

# An Overview on Pakistan Refining Industry

May 2018

Global Oil  
Dynamics

Global Refinery

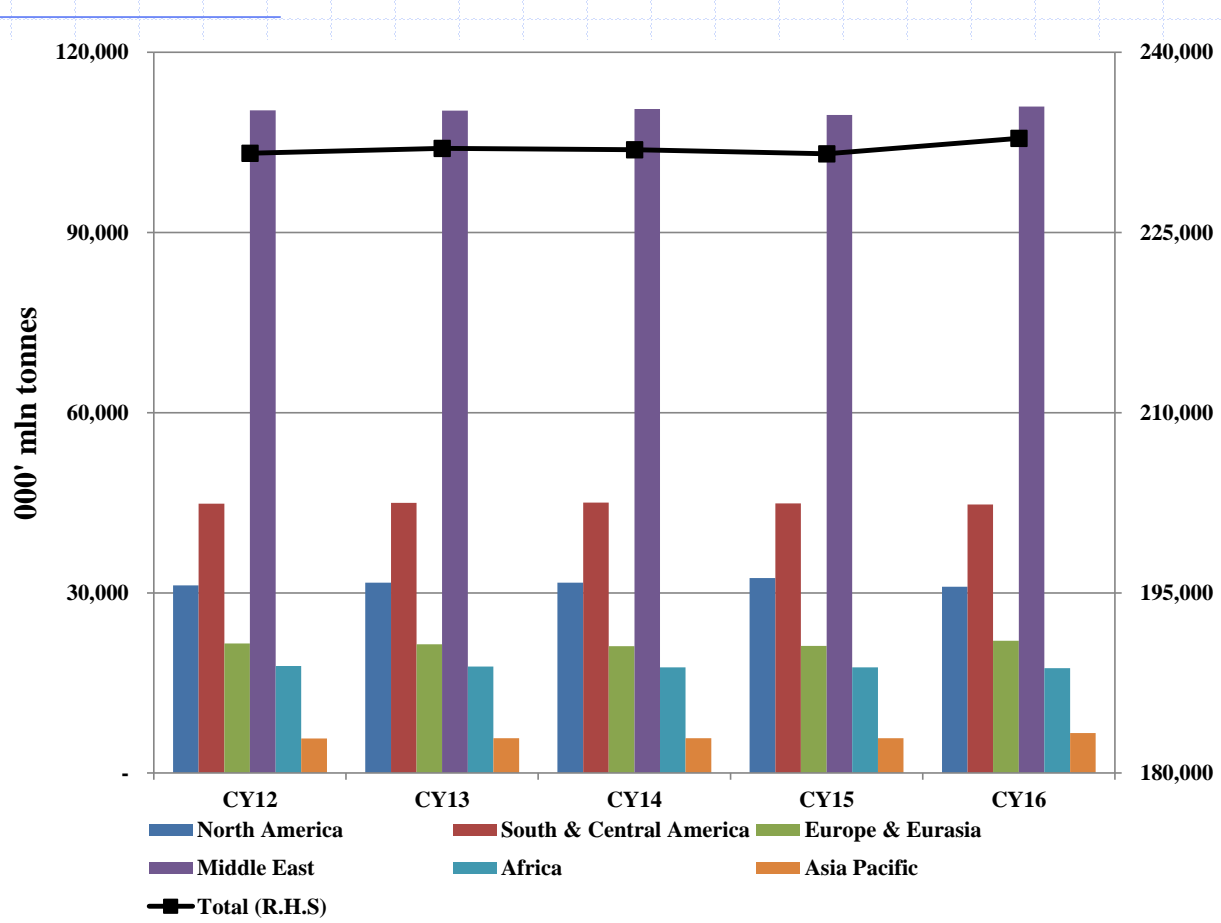
Domestic Oil  
Dynamics

Domestic  
Refineries

Business Risk

Outlook

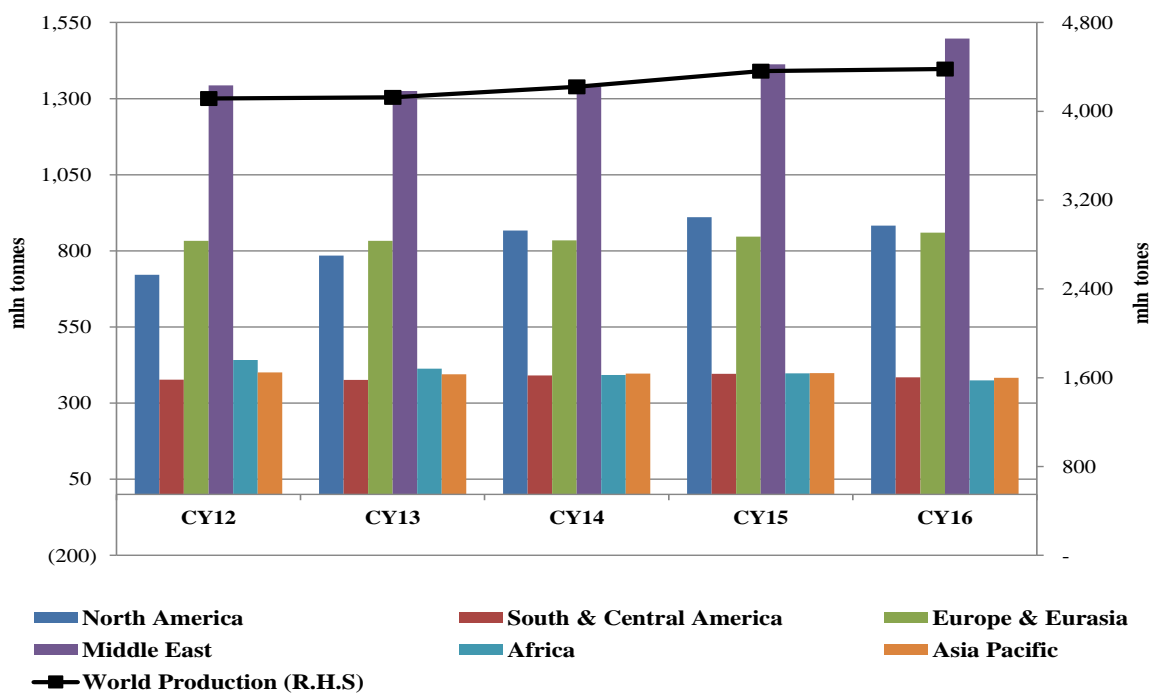
# World Crude Oil Reserves



- Largely sustained level of reserves
- Middle east Contributes – ~48%
