Distribution | Gas

Sector Study

June 2023

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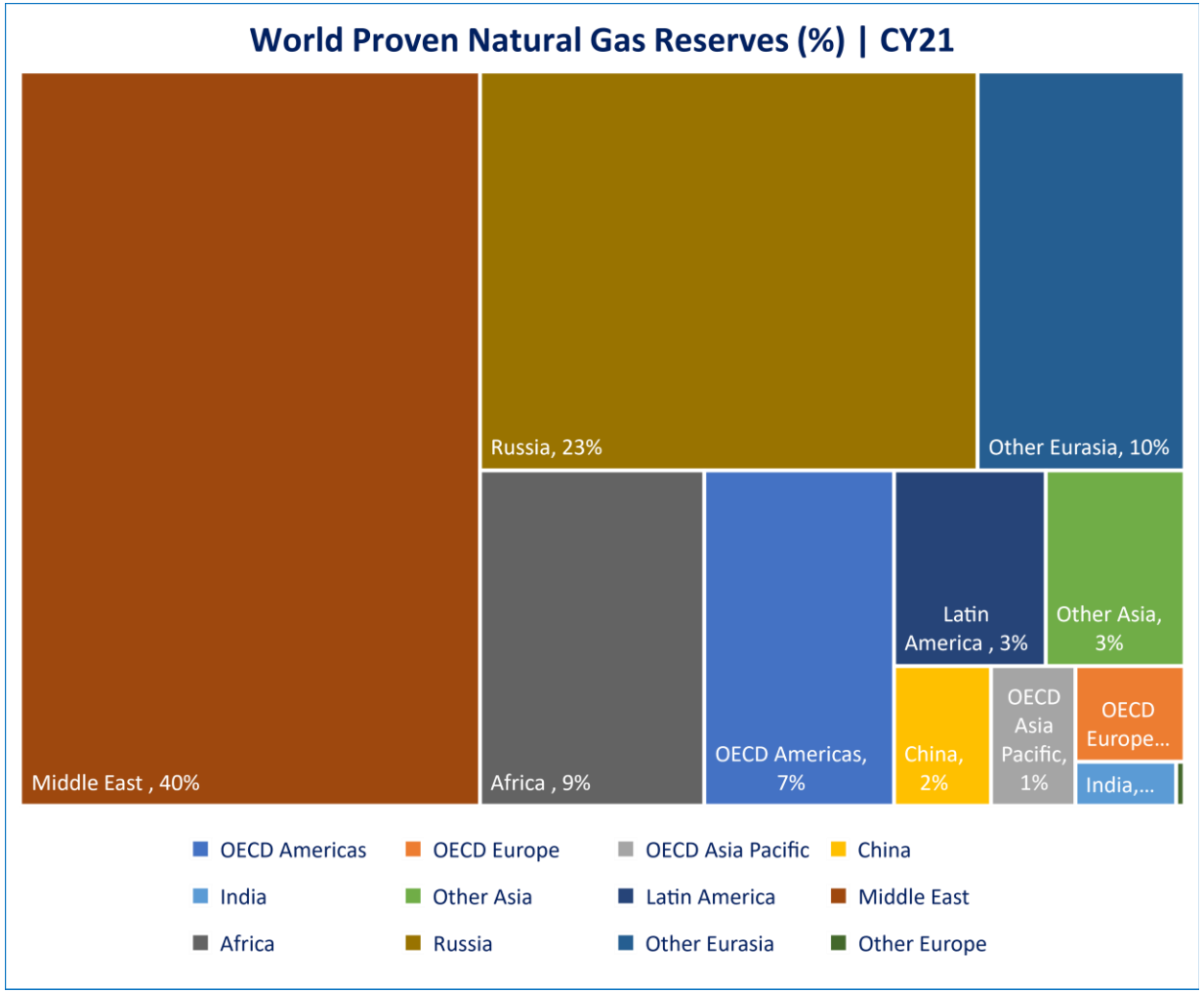
Global | Overview

- Proven reserves are estimates of the volume of oil and natural gas which geographical and engineering data demonstrate to be economically viable to be extracted from known reservoirs under existing operating and economic conditions.
- On a global level, total natural gas reserves amounted to ~205,865 cubic meters (CY20: ~206,812 cubic meters), a YoY decline of ~0.5%.
- The Middle East (including Iran, Qatar and Saudi Arabia among others) makes up for the largest share of natural gas reserves (~40%), with levels recording at ~81,321 cubic meters in CY21.
- Meanwhile, Russia accounts for ~23% of the total natural reserves, with ~47,759 cubic meters reserves as of CY21.
- Africa, China and India account for ~9%, ~2% and ~1% of the global natural gas reserves, with ~18,098, ~1,071, and ~3,269 cubic meters reserves, respectively, as of CY21.
- The remainder of this study has been divided into three broad segments; LNG, LPG and, especially for the case of Pakistan, Terminal Handling.

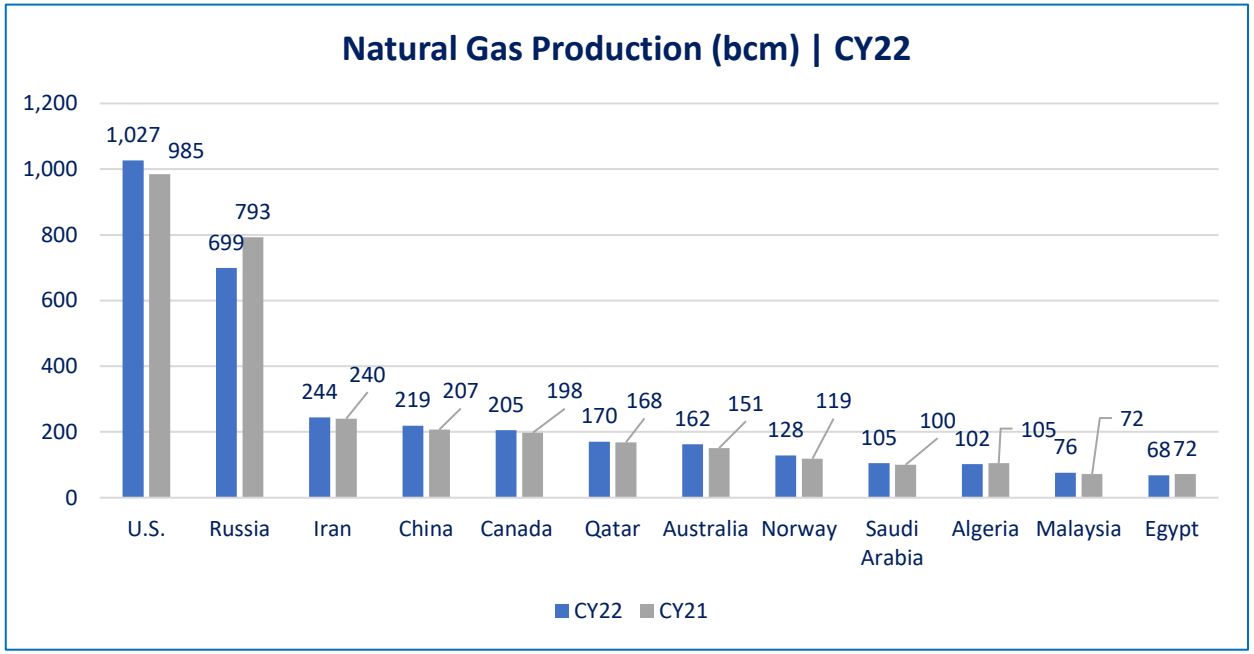


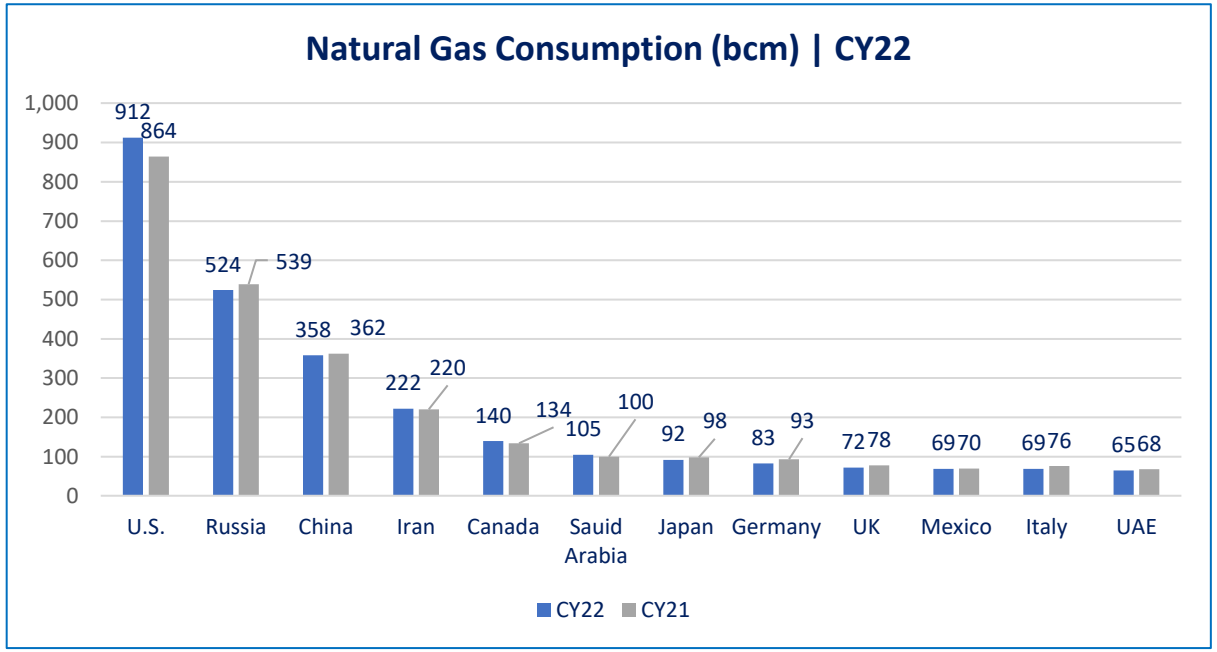
***Note**: Latest available data is for CY21.*

Source: OECD

Distribution | Gas

Global | Production and Consumption





- Global gas production, that had exhibited ~4.3% growth in CY21, remained largely stable in CY22. The fall in Russia's output was offset by an increased production in North America, Middle East, China and Australia. In Russia, gas production fell by ~12% YoY in CY22, largely due to lower exports to the EU.
- On the other hand, global gas consumption slumped by ~1.4% in CY22, as against a ~4.8% increase during the previous year. This reflected lower demand from economies like the EU, Russia, Brazil and China. In Europe, gas consumption fell by ~12% partly due to milder weather conditions. Gas consumption also declined in Russia by ~2.9% during the same year due to Western sanctions adversely impacting Russian industrial sector, in Brazil by ~23% due to higher hydro availability that replaced gas-fired power generation and in China by ~1.2% owing to higher LNG prices and economic slowdown in the country.

Source: Enerdata

Distribution | Gas

Global | Pipeline Lengths

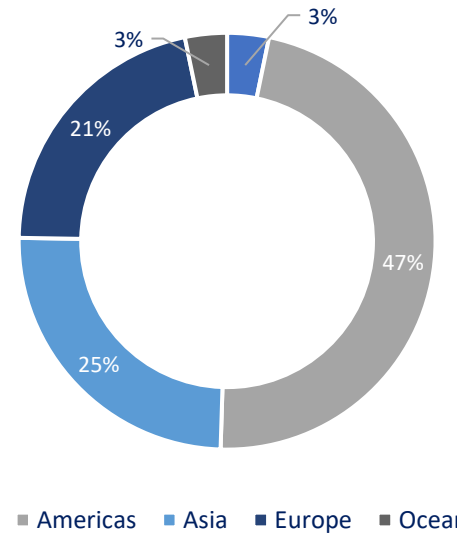
- Demand for global oil is expected to rise to ~106mln barrels per day (bpd) between CY22-28, a rise of ~6%, supported by rising demand from the aviation and petrochemical sectors. Moreover, with the growth of electric vehicles, demand for oil as a transport fuel is expected to decline post-CY26.

- The total length of the operating global gas trunk/transmission pipeline network was recorded at ~973,934Km (SPLY: ~924,786km). Globally, the Americas occupies the longest gas trunk/transmission pipeline network of ~460,284Km (SPLY: ~418,631km), followed by Asia of ~~269,112km and Europe ~116,899km.

- The top five parent companies involved in developing pipelines are state-owned entities including Gazprom (Russia), PipeChina (China), GAIL (India), NNPC (Nigeria) and Ministry of Oil (Iran).

- The longest pipeline projects under construction as of CY22 include ~2,775km Iran-Pakistan pipeline and the ~2,655km long Jagdishpur-Haldi-Bokaro-Dharma natural gas pipeline in India.

Total Pipeline Length by Region | Km | CY22



***Note**: Data on Crude Oil and NGL Pipelines pertains to May'23..*

Source: Global Energy Monitor, IEA

Distribution | Gas

Global | Pipelines In-Process

- Natural gas pipelines have an average useful life of ~50 years. A total of ~536 planned and announced transmission oil and gas pipelines are expected to come online during the period CY23-26.

- Gas pipeline projects, planned and under construction, have the highest length in the world. China and India are currently in the process of expanding their existing pipeline network by ~58,304km and ~16,500km, respectively, based on their proposed and under construction development plans. For Pakistan, ~3,915km of gas pipelines are in development as of CY22.

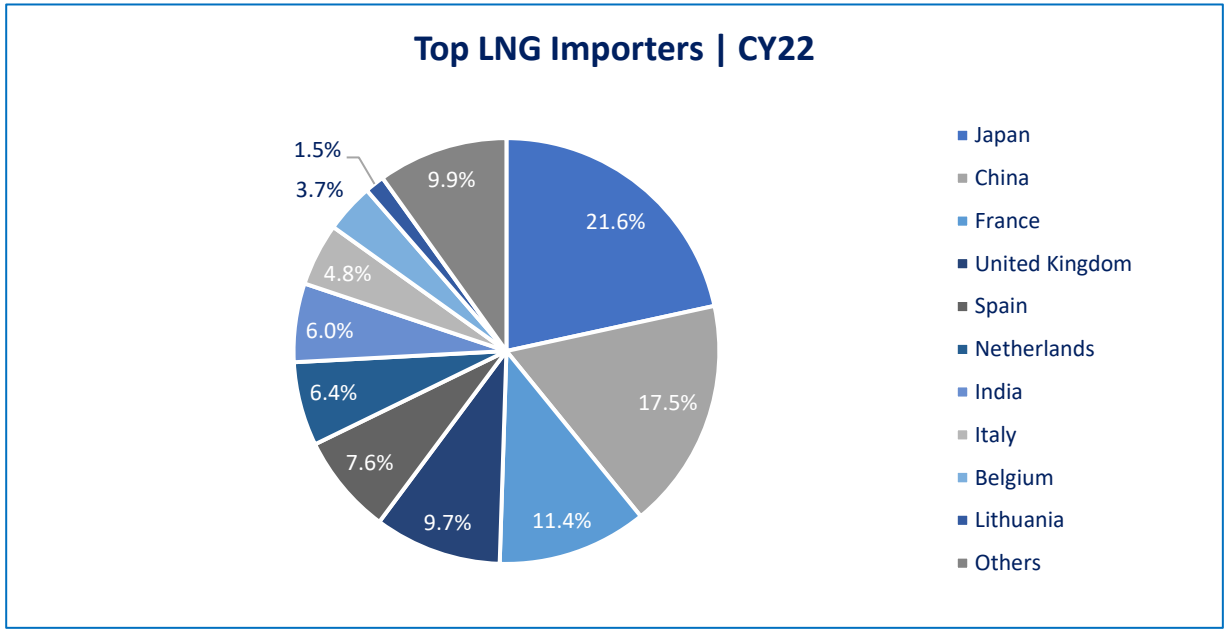
- In terms of operating gas pipelines, the USA has the longest pipeline of ~342,303km. China ranks second at ~117,017km, while Russia ranks third with ~99,022km of gas pipelines currently operational; Russia at third with a ~99,022km operating infrastructure, while for "Others", gas pipelines' length extends to ~331,133km.

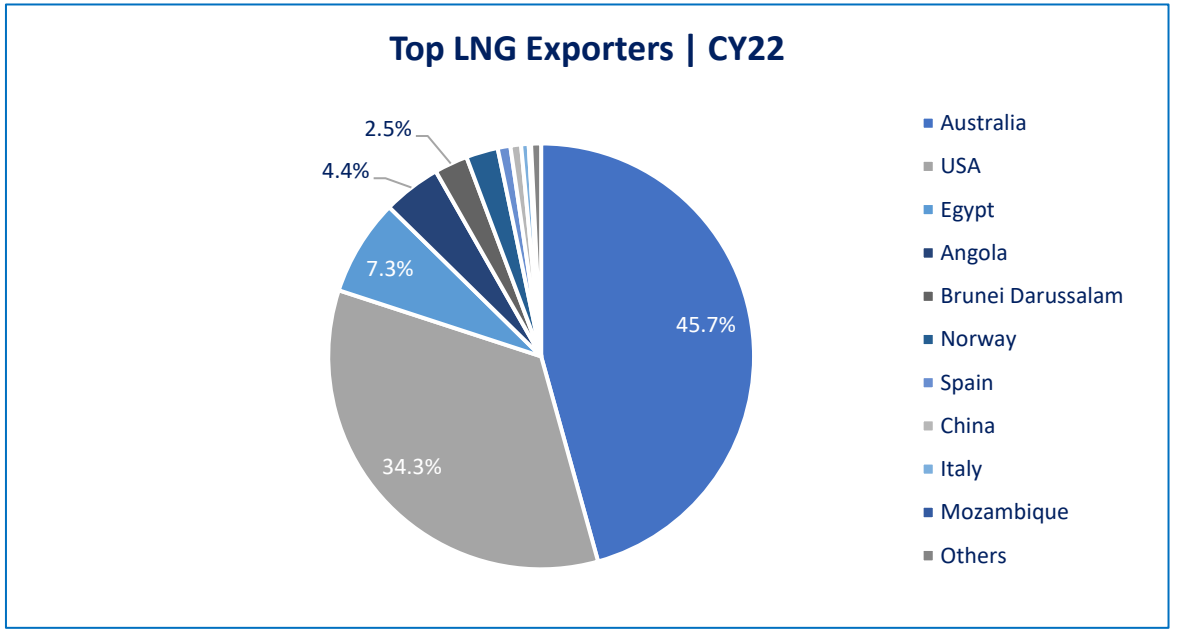
- The total length of operating gas pipelines across the globe amounted to ~973,934km during CY22.

- In light of the boycotts by EU and the U.S. over the Russia-Ukraine conflict, Russia is developing new pipelines worth USD~4bln, with the view of replacing these markets with China and India.

Source: Global Energy Monitor, Global Data

Global | LNG Trade





- During CY22, Australia and the USA made up for ~80% of the total global LNG exports, whilst Japan, China and France accounted for ~21.6%, ~17.5% and ~11.4% of total LNG imports during the said period. By comparison, top exporters of this commodity in CY21 were Australia, USA, Malaysia, Russia and Indonesia, while among the top importers (forming ~70% of global LNG imports) were China, Japan, Korea, India and Other Asia. During CY21, Pakistan accounted for ~2.1% of the global LNG imports.
- Over the period CY11-22, Australia and USA added a combined LNG export capacity of ~22.7bcf/d, which accounted for ~75% of the total global additions over the said period. Going forward, US capacity is expected to grow further by CY23 due to three constructions projects (Golden Pass LNG, Plaquemines LNG and Corpus Christie Stage III) having achieved completion status.
- Global LNG trade is expected to cross the USD~500bln mark in CY23, while USA, Qatar and Australia will supply ~60% of global LNG over the same period. On the other hand, China is forecast to become the top importer of the commodity by CY23. Four new LNG export projects are expected to come online during CY23, including two in Indonesia, one in Mauritania and Senegal and one in Argentina.

