

An aerial photograph of a large blue and white LNG carrier ship with four white spherical storage tanks, positioned next to a complex offshore regasification terminal. The terminal features a central processing platform with multiple vertical pipes and horizontal walkways, connected to several smaller floating modules by yellow tethers. The entire scene is set against a backdrop of deep blue ocean water.

Overview of Regasification Terminals in Asia

- **China**

- All terminals are regulated under the central and the provincial government with capped tariff

- **Japan**

- Third Party Access was enforced in 2017 to create competition in retail gas market, but tariff disclosure is not mandatory

- **India**

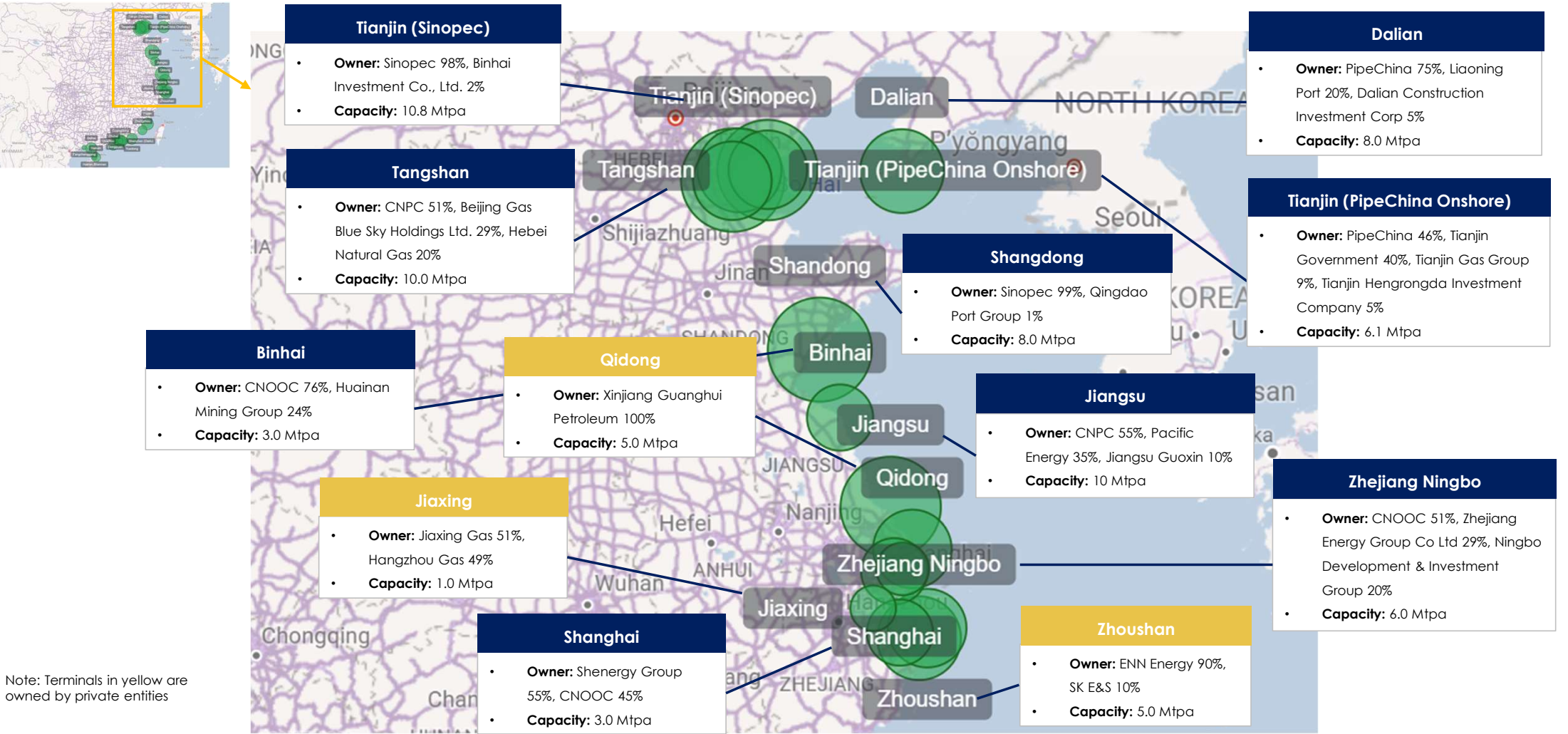
- Enhancing regulatory efforts to promote competition and transparency in India's under-utilized LNG terminals

- **South Korea**

- State-owned KOGAS holds monopoly on reselling imported LNG, TPA through consultation

LNG Regasification Terminals in Asia: China

Most of the terminal owners in China are major state-owned oil and gas companies



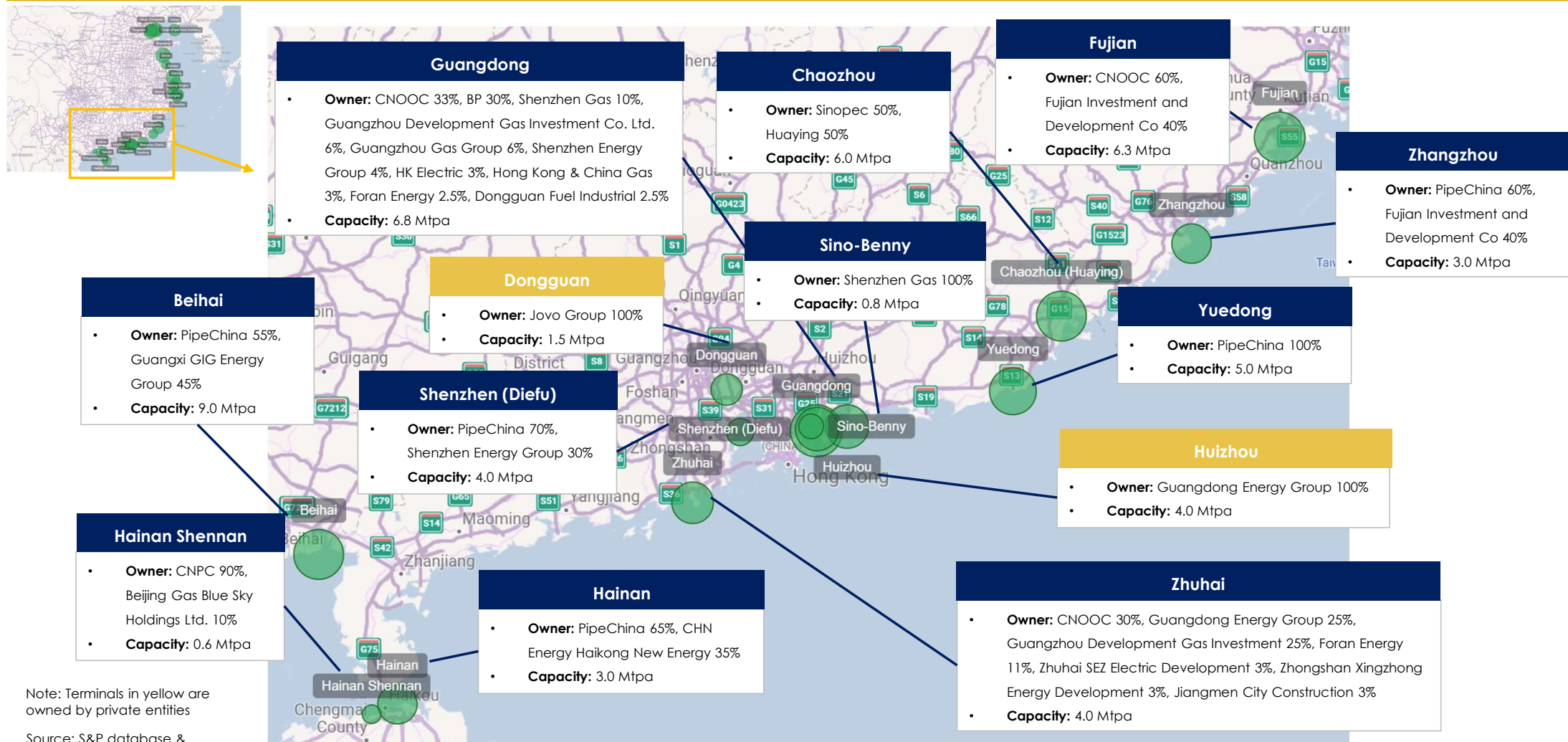
Note: Terminals in yellow are owned by private entities

