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DEPARTMENT OF MINERAL RESOURCES AND ENERGY

NO. R. 302 **1 April 2021**

PETROLEUM PRODUCTS ACT, 1977

PUBLISHED FOR PUBLIC COMMENTS: DRAFT LIQUEFIED PETROLEUM GAS ROLLOUT STRATERGY

I, Samson Gwede Mantashe, the Minister of Mineral Resources and Energy intend to develop the Liquefied Petroleum Gas Rollout Strategy and has approved the publication of the draft Liquefied Petroleum Gas Rollout Strategy for public comments.

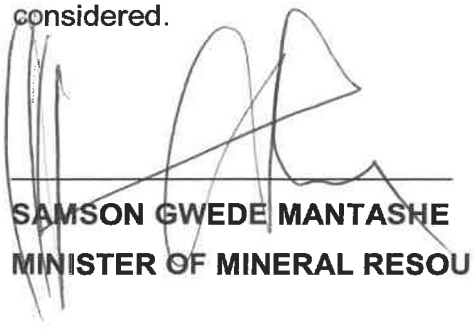
All interested persons and organisations are hereby invited to submit written comments on the proposed Liquefied Petroleum Gas Rollout Strategy for the attention of Makhosini Mngomezulu, by –

(a) Post to: Department of Mineral Resources and Energy
Private Bag X96
Pretoria
0001

(b) Hand delivery to: Matimba House
192 Visagie Street
Corner Paul Kruger & Visagie Street
Pretoria
0001, or

(c) email to: Petroleum.Policy@dmre.gov.za

Kindly provide the name, address, telephone number, fax number and email address of the person or organisation submitting the comments. Comments on the draft Liquefied Petroleum Gas Rollout Strategy must be submitted no later than sixty (60) days from the date of publication of this Notice. Comments received after the closing date may not be considered.



SAMSON GWEDE MANTASHE
MINISTER OF MINERAL RESOURCES AND ENERGY

mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

DRAFT SOUTH AFRICAN LIQUEFIED PETROLEUM GAS (LPG) ROLLOUT STRATEGY

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1. EXECUTIVE SUMMARY

Government, through the Department of Mineral Resources and Energy (DMRE), is responsible for ensuring energy security. This entails ensuring that diverse energy resources, in sustainable quantities and at affordable prices, are available to the South African economy in support of economic growth and poverty alleviation, taking into account environment management requirements and interactions among economic sectors. Power shortfalls in recent years have also emphasised the need for South Africa (SA) to diversify its energy mix and, in so doing reduce heavy dependence on electricity especially for cooking and space heating. The LPG industry in South Africa can provide a quick and effective solution to household's thermal requirements. However, for this industry to provide such a solution there needs to be changes in the current LPG industry structure and/ or value chain to introduce elements of effective value-add throughout production, importation, distribution, wholesaling and retailing.

The LPG Rollout Strategy therefore provides a framework for the expansion of the use of Liquefied Petroleum Gas (LPG) in South Africa (SA) with special emphasis on the household sector. It also seeks to ensure optimal contribution of LPG in addressing the country's electricity and other energy supply challenges. The Department of Mineral Resources and Energy has identified a number of challenges in the development of the LPG market in the country; some of which are currently being addressed. These challenges include amongst others the following:

- Structural features of the market
- LPG infrastructure
- LPG pricing framework
- Cylinder management
- Negative perception about LPG
- Compliance, Monitoring and Enforcement

2. STRUCTURAL FEATURES OF THE LPG MARKET

Generally, the biggest challenge in the oil and gas industry of which LPG is part, is the lack of meaningful transformation. The LPG sector is characterized by the dominance of the market by a few wholesalers which have historical supply relationships with the local refineries. This has the effect of creating barriers to entry by small players especially black ones in the industry. These wholesalers collectively account for more than 95 percent of the wholesale market. Therefore, entry to the LPG supply chain becomes impossible and costly for new entrants resulting in lack of competition and higher prices.

Long-term contracts for LPG supplies to bulk customers especially at shopping malls tend to create barriers in terms of competition. Customers are contractually tied down to LPG suppliers for both LPG supplies and equipment. Furthermore, contracts are either silent or vague when it comes to passing of ownership at the end of the contract. This in a sense makes switching to another supplier difficult and costly. The Competition Commission Report published in March 2017, recommended a separation of the LPG supply agreement from the LPG equipment agreement. The parties to any supply agreement must have separate agreements pertaining to the use of LPG equipment. The LPG equipment agreement must reflect the cost and usage of the installed LPG equipment, while the LPG supply agreement should reflect the cost of supply of LPG. The Competition Commission is therefore well placed to enforce the compliance on the proposed contractual arrangements.

Furthermore, to address the issue of transformation within the LPG sector, the Department is in the process of reviewing the Petroleum and Liquid Fuels Sector Charter. In this regard, the Petroleum and Liquid Fuels Sector Charter Council will be established. The latter will serve as a compliance, monitoring and enforcement mechanism for the implementation of B-BBEE aligned Sector Codes. In considering license applications, the Controller of petroleum products shall promote and advance black people as defined in the B-BBEE Act. The Department will therefore use this instrument to effect transformation. It will further collaborate with the Competition Commission with regard to exposing any uncompetitive behaviour in the industry.

3. LPG INFRASTRUCTURE

There has been limited LPG infrastructure; ranging from import facilities to storage facilities resulting in inadequate supply of LPG. Infrastructure and logistical issues have an immense impact on the wholesaling and retailing of LPG in the country. South Africa has no storage facility capable to fully load a Very Large Gas Carrier (VLGC), and as a consequence, only small cargo vessels are accommodated at the South African ports resulting in less-economic domestic delivery of LPG. Due to inadequate local production of LPG, the shortfall has been met by imports. However, the imports of LPG have also been limited by the lack of adequate importation and storage infrastructure. Prior to 2015, the methodology used for reviewing tariffs was done every 3 to 5 years, thus not attractive to investors. This created regulatory uncertainty regarding return on investments. This therefore means that the construction of import infrastructure, as well as corresponding secondary storage, and distribution infrastructure which is accessible to third parties and /or new entrants is critical in enabling the desired imports of LPG.

