

Naphtha Cracker Program: Propane Dehydrogenation (PDH) Plant Opportunity

Investment pitchbook

November 2025



KEARNEY



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Executive Summary

Attractive Investment Destination

- **Pakistan is positioning as a regional powerhouse:** the best performing stock market in 2024, with a stable currency and GDP forecast above USD 3.3 trillion by 2050
- **Investors can rely on a young and skilled workforce** (the 7th largest globally, 64% under 30) and **strong government backing through fast-track licensing, tax incentives, infrastructure financing,** and other incentives under industrial development schemes




Increased Reliance on Olefins and Polyolefins

- Pakistan relies almost entirely on **polypropylene imports**, totaling **over USD 0.7 billion in 2024** (>0.7 million MT), with the market projected to **reach USD 1.0 billion by the early 2030s**
- Demand is driven primarily by the **packaging sector** (30-40%) and **construction** (20-30%), supporting **annual growth of 6-8%**, outpacing global growth
- **Additional upside** comes from **convergence of polymer consumption per capita** with regional levels (e.g., current Pakistan consumption is ~8 kg/person vs. ~14 kg/person in India)

Viable and Attractive Opportunity

- Investors can **establish Pakistan's first Propane Dehydrogenation (PDH) plant** with capacity to produce ~0.7 million MT of polypropylene, **fully covering current national demand**
- Feedstock would be **imported under long-term strategic contracts** with regional suppliers to mitigate spot-market volatility
- The **project cost is estimated at USD 1.5 billion**, with local banks able to **finance up to 50%** of the CAPEX, with an **expected 14–15% IRR** for equity investors over a 20-year horizon

Pakistan: Your Investment Destination

Pakistan Value Proposition						
Reformed Economy 	USD 3.3Tn¹ Expected GDP in 2050 (from USD >410Bn ² today)	B- Improved Credit Rating ³ from CCC-	Top 10 In Business Entry Regulations ranking ⁴	Stabilized Inflation At lowest levels since 1968 ⁵	Stabilized Currency Achieved since 2023 in coordination with IMF	Special Economic Zones (SEZs) Robust fiscal and trade incentive packages
Vibrant Demographics and Talent 	255 million Large and growing population ⁶	64% Population younger than 30 ⁶	7th largest Global workforce ⁷	2 million University students enrolled every year ⁸		
PDH / Polypropylene Ecosystem 	>0.7 MMT / > 0.7Bn USD Annual polypropylene imports ⁹	>1k USD/MT Polymers import price ⁹	8 kg Annual per capita plastic consumption	>7% Annual demand growth outlook		



Investors have an opportunity to develop and operate a propane dehydrogenation facility

Opportunity overview and key highlights

Opportunity Description



Investment in a propane dehydrogenation plant, for localization of polypropylene and enable Pakistan's championing industries (e.g., textiles, automotive, packaging, appliances, pharma)

Project detailed next

High-Level Opportunity Facts



A Project Details



Propane Dehydrogenation Unit



700 Thousand MT per Year



Regional feedstock sourcing

B Supply-Demand Gap

With **no naphtha cracker or PDH plant** in Pakistan, all **feedstock** polymers for local downstream industries **are imported**, making the **products less competitive**

C Investment Model

Private Sector + Government Support

Return Profile

IRR: 14-15%¹

D Run-rate Revenues

PKR 405-410Bn²

Estimated Project Cost

USD 1.5Bn^{3,4}
(50:50⁵ debt to equity structure)

Value Proposition



Focus of this opportunity

Basic Chemicals

Intermediate Chemicals

Specialty Chemicals

Localization of Polypropylene production (Propane to Propylene to Polypropylene), with imports of nearly 700k MT in 2024



Local captive demand in multiple **downstream industries** (e.g., textiles, automotive, packaging)



Strategic location for Propane imports from **Middle East**, making **output cost-competitive for exports**



Significant latent demand (per capita polymer consumption of 8kg in Pakistan vs. 14kg in India)



First-mover advantage / no local competition



Strong government support through National Industrial Policy and other incentives emphasizing import substitution and exports

1. In local currency; over 20 years of operations (detailed in Business Case section)
 2. Year 10 of operations
 3. Excludes working capital requirement detailed in Business Case section)
 4. At current USD exchange rate (PKR 280.6)
 5. Maximum leverage that maintains DSCR above 1.25 (typical threshold required by banks; can be negotiated)



