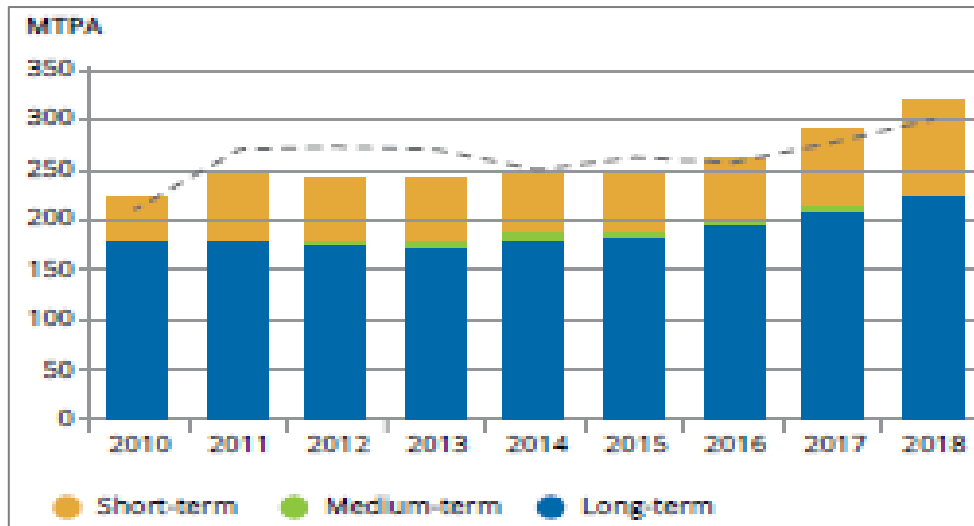


**Government of Pakistan**  
Ministry of Energy  
(Petroleum Division)  
Directorate General of Liquefied Gases  
\*\*\*\*\*

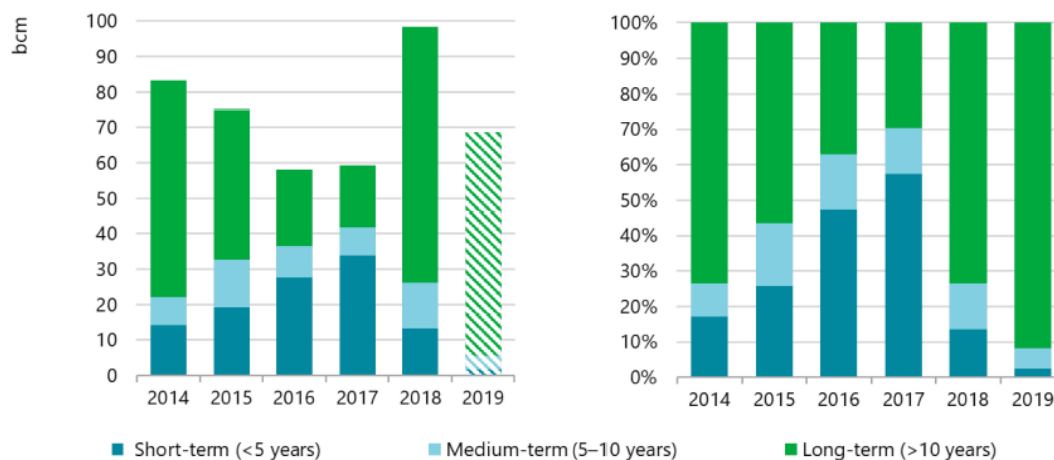
Subject: - **BRIEF ON LNG SECTOR CONTRACT SCENARIO**

- LNG was a niche and nascent market and 2005 was heavily dominated with long term contracts (more than 95% of all LNG was based on long term contracts), long term was also economically defensible as it was indexed to prevalent alternate fuel sources, as there was primarily only 1 large supplier in the market, i.e. Qatar. LNG longterm contract protect supplier investment of liquification and ensures security of supply of buyer as LNG pass from international waters unlike pipeline which maybe prone to geopolitical influence.
- Globally more than 300 MTPA LNG was traded. LNG is mostly traded based on Long term contract. For the year 2018 more than 70% of the Total LNG cargoes traded in terms of volume were based on Long-term contracts.
- The new LNG contracts have now larger built in flexibilities which have give rise to spot trade. It can also be seen that spot LNG trade has increased from 10% in 2010 to 30% in 2018. This is because the LNG market is opening up, with a lot more competition and supply options and buyers exercising a lot of flexibilities now built into their contracts as alternate LNG sources are now possibly considered alternate fuel sources when entering into contracts as there are now three large suppliers in the market i.e. Qatar, USA and Australia.
- Traditionally, buying LNG on long-term contract was the preferred option, but the recent downward trend in spot LNG prices has altered LNG economics. Now, buyers find Spot LNG much economical than long-term contracts, thus suppliers are compelled to rethink about their purchasing mix.
- It is also worth mentioning that Longer term contracts reduced from 70% In 2014 to 30% in 2017 however they increased again in 2018. The average contract length has reduced for more than 15 years to 6 years (with 2018 seeing the return of contracts of more than 10 years against market trend).



