



Iran's Petrochemical Industry: A Crown Jewel for Foreign Investment

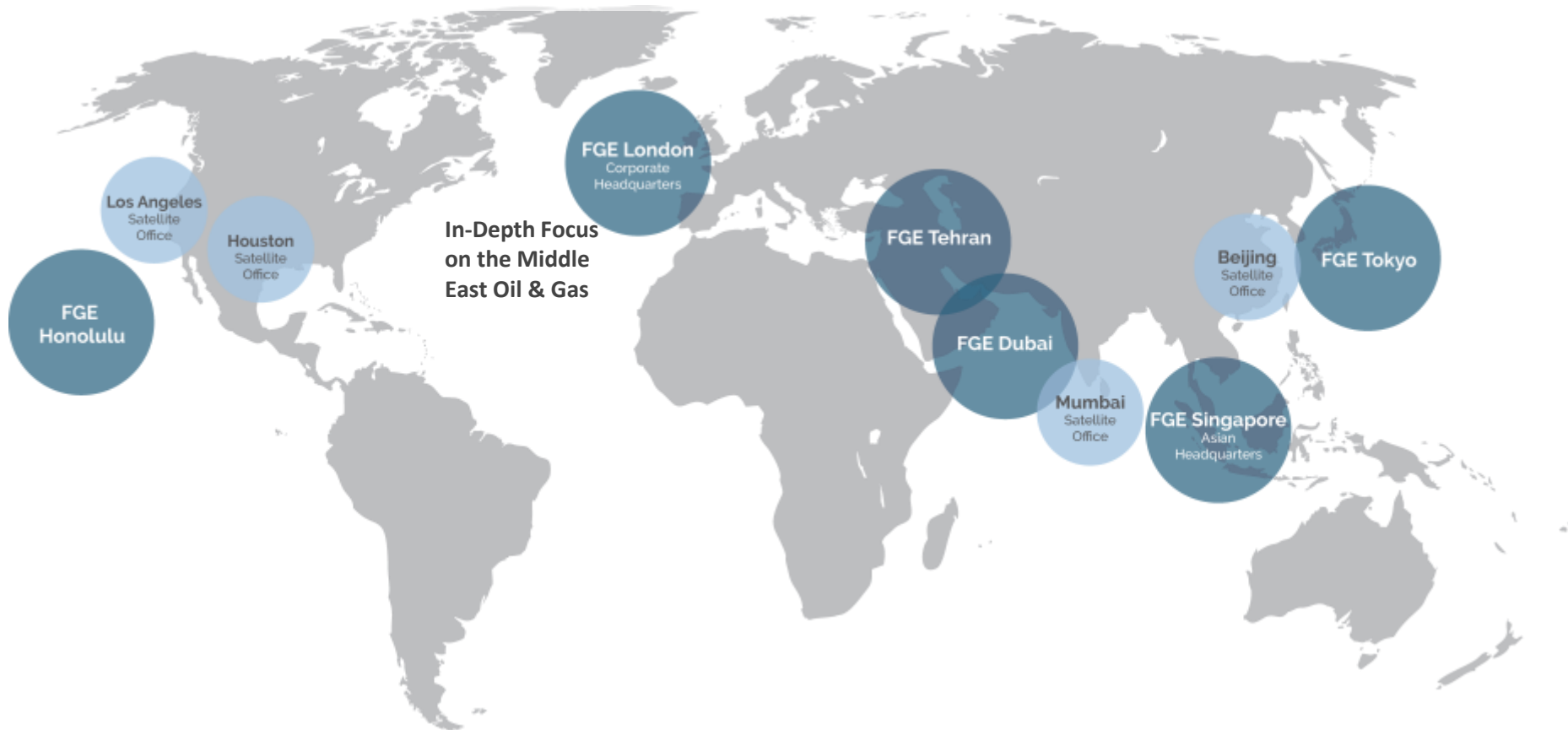
A Presentation By Siamak Adibi,

Senior Consultant and Head of Middle East Gas Team, FGE

Tehran, December 2016

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Iran Post Sanction: Novelty in Business with Iran



Oil and Gas



Automotive



Power



Petrochemical



Infrastructure



Mining

Food & Beverage



Transportation



Fashion



Tourism

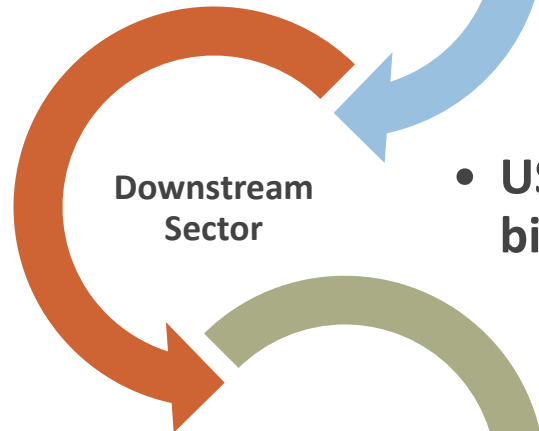
Massive Investment Requirements!

Investment requirements over the next 5 to 6 years.



Upstream
Sector

- US\$130 billion



Downstream
Sector

- US\$70 billion

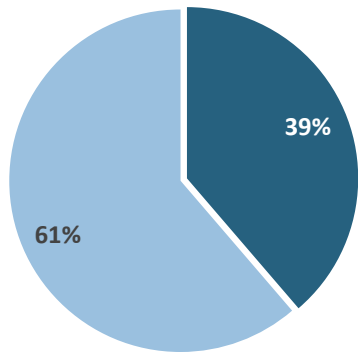


Power Sector

- US\$10 billion

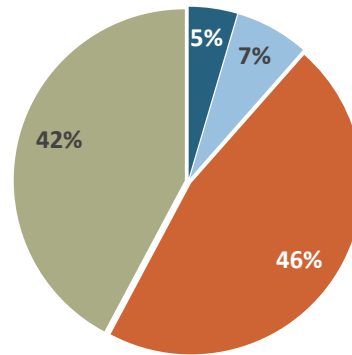
Privatization in the Iranian Energy Industry

Oil Refineries
(1.86 mmb/d of refining capacity)



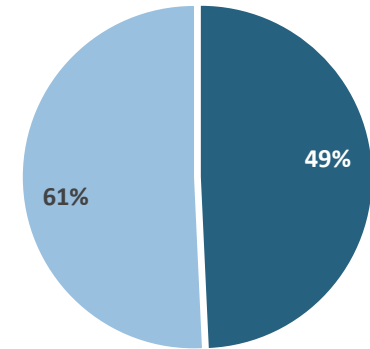
- Government
- Semi Private/Private Sector

Petrochemical Projects
(60 mmtpa of installed capacity)



