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ECONOMIC BENEFITS OF MOZAMBICAN GAS FOR SASOL AND SOUTH AFRICAN GOVERNMENT[1]

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Abstract

The Sasol Pande Temane natural gas project was Mozambique's first large-scale natural resource project. A review of the project conducted by the Centre of Public Integrity (CIP) found that the project had resulted in lost revenue for the Mozambican government and thus the expected benefits were not fully realised. The question that then arises is the extent to which the benefits from the project have been internalised by Sasol and or the South African Government. This paper (like the briefing note for Oxfam) addresses the impact of the gas project on Sasol and South Africa by considering the prices that South African customers paid for Mozambique gas; the economic benefits to South Africa, including to the Government of South Africa; the economic benefits flowing to Sasol from the Pande Temane project and the structure of the regulated price cap including applicable price tariffs. The analysis shows that there are very substantial benefits accruing to Sasol in the form of high profits resulting from the low cost of the Mozambican gas and the high prices that it was allowed to charge by the regulator, NERSA.

JEL Classifications

D72, L1, L43, L51, L71

Keywords: natural gas, regulation, lobbying, monopoly

[1] The paper draws on a briefing note funded by Oxfam as a contribution to a project reviewing the impact of Sasol Pande Temane natural gas project on South Africa and Mozambique. The views contained in this paper are entirely those of the authors.

1 Introduction

The report on the Sasol Pande Temane natural gas project ("the gas project") published by the Centre for Public Integrity (CIP) in 2013 provided a detailed account of lost government revenue from Mozambique's first large-scale natural resource project. CIP also published a short analysis of a flawed World Bank evaluation of their support to the Sasol Pande Temane project. [2] The main findings of the original report were re-launched by Oxfam in South Africa in July 2015. The report highlighted three main reasons for low revenue payments to the Government of Mozambique:

- the removal of production sharing within the 2000 contracts;
- the exceptionally low price at which Sasol buys Pande Temane gas as established in the 2002 gas sales agreements; and
- large deductions related to capital overspend on the original project and expenses from Sasol activity in other concessions in Mozambique.

A written response from Sasol and a statement in Parliament by former-Minister Bias did not challenge any of the three fundamental critiques and rather focused on the data used in the analysis.

The CIP report has been updated with an expanded scope to include the impact of the Gas project on Sasol and the South African Economy. This paper (like the briefing note for Oxfam) addresses the impact on Sasol and South Africa by considering the prices that South African customers paid for Mozambique gas; the economic benefits to South Africa, including to the Government of South Africa; the economic benefits flowing to Sasol from the Pande Temane project and the structure of the regulated price cap including applicable price tariffs.

The paper uses a combination of desktop research, secondary and primary data gathering and analysis. The desktop research consolidates publicly available information about Mozambique gas pricing in South Africa to review key regulatory issues. The desktop study and secondary data analysis relies on three main sources.

First, NERSA documents on the regulatory framework, pipeline tariff and gas prices are reviewed. The Nersa regulatory decisions are the main source for the natural gas price build up in South Africa. The publicly available decisions do not allow for a complete time series analysis of the prices and tariffs, and as a result, there are some gaps in the pricing data that is analysed. In addition, the market assessment of the adequacy of competition commissioned by Nersa from Genesis Analytics and the ex-post regulatory assessment produced by Nersa are referred to.[3]

[2] CIP (2013). "Pande Temane Gas exports to South Africa: First major extractive sector project fails Mozambique". Good Governance, Tranparency and Integrity –edition No. 17/2013.

[3] Genesis Analytics (2015) 'An assessment of the adequacy of competition in the South African piped-gas industry'; and Nersa (2016). 'Final ex-post regulatory impact assessment of the Agreement Concerning the Mozambican Gas Pipeline between the Government of the Republic of South Africa and Sasol Limited

Second, non-confidential documents from the Gas User Group vs Sasol Gas and NERSA case (including available data) is drawn on. This data is analysed to determine the prices paid for gas in South Africa and provide a breakdown of the tariffs that are applicable.

Third, Sasol annual reports and available data are considered as part of critically assessing the economic benefits generated from the marketing and sale of the Mozambican gas. Sasol initially detailed segmental reports on the Sasol Gas business unit for the period 2003-2014, then from 2015 onwards the business units were changed and Sasol's gas activities were reported together with coal and oil under the newly formed "Exploration and Production International" business unit. [4] The change in the reporting for Sasol has meant that disaggregated data on the performance of Sasol Gas is no longer publicly available. As a result, a detailed analysis of the Sasol's gas business is conducted for the period 2004 to 2014. Where data is available the analysis continues to 2016. The publically available information was supplemented with interviews of key individuals involved in the negotiations of the Mozambique gas pipeline agreement. [5]

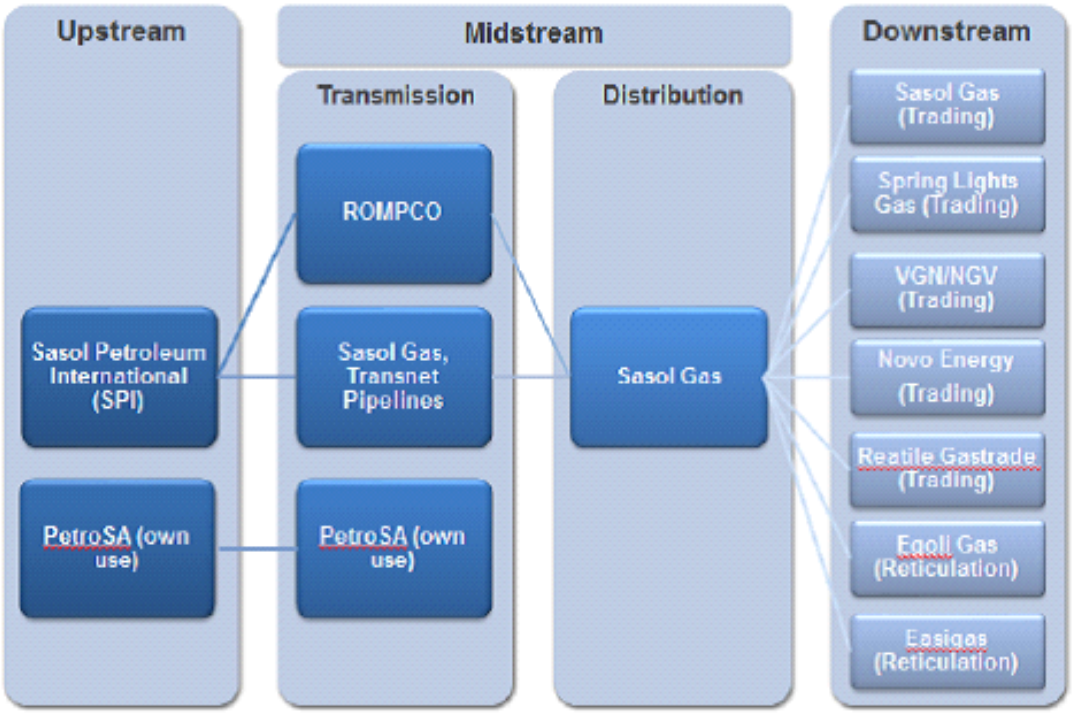
The rest of the note is organized as follows, Section 2 briefly describes the piped gas market in South Africa. Section 3 focus on the pricing of gas by Sasol to customers in South Africa. Section 4 considers the benefits of the gas project to South Africa, including implied tax revenues. Section 5 focuses on the impact of the gas project on Sasol, and Section 6 concludes.

2 The Natural Gas Market in South Africa

The piped gas supply chain in South Africa is made up of four functional levels. The upstream level for exploration and production of piped gas, two midstream levels for transmission and distribution of gas and the downstream level for trading and reticulation (Figure 1). There are two players in the upstream market in South Africa, namely Sasol Petroleum International and PetroSA, however, PetroSA only caters for internal use and does not make use of Mozambican gas. PetroSA is also located on the southern coast and is constrained in terms of feedstock. Sasol is dominant, as defined in market analyses undertaken for, Nersa.[6]

[4] Sasol (2015). http://www.sasol.co.za/investor-centre/new-operating-model
[5] Sasol financial years end on 30 June of every year.
[6] For example, Genesis Analytics (2015).

