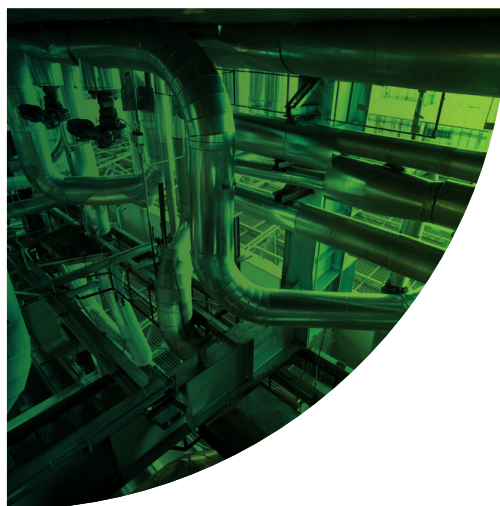
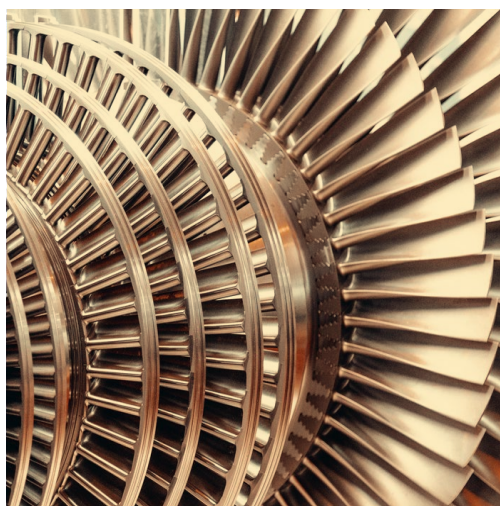




ANNUAL REPORT OF
THE INDUSTRIAL GAS
USERS ASSOCIATION
- SOUTHERN AFRICA
2021





MEMBERS





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MESSAGE FROM THE CHAIRPERSON

Although the South African Government's response to COVID-19 has moved from the initial crisis management to focusing on the economic recovery, the country needs to see fast-tracked implementation of plans and economic reforms. South Africa is no longer afforded the benefit of the doubt on pledges regarding structural reforms and fiscal consolidation.

This 2021 report of the Industrial Gas Users Association - Southern Africa (IGUA-SA) comes in the midst of the unprecedented COVID-19 global pandemic.

The sudden human and economic toll of this pandemic adversely impacted the wellbeing of millions of people across all walks of life around the world. After some 18 months since the onset of the pandemic, there are signs of hope again as the pandemic gets under control through large scale vaccination programmes and the rebound of economic activity mainly in industrialised economies.

Able governments in certain countries have taken a progressive stance on economic recovery and are actively leveraging economic instruments and policy reforms to re-ignite economic activity. The South African Government is struggling to revive an already weakened economy bound largely by fiscal constraints, low public fixed capital investment growth, non-performing state-owned enterprises, failing local governments, deteriorating infrastructure, corruption and policy uncertainty.

Although the South African Government's response to COVID-19 has moved from the initial crisis management to focusing on the economic recovery, the country needs to see fast-tracked implementation of plans and economic reforms. South Africa is no longer afforded the benefit of the doubt on pledges regarding structural reforms and fiscal consolidation. It is only through building a track record of delivering on promises that South Africa is likely to see a change in the above narrative.

Investment in infrastructure is a key enabler for economic recovery. It is in this context that IGUA-SA participated with Business Unity South Africa (BUSA) and B4SA in the consolidation of an Economic Recovery Plan presented to the South African Government in August 2020, following the sudden and deep economic decline with the onset of the COVID-19 pandemic. Business stakeholders across South Africa prioritised six focus areas for infrastructure investment and development i.e. energy; transport & logistics; information communications and technology (ICT); water; human settlements and social infrastructure. Stakeholders discussed and developed a prioritised action plan, comprising of short-term and longer-term time frames. The prioritisation of these investment projects is based upon a portfolio of projects delivering optimal impact and benefits to the economy.

IGUA-SA believes that the transformation of the energy sector at large is an imperative and has a key role to play in unlocking the full potential of the South African economy. The development of the natural gas economy has been identified as a key enabler for the recovery of the South African economy.

Natural gas is seen by IGUA-SA as a transitional fuel towards the decarbonisation of the environment.



Notwithstanding the onset of renewable and low carbon energy sources, gas demand in South Africa is set to grow significantly over the next 15-20 years as it increasingly displaces dirtier energy sources whilst balancing an increased role of renewable energy availability.

Demand for gas already outstrips supply as no new gas has been made available to industry over the last 5 years. Upstream availability and infrastructure capacity constraints place limitations on the ability to meet current and future gas energy needs amidst a dwindling supply and disproportionate increase in the cost of electricity. Industry requires long-term energy certainty across various energy sources to ensure and enable a low-risk fixed capital investment environment. It is in this context that various large industries are continuing to review their investment and growth strategies for South Africa on the back of energy insecurity.

