

آئل اینڈ گیس
ریگولیشن اتھارٹی
حکومت پاکستان



Oil & Gas
Regulatory Authority
Government of Pakistan

Presentation
on
Resilient Supply Chains for Pakistan (Oil)
Masroor Khan, Chairman, OGRA

25.06.2022



Outline

Energy Mix

OIL

- Supply Chain Mechanism of Oil
- Major Oil Infrastructure
- Sales 2020-21
- FOTCO Jetty
- KPT Jetty
- WOP
- Role of OGRA
- PRM
- 20 Days Stock
- Resilient Oil Supply Chain?

Natural Gas

LNG

LPG



Primary Energy Supplies approx

(Source Energy Year Book 2019-20)

Gas including LNG	44 %
Oil	22 %
Coal	18 %
Electricity	15 %
LPG	1 %



Supply Chain Mechanism of Oil

- There are two sources of petroleum products i.e. (i). Local Refineries which produce products/stocks by processing the crude oil and, (ii). Imported.
- OMCs purchase the product from abroad through Sea via Cargoes.
- OMCs then transfer the same via pipeline and/ or through Tank Lorries to their Storage depots. (Primary Movement).
- The OMCs then supply the product/stock from their depots to the retail outlets via tank lorries. (Secondary Movement).



Major Infrastructure

Ports / Jetties along with Designed and handled capacity	FOTCO 9 MMT (6.8 MMT handled) KPT 2 4 MMT (10.8 MMT handled) Cynergico SBM 12MMT (1.6 MMT handled)
Refineries Refining Capacity (Design) Yield 2020-21	5 20,341,467 MT 2,520,266 MS, 4,697,017 HSD
Storage Capacity (MT) at 22 designated IFEM locations OMC Refineries Pipeline Crude	1,219,047 MS, 1,475,719 HSD 811,447 MS, 939,547 HSD 109,900 MS, 193,572 HSD 302,700 MS, 342,600 HSD 888,900
Tank lorries (average 40,000 liters (40MT))	12,000 Nos (400,000 MT) approx.
Major Pipelines along product transported	WOP 26", 786 KM (3,755,543 MT HSD) MFM 16", 18", 365 KM (2,756,090 MT HSD) KMK 16", 864 KM
Total Petrol Pumps (9,200) Storages	170,000 MT MS, 300,000 MT HSD



Sales 2020-21

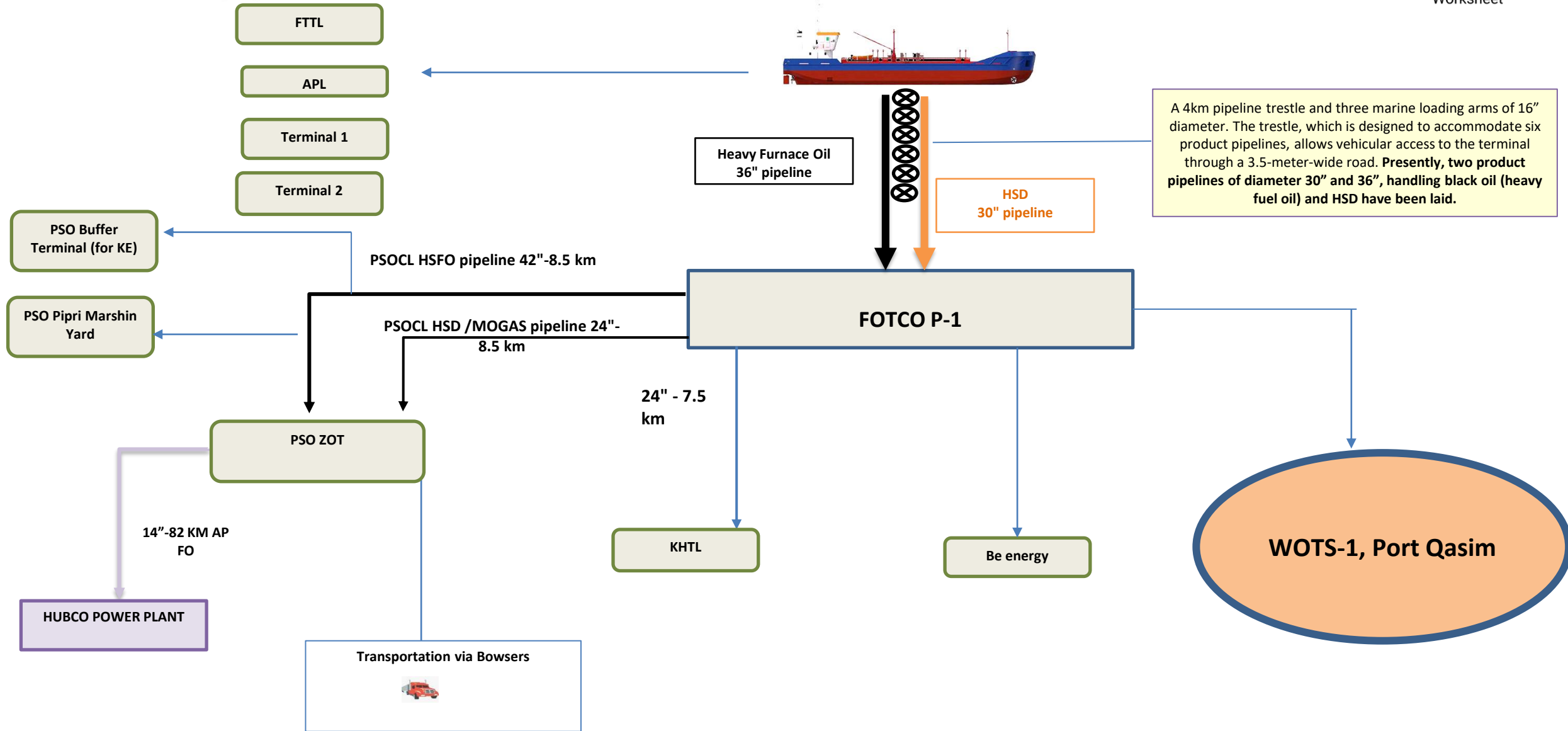
Total Sales 2020-21	8,350,324 MS, 7,789,101 HSD
Imports 2020-21	5,926,529 MS, 3,222,578 HSD
Storage Capacity @ Sales 2020-21	53 days MS, 69 days HSD
Consumption Points	Punjab 64 % MS, 62 % HSD KP 10 % MS, 12 % HSD Sindh 22 % MS, 22% HSD Balochistan 3% MS, 1 % HSD GB & AJK 2% MS, 3 % HSD



