

**REPORT ON THE NERSA
DIALOGUE ON GAS
INFRASTRUCTURE INVESTMENT**

29 February 2012

i.

Foreword

The National Energy Regulator (“NERSA” or “Energy Regulator”) would like to take this opportunity to thank all those who participated and/or made comments and inputs during the NERSA Dialogues on Gas Infrastructure Investment. The Dialogues were a success, and the Energy Regulator is appreciative of the considerable amount of contributions received from various stakeholders in this process.

A special word of thanks goes to the Department of Energy (“the Department”) in its capacity as the relevant gas policy maker for supporting the Energy Regulator in conducting these very first Dialogues of this sort. The Energy Regulator also expresses its gratitude to the South African Gas Development Company (Pty) Ltd (“iGas”), the Standard Bank of South Africa Limited, Gigajoule Africa (Pty) Ltd, Eskom Holdings Limited, Transnet Pipelines, Forest Exploration International, the Industrial Development Corporation (“IDC”), Novo Energy, the Liquefied Petroleum Gas Safety Association of Southern Africa (“LPGSASA”) and the South African National Energy Research Institute (“SANERI”) for their constructive, insightful and informative presentations given at the workshop sessions. Furthermore, the Energy Regulator acknowledges that this report constitutes a record of the information obtained from stakeholders supplemented by a commentary by the Energy Regulator.

The report will be submitted to the Minister and the Department of Energy and it is trusted that the Department will welcome the report, which could assist in the revision of the national regulatory framework for the gas industry such that it provides a mechanism intended to stimulate investment and thereby promote gas industry development and facilitates the practical attainment of relevant policy objectives as set out in the White Paper on the Energy Policy (“Energy Policy”)¹.

¹ White Paper on the Energy Policy of the Republic of South Africa, December 1998.

ii.

TABLE OF CONTENTS

Item	Contents	Page
i.	Foreword	2
ii.	Table of contents	3
iii.	List of acronyms and abbreviations	4
1.	Executive Summary	5
2.	Introduction	6
3.	Results	8
4.	Discussion	10
4.1	Securing an anchor customer	10
4.2	Integrated Resource Plan	12
4.3	Securing finance for gas projects	13
4.4	Gas prices	15
4.5	Vertical integration in the current gas market structure	19
4.6	Regulatory and Policy uncertainty	20
4.7	Regulation of CNG	22
4.8	Gas Infrastructure Planning	23
5.	Conclusion	26
6.	Recommendation	26
	Annexure A: Themed Stakeholder Questionnaire	
	Annexure B: List of Attendees and Presentations by Stakeholders	

LIST OF ACRONYMS AND ABBREVIATIONS

CAPEX	Capital Expenditure
CCGT	Combined Cycle Gas Turbine
CNG	Compressed Natural Gas
CO ₂	Carbon Dioxide
CRM	Cost Recovery Method
GAR	Piped Gas Regulation
IDC	Industrial Development Corporation
IEP	Integrated Energy Plan, 2003
iGAS	South African Gas Development Company (Pty) Ltd
IPP	Independent Power Producer
IRP2	Integrated Resource Plan for Electricity, 2011
ISMO	Independent Systems and Market Operator
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
LPGSASA	Liquefied Petroleum Gas Safety Association of Southern Africa
MGJ/a	Million gigajoules per annum
MYPD	Multi-Year Price Determination
NERSA	National Energy Regulator
OCGT	Open Cycle Gas Turbine
PASA	Petroleum Agency SA
PetroSA	Petroleum, Oil and Gas Corporation of South Africa (SOC) Limited
ROMPCO	Republic of Mozambique Pipeline Investment Company
SANERI	South African National Energy Research Institute
SECWA	State Energy Commission of Western Australia
SOE	State Owned Entity

1. EXECUTIVE SUMMARY

On 08 June 2011, the Energy Regulator considered and approved a request by the Piped Gas Regulation (“GAR”) division to conduct NERSA Dialogues on gas infrastructure investment, through a series of consultative workshops, in three provinces that currently make use of gas as an energy source and where potential project developers and potential customers are situated.

The purpose of the Dialogues was to provide a platform for industry stakeholders to discuss and share ideas on the hurdles they experience with regard to investment in the gas industry. These would entail issues such as:

- gas off-take agreements with anchor customers,
- gas supply,
- policy and regulatory environment, and
- securing funding for gas infrastructure projects.

Another purpose was to solicit the views of stakeholders on appropriate regulatory mechanisms through which the country’s investment in gas infrastructure may be facilitated in order to provide certainty to the gas industry. It was clarified that the Energy Regulator is neither a policy maker nor the legislative drafter, but was simply collating industry views through this process.

To enable the public to contribute to the process, the Energy Regulator published a themed stakeholder questionnaire on its website inviting all stakeholders and interested members of the public to comment, either in writing or through participation in the workshop sessions, on various issues relating to practicalities associated with investment in gas infrastructure (**“Annexure A”**).

