



FSRU LAMPUNG : The 1st MULTI-USERS FSRU IN INDONESIA

Transforming Commercial and Operational Models for
Integrated Gas Supply in Java–Sumatra

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PT. PGN LNG Indonesia

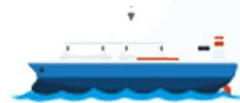
Founded on June 26 2012, PT PGN LNG Indonesia (PGN LNG) is a subsidiary of PT Perusahaan Gas Negara Tbk (PGN), with the aim of building an LNG business consisting of LNG Liquefaction, LNG storage and delivery, and LNG regasification to support the main business PGN in transportation and distribution of gas to consumers.

Since July 2014, PGN LNG has operated a Floating Storage Regasification Unit (FSRU) located $\pm$ 21 km offshore from Labuhan Maringgai – Lampung with a capacity of 1.5 – 2 MTPA with a delivery limit of up to 240 MMSCFD. For future development, PGN LNG is committed to building and operating LNG facilities and infrastructure throughout Indonesia with the aim of supporting the government's program to reduce fuel oil consumption.

Company Share Holder



Line of Bussiness



LNG Supply



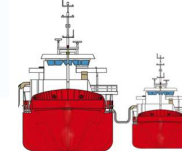
Small Scale Liquefaction



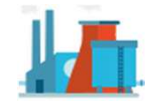
Small Scale LNG Transportation



Offshore and Onshore LNG Regasification



LNG Bunker



LNG Terminal Operator and Asset Manager

PGN FSRU Lampung

PGN LNG FSRU Lampung is located + 21 km offshore from the onshore receiving facilities in Labuhan Maringgai Lampung. PGN FSRU Lampung is integrated with pipeline facilities that connect gas supply in Sumatera with the largest potential customers in West Java, Indonesia.



Tower Yoke Mooring System (TYMS)

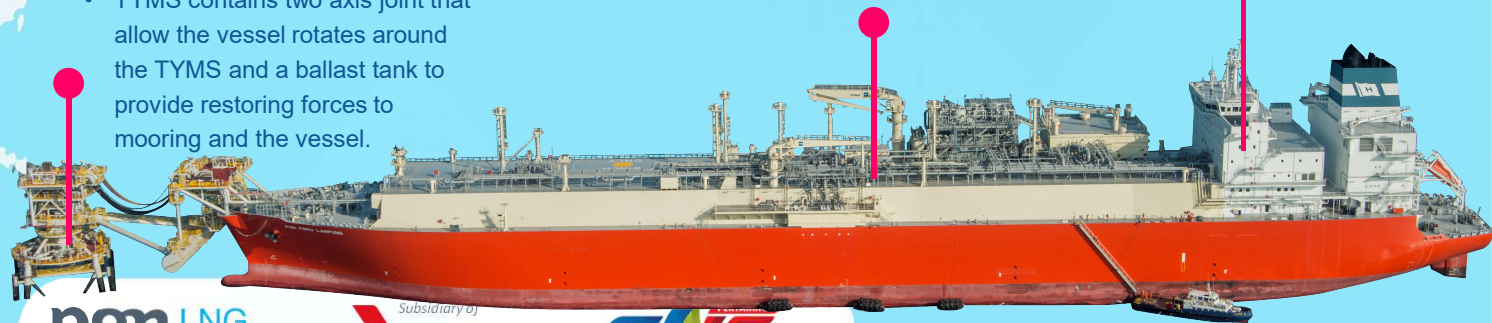
- Owned by PT PGN LNG Indonesia.
- Built by SOFEC, China.
- Seabed: 23 m.
- TYMS contains two axis joint that allow the vessel rotates around the TYMS and a ballast tank to provide restoring forces to mooring and the vessel.

