

Shaheen Project Investor Briefing

November 2022



S-OIL Green Initiatives

**Final investment decision was made for Shaheen Project to expand petrochemical business,
one pillar of Green Initiatives**

Final investment decision on Shaheen Project



**Petrochemical
Growth**

**De-
carbonization**

**New Energy
Business**

S-OIL Green Initiatives

Our Journey to a Greener Future
in Energy & Chemical Industry



Carbon emission
reduction up to
35% by 2030 (vs. BAU)

'Net zero' carbon
emission by 2050



Hydrogen business

Bio-fuel business

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Shaheen Project

Background

Core Competitiveness

Execution Plan

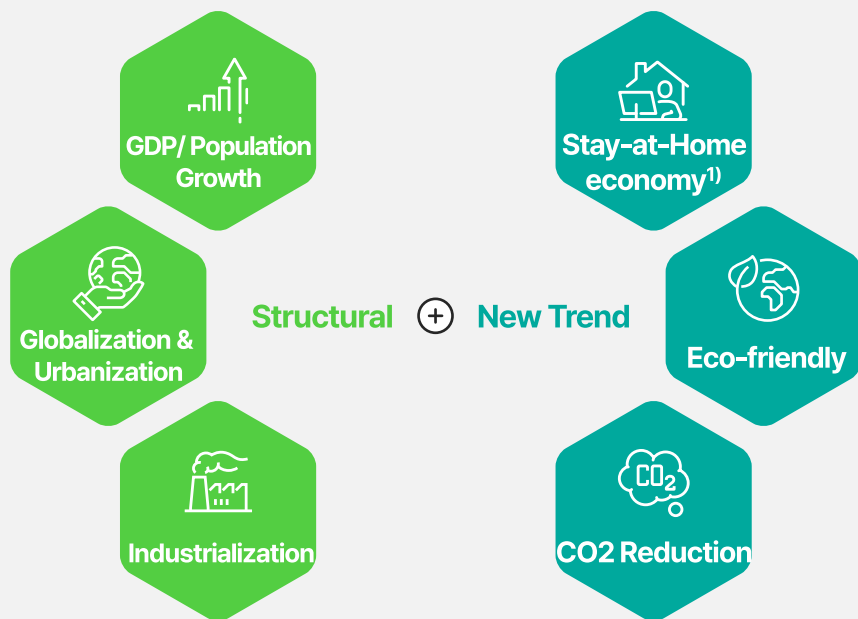
S-OIL after Shaheen

Shaheen Project Background

Long-term growth outlook for petrochemical demand

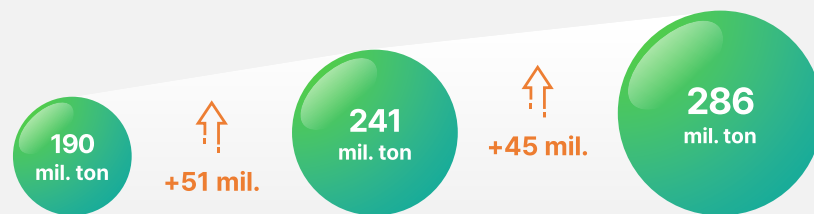
Global demand for petrochemical products is expected to grow steadily for the long-term, requiring capacity additions to meet incremental demand

Global Petrochemical Market Trends



1) Consumer behaviors that heavily rely on online channels for economic consumption at home

Global Ethylene Demand Forecast



Global Propylene Demand Forecast



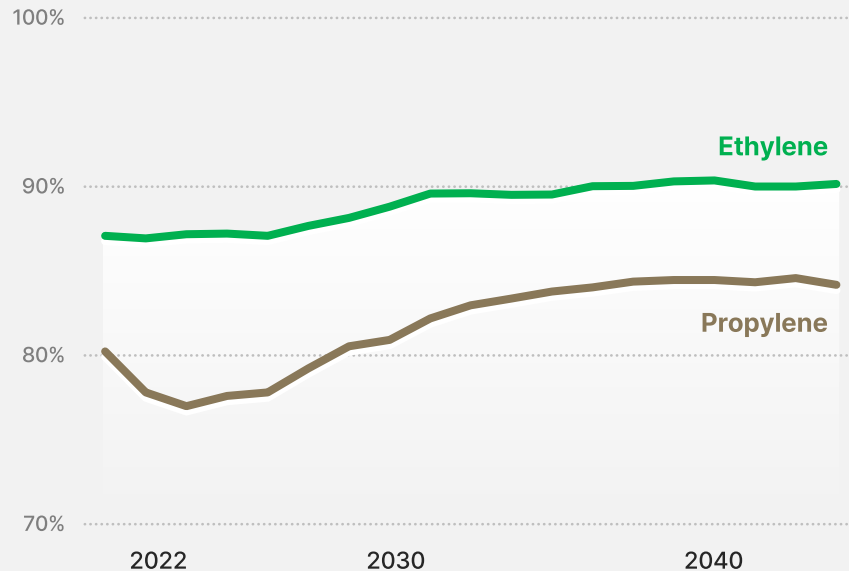
Source: Market intelligence agency, The Company

