SECTOR STUDY . 2nd DECEMBER 2025

Together. Creating Value.

Industrial Gases

Research Team

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Contents

Industrial Gases

Introduction

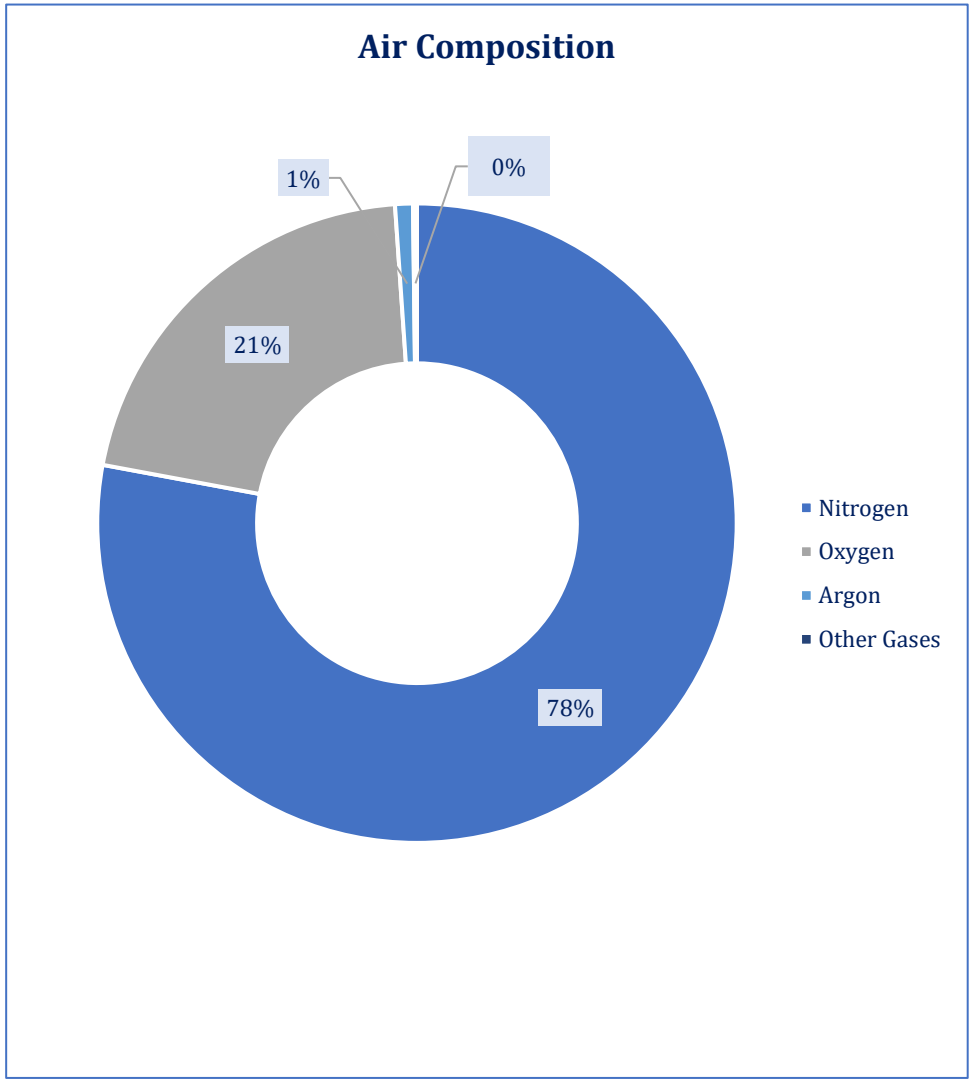
- Industrial Gases are gaseous materials manufactured for use in various industries, such as health care, food, manufacturing, construction and others. The main gases are nitrogen, oxygen, carbon dioxide, argon, hydrogen, helium, and acetylene, which are used in both liquid and gaseous forms.

- Industrial Gases are mostly part of the specialty chemicals industry and are used in a wide range of industrial applications, such as medical gases, cutting and welding, refrigeration, and food processing & packaging.

- Depending on their use in different sectors, these gases are also known as fuel gases, medical gases, refrigerant gases, and specialty gases. Steel, glass, oil, and fiber optic segments demand intensive usage of Industrial Gases.

- Different methods are used to generate a wide variety of Industrial Gases. Nitrogen, oxygen, and argon are obtained from air by fractional distillation. Hydrogen is generated by the electrolysis of water. Carbon dioxide is produced by the steam reforming of methane, while Acetylene is generated by the reaction of calcium carbide with water.

- The sector's growth is primarily attributed to the growing manufacturing industry across the globe. Ongoing investments in large-scale infrastructure projects and investments in core industrial segments of the economy are expected to drive demand for Industrial Gases in the medium term. A key area of focus has been environmental impact of these gases.



Source: Research and Markets, Fine Gases Ltd.

Industrial Gases

Introduction

Oxygen

- Medical & Chemical processing
- General engineering
- Fabrication
- Steel manufacturing,
- Welding industries
- Ship breaking industry
- Oxidation,
- Pulp and Paper industry

Nitrogen

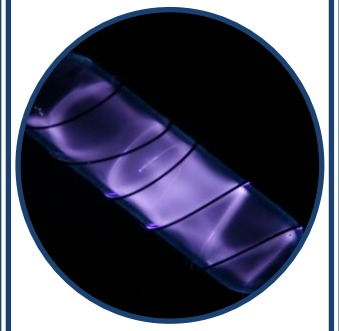
- Chemical processes
- Oil and Gas exploration
- Blanketing
- Healthcare application
- Food
- freezing/storage

Argon

- Healthcare applications
- Deep sea environments
- Welding
- Food and drink
- Cinematography
- Lighting

Carbon Dioxide

- Refrigerant
- Fire extinguishers
- Greenhouses
- Chemicals
- Pharmaceutical
- Metal industry

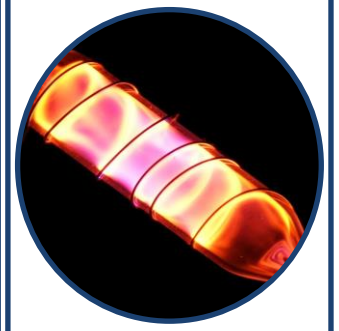


Hydrogen

- Commercial fixation of nitrogen from air
- Hydrocracking
- Rocket fuel
- Welding
- Production of hydrochloric acid
- Reduction of metallic ores

Helium

- Magnetic Resonance Imaging (MRI)
- Fiber Optics
- Balloon Filling
- Deep Sea Diving
- Space
- Exploration
- Leak Detection



Rare Gases (Neon/Krypton/ Xenon)

- Electronics
- Healthcare

Source: Research and Markets

Industrial Gases

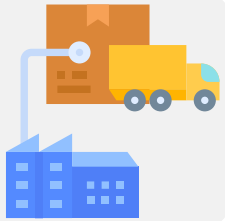
Supply Chain

Production

Extraction of gas from raw materials through electrolysis, reforming, and other techniques.