- Global proven oil reserves in 2016 increased by 0.6% to 232 billion MT
- OPEC countries continue to hold the largest share (71.4%) of global proved reserves.

# World Crude Oil Production

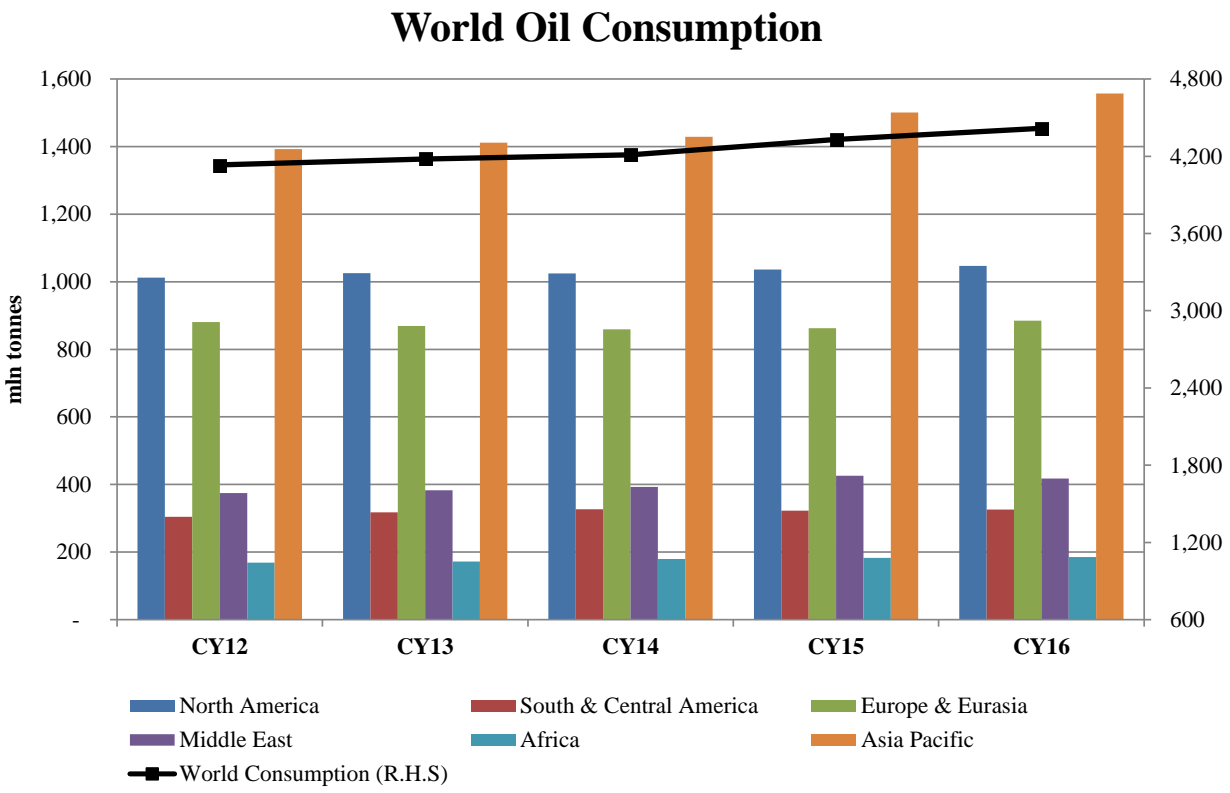
World Oil Production



- US Production Level decreased by 3%
- Increments faced of Middle East Region by 6%