- Foreign Companies
- NPC
- Semi Private Entities
- Private Entities

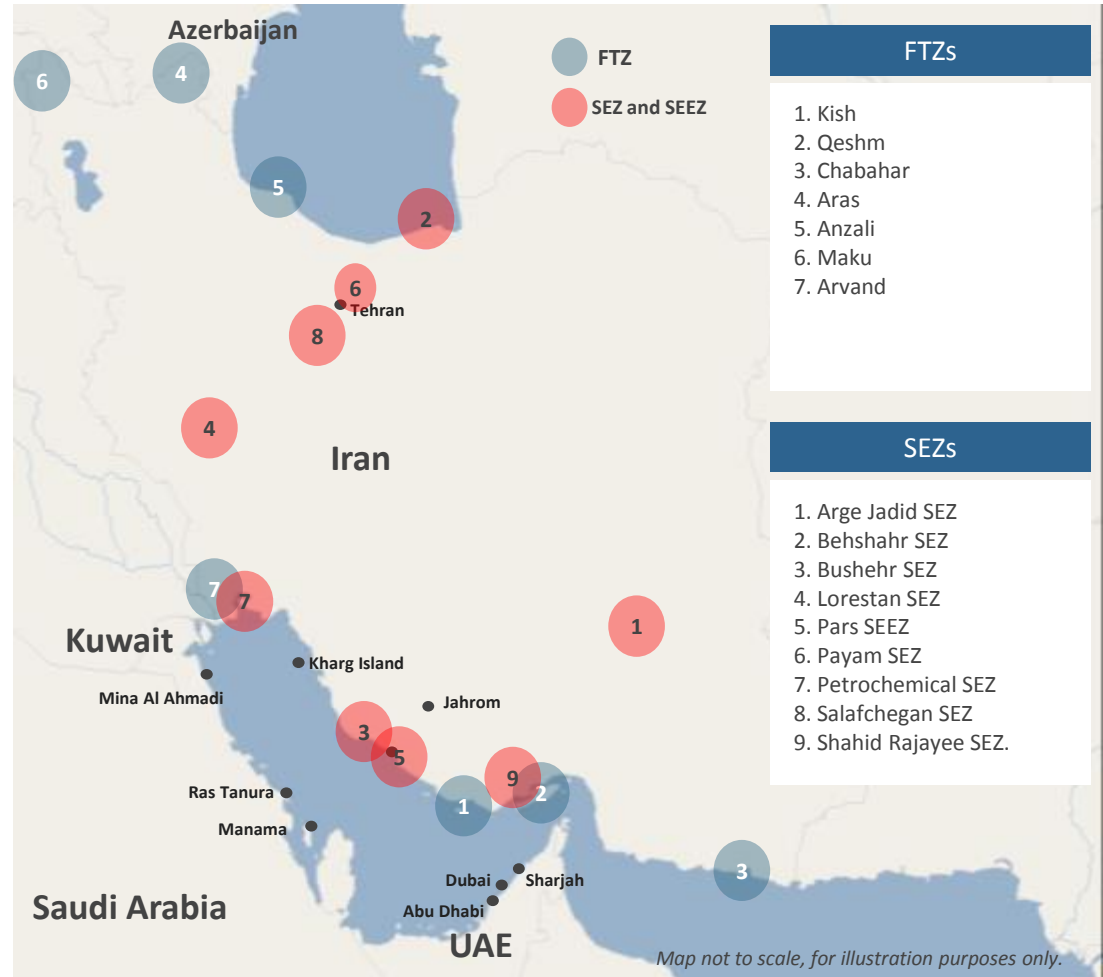
Power Plants
(74 GW of Installed capacity)



- Government
- Private/Semi Private Sector

Business in Free Trade Zones & Special Economic Zones

Key Features	FTZs	SEZs
Investment Laws	FTZs Regulations	Mainland's Laws & Regulations
Caps on Foreign Shareholding	Up to 100%.	Up to 49%
Imports/Exports	No taxes and duties, but local levies and fees are collected.	No taxes and duties, but local levies and fees are collected.
Tax Holidays	Up to 20 Years	7-10 Years