Long-term outlook for petrochemical industry

The petrochemical industry is expected to rebound in the mid-2020s and then maintain stable fundamentals going forward

Facility Utilization Forecast

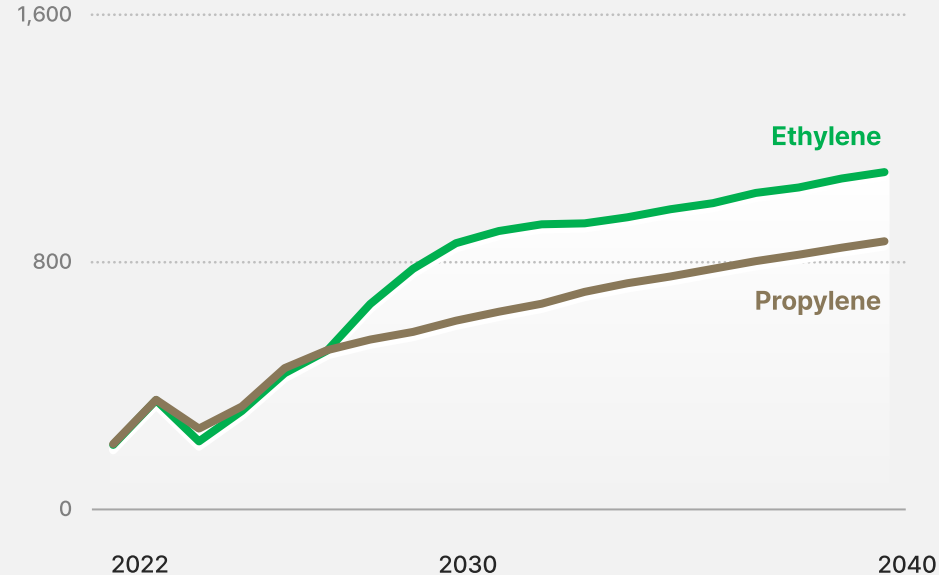
Unit : %



Source: Market intelligence agency, The Company

Spread vs. Naphtha Forecast

Unit : USD/MT



Source: Market intelligence agency, The Company

Core competencies and resources

In an era of unprecedented uncertainties, our core competencies and resources will maximize chances of success in new investment

Proven track record of success in mega projects

- BCC & #1 PX in 1997
- #2 Aromatics in 2011
- RUC/ODC in 2018
- Successful commercialization of new technologies (R2R, Eluxyl, HS-FCC) for the first time in the world



Operational excellence in refining & chemical

- Over 40 years experience in refining & chemical biz.
- Project competitiveness enhancement by integrating with existing facilities



Established network for marketing & logistics

- Strong presence & network in domestic and overseas petrochemical market
- Established domestic logistics infrastructure



Collaboration & synergy with Saudi Aramco

- Stable crude oil sourcing
- Collaboration in global marketing with Saudi Aramco affiliates
- Technological cooperation with Saudi Aramco