Source: S&P database & Regasification Terminal Map



LNG Regasification Terminals in Asia: China (Continued)

Most of the terminal owners in China are major state-owned oil and gas companies



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Regasification Terminals in China: Regulation Framework and Tariff Structure



All terminals are regulated under the central and the provincial government with capped tariff

‘Measures for the Construction and Operation of Natural Gas Infrastructure’

- **In force since 2022:** Enforced by the National Development and Reform Committee of the People's Republic of China in 2022
- **Governed at National and Provincial Level:** The National Development and Reform Commission and the National Energy Administration are responsible for managing infrastructure at national level, while the provincial government are responsible for local level infrastructure (Art.5)
- **Encourage Investment from Public and Private Entity:** The state encourages and supports all types of entities (public and private) to participate in the investment and construction of natural gas infrastructure (Art.6)
- **Third Party Access Enforced:** Natural gas infrastructure operators shall provide pipeline transportation, gas storage, regasification, liquefaction services to all users in a fair and just manner (Art.17)
- **Price set by Provincial Regulator:** Natural gas infrastructure operators shall comply with the regulations of the price authorities on the prices of infrastructure services and sign natural gas infrastructure service contracts with users (Art.18)
- **Discretionary Price under Pre-determined Maximum Limit:** The provincial price authorities shall formulate the highest regasification service price for importing terminals in the province. Each importing terminals can independently determine the specific service price based on its own condition if it does not exceed maximum price

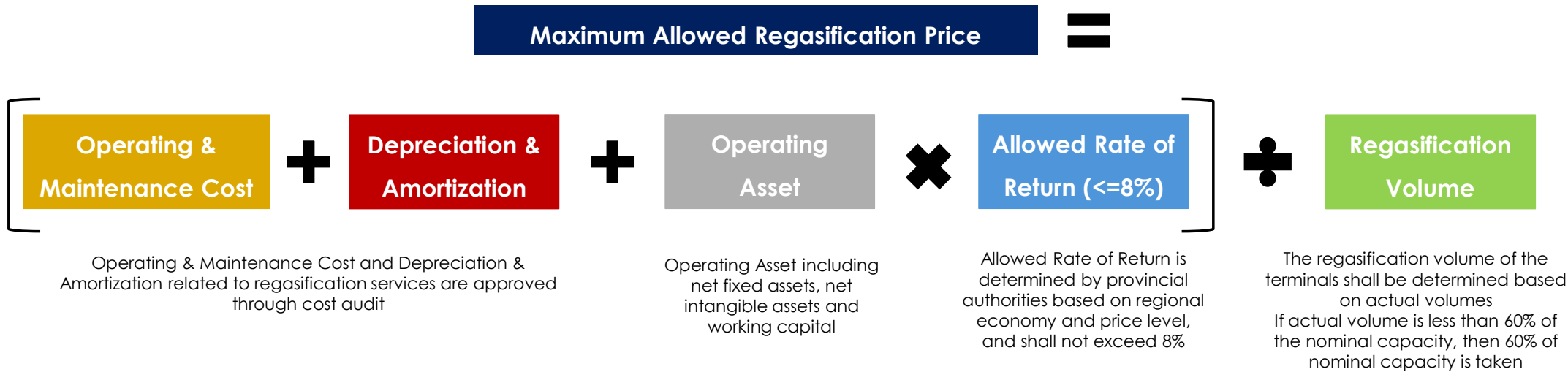
Maximum Regasification Price (USD/MMBTU)



Regasification Terminals in China: Regulation Framework and Tariff Structure



Maximum allowed price are calculated base on operating cost, return on investment and regasification volume



Tariff Schedule

In principle, the maximum regasification service price shall be reviewed and verified once every three years. In case of major changes, it may be reviewed in advance. If the cost after the review changes significantly compared with the previous supervision cycle, the price level may be adjusted