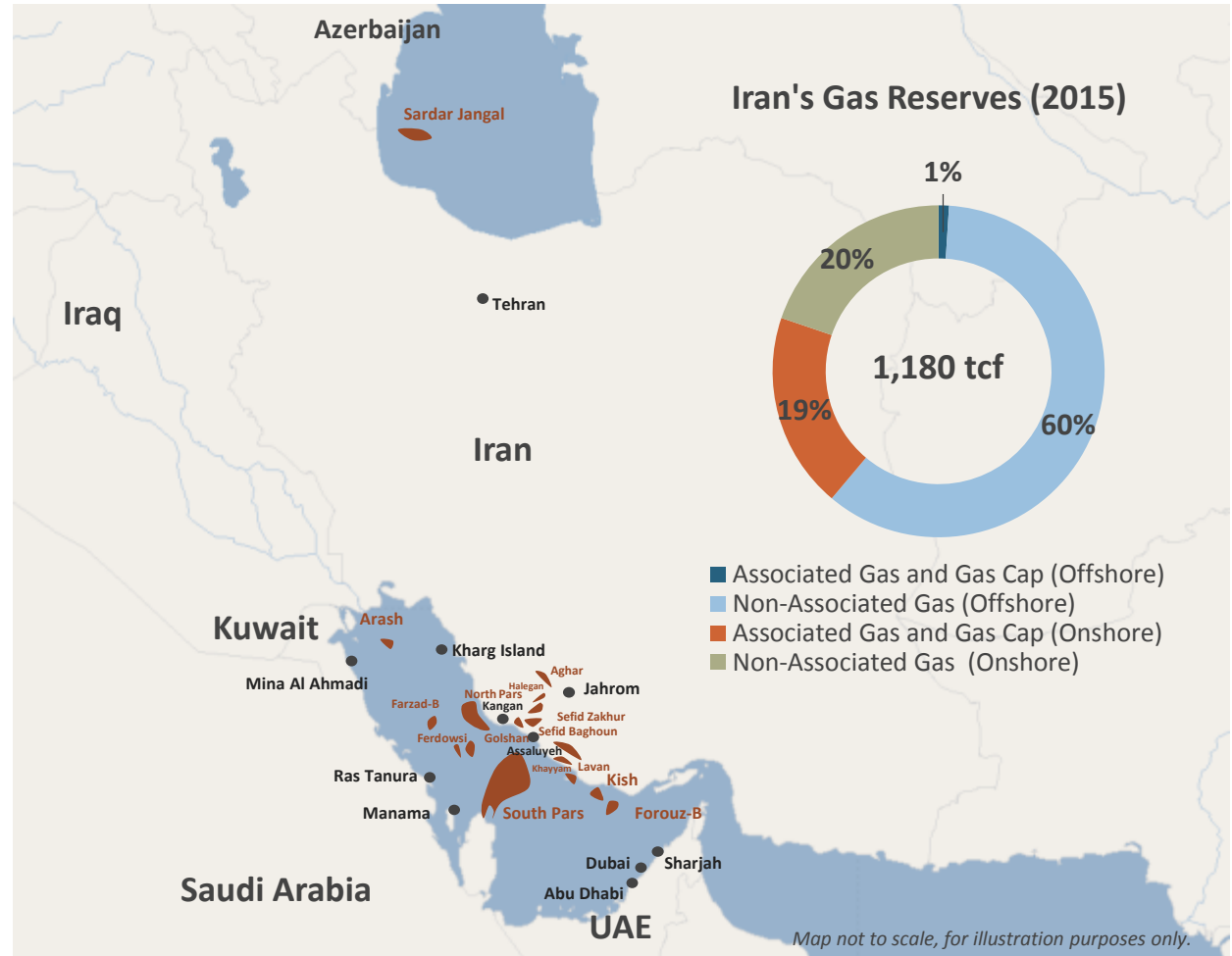


Iran as a Gas Province in the Middle East

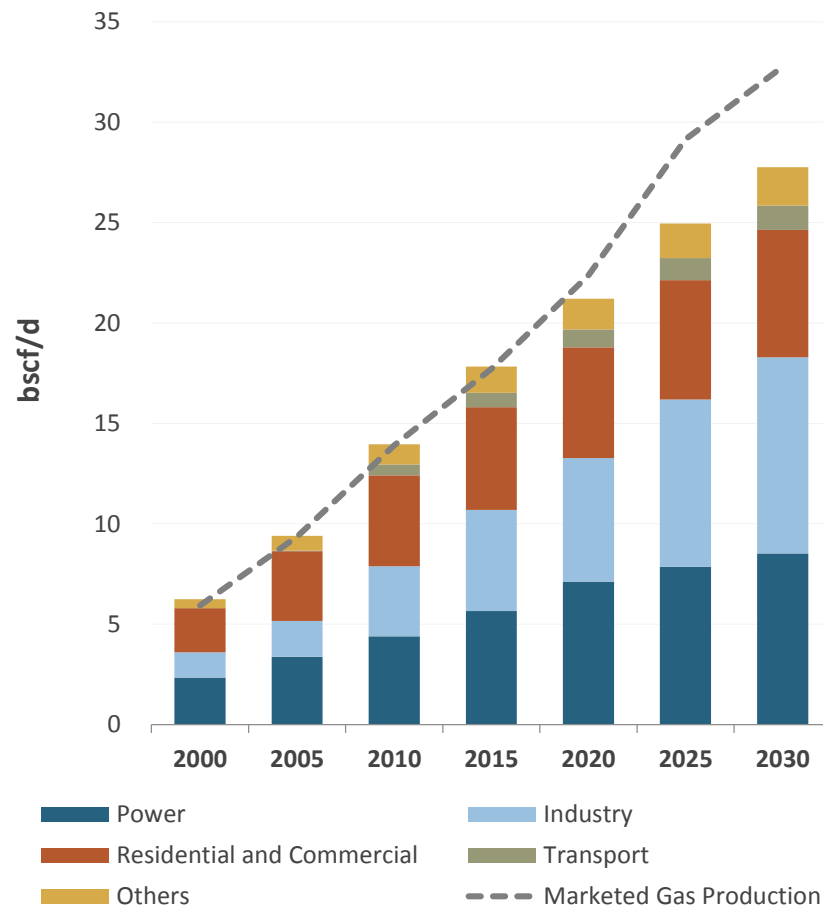
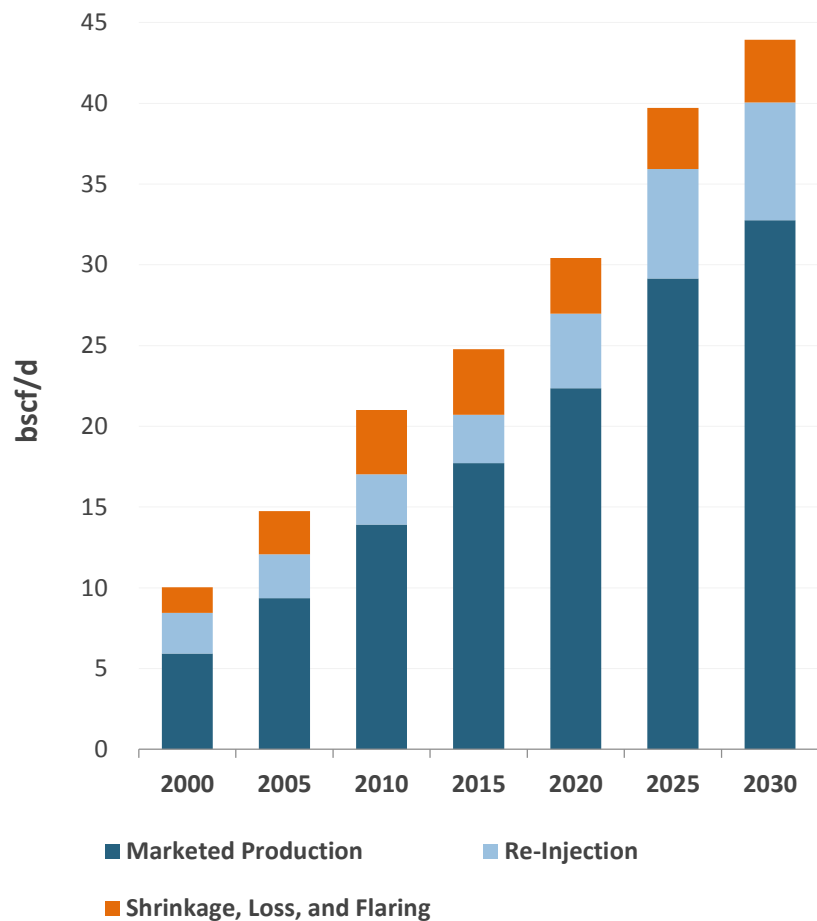
The typical success rates from wildcat drilling in the world are generally 30-35%, but Iran has recorded a success rate of 79% in exploration.

Sizable Gas Discoveries in the Past 10 Years:

- December 2011: Sardar Jangal (up to 50 tcf)
- January 2011: Khayyam
- June 2010: Forouz
- February 2010: Halegan
- 2009: Sefid Baghoun
- 2008: Farzad-B
- 2007: Sefid Zakhur
- 2006: Kish