FOTCO JETTY



Microsoft Excel
Worksheet





Naphta export pipeline to jetty
16"/24" - 2.69 km



16" - 2.7 km: HSD

Karachi Port Trust (KPT)
Capacity : 24 Million Tons
2019-2020: 8.5 Million Tons

O-P 2
Crude Oil & HSD
Naphtha, Base LSFO,
HSFO AV GAS, MOGAS
Capacity : 8 Million Tons

O-P 3
Crude Oil & HSD
Naphtha,
Base LSFO,
HSFO AV GAS,
MOGAS
Capacity : 8 Million Tons

O-P 1
Crude Oil & HSD
Capacity : 8 Million Tons

National Refinery Ltd
Korangi

National Refinery Ltd
Kemari storage

Pakistan Refinery Ltd
Korangi

Pakistan Refinery Ltd
Kemari storage

K-Electric Korangi
6" - 6.5km
HSFO

PARCO PS-1
Korangi

PS-2
Bubak

PS-3
Shikarpur

PS-4
Fazilpur

TS-2
Mahmood kot

Crude/HSD
Karachi- Mahmood Kot
line(KMK)
864 KM - 16"

NRL SPUR LINE
HSD Transfer
8" - 5.2 km

NRL SPUR LINE
HSD Transfer
8" - 2.5 km

Crude transfer
line (KKLP)
20" - 18.6 km

Jetty line 30" - 2.5KM

PARCO Terminal TS-1
Keamari

Storages / Terminals

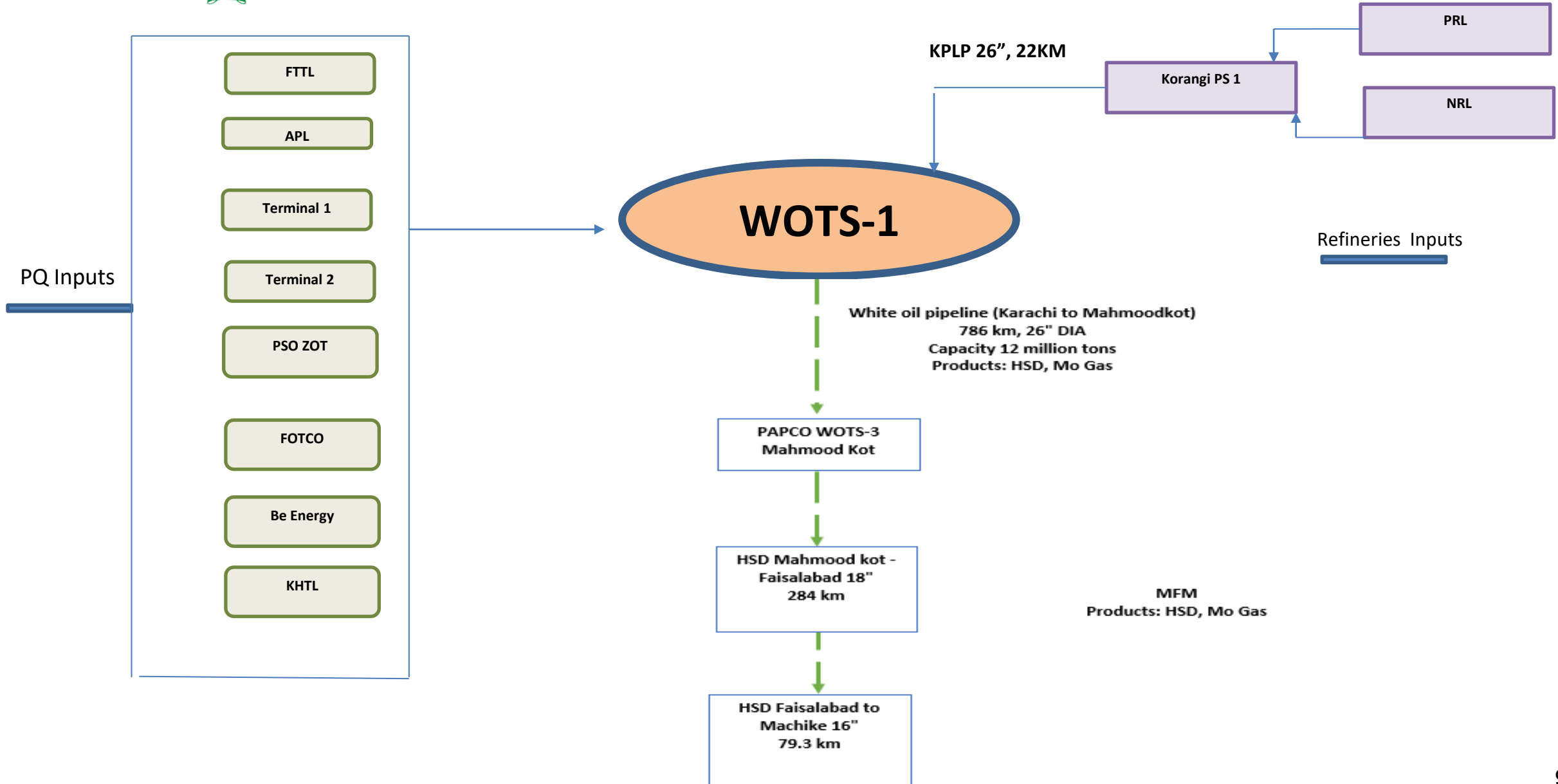
- 08" - 0.95 km: HSD → Pakistan Navy Vessels
- 08" - 0.7 km: Chemicals → PSOCL 'A' / 'B' Installation
- 08" - 1.9 km: Chemicals → SPL 'A' / 'B' Installation
- 08" - 0.27 km: Lube oil → SPL 'A' / 'B'
- 16" - 3.2 km: POL → TPPL/SPL White oil Tankers
- 12" - 0.5 km: FO → SPL 'A' Installation
- 20" - 2.78 km: POL → PSOCL 'C' Installation
- 20" - 0.95 km: LSFO → PSOCL 'C' Installation
- 16" - 1.8 km: POL → BYCO Terminal
- 18" - 2.6 km: POL → ZY&CO BULK OIL Terminal