***Note**: Trade data for CY22 may be limited, subject to availability.*

Source: UN Comtrade, IEA, Andalou Agency,

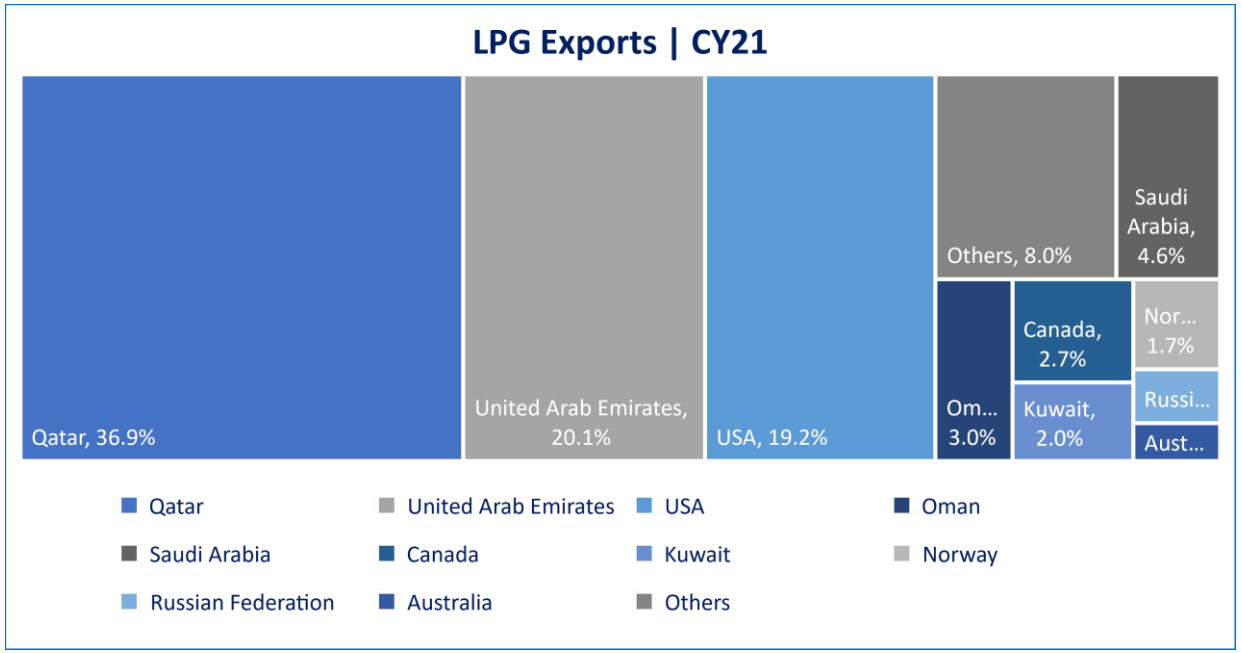
Distribution | Gas

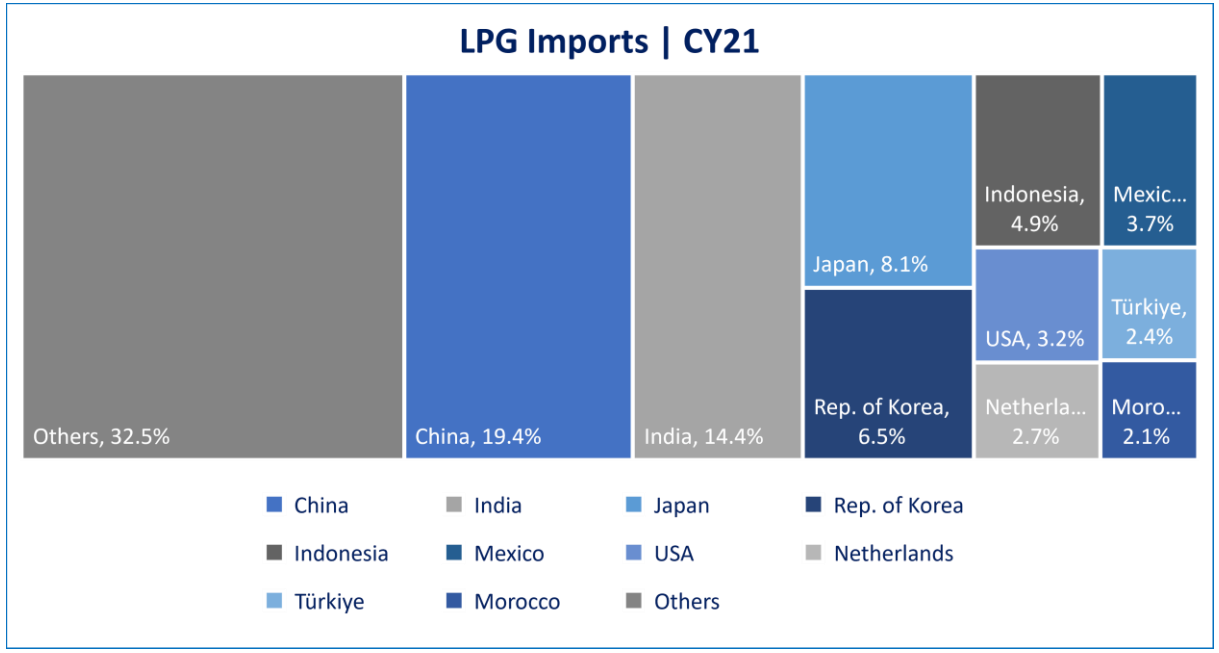
Global | LPG

- Liquified petroleum gas (LPG) belongs to the family of light hydrocarbon gases. The gas is a derivative of two industries: crude oil refining and natural gas processing. It is made up of carbon and hydrogen atoms forming propane and butane and is stored in steel vessels including BBQ gas bottles and gas cylinders.
- LPG is gaseous at normal room temperature and pressure and liquifiable under reduced temperature and moderate pressure. It is a conveniently portable energy source which is also easy to store.
- Natural gas drawn from the earth is a mixture of several gases. Methane, sold as natural gas by utility companies represents ~90% of this mixture. ~10-15% is represented by propane while the remaining ~5% is other gases such as butane and ethane. Moreover, ~60% of world's LPG is produced from natural gas and the remainder from crude oil.
- In crude oil refining, LPG is the first product produced prior to the more heaver fuels (diesel, jet fuel, fuel oil, and gasoline).

Source: SSGC LPG, ELGAS

Global | LPG Trade





- The top five exporting countries of LPG during CY21 were Qatar, UAE, USA, Oman and Saudi Arabia, while the top importers included China, India, Japan, Korea and Indonesia, with the rest of the world making up for ~32.5% of the top LPG imports.
- During CY22, China's share of imports grew to ~25.6%, while that for India, Japan, Turkiye and USA increased to ~18.3%, ~9.9%, ~3.1% and ~4.0%, respectively. USA's share in global exports (excluding Qatar's) increased to ~68% in CY22, driven by increased global LPG demand as a petrochemical feedstock. The country's exports are further expected to increase more than ~11% YoY in CY23 due largely to increased oil and gas production, especially in the Permian.
- Going forward, demand for LPG in China is expected to remain rangebound, on account of lower LPG forecast prices and scheduled launch of six PHD plants in CY23, with the latter boosting China's imports of feedstock. Prices for LPG averaged USD~625.9/MT in Dec'22, after recording eight-year high levels of USD~1,000/MT in Mar'22, on account of the Russia-Ukraine conflict and ensuing supply fears.
- However, supply from the Middle East is also expected to decline in CY23, in light of the production cuts being introduced, the latest one announced in Jul'23.

***Note**: Trade data for CY22 may be limited, subject to availability.*

Source: UN Comtrade, S&P Global

Natural Gas

Distribution | Gas

Local | Industry Snapshot

- Natural gas is a clean, safe, efficient and environment-friendly fuel. In the 9MFY23 period, indigenous gas contributed ~29% (SPLY: ~33%) to the primary energy supply mix of the country, witnessing a decline of ~4%.

- Pakistan has an extensive gas network of over ~13,775km transmission, ~157,395km distribution and ~41,352km services gas pipelines to cater the requirement of more than ~10.7mln connections across the country. During the 9MFY23 period, the two gas utility companies (SNGPL & SSGCL) had laid a ~225km gas transmission network, including ~1170km mains and ~63km services lines.

- Production of natural gas from indigenous resources is decreasing. Thus, to bridge the supply demand gap, Pakistan's reliance on imported Re-gasified Liquified Natural Gas (RLNG) has traced an increasing trend over the recent years. However, during 9MFY23 period, RLNG imports declined to ~6.3mln MT, as against ~7.5mln MT during SPLY. At present, the capacity of two Floating Storage Regasification Units (FSRU) for RLNG is ~1,200MMCFD.

- The average natural gas consumption during 9MFY23 was recorded at ~28.1mln MT (SPLY: ~29.7mln MT), including ~6.3mln MT of imported RLNG (SPLY: ~ 7.5mln MT).

Note: Unlike the transmission system that carries large volumes of natural gas at high pressures, the distribution system winds through cities and other areas of demand at low pressure.

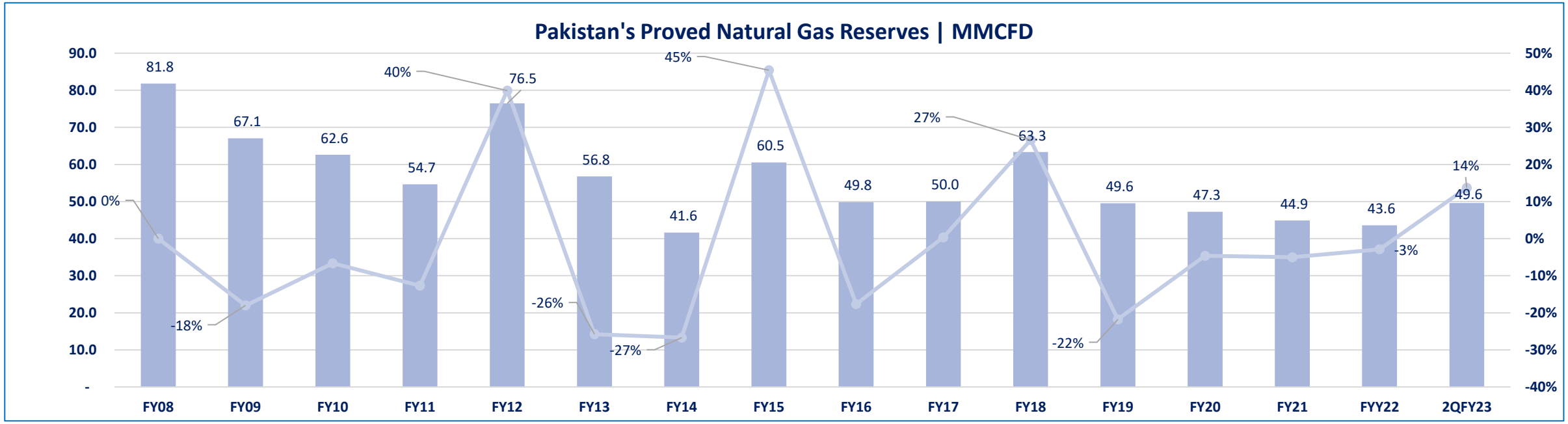
Particulars	FY22	9MFY22	9MFY23
Consumption Gas (mln MT)*	39.9	29.7	28.1
Local Sales (mln MT)*	29.7	22.2	21.8
RLNG Imported (mln MT)*	10.2	7.5	6.3
Length of Transmission Lines (km)	13,513	13,513	13,775**
Length of Distribution Lines (km)	155,679	155,679	157,395**
Total Number of Connections (mln)	10.7	10.7	10.7**
Structure	Regulated & Oligopolistic		
Regulator	OGRA		

**Numbers have been converted into Tons of Oil Equivalent*
***9MFY23 Numbers –latest data available*

Source: Economic Survey (PES), PBS, SNGP, SSGC, Enerdynamics

Distribution | Gas

Local | Proven Gas Reserves



- Pakistan's proven natural gas reserves have been on a decline owing to lack of substantial discoveries. From FY18-22, natural gas reserves of the country have declined by ~31% on aggregate basis. However, compared to 2QFY22, natural gas reserves rose from ~43.1MMCFD to ~49.6MMCFD in 2QFY23, an increase of ~15%. This likely came on the back of increased E&P activities, wherein four wells were spud and three new oil and gas discoveries were made (OGDC).

- In relation to this, the three new discoveries made during the said period yielded ~2.7MMCF of natural gas. During FY23, a total of 40 wells (12 exploratory and 28 development) were drilled against the target of 62 wells (24 exploratory and 41 development) (data pertains to OGDCL).

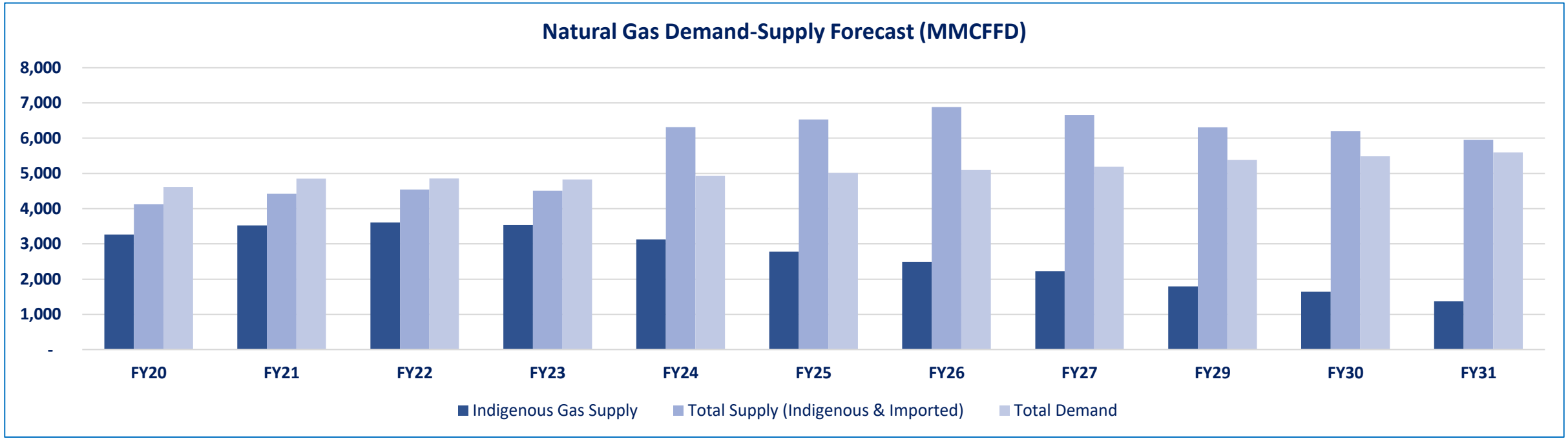
Note: *Reserves include 1P (Proved) and 2P (proved and probable) reserves.*

Source: OGDCL, Petroleum Division, MOPDSI

Distribution | Gas

Local | Natural Gas | Demand-Supply Forecast

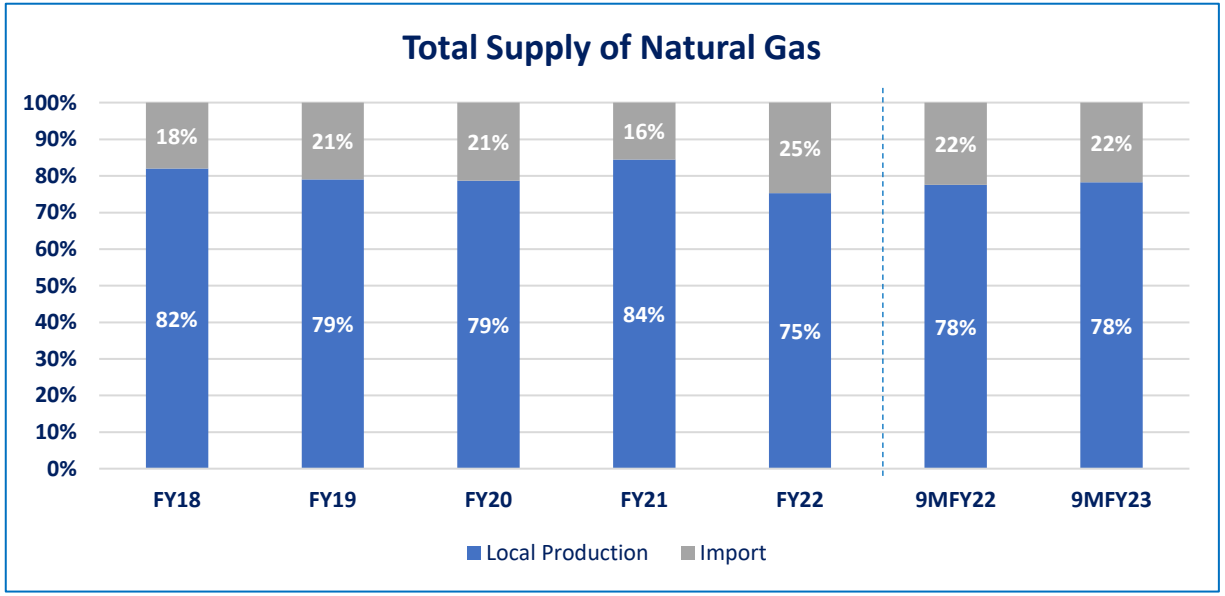
- As domestic natural gas production continues to decline, Pakistan's domestic gas demand-supply gap is expected to widen in the coming years. Therefore, Pakistan needs to accelerate domestic E&P activities and/or increase imported gas to meet its gas demand. In volumetric terms, LNG imports into the country declined by ~37% YoY. During the 11MFY23 period, imports fell by ~19% in value terms, and stood at USD~3,472mln (SPLY: USD~4,290mln).
- On the other hand, Pakistan's local gas production is forecasted to decline to ~2,777 MMCFD by FY25 and further to ~1,369 MMCFD by FY31. Simultaneously, the overall demand for the commodity is expected to increase to ~5,017 MMCFD by FY25 and ~5,597 MMCFD by FY31.
- Pakistan's Private Power Investment Board is actively working to pay attention to RLNG projects. Moreover, for FY24, gas utility companies have planned to invest PKR~96bln in transmission, distribution and other projects.

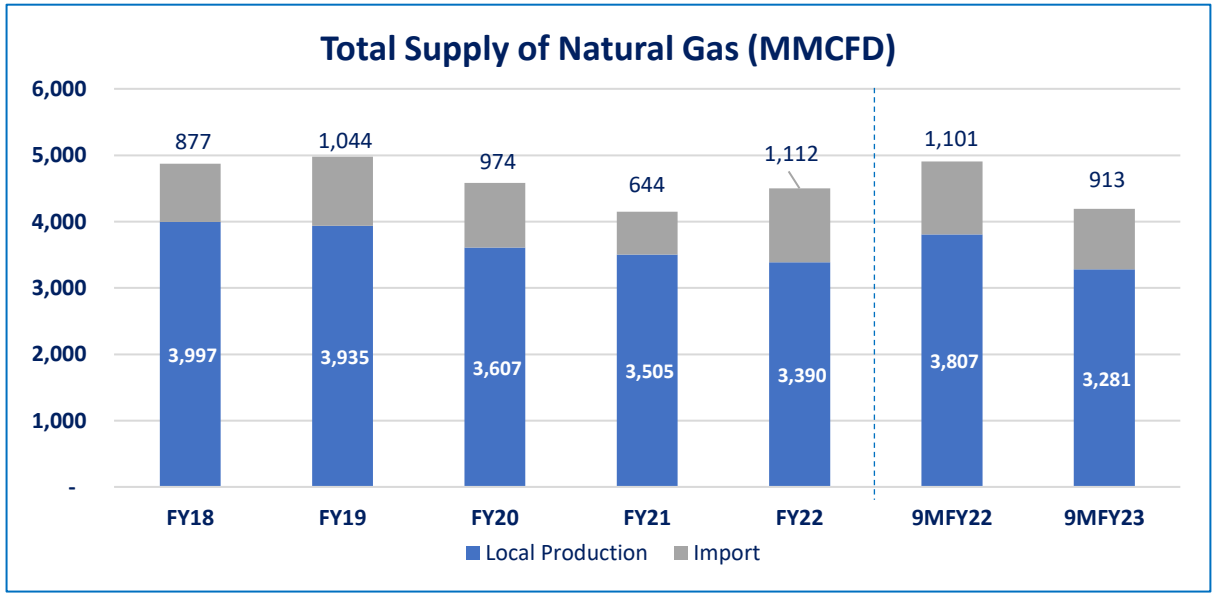


Source: OGRA, Petroleum Industry Report, PES

Distribution | Gas

Local | Supply Overview





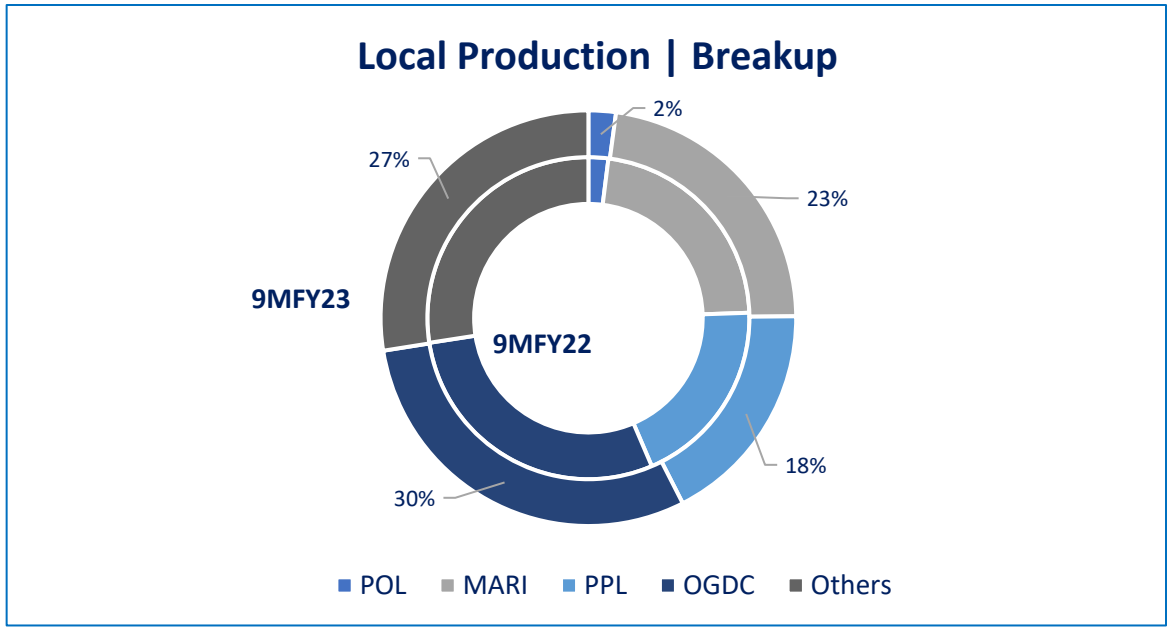
- Pakistan first imported LNG in FY15. The overall share of imported gas in the country's total gas supply was observed to trace a rising trajectory during FY22, with imports registering a ~73.6% increase in volumetric terms. The share of imports rose from ~16 in FY21 to ~25% in FY22.
- However, during the 9MFY23 period, imports declined by ~17%, with share in total supply staying relatively stable at ~22%. With respect to the import bill, imports declined to USD~2,852mln during 9MFY23 (SPLY: USD~3,321mln), a YoY decrease of ~14%.
- It follows from this that the country failed to secure three bids for the procurement of LNG during FY23 (the latest one dated June 20, 2023, for a total of six shipments), despite easing of LNG prices in the international market. However, given that the country's liquidity problems started to dissipate following IMF'S Stand-by Agreement worth USD~3.0bln, the country has been able to procure supply for the months of Jan-Feb'24, at USD~23.47/MMBTU and USD~22.47/MMBTU, respectively (this came in response to the second tender which closed July 14, 2023).
- Moreover, Pakistan has signed a Joint Implementation Plan with Turkmenistan as of Jun'23 to execute the planned export of ~33bln cubic meters of natural gas per year from Turkmenistan to Afghanistan, India and Pakistan. The move is expected to secure gas supply security if implemented. In terms of the major players involved in the imports of RLNG, PSO and Pakistan LNG occupy ~67.3% and ~32.7% market shares, respectively.