FSRU Lampung's Dimension

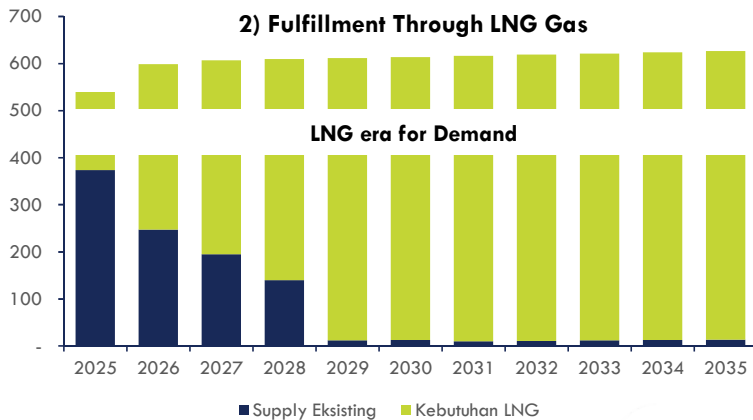
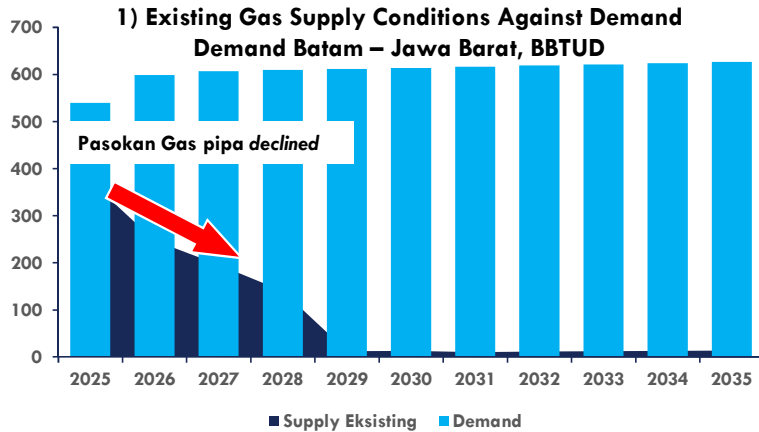
- Dept Moulded: 26 m
- LOA: 294 m

FSRU Lampung Specification

- FSRU weight 81,900 tonnes
- Storage capacity 170,000 m³
- Regasification capacity 240 MMSCFD
- Offshore pipeline: 21 Km+

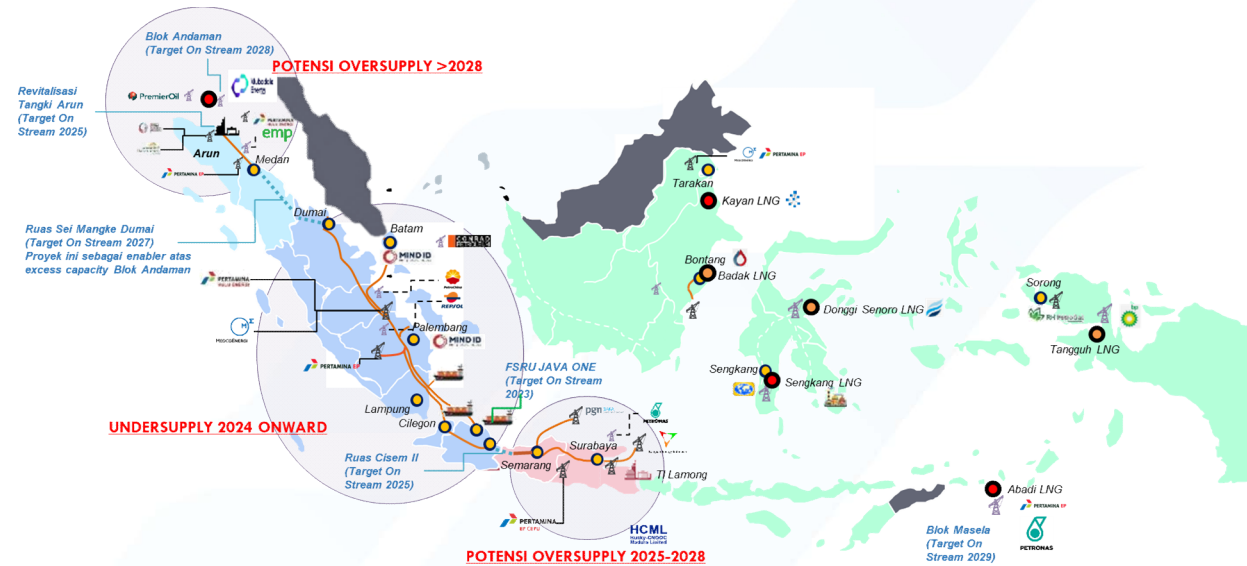


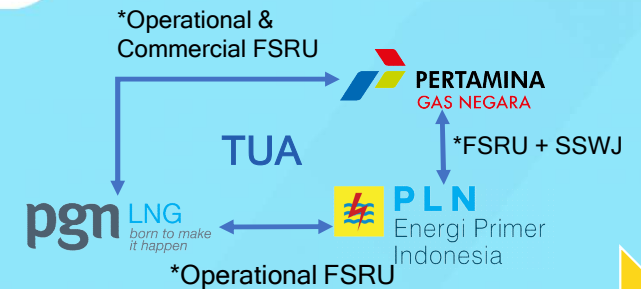
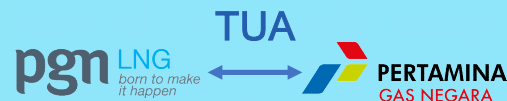
GAS BALANCE SUMATRA- JAVA