أرامكو السعودية
saudi aramco

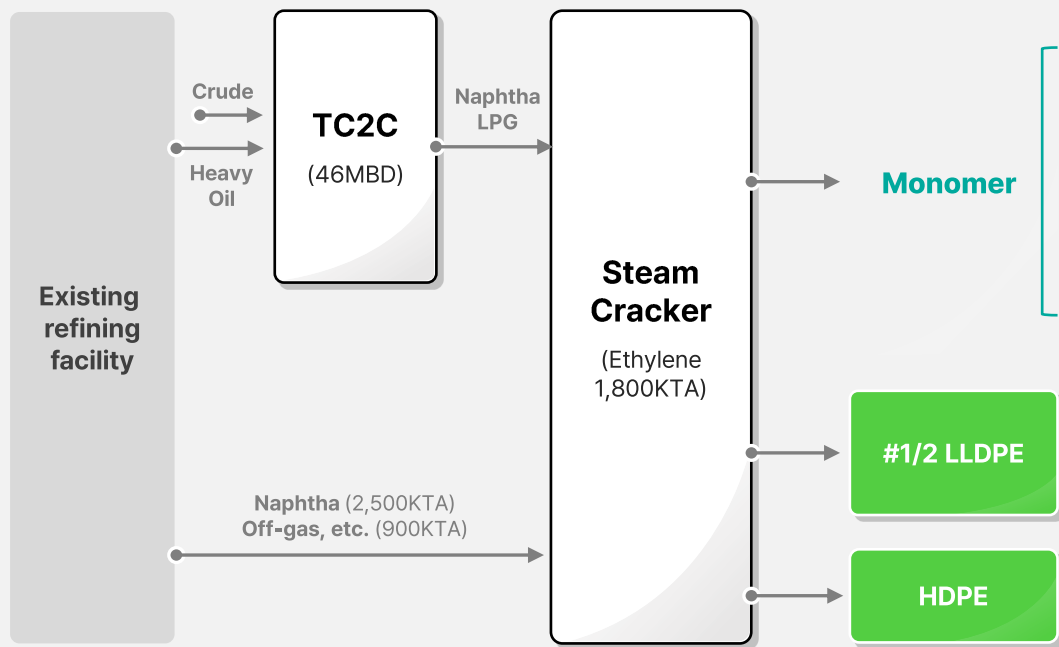


Shaheen Project Core Competitiveness

Shaheen Project overview

Shaheen Project is the world's largest refinery-integrated steam cracker with future-oriented design in energy & environmental conservation

Configuration



Major Products (Annual production capacity)

> Ethylene	580KTA
> Propylene	770KTA
> Butadiene	200KTA
> Benzene	280KTA
> Linear Low Density Polyethylene	880KTA
> High Density Polyethylene	440KTA

Core competitiveness

The Company aims to lead in integrated refining & chemical competitiveness within the Northeast Asian region



Integrated refining & chemical competitiveness

1

Refining & chemical
integration synergy

2

Adoption of new
TC2C technology
(Thermal Crude to Chemical)

3

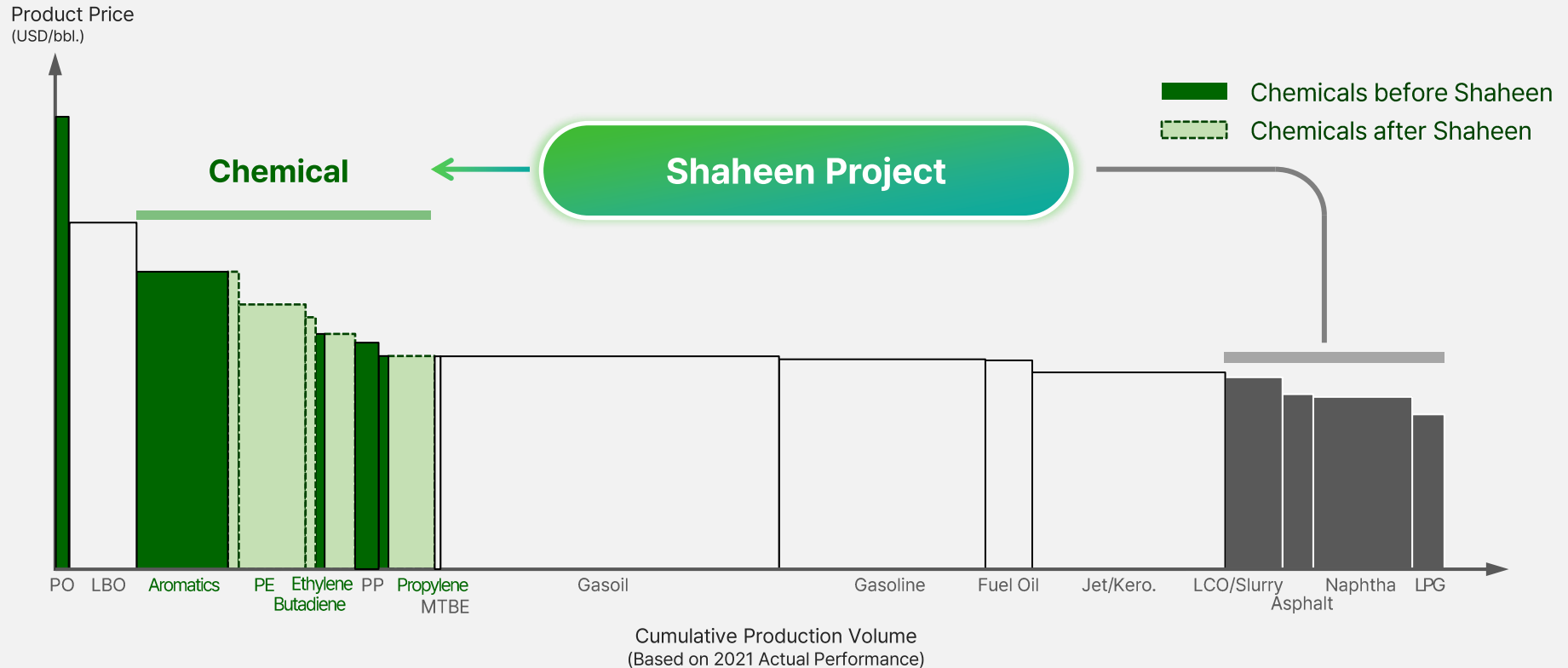
Industry-leading
energy efficiency
& carbon intensity