Cost Sharing

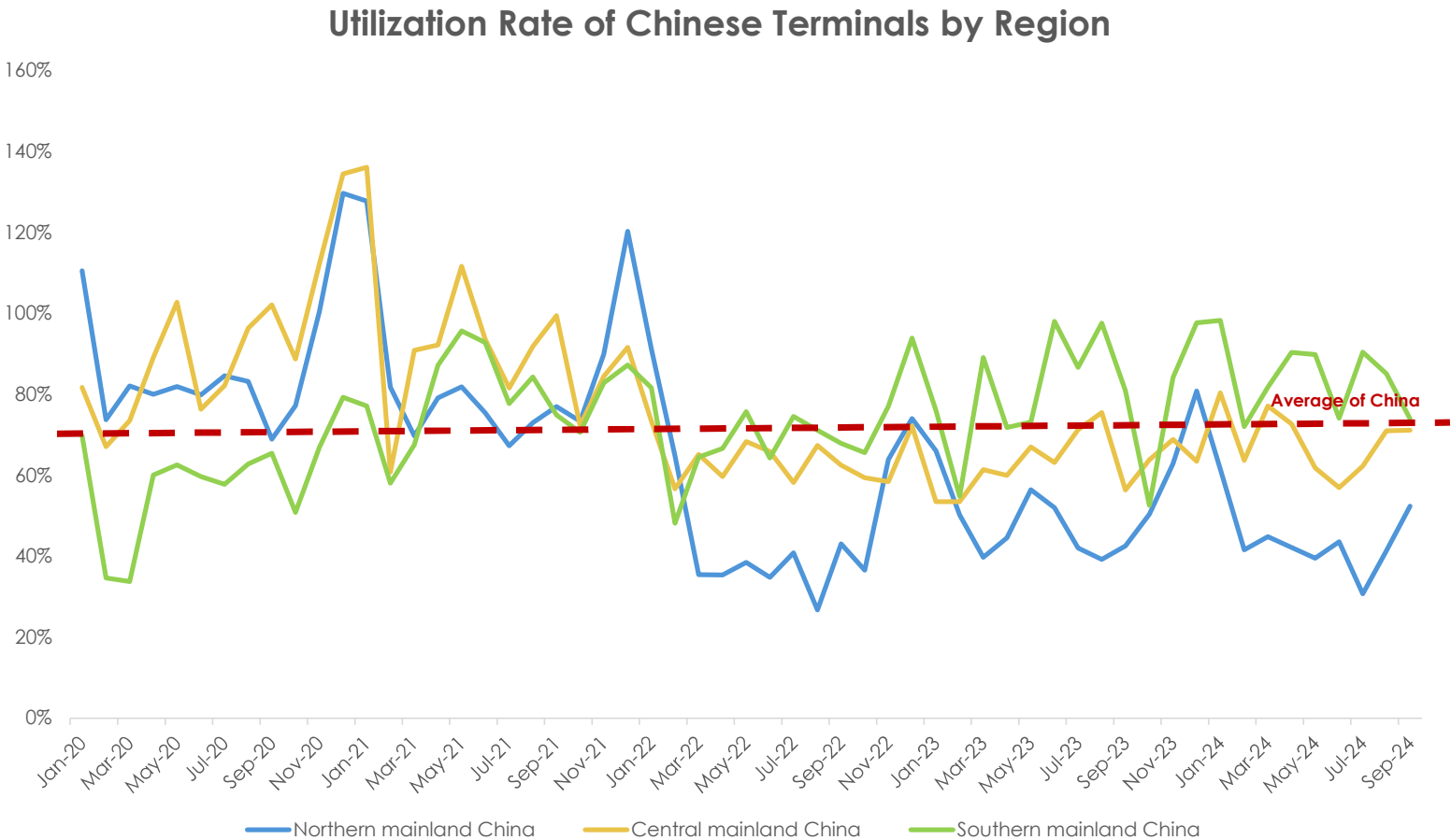
The costs and assets shared by regasification services and other services shall be reasonably allocated according to cost drivers, business volume ratio, fixed asset value ratio, income ratio, etc.

Other Services

The prices of derivative services such as liquid loading, gas storage services (excluding temporary storage in the gasification service), and transshipment can be determined by the receiving station through market-oriented methods such as negotiation and auction

LNG Regasification Terminals in Asia: China

Utilization rate decreased, as capacity ramped up in Northern China

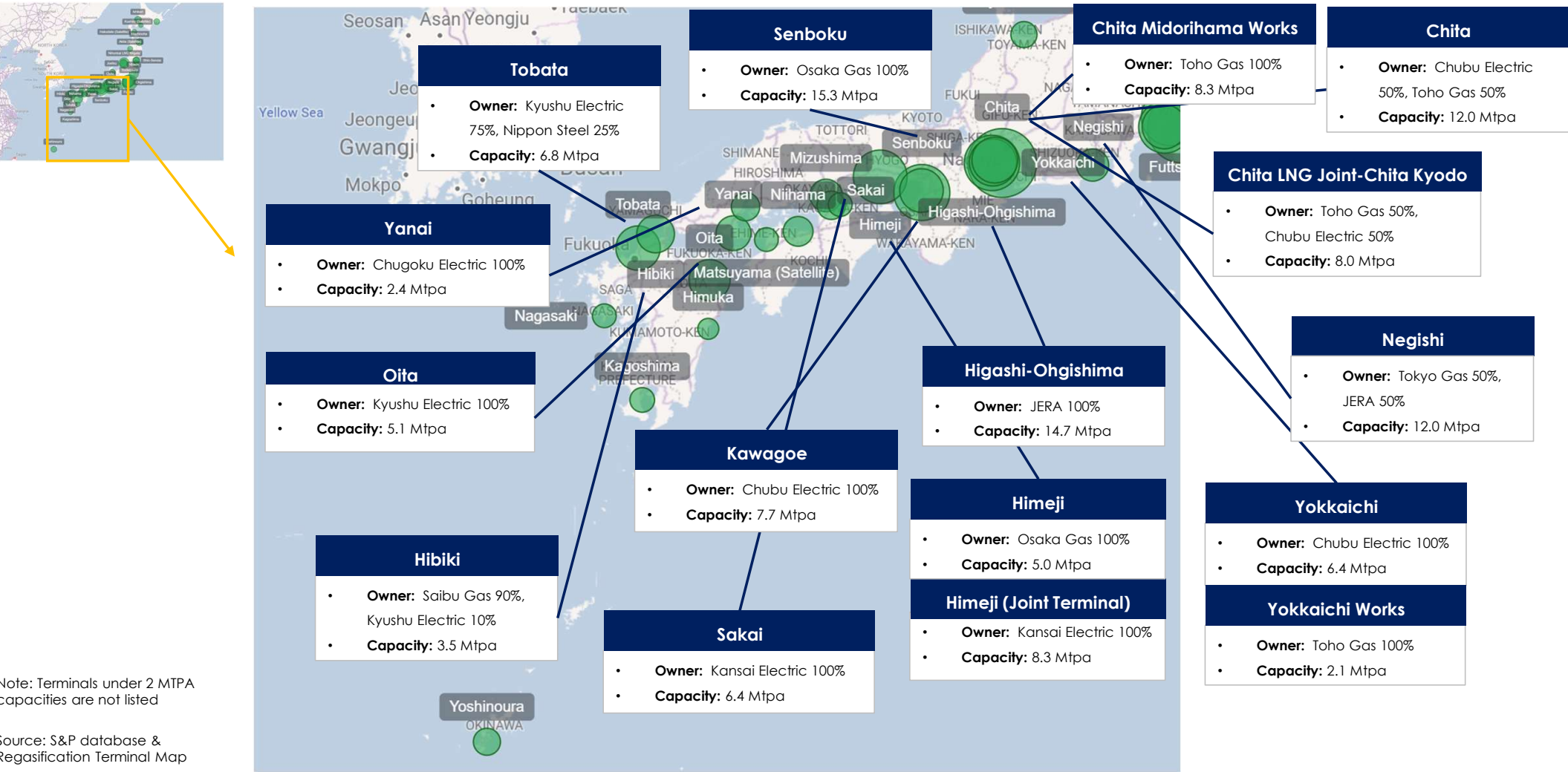


Source: S&P database

LNG Regasification Terminals in Asia: Japan



As one of the largest LNG importers, Japan has over 200 MTPA regasification capacity and over 40 import terminals



