



# Pakistan Refinery Limited

Project Information Brochure

**Powering Growth  
Empowering Lives**



"Someone is sitting in the shade today because someone planted a tree a long time ago."

*Warren Buffett*





An organisation explores ways to create a business, while it also focuses on developing value-added projects. The investments, time and efforts are the seeds sown for the future blooming with benefits.

The fruitful benefits of job opportunities, learnings, diversified experience, efficiency and profits help in meeting the country's growth.





## From where did we begin

Pakistan Refinery Limited (PRL) began its journey in 1962 when it was developed to process heavy regional crude oils. The crude oil selected was most suitable to meet the requirements of Pakistan, i.e. a crude oil which gives a relatively low yield motor gasoline and a high proportion of middle distillates such as Kerosene and Diesel Oil.

Inauguration of Pakistan Refinery Limited by President of Pakistan Ayub Khan and MD Johannes G. Goetzee on 14<sup>th</sup> November 1962.



## What drives us

We have been growing and evolving based on our values and our commitment to providing quality products. We firmly believe that we have been winning over our competitors through efficiency, lower operating cost, high-quality human resources and reliability.





## What we do

Pakistan Refinery Limited is a refinery established to process various imported and local crude oil to meet the strategic and domestic fuel requirements of the country. We are one of the pioneer manufacturers and suppliers of petroleum products to both the domestic market and the Defence Forces of Pakistan.

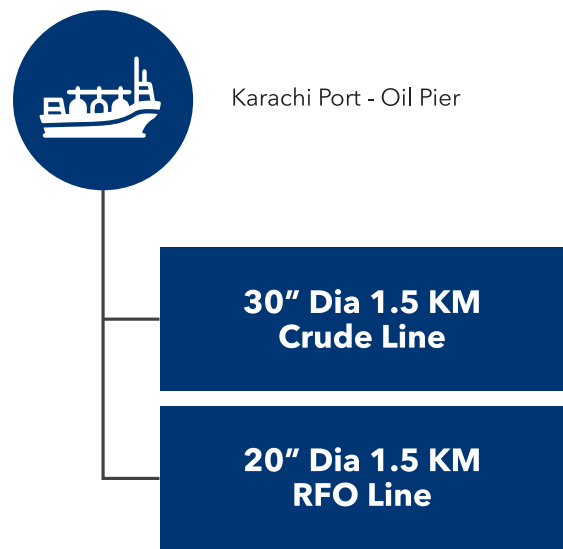
PRL has a capacity of processing around 50,000 barrels a day of crude oil into numerous distilled petroleum products such as Refinery Furnace Oil, High Speed Diesel, Kerosene, Jet Fuel, Motor Gasoline, Naphtha and LPG.

Our current processing units within the refinery are:

- Crude Distillation Unit
- Hydrotreating Unit
- Platforming Unit
- Isomerization Unit

# PRL Network & Strategic Connectivity

Overall Operation Network



## Keamari Terminal





6" Dia - 3.0 KM RFO Line  
to KESC Korangi

## Korangi Refinery



12" Dia - 16 KM  
Crude Line

8" Dia - 16 KM  
W/O Line

10" Dia - 16 KM  
B/O Line

MS, HSD,  
KERO & RFO  
Loading Gantry

8" 1.5 KM  
Spur Line  
PARCO

SPL

PSO

OTHERS

6" Dia - 18 KM JP-I Line



Jinnah Int'l Airport - Karachi

W/O: White Oil | B/O: Black Oil | RFO: Refinery Furnance Oil | MS: Motor Spirit / Gasoline | HSD: High Speed Diesel







## Vision

The Refinery of first choice for all Stakeholders.

## Values

### **Integrity**

We insist on honesty, integrity and fairness in all aspects and expect the same in our relationships with all those with whom we do business.

### **Excellence**

We are performance-driven with our employees committed to providing innovative and efficient solutions to achieve our goals.