In 2015 the Department amended Regulations regarding the reviewing of tariffs to allow for the review period of the remaining term of the license to facilitate infrastructure investments. Subsequent to the said amendment, new investments in import facilities in the Western Cape were realized. Furthermore, in October 2018, construction of a 22 600 metric tonnes LPG import and storage facility in Richards Bay got under way. This facility will remove the largest obstacle to unrestricted supply of LPG to the region and will usher in a new era of cost-effective, reliable, safer and cleaner energy for Southern Africa.

4. LPG PRICING FRAMEWORK

4.1 LPG Pricing

The Department regulates LPG at the refinery gate through the Maximum Refinery Gate Price (MRGP) and also at retail level through the Maximum Retail Price (MRP). The Department has since changed the pricing framework to reflect the actual cost of imported LPG using the Saudi Contract Price. The main problem with the old pricing methodology was that, it used Petrol 93 as a proxy for the calculation of MRGP of LPG. Due to the fluctuation of monthly crude oil prices from which LPG is derived,

sometimes importers of LPG were not fully recovering their importation costs. The Department intends regulating the prices of LPG along the entire value chain.

5. LPG CYLINDER MANAGEMENT

5.1 LPG Cylinder Deposits

Cylinders are a necessary tool to market and compete effectively in this sector. Consequently, wholesalers have invested in the cylinder market to ensure that their stock of cylinders is sufficient to meet market demand. Therefore wholesalers' investments in cylinders need to be somehow protected. The latter however need to be affordable in order to expand the usage of LPG. It is the Department's view that cylinder deposit must be excluded from the working rules for setting the monthly Maximum Retail Price (MRP) for LPG. Customers must pay for the actual cost of the cylinder and own the cylinder. Ownership of a cylinder (s) by the customer will assist in curbing the practice of cross-border stealing of cylinders thus assisting the distribution of LPG to residential households.

6. COMPLIANCE MONITORING AND ENFORCEMENT

The Competition Commission highlighted the lack of monitoring of both the maximum refinery gate price and the wholesale price. It was further found that there are no remedial sanctions that may be imposed by the Energy Inspectors in the event that non-compliance with the regulated prices is found. Regarding the wholesale price, the Department is considering price regulation for the entire LPG value chain. Currently, LPG is regulated at the refinery gate as well as at the retail level excluding the wholesale price. For law enforcement to be successful, it is important for offenders to be brought before a court of law where consistent non-compliance with notices is experienced. However, criminal action shall only be possible if Energy Inspectors are properly categorized by the Minister of Justice and Correctional Services in terms of section 334 of the Criminal Procedure Act, 51 of 1977. To strengthen compliance monitoring and enforcement, the Department has capacitated Energy Inspectors to be categorized as Peace Officers as Section 3 (4) (a) of the Petroleum Products Act, 1977 provides for such categorization and appointment. The categorization of inspectors as Peace Officers will help a great deal in compliance monitoring and enforcement as inspectors will be vested with powers to serve summons issued in terms of section 54

of the Criminal Procedure Act, 1977. It is envisaged that non-compliance will be significantly reduced.

7. NEGATIVE PERCEPTION ABOUT LPG

All energy carriers are of themselves, to varying degrees, inherently dangerous and require adherence to stringent safety, health and environmental specifications and standards with respect to equipment, handling and use. The explosive nature of LPG accidents - the so-called "bomb effect" - feeds into people's negative perception of LPG as being an unsafe fuel compared to other sources of energy.

The Department in collaboration with other stakeholders will embark on targeted safety and awareness campaigns to assist the public in making the right choices to switch from using biomass, coal, electricity and illuminating paraffin to using LPG for household thermal needs. In this regard, the benefits of safe utilisation of LPG juxtaposed to those of other (traditional) energy carriers must be well communicated to the target audience. This would include the reduction of indoor pollution, caused by the use of traditional energy carriers like biomass and coal as well as illuminating paraffin, and the concomitant savings on the health costs thereof. These benefits would not be achievable without the requisite infrastructure and appliances which include cylinders, stoves and heaters that comply with applicable specifications and standards. The campaign will highlight the economic and financial benefits of switching from other energy carriers to LPG.

8. CONCLUSION

For successful implementation of the LPG Rollout Strategy, the Department will focus mainly on four key challenges, namely; restrictive features in the LPG market, provision of adequate and open access LPG importation infrastructure to accommodate imports, conducting safety awareness campaigns to deal with negative perceptions on the use of LPG and cylinder management. Collaboration with and co-operation of other key stakeholders such as the Competition Commission and the Department of Labour are also crucial for the successful implementation of the Strategy.

9. THE LPG ROLLOUT STRATEGY

9.1 Background

South African energy supply is characterized by unequal access to modern energy carriers such as electricity and LPG. Low income households lack access to affordable, safe and cleaner energy resources for cooking and space heating. There are socio-economic impediments to the introduction of LPG in some communities. These include the existence of a culture of non-payment for services rendered (e.g. illegal connections to electricity and outright refusal to pay for services rendered) and negative perceptions regarding the safety and effectiveness of LPG as compared to other energy carriers.

The continuing electricity power shortfalls and electricity price increases highlight the need to diversify the country's energy mix and to alleviate the load on the electricity grid. In as far as LPG is concerned; local production by all South African refineries is inadequate to meet the demand of the local market. The shortfall has to be met by imports.

The LPG Rollout Strategy seeks to provide a framework for the expansion of the use of LPG in SA with special emphasis on the household sector. It identifies strategic options that Government can adopt in making LPG an energy carrier of choice for thermal applications, as well as the orderly development of the LPG market in South Africa. It seeks to ensure optimal contribution of LPG in addressing the country's electricity (and other energy) supply challenges.