- LNG cargoes are traded based on 3 types of contract:
- ✓ Short term: less than 2 years, includes spot cargoes as well
  - ✓ Medium term: between 2 and 5 years
  - ✓ Long term: greater than 5 years

Figure 19. Contracts signed each year by duration (2014–19)



Notes: Contracts concluded and linked to projects that have already taken FID. Sales from portfolios are also included. Data from 2019 include only the information available at the time of writing.

Source: IEA analysis based on ICIS (2019), *ICIS LNG Edge*, <https://lngedge.icis.com/> (subscription required).

**Long-term contracts became the dominant form of LNG contracting in 2018, as new FIDs found willing customers wishing to secure supply and avoid price risks.**

## 1. Increased Liquefaction Capacity

- Natural gas is playing a key role in energy transitions and curbing air pollution. Global energy consumption grew by 2.3% last year, the fastest this decade, with natural gas accounting for almost half of incremental energy demand according to IEA (Figure 1.1). According to World LNG Report 2019 by International Gas Union, global LNG liquefaction capacity was 300 MTPA in 2015 and has increased to 393 MTPA in 2019 and further expected to rise to 460 MTPA in 2024. The major contribution of this increase in global liquefaction capacity is by countries like US, Russia, Qatar and Australia. A record-setting capacity of over 170 billion cubic meters (bcm) of natural gas liquefaction is due to take Final Investment Decisions (FID) in 2019, far surpassing 2005's previous record of 70 bcm.

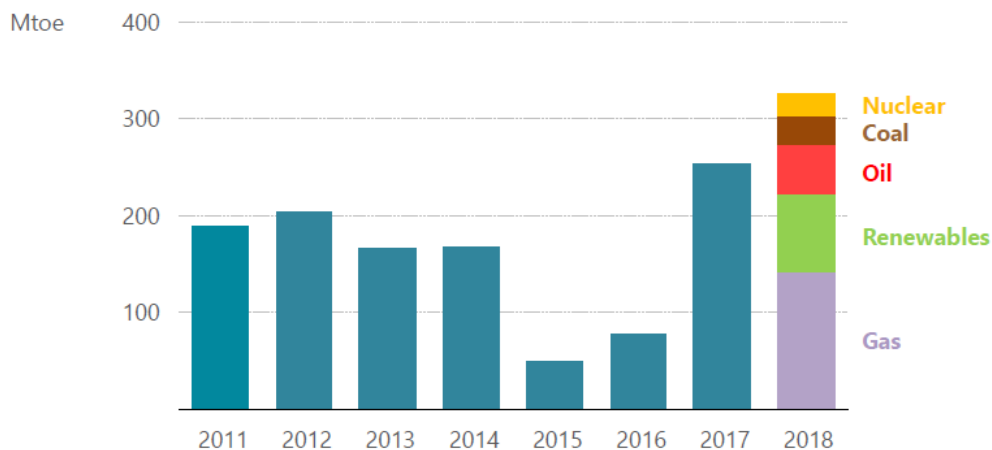
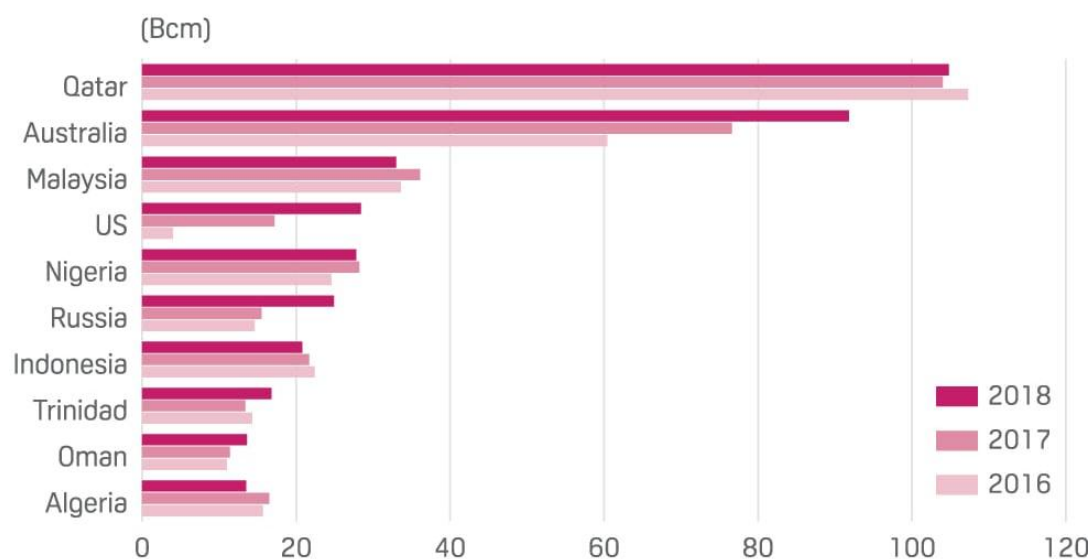


