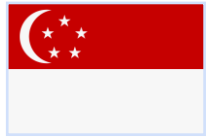
ASEANのエネルギー分野の現状・関連動向に係る調査 – 定点調査業務2025

報告書 – シンガポール



新エネルギー・産業技術総合開発機構
New Energy and Industrial Technology Development Organization

ARTHUR D LITTLE

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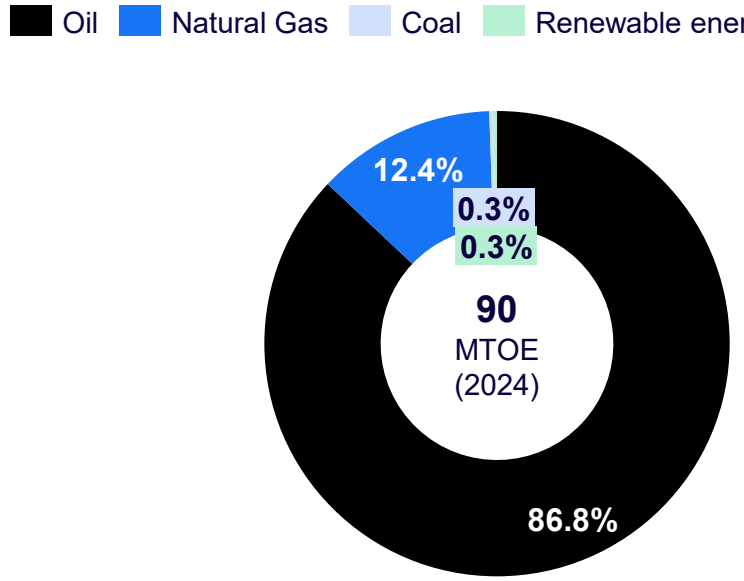
シンガポールの一次エネルギー消費は石油に強く依存しており（約87%）、近年わずかに天然ガスへのシフトが見られる

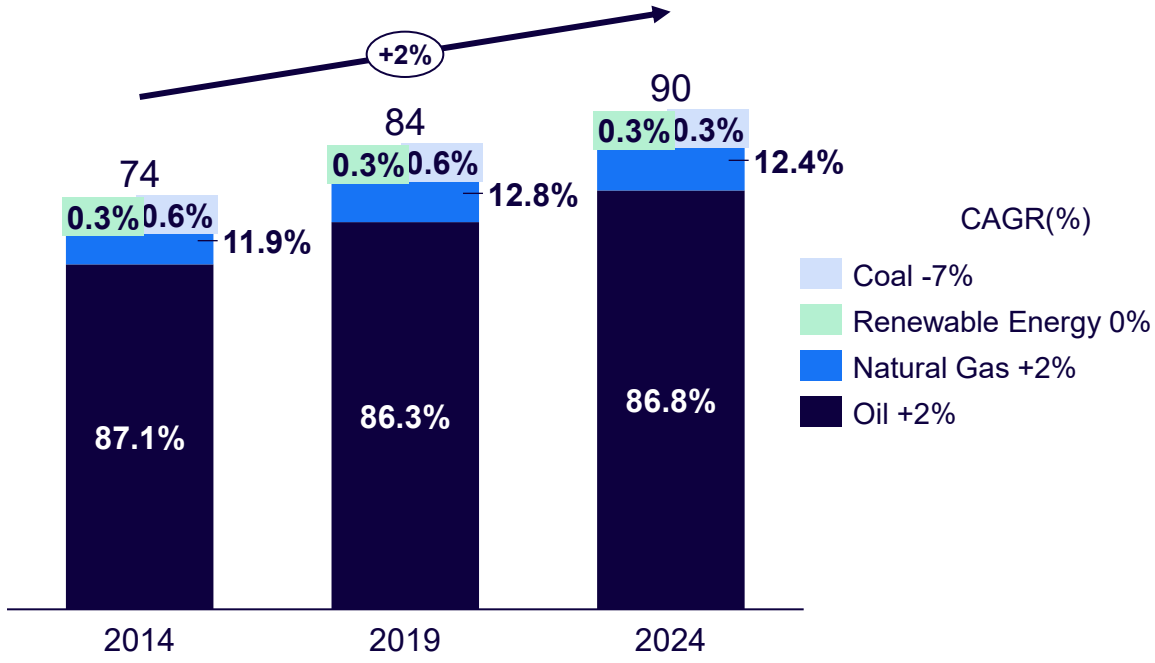
Primary Energy Consumption, by Energy Source, 2024, %

Singapore is highly dependent on oil as a fuel source, accounting for 86.8% (78.6 mtoe[1]) of all energy consumed. Natural gas consumption comes in second at 12.4% (11.2 mtoe), followed by coal and renewable energy (RE) accounting for 0.2% (0.24 mtoe)



Primary Energy Consumption, by Energy Source, 2014 – 2024, %

Within Singapore's primary energy consumption mix, oil has retailed a stable dominance at an average of 86.8%. However, we are seeing a slight shift from oil to gas due to Singapore's decarbonization plan

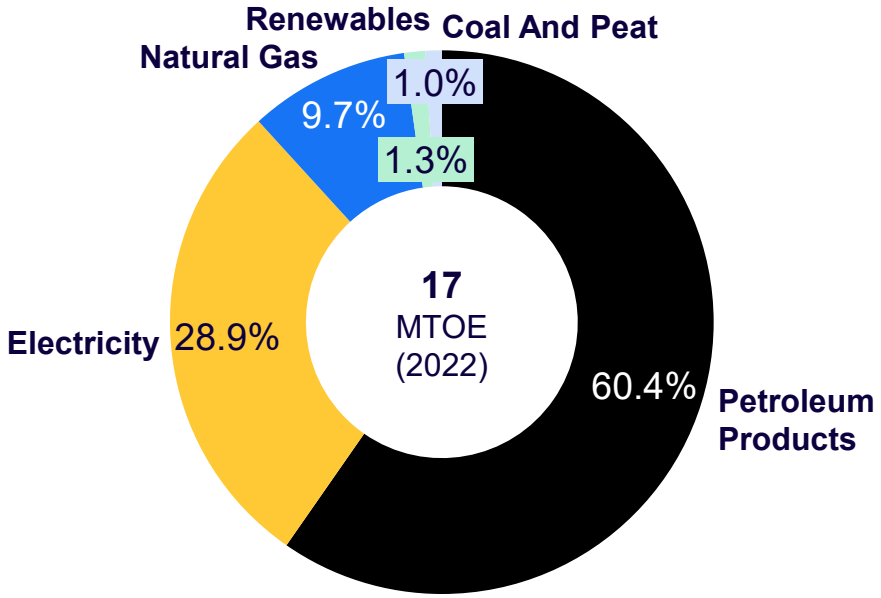


Note: 1) mtoe= million tons of oil equivalent
Source: BP Statistical Review of World Energy 2025

2022年の最終エネルギー消費は石油製品が6割超で主導し、電力（約3割）と天然ガス（約1割）が続き、産業部門が石油需要の大半を占めている

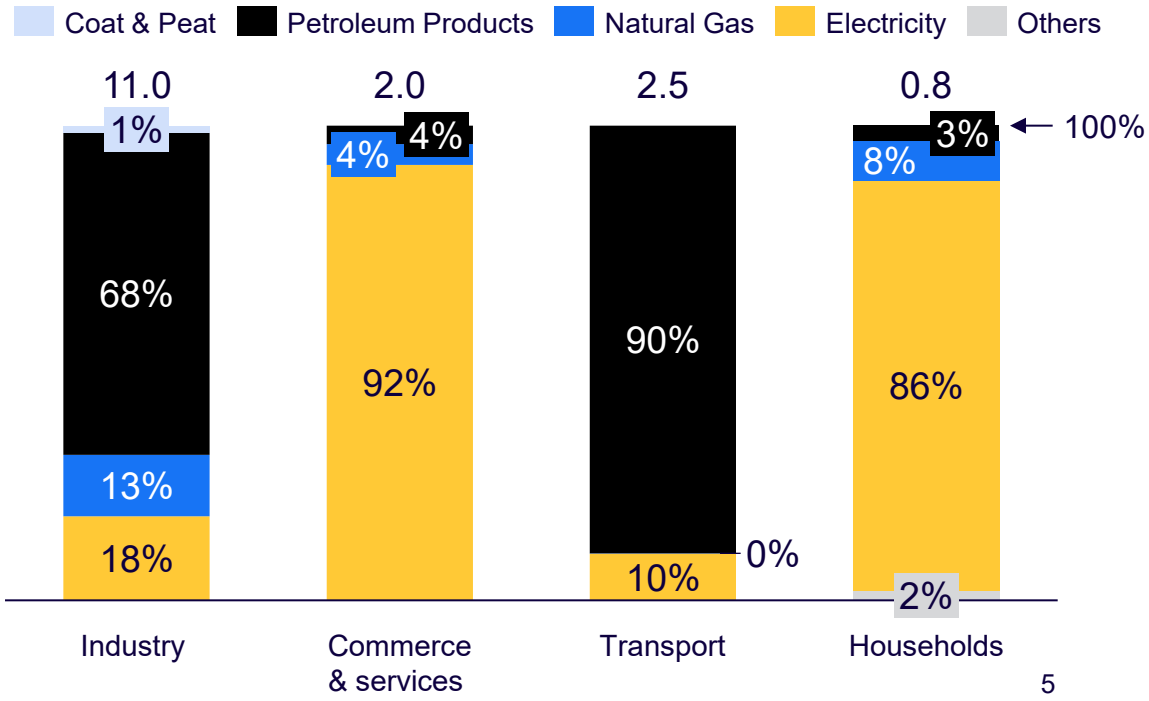
Final Energy Consumption, by Energy Source, 2022, %

Petroleum products are the leading energy product consumed at 60.4% (9.9 mtoe), largely driven by industrial demand. Natural gas comes in second at 9.7% (1.6 mtoe), primarily being used for industry-related electricity generation.



Final Energy Consumption, by Sector, 2022, %

Commerce and services (1.8 mtoe) and Households (0.7 mtoe) lead in electricity in terms of % mix. However, in absolute terms, Industrials lead at 11 mtoe, and consume 68% of all petroleum products (7.5 mtoe) followed by transport at 90% (2.3 mtoe).



Source: Energy Market Authority 2024, Singapore's open data portal @2025

シンガポールは近年省エネ法、低排出戦略、グリーンプラン、エネルギー移行策へと段階的に政策を強化し、2050年ネットゼロ実現に向けた包括的な枠組みを整備してきた

	Policy	Overall
2001	Energy Market Authority (EMA) Act 2001	• This law was enacted to regulate and manage Singapore's energy market. The policy establishes the Energy Market Authority (EMA) and provides the regulatory and policy framework for Singapore's energy sector. • The EMA is responsible for the operation and regulation of energy markets, including electricity, gas, and liquefied natural gas (LNG).
2007	National Energy Policy	• Singapore government policy setting out guidelines/directions for the energy sector
2012	Energy Conservation Act	• A law introduced in 2013 to promote energy efficiency and energy management. • The law requires organizations in the industrial and commercial sectors to take steps to improve energy efficiency.
2020	Long-Term Low-Emissions Development Strategy (LEDS)	• LEDS is a comprehensive strategy to achieve both greenhouse gas (GHG) emission reductions and sustainable economic growth.
2021	Singapore Green Plan 2030	• Singapore government launches comprehensive sustainable strategy for 2021
2024	4 Switches for Singapore’s Energy Transition	• Power sector transformation strategy for clean, affordable, reliable energy toward achieving net-zero emissions by 2050
2024	Energy Transition Measures Act 2024	• Amends EMA 2001 to include guardrails for electricity market, strengthen regulatory powers and establish the Future Energy Fund

Source: 各種2次情報よりADL作成

5つの柱（自然共生・持続可能な生活・エネルギー転換・グリーン経済・強靭な未来）を軸に、2050年ネットゼロ実現に向けて気候変動対策と持続可能な成長を推進する国家戦略

Singapore Green Plan 2030

SG GREEN PLAN

Timing

2021 – 2030

Overall

The Green Plan aims to mobilize ambitious and collaborative efforts to **address climate change** and work towards **achieving the country's net-zero emissions goal**. It composes of five main pillars: City in Nature, Sustainable Living, Energy Reset, Green Economy, and Resilient Future.

Key Notes

5 Pillars Target

- **City in Nature:** Focusing on conserving natural capital and enhancing animal welfare standards
- **Energy Reset:** Aiming to use cleaner energy sources across all sectors
- **Sustainable Living:** Reducing carbon emissions and becoming a zero-waste nation
- **Green Economy:** Transforming company to be energy and carbon efficiency, while seizing opportunities in the green economy.
- **Resilient Future:** Aiming to bolster coastal and flood defenses, enhance food security, and mitigate urban heat increase.

Initiatives and Support Measures

- **Enterprise Sustainability Program:** Aim to help developing sustainability capabilities in enterprises, strengthening sector-specific capabilities, promoting sustainable development initiatives
- **Leading Centre for Green Finance:** funding public sector green infrastructure projects targeting to become a leading center of green finance internationally
- **Solar Deployment:** targeting to increase solar deployment, increase in the deployment of energy storage to address solar intermittency and enhance grid resilience.

Source: SG Green Plan

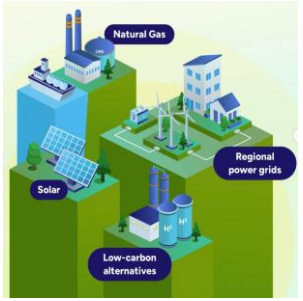
シンガポールは5分野で、植樹倍増やモビリティ転換、再エネ拡大、脱炭素技術投資、食料自給率向上など具体的な数値目標を掲げて持続可能社会の実現を目指している

取り組むべき5課題	課題に対する目標	エネルギー/環境関連ジャンル
City in Nature (都市の自然環境)	• (～30年)年間の植樹本数を2倍とし、100万本を植樹へ	
Sustainable Living (持続可能な生活の推進)	• (～30年)既存の自転車専用路/鉄道網を延長することで、移動手段に占める公共輸送の割合を75%に拡大 • (～30年)埋め立て地に送るごみを約30%削減	リサイクル
Energy Reset (クリーンエネルギーの活用)	• (～30年)公団住宅のエネルギー消費15%削減/建物の総床面積80%緑化 • (～30年)電気自動車の充電ポイントを倍増/(～40年)内燃機関車両の禁止 • (～50年)航空機の燃費を毎年2%減/バイオディーゼルプラントの拡張/ 水素輸入促進 • (～25年)**太陽光での発電量を約4倍へ**	効率化・エネマネ[1)] 充電st/バッテリー 代替燃料 再エネ
Green Economy (グリーン経済の発展)	• 炭素税を企業支援プログラムへ活用/グリーンファイナンスへ注力 • 研究/イノベーションエンタープライズ2025年計画に基づきグローバルの脱炭素/水素技術への投融資を実施	代替燃料 ゼロカーボン **エネルギー周り注目ジャンル**
Resilient Future (レジリエントな未来の構築)	• 2030年までに食料自給率を栄養ベースで30%に引き当げる	

出所:2021年2月発行[シンガポール・グリーンプラン2030]
1:エネマネ＝エネルギーマネジメント（HEMS＝Home Energy Management SystemやBEMS＝Building and Energy Management Systemのようなものを想定）

「4スイッチ政策」は、太陽光・域内電力網・低炭素代替技術・天然ガスの4本柱で電力部門を転換し、2050年ネットゼロ達成に向けてエネルギー転換を推進する戦略

4 Switches for Singapore's Energy Transition



Timing

2024 – 2050

Overall

The 4 Switches Policy aims to support Singapore's aim of net zero emission by 2050 by transforming the power sector, which currently contributes 40% of Singapore's carbon footprint

Key Notes

4 Switches

- **Solar Energy:** Increasing solar adoption as Singapore's most promising domestic renewable energy source
- **Regional Power Grids:** Accessing low-carbon electricity that is abundant in the region
- **Low Carbon Alternatives:** Exploring low-carbon technology such as hydrogen, geothermal and Carbon Capture Utilization and Storage CCUS
- **Natural Gas:** Improving the efficiency and reliability of natural gas powerplants to safeguard energy security and accelerate adoption of clean energy sources

Initiatives and Support Measures

- **Lao PDR-Thailand-Malaysia-Singapore Power Integration Project:** Aim to trade 100 megawatts of power as key to decarbonizing Singapore's energy supply
- **New emissions standards for power generation units:** Encourages use of best technology to reduce carbon emissions for electricity generation
- **Residential demand response Pilot:** Assesses household electricity consumption and sends alerts to reduce consumption to earn monetary incentives

Source: Energy Market Authority 2024

2024年改正のEMA法は、電力市場のガードレール強化と「フューチャー・エナジーファンド」創設を通じて、エネルギー安全保障と脱炭素の両立を図る制度枠組みを整備

Energy Market Authority of Singapore Act Amendment 2024

REPUBLIC OF SINGAPORE

GOVERNMENT GAZETTE

ACTS SUPPLEMENT

Published by Authority

NO. 32] FRIDAY, OCTOBER 25 [2024

First published in the Government Gazette, Electronic Edition, on 25 October 2024 at 5 pm.

The following Act was passed by Parliament on 9 September 2024 and assented to by the President on 30 September 2024:—

REPUBLIC OF SINGAPORE

No. 27 of 2024.

I assent.

THARMAN SHANMUGARATNAM,
President.
30 September 2024.

An Act to amend the Energy Market Authority of Singapore Act 2001, the Electricity Act 2001 and the Gas Act 2001.

Timing

2024 – Future

Overall

The EMA Act 2001 amendment was passed alongside the Electricity Act and Gas Act to: Introduce **guardrails for Singapore's electricity market**, strengthen the Energy Market Authority's ability to **regulate the power sector** and establish **the Future Energy Fund**. This fulfils Singapore's aim in decarbonizing the power sector while ensuring energy security and cost competitiveness.

Key Notes

6 proposals

- **Future Energy Fund:** S$5 billion to support investments for Singapore's energy transition
- **Regulatory regime for centralized gas procurement:** Central Gas Entity (CGE) regulated by EMA, requiring power generation companies to procure gas solely from the CGE
- **Allow EMA to recover costs**: from providing incentives for energy security, developing a competitive market and supporting the decarbonization of the power sector
- **Facilitate shared access to critical energy infrastructure:** for direct owners of critical energy infrastructure to enter agreement with licensees
- **Owners of key electricity/gas assets must seek approval when repurposing assets:** this approval is received from EMA, who weighs the owners' needs against overall energy security and system reliability
- **EMA can implement power rationing during emergencies:** as highlighted in the 2021/2022 global energy crisis, EMA will now be able to direct licensees and consumers to ration power. It is a last resort, where measures will be lifted expeditiously

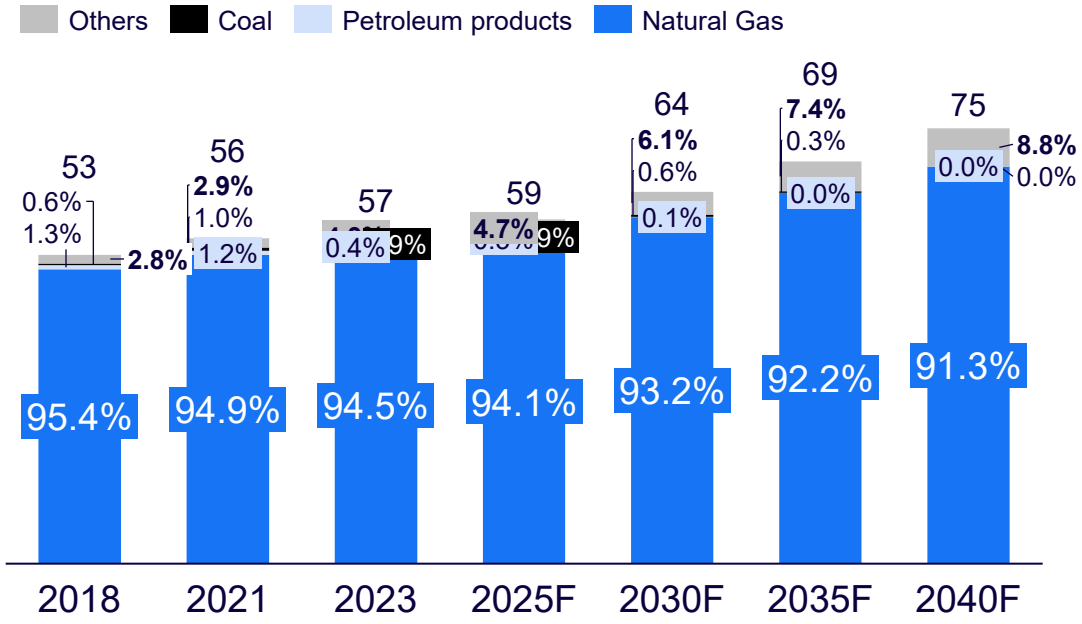
Source: Energy Market Authority 2024

シンガポールの発電は天然ガス依存が9割超と高水準だが、2035年に再エネ輸入が3割を占め、天然ガス比率は約5割まで低下する見通し

Forecast Fossil Fuel Power Generation Mix

2018 – 2040, TWh

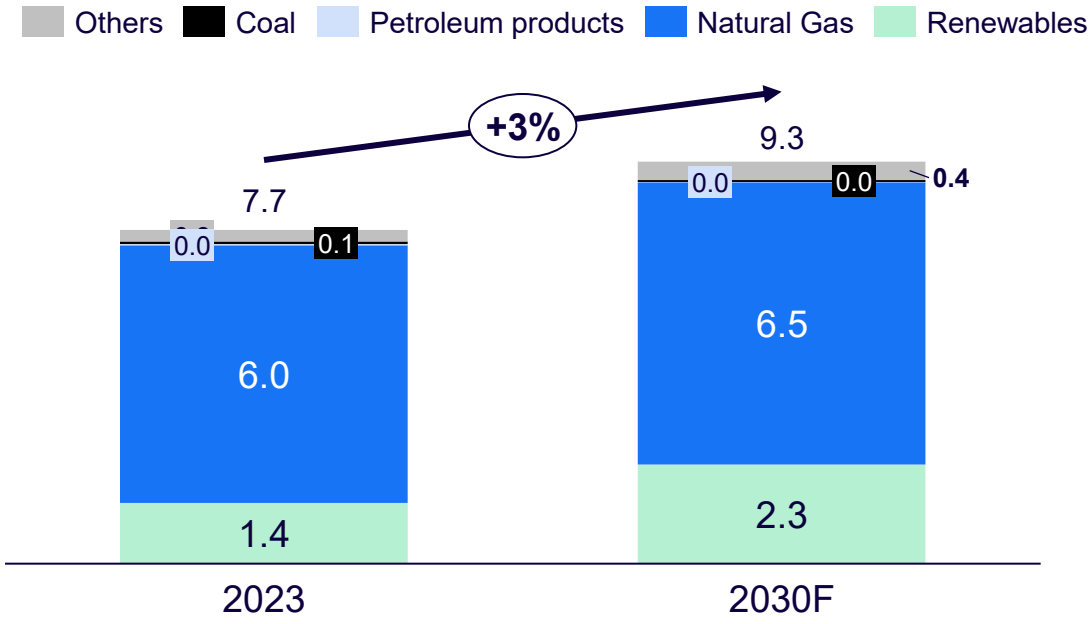
Gradual decreases of natural can be attributed to the impact of the war in Ukraine and EMA's policy shift toward renewable imports, set to make up 30% of electricity mix by 2035 – while natural gas is projected to only contribute 50%.



Forecast Power Generation Capacity

GW

Singapore's electricity capacity is expected to reach ~9.3 GW by 2030, comprising ~2.3 GW of renewables and ~7 GW of fossil fuel generation[1].