Figure 1: Piped Gas market structure in South Africa



Source: Genesis Analytics (2015).

There are three transmission pipeline operators in South Africa. Rompco which operates the pipeline from Temane in Mozambique to Secunda in South Africa, is the joint venture by Companhia Mocambiçana de Gasoduto S.A., the South African Gas Development Company (SOC) Limited (iGas), and Sasol. The other two transmission pipelines operate entirely in South Africa. Sasol owns and operates the transmission pipeline facilities in Gauteng, Mpumalanga and the Free State, Transnet owns and operates the Lily pipeline between Secunda and Kwa-Zulu Natal.

Sasol owns the only distribution network in the country in Gauteng, Mpumalanga, and the Free State. Distributors are granted an exclusive geographic area for distribution operations, based on their ability to supply present and future potential consumers at competitive prices and conditions. [7]

There are currently seven gas traders in South Africa namely, Sasol, Spring Lights, Virtual Gas Network, NGV gas, Novo Energy, Reatile Gastrade and Columbus Steel. Prior to the Gas project Sasol Gas was the only gas trader. Sasol is by far the largest gas trader, the 2015 annual report noted that Sasol was responsible for 94% of the gas sales to end customers.

The implication is that Sasol is in a dominant position with substantial **market** power, especially in the inland market in South Africa where most of the demand from industrial users. This position is reinforced by the fact that there are evidently problems in the third-party access to Rompco

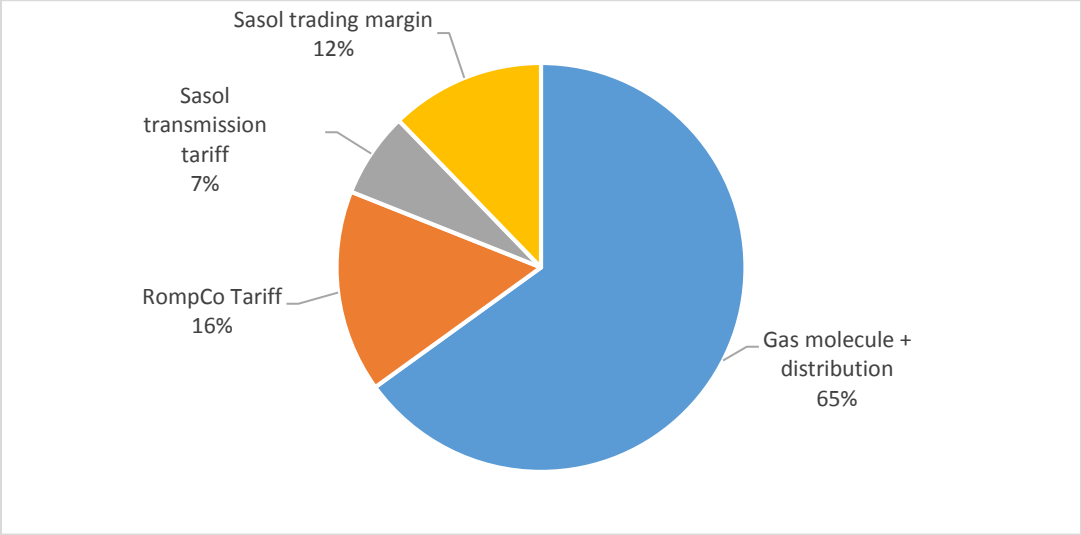
[7] Gas Act (No.48 of 2001), s21(1) (n)

anticipated in the regulations being realised in practice. Sasol's position is strengthened by its control over important distribution infrastructure.

3 Pricing of gas to end customers in South Africa

Sasol sells the Mozambican gas to its downstream businesses, to gas traders, reticulators and industrial and commercial customers mostly based in the inland provinces including Gauteng, Mpumalanga and the Free State. The price to Sasol's end customers (industrial and commercial users) is made up of four components, the price of the gas molecule plus the transmission tariffs (Rompco and Sasol) plus a distribution tariff plus a trading margin (Figure 2).

Figure 2: Breakdown of Sasol gas price ($/GJ) to end customers, 2014/15



Source: Nersa Reasons for decision http://www.nersa.org.za/#

Notes: The price of the gas molecule, the transmission tariffs and trading margin are subject to the approval by the National Energy Regulator of South Africa (Nersa) and the price and tariffs are sourced from the regulator's various "Reasons for decisions". While Sasol can determine its own distribution tariff. As such the distribution tariff data is not publicly available. Nersa also publishes the prices paid by gas customers including all the distribution tariff. To work out the Gas Molecule and distribution figure we have subtracted the Rompco tariff, Sasol's transmission tariff and Sasol's trading margin.

3.1 Regulation of the different components of the price

Price of the gas molecule

There are significant differences between the pricing regimes which applied in the first decade, from 2004 to 2014, and that which is in place since March 2014. The price regime under the first decade, discussed in more detail below, provided very substantial latitude to Sasol to price at the highest possible levels which allowed for differentiating between customers in order to induce them to switch from alternative fuels. This supported the uptake by customers of gas in line with one of the objectives of the South African government. In effect, large customers who had to make

substantial investments to switch from alternative fuels such as coal could be offered very attractive prices (as Sasol shared, through the discounted price, the investment costs). This meant some customers getting lower prices even than independent traders buying large quantities. There was also a maximum price, benchmarked against prices in selected European countries.

The regime in place from 2014 moved to a maximum price cap, formed of a combination of a cap on the gas energy price (effectively the price at the end of the Rompco pipeline) plus regulation of further transmission and reticulation charges which could be added.

The change meant that consumers which had benefitted from relatively lower prices relating to the sharing of the costs of investing in switching to gas saw prices increase substantially, while those who were not switching and had reason to favour gas (and were charged the highest prices under Market Value Pricing) saw somewhat lower prices.

The regime from 2004 to 2014

The pricing up until March 2014 was in terms of the price to the customer (after costs of transmission and distribution). It was known as 'Market Value Pricing'. This was not a build-up but allowed pricing based on the maximum willingness of customers to pay. It yielded very different prices to different customers. The pricing over this period was under the Sasol Gas Special Regulatory Dispensation regarding exclusive rights to Rompco's infrastructure (mainly the pipeline) for a period of 10 years from the first gas received by Sasol (from 2004 to 2014). Sasol Gas' special regulatory dispensation came to an end on 25 March 2014. After this date, Nersa is mandated by the Gas Act, 2001 to approve maximum prices for all classes of customers of piped-gas and enforce non-discrimination. The requirement to approve maximum prices is contingent on Nersa determining that "there is inadequate competition as contemplated in Chapters 2 and 3 of the Competition Act, 1998".

During the special dispensation (between 2004 and 2014) in line with the provisions of the "RSA Regulatory Agreement", Sasol priced using the 'market value pricing' (MVP) principle defined in the agreement as the determination of gas price in terms of:

- the cost of the alternative fuel delivered to the customer's premises or anticipated place of use (in the case of Greenfields Customers); plus
- the difference between all the operating costs of the customer's use of the alternative fuel and all the operating costs of using natural gas; plus
- the difference between the Nett Present Value (NPV) of the capital costs of the customer's continued use of the alternative fuel and the NPV of the capital costs involved in switching to natural gas, as would be reflected in the customer's accounts.