Year	CY12	CY13	CY14	CY15	CY16
World Production (mln tonnes)	4,116	4,127	4,221	4,362	4,382
YoY	2.7%	0.2%	2.3%	3.4%	0.5%

# World Crude Oil Consumption



- Sustained growth in major consumption region:  
 China – 2.7% (2015: 5.5%)  
 India – 8.3% (2015: 4.9%)

Year	CY12	CY13	CY14	CY15	CY16
<b>World Consumption (mln tonnes)</b>	<b>4,133</b>	<b>4,179</b>	<b>4,211</b>	<b>4,331</b>	<b>4,418</b>
<b>Change</b>	<b>1.2%</b>	<b>1.1%</b>	<b>0.8%</b>	<b>2.9%</b>	<b>2.0%</b>

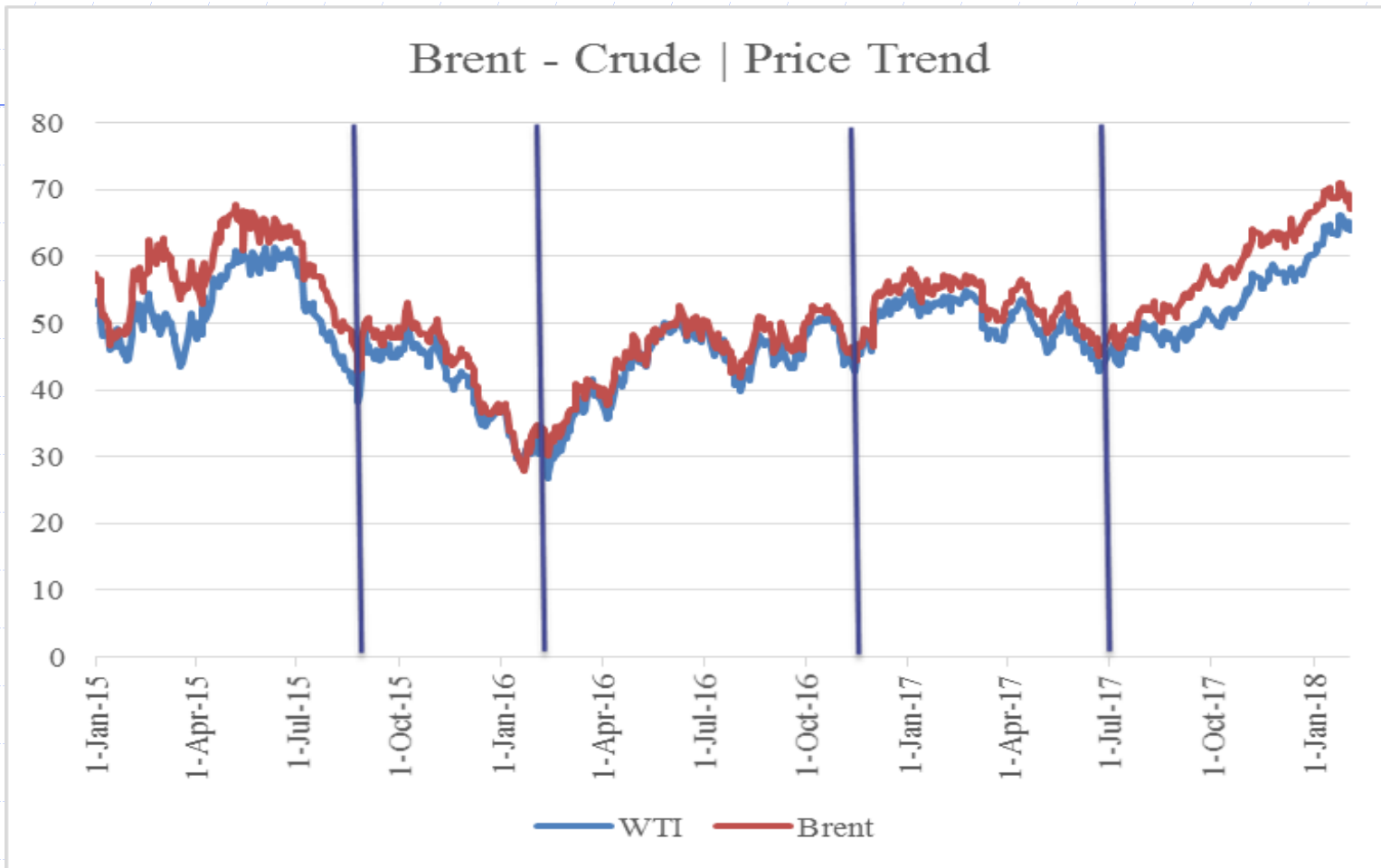
# Global Crude Oil Trade

In mln tons

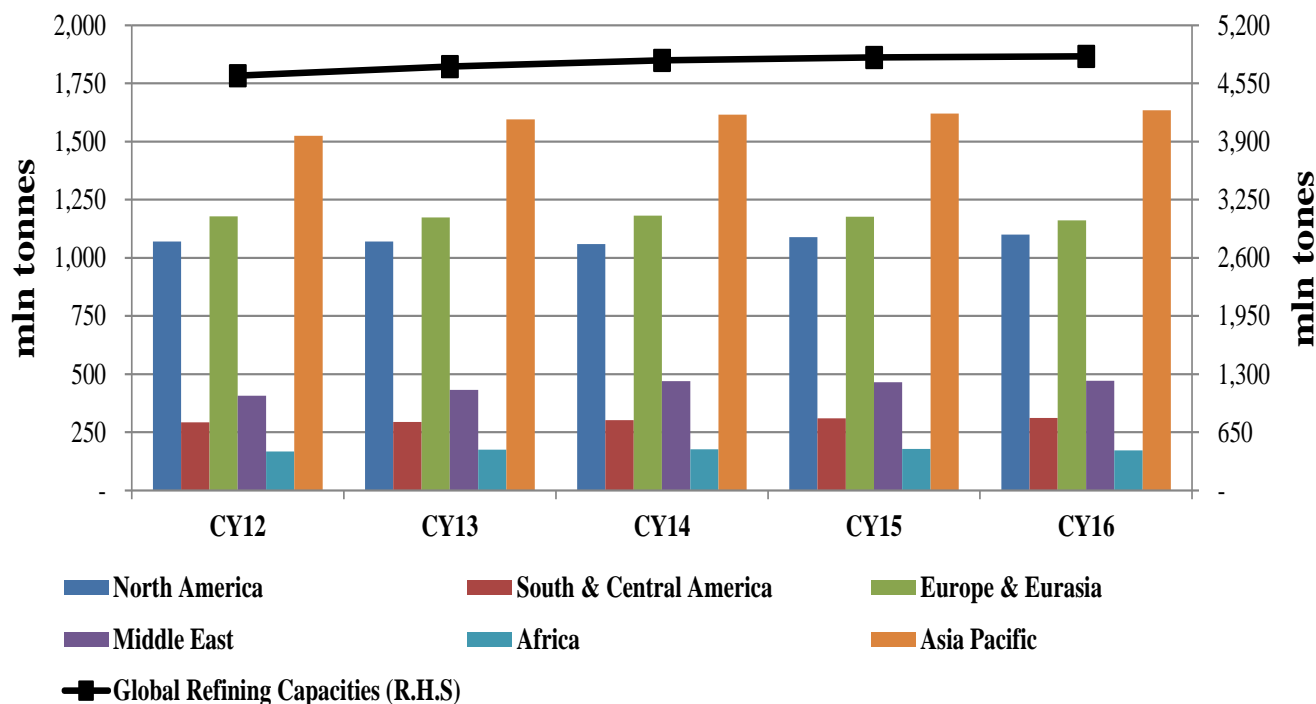
Region	2015			2016		
	Crude					
	Imports	Exports	Net	Imports	Exports	Net
Asia Pacific	1,022	50	(972)	1,021	50	(971)
Europe	488	10	(478)	488	10	(478)
US	366	25	(341)	366	25	(342)
Former Soviet Union	3	255	252	3	255	252
Middle East	8	880	872	8	880	872
Rest of the World	91	758	667	91	758	667
<b>Global</b>	<b>1,978</b>	<b>1,978</b>	<b>-</b>	<b>1,977</b>	<b>1,977</b>	<b>-</b>

