

Unaccounted For Gas (UFG) Report

FY-2020

Year One progress report of Sui Northern Gas Pipeline Limited and Sui Southern Gas Company Limited against three years UFG Reduction Plan approved by the ECC of the Cabinet

1. Introduction:

The two public sector gas utility companies i.e. M/s Sui Southern Gas Company Limited (SSGCL) and M/s Sui Northern Gas Pipelines Limited (SNGPL) under licence granted by Oil and Gas Regulatory Authority (OGRA) are engaged into transmission and distribution/sale of natural gas in the country in their respective franchise/ area. OGRA Ordinance, 2002, Tariff Rules and the Licence condition empowers the Authority (OGRA) to determine total annual revenue requirement of the gas companies. OGRA introduced much awaited new tariff regime for regulated natural gas sector in Pakistan with effect from 01.07.2018. The determination of annual revenue requirement takes into account the determination of Unaccounted For Gas (UFG) allowance and disallowance to the gas companies.

UFG is a phenomenon of gas loss which is contingent upon occurrence of various technical factors when gas flows from fields to end consumers. It is calculated as the difference between metered gas volume injected into the transmission and distribution network (Point of Dispatch/Delivery) and the metered gas delivered to the end consumers (Consumer Meter Station) during a financial year. Adjustments on account of self-consumption etc. in the operations of gas utilities are also accounted for in UFG determination. OGRA being the regulator, determines and fixes UFG benchmark of the both Sui Companies. Pursuant to UFG determination by OGRA for each year any percentage / value of UFG above the fixed benchmark treated as disallowance and deducted from the revenue of the gas utility companies. In 2017, OGRA undertook a UFG study through independent consultant vis M/s KPMG Taseer Hadi & Co. Chartered Accountants who submitted their final report on 11.07.2017 which was forwarded by OGRA to gas companies for implementation and compliance on 30.08.2017. Based on the said UFG Study following formula was recommended for calculation of UFG:

$$\text{UFG\%} = \frac{\text{Gas received} - \text{Gas Delivered} - \text{Adjustments}}{\text{Gas received}}$$

Further a two-component formula for calculating UFG allowance was recommended as under:

$$\text{UFG Allowance} = \text{Gas Received} \times (\text{Rate1} + \text{Rate2} \times \beta)$$

Rate1= Technical Component (Inherent gas loss in the system)

Rate 2= Local Challenging conditions component (Pakistan specific)

β =Performance factor (Key Monitoring Indicators - KMIs)

Rate1 is the benchmark fixed rate based on prevalent conditions / infrastructure in the areas of the operation of the sui companies and same is fixed at 5% for the next five years. The fixed rate also includes allowance for transmission losses which is calculated upto maximum 0.5%. Rate2 is the allowance for local challenging conditions as compared to the world at large. This factor is suggested to cover impact of gas losses due to expanding gas supply network in retail including law & order affected areas and making it more prone to theft, leakages, data / meter errors and non-recovery of gas bills from law and order affected areas. Allowance for these challenging conditions is fixed at a maximum of 2.6%. In order to ensure appropriate and serious efforts are directed towards reducing UFG over the agreed term of five (5) years, the local challenging conditions component has been linked to the achievement of KMIs. To compute and evaluate

Estimated Revenue Requirements (ERRs) for prospective years, the Rate 2 will be taken at 50% and the same will be actualized in line with the achievement of proposed KMIs during the respective Final Revenue Requirements (FRRs) of the gas companies.

2. Approved Targets Versus Achievements

The present Government decided to take corrective measures in the reduction of UFG since UFG disallowances has a significant impact on the revenues of the company which in turn has a compounding impact on the revenue shortfall of the gas utility companies. In this regard, a three-year UFG Reduction Plan for both Sui Companies was approved by the Economic Coordination Committee (ECC) of the Cabinet and same was ratified by the Federal Cabinet. The ECC approved three-year UFG reduction targets of both Sui Companies are given below:

Table: Three-year UFG reduction total targets including both components of the plan in volumetric and percentage terms.