The LPG Rollout Strategy is informed by the realisation that SA's socio-economic development over the past decades has also resulted in constrained supply of energy in the country. As the number of people with access to electricity increased, the demand for electrical energy started to increase and this led to power shortfalls that emphasised the need for SA to diversify its energy mix and in so doing, reduce heavy dependence on electrical energy, especially for cooking and space heating. It is within this context that LPG has been identified as the most appropriate, efficient and effective fuel for household thermal needs and thus also contributing in addressing the shortfall mentioned above.

In addressing the energy supply needs, it is imperative that the redressing of past as well as present inequalities besetting the country receives special attention. What therefore has engendered this Strategy, among others issues, are energy supply gaps in the market characterized by unequal access to modern energy such as electricity and LPG by South African households. As such, household consumers, particularly disadvantaged, rural and economically marginalised communities do not have adequate access to affordable, safe and cleaner energy sources for cooking and space heating. Other challenges identified by the Strategy include lack of adequate LPG supply infrastructure facilities, the practice of cylinder hoarding, the high cost of LPG, vertical integration of the supply chain that creates entry barriers to new entrants, and the negative perception of LPG with respect to safety.

9.2 Objectives of the LPG Rollout Strategy

The LPG Rollout Strategy has the following key objectives:

(a) To promote national access to safer, cleaner, more efficient, environmentally friendlier and affordable thermal fuel for households;

(b) To encourage households to switch from the use of biomass, coal, electricity and illuminating paraffin to LPG for thermal purposes;

(c) To contribute to energy efficiency and demand side management (EEDSM) by minimising the use of electricity for cooking and space heating;

(d) To enhance the level and quality of energy services currently available to households throughout South Africa; and

(e) To contribute to the green economy programme of Government which is aimed among others at reducing greenhouse gas emissions.

The successful implementation of the LPG Rollout Strategy, as an intervention, rests on four main pillars, namely:

(a) investment in the LPG infrastructure throughout the value chain by the private sector as well as through public-private partnerships;

(b) collaboration of the Department with the private sector, Non-Government Organisations (NGOs), State Owned Companies (SOCs), Organs of State and other Government departments;

(c) appropriate policy or regulatory framework as well as pricing regime, with due regard to affordability; and

(d) improved security of supply; particularly during seasons of high demand.

Where it is deemed necessary and appropriate, the State should play a strategic and significant role, through the relevant State-Owned Companies in the implementation of this strategy.

10. OVERVIEW OF THE LIQUEFIED PETROLEUM GAS MARKET

Energy consumption in SA is divided between industry, commerce (which account for about 60% of the total consumption), households (which consume 24% of energy), and transport (which consume 16%). The value of total energy consumption is more than R30bn each year, with LPG only accounting for about 0.5% (R1.5bn) of that amount)[1]. There has been a steady increase in LPG sales and demand since the early 1990s with an average annual growth rate of between 8% and 12%. Currently this demand growth stands at between 3% and 4% per annum[1].

Various structures exist in the LPG market. LPG is marketed and distributed in South Africa mainly by four large companies (brands indicated in brackets): Afrox (Pty) Ltd (Handigas), Oryx energies (Oryx), Easigas (Pty) Ltd (Easigas), and Total (Totalgaz) and about 150 small distributors. The four large distributors collectively have a market share of 95% to 97% while the small distributors take up the rest. Fifty percent of sales are for bulk sales and the other fifty percent is for packaged (cylinders) LPG. The first category of role players are the producers/refiners of LPG, with the most prominent players dominating the market being SAPREF (Shell SA, BP SA), Engen Petroleum Ltd, Sasol Synfuels (Pty) Ltd, Petroleum Oil and Gas Corporation of South Africa (PetroSA) and Astron Energy (Pty) Ltd. Currently, production does not meet market demand for LPG which therefore requires the balance of LPG required to be imported.

The second category of role players is the traders and large wholesalers with the main players being Afrox, Easigas, Oryx, and Totalgaz. LPG import and storage

[1] Http: //www.wlpga.org/about-lpg/production-distribution/. Accessed on 24 October 2012.

infrastructure owned by Avedia Energy, Sunrise Energy in Saldanha, Western Cape and Bidvest in Richrdsbay, KwaZulu-Natal play an important role in solving the problem of LPG shortages in the country, particularly in winter months. The third category in the value chain belongs to resellers or distributors and are responsible for selling LPG to bulk users. The fourth category is made up of retailers responsible for selling LPG in cylinders to the end-users or consumers (industrial, commercial and domestic).

In terms of the regulation of LPG market, the DMRE is responsible for the regulation of LPG from production/refining, wholesaling and retailing level. This includes licencing and setting of prices for LPG throughout the value chain. The Energy Regulator's (NERSA) role is to regulate the LPG infrastructure (pipelines, loading and storage facility) in terms of the Petroleum Pipelines Act, 2003, Act No. 60 of 2003.

11. LPG PRODUCTION

In an oil refinery, liquefied petroleum gas is produced at different stages. Approximately 60% of LPG is recovered during the extraction of natural gas and oil from the earth, and the remaining 40% is produced during the refining of crude oil[2]. The propane/butane ratio of refinery grade LPG is a function of the type of crude oil processed and the type of refining processing units that the refinery operates. In general, refinery grade LPG is approximately evenly split between propane and butane. There is a correlation between refinery reforming capacity utilisation and the butane ratio, as the utilisation increases for the production of petrol, the butane ratio increases. Domestic production of LPG still remains relatively low since LPG is not the core product for local production. Local production is unable to meet domestic demand in South Africa, especially in winter months when the demand is high. Generally, there is often a shortfall in the supply of LPG resulting in imports. **Figure 1** below shows the production versus consumption picture for a ten year period. From the figure below it is evident that a substantial increase in demand shall necessitate an increase in supply, which may only be met by imports.