4

Superior
cost competitiveness
and economics

Refining & chemical integration synergy

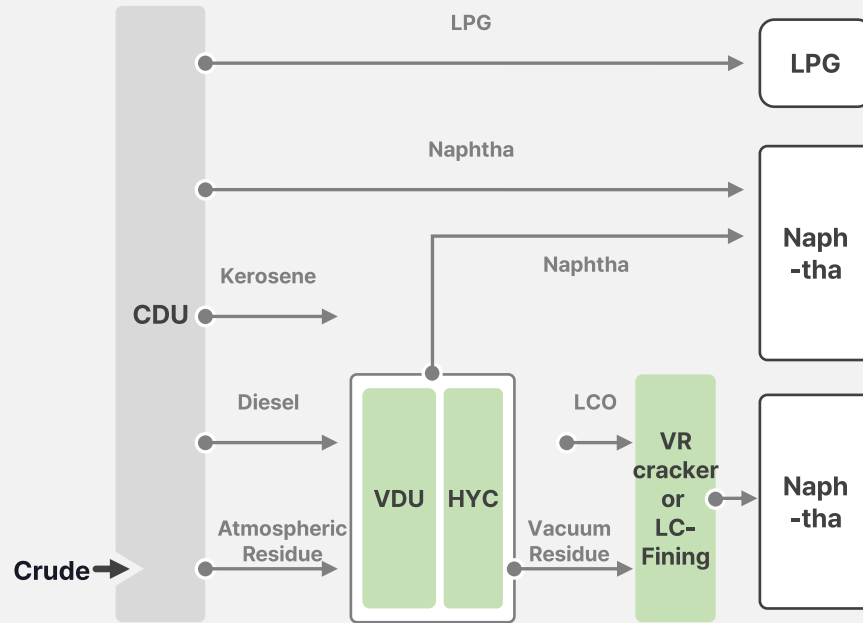
Refining & chemical integration enables feedstock competitiveness, superior facility and operation