Company	Expected Contribution in UFG Reduction							
	FY 2019-20		FY 2020-21		FY 2021-22		Total	
	UFG Reduction Target		UFG Reduction Target		UFG Reduction Target			
	% age	Volume (MMCF)	% age	Volume (MMCF)	% age	Volume (MMCF)	% age	Volume (MMCF)
SNGPL	1.50%	6,840	1.25%	5,700	1.25%	5,700	4.00%	18,240
SSGC	1.87%	7,965	4.81%	20,462	2.87%	12,202	9.55%	40,629

The break-up above approved reduction plan for each utility companies is provided hereunder:

SNGPL

Component	Description	Expected Contribution in UFG Reduction							
		FY 2019-20		FY 2020-21		FY 2021-22		Total	
		% age	Volume (MMCF)	% age	Volume (MMCF)	% age	Volume (MMCF)	% age	Volume (MMCF)
1	Accumulated reduction to be collectively achieved by 16 Nos. Distribution Regions through execution of 30 No. Key Monitoring Indicators (KMIs) advised by OGRA, subsequent to approval of UFG Study Report prepared by Consultants	0.75%	3,420	0.50%	2,280	0.50%	2,280	1.75%	7,980
*2	Reduction in Transmission & Distribution Losses in Law & Order Affected Areas of KPK through close liaison and essentially required administrative support of law enforcement agencies	0.75%	3,420	0.75%	3,420	0.75%	3,420	2.25%	10,260
	Total (Approx.)	1.50%	6,840	1.25%	5,700	1.25%	5,700	4.00%	18,240

* This component is being implemented in three Phases. First Phase has been approved and will be completed by 30.06.2021

SSGCL

Component	Description	Expected Contribution in UFG Reduction							
		FY 2019-20		FY 2020-21		FY 2021-22		Total	
		%age	Volume (MMCF)	%age	Volume (MMCF)	%age	Volume (MMCF)	%age	Volume (MMCF)
1	Reduction of UFG against physical activities and OGRA KMI 30 No.	1.87%	7,965	2.46%	10,462	2.87%	12,202	7.20%	30,629
*2	Savings by implementation of fixed billing tariff at Balochistan	0%	0%	2.35%	10,000	0%	-	2.35%	10,000
	Total (Approx.)	1.87%	7,965	4.81%	20,462	2.87%	12,202	9.55%	40,629

* This component is yet to be approved by Government being a separate proposal. In the case if it nor considered by the Government to be a rational component in terms of its efficacy then the same will stand excluded from the three-year plan of SSGCL

During the first financial year of the UFG reduction plan i.e., FY 2019-20, the volumetric loss of the SNGPL has decreased by 4,771 MMCF, against a target of 6,840 MMCF. However, the percentage UFG has increased slightly (0.34%), as compared to same period of previous year, due to reduction in gas received¹. COVID-19 situation adversely affected the performance of the Company regarding UFG control activities in FY 2019-20. The reduction plan has two components, component-1 is based on 30 Key Monitoring Indicators (KMIs) advised by OGRA and component-2 based on reduction of losses in law and order affected areas. To achieve targets against component-2 of UFG reduction plan of SNGPL, project for extension/rehabilitation of gas network at a cost of Rs. 9 Billion has been approved by the Government during 1st and 2nd quarters of FY 2019-20 which has to be undertaken in phases. Part of funds is to be borne by SNGPL where're balance is to be provided by Khyber Pakhtunkhwa Provincial Government. Work on Phase-I of the project started in January, 2020 (i.e., in 3rd Quarter). Accordingly, targets have been allocated against component-2 in 3rd and 4th quarters.

Similarly, during FY 2019-20, the volumetric loss of the SSGC has decreased by 5,167 MMCF against a target of 7,965 MMCF and resultant percentage UFG has also decreased by 0.15%, as compared to same period of previous year. SSGCL's reduction plan has two components, component-1 is based on 30 Key Monitoring Indicators (KMIs) advised by OGRA and component-2 based on losses in Balochistan. In 1st and 3rd quarter of FY 2019-20, SSGCL's UFG has increased. During the last quarter of FY 2019-20, UFG activities were hampered due to Covid-19 lockdown. Details of target versus outcome (achievement) is appended below:

