NATIONAL ENERGY REGULATOR OF SOUTH AFRICA

Consultation document regarding preliminary transmission tariff assessment for Sasol Gas for the period 01 July 2015 to 30 June 2017.

1. INTRODUCTION

1.1 The Energy Regulator is mandated in terms of the National Energy Regulator Act, 2004 (Act No. 40 of 2004) ("NERSA Act") to regulate the electricity, piped-gas and petroleum pipeline industries in terms of the Electricity Regulation Act, 2006, the Gas Act, 2001 and the Petroleum Pipelines Act, 2003.

1.2 Section 4(h) of the Gas Act, 2001 (No. 48 of 2001) ("Gas Act") provides that the Energy Regulator must 'monitor and approve and, if necessary, regulate transmission and storage tariffs.

1.3 In line with this requirement, the National Energy Regulator of South Africa ("NERSA") has given a notice in the media that it has made a preliminary assessment of the gas transmission tariff for Sasol Gas for the period 01 July 2015 to 30 June 2017. This preliminary assessment is done as per the Guidelines for Monitoring and Approving Piped-Gas Transmission and Storage Tariffs in South Africa ("Tariff Guidelines") published by NERSA on 1 May 2009.

1.4 This consultation document provides background information to the preliminary assessment of the transmission tariff for the Sasol Gas for the period 01 July 2015 to 30 June 2017. The application was published on 30 April 2015 on the NERSA website.

1.5 Interested parties are invited to provide written comments to the Energy Regulator, which will be considered before taking a final decision on this matter. The deadline for submitting comments is **Thursday 18 June 2015**.

2. BACKGROUND

2.1 The Energy Regulator is required to monitor and approve, and if necessary, regulate piped-gas transmission and piped-gas storage tariffs in terms of section 4(h) of the Gas Act of 2001 (Act No. 48 of 2001) ("the Gas Act").

2.2 Section 4(h) of the Gas Act provides that the Energy Regulator must "*monitor and approve and, if necessary, regulate*" transmission and storage tariffs. In practice, this is interpreted as follows:

In monitoring and approval,

- NERSA will not set tariffs but will review tariffs prepared by licensees or applicants for transmission and storage facilities;

- NERSA can request licensees or applicants to amend the levels of tariffs or tariff structure or both; and

- NERSA can approve or decide not to approve a tariff.

2.3 If NERSA decides not to approve the proposed tariff, then section 4h of the Gas Act requires the Energy Regulator to regulate the tariff. The process to be followed in regulating the tariff is outlined in the Tariff Guideline.

In regulating,

- NERSA will regulate by determining the tariffs, if necessary, to ensure that NERSA is fulfilling its regulatory duties, *inter alia* by ensuring tariffs are cost reflective and applied in a non-discriminatory manner.

2.4 For monitoring purposes, the application for a tariff must be provided on an annual basis, although applicants are allowed to apply for approval of tariffs for a period of several years.

2.5 The approved tariff becomes the applicable tariff and discounts are permissible. It must be noted that the discounts should be consistent with the objectives of the Gas Act as well as section 22 of the Gas Act.

2.6 The approved tariff by virtue of section 22 of the Act applies to third parties as well as Sasol Gas subsidiaries.

3. SASOL GAS TRANSMISSION TARIFF APPLICATION

The Applicant

3.1 Sasol Gas (Pty) Ltd (registration number 1964/006005/06) is wholly owned by Sasol Gas Holdings (Pty) Ltd (registration number 2000/013669/07), a limited liability company incorporated in terms of South African company law. Sasol Gas Holdings (Pty) Ltd is in turn a wholly owned subsidiary of Sasol Limited.

3.2 Sasol Gas is vertically integrated in the gas industry supply chain in South Africa, i.e. it is active in gas transmission, gas distribution and gas trading. Sasol Limited has also secured rights to natural gas from the Republic of Mozambique through a series of agreements with the Mozambican Government.

3.3 Sasol Gas distributes and markets;
- piped natural gas from the Mozambican gas fields, as well as
- piped methane-rich gas produced at Secunda.

3.4 The applicant's gas pipeline network covers most of the Gauteng Province, as well as parts of the Free State, Mpumalanga and KwaZulu-Natal provinces.

3.5 On 03 March 2015, the Energy Regulator received a transmission tariff application from Sasol Gas. The application is for the period 01 July 2015 to 30 June 2017.