[2] https://www.wlpga.org/about-lpg/production-distribution/

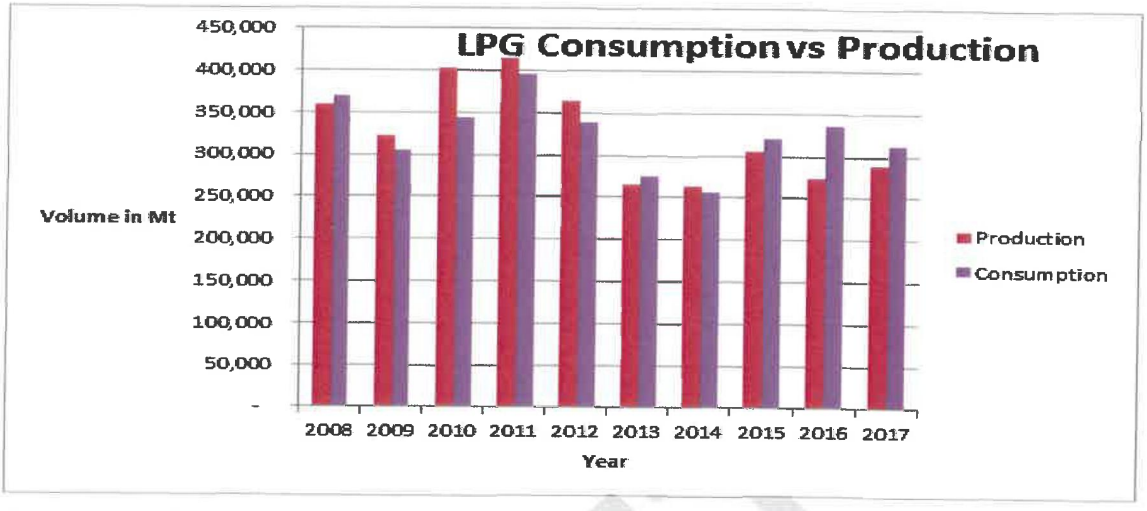

Figure 1: LPG production and consumptions in SA (Source: DoE Statistics Report)

LPG is manufactured by all the local refineries, being an aggregate of roughly 300,000 metric tonnes per annum.

The typical net volume of LPG produced from the South African refineries is amongst others, determined by:

a) The diesel/petrol demand volumes;
b) A consistent LPG market off-take; and
c) Refinery crude and product pricing economics, margins and slates (selection of crude diet and product types).

Typically, crude refineries' LPG production output varies between 1% and 4% of crude oil processed[3]. Therefore, SA's LPG production level is restricted to that of LPG being a co-product of the refining process. From the supply-demand figures above, it is clear that SA's LPG demand remains suppressed due to the constrained domestic production, lack of adequate (import) infrastructure, and other factors related thereto.

[3] https://www.wlpga.org/about-lpg/production-distribution/

12. LPG IMPORTS

As local production falls short of meeting the local demand there is therefore a need for alternative incremental supply through imports from elsewhere in the world. LPG imports would seem feasible based on global supply demand projections and upon having the necessary infrastructure to handle such imports. The economics for large scale imports (from the Middle East or from West Africa) will need to be tested as it will need to include investments in costly storage and pipeline infrastructure, the shipping cost and of course incurring international market supply costs.

The cost and availability of ships and the capacity of SA's port facilities to receive imports will need to be considered in detail. Assuming that the consumption of LPG doubles, the country will need to import 300,000 tonnes which amounts to five ships of 5,000 tons capacity per month. The use of such small cargo parcels that importers can accommodate due to inadequate import infrastructure is responsible for high importation costs. There is however some import facility being developed in Richards Bay, KwaZulu-Natal by Bidvest. This facility comprises four tanks each with a capacity of 5650 tonnes, 60m long and 16 m in diameter providing a combined storage capacity of 22 600 tonnes. This new development will certainly be a game changer in the importation of LPG as VLGC will be accommodated.

Intra-trade in the region can be beneficial in particular in the LPG space. As an example, SA has signed a Memorandum of Understanding (MOU) with Algeria, which is one of the world's top ten LPG producers. Instead of sourcing LPG from the Middle East, South Africa may need to consider sourcing it from Algeria. Although this is a recommended solution, it would be wise to secure maximum volumes from local production prior to embarking on potentially more expensive LPG imports coupled with the current challenges with import facilities. LPG imports have increased over the years which in turn indicates that the future demand of South Africa will be met via imports. To this end, the Department has since amended regulations pertaining to Petroleum Infrastructure to facilitate infrastructure investments. Subsequent to these regulation amendments, new investments in import facilities have been realised such as Sunrise Energy and Avedia Energy in Saldanha, Western Cape.

13. LPG EXPORTS

In addition to supplying LPG to domestic customers, wholesalers also export LPG procured from domestic refineries. Most of these wholesalers export LPG into the Southern African Development Community ("SADC") region, to countries like Zimbabwe, Namibia, Botswana, Zambia, Mozambique, Lesotho and Eswatini. However wholesalers wishing to export to these countries are faced with several regulatory hurdles as indicated in the Competition Commission Report. The Report listed hurdles such as the availability of LPG in South Africa, access to appropriate long-distance logistics, and export permits required by the International Trade Administration Commission ("ITAC") and the Department all of which impede the ability of wholesalers to penetrate external markets. In addition to naming these structural barriers to exporting, wholesalers also referred to loss of investment due to theft of cylinders as a factor that restrains exports.

14. LPG PRICING FRAMEWORK

14.1 LPG Pricing

As a point of departure in this regard, it is important to highlight the fact that no amount of incentives to refiners including higher margins would persuade them to produce adequate supplies of LPG. The following are the reasons:

- LPG is not the core product of local refineries and that is why they sold their interests to wholesalers.
- These refineries are constrained even in producing their core products such as petrol and diesel. Therefore LPG has to be imported to meet local demand.