Note:

- Data 2025 sesuai rapat SKK Migas 10 Oct 2024
- 2026 onward berdasarkan kebutuhan demand sistem





2014 – 2017 :

- Gas Sales Agreement
- PGN LNG as commodity owner and infrastructure owner
- Low Utilization
- “Contractually” not integrated with the South Sumatera West Java Pipelines
- Single User

2017 – 2024 :

- Terminal Use Agreement
- PGN LNG as infrastructure owner
- Moderate Utilization
- “Contractually” Integrated with the SSWJ
- Single User
- Single Commodity Owner (Most of the time)

2024 onwards:

- Terminal Use Agreement
- PGN LNG as infrastructure owner
- Very High Utilization
- “Contractually” Integrated with the SSWJ
- Multi Users
- Multi Commodity owners



Pembangkit PLN

JAWA BAGIAN BARAT

- a. Muara Tawar
- b. Priok
- c. Muara Karang
- d. Cilegon

LAMPUNG

- e. Sutami
- f. MPP New Tarahan

RIAU

- g. Riau
- h. Rengat
- i. Balai Pungut

BATAM

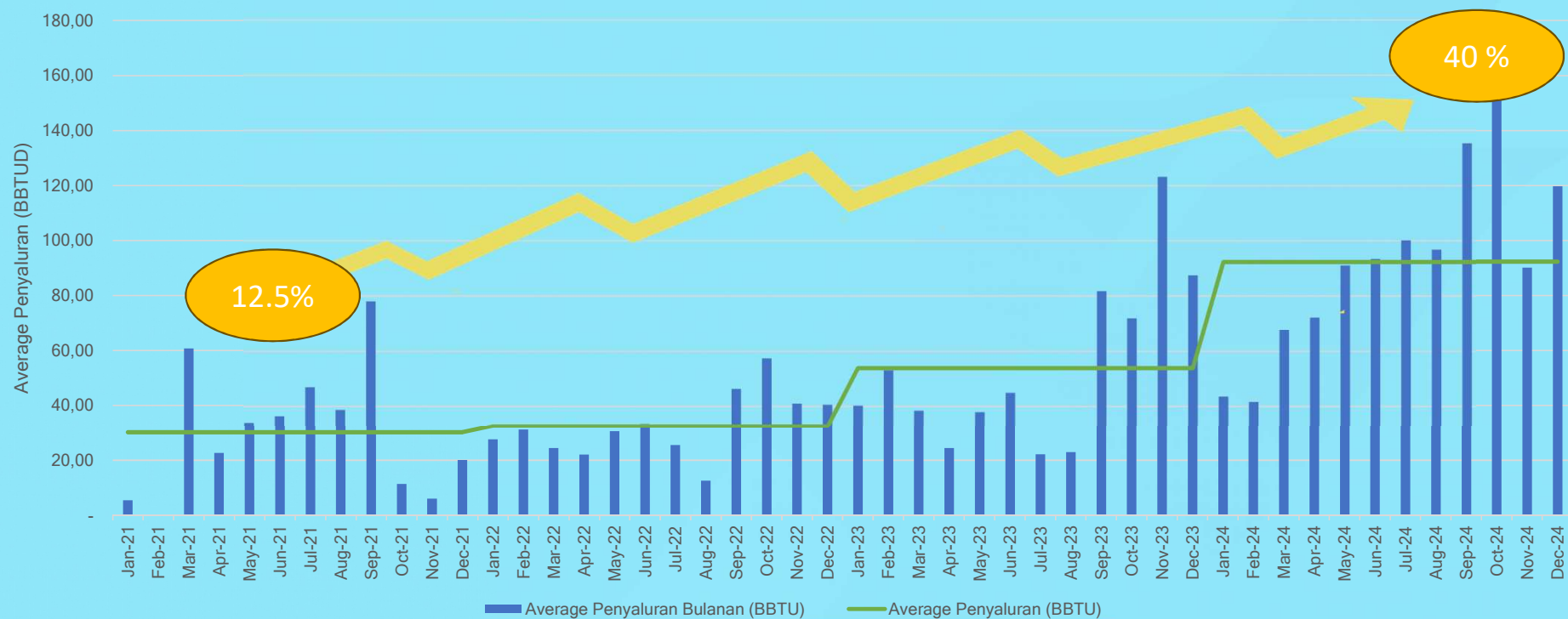
- j. DEB Panaran
- k. Panaran
- l. IMP Kabil
- m. Pemping
- n. Baloi
- o. Kabil II
- p. Batu Ampar