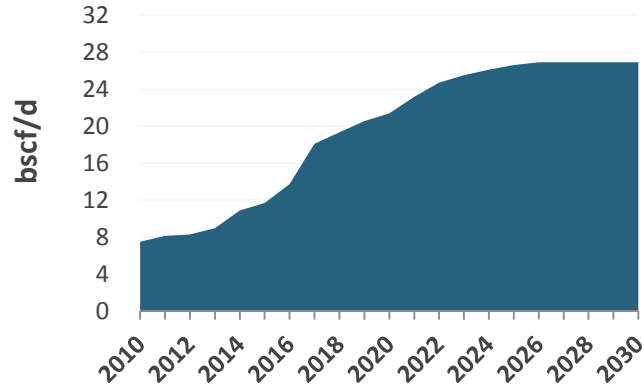


Iran's Gas Supply/Demand Outlook

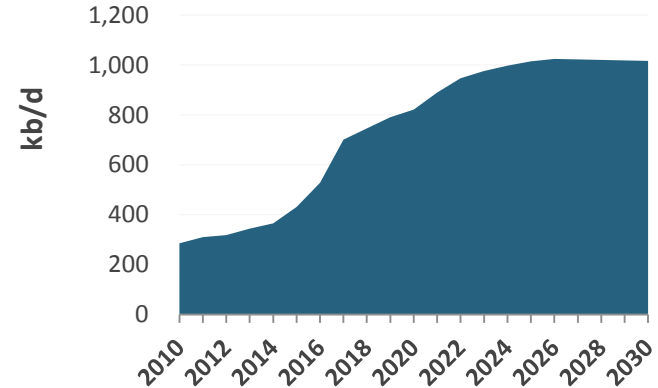


South Pars Gas and Liquids Supply Outlook

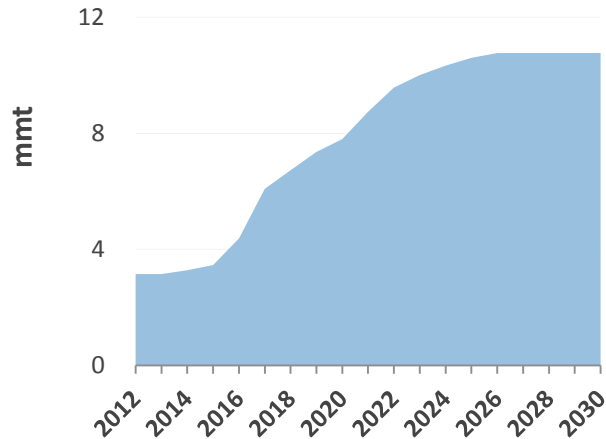
Gas Supply Outlook



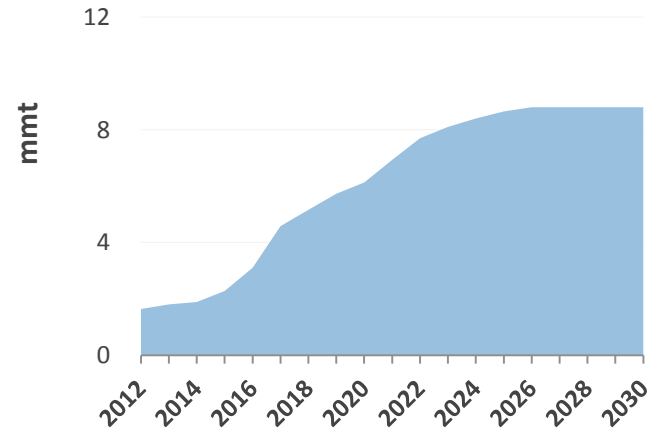
Condensate Supply Outlook



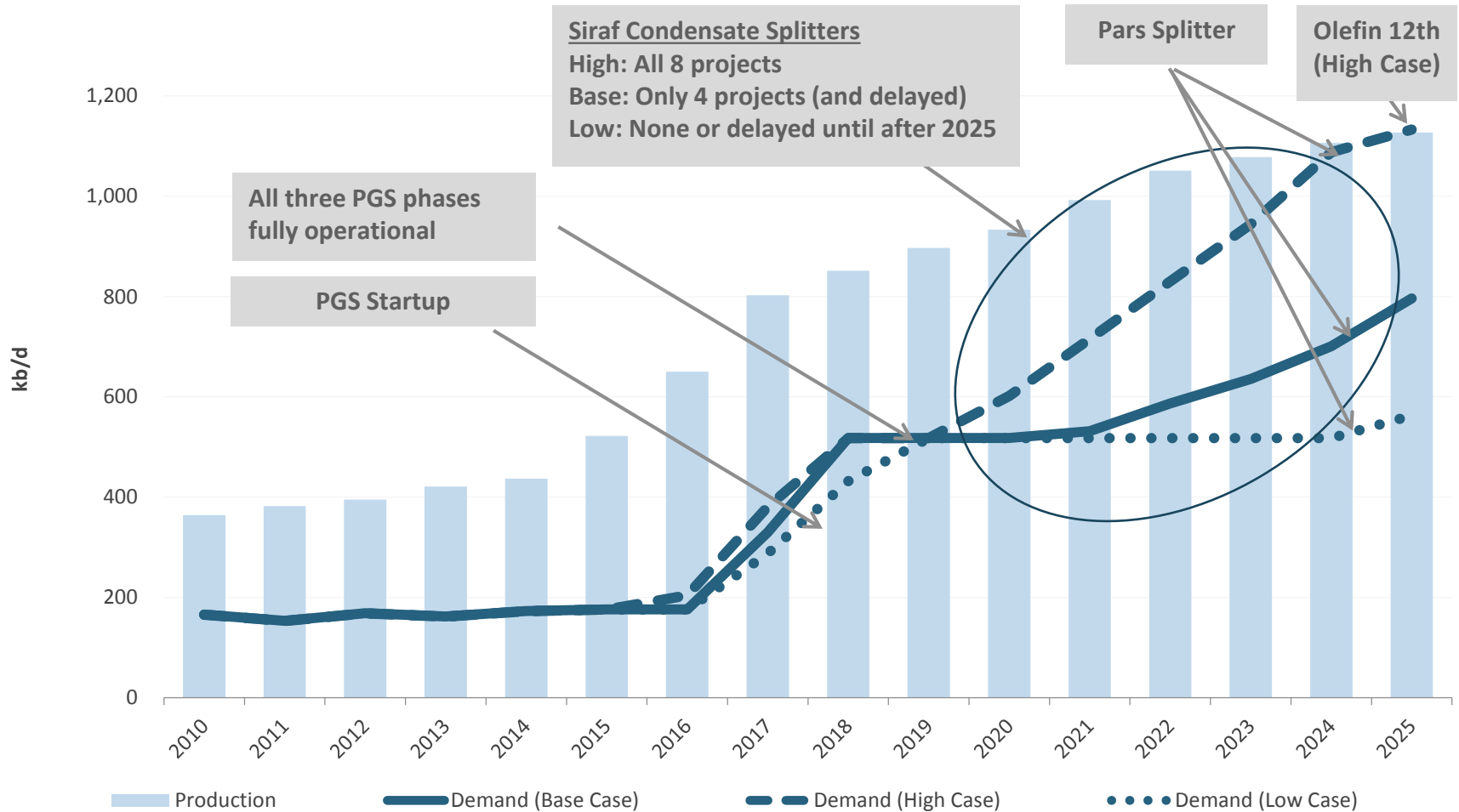
LPG Supply Outlook



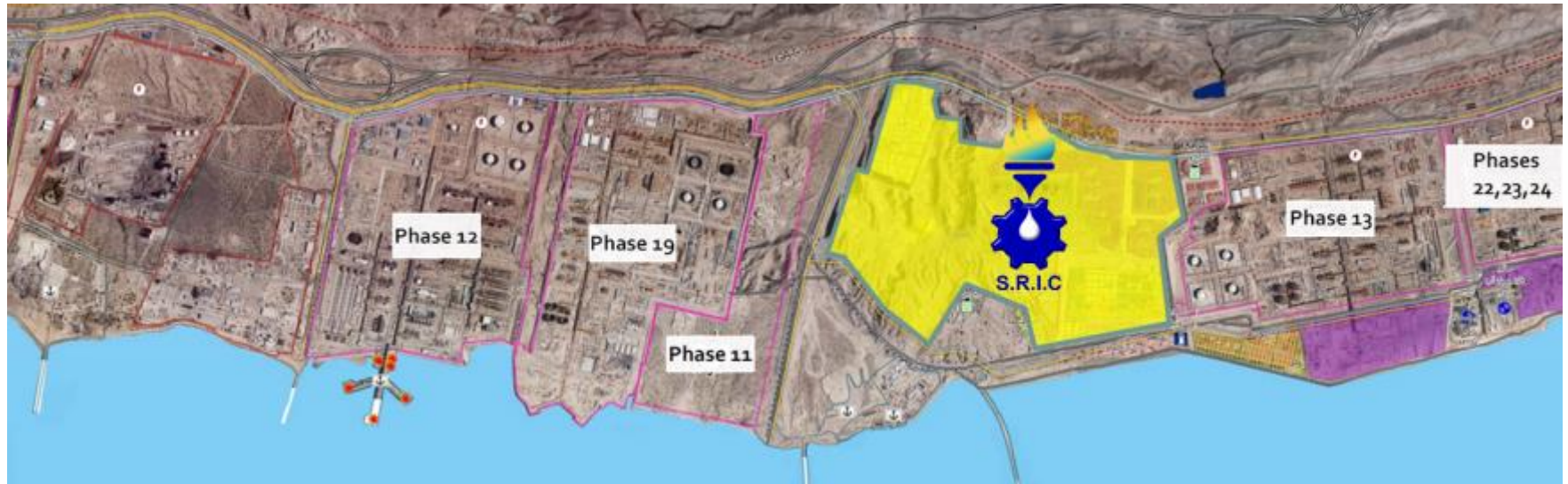
Ethane Supply Outlook



Iran's Condensate Outlook



Siraf Condensate Splitters



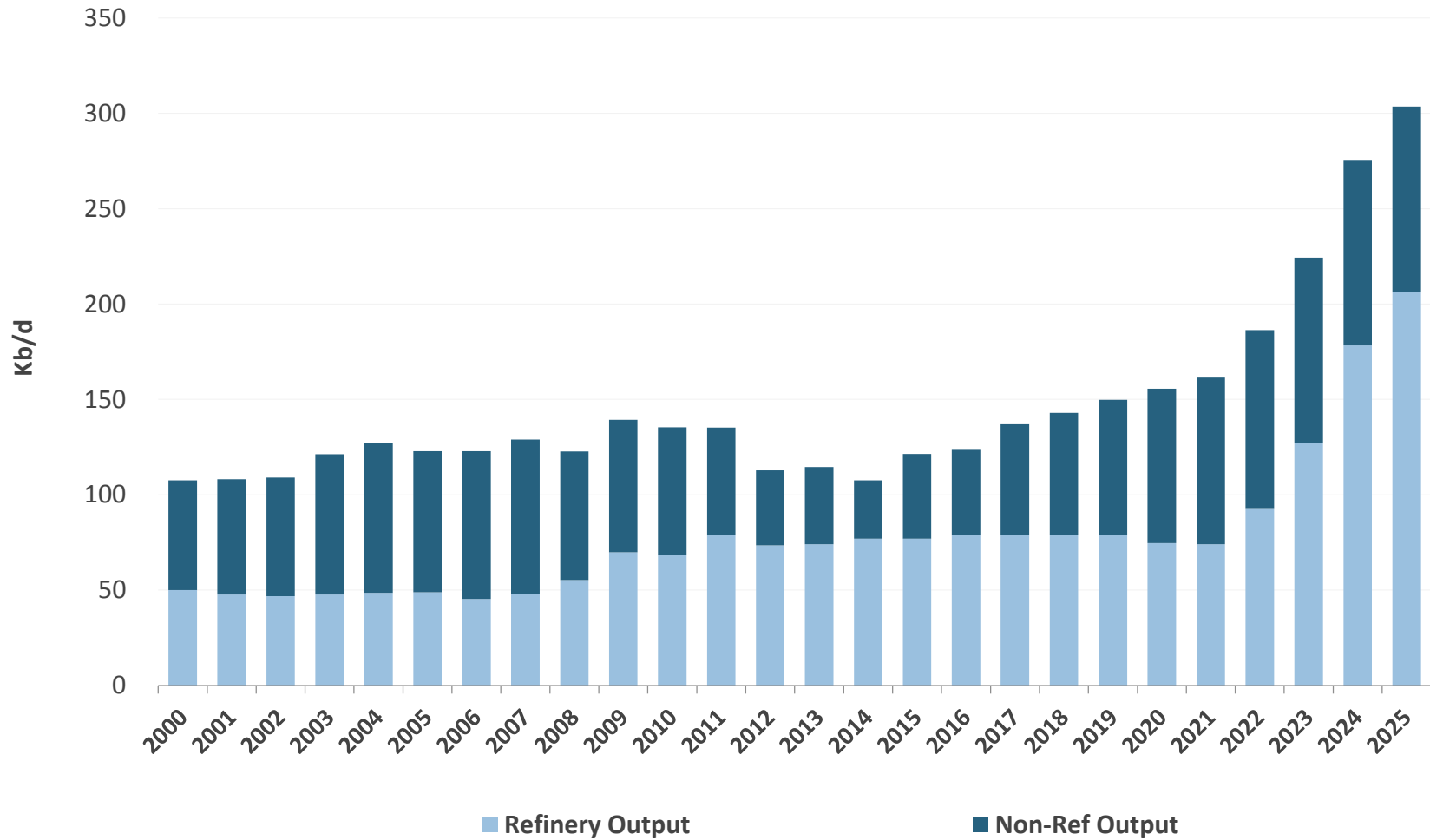
Project Description:

- 8 splitters each with 60 kb/d capacity.
- Led by (semi) private Iranian companies.
- Siraf splitters are designed to produce around 25 kb/d of LPG, 276 kb/d of naphtha, 30 kb/d of jet fuel, and 150 kb/d of gasoil.