The Department regulates LPG at the refinery gate through the Maximum Refinery Gate Price (MRGP) and also at retail level through the Maximum Retail Price (MRP). The Department intends regulating the price of LPG along the entire value chain. The Department has since changed the pricing framework to reflect the actual cost of imported LPG using Saudi Contract Price. The main problem with the old pricing methodology was that it used Petrol 93 as a proxy for the calculation of MRGP of LPG. This stems from the historical practice when LPG was a mere by-product of the refining process and was in abundance. Some of the LPG is used as an input in the production

of petrol. Due to fluctuations of monthly crude oil prices from which LPG is derived, sometimes, importers of LPG were not fully recovering their importation costs. The graph below demonstrates this fact.

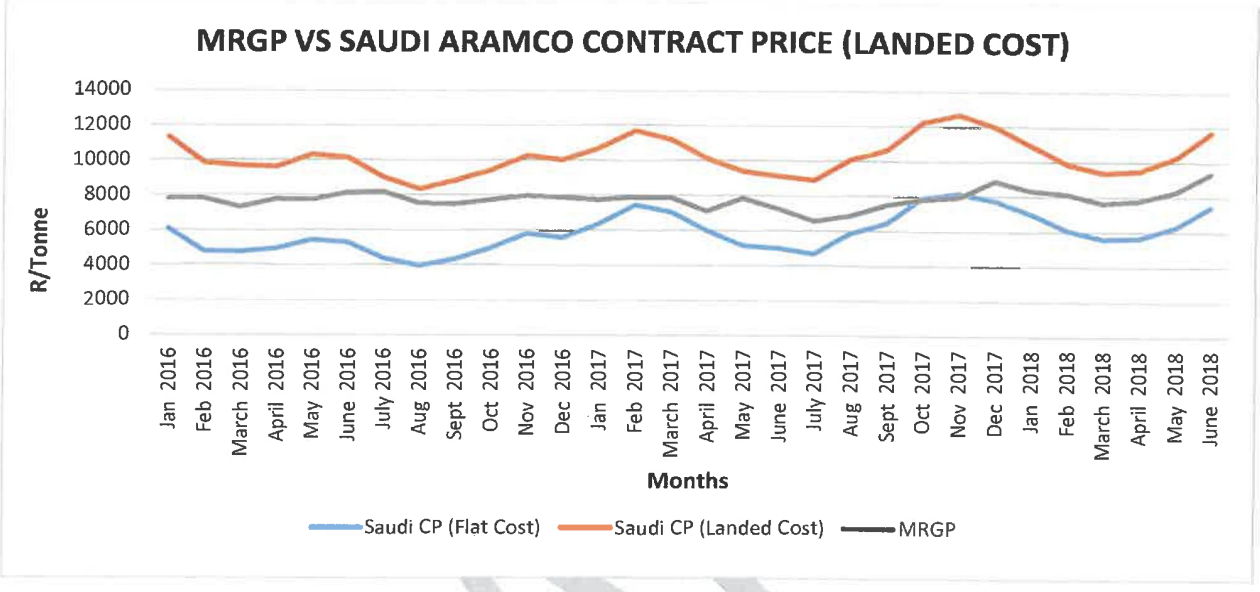

Figure 2: MRGP VS Saudi Aramco Contract Price (Landed)

The graph above shows the value trend in terms of LPG price movements for the period January 2016 to June 2018.The Department has acknowledged that using Petrol 93 as a proxy for the calculation of the MRGP of LPG is inappropriate. To this end, the Department has since changed the pricing framework of LPG to reflect the actual cost of imported LPG using Saudi Contract Price. The Department acknowledges that price alone will not make LPG accessible to all South African citizens. This has to be preceded by the removal of all obstacles prevailing throughout the whole supply value chain that restrict entry to the market. This has also been highlighted by the findings of the LPG Market Enquiry published in March 2017.

The findings emphasized on structural features in the LPG market that created barriers to entry in the market. Furthermore, the Competition Commission recommends regulation of the whole LPG supply value chain. It is therefore imperative that the Department embarks on completing the pricing of the whole value chain, specifically the wholesale price of LPG to ensure that retailers have certainty in terms of possible

retail margins. The Department is however of the view that, once the playing field has been levelled in the LPG market, de-regulation should follow.

15. LPG REGULATORY FRAMEWORK

The market is with respect to safety and health, regulated mainly through the Department of Labour. The Department of Employment and Labour and the liquefied petroleum gas association of South Africa (LPGSA) encourage LPG companies to comply with safety regulations. Standards covering cylinders, valves, appliances and/or equipment are often referenced to acceptable international standards. Relevant South African National Standards (SANS) cover the installation of LPG appliances and equipment. Cylinder and storage tanks are covered by the Pressure Equipment Regulations. All cylinders and valves must be tested against the relevant SANS standards. This is verified through the LPGSA which issues a verification permit for all cylinders found to be complying with the set standards. Other equipment such as appliances, hoses and/or regulators undergo the same process of verification. LPGSA trains LPG installers and register them through an independent body appointed by the Department of Employment and Labour.

The Competition Commission in its LPG market inquiry Report found that overlapping jurisdictions of the National Energy Regulator (NERSA) and Transnet National Ports Authority (TNPA) cause significant bottlenecks regarding approvals for the construction of import and storage facilities at the ports. In this regard, a Memorandum of Understanding has been signed between TNPA and NERSA regarding coordination of licensing activities. The Department has to monitor the efficiency of such a Memorandum of Understanding.