Storage

Storing the gas in gaseous, liquefied, slush/solid form to be delivered to the consumers.



Distribution

Transmitting the product to the industries and end consumers using on-site/pipeline, Bulk/merchant, and Cylinder/packaged techniques.

Utilization

Industrial Gases are used in all the sectors and industries depending upon the nature of the gas.

Industries

Healthcare

Source: Research and Markets

Industrial Gases

Global | Overview

- **Market Size**: The Industrial Gases market expanded from USD~119.9bln in CY24 to USD~128.28bln in CY25, and with a projected CAGR of 7.48%, it is expected to reach USD~213.65bln by CY32. This steady global growth reflects rising industrialization, the adoption of advanced applications, and strategic investments that are reshaping the role of gases across major value chains.

- **Regions**: Industrial Gases are produced and used all over the world. The Asian Pacific region had the highest share in production of ~36.4% inn CY24 owing to increasing urbanization and industrialization.

- **Demand**: Global demand for industrial gases is increasing, driven by its increased use in semiconductor production and high-tech manufacturing, Greater use of hydrogen in decarbonization, expanding healthcare needs for medical and specialty gases, and stronger sustainability requirements in metallurgy, chemicals, food processing, and electronics is further stipulating demand.

- **Supply:** Industrial Gases are supplied through packaged or on-site supply modes. Packaged mode held a considerable market share in CY24, whereas on-site supply became the leading supply mode in CY25, owing to stronger demand from large-volume industrial customers requiring continuous gas supply.

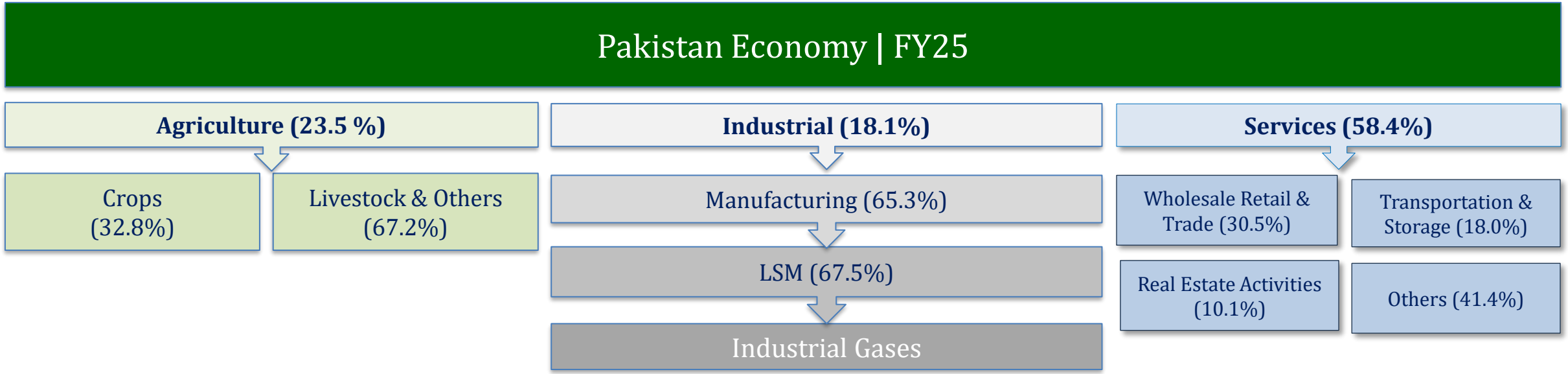
- **Major Players**: The Industrial Gases sector is dominated by a few major players including Air Liquide, Air Products, Linde PLC, Messer Group GmbH, and Matheson Tri-Gas among others.

Source: Research and Markets, IMARC, Future Market Insights

Industrial Gases

Local | Overview

- In FY25, Pakistan's GDP (nominal) stood at PKR~114.7trn (FY24: PKR~105.1trn), increasing, in real terms by ~2.7% YoY (FY24:~2.5% growth).
- Industrial activities in FY25 held ~18.1% share in the GDP while manufacturing activities made up ~65.3% of the value addition.
- Large Scale Manufacturing (LSM) in Pakistan is essential for economic growth considering its linkages with other sectors, as it represented ~67.5% of the manufacturing activities in FY25.
- Real GDP growth improved in FY25, however, LSM contracted by ~0.73% in FY25 compared to an increase of ~0.78% in FY24. The negative momentum of LSM was outweighed by stronger performance in electricity, gas and water supply, and construction, enabling the overall industrial sector to post a net positive contribution (~5.3%). Industrial gases have a negligible contribution to the overall economy as it is a very small segment.



Source: SBP, ESP, PSX

Industrial Gases

Local | Overview

- Given the Sector's strong dependence on LSM, the slowdown in LSM growth in FY25 (contracting by ~0.73%), translated into softer Sector revenue growth as it decelerated from ~27.4% in FY24 to ~14.6% in FY25, with revenues reaching PKR~25,961mln in FY25 (FY24: PKR~22,655mln).
- The Sector's growth remained impressive in FY21 driven by the healthcare sector, as the COVID-19 pandemic had still not fully subsided, and hospitals across the country required oxygen on priority basis. The growth moderated as COVID related demand subsided and economic slowdown impacted industrial and economic growth.
- The Sector experienced a robust recovery during FY24 as revenues grew by ~27.4% YoY compare to ~12.3% growth in FY23, as LSM activity improved from negative ~10.3% to ~0.78%, mainly driven by sectors including food, chemicals and petroleum.
- Pakistan's overall production capacity for Industrial Gases stood at ~1,300TPD in FY25.
- The sector is organized and concentrated within two major players, i.e., Pakistan Oxygen Limited and Ghani Chemicals Limited**.** Other companies include Multan Gases, Sharif Gases, Agha Gas, Sultan Oxygen, and MediGas.
- In FY25, the two major entities held ~74.0% of the market share in terms of production, with their market share expected to grow further as Ghani Chemicals Limited commenced operations of its 5th ASU plant located in Hattar Special Economic Zone. This plant has a capacity of ~275 TPD (increasing Ghani's share to ~45%) and is considered Pakistan's biggest and most efficient plant for medical and industrial gases.