The abovementioned workshop sessions were held in Gauteng (*Blue Valley Golf Estate, Midrand*), Western Cape (*The Commodore Hotel, Cape Town*) and KwaZulu-Natal (*Docklands Hotel, Durban*) on 26 October 2011, 31 October 2011 and 04 November 2011, respectively.

The consultative workshops were conducted successfully and were well received by all those in attendance. In general, both the turnout and participation was satisfactory. The workshop attendees and/or participants were from diverse backgrounds ranging from gas producers, suppliers, traders, customers, potential investors, other interested members of the public, state funded institutions, and financial institutions. The Department of Energy was also represented in these sessions as an observer.

Combined, the workshop attendees totalled 65, 41 and 28 in Gauteng, Western Cape and KwaZulu-Natal, respectively. A list detailing the number of attendees and presentations made by stakeholders is attached hereto marked "**Annexure B**".

The report presents the outcomes of the abovementioned consultation process and has a dual-fold purpose, namely –

- to provide feedback on a wide range and diversity of ideas, comments and inputs received from industry stakeholders or participants; and
- to recommend appropriate policy and/or legislative changes to respond to challenges or hurdles highlighted by stakeholders.

Although the report is not exhaustive, it identifies, as objectively as possible, the main views, comments and inputs arising from the participants' contributions. Each set of participants' comments and proposed solutions is succeeded by the Energy Regulator's assessment to assist with the comprehensive appraisal of all associated possible prospects. Combined, these could suggest a shift in policy. These are presented in a more detailed format in section 4 of this report.

2. INTRODUCTION

The Energy Regulator is a juristic person established under section 3 of the National Energy Regulator Act, 2004 (Act No. 40 of 2004) for regulation of the piped gas, petroleum pipelines and electricity industries. This regulation mandate is carried out through enforcing the provisions of the Gas Act No. 48 of 2001 ("Gas Act"), the Petroleum Pipelines Act No. 60 of 2003 ("Petroleum Pipelines Act") and the Electricity Regulation Act No. 4 of 2006 ("Electricity Regulation Act"), respectively.

Section 2(b) of the Gas Act sets one of its objects as being to facilitate investment in the gas industry. Although there is a clear link between the objects spelt out in section 2 of the Gas Act and the objectives of the Energy Policy by which government intended to encourage, among other things, the use of gas as an alternative source of fuel for electricity generation, the Gas Act does not stipulate any regulatory interventions other than licensing, approval of prices and tariffs and enforcement as well as transparency in regulatory decisions by the Energy Regulator, to ensure realization of the objects in section 2. Consequently, there is no explicit regulatory mechanism for stimulating investment in gas infrastructure and promoting development of the gas industry.

Being mindful of –

- the initiatives considered on the Integrated Energy Plan (“IEP”)² and the Integrated Resource Plan (“IRP2”)³;
- the purpose of the IEP as a guide for energy infrastructure investments in terms of section 6(6) of the National Energy Act No. 34 of 2008 (“National Energy Act, 2008”);
- the purpose of the IRP2 as a living plan aimed at ensuring the security of energy supply for the country until 2030; and
- the fact that the adoption of these integrated energy and resource planning processes were envisaged in the Energy Policy,

the Energy Regulator proposed, arranged and held the public Dialogues for the purpose to determine the hurdles experienced by stakeholders in relation to issues concerning gas infrastructure investment and to solicit various views on appropriate regulatory mechanisms that might help facilitate increased investment in gas infrastructure within the country.

The results yielded by these Dialogues are broadly captured in section 3 and discussed in more detail under section 4 of this report.

² Integrated Energy Plan for the Republic of South Africa, 19 March 2003

³ Integrated Resource Plan for Electricity 2010-2030, Revision 2 Final Report, 25 March 2011

3. RESULTS

The Energy Regulator opened all three workshops with a brief presentation on the current status of demand for gas supply and security of supply to assist the participants in determining the extent of possible investment in piped-gas infrastructure. In this regard, it was highlighted that the current contribution of piped gas to total energy use in the country is less than five percent, mainly for industrial use and some for power generation. It was also reported that there is an anticipated upcoming increase in the Mozambican natural gas supply from 120 to 147 MGJ/a, and further that South Africa has developed a few indigenous gas sources of its own.

Against this background, there was general consensus amongst participants that the availability of piped-gas and the required infrastructure are crucial for various reasons including:

- its role in electricity generation to counter any possible electricity shortages in future and to provide more mid-merit and peak electricity generation capacity;
- its role in reducing CO₂, sulphur dioxide, nitrous oxide and carbon monoxide emissions;
- a desired reduced reliance on coal;
- its contribution to an improvement of health and air quality;
- utilization of natural gas as vehicle fuel;
- replacement for electricity in heating and lighting applications in households, office buildings and industrial settings;
- creation of more jobs (*e.g. production of biogas through crop planting especially in rural communities*) and growth of the local tax base from such employment; and
- the provisioning of waste management solutions such as usage of waste, manure and residues (*e.g. sewage solids, food, abattoir, cattle feedlot and piggery*) to produce biogas and generation of further energy streams or fertilizer through waste from biogas production.