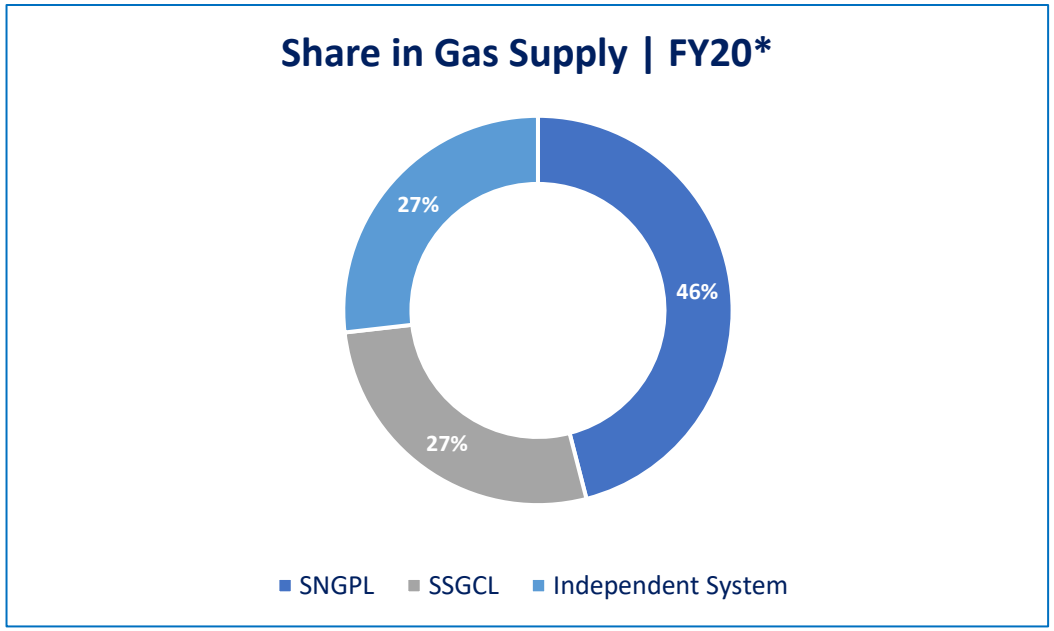
Source: PES, Offshore Technology

Distribution | Gas

Local | Supply | Natural Gas Production

- Due to low exploration activities and, by extension, lower new gas discoveries, the natural gas reserves of Pakistan are estimated to stand at ~25.58MCM as at 9MFY23. Moreover, the production during FY22 was recorded at ~3,390 MMCFD (FY21:~3,505 MMCFD), a decline of ~3.3%.
- Oil and Gas Development Company (OGDC) is the largest gas producer in the country with a share in total gas production of ~29%, followed by Mari Petroleum (Mari) and Pakistan Petroleum Limited (PPL) and shares of ~22% and ~19%, respectively.
- The two Government-owned gas utilities, SNGPL and SSGC, have a significant combined share of ~73% in total gas supply to consumers in the country.
- Meanwhile, Independent system comprises consumers having direct arrangements with gas producing companies since they receive natural gas through dedicated pipelines or through virtual networks including containers.





***Note**: Total Gas Production figures have been taken from the Economic Survey, while for shares' calculation, companies' financials have been consulted. *Latest available.*

Source: PES, Companies' Financials, OGRA

Distribution | Gas

Local | Supply | LNG Operators

- According to LNG Policy 2011, the license for LNG related activities can be classified into the following categories:

Integrated Project Structure: in which the LNG developer is supposed to purchase LNG supplies, transport them to its LNG import terminal (where receiving, storage and re-gasification facilities exists) and also supply RLNG to the domestic market and/or for its own use.

Unbundled Project Structure: in which the LNG buyer, would directly import the LNG under a LNG Sale and Purchase Agreement (SPA).

- As of Sep'22, the detail of import licenses issued by OGRA for LNG-related activities to privately owned entities are as follows:

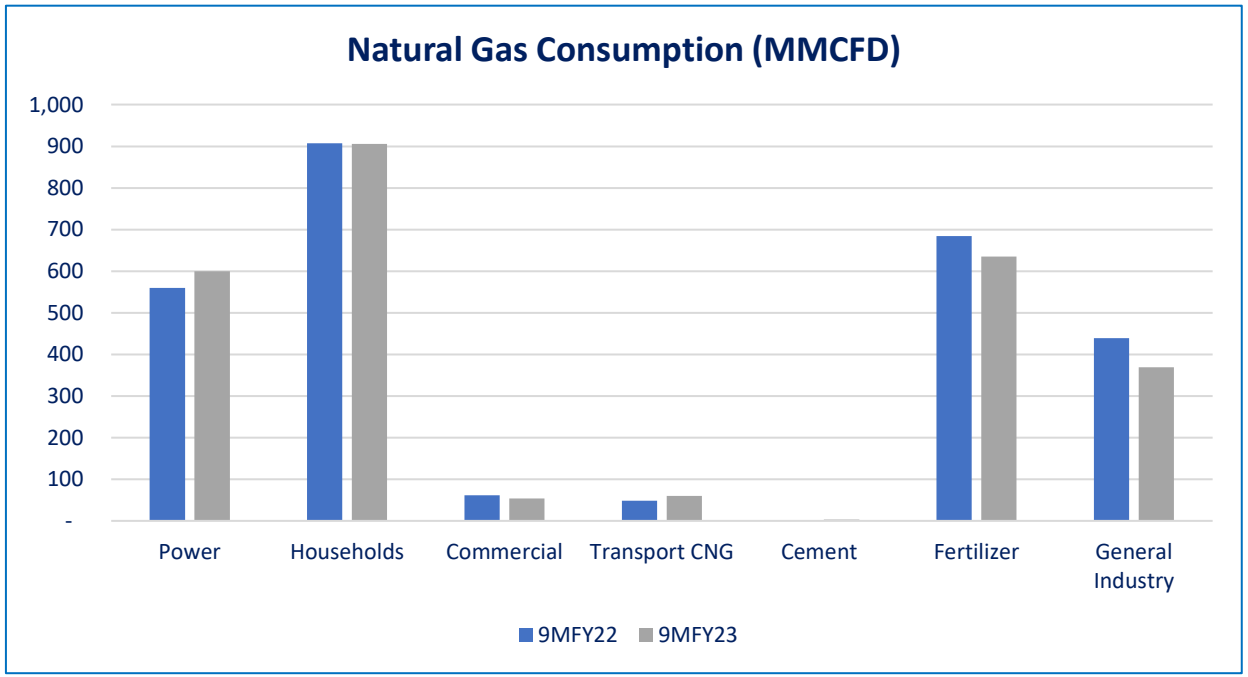
Name of Developer	Type of License Issued	License Issuance Date
Engro Elengy Terminal Limited (EETL)	Unbundled Project Structure **Operation License** of LNG Receiving Terminal at Port Qasim, Karachi. Regasification Capacity: 600-690 MMCFD	March 18, 2016
PGP Consortium Limited (PGPCL)	Unbundled Project Structure **Operation License** of LNG Receiving Terminal at Port Qasim, Karachi. Regasification Capacity: 600-750 MMCFD	April 03, 2018
Tabeer Energy (Private) Limited (TEPL)	Integrated Project Structure **Construction License**	April 28, 2021
Energas Terminal (Pvt.) Limited (ETPL)	Integrated Project Structure **Construction License**	April 28, 2021
Pakistan GasPort Limited (PGPL)	Integrated Project Structure (Provisional License for LNG Receiving Terminal)	June 25, 2018
Daewoo Gas Private Limited (DGPL)	Integrated Project Structure (LNG Virtual Pipeline Projects -Provisional Licenses)	Jan 13, 2021
LNG Easy Private Limited (LNGe)	Integrated Project Structure (LNG Virtual Pipeline Projects -Provisional Licenses)	Jan 08, 2021
LNGFlex Limited	Integrated Project Structure (LNG Virtual Pipeline Projects -Provisional Licenses)	March 11, 2022
Cygnus Energy Private Limited (CEPL)	Integrated Project Structure (LNG Virtual Pipeline Projects -Provisional Licenses)	March 28, 2022
Gwadar GasPort Private Limited (GGPL)	Integrated Project Structure (LNG Virtual Pipeline Projects -Provisional Licenses)	May 16, 2022
Shahzad LNG Private Limited (SLNG)	Integrated Project Structure (LNG Virtual Pipeline Projects -Provisional License Application under process)	-
Metro Gas Private Limited MGPL	Integrated Project Structure (LNG Virtual Pipeline Projects -Provisional License Application under process)	-

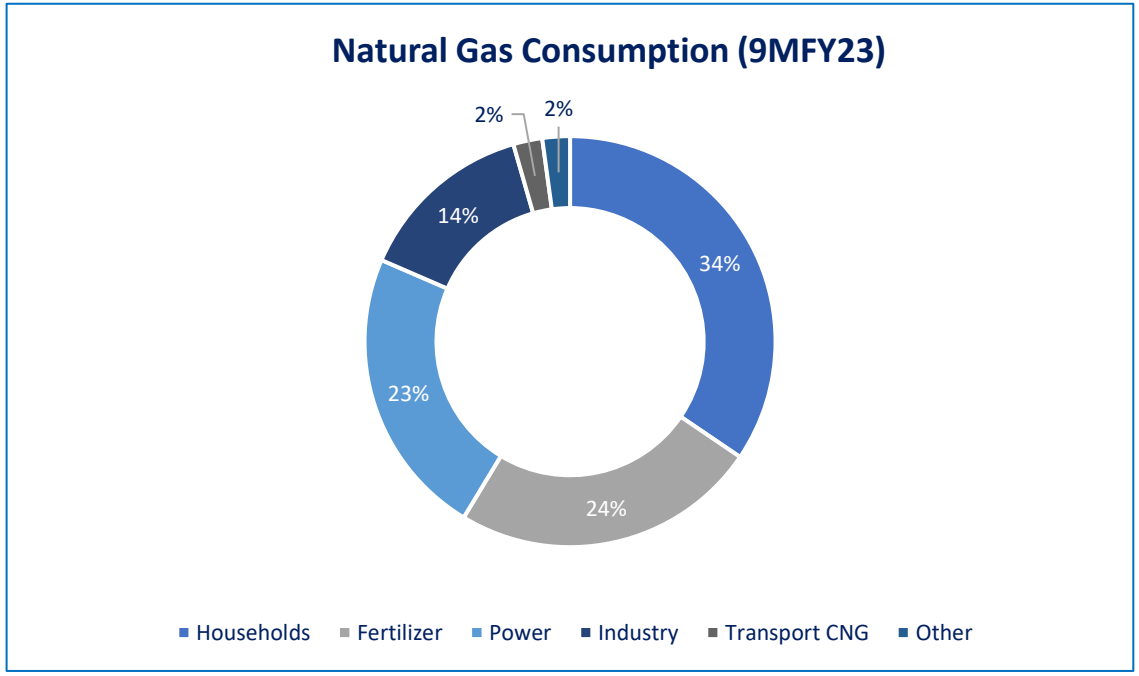
***Note**: LNG developer: private or public sector party, joint venture or consortium.*
LNG buyer: A Government designated buyer, gas utility, any consumer or any LNG supplier.

Source: OGRA

Distribution | Gas

Local | Demand | Natural Gas Consumption





- The overall gas consumption declined during the 9MFY23 period by ~8.6% (9MFY23: ~3,258MMCFD, 9MFY22: ~3,565MMCFD). The greatest rise was seen in the Transport CNG ~200%, although in absolute terms consumption by Transport CNG segment rose from ~1MMCFD to ~3MMCFD.The greatest decline was registered by the Industry segment (~19%), followed by the commercial and transport segments (~14%). The 'Households' segment was the largest consumer of gas with ~34% share in the total consumption mix, followed by the 'Fertilizers' segment at 24% during the 9MFY23 period.

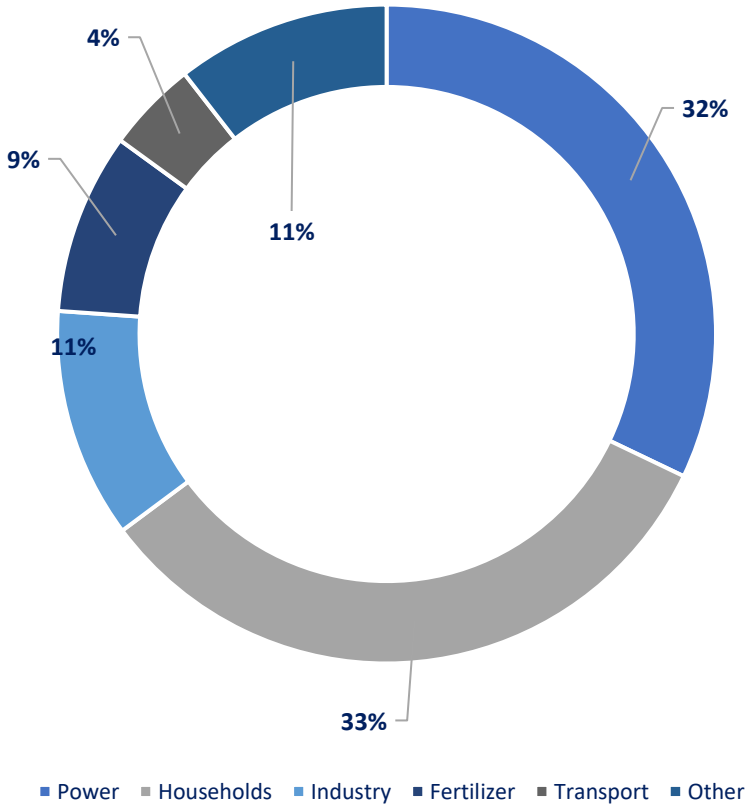
- Household consumers use expensive LPG during curtailed gas supplies, by national gas utility corporations, to fulfil their energy needs. Fertilizer sector's dependence on natural gas is significantly high as it is a key input feedstock making it difficult to switch to other forms of energy.

Source: PES, Pakistan Petroleum Industry Report

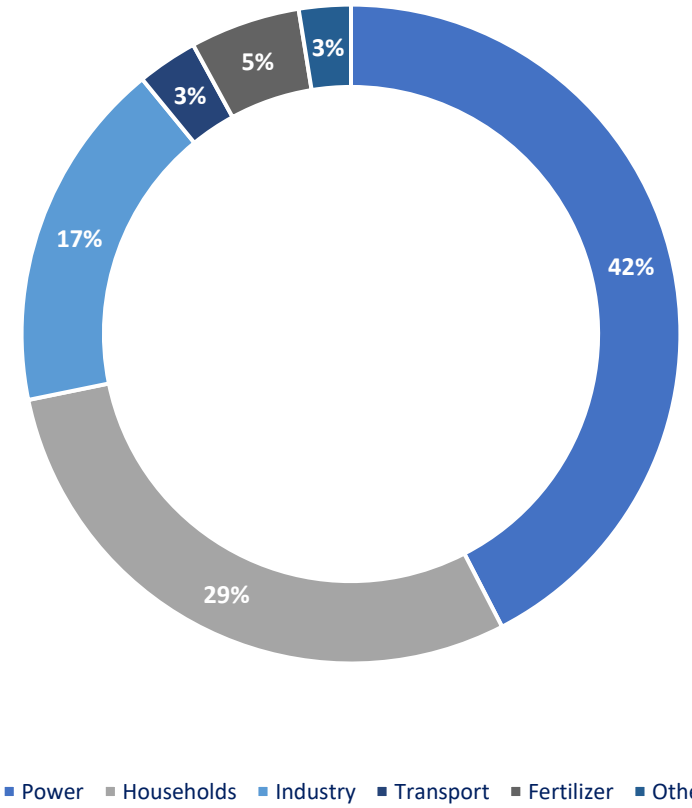
Distribution | Gas

Local | Demand | Sector-Wise Consumption

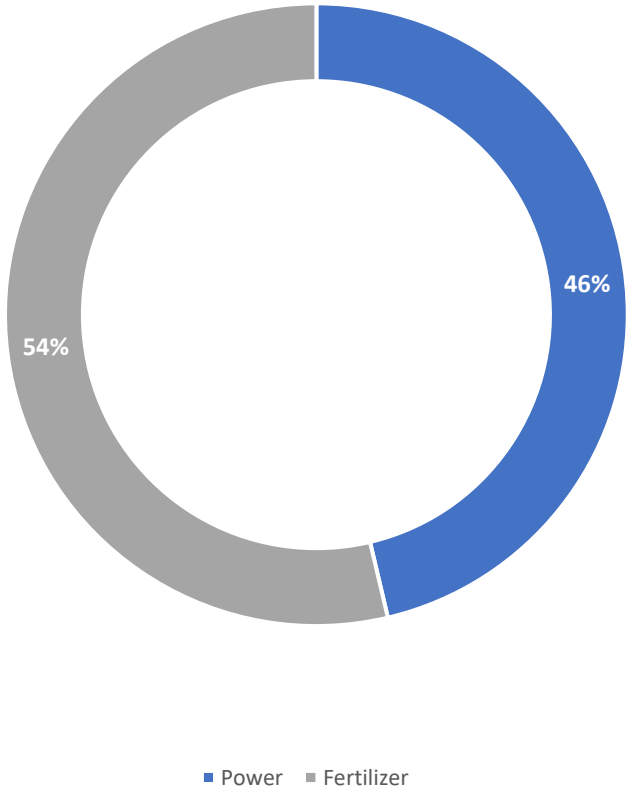
SNGPL Consumers



SSGC Consumers



Independent System



Note: *Data pertains to CY21.*

Source: PES, Pakistan Petroleum Industry Report

Business Risk | Natural Gas Pricing

- Based on the Revenue Requirement of the Gas Companies, OGRA determines the prescribed price (i.e. price to be retained by the companies) for each category of consumers.

- The Government fixes consumer gas prices and as a matter of policy, maintains them at a uniform level throughout the country. Therefore, the cost of supplying gas to customers at various locations is not accounted for and, regardless of the difference in cost due to location, all consumers within the same category pay a uniform price.

- The consumer price of natural gas in Pakistan comprises:

  (a)* the prescribed price for the gas companies and
  (b) OGRA fixes the 'prescribed price' for the gas utilities after conducting public hearings where stakeholders express their views. Also, a thorough analysis is carried out in terms of prudence and rationale for revenue and capital expenditures.