Note: 1) 1 TWh ≈ 0.11 GW if averaged over a full year
Source: Energy Market Authority 2024, EMBER, *Regional grids key to Singapore's energy future report*

施行中の再生可能エネルギー政策のリスト (1/2)

Policy for RE (2021-2025)

#	Title	Year	Status	Type of policy				Policy target
				Strategic Planning	Regulatory instrument	Fiscal/Finan-cial incentive	Education, R&D	
1	Second NDC of Singapore	2025	Proposed	X	X		X	Multiple RE sources
2	Future Energy Fund	2024	In force			X	X	Multiple RE sources
3	Energy Conservation Act Amendment	2024	Planned Dec 2025		X			Multiple RE sources
4	National Hydrogen Strategy	2022	In force	X			X	Hydrogen
5	Low-Carbon Energy Research Funding Initiative	2022	In force			X	X	Multiple RE sources
6	COP26 “End of Coal Sight” Initiative	2021	In force	X	X			Multiple RE sources
7	ASEAN Power Grid	2021	In force	X			X	Multiple RE sources
8	Castor initiative for use of ammonia as a marine fuel	2021	Ongoing	X			X	Ammonia
9	First NDC of Singapore	2021	In force	X	X		X	Multiple RE sources
10	PPCA – Singapore’s Coal phase out	2021	In force	X	X		X	Multiple RE sources
11	Singapore Green Plan	2021	In force	X			X	Multiple RE sources

Source: Organisation for Economic Co-operation and Development/International Energy Agency, IRENA

施行中の再生可能エネルギー政策のリスト (2/2)

Policy for RE (1979 – 2012)

#	Title	Year	Status	Type of policy				Policy target
				Strategic Planning	Regulatory instrument	Fiscal/Finan-cial incentive	Education, R&D	
12	Energy Innovation Research Programme (EIRP)	2012	In force			X	X	Multiple RE sources
13	Experimental Power Grid Center	2011	In force				X	Multiple RE sources
14	Energy National Innovation Challenge (NIC)Singapore	2011	In force	X			X	Multiple RE sources
15	Solar Energy Research Institute of Singapore (SERIS)	2008	In force				X	Solar
16	Solar Pilot/Test-bedding Programmes	2007(April 1st)	In force	X				Solar
17	Energy Innovation programme office (EIPO) Singapore	2007	In force	X				Multiple RE sources
19	Innovation for Environmental Sustainability(IES) Fund	2001	In force				X	Multiple RE sources
22	Energy Recovery from Biomass in Municipal Waste	1979	In force		X			Bioenergy(Biomass)

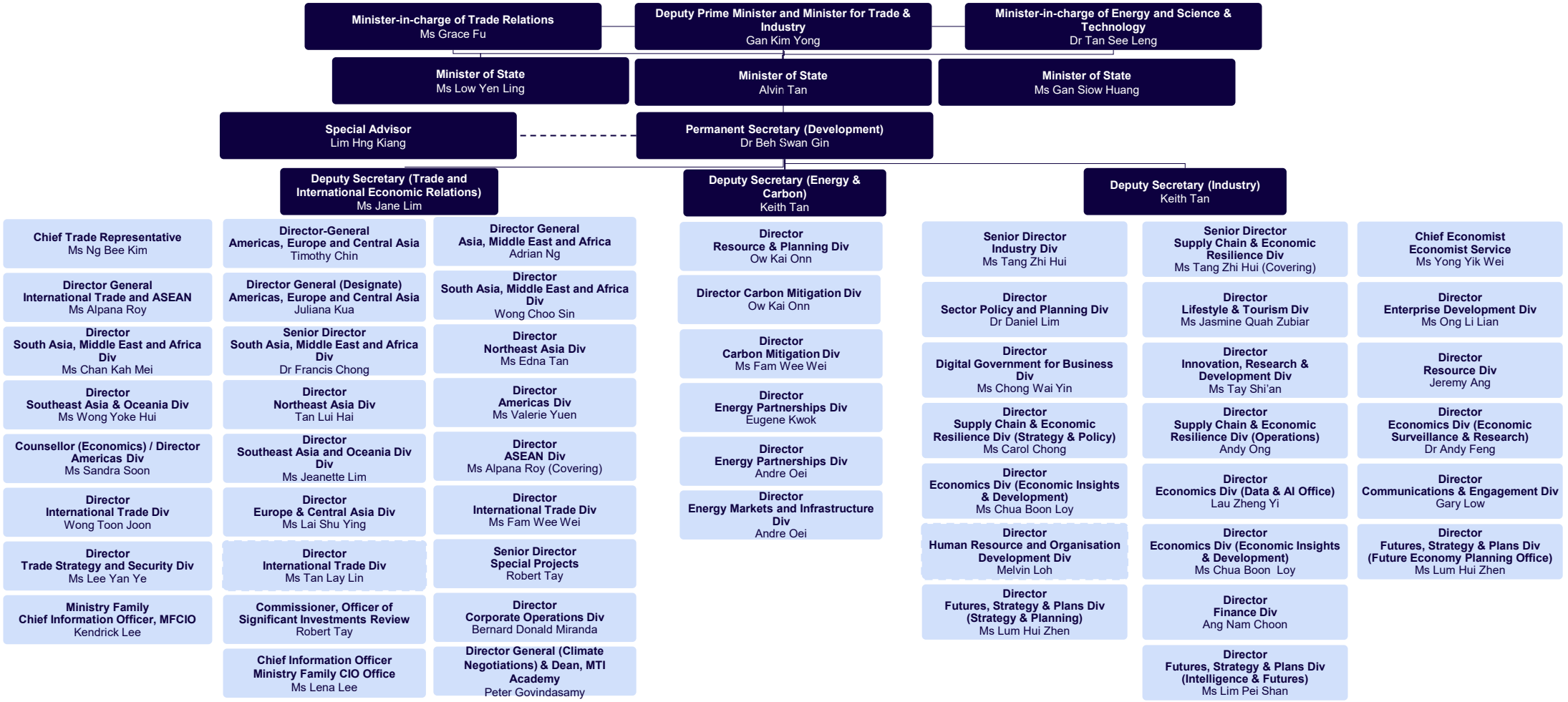
Source: Organisation for Economic Co-operation and Development/International Energy Agency, IRENA

エネルギー政策は通商産業省（MTI）が戦略を策定し、エネルギー市場庁（EMA）が規制や運用を担い、持続可能性・環境省（MSE）と国環境庁（NEA）が環境保護等を推進

Ministry	Department	Role & responsibility
Ministry of Trade and Industry [MTI]	Energy Division	Develops energy policies and strategies for Singapore's sustainable energy future. They collaborate with the Energy Market Authority, government agencies, academics, and private stakeholders to foster competitive energy markets, promote renewable energy sources like solar power, and encourage international cooperation.
Energy Market Authority (Statutory board under MTI) [EMA]	Economic Regulation Division	Facilitates competition and fair market practices by regulating the electricity and gas industries
	Energy Planning and Development Division	Manages the planning and development of initiatives within the energy sector
	Industry Regulation Division	Ensures consumer safety, reliability, and security in the electricity and gas industries
	Power System Operation Division	Oversees the power system operations in Singapore, guaranteeing a consistent and dependable electricity supply to consumers
Ministry of Sustainability and the Environment [MSE]		• Enacting laws and regulations to protect the environment, • Tackle issues such as pollution control, sewerage, drainage and environmental health
National Environment Agency (statutory board under MSE) [EMA]		• Collaborates closely with partners and the community to develop and lead environmental and public health initiatives and programs • Main roles are; to improve and sustain a clean environment, foster sustainability and optimise resource utilisation, uphold stringent public health standards, deliver accurate and timely meteorological information and foster a dynamic and thriving hawker culture

Sources: MTI 2023, EMA 2023, MSE 2023, NEA 2023

通商産業省（MTI）の組織図



Source: MTI 2025

エネルギー市場庁（EMA）の組織体制

Energy Market Authority (EMA)

- The Energy Market Authority (EMA) is a statutory board under the Ministry of Trade and Industry.
- EMA's main goals are to ensure a reliable and secure energy supply, promote effective competition in the energy market and develop a dynamic energy sector in Singapore.
- EMA has three main roles: 1) Power system operator 2) Industry developer 3) Industry regulator.
- EMA is led by a CEO and has five divisions.

Corporate Service Group	Economic Regulation Division	Energy Planning and Development Division	Industry Regulation Division	Power System Operation Division
• Builds professional capabilities and capacity within EMA.	• Regulates primarily the electricity and gas industries. • Promote and safeguard competition and efficient market conduct.	• Develop long-term energy strategies and plans. • Growth of the energy industry and develop a dynamic energy landscape. • Drive relations and cooperation with key international players in energy.	• Regulates the electricity, town gas and natural gas industries to ensure adequacy and reliability of supply by setting and monitoring compliance to various regulatory requirements.	• Arranges for the secure operation of the power system in Singapore and ensures the security of supply of electricity to consumers.

Source: EMA 2023

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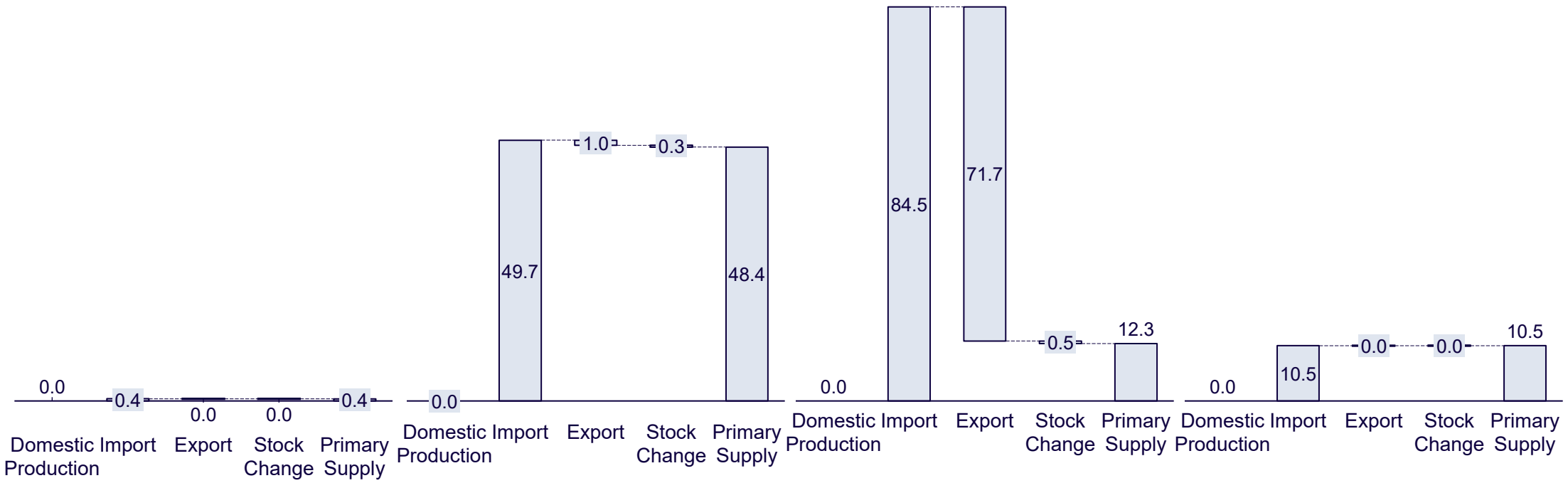
8. 送電網
9. 電気料金
10. 電力需給状況

シンガポールは石油製品の輸出が多いことが特徴

Rate of domestic production and import/export of fossil fuel energy (2022)

Unit: M TOE

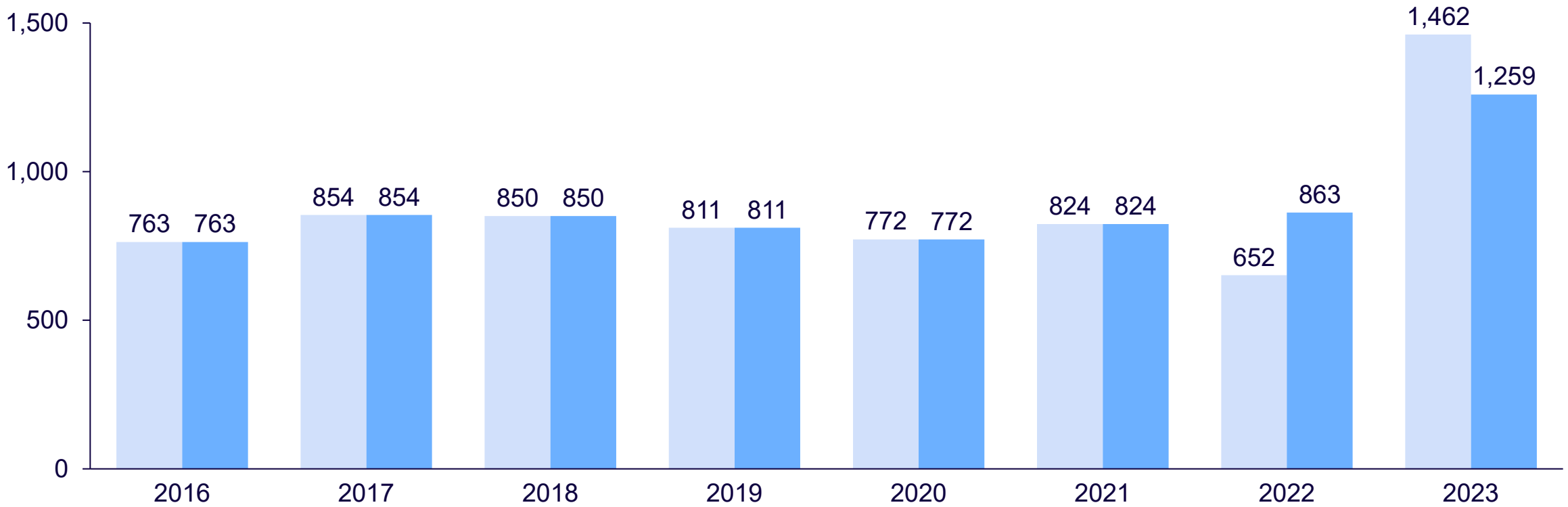


Note: Net domestic consume may not necessarily add up due to statistical adjustment and rounding
Source: Energy Market Authority Annual report 2024

シンガポールの石炭消費と輸入は近年安定していたが、2022年に在庫利用で輸入減少が見られ、2023年には輸入が急増し消費を上回った

Coal Production, trade & consumption trends

2016 – 2023, Short tons

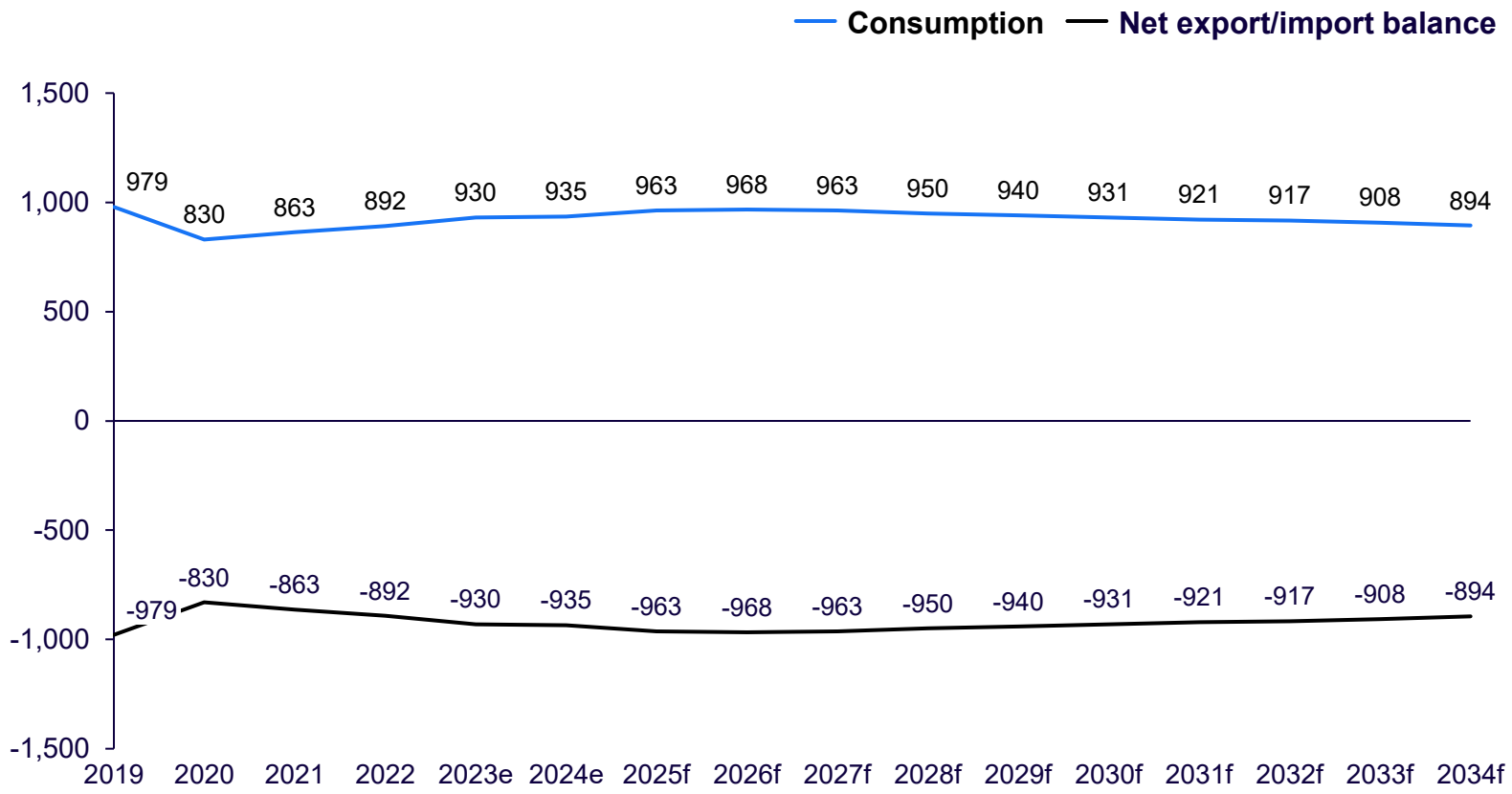


Note: The imbalance between consumption and net imports in 2022 is due to Singapore sourcing excess coal demand from domestic stockpiles. This also may explain the surplus of net imports the following year to replenish said stockpiles.
Source: The Global Economy

シンガポールは自国で原油を生産せず全量輸入に依存しており、需要はコロナ期に一時減少後、2024年にピークを迎えたのち緩やかに減少していく見通し

Crude oil & other liquids production, trade & consumption trends

2019 – 2034, K b/d



Comments

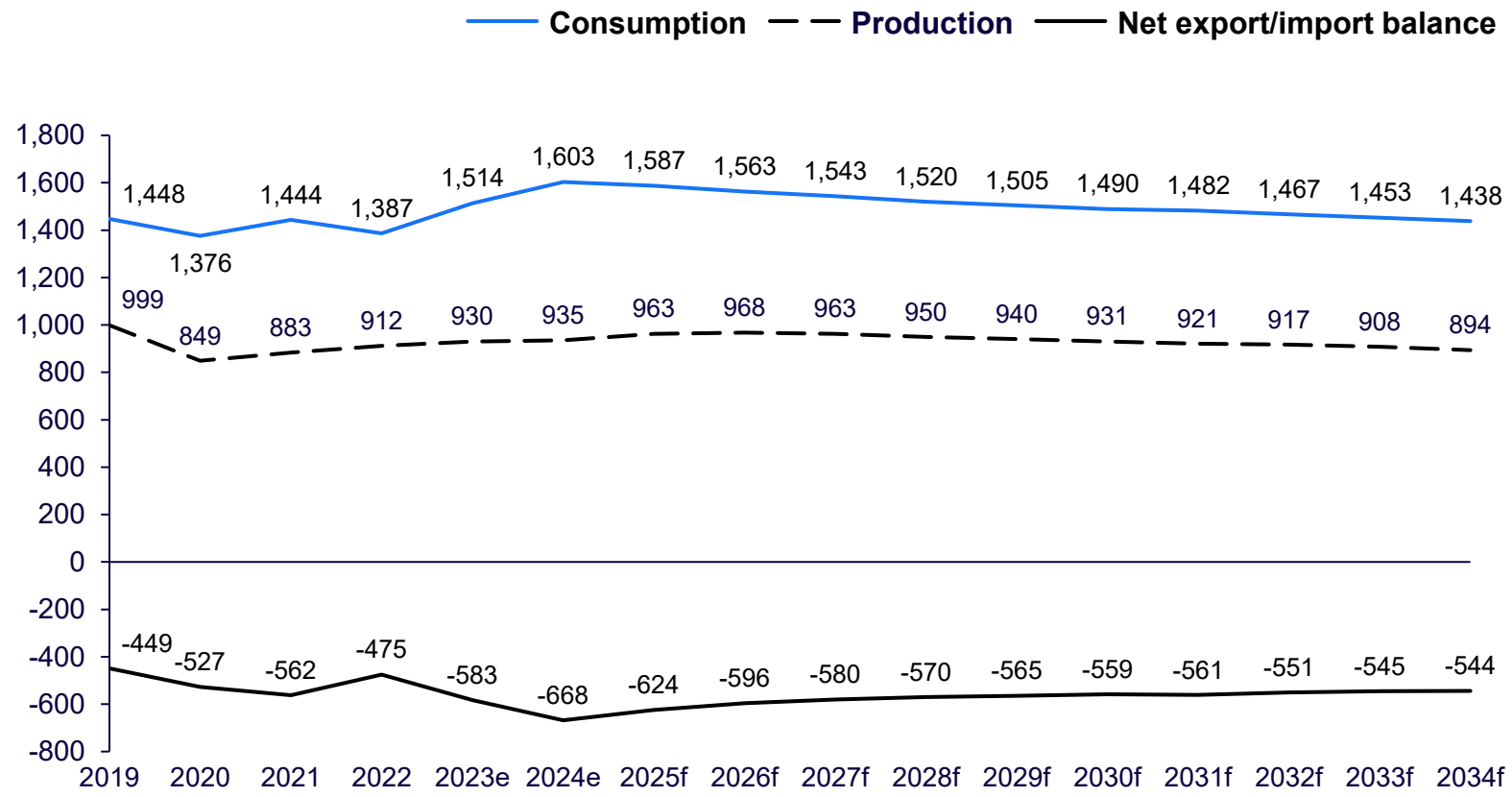
- Singapore does not produce any oil on its shores and meets domestic consumption demands through imports
- Singapore being an Oil & Gas trading hub, also engages in re-exports
- The drop of demand of 149,000 bpd for oil in the 2019-2020 period was due to COVID-19
- With efforts to cut down on oil usage, we can see that there is a slight decreasing trend of -0.30% from 2021-2030 with usage peaking in 2024 at 913,000 bpd

Note: Negative net exports means that imports are greater
Source: Fitch Solutions 2025