- Global trade of crude oil expanded by 0.05% from last year

# Crude Oil Prices



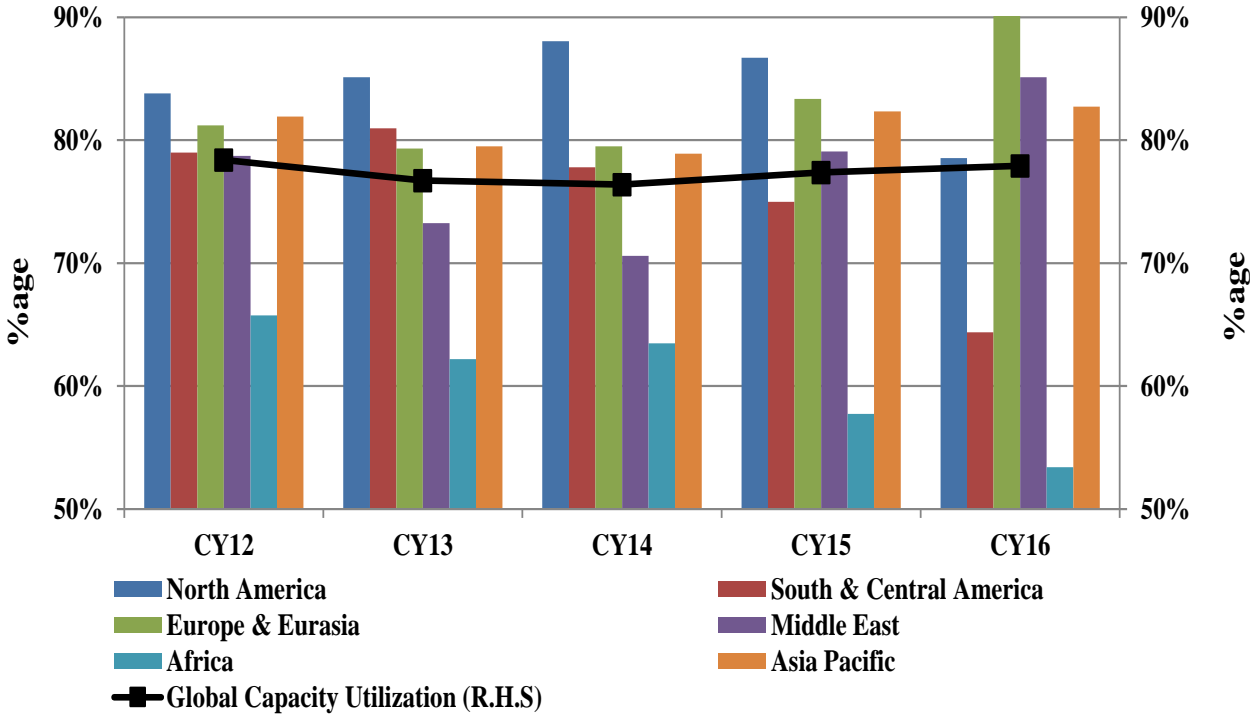
# Global Refining Capacities



Due to unfavorable oil prices, Refinery margins became unattractive hence no new projects were initiated.

Year	CY12	CY13	CY14	CY15	CY16
Global Refining Capacities (mtn tonnes)	4,638	4,741	4,806	4,842	4,852
YoY	1.8%	2.2%	1.4%	0.7%	0.2%

# Regional Capacity Utilization



Global average refinery utilization rose by 1% to 82.1%

Utilization levels switched between regions with an increase in the major demand hubs



# Global Refined Products Trade

In mln tons

Region	2015			2016		
	Refined Products					
	Imports	Exports	Net	Imports	Exports	Net
Asia Pacific	454	304	(150)	480	474	(6)
Europe	184	129	(55)	201	132	(69)
US	98	198	100	105	203	99
Former Soviet Union	2	150	148	12	9	(4)
Middle East	37	141	104	55	184	129
Rest of the World	254	106	(148)	162	102	(60)
<b>Global</b>	<b>1,029</b>	<b>1,029</b>	<b>-</b>	<b>1,015</b>	<b>1,104</b>	<b>-</b>