- *The prescribed price includes the following elements:

  - Producer gas prices, which are linked with international prices of crude oil and HSFO
  - Transmission and distribution costs
  - Depreciation expense
  - Return to SNGPL and SSGCL (~17% on net operating fixed assets)
  - Allowed UFG losses

***Note**: Latest Petroleum Industry Report is FY21.*

Source: Pakistan Petroleum Industry Report

Business Risk | Natural Gas Pricing

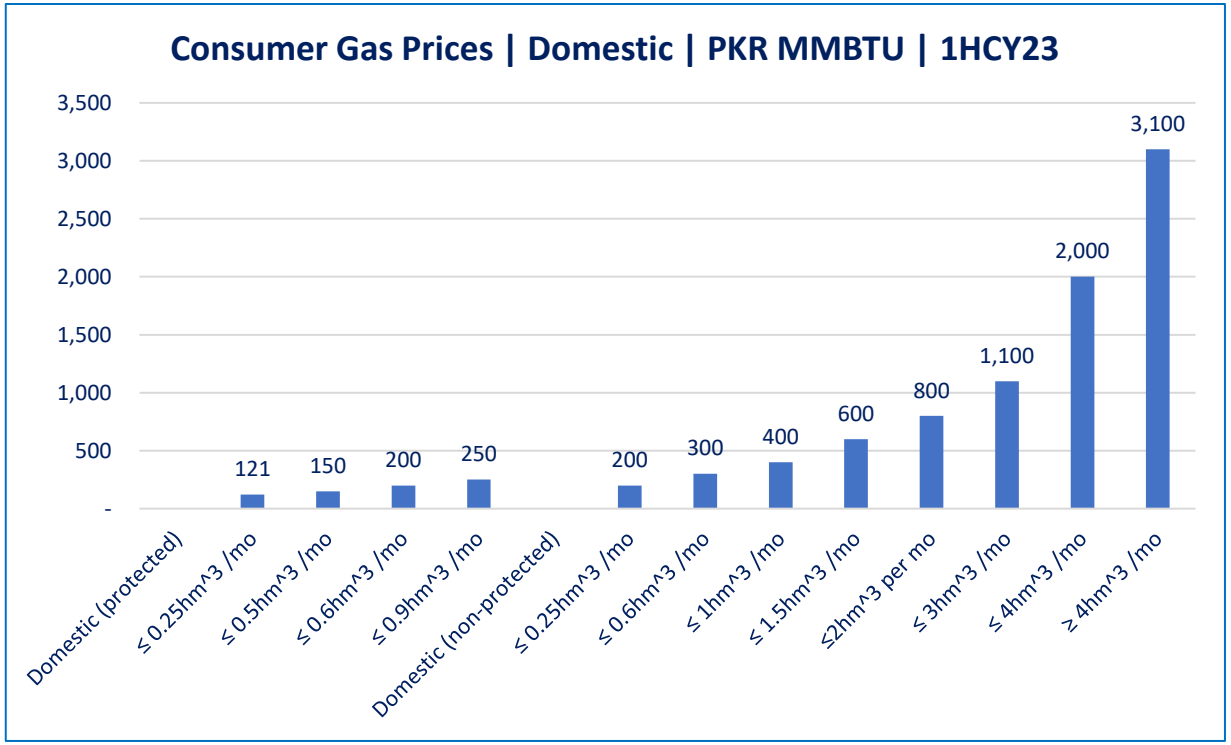
Consumer (w.e.f Jan'01 2023)	PKR/MMBTU
Households	
Protected Category	
Up to 0.25hm^3 per month	121
Up to 0.5hm^3 per month	150
Up to 0.6hm^3 per month	200
Up to 0.9hm^3 per month	250
Non-Protected Category	
Up to 0.25hm^3 per month	200
Up to 0.6hm^3 per month	300
Up to 1hm^3 per month	400
Up to 1.5hm^3 per month	600
Up to 2hm^3 per month	800
Up to 3hm^3 per month	1,100
Up to 4hm^3 per month	2,000
Above 4hm^3 per month	3,100
Fertilizer Feed Stock	510
Fertilizer Fuel Stock	1,500
Power	1050
General Industries	1,200
Export Oriented Industries	1,100
Transport CNG	1,805

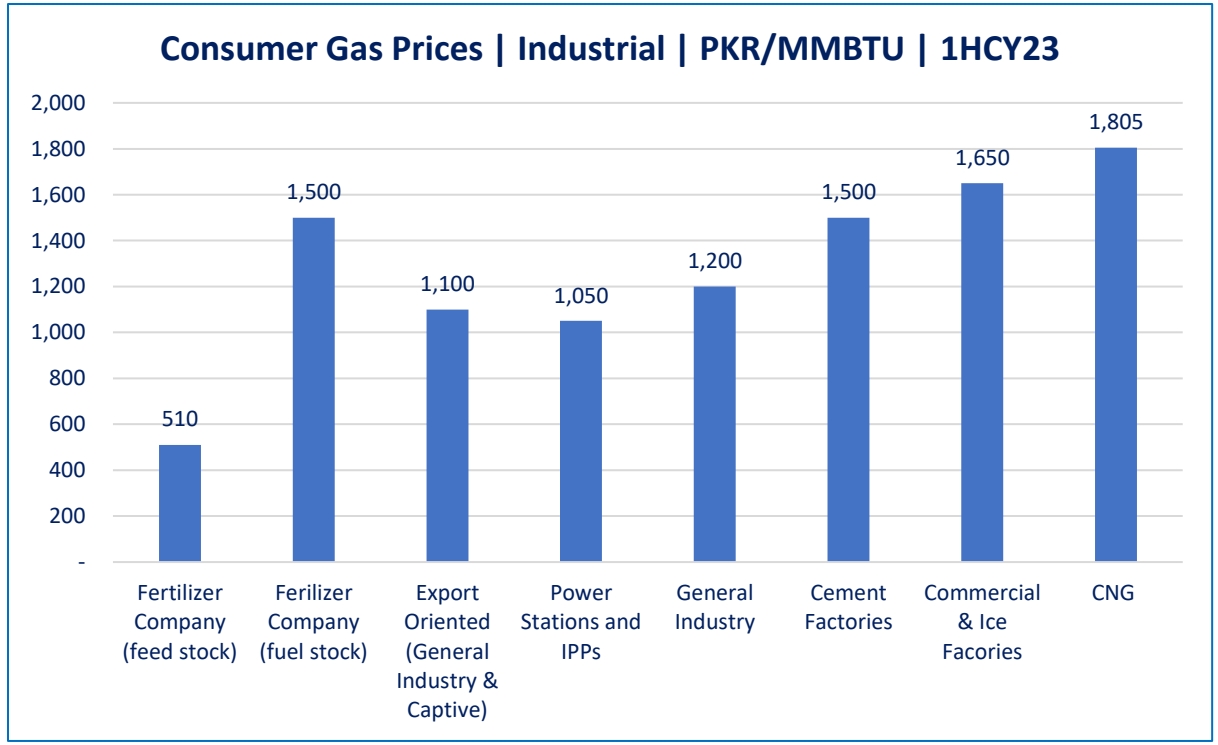
Note: Protected Consumer : whose average consumption of last 4months is ≤ 0.9hm$^{3.}$ (hm^3 is cubic hectometer)
Non- Protected Consumer : consumer other than the one in protected category.

Source: OGRA

Distribution | Gas

Business Risk | Local Pricing





Note: *OGRA's Gas Price Notification is effective from January 1, CY23 to-date*

Source: OGRA, PSO, World Bank's Pink Sheet

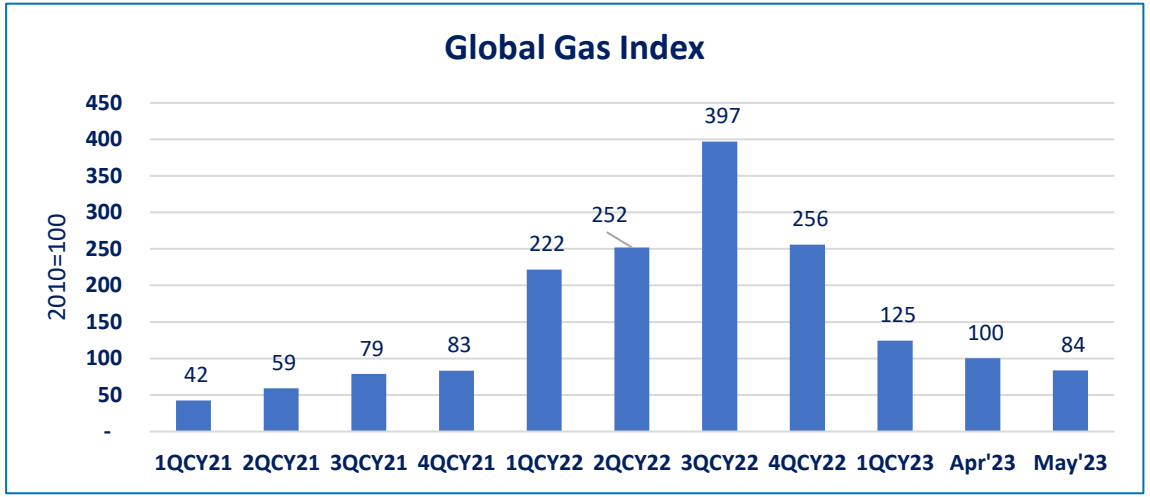
Business Risk | Local vs. International Pricing

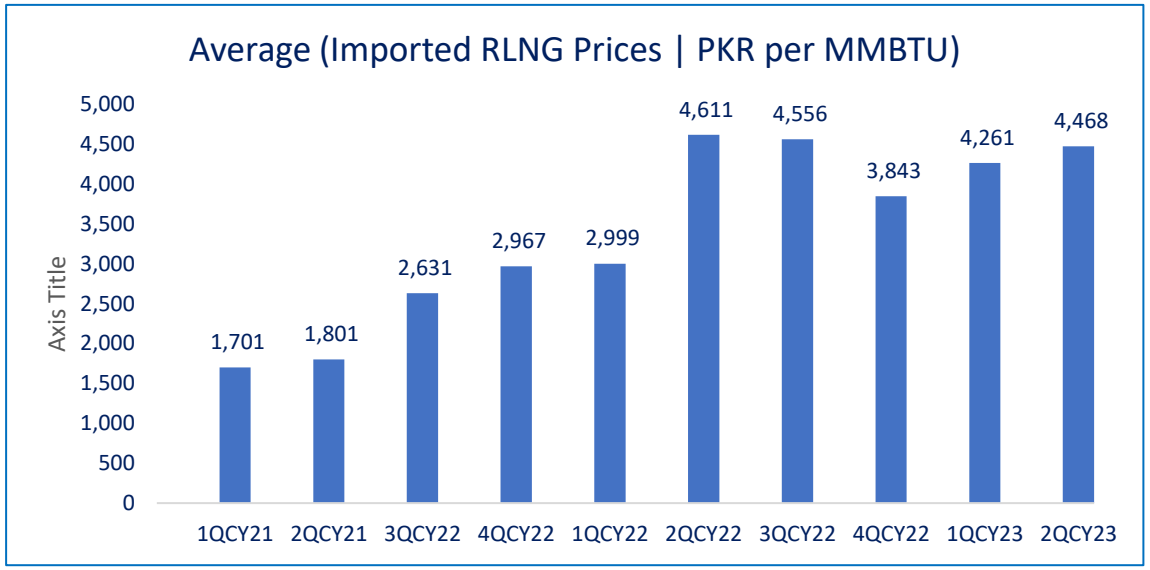
- Pressure on the global as well as European markets have eased since 3QCY22. This has come on the back of timely policy actions and favorable weather conditions across the globe. Natural gas price index reduced from ~125 during 1QCY23 to ~89 during 2QCY23, a decline of ~28% QoQ.

- Declining natural gas prices have led to reduced need for storage withdrawals in Europe and the U.S. (Russia cut back supplies to the EU by ~80% during CY22), therefore, inventory levels recorded during 1QCY23 have recorded higher than five-year average levels. The reduced gas prices also led to gas-to-coal switching dynamic in the global power sector.

- However, going forward, the global natural gas market is expected to remain tight, amid supply pressures, including adverse weather conditions (a relatively colder 4QCY23 or dry summer season of CY23), a possible further decline in Russian pipeline gas deliveries to the European market or lower supplies of LNG.

- In connection with the global prices, Pakistan's imported RLNG prices, on average, moved in tandem with the global natural gas index up until 4QCY22, following which, the elevated levels of RLNG imported prices can be supported by supply constraints and non-availability of the commodity in the wake of Russia-Ukraine conflict.





***Note**: Imported RLNG prices are averages of distribution costs of SNGPL and SSGCL.*

Source: OGRA, World Bank, IEA, Petroleum Division

Business Risk | Natural Gas | UFG

- The determination of annual revenue requirement takes into account the determination of Unaccounted for Gas (UFG) allowance and disallowance to the state-owned gas utilities companies. UFG is a phenomenon of gas loss which is contingent upon occurrence of various technical factors when gas flows from fields to end consumers. It is calculated as the difference between metered gas volume injected into the transmission and distribution network (Point of Dispatch/Delivery) and the metered gas delivered to the end consumers (Consumer Meter Station) during a financial year.

- The determination of annual revenue requirement takes into account the determination of Unaccounted For Gas (UFG) allowance and disallowance to the gas companies.

- A two-component formula for calculating UFG allowance being used is as under:

$$\text{UFG Allowance} = \text{Gas Received} \times (\text{Rate1} + \text{Rate2} \times \beta)$$

- Rate1= Technical Component (Inherent gas loss in the system): Benchmark fixed rate based on prevalent conditions / infrastructure in the areas of the operation of the Sui companies and same is fixed at 5% for the next five years. The fixed rate also includes allowance for transmission losses which is calculated up to maximum 0.5%.

- Rate 2 = Local Challenging conditions component (Pakistan specific): is the allowance for local challenging conditions as compared to the world at large. Allowance for these challenging conditions is fixed at a maximum of 2.6%.

- β = Performance factor (Key Monitoring Indicators - KMIs): in order to ensure appropriate and serious efforts are directed towards reducing UFG over the agreed term of five (5) years, the local challenging conditions component has been linked to the achievement of KMIs by each gas utility company.

Source: UFG Report FY19-22 : Ministry of Energy, Petroleum Division

Business Risk | Natural Gas | UFG

- As per the UFG Manual, the UFG Control Department is responsible for identifying the grey areas on the basis of monthly gas sales reconciliation reports SMS / regions-wise. Areas with high %age loss should be focused to have proper control over UFG losses.

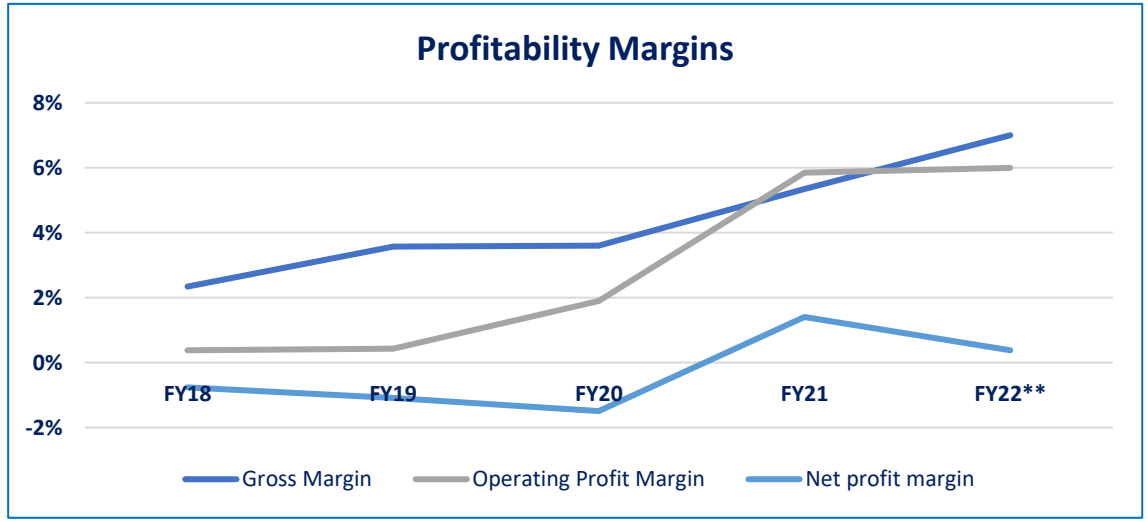
- During FY22, SNGPL reported UFG losses amounting to ~29,223 MMCF (SPLY: ~33,162), with UFG losses clocking in at ~8.06% (SPLY: ~8.6%) as against the allowed figure of ~6.98%. Concurrently, UFG disallowance decreased from PKR~3,426mln in FY21 to PKR~2,498mln in FY22.

- In the case of SSGCL, losses arising due to UFG losses amounted to PKR~106bln during FY18-21, against which, the budget utilized was recorded at PKR~2.3bln. In other words, these UFG losses came in at ~17.2%, much higher than the benchmark set by OGRA (6.9%), whereas, in absolute terms, these losses were recorded at ~130,955 MMCF during the three-year horizon (FY18-21). Following FY21, OGRA reduced UFG allowance for SSGCL from ~7% to ~4.5-5%.

- With respect to the segment's profit margins, these remained rangebound during FY22, with average gross and operating profit margins recording at ~7% and ~6%, respectively, whereas the average net margins came in at ~0.4% (SPLY: ~1%). The dip in net margins is reflective of higher average finance costs, which exhibited an increase of ~27.5% YoY.

OGRA's re-determined UFG benchmark for FY13-16.

Sr.	Particulars	SSGC	SNGP
1.	Average UFG Allowance (%)	6.07%	6.98%
2.	Adjustment / Differential of UFG	0.78%	0.11%
3.	UFG Benchmark (1+2)	6.85%	7.10%
4.	Rate of Return on Fixed Operating Assets*	17.4%	16.6%



***Note**: DFRR stands for Determination of Final Revenue Requirement. SMS stands for Sales Meter Stations. *Data for SSGCL refers to FY21, while that for SNGPL refers to FY22. **Weighted averages for SSGCL for 9MFY22 and SNGPL for FY22.*

Source: AGP, Companies' Financials

Distribution | Gas

Business Risk | Natural Gas | Prescribed Prices

- The segment's profitability is largely based on the basis of a fixed return on the distribution companies' rate of return on their operating fixed assets, the rate being pre-determined by OGRA. Rate determination is based on a WACC model (covered on the previous page).

- The companies' operating revenues are largely impacted by UFG adjustments and other disallowances, whereas the cost of gas also contributes to the overall performance, which is linked with international crude oil and high-speed furnace oil prices, as per the Gas Pricing Agreements signed with the GoP, and forms ~85% of OGRA's prescribed prices.

- The major constraint facing gas distribution companies is in the form of prescribed prices and UFG allowances set by OGRA. The mismatch between the two, in the presence of delayed receivables, leads to accruals in revenue requirement shortfall for the said companies. The table on the right depicts the recommended prices of both the players against prices set by OGRA and how the differential impacts the revenue shortfall.

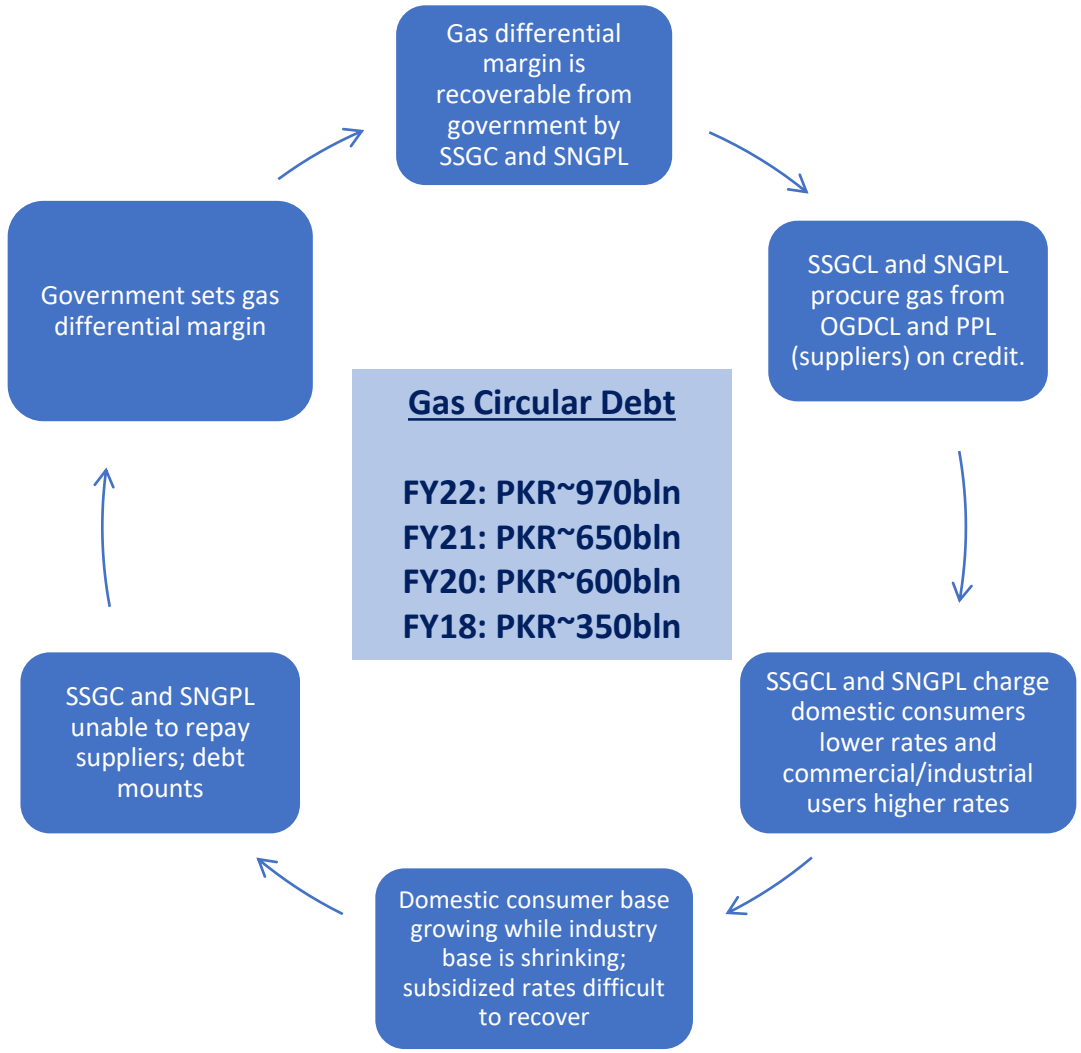
Particulars	FY21	FY22	FY23	FY24
Projected Revenue Shortfall (PKR mln)				
SNGPL	38,939	207,413	109,180	212,589
SSGCL	51,450	3,395	88,798	97,388
Prescribed Gas Prices (PKR/MMBTU)				
Suggested Average Prescribed Price (PKR/MMBTU)	1,111		2,022	
OGRA's Average Prescribed Price (PKR/MMBTU)	1,085		1,423	

- Despite the segment players cutting down on UFG losses, the increase in prescribed prices is not sufficient to contribute positively towards their operating profits. Additionally, assuming constant the disallowance volumes across FY22-24 (consequence of reduced UFG losses by the segment players), it can be tentatively observed that even with the increased prices notified during FY23-24, the segment would still report operating loss of ~31%.