シンガポールは精製拠点として石油製品生産量が消費を下回り輸入超過が続くが、2020～24年に生産がピークを迎え、今後緩やかに減少する見通し

Refined petroleum products production, trade & consumption trends

2019 – 2034, K b/d



Comments

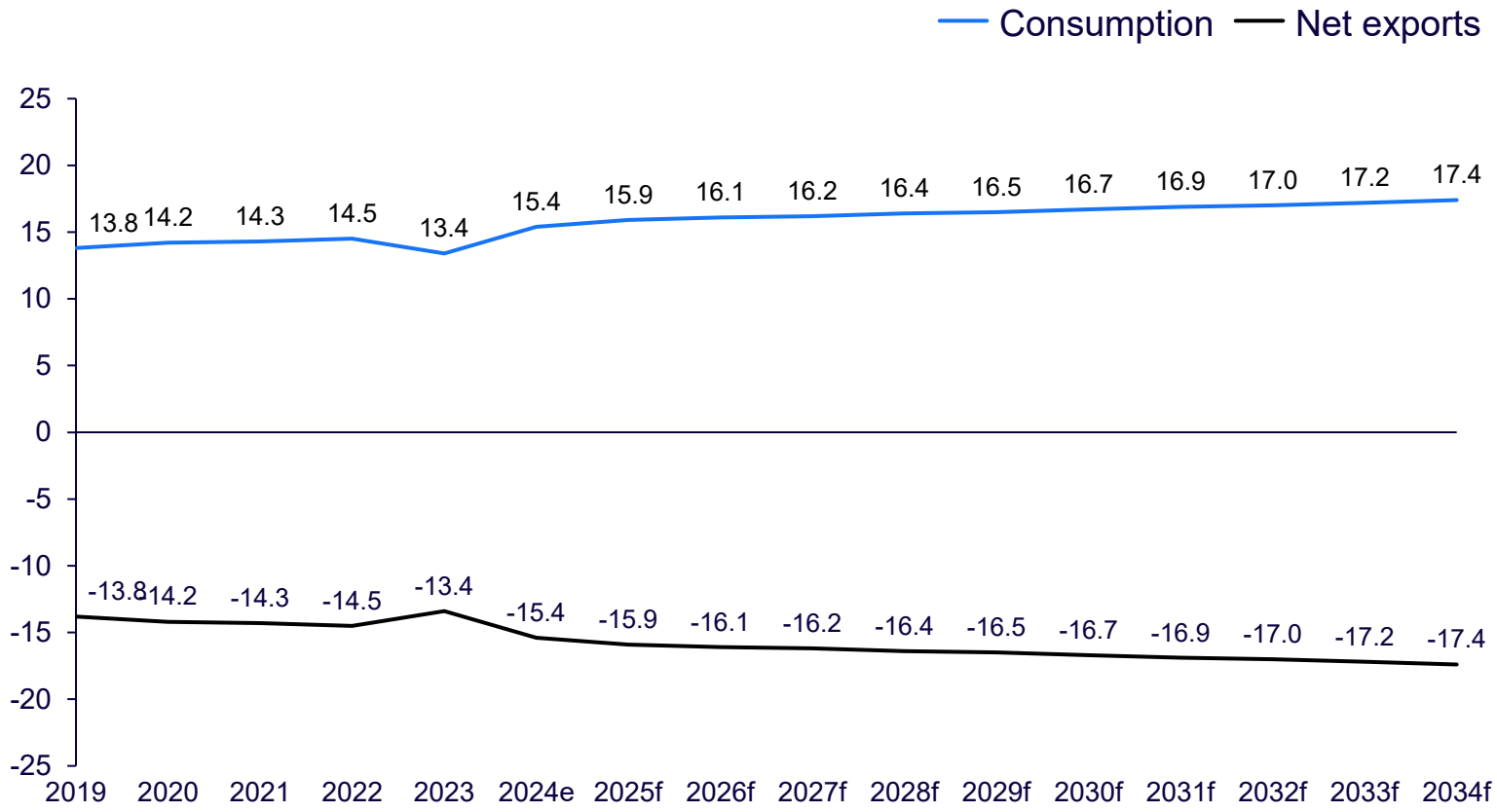
- Due to Singapore being a refinery hub in SEA, refined petroleum products production mirrors that of crude oil consumption
  - A drop of 15.1% (150 bpd) from 2019-2020 due to COVID-19
  - 2020-2024 production peaks at 933 bpd, fueled by the opening of ExxonMobil and Neste Corporations new refineries with expanded capacity
  - Consumption trends fluctuates in the short term around ~1,400 bpd from 2020-2024 due to instability caused by Russia-Ukraine war as well as the impact of inflation
- Despite a slightly decreased growth of -0.29% from 2022 -2030, companies in SG are expanding their capacity, not hampered by the lack of land

Note: Negative net exports means that imports are greater
Source: Fitch Solutions 2025, Press Release 2019, 2023

シンガポールは自国で天然ガスを産出せず輸入に全面依存しており、石油依存低減の流れから2030年にかけて需要は着実に増加し続ける見通し

Dry natural gas production, trade & consumption trends

2019 – 2034, bn m^3



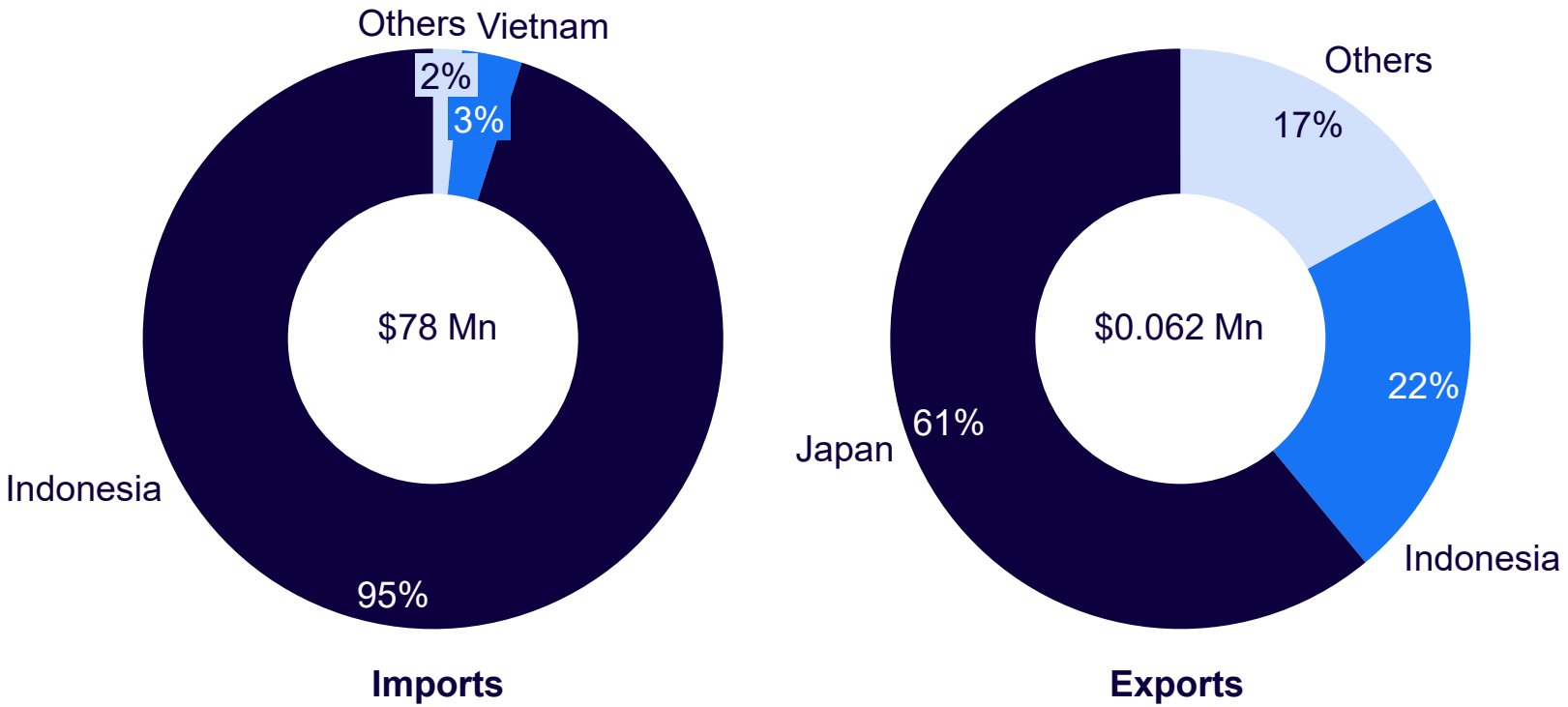
Comments

- Singapore does not produce any dry natural gas on its shores and meets domestic consumption demands through imports
- Singapore being an Oil & Gas trading hub, also engages in re-exports
- Despite COVID-19, there was not a drop in demand in the 2019 - 2021 largely due to natural gas being used as a fuel source for energy generation
- With efforts to cut down on oil usage, we can see that there is a constant increasing trend of 1.53% from 2015 -2030, for natural gas as SG transitions to becoming more dependent on natural gas for its fuel source

Note: Negative net exports means that imports are greater
Source: Fitch Solutions 2025

2023年のシンガポールの石炭輸入は95%をインドネシアに依存し、輸出は小規模で日本向けが中心となっている

Coal[1] trade partners
2023, USD Mn



Comments

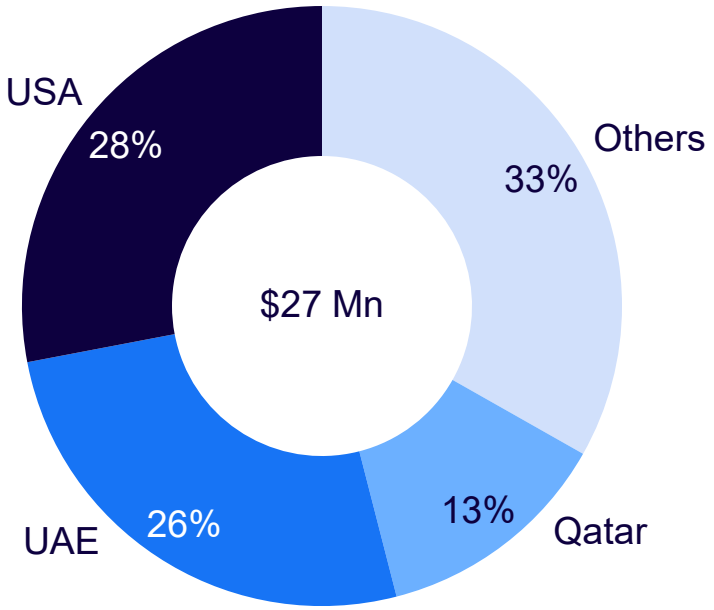
- **Coal imports from Indonesia** accounted for **USD 74.1 mn (95%)** of the total imports, followed by **Vietnam** at **USD 2.7 mn** (3.4%), and others (1.6%) consisting of China, Thailand, UAE, UK, Canada, USA, Australia and South Africa
- Coal imports are broken down into:
  - **95.0% -** Coal other than anthracite & bituminous
  - **3.99% -** Anthracite
  - **0.166% -** Briquettes, ovoids and similar solid fuels
  - **0.009% -** Bituminous
- Coal exports are broken down into:
  - **61%** - Briquettes, ovoids and similar solid fuels
  - **21% -** Coal other than anthracite & bituminous
  - **13% -** Anthracite

Note: 1) Incl. Coal, briquettes, ovoids and other solid fuels manufactured from coal; * Incl. China, Thailand, UAE, UK, Canada, USA, Australia and South Africa; **Incl. Maldives, Vietnam, Madagascar, Germany, USA and India
Source: Trend Economy 2024

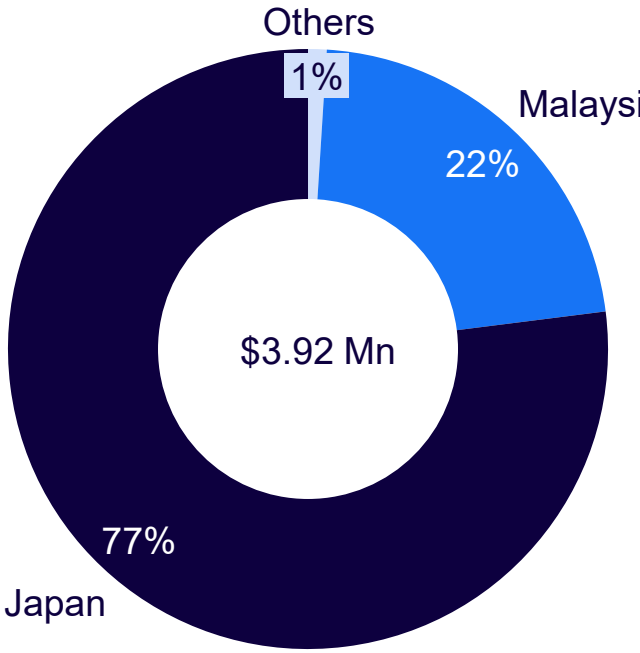
2023年のシンガポール原油輸入は米国・UAEが中心で、輸出は日本向けが大半を占め、域内精製能力の高さを背景に製品別に分離してAPAC諸国へ供給している

Crude Oil trade partners

2023, USD Mn



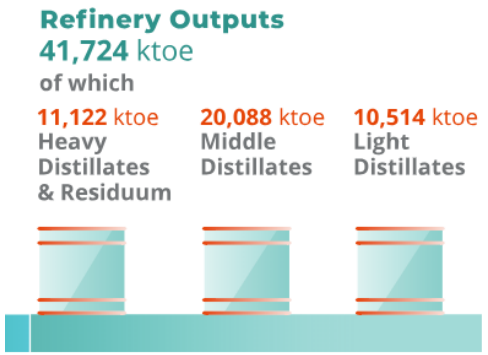
Imports



Exports

Comments

- Despite economic growth in recent years, Singapore's crude oil imports decreased 20.5% since 2022 because of falling oil prices, weaker global demand for refined oil and sanctions-driven shipping disruptions.
- Singapore has one of the best refining capabilities in the region, and separates outputs into the light (26.6%), medium (48.1%) and heavy (25.2%) for export into mainly countries in APAC.

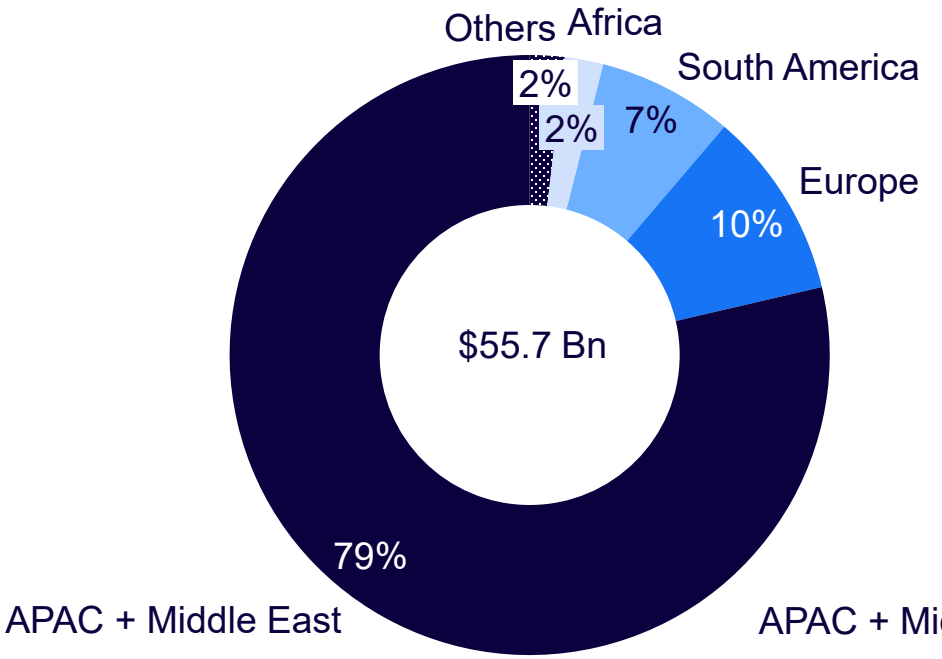


Note: *Others incl. Saudi Arabia, Brazil, Australia, Iraq, Malaysia, Angola and Brunei; **Others incl. Netherlands, Australia, USA, France, Indonesia, Canada, Papua New Guinea, Thailand
Source: Trend Economy 2023, Energy Market Authority 2024

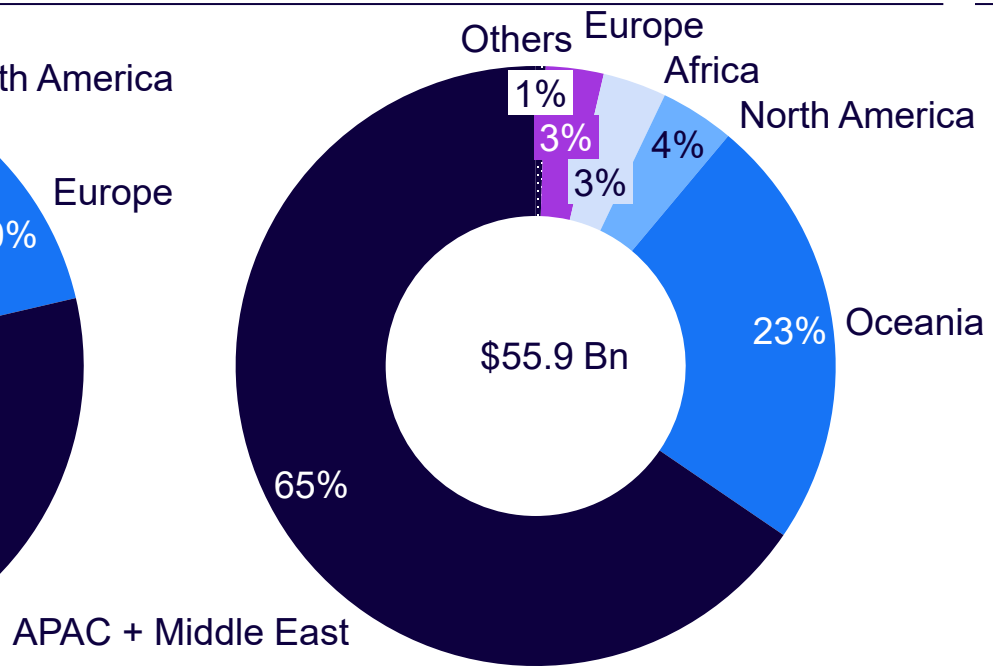
2023年のシンガポール石油製品貿易は輸入・輸出ともAPAC＋中東地域が中心で、世界有数の精製能力と立地優位性を背景に幅広い地域へ供給する国際的ハブ機能を果たしている

Refined petroleum products trade partners

2023, USD Bn



Imports



Exports

Comments

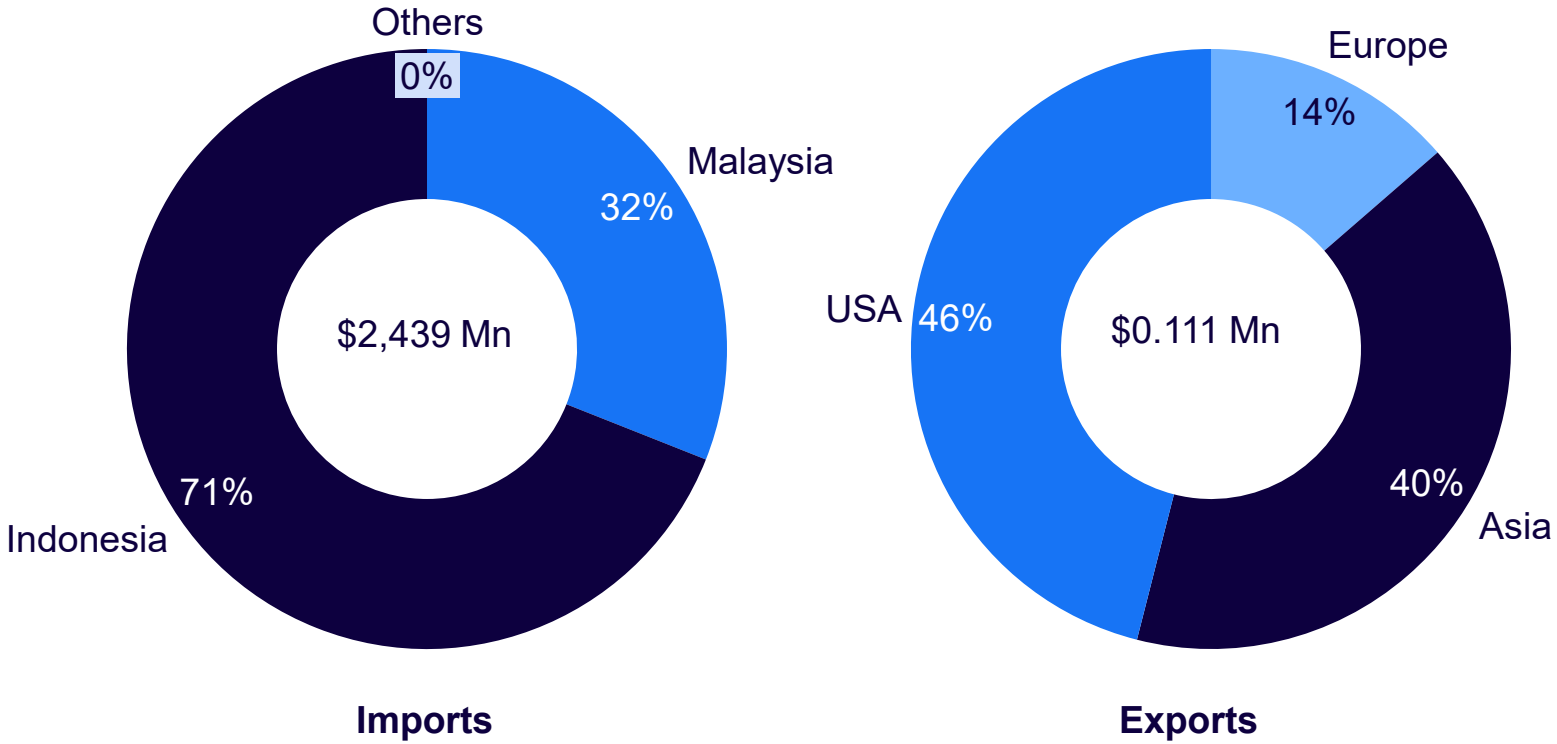
- With over 50 years of refinery experience, SG has a prominent global oil trading and refining hub, possesses advantageous attributes such as a strategic location, robust financial system, reliable infrastructure, transparent legal system, and a skilled workforce
- The country's crude oil refining capacity stands at 1.5 mn barrels per day (bpd)
- Three key refineries:
  - ExxonMobil's refinery at Pulau Ayer Chawan with a capacity of 605,000 bpd
  - Royal Dutch/Shell's refinery on Pulau Bukom with a capacity of 500,000 bpd
  - Singapore Refining Company's refinery on Pulau Merlimau with a capacity of 290,000 bpd

Note: *Others incl USA, Mexico, Canada, Jamaica, Guatemala **Others incl Paraguay, Bolivia, Brazil, Chile, Peru, Colombia, Guyana, Ecuador, Uruguay and Argentina
Source: OEC 2024

2023年のシンガポールのガス輸入はインドネシアとマレーシアがほぼ独占し、輸出はごく僅かで米国・アジア・欧州向けに限定的

Gaseous Natural gas trade partners

2023, USD Mn



Comments

- Imports from Indonesia accounted for 1.72 Bn USD (69.1%) of the total imports, followed by Malaysia at 733 Mn USD (31%) and then the US at 6.04k USD.
- SG's natural gas exports are a fraction of their imports, and almost negligible

Notes: *Others incl. the US and Poland
Source: OEC

シンガポールはアジア・タクソノミー導入やPPCA加盟を通じ、脱石炭火力支援と2050年までの石炭利用廃止を推進しており、石炭依存度はすでに最終エネルギー消費の2%未満

Status of decreased coal usage

Singapore Asia Taxonomy

- Launched by MAS to assist Singapore in its decarbonisation efforts
- Main goal of helping financial institutions identify activities that can help them achieve net-zero goals fast
- Transition Credits provide financial compensation to coal plant operators for early retirement of coal-fired power plants
- Multiple rounds of consultation with the final version was released in Q2 2023

Powering Past Coal Alliance (PPCA)

- Singapore joined the Powering Past Coal Alliance (PPCA) at COP26 in 2021, one of the first Asian countries to do so
  - Signed the Global Coal to Clean Power Transition statement
- Committed to
  - Phase out the use of unabated coal in electricity mix by 2050
  - Restrict direct government finance of unabated coal power internationally
- Coal has made up for <2% of final energy consumption YOY for the period 2005 - 2021

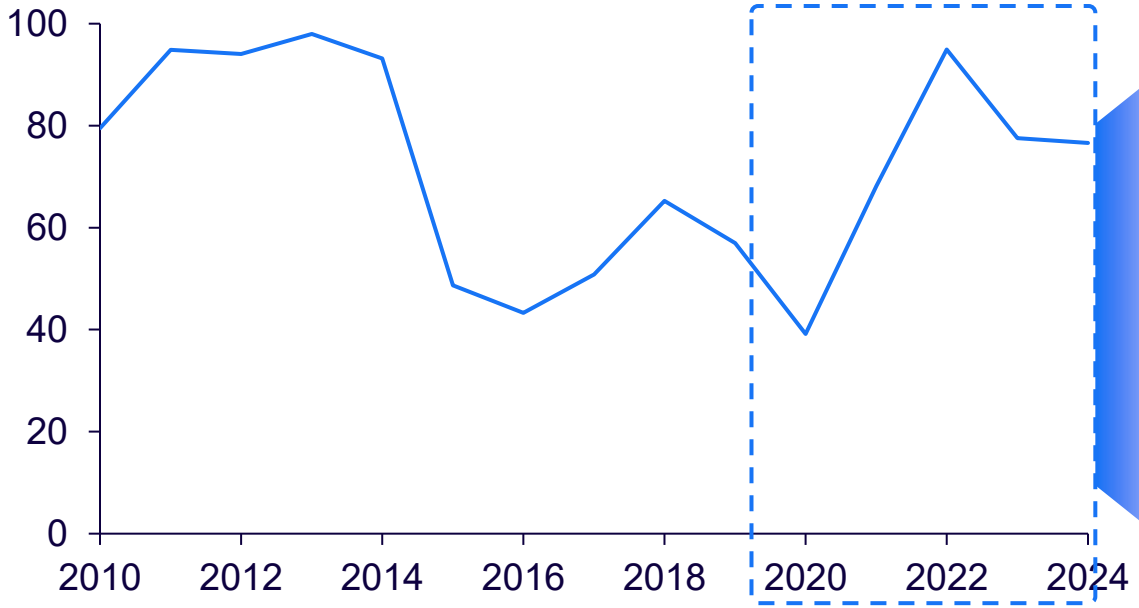
Source: The Straits Time 2023, National Climate Change Secretariat (NCCS) 2021