The Department is mandated to regulate the buying and selling of petroleum products. This mandate also includes the pricing of petroleum products, as stipulated in the Petroleum Products Act, 1977 (Act No. 120 of 1977 as amended) LPG is included within the ambit of the Petroleum Products Act, as petroleum products are defined as "*any petroleum fuel and any lubricant used and unused, and includes any other substance which may be used, for a purpose for which petroleum fuel or any lubricant may be used*". As both a policymaker and economic regulator for the liquid fuels sector,

the DMRE is responsible for the drafting, reviewing, implementation, monitoring and enforcement of policies and legislation in pursuance of energy security.
The price of LPG is partially controlled mainly through the regulation of the maximum ex-refinery price, which entails the Maximum Refinery Gate Price (MRGP) and the Maximum Retail Price (MRP) of LPG supplied to residential customers.

16. LPG CYLINDER MANAGEMENT

Almost all LPG equipment (cylinders, valves, storage tanks, regulators, etc.) are not manufactured locally. There has been some interest recently in a cylinder manufacturing plant. LPG cylinders are owned by LPG companies. This ownership is retained by LPG companies through a rental arrangement with the dealers who pass the cost to the end-consumer in the form of a cylinder deposit. The cylinder business is predominantly branded with each LPG marketing company having its own distinctive colours for cylinders of different sizes. Retailers who decide to become branded, can choose to be tied to one brand or can be independent and buy and sell different cylinder brands.

The independent wholesaler is, however obliged to create an identity different from the major brands. Some LPG filling plants are owned or managed by LPG distributors. Bulk tanks are owned by LPG companies who have a contractual agreement with their customers such as restaurants in the shopping malls. LPG equipment particularly for domestic use is also available from non-LPG outlets such as hardware stores. Some road tankers are owned by the major wholesalers; however the majority is owned and operated by transport companies. Distribution of LPG by road is usually outsourced by LPG companies. It is the Department's view that cylinder deposit must be excluded from the working rules for setting the monthly Maximum Retail Price (MRP) for LPG. Customers must pay for the actual cost of the cylinder and own the cylinder. Ownership of a cylinder (s) by the customer will assist in curbing the practice of cross-border stealing of cylinders thus assisting the distribution of LPG to residential households

The inability of LPG wholesalers to control cylinders contributes to the high cost of operating the business. Cylinder hoarding is a common practice and amounts to

uncompetitive behaviour and could result in supply disruptions. The cylinder exchange practice is a potential barrier to new entrants as it is governed through bilateral agreements. The cylinder owner has the responsibility for maintaining cylinders in order to ensure that they are safe to use. This is done to avoid hazardous impacts which may even lead to fires and ultimately death. Cylinders need to go through routine checks and revalidations. Since the cylinder plays a very important role as an asset in the LPG business, it needs to be protected for commercial reasons. In addition, cylinders are expected to withstand all the challenges of the distribution chain in order to keep the contents secure and safe. It is therefore important that all parties should cooperate to actively discourage cylinder hoarding and illegal filling. These practices are anti-competitive and are detrimental to the expansion of the LPG market.

The importance of safety in the use of LPG cannot be overemphasized. Addressing the issue of safety requires that the DMRE and the Department of Employment and Labour work collaboratively to ensure that the LPG industry complies with the relevant regulations. It is important that the consumer and all the people involved in the LPG supply chain must be aware of their responsibilities to keep the industry safe and sustainable.

17. LPG SUPPLY VALUE CHAIN

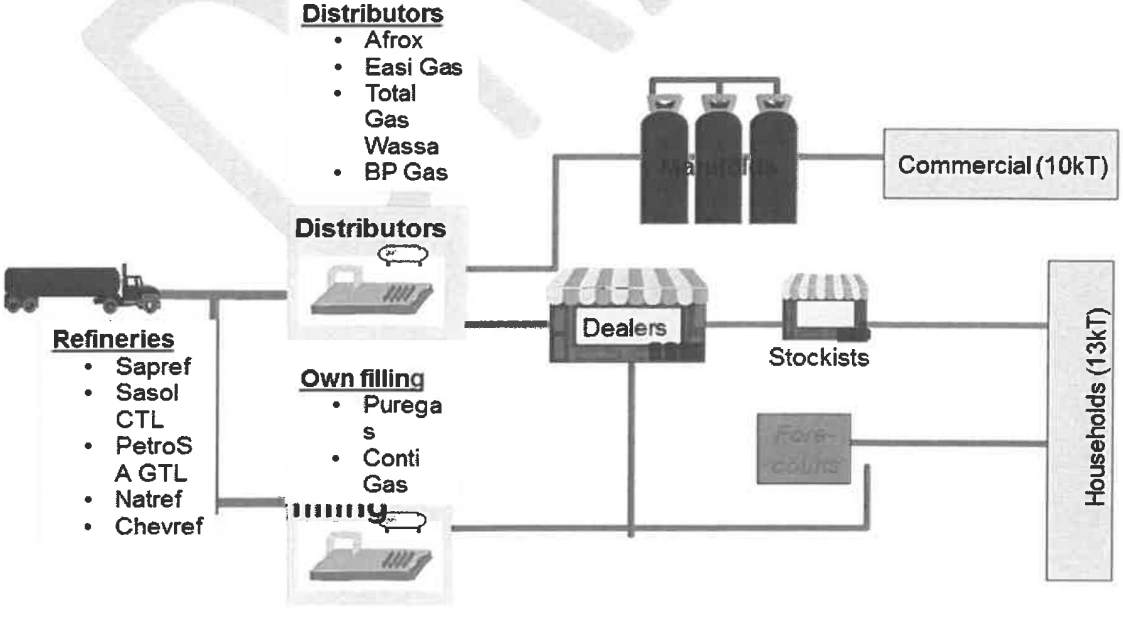

Figure 3: Typical LPG supply value chain in South Africa

In the supply chain shown in **Figure 3** above, the product leaves the refinery gate (equivalent to a port facility in case of imports) in a road tanker to a bulk-breaking facility or a cylinder-filling depot. The filled LPG cylinders are loaded on a flatbed truck and delivered to wholesalers who in turn deliver to retailers (stockists and forecourts). It is only after this point that the product is delivered to the end-consumer. It is important to note that all these points of supply (intermediaries) attract additional costs resulting in high LPG prices. Hence the Department advocates for the streamlining of the value chain in favour of LPG being transported in bulk from the refinery gate to a cylinder filling depot and then directly to end-users (only via some retailing outlet in exceptional circumstances) as shown in **Figure 4** below.