***Weighted average margins of SSGC for 9MFY22 and SNGPL for FY22.*

Source: OGRA

Financial Risk | Gas Circular Debt



- The gas circular debt is piling up at an alarming rate, causing serious problems for an already fragile distribution gas sector.
- Initially, a major portion of debt was stemming from natural gas, however, lately the share of RLNG is building up as well.
- Differential margin = Tariff approved by government - Tariff recommended by OGRA.
- UFG and gas theft further increase the amount to be recoverable from the government.
- Subsidized tariffs, coupled with delayed release of subsidies, weaken distribution companies' ability to pay back RLNG suppliers, i.e., PSO and PLL.
- For the year FY21, while the combined receivables of both companies registered at PKR~267bln, their combined payables to OGDC, PPL and PSO recorded at PKR~616bln.

Outstanding Payable on account of SNGP & SSGC | 9MFY23

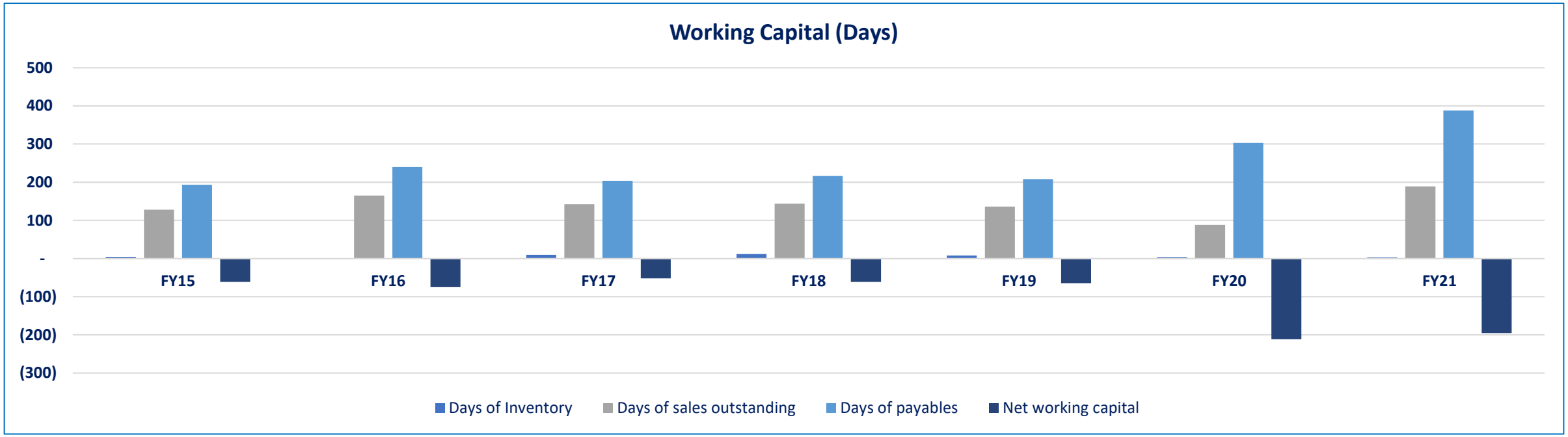
Company (PKR bln)	OGDC	PPL	PSO	Total
SNGP	190	238	350	**778**
SSGC	201	215	-	**416**
Total	**391**	**453**	**350**	**1,194**

***Note**: Circular Debt figure for FY22 is cumulative of SSGC for 3MFY22 and SNGPL for FY22.*

Source: PACRA Database, Petroleum Division, Companies' Financials

Distribution | Gas

Financial Risk | Working Capital | Natural Gas



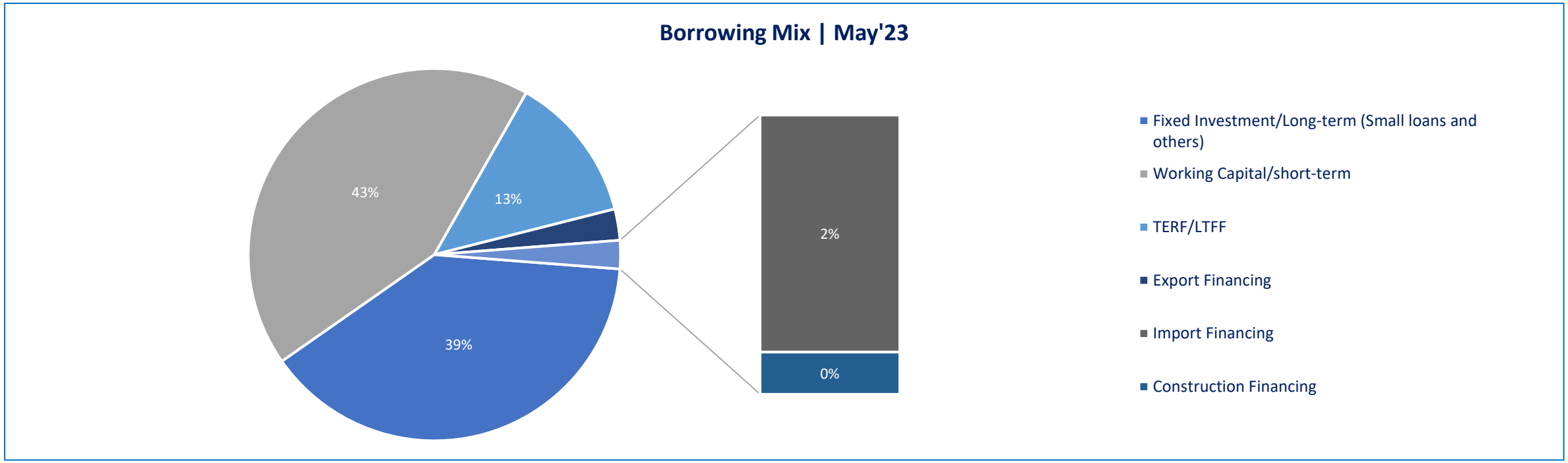
- The sector's circular debt has been piling up along with the payables and unabated UFG losses, and this poses a significant liquidity risk facing the sector players, impacting the working capital management. Between FY15-21, payable days of the sector increased by ~194 days to stand at ~388 days during FY21. This increase stems from the mounting receivable days, on account of consumers failing to keep up with timely payments.
- Meanwhile, days of sales outstanding declined dramatically from FY15 to FY21 by ~61 days. Tariff adjustments have considerably accumulated in the indigenous gas and RLNG segments and are to be recoverable from the government. Recoverability depends on the government increasing gas prices, providing subsidy or employing another mechanisms. As previously observed,
- Overall, the cash conversion cycle has declined by ~135 days between FY15 and FY21. For FY21, average net working capital days clocked in at ~ -196 days (FY20: ~ -211 days).

***Note**: FY21 data is the latest available for both distribution companies.*

Source: SNGPL, SSGPL

Distribution | Gas

Financial Risk | Borrowing Mix | Natural Gas



- The total borrowing for “manufacturers of gas; distribution of gaseous fuels through mains” stood at PKR~11,044bln in May’23, as compared to PKR~13,950bln in Apr’23 and PKR~9,502bln in May’22.
- The sector receives the greatest amount of financing for working capital and fixed capital investment (~43% and ~39% share, respectively, of the borrowing mix) as much of its activities revolve around ensuring uninterrupted distribution of gas across Pakistan.
- Working capital financing is a critical liquidity source for distributors as overdue trade debts from the governments have been a long standing problem for the sector and have not generated the required (timely) inflow from sales.

Source: SBP

Liquified Petroleum Gas

LPG | Import | Production | Distribution

SSGC (Pvt.) Ltd

- SSGC (Pvt.) Ltd (SLL) is a wholly owned subsidiary of Sui Southern Gas Pipelines Ltd engaged in production, marketing and distribution of LPG owning one-third of the nation's LPG storage facility.
- The company's value chain starts from the import of LPG and progresses to storage, bottling, distribution, and marketing of LPG in both bulk and cylinders.
- The company operated a fully owned import terminal at Port Qasim which has 3.5 km pipelines and a jetty capable of handling vessels of up to 15,000 DWT. The bulk storage capacity is 6,500 MT.
- SSL operates three LPG cylinder plants two of which are operational (in Port Qasim, which is fully automated, and Haripur) and one under development (in Muridke). The Haripur plant operates as a regional distributor.
- SSL has over 160 dealers nationwide.
- The main bottling, storage and terminal facilities are located in Port Qasim which handles LPG from various international sources for its own use and for a common user facility for other LPG marketing companies.
- SLL offers 'hospitality arrangements' to other LPG marking companies in all its nationwide storage and bottling operations.

Engro Vopak Terminal Limited

- Engro Vopak Terminal Limited operates a terminal and storage facility for LPG and other bulk liquid chemicals receiving a LPG Storage and Handling License from OGRA.
- The facility provides for more than 50% of the country's marine LPG imports enabling the operations of Pakistan's chemical and petrochemical manufacturing plants by delivering 650 KT Phosphoric acid, 300 KT of 300 KT of Paraxylene, and 72 KT of Ethylene among other chemicals.
- Vopak's total LPG storage capacity now stands at 7,000 MT while the storage capacity of the terminal operation is 82,400 cubic metres.

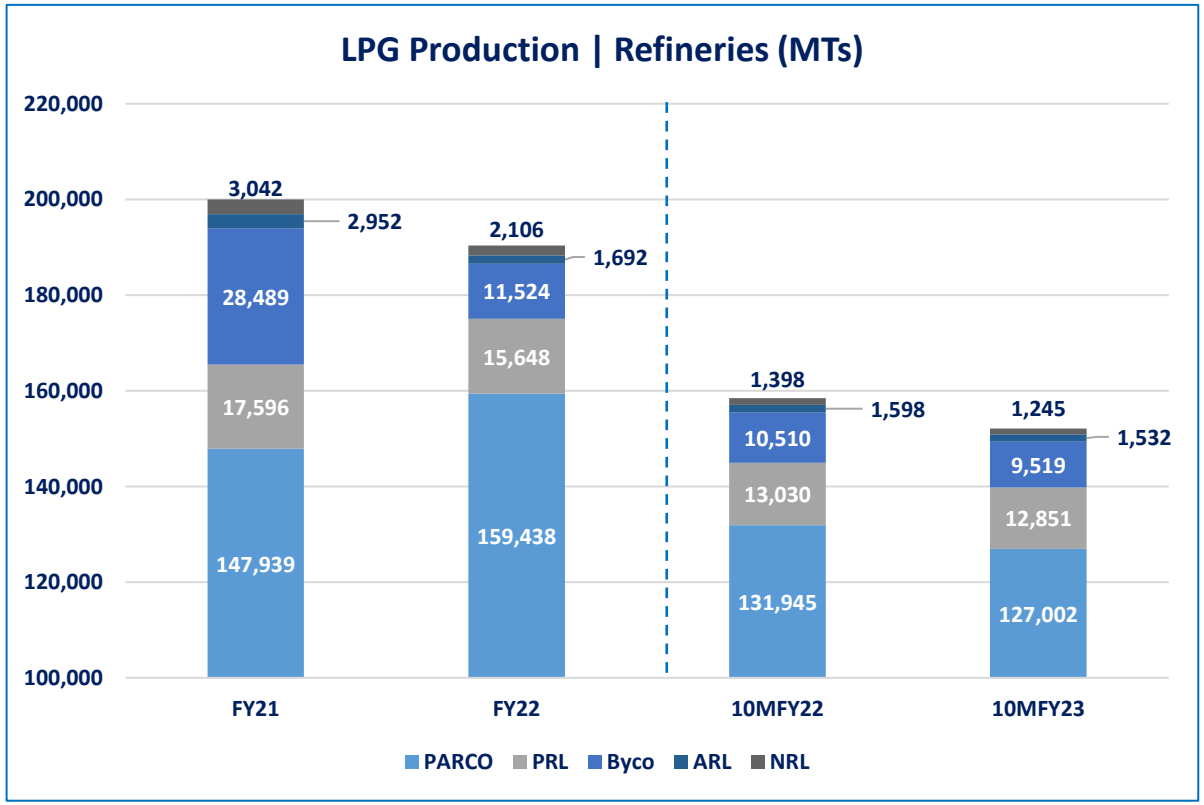
Source: SSGC, Engro Vopak

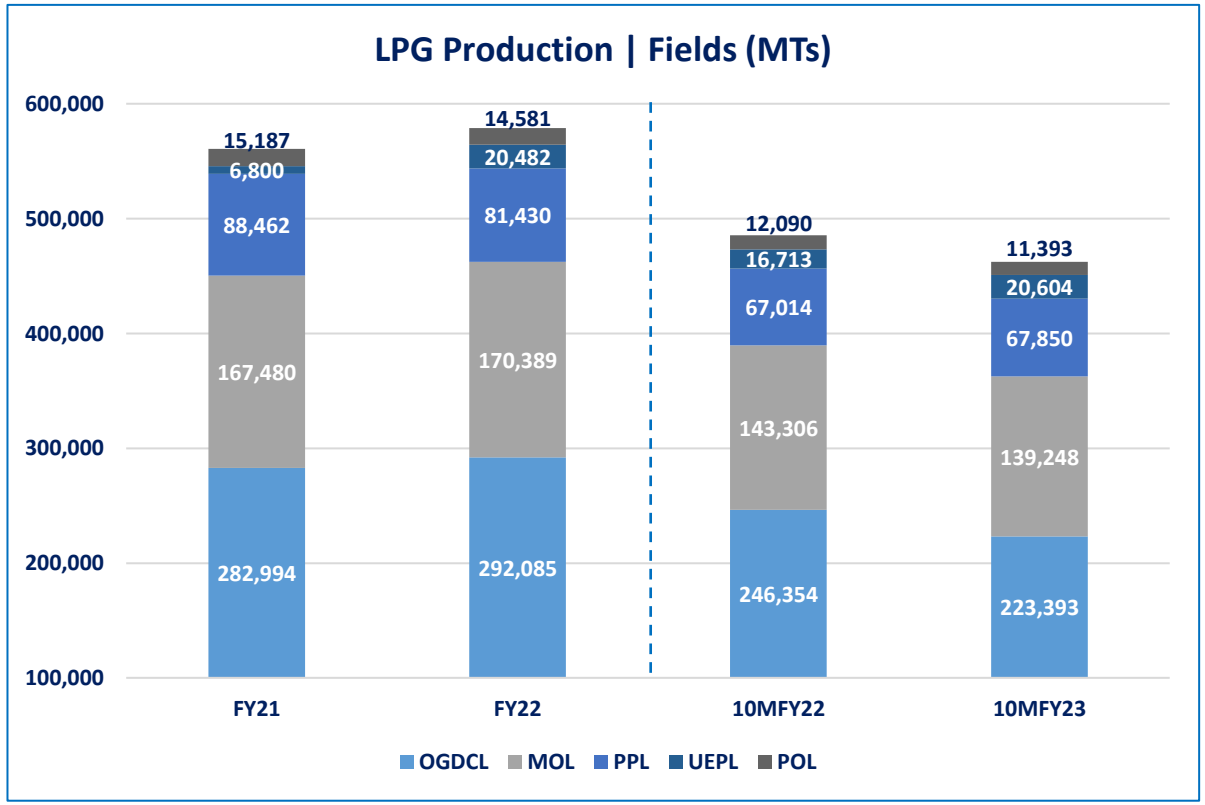
Distribution | Gas

Local | Supply | LPG Extraction or Processing

- In FY22, total LPG extraction/processed was ~769,375 MT up ~1% YoY (FY21: ~760,942 MT). Of the total ~75% was extracted from natural gas fields while the remaining ~25% was produced in refineries.

- LPG production from refineries declined ~5% YoY, while LPG production from fields grew by ~3.2% YoY.

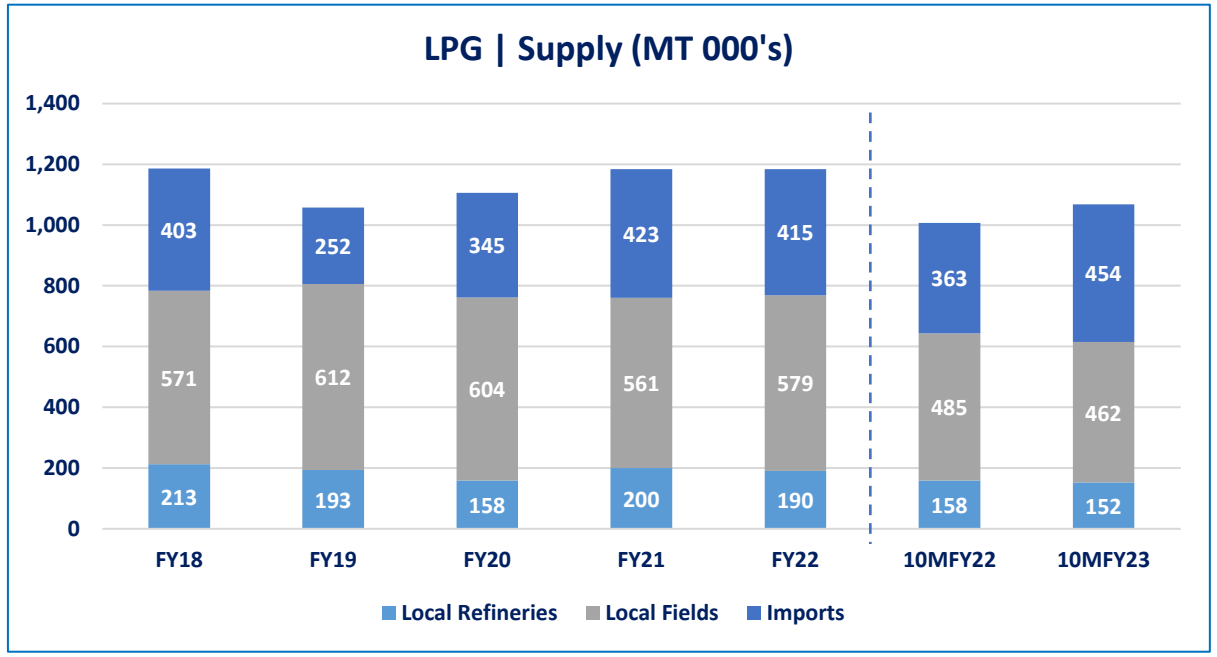


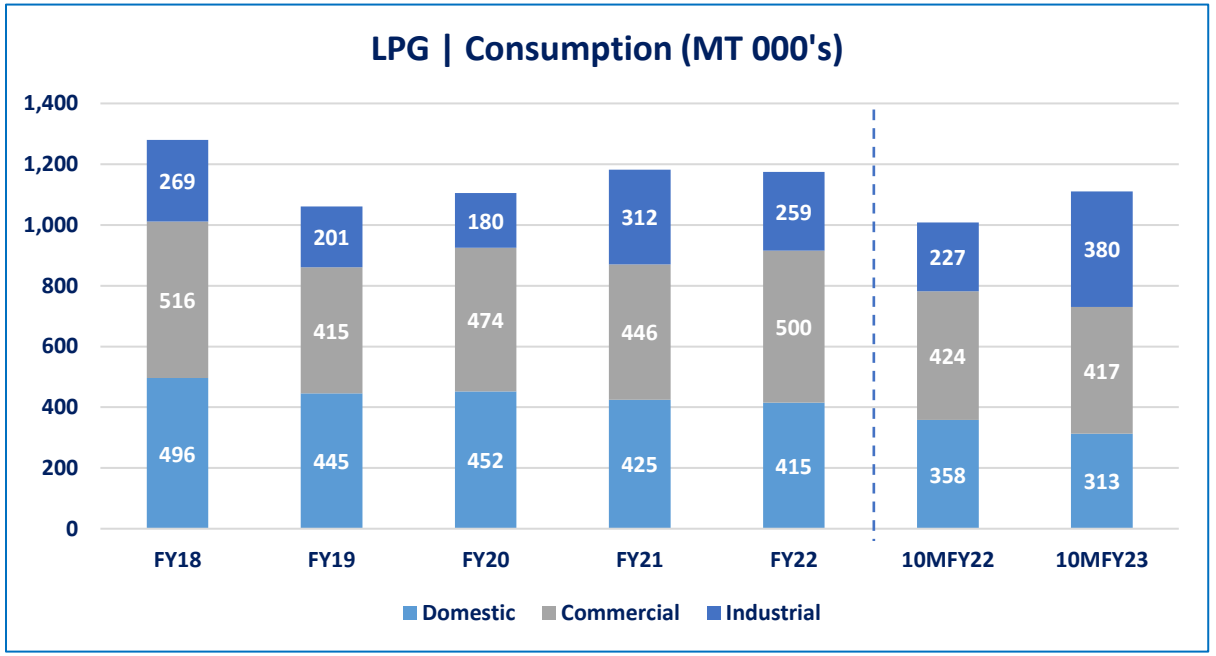


Source: OGRA

Distribution | Gas

Supply Side | LPG Production and Sales





- In the 10MFY23 period, locally produced/processed LPG declined by ~5% YoY, while its sales declined by ~6% YoY. There are presently four major indigenous LPG producers in Pakistan – OGDCL, MOL, PARCO and PPL – with OGDCL having the greatest market share of ~36%.
- In 10MFY23, LPG production form local refineries clocked in at ~152,243 MTs, down by ~4% YoY, while their sales were down by ~11% YoY. As the economic slowdown led to lower POL products' demand, in combination with technical deficiencies at local refineries, overall production of POL products declined by ~12% YoY while sales were down by ~26% YoY contemporaneously.
- LPG production from oil and gas fields in 10MFY23 declined to ~462,488 MTs, down 5% YoY, and their sales were down by ~4% YoY. Production levels were adversely impacted due to natural decline at a number of fields, while flooding in 1QFY23 also lead to curtailment of production at various fields.