SNGPL	FY20-Q1 30.09.2019	FY20-Q2 31.12.2019	FY20-Q3 31.03.2020	FY20-Q4 30.06.2020
Outcome	(2,027)	(601)	(2,078)	(65)
Target	684	1,049	2,417	2,690

¹ UFG% = $\frac{\text{Gas received} - \text{Gas Delivered} - \text{Adjustments}}{\text{Gas received}}$

SSGCL	FY20-Q1 30.09.2019	FY20-Q2 31.12.2019	FY20-Q3 31.03.2020	FY20-Q4 30.06.2020
Outcome	2,083	(224)	3,594	(286)
Target	2,749	1,229	3,069	919

3. Quantitative Analysis of the Various Initiatives and Measures

Various initiatives and measures taken by the gas utility companies to achieve their targets are shown below:

SSGC

Target Activities	Unit	UFG REDUCTION TARGETS AND ACHIEVEMENTS									
		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Jul-Jun	
		Targets	Achieved	Targets	Achieved	Targets	Achieved	Targets	Achieved	Targets	Achieved
Network Segmentation	Nos.	16	20	16	35	16	10	13	9	60	74
Rehabilitation of old leaking Pipelines	KMs	71	24	68	65	71	52	55	2	265	143
Underground Leak Survey	KMs	2,933	4,035	2,842	5,457	2,933	4,686	2,292	1,883	11,000	16,061
Overhead Leak Survey & Repairs	Nos.	197,333	225,433	191,167	360,218	197,333	276,032	154,167	131,968	740,000	993,650
Defective Meter Replacement (Domestic)	Nos.	54,133	99,296	52,442	114,293	54,133	90,644	42,292	11,057	203,000	315,290
Theft Detection (Domestic)	Nos.	49,333	72,199	47,792	69,222	49,333	52,958	38,542	31,143	185,000	225,522
Theft Detection (Industrial & Commercial)	Nos.	320	464	310	398	320	534	250	234	1,200	1,630
Theft Detection (Unregistered)	Nos.	173	22	168	412	173	1,001	135	168	650	1,603
Detail survey (Industrial)	Nos.	187	49	181	331	187	212	146	93	700	685
Industrial Meters Proving	Nos.	267	470	258	441	267	349	208	285	1,000	1,546

Table: Different activities performed by SSGC to reduce the UFG during FY 2019-20.

SNGPL

Target Activities Under KMs	Unit	UFG Reduction Activities Performed FY 2019-20									
		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total	
		Jul-Sep		Oct-Dec		Jan-Mar		Apr-Jun		Jul-Jun	
		Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
Rehabilitation of old leaking Network	Km	30	25	260	259	160	165	178	178	628	627
Underground Leak Survey & Rectification of detected	No.	8,845	9,521	8,845	13,188	10,193	10,350	7,500	7,729	35,383	40,788
Aboveground Leakage Survey & Rectification	No.	181,117	181,117	268,711	268,711	252,936	252,936	265,334	265,334	968,098	968,098
Industrial Meter Replacement (Defective, Schedule, Commercial & Special Domestic Meter Replacement)	No.	*	1,014	*	1,261	*	1,404	*	1,416	*	5,095
Domestic Meter Replacement (Defective, Schedule, Commercial & Special Domestic Meter Replacement)	No.	*	4,258	*	6,467	*	7,022	*	3,746	*	21,493
Theft Detection - Industrial	No.	*	37	*	12	*	7	*	10	*	66
Theft Detection - Commercial	No.	*	826	*	1,041	*	866	*	354	*	3,087
Theft Detection - Domestic	No.	*	26,413	*	28,503	*	22,588	*	17,180	*	94,684
Theft Volume Booked	MMCF	*	536	*	434	*	452	*	584	*	2,007
Theft Detection - Unregistered (Non Consumers)	No.	*	54	*	70	*	33	*	28	*	185
Industrial Vigilance - Detailed survey	No.	12,144	12,078	11,914	11,922	11,578	11,816	11,390	12,502	47,026	48,318
Commercial Vigilance - Detailed survey	No.	63,763	63,006	63,223	63,358	62,152	60,873	62,517	68,256	251,655	255,493

Table: Different activities performed by SNGPL to reduce the UFG during FY 2019-20.