OMC's Transportation via bowzers





WOP





Role of OGRA

1. The import/export, demand/supply, refineries production/shutdown, Maintenance of Crude Oil, Petroleum Products Stock by Refineries and Oil Marketing Companies (OMCs) regulated under rule 7, 8, 9, 10, 30A, 30B of Pakistan Petroleum Rules, 1971 has been transferred to OGRA in 2022.
2. OGRA has established Oil Supply Chain Department which has started to convene a Product Review Meeting (PRM), on monthly basis to ensure the availability of 20 days stocks cover at all times by the OMCs for uninterrupted supply of the product by OMCs through their Pumps to the commuters. During the PRM the following is analysed in respect of HSD, Mogas, JP fuel:-
 - (i) Products/Stocks position with the OMCs.
 - (ii) OMCs demand based on historical consumption and growth rate of the month.
 - (iii) Refineries Production and allocation to OMCs.
 - (iv) Deficit.
 - (v) Import volume OMC wise based on laycan and berthing / discharge dates.



PRM by OGRA

After issuance of PRM following issues are monitored:-

1. Import plan vs actual imports by the OMC's
2. Issues related to ports and pipelines.
3. Tanker plan of OMCs and Refineries (laycan/berthing, discharge etc).
4. Tweaking of import plan as and when requested by the OMC's.
5. Days cover of OMCs and issuance of regulatory directions/SCN.
6. Field inspection of Deports and retail outlets through Enforcement Department.