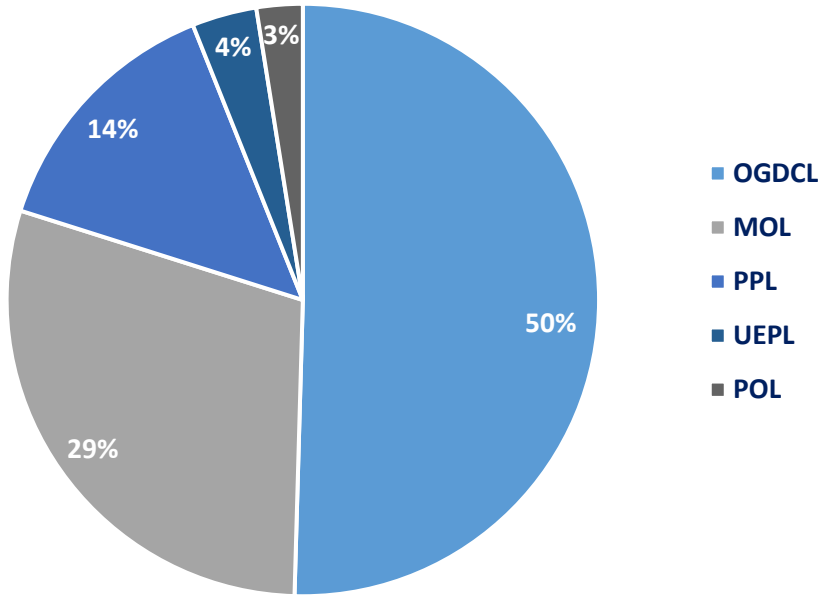
Source: OGRA, Companies' Financials

Distribution | Gas

Local | Supply | LPG Local Players

- OGDCL holds the largest share in the indigenous LPG production industry making it the market leader in exploration and production activity.
- As of Mar'23, the company's exploration acreage stood at ~89,459 sq. km, representing a ~41% share in Pakistan's area under exploration.
- In terms of production, OGDCL contributed to ~46%, 29% and 36% of country's total crude oil, natural gas and LPG production, respectively.

Producer Share in Indigenous Production | FY22

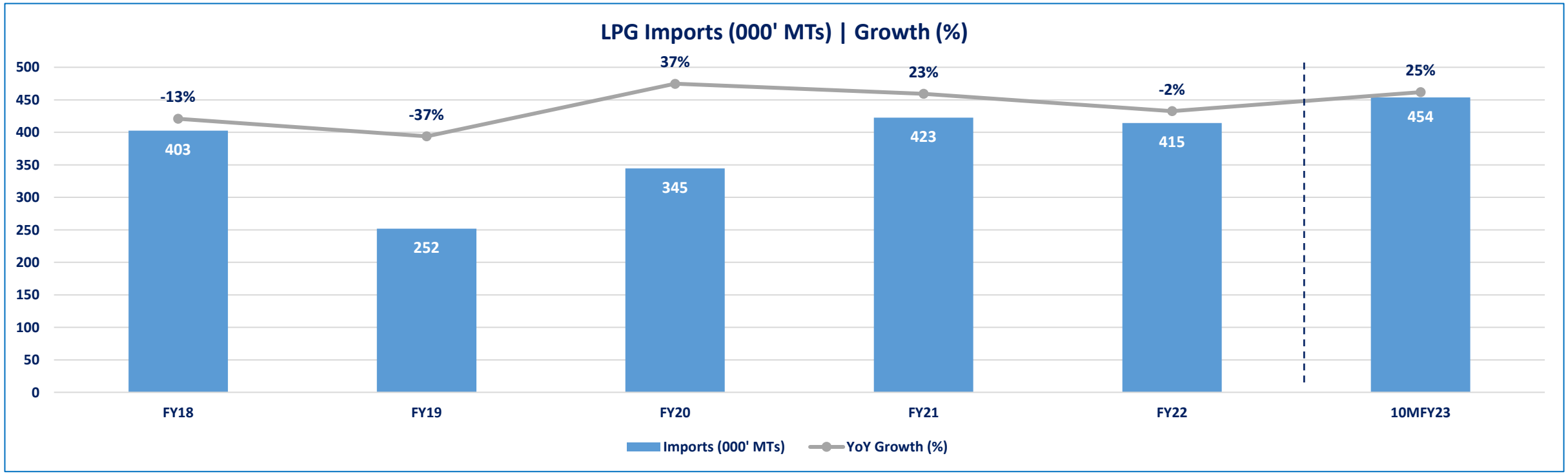


Source: Companies' Financials

Distribution | Gas

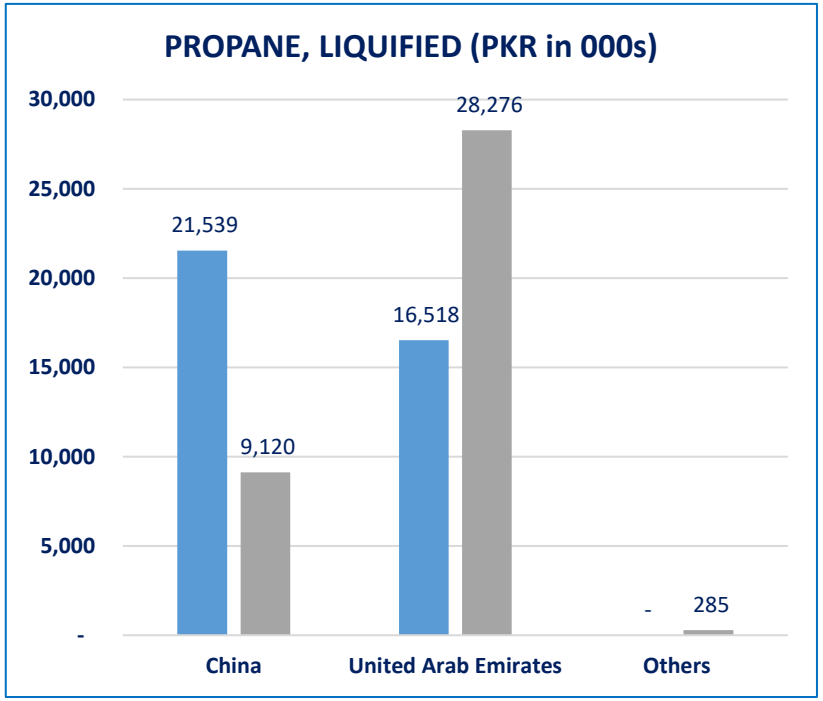
Supply | LPG Imports

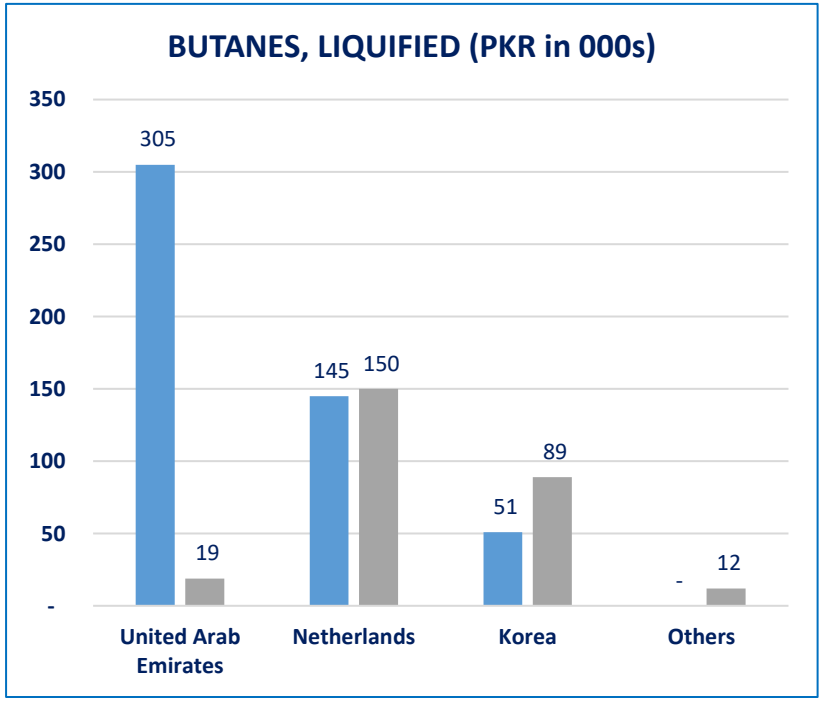
- Pakistan significantly relies on imported LPG. In 10MFY23, ~453,831 MTs of LPG were imported into Pakistan, representing a ~42% share in total supplies, up ~25% YoY.
- LPG is majorly imported from Iran, which represented a ~75% share in FY22; it was followed by Iraq with a ~21% share in the same period. Landed cost per Kg in FY22 increased 74% YoY, due to both high energy commodity prices internationally and PKR devaluation.

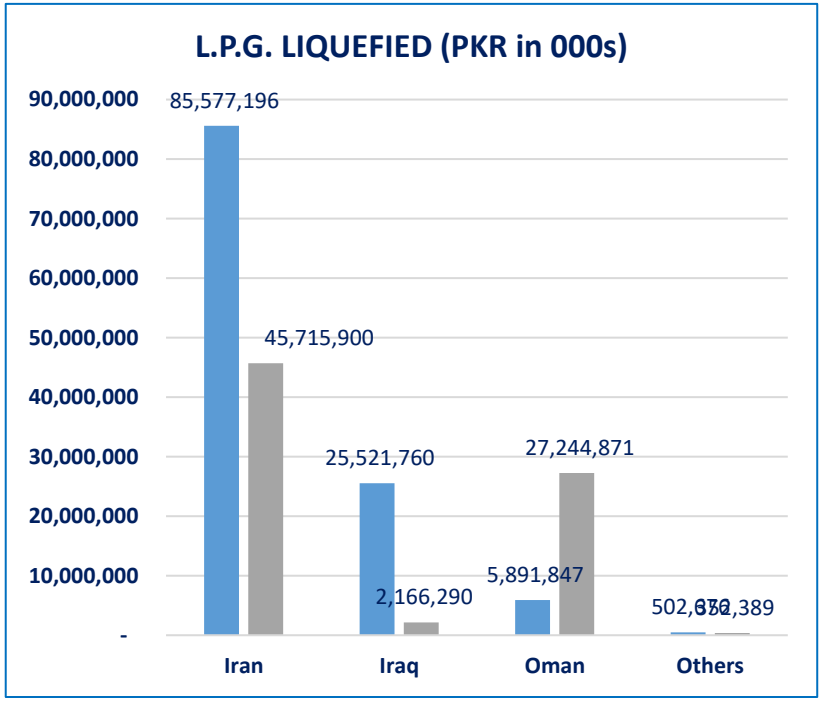


Source: PBS

Supply Side | LPG Import Sources







- Propane and butane are two forms of LPG gas and products of either crude oil processing or natural gas processing and are liquified through pressurization. Propane is used in heating and cooking across homes and restaurants. Butane is commonly used as a fuel, propellent, and refrigerant.
- Going forward as, Pakistan's energy needs and reliance on imported gases increases, these can reasonably be expected to occupy a larger share in the imports. In 11MFY23 LPG held a ~4.2% share in the petroleum group imports compared ~3.1% in 11MFY23 while it held a ~1.3% share in total imports compared to ~0.8% in the previous year.

Source: PBS

Distribution | Gas

LPG Terminals | Marketing | Distribution

- There are currently three OGRA-approved LPG terminals situated in Pakistan which provide storage, distribution and/or marketing facilities.

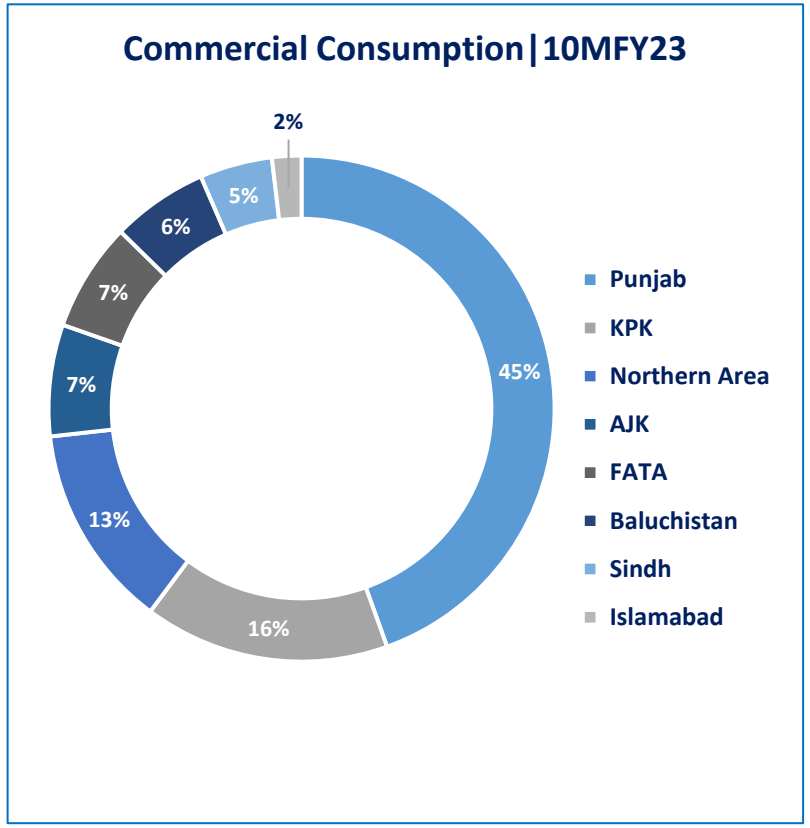
Company Name	Head Office Location	Terminal Location
SSGC LPG (Pvt.) Limited	Karachi	Port Qasim
ENGRO Vopak Limited	Karachi	Port Qasim
Al-Qasim Gas (Pvt.) Limited	Islamabad	Gawadar Port

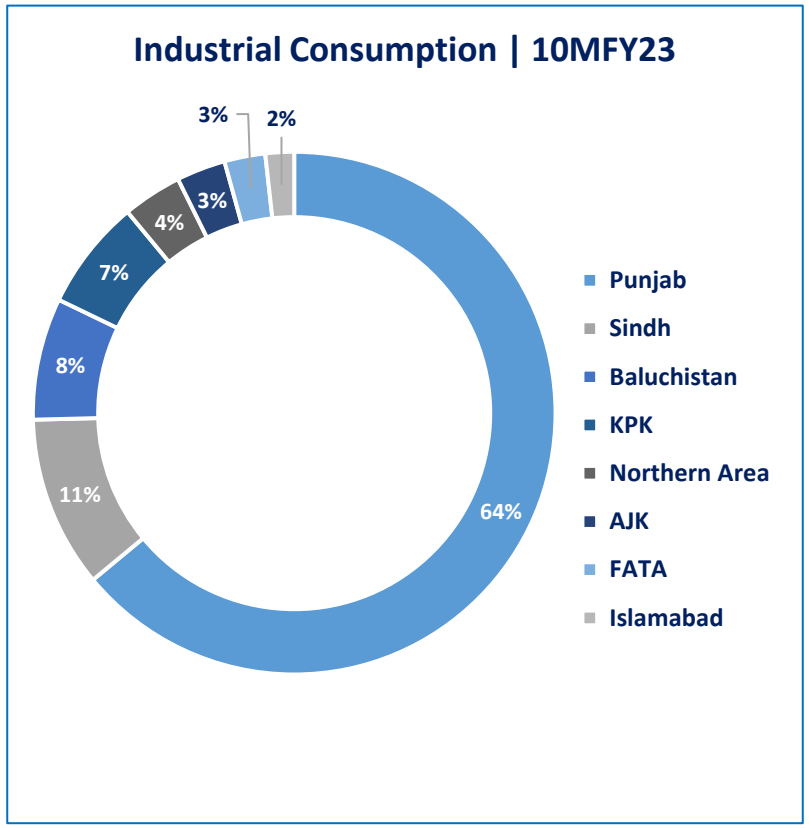
- In addition, there are 276 LPG marketing and 5,924 LPG distribution companies authorized by OGRA. Marketing companies typically import and/or procure LPG from local producers and market the commodity to various sectors of the LPG market (geographically and based on segment – Autogas, domestic, bulk, commercial agriculture). Furthermore, these companies liaise with a network of distributors which deliver the gas to the end consumers.

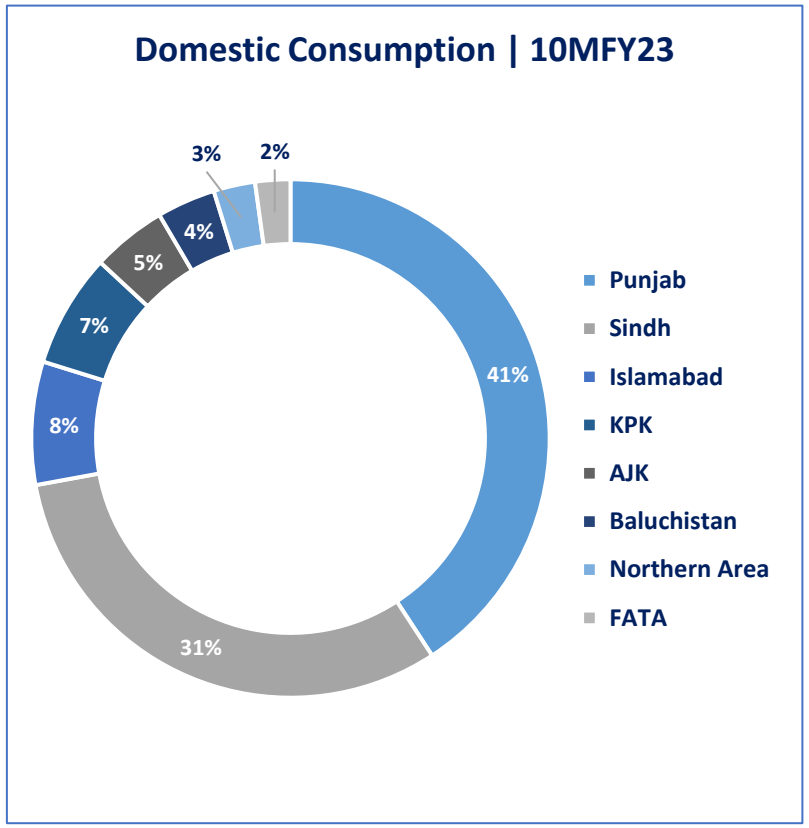
Source: OGRA

Distribution | Gas

Demand | LPG Consumption







- Punjab is the highest LPG consumer across the three sectors (commercial: ~64%; industrial: ~41%; domestic: ~45%) over the specified time horizon. Moreover, in the 10MFY23 period, Punjab's LPG consumption has dropped by ~15% in the domestic sector; increased by ~42% in the industrial sector; and remained largely unchanged the commercial sector.

Source: OGRA

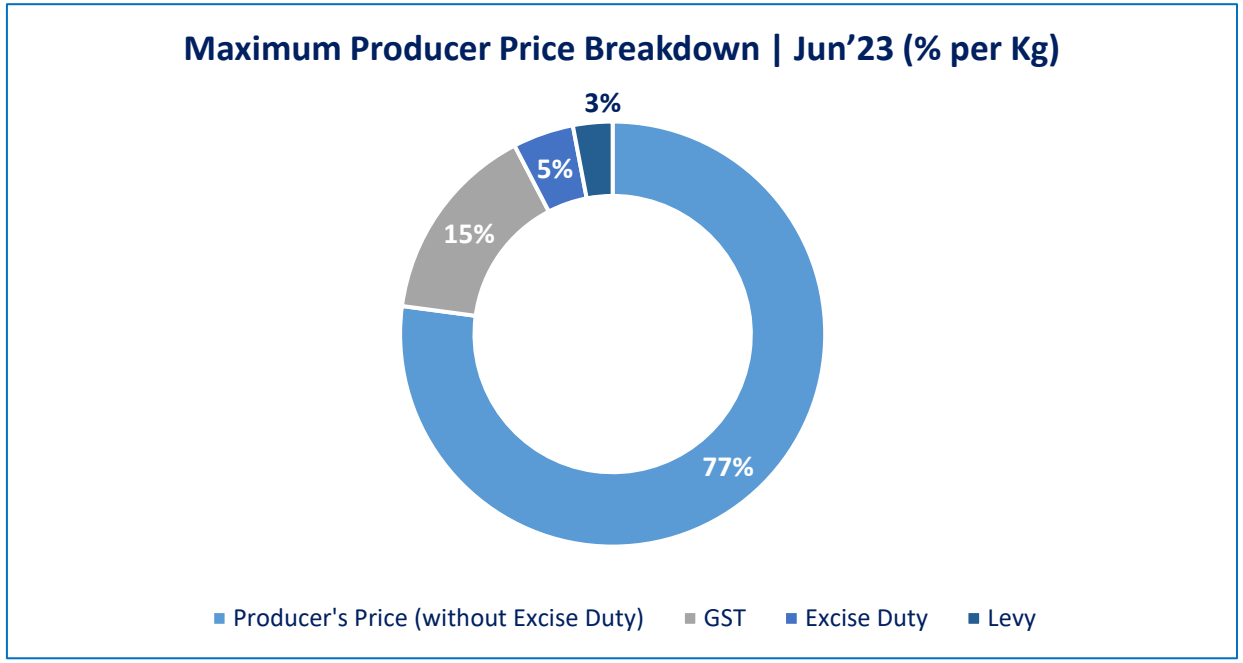
Business Risk | LPG Pricing

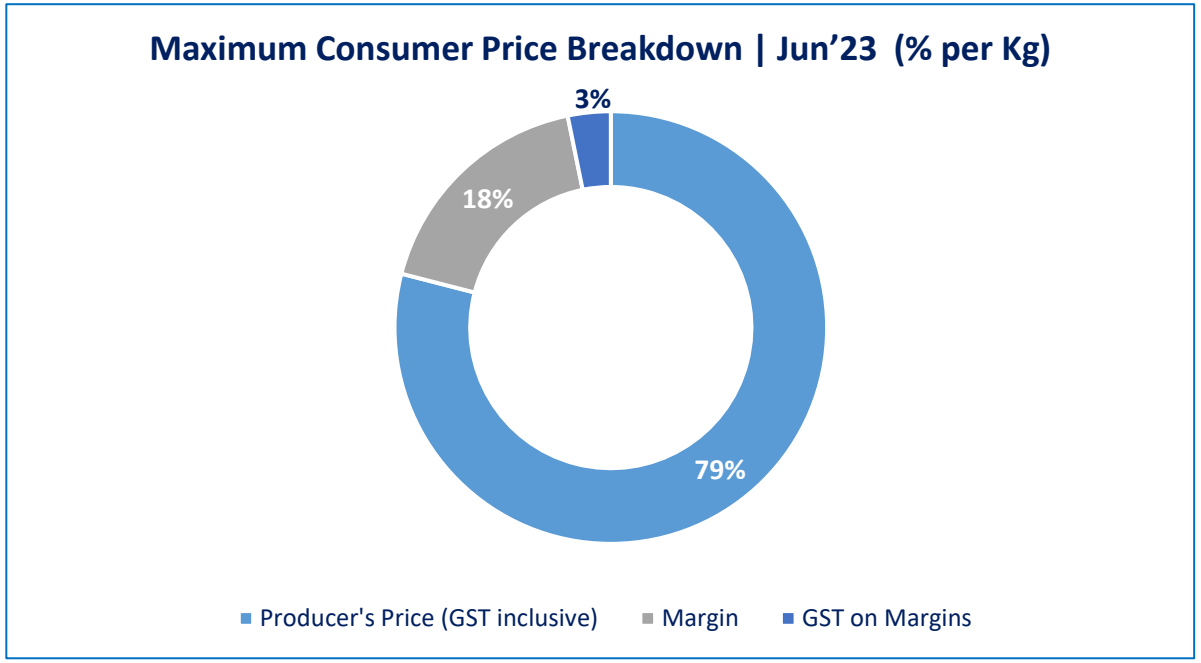
The LPG Policy 2016 fixes the maximum LPG price at all levels of the supply chain. However, producers, marketing companies and distributors may sell below the maximum price determined from time to time. The following price breakdown will be effective from Jul'23.