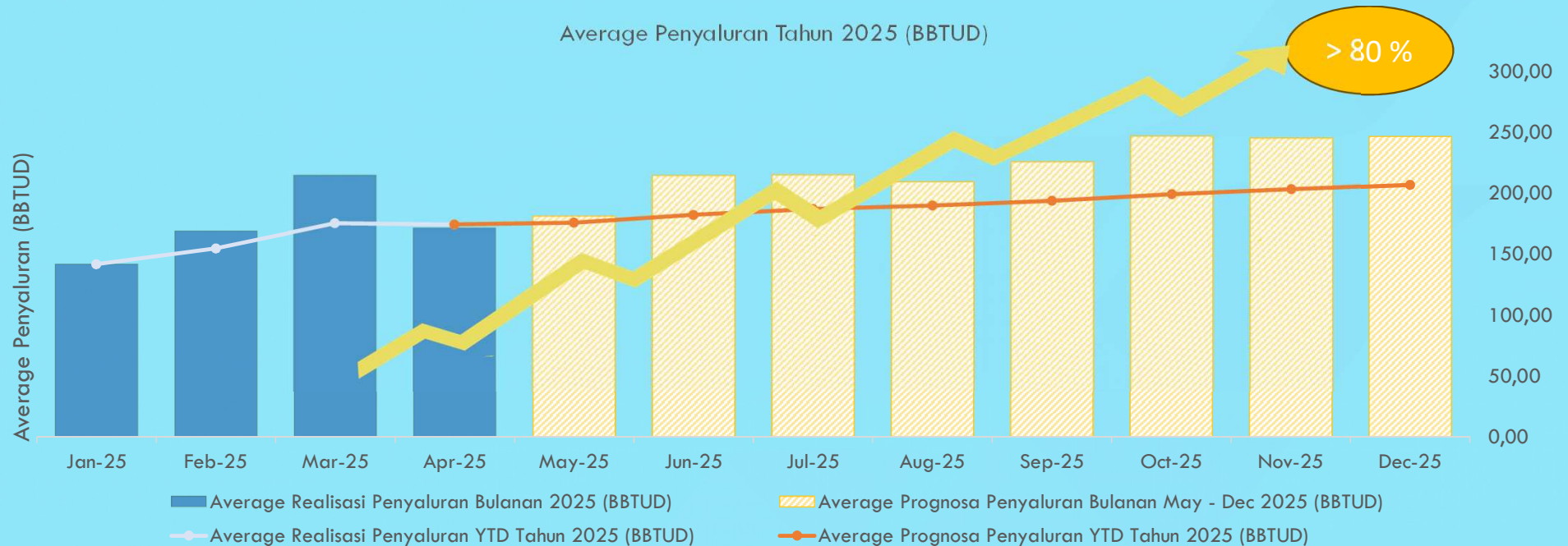
Integrated Infrastructure Subholding Gas in West Java to support the fulfillment of PGN and PLN's generating gas needs :

- Midstream transmission pipeline SSWJ
- Regasification facilities (FSRU Lampung: regas capacity 240 mmscfd, and FSRU Lampung)
- Downstream facilities at the power plant (redundant stream, optimize capacity)

HIGHLIGHT 2020 - 2024

Average Realisasi Penyaluran Tahun 2020-2024 dan Average Rencana Penyaluran Tahun 2025 (BBTUD)





Proyeksi di tahun 2025 menunjukkan bahwa potensi utilisasi dan penyaluran FSRU Lampung akan meningkat 2x lipat dibandingkan 2024

CHALLENGES & LESSON LEARNED



INFRASTRUCTURE

CHALLENGES

FSRU LAMPUNG, PIPELINE & ORF Facilities are expected to perform in maximum capacity

Clients expect minimum maintenance period and integrated maintenance period

LESSON LEARNED

Ensure more thorough inspection and maintenance. PLI deploy additional superintendent to monitor and control the operation of FSRU Lampung.

Discuss maintenance period with **EVERY** Stakeholder.