Industry Snapshot	FY21	FY22	FY23	FY24	FY25
Sector Revenue (*PKR mln*)	14,638	15,539	17,443	22,655	25,961
Revenue Growth	43.0%	6.2%	12.3%	27.4%	14.6%
Players	2 players contribute ~74% to the market share. *				
Structure	Duopoly				
Regulatory Body	Securities and Exchange Commission of Pakistan				

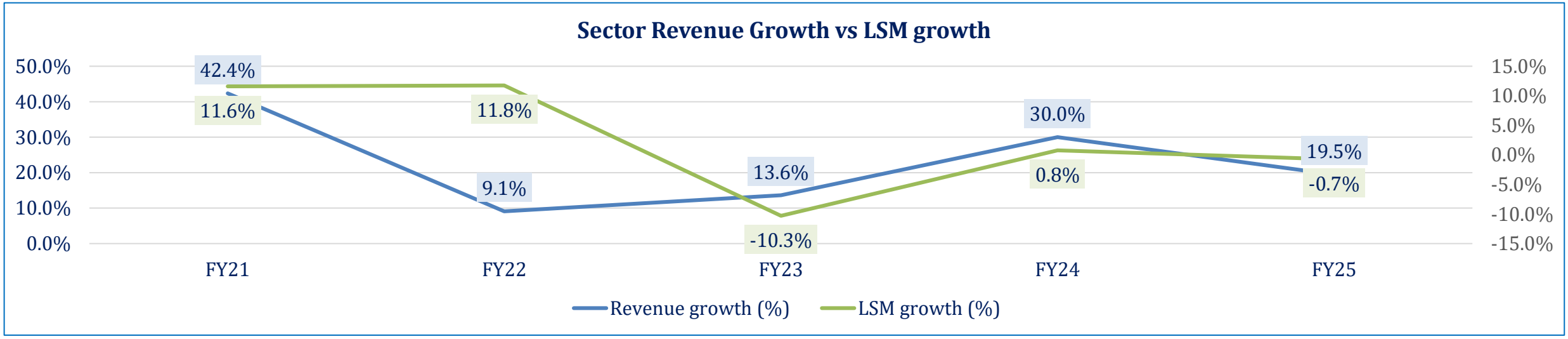
**Market shares are estimated based on PACRA-rated clients.*

Source: PSX, PACRA Database

Industrial Gases

Local | Demand

- Major demand of the sector emanates from the Large-Scale Manufacturing (LSM) as well as the healthcare segments of the economy.
- In FY25, Sector revenues were dominated by two players contributing around 90% of the revenues. Their revenue increased ~19.5% YoY to PKR~23.3bln. Although LSM contracted by ~0.7%, certain sectors (automobiles, food and beverages, pharma and construction) exhibited strong growth resulting in higher demand for industrial gases.
- During FY23, with LSM growth contracted ~10.3% YoY, demand for industrial gases from core industrial users, particularly steel, automotive and shipbreaking, remained subdued. The Sector's volumes were instead largely supported by healthcare (medical gases) and witnessed relatively resilient demand from food & beverage, pharmaceuticals and chemical processing.
- The medium and long-term demand for the sector is likely to grow as these gases are used in several significant sectors of the economy. During 4MFY26, the LSM recovered and posted a growth of ~4%. Key sectors contributing to LSM growth were automobiles, food & beverage and cement.



Note: *FY25 numbers are prorated based on latest available quarterly accounts.*

Source: PBS, PSX, PACRA Database

Industrial Gases

Local | Supply

- For almost all Industrial Gases, production is derived from the underlying demand, so capacity utilization varies with it.
- Underutilization of capacity is likely attributable to certain factors including non-availability of natural gas, lower demand, and load-shedding of electricity.
- Moreover, Sector players are expanding their capacities in different industrial areas including Port Qasim, Karachi, and KPK to reduce transportation cost. The added capacity is likely to ensure a consistent supply of gases for the industrial requirements of the health sector, CPEC projects, and other LSM sectors.
- One of the major sector players operationalized its 5th 275TPD ASU plant in Hattar Special Economic Zone in Nov'24 and a calcium carbide manufacturing facility also became operational by Jan'25 while multiple other projects are underway.

Year	Pakistan Oxygen Limited (CY)			Ghani Chemicals Industry Limited (FY)			Total		
	Production* Capacity (Cubic Meters/mln)	Actual Production (Cubic Meters/mln)	Capacity Utilization	Production Capacity (Cubic Meters/mln)	Actual Production (Cubic Meters/mln)	Capacity Utilization	Production** Capacity (Cubic Meters/mln)	Actual Production (Cubic Meters/mln)	Capacity Utilization
FY20	101.2	64.6	64%	61.0	44.1	72%	162.2	108.7	67%
FY21	101.2	70.8	70%	70.8	61.8	87%	172.1	132.6	77%
FY22	103.8	66.2	68%	72.7	59.3	82%	176.5	125.5	71%
FY23	128.6	62.8	49%	90.9	58.5	64%	219.5	121.3	55%
FY24	129.6	63.8	49%	91.9	55.5	60%	221.5	119.3	54%
FY25*	129.6	63.8	49%	106	60.9	57.4%	235.6	124.7	53%

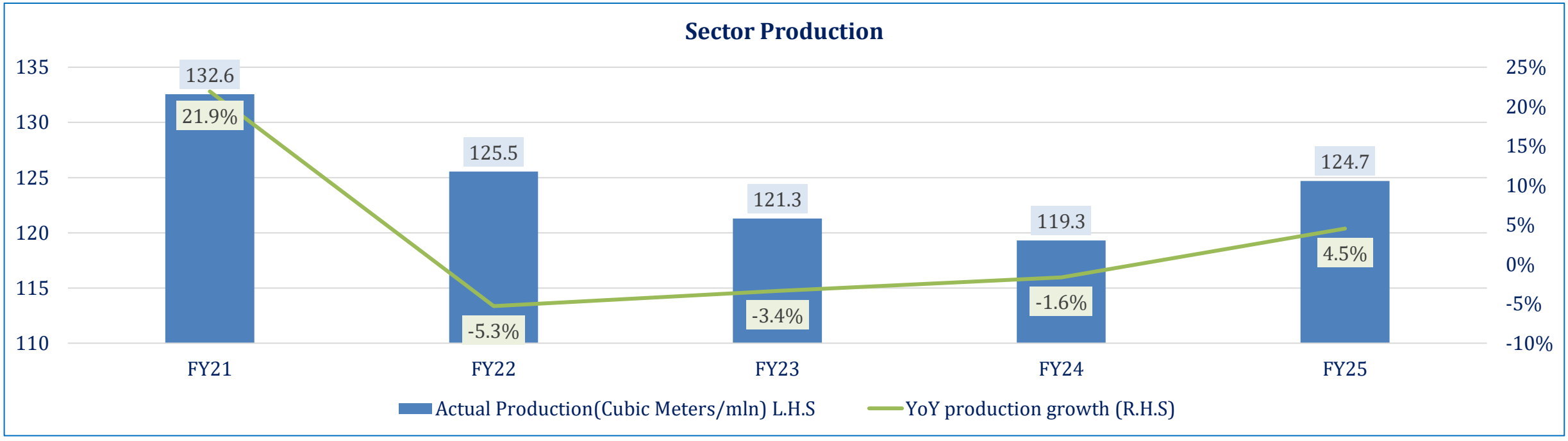
*__Note:__ *Data for Pakistan Oxygen Limited is available on CY basis*
**Sector total represents FY data*
**Production for Pakistan Oxygen for FY25 is assumed to be the same as FY24*