Another common sentiment shared was that, due to the global availability of liquefied natural gas (“LNG”), gas supply is not the most important constraint to the growth of the

gas market in South Africa and that there is sufficient gas demand to justify infrastructure additions. There were views, however, that the new infrastructure needs to be developed or current infrastructure upgraded to adequately cater for the transportation and storage of LNG, compressed natural gas (“CNG”) and liquefied petroleum gas (“LPG”). Therefore it was common cause that although the international supply of gas is not a constraint, the likelihood of growth of the South African piped-gas market depended mostly on commitments by significantly sized anchor customers willing to sign long-term contracts with gas suppliers.

The most significant hurdles pertaining to gas infrastructure investment were therefore reported to be:

- securing an anchor customer;
- size, timelines and categorization of gas in the IRP2;
- securing finance for gas projects;
- gas pricing;
- vertical integration in the current market structure;
- regulatory uncertainty caused by insufficient coordination between relevant statutory bodies and gaps in the regulatory framework (such as gaps in the regulation of LNG and CNG when used as vehicle fuels); and
- the lack of gas infrastructure planning.

In line with these highlighted hurdles the participants proposed the following variety of solutions, the further details of which appear in the succeeding section, to stimulate the desired gas infrastructure investment:

- a. Creation of an anchor customer supported by government;
- b. Refinement of the IRP2 with additional open cycle gas turbines (“OCGT”)/ combined cycle gas turbines (“CCGT”) Megawatts;
- c. Government incentives to gas infrastructure investment;
- d. Exploration of indigenous gas;
- e. More role players in the market and vertical unbundling of market participation;
- f. Relevant policy coordination at Departmental level;
- g. Improvement of the gas industry regulatory framework; and
- h. Gas infrastructure planning.

4. DISCUSSION

This section contains a more detailed analysis of the most commonly experienced hurdles to gas infrastructure investment and the corresponding proposed solutions.

4.1 Securing an anchor customer

4.1.1 Hurdle

- a. The general consensus that emerged was that in order for one to invest in gas infrastructure, an anchor customer (*i.e. a significantly sized anchor client that is willing to sign a long-term contract*) is necessary to create a firm supply base and that the obvious anchor of any gas infrastructure investment project would be the supply of gas to an electricity generator. In this regard, one participant expressed the view that a new gas-based industry in South Africa can only be founded on the uptake of a couple of large anchor markets, with electricity being one but not the only consideration.
- b. However, it became clear that potential anchor customers are reluctant to enter into any long term supply agreements until certainty is provided on many other aspects, such as long-term gas prices and the pass-through (or recovery) thereof from the electricity customers. Exchange rate volatility and commodity price risk were highlighted as additional hurdles for an anchor customer to enter into long-term gas supply agreements.
- c. As a result, it is not always possible for aspirant licensees to provide the Energy Regulator with proof of off-take agreements (its gas market) upon application for a licence.

4.1.2 Proposed solutions

- a. Stakeholders suggested that a government-supported anchor customer, who could either be a State Owned Entity (“SOE”) or an independent power producer (“IPP”), should be created or identified as the appropriate anchor customer.
- b. Government could thereafter either construct or fund the construction of an infrastructure required to supply gas to this customer in order to overcome any challenges associated with funding the infrastructure.

4.1.3 NERSA assessment

- a. The Energy Regulator is of the view that the national legal framework for the energy sector already provides some solutions such as those contained in section 34 of the Electricity Regulation Act.
- b. Section 34(1) of the Electricity Regulation Act, provides that the Minister may, in consultation with the Energy Regulator –
 - “(a) determine that new generation capacity is needed to ensure the continued uninterrupted supply of electricity;*
 - (b) determine the types of energy sources from which electricity must be generated, and the percentages of electricity that must be generated from such sources;*
 - (c) determine that electricity thus produced may only be sold to the persons or in the manner set out in such notice;*
 - (d) determine that electricity thus produced must be purchased by the persons set out in such notice;*
 - (e) require that new generation capacity must –*
 - (i) be established through a tendering procedure which is fair, equitable, transparent, competitive and cost-effective;*
 - (ii) provide for private sector participation”.*
- c. One alternative to the proposed solutions could therefore be to put this legislative provision into practice and thereby carry out the object in section 2(b) of the Gas Act (*namely, to facilitate investment in the gas industry*) through a Ministerial determination of additional required gas-fired electricity generation capacity. The current 711 MW of CCGT incorporated in the IRP 2010 is scheduled to be commissioned only in 2019 and given current circumstances additional load-following capacity to be commissioned at an earlier date is justified. The precedent set by the Ministerial determination regarding renewable energy is an important exemplary milestone in this regard.
- d. This issue is strongly related to the following hurdle identified as the lack of gas-fired electricity in the IRP2010.
- e. The direct funding of gas infrastructure by Government is likely to be unaffordable and impractical, but the option of strategic equity participation in gas infrastructure projects by government entities such as iGas or PetroSA could be

investigated further by government. The participation in the ROMPCO pipeline between Temane in Mozambique and Secunda in South Africa, by the Government of SA, could serve as a model for such equity participation. Equity shares held by government entities are likely to increase the bankability of gas infrastructure projects.