A. Plant focused on production of polypropylene through an integrated propane dehydrogenation manufacturing process

Project details



Offering

Two main products / outputs generated through a PDH plant:

- **Primary Product:** Propylene (C_3H_6) and Polypropylene ($(C_3H_6)_n$)
- **Byproduct:** Hydrogen (can be used internally for fuel)



Technical Specifications

- **Annual feedstock:** 0.8-0.9 MMT of propane (C_3H_8)
- **Capacity:** 0.7 MMTA of polypropylene
- Integrated plant designed to combine PDH process with polymerization operations



Targeted End-Users

- **Plastics** sector (e.g., films, sheets, bags), **Medical/ Healthcare** sector (e.g., medical devices), **Construction** sector (e.g., piping, membranes) and **Automotive and Appliances** (e.g., bumpers, insulation)

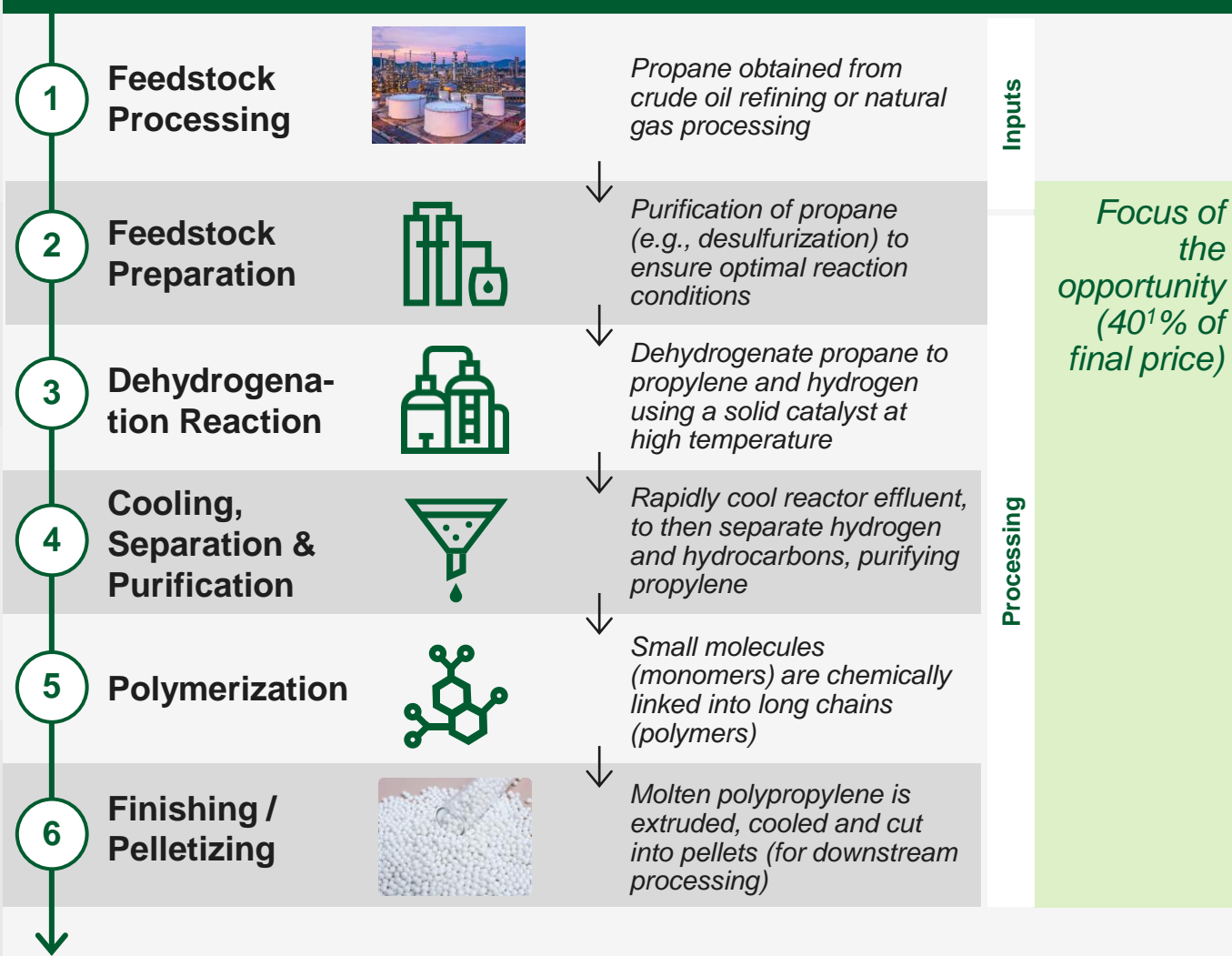


Location

- **Close to industrial hubs and ports** for immediate integration in logistics and trade routes