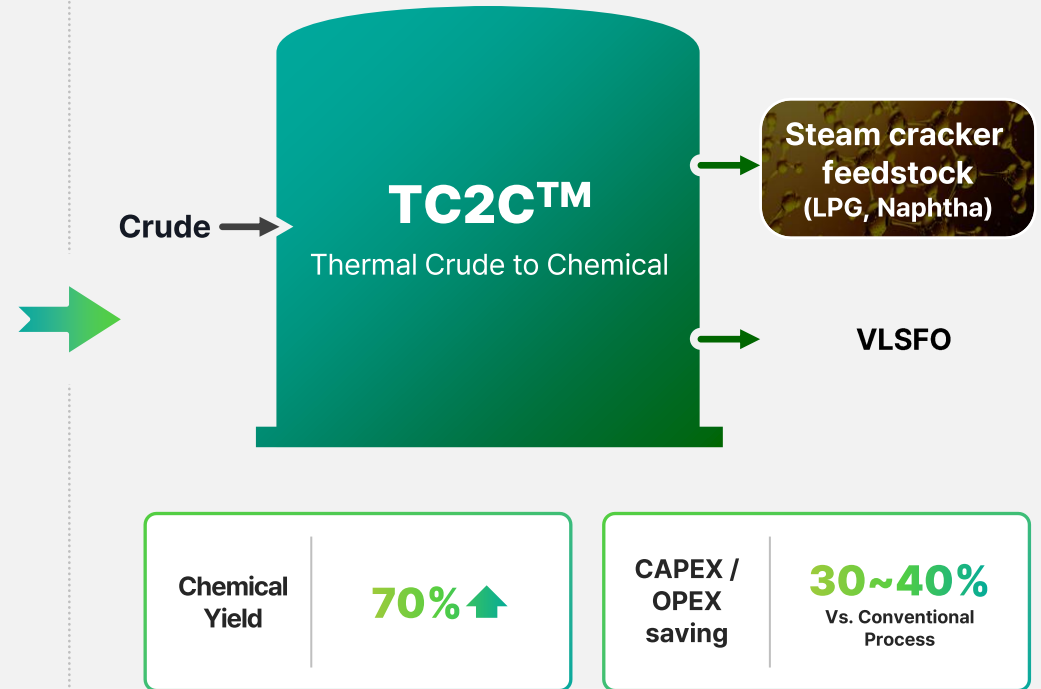
Adoption of new TC2C (Thermal Crude to Chemical) technology