South Africa's reliance on natural gas energy over the next few decades needs to be emphasised. This reliance on natural gas energy is viewed in the context of South Africa's energy transition, the IRP 2019, emergency power generation requirements, and large-scale industrial demand for gas energy that will see a significant increase in the demand for natural gas across various sectors in conjunction with the continuous increase in renewable energy uptake in time. During the period under review, the South African Government has moved to commence with the development of a Gas Master Plan. IGUA-SA, through its association with BUSA and the Department of Mineral Resources and Energy (DMRE), has established a technical task team to develop and establish an enabling regulatory and policy environment that is aligned with the natural gas energy requirements of South Africa. The development of the Gas Master Plan is set to commence in April 2021 through to March 2022 and will see the development of a base case gas energy supply and demand scenario, and the development of alternative policy strategies and recommendations for public consultation purposes.

These developments are welcomed, but IGUA-SA remains concerned about the implementation, associated time frames and the overall investment and regulatory environment in South Africa. IGUA-SA will therefore continue with its mandate to advocate the efficient and expedient development of the gas economy in South Africa. This active, continued and fact-based engagement with public and private stakeholders requires the support of all industries with interests in gas energy.

There is little or slow progression with regards to South Africa's energy outlook. The outlook for gas energy appears even more constrained. Sasol, who is the only material supplier of gas energy to the South African market, remains unclear if and how it will be able or willing to supply the market with gas energy going forward. Whilst current supply will be declining in only about 42 months from now, global gas energy suppliers are finding it difficult to reach financial close on a South African gas market that is not able to move forward at present – largely due to the market uncertainty surrounding Sasol's future gas supply strategy, and restrictive regulatory environment and policy with regards to gas energy infrastructure.

As always, we therefore extend an invitation to all public and private organisations and institutions with an interest in the development of the gas economy to urgently engage and/or join IGUA-SA to enable the development, coordination and implementation of suitable and timeous gas energy solutions for South Africa.

As in previous years, IGUA-SA had the privilege to engage with multiple stakeholders throughout the year and had the opportunity to present its views across multiple forums and platforms. Stakeholder engagements are a continuous part of IGUA-SA's work and serve both as a platform for learning and sharing of information. These ranged from Government i.e. Departments of Minerals and Energy, Trade, Industry and Competition,

National Energy Regulator of South Africa (NERSA), Central Energy Fund, CSIR, Transnet; to social partners i.e. NEDLAC, BUSA, NEPAD; and business i.e. global oil and gas majors, financial institutions, leading legal firms, large energy users and suppliers.

I would like to conclude by saying that a significant amount of work has been completed over a relatively short period of time where IGUA-SA managed to establish itself as a credible, objective and fact-based advocacy group. This does not simply materialise, and I would like to take this opportunity to thank Mr. Jaco Human for working tirelessly to advance the mandate of our association as well as for his thought leadership and coordinating role he plays with various work streams. I also want to thank my fellow Exco members for their ongoing support and all our member organisations, who have all been involved and actively participated financially and otherwise, to the work of IGUA-SA. I also would like to commend the level of cooperation between our members with the work we do and the efficient manner in which we reach decisions to advance our mandate.

Together with all IGUA-SA members and stakeholders I look forward to an exciting new year within a rapidly changing energy environment that will no doubt challenge existing norms and bring out the best for South Africa.

Thomas Shaw
IGUA-SA Chairperson

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Industrial gas users need to assume a commanding position if they are to ensure the viable security of supply of gas-energy. IGUA-SA may have to revisit its conventional mandate in the coming months to ensure that its members take a consolidated market position with a view on gas energy demand aggregation, in order to provide the required energy security and most cost-efficient mix of gas energy supply alternatives.





MESSAGE FROM THE EXECUTIVE OFFICER

Global gas demand is expected to recover 3.2% in 2021, erasing the losses in 2020, and pushing demand 1.3% above 2019 levels.

Gas availability and market dynamics

The COVID-19 pandemic in 2020 had a severe impact on global energy markets on a scale not seen since the Second World War. It is estimated that in 2020 global natural gas consumption declined by 2 700 PJ or 1.9% year-on-year representing the largest recorded annual decrease in gas demand in absolute terms. The decline was concentrated in the first half of the year, when global gas consumption declined around 4% year-on-year driven by exceptionally mild weather and COVID-19 outbreaks. Gas, however, was markedly less impacted than oil or coal demand in 2020, and a progressive recovery of gas demand globally was observed in the third quarter as lockdown measures eased, while seasonal electricity demand and competitive prices pushed up gas consumption.

This relative resilience can be partly explained by fuel switching in electricity generation. The switch was particularly remarkable in the United States where gas demand for electricity generation increased by around 2% year-on-year, in spite of a declining electricity demand, while in Europe gas-fired generation benefited from low prices and a sharp recovery in carbon prices in the second half of 2020. In Asia, gas for power grew in China, India, and Korea. With big declines in Russia and the Middle East, gas use in the power sector nonetheless accounted for one quarter of the decline in gas demand in 2020; other declines came from the buildings and industry sectors, contributing respectively to 30% and close to 20% of total gas demand drop in 2020.