Schedule One to the RSA Agreement indicated that a price above the MVP would constitute non-compliance and a breach of Sasol Gas's licence conditions. This pricing methodology produced

a price cap for Sasol Gas and it could negotiate with individual customers. The discount is based on annual quantity purchased and there were three categories of discounts.[8]

Clause 8 of Schedule One of the Agreement also provides for a price cap on the average gas price that Sasol charges customers using up to ten (10) million gigajoules of gas per annum. The mechanism places a limit on Sasol's revenues from gas sales compared to a benchmark established using prices of several European countries, known as the European Benchmark Price (EBP) comprising of the Netherlands, Spain, Belgium, Italy, France and Germany. The Sasol Volume Weighted Average Gas Price for customers may not exceed the EBP. [9] In effect, individual customer prices could be above the EBP without any consequences and Sasol could easily keep the weighted average price low through lower prices for internal sales.

The MVP was the maximum price which Sasol Gas can charge while just attracting different customers to switch to piped gas. Note, however, that attracting customers to switch meant Sasol Gas bearing some the costs in terms of a lower price to the customer (this was necessary for some customers to switch from alternative fuels to gas).

At no point was the weighted average price above the EBP, although the weighting means that the computed average price is almost entirely due to large customers which includes the prices charged to other Sasol business and customers which are associated with Sasol itself (such as Spring Lights Gas in which Sasol had a substantial shareholding up until 2013).

Nersa received a number of complaints from customers about the implementation of the regulated price and Nersa's investigations suggested that there were discrepancies in Sasol Gas' implementation. [10] The complaints alleged that Sasol was engaging in excessive pricing, price discrimination, refusals to supply and the use of incorrect alternative fuel energy in the calculation of the gas price. Nersa investigated the complaints, and most of the excessive pricing complaints were resolved leading to a reduction in the price of gas.[11] Nersa has also acknowledged that the price capping mechanism employed during the MVP pricing regime was ineffective due to the use of high cost European countries in the basket. The countries that are in the basket were chosen simply because they were the countries with transparent gas pricing at the time that the Schedule One Agreement was negotiated.[12]

Maximum prices from March 2014

From March 2014, Nersa regulated the maximum gas energy price (or the price of the gas molecule) plus a build-up of the transmission tariffs, distribution tariff and a trading margin. This was in line with the proposed methodology for the calculation of maximum gas prices which was in set out in 2011. The approach sets the maximum gas price against a basket of alternative fuels in South Africa. However, it does not mean that the alternative fuels are good substitutes.

[8] Nersa (2006) 'Price Regulation of Piped-Gas 2005/6'
[9] Nersa (2006) 'Price Regulation of Piped-Gas 2005/6'
[10] Nersa (2007) 'Market Value Pricing Explanatory Notes'
[11] Nersa. (2016). Ex-post regulatory impact assessment
[12] Interview notes

The maximum piped gas price is based on benchmarks of alternative fuels while the tariffs are determined on a rate of return basis. Using a yardstick approach to determine maximum prices is a recognised method of price regulation, however, its outcome depends on the suitability of the yardstick chosen. The maximum gas price weights the prices of alternative fuels based on the total energy consumption of coal, diesel, electricity, heavy fuel oil (HFO) and LPG. This means that coal has a weight of 36.2%, diesel 24.8% and electricity 37.1% with HFO and LPG collectively accounting for just 3%.

It is thus critical to the outcome what prices are used for coal, diesel and electricity in the calculation of the yardstick price. In each case, the prices used have been relatively favourable to Sasol in that they are not prices of substantial industrial customers in South Africa.[13]

- The coal price that is used in the determination is the export free-on-board thermal coal price at Richards Bay Coal Terminal (converted into Rands per gigajoule). This is not the coal price that users of gas are likely to have been using as an alternative for two reasons. First, South Africa exports high quality coal while it consumes lower quality coal, this translates into much higher export prices than domestic prices. Second, most industry users are inland and the inland coal price (for export grade coal) is lower than at Richards Bay by the transport cost to transport coal to the coast. There are therefore significant price differences for coal consumed locally and that of export coal.

- The diesel price used is the basic fuel price for diesel, per litre, converted to Rands per gigajoule. The data is sourced from the Department of Energy. As the inland diesel price is higher than the (coastal) BFP this is lower than it would be for inland consumers. However, the weight of diesel reflects national energy use (mainly for road vehicles) rather than the proportion of industry users that use diesel.

- The electricity price is the Eskom average tariff approved by the Energy Regulator, per kWh converted into Rands per gigajoule. The average tariff approved by the Energy Regulator is an average of all Eskom's customer groupings. Large industrial customers (a substantial proportion of consumers of piped gas) pay less than the average Eskom Tariff. This means that the electricity indicator used in the calculation of maximum gas prices is higher than it would be had an average price for industry users been adopted.

Nersa approved, maximum gas prices for the prescribed customer categories for a multi-year period from 26 March 2014 to 30 June 2017 (Table 1). The gas price approved in March 2013 was applied from 26 March 2014 and is adjusted on a quarterly basis by the changes in the actual maximum gas energy price calculated in terms of the approved gas energy formula lagged by one quarter until June 2017.[14]

[13] See also: P. Mondliwa and S. Roberts (2014) 'Fuelling the economy: a critical review of liquid fuels regulation in South Africa', *Journal of Economic and Financial Sciences*, 7, special issue: 547-568.
[14] Nersa (2014), Reasons for Sasol Gas maximum price application for 2014-2017.

Table 1: Approved Maximum Piped Gas Price, 2013

	GJ p.a	Gas Energy Price (GE) - R/GJ forecast 2014	Volume discounts %	Volume discounts (R/GJ)	Nersa approved (26/3/2013)
Class 1	< 400	128	7.50%	9.6	R 108.86
Class 2	401 - 4 000	128	7.50%	9.6	R 108.86
Class 3	4 001 - 40 000	128	15.00%	19.2	R 100.04
Class 4	40 001 - 400 000	128	22.50%	28.8	R 91.21
Class 5	400 001 - 4 000 000	128	30.00%	38.4	R 82.38
Class 6	> 4 000 000	128	37.50%	48	R 73.56

Source: Nersa reasons for decision

80% of Sasol Gas customers (by number, not volume) were expected to receive price reductions after the implementation of the approved maximum prices.[15] However, in terms of volume, it is evident that while the large customers that faced increases were only estimated to be 12% of the number of customers, they accounted for 59% of the market when volumes were taken into account.[16]

As expected, from 2014 to 2015 the final prices paid by Sasol Gas' end customers in the Gauteng province (including the transmission tariffs, distribution and trading margin) have tended to decrease for smaller customers while the larger customer prices increased (Table 2).[17]

Table 2: Average prices paid by Sasol Gas end customers in Gauteng

	Class 1	Class 2	class 3	class 4	Class 5
2012	158.8	168.4	148.6	98.8	63.7
2013	203.9	196.4	168.5	112.6	82.2
2014	142.5	135.6	122.0	89.7	64.3
2015	138.2	129.1	121.4	97.0	74.9

Source: Nersa decisions on aggregate prices

When the weights and prices of alternative energy sources are used in the formula the resultant gas prices differ significantly for the March 2013 calculation. Using weights for energy sources based on industry usage has the effect of increasing the coal and electricity weights substantially to 42.8% and 50%% respectively, while the diesel weight falls to just 6.6%.[18] As diesel is by far the most expensive fuel this reduces the maximum price substantially, by 9% (Table 4). Second,

[15] Creamer, T (2013) 'Big Manufacturers Turn to Courts Amid Unhappiness with-Gas Pricing Sasol Contract Talks' Available: www.engineeringnews.co.za
[16] Nersa (2016). Ex-post regulatory impact assessment
[17] These prices are the final prices paid by the customer including tariffs, unlike the price in figure two which is the price of the gas molecule alone.
[18] The weights are based on industry consumption of the listed alternative fuels.

we consider the effect of using a local coal price rather than the export FOB Richards Bay price which reduces the gas price by 8%.[19] Third we consider the impact of using an industrial electricity tariff rather than the average Eskom tariff and the gas price is reduced by 19%. Taken together, these changes would reduce the maximum gas price calculated following the Nersa methodology for 2014 from R118.10 to R65.46 (Table 3).