Source: PSX, PACRA Database

Industrial Gases

Local | Supply

- In FY25, Sector production increased to ~127.4mln cubic meters, reflecting a ~4.5% increase from ~119.3mln cubic meters in FY24 indicating better capacity utilization by Sector players and rising demand.
- Pakistan Oxygen contributed to ~51.1% of production while Ghani Chemicals contributed ~48.9% in FY24.
- Ongoing expansion initiatives of major players are likely to enhance the production capacity of the sector and consequently increase supply reliability of medical gases for the healthcare sector. It will also enable the Sector to support anticipated demand growth associated with CPEC-related infrastructure development as macroeconomic recovery strengthens.
- The operations of the 5th ASU plant and an import substitute chemical project of one of the major sector players in the Hattar Special Economic Zone have begun and are expected to strengthen sector production.



Note: *Figures for FY24 are estimated based on latest available data from PACRA rated clients.*

Source: PACRA Database

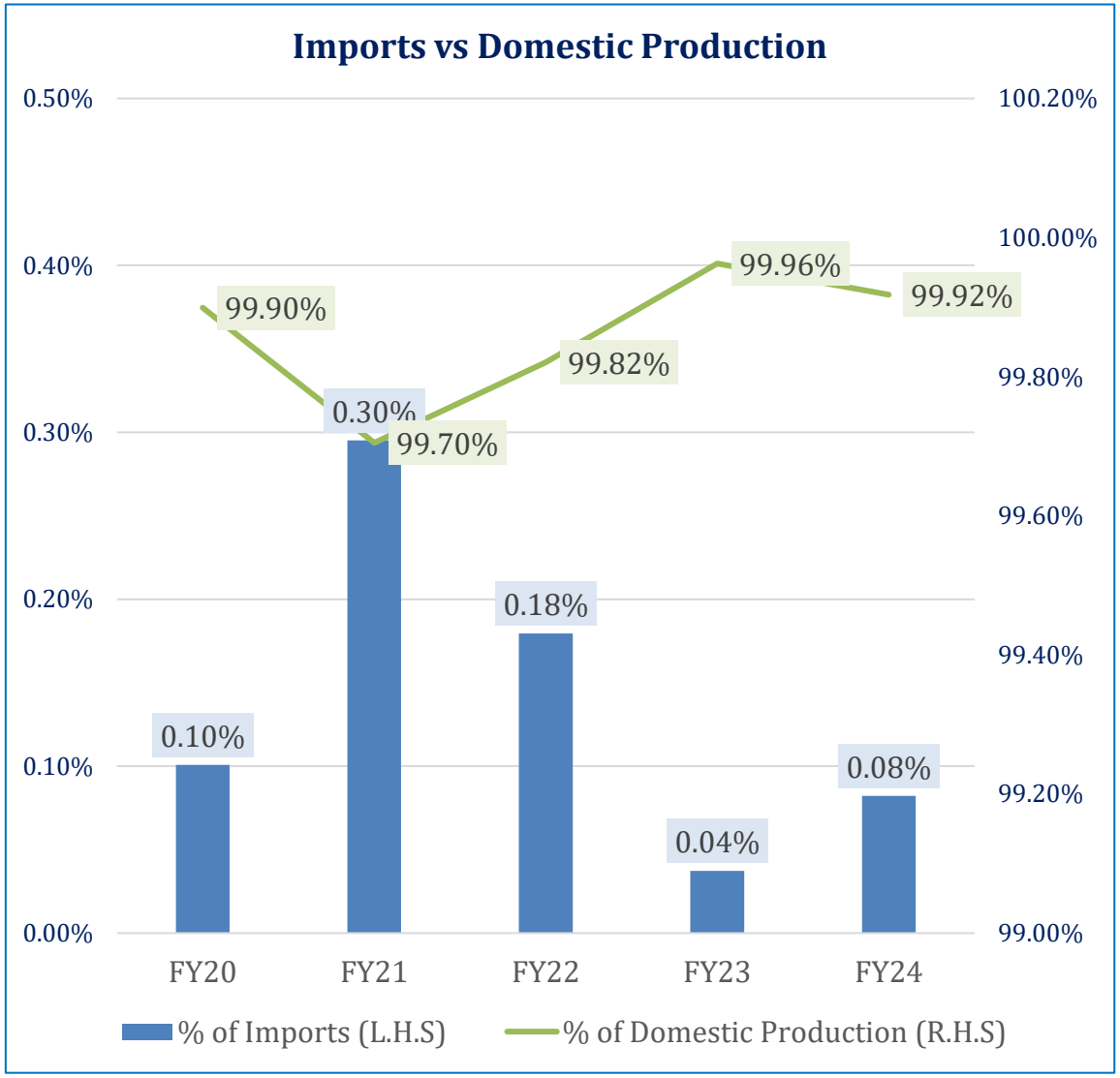
Industrial Gases

Local | Supply

- The Industrial Gases Sector is one of the few sectors in Pakistan that is primarily self-sufficient, with imports consistently below 1% of total supply from FY20 to FY24. This reinforces the sector's reliance on domestic production and highlights the strategic importance of upcoming capacity expansions in meeting future demand without increasing dependence on foreign supply.

- In FY24, imported volumes constituted ~0.08% of total supply, indicating that the market is almost entirely sustained by domestic production, which contributed ~99.92%.

- Even in FY21, the year with the highest recorded import share at ~0.3%, reliance on external supply remained negligible relative to the overwhelming ~99.7% produced locally.



Industrial Gases

Business Risk | Price Determinants

- Prices of Industrial Gases are mainly dependent on the market forces. An increase in the amount of any price determinant can increase the overall cost and hence have an impact on the price. Some of the key contributors to the price are listed below:

- **Energy Cost**: Electricity is the main source of energy involved in the separation of air and thus drives the cost of production of Industrial Gases. Large-scale production has the advantage over smaller units as smaller units have higher electricity consumption.

- **Oil & Natural Gas Price Fluctuation**: For gases like hydrogen and helium, feedstock cost fluctuations have a larger impact on the production cost.

- **Quality/Special Gas**: If the composition of gas requirement is proprietary, the costs are generally very high. The requirement for high-quality gas also drives the cost and thus the price. Low-quality gas and general gases carry lesser costs due to the abundant availability of multiple sources of supply. Further, gases are often based and priced on their purity levels.