1. Industry expert estimation; includes gross margin

Propane Dehydrogenation and Polyolefins Manufacturing Schematic Overview



B. The opportunity aims to deliver new industrial capacity to substitute current imports of polypropylene in Pakistan, while setting the foundation to serve a growing demand

PDH Demand Tailwinds

Pakistan Imports of Propylene (kMT)

Estimated Value¹
(USD Bn)

0.7

0.9

0.7 MMT PDH
output potential

700

686

+3%²

810

2024

2030

- Pakistan has **no Naphtha cracking plant or PDH plant**, with **all olefins** (e.g., Propylene) and **polyolefins** (e.g., Polypropylene) required for downstream industries (e.g., textiles, plastics) **are imported**
- **Propane** needs for a PDH plant to be imported
- Project to be anchored on **long-term strategic supplies of Propane**, to lower sourcing risk on the spot market
- Operational **integration of PDH and polymerization to unlock better margins**

Demand Drivers

Large Market



- **Polymer demand** in Pakistan to **grow at 6-8% p.a.**, reaching >2.1 MMT by 2030, **outpacing global growth** (4-6%)
- **Polypropylene import substitution** opportunity of **~0.7 Bn USD**, projected to reach 0.9Bn USD by 2030
- **Strategic proximity to APAC**, the most relevant polymer market accounting >40% of world demand
- **Packaging** (30-40%) and **Construction / Infrastructure** (20-30%) as the **main downstream segments** for polymers in Pakistan

Increased Reliance on Polymers



- **Population growth, urbanization, infrastructure development, and middle-class expansion**, are driving polymer consumption across sectors in Pakistan
- **Demand expansion through convergence** in per capita polymer consumption **with regional peers** (e.g., gap of ~8 to ~14 kg/person in Pakistan vs. India, respectively)
- **Improvements in polymer processing**, making usage more efficient and **broadening applications**

Global Trends



- **Production shifting to regions with lower cost**, favorable policies and available feedstock (especially Asia and Middle East)
- Growing role of **national industrial policies** to attract new polymer production plants (e.g., Vietnam)

C. Investors will be supported by public and private parties in Propane Dehydrogenation manufacturing industry



Ministry of Industries & Production

- Sets national industrial policy for heavy industries including steel and metals
- Oversees large state-owned or strategic industrial enterprises
- Coordinates tariff and regulatory reforms through the Engineering Development Board (EDB)



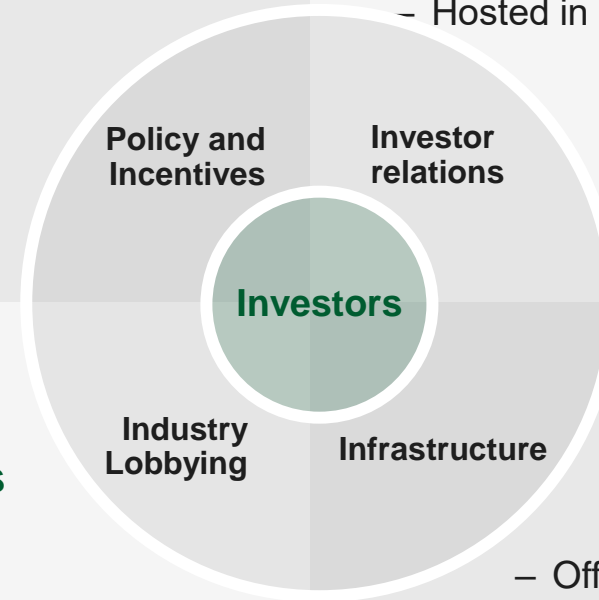
Special Investment Facilitation Council (SIFC)

- Facilitates and fast-tracks foreign and domestic investments
- Provides a streamlined, one-window operation for investor support and coordination across government entities
- Hosted in Prime Minister’s Office