Ministry of Energy | Indigenous LPG Price | Jun'23		
	PKR/MT	**PKR/ 11.8 KG Cylinder**
LPG PRODUCER PRICE		
i. Producer's Price (includes excise duty of PKR 85/MT)	110,584.77	1,304.90
ii. Petroleum Levy	4,669.00	55.09
iii. Sum of i and ii	115,253.77	1,359.99
iv. 18% GST of iii	20,745.68	244.80
v. Maximum Producer Price with GST (iii + iv)	135,999.45	1,604.79
LPG CONSUMER PRICE		
i. Producer's Price (inclusive of GST)	135,999.45	1,604.79
ii. Breakup of marketing, distribution and transportation margin	35,000.00	413.00
Marketing: PKR 17,000/MT Distribution: PKR 10,000/MT Transportation: PKR 8,000/MT		
iii. 18% GST of (ii)	6,300	74.34
iv. Maximum LPG Consumer Price (i+ ii+ iii)	177,299.45	2,092.13

Source: OGRA

LPG | Pricing Breakdown

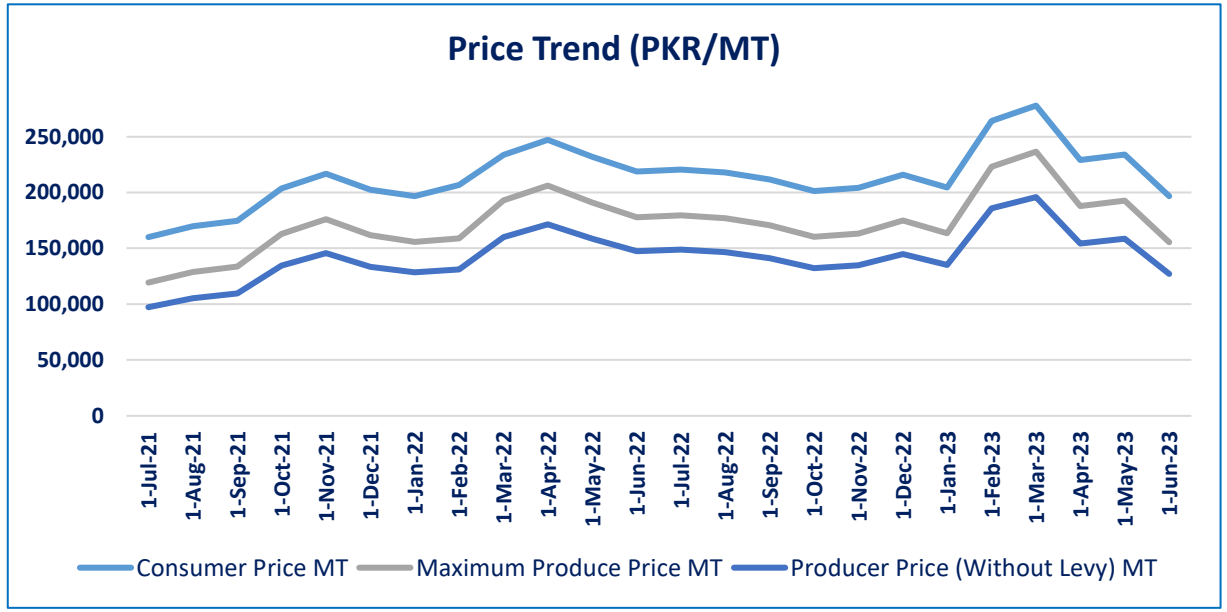


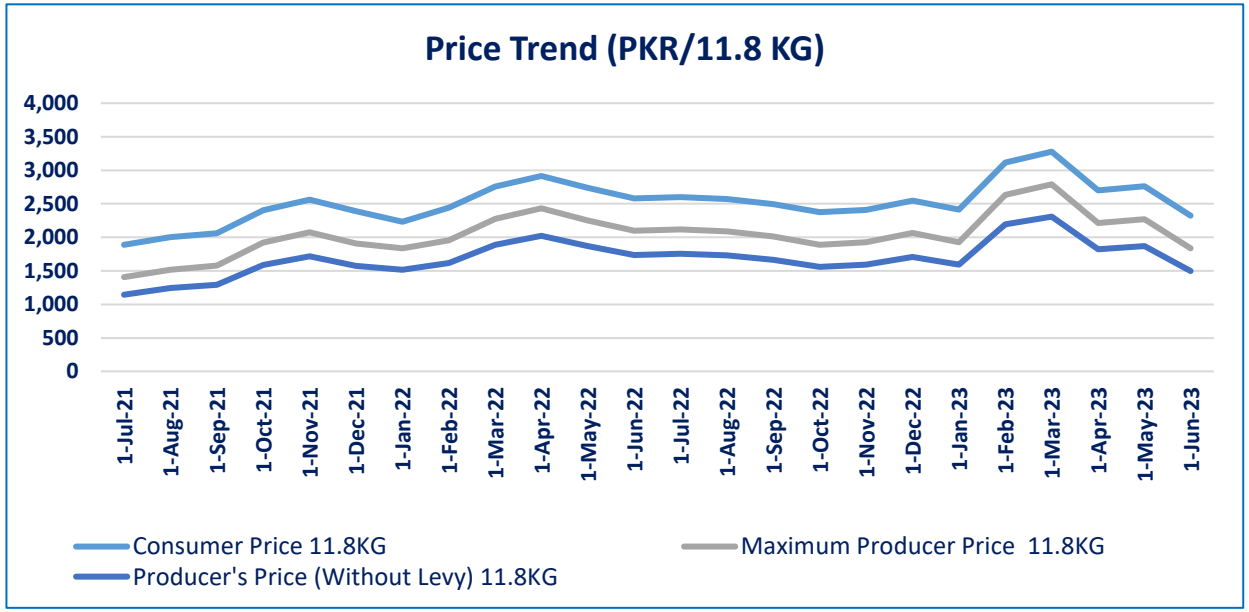


- As per the LPG Policy of 2016, OGRA will regulate and notify the prices of indigenous LPG including producer's price, margins of marketing and distribution companies and consumer prices. The government also charges a levy from time to time at its discretion.
- The maximum LPG prices (consumer and producer) are regulated at all levels of the supply chain. Distributors have the liberty to sell below this maximum fixed price from time to time.
- In the two breakdowns, it can be observed that the producer's price comprises the largest chunk of both the producer and consumer notified prices which underscores the fact that LPG marketing and distribution companies have limited flexibility in price-setting/ adjustments. In addition, the government retains the authority to intervene in case there is a significant deviation from the above pricing.

Source: OGRA, LPG Pricing Policy 2016

LPG | Pricing Trends

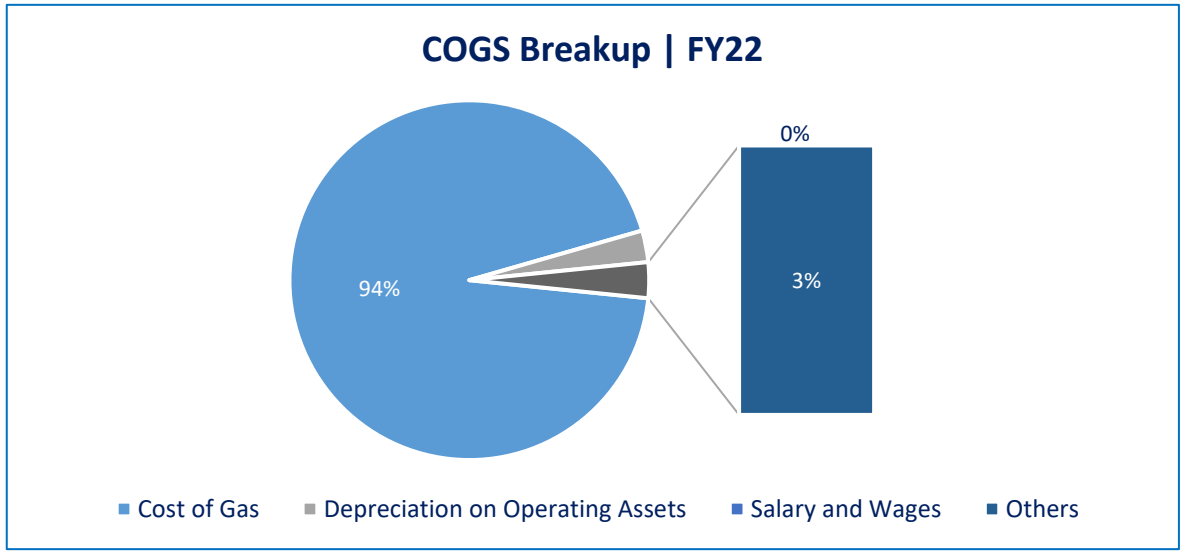


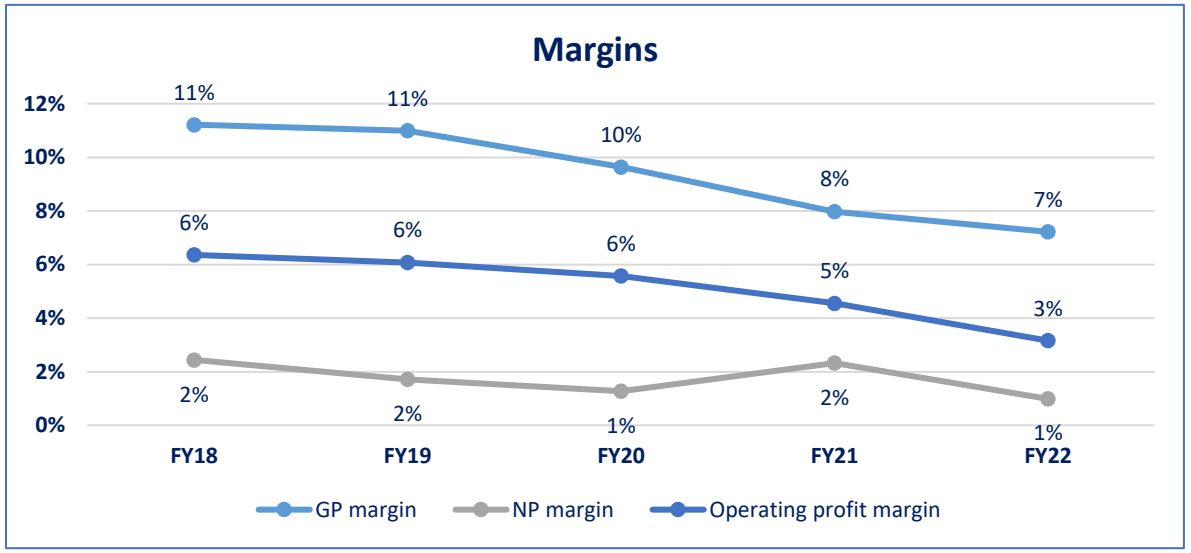


- OGRA typically announces LPG prices on a monthly basis. LPG is typically sold domestically in cylinder sizes of 4kg, 6kg, and 11.8kg. LPG is sold commercially in cylinder sizes of 45kg and industrially in MTs. The two graphs depict the LPG pricing trends as set by OGRA. LPG prices for a 11.8kg cylinder touched their highest level in Mar'23, with the maximum producer price at PKR~2,790 and consumer price at PKR~3,278.
- International energy commodity prices were although easing, these were still significantly high, while the PKR depreciated ~25% against the USD in 1QFY23, as the government switched PKR value to a market-determined rate.
- In Jun'23, OGRA reduced LPG prices and the 11.8kg cylinder is now selling at a maximum producer price of PKR~1,834 and consumer price of PKR ~2,321.

Source: OGRA

Margins and Cost Structure | LPG Importers and Distributors



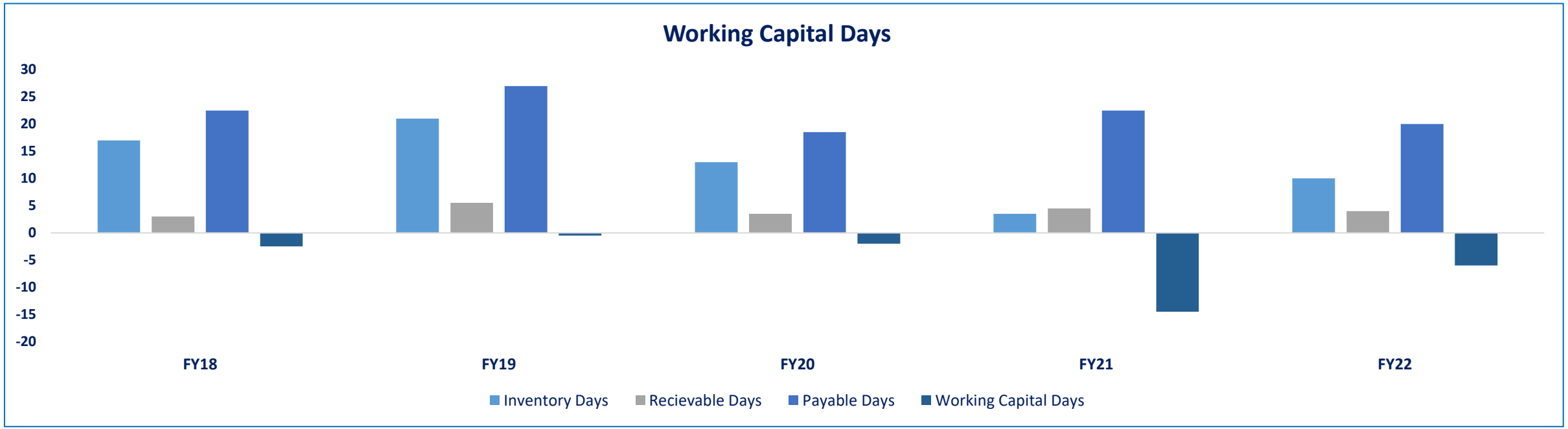


- Cost of gas (raw material) comprises the largest portion of importers' cost of sales (~94%) followed by depreciation on operating assets (~3%). This indicates variability in forex rates. Resultantly, imported prices have the potential to induce variation in operating and net profits.
- An increase in combined revenues by ~85% (FY22: PKR~423,997mln, FY21: PKR~229,081mln) contributed positively to the gross profit that increased by ~136% (FY22: PKR~31,938mln, FY21: PKR~9,287mln). In FY22, although the average COGS increased by ~84% (FY22: PKR~399,178, FY21: PKR~399,178mln), gross margins dipped by ~1% and stood at ~7%. On the other hand, average net profit margins fell from ~2% in FY21 to ~1% FY22, most likely reflecting an increase in finance costs.
- Going forward as 10MFY23 consumption clocked in ~10% higher YoY, while maximum producer price on average grew ~11% YoY in FY23 and consumer prices grew by ~9% YoY for the same period, sector margins can be expected to be kept in check, as the larger base effect may mitigate gains from higher sales volumes.

Source: Companies' Financials

Distribution | Gas

Financial Risk| Working Capital | LPG

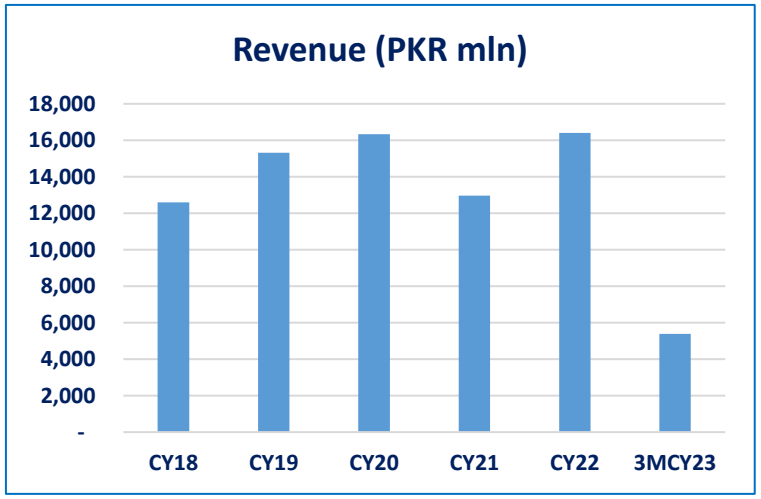


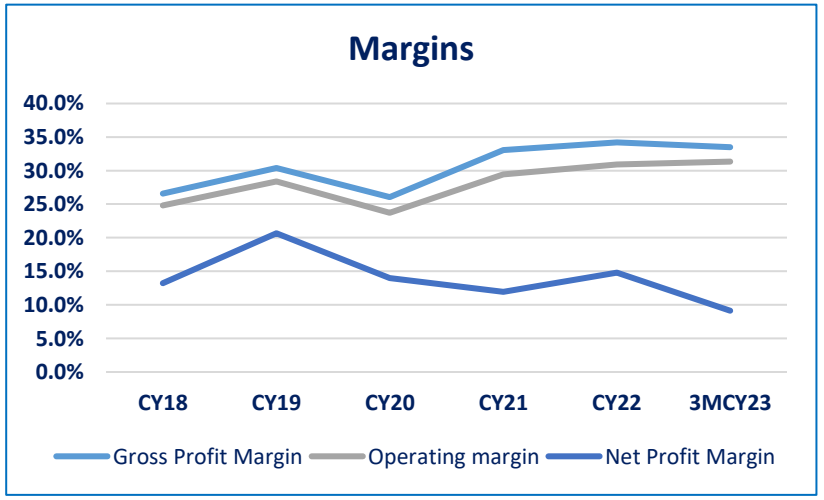
- The sector has historically maintained a negative cash conversion cycle, indicating a strong working capital position. In FY22, the cash conversion cycle increased to ~-6 days compared to ~-15 days during the previous year.
- The inventory days increased to ~10 days compared to ~4 days in the previous year, while the receivable days decreased to ~4 days compared to ~5 days in the previous year. Payable days clocked in at ~20 days, compared to ~23 days in the previous year.

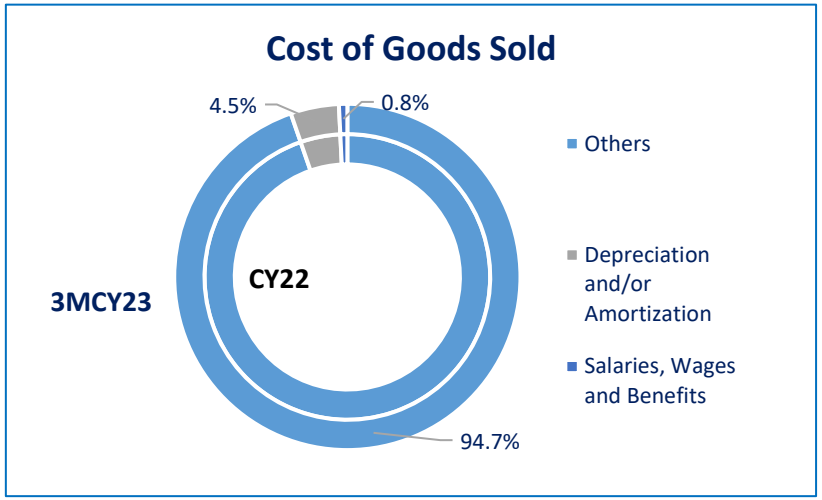
Source: Companies' Financials

Terminal Handling | Business Risk

- Depleting indigenous gas reserves and a transition towards cleaner and cheaper power generation have been the major factors driving the country towards adding LNG to its energy mix. Over the past few years, the government has established the basic LNG infrastructure, which has helped bridge the gas supply-demand shortfall, and lately, there has been some progress toward private sector participation in LNG import and so in order to meet the growing energy needs of the country, LNG terminals are established for the purpose of storage and re-gasification of imported LNG.
- During CY22, revenue witnessed a growth of ~27%, primarily owing to USD appreciation against PKR and registered at PKR~16,409mln (3MCY23: PKR~5,390mln; CY21: PKR~12,960mln). Revenue stream of the segment player largely comprises capacity payments, tolling charges and flexibility charges.
- Gross profit margins remained steady from CY22 to 3MCY23 at ~34% (CY21: ~33%). The operating margins also remained in the range of ~30% to ~31% between CY21 and 3MCY23. Net margins declined from ~15% in CY22 to ~9% in 3MCY23, primarily due to exorbitant increase in exchange loss on borrowings. However, margins of the segment player remain sustainable largely owing to revenue being recognized under the LNG operations and Services Agreement with SSGCL and being recognized on the basis of RLNG throughout to the distribution company and operations and maintenance revenues.