- Global trade of refined products decreased by -1.36% from last year

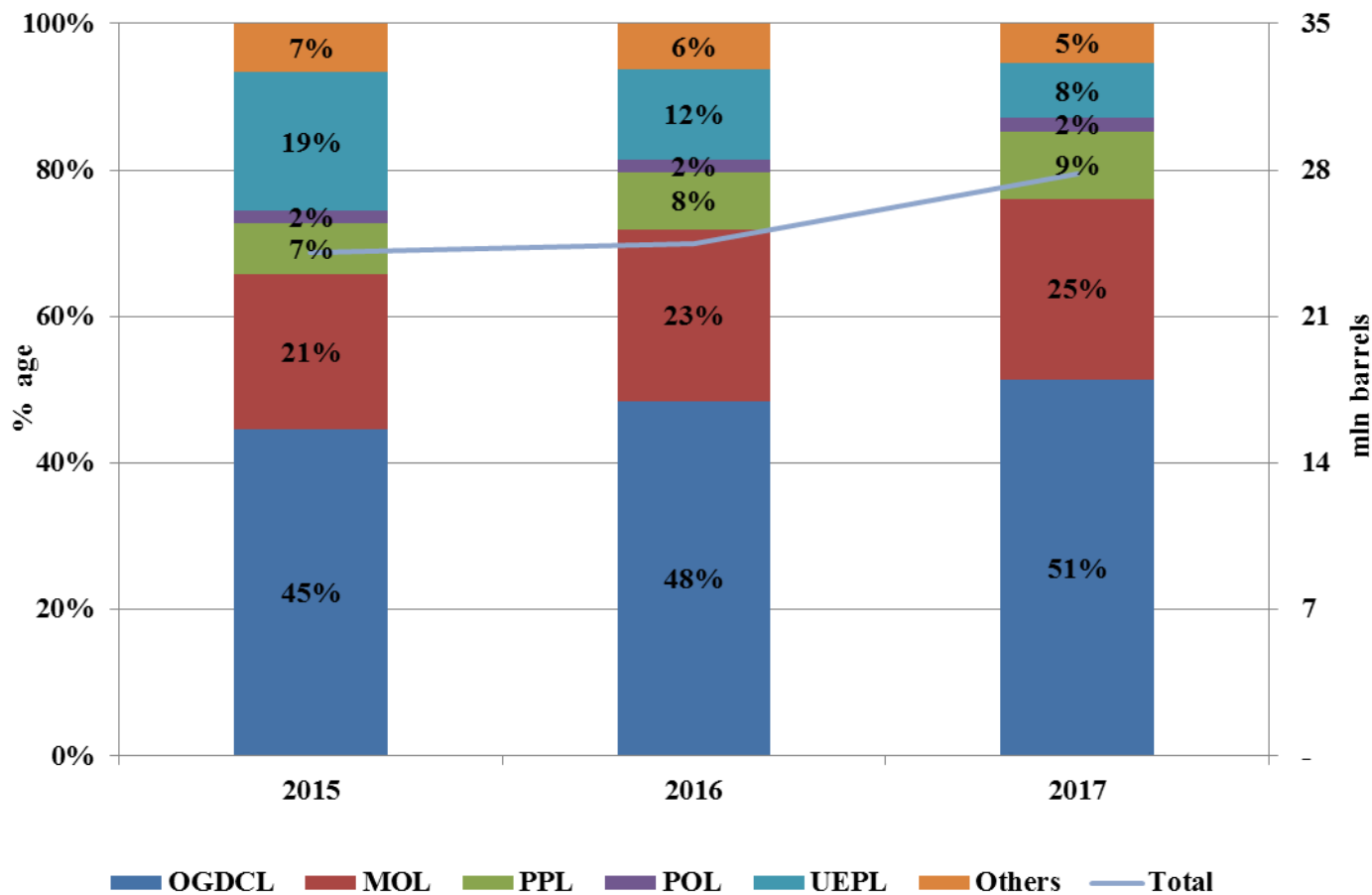
# Base Oils

- World oil demand growth is expected to rise by 1.53 mb/d in 2017 after an upward adjustment of 74 tb/d to account for the better-than-expected performance of China in 3Q17. In 2018, world oil demand is foreseen reaching 1.51 mb/d, around 130 tb/d higher than in the previous OPEC's assessment.
- Global demand for base oil rose to ~36.6 mln tonnes mainly owing to developments in automotive industry, rapid industrialization in developing countries and rigid industry standards.
- Group I base oils will witness a fall in demand mainly owing to its substitution by superior quality Group II and Group III base oils in industrial and automotive segments of Europe and North America.
- Certain grades of Group I such as Bright Stock will continue their popular streak in regions such as South America, Asia Pacific, and the Middle East.
- As emission standards get more rigid, the demand for high quality lubricants especially in the automotive sector are likely to rise, making Group III the most preferred base stock for the manufacturing of finished lubricants.
- The global lubricants market is expected to continue its growth momentum with Asia-Pacific as the key region due to enhanced industrial activity in major markets of China and India. This growth in demand coupled with players' ability to hold on some portion of the reduced cost of production due to fall in oil prices helped in improving the lube margins