- f. With regard to other types of anchor markets, the Energy Regulator acknowledges the argument advanced by some stakeholders that the focus should not only be on gas for power generation, but also for other purposes such as natural gas or biogas as fuel applications in transport.

4.2 Integrated Resource Plan

4.2.1 Hurdle

- a. The reference to the timelines of 2019 and 2021 for building gas-driven CCGT power plants in the IRP2 does not seem to promote the immediate shift towards the use of gas as an alternative source of power.
- b. Stakeholders further indicated that the current plan of 711 Megawatts of CCGT electricity generation capacity (possibly using LNG) to improve security of supply is insufficient and too fragmented to justify large gas project developments.

4.2.2 Proposed solution

- a. The IRP2 should be refined to include more gas-fired electricity generation capacity than the minimum of 711 Megawatts and at an earlier commencement date, so as to leverage economies of scale.
- b. Certain stakeholders emphasised the need for greater coordination between gas and electricity planning, such as an Integrated Energy Plan, as envisaged in the National Energy Act, 2008.

4.2.3 NERSA assessment

- a. The Energy Regulator agrees that the inclusion of more gas in the IRP2 is justified for electricity generation considering a host of reasons, such as:
 - Sustained increase in electricity prices which renders gas-fired electricity generation more and more competitive;

- Gas can be competitive at peak, mid-merit and even base load and as its lead times are significantly shorter than coal based electricity generation, it could alleviate some of the immediate electricity generation capacity constraints;
 - With the introduction of significant amounts of intermittent renewable energy into the electricity generation mix, a requirement for additional load-following gas-fired electricity generation is created, providing justification for the inclusion of additional gas-fired Megawatts in the IRP2; and
 - the global availability of LNG.
- b. By inclusion of more CCGT generation in the IRP2, the elusive anchor customer, namely the single buyer as identified in the Electricity Regulations on New Generation Capacity, would be provided.⁴
- c. In addition, some policy certainty would be provided by the development of the Integrated Energy Plan. However, this plan would be aimed at providing coordinating support and would recognise the essential differences between the electricity and the piped gas industry in South Africa. The IRP is an important tool in electricity generation planning, which is premised on a Single Buyer Model, whereas the piped gas industry is fundamentally premised on private sector development of infrastructure to connect sellers to buyers, which requires the ability to develop even unplanned capacity. Even with planning of infrastructure, bankable off-take agreements are required. Hence, the solution of competitive bids for infrastructure will not, in itself, resolve the fundamental problem of lack of gas infrastructure investment.

4.3 Securing finance for gas projects

4.3.1 Hurdle

- a. Before financing any project, financial institutions and other lenders generally require proof of adequate future cash flows, such as off-take agreements. In addition, equity participation and other forms of surety, such as guarantees, are

⁴ Electricity Regulations on New Generation Capacity published in Government Notice No. R. 1130 of 30 November 2010 (Government Gazette No. 33819)

- to be provided to cater for future instances when the applicant might be unable to service the debt.
- b. This means that an applicant or aspirant investor needs significant upfront capital to be able to finance infrastructure projects.
 - c. Stakeholders suggest that building and funding gas infrastructure could be difficult for any one private sector player to achieve, which could therefore result in the slower development of the gas market.

4.3.2 *Proposed solution*

- a. Recognizing that the high cost of constructing gas infrastructure impedes the development of the gas market as envisaged in government's policy objectives, some participants proposed that the government should incentivise or subsidize gas infrastructure projects in order to encourage investment in gas infrastructure.
- b. This could include, amongst other considerations, an accelerated depreciation allowance, investment incentives or subsidies (such as preferential interest rates) as well as regulatory certainty regarding prices and tariffs as at the time of investment.
- c. Alternatively government could build the gas infrastructure network in order to enable the required infrastructure development and investment or be a partner in the construction of such. This could be done in a variety of ways, such as the single buyer in electricity providing off-take guarantees or government entities taking an equity stake in a gas infrastructure project.
- d. As to the proposed role of government, one stakeholder made reference to the development of the gas industry in Western Australia as a possible model. Australia reportedly discovered gas in the North West Shelf as early as 1971. By 1979 however, Western Australia still had no developed gas infrastructure, no natural gas consumers and a very nominal gas industry. In 1979, the Federal and Western Australia governments concluded an agreement to allow for the production and exportation of gas. In 1980, agreements were concluded with the Western Australia government gas agency, SECWA, to supply gas to the domestic market and thereby underpin the project. As a result, gas exportations commenced in 1989; and currently, Western Australia's gas industry has –
 - (i) 5 LNG production trains that produce about 25% of global LNG production capacity; and

- (ii) A large domestic gas network.