Key Challenges:

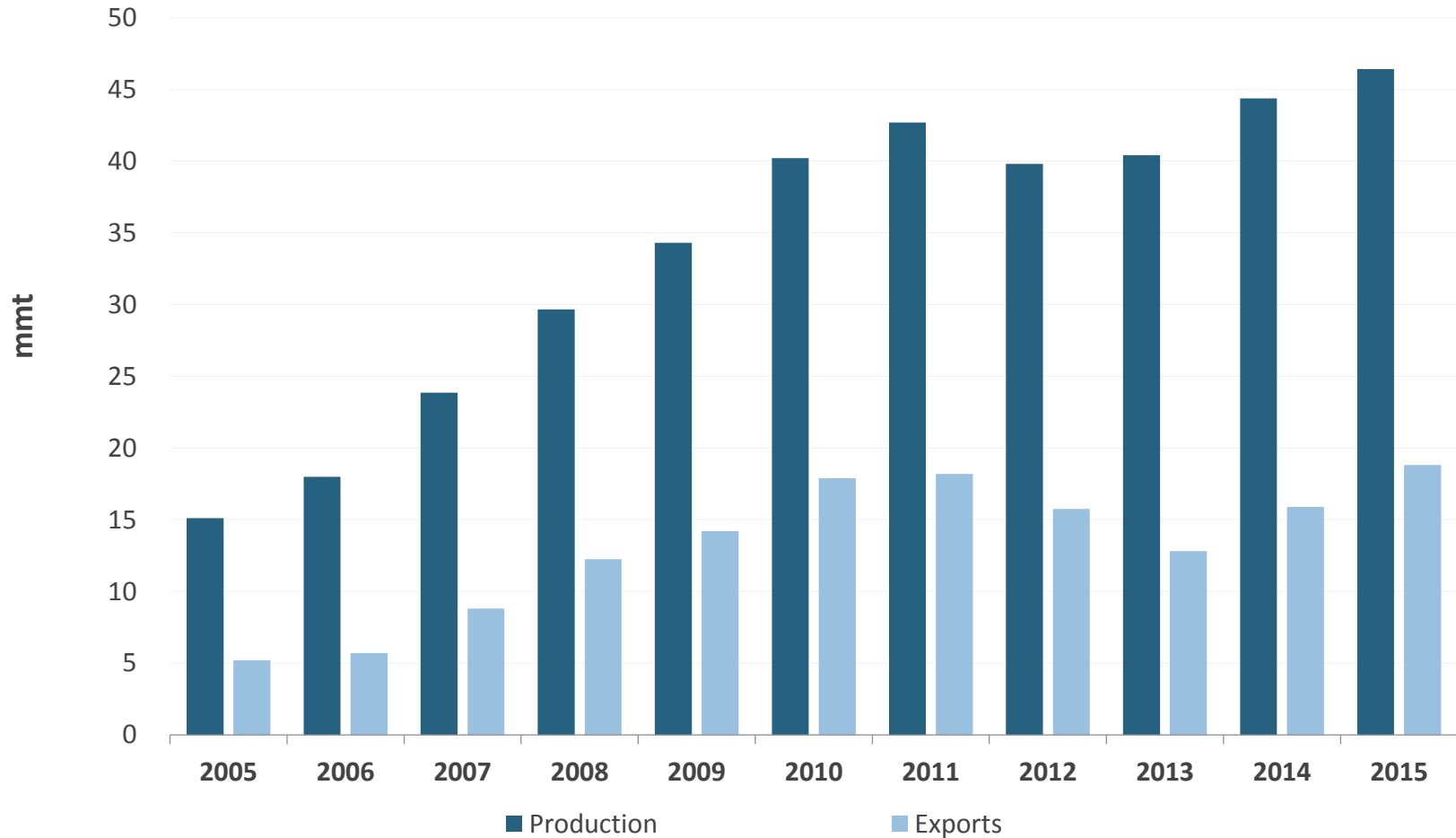
- Inexperienced local players.
- Project financing challenges.
- Long-term feedstock supply guarantee by NIOC.
- Uncertainty on the project economics.

Iran's Naphtha Supply



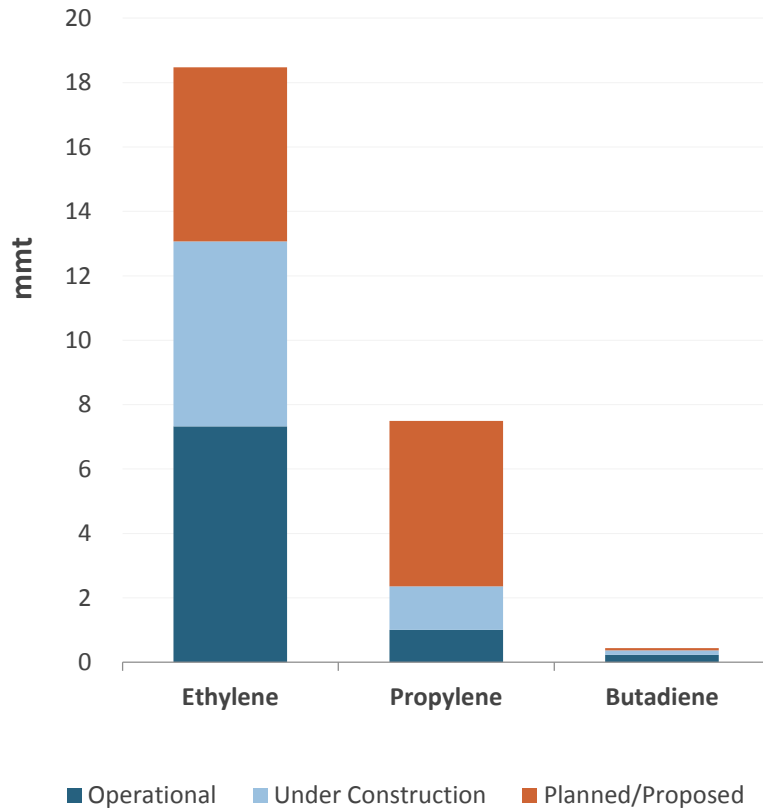
Iran's Petrochemical Exports: Back to Normal

Iran's Petrochemical Production and Exports (2005-2015)