Table 3: Illustrative calculation of maximum gas prices under different weights and prices for alternative fuels

	Weights-A	Nersa Price (R/GJ)	Weights-B	Price-A (R/GJ)
Coal	37%	10.46	42.8%	1.34
Diesel	24%	43.96	6.6%	12.3
Electricity	37%	60.57	50%	51.03
HFO	1%	1.48	0.013%	0.17
LPG	1%	1.64	0.55%	0.90
Weighted Maximum	**100%**	**118**	**100%**	**65.46**

Soures: Nersa (2014) and Department of Energy (2014)

Notes and sources: Weights A-are the weights used by Nersa in the March 2013 calculation. The weights are based on South Africa's overall consumption of the selected energy indicators for 2008. Weights B-calculated based on the industry consumption of the selected energy indicators, for 2013. The data was sourced from the Department of Energy's statistics: http://www.energy.gov.za/files/energyStats_frame.html Nersa price: is the maximum gas price for 2014 as per the Nersa methodology and benchmarks. Price-A: is calculated using the formula stipulated in the Nersa maximum price methodology but substituting the export FOB coal price with the local FOR price and the average Eskom tariff with the industrial tariff. Both the FOR and the Industrial electricity tariff are sourced from the DOE South African Energy Price Report, 2014 and the gas price is calculated using Weights-B.

Transmission tariffs

Nersa allows licensees to choose from a menu of 6 methodologies for calculating the transmission tariffs including rate of return regulation; incentive regulation; hybrids of rate of return and incentive regulation approaches; profit sharing or sliding scales; and tariffs based on a discounted cash flow model of allowable revenue. The principle is that the regulations must allow an efficient operator to recover its prudently incurred costs and make a profit commensurate with risk.[20] Both Transnet and Sasol use the rate of return methodology in their application for transmission tariffs.

The rate of return methodology is applied using the allowable revenue formula set below:

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

Where:

AR = allowable revenue

[19] Department of Energy. 2012, South African Energy Price Report. [Online] Available: www.energy.gov.za/files/media/explained/Energy-Price-Report-2012.pdf

[20] Baleni, P. and Maseti, N. (2014). Gas Industry overview, regulation and challenges. Presented at the PCE Briefing, 9 September 2014.

RAB =Regulatory asset base calculated as the inflation indexed original cost net of cumulative depreciation and cumulative amortisation write up.

WACC = effective weighted average cost of capital, as calculated by Sasol (in real terms)

E=efficient operating and maintenance expenses

T= tax expense

D=Depreciation for the tariff period under review, including amortisation of the inflation write up.

C= "claw back" factor to correct for differences between actual values and assumptions using the calculation of the tariff for the preceding period.

The allowable revenue is then divided by the volumes to arrive at a Rands per gigajoule tariff. A tariff is calculated for each of the three zones.

The Rompco tariff is determined using the discounted cash flow methodology.

Distribution Tariff

The gas distribution tariffs are not regulated. Sasol is the only licencee that operates a distribution network and submits the distribution charges to Nersa with the transmission tariff applications. These values are not made available to the public.

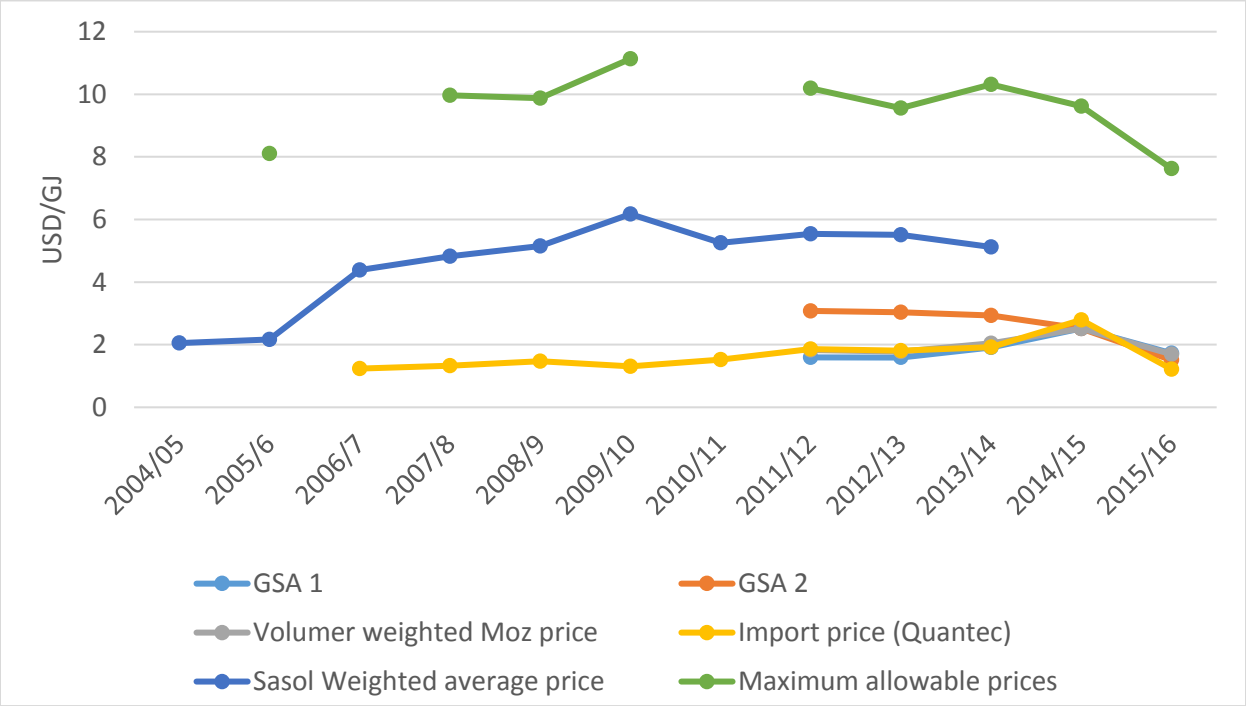
Trading Margin

The trader's margin (as a percentage) is calculated in nominal terms. The nominal Weighted Average Cost of Capital (WACC) of the trader is used as the trading margin (%), since all other expenses are allowed to the licensee as a pass-through. In so doing, the Energy Regulator will ensure the return on investment as derived in the cost of capital calculation explained below is achieved."

3.2 Prices

The regulation discussed above sets a cap on the prices that can be charged by Sasol and other traders in South Africa. The average prices paid by Sasol's customers are well below the Maximum gas price set by the regulator (Figure 3). The natural gas import price calculated from the customs data, more or less matches the weighted average price reported by CMH. This is important for two reasons. First, if the two prices varied significantly then that could be a sign of trade mispricing. Second, the import price is a reasonable proxy the price paid by Sasol for gas molecules for the longer period.

Figure 3: Weighted average prices and the cost of sales of gas



Source: Nersa (2014) and Quantec

Notes: **GSA 1**: natural gas prices paid by Sasol as per the first Gas Supply Agreement. **GSA 2:** natural gas prices paid by Sasol to Mozambique as per the second gas supply agreement. **Volume weighted Moz price** is the volume weighted average of GSA 1 and GSA 2 (this price is very similar to the import price). **Import price**: this is the value of natural gas imported by South Africa from Mozambique divided by the import volumes as captured by customs. The data is sourced from Quantec trade data. The Rands per gigajoule import price is calculated by first converting the quantities from kilograms to gigajoules,[21] then the import value in Rands is divided by the gigajoule value for liquefied natural gas (HS27111100). **Sasol weighted average price** line represents the weighted average prices for the gas molecule paid by Sasol's customers (i.e. excluding all the transmission tariffs and trading margin). The data is sourced from Nersa's regulatory decisions. **Maximum allowable price:** is the price cap set by Nersa for the gas molecule. Note that there was one price based on the EBP for the first 10 years.