原油価格は2020年の底打ち後に回復し、ロシア・ウクライナ戦争で急騰したが、その動きはシンガポールの小売ガソリン価格（RON92・95・98）にもほぼ連動して反映

Global average monthly WTI spot price

2010 – 2024, USD/barrel

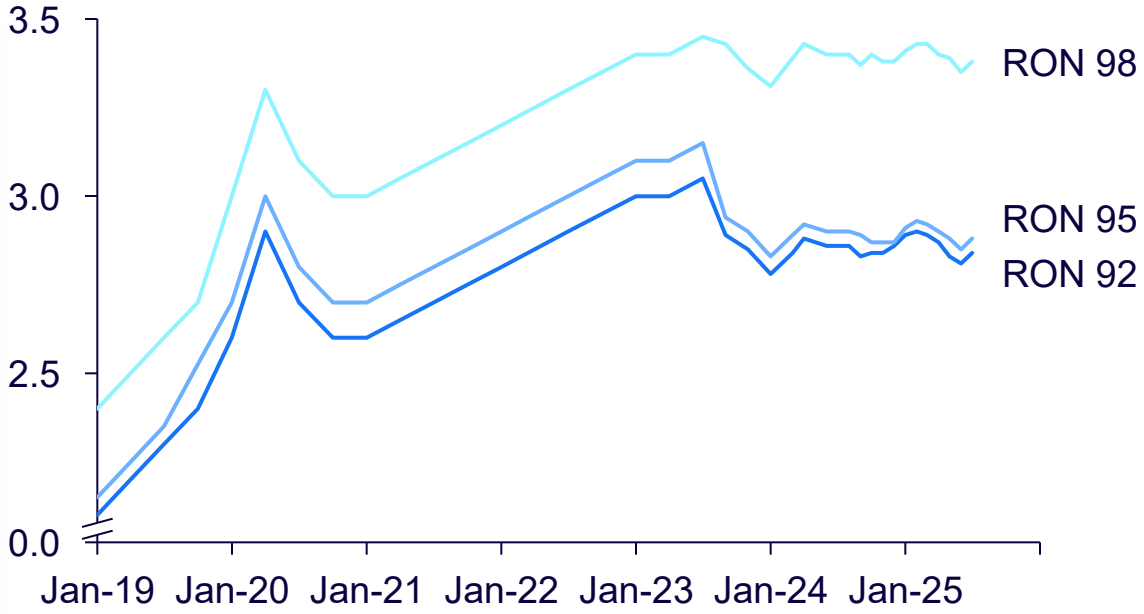
- After bottoming out in 2020, fuel prices saw a steady increase until 2022 due to opening of the economy, as well as through supply constraints as refineries could not keep up
- Following the breakout of the Russia-Ukraine war, global oil prices saw a spike in demand



Official selling price of Retail Petrol Prices

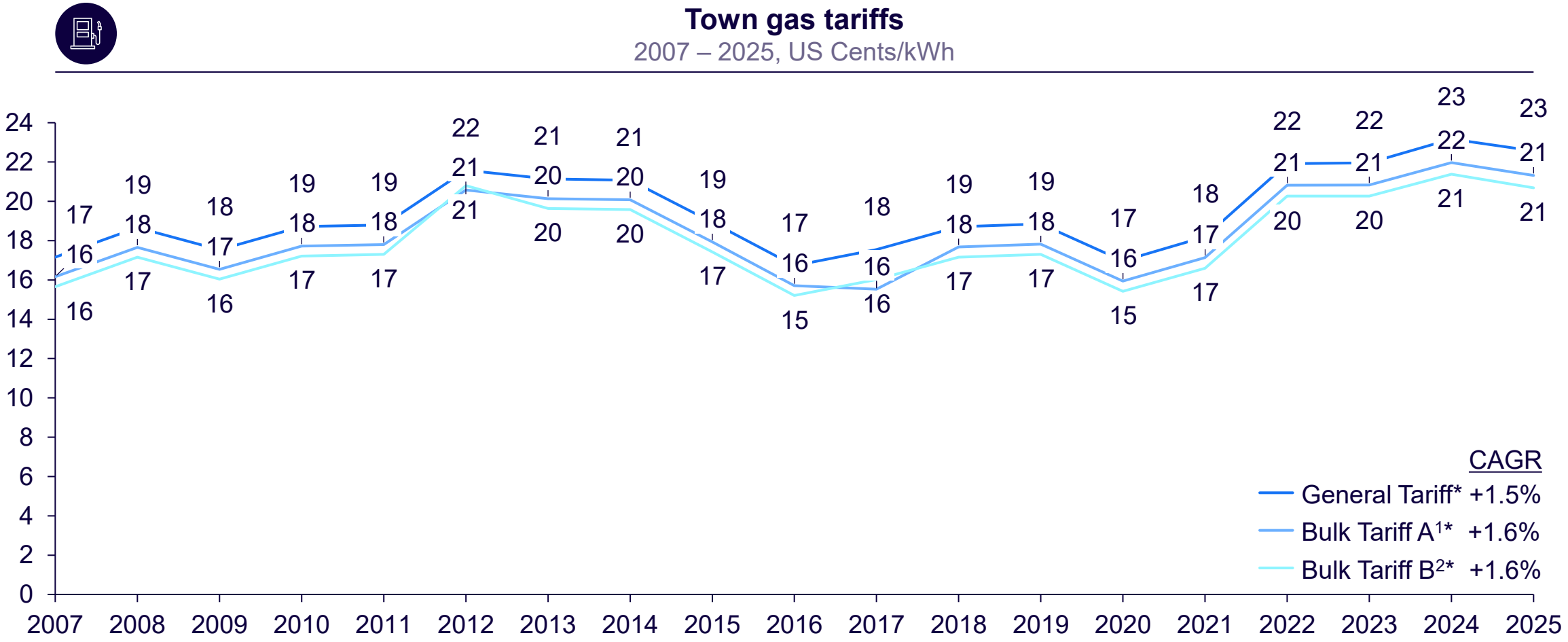
Jan 2019 – Jul 2025, SGD/liter

- After the price peak in 2020 due to the Ukraine war, there is no “rocket and feather” effect as prices passed through symmetrically.
- A good rule is that a S$1 per barrel increase in crude oil translated to a S$0.68–0.71 per liter increase in retail petrol in Singapore, with a lag of about one week



Source: US Energy Information Agency, Motorist SG, Ministry of Trade and Industry

都市ガス料金は2007年以降概ね横ばい推移しつつ近年上昇基調にあり、2025年には2007年比で年平均+1.5～1.6%成長



Note: 1) Bulk A= consumption of >1000 kWh/month, 2) Bulk B= consumption of >50,000 kWh/month. * Prices not inclusive of GST
Source: City Energy 2025

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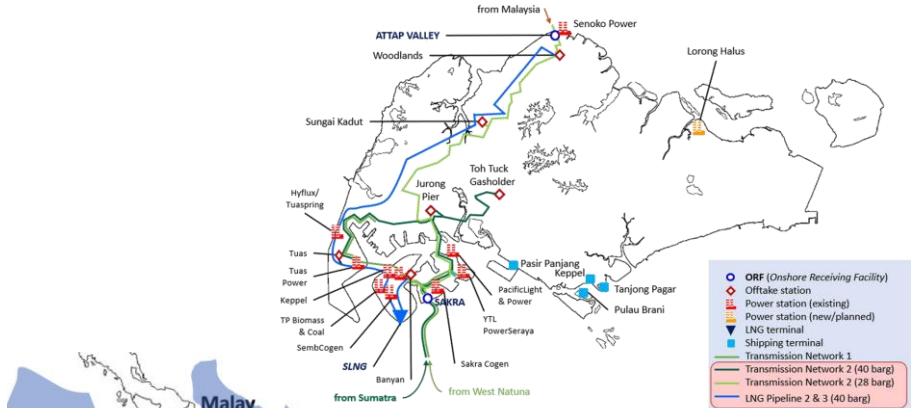
9. 電気料金
10. 電力需給状況

シンガポールの天然ガスはインドネシア（南スマトラ・西ナトゥナ）とマレーシアからパイプラインで輸入され、南スマトラ線と西ナトゥナ線の2大海底パイプラインが主要供給源

Gas Pipeline Network/Projects

- Singapore's piped natural gas is imported from S. Sumatra and W. Natuna in Indonesia (7.2 bn m3) and Malaysia (2.0 bn m3)
- S. Sumatra, Grissik-Batam-Singapore Pipeline
  - 468km ultra-deepwater pipeline, capacity of 650 mmscf/day
  - Owned by PT Pertamina (60%), ConocoPhillips (14%), Petroliam Nasional (14%), China National Petroleum (6%), Repsol (6%) and Others (~1%)
- W. Natuna, W. Natuna-Singapore Pipeline
  - 654km sub-sea gas pipeline, capacity of 700 mmscf/day (can be increased to 1,000 mmscf/day via mid-stream compression)
  - Owned by PT Medco Daya Abadi Lestari (75%) and Prime Natuna Energy (25%)



Source: Gas Supply 2022, EMA 2022, Offshore Technology 2021

シンガポールは電力の約95%を輸入天然ガスに依存。インドネシア・マレーシアとの既存契約は2029年までに順次満了のため、GasCo設立やLNG補完策で調達安定・脱炭素を推進

Existing imported gas contracts(Via pipelines)

- A new government-owned entity, Singapore GasCo, was established to centralize the procurement and supply of natural gas in May 2025
- A new 5-year extension was signed with Indonesia's Medco Energi in August 2023, continuing gas supplies through the **Gresik-Batam-Singapore pipeline**
  - Future volumes under this deal are lower than prior contracts due to an increased demand from domestic fertilizer manufacturers
- The **West Natuna Singapore pipeline** is used by various firms including Sembcorp Gas Pte Ltd
  - This firm was planning to sign various gas sales agreements between 2023-2024
- PNG Imports from Malaysia arrive in Singapore via the PGU Pipeline, used by multiple importers such as Gas supply, Keppel Gas, Sembcorp Gas, and Senoko Energy

Latest Comments

- The creation of Singapore GasCo was necessary as 95% of Singapore's electricity is generated using imported natural gas, with **6 existing gas contracts with Indonesia and Malaysia due to expire by 2029**
- Sembcorp's **five-year extension with Medco Energi** began in August 2023 to continue gas supplies via the Grissik pipeline
- The planned Sembcorp-Mako gas field gas contract worth S$1.9bn scheduled for 2026 was **terminated in March 2025** due to **regulatory issues in Indonesia**, voiding 11 years of PNG supply for Singapore
- The **supplementation of LNG toward Singapore's PNG supply is set to continue until 2030** as part of the energy transition to decarbonize Singapore's power sector

Source: EMA 2025, Reuters

既存のLNGターミナルに加え第2輸入ターミナルを整備し、豪Santosなどと新規供給契約を締結し、2030年までLNGをPNG供給の補完源としつつエネルギー転換を進める計画

Existing imported gas contracts(Via pipelines)

- **LNG terminal**
  - The Singapore LNG terminal is the country's first regasification terminal and came online in 2013. The terminal has four tanks, two jetties and an additional regasification facilities with throughput capacity of 11 Mtpa. It further has the ability to accommodate 3 more storage tanks with a total capacity of 15 Mtpa

- **Oil refineries**
  - Singapore has three large refineries: ExxonMobil (605,000 bpd) at Jurong Island, Royal Dutch/Shell (500,000 bpd) refinery on Pulau Bukom and the Singapore Refining Company (290,000 bpd) refinery on Jurong Island

Future plan

- **Singapore LNG Corporation** agreed to charter a unit **from Mitsui O.S.K** Lines' floating storage and regasification unit as the island's **second import terminal for liquefied natural gas** in 2023.with 200,000 cubic meters storage capacity and 5 million tons p.a. regasification capacity, to be operational by 2027
- Australian Gas supplier **Santos** has also officialized a **liquefied natural gas (LNG) supply contract** with **TotalEnergies**' Singapore unit, supplying 20LNG cargoes or 500,000 tons of LNG p.a., to commence in Q4 2025
- The **supplementation of LNG toward Singapore's PNG supply is set to continue until 2030** as part of the energy transition to decarbonize Singapore's power sector

Source: EMA 2025, Reuters, Office of the Leader of the Opposition, Channel News Asia

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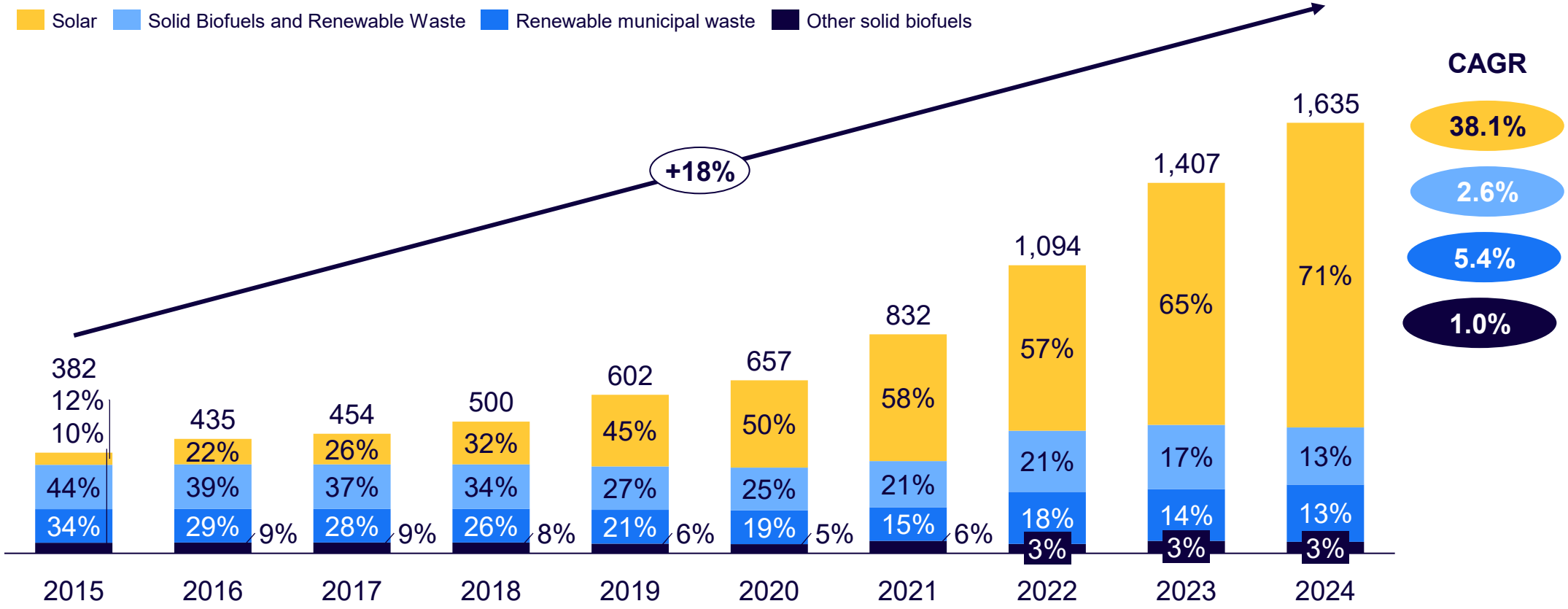
シンガポールの再生可能エネルギー容量は2015年以降急拡大し、特に太陽光が年平均38%超で成長して2024年には1,600MW超に達し、再エネ拡大の中心を担っている

Cumulative RE Capacity for Singapore

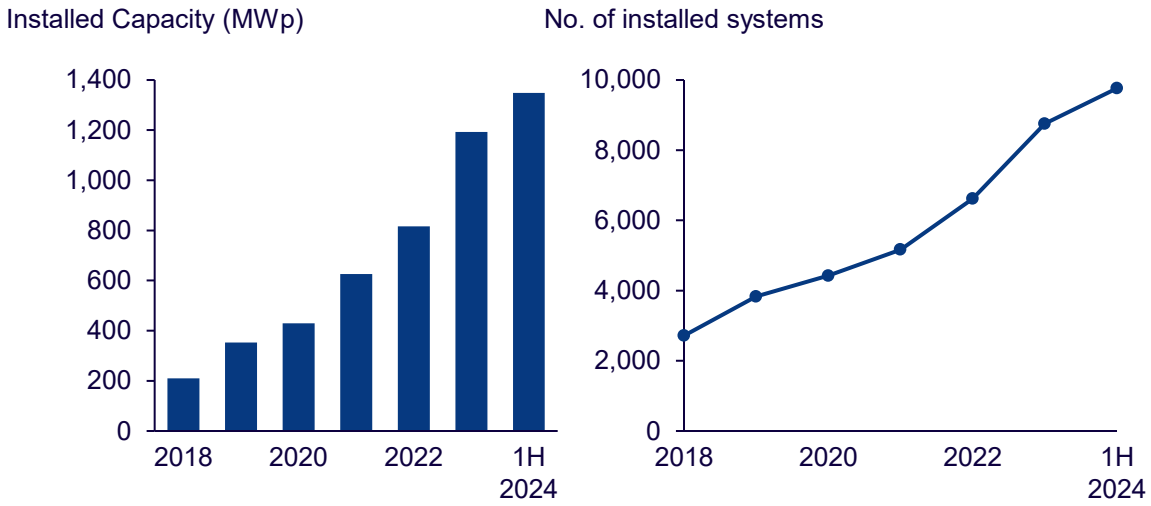
2014-2024, MW



Source: IRENA 2024

2024年上半期時点でシンガポールの太陽光発電容量は約1.35GWに達し、9,763基の設置の大半を非住宅部門が占め、地域的には東部と西部に集中

Capacity and No. of systems as 1H 2024



- As of the end of the first half of 2024, Singapore's solar PV capacity was primarily dominated by the non-residential private sector, accounting for 65.1% (877 MWp) of the total installed capacity. Town councils held 24.3% (327 MWp) of the capacity. Public service agencies and residential installations contributed 6.3% (85 MWp) and 4.4% (59 MWp) respectively.
- During the same period, Singapore had a total of 9,763 solar PV installations. Residential installations took the majority with 40.7% (3974 installations), narrowly surpassing the town council installations at 40.4% (1,891 installations). The non-residential private sector with 16.5% (1,611 installations) alongside public service agencies which made up the remaining 2.4% (233 installations) of the total installations.

Distribution of Solar Installation in Singapore

Total Number of Solar Photovoltaic (as at end HI 2024)
9,763 Installations

of which
5,789 Non-Residential
3,974 Residential

North N
Total **150** MWp
148 MWp Non-Residential
2 MWp Residential
Total **1,170** Installations
1,034 Non-Residential
136 Residential

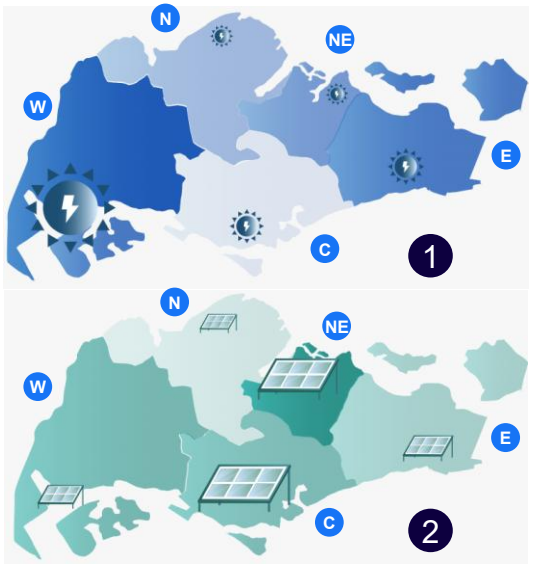
North East NE
Total **146** MWp
132 MWp Non-Residential
15 MWp Residential
Total **2,571** Installations
1,198 Non-Residential
1,373 Residential

Total Installed Capacity (as at end HI 2024)
1,348 Mwp

of which
1,289 Non-Residential
59 Residential

West W
Total **589** MWp
588 MWp Non-Residential
1 MWp Residential
Total **1,465** Installations
1,397 Non-Residential
68 Residential

Central C
Total **223** MWp
191 MWp Non-Residential
32 MWp Residential
Total **2,953** Installations
1,189 Non-Residential
1,764 Residential



1 Map depicting Singapore's states based on total installed capacity, with the West with the most and therefore the largest sun logo

2 Map depicting Singapore's states based on total number of installed solar photovoltaic panels, with the Centre with the most and therefore the largest panel logo

East E
Total **240** MWp
231 MWp Non-Residential
9 MWp Residential
Total **1,604** Installations
971 Non-Residential
633 Residential

Source: EMA 2025

進行中の再エネプロジェクト[1]

Kranji Floating Solar	
Capacity (MW)	150
Start up date	2027
Status	Approved

Floating Solar Farm	
Capacity (MW)	141
Start up date	2027
Status	Building

Lower Seletar Solar PV	
Capacity (MW)	112
Start up date	2025
Status	Unannounced

Unknown Solar PV	
Capacity (MW)	176
Start up date	2026
Status	Unannounced

Unknown Solar PV	
Capacity (MW)	207
Start up date	2038
Status	Unannounced

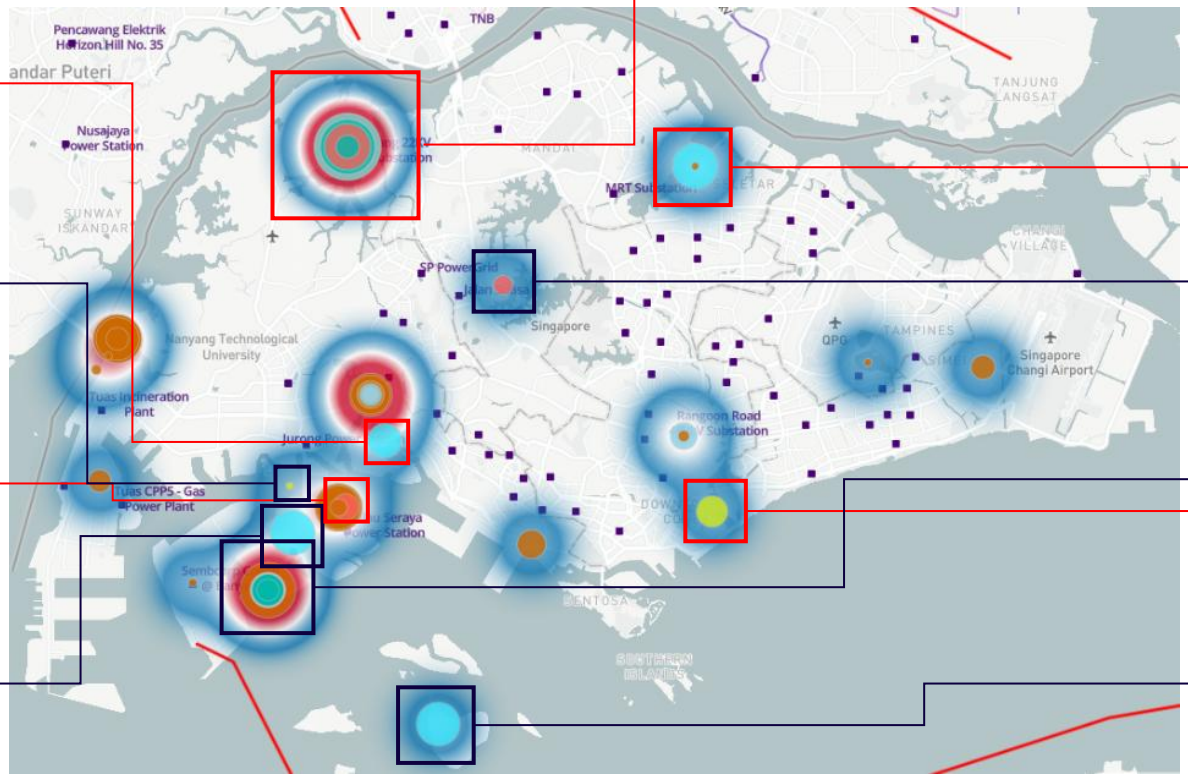
Upper Pierce Floating Solar	
Capacity (MW)	5
Start up date	2024
Status	Approved