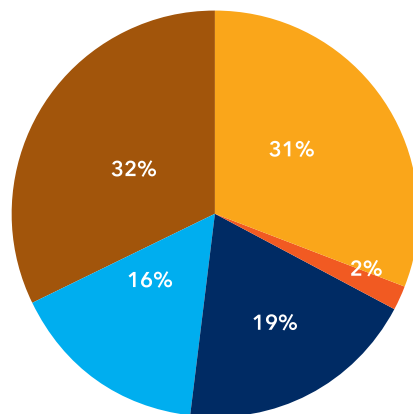
### **Teamwork**

We strongly believe in teamwork as a driving force to the path of perfection and trust that a team-based culture is an essential ingredient in the work of a successful organisation.

# Energy needs of the country

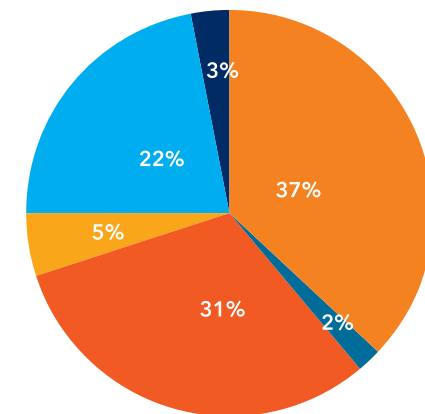
Pakistan's Energy Consumption stands at 55 MTOE (2019)

Energy Consumption by Source (2019)



● Natural Gas ● LPG ● Coal  
● Electricity ● Oil

Energy Consumption per Sector (2019)



● Industrial ● Agriculture ● Transport  
● Government ● Residential ● Commercial



**DEMAND OF PETROLEUM PRODUCTS IN PAKISTAN(2020-21)**

**20.70 MILLION M. TONS**

MS: 8.5 million M. Tons, HSD: 7.8 million M. Tons and Others: (Naphtha, Jet Fuel, Furnace Oil etc.)  
Projected to be 23 million M. Tons by 2025

**REFINERIES PRODUCE**

**11.34 MILLION M. TONS**

The deficit (~9 Million M. Tons) is met through imports

**REFINERIES PROCESS INDIGENOUS CRUDE OIL**

**3.26 MILLION M. TONS**

rest of the crude processed is imported (~9 Million M. Tons)

## Strategized to Accomplish

We take pride that Pakistan's leading oil companies have had shareholdings of PRL, including Shell, Chevron and Exxon while Pakistan State Oil (PSO) currently holds major shares of the company.

The refinery has been developed strategically to attract multiple benefits such as its location being ideal to have access to port; connectivity with upcountry pipeline system and with access to land available for expansion.

Pakistan Refinery Limited is one of the initial established refinery in Pakistan and has been a key market player in the industry for over 60 years.

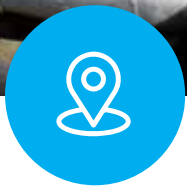


PRL is Integrated Management System (IMS) certified company having established HSEQ Management System based on ISO-9001, 14001 and 45001 standards.



We have reliable and safe operations with ~12 Million hours without LTI (Loss Time Injury) till May 2022.





Our location is ideal in terms of expansion, access to port and connectivity with upcountry pipeline system.



Term contracts for product upliftment signed with Pakistan State Oil and Shell.



Term crude supply agreements signed with international suppliers such as Saudi Aramco, Abu Dhabi National Oil Company and Kuwait Petroleum Corporation.



Presence of critical infra-structure - pipelines, tankage, technical & professional workforce.



Opening  
opportunities  
for growth





## Project Objectives

Expansion from current 50kbpd to 100kbpd.

Upgrading the refinery configuration from Hydro-skimming to Deep Conversion thereby converting Residual Fuel Oil (RFO) into value added products (primarily MS and HSD).

Production of Environmental Fuels; meeting Euro V specifications in Motor Spirit (MS) and High Speed Diesel (HSD).