To-be-commercialized TC2C will lower CAPEX/OPEX and increase chemical yield

Conventional Process

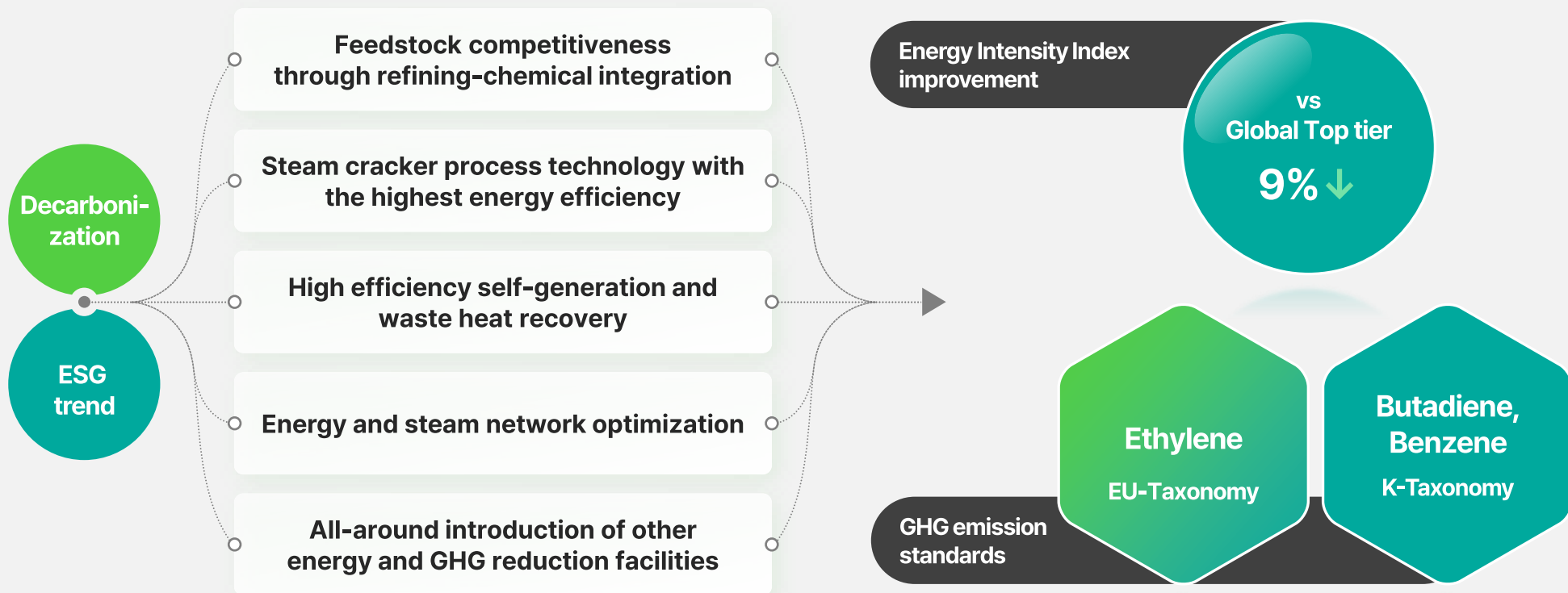


New TC2C Technology



Industry-leading energy efficiency and carbon intensity

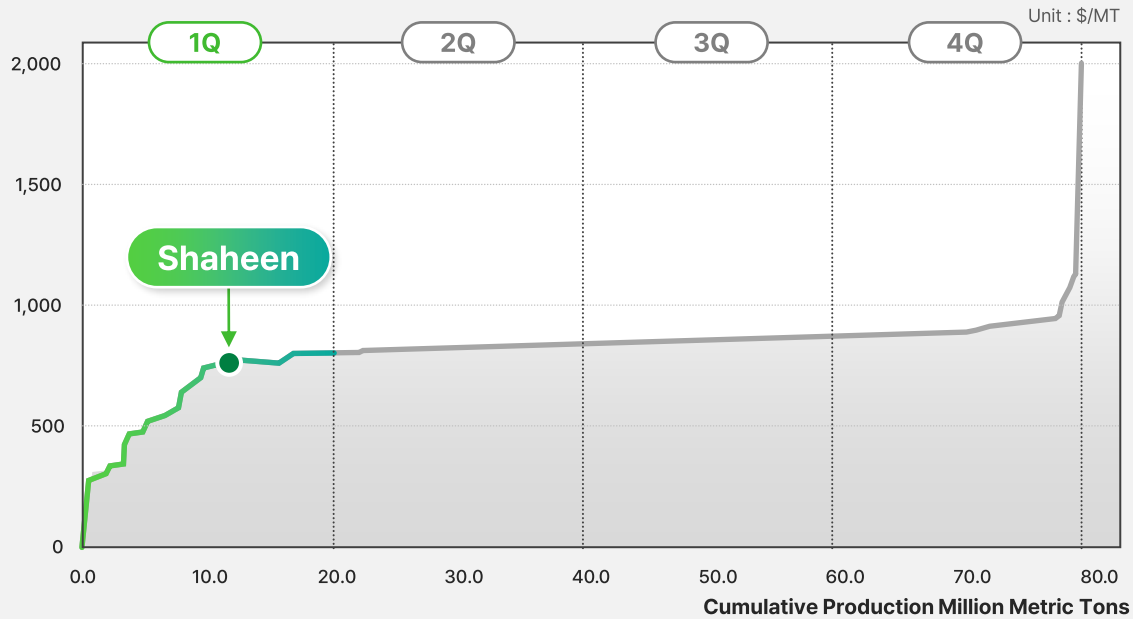
Energy efficiency will reach a world-class level, while major products will qualify for greenhouse gas emission standards home and abroad



Superior cost competitiveness and economics

1st quartile cost competitiveness in Northeast Asia and 16.4% of IRR are expected

Cost competitiveness



Olefin Cost Curve (2026 – NE Asia)

Project economics

IRR

16.4%

Payback

6 years

Shaheen Project Execution Plan

Marketing plan

The Company plans to secure stable domestic sales outlets and overseas marketing partners for major monomer/polymer products

Domestic Marketing



Pipeline sales to replace import demand of chemical companies in Ulsan

Sales for key applications and major customers under discussion

Monomer

Polymer

Overseas Marketing



Export sales through Aramco's global network

Overseas marketing cooperation with Aramco affiliated global chemical company

Estimated CAPEX and financing plan

Requirement for external financing is limited, while sound financial structure can be maintained during the investment period

Total
CAPEX **9,258 bil. Won**



Direct **7,678 bil. Won**

Engineering, procurement, construction, etc.

Indirect **1,580 bil. Won**

Capitalized interest on construction, own personnel expense, etc.

- Existing land to be utilized for project
- Minimized new support facilities (storage tanks, utility facilities) by utilizing existing ones in the refinery
- Reduced investment costs through Value Engineering activities during the design phase
- Inclusive of 166 bil. Won of design fee, which was executed already

Financing Plan (Provisional)

Internal
Financing

71%

- Cash flows from operating activities including EBITDA generation, etc.