4.3.3 NERSA assessment

- a. The Energy Regulator is of the view that there are various options that could be followed by government towards facilitating and enabling the desirable gas infrastructure development and investment. Some of these could amount to a discernable policy shift, however.
- b. Such various options include, but are not limited to:
 - (i) Mandating the single buyer in the electricity sphere to purchase or produce gas-fired electricity generation under section 34 of the Electricity Regulation Act as a mechanism to stimulate investment;
 - (ii) Partnering with entities such as PetroSA or iGas to take an equity stake in gas infrastructure development or investment so as to make the project more bankable; and/or
 - (iii) Provision of financial guarantees. However, it must be noted that such financial guarantees by the State have significant fiscal implications.
- c. Government could also further investigate a possibility of gas infrastructure investment incentives, such as accelerated depreciation. The South African Income Tax Act currently provides for accelerated depreciation allowance on energy projects that make use of such renewable energy sources as wind, solar and hydroelectric facilities for equipment that actually generates electricity. Currently, this excludes the equipment that is used to transmit or distribute electricity. The Energy Regulator views direct subsidies as undesirable and unnecessary.
- d. A significant contribution to providing the required certainty to potential gas infrastructure investors is likely to be made by involvement of key State Owned Companies, such as Eskom and PetroSA or a greater emphasis on CCGT generation in the IRP2.

4.4 Gas prices

4.4.1 Hurdle

- a. Some stakeholders indicated that dollar-linked gas pricing introduces the risk of exchange rate volatility in the price of gas and that oil-linked pricing introduces

- commodity price volatility in the price of gas and that this makes it difficult for an anchor customer to enter into long-term supply agreements.
- b. According to one stakeholder, this US dollar-linked price of gas *versus* the lower Rand-denominated cost of coal renders the use of gas for power projects not viable, although this was disputed by other stakeholders.
 - c. Some stakeholders indicated that gas must be priced in US dollars as the capital for large projects is sourced on international capital markets and is denominated in US dollars.
 - d. One stakeholder indicated that it is not possible to hedge the full Rand denominated amount of future cash flows and that as a result, dollar based pricing of the gas is required even for indigenous gas finds.
 - e. One stakeholder was of the view that the regulatory process is an obstacle as it was submitted that if gas is used for electricity production, the producer first has to submit the proposed electricity price to the Energy Regulator for consideration and approval; and this approval process takes about three years which means that for the period when the Energy Regulator is considering the proposed price of electricity generated from US dollar price linked gas, the power producer's business could be running at a loss.
 - f. Accordingly, stakeholders have in the past not found it financially sensible to invest in gas-to-power projects due to the high gas price and historically low electricity price.
 - g. On a different note and from a gas trading point of view, traders will find themselves in a difficult position of balancing the price of gas charged by their suppliers with the price they can charge their own customers.

4.4.2 Proposed solutions

- a. The Energy Regulator's Cost Recovery Mechanism ("CRM") as included in the Multi-Year Price Determination (MYPD) should be enhanced to enable CCGT power plants to pass through the fuel price volatility without the current limits that are placed on the use of OCGTs.
 - b. An enabling environment in terms of pricing should be created. This could be achieved through bringing the gas price down to near the coal price.
 - c. Alternatively, some effort should be made to monetise indigenous gas (such as shale gas) in Rands so as to remove the exchange rate volatility.
-

4.4.3 NERSA assessment

a. In line with the abovementioned hurdles highlighted and solutions proposed by participants, the Energy Regulator submits that –

(i) Regarding the issue of exchange rate risk:

(aa) It is recognised that even coal is increasingly referenced to world coal prices in US dollars, even when sold in South Africa, particularly on the spot market. Hence, the stark contrast between Rand denominated coal and Dollar denominated gas is being eroded. Moreover, it must be emphasised that many traded commodities are priced in foreign exchange, but that this does not equate to ‘dollarisation’ of the economy, but is a logical consequence of South Africa’s participation in the world economy. Exchange rate risk associated with gas-fired electricity generation can to a large extent be hedged by the buyer involved, especially when this is a state-owned company.

(bb) The Energy Regulator recognises that the CRM developed as part of the MYPD can be enhanced to cater more explicitly for the recovery of gas purchases associated with IRP approved gas-fired electricity generation within the appropriate load factor ranges.

(cc) It must be noted that current limits on fuel expenditure in the MYPD2 are linked to incentives towards an efficient merit order for the generation and despatch of electricity, which provide for OCGT generation to be used as peak generation only, and within certain load factor guidelines.

(dd) Should additional gas-fired generation be built and utilised, in line with the IRP2 or any determination made by the Minister in terms of section 34 of the Electricity Regulation Act, the allowable revenue will be adjusted to cater for the required fuel costs. However, the Energy Regulator will, in line with its mandate, continue to provide incentives for the efficient purchase of fuel and/or maintain limits on the use of peak generation within acceptable parameters.