## Project Development

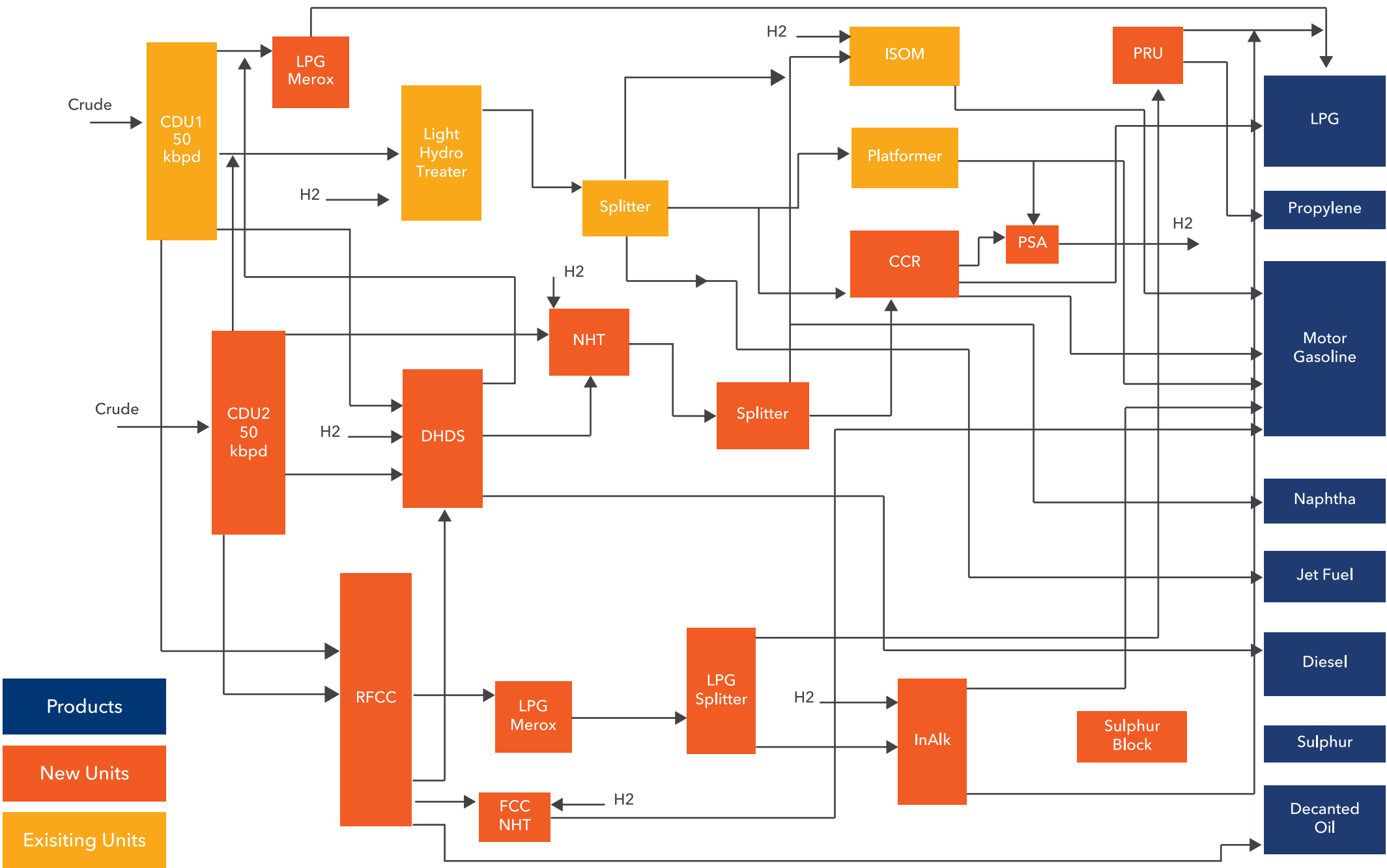
Detailed Feasibility Study (DFS) for the project was developed by WOOD Group (previously AMEC Foster Wheeler). DFS entailed selecting proven state of the art technology and configuration, comparable to any world class modern refinery. After exhaustive evaluation of globally available technologies and licensors, the DFS specified a Residue Fluidized Catalytic Cracker (RFCC) based process configuration designed to process regional medium crudes. Proposed technologies will be licensed by leading global licensors.

Leveraging PRL's existing infrastructure upgrade project offers a saving of ~1.3 billion USD in CAPEX as compared to a 100 KBPD green field deep conversion refinery.

The current refinery site has space available (~100 acres of unutilized land) to accommodate the proposed upgradation and expansion.