Pandan Floating Reservoir PV	
Capacity (MW)	44
Start up date	2025
Status	Concept

Jurong Floating PV Pilot	
Capacity (MW)	1
Start up date	2023
Status	Fin. Close

SolarLand 1 Extension	
Capacity (MW)	20
Start up date	2024
Status	Approved

SolarLand 4 Tender	
Capacity (MW)	73
Start up date	2028
Status	Concept



Lower Seletar PV expansion	
Capacity (MW)	100
Start up date	2025
Status	Concept

Singapore Green Methanol	
Capacity (MW)	30
Start up date	2025
Status	Fin. close

Battery Storage unit x3	
Capacity (MW)	72
Start up date	2030-39
Status	Unannounced

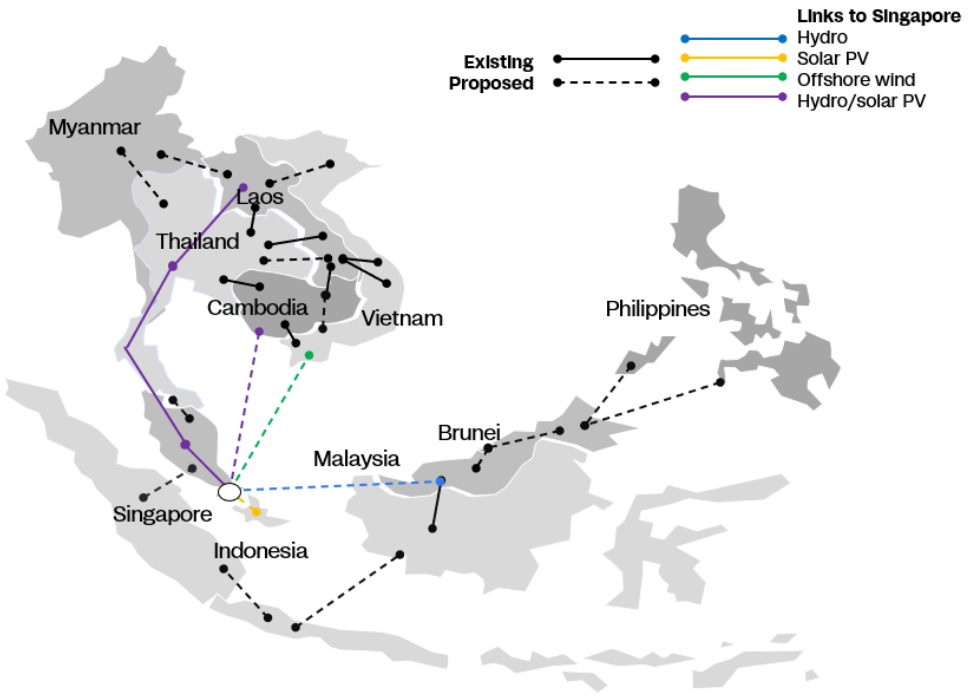
Semakau Landfill Solar	
Capacity (MW)	58
Start up date	2026
Status	Concept

Note: Colours are purely for visualisation and do not hold any meaning; 1) Non-exhaustive
Source: Rystad Energy 2023

シンガポールはASEAN域内の送電網連携（LTMS-PIPなど）を通じて再エネ輸入を拡大。2022年には100MWの水力を導入、将来的に25GW規模の再エネ導入を見込んでいる

Regional RE Projects in the pipeline

Regional interconnectors and projects linking to Singapore



- Regional interconnections via subsea cables allow Singapore access to cross-border electricity trade to secure and satisfy Singapore's decarbonizing energy needs reducing global gas market volatility.
- If all proposed interconnections to Singapore are realised, they could unlock up to 25 GW of renewable and energy storage projects of $40bn in investment across ASEAN
- The largest catalyst of this regional connection is possible through the Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP)

*The project **enabled 100MW of renewable hydropower to be imported** to Singapore in 2022, promising positive benefits from future regional partnerships.*

Source: Rystad Energy 2025

シンガポールは農地不足でバイオマス資源が限定的だが、需要は船舶燃料や航空で拡大。ジュロンで初のバイオマス発電所建設など、小規模ながらバイオ燃料を拡大する計画

Development of Biomass Production

- Due to its size, and lack of agricultural land, SG has an underdeveloped biomass potential
- As quoted from Dr Thomas Reindl, Deputy Chief Executive Officer at the Solar Energy Research Institute of Singapore (SERIS) in the National University of Singapore (NUS), “In the absence of other renewable energy resources such as wind, hydropower, or biomass, harvesting the sun’s energy is the most viable form of green electricity generation in Singapore”
  - Which is consistent with the government’s plan on developing more solar installations across the island
- There has also been decreased global investment in RE R&D, leaving initial interest in bioenergy to wane
  - Despite this, Singapore continues to invest in biofuels research to aid the country’s decarbonization efforts
- Initial feasibility test of using biomethane in current natural gas-fired CCGT plants were a success. However, cost-reductions could not be quantified, resulting in an underdeveloped supply chain

Future Plan

- Singapore has small but steadily growing local market
  - Currently, the main sources of demand are ocean-going vessels – whose demand is forecasted to double by 2025 to 1 million metric tons, and Singapore Airlines, which uses SAF blends for all flights since 2022.
  - Wider uptake of bioresources are only possible toward 2050, as various ongoing studies with ST, MTI and NCCS are considering their potential and infrastructure requirements
- Rexus Bioenergy is an upcoming JV between V8 Environmental and Sobono Bioenergy, funded by DBS Green loans to become Singapore’s first circular biomass power plant. It uses wood-to-energy biomass and is based in Jurong
  - This 13.2MW plant’s capacity is 101,000 tons of plant and wood waste per annum, set to be completed and operational until 2H 2026
- The recent appearance of local biofuel plant start-ups such as Green COP also signal Singapore’s growth toward biofuels.

Source: ADL Research, Reuters 2024, PFI, MPA Singapore 2025

シンガポール政府はCCUSを長期低排出戦略の柱と位置づけているが、規制は整いつつある一方で補助政策は限定的で、研究支援や投資減税などが中心

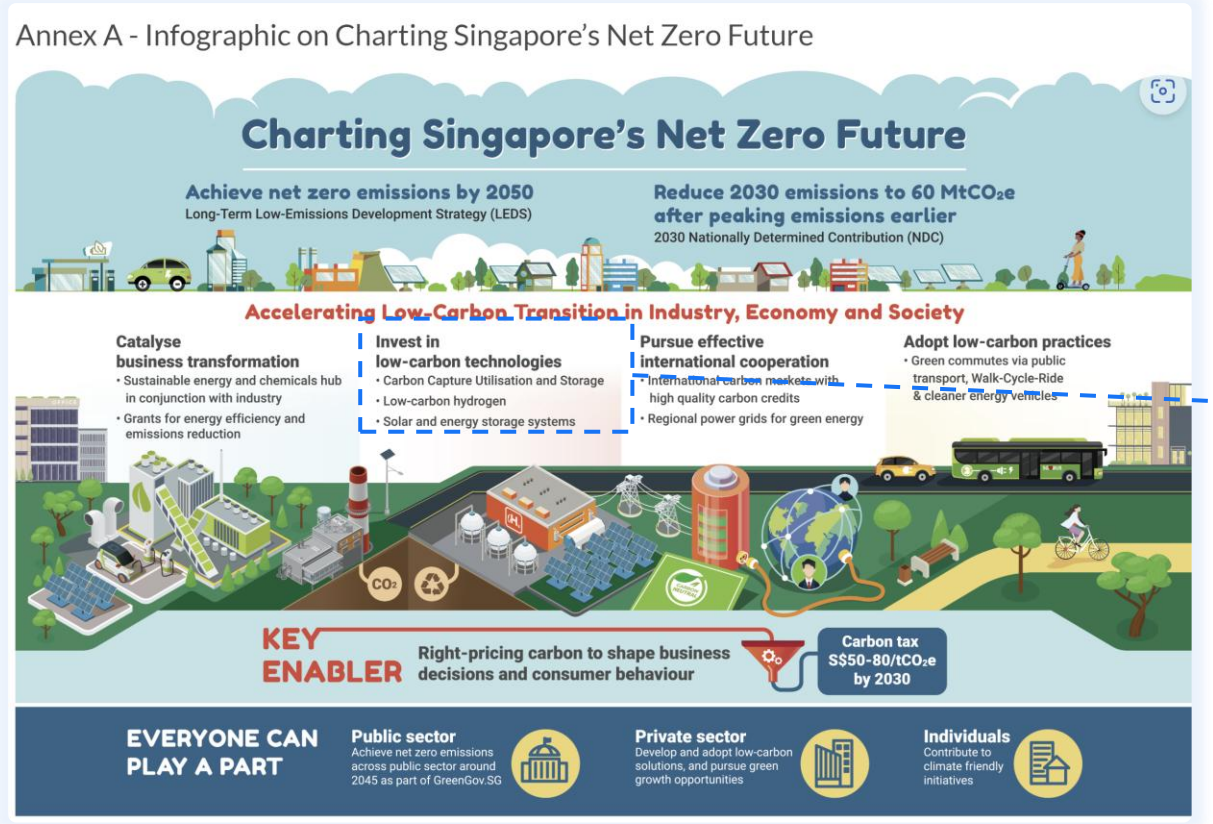
CCUSの政府動向

CCUS事業の推進に対する動向	• CCUSをLong-Term Low-Emissions Development Strategy (LEDS)における重要ソリューションと位置づけ • カーボンプライシングを採用するなど規制が生まれつつあるが、補助政策が充実しているわけではない
各種政策（産業/エネルギー/環境）	• UNFCCCに、CCUSが重要な戦略の1つであるという認識を提出1） • 国家機構変動事務局による、長期低炭素開発戦略の、1つの例として“CCUS”を取り上げている
規制	• カーボンプライシング法案が運用されている
支援策 補助金	• 低炭素エネルギーソリューションのための研究開発費用への支援 • 排出削減投資控除の優遇措置2）

Source: 各種2次情報よりADL作成
Note: 1: IEA「Carbon Capture Utilization and Storage; The Opportunity in Southeast Asia 2021」2) EDB「ジュロン島を持続可能な化学・エネルギー産業拠点に」

シンガポールのLEDS/NDC改定では、再エネ拡大や効率化に加え、CCUSのような高度な低炭素技術導入を柱の一つと位置づけ、国際協力とグリーン移行を通じてネットゼロ実現を目指している

LEDS/NDCにおけるCCUS



LEDS/NDCの改定版を2022年末提出
その柱として、以下4つを提案

- 産業、経済、社会の変革（再エネ比率向上、効率の向上、消費の削減）
- **高度な低炭素技術の採用（例えばCCUSなど）**
- 国際協力を促す
- 低炭素社会への移行（移動のグリーン化）

Source: Singapore Commits to Achieve Net Zero Emissions by 2050 and to a Revised 2030 Nationally Determined Contribution; Public Sector and Jurong Lake District to Lead The Way with Net Zero Targets 2022年10月

シンガポール・グリーンプラン2023ではCCUSをグリーン経済施策の一環と位置づけ、クロスボーダーCCS計画、Keppelなどの実現可能性調査、業界連合による低コスト技術開発が進展

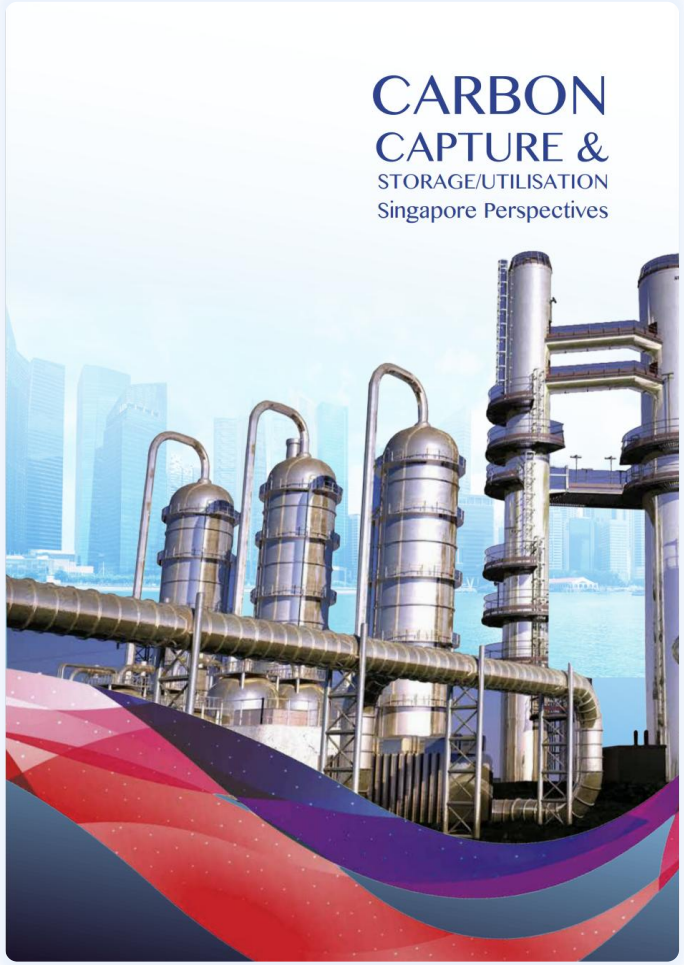
Singapore Green Plan 2023 における CCUS

- Although not explicitly mentioned, CCUS falls under the Green Economy initiative. Under this category, the Energy and Chemicals sector is listed a key partner in developing low-carbon technologies, such as carbon capture, utilization and storage
- In this spirit, various projects have begun to launch:

1. S-Hub consortium (ExxonMobil, Shell and Singapore's EDB) will be a cross-border CCS system targeting 2.5 million tons of CO_2 storage per year by 2023
2. EMA launched co-funding for three CCS-feasibility studies running from 2025-2026 by Keppel, PacificLight Power and YTL Power Seraya
3. The Low Carbon Technology Industry consortium (LCT-IC) signed an MoU in 2024 to collaborate in accelerating the development of cost effective CCUS and other lower carbon technology pathways in Singapore

Note: 1) LCT-IC is made up of Source: Singapore Commits to Achieve Net Zero EKeppel, Chevron Singapore, Pan-United Corporation, Surbana Jurong, Air Liquide Singapore, Osaka Gas Singapore and Pavilion Energy
Sources: Offshore Energy 2024, Reuters 2024, Straits Times 2024

シンガポールではCCSについては、有望貯留地がなく実行するには国際輸送が必要とされており、“U”の化学製品への活用などは有望と考えられている



About CCS

- **The absence of suitable storage sites in Singapore means foreign sites will have to be sought.**
- International geopolitical and corporate negotiations will be necessary if Singapore decides to pursue CCS.
- Furthermore, R&D for the long-range cost-effective transport of concentrated CO2 to off-shore or regional sites will be essential.

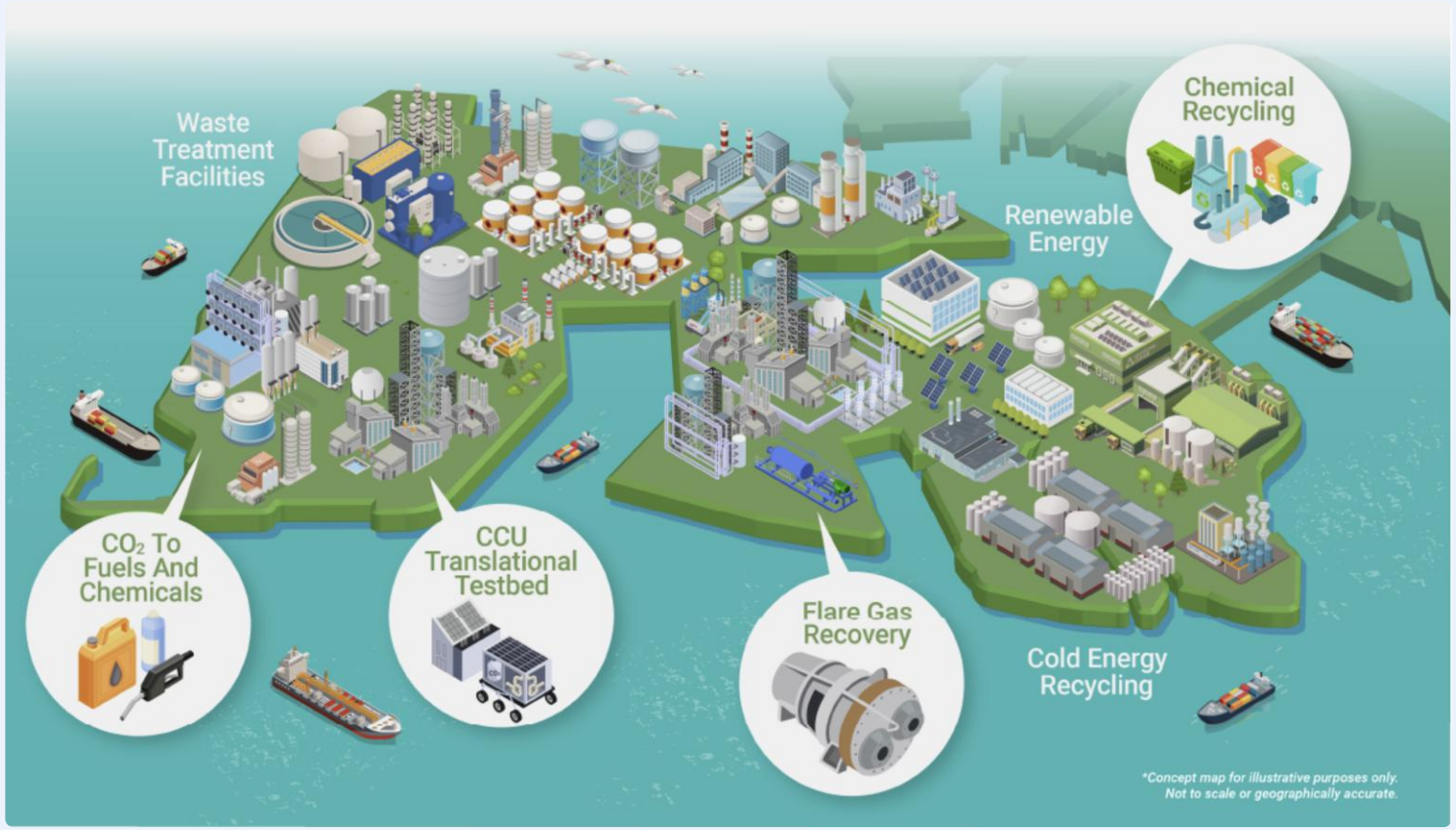
About CCU

- Due to Singapore’s constraints in renewable energy generation, careful assessment on the best way to utilize the renewable energy may be required.
- **For CCU to be practical, there must be a demand for the products. However, utilization of Singapore’s CO2 alone to produce chemicals such as formic acid, acetic acid and formaldehyde would far surpass the global demand for these products.**

Source: NCCS “CARBON CAPTURE & STORAGE/UTILISATION Singapore Perspectives

「サステナブル・ジュロン島」構想の下、2050年までに持続可能製品の生産4倍化や年間600万トン超のCO_2削減を目指し、2030年までに効率改善とCO_2回収強化を進める産業拠点化を推進

ジュロン島の“持続可能な化学・エネルギー産業拠点”化



- 「サステナブル・ジュロン島」を掲げ、2050年に向け
  ①持続可能な製品の生産量を2019年比で4倍に引き上げ
  ②低炭素ソリューションによる年間600万トン以上のCO_2削減を掲げる
- また2030年に向け
  ①持続可能な製品の生産量の2019年比で1.5倍
  ②シンガポールの製油所のエネルギー効率を上位1/4
  ③200万トン以上のCO_2回収
- 「CCU Translational Testbed」の設置の検討

Source: EDB「ジュロン島を持続可能な化学・エネルギー産業拠点に 2022年3月13日」

シンガポールでは、ジュロン島でのCCUS実証コンソーシアムや三井物産・シェブロンによるCO_2海上輸送プロジェクトが進行中で、域内外での貯留・利活用を視野に越境型CCS戦略を推進

ジュロン島におけるCCUSのFSを行うコンソーシアム

実施主体	• Chevron • Air liquide • Petrochina , Keppel infrastructure
検討開始年	• 2022年 (MoU signed September 2022)
目的	• シンガポールにおけるCCUSの技術的、物流的、運用的ソリューションを研究、テスト、開発
CO2排出源	• ジュロン島の工場
CO2活用法	• プラスチック、燃料などへの転換 • アジア太平洋地域の貯留層への輸送による Storage
政府による PJへの支援	• Aligned with EDB’s ‘Sustainable Jurong Island’ Plan, no grants received

商船三井とシェブロンのCO_2輸送 PJ

実施主体	• Chevron • Mitsui O.S.K. Lines
検討開始年	• 2022年 (JSA signed 2022)
目的	• シンガポールで排出されるCO_2の液化海上輸送事業開発
CO2排出源	• 産業からの排出
CO2 輸送先	• オーストラリア貯留地への海上輸送
政府による PJへの支援	• Supported as part of Singapore’s cross-border CCS strategy

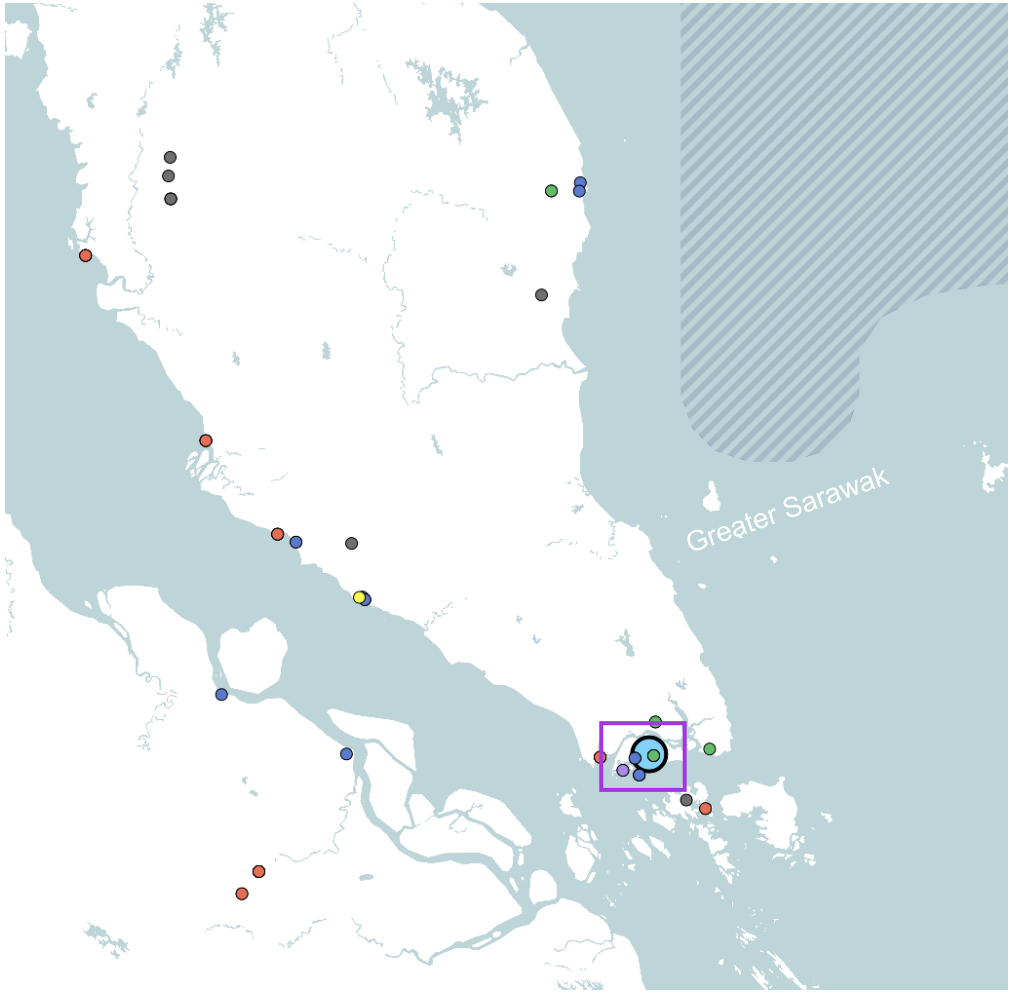
Source: Economic Development Board Singapore

ASEAN諸国の中でシンガポールはCCUSを長期戦略に位置づけているが、国内にCO_2貯留ポテンシャルがなく、法制度や商業施設計画も未整備で、越境型の取り組みに依存