Figure 1.1 Annual Change in Global Energy Demand



Source: BP

Figure 1.2 Top 10 LNG Exporters by Country

## 2. Over Supplied LNG Market and Increasing Spot trend

- Asian LNG Spot prices have collapsed since the beginning of the current fiscal year mainly due to oversupply. Present trend of reduced off-take under long-term contracts forces producers to enter into spot market to monetize gas, which further creates supply glut and brings spot prices further down. The volume of LNG spot trading transactions has expanded by almost 60% since 2015 to above 100 bcm/y, accounting for nearly a quarter of global LNG trade. Spot Market future potential from S&P Global recent report titled “New horizons: The forces shaping the future of the LNG market” dated July, 2019 is given below.

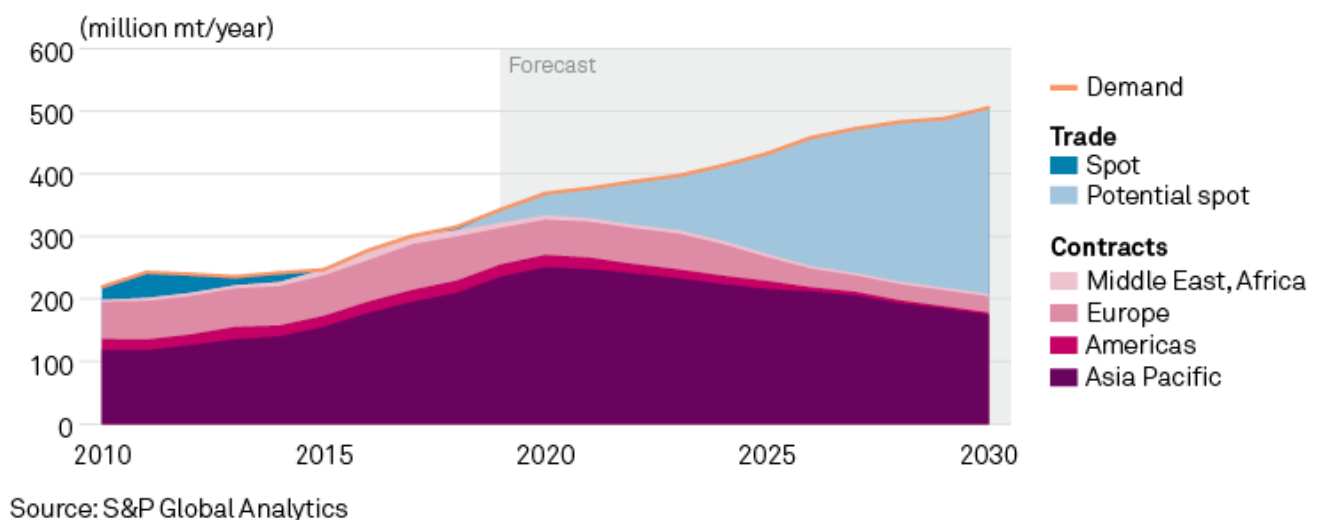


Figure 2.1 LNG Spot Market Forecast by S&P Global Analytics

S&P Global recent forecast (copy attached) revealed increasing share of spot in International market as given above.

## 3. Spot Market Price Comparison with Term in 2019

- The spot rates of LNG delivered to Indian shores are in the range of \$3.5-\$4 per MMBTU in 2019 whereas term contracts were 8-9 per MMBTU and Japanese spot price was half the term contract price according to Institute of Energy Economics, Japan (Figure 3.1).