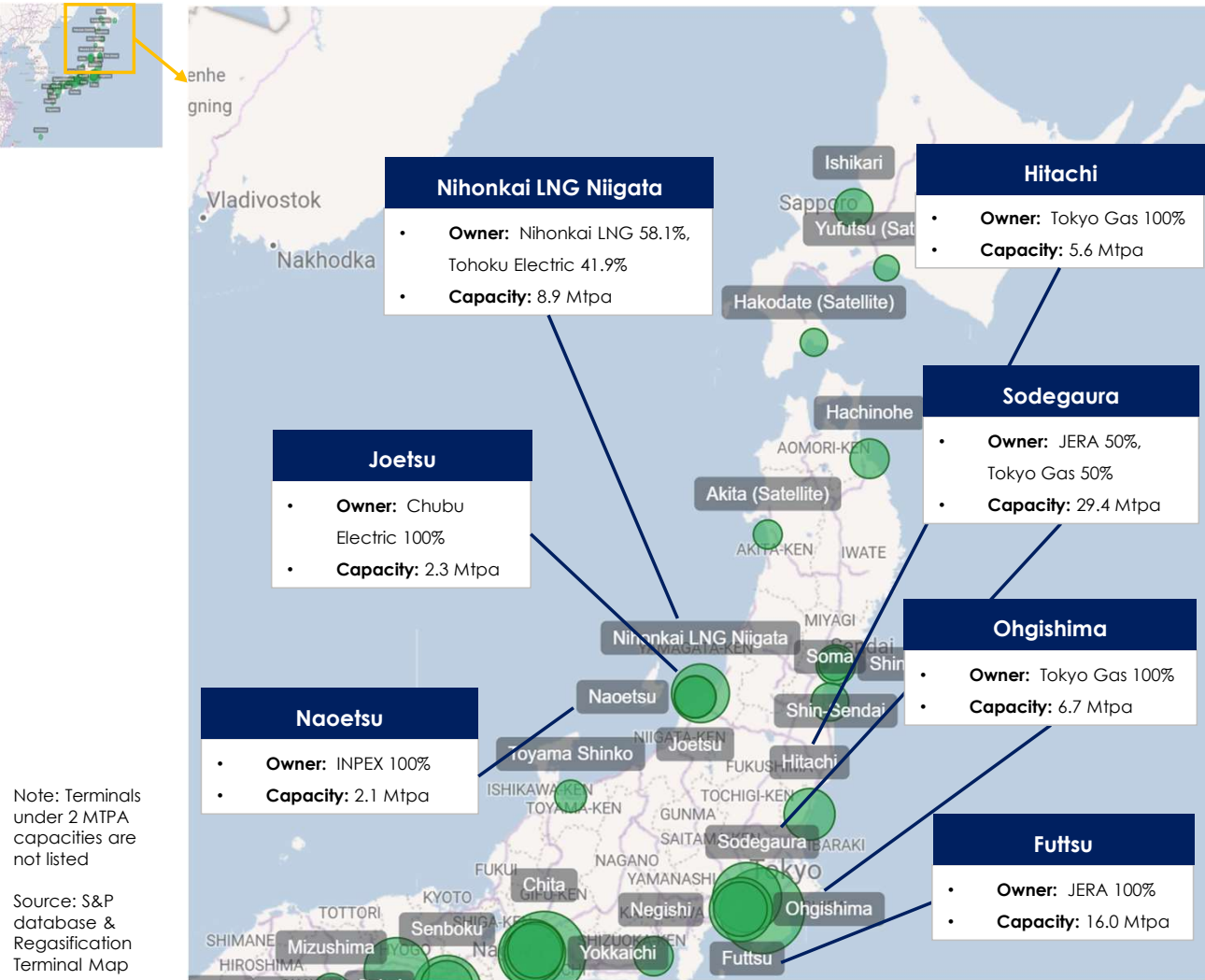


LNG Regasification Terminals in Asia: Japan

Third Party Access was enforced in 2017 to create competition in retail gas market, but tariff disclosure is not mandatory

Gas Business Act

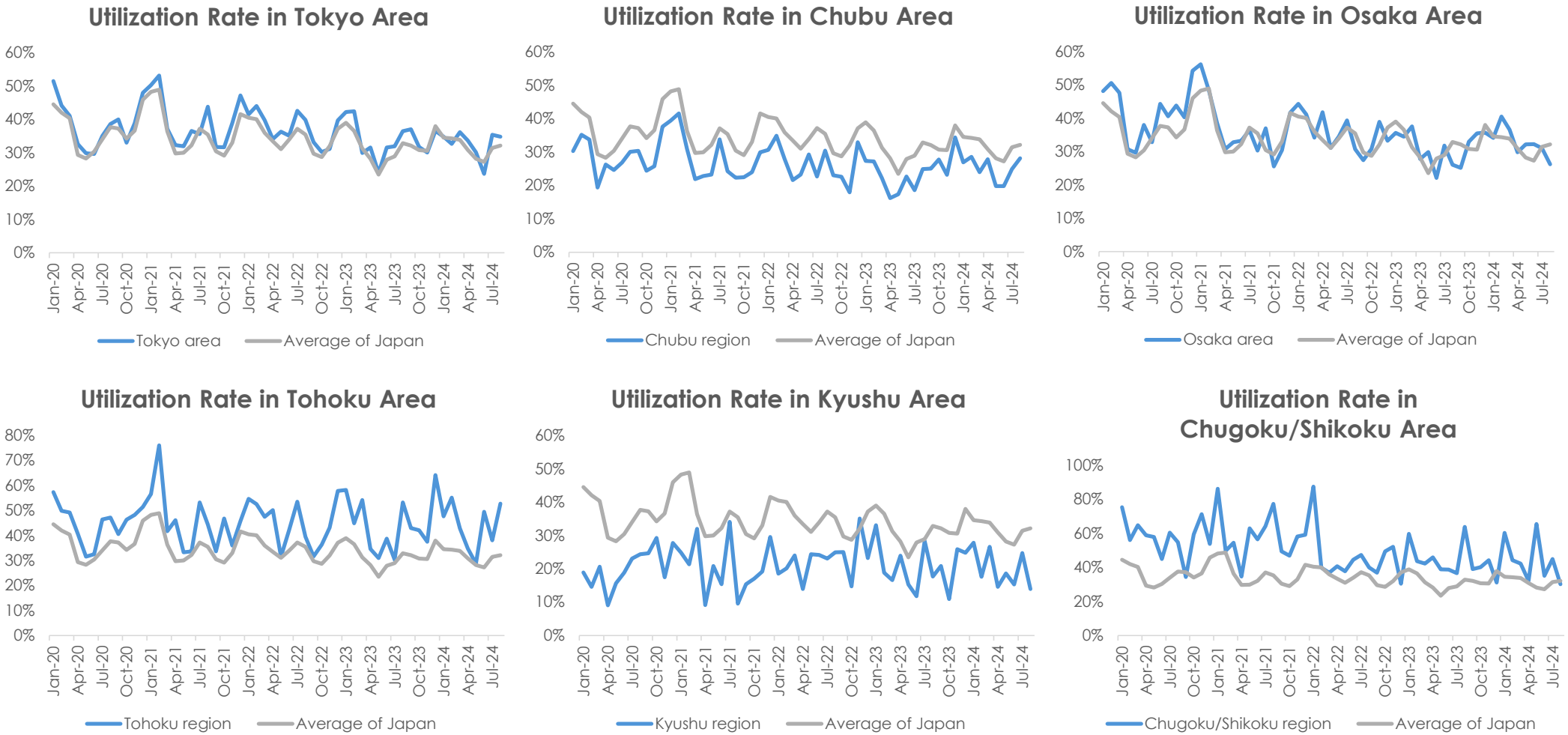
- **Liberalization of retail gas market:** Japanese legislators authorized the liberalization of the retail gas market in 2017, aiming to create more competition, lower the retail gas price and invigorate LNG wholesale trading
- **TPA applied to operators above certain tank size:** Gas producers to whom the third-party use system applies are those whose primary terminal tank capacity totals 200,000 m³ or more and those who essentially operate and control gas production, including coordinating the allocation of LNG carriers and ensuring safety
- **Same rates under the same conditions:** Gas manufacturers are required to charge third parties "same rates under the same conditions" for the use of LNG terminals, and this applies to the retail division of gas manufacturers as well as third parties
- **Not required to disclose detailed production costs:** gas manufacturers are not required to disclose detailed production costs that are the basis for the applicable rates in their published terms and conditions, and only disclose the cost factors used to calculate the rates. For example, Hibiki LNG terminal, the fee calculation included receiving fee, storage fee, vaporization fee and heat adjustment odorization fee, etc.