# Domestic Oil Dynamics



# Crude Production

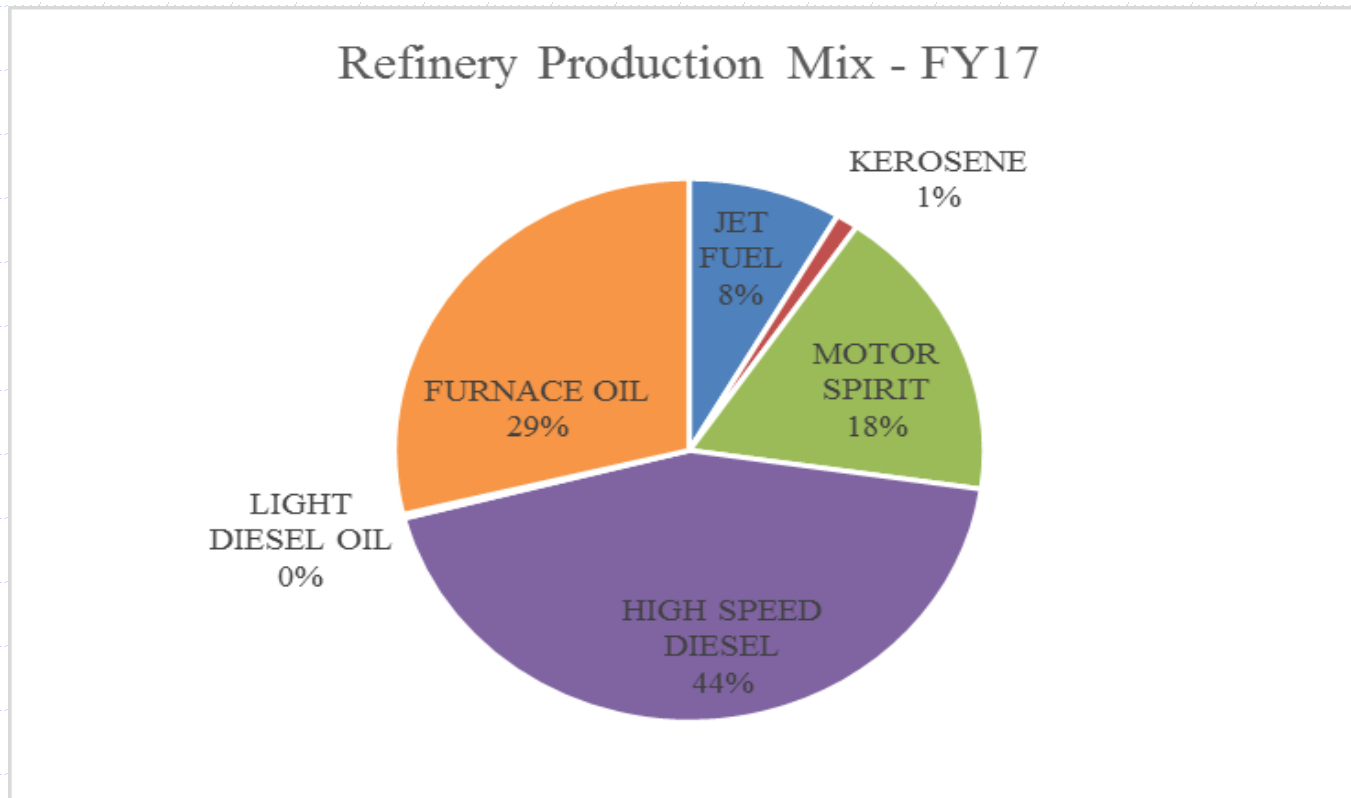


	2015	2016	2017
Total (mln barrels)	34.5	31.6	32.3

# Domestic Refineries



# Refinery Production of POL Products

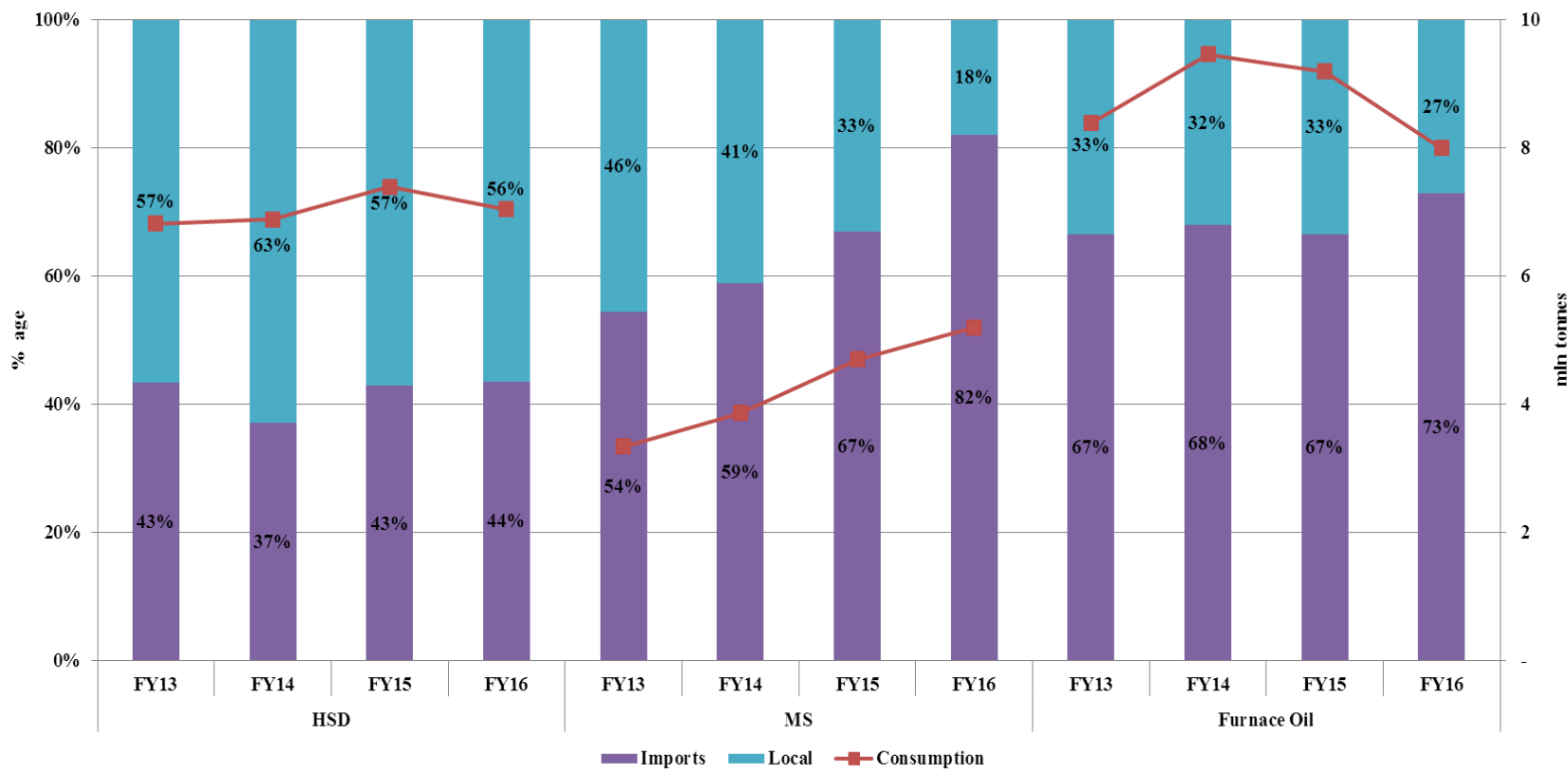


# Refineries Product Slate – June '17

Product	PARCO	NRL	ARL	PRL	Others	Total
HSD	41%	19%	14%	14%	12%	4,579,993
Motor Gasoline	47%	9%	25%	13%	6%	1,838,692
Furnace Oil	33%	15%	17%	16%	18%	3,068,178
HOBC	100%	-	-	-	-	14,843
LPG	76%	5%	-	10%	9%	178,333
Kerosene	42%	5%	39%	3%	11%	125,107

**Total**      **9,805,146**

# Supply Demand Mix – Fuels





# Pricing Mechanism/Disclosure

Particulars (Rs/ Litre)	Apr-18		Sep-16	
	HSD	PMG	HSD	PMG
	Retail	Retail	Retail	Retail
Ex Refinery Price	74.07	56.61	42.55	40.01
Petroleum Levy	10.67	10.00	7.84	9.92
Inland Freight Equalization Margin	1.58	3.75	1.24	3.41
Dealer Commission	-	* 3.35	2.60	3.08
Distribution Margin	2.41	2.55	2.35	2.35
Ex Depot Price	<b>88.73</b>	<b>76.26</b>	<b>56.58</b>	<b>58.77</b>
Sales Tax	7.72	11.44	25.46	14.95
Maximum Ex Depot Price	<b>96.45</b>	<b>87.70</b>	<b>82.04</b>	<b>73.72</b>

\* Dealer Commission, in case of direct sales price has been merged in PDL