Multiple Private Sector Associations

- Represent the sector interests
- Focus on improving industry competitiveness locally and abroad



Special Economic Zones

- Offer fiscal and trade benefits
- Ensure robust infrastructure (e.g., electricity stability)



C. Investors will benefit from the Government support to create an attractive business and regulatory environment

Key opportunity enablers and incentives

Ease of Doing Business

- Ongoing review and simplification / deregulation across sectors
- One-stop licensing and digital registration
- Pakistan Standards & Quality Control Authority (PSQCA) sets and enforces local and international standards, supporting trade and export compliance



Demand Support

- Government has set in place a 10- year industrial program to bolster new manufacturing capacity, promoting polymers demand
- Construction sector emblem through multiple policies (“Prime Minister Package for Construction Sector”) to drive indirect demand for polymers



Tax & Fiscal Incentives

- Tax breaks and 10- year tax holidays¹
- Reduced import duties on required machinery and (sales tax reduction to 1% and 0% customs duties on select machinery)
- Duty drawbacks, rebates, and zero-rated sales tax on polymer exports to boost international demand
- EXIM Bank of Pakistan mandated to catalyze exports and import-substitution projects



Infrastructure Incentives

- Special Economic Zones (SEZs, e.g., Dhabeji, Rashaka, AIIIC)
- Guaranteed electricity stability
- Industrial infrastructure / land incentives
- Export Processing Zones (EPZs, e.g., Karachi, Risalpur) and export-oriented incentives (e.g., duty exemptions)



1. For residents of Special Economic Zones (SEZs)
Source: SIFC, P3A, other Pakistan Government entities

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D. Consequently, investors can expect 14-15% IRR over the coming 20 years, with USD 1.5Bn in estimated CAPEX and 50% financing











Estimated project financials and investment case

(Figures provided are estimations based on available information)

Business Case			
Return profile	Expected IRR	14-15% ¹	<ul style="list-style-type: none"> – 2-year development period – Computed based on 20-year operations – Payback period impacted by development period and cash outflows for interest in first 10 years of operations – IRR based on local currency
	Payback Period	c.a. 15 years ²	
Operations	Revenues	PKR 405-410Bn ³	<ul style="list-style-type: none"> – Initial capacity utilization of 50%, ramping up to 90% over 2 years of operations – Assumes a plant capacity of 700k MT p.a. and an initial price of PRK 309k (USD 1,100) per MT based on current market prices
	EBITDA Margin	24% ³	<ul style="list-style-type: none"> – EBITDA margin of PKR 70-75k (USD ~250-260) per MT, in line with key industry peers / benchmarks – Raw material (imported Propene/LPG) as the main cost driver, accounting for ~80% of the cost base
	NOPAT	PKR 64-65Bn ^{3,4}	<ul style="list-style-type: none"> – Transformation cost: PKR 30k (105 USD) per MT – Additional operating cost: PKR 14k (50 USD) per MT for SG&A
Development	Construction Cost	PKR 410-415Bn ⁵ (USD 1.5Bn ⁶)	<ul style="list-style-type: none"> – Assumes a plant capacity of 700k MT and a capex per MT of PRK 590k (USD 2,100), including equipment and construction / commissioning works – 50% financing of construction, based on maximum leverage that maintains DSCR above 1.25 (typical threshold required by banks; can be negotiated) – 12-year loan duration (including 2 years grace period), 12.5% interest (based on offered local bank financing terms)
	Equity Input: Construction	PKR 205-210Bn (USD 750Mn ⁶)	<ul style="list-style-type: none"> – 50% equity required for development
	Equity Input: Working Capital	PKR 9.4Bn (USD 34Mn ⁶)	<ul style="list-style-type: none"> – 30 days⁷ of OPEX required in first operating period