3.6 It is split into two tariff periods aligned with Sasol Gas' financial year. The first tariff period is from 01 July 2015 to 30 June 2016. The second tariff period is from 01 July 2016 to 30 June 2017.

3.7 Sasol Gas is applying for a postal pricing[1] tariff approach whereby its transmission infrastructure is divided into three zones, with one tariff applicable to each zone. The Tariff Guidelines allows for this type of a tariff structure.

3.8 The application proposes three transmission zones namely:
   1) Zone 1 : Secunda-Gauteng-Sasolburg network – natural gas
   2) Zone 2: Witbank-Middelburg network – methane-rich gas; and
   3) Zone 3: KwaZulu-Natal network – methane-rich gas.

3.9 The figure below provides an illustration of the zones.

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[1] According to the Guidelines for Monitoring and Approving Piped-Gas Transmission and Storage Tariffs (01 May 2009) , postal pricing refers to a system in which each off-take point in a particular region is charged a flat rate, irrespective of its capacity, the distance gas is transported or any other characteristics, similar to a postage stamp system

* Zone 3: Excludes the Transnet Lily Pipeline
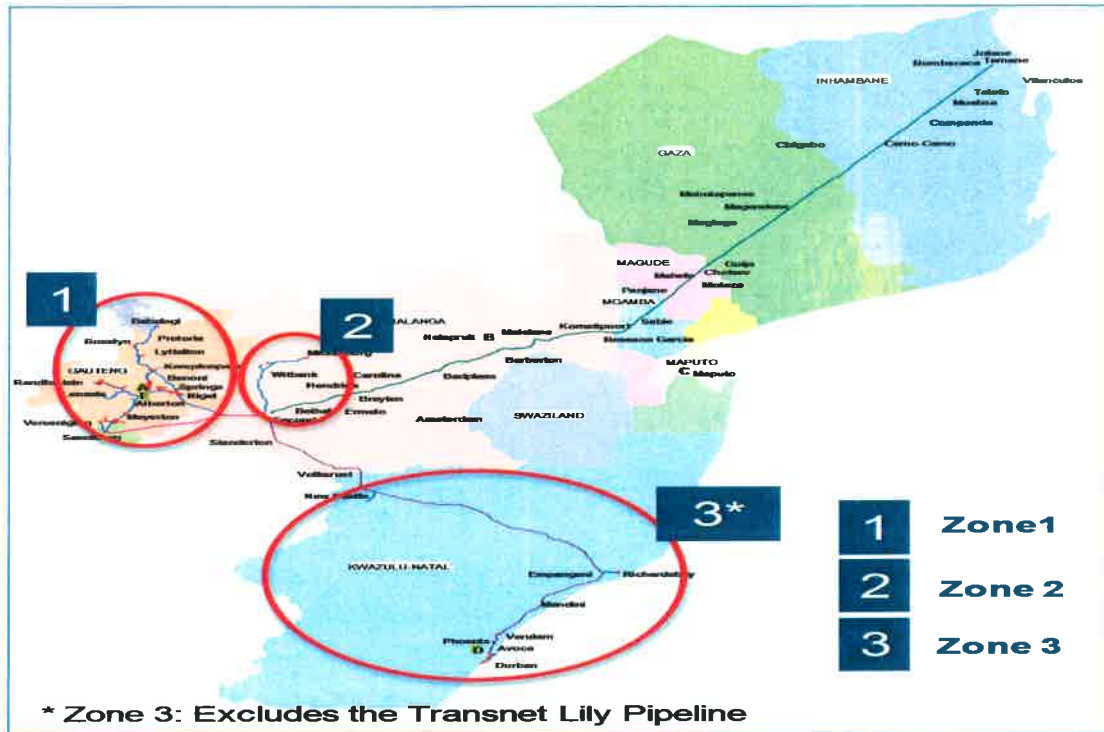
3.10 The tariff per zone is determined by calculating the allowable revenue per zone divided by the budgeted volume commitment for the zone.

3.11 The following table summarises the transmission tariffs Sasol is applying for:

Table 1: Sasol Gas Tariff Application Summary

Zone	Component	01 July '15 - 30 June '16	01 July '16 - 30 June '17
1 Gauteng	Allowable Revenue (R)	▮	▮
	Volume (GJ)	▮	▮
	Tariff	6.07	6.01
2 Secunda - Middleburg	Allowable Revenue (R)	▮	▮
	Volume (GJ)	▮	▮
	Tariff	19.40	19.45
3 KwaZulu Natal	Allowable Revenue (R)	▮	▮
	Volume (GJ)	▮	▮
	Tariff	6.16	6.26

4.   TESTING OF PROPOSAL

4.1   According to the Guidelines for Monitoring and Approving transmission and storage tariffs for the Piped-Gas Industry in South Africa (Tariff Guidelines), applicants are required to submit a tariff application based on their respective preferred methodology that may be chosen from the approved menu of tariff methodologies.