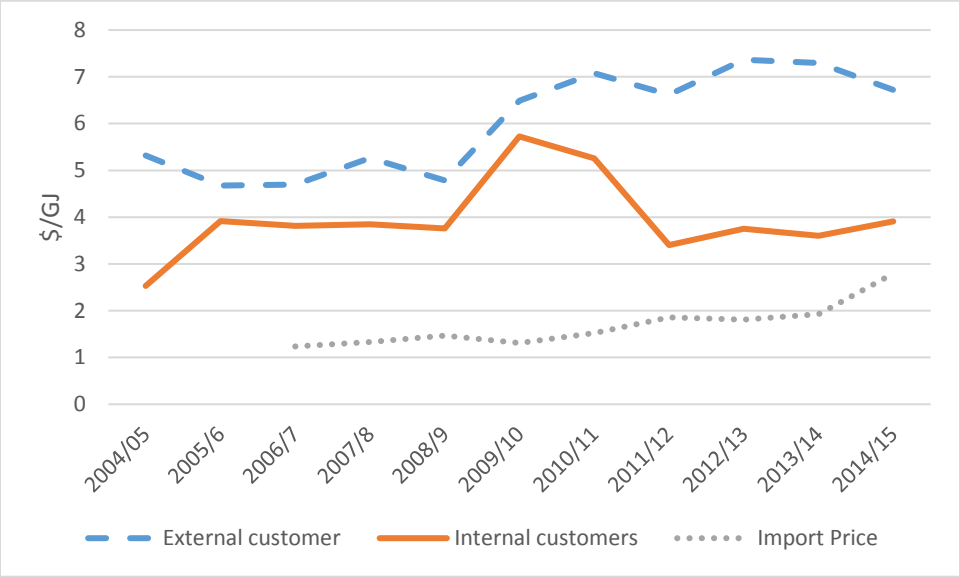
Over the period 2007 and 2014 the weighted average price for the gas molecule paid by all these customers was between 166% and 371% higher than the import price of the gas, excluding the transmission cost from Mozambique (Figure 3). However, average prices across these customers provide a very misleading picture, especially after 2010. It is important to note the very different prices to external customers and those 'internal' to Sasol (Figure 3). Sasol's largest customer of the gas is its own downstream businesses, which together purchased an average of 53% of the Mozambican gas from 2004 to 2015. In the latter years (2012-2015) of the period Sasol downstream businesses have consumed 62% of the total Mozambican gas.[22]

The external prices were on average 57% higher than the price charged to the internal customers over the whole period, while in the later years of 2012-2014 the external prices were double the internal prices. While some of this difference can be accounted for by higher distribution costs,

[21] See conversions here www.sbr.gov.bc.ca/documents_library/shared_documents/Conversion_factors.pdf
[22] Sasol annual reports

which would have been present prior to 2012, the opening gap is due to Sasol both favouring its internal users and sharply increasing external prices from 2012.

Figure 4: Average natural gas prices to internal and external customers



Source: Sasol Analyst books and Quantec

Notes: The external customer price is calculated by dividing the total external revenue by the external sales volumes. Internal customer price is calculated similarly to the external price. See note above for the import price. Sasol changed the aggregation of divisions in business units from 2014 onwards. Before 2013, segment reports for Sasol Gas as a business unit were are available in the annual reports, however from 2014 onwards Sasol's Gas activities were included in the Exploration and Productions International business unit, which incorporates gas oil and coal interests.

The advantage of the lower price of gas paid by the downstream internal businesses benefits Sasol shareholders. Sasol's biggest internal customer is Sasol Synfuels which manufactures petroleum products using the gas to liquids technology. All the petroleum products that are produced by Sasol are sold at the regulated import parity price. That means that the benefit of the lower cost of gas for Synfuels is not passed on to end consumers. Similarly, the base chemicals and performance chemicals sold by Sasol tend to be priced at import parity levels and so price benefits are not passed onto local customers of these either.

Within the external customers there have also been very substantial differences in prices, as discussed below. From 2011, as well as there having been big differences *between* groups of external customers, the average prices increased very notably.

Prices to distributers and reticulators

The RSA Agreement set out both minimum and maximum prices for distributors and reticulators. The prices to the distributers and reticulators was referenced to the reseller prices and at the time that the Agreement was drawn up the only reseller was Egoli Gas. Upon the entry of other resellers, Sasol allegedly refused to acknowledge them as resellers and as a result they were not able to access the favourable reseller price.

In effect, the pricing regime has allowed high prices relative to the costs of the gas to Sasol. In addition, the government of South Africa has provided support in terms of participating in the pipeline to serve the inland market but the benefits of this government support do not appear to be being passed on to local customers in South Africa.

The rationale for such a regime is that the attractive prices to the seller will encourage investment in bringing additional gas supplies to market. This has not materialised and although, in principle, third party access should now be provided to the Rompco pipeline it has not proved to be the case in practice.

3.3 Costs

The main cost incurred by Sasol is the cost of importing gas from Mozambique. Sasol pays higher prices for the incremental purchases of gas in Mozambique. This means that there is a substantial gap between the average price paid and the price at the margin for additional purchases, which can provide a cost-based justification for higher prices on (notionally additional) external sales and lower prices on internal sales. It protects the very large profit margins being made on the bulk of the purchases and means that the margins on gas for the internal purchases are passed on to these businesses and not reported in the Sasol Gas business.

The difference between the average and incremental gas prices paid by Sasol is illustrated for 2011 to 2016 (Table 4). In 2015/16 the volume weighted average price paid was $1.78/GJ (similar to the import prices of $1.81 in Figure 2 above). The average price compares with the incremental price for the last tranche of volumes of $3.04/GJ. To these prices can be added the Rompco tariff of around $1.2/GJ implying a cost to Sasol for the gas landed inland in South Africa of around $2.98/GJ on average in 2012/13 or $4.6/GJ (incremental). This compares with the $3.8/GJ charged to internal users in 2012, and $7.4/GJ to external customers.

Table 4: Volume weighted average price of natural gas reported by CMH

		July 2011 - June 2012	**July 2012 - June 2013**	**July 2013- June 2014**	**July 2014 - June 2015**	**July 2015 - June 2016**
A	Volume - GSA 1 (MGJ)	108.36	119.88	130.11	131.66	128.78
B	Volume - GSA 2 (MGJ)	20.14	17.59	19.45	23.39	25.53
C	Price - GSA 1 ($ / GJ)	1.6	1.59	1.91	2.52	1.73
D	Price - GSA 2 ($/ GJ)	3.08	3.04	2.93	2.51	1.51
E = C + D	Total volume (MGJ)	128.5	137.47	149.56	155.05	154.31
F = A x C / E + B x D / E	Volume weighted price ($/GJ)	1.83	1.78	2.04	2.52	1.69
G=D	Cost if incremental volumes	3.08	3.04	2.93	2.51	1.51
H	Rompco Tariff	1.3	1.2	1.1	1.1	0.9

I=F+H	Landed Price (average)	3.13	2.98	3.14	3.62	2.59
J=G+H	Landed Price (incremental)	4.38	4.24	4.03	3.61	2.41

Source: Analysis of CMH annual report, available from: http://www.cmh.co.mz/en/ and Nersa

4 Economic Benefits for South Africa including the Government

The main rationale for the gas project from the South African government's perspective was to introduce gas into the South African economy. This was in line with the industrial policy thinking at the time. The negotiations were based on the Energy White Paper prior to the development of the Gas Act.

The negotiations between Sasol and the Mozambican government regarding the price of the gas molecule were separate from the negotiations in South African government.

South African government also wanted an option to invest in the pipeline but not to invest upfront. This meant that Sasol was taking on the construction risks. In the end, Sasol put the capital up and developed the gas field and managed the project and only then did the government buy into it according to the agreed terms. This was done though the Central Energy Fund subsidiary iGas. Though there were other potential big customers of the Mozambican gas they were not on the same scale as Sasol and this may have increased Sasol's perceived bargaining power. At the time that these discussions were happening Sasol was weighing up two options for feedstock. The Sasolburg coal mine reserves were nearing an end and the choice was between investing in a new coal mine or investing in gas.[23] Sasol used the coal alternative in negotiations with the South African government. Sasol argued that they could control the coal investment however, there were many unknowns with the gas investment and thus it needed to be worthwhile.[24]

The economic benefits of the Mozambique gas deal for South Africa is assessed against the objectives of the Energy White Paper which include investment in the natural gas industry; promotion of bilateral gas trade between South Africa and Mozambique; diversification of energy sources; development of a commercial and competitive gas industry; and empowerment of historically disadvantaged individuals. The progress on the fulfilment of these objectives is assessed in turn below.