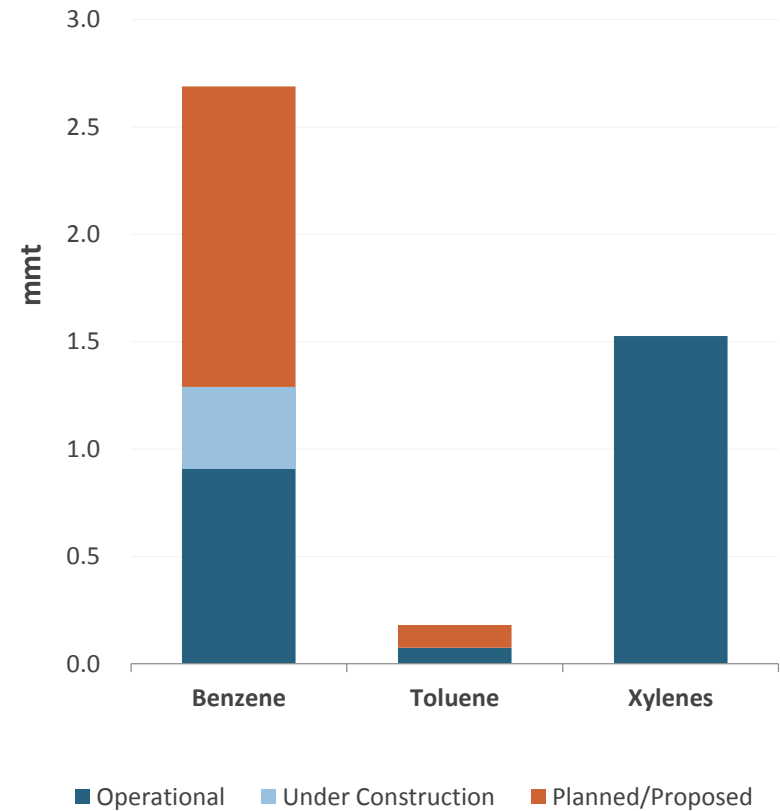


Iran's Petrochemical Development Projects

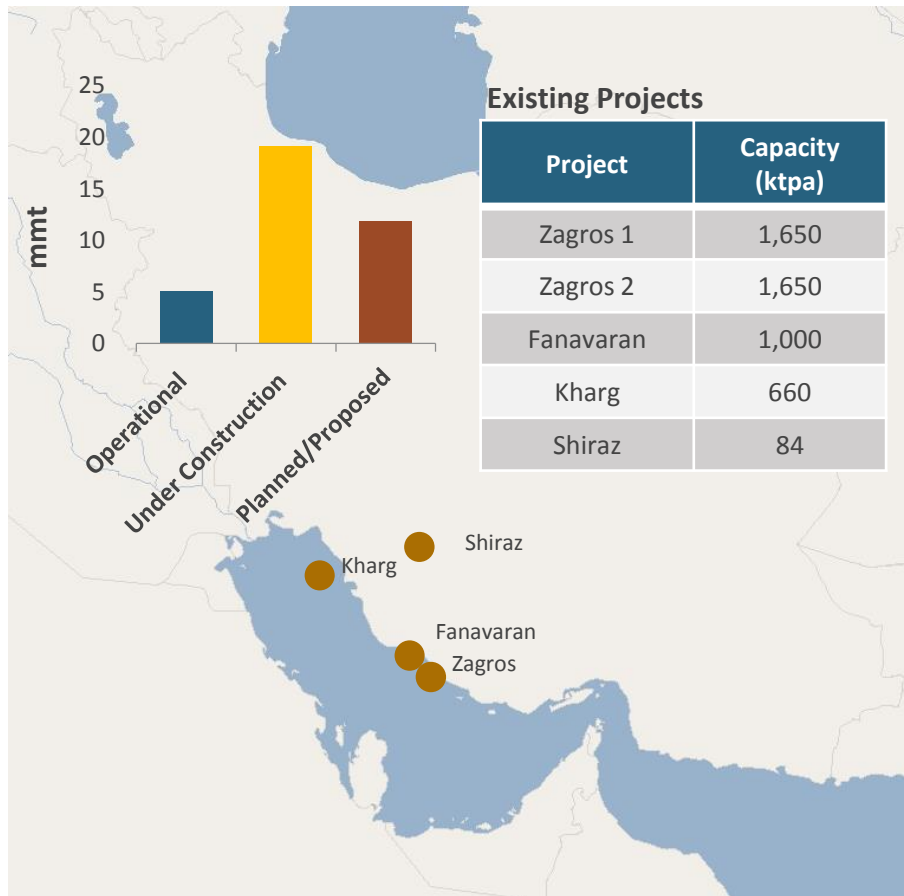
Olefin



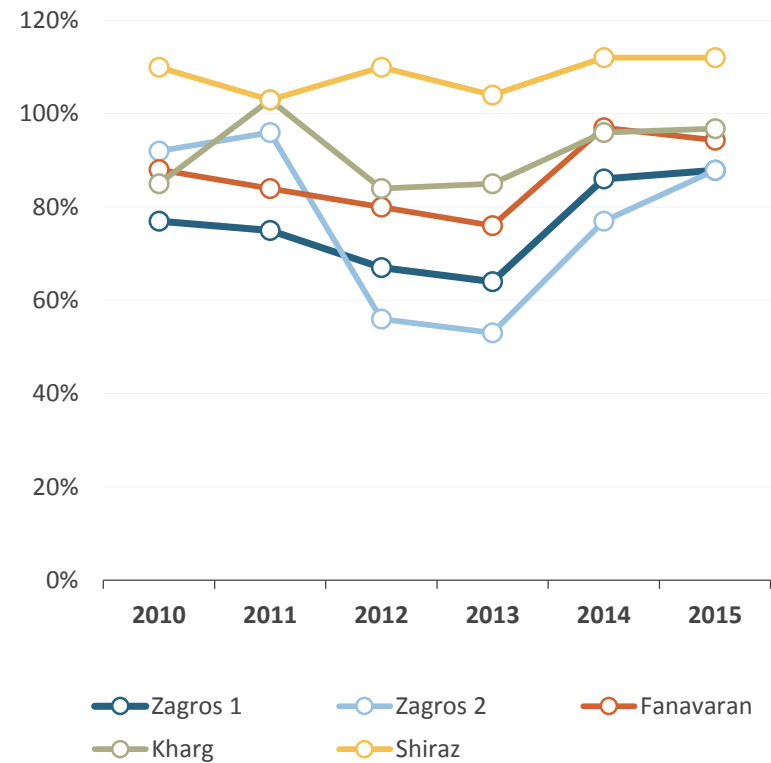
Aromatics



Methanol Projects in Iran

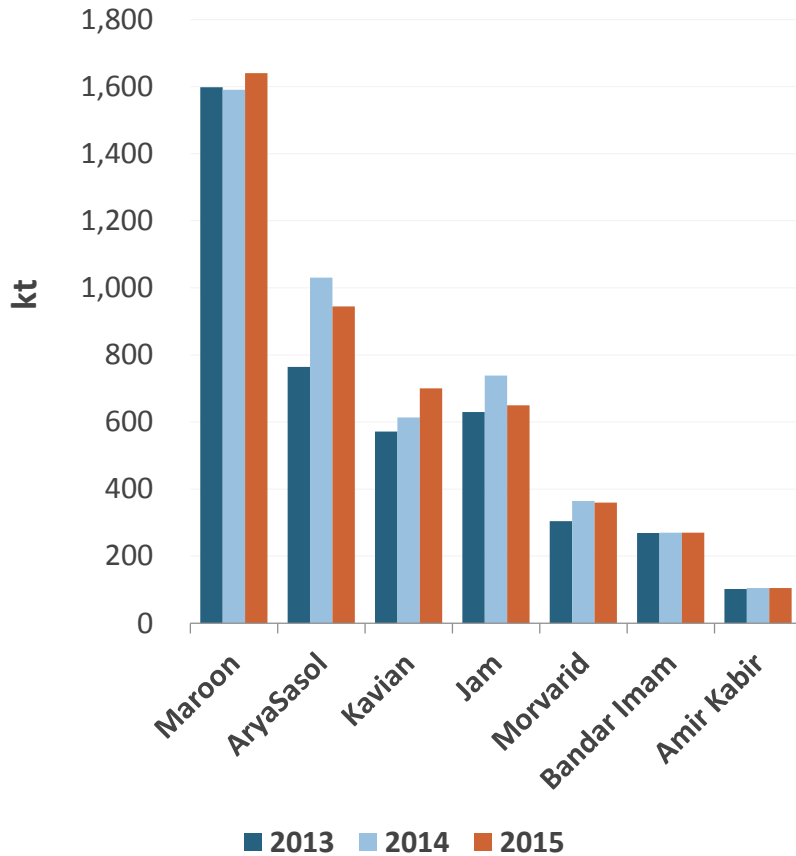


Utilization Rate in the Iranian Methanol Plants

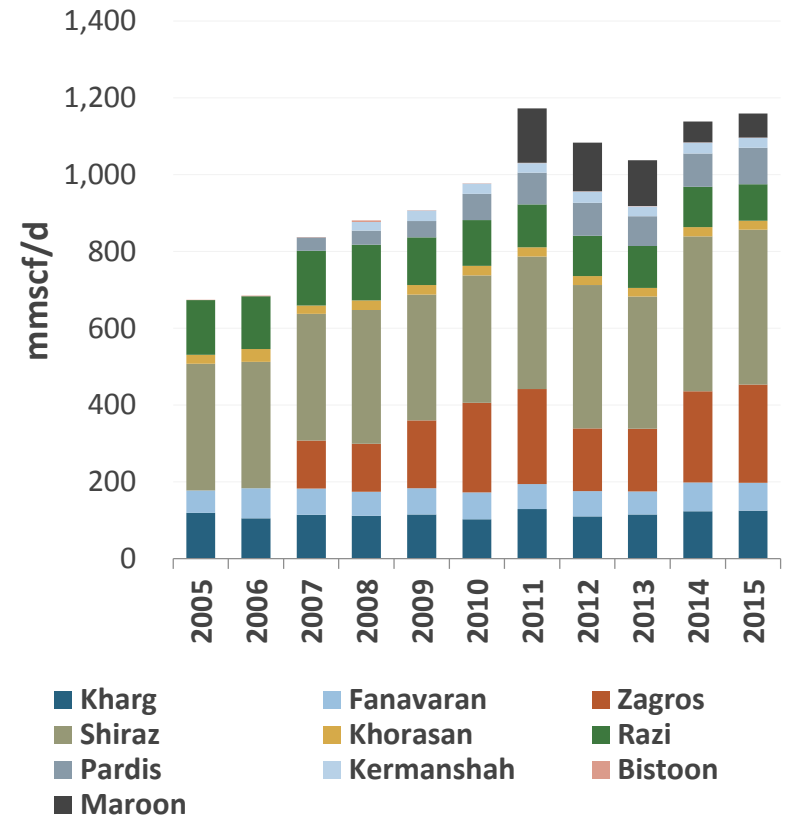


Gas/Ethane Consumption in the Iranian Petrochemical Sector

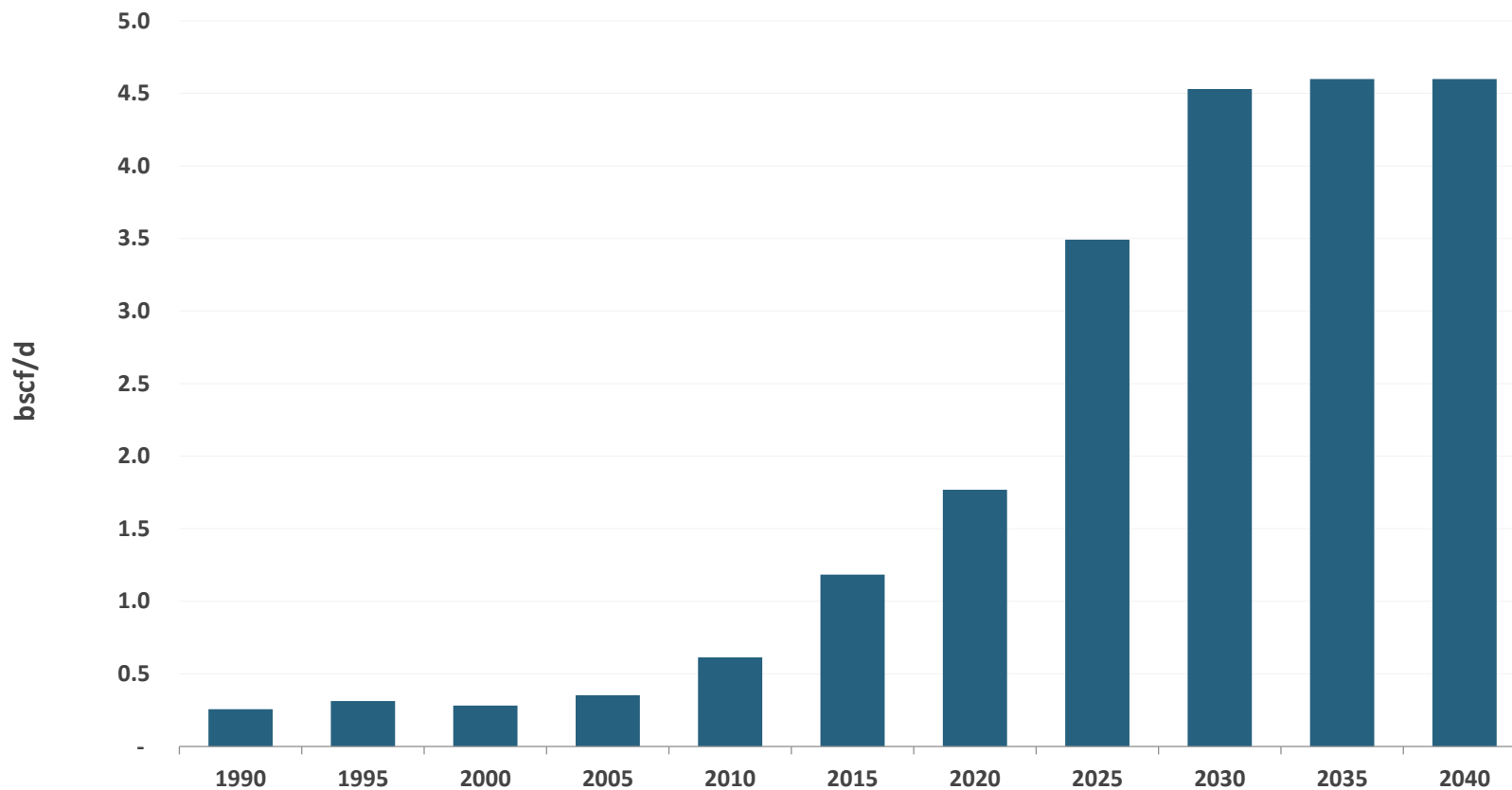
Ethane



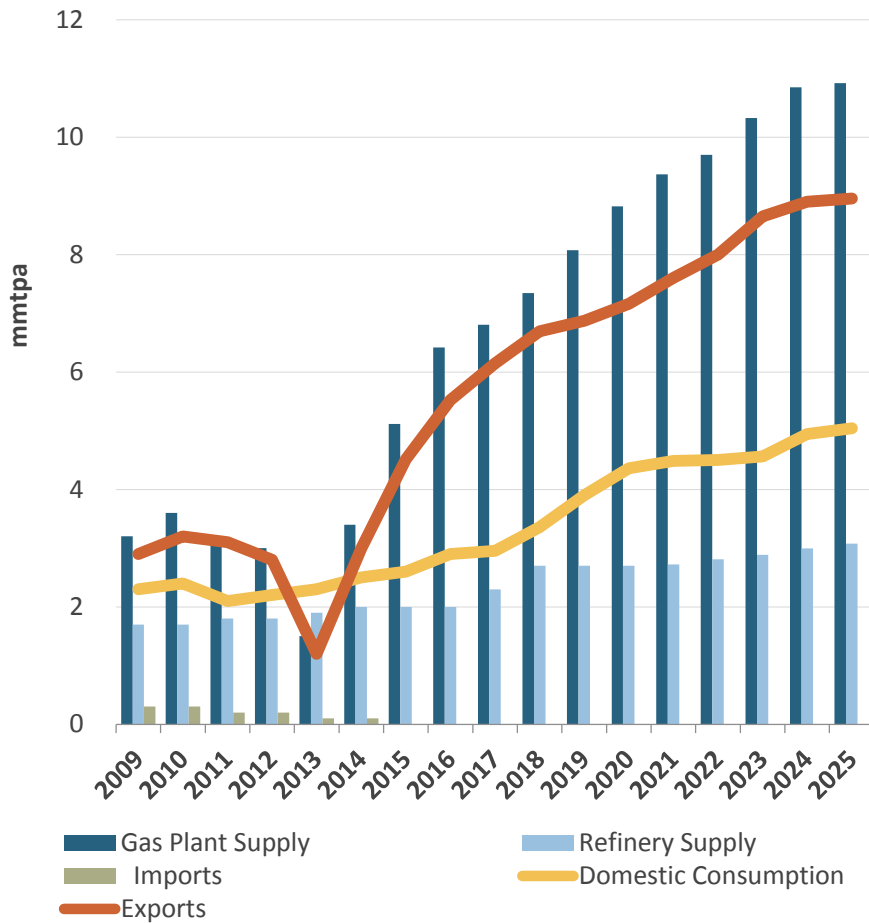
Methane



Massive Growth in Iran's Methane Feedstock Requirements



Iran's LPG Supply/Demand Outlook



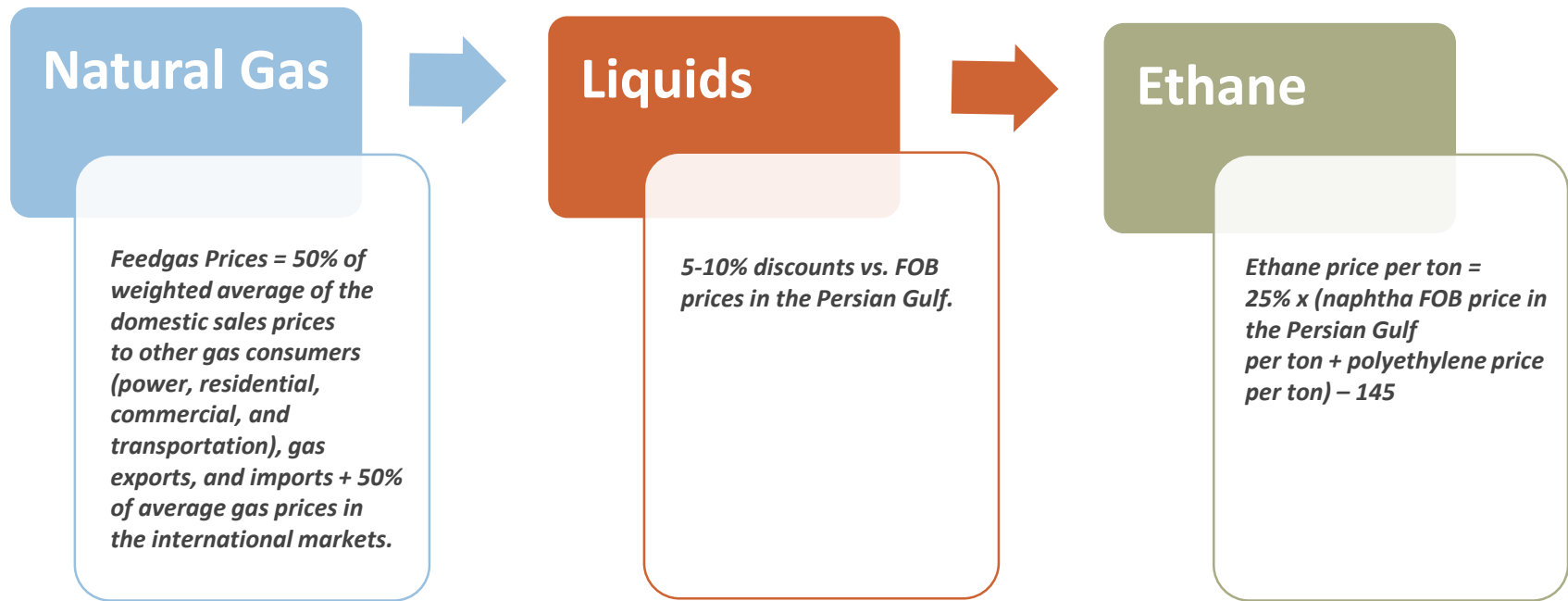
- **New LPG Refinery Supply:**

- PGS splitters (900 ktpa)
- Sirad Splitters (4 x 94 ktpa)

- **New Domestic Demand:**

- Salman Farsi PDH (560 ktpa of C3)
- Ibn-e-Sina Petro Kimiya (160 ktpa of C4)