4.2   Each tariff application is reviewed using the same methodology chosen and used by the tariff applicant and any other appropriate information or method for assessing the reasonableness of each application by the Energy Regulator.

4.3   Alternative tariff methodologies or variations on the methods listed on the menu may be used by the applicant, provided that such method is proven, tested and verifiable.

4.4   Therefore, to review the application for reasonableness, the Energy Regulator used the Rate of Return ("RoR") methodology as it was in line with Sasol Gas' transmission tariff application.

5.   ELEMENTS OF ALLOWABLE REVENUE

5.1   As mentioned above, the Energy Regulator used the Rate of Return ("RoR") methodology to in the determination of Sasol Gas' gas transmission tariff, in line with the Tariff Guidelines. The formula of RoR used is as follows:

$$AR = (RAB \times WACC) + E + T + D \pm C$$

Where:

AR - Allowable Revenue

RAB - Regulatory Asset Base

WACC - Weighted Average Cost of Capital

E- Expenses

T - Taxes

D – Depreciation & Amortization

C – Claw back

Table 2: 2015/16 Allowable Revenue Calculation Summary

		NERSA (R)	Sasol Gas (R)
	(RAB = v-d +net working capital)		
a	TOC Asset Value	██████	██████
b	Net working capital	██████	██████
c	**Total RAB = (a+b)**	██████	██████
	(AR = (RAB*WACC) + E +D +T±C)		
d	WACC	████	████
e	Return on assets = *(c*d)*	██████	██████
f	Operating Expenses	██████	██████
g	Depreciation and Amortization	██████	██████
h	Tax	██████	██████
i	Claw back	██████	██████
j	**Total Allowable Revenue (AR) = (e+f+g+h+i)**	**1 056 003 958**	**1 149 874 046**

Table 3: 2016/17 Allowable Revenue Calculation Summary

		NERSA (R)	Sasol Gas (R)
	(RAB = v-d +net working capital)		
a	TOC Asset Value	██████	██████
b	Net working capital	██████	██████
c	**Total RAB**	██████	██████
	(AR = (RAB*WACC) + E +D +T±C)		
d	WACC	████	████
e	Return on assets = *(c*d)*	██████	██████
f	Operating expenses	██████	██████
g	Depreciation and Amortization	██████	██████
h	Tax	██████	██████
i	Claw back	██████	██████
j	**Total Allowable Revenue (AR) = (e+f+g+h+i)**	**1 104 686 060**	**1 193 365 997**

5.2   The paragraphs below provide an analysis of each component of the allowable revenue formula.

Starting Regulatory Asset Base (SRAB)

5.3 In terms of section 4.4.1 of the Tariff Guidelines, the value of the RAB is the inflation-adjusted historical cost or "trended original cost" ("TOC") of plant, property and equipment less the accumulated depreciation for the period under consideration plus net working capital. The formula for this is as follows:

Regulatory Asset Base = Trended Original Cost of Property, Plant & Equipment (v) - Accumulated Depreciation (d) + Net Working Capital (w)

5.4 Using the above formula, the resultant SRAB for transmission as calculated by Sasol Gas is ███████ million for the period 01 July 2015 to 30 June 2016 ("FY16") and ███████ million for the period 1 July 2016 to 30 June 2017 ("FY17").

5.5 NERSA conducted a verification of the Sasol Gas' asset base during the Regulatory Financial Reports ("RFR") audit for the financial year ended 30 June 2014. As part of the Agreed Upon Audit Procedures, the Auditors where to:

- Compare the starting RAB per the RFR to the historical asset base information provided to NERSA by Sasol Gas;
- Enquire from Sasol Gas whether a roll forward algorithm had been built into the ERP system, which is in accordance with NERSA's approved trending principles;
- Compare the calculation of the depreciation and amortisation inflation write-up per the RFR to the related NERSA principles in the RRM, and report any deviations;
- Inspect that the starting RAB as per the RFR is determined on the historical cost basis or NERSA's approved revaluation values and further confirm that licensee utilises the starting RAB as approved by NERSA;
- Obtain representation from Sasol Gas confirming if plant held for future use (mothballed plant) existed and if so that they were itemized separately for exclusion from the RAB.