4.1 Tax revenue

Over the period 2004 to 2015, Sasol has paid an effective tax rate ranging between 28% and 29% tax including on the profits from the gas business.[25] South Africa has therefore likely earned substantial tax revenues from the profits made by Sasol on its gas sales, including the margins due to sales of derived products. Tax revenue from the gas project arises from several channels including Sasol's gas sales to third parties, the sale of fuel and petrochemicals manufactured using the natural gas as a feedstock and the tax paid by iGas on dividends from the 25% share in Rompco. It is possible to estimate the tax revenue from the Sasol's gas sales and the tax paid

[23] Interview notes
[24] Interview notes
[25] Sasol annual reports.

by iGas, however, it will be difficult to calculate the tax revenue from the other channels without access to disaggregated data.

We make an estimate of the tax that has been paid by the gas business by applying the effective tax rate of 28% to the operating profit of Sasol Gas.[26] The calculation overestimates the tax as it is calculated before taking into account interest payments. Over the period 2004 to 2014, Sasol Gas accumulated R24.9 billion ($ 3.1 billion) worth of profit and is expected to have paid in the region of R6.9 billion ($ 875m) in tax. Similarly, iGas has accumulated $68.9 million in profit between financial year 2008 and 2016 and this implies a tax value of $19.2 million.

A rough estimate of the tax paid by the Sasol Synfuels can be estimated based on the proportion of the gas to coal feedstocks used by the business. Sasol has reported that the gas to liquids plant consumes a crude oil equivalent of 15 600 barrels per day while the coal to liquids plant consumes an equivalent of 160 000 barrels per day.[27] Thus natural gas makes up a small proportion of the Sasol Synfuels feedstock consumption at 9.75%. We then attribute 9.75% of the profits made by the Synfuels business to the natural gas. This represents total operating profit of $2.3 billion dollars over the period 2004 to 2014 and an estimated tax of $664 million (table 4).

Table 4: Estimated tax revenue collected by the South African government

	FY05	**FY06**	**FY07**	**FY08**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14**	Total
Sasol Gas ($m)	42	67	75	69	75	91	102	109	131	113	875
Sasol Synfuels ($m)	33	58	62	73	76	47	59	79	90	87	664
iGas ($m)			3	3	7	7	9	10	10	10	58
Total Tax revenue ($m)	**75**	**124**	**140**	**145**	**159**	**145**	**170**	**198**	**230**	**211**	**1597**

Sources: Sasol Analyst Books: http://www.sasol.com/investor-centre/financial-reporting/financial-results-and-analyst-book/archive ; Central Energy Fund annual reports: http://www.cefgroup.co.za/annual-reports/ and South African Reserve Bank

Notes: Sasol Gas tax revenue: The operational profit reported in the Sasol Analyst Books for the Sasol Gas business multiplied by Sasol's effective tax rate of 28% and then converted into US dollars. Sasol Synfuels tax revenue: 9.75% of the operational profit recorded in the Sasol Analyst Books (that which is attributable to natural gas feedstock) multiplied by the effective tax rate of 28%, converted into US dollars. iGas tax revenue: net profit reported in the Central Energy Fund annual reports multiplied by the effective tax rate and converted into US dollars.

At the project inception, it was estimate that over the lifespan of the project South Africa would realise a tax benefit of approximately $3.2 billion. The conservative estimates illustrated above show that in the first 10 years of the project 2004-2014, South Africa should have realised approximately half of the projected tax revenue.

[26] Though Sasol pays the effective rate of 28%, there are measure that can be taken to erode the tax base, the note has not assessed whether or not this was the case.
[27] Sasol Technology presentation. 2013. Sasol: an industrial perspective. [Online]. Available: cheminnerweb.ukzn.ac.za/Libraries/APCH221_Notes/Sasol_Slides.sflb.ashx

4.2 Dividends from iGas

South Africa's 25% stake of Rompco is overseen by iGas (a subsidiary of the Central Energy Fund, a state-owned company), which has received dividends since financial year 2007/8. This stems from the initial investment into Rompco of R2.3 billion.[28] The dividends from Rompco are the main source of income and are used to invest and develop gas infrastructure on behalf of the government. Over the period financial year 2007/8 to 2015/16 this has amounted to R805 million (table 5).[29]

Table 5: iGas dividends from investment in Rompco

R'million	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	Total
Dividends	65	75	90	82.5		100	115	127	150	805

Source: CEF Annual report: http://www.cefgroup.co.za/annual-reports/

4.3 Other benefits

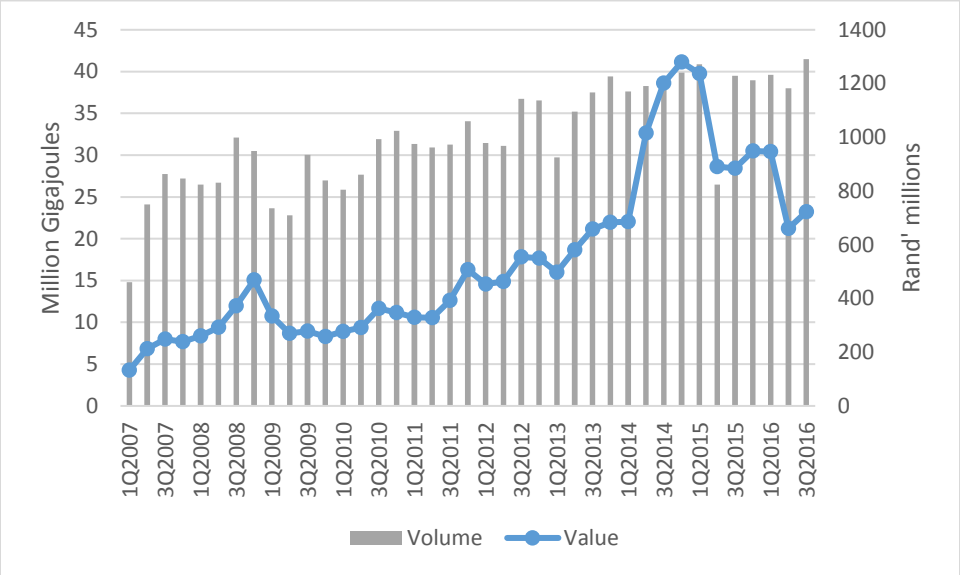
As the rationale for the involvement of the South African government was not primarily based on the financial gains from the project, we do a short review of what was achieved in terms of the other targets.

Promotion of bilateral gas trade between South Africa and Mozambique

The South African government wanted to facilitate trade between South Africa and Mozambique, in order to address the large trade imbalance. The gas project was an opportunity to address part of the trade imbalance. This was part of a number of projects that sought to bring the two economies closer together. This was around the same time that the transport corridor between Gauteng and Maputo port was developed and the pipeline was considered to form part of this. The gas project has been successful in terms of promoting trade of gas between South Africa and Mozambique. Over the years the value of imports of gas have increased (figure 5).

[28] CEF annual reports
[29] This amount is slightly understated as the dividends for financial year 2012/2013 were not found.