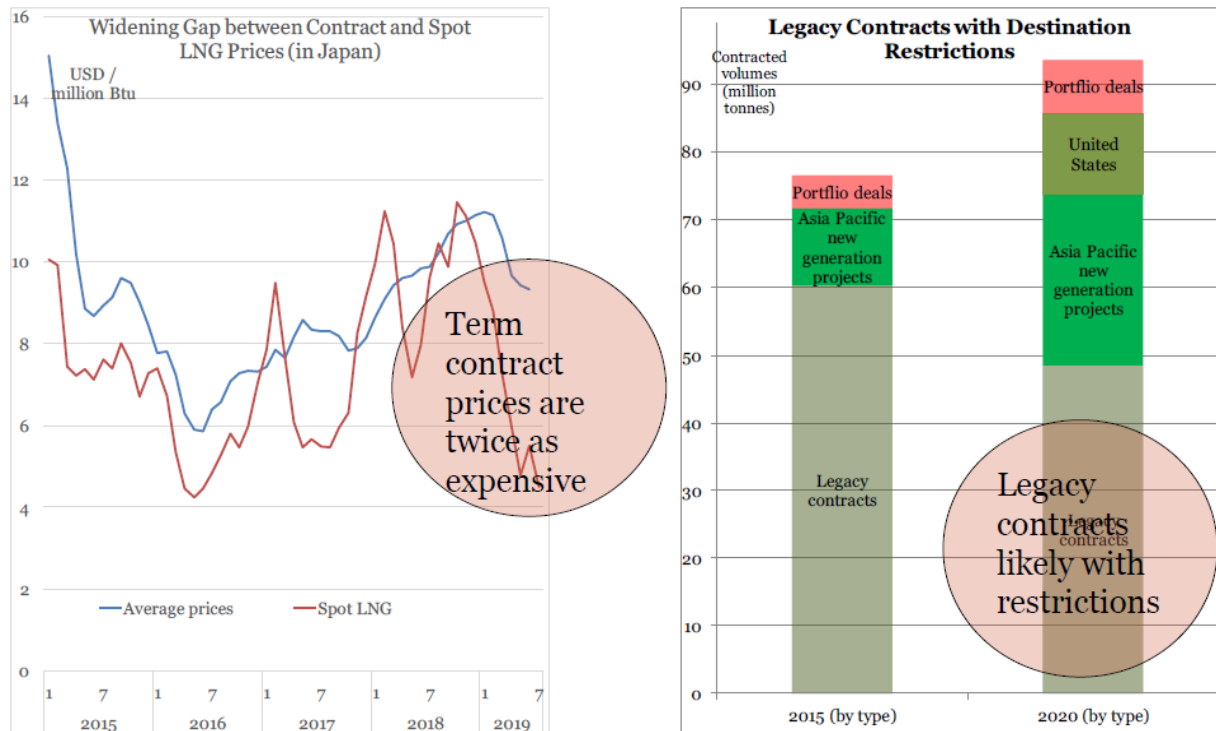


Figure 3.1 LNG Spot vs Term Comparison by Institute of Energy Economics, Japan

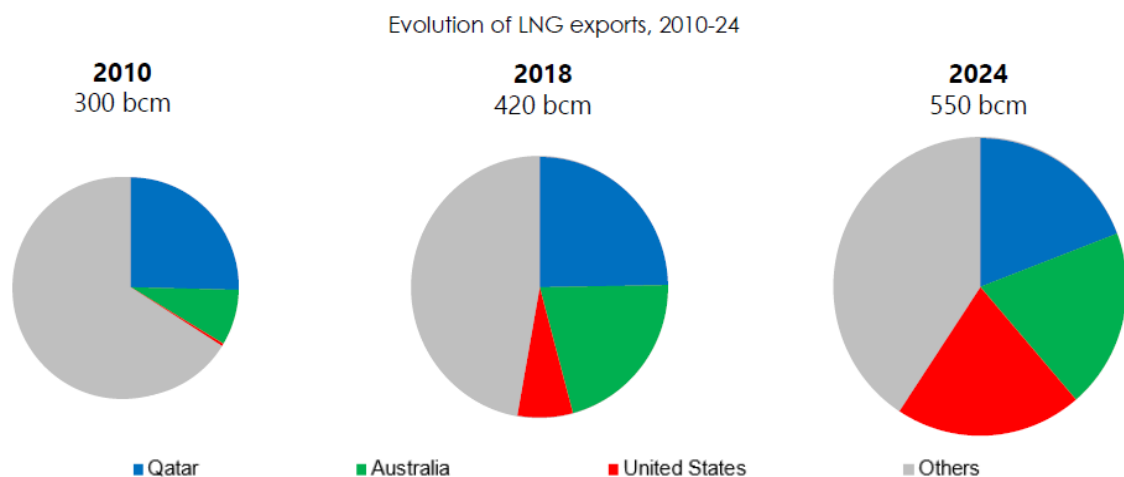


Figure 3.2 Future Diversification of LNG Liquefaction Capacity (Supplies)