Global gas demand is expected to recover 3.2% in 2021, erasing the losses in 2020, and pushing demand 1.3% above 2019 levels. This recovery in gas demand has been driven mainly by fast-growing markets – primarily in Asia and, to a lesser extent, the Middle East. The industrial and buildings sectors are expected to lead gas demand growth in 2021, with industrial demand increasing by almost 5% as global output and trade volumes recover. Gas use for electricity generation is expected to grow just 1% due to low electricity demand growth, increasing renewable energy capacity, and tougher price competition from coal.

Gas demand in South Africa also decreased during the first half of 2020 with Sasol reporting, in June 2020, reduced annual gas sales volume of 8% mainly as a result of the impact of the COVID-19 outbreak. However, natural gas sales volumes in the second half of 2020 increased by 6% compared to the prior period, as gas users ramped up production to recoup lockdown related production losses and undertook unplanned shutdown activities resulting in higher gas consumption.

IGUA-SA views the natural gas market disruptions globally and locally as temporary and expect demand to recover to pre-pandemic levels in 2021 in mature markets, and sees additional growth in emerging markets as the low price environment spurs consumption. Still, the impact of COVID-19 on the global economy will reverberate for some time. This will result in average natural gas demand growth of 1.5% per annum from 2019 to 2025, according to the International Energy Agency (IEA). This is positive, but lower than the IEA's pre-Covid-19 forecast of 1.8% average annual growth for the same period.





The situation in South Africa, however, is vastly different with imminent supply risk coupled with an unserved demand for gas energy in terms of policy lag and uncertainty in respect of market development and infrastructure requirements.


Our Mandate

As stated in previous years, the founding mandate of IGUA-SA remains unchanged. IGUA-SA's primary objective is to ensure the efficient availability of hydrocarbon gas in Southern Africa to meet significant and growing demand, both by organisations requiring more gas to expand and organisations wishing to switch to gas from costly and environmentally harmful alternative energy sources.

It is the unassuming nature of this mandate that provides clarity and focus on **three key areas of work**:

1  **Gas energy availability**

2  **Gas energy policy**

3  **Gas energy pricing**

With regards to **gas energy availability**, IGUA-SA expects demand for gas to grow by between 7% and 14% per annum to 2030 in an unconstrained environment. This is largely due to the current shortfall in supply estimated to be some 170PJ/a and future demand driven largely by the petro-chemical, power and industrial sectors over the same period. Notwithstanding the risk in current supply, infrastructure remains totally inadequate to handle and deliver natural gas to demand nodes across South Africa.



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With regards to **gas energy policy**, it is important that an environment be established for private sector investment in infrastructure, whether in upstream exploration or gas handling infrastructure such as pipelines and/or gas import terminals. This remains an imperative where the South African Government has a significant role to play in the urgent development and rapid implementation of a Gas Master Plan for South Africa. The outcome of the Risk Mitigation Independent Power Producers Procurement Programme (RMIPPPP) requires the establishment of liquefied natural gas (LNG) handling infrastructure in the ports of Richards Bay, Coega and Saldanha Bay by 2022. This could well support the development of LNG markets in South Africa, even if on a small scale, in the interim to meet some demand for gas in certain geographical areas. The policy environment needs to be aligned with the requirements of the economy. IGUA-SA, together with BUSA and the DMRE is actively involved in ensuring that the development of the Gas Master Plan gets underway as a matter of urgency that will ultimately determine the overall government policy to meet and enable the development of the gas economy.

A major area of concern is that, whilst IGUA-SA continuously engages with local and international gas energy stakeholders and suppliers, there appear to be no firm investment plans yet by neither the South African Government nor the private sector in gas energy supply and associated infrastructure sufficient to meet demand.

As far as **gas pricing** is concerned, the past year also saw the introduction, in May 2020, of NERSA's anticipated Maximum Gas Price Methodology. The new methodology is based on the international benchmarking approach for gas pricing and came about as a result of the Constitutional Court judgement in 2019, which found that NERSA's previous methodology, applicable since 2014 and based on a basket of alternative energy sources, was irrational and had to be reviewed retrospectively from April 2014. Subsequent to various engagements between IGUA-SA and NERSA to obtain a better understanding of the potential gas price implications of the new methodology, NERSA in January 2021 issued a consultation document and Sasol's maximum gas price application for comment.

The past year proved to be dynamic and challenging at the same time as industry across all sectors navigated an unprecedented environment to ensure its long-term sustainability and relevance.

On a more personal level, I wish to thank the IGUA-SA Exco and all members for their continued guidance, insights and support throughout an unusual year. The natural gas landscape is faced with various challenges related to policy, availability and pricing in the immediate future. These can only be effectively addressed through a collective and consensus-based approach on the back of a broad and active membership base. Stakeholders are therefore implored to join IGUA-SA to collectively address these challenges and to jointly share in the knowledge and participate in the strategic actions undertaken by IGUA-SA.