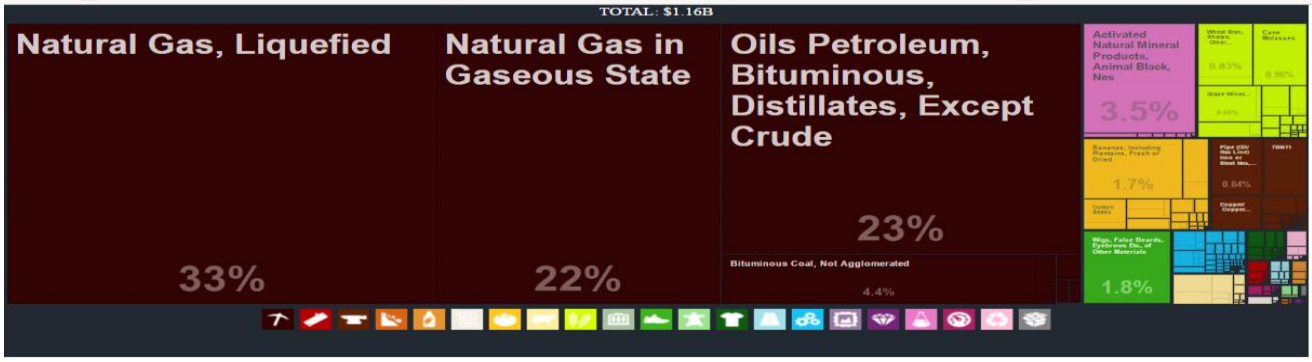
Figure 5: Import volumes and values of natural gas from Mozambique by South Africa



Source: Quantec: http://www.quantec.co.za/

Natural gas remains a significant share of South Africa's total imports from Mozambique at 55% (Figure 6).

Figure 6: South Africa's imports from Mozambique, 2014



Source: http://atlas.media.mit.edu/en/visualize/tree_map/hs92/import/zaf/moz/show/2014/

Part of the agreement with Sasol was that local content and regional skills would be used to build the pipeline. However, Sasol indicated that the steel required for construction of the pipeline was not available in the region and as a result was allowed to import it including a large proportion of the labour that was involved.[30]

Investment in the natural gas industry

Another rationale for the agreement was the development of a natural gas industry in South Africa at the lowest cost possible. The respective governments provided guarantees in order to facilitate the Mozambique to South Africa Gas pipeline which was pivotal for the project. Furthermore, in

[30] Interview notes

South Africa a favourable licensing scheme was created for Sasol's gas distribution, transmission and trading licence to facilitate further investments.

As a result of the agreement the pipeline infrastructure has expanded within South Africa. The ROPMCO pipeline is 865 km and Sasol Gas has also expanded its pipeline by 1356 km and Egoli Gas by 1200 km. The investments were made to increase capacity and to connect additional customers. By 2014 distribution pipelines were constructed to connect 64 new customers to the grid.

Three new gas traders Novo Energy, VNG and NGV have also introduced new technology in South Africa that allows the delivery of compressed fuel solutions for vehicular, industrial and commercial customers using the CNG technology.[31] This technology has developed new markets for natural gas in the transport sector. The various industry players have made investments to develop the industry.

Diversification of the energy sources and reduction of emissions

The Gas Act in part sought to diversify South Africa's energy sources and to shift consumption away from dirty fuels such as coal towards cleaner natural gas. Sasol is the single biggest source of greenhouse gas emissions in the southern hemisphere and it was envisaged that the switch over to natural gas would reduce Sasol's emissions as well as those of the industrial customers that switch from other fuels to gas.

In terms of Sasol's operations, prior to the introduction of natural gas the Sasolburg and Secunda plants were jointly contributing 57 million tonnes of carbon dioxide emissions. Since the changeover in some of the operations to natural gas, Sasol's carbon dioxide emissions have reduced by 39% to approximately 22 million tonnes per annum. [32] Hydrogen sulphide emissions have been reduced to zero following the discontinuation of Hydrogen rich gas. Sasol operations have reduced emissions across the board however, Sulphur oxide and carbon dioxide emissions reductions have not met the estimations of the project economics (Table 6).

Table 6: Reductions in Sasol's emissions

	Estimated reductions	Achieved reductions
Carbon dioxide		-39%
Sulphur Oxide	-47%	-39%
Nitrogen Oxide	-100%	-100%
Hydrogen sulphide	-35%	-42%
Particulate matter	-35%	-37%

Source: Nersa (2015)

In terms of the switchover of industrial customers from dirty fuels to natural gas, it is expected that there would be some environmental benefits, however there is no evidence to support this.

[31] Nersa (2016). Ex-post regulatory impact assessment

[32] Nersa (2016) Ex-post regulatory impact assessment of the agreement between the Mozambican Gas pipeline between the Government of the Republic of South Africa and Sasol Limited.

However, it is unlikely that these advantages would be significant as a large proportion of the natural gas imported from Mozambique goes towards Sasol's internal operations. As of 2016, 62% of the gas was used for Sasol's internal operations, and this has been the case since 2013.[33]

These changes are also not reflected in South Africa's energy supply mix. The introduction of gas contribution has increased from 1.2% in 2002 to 5% in 2015. [34] However, it is worth noting that reliance on coal has also increased from 54% (in 2002) to 70% (in 2015) and thus it is unlikely that the net on emissions has been a reduction.

Development of a commercial and competitive gas industry

One of the primary objectives of the Gas Act was the development of a commercial and competitive gas industry in South Africa. Prior to the gas project Sasol was the only vertically integrated player in the provision of Gas, with Spring Lights part owned by Sasol) as a trader and Egoli Gas playing in the reticulation level of the value chain.

In terms of the agreement, Sasol was granted exclusive rights to the Mozambican gas. The Agreement made provisions for third party access to the Rompco pipeline and other gas facilities from 2014. In terms of the agreement, mandatory access to uncommitted capacity of the Rompco pipeline should be granted to Brownfield customers[35] and Greenfield customers that meet the stipulated requirements. Nersa's assessment of the market entry indicates that these requirements of consumption between 6 and 8 million gigajoules were onerus and no party has been able to meet them. Both Spring Lights and Egoli Gas still do not have direct access to the imported gas and are supplied by Sasol, who is potentially a competitor in certain markets.

Since the gas project there has been market entry in the level of gas traders only. To date there are now 7 operating gas traders with 2 recent licensees that have not commenced operations. [36] There has been no entry at the level of transmission and distribution. This has been attributed to restrictive or prohibitive conditions to access the pipeline. Sasol has received 200 requests for supply of gas by customers, 89 of which were declined due to a lack of availability of gas and/or project economics.[37]

Empowerment of historically disadvantages South Africans and Employment

The Agreement placed expectations on Sasol to empower historically disadvantaged individuals in the development of the gas industry. Though there are black owned gas traders that have e ntered the gas industry, all the gas traders together market only 6% of piped gas sold in South Africa. As a result, the Agreement has not had a significant impact in the ownership structure of the gas industry in South Africa.

[33] Sasol Analyst Book, for the half year ended March 2016.
[34] Statssa energy accounts for South Africa (2002-2012) and Nersa (2016).
[35] Customers (other than Sasol and its subsidiaries) who received piped gas from Sasol before 26 March 2004, including customers who expanded their facilities and thereby increased their gas consumption. (Those customers who converted their facilities from other energy carriers to piped gas after 26 March 2004 are excluded).
[36] Genesis Analytics (2015). Assessment of the state of competition in the piped Gas Industry.
[37] Nersa (2016). Ex-post regulatory impact assessment

In terms of employment, in 2003 prior to the use of natural gas from Mozambique the South African gas industry employed 263 permanent employees with Sasol contributing 133 employees to the total number. The total employment number in the gas industry has risen to approximately 475 employees in 2014, with Sasol employing approximately 317 to the total number.[38] However, it is worth noting that the manner in which the employment data has been reported over time has changed, from 2010 going forward Sasol reports permanent and non-permanent employees together. Though employment has increased, it is difficult to gauge how much of the increase is a result of increased employment opportunities or the inclusion of non-permanent employees in the latter part of the period.