5.6 The audit report confirmed that there were no deviations or material findings.

5.7 Furthermore, NERSA performed a reasonableness check on the submitted RAB by performing a high level calculation based on the average useful life per asset class. The resultant RAB for FY16 was ▇ ▇ million and ▇▇▇ million for FY17. This is 7% higher than the RAB values submitted by Sasol Gas where trending was done per individual asset item in the ERP system.

5.8 In light of the above, NERSA used the RAB values of ▇▇▇ million for FY16 and ▇▇▇ million for FY17 in its calculation of the allowable revenue.

Depreciation (d) and Amortization

5.9 Section 4.4.3 of the Tariff Guidelines provides that accumulated depreciation (d) is the cumulative depreciation against plant property, vehicles and equipment in service should be calculated on a straight line basis over the economic life of the asset.

This yielded a depreciation and amortisation expense of ▇▇▇ million for FY16 and ▇▇▇ million for FY17.

Net working Capital (w)

5.10 According to the Tariff Guidelines, net working capital refers to the various regulatory asset-base funding requirements other than utility plant in service. This is determined using the following formula:

Net working capital = inventory + receivables + operating cash + minimum cash balance − trade payables.

5.11 The Energy Regulator used the 45-day average working capital figure of ▇▇▇ million for FY16 and ▇▇▇ million for FY17, as provided by Sasol Gas and required by the Tariff Guidelines.

5.12 The principles and policies used to derive the elements of working capital was also verified though the FY14 full-year audit to confirm that they complied with the Tariff Guidelines and Regulatory Reporting Manuals (RRM).

Tax (T)

5.13 Section 4.4 of the Tariff Guidelines provides that the flow-through tax approach is the Energy Regulator's preferred tax methodology. Under this approach, only the current taxes payable are factored into the allowable revenue and recovered during the tariff period under review.

5.14 The Energy Regulator allowed for the flow-through tax payable amount of ▇▇▇ million for FY16 and ▇▇▇ million for FY17 in the allowable revenue calculation. Deferred tax was not taken into consideration since the flow-through tax method does not provide for future income taxes payable outside the tariff period.

Expenses (E)

5.15 The Energy Regulator is required by section 4.3 of the Tariff Guidelines to assess the operating and maintenance expenses using principles such as whether the expenses were prudently incurred and efficient.

5.16 Sasol Gas applied for operating expenses of ▇▇▇ million for FY16 and ▇▇▇ million for FY17. NERSA used the principles as articulated in the approved Sasol Gas Cost Allocation Manual (CAM2) and Tariff Guidelines to assess each expense item as provided by Sasol Gas.

5.17 After this due diligence exercise, NERSA allowed ███ million for FY16 and ███ million. NERSA excluded expenses for other community development and penalties as these were assessed not to be efficient.

Decommissioning Provision

5.18 NERSA allowed a decommissioning provision of ███ million, included in the expenses figure, in line with section 34 (1) (d) of the Gas Act and Regulation 11 (4) and (5) which require licensees to provide for security in respect of rehabilitation obligations.

Weighted Average Cost of Capital (WACC)

5.19 The Energy Regulator used the following formula in its determination of Sasol Gas' WACC:

$$WACC_{(real)} = \left[\left(\frac{E}{Dt + E}\right) * Ke_{(real)}\right] + \left[\left(\frac{Dt}{Dt + E}\right) * Kd_{(real)}\right]$$

Where:

E = equity

Dt = debt

Ke$_{(real)}$ = real cost of equity derived from the Capital Asset Pricing Model (CAPM)

Kd$_{(real)}$ = the post tax real cost of debt

Table 4: 2015/16 WACC calculation summary

		NERSA Calculation	Sasol Gas Calculation
	Cost of Equity (Ke=Rf+(MRP*beta)		
a	Real Market Risk Premium (MRP)	5.80%	7.65%
b	Real Risk free rate (Rf)	3.99%	4.05%
c	Beta	███	███
d	Small Stock Premium	███	███
e	*Real Cost of Equity (Ke) = ((b+(a*c)+d))*	███	███
	Cost of Debt		
f	Nominal Cost of Debt (kd)	███	███
g	*Post tax Real cost of debt (kd)*	███	███
h	Debt ratio	███	███
i	Equity ratio	███	███
j	*Real WACC = ((e*i)+ (g*h))*	███	███