#### 4. Pakistan LNG Contract Scenarios

- In Pakistan the LNG the total LNG imported for the Year 2019 stands at around 7.17 MTPA. This has been dominated by the long-term contracts. Below is the breakdown of the LNG contracts and their volume.

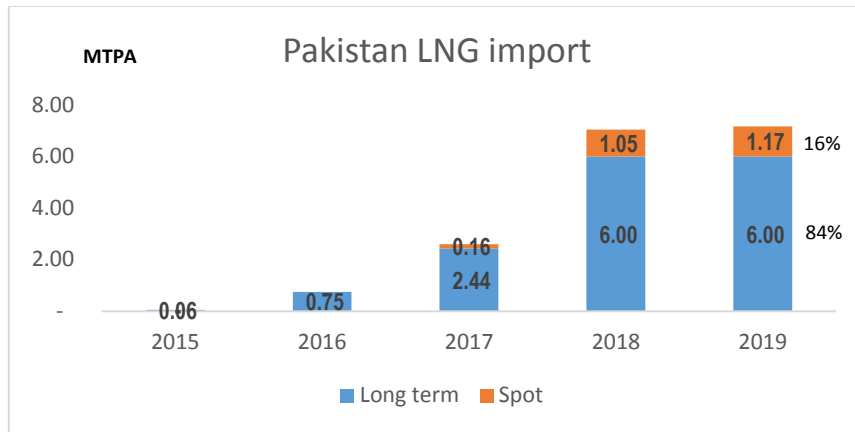


Figure 4.1 Pakistan LNG Imports from 2015-2019

- For the year 2019, The below long-term LNG contracts contributed around 84% of the total LNG imported. Below are the Long-term LNG contracts details

Contract	First Import	Contract Period	Quantity (MTPA)
Gunvor	Dec-15	5 years	0.75
Qatar Gas	Dec-16	15 years	3.75
ENI SPA	Dec-17	15 years	0.75
Gunvor	Dec-17	5 years	0.75

1	Supplier	SPA Date	Commencing Date	Committed Volumes MTPA	Committed Volumes MMCFD	Price (%age of Brent)	Contract Expiry Date
	Qatargas	08-Feb-16	01-Mar-16	3.75	500	13.37%	31-Dec-31
	Gunvor	10-Dec-15	08-Mar-16	0.75	100	13.37%	31-Dec-20

Supplier	SPA Date	Commencing Date	Committed Volumes MTPA	Committed Volumes MMCFD	Price (%age of Brent)	Contract Expiry Date
Gunvor	06 March 2017	30 August 2017	0.75	approx. 100	11.6247%	July 2022
Eni	01 June 2017	20 December 2017	0.75	approx. 100	Year 1-2: 11.6247% Year 3-4: 11.95% Year 5-15: 12.14%	March 2028 (In case any party walks-away on 10th Anniversary)  November 2032 (In case no party walks-away)

- For the year 2019, the total LNG volume imported under spot contracts was 1.17 MTPA (16% of Total LNG imported). These Long-term contracts have allowed Pakistan to secure long-term guaranteed LNG supply, and meet the country's ever-growing gas demand.
- The comparison of Spot vs Term for Year 2019 is attached as Annex-A.

