Saudi Aramco
Refining Sector In a Changing Environment

The 36th JCCP International Symposium
Progress of the Petroleum Industry Reforms : Challenges and the Future

Thursday, January 25, 2018
Outline

----- Saudi Arabia & Japan Successful Partnership
----- Saudi Aramco Crude & Refining Portfolio
----- Refining Sector in a Changing Environment
----- Crude Oil to Chemical
The Successful Partnership
The Successful Partnership
Stronger Partnership under Japan’s Energy Reform

Saudi Aramco is the Largest Energy Supplier to Japan

4.2 Million Barrel / Day
Total Import in 2000
27% Saudi Crude
The Successful Partnership
Stronger Partnership under Japan’s Energy Reform

Saudi Aramco is the Largest Energy Supplier to Japan

3.2 Million Barrel / Day
Total Import in 2017

40% Saudi Crude
The Successful Partnership
Stronger Partnership under Japan’s Energy Reform

Saudi Aramco is the Largest and Stable Energy Supplier to Japan

Extension Ceremony
Tokyo (Japan) - 2016

Joint Crude Oil Storage
Okinawa Island

8.2 Million Barrel Capacity
Successful Partnership Since 2011
37 Million Barrel
Sold since inception

Saudi Aramco is the Largest and Stable Energy Supplier to Japan
The Successful Partnership
Cooperation Broadens in Various Area

- **1965**: Strategic Procurement and Logistics Department was established originally under AOC (Aramco Overseas Company).
- **1990**: Established its 3rd oversea marketing office (and 1st in Asia) in Japan titled the “Saudi Petroleum Overseas Limited (SPOL)”.
- **1993**: The office changed to Saudi Petroleum Limited, Tokyo (SPL Tokyo) in the marketing arm to cover Asia region.
- **1996**: AOC Tokyo branch office was established to support AOC’s procurement, logistics and inspection services in Asia.
- **2012**: Aramco Asia Japan was established by merging both SPOL & AOC.

**Investments**

**Programs**

**MoUs**

**Saudi-Japan (Vision 2030)**
The Successful Partnership
Cooperation Broadens in Various Area

More than 100 Japanese companies are successfully operating in Saudi Arabia today.
The Successful Partnership
Cooperation Broadens in Various Area

Investments

Programs

MoUs

Saudi-Japan (Vision 2030)

LPG Emergency Relief Program

With Iwatani to provide support the areas affected by disaster
The Successful Partnership
Cooperation Broadens in Various Area

Investments

Programs

MoUs

Japanese Financial Institutions
Foreign direct investment into Saudi Arabia

Saudi-Japan
(Vision 2030)
The Successful Partnership
Cooperation Broadens in Various Areas

Investments

Programs

MoUs

Saudi-Japan (Vision 2030)

Japanese Financial Institutions
Foreign direct investment into Saudi Arabia

Solar Power Plant
Solar panel manufacturing plant in Saudi Arabia.

Chemicals Industry
corrosion-resistant alloy pipes and tubular goods industry in Saudi Arabia
The Successful Partnership
Cooperation Broadens in Various Area

Investments

Programs

MoUs

Saudi-Japan (Vision 2030)

Since 1981 Until Now
1,091
Saudi Aramco Professions joined JCCP training courses

Since 2003 Until Now
270
Japanese’s Expert dispatched for Saudi Aramco

29
Technical Cooperation Projects
4 ongoing projects with JCCP
The Successful Partnership
Cooperation Broadens in Various Area

HRH Deputy Crown Prince Mohammed bin Salman and Prime Minister Shinzo Abe decided to set up the Joint Group for “Saudi-Japan Vision 2030 (SJV 2030)"
Saudi Aramco
Crude & Refining Portfolio
Saudi Aramco

Contribution to Global Demand

Global

- 2016 Total Oil Production Million b/day: 97.0
- Crude Oil: 10.5
- Gas & NGL: 3.0
- Oil Increment comes from Middle East region: 13.5
- 14% contribution to global demand
- 113.0 Million b/day production by 2040
- Middle East
- 31.0

Source: EIA International Energy Outlook 2017 September

Source: Saudi Aramco Annual Review 2016

Middle East

- Oil Increment comes from Middle East region: 14%
- 44%

Middle East

- Middle East oil production by 2040: 113.0 Million b/day
- Oil Increment comes from Middle East region: 13.5
- 14% contribution to global demand
- 113.0 Million b/day production by 2040

Source: EIA International Energy Outlook 2017 September

Source: Saudi Aramco Annual Review 2016
Saudi Aramco
Crude and Refining System

Global
- Total Oil Production: 7.2 Million b/day
- In-Kingdom Refining: 3.3 Million b/d
- Crude Oil: 10.5 Million b/d
- Crude Export: 1.9 Million b/d

International JVs:
- 2.0 Million b/d

In-Kingdom Refineries:
- Ras Tanura
- Riyadh
- Yanbu
- Jazan

Domestic JVs:
- 1.4 Million b/d
Changing Environment
Changing Environment
in Saudi Aramco Refining Sector

Saudi Aramco IPO 2018
IMO MARPOL Annex VI 2020
Clean Fuel Standards 2022
Changing Environment
Clean Fuel Projects in Domestic Refineries

Saudi Aramco

Riyadh Refinery

Ras Tanura Refinery

Yanbu Refinery

Domestic JVs

Clean Fuel Projects
Changing Environment

Bottom of the Barrels Upgrade

Total Throughput (MBD)

1940s-70s
Birth of Refineries

1980s-90s
Evolution to Conversion

2000s-10s
Toward Full Conversion

2020s & Beyond
Path Forward...

170 MBD (YR)
HCU/VBU (RTR)
HCU/VBU
FCC/VBU

8 MBD (JR)
20 MBD (RR)
3 MBD (RTR)

EU/Africa/ME
Pacesetters Complexity

6.5

10.4
EU/AF/ME
S.A. Refineries

170 MBD (YR)
HCU/VBU (RTR)
HCU/VBU
FCC/VBU

8 MBD (JR)
20 MBD (RR)
3 MBD (RTR)

EU/Africa/ME
Pacesetters Complexity

6.5

10.4
EU/AF/ME
S.A. Refineries

8.8

JZR IGCC
HCU/FCC & DCU
HCU/DCU

Changing Environment
Bottom of the Barrels Upgrade
Integration with Petrochemical
Changing Environment
Integration with Petrochemical

“by 2020 we intend to be the world’s leading integrated energy and chemicals company”
Integration with Petrochemical

Refining with a growth of chemical sector

Chemical Products
(Million Ton per annum)

Crude to Chemical Conversion
(Percent %)

RAPID Refinery
JV in Malaysia

Jazan Complex
IK Wholly-Owned Facility

S- OIL
Equity JV
in South Korea

In-Kingdom JV

Chemical Products

2016 2017 2018 2019 2022 2025

2016 2017 2018 2019 2022 2025

Crude to Chemical Conversion (Percent %)
Integration with Petrochemical

Refining with a growth of chemical sector

- Chemical Products (Million Ton per annum)
- Crude to Chemical Conversion (Percent %)

Feasibility Study Kick Off 2016
Feed Completion 2019
Detail Engineering Start 2020

2025 New Joint Investment

Crude Oil to Chemical (COTC) Complex

- Largest Integrated Petrochemical Complex
- 400 MBD Crude Processed
- 9 Million Ton Annual Chemical Products
- 45% Conversion from Crude Oil to Chemicals
Integration with Petrochemical

Refining with a growth of chemical sector

Crude Oil to Chemical (COTC) Complex

2025 New Joint Investment

2013.4%

29.8