Table 5: 2016/17 WACC calculation summary

		NERSA Calculation	Sasol Gas Calculation
	Cost of Equity (Ke=Rf+(MRP*beta)		
a	Real Market Risk Premium (MRP)	5.80%	7.65%
b	Real Risk free rate (Rf)	3.99%	4.05%
c	Beta	▮	▮
d	Small Stock Premium	▮	▮
e	*Real Cost of Equity (Ke) = ((b+(a*c)+d))*	▮	▮
	Cost of Debt		
f	Nominal Cost of Debt (kd)	▮	▮
g	*Post tax Real cost of debt (kd)*	▮	▮
h	Debt ratio	▮	▮
i	Equity ratio	▮	▮
j	*Real WACC = ((e*i)+ (g*h))*	▮	▮

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5.21 The mark-to-market risk free rate of a selected 5 to 10 year government of South Africa bonds were used for the expected risk free return (Rf) in the estimation of cost of equity. This yielded a real risk free rate of 3.99%.

5.22 The market return (Rm) was calculated using the JSE ALL Share Index, converted from a nominal to real value for the previous 25 years (ended 30 June 2014) as prescribed by the Tariff Guidelines. The average month-to-month CPI over the same period (ended 30 June 2014) was used. This yielded a real market risk premium (MRP) of 5.80%.

5.23 Sasol Gas used 32 years (384 months) from March 1982 to February 2014 to calculate a risk free rate of 4.05% and an MRP 7.65%. As part of the reasons, it stated that ideally the period should not be shorter than the useful life of the pipeline assets. Sasol Gas contends that this would ensure that the return expectations are commensurate with the investment horizon. A long MRP would also allow for all possible economic situations

and scenarios to be captured in the calculation of the MRP estimate. Sasol Gas further stated that this principle is consistent with frequently cited International practice by Ibbotson Associates.

5.24 The beta (β) was determined by proxy. As a proxy, the average of six gas pipeline companies chosen by the Energy Regulator and listed on stock exchanges must be used as per the Tariff Guidelines. The following US companies were used by the Sasol Gas as proxies:

- AGL Resources Inc[2].
- UGI Corporation
- South Jersey Industries
- WGL Holdings Inc.
- The Laclede Group
- Piedmont Natural Gas Company Inc.

5.25 The beta was calculated using the Hamada methodology. NERSA used the same companies as those selected by Sasol Gas except for AGL Resources that was replaced by NERSA with New Jersey Resources Inc. because its data was not available on Bloomberg.

5.26 However Sasol Gas used the following data to derive a beta of ▮▮▮▮:
- weekly returns observations;
- an estimation window using returns measured over the five-year period. In the previous tariff application, Sasol Gas used a two-year period; and
- raw equity betas which were not adjusted for proxy companies' tax.

5.27 Although the Tariff Guidelines do not specify the data inputs to be used to estimate the beta , it has been NERSA's standard in piped-gas to use:
- weekly returns observations;

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[2] The data for AGL Resources Inc. is not available and NERSA replaced it with New Jersey Resources Inc.

- an estimation window using returns measured over the two-year period; and

- adjusted betas which were adjusted for proxy companies' marginal tax in line with the Hamada method formula.

5.28 The NERSA approach yielded a beta of ███.

5.29 In the determination of return on equity (Ke), NERSA allowed a small stock premium (SSP) of ███ in line with international standards. The Tariff Guidelines, although it allows for adjustments to the WACC to reflect the real risk of the cost of equity, it does not specify the formula to be used. Therefore, this SSP adjustment is based on a research study conducted by PWC South Africa in 2009/10. The conclusions of the study are in line with valuation methodologies used by leading international valuation experts such as Professor Aswath Damodaran, who recommends that smaller companies should add a premium to their Ke.

5.30 A cost of debt (Kd) of ███ as provided by Sasol Gas was used to calculate the post tax real cost of debt of ███ for FY16 and ███ for FY17.

5.31 It must be noted that the sources of information prescribed by NERSA were used as data sources for calculating the WACC.

Claw-back

5.32 NERSA calculated an under recovery claw back of ███ million that will be added to the current allowable revenue. This figure is 90% lower than Sasol Gas' calculation of an under recovery of ███ million. In the Sasol Gas calculation, the cost of equity (ke) was revised. This is not consistent with previous NERSA tariff decisions which advocate for the use of the same cost of equity that was used at the application stage. It is NERSA's view that the shareholders' view of their cost of investment cannot be clawed back. The cost of debt should be the actual debt used during the period. NERSA did not recalculate the WACC used when the transmission

tariffs were approved because Sasol Gas does not have any claw back on the cost of debt. Therefore there was no impact on the WACC.

