


Gas Utilities

Sector Overview

May 2017

Gas Utilities | Sector Snapshot

- Pakistan's total natural gas demand is reported at more than 6bcfd while the country's production clocks in at 4bcfd resulting in supply deficit of ~2bcfd.

- Demand gap is presently managed through load shedding and load management by gas utilities companies. Meanwhile, Government of Pakistan (GoP) is working on various projects; importing indigenous gas, addition of RLNG through regasification terminals and respective enhancement of pipeline capacities to meet the supply deficiency.

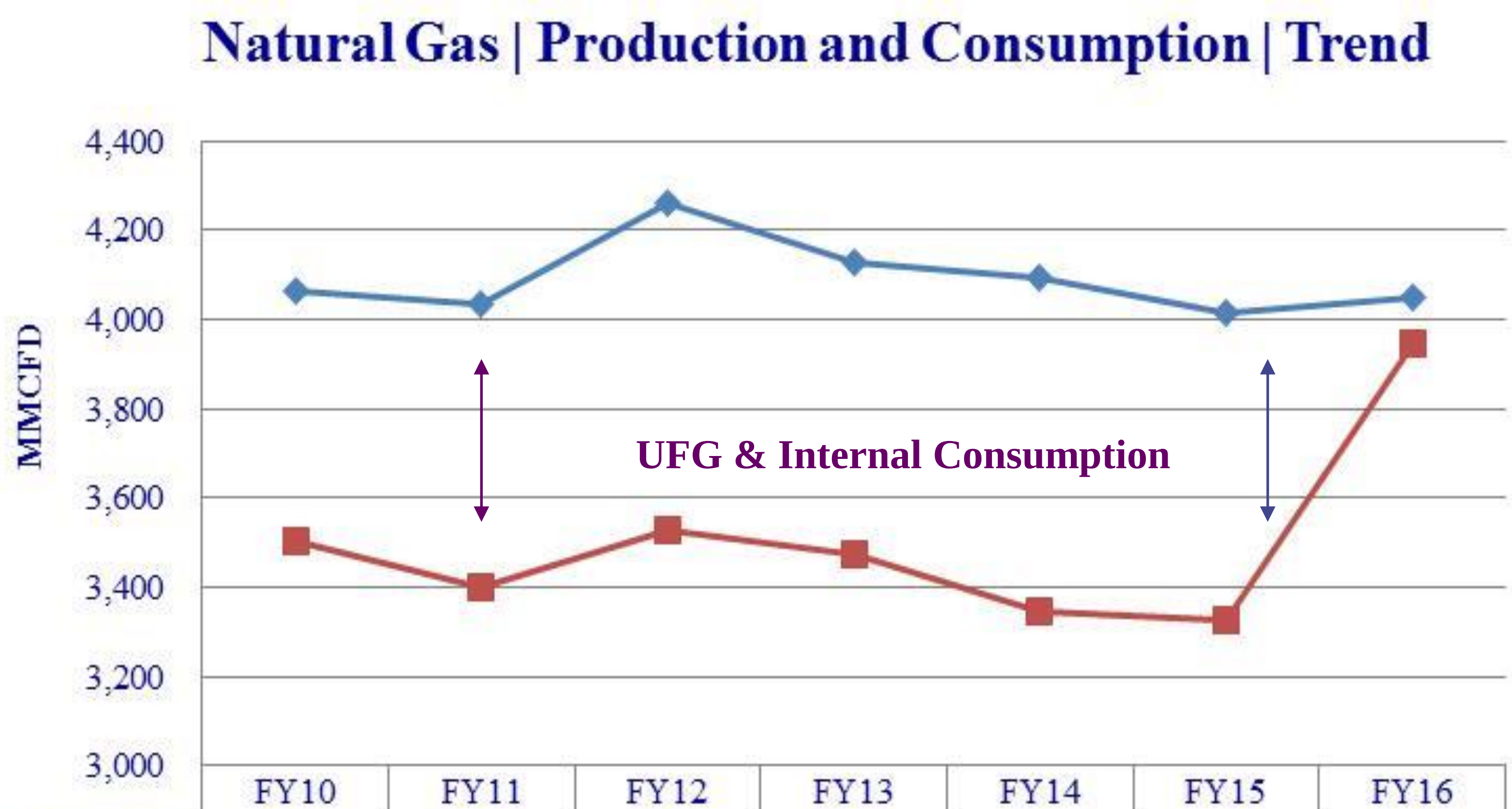
- Two gas distribution companies [SNGPL & SSGC] operate in Pakistan with a cumulative transmission and distribution network of 159,833KMs (end-Jun16) and serve ~8.1mln customers.