- **Customized Product:** Complex design, specific gas products are tailor-made, which involves high value of production. This increases the prices of such products as their availability is through selected channels.

- **Other** price determinants include administrative costs and frequency/volume of purchase. The sector is largely able to pass on its cost of production to the end users.

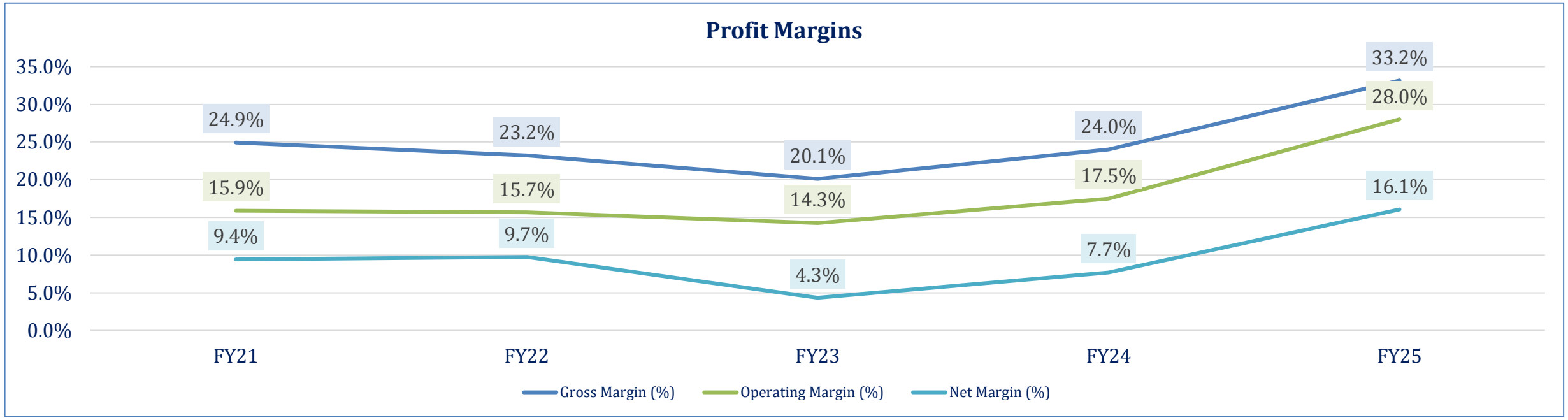
Industrial Gases

Business Risk | Margins

- In FY25, the average gross margins for the Sector saw a noticeable increase of ~9.2%, going up from ~24.0% in FY24 to ~33.2% in FY25. This was mainly driven by the Sector's ability to improve production efficiency while keeping costs under control.

- The sector's operating margins went up by ~10.7% from the previous year to ~28.0% in FY25 (FY24: ~17.4%), while net margins also increased to ~16.0% in FY25 (FY24: ~7.7%). This improvement reflects the successful implementation of new and efficient production plants by key Sector players, including a new calcium carbide manufacturing plant and an ASU plant capable of producing multiple gases simultaneously.

- The Sector's performance in FY25 underscores a broader trend of financial optimization, with companies benefiting from stronger cost control, innovative pricing, and enhanced operational capabilities, which have led to higher margins and improved market competitiveness.



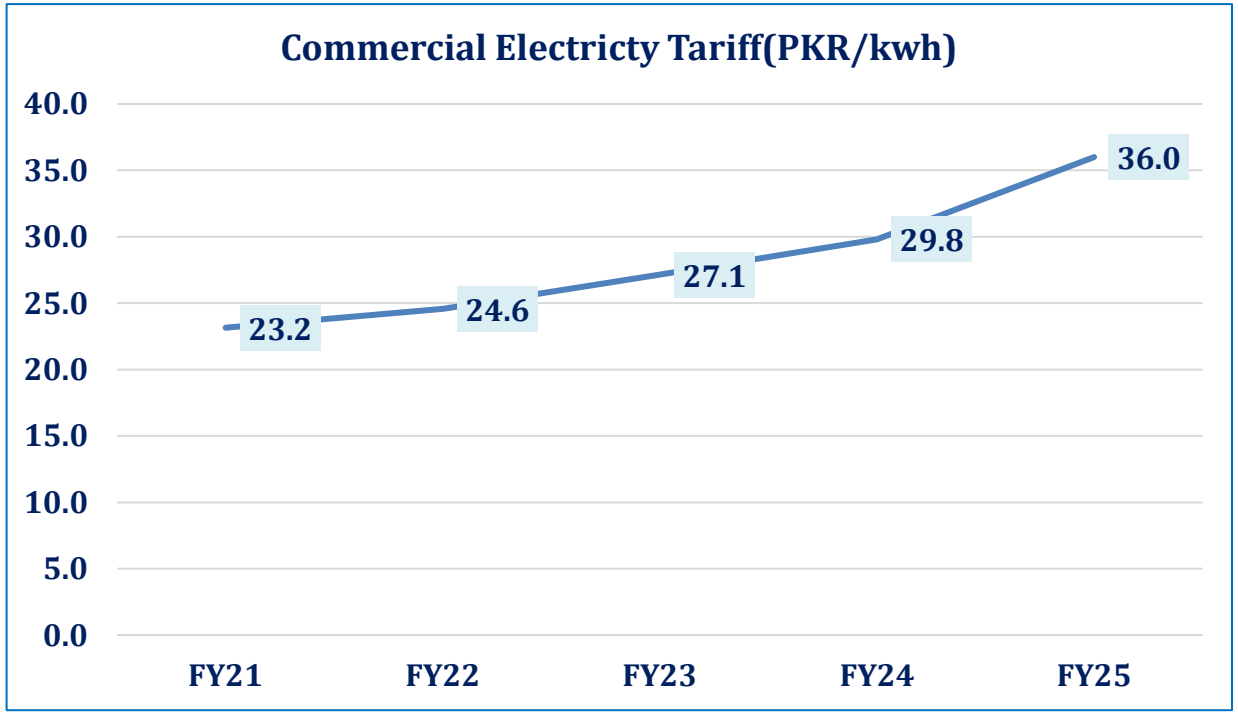
Note: *Figures for FY25 are estimated based on PACRA-rated clients, representative of ~74% of the sector's market share*