5.33 Table 6 below provides a summary of NERSA's claw back calculation for the FY14.

Table 6: NERSA Claw-back Calculation Summary

Clawback Calculation	2014 Approved Allowable Revenue	NERSA 2014 Actual Allowable Revenue	ZONE 1 Actual 2014 Allowable Revenue	ZONE 2 Actual 2014 Allowable Revenue	ZONE 3 Actual 2014 Allowable Revenue
	R	R	R	R	R
Total RAB					
WACC					
Return on assets (RAB*WACC)					
Operating Costs (E)					
Depreciation & Amortisation -(D)					
Taxation					
Decommissioning Provision					
Allowable Revenue					
Volumes (Actual) - GJ	169 911 087				
Tariffs (Actual) - R/GJ			5.26	16.17	5.73
Tariffs (Approved) R/GJ			5.09	14.20	5.61
Tariff under /(over) recovery - R/GJ			0.17	1.97	0.12
Volumes sold (26 March 2014 - 30 June 2014) - GJ					
Clawback - AR under/ (over) recovered					

6. TRANSMISSION TARIFF ZONES

6.1 Sasol Gas' transmission tariff is divided into three zones namely:

   a) Zone 1 : Secunda-Gauteng-Sasolburg network – natural gas

   b) Zone 2: Witbank-Middelburg network – methane-rich gas; and

   c) Zone 3: KwaZulu-Natal network – methane-rich gas.

6.2 The tariff per zone is determined by calculating the allowable revenue per zone divided by the budgeted volume commitment for the zone.

6.3 The split of the allowable revenue elements into zones was done as per the approved CAM2 principles. The Tariff Guidelines allows for this type of a tariff structure.

6.4 The application of these principles yielded the following allocation drivers:

Table 7: Allocation Drivers for Allowable Revenue elements

COMPONENT	ZONE 1		ZONE 2		ZONE 3	
	2016	2017	2016	2017	2016	2017
ASSETS %						
OPERATING EXPENSES %						
VOLUME (MGJ/a)						

6.5 NERSA application of the above approach yielded the following tariffs applicable to each zone:

Table 8: Allowable Revenue Calculation per Zone - 01 July 2015 to 30 June 2016

Zone	Allowable Revenue (R)	Volume (GJ)	Tariff R/GJ
1 Gauteng			5.55
2 Secunda-Witbank-Middelburg			18.38
3 KZN			5.68

Table 9: Allowable Revenue Calculation per Zone - 01 July 2016 to 30 June 2017

Zone	Allowable Revenue (R)	Volume (GJ)	Tariff R/GJ
1 Gauteng			5.55
2 Secunda- Witbank- Middelburg			18.11
3 KZN			5.88

7. CONCLUSION

7.1 The NERSA calculation is lower than Sasol Gas' calculation by between 5% to 9% for FY16 and 6% to 8% for FY17.The tables below give a comparison of the NERSA calculated tariffs against Sasol Gas calculated tariffs:

Table 10: Allowable Revenue Calculation per Zone - 01 July 2015 to 30 June 2016

Zone	NERSA Tariff R/GJ	SASOL Tariff R/GJ	Variance %
1 Gauteng	5.55	6.07	9%
2 Secunda-Witbank-Middelburg	18.38	19.40	5%
3 KZN	5.68	6.16	8%

Table 11Allowable Revenue Calculation per Zone - 01 July 2016 to 30 June 2017

Zone	NERSA Tariff R/GJ	SASOL Tariff R/GJ	Variance %
1 Gauteng	5.55	6.01	8%
2 Secunda-Witbank-Middelburg	18.11	19.45	7%
3 KZN	5.88	6.26	6%

7.2 An analysis of the above tariffs indicate that Zone 2 (Witbank-Middelburg network) will pay the highest tariff compared to Zone 1 (Secunda-Gauteng-Sasolburg network) and Zone 3 (KwaZulu-Natal network), despite having a shorter distance from supply than Zone 3 and a lower asset base allocation than Zone 1.

7.3 This is due to the fact that under the cost of service approach, volume is the main driver of tariffs. The higher the volume which cover the fixed assets, the lower the tariff per gigajoule.

7.4 NERSA's previous decisions in piped-gas tariff applications have been to monitor and approve the tariffs if the difference between the NERSA assessment and application is less than 10%.