LNG Regasification Terminals in Asia: Japan



High regasification capacity is designed to accommodate seasonal variation and unexpected outages



Source: S&P database

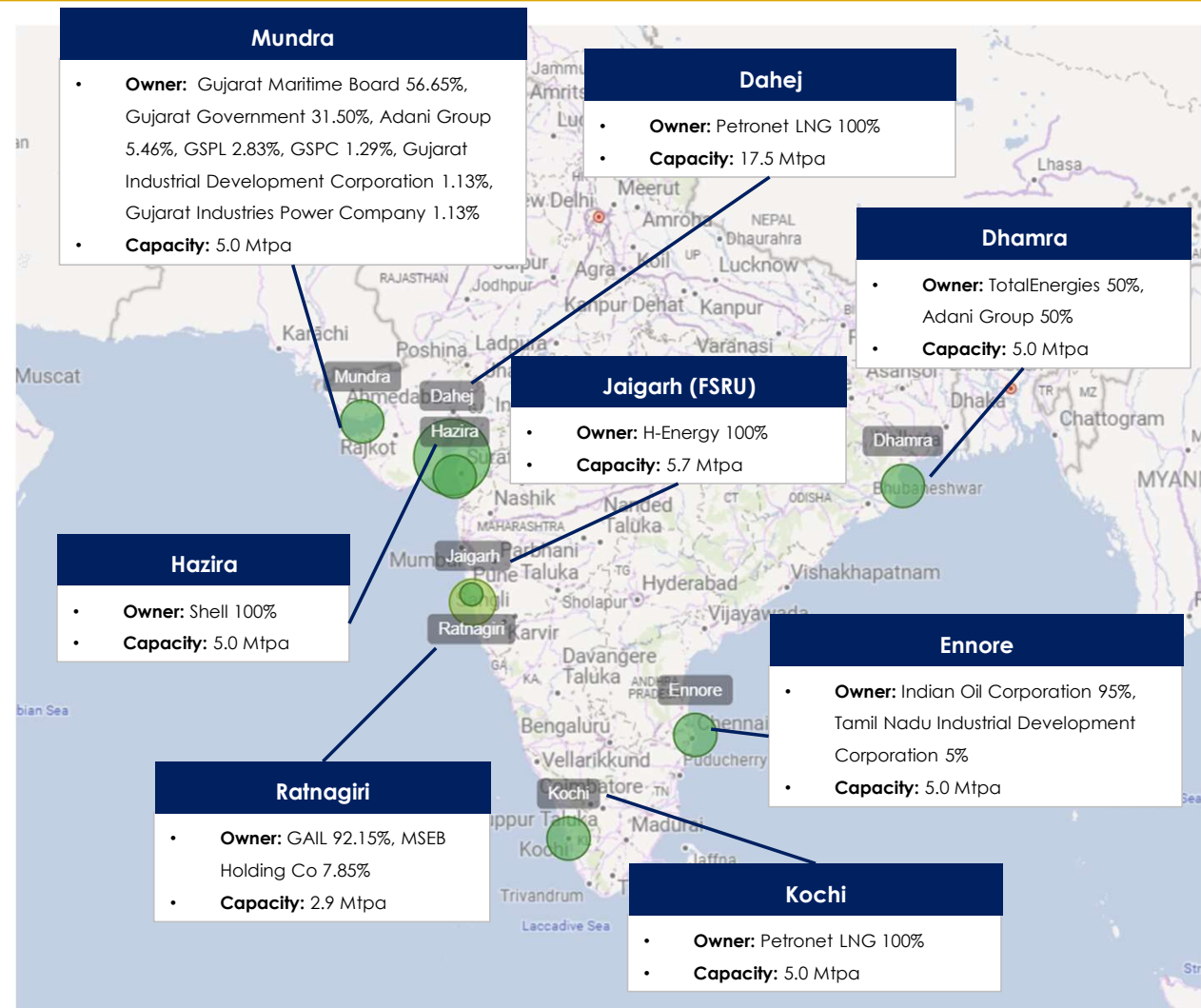
LNG Regasification Terminals in Asia: India



Enhancing regulatory efforts to promote competition and transparency in India's under-utilized LNG terminals

Regulation for TPA and Tariff

- **PNGRB as regulatory Authority:** The Petroleum & Natural Gas Regulatory board (PNGRB) is regulatory authority responsible for the issuing of registration for establishing & operating LNG terminals
- **TPA required but on case-by-case basis:** Terminals should comply with rules like share the uncommitted capacity available for use by other entities without any discrimination. In practice, TPA is offered on a case-by-case basis
- **Terminals charge high tariff:** According to Argus, Indian LNG terminal developers led by Petronet and shell (\$0.75/MMBTU at Dahej and Hazira) are charging some of the highest rates among regasification terminals
- **Draft proposal intend to reverse low utilization:** In 2024, PNGRB issued a draft proposal for enhancing regulatory control over LNG terminals. The regulation are seen as an effort to reverse low utilization rates
- **Regulating new terminal & expansion:** The draft regulations includes approval of a new terminal or expansion following feasibility reports, each project would require a certification of registration by PNGRB
- **Disclosure of tariff and capacity booking required:** Developers will need to publicly disclose their regasification capacity (own-use & third party and long & short term), current tariffs and other charges