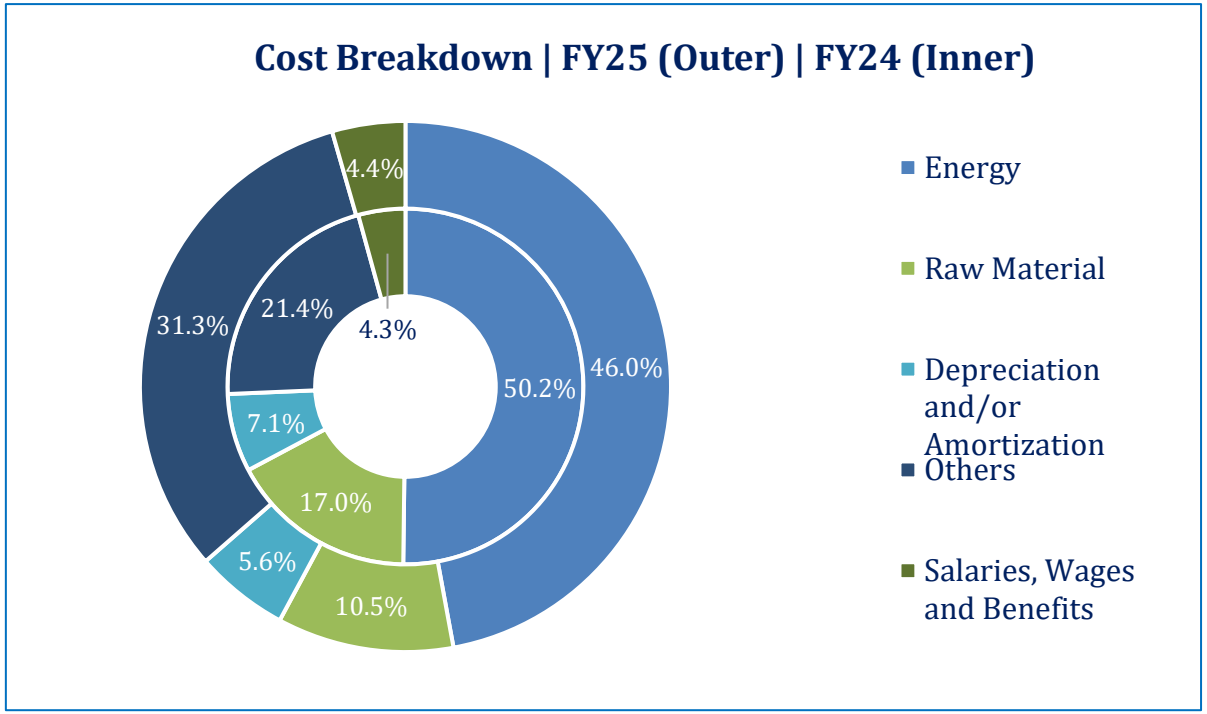
Source: PACRA Database

Industrial Gases

Business Risk | Cost Breakdown

- Major price drivers for the sector are energy cost, gas purity, customization of the product, volume purchased, and delivery location, while the production is entirely demand-driven.
- The cost structure of the Industrial Gases comprises ~75-80% variable cost, which is dominated by energy prices followed by other costs and raw materials.
- Electricity cost forms a significant portion of the Sector's cost breakdown, accounting for ~46.0% in FY25 (FY24: ~50.2%).
- The proportion of energy costs fell by ~4.2% as companies like Pakistan Oxygen and Ghani Chemical are adopting energy-efficient technologies and adding captive solar capacity. These measures reduce reliance on expensive grid electricity, lowering effective power consumption and keeping energy costs from rising as quickly as overall expenses, despite higher national tariffs.





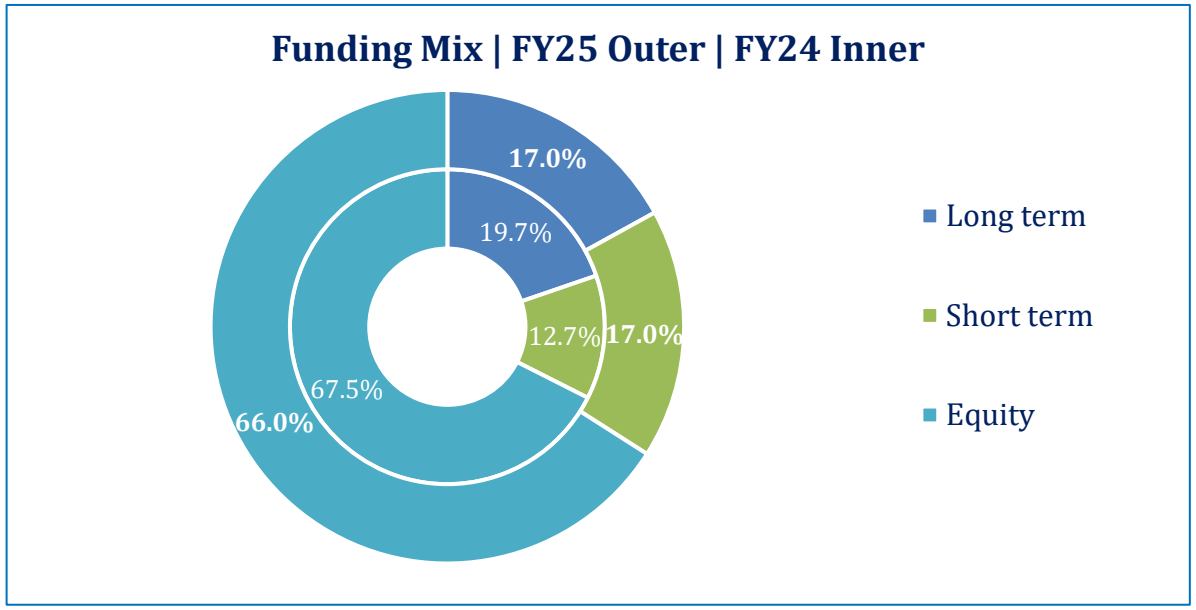
***Note**: The electricity tariff does not include FCA or other charges.*