(ee) Another mitigation strategy by gas project developers could be to attempt to increase the Rand denominated part of the investment.

(ff) The exploration of indigenous gas is strongly supported by the Energy Regulator, in accordance with the White Paper on Energy Policy and

other policy objectives, whilst the current limitation of indigenous gas sources in the country, including the moratorium on shale gas exploration, is recognised.

(ii) Regarding the regulatory challenges, the following is submitted:

(aa) Recovery of gas purchases for gas-fired electricity generation that is included in the country's IRP or in a Ministerial determination in terms of the Electricity Regulation Act, would be included in the MYPD prior to its use and hence not suffer a three-year delay.

(iii) In response to concerns raised by gas traders and specifically addressing the question of an enabling gas pricing environment, the Energy Regulator would like to highlight the following:

(aa) In 2011, the Energy Regulator developed the Methodology to Approve Maximum Prices of Piped Gas in South Africa ("Maximum Price Methodology, 2011") to facilitate the regulation of maximum prices for distributors, reticulators and all classes of consumers where there is inadequate competition as contemplated in Chapters 2 and 3 of the Competition Act, 1998 (Act No. 89 of 1998) as required by section 4(g) read with section 21(1)(p) of the Gas Act. This Methodology is structured such that the maximum prices will enable the licensee to recover all efficient and prudently incurred investment and operation costs, and also make a profit commensurate with its risk as required by regulation 4(4) of the Piped Gas Regulations.⁵

(bb) The methodology links gas prices to the price indicators of a basket of fuels but allows gas traders to apply using a pass-through methodology for its upstream purchases. This methodology balances the protection of customers with creating an enabling environment for investment in gas infrastructure.

⁵ Piped Gas Regulations published in Government Notice No. R.321 of 20 April 2007 (Government Gazette No. 29792)

4.5 Vertical integration in the current gas market structure

4.5.1 Hurdle

- a. The Gas Act allows for vertical integration which means that the transmission company that is licensed in South Africa, namely Sasol Gas, is also a licensed distribution and gas trading company. Moreover, it is a large consumer of gas itself, and is a shareholder of the only importer of gas into South Africa, Sasol Petroleum International (“SPI”). The highly concentrated and integrated nature of this company is seen by several stakeholders as limiting downstream competition in the industry.

4.5.2 Proposed solution

- a. Some stakeholders held the view that if the country seeks to achieve development of the gas industry where everyone is afforded an opportunity to access the pipeline, then it is only fair that the gas transporter or pipeline operator is not the same person as the trader in such gas. The participants submitted that an exception to this viewpoint could be a situation where the pipeline in question is a dedicated facility for supply of gas strictly to the transporter or operator concerned.
- b. Furthermore, it was submitted that most traders would benefit from an increased number of distributors in the market, as it could enable them to buy at competitive prices from different distributors.

4.5.3 NERSA assessment

- a. The Energy Regulator takes the view that the above proposed solution of vertical unbundling could be appropriate for well-developed gas markets, but would be too onerous for an infant gas industry as found in South Africa. Such unbundling would require infrastructure operators to construct and operate gas re-gasification, transmission or distribution facilities on a purely merchant basis, that is, entirely for third parties and earning regulated returns without any guaranteed opportunity to sell gas itself. In the context of a nascent gas industry where growth requires additional exploitation or importation of gas and construction of infrastructure, which requires significant capital outlays and a secure anchor customer, vertical unbundling of trading in gas may be an insurmountable hurdle

- to any new gas business. In addition, it would entail a significant change in the ‘rules of the game’ for the incumbent and require significant policy change and legislative amendment. Nevertheless, the Energy Regulator recognises that the presentations on this matter are an important contributor to the debate on facilitating gas infrastructure development and should be duly considered.
- b. As an alternative to the proposed vertical unbundling, however, the Energy Regulator opines that the policy makers could consider legislating for mandatory third party access in distribution pipelines in order to provide a framework for competition. In this regard, it is worth mentioning that the current legal framework for the piped gas industry only permits third party access in transmission pipelines and storage facilities.

4.6 Regulatory and Policy uncertainty

4.6.1 Hurdle

- a. Over and above issues raised by some participants around the use of gas as a vehicle fuel as briefly mentioned in **4.1.3(f)** above, participants also commented that there is a fragmentation of legislation and regulatory uncertainty in the gas industry caused by –
- (i) insufficient coordination by relevant statutory bodies or organs of state; and
 - (ii) lack of coordination between the energy policy, piped gas legislation, other energy legislation such as the Petroleum Products Act No. 120 of 1977 (“Petroleum Products Act”) and Petroleum Pipelines Act, and the National Ports Act No. 12 of 2005 (“National Ports Act, 2005”).
- b. The points that emerged from issues raised in connection with gas-fuelled vehicles include the following –
- (i) Uncertainty regarding the fiscal regime applicable to gas-fuelled vehicles, particularly regarding the applicability of the fuel levy. This hampers the growth of the gas industry, especially with regard to fuel applications;
 - (ii) The lack of explicit preference given to indigenous sources of gas imply that gas is likely to remain imported, which reduces job creation opportunities and may hamper security of supply;

- (iii) A classic chicken or egg scenario emerges wherein no vehicle operators will confidently invest in alternative fuel vehicles unless the alternative fuel supply is guaranteed, whilst no alternative fuel will also be produced without a firm fuel order;
- (iv) A shift towards using gas vehicles could result in unaffordable additional capital expenditure (“CAPEX”) for vehicles and depots, especially the public bus transport which enjoys fixed route subsidies, and this could in turn result in the low uptake of alternative fuel vehicles.