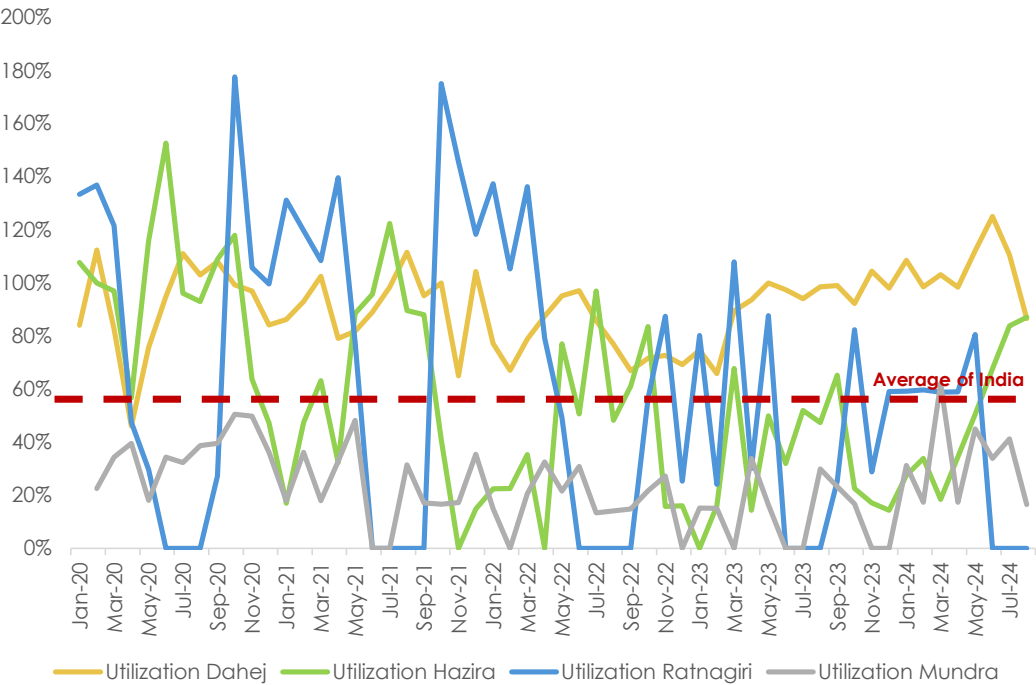
Source: S&P database & Regasification Terminal Map

LNG Regasification Terminals in Asia: India

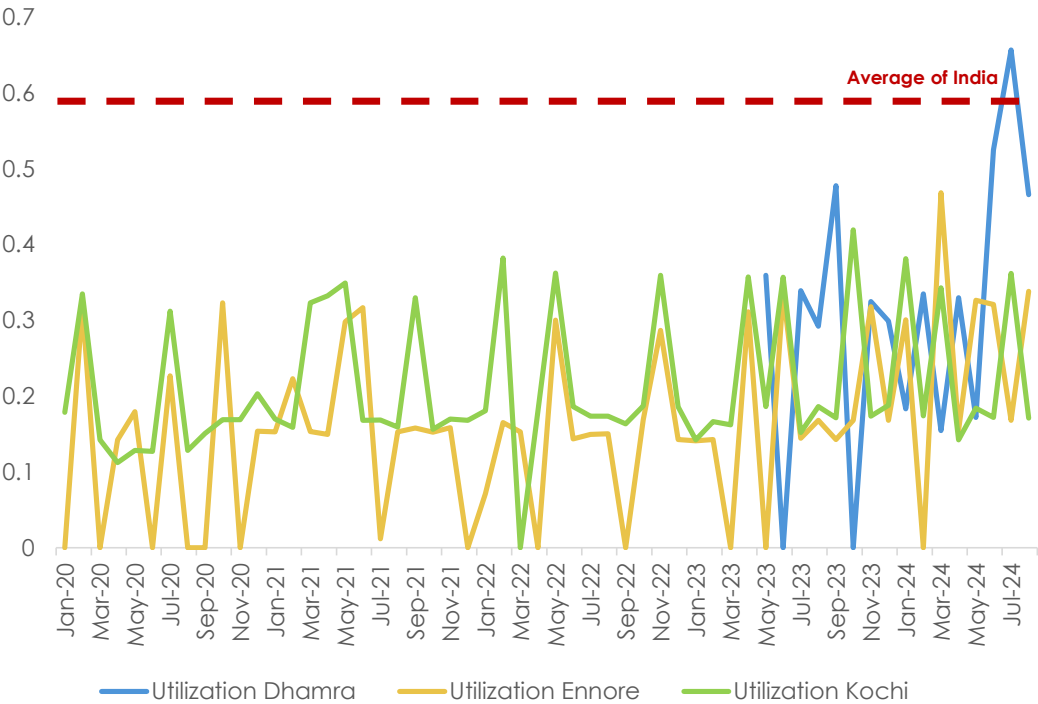


Utilization rate fluctuation due to market condition, weather, and lack of pipeline connectivity