# Block Flow Diagram

100kbpd Configuration Block Flow Diagram (BFD)





# Product Yields

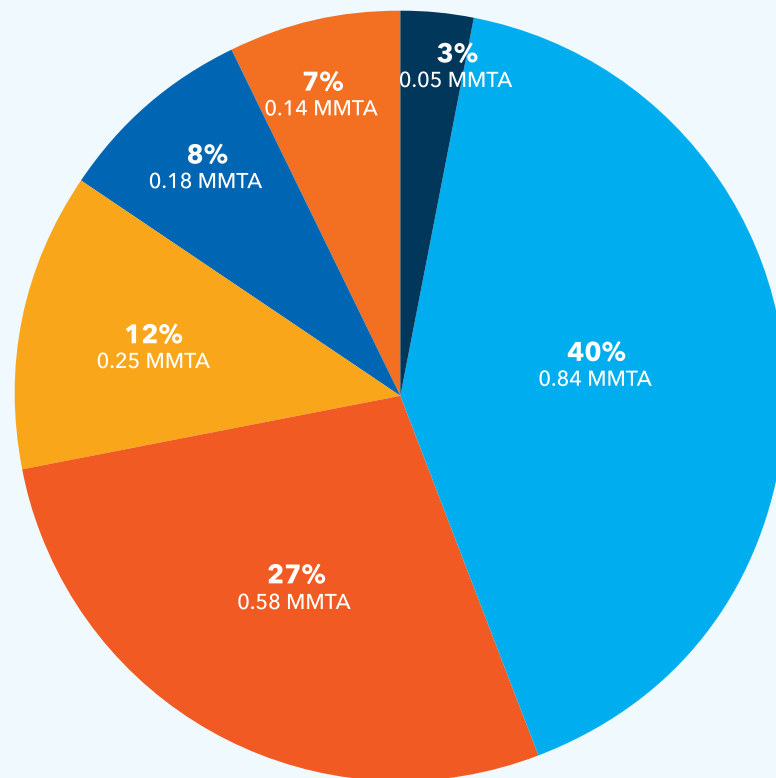
Current @ 50kbpd			Post Upgrade @ 100kbpd	
	MMTA	%	MMTA	%
LPG	0.05	3%	0.19	4%
Propylene	-	0%	0.19	4%
Naphtha	0.14	7%	0.18	4%
Motor Gasoline	0.18	9%	1.51	32%
Jet A1	0.25	12%	0.29	6%
High Speed Diesel	0.58	28%	2.02	42%
HSFO 3.5%	0.84	40%	-	0%
Decanted Oil	0.00	0%	0.1	2%
OUL	0.07	4%	0.29	6%
Total	2.10	100%	4.80	100%

KBPD: Thousand barrels per day | MMTA: Million Metric Tons per annum | HSFO: High Sulphur Furnace Oil | OUL: Own Usage & Losses

# Changing Shape of Product Barrel

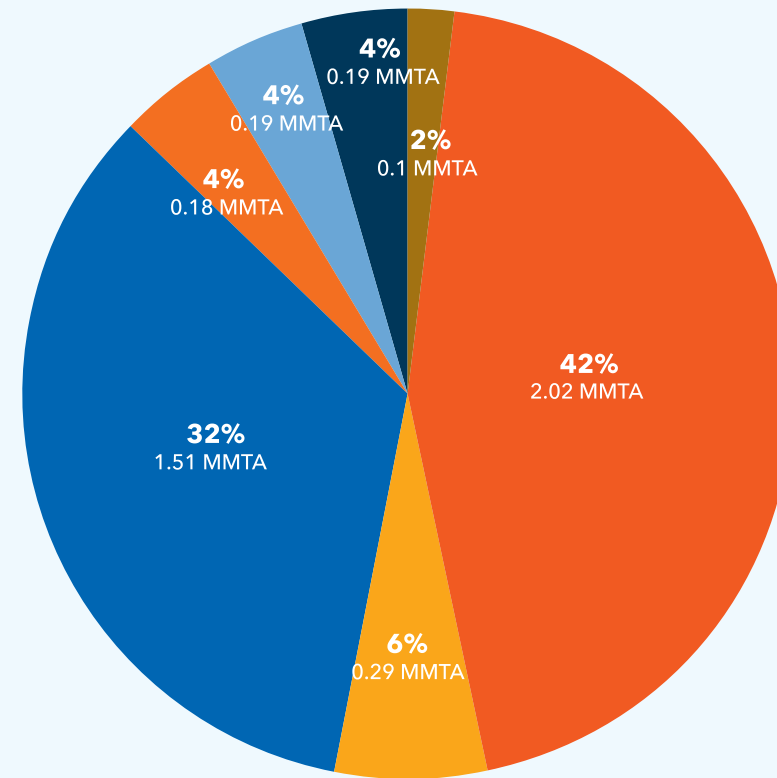
(Current)