D. Support mechanisms are in place to mitigate potential risks impacting the investment case

Key investment risks and mitigation measures

Risk type 	Description 	Degree of Risk 	Investor Mitigation Actions 	Public Sector Support 
Demand/ Revenue 	Risk of not achieving projected revenues or sales targets due to lower demand or competitive pressure	Low – Significant local supply imbalance in Pakistan, with >1.4 MMT of imports; no local production / competition	Focus go-to-market strategy on securing contracts with top polymer buyers (e.g., plastics, construction materials) in Pakistan	Support demand through strong enforcement of regulatory requirements (i.e., localization requirements, tariffs) and enabling key downstream sectors (e.g., construction)
Macroeconomic Conditions 	Risk of inflation or currency depreciation affecting profitability	Medium – Recent track record of inflation decline (at lowest levels since 1968 ¹) pointing to stabilization	Arrange local currency financing for the project and use USD-indexed pricing	Facilitate access to local currency loans
Supply Chain Risks 	Limited local availability of Propane, needs to be complemented with imports	Medium – Well established global market for propane with availability of contract terms (spot, future, strategic/long-term supply) that enable an effective supply chain risk management	Project structured with long-term strategic supplies of propane (e.g., Middle East nations) to ensure steady supply	Support establishment of long-term / strategic partnerships with oil rich nations (potentially with foreign state-owned enterprises)
Unreliable and Costly Electricity 	Unreliable and elevated electricity tariffs affecting investment profitability	Medium – Electricity prices in Pakistan are above regional ones; however, weight of electricity is moderate (~20-40% of production cost)	Explore renewable energy integration to offset grid consumption on the long term	Provide more cost-effective electricity industrial tariffs to ensure investment attractiveness
Regulatory / Legal 	Risk of sudden policy changes impacting contract or taxes	Low – Recent reforms and deregulation trend suggesting commitment to private sector partnerships	Include independent jurisdiction (e.g., UK) in contract; include robust stabilization and early termination clauses in concession contract	Offer legal protections and enable international arbitration where applicable

Connect with SIFC to learn more



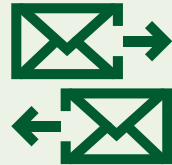
Website

<https://sifc.gov.pk/>



SIFC E-Service Gate

<https://ticketinghub.sifc.gov.pk/>



Email

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APPENDIX



Pakistan has a track record of successful Foreign Direct Investments across sectors

Examples of Foreign Direct Investment (FDI) projects in Pakistan

FDI projects (non-exhaustive)		
<p>Hangzhou Newsea (China) USD 50-70Mn</p>  <ul style="list-style-type: none"> – Joint venture (ETACI Limited) to expand API manufacturing capacity in Pakistan – USD 50–70Mn investment to add 20–30 new APIs, leveraging Citi Pharma’s existing infrastructure; commercial operations expected within 12–18 months 	<p>AD Ports (UAE) USD 220Mn</p>  <ul style="list-style-type: none"> – 50 year concession agreement to manage, operate and develop the Karachi Gateway Terminal – USD 200Mn investment in infrastructure development by AD Ports in first 10 years 	<p>Al Mirqab Capital (Qatar) Power Construction Corp. (China) USD 2.09Bn</p>   <ul style="list-style-type: none"> – Construction of coal-powered power plant in Port Qasim, under build-own-operate (BOO) model – USD 2.09Bn investment, of which c.a. USD 500Mn in equity
<p>DP World (UAE) and National Logistics Corp. (Pakistan) JV investment not public</p>  <ul style="list-style-type: none"> – Joint venture (DP World: 60%) focused on road freight logistics approved – Follows MoU by DP World for the development of 50km freight corridor from Karachi Port to Pripri 	<p>Air Arabia (UAE) and Lakson Group (Pakistan) JV investment not public</p>  <ul style="list-style-type: none"> – Air Arabia enters joint venture with Pakistan’s Lakson Group to launch low-cost airline Fly Jinnah in 2022 – Operator certificate and license acquired 	<p>Other Announcements and MoUs (non-exhaustive)</p> <ul style="list-style-type: none"> – Reportage Properties (UAE): JV with Empire Holding Pakistan for USD 300Mn real estate development in Islamabad and Lahore – Emaar Group (UAE): JV with Giga Group Pakistan for USD 2.4Bn Crescent Bay real estate – Saudi Development Fund (KSA): Potential investment in mining infrastructure (USD 100Mn) – Manara Minerals (KSA): Exploring stake in Reko Diq copper and gold mine (USD 7Bn)

D. Opportunity P&L

Extract from financial model

Preliminary numbers being validated; figures provided are estimations based on available information