	Brunei Darussala	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam
Domestic CO_2 storage potential	●	●	●			●	●
Potential to use CO_2 for EOR	●	●	●			●	
Legal and regulatory frameworks for CCUS in place	○*	○	○*	○*		○*	○*
Industrial clusters with CO_2 capture prospects	●	●	●	●	●	●	●
Recognition of CCUS in long-term strategies/ goals	○	●	●		●		○
Targeted policies to support CCUS investment							
Active pilot or demonstration facilities							
Plans for commercial CCUS facilities		●	●				

Source: IEA「Carbon Capture Utilizsation and Storage: The Opportunity in Southeast Asia 2021」
Note: ● = Yes, ○ = Possibility/Partially; * = Oil and gas regulation applicable for CO2 Storage

シンガポールの主なCO$_2$排出源は化学品や石油精製産業であり、これらからの排出を対象にCCUSによる回収プロジェクトが進められている



シンガポールにおけるCO$_2$排出源

Potential CO2 storage
- CO2 storage

シンガポール

CO2 sources
- Iron and steel
- Cement
- Fuel refining
- Chemicals
- Power
- LNG facility

CCUS Projects
- Developing
- Operating

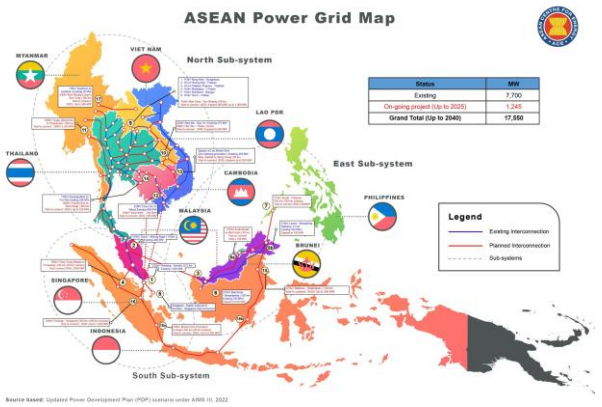
シンガポールでは、化学品/石油精製などが主要なCO$_2$排出源。それらの産業から排出されるCO$_2$回収のPJも開発中

Source：IEA Carbon Capture,Utilizsation and Storage「The opportunity in Southeast Asia」

シンガポールは資源制約から域内送電網やガスパイプラインなどの国際連携を進めつつ、ASEAN向けに5億ドル規模のグリーンファイナンス提供や気候変動対策の資金動員にも積極的

Cross-border collaboration & Clean energy trade

- Due to Singapore's lack of resources such as land and naturally occurring renewable energy sources as a small
- island nation, this was emphasized at COP29 in Azerbaijan
- Projects include:
  - ASEAN Power grid; LAO PDR-Thailand-Malaysia-Singapore Power Integration Project; Trans-ASEAN Gas Pipeline; Peninsular Gas Utilization pipeline; and Article 6 negotiations for carbon credit cooperation agreements with Ghana, Vietnam and Papua New Guinea



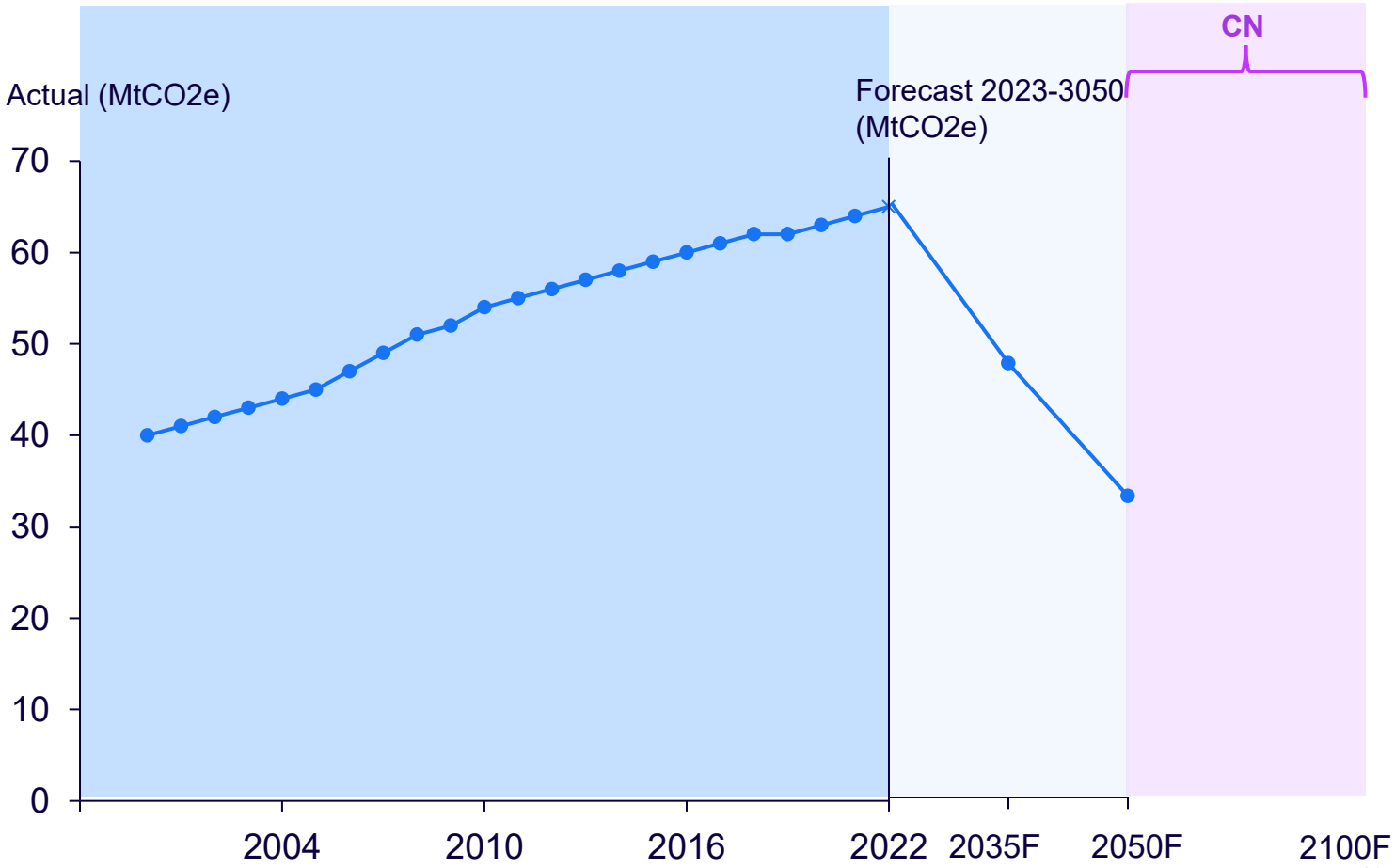
Climate Finance Mobilization

- Singapore is contribution to the region's green development by launching the Financing Asia's Transition Partnership (FAST-P), which pledges S$500 million to catalyze up to US$5 billion in green finance for ASEAN
- USD 300 billion of annual triple finance for developing countries by 2035 was also established as a form of insurance policy for humanity among worsening climate impacts affecting us all

Source: UNFCCC 2024

シンガポールは2050年までに温室効果ガス排出を半減しネットゼロを目指しており、2025年にNDCを改定して2035年目標を従来の60MtCO$_2$eから45～50MtCO$_2$eへと強化

- **Target year** – In its 2022 Long Term Low Emissions Development Strategy (LT-LEDS), Singapore committed to halving emissions to 33MtCO2e by 2050 and achieving net zero emissions as soon as viable in the second half of the century.
- In February 2025, a few months after COP29, Singapore submitted its updated NDC, setting a new target of limiting GHG emissions in 2035 to 45-50 MtCO2e, down from 60 MtCO2e in the previous submission.



Source: Climate Action Tracker, Singapore's Second Update of its first nationally determined contribution and accompanying information, UNFCCC First Biennial Transparency Report 2024

シンガポールはGHG削減目標達成に向けて、補助金・税制優遇・国際炭素取引・カーボンタックス強化・省エネ法改正など多面的政策を展開し、排出削減とクリーン技術導入を加速

Action for achieving GHG Target

Incentive

Subsidy

- xEV /Power charging infrastructure and rebates under Vehicular Emissions Scheme extended
- Green finance taxonomies
- Low Carbon Energy Research Funding Initiative (LCER FI) – Phase 2 underway (supporting CCUS, hydrogen, SAF)
- Enterprise Sustainability Program from SMEs adopting clean tech

Tax Incentives

- xEV tax exemptions and ARF rebates extended to 2025+
- Enhanced Investment Allowance – Green (EIA-G) for decarbonization structure

Penalty

ETS

- Article 6 cooperation agreements signed with Ghana, Papua New Guinea and Vietnam for bilateral carbon trading

Penalty

- **Carbon Tax policy**
- 2024-2025: SGD 25/tCO2e
- 2026-2027: SGD 45/tCO2e
- By 2030: SGD 50-80/tCO2e Target
  - Applies to facilities emitting >25ktCO2e/year, covers 80% of national emissions from 2024

Regulation

- **The Energy Conservation Act was revised in 2023-24**
  - Mandatory energy reporting rightened, carbon mitigation plan submissions required
- **Super Low Energy Building Standard**
  - For all new Government buildings
- **Vehicle Emissions Scheme (VES) and Fuel Economy Labelling Scheme (FELS) extended through 2025**

Sources: Enterprise Singapore 2025, NEA 2025, NCSS 2025

シンガポールは発電での再エネ輸入・水素導入、輸送でのEV普及と内燃機関車禁止、金融でのグリーンボンドやCCUS適用を通じて2050年ネットゼロとエネルギー安全保障を両立を図る

Industry	CN target	Overall
Power Genera-tion	• NA –	• As cross-border clean energy trade develops, we are building a low-carbon ASEAN Power Grid. This will strengthen energy resilience and decarbonize power generation across Southeast Asia. Singapore plans to import up to 4gigawatts (GW) of low-carbon electricity by 2035, or around 30% of Singapore's electricity supply. We will build on the Lao PDR-Thailand-Malaysia-Singapore ember 2022 7 Power Integration Project, which successfully commenced in June 2022, and use it as a pathfinder towards the broader ASEAN Power Grid vision • Singapore is targeting net-zero emissions by 2050 and enhancing energy security by considering hydrogen as a critical factor. Hydrogen has the potential to **meet up to 50% of Singapore's power demands**. • The Green Plan aims to expand solar PV installed capacity to more than 2 gigawatt-peak (GWp) by 2030. According to Trade and Industry Minister Tan II, the plan calls for the installation of energy storage systems (ESS) in response to the increase in solar power generation, with a total of 200 megawatts (MW) of ESS to be installed after 2025.
Trans-portation	• NA –	• (~30 years) Double the number of charging points for electric vehicles/ (~40 years) Ban internal combustion engine vehicles • Starting in January 2021, an EV early adoption incentive (expiring by the end of 2023) was introduced for EVs, refunding 45% of the additional registration fee (ARF), and the road tax was reduced.
Other	• NA –	• It aims to become a major Asian center for green finance, providing specialized funding for environmental projects. To this end, the government has pioneered a plan to issue green bonds (bonds) in the FY2021 government budget • Application of CCUS to petrochemical industry, etc.

Source: 各種2次情報よりADL作成

シンガポールは現時点で原子力導入を決定していないが、米国との協力枠組み（123協定）やインドネシアの実証案件を通じ、将来のSMR導入可能性に備え安全性評価や専門人材育成を推進

Current Status (as of Aug 2025)

Policy Stance and Implementation Milestones

- **Singapore has not yet decided to deploy nuclear power**, as a pre-feasibility study found the technology not suitable at that time.
- As of 2025, any nuclear decision will be based on safety, reliability, affordability, and environmental sustainability, while also building institutional capabilities
- In 2024, Singapore and the U.S. signed a **123 civil nuclear cooperation agreement**, which provides **a legal framework for cooperation on advanced nuclear technologies**, safety, and non-proliferation

Private Sector and Ecosystem

- The **Nuclear Business Platform (NBP),** headquartered in Singapore, serves as **a regional hub that connects buyers**, suppliers, and financiers across the nuclear sector.
- **ThorCon**, a Singapore-based developer, is advancing a molten-salt reactor demonstration in Indonesia (with site and licensing steps expected in 2025), **creating spillover opportunities for Singapore's engineering, services, and finance industries.**

Future Actions

Government Side

- The government will **publish the results of the advanced-nuclear/SMR suitability and safety study** and set out the related policy implications.
- Singapore aims to **develop a pool of about 100 nuclear safety experts** to strengthen technical and regulatory capacity.
- **Collaboration under the U.S.–Singapore 123 Agreement will expand knowledge-sharing** on regulatory frameworks, safeguards, emergency preparedness, and fuel-cycle know-how.

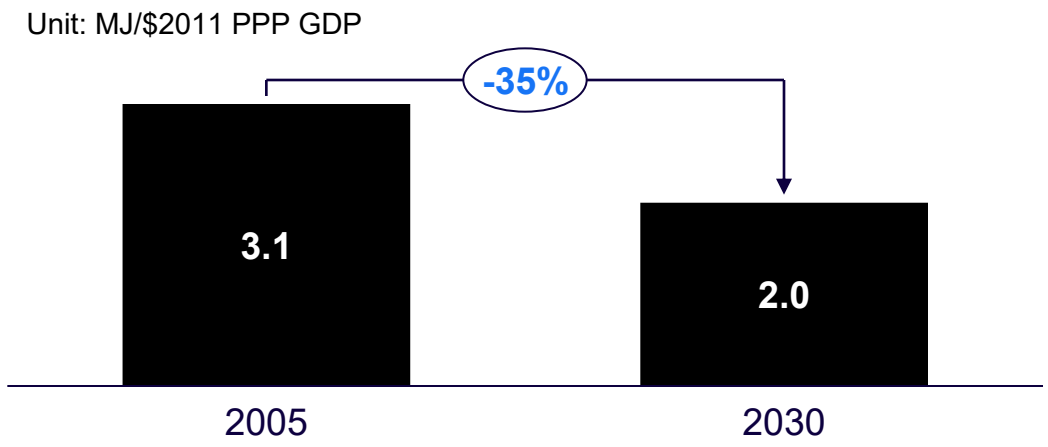
Private Sector

- Companies can **prepare for nuclear options by running scenarios for long-term Power Purchase Agreements (PPAs)**.
- Companies should monitor three key signposts:
  (1) **Concrete programs implemented under the U.S.–Singapore 123 agreement**
  (2) The **EMA study**[1] outcome and government response
  (3) **Regional neighbour pilots** (e.g., Indonesia's Thorcon project)

Note: 1) EMA refers to Energy Market Authority, and The EMA study refers to the advanced-nuclear/SMR suitability and safety study commissioned by the government
Sources: Ministry of Trade and Industry (MTI) , Energy Market Authority (EMA), ADL Research

2030年までにエネルギー原単位を2005年比で35%改善する目標を掲げ、炭素税・省エネ法・建築規制に加え、効率診断や製品基準強化、データ報告義務、補助金制度で省エネ投資を後押し

Energy Intensity Target (%)



- **National Energy Savings Target:** Improve **energy intensity by 35% by 2030** (from 2005 levels).
- **Detailed targets:**
  - **Buildings:** 80% of total Gross Floor Area (GFA) in buildings must achieve Green Mark certification by 2030.
  - **Public sector:** Cut its energy use by 10% by 2030.
  - **Public housing towns (HDB):** Reduce town-level electricity use by 15% by 2030.

Government Policies And Initiatives

Government Policies

- **Carbon Pricing Act / Carbon Tax:** sets economy-wide carbon price trajectory.
- **Energy Conservation Act (ECA):** mandates energy management obligations for large energy users.
- **Building Control Act / 2025 Code:** introduces the Mandatory Energy Improvement (MEI) regime for buildings.

Key Initiatives

- **Energy Efficiency Opportunities Assessments (EEOA)** are mandatory design-stage reviews for new ventures and periodic reviews for existing high-energy facilities.
- **Product Standards & Labels (MEPS/MELS)** are tightened to raise the minimum efficiency standards for appliances such as air-conditioners, water heaters, and refrigerators.
- **Annual energy-data submission and benchmarking** require building owners to report their energy data and to undergo periodic audits of cooling systems.
- **The Energy Efficiency Fund (E2F)** provides grants of up to 70% for pre-approved industrial energy efficiency technologies

Source: Ministry of the Environment and Water Resources, IndexMundi (Singapore - Energy intensity), Singapore Green Building Master Plan, ADL Research

Contents

1. エネルギー構成・政策・監督機関
2. 化石エネルギー
3. パイプライン（ガス・石油）
4. 次世代・再生可能エネルギー
5. **発電事業者**
6. 発電所
7. 電力品質
8. 送電網
9. 電気料金
10. 電力需給状況

シンガポールの主要発電事業者はTuas Power、Senoko、Keppel、YTL PowerSeraya、Sembcorp、PacificLightなどで、外資を含む多様な所有構造を持つ

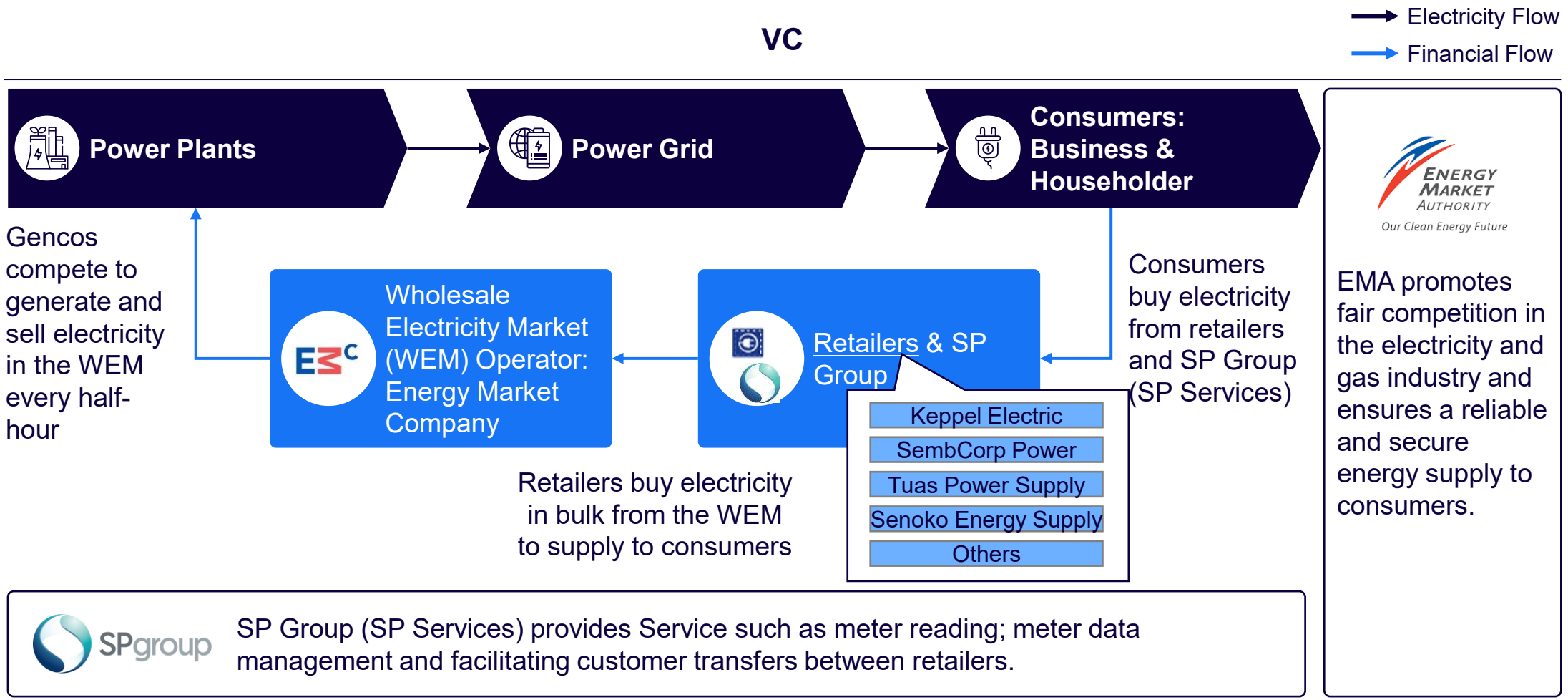
Tuas Power Ltd.	Senoko Energy Pte. Ltd. Singapore	Keppel Merlimau Cogen	YTL PowerSeraya	SembCorp Cogen	PacificLight Power	Taser Power
Divested by Temasek in 2008. Today it is fully owned subsidiary of **Huaneng Power International**, part of China Huaneng Group	Originally part of Singapore Power (PUB), but acquired by Lion Power Consortium in 2008. Today it is under joint ownership by **Marubeni** and **Sembcorp**	100% owned by **Keppel**	Formerly part of Singapore Power, sold by Temasek Holdings in 2009. Today it is 100% owned by **YTL Power International Berhad**, based in Malaysia	49.5% stake held by **Temasek Holdings Pte. Ltd.**, the remainder are held by public and institutional investors	70% held by **FPM Power Holdings Ltd.**, the remainding 30% held by **PETRONAS Power Sdn Bhd** Malaysia	Subsidiary of **YTL PowerSeraya Pte. Ltd.**

Operators planning to enter the market

Although none are mentioned by name, RE is the space to for entry as Singapore seeks to expand its' generation capacity. An example are projects for two CCGT Plants, one of which was awarded to PacificLight Power, while the other slot remains open. EMA has also been granting approvals to more regional players to import clean energy into Singapore

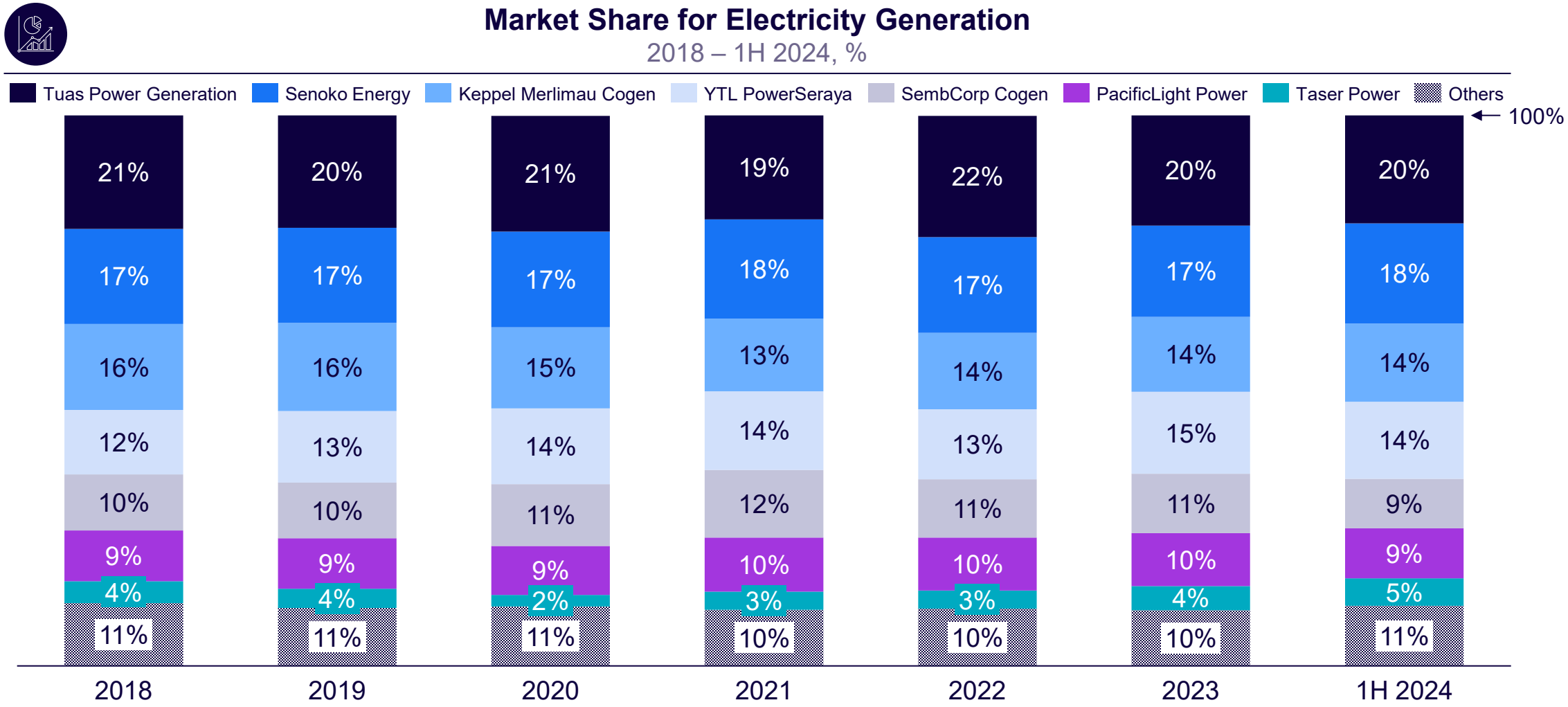
Source: ADL Research, Energy Market Authority 2025