Pre upgrade production slate @ 50 Kbpd



(Future)

Post upgrade production slate @ 100 Kbpd

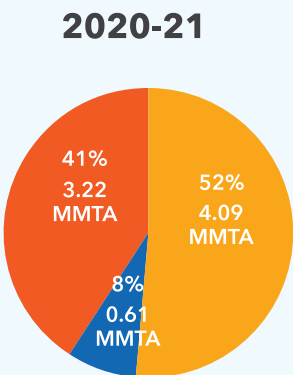


● LPG ● Propylene ● Gasoline ● Naphtha ● Jet A1 ● Diesel ● HSFO 3.5% ● Decanted Oil

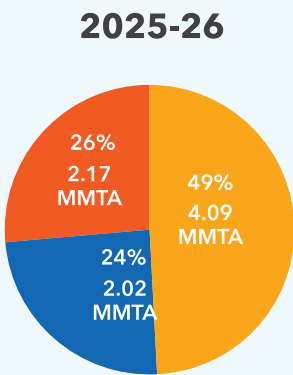


# Pakistan Demand & Import and PRL Contribution - HSD

Demand is projected to increase from 7.8 MMTA to 8.3 MMTA from 2022 to 2026. Assuming local production remains constant; 3.6 MMTA deficit will need to be met through import out of which 1.4 MMTA would be import substitution made possible by PRL expansion and upgrade project.



Total Demand: 7.8 MMTA



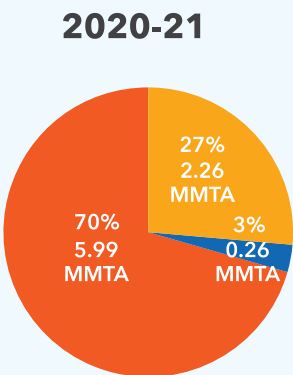
Total Demand: 8.3 MMTA

1.4 MMTA

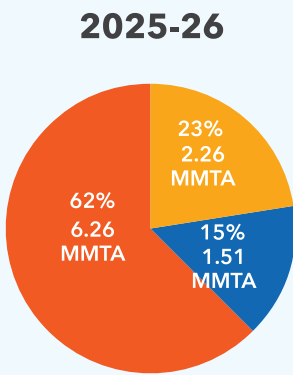
PRL Import Substitution

# Pakistan Demand & Import and PRL Contribution - Motor Spirit

Demand is projected to increase from 8.5 MMTA to 10 MMTA from 2022 to 2026. Assuming local production remains constant; 7.5 MMTA deficit will need to be met through import out of which 1.25 MMTA would be import substitution made possible by PRL expansion and upgrade project.



Total Demand: 8.5 MMTA



Total Demand: 10.0 MMTA

1.3 MMTA

PRL Import Substitution

# Economics

Total Project Cost

**USD 1.2 BILLION**

Project IRR

**>20%**

Discounted Payback

**3.5 YEARS**

Project Completion

**5 YEARS**

Expected Debt to Equity Ratio

**65 : 35**



# Strategic Importance to Pakistan

Meeting Euro V fuel specifications.

Production and usage of cleaner fuels in the country.

Employment, goods and services opportunities.

Over 600 additional jobs created at the refinery.

Training and development of local technical staff.

Contribution to GDP, import substitution, reducing infrastructure burden and foreign exchange savings.

Strategic importance of self-supply.



# Current Status and Plan Forward

Front End Engineering Design (FEED) contract has been awarded to Wood Group UK Ltd in May 2022. FEED execution is expected to be completed by Q3 2023.

Financial Close and Final Investment Decision (FID) is expected to be achieved by Q2 2024, following which Engineering Procurement Construction (EPC) phase will take ~ 3 years, accomplishing project completion tentatively by Q2 2027.









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