Please allow me then, on behalf of IGUA-SA, to share some more in-depth views on gas energy availability, policy and pricing, together with details on our membership.

Jaco Human

Executive Officer, IGUA-SA





REVIEW BY IGUA-SA

GAS ENERGY AVAILABILITY – SUPPLY AND DEMAND

Economic growth in South Africa is adversely impacted by the erratic and insufficient undersupply of energy.

Notwithstanding the disproportionate cost increases of electricity, supply problems associated with Eskom are exacerbated by the inability of local governments to distribute electricity reliably and effectively to industrial users. The supply of liquid fuels and overall refining capacity is also in the balance as various refineries have ceased operations during 2020 or are in the process of downscaling operations in South Africa in the coming years.

With regard to natural gas, South Africa has experienced no growth in gas energy consumption since 2015. Sasol, the only primary supplier of gas, supplies approximately 185PJ/a to South Africa consisting of approximately 125PJ/a for Sasol and 60PJ/a (40PJ/a natural gas; 20PJ/a methane rich gas) to third party industrial users.

Demand for gas far exceeds supply, resulting in an estimated shortfall of some 170PJ/a as at the end of 2020. IGUA-SA performed a qualitative assessment based on the mid and downstream market for gas with feedback and information obtained from the gas user market, assessments of the South African Government's current policy towards gas energy, the IRP 2019, the RMIPPPP 2020 and recent gas market studies for South Africa, and certain views of global gas market trends.



Economic growth in South Africa is adversely impacted by the erratic and insufficient undersupply of energy.

Assessment results: Gas demand versus supply for period 2020 – 2030

The assessment aims to overlay gas demand in an unconstrained environment against the ability for the market to supply gas over the period 2020 to 2030. It further looks at the national supply and demand balances across four respective gas market complexes or nodes i.e.

- 1) Mpumalanga/Gauteng;
- 2) KwaZulu Natal;
- 3) Eastern Cape and
- 4) Western Cape.

Gas demand results, expressed in PJ/a, are underpinned by realistic assumptions with the following sectoral drivers for demand and underlying dynamics within each sector:

<p>► IND: refers to demand from the petrochemical sector (Sasol and PetroSA) and industry's demand growth linked to long term GDP growth at 3%/a.</p>	
<p>► PWR PVT: refers to demand for gas for embedded or private gas-to-power generation assuming 150MW/a.</p>	
<p>► PWR IRP: refers to gas demand as a result of the IRP 2019 gas-to-power objectives assuming 1 000MW from 2027 in Coega, Saldanha Bay and Richards Bay respectively.</p>	
<p>► PWR RMIPPPP: refers to gas demand for approximately 1 500MW gas-to-power under the RMIPPPP in Coega, Saldanha Bay and Richards Bay.</p>	
<p>► PWR CONV: refers to gas demand form the conversion of coal and diesel fuel power stations and include Kelvin, Eskom (Komatipoort/Ankerlig), Avon and Dediza.</p>	
<p>► LOG: refers to the demand for gas from the logistics and mining sectors seeking to displace diesel fuel with cheaper and cleaner gas fuel/LNG alternatives (diesel substitution).</p>	

Gas supply results, also expressed in PJ/a, considers the ability for gas supply for South Africa based on the known prospects for infrastructure regionally and in South Africa. Other than supply prospects brought about by Matola LNG and the RMIPPPP, it assumes no private sector investment in gas supply infrastructure for South Africa on the basis that South African Government/Transnet is not allowing private sector investment at present in this sector. The gas supply outlook is therefore underpinned by:

<p>► Supply Sasol NG: refers to natural gas supply from Sasol's Petroleum Production Agreement with limited or no additional availability since 2015, declining Pande & Temane volumes from 1 January 2025 at approximately 10-15% per annum.</p>	
<p>► Supply Sasol MRG: refers to methane-rich gas supply and the continuation thereof from Secunda to KwaZulu Natal and Mpumalanga.</p>	
<p>► Supply Sasol PSA: refers to natural gas supply from Sasol's Production Sharing Agreement commencing in 2025.</p>	
<p>► Supply LNG Bridging: refers to LNG supply for gas-to-power requirements under the RMIPPPP in Coega, Kwazulu Natal (KZN) and Western Cape (WC) from 2022.</p>	
<p>► Supply LNG Moz: refers to supply of LNG from Matola from 2024 onwards.</p>	
<p>► Supply LNG (Coega, RB, SB): refers to LNG supply from Coega, Richards Bay and Saldanha Bay from 2027 in terms of the gas-to-power requirements for the IRP 2019 and the establishment of Government LNG terminals.</p>	

The assessment results are reflected below starting with a consolidated view for South Africa in terms of demand and supply with an outcome indicating the supply shortages across four respective gas market complexes or nodes i.e.