Utilization rate of Terminals on the Northwest Coast of India



Utilization rate of Terminals on the South & East Coast of India



Source: S&P database

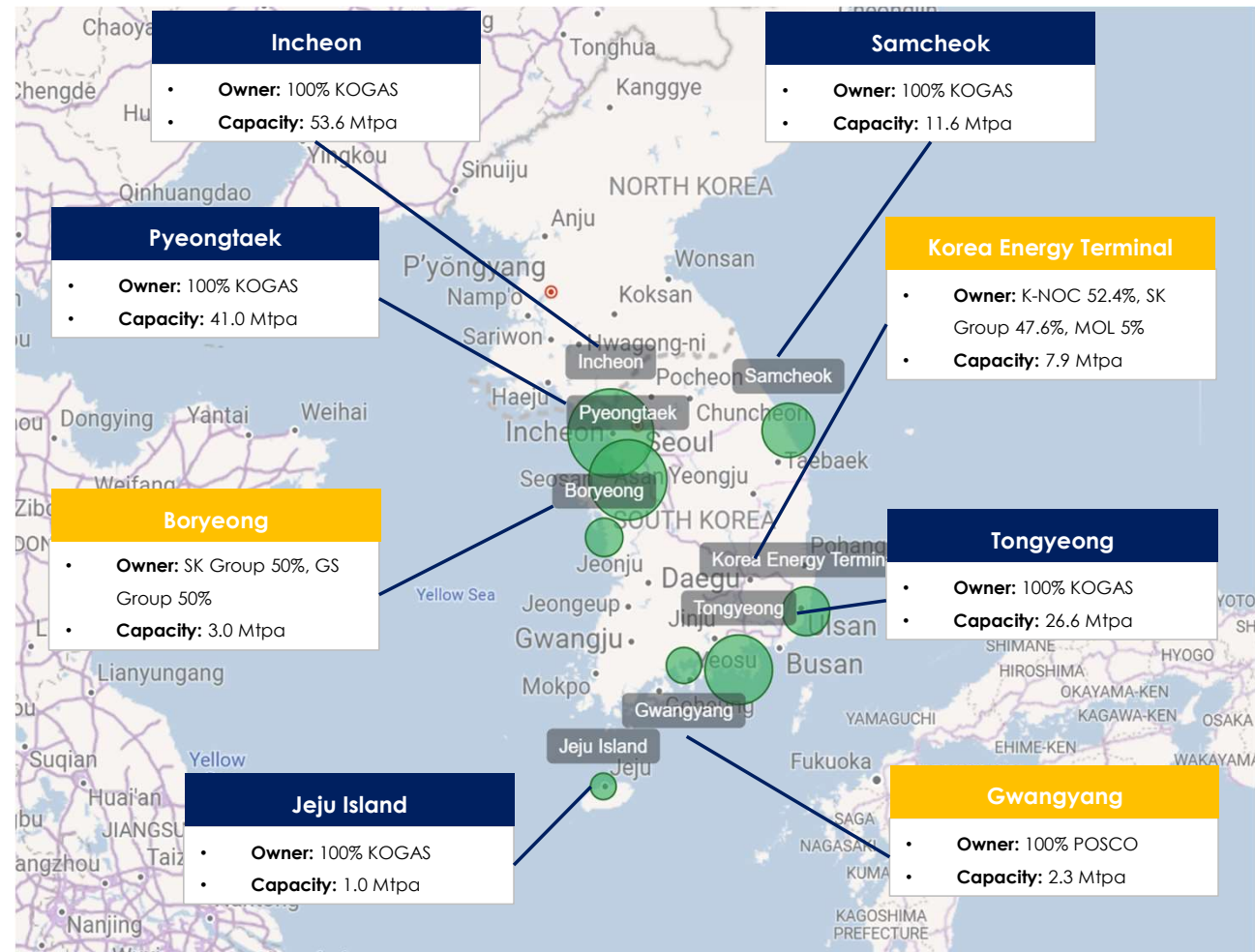
LNG Regasification Terminals in Asia: South Korea



State-owned KOGAS holds monopoly on reselling imported LNG in Korea, accounting for 82% of Korea's LNG demand

City Gas Business Act

- **City Gas Business Act:** In 1999, along with the promotion of restructuring of the gas industry, the City Gas Business Act was revised to introduce a system of joint use of gas supply facilities
- **Mandatory TPA for pipeline facilities:** In 2007, a new provision was established mandating joint use of pipeline facilities among gas supply facilities
- **Proposed plan to liberalize LNG import but no follow-up:** The South Korea government had planned to liberalize LNG import by 2025, according to government statement made in 2016, but there have not been concrete policy follow-up
- **TPA through Consultation with KOGAS:** Private companies are only able to import LNG "after cumbersome negotiations with KOGAS" at a price not exceeding KOGAS's long term contract prices
- **Limited to gas producers and importer for personal consumption:** In addition, only gas producers, direct importers for personal consumption, or ship business operators can apply for joint use of such facilities

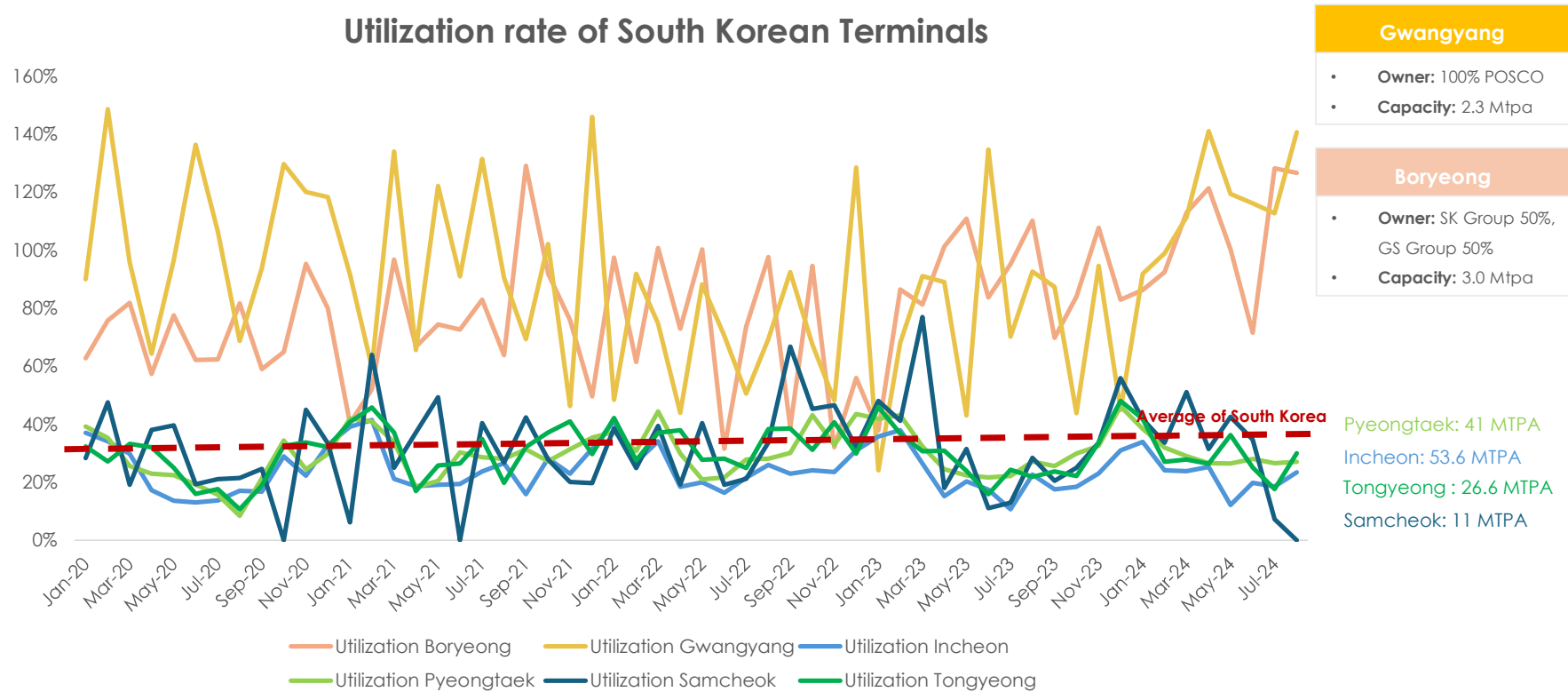


Source: S&P database & Regasification Terminal Map

LNG Regasification Terminals in Asia: South Korea



Utilization rate is higher in non-KOGAS owned terminals, while other terminals average around 30%