Numbers in PKR	Year 1 ¹	Year 5 ¹	Year 10 ¹
Utilization	50%	90%	90%
Total Revenue	123,684,691,900	291,825,721,153	409,300,670,266
Cost of Operations			
Raw material	76,855,418,734	181,335,197,202	254,331,994,673
Utilities	584,691,271	1,379,539,773	1,934,875,896
Labor	5,622,031,450	13,264,805,507	18,604,575,921
Maintenance	5,622,031,450	13,264,805,507	18,604,575,921
SG&A	5,622,031,450	13,264,805,507	18,604,575,921
Total OPEX	94,306,204,355	222,509,153,496	312,080,598,332
EBITDA	29,378,487,545	69,316,567,657	97,220,071,934
<i>EBITDA Margin</i>	23.8%	23.8%	23.8%
NOPAT	17,708,915,888	43,251,310,322	64,411,845,041
Financing			
Interest	30,815,305,664	22,563,322,360	4,947,480,373
Debt Outstanding	232,810,427,619	158,542,577,881	0.00

Revenue calculation based on:

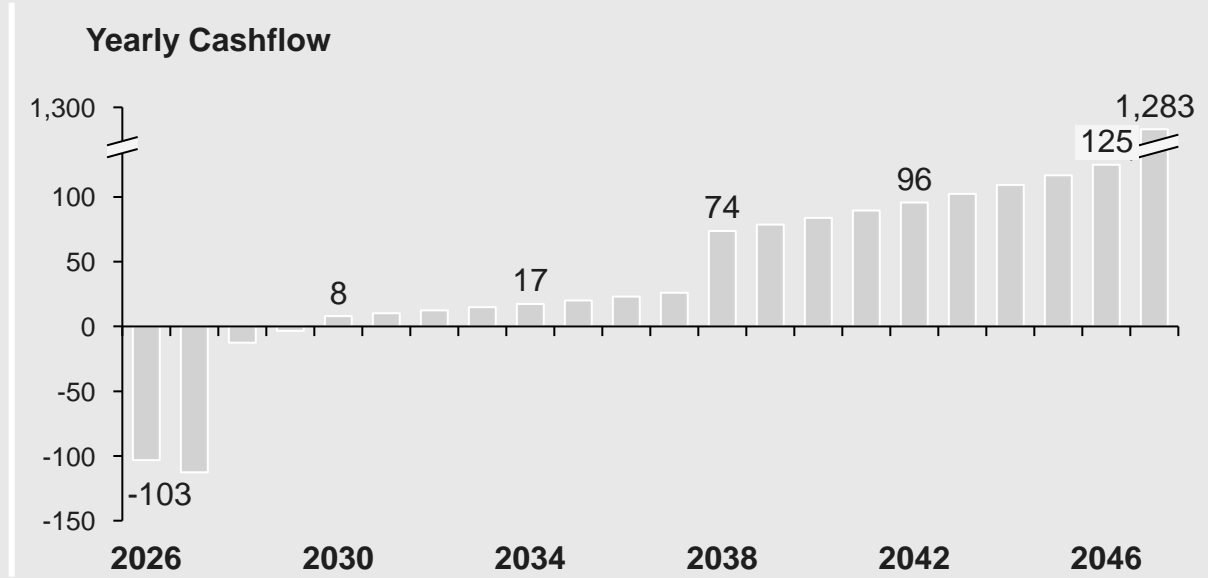
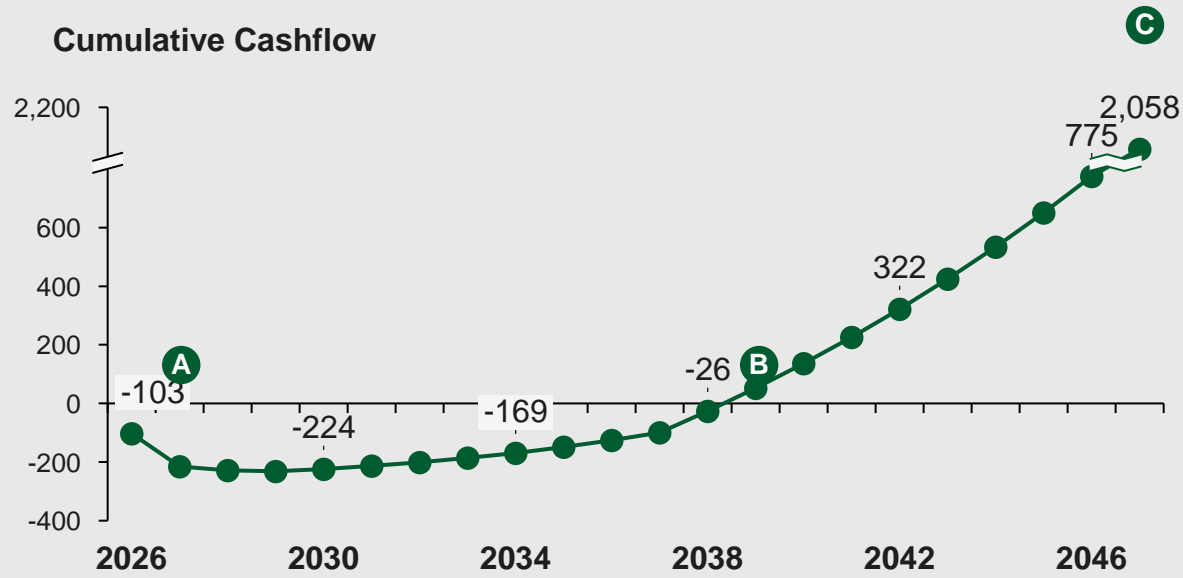
- Manufacturing capacity of 700k of polypropylene per year
- Initial average price per ton of PKR 309k (current import price reference in Pakistan)
- Annual PKR price increase of 7%