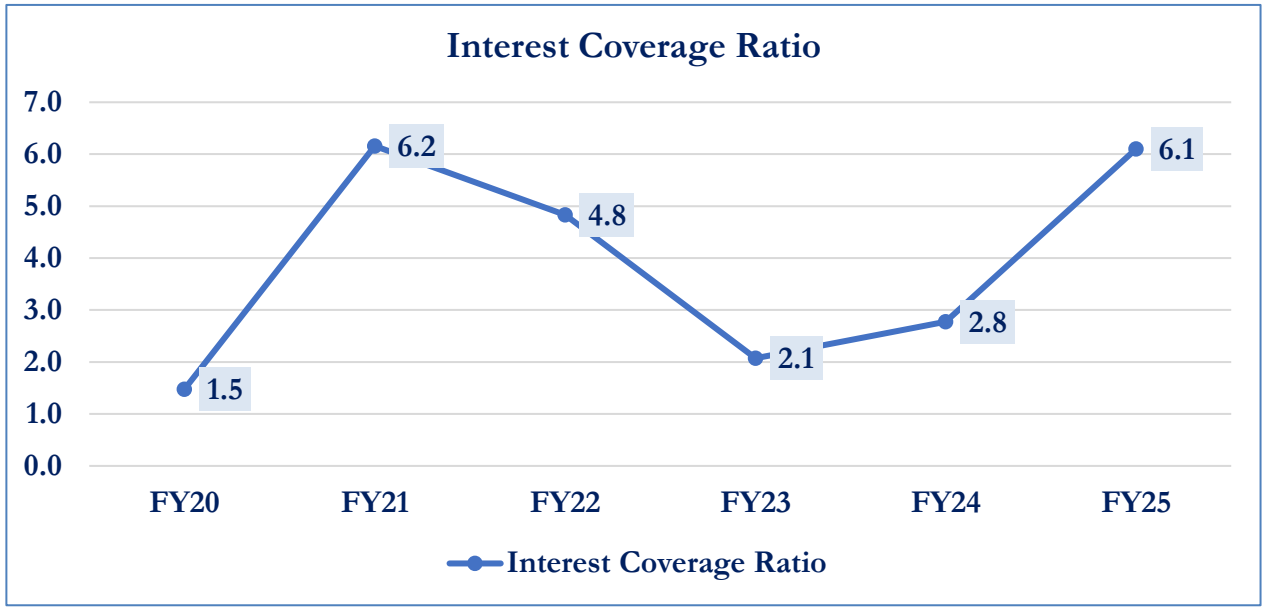
Source: PACRA Database, NEPRA

Industrial Gases

Financial Risk

- **Debt Leverage:** The Sector is moderately leveraged with debt-to-equity ratio averaging around ~57.1% (from FY21-FY25), and remained relatively consistent with this trend in FY25, registering a slight increase from ~54.9% in FY24 to ~57.5%, driven by higher borrowings.
- **Funding Mix:** The sector's total borrowings stood at PKR~10,868mln in FY25 (FY24: PKR~10,407mln), an increase of ~4.4% YoY. This increase in borrowings reflects the pattern of expansion plans of the sector's leading players. The largest component in the borrowing mix is represented by long-term borrowings which made up ~55.1% of the total borrowings in FY25 (FY24: ~56.2%), while the short-term borrowings constituted ~44.9% (FY23: ~43.8%). Meanwhile, the sector's equity stood at PKR~18,896mln which was ~66.0% of the total funding mix with an increase of ~8.5% YoY.
- **Interest Coverage:** The average interest coverage of the Sector increased significantly in FY25 to~6.1x up from ~2.8x in FY24. This rebound reflects the impact of robust growth in earnings and easing interest rates. A sharp decline was observed with coverage going from~4.8x FY22 to~2.1x FY23, driven by a combination of softer earnings performance and elevated borrowing costs, with the policy rate reaching approximately 21% in Jun'23.





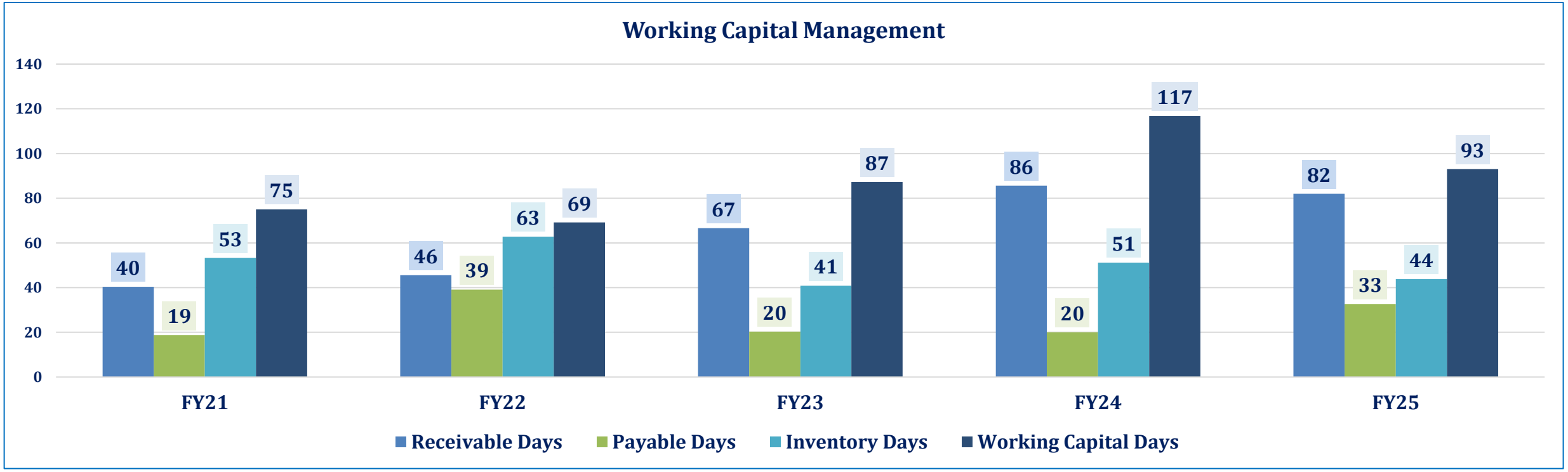
Note: *Figures for FY25 are estimated based on PACRA-rated clients.*

Source: PACRA Database

Industrial Gases

Financial Risk | Working Capital Management

- The Sector's working capital requirement emanates from financing inventories and trade receivables for which the Sector relies on both internal cash flows and short-term borrowings.
- The average net working capital cycle over the last five years (FY21-FY25) was ~88 days. The Sector's working capital efficiency improved in FY25, as working capital days reduced from ~117 in FY24 to ~93 days. This improvement was primarily driven by better inventory management, as inventory days fell from ~51 in FY24 to ~44 in FY25, reflecting faster stock turnover and improved demand planning.
- Receivable days showed a marginal improvement, decreasing from ~86 days in FY24 to ~82 days in FY25, indicating slightly faster cash collections from customers. Meanwhile, payable days increased from ~20 in FY24 to ~33 in FY25.