5 Economic Benefits for Sasol

The most obvious benefit to Sasol is in the profit margins made and the lower costs for a primary feedstock for their plants. In the period for which disaggregated data is available from 2005 to 2014 the operating profit margins ranged between 38% and 52% of turnover (Table 7). From 2015, the results for Sasol Gas are aggregated with other businesses in the "Exploration and Production International" and "Energy" business units, and do not reflect revenues from gas sales separately. We note the following:

- This is considerably less than the margin implied by the difference between the gas selling price and the 'cost of sales' which reflects the cost of purchase of the gas plus distribution costs.
- The investments are not considered in the operating profit calculation, however, it is notable that the prices increased substantially in the later years and especially in 2012 (in Table 7) and this is sustained (see Figures 2 and 3 above).
- The profit margins have decreased, due to increases in energy and consumables used; selling and distribution costs; maintenance expenditure; employee related expenditure; exploration expenditure and feasibility costs; depreciation and amortisation; and other expenses.
- The turnover represents sales to both internal and external customers. The internal sales have effectively been at a transfer price determined by Sasol. In the period from 2014 the prices were set out in bands, however, the largest customer band (class 6) is likely to only be Sasol's internal sales.

[38] Nersa 2016 and Sasol Analyst book.

Table 7: Sasol Gas Turnover and Operating Profit

Sasol Gas											
Financial Year		**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Total turnover	R m	2404	3209	3702	4697	5666	5371	5446	6931	8254	9355
Operating profit	R m	931	1526	1936	1785	2424	2479	2578	2985	4069	4175
Operating profit margin	%	39	48	52	38	43	46	47	43	49	45
Contrib to grp operating profit	%	7	9	8	5	10	10	9	8	10	10

Source: Sasol Group Limited financial statements

The profit margin on external sales can be estimated, based on the proportions of internal and external sales, average prices for each category, and if assumptions are made about the additional costs for these sales in terms of distribution, as well as marketing and administration.

External sales and litigation against Sasol and Nersa

Large industrial users of gas have objected to the methodology and resulting prices indicating that gas represents approximately 20% of large manufactures' input costs and the proposed increases will put pressure on the margins of these firms.[39] These customers have complained that the new pricing methodology is disadvantaging those who have invested in switching to gas, which is perceived to be more efficient and affordable.[40]

Nersa was reported as stating that the methodology was designed to attract investors in the gas market by offering high returns.[41] Nersa has to balance the desire for fair and competitive pricing with the need to ensure that the gas sector becomes more attractive for investors as per the Gas Act of 2001. In such an assessment, Nersa would have to consider whether there are likely entrants into the market for inland gas supply and in what time period, given that this new dispensation is in place for three years. If entry is indeed unlikely then regulation may be ensuring that Sasol Gas enjoys monopoly profits the expense of the customers.

It can also be argued that the actual prices paid by customers discounted gas price and not only the methodology for maximum gas prices needs to be considered. This is correct, although it also implies that an entrant would need to consider the discounted prices that Sasol would offer on entry, and not the prevailing price. The experience of liquid fuels regulation highlighted the importance of the choice of benchmarks to use. We have shown that the outcome of the maximum gas price calculation can differ significantly as a function of choice of benchmarks to be used in calculations.

[39] Creamer, T (2013) 'Big Manufacturers Turn to Courts Amid Unhappiness with-Gas Pricing Sasol Contract Talks' Available: www.engineeringnews.co.za
[40] Radebe, K. (2013) SA Gas the Most Uncompetitive Prices Globally. [Online] Available: www.moneyweb.co.za
[41] Mail and Guardian (2013) Nersa Says Gas Market is Good for Investment. [Online] Available: www.mg.co.za.

To soften the blow, Sasol has committed to a transitional price mechanism whereby prices will be increased in tranches. For those with price increases between 15% and 30%, 15% will apply on 26 March 2014 and the remainder will be applied on a quarterly basis between March 2014 and March 2015. For those customers that that are faced with price increases between 30% and 45%, 15% will be applied on March 2014 and the difference will be spread over the period between March 2014 and March 2016.

Internal use of gas by Sasol

The effects on Sasol of the internal sales depend on what the product is used for within the Sasol operations and the terms on which the derived products are sold. The bulk of the internal sales are made to the Energy business unit responsible for the synthetic fuel production and power generations and the remainder of the internal sales are made to the base chemicals and performance chemicals business units (Table 8).

Table 8: Internal consumption of natural gas by Sasol operations

Billion cubic feet of natural gas	2013	2014	2015	2016
Energy (fuel and electricity generation)	46.2	48	49.8	50.8
Base Chemicals (polymers, solvents, fertilizers and explosives	20.3	23.3	24.9	23.3
Performance Chemicals (organics, wax and other)	21.5	23.9	23.2	22.2
Total internal Sales	**88**	**95.2**	**97.9**	**96.3**

Source: Sasol Analyst Books

Energy

The energy consumption includes both production of liquid fuels (petrol, diesel) and the generation of electricity.

The returns from fuel production reflect the inland import parity basis of the fuel price regulation. As illustrated above, this is relatively high compared to the prices of other energy sources. It could be argued that this reflects the import of gas, as with crude oil for other refineries in South Africa, however, this ignores the impact of the pipeline investment and favourable transmission terms which means that the gas for Sasol is effectively available inland. None of this benefit is passed onto customers which further indicates that Sasol can in effect by-pass the regulation of gas prices (which average fuel prices with other lower priced energy sources) by taking the profit in fuel sales.

Base chemicals and performance chemicals

This includes a diverse range of products on which there is not disaggregated information. Several of the products have been subject to competition investigations such as polymer chemicals and fertilizers including findings of anti-competitive behaviour.

Regarding these products, Sasol generally charges on an import party basis even where, as in the case of polypropylene, there are large net exports. The implication is that there are no benefits in terms of price to local buyers. Where the import parity price also includes a premium to reflect the hassle factor of importing then the pricing is just to the point where the buyer is indifferent

between importing and buying from Sasol meaning that Sasol has appropriated the maximum economic rent possible. As observed with fuel, in effect Sasol can by-pass the effect of including lower priced energy sources in the regulatory basket by taking the profits in downstream products in which it has market power.

6 Conclusions

There are very substantial benefits reaped by Sasol in terms of the profits made from the difference in the costs of gas to it (including the low price paid for the gas at source) and the prices earned on gas sales. The regulatory system in place until March 2014 allowed substantial room for Sasol to price to attract customers to switch to gas. The South African government was aware that the gas pricing was generous to Sasol at the time of the negotiations but pursued the deal to ensure that the project went ahead.[42] The regime in place since March 2014 has meant significant increases to large customers who had already switched to gas, while also ensuring somewhat lower prices for smaller customers. The overall price regulation has also been relatively high apparently to induce additional investment to supply gas.

The maximum price regulation since March 2014 uses a basket of alternative fuel sources, with some being substantially higher than others. The weighting of the alternative fuels as well as the choice of which price to use (for example, the average electricity price, or the price paid by large industries) has a significant impact on the maximum price determined. In addition, as the regulatory system in place applies simply to gas prices Sasol can, in effect, by-pass the effect of including lower-priced energy sources such as coal which reflect local mineral endowments, by making low priced internal sales of gas which is then transformed into products which prices are either unregulated or regulated at an import parity basis.

The support by the governments, including the Rompco pipeline, has placed Sasol in a very strong position in terms of gas supply in South Africa. However, the benefits of the gas endowment are not passed on downstream to support broader economic development and industrialisation. In addition, the weaknesses in the regulatory regime in terms of enabling third parties access to the gas and the transmission infrastructure mean that Sasol has effectively retained control over an attractive regional feedstock which could support rivals, whether in Mozambique or South Africa. Rivalry would mean competitive prices in downstream markets while at present Sasol is in a largely uncontested position only constrained by regulation.

With regards to the benefit to South Africa, including the Government, the results are more varied. The Government has benefited from increased tax revenue flowing from Sasol's gas business and others within the group use gas as a feedstock. The Government has also been able to collect dividends from its partnership in Rompco, through the state owned iGas. There have also been other benefits for South Africa including private investments in the gas industry and the development of CNG technology. However, the gas project has not succeeded in changing the energy consumption mix of the country, promoting of employment or changing the ownership structure of the industry.

[42] Interview notes