4. Assessment of Contingency Measures to Address Areas of Weakness:

Some of the contingency measures by different departments of Sui Southern Gas Company Limited are described as follow:

4.1. Measurement Department:

Measurement department of SSGC has replaced and tested 1,244 industrial meters against target of 1,560 meters. Similarly, during fiscal year 2019-20 around 3,000 industrial meters have been field proved at site for ensuring the accuracy of installed measurement instruments and equipment. In the domestic sector little over 320K meters have been replaced

by CRD / Distribution departments. These meters were tested at Meter Testing Lab against the target of around 500K domestic meters.

4.2. Customer Services & Distribution:

Customer Service Division and Distribution departments of SSGC have enhanced meter replacement activities and have so far generated an increase in sales by 4 BCF, similarly billing of nil consumption customers on estimated volumes, booking of theft volume on customers where meters were tampered generated additional volumes of 1 BCF. Distribution department has also carried out underground and overhead leak rectification and numerous rehabilitation projects completed. The UFG activities were supplemented with effective pressure management controlling purchases.

4.3. Security Services and Control Gas Theft Operations (SS & CGTO) Department:

More than 2758 raids were conducted against Industrial, Commercial, Domestic to Commercial or Bulk Domestic illegal use of gas and 390 MMCF gas was claimed, while a number of gas claims are in process of finalisation. In addition, Joint Industrial Survey of around 585 industries was completed while their discrepancies are being discussed to finalise claimable volumes. Simultaneously, 97 FIRs were registered against culprits taking total criminal cases under various stages of adjudication to 460. Till now 27 culprits are convicted up to 13 years in jail. In on-going trials, around 63 are on bail and around 52 in custody. 55 Recovery suites were also filed in this financial year. Counter gas theft campaign is also being suitably publicised through articulated media campaign. This is gradually creating deterrence and establishing writ of the company.

4.4. Winter Months (November till February):

It is pertinent to mention that the report period on UFG encompasses four months of winter i.e., from November to February and in this period a record breaking snowfall of last 30 years was witnessed in Balochistan and its freezing impact in rest of the Province was observed which resulted in an increase in domestic consumption and hence contributed towards UFG increase in overall performance of the organization.

5. Similar types of measures have also been taken by different regions of Sui Northern Gas Pipeline Limited some of them are as follow:

5.1. Theft Control Activities by Distribution Regions:

Vigilance activities, including vigilance/detailed surveys of industrial and commercial consumers were carried out which has resulted in detection of 56 industrial, 2,739 commercial & Special domestic and 77,240 domestic gas theft cases and a volume of 1,439 MMCF has been booked. Additionally, 47 cases of unregistered consumers (non-consumers) involving 105 MMCF of gas were also detected. 234 FIRs were also registered against the culprits and 99 Culprits have been arrested.

5.2. Leakage Control Activities by Regions:

Distribution Regions have carried out 33,059 underground leakage rectifications, 722,017 aboveground leakage rectification and 410 Km underground network replacement. The UFG activities were supplemented with effective pressure optimization.

5.3. Measurement Errors Control Activities by Field Metering:

Suspected/tampered, defective, schedule meters were replaced by Field Metering teams to control measurement errors as detailed below and all the replaced meters were flow

proved/inspected in meter shops to ascertain the extent of measurement inaccuracy or tampering for necessary charging to consumers.

- Industrial = **3,351**
- Commercial & Special domestic = **16,387**
- Domestic = **479,060**

5.4. Efforts in Law & Order Affected Areas:

The existing Karak Office of SNGPL has been upgraded by enhancing HR strength in Karak Office and posting a Chief Engineer. Site work including laying of legal gas network and installation of gas connections is being executed through support of public representatives. In order to address the issue of illegal usage of gas in Law & Order Affected, illegal taps are being removed by SNGPL’s field teams with the help of Police and FC. The KPK Police authorities are being pursued for establishment of 02 Police Stations in Kohat Division to provide required support to field teams for taking action against illegal gas connections and removal of illegal gas network. The progress w.e.f. July, 2018 to June, 2020 is as under:

Distribution Network:

Number of illegal taps removed	=	5,974
Number of FIR lodged	=	102

Transmission Network:

Number of illegal taps removed	=	492
Number of FIR lodged	=	58