- Gas Distribution – a regulated sector | OGRA – the regulator – determines annual tariff

- Guaranteed annual return on average operating assets | All costs and CAPEX are subject to approval.

- **Key Risks:**
  - ✓ **Unaccounted for Gas (UFG) Volume | Theft and Leakage**
  - ✓ **Poor Law and Order & Pilfered Volume by Non-Consumer**
  - ✓ **Regulatory and legal delays in decisions**
  - ✓ **Old distribution Infrastructure | Heavy capex requirement for replacement**

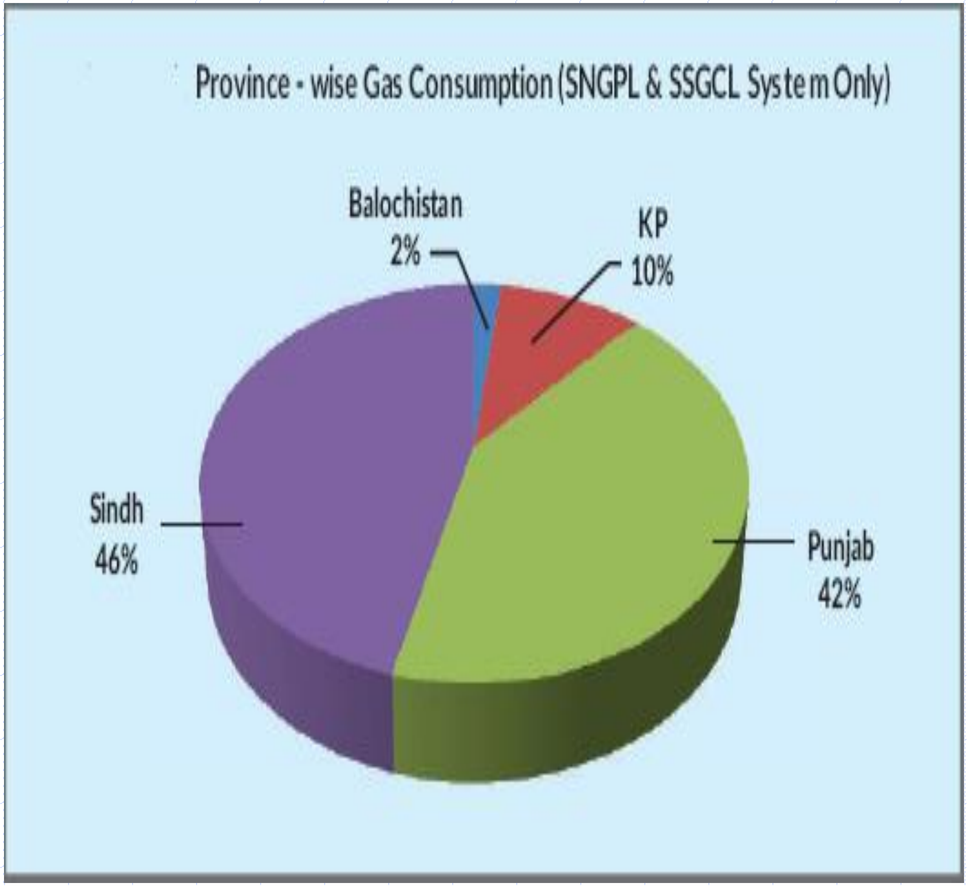
Gas Utilities | Production & Consumption | Trend



	FY10	FY11	FY12	FY13	FY14	FY15	FY16
Gas Production	4,063	4,032	4,259	4,126	4,092	4,016	4,048
Consumption	3,501	3,399	3,529	3,474	3,344	3,328	3,947