External
Financing

29%

- Shareholder Loan **9%**
- Bank Loan & Corporate Bond **20%**

- ✓ Discussion underway on the major shareholder's loan to lower financing cost
- ✓ Limited requirement for external debt financing given currently projected future operating cashflow
- ✓ Even under a conservative future industry scenario, sound financial structure to be maintained during the investment period

EPC Execution plan

EPC work will begin in 2023 with the target of mechanical completion by 1H 2026



S-OIL after Shaheen

Vision 2030

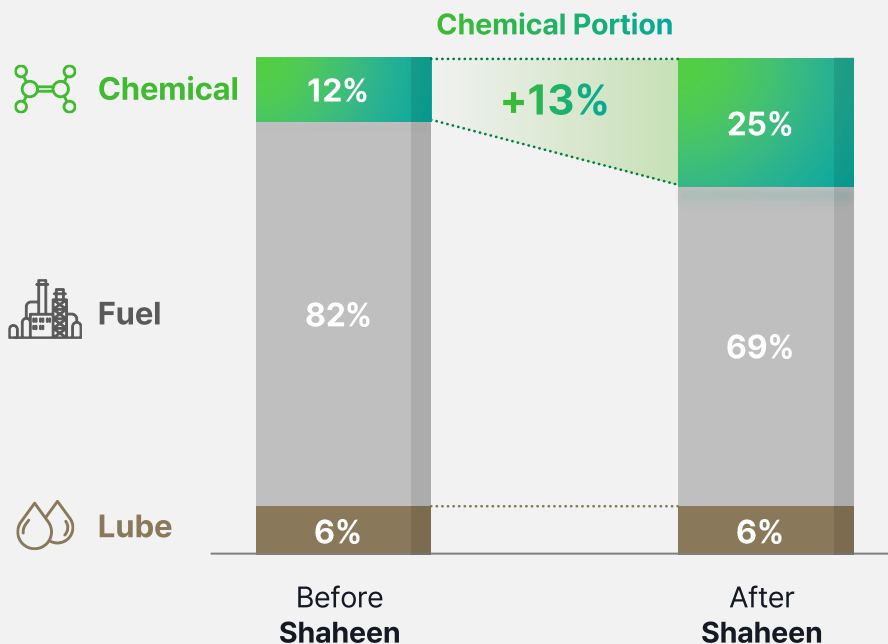
The most competitive, creative and
clean energy & chemical company

Expansion of chemical business portfolio

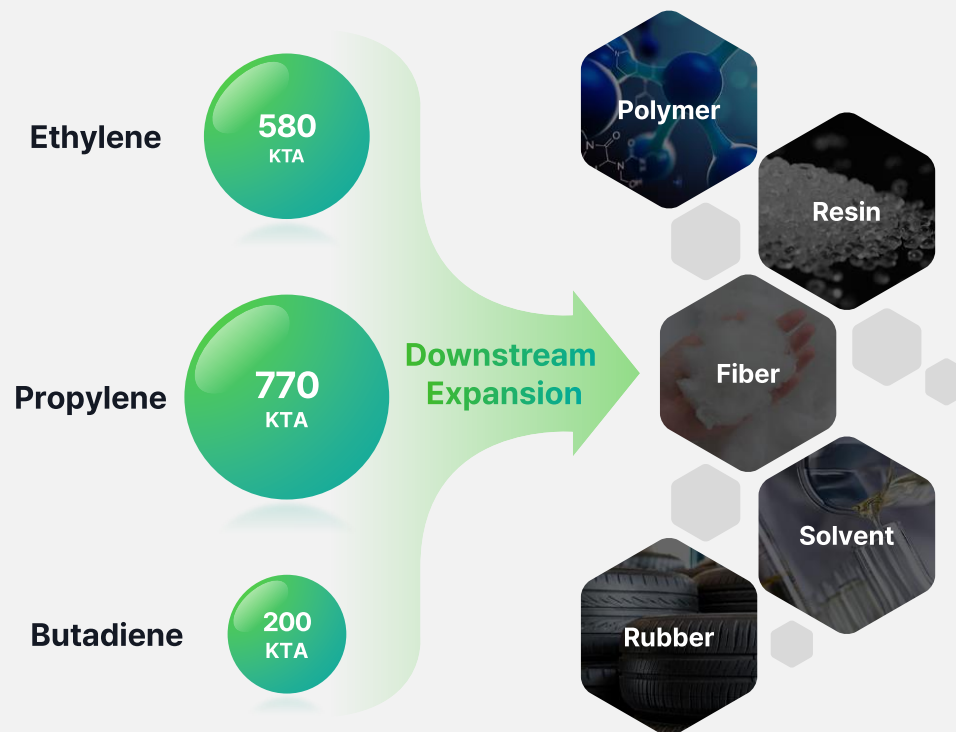
Shaheen Project will enlarge chemical portion to 25% and set the foundation for further downstream expansion