- Olefin 13 (328 ktpa of C3)
- Modabberan (40 ktpa of C4)
- Mehr PDH (560 ktpa of C3)
- Ofogh Acrylate (185 ktpa of C3)
- Kharg PDH (540 ktpa of C3)
- Parsian (610 ktpa of C3)
- Mahshahr (340 ktpa of C3)

Feedstock Pricing for the Iranian Petrochemical Projects

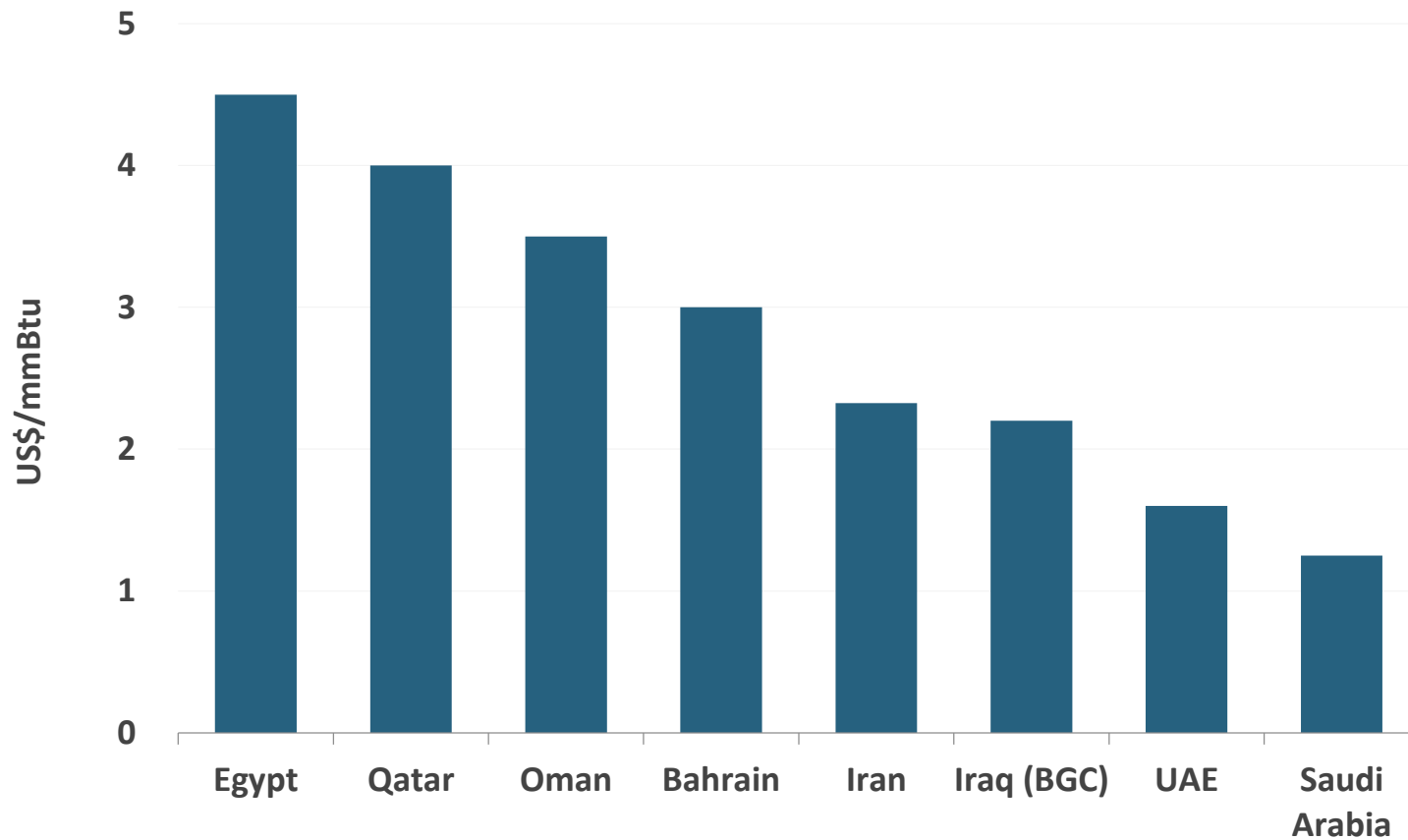


To calculate the average of international gas prices, the Iranian Petroleum Ministry will consider a six month average price of HH, AECO, NBP, and TTF in the formula.

Polyethylene price will be the weighted average prices of HDPE and LDPE in India, China and Iran.

Floor and ceiling for the ethane prices will be US\$220 and US\$400 per ton.

Regional Feedgas Prices



Why Natural Gas As a Feedstock?

- Significant amounts of gas and ethane will be available in coming years and Iran is likely to face with gas supply surplus.
- Low gas production costs, and attractive sales prices can provide a strong motivation for investors to get involved in the new petrochemical projects.
- Marketing of liquids' surplus could be much easier than selling of the natural gas surplus in the international markets.
- Naphtha based projects may count on Siraf as a main source of feedstock. The proposed Siraf project (eight condensate splitters, each 60 kb/d) is facing several challenges. The plans were meant to remove 480 kb/d of condensate from the market by 2020. This is very likely to face a long delay.
 - If all of Iran's condensate splitter projects go ahead or all condensate-based petchem projects proceed, Iran will be short of condensate or may have to import condensate.



Thank You

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