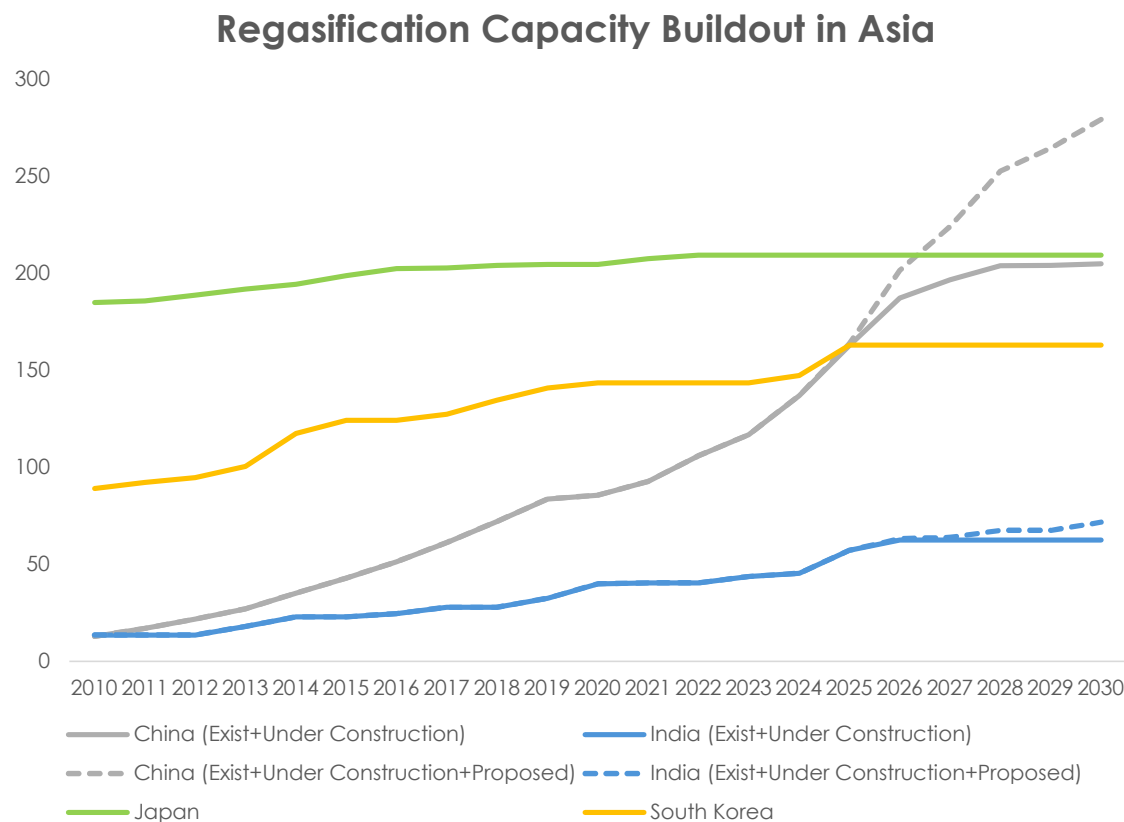
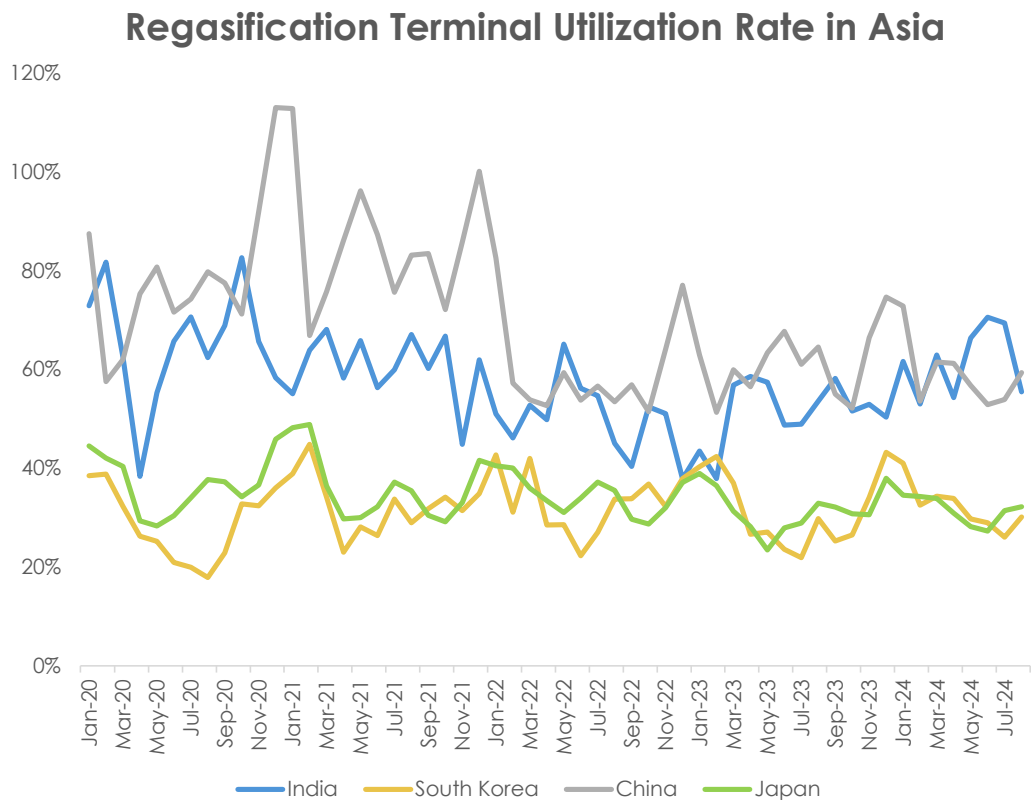


Source: S&P database



LNG Regasification Terminals in Asia: Summary

With high utilization rate and demand, China is expecting higher regasification capacity in the future



Source: S&P Regasification database

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China

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- Tariff Regulation: [‘Guiding Opinions of the National Development and Reform Commission on Improving the Pricing Mechanism for Gasification Services at Imported Liquefied Natural Gas Receiving Terminals’ by National Development and Reform Commission of the People's Republic of China](#) (in Chinese)
- [Tianjin Tariff](#); [Guangdong Tariff](#); [Guangxi Tariff](#); [Fujian Tariff](#); [Shandong Tariff](#)

Japan

- [Gas business act](#) (revised 2019)
- [Launch of LNG terminal third-party use system in Japan](#)

Others

[Third-Party Access to Regasification Terminals: Adapting to the LNG Markets' Reconfiguration](#)

India

- [India has some of the highest regas rate](#)
- [Regulation and policy overview](#)
- [Draft regulation](#)
- News on draft regulation:
[India's regulator proposes LNG terminal developers registration](#)
[Indian regulator seeks oversight of LNG terminals](#)

South Korea

- [City Gas Business Act](#)
- [Gas Market Reform in Asia: an Update on the Implementation of Third Party Access to LNG Import Terminals](#)
- [South Korea to liberalise LNG import in 2025](#)
- [A Study on Improvements to the Gas Supply Facility TPA System](#)