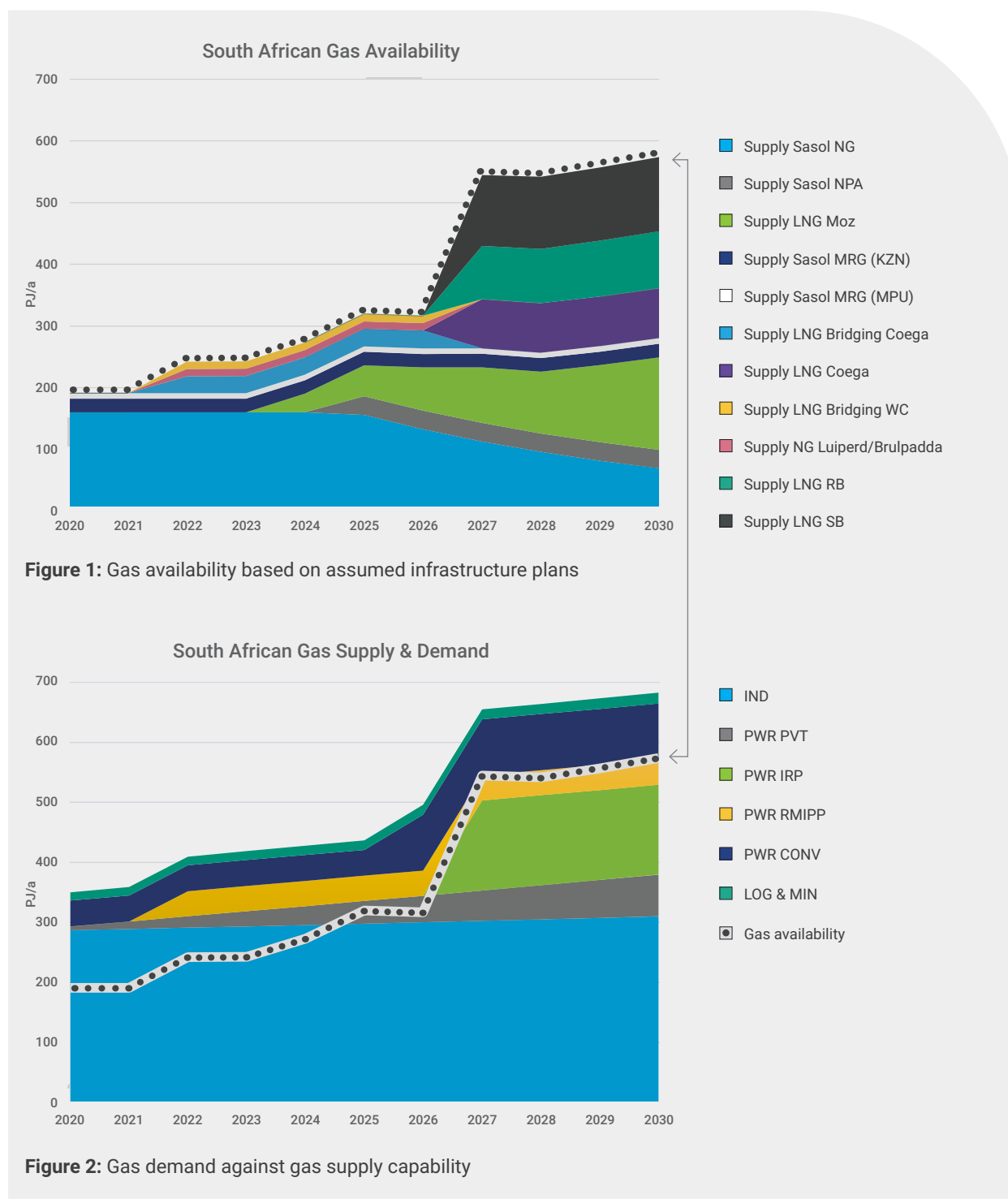
1) Mpumalanga/Gauteng; 2) KwaZulu Natal; 3) Eastern Cape and 4) Western Cape in PJ/a:

South Africa Demand	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
IND	287	289	291	293	296	298	300	303	305	308	310
PWR PVT	6	13	19	25	32	38	44	50	57	63	69
PWR IRP	0	0	0	0	0	0	0	150	150	150	150
PWR RMIPPPP	0	0	42	42	42	42	42	42	42	42	42
PWR CONV	43	43	43	43	43	43	93	93	93	93	93
LOG	14	14	14	15	15	16	16	17	17	18	18
Demand Total	350	359	410	419	428	437	496	655	664	673	683

South Africa Supply	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Supply Sasol NG	160	160	160	160	160	156	133	113	96	81	69
Supply Sasol MRG (KZN)	22	22	22	22	22	22	22	22	22	22	22
Supply Sasol MRG (MPU)	9	9	9	9	9	9	9	9	9	9	9
Supply Sasol PSA						30	30	30	30	30	30
Supply LNG Bridging Coega			27	28	28	29	29				
Supply LNG Bridging KZN			12	12	12	12	12				
Supply LNG Bridging WC			12	12	12	12	12				
Supply LNG Moz					30	50	70	90	100	125	150
Supply LNG Coega								80	80	80	81
Supply NG Luiperd/Brulpadda											
Supply LNG RB								86	88	90	93
Supply LNG SB								115	117	118	120
Gas availability	191	191	242	243	273	320	317	545	542	557	574