Post Shaheen Portfolio Change

Unit : vol %

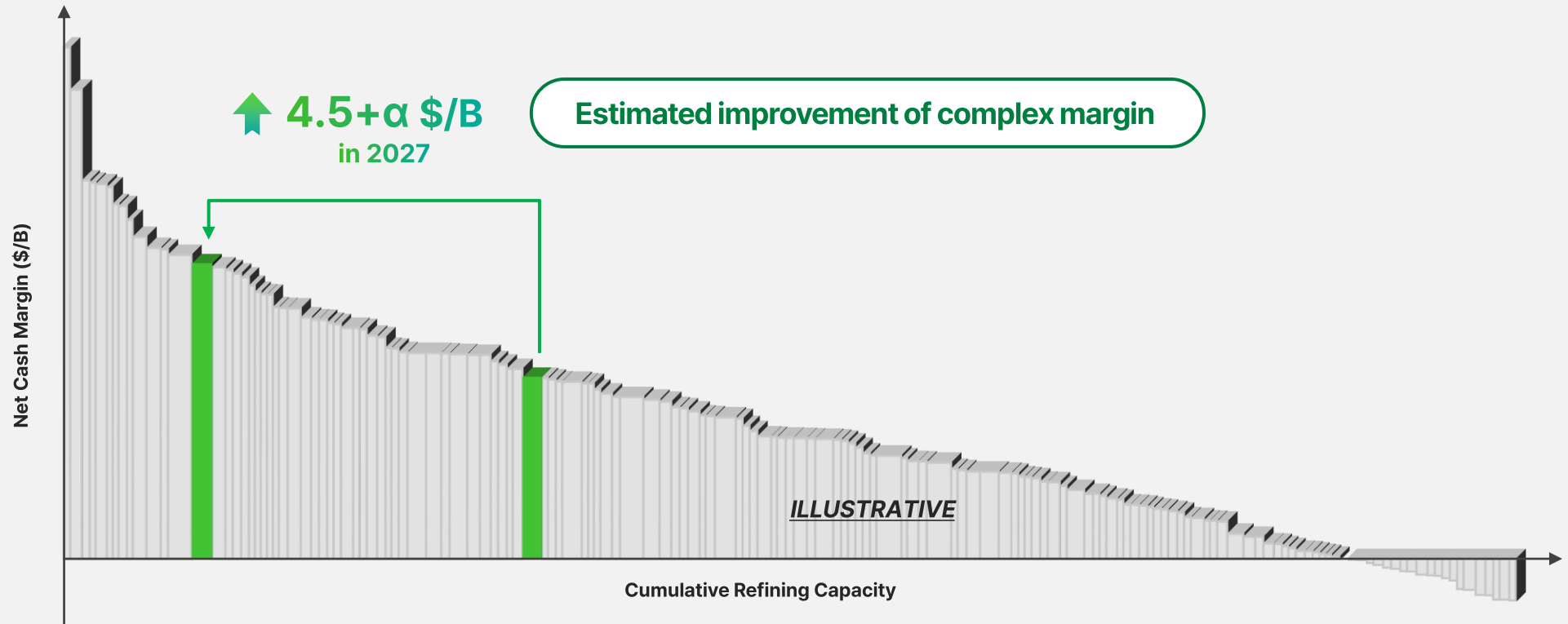


Shaheen's Olefin Monomer Production



Fundamental competitiveness enhancement

S-OIL will secure industry-leading competitive position through refining & chemical integration in preparation for long-term energy transition



*) Net Cash Margin = EBITDA / Crude Throughput

**Dow Jones
Sustainability Indices**

In Collaboration with RobecoSAM



S-OIL is the only company named to DJSI World for the 12th consecutive year among Asia Pacific refiners and the winner of Best Excellence Company in 2021 ESG awards from Korean Corporate Governance Service.

S-OIL Investor Relations

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