シンガポールの電力市場は発電、小売ともに自由化されており、発電会社が卸電力市場で競争し、小売業者等を通じて事業者・家庭に供給される一方、EMAが公正競争と安定供給を担保している



Source: EMA 2023
Note: 1) Non-contestable consumers are those who choose to buy electricity from SP services at regulated tariff; 2) Contestable consumers are those who choose to buy electricity from a retailer of their choice or from wholesale electricity market at the half-hourly wholesale electricity price

2018～2024年上期のシンガポール発電市場シェアは大きな変動はなく、主要7社が安定的に市場を分け合っている

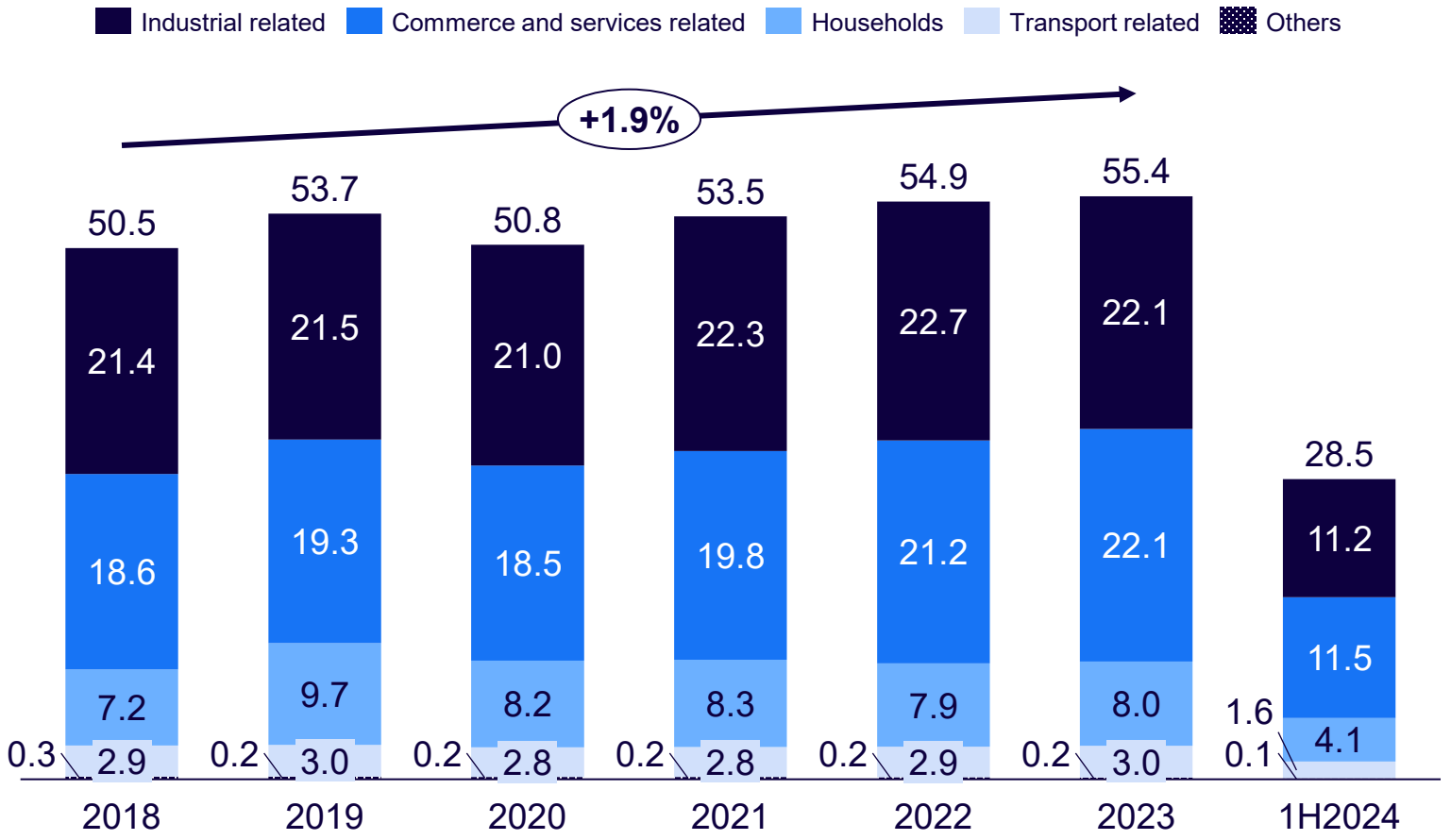


Source: Energy Market Authority 2025

シンガポールの電力消費は商業・サービス部門と産業部門が全体の約8割を占め、2023年時点でそれぞれ約22.1TWhを消費し、全体需要は年平均+1.9%で緩やかに増加

Electricity Consumption by Sector

2018 – 1H 2024, TWh



In 2023, 'Commerce and Services' and 'Industrial' dominated the energy consumption, **accounting for 79.7% total with the former consuming ~22.1 TWh and the latter ~22.1 TWh**, seeing a YOY growth of 3.4% and 1.5% respectively, which is slightly higher than the overall growth in consumption

Source: Energy Market Authority 2025

シンガポールは再エネ導入にFITを採用せず、市場価格を重視しつつ規制整備や研究開発資金、グリーンボンドや省エネ・EV普及のための金融支援など間接的な支援策を展開

Subsidy in Renewable Energy

- Singapore does not adopt Feed-in-Tariffs (FIT) system stating that FiTs would distort the energy market and increases costs for consumers. Hence, it is important to price energy correctly and send the right price signals to both consumers and investors
- Instead of subsidies, Singapore has taken proactive steps to introduce regulatory enhancements to facilitate the entry of renewable energy when such technologies become commercially viable.
- The government's support for renewables also comes in the form of funding for research and development to develop capabilities within the industry
- Other forms of government support toward enhancing renewable energy in Singapore include Metering Credit Schemes, Financial incentives for energy efficiency[1], financial incentives for green buildings, and the EV Common Charger Grant
  - On the other hand, green bonds, sustainable finance, etc. are implemented

Note: 1) Examples include: NEA's Energy Efficiency Grant, Green Mark Incentive Scheme, and EDB's Resource efficiency grant for energy
Source: CNA 2022, Get Slolar

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発電所一覧(1/2)

Main Power Plants

2005 – 1H 2024, MW

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	1H2024	CAGR
Keppel Merlimau Cogen	**490.0**	**490.0**	**896.0**	**1,310.0**	**1,310.0**	**1,310.0**	**1,310.0**	**1,310.0**	**1,310.0**	**1,310.0**	**1,310.0**	**1,310.0**	**1,310**	**1,320**	**1,320**	**7.3%**
CCGT/C0-Gen/Tri-Gen	490.0	490.0	896	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310	1,320	1,320	
National Environment Agency	**179.8**	**179.8**	**179.8**	**179.8**	**179.8**	**179.8**	**179.8**	**179.8**	**179.8**	**179.8**	**179.8**	**179.8**	**179.8**	**179.8**	**132.0**	**-2.2%**
Waste-T0-Energy	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	132.0	
Of Which: Autoproducers	**24.4**	**95.7**	**338.7**	**335.1**	**374.1**	**463.8**	**514.3**	**684.5**	**723.0**	**824.2**	**884.6**	**1,039.1**	**1,180.3**	**1,461.1**	**1,588.3**	**12.8%**
CCGT/C0-Ger/Tri-Gen	21.5	91.1	317.0	309.3	334.8	402.6	402.6	555.3	548.4	538.5	538.5	538.5	538.5	528.9	536.9	
Solar PV	2.9	4.6	7.7	11.8	25.3	45.7	96.6	115.6	161.0	272.1	332.5	487.0	628.2	918.6	1,037.8	
Steam Turbine	-	-	14.0	14.0	14.0	15.5	15.1	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	
PacificLight Power	**-**	**-**	**-**	**800.0**	**800.0**	**800.0**	**800.0**	**800.0**	**800.0**	**800.0**	**800.0**	**800.0**	**800.0**	**815.0**	**830.0**	**0.3%**
CCGT/Co-Gen/Tri-Gen	-	-	-	800.0	800.0	800.0	800.0	800.0	800.0	800.0	800.0	800.0	800.0	815.0	830.0	
SembCorp Cogen	**785.0**	**785.0**	**785.0**	**785.0**	**1,188.8**	**1,188.8**	**1,188.8**	**1,188.8**	**1,188.8**	**1,188.8**	**1,188.8**	**1,188.8**	**1,388.8**	**1,388.8**	**1,388.8**	**4.2%**
CCGT/Co-Gen/Tri-Gen	785.0	785.0	785.0	785.0	1,188.8	1,188.8	1,188.8	1,188.8	1,188.8	1,188.8	1,188.8	1,188.8	1,188.8	1,188.8	1,188.8	
ESS	-	-	-	-	-	-	-	-	-	-	-	-	200.0	200.0	200.0	
Senoko Energy	**2,635.0**	**2,550.0**	**3,300.0**	**3,300.0**	**3,300.0**	**3,300.0**	**3,300.0**	**3,300.00**	**3,300.0**	**2807.0**	**2807.0**	**2,807.0**	**2,807.0**	**2,807.0**	**2,807.0**	**0.45%**
CCGT/Co-Gen/Tri-Gen	1945.0	1945.0	2807.0	2807.0	2807.0	2807.0	2807.0	2807.0	2807.0	2807.0	2807.0	2807.0	2807.0	2807.0	2807.0	
Open Cycle Gas Turbine	190.0	105.0	-	-	-	-	-	-	-	-	-	-	-	-	-	
Steam Turbine	500.0	500.0	493.0	493.0	493.0	493.0	493.0	493.0	493.0	-	-	-	-	-	-	
Senoko Waste Electricity pte Ltd	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**55.0**	**0.0%**
WTE	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	
Taser Power	**-**	**-**	**-**	**-**	**-**	**395.7**	**395.7**	**395.7**	**395.7**	**395.7**	**395.7**	**395.7**	**3957**	**395.7**	**395.7**	**0.0%**
CCGT/C0-Gen/Tri-Gen	-	-	-	-	-	395.7	3957	395.7	395.7	3957	395.7	395.7	3957	395.7	395.7	
Tuas Dboo Trust	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**22.0**	**0.0%**
WTE	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Tuas Power Generation	**2,640.0**	**2,640.0**	**2,141.0**	**2546.9**	**2,579.4**	**2,579.4**	**2,579.4**	**2,579.4**	**2,579.4**	**2,579.4**	**1,979.4**	**1,979.4**	**1,979.4**	**1,979.4**	**1,979.4**	**-2.4%**
CCGT/Co-Gen/Tri-Gen	1.440.0	1.440.0	1,541.0	1,946.9	1,979.4	1,979.4	1,979.4	1,979.4	1,979.4	1,979.4	1,979.4	1,979.4	1,979.4	1,979.4	1,979.4	
Steam Turbine	1200.0	1200.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	-	-	-	-	-	
YTL PowerSeraya	**3,100.0**	**3,100.0**	**3,100.0**	**3,100.0**	**3,100.0**	**3,100.0**	**3,100.0**	**3,100.0**	**3,100.00**	**2,402.0**	**2,402.0**	**2,402.0**	**2,402.0**	**2,402.0**	**1,652.0**	**-4.4%**
CCGT/Co-Gen/Tri-Gen	1472.0	1472.0	1472.0	1472.0	1472.0	1472.0	1472.0	1472.0	1472.0	1472.0	1472.0	1472.0	1,472.0	1,472.0	1,472.0	
Open Cycle Gas Turbine	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	
Steam Turbine	1448.0	1448.0	1448.0	1448.0	1448.0	1448.0	1448.0	1448.0	1448.0	750.0	750.0	750.0	750.0	750.0	-	

Source: Energy Market Authority 2025

発電所一覧(2/2)

Natural gas power plants

Name	Operator	Output	Source
Senoko Power Station	Senoko Energy Pte Ltd	2,807 MW	Gas
Pulau Seraya Power Station	YTL PowerSeraya Pte Ltd	2,222 MW	Gas
Tuas Power Plant	Tuas Power Ltd	1,876 MW	Gas
Keppel Merlimau Cogen Power Plant	Keppel Merlimau Cogen Pte Ltd	1,310 MW	Gas
PacificLight Power Station	PacificLight Power Pte Ltd	800 MW	Gas
Sembcorp Cogen @ Sakra Power Station	SembCorp Cogen Pte Ltd	785 MW	Gas
Sembcorp Cogen @ Banyan	SembCorp Cogen Pte Ltd	404 MW	Gas
Tuaspring CCGT Power Plant	Tuaspring Pte Ltd	396 MW	Gas
ExxonMobil Power Station	Unknown	314 MW	Gas
Jurong Power Station	YTL PowerSeraya Pte Ltd	180 MW	Gas

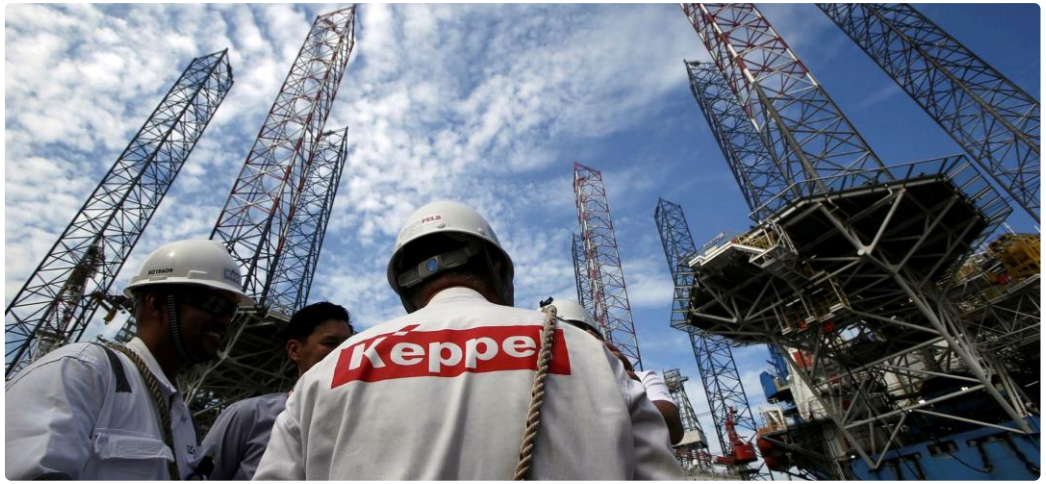
Source: OpenInfraMaps 2025

ジュロン島に水素混焼対応のMeranti発電所（2025年稼働予定）と、ケッペルが三菱と建設する水素対応コージェネ発電所（2026年稼働予定）が計画され、脱炭素型ガス火力への移行が進展

EMA - Meranti Power Units

- Ema’s subsidiary will build, own and operated 2 open cycle gas turbine (OCGT) units, in the new power station that is going to be build in jurong island
- X2 340 MW units, replacing existing ~400 MW system which is 30 y/o
- Slated to open in 2025, can take up to 30% H2 as fuel source via enhancements to current infrastructure

Keppel Sakra CoGen Plant



- H2-ready gas PP (CoGen) built for Keppel by Mitsubishi, costing US$ 540 mn
- 600 MW capacity and slated to open in 2026, running only on natural gas, despite current turbine having 30% H2 mix ability
- Keppel and Mitsubitishi are also conducting feasibility study on using 100% ammonium PP in Singapore

Source: CNA 2023, Recharge 2022, Mitsubishi Press Release 2022

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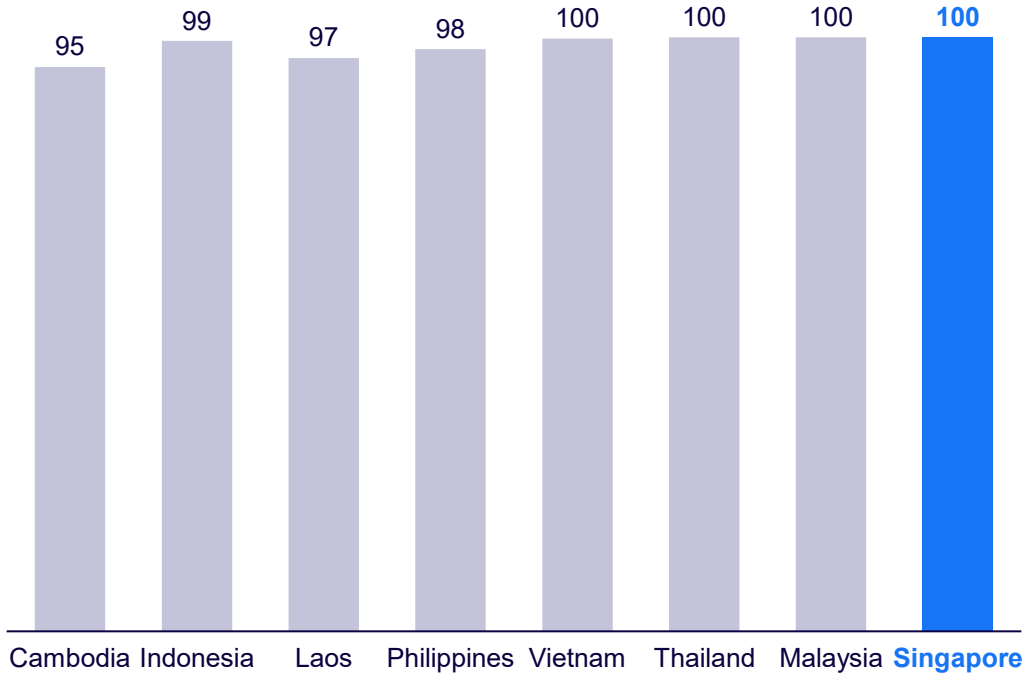
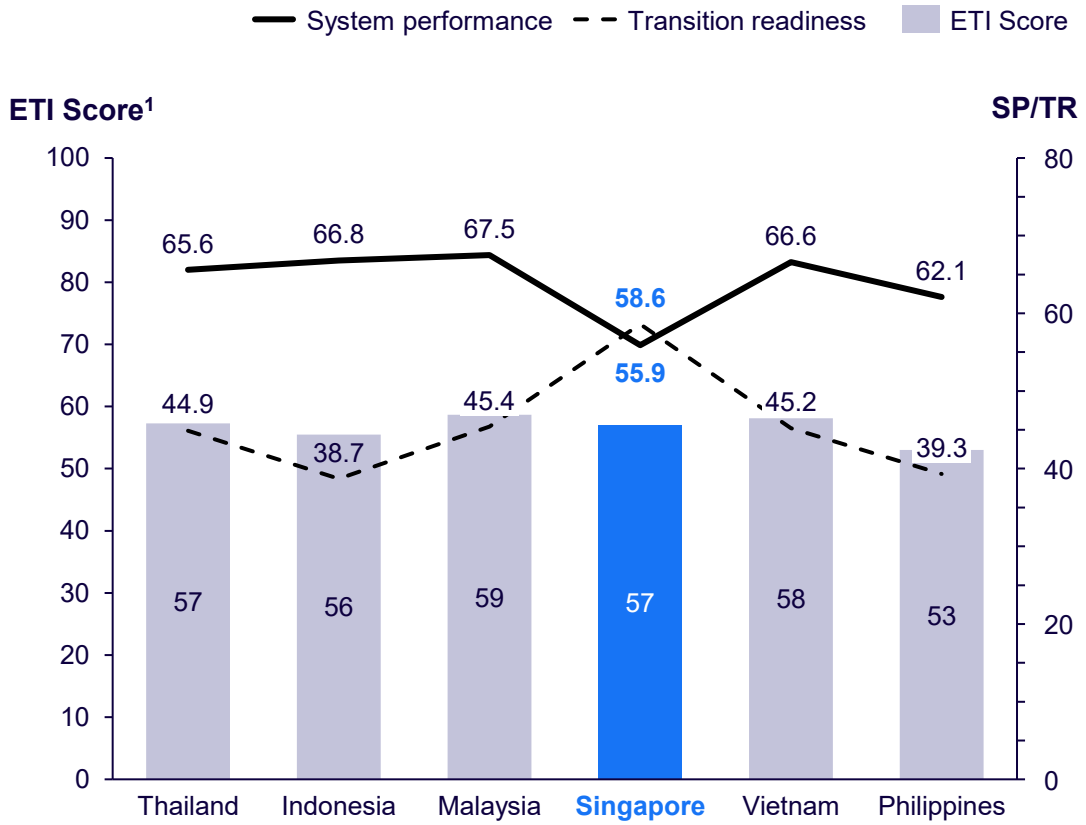
シンガポールは電力アクセス100%を達成しているが、エネルギー転換指数（ETI）ではASEAN内で中位に位置し、今後さらなる移行努力が求められている

Access to Electricity

(% of population with access to electricity, 2023)



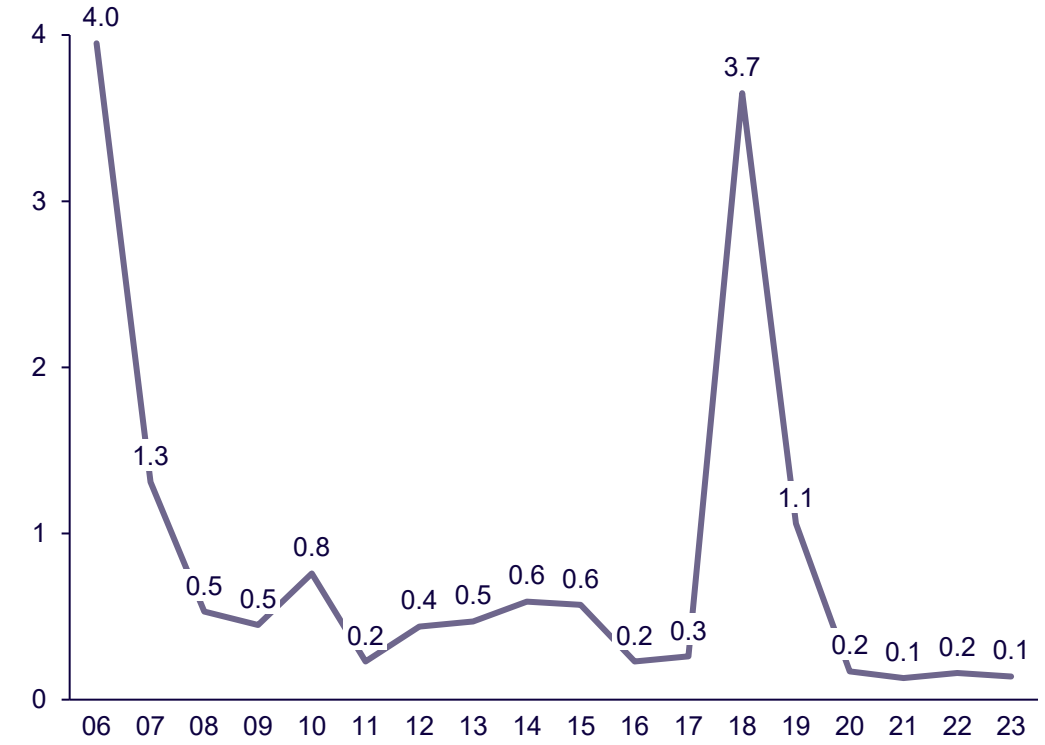
World Economic Forum's Energy Transition Index (ETI)



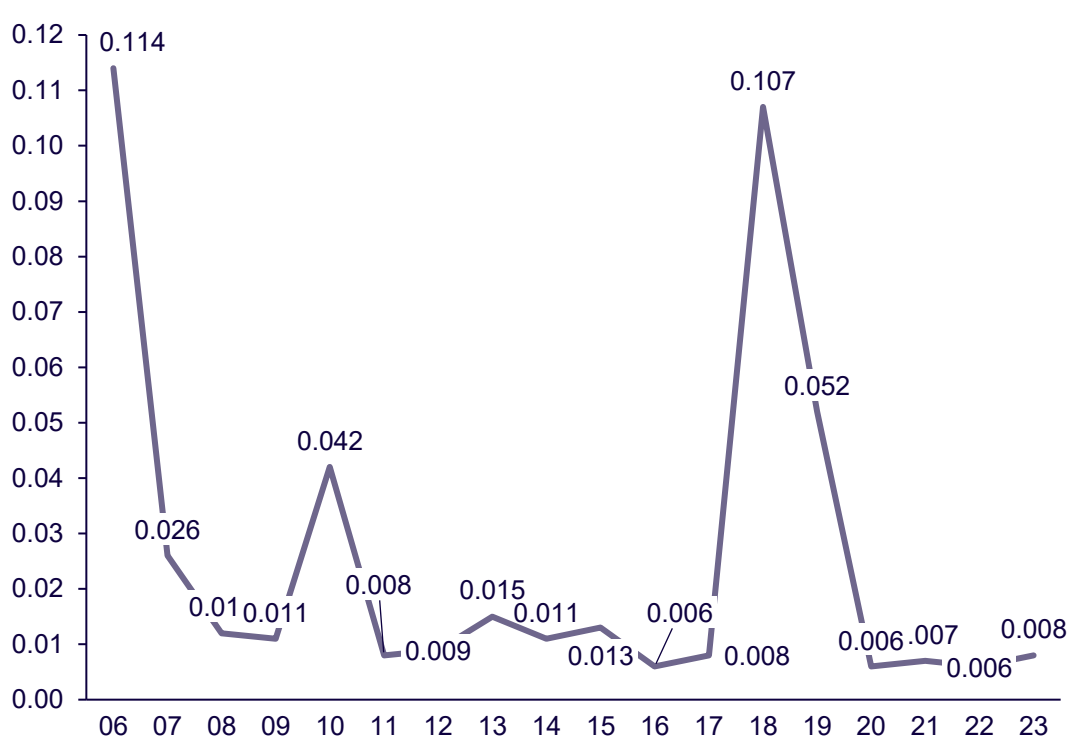
Note: 1) Energy Transition Index score consists of System Performance (60%) and Transition Readiness (40%).
Source : World Bank Global Electrification Database, World Economic Forum Report, *Fostering Effective Energy Transition 2025*

シンガポールの電力系統は極めて信頼性が高く、年間の平均停電時間は1分未満で、東京やニューヨーク、香港、ロンドンよりも安定している

SAIDI[1]



SAIFI[2]



Singapore has one of the most reliable supply of electricity. Singapore's electricity grid has an average interruption time of less than 1 minute per customer a year and is more reliable than Tokyo (4 minutes), New York (20.53 minutes), Hong Kong (23.40 minutes) and London (33.60 minutes).