4.6.2 *Proposed solution*

- a. Clear policies and regulatory framework are necessary in order to attract the required energy sector investment and sustain a high economic growth.
- b. The relevant energy policy should be coordinated at Departmental level.
- c. Such Departmental policy coordination should include:
 - (i) the integration of additional gas-fired electricity generation into the IRP;
 - (ii) the inclusion of a similar Ministerial determination as that contemplated in section 34 of the Electricity Regulation Act into the Gas Act to facilitate the use of gas in electricity projects by the Single Buyer;
 - (iii) the certainty about the fiscal regime for gas in vehicles;
 - (iv) an appropriate strategy for a simultaneous coordinated roll-out of alternative fuel vehicles and alternative fuels in the country;
 - (v) the unequivocal statutory stance as to the regulation of LPG; and
 - (vi) the alignment of sections 4(a) and 19 of the Gas Act with sections 56 and 57 of the National Ports Act, 2005 with regards to the licensing of gas activities and/or facilities located within the South African ports boundaries.

4.6.3 *NERSA assessment*

- a. The Energy Regulator will strive to maintain regulatory certainty on statutory functions entrusted upon it. To date it has managed to *inter alia* issue the Maximum Price Methodology, 2011 and the Tariff Guidelines, 2009, prior to the lapse of a special dispensation period in 2014, and furthermore conducts all its meetings open to the public and hands its decisions down in writing.
 - b. The Energy Regulator supports mandating the single buyer in the electricity sphere to purchase or produce additional gas-fired electricity generation under
-

section 34 of the Electricity Regulation Act as a mechanism to stimulate investment. Furthermore, the Energy Regulator's considerations about the inclusion of a Ministerial determination similar to the one provided for under section 34 of the Electricity Regulation Act into the Gas Act are discussed in **4.8** below.

- c. The regulation of LPG and the alignment of the Gas Act with the National Ports Act, 2005 are elaborated on under paragraph **4.7** and **4.8**, respectively.

4.7 Regulation of CNG

4.7.1 Hurdle

- a. The Gas Act does not explicitly regulate the transportation of CNG storage (licensed by the Energy Regulator as mobile storage units, also known as 'virtual pipelines') and this limits the regulatory effort of ensuring the safe storage of all regulated gas products envisaged in section 2(c) of the same Act.
- b. LPG cylinder transportation regulation is also not contained in the Gas Act but is covered by the Petroleum Products Act, which shows some fragmentation of the regulatory framework.

4.7.2 Proposed solution

- a. The gas industry regulatory framework should be improved to explicitly regulate the transportation of stored CNG and LPG.

4.7.3 NERSA assessment

- a. Regarding the regulation of the transportation of the above mentioned stored gases by other means than pipeline, there is indeed a fragmentation of relevant legislation and institutions which results into confusion by industry players and possible duplication of regulatory mandates.
 - b. The Gas Act defines '**gas**' as "*all hydrocarbon gases transported by pipeline, including ... liquefied natural gas, compressed natural gas ... liquefied petroleum gas ...*", and '**storage**' as "*the holding of gas as a service and any other activity incidental thereto, but excludes storage of gas in pipelines which are used primarily for the transmission and distribution of gas*".
 - c. By implication, therefore, these gases are not regulated under the Gas Act if not transported by pipeline or if not held as a service in storage facilities as defined.
-

However, as currently such services involve storage of piped gas by means of MAT modules, which are transported to customers and placed on site, the Energy Regulator is able to license these activities as ‘mobile’ storage activities. It would be preferable to have a legislative dispensation that explicitly mandates the Energy Regulator to regulate MAT modules, extending to the transportation of such modules by road.

- d. Furthermore, activities associated with LPG are regulated under three Acts, namely the Gas Act, Petroleum Pipelines Act and Petroleum Products Act. Whilst the Petroleum Pipelines Act explicitly excludes the storage regulation of LPG during its transportation by road, rail, sea and air; the Gas Act and the Petroleum Products Act are silent on the issue. It would benefit the industry if the Gas Act and/or the Petroleum Products Act were amended to clarify and simplify the regulatory framework for LPG.