18. PILOT PROJECT BASED LPG SUPPLY VALUE CHAIN

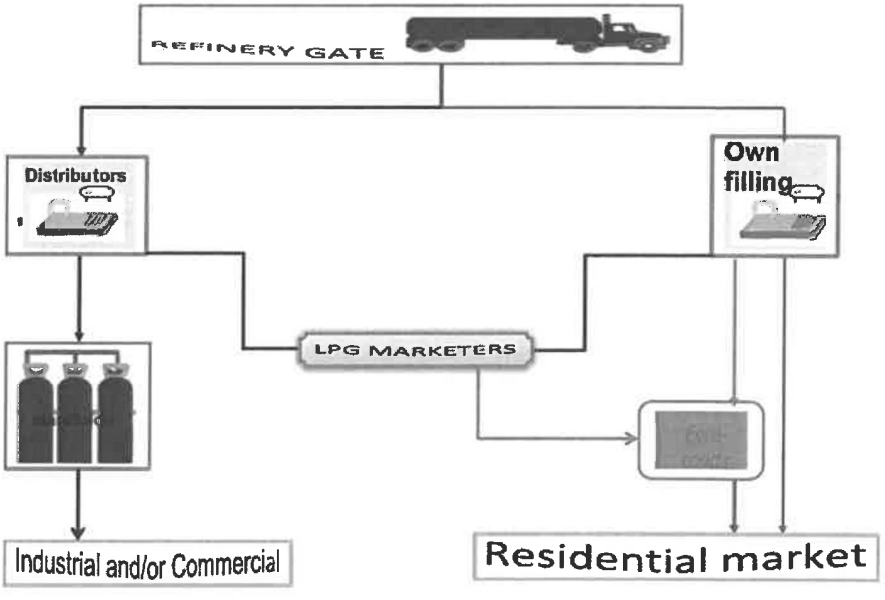

Figure 4: LPG supply value chain model based on the pilot projects in Atteridgeville and Tweefontein (DoE, 2008).

The Department piloted this model in Atteridgeville and Tweefontein and noted the potential reduction of the retail price of LPG supplied to households. It is partly based on insights gained in the piloting of the model that the then Minister of Energy commenced the regulation of the maximum retail price of LPG supplied to households in 2010.

18.1 Wholesalers and Bulk Distributors

The major four independent wholesalers and bulk distributors include Afrox, Easigas, Totalgaz and Oryx. These wholesalers buy LPG from refineries and on-sell in bulk to distributors using big road tankers as well as to their end-user clients, which include industrial, commercial and residential customers.

18.2 Retailers and Dealers

The retail end of the LPG market comprises approximately 452 fuel retail service stations (forecourts) and about 4,000 small traders or stockists who sell in informal (spaza) shops as well as trading stores. It is characterised by the following:

- LPG is rarely a stand-alone business and is usually a small portion of an entity's turnover;
- A retailer is contracted and branded to a particular producer or wholesaler who owns storage and filling equipment;
- A retailer is usually supplied LPG by a distributor in the latter's branded cylinders;
- The retailing of LPG is generally a cash business; and
- LPG may also be retailed at a premium by re-filling end-user owned small cylinders (usually under 7kg).

19. LPG IMPORT INFRASTRUCTURE

Petroleum import infrastructure includes ports, wharves/berths, discharge facilities, pipelines, storage tanks at terminals and other remote locations, as well as facilities for loading petroleum products onto road and rail transport. Terminals are those storage facilities where refined petroleum products are received from either refineries or import facilities. Fuel is distributed from terminals by truck or rail to retailers or bulk users. All terminals have loading gantries and storage facilities and can be supplied by pipeline, ship and in some cases by road transport.

Import terminals, however, are only supplied by pipeline from refineries or ports. The ports of Richards Bay, Durban, Port Elizabeth and Saldanha Bay have LPG loading/off-loading facilities.

There are seven import/export LPG terminals in SA:

1) Richards Bay LPG Terminal belonging to Island View Storage (IVS) and leased to Afrox for a period of about 6 years;
2) Sapref LPG Terminal at Durban, belonging to Shell and BP jointly and integrated into the refinery;
3) Enref LPG Terminal at Durban, belonging to Engen – this is unused as an import/export terminal to date due to some unresolved issues but the storage at the refinery is in use for LPG storage;
4) Easigas LPG Terminal, Port Elizabeth, Eastern Cape;
5) Easigas Tank Farm LPG spheres, Port Elizabeth, Eastern Cape;
6) Sunrise Energy LPG Terminal, Saldanha Bay, Western Cape; and
7) Avedia Energy LPG Terminal, Saldanha Bay, Western Cape.

Noting the constrained domestic production of LPG, growth in LPG demand can only be adequately met by increased imports. Currently, SA is unable to source large volumes of LPG from LPG producing countries due to its limited import facilities as well as the associated storage and distribution infrastructure. The relatively small market size has not warranted larger-scale infrastructural investments for importation or optimisation of local distribution of bulk LPG. It would take at least sixteen (16) days for the cargo from Saudi Arabia to reach South Africa while the cargo size would be small and therefore uneconomical for importers. South Africa could opt for Mauritius, with a minimum seven (7) day journey for LPG delivery. Instead of sourcing LPG from the Middle East or Mauritius, SA should consider sourcing it from Algeria, or other West African countries such as Nigeria, and/or Angola in pursuit of the continental development agenda. In this regard, SA should pursue such imports as part of its bilateral relations and cooperation with involved countries as well as the promotion of intra-African trade.