Note: 1) System Interruption Duration Index (Minutes/Customer/Year) ; 2) System Average Interruption Frequency Index (Number of Interruptions/Customer per Year)
Source: Energy Market Authority 2025

シンガポールでは電力品質維持のため、電力・ガス配管損傷防止を目的にEMAとSPPGが「登録アースワーク監督者制度（RES）」を導入し、施工監督者に資格取得と登録を義務付けている

Maintaining Electricity Quality

EMA acts to ensure that earthworks are done in a way that avoids damaging electricity cables and affecting supply to consumers.

Contractors are strongly encouraged to refer to SS576:2012 (Code of Practice for Earthworks in the Vicinity of Electricity Cables).

Since 1 April 2018, EMA and Singapore Power Grid (SPPG) will be implementing the Registered Earthworks Supervisor (RES) scheme to enhance the cable / gas pipeline damage prevention.

RES scheme will required earthwork supervisors to pass competency course in cable/gas pipeline damage prevention measures and are registered as a RES with SPPG before supervising worksites in the vicinity of high voltage cables and medium/high pressure gas pipelines.

Source: EMA 2023

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シンガポールの送電網は400kV・230kV・66kVで構成され、全て地下に敷設されて4系統に分かれ、400kVのメッシュ状ネットワークで高信頼性を確保

Power Transmission Lines

Power Transmission Lines

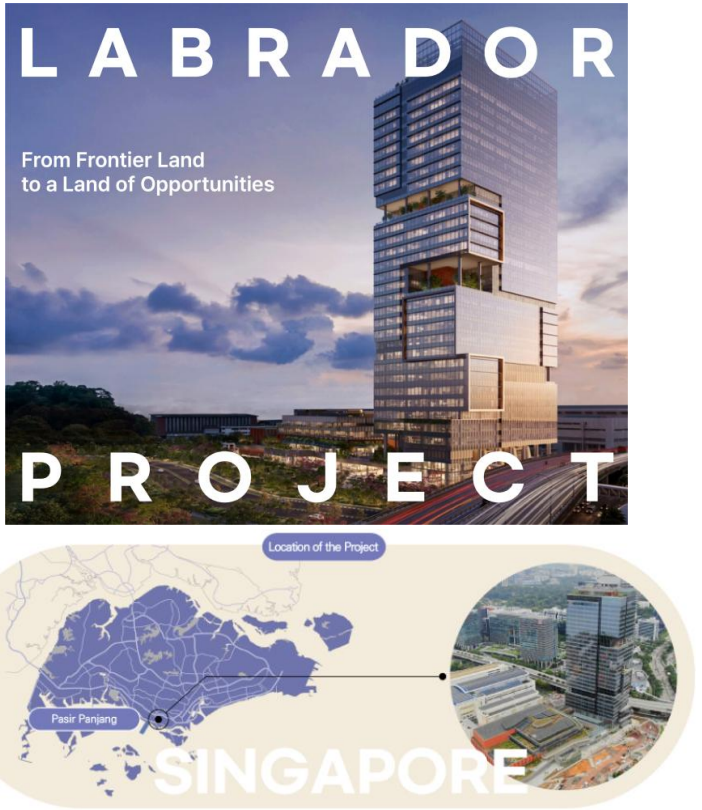
- 送電系統は400kV、230kV、66kVで構成
- 配電系統は22kV、6.6kVで構成
- 送電線は全て地中化されており、4系統に分かれている
- 各系統の連系線は400kVでメッシュ状に連系されている

Source: Global Energy Network Institute,

シンガポールではラブラドール地区に東南アジア初の地下変電所（230kV・9.5万㎡規模）が建設中で、2025年完成予定、地域の電力需要を支えるとともに地上には34階建てビルも併設される

Future Plans for Transmission Network

- SP group is building SEA's first underground substation in Labrador, that will be the size of 4 football fields (30,000m^2)
  - Total construction cost of $390 million
  - Due for completion in 2025
  - Singapore largest substation at 95,500m^2 of floor area
  - Capacity of 230kV
  - Contract was awarded to Hyundai Engineering & Construction
  - Aims to serve the electricity needs of Alexandra, Clementi, Keppel, Pasir Panjang and the Science Park districts
  - Will have a 34-floor building above the substation, with a total floor area of 108,500m^2
- This fits in with Singapore 2050 plan of reliable access to energy for all
- The office toward was completed and is operational since September 2024, while the substation was slated for completin in March 2025



Source: SP Group Press release 2021, HDEC Newsroom 2025

送電網プロジェクトと建設会社の一覧 (1/2)

Plans for transmission line construction players

	Project Name	Companies	Timeframe Start	Timeframe End	Status
1	NS2 Interval Cable Tunnel	Temasek Holdings [Sponsor]{Singapore},SK Engineering & Construction Co. Ltd [Construction] {South Korea}	2016	2018	Completed
2	NS1 Interval Cable Tunnel (Gambas - Mandai)	Samsung Construction & Trading (Samsung C&T) [Construction] {South Korea}	2016	2018	Completed
3	East-West Underground Cable Tunnel, Ayer Rajah - Paya Lebar	WorleyParsons [Design/Architect] {Australia},Nishimatsu Construction Company [Construction] {Japan}, AECOM [Design/Architect] {United States}, Tritech Group Limited [Consultant/Project Management] {Singapore}, Hyundai Engineering and Construction Co Ltd. [Construction] {South Korea}, Obayshi Corporation [Construction]{Japan}, KTC Civil Engineering & Construction [Construction] {Singapore}	2012	2017	Completed
4	North-South Underground Cable Tunnel, Gambas - May Road	Hyundai Engineering and Construction Co Ltd. [Construction]{South Korea}, Samsung Construction & Trading (Samsung C&T) [Construction] {South Korea}, Tritech Group Limited [Construction] {Singapore},Obayashi Corporation [Construction] {Japan}, KTC Civil Engineering & Construction [Construction] {Singapore}, EirGrid [Consultant/Project Management} {Ireland}	2012	2018	Completed
5	NS3 Interval Cable Tunnel (Ang MO Kio - May Road)	Hyundai Engineering & Construction [Construction] {South Korea}		2018	Completed

Source: BMI Key Power Projects Database (latest revision 22nd May 2023)

送電網プロジェクトと建設会社の一覧(2/2)

Plans for transmission line construction players

	Project Name	Companies	Timeframe Start	Timeframe End	Status
6	Underground Transmission Cable Tunnel System (Countrywide network)	SP PowerGrid/SP Power Assets Ltd. (client); multiple international TBM contractors (EG: Nishimatsu, SK, Taihan, Furukawa, LS Cables)	2012	2022	Completed
7	Labrador Underground Substation	SP PowerGrid (developer), Hyundai Engineering & Construction (main contractor), URA/URA-led agencies	2019	2025	Under final construction

Source: BMI Key Power Projects Database (latest revision 22nd May 2023)

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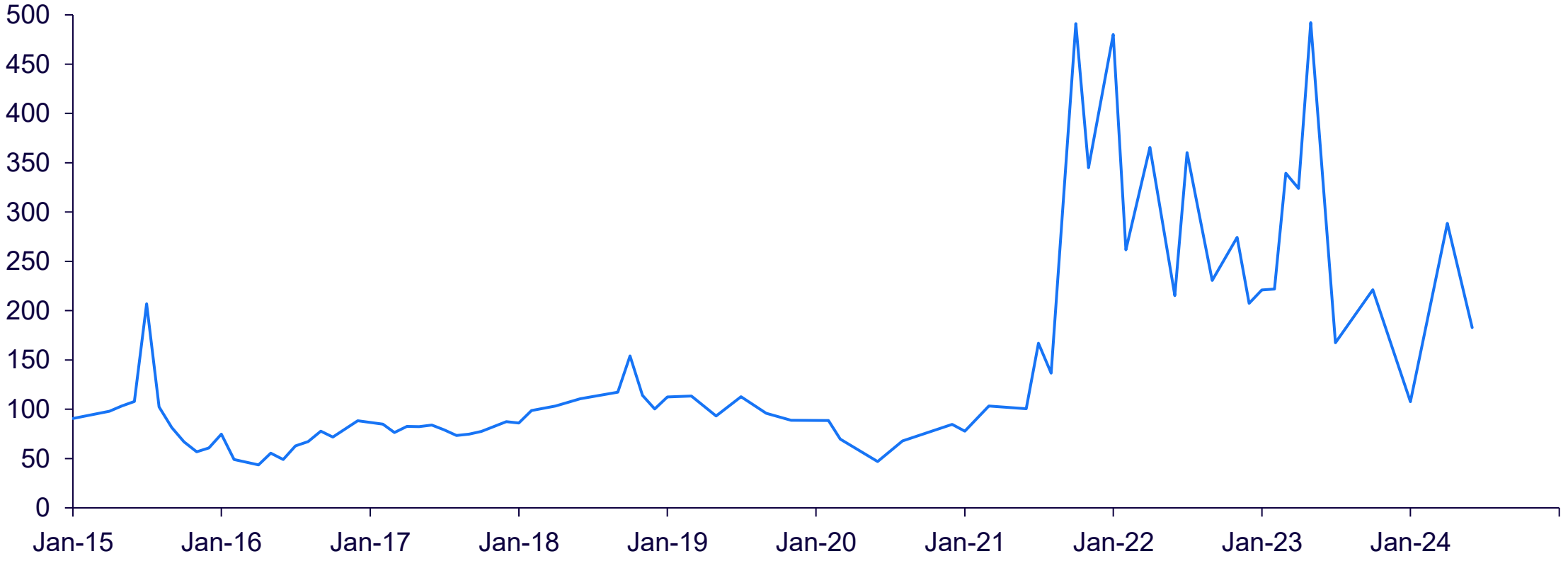
シンガポールの電力卸売価格（USEP）は2021年以降、世界的な燃料価格高騰や供給不安で急騰し、その後も大きな変動を繰り返しながら高止まりしている

Uniform Singapore Energy Price

Jan-2015 – Jun-2024, SGD

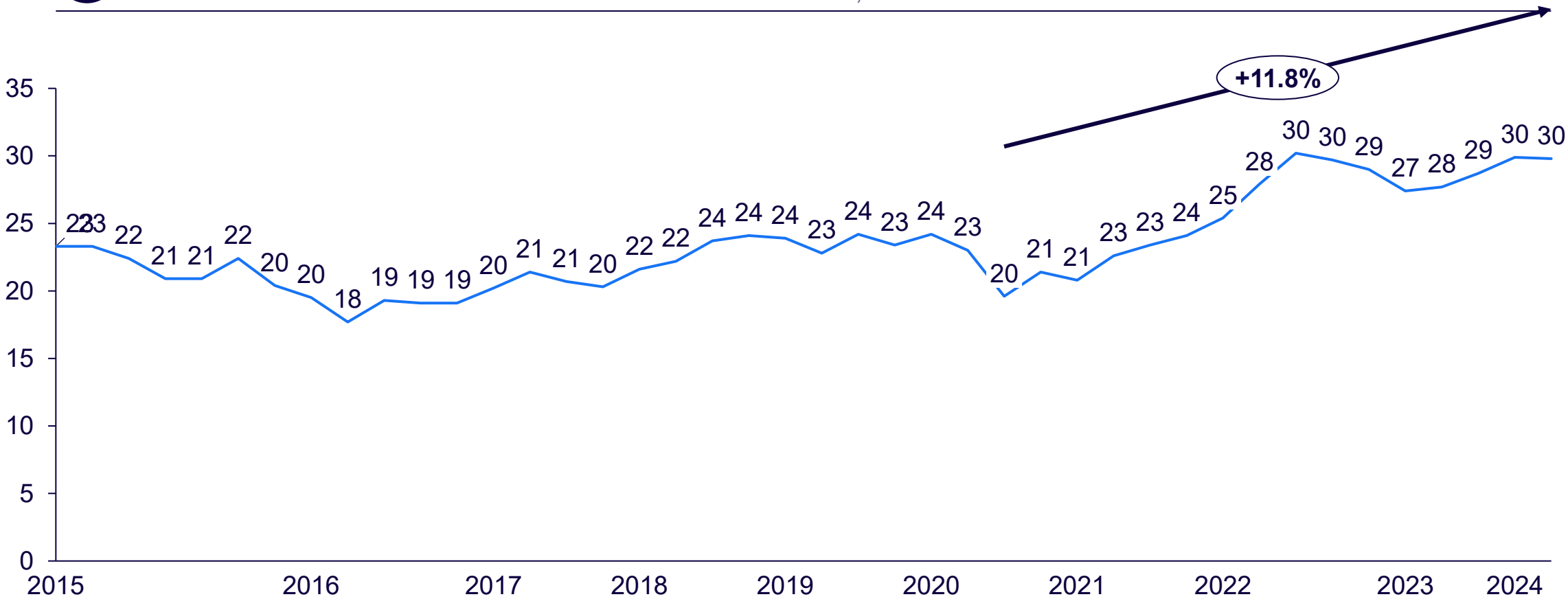


Source: Energy Market Authority 2025

シンガポールの電気料金は2015～2024年にかけて上昇基調にあり、特に2021年以降は燃料費高騰の影響で大きく値上がりし、全体で約11.8%増となっている

Electricity Tariff Trend[1]

Jan-2015 – Jun-2024, cents/KWh



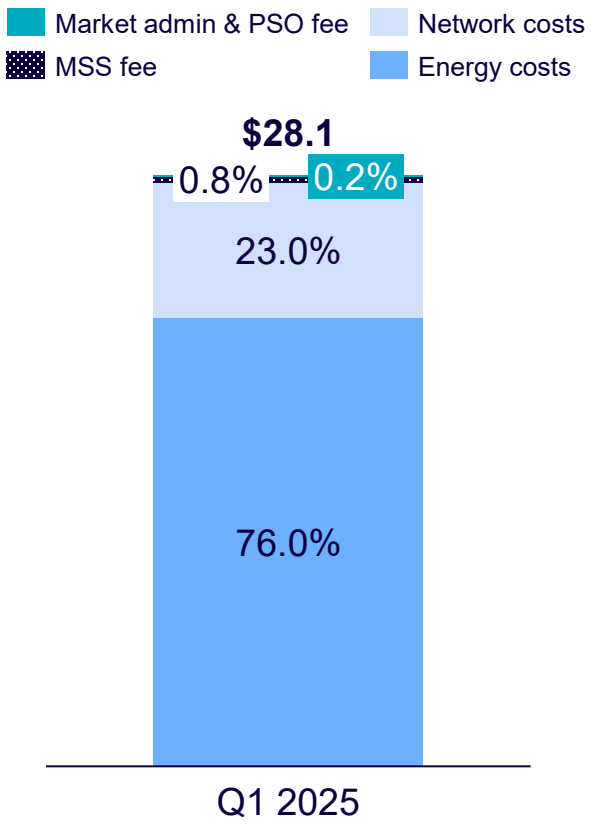
Notes: 1) Adjusted for Inflation
Source: Energy Market Authority 2025

シンガポールの家庭向け電気料金は発電コストが全体の76%を占め、2020年以降上昇基調で2025年初には約28.1セント/kWhに達し、主因は燃料費上昇と需要増

Electricity Tariff Trend

- Electricity tariffs for non-contestable consumers are regulated by EMA and are updated quarterly reflecting changes in the cost of power generation.
- The four main components of electricity tariff are
  - Energy Costs (paid to the generation companies), covering costs of operating power stations like manpower, maintenance and capital costs
  - Network Costs (paid to SP Power Assets), covering cost of transporting electricity through the power grid
  - Market Support Services Fees (paid to SP Services), to cover costs of billing and meter
  - Market Administration and Power System Operation Fees (paid to the Energy Market Company and the Power System Operator), recovering costs of operating electricity wholesale market and powersystem
- From its low of $0.196/kWh in September 2020, the inflation adjusted tariff rates have climbed steadily at a CAGR of 11.8% to reach S$0.298/kWh in 2024 on the back of increased demand as the SG government allows market forces to dictate price movements (as a total of the aforementioned price subsets)

Most recent tariff for household's breakdown (before 9% GST)



Source: EMA 2025, SP Group 2025

2021年以降のガス供給逼迫と価格高騰を受け、緊急時の固定価格制度（TRECS）や一時的価格上限で対応し、現在はSembcorpやKeppelなどによる長期固定料金契約が主流となっている

Electricity Tariff Trend

- Since 2021, Singapore has faced rising global gas prices due to shortages from the Ukraine war and sanctions against Russia, leading to reductions in gas supply. This was locally compounded by episodes of piped natural gas disruptions, leading to unprecedented volatility in Singapore's Wholesale Electricity Market (SWEM). Support systems were set up to offset higher electricity prices:
  - For consumers: Only 1% (around 11,000) were directly affected by SWEM prices, and households, businesses and other consumers with average monthly consumption under 4MWh can switch to buying electricity at the regulated tariff via SP Group at any time
  - For Businesses: Those with >4MWh of monthly consumption are eligible for EMA's collaboration with generation companies to offer monthly fixed price plans under TRECS. Around 845MW of TRECS are offered monthly
    - The TRECS scheme was discontinued by May 2023 as other emergency measures were established.
- In mid-2023, EMA also implemented a Temporary Price Cap to act as a circuit breaker when the USEP exceeds thresholds
- Today: Long-term fixed-price retail electricity contracts have become the norm for business consumers, and providers such as Sembcorp Power and Keppel Electric offer up-to 3-years plans to replace TRECS

Source: EMA 2022, EMA 2023, CNA 2024

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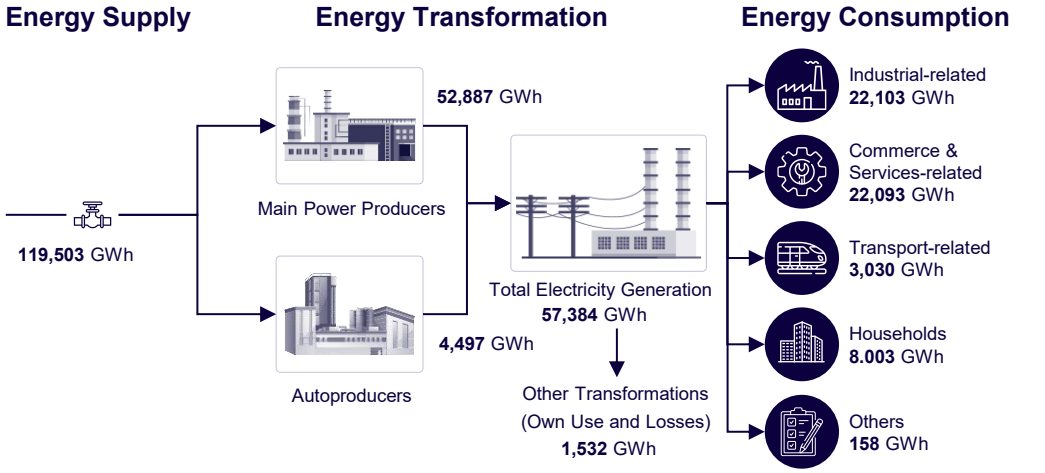
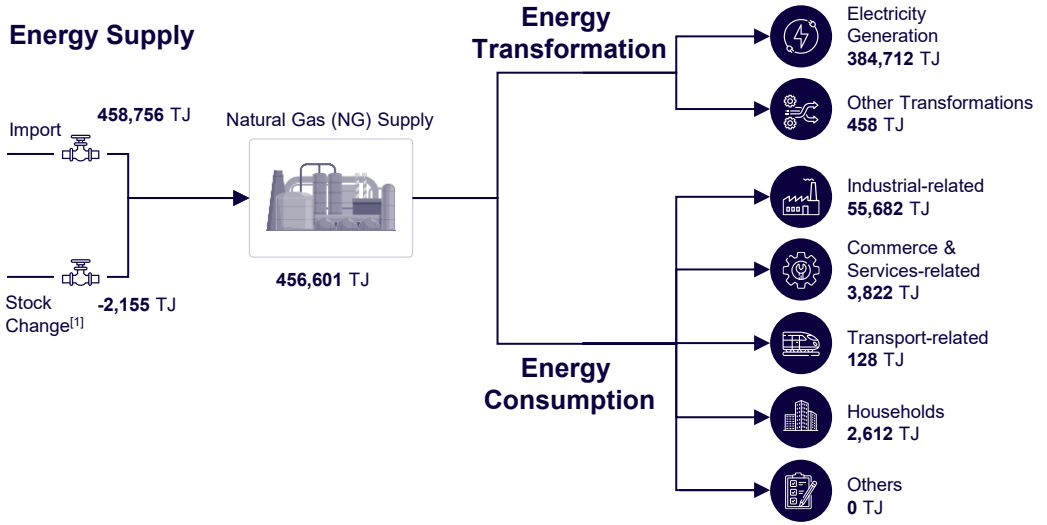
2023年の電力供給は57TWhで、産業部門と商業・サービス部門が消費の8割を占め、天然ガスは総供給の84%が発電に使われるなど電力とガスの双方で産業依存が強い構造となっている

Electricity Balance, 2023



- In 2023, **total electricity generation reached 57 TWh**. **Main Power Producers** were responsible for 92% of this generation, amounting to 53 TWh, while **Autoproducers** contributed the remaining **8%** (5 TWh). Own-use and losses for electricity generation in **the transformation sector** amounted to **3%** (2 TWh).
- **'Industrials' and 'Commerce & Servcies'** accounted for similar proportions of **40%** (22TWh). '**Households**' contributed **15%** (8 TWh), and '**Transport**' had **5%** (3 TWh) share of the total electricity consumption in 2023

Natural Gas Balance, 2023



- In 2023, the total supply of Natural Gas in Singapore amounted to 456,601 TJ (terajoules). This supply was comprised of 458,756 TJ of imports and an inventory stock build of 2,155 TJ
- The majority of Natural Gas usage, accounting for 84% of the total supply, was directed towards power generation, consuming 384,713 TJ in 2023. Additionally, 62,244 TJ of Natural Gas, including Town Gas, was directly consumed by end-consumers

Source: EMA, *Singapore Energy Statistics 2024*

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THE DIFFERENCE