- Raw material (imported Propene/LPG) as the main cost driver, accounting for ~80% of the cost base
- Transformation cost: PKR 30k (105 USD) per MT
- Additional operating cost: PKR 14k (50 USD) per MT for SG&A
- Expert input / industry reports
- Other desktop research and benchmarking

- Project coverage, loan duration and interest rate provided by local bank
- Debt in Year 1 includes additional interest accrued but not paid during development

D. Investor Cash Flows

Investor cash flows, PKR Bn



Investor cash flows:

- Upfront equity investment:
 - PKR 205-210Bn over 2 years of development
 - PKR 9.4Bn in working capital to fund initial operating period
- Cumulative cash flows over the duration of the investment: PKR 2,060 Bn (including terminal value)

Additional information:

- A** Development period: 2 years
- B** Payback period: year 12 of operations
- C** Terminal value: ~PKR 1.1Bn; computed as 1.4x Price Revenue Ratio (as per NYU Damodaran industry benchmarks in emerging markets)

D. P&L Assumptions - Revenue



Extract from financial model

Preliminary numbers being validated; figures provided are estimations based on available information

Revenue Assumptions		
Assumption	Unit	Value
Price per MT	USD / MT	~1,100
Manufacturing Plant Capacity	MT / year	700,000
Initial Utilization	%	50%
Incremental Utilization	%	15%
Final Utilization	%	90%
Inflation (PKR)	%	7%

D. P&L Assumptions - Opex



Extract from financial model

Preliminary numbers being validated; figures provided are estimations based on available information

OPEX Assumptions					Breakdown		
Assumption	Unit	Value	Unit	Value	Assumption	Unit	Value
Raw material	% of Total OPEX	~80%	USD / Ton	~680	Raw material input	USD / Ton	~680
Utilities / Energy	% of Total OPEX	~1%	USD / Ton	~5	Propane / LPG Sport Price	USD / Ton	~480
Labor	% of Total OPEX	~6%	USD / Ton	~50	Trading Fee	% Propene / LPG Price	~2%
Maintenance	% of Total OPEX	~6%	USD / Ton	~50	Inbound Logistics and Handling	USD / Ton	~80
SG&A	% of Total OPEX	~6%	USD / Ton	~50	Landed Cost	USD / Ton	~570
					Input to Output Conversation Ratio	x	1.2
					Utilities input	USD / Ton	~5
					Energy Consumption	kWh / Ton	35
					Energy Price	USD / kWh	0.14
					Water Consumption	Liters / Ton	40
					Water Price	USD / Liter	0.01
EBITDA Margin	% Revenue	~24%	USD / Ton	~260			

D. CAPEX assumptions

Extract from financial model

Preliminary numbers being validated; figures provided are estimations based on available information

Total Project Cost		
Assumption	Unit	Value
Total CAPEX	USD	~1.4-1.5 Bn
CAPEX per Ton of Installed Capacity	USD/Ton	~2,100
Installed Capacity	Ton	700,000
Total CAPEX Breakdown	Land Site	5%
	Building / Construction	10%
	Equipment	55%
	Utilities	25%
	Others (e.g., contingencies)	5%

Thank You

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