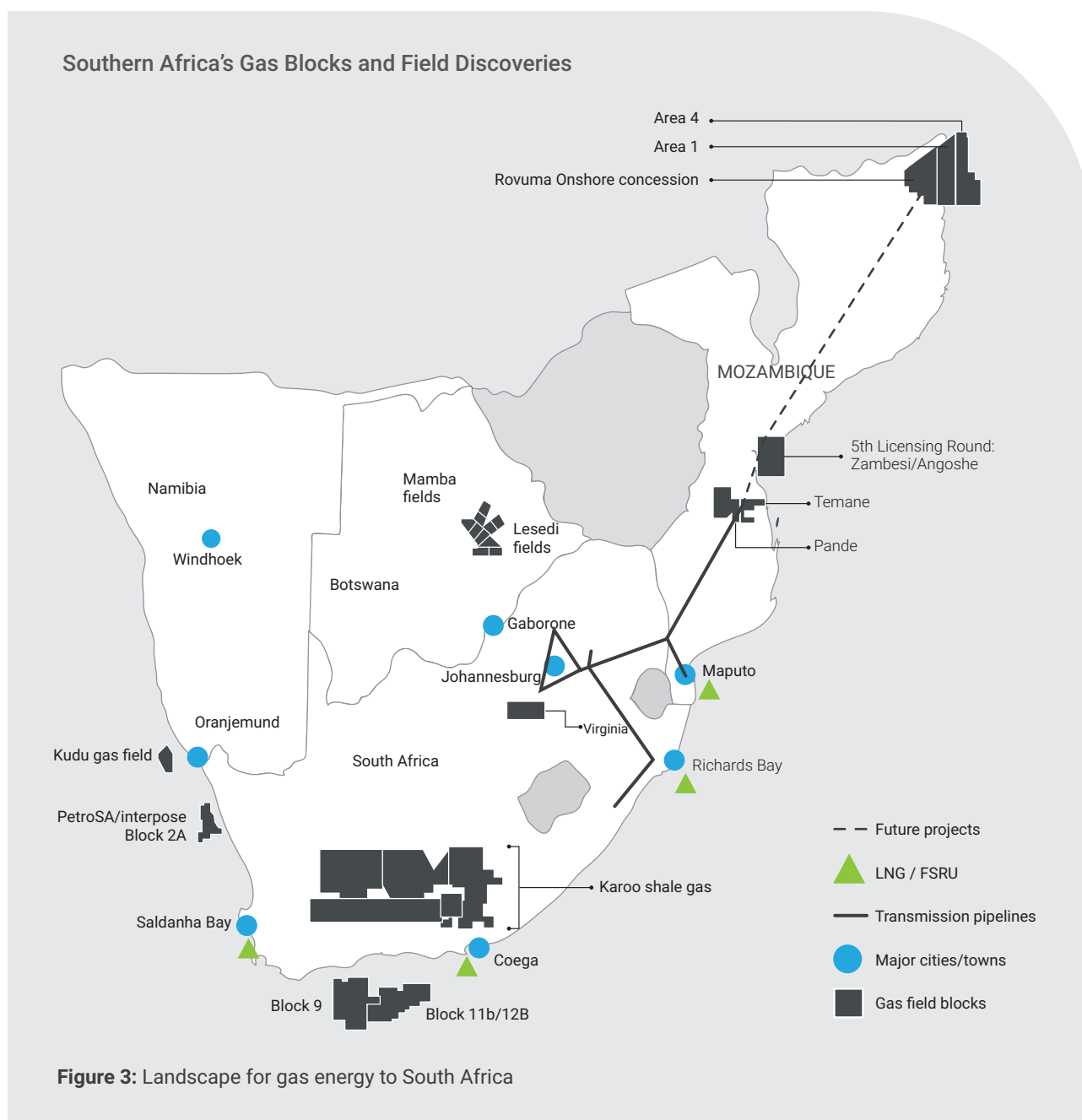
South Africa Gas Availability	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Gas balance Total	-159	-168	-167	-176	-154	-117	-179	-110	-122	-117	-109
Balance GP MPU	-38	-42	-47	-51	-25	-14	-52	-56	-67	-61	-53
Balance KZN	-8	-10	-25	-27	-30	-32	-55	-108	-110	-113	-115
Balance EC	-8	-9	-27	-28	-28	-29	-29	0	0	0	0
Balance WC	-114	-115	-129	-130	-132	-134	-135	-72	-72	-72	-72

The following graph overlays the above gas availability assumptions with gas demand indicating a need to develop gas handling and supply infrastructure across all four demand nodes or market sectors in South Africa including LNG terminals, and upgrade and expansions of gas supply pipeline infrastructure:



South Africa has very limited gas energy supply options available over the short term i.e. within the next 4-5 years. The landscape for the mid to upstream gas energy market and supply alternatives could be summarised as follows on the next page.