Table 1: SA loading facilities

Licensee	Storage capacity ($m^{3)}$	Location
Shell SA (Pty) Ltd	**4000**	**Port Elizabeth**
Bid tanks (Pty) Ltd	**6000**	**Richards Bay**
BP & Shell (SAPREF)	**1800**	**Durban**

Source: NERSA, 2012

Table 1 above gives a picture of South Africa's loading facilities, storage capacity and respective locations for those loading facilities. Afrox and Easigas used to be the only two importers of significant volumes of LPG into SA. The two wholesalers lease import storage facilities and have import licences. Afrox leases the import facility in Richards Bay from Bidvest tanks [formerly IVS Richards Bay (Pty) Ltd]. Easigas imports via the Port Elizabeth terminal. During the market inquiry, by the Competition Commission, the Department has learnt that, Totalgaz, Camel Fuels and Oryx also use the Richards Bay port terminal through Bidvest tanks to import LPG. It is noteworthy that wholesalers are not operating from their own storage and/or loading facilities but rather are granted access to facilities owned by terminal operators. The existing storage and/or operating facilities are not able to receive Very Large Gas Carrier (VLGC), resulting in higher landed costs of LPG. However the new development in Richards Bay will assist in accommodating VLGC thus helping in reducing importation costs and in turn the domestic price of LPG.

New entrants have highlighted the lack of import facilities as one of the key constraints to growing the LPG market and the promotion of competition. The practice in line with global practices, is that anchor tenants sign long-term contracts (10-20 years) with the storage facility operator. The operator will then develop the facility and charge a monthly rental for capacity ('take or pay agreements). This type of arrangement serves as a key constraint in growing the LPG market and in the promotion of competition.
It has been widely accepted that the only way to unlock local LPG consumption is to substantially increase imports of LPG through newly constructed import terminals with sufficient storage facilities. This will significantly reduce freight costs and would in turn

drive down LPG costs. Furthermore, a large increase in imports of LPG into the domestic market would enhance competitive pricing for local customers.

20. THE ROLE OF PETROSA

The National Oil Company's involvement in developing gas infrastructure is paramount to the attainment of government's objective of making LPG affordable and accessible to all South Africans. It is also envisaged that PetroSA will take the opportunity to establish distribution depots and channels across all provinces in line with the envisioned strategy.to enhance the role of Historically Disadvantaged South Africans in the retail of LPG.

21. LOCAL LPG CYLINDER PRODUCTION

The expansion of the LPG market will in the medium to long term necessitate the investment in local cylinder manufacturing plant (s) and this can also have an added benefit of creating sustainable jobs for South Africans. The limiting factor for local production of LPG cylinders is the price of steel. SA is using the import parity pricing system which makes steel very expensive. There are projects already under development to manufacture LPG cylinders locally. One such project is the IDC-backed project developed by MM Engineering Services (PTY) Ltd for the manufacture of LPG gas cylinders in the Coega IDZ. The capacity of the plant is estimated at 1.5 million cylinders per annum (3 kg, 5 kg, 7 kg and 9 kg cylinders). The facility will market and sell its products in South Africa and export to Africa and the rest of the world. The DMRE, in conjunction with other Government departments, and the DTIC in particular, should work towards maximising local content and economic benefit from LPG-related business activities.

The steel LPG cylinder has not changed much since it was introduced in Hong Kong in the 1960's. Recently through innovation LPG cylinders have included the use of plastics and composite materials to improve the visual proposition whilst reducing weight and providing better protection against corrosion. Support from Government towards LPG might encourage composite cylinder manufacturing locally with needed job opportunities. Composite cylinders tend to be more expensive than steel cylinders;

however they are better in the sense that it becomes easy for the consumer to know how much product remains in the cylinder which is currently an inherent challenge with the steel cylinder.

22. PUBLIC AWARENESS

The perception of the consumer that LPG is not safe is sometimes difficult to change. It is important that not only the consumer, but all the people involved in the supply and distribution of LPG are aware of their roles and responsibilities to keep the LPG sector safe. The DMRE in collaboration with other stakeholders should embark on targeted safety and awareness campaigns to assist the public in making the right choices to switch from using biomass, coal, electricity and illuminating paraffin to using LPG for household thermal needs. In this regard, the benefits of safe utilisation of LPG juxtaposed to those of other (traditional) energy carriers should be well communicated to the target audience. This would include the reduction of indoor pollution, caused by the use of traditional energy carriers like biomass and coal as well as illuminating paraffin, and the concomitant savings on the health cost thereof. These benefits would not be achievable without the requisite infrastructure and appliances, which include cylinders, stoves and heaters that comply with applicable specifications and standards.

The campaign will highlight the economic and financial benefits of switching from other energy carriers to LPG. The Department can, during the regional petroleum campaigns in different provinces also promote LPG use and dispel misconceptions about LPG safety. Programmes involving all types of media can be used to make people aware of the use of LPG as clean and healthy cooking fuel and for its safe use. These include continuous TV advertisements on all channels, including regional channels and community radio stations. The advertisement must highlight the benefits and safe way of using LPG. Door to door campaigns may also be conducted in rural areas to demonstrate the safe use of LPG. Households in the rural areas must be motivated to regularly use LPG as they switch from conventional fuels.

23. CONCLUSION

The successful implementation of the LPG Rollout Strategy hinges on dealing with mainly four key challenges, namely; removal of restrictive features in the LPG market, provision of adequate and open access LPG importation infrastructure to accommodate imports, conducting safety awareness campaigns to deal with negative perceptions on the use of LPG and improved cylinder management. Collaboration with and co-operation of other key stakeholders such as the Competition Commission and the Department of Employment and Labour are also crucial for the successful implementation of the Strategy.