4.8 Gas Infrastructure Planning

4.8.1 Hurdle

- a. The participants made various comments about hurdles associated with gas infrastructure planning, and the Energy Regulator therefore considers it apposite to broadly capture an overview of the participants’ common areas of concern and proposed solutions thereto.
- b. It generally transpired from the Dialogues that participants observed stagnation in piped-gas infrastructure planning.

4.8.2 Proposed solution

- a. According to some participants, partnerships between government and commercial entities to form special purpose vehicles for infrastructure development could be the mechanism towards the faster development of infrastructure and future capacity planning.

4.8.3 NERSA assessment

- a. According to the Energy Regulator, government could encourage gas infrastructure planning through one or more of the following options–

(i) Aligning the Gas Act and the National Ports Act, 2005:

- Section 56 of the National Ports Act, 2005 provides for the conclusion of an agreement between the National Ports Authority Limited (“Ports Authority”) and any person in terms of which that person is, for the period and in accordance with the terms and conditions of such agreement, authorised to *inter alia* construct or operate a port terminal or port facility or provide services relating thereto, and/or perform any function necessary or ancillary to *inter alia* such port terminal or port facility construction or operation.
- Section 57 of the National Ports Act, 2005 provides for competitive licence bidding process whereby, in the absence of an agreement in terms of section 56(1) with any person, the Ports Authority issues out a notice in the Government Gazette inviting the submission of applications for a licence to provide a port service or operate a port facility.
- However, such facilities when providing piped-gas services also require a licence from the Energy Regulator. Harmonisation and streamlining of the process would, therefore, be beneficial.

(ii) Nationally significant infrastructure projects:

- Government could insert new provisions in the Gas Act to provide a mandate for the Energy Regulator to advise the Minister of Energy regarding Gas Infrastructure Planning, particularly regarding nationally significant infrastructure projects that could use gas as a source of fuel. Alternatively, this mandate could be incorporated under section 6(6) of the National Energy Act, 2008 so as to give more weight to the statutory requirement of an annual Integrated Energy Plan contemplated in section 6 of the said Act. Currently, section 6(1) read with section 6(6) of the National Energy Act, 2008 require that the Minister of Energy must annually review and publish the Integrated Energy Plan in the Gazette which must serve as a guide for energy infrastructure investments, must take into account all viable energy supply options, and guide the selection of appropriate technology to meet energy demand.

- Such provisions could also allow the Minister of Energy to direct the Single Buyer to purchase gas for electricity generation, akin to the current wording of the section 34 determination.

(iii) Incorporating similar provisions of section 57 of the National Ports Act, 2005 into the Gas Act:

- Government could also use section 57 to draw upon the National Ports Act's example and insert the new provisions in the Gas Act that would enable the submission of licence applications upon a Government Gazette invitation for the carrying out of gas activities or operation of gas facilities specified in such gazetted notice or include a determination similar to section 34 of the Electricity Regulation Act into the Gas Act.
- It should be understood however, that copying the relevant sections of the Electricity Regulation Act as amended would not yield the desired results as the framework and philosophy underpinning the Electricity Regulation Act are substantively different from those underpinning the Gas Act. For instance, the Electricity Regulation Act incorporates the notion of a binding IRP in combination with a Single Buyer, which allows the development of a centrally coordinated electricity sector. The Gas Act, by contrast, does not aim to prescribe how a State Owned Company or an Independent Systems and Market Operator ("ISMO") would be required to serve millions of captive customers, instead it allows for market-led forces and private sector participation, which results in risks being allocated appropriately.
- Hence, such provisions could be used as a licensing vehicle for nationally significant infrastructure projects to promote competition, but would require to be accompanied by off-take guarantees, which makes this route less desirable. Under the current dispensation, the Minister of Energy can include gas fired electricity generation in the IRP or in a section 34 determination, which would result in the Single Buyer being required to procure gas fired electricity generation capacity, using its own processes as prescribed by the Public Finance Management Act and other relevant legislation and in compliance with the planning parameters of the IRP. Hence the Single buyer process would ensure competitive procurement of gas infrastructure and

electricity tariffs within the prescribed screening curves whilst providing the required off-take guarantees.

5. CONCLUSION

The participants commended the Energy Regulator's initiative to facilitate Dialogue of this nature. Several participants were appreciative of being engaged and consulted, and submitted that this public consultation had assisted in enhancing their understanding on what the specific object in section 2(b) of the Gas Act is geared to achieve from the policy point of view.

Many significant contributions were made, resulting in this report. The Energy Regulator will present this report to the Minister and Department of Energy and offer to assist the Department with any legislative changes it may contemplate as a result.

6. RECOMMENDATIONS

6.1 It is recommended that the Minister considers the hurdles and proposed solutions to gas infrastructure investment, as highlighted in this report, as inputs in its legislative review of the national regulatory framework for the gas industry so as to:

6.1.1 enable the successful facilitation of the gas infrastructure development and investment envisaged in section 2(b) of the Gas Act; and

6.1.2 thereby give effect to all relevant imperatives of the Energy Policy and the Gas Act.