The development of various gas resources and supply options



Stakeholders have referenced the development of various gas resources and supply options and IGUA-SA provide updated commentary in the context of the above diagram:

- Kudu gas field** – discovered in 1974 off the coast of Namibia it is estimated to hold some 1,3TCF gas ($\pm 1,5$ billion GJ). This development is anchored on a gas-to-power plant in Oranjemund and the ability of Namibia to export power to the region. Prospects for development appear to have reduced as Namibia failed to conclude power export agreements to the region. From a technical perspective, a subsea tie-in would be required which is considered to be some of the longest in the world. The economic feasibility for the development of this field remains unclear and it is unlikely to be developed over the medium term. Nevertheless, the Norwegian company BW Energy signed a deal to increase its stake in Kudu to 95%, from 56% with the state-owned Namcor keeping the remaining 5%. The Namibian company has an option to acquire another 5% after first gas.

- ▶ **PetroSA Block 2A** – discovered in 1987 off the West coast of South Africa, it is estimated to hold some 1,5TCF gas ($\pm 1,7$ billion GJ). PetroSA has a 24% stake in this field. The economic feasibility for the development of this field remains unclear and it is unlikely to be developed over the medium term.
- ▶ **Blocks 9 and 11** – Block 9 supplies gas to the Moss gas Refinery that was commissioned in 1992, and is virtually depleted with some 0,2TCF (± 234 mGJ) gas available. A 2015 drilling campaign to increase the reserve base was unsuccessful. PetroSA gas supply from Block 9 came to an end at the end of 2020, whilst it considers the importation of LNG to sustain future operations. PetroSA also owns Block 11 with limited gas resources estimated at some 0,5TCF (± 590 million GJ) and is unlikely to be developed.
- ▶ **Block 11B/12B Brulpadda** – Total has announced, in February 2019, a significant gas condensate discovery on the Brulpadda prospects, located on Block 11B/12B in the Outeniqua Basin, 175 kilometers off the southern coast of South Africa. The Brulpadda well encountered 57 meters of net gas condensate pay in lower cretaceous reservoirs. Following the success of the main objective, the well was deepened to a final depth of 3,633 meters and has also been successful in the Brulpadda-deep prospect. Following the success of Brulpadda and confirmation of the play potential, Total and its partners plan to acquire 3D seismic this year, followed by up to four exploration wells on this license. The Block 11B/12B covers an area of 19,000 square kilometers, with water depths ranging from 200 to 1,800 meters, and is operated by Total with a 45% working interest, alongside Qatar Petroleum (25%), CNR international (20%) and Main Street, a South African consortium (10%).

In addition, **Total announced in October 2020 a promising gas condensate discovery at the Luiperd prospect**, the second in the block after Brulpadda. When the well's flow rates have been established, Total will work on development studies and engage with the South African government on gas commercialisation. First gas production could be as soon as 2025-2027 and could service markets, with the most obvious potential being Petro-SA's Mossel Bay facility, the Gourikwa 740MW power station and Coega.

- ▶ **Karoo shale gas** – appears to have sizeable potential, but these estimates are highly uncertain and environmentally controversial. Sources previously estimated reserves at a staggering 485TCF, but recent estimates (September 2017) showed much less potential. More realistic reserves range around 13 TCF (± 14 billionGJ) with environmental concerns associated with them. The South African Government in 2020 proceeded with drilling for further research purposes. Through the Council of Geosciences and PASA, the shale gas research project in the Karoo is at an advanced stage with the ultra-deep drilling 3 500m vertical borehole being drilled. As at the end of February 2021 the 2 325m mark had been reached. This drilling programme is scheduled to be completed in September 2021. Commercial viability remains uncertain. Even if development did occur, it is unlikely that any sizeable output would be produced by 2030 given the shale reserves' dispersed nature and the need to develop infrastructure and a supply value chain (which is likely to take more than a decade).
- ▶ **Virginia – Renergen/Tetra4** has been exploiting small quantities of gas for the compressed natural gas market (mainly transport) since 2016 and is in the process of establishing small gas liquefaction facilities to ultimately supply $\pm 2,5$ mGJ/a gas in LNG from 2021 onwards to mainly the transport sector.

► **Mamba/Lesedi fields** – CBM or coal bed methane gas reserves are present in Botswana. The concession is owned by Tlou Energy and is estimated to hold around 0,2TCF ($\pm 200\text{mGJ}$) of gas. Tlou energy plans to develop gas and solar power generation assets at Lesedi with the sale of electricity into the regional power grid. In addition, the company has two large exploration areas namely Mamba and Boomslang.

► **Panda/Temane** – majority owned by Sasol it supplies some $\pm 193\text{mGJ/a}$ gas at present since 2004 to South Africa ($\pm 163\text{mGJ/a}$) and Mozambique ($\pm 30\text{mGJ/a}$) under a Petroleum Production Agreement (PPA) through the Rompco and Sasol gas transmission pipelines. **Available gas is expected to decline some 42% between 2024 and 2030.** The PPA fields have produced at plateau since 2015 with minimal development expenditure.