Note: *Figures for FY25 are estimated based on PACRA-rated clients.*

Source: PACRA Database

Industrial Gases

Regulatory Framework

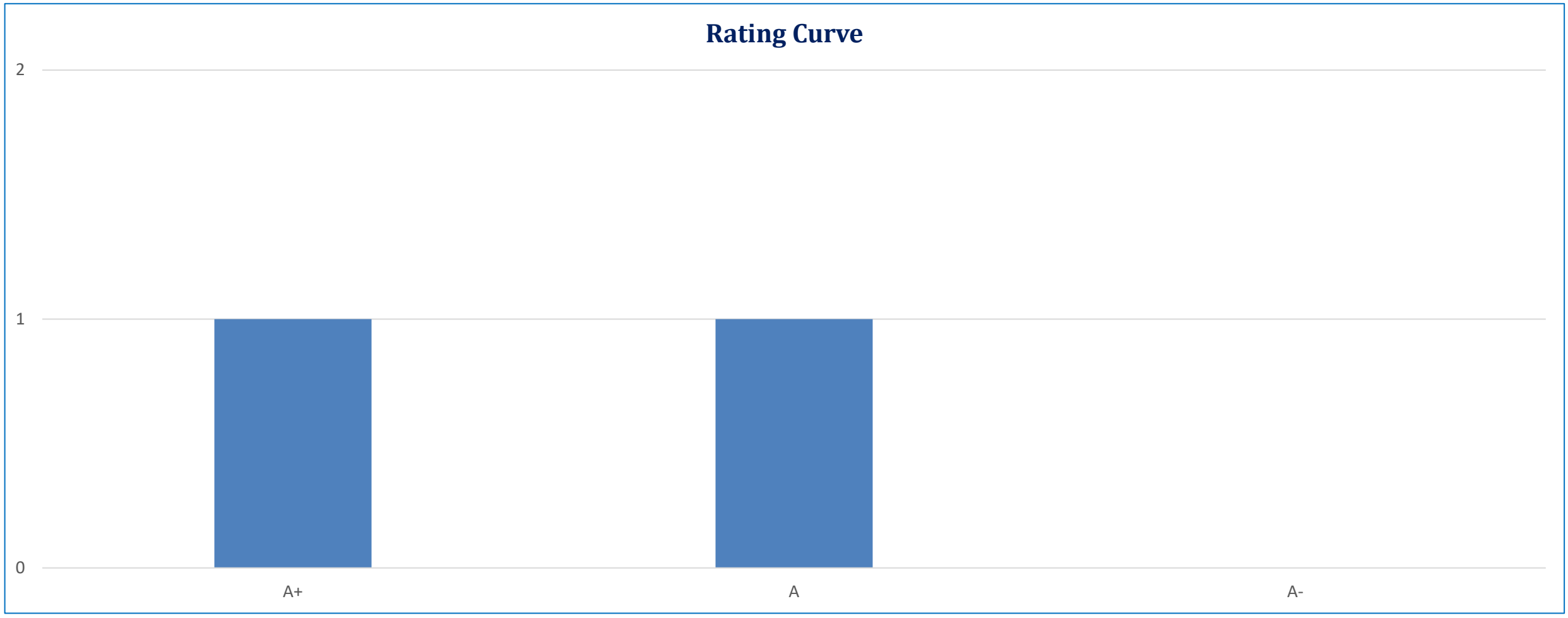
PCT Code	Description	Custom Duty		Additional Custom Duty		Regulatory Duty		Total	
		FY24	FY25	FY24	FY25	FY24	FY25	FY24	FY25
2804.1000	Hydrogen	3%	3%	2%	2%	0%	0%	5%	5%
2804.2100	Argon	3%	3%	2%	2%	10%	5%	15%	10%
2804.3000	Nitrogen	3%	3%	2%	2%	10%	5%	15%	10%
2804.4000	Oxygen	3%	3%	2%	2%	0%	0%	5%	5%
3824.9996	Neon	0%	0%	2%	2%	0%	0%	2%	2%
2811.2100	Carbon Dioxide	3%	3%	2%	2%	5%	3%	10%	8%
2814.1000	Anhydrous Ammonia	0%	0%	2%	2%	0%	0%	2%	2%
8405.1000	Acetylene	0%	0%	2%	2%	0%	0%	2%	2%
2804.2900	Other	3%	3%	2%	2%	0%	0%	5%	5%

Source: FBR

Industrial Gases

Rating Curve

- PACRA rates 2 entities in the Industrial Gases sector, with a long-term rating of A+ and A.



Source: PACRA Database

Industrial Gases

SWOT Analysis

- Ease of access to raw material.
- Mature and long-standing sector.
- Technologically advanced machinery with low power consumption.
- By-products of the gas production process can be sold separately.
- High barriers to entry.

- Low-value addition/commodity product.
- Highly volatile cost of production.
- Energy disruptions.

- Duopoly structure – price influenced by two major players.
- Interdependency on demand from other Industrial Sectors.
- Large-scale manufacturing (LSM) slowdown.
- Non-availability of indigenous natural gas.

- Growing industrial and medical Sector.
- Rapid industrialization in emerging economies.
- An increased focus on ESG measures and environmental regulations.
- Opportunity to increase efficiency through technological upgrade.

Industrial Gases

Outlook: Stable

- In FY25, Pakistan's nominal GDP clocked in at PKR~114.7trn (FY24: PKR ~105.1trn), increasing, in real terms by ~2.7% YoY (FY24:~2.5% growth). Industrial activities contributed ~21.9% to the GDP, with manufacturing accounting for ~62.9% of the total value added.
- The macroeconomic environment is expected to remain supportive in the near term, underpinned by a prudent monetary policy stance and continued fiscal consolidation. Inflation eased sharply with CPI down to ~3.2% in FY25 from ~12.6% in FY24, while the policy rate was maintained at ~11.0% in Oct'25. Improved external conditions and a current account surplus have strengthened foreign exchange reserves and stabilized the currency.
- Although real GDP growth improved in FY25, it occurred in the presence of a decline in LSM as LSM contracted by ~0.73% in FY25 compared to an increase of ~0.78% in FY24. The negative momentum of LSM was outweighed by stronger performance in electricity, gas and water supply, and construction, enabling the industrial sector to post a net positive contribution.
- Despite LSM posting negative growth, the Industrial Gases Sector remained resilient and showed significant growth in revenue and production, reflecting strong demand from the healthcare sector and key industrial clients.
- The Sector demonstrated significant increase profit margins in FY25, with net, gross and operating margins increasing by ~8.3%, ~9.2% and ~10.6% respectively. This upward trend reflects the benefits of energy-efficient capacity additions, improved cost structures, and stronger demand. Profit margins are expected to improve further as key players are exploring more energy efficient production methods and ways of reducing energy costs by increasing reliance on solar power. Demand for industrial gases is also expected to grow across different sectors including chemical & fertilizer, Minerals and Metallurgy, Pharmaceuticals etc.
- Looking ahead, the industrial gases sector is poised for a strategic transformation and expansion beyond its core oxygen/industrial-gas business. The recent PKR 14 billion joint venture between GCIL and Mari Energies to convert waste vent and exhaust gas into LNG and food/industrial-grade CO_2 , expected to generate ~PKR 17 billion in annual revenue, introduces a new value-added gas stream and marks a first for Pakistan.
- A notable trend across the sector is the strategic shift towards LPG and other alternative fuels, as major players are seeking regulatory approvals and investing in large-scale LPG storage and filling facilities, positioning themselves to benefit from Pakistan's rising reliance on LPG as a cleaner substitute for traditional fuels in domestic, commercial, and transportation applications.

Industrial Gases

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