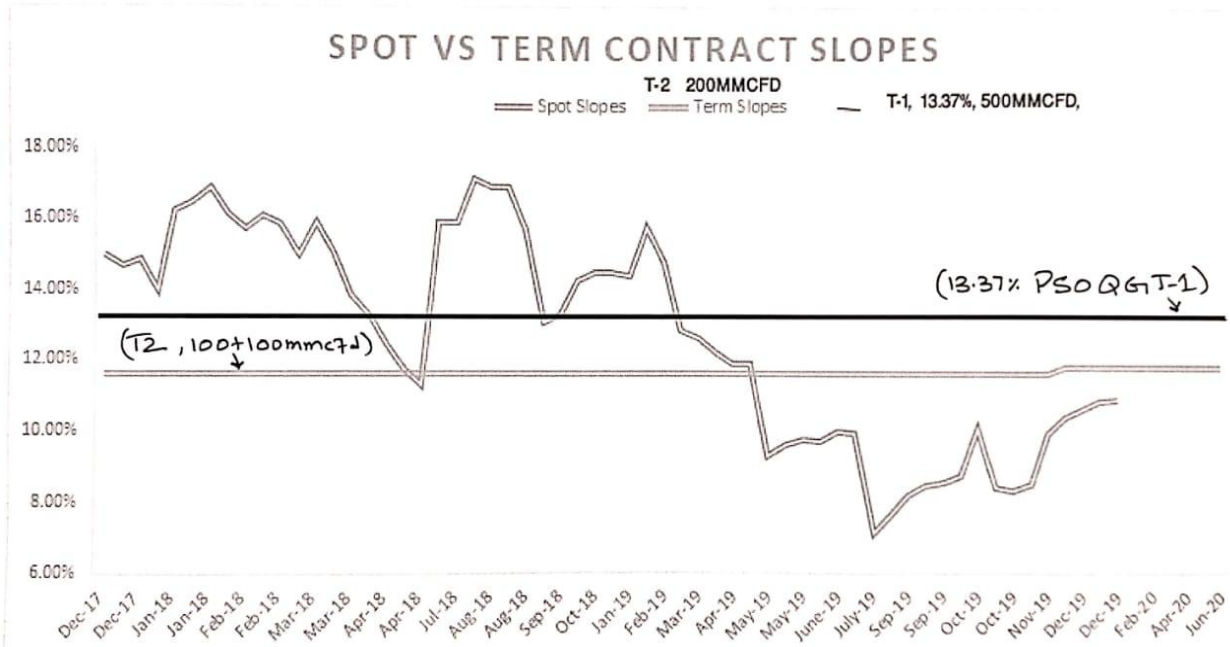


Figure 4.2 Spot vs Contract Slopes

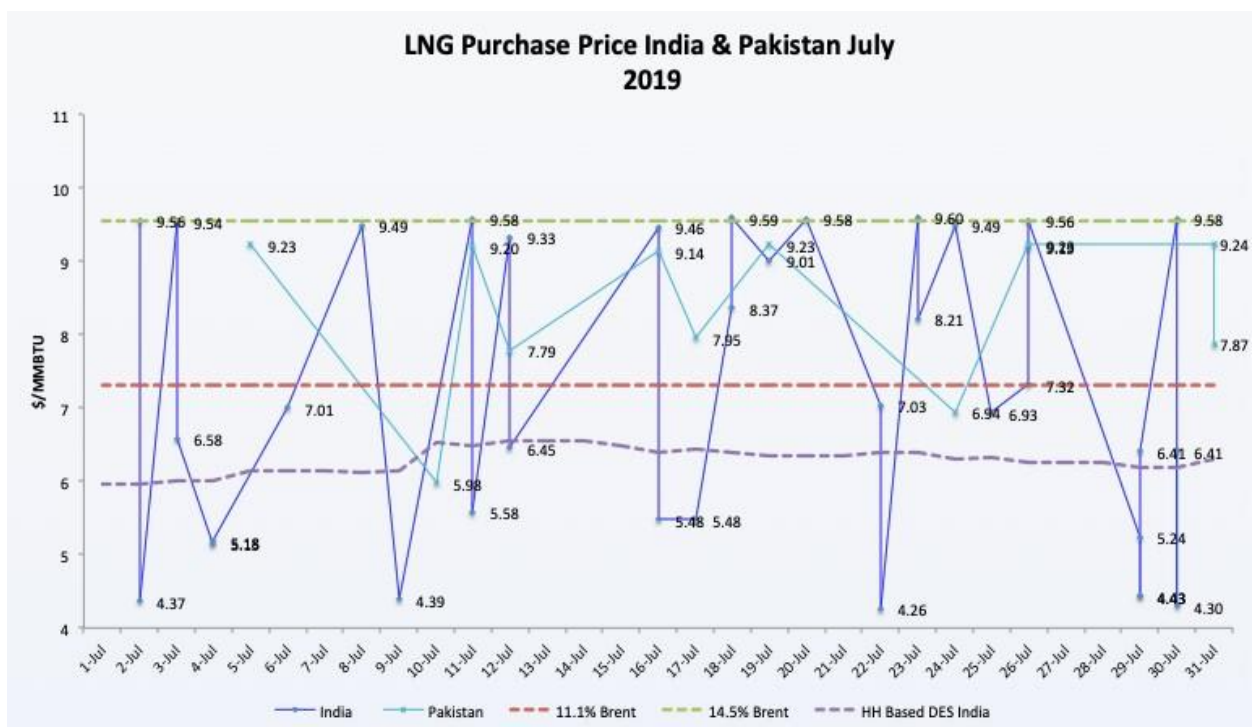


Figure 4.3 Pakistan and India LNG Price comparison for month of July, 2019

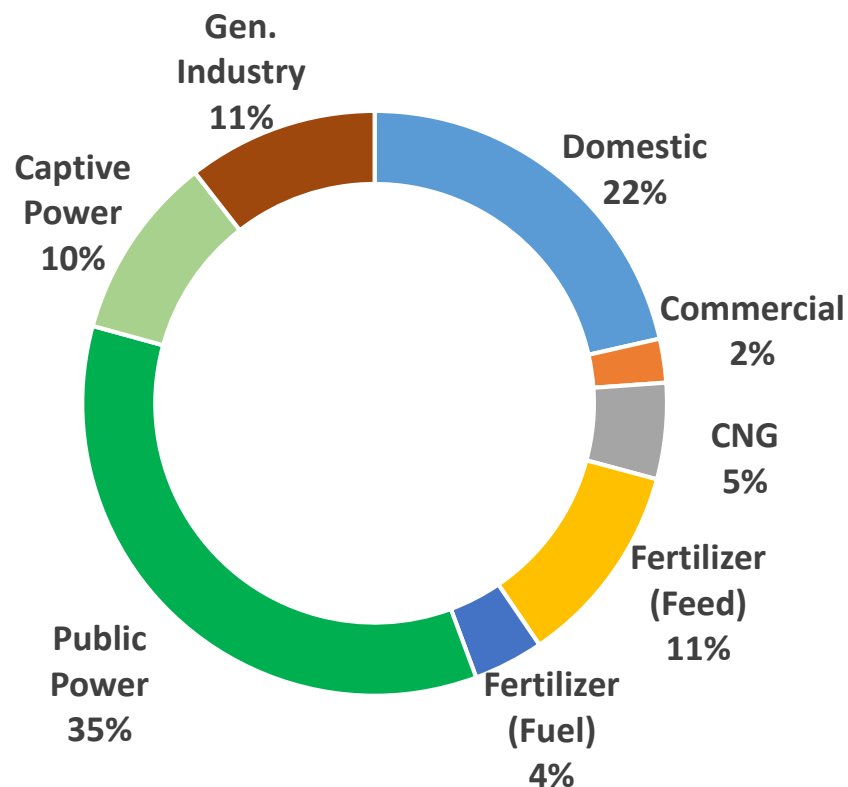


Figure 4.3 Natural Gas Consumption FY 2018

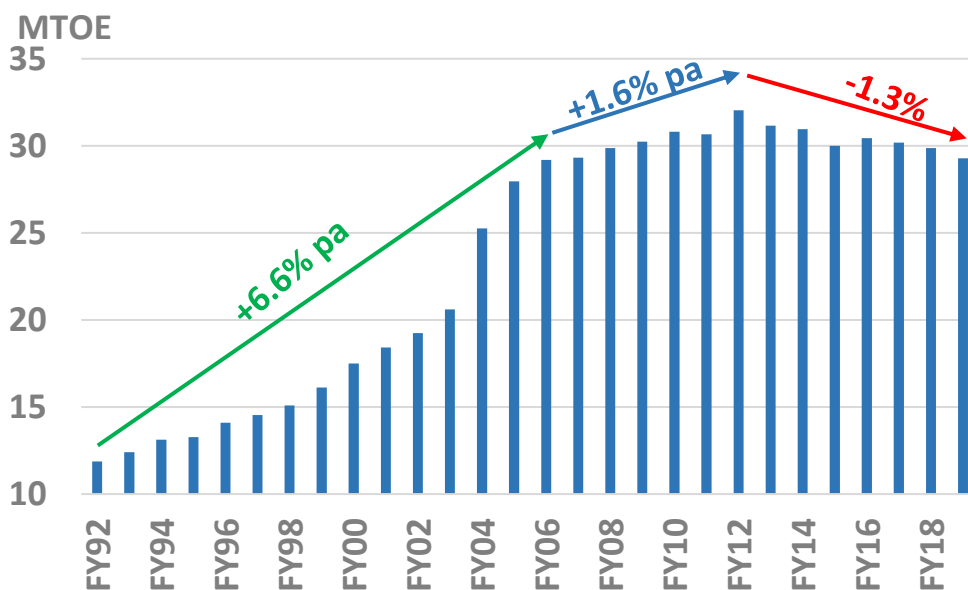


Figure 4.4 Domestic Gas Production 1992-2018

- It can be clearly seen from the chart above that till March 2019, the spot market prices were much higher than even the Qatargas longterm contract price. The spot prices have reduced since then and now an upward pricing trend continues to grow till December this year where these spot prices will be at par with the Enl long term contract.