20 days stock

Day cover of 20 days stock is determined on the basis of following:-

- (i) Product in Storage Depots of OMC.
- (ii) Product in storages of WOP.
- (iii) Product in storages of MFM.
- (iv) Product in berthing vessel or being discharged.



Resilient Oil Supply Chain?

Pakistan has a resilient oil supply chain. However, addressing of following issues may further make it fool proof:-

- i. Port congestion results in delay in dispatch of products apart from demurrages. It is a need of time to construct another jetty ideally at Khalifa Point.
- ii. Night Navigation at FOTCO.
- iii. pipeline connectivity between KPT and PQA/FOTCO jetty.
- iv. Pipeline transportation from Macheke to KP (FOC is already undertaking said project)
- v. Introduction of trading hub for storages like Fujairah and Singapore.
- vi. open access regime.
- vii. Upgrading of Hydroskimming Refineries to increase yield as per market demand (PRL has started)
- viii. Installation of new refinery of greater refining capacity. (Khalifa Refinery is already planned) This will save Forex, availability of more products and job creation.
- ix. Enhancing local crude production to reduce sea reliance or through pipeline connections with neighbouring crude exporting countries.



Natural Gas

IMPORTED RLNG & PROVINCE WISE INDIGENOUS GAS SUPPLIES TO SNGPL & SSGCL

PROVINCE	MMCFD
Punjab	83
Khyber Pakhtunkhuwa	398
Sindh	1,192
Balochistan	333
RLNG	969
Total:	2,975 (33%)

SECTORAL GAS CONSUMPTION

SECTOR	MMCFD	%AGE
Domestic	862	20
Commercial	70	2
Industrial	365	8
Fertilizers	829	19
Cement	142	3
Captive Power	203	5
Power	1,305	30
LNG	108	3

Currently 969 MMCFD i.e 33% of Total gas supplies is being transported through sea route. In case of war like situation, said supplies may be disrupted. Therefore, to address such risks, import of gas through land routes i.e. Iran Pakistan (IP) or Turkmanistan, Afghanistan, Pakistan and Iran (TAPI) projects are essential to promote resilience in gas supply chain.



Natural Gas

SSGCL		SNGPL	
Sindh	3,367	Punjab	7,506
Balochistan	776	KPK	1,416
Others	0	Others	703
Total:	4,143	Total:	9,625
Gas Transmission Network		13,768 Km	

SSGCL		SNGPL	
Sindh Interior	23,198	Punjab	118,987
Sindh-Karachi	16,959	KPK	24,041
Balochistan	8,293		
Total:	48,450	Total:	143,028
Gas Distribution Network		191,478 Km	

- Extension of Transmission Pipeline Network to enhance Pipeline Capacity.
- Transparent & Open allocation of pipeline capacity and to establish a uniform contractual framework for the third-party access arrangements cross country.
- Necessary measures should be taken regarding maintenance activity of the installations/ regulating stations and identification/ rectification of bottle necks to ensure Pipeline Capacity enhancement alongwith reduction in UFG.



LNG

- i. Natural Gas constitutes around 44% of Pakistan's primary energy mix with present estimated un-constrained demand of 6 Bcfd against supply of around 4 Bcfd.
- ii. Being a less polluting source of energy, Natural Gas is a fuel of choice and over the years there has been a significant rise in demand by the residential, commercial and industrial sectors which has resulted in indigenous natural gas shortfall.
- iii. Two LNG re-gasification terminals i.e. EETL and PGPCL having peak re-gasification capacities of 690 and 750 MMcfd respectively were setup at Port Qasim Karachi by the private sector.
- iv. Two more such project developers have been granted construction licenses by OGRA i.e. Taber Energy and Energas, to build LNG re-gasification terminals at Port Qasim as integrated project structures.
- v. OGRA has issued Provisional licenses to five companies FOR LNG Virtual Pipeline projects.



LNG

To ensure sustainable and resilient LNG supply, the following is required to be ensured:

- i. Urgent development of a LNG storage facility, preferably land based, of an appropriate capacity by public or private sector
- ii. Utilization of the existing LNG Terminals unutilized and excess capacity
- iii. Expeditious implementation of the Virtual LNG Pipeline projects keeping in view all the safety aspects
- iv. Development of additional LNG Terminals
- v. Construction of additional gas transmission pipeline network
- vi. Liberalization of Gas market and implementation of the third-party access regime for pipelines and LNG Terminals.
- vii. No additional exposure of the Government in LNG business
- viii. Less reliance on spot cargos and more on medium and Long-term LNG contracts
- ix. Hedging of LNG prices
- x. Locking in spot LNG cargos earlier than normal



LPG

Demand	5,000 MT per day
share in energy mix	1.3 %
Storage Capacity	125,000 MT
Producers	11
Storage Plants	282
Import Terminal	3
Storage on Wheels	2,000