Gas | Production & Consumption for FY16 | Province wise

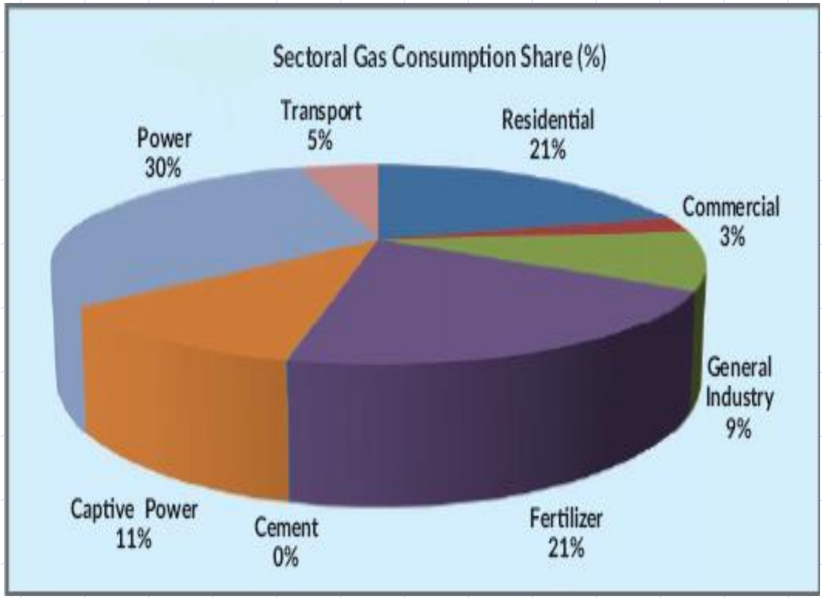
Province	Consumption (MMcfd)	
	2014-15	2015-16
Punjab	1,035	1,154
Sindh	1,139	1,256
Balochistan	55	51
KP	241	266
Total	2,470	2,727



Sindh and Punjab are major consumers of SSGC and SNGPL System's supply ; 46% and 42% respectively.

Gas | Production & Consumption for FY16 | Sector wise

Sector	SNGPL System	SSGCL System	Independent System	Total Country
Residential	510	231	0	741
Commercial	64	28	0	92
General Industry	137	183	0	320
Fertilizer	136	51	533	720
Cement	1	1	0	2
Captive Power	138	186	65	389
Power	379	293	390	1,062
Transport (CNG)	97	79	0	176
Subtotal (Sector-wise Consumption)	1,462	1,052	988	3,502
Own use	13	4	0	17
UFG, Transmission & Distribution losses / Others	202	227	0	429
Total	1,676	1,283	988	3,947



Among three basic sectors, residential supply is at top priority of utility companies as per GoP's Natural Gas Load management Policy.

Gas Utilities | Transmission & Distribution Network

Kilometers

	end-Jun16	end-Jun15	end-Jun12
Punjab	**93,965**	**87,544**	**70,990**
Transmission	5,960	5,947	6,373
Distribution & Services	88,005	81,597	64,617
Sindh	**40,449**	**38,519**	**32,740**
* Transmission	3,373	2,798	2,645
Distribution & Services	37,076	35,721	30,095
KPK	**16,773**	**15,331**	**12,248**
Transmission	1,261	1,252	1,212
Distribution & Services	15,512	14,079	11,036
Balochistan	**8,603**	**8,122**	**7,365**
*Transmission	918	753	675
Distribution & Services	7,685	7,369	6,690
Total	**159,789**	**149,516**	**123,343**
Transmission	11,511	10,750	10,905
Distribution & Services	148,278	138,766	112,438
Growth in total network			

* Estimated figures

As at end-FY16 Independent system infrastructure transmission is 26 KM and SNGPL transmission to AJK is 17.35KM.