# Business Risk - Refining Capacity & Utilization

Refinery	mln MT per anum							
	2014		2015		2016		2017	
	Capacity	Utilization	Capacity	Utilization	Capacity	Utilization	Capacity	Utilization
Byco Petroleum	1.8	12.5%	1.8	70.0%	1.8	65.0%	1.8	* 61.0%
Pak Arab Refinery	4.5	102.0%	4.5	102.0%	4.5	100.0%	4.5	104.5%
National Refinery	2.7	85.0%	2.7	81.4%	2.7	81.4%	2.8	82.9%
Pakistan Refinery	2.1	78.0%	2.1	77.0%	2.1	79.3%	2.1	77.0%
Attock Refinery	2.0	100.0%	2.0	102.0%	2.0	87.0%	2.5	91.5%
<b>Total</b>	<b>13.1</b>	<b>76%</b>	<b>13.1</b>	<b>86%</b>	<b>13.1</b>	<b>83%</b>	<b>13.7</b>	<b>83%</b>

\* Additional Capacity of ~5mln MT, though came online, but not fully operational due to technical issues, therefore not taken into account. During August,2017 new crude charger heater/ Furnace is added, and on Feb18, reformer unit started operations. Despite this, utilization is low (~47%) at end-Mar18

# Key Challenges

- ◆ Volatility in margins an outcome of fluctuating crude oil prices and simpler technology
- ◆ Unfavorable changes in pricing regime – *removal of deemed duty*
- ◆ Prevailing Inter-Corporate Debt – impacting throughput levels
- ◆ Exchange rate depreciation

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