In this case not only direct clients (PGN& PLN EPI) and FSRU Owner are expected to be involved. PLN P2B, PLN IP and NP, NR, Java 1 also need to be involved to align with our maintenance period.

Flexibility on LNG Inventory in FSRU i.e. mixing LNG in the tank

Deep dive in the procedure of mixing LNG with FSRU owners.

Ensure that all flexibility are utilized within the safety limit.

Ensure reliability of Marine Support Infrastructure (i.e Tugboat, Marine Pilot, Crewboat) From cost optimization to full reliability.

Additional Tugboat TCP is ongoing.
Trained new pilot to ensure flawless STS operations.



OPERATION: *Planning, Scheduling, Monitoring and Reporting Inventory

CHALLENGES	LESSON LEARNED
Uncertainty on Gas demand and cargo availability	As Terminal Owner be a "neutral" party and develop trust among users on robust Lending and borrowing scheme.
Limited flexibility on cargo shipment due to limited storage capacity as well as limited number of LNG export terminal, LNG carrier and LNG Cargo schedule	Designing a reliable nomination and scheduling process that integrates each user's cargo profile
New scheme for PGN LNG and all users i.e. cargo splitting, lending and borrowing mechanism.	As Terminal Owner be a "neutral" party and develop trust among users on robust Lending and borrowing scheme.
Need to develop tools for multi users from scratch. (No available tools)	Ensuring cargo traceability and transparency through clear documentation of ownership and transfer terms.
From commercial and operational point of view, LNG is less priority than conventional gas.	Updating demand forecasts frequently (each week) and reporting with sufficient accuracy to prevent over- or under utilization.

CHALLENGES & LESSON LEARNED

CHALLENGES	LESSON LEARNED
FSRU LAMPUNG, PIPELINE & ORF Facilities are expected to perform in maximum capacity	Ensure more thorough inspection and maintenance. PU deploy additional superintendent to monitor and control the operation of FSRU Lampung.
Clients expect minimum maintenance period and integrated maintenance period	Discuss maintenance period with EVERY Stakeholder. In this context only direct clients (PGNL, PGN and PGN Owner) are expected to be involved. PGN P2B, P2A/P and P2, NH, also have need to be involved to align with our maintenance period.
Flexibility on LNG inventory in FSRU i.e. mixing LNG in the tank	Deep dive in the procedure of mixing LNG with FSRU owners. Ensure that all facilities are utilized within the safety limit.
Ensure reliability of Marine Support Infrastructure (i.e. Tugboat, Marine Pilot, Crewboat) From cost optimization to full reliability.	Additional Tugboat TCP is ongoing. Trained new pilot to ensure flawless STS operations.

CHALLENGES

Uncertainty on Gas demand and cargo availability.

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New scheme for PGN LNG and all users i.e. cargo splitting, lending and borrowing mechanism.

Need to develop tools for multi users from scratch. (No available tools)

From commercial and operational point of view, LNG is less priority than conventional gas.

LESSON LEARNED

Updating demand forecasts frequently (each week) and reporting with sufficient accuracy to prevent over- or under-utilization.

Designing a reliable nomination and scheduling process that integrates each user's regas profile

As Terminal Owner be a “neutral” party and develop trust among users on robust Lending and borrowing scheme.

Developed dashboard and monitoring system to ensure cargo traceability and transparency through clear documentation of ownership and transfer terms.

Updating demand forecasts frequently (each week) and reporting with sufficient accuracy to prevent over- or under-utilization.



INFRASTRUCTURE

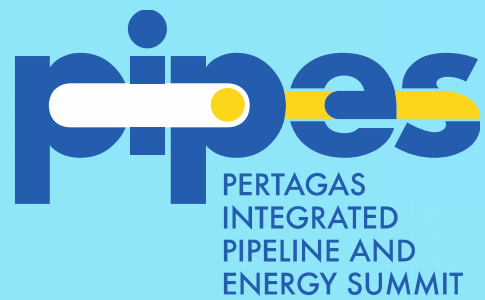


OPERATION:

*Planning, Scheduling, Monitoring and Reporting Inventory

KEY TAKEOUTS

- Multi-users FSRU may create additional utilization
- There are fair challenges when utilization is increased significantly over limited period of time. All parties need to work together to tackle all challenges.
- Terminal Owner shall be a neutral party in front of clients to build trustworthiness from every client.
- Develop a fair commercial scheme and robust operational procedure to ensure a win-win game for every parties
- With a good commercial scheme, a multi users FSRU may increase economical advantage for every parties including the Terminal Owner



THANK YOU