- The long term contracts provide natural hedge to any country with regards to the spot markets price volatility and availability.
- As the LNG market continues to grow and until Pakistan's LNG demand certainty is substantiated, Pakistan should;
  - a. There should be a balanced match between Spot and Long Term Contract. Spot can cater erratic demand of ring-fenced RLNG pricing and give economic benefit due to LNG glut in the global market. Power sector being the major consumer of RLNG is moving away from it in near future due to addition of new nuclear, coal, hydro and renewable power plants. It will lead to more erratic demand of RLNG.
  - b. Open up the LNG market to maximum number of private players participation as they take on the risk of pricing on their own balance sheets. This will help reduce circular debt in LNG sector also LNG price will go down due to competition.
  - c. Explore QG LNG supply contract flexibilities

#### **References:**

- ✓ Global Gas Security Review 2019, International Energy Agency
- ✓ Shell LNG Outlook 2019
- ✓ Outlook for Energy; A perspective to 2040 by Exxon Mobil
- ✓ BP 2019 Reports
- ✓ S&P Global 2019 Reports

Note: This report is part of chapter of Research Paper Publication on LNG as a transition fuel and Thesis titled **Pakistan's transition to Energy Self Sufficiency: Role of LNG** being prepared by undersigned to be submitted to National Defense University, Islamabad for Mphil in Strategic Studies.

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## **SPOT VS TERM CONTRACTS YEAR 2019**

**Annexure-A**

Month	Delivery Window	Lowest bid Received by PLL	Brent mean	Contract Price (CP) for PLL Spot Cargo (USD/MMBtu)	Average CP (PLL Spot Cargo) (USD/MMBtu)	PSO Contract Price	Brent mean	CP (PSO Cargo) (USD/MMBtu)	Difference in CP between Average PLL Spot Cargos & PSO Cargos (USD/MMBtu)
Jan-19	22-22	14.4000%	68.1064	9.8073	9.8073	13.3700%	68.1064	9.1058	0.7015
Feb-19	03-04	15.7777%	61.3005	9.6718	9.3691	13.3700%	61.3005	8.1959	1.1732
Feb-19	21-22	14.7900%		9.0663					
Mar-19	03-04	12.8211%	60.7879	7.7937	7.7244	13.3700%	60.7879	8.1273	-0.4029
Mar-19	17-18	12.5933%		7.6552					
Apr-19	02-03	12.2008%	63.8759	7.7934	7.6530	13.3700%	63.8759	8.5402	-0.8872
Apr-19	13-14	11.8700%		7.5821					
Apr-19	26-27	11.8724%		7.5836					
May-19	01-02	9.2783%	67.676	6.2792	6.4733	13.3700%	67.676	9.0483	-2.5750
May-19	11-12	9.5739%		6.4792					
May-19	16-17	9.7270%		6.5828					
May-19	27-28	9.6816%		6.5521					
Jun-19	14-15	9.9387%	69.5922	6.9166	6.9101	13.3700%	69.5922	9.3045	-2.3944
Jun-19	29-30	9.9201%		6.9036					
Jul-19	30-31	7.1263%	68.2451	4.8634	4.8634	13.3700%	68.2451	9.1244	-4.2610
Aug-19	23-24	7.6005%	65.7838	4.9999	4.9999	13.3700%	65.7838	8.7953	-3.7954
Sep-19	3-4	8.1750%	62.2017	5.0850	5.2119	13.3700%	62.2017	8.3164	-3.1045
Sep-19	15-16	8.4200%	62.2017	5.2374					
Sep-19	20-21	8.5419%	62.2017	5.3132					
Oct-19	16-17	8.3919%	61.9573	5.1994	5.1994	13.3700%	61.9573	8.2837	-3.0843

**Note: There are approximately 3.2 million MMBTU in one LNG Cargo so a price differential of ±\$1 is equal to ±\$3.2 million Source: PLL & PSO**