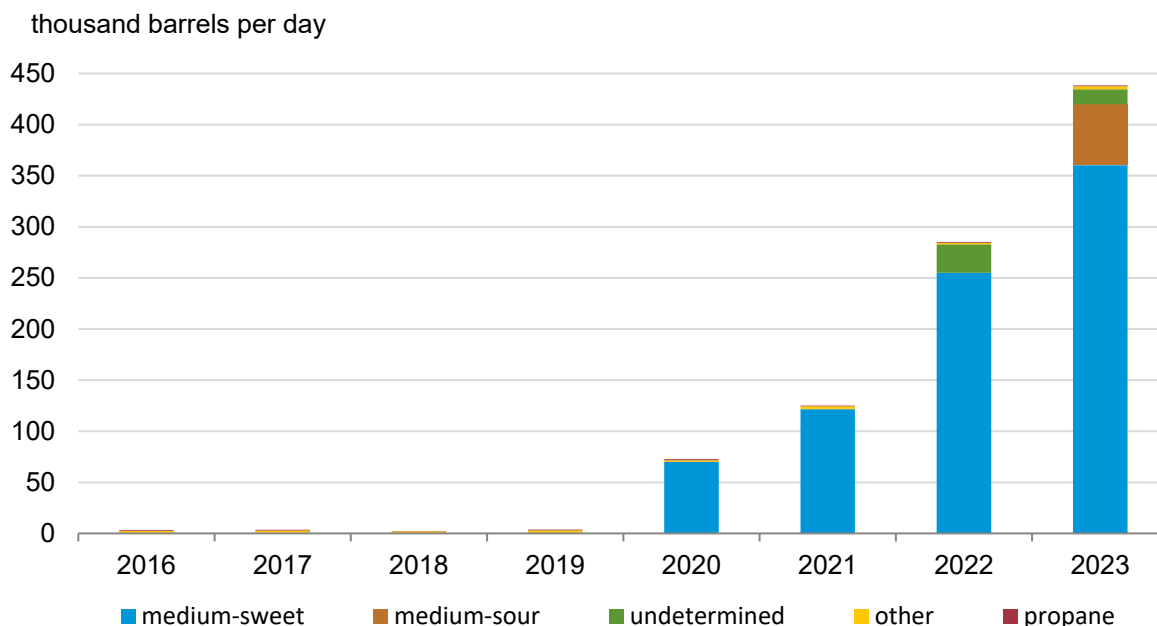
Figure 11. Guyana's crude oil exports by region and country, 2023

percentage of total crude oil exports



Data source: Global Trade Tracker, provided by Zen Innovations AG © 2024

Figure 12. Guyana's petroleum exports via vessel, 2016–2023

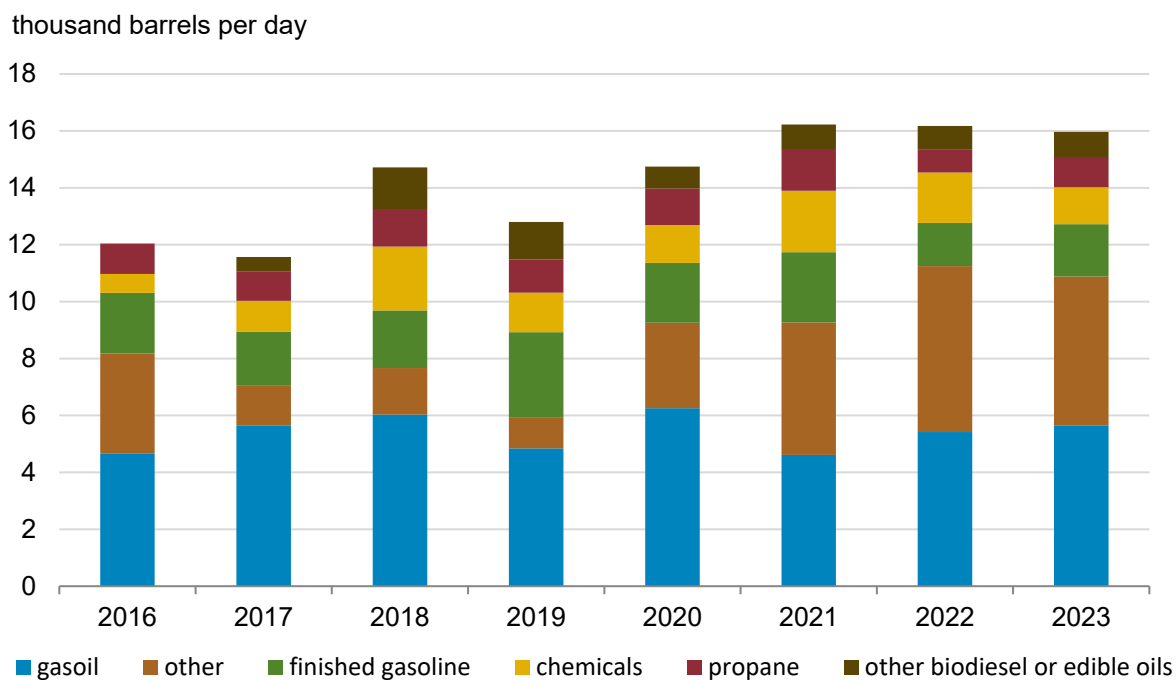


Data source: Vortexa Ltd.

Note: *Other* contains blending components, butane, butane or propane, chemicals, finished gasoline, gasoil, high sulfur fuel oil, jet fuel, low sulfur fuel oil, lube oils, olefins or other chemicals, and other biodiesel or edible oils.



Figure 13. Guyana's petroleum imports via vessel, 2016–2023



Data source: Vortexa Ltd.

Note: *Other* contains biodiesel feedstock, blending components, butane, diesel, heavy-sour crude oil, high sulfur fuel oil, jet fuel, kerosene, low-sulphur fuel oil, lube oils, medium-sweet crude oil, olefins or other chemicals, ultra-low sulfur diesel, and undetermined.



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