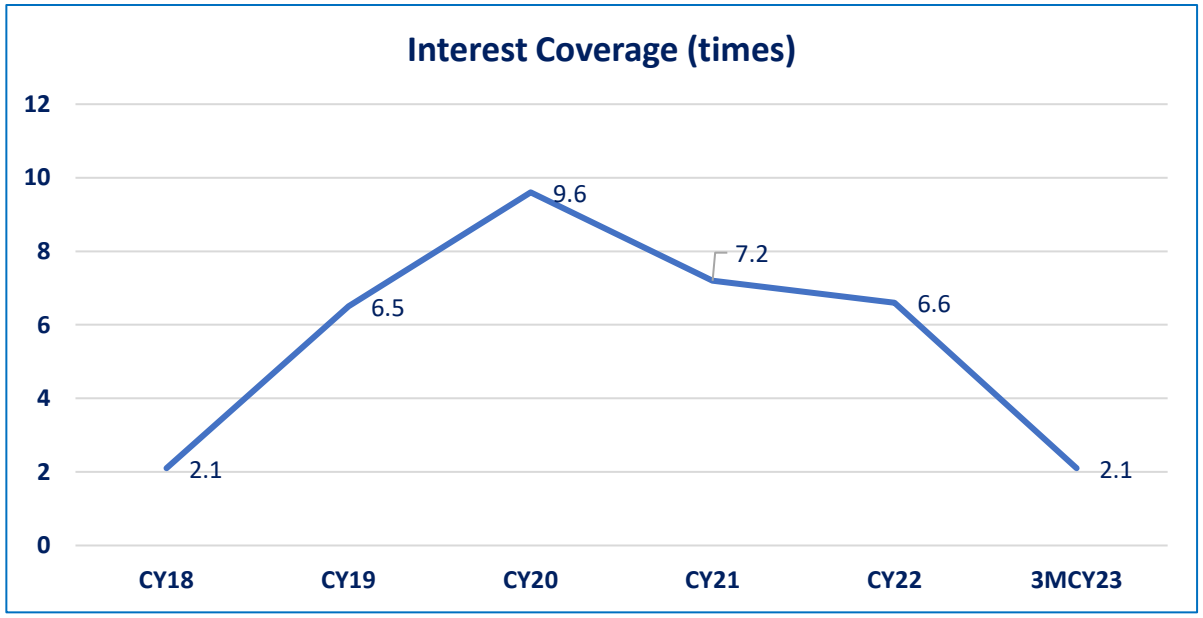
Note: *Data is representative of one PACRA-rated client with ~50% of LNG imports and re-gasification capacity. .*

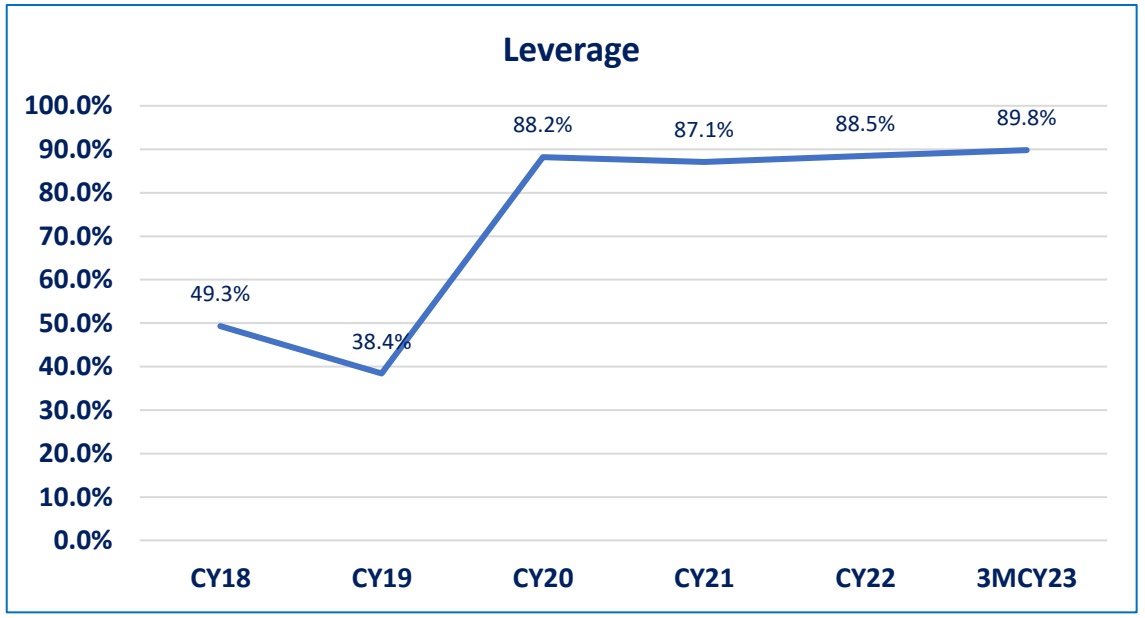
Source: PACRA Database

Terminal Handling | Financial Risk

- Leverage increased to ~89% in CY22 from ~87% in CY21. In the 3MFY23 period, the leverage slightly increased to ~90%, depicting further increase in financial risk.

- Interest coverage declined from ~7.2x in CY21 to ~6.6x in CY22 and then sharply declined to ~2.1x. This portrays the segment's inefficiency in meeting its financial obligations, and may have possibly resulted from the hawkish monetary policy stance undertaken by the SBP, especially during 2QFY23 and onwards. This can also be corroborated with the increase in gearing ratio over the same period, which is reflective of increase in short-term borrowings.





Note: *Data is representative of one PACRA-rated client with ~50% of LNG imports and re-gasification capacity. .*

Source: PACRA Database

Duty and Tax Structure

- Special tax provisions apply to the exploration and production of natural gas, pipeline operations of production and extraction companies, manufacture and sale of liquified petroleum gas or compressed natural gas.
- Profits and gains derived by LNG Terminal Operators and LNG Terminal Operators and Terminal Owners are exempt from tax for tax expenditure of PKR~816.33mln.
- In addition, the petroleum development levy and gas infrastructure development Cess (GIDC) has been set at PKR~869bln and PKR~30bln, in the FY24 Budget, petroleum levy on LPG is budgeted at PKR~12bln.

	Category	FY22	FY23
Natural Gas (Gaseous State)	Federal Excise Duty	PKR 10/MMBTU	PKR 0.18 /1 Tariff Unit
	Custom Duty	5%	0%
RLNG	Custom Duty	11%	11%
	Sales Tax	17%	18%
	Federal Excise Duty	PKR 10/mln MMBTU	PKR 10/1 Tariff Unit
	Additional Custom Duty	2%	2%
LPG	Custom Duty	Exempt	0%
	FED	PKR 17.80 per 100m^3	60.0/100,000 Tariff Unit
Butane	Custom Duty	Exempt	0%
	FED	PKR 17.80 per 100m^3	17.18/ 100 Tariff Unit
Propane	Custom Duty	Exempt	0%
	FED	PKR 17.80 per 100m^3	17.18/ 100 Tariff Unit

Source: FBR, Ministry of Finance

Natural Gas | Regulatory Framework

The regulatory functions of natural gas sector were transferred to OGRA on March 28, 2002 with the objective to break the public sector monopoly and open natural gas transmission and distribution to private sector to promote and enhance competition in the midstream and downstream oil and gas sectors. OGRA has been performing the following functions pertaining to the Natural Gas Sector: -

- Grant of licenses for the regulated gas sector.
- Formulation of rules, regulations and procedures for the conduct of licensees.
- Determination of Revenue Requirement of SNGPL & SSGCL.
- Monitoring and enforcement of rules, regulations and applicable license conditions.
- Processing of cases regarding Gas Pipeline Capacity Allocation and related Gas Transportation Agreements.
- Licensing of low pressure (flare) gas.
- Licensing for transmission, distribution and sale of Natural Gas.
- Approval of Gas Sale Agreements (GSAs) for supply of gas between the Gas Producers and Gas Companies/Consumers.
- Handling cases related to Natural Gas Infrastructure Development Projects.
- Conducting UFG Study of Gas Sector.
- Liaison with International Organizations / Donors, e.g. World Bank, USAID, regarding Gas Sector Reforms.

Source: OGRA

LPG | Regulatory Framework | Production and Distribution | Import | Pricing

- The LPG (Production and Distribution) Policy, 2016 developed by OGRA regulates the local LPG industry.
- In 2000, the Federal government deregulated the LPG industry to making it investor friendly, foster healthy competition, improve safety standards and ensure better consumer services.

Production and Distribution for E&P Companies:

- Public Sector E&P Companies shall directly or through other companies exercise their right to set up LPG extraction facilities at gas fields where LPG can be commercially extracted in accordance with the development plan approved by the Government.
- Public Sector E&P Companies and Refineries shall give preference in sale of LPG to Gas Utility Companies for supply to LPG Air-Mix Plants. In case Gas Utility companies are unable to lift LPG, the LPG would be disposed of in a transparent manner through a competitive bid process to the licensed LPG marketing companies on terms and conditions to be settled between the Buyer and Seller.

Import and Export of LPG:

- Any party with an authorized license will be granted the right to import LPG into Pakistan.
- Any surplus of LPG can be exported after meeting local industry demand.
- The Federal Government, OGRA, and key stakeholder will determine the quantity of LPG to be imported to meet any gap between demand and supply; this quantity will be imported by Public Sector companies.
- Levy on LPG or Gas Infrastructure Development Cess (GIDC) may be utilized to subsidize the LPG imported by Public Sector companies for bringing the prices equal to local LPG prices for domestic sector supplies.

Pricing:

- OGRA regulates and notifies the prices for indigenous LPG (including all margins)
- The government currently charges a levy of PKR 55.09 for a 11.8kg cylinder and may charge this levy from time to time.

Source: OGRA's LPG Production and Distribution Policy

LPG Regulatory Framework | Marketing and Distribution

- OGRA will issue a Provisional Licenses for an initial period of two years for LPG Marketing to technically and financially sound applicants for construction of works commensurate to their work program. The work program will ensure that adequate storage, cylinders and logistics infrastructure is constructed within this timeframe in line with the marketing plan of the company; this license will be converted to a period of fifteen years on completion of works.
- To ensure safety throughout the LPG supply chain i.e. LPG Extraction Plants, LPG Storage Tanks, LPG Transporters and Distribution Outlets, the Licensees will meet the minimum safety standards.
- Decanting of LPG from cylinder to cylinder is prohibited and cross filling of other LPG marketing companies' cylinder is also prohibited LPG except under hospitality arrangement with prior information in writing to OGRA.
- OGRA will publish a list of authorized manufacturers for all LPG equipment including LPG refueling stations, conversion kits, fuel tanks, cylinders, storage tanks etc. duly approved and certified by HDIP or any other party authorized by OGRA. The equipment manufactured by the authorized manufacturers will be verified and monitored for conformance to the international standards.
- OGRA shall obtain list of all existing LPG Distributors from LPG Marketing Companies and register them within 90 days of the date of issuance of this Policy.
- OGRA will charge a reasonable fee from each LPG Distributor not exceeding Rs. 10,000/- for registration. For all future Distributors, the Marketing Companies shall within 7 working days of the appointment of a Distributor notify OGRA which, in turn, will register these distributors within 90 days
- Licensed LPG Marketing Companies would remain responsible for observance of all safety codes and standards at their Distributors' premises as well as implementation of LPG sale price.

Source: OGRA's LPG Production and Distribution Policy

LPG | Policy Guidelines for Installation of Air Mix Plants in Private Sector

Being cognizant of the acute shortages of domestic natural gas supply and increasing gas demand, the Government announced the following policy guidelines which will lead to liberalization of gas sector and encourages the private sector to invest in LPG Air-Mix Plants under deregulated pricing regime.

- The private sector will be free to set up LPG AMP on commercial considerations at their own costs and liabilities subject to meeting OGRA's licensing and operational requirements.

- Clauses 3.1.1 (Production and Disposal of LPG by Public Sector (E&P) Companies and Refineries) and 3.6.7 (All local producers of LPG in KPK and Punjab will dedicate 10% of their production to Air-Mix Plants and Marketing Companies or exclusive distribution in these areas. Similarly, all local LPG producers in Sindh and Baluchistan will dedicate 10% of their production to LPG Air-Mix plants and Marketing Companies for exclusive distribution in Baluchistan and Rural Sindh) will not be applicable on LPG AMP developed by private sector.

- However, LPG AMP may be entitled to purchase LPG in Bulk at Producer's Price notified by OGRA. from time to time. Tariff for LPG AMP, decerped and operated by private sector, will be deregulated.

- The status of LPG-Air Mix Plant Licensee shall be the same as that of LPG Storage, Filling and Distribution Plant and that they shall also be entitled to import LPG governed by the prevalent Trade Policy and any other applicable Policies/ Law/ Rule or instructions/ directives of the Federal Government.

Source: Petroleum Division

LPG | Policy Guidelines for Installation of Air Mix Plants in Private Sector

- The LPG AMP licensee/ Developer/ Owner of society shall not prohibit the consumers/suppliers for switching to alternate competing fuels supplied by any third party (be it of piped natural gas or LPG cylinders, another LPC Air mix Plants, Virtual LNG project etc.).
- The LPG AMP licensee of such plant will notify monthly tariff lor information of consumers and also submit detail of monthly tariff to OGRA latest by 10th of every month.
- OGRA will ensure that the LPC AMP licensee may not take any measures to prevent marketing of LPG (cylinders in the area where LPG Air Mix is supplied.
- The complaints resolution in respect of the pipeline network for the distribution of LPG and its metering to the households shall be done by OGRA as being done in Natural Gas Sector.

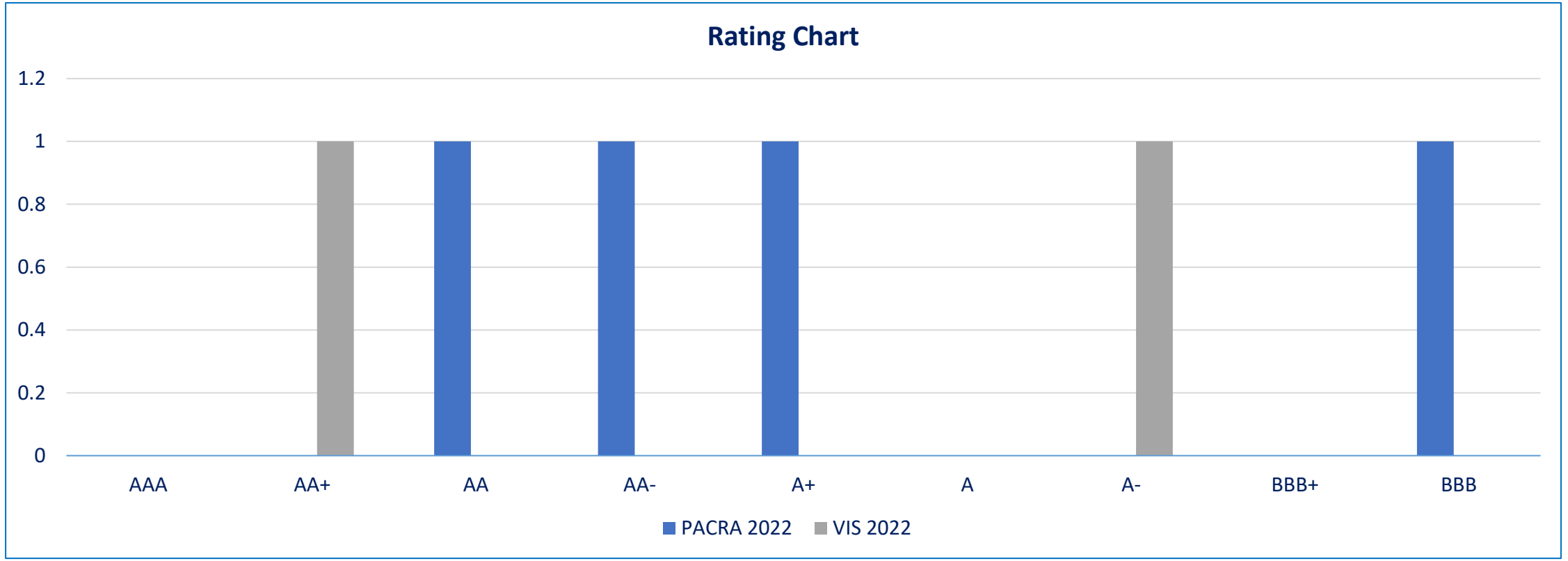
The above policy initiative is expected to reduce gas sector circular debt, gas losses, zero subsidy, prevent deforestation besides providing a secure, sustainable and affordable cleaner fuel to domestic, commercial and industrial consumers of the country.

Source: Petroleum Division

Distribution | Gas

Rating Chart

- PACRA rates four players in the gas distribution sector - two are in natural gas distribution; one is a natural gas distribution and marketing company; and one is an LNG importer.
- The rating scale used below is from AAA to BBB.



Source: PACRA Internal Database

SWOT Analysis

- Natural Gas is a clean, safe, efficient and environmentally friendly fuel
- There are few players operating in the sector
- Demand for gas is continually rising
- Capital intensive sector – Low entry barriers
- Stringent regulatory approvals required to enter the market
- Indigenous production; low cost

- Structural reforms requiring huge investments
- Greater reliance on imports
- Rising demand supply gap
- Limited regassification capacity at import stage

- Rising circular debt
- Increased exposure to exchange rate risk due to rising reliance on imports; dwindling forex reserves
- Increase in gas theft, transmission and distribution losses
- Declining local natural gas reserves
- Russian-Ukraine conflict increasing the competitiveness of LNG imports

- Upcoming supply side projects to facilitate imports and reduce demand supply gap
- Rising demand
- Long-term import contracts at favourable rates
- Increase in exploration activities

Distribution | Gas

Outlook: Negative

- During CY22, Pakistan's natural gas landscape was largely shaped by high global prices of LNG and unreliable supplies, which came about in the wake of the Russia-Ukraine conflict as the EU scrambled to secure its gas supplies amid cuts announced by Russia. These factors, in conjunction, resulted in ~16% decline in LNG imports by Asian economies like Pakistan, India and Bangladesh. In the case of Pakistan, the average natural gas consumption during the 9MFY23 period was recorded at ~28.1mln MT (SPLY: ~29.7mln MT), including ~6.3mln MT of imported RLNG (SPLY: ~7.5mln MT), with imports registering ~16% decline.
- Moreover, In connection with the global prices, Pakistan's imported RLNG prices, on average, moved in tandem with the global natural gas index up until 4QCY22, following which, the elevated levels of RLNG imported prices can be supported by supply constraints and non-availability of the commodity in the wake of Russia-Ukraine conflict.
- It follows from this that the country failed to secure three bids for the procurement of LNG during FY23 (the latest one dated June 20, 2023, for a total of six shipments), despite easing of LNG prices in the international market. However, given that the country's liquidity problems started to dissipate following IMF'S Stand-by Agreement worth USD~3.0bln, the country has been able to procure supply for the months of Jan-Feb'24, at USD~23.47/MMBTU and USD~22.47/MMBTU, respectively (this came in response to the second tender which closed July 14, 2023). Moreover, Pakistan's contractual agreement with Azerbaijan approved in Jun'23 is expected to ensure some semblance of energy security in the country.
- According to various sources, gas circular debt has mounted to PKR~1.6trn as of Jan'23, whereas payable of the sector's two largest players to OGDC, PSO and PLL stand at PKR~1.2trn during the 9MFY23 period. Moreover, UFG losses clocked in at ~8.1% for SNGPL (FY22) and ~17.2% for SSGCL (FY21). The companies' operating revenues are largely impacted by UFG adjustments and other disallowances, whereas the cost of gas also contributes to the overall performance of the segment players.
- With respect to the LPG segment of the sector, locally produced/processed LPG declined by ~5% YoY during 10MFY23, while its sales declined by ~6% YoY. LPG production form local refineries clocked in at ~152,243 MT, a YoY decline of ~4%. This resulted from the economic slowdown during the said period which led to lower POL products' demand (contracted by ~12% YoY), in combination with technical deficiencies at local refineries. Production levels were adversely impacted due to natural decline at a number of fields, while flooding in 1QFY23 also lead to curtailment of production at various fields. Meanwhile, ~453,831 MTs of LPG were imported into Pakistan, representing a ~42% share in total supplies, up ~25% YoY.
- Since the country meets ~33% of its energy requirements from imported RLNG, circular debt and infrastructure management are crucial for ensuring greater energy security.

Source: PACRA Internal Database, IEFFA

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