Gas Utilities | UFG | Trend

SNGPL					
	FY16	**FY15**	**FY14**	**FY13**	**FY12**
Gas Purchased (MMCF)	609,753	526,905	587,116	646,156	682,689
Sales Volume (MMCF)	535,061	463,393	506,355	552,272	597,272
UFG Volume – Actual (MMCF)	46,652	57,229	61,510	71,252	68,842
UFG – OGRA Benchmark	4.5%	4.5%	4.5%	4.5%	7.0%
UFG –	9.2%	11.0%	10.6%	11.2%	10.2%
UFG Disallowance (*PKR in mln*)	7,518	11,639	12,262	13,917	6,269
SSGC					
Gas Purchased (MMCF)	468,299	434,613	423,665	419,275	406,551
Sales Volume (MMCF)	404,020	362,510	356,628	373,645	364,409
UFG Volume (MMCF)	64,279	59,063	58,417	35,254	43,821
UFG - OGRA Benchmark	4.5%	7.0%	7.0%	7.0%	7.0%
UFG – Actual	13.7%	13.6%	13.8%	8.4%	10.8%
UFG Disallowance (*PKR in mln*)	14,100	10,282	9,944	1,920	4,469
Total					
Gas Purchased (MMCF)	609,753	961,518	1,010,781	1,065,431	1,089,240
Sales Volume (MMCF)	535,061	825,903	862,983	925,917	961,681
Internal Consumption & Others (MMCF)	28,040	19,323	27,871	33,008	14,896
UFG Volume (MMCF)	46,652	116,292	119,927	106,506	112,663
UFG Disallowance (*PKR in mln*)	7,518	21,921	22,206	15,837	10,738

- **UFG benchmark decision is pending upon finalisation of proposed in KPMG Study by the Authority.**

Gas Utilities | UFG Benchmark | KPMG Study

$$UFG = Volume \times (Rate1 + Rate2 \times \beta)$$

$$\text{UFG Allowance} = \text{GAS Volume Available for Sale} \times [\text{Technical Component} + \text{Local Challenging Conditions Component} \times \text{Incentive Factor}]$$

UFG Allowance

Total UFG Allowance in volume for a financial year

GAS Volume Available for Sale

Volume of Gas Available for Sale in a year.

Technical Component

Benchmark rate based on international practices for technical losses usually inherent to a gas supply network.

Finding comparable countries remained a challenge, however, based on nearest matches maximum allowance provided by regulators is 5% and we suggest the same to be applied by the Authority taking a moderate approach.

Local Challenging Conditions Component

The study recognizes that Sui Companies have to operate under challenging conditions as compared to the world at large. Accordingly, additional allowance factor is suggested to cover impact of gas losses due to shift in the sales mix from bulk towards retail consumers expanding the network and making it more prone to theft, leakages and data/meter errors. Similarly, impact of factors like non-recovery of gas bills from law and order affected areas is included.

Allowance for these challenging conditions is suggested to be 4.05% based on the past 4 years UFG claims made by the Sui Companies against above mentioned factors.

Incentive Factor

β **(Beta)** denotes the cumulative efficiency score as determined by OGRA of Key Monitoring Indicators (KMIs) based on a mutually-agreed UFG control program for a financial year.

The allowance for the challenging conditions is made subject to ensuring adequate UFG control efforts are made by the Sui Companies.

•KPMG carried out a detailed study and recommended UFG allowance benchmark, which will be effective retrospectively after finalisation from OGRA Authority.

Gas Utilities | Developments | Import Projects

- **LNG Project | North – South Pipeline Project**
  - Pipeline Length 1,100 km
  - Gas Volume 1.2 bcfd (3.2bcfd total volume)
  - Estimated total cost of USD 2bln.

- **Gwadar-Nawabshah LNG Terminal and Pipeline Project**
  - Pipeline from Gwadar Port to Nawabshah and connect to SSGC/SNGPL network
  - Pipeline length ~700KM
  - Estimated cost amounts to USD 2bln

- **TAPI Pipeline Project**
  - Pipeline Length 1,820 km
  - Gas Volume 1.3 bcfd (3.2bcfd total volume)
  - Operations Agreement signed between all four TAPI countries on Jul. 9 2014
  - Ground breaking ceremony held Dec.15
  - Estimated capital cost of the project is ~USD 7.6bln.

- **Iran-Pakistan Pipeline Project**
  - Pipeline Length 1,150 km
  - Gas Volume 1.0 bcfd

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