Sasol commenced a four well development program in 2020 at an average well cost of US\$20 million to maintain current production levels. Infill drilling projects are underway which will convert proved undeveloped reserves into proved developed reserves to maintain supply over the near term. The Pande and Temane legacy fields have and continue to underpin the area's production. However, both fields are becoming increasingly mature. Further exploration in the area is required to backfill gas supply to end users. Sasol completed an extensive 2D seismic programme in 2019 on the neighbouring **PT5-C licence** where a two well exploration campaign is planned. **Success would provide a development upside from its PPA which could mitigate the expected decline from Pande/Temane.**

As of July 2020, available gas resources are 0,721TCF ($\pm 760\text{mGJ}$) or 4 years production at current supply levels. In addition, Sasol is exploring the area under a second agreement which is the Production Sharing Agreement (PSA). Under this agreement gas needs to be prioritised for the industrialisation of the Mozambique economy. Sasol, however, secured the supply of 30mGJ/a under the PSA for supply to its operations from 2025 – possibly to cover any shortfalls until the area PT5-C is potentially developed from 2027 onwards.

Sasol is considering the sale of its upstream gas assets in Mozambique.

Despite its ongoing plans to mitigate gas supply risks, Sasol remains unclear as to its ability and willingness to supply the South African gas market from 2025 onwards.

► **Zambesi/Angoshe/Buzi** – with ENI and ExxonMobil involvement in Zambesi/Angoshe the potential to supply gas from these resources is some 3-5TCF (approximately equal in size to the Pande/Temane resource) and considered to be in a very early exploration phase. Further exploratory drilling has commenced in Buzi which is majority owned by Energi Mega Persada Tbk PT of Indonesia. Although very well located for linking into the Rompco network, the potential monetisation of these resources remains unclear.

► **Rovuma** – this basin holds significant gas resources on a global scale. Proven resources are estimated to be some 121TCF across Area 1 (63TCF, Total/Anadarko) and 4 (58TCF, ENI) with potential for further development. First gas in LNG form will become available from 2022 from the floating Coral platform with LNG destined for Asian markets. Total/Anadarko reached FID in June 2019 for the development of two 6mtpa LNG trains onshore for commissioning in 2024. Approximately 92% of this capacity has already been contracted for supply of LNG to Asia. Investment in the exploitation of these resources will reach approximately \$128 billion by 2029. However, the onshore projects are increasingly the subject of armed insurgencies and attacks, placing the development at risk if not countered by military action.



For South Africa to benefit at all from these developments, it will first need to develop LNG receiving infrastructure. Long distance ($\pm 1\,700\text{km}$) pipeline development from Rovuma linking into the existing Rompco remains an alternative over the long term say beyond 2035, but is subject to regional demand aggregation, economic development, and regional inter-governmental political and investment coordination initiatives.

LNG imports remain the only option to bridge the gap between reduced Pande/Temane gas energy supply from 2025 and demand, provided that such a project is executed in time and located where demand for gas energy could be serviced.

IGUA-SA's current view is that four LNG terminals can be considered of which only three could materially service industrial demand for gas energy. The required development of South Africa's gas industry and supply infrastructure are anchored on the demand for gas provided by the IRP 2019's proposed gas-to-power programme i.e. 3 of 1 000MW gas-to-power plants. The development of the gas sector is heavily dependent on the location of a 1 000MW gas-to-power plant in each of the ports at Coega, Richards Bay and Saldanha Bay as it has the potential, as economic aggregator, to be the catalyst for extensive gas pipeline and import infrastructure developments. This requires careful consideration by Government as to the location of the intended gas-to-power plants to balance the supply capability with gas energy demand. IGUA-SA, however, note that the gas-to-power intentions of the South African Government as envisaged by the IRP 2019 are unlikely to realise by 2024 as planned.

- **Coega LNG** – the DMRE announced in 2019 its plans to establish an LNG import terminal at Coega that is likely to be coupled to future gas-to-power programmes as contemplated in the IRP 2019 which is, however, unlikely before 2024 as intended. IGUA-SA remains of the view that Coega is of no consequence to materially meet the imminent and current gas supply shortfall for gas energy consumers in Kwazulu-Natal, Gauteng and Western Cape where the demand for gas is much larger. **It does not leverage economically existing gas infrastructure, and it does not act as economic catalyst for urgently needed gas energy infrastructure where gas energy demand is currently concentrated.** The RMIPPPP will result in the early and temporary establishment of LNG handling and receiving infrastructure at Coega from 2022 onwards potentially servicing some regional demand in addition to gas-to-power requirements.
- **Richards Bay LNG** – an **ideal location for LNG infrastructure to leverage existing pipeline infrastructure and demand nodes and to meet existing gas supply shortfalls.** The establishment of LNG handling infrastructure could optimise the Lily pipeline by doubling of the capacity to 40mGJ/a whilst making available an additional 20mGJ/a of gas energy inland (methane rich gas currently supplied by Sasol in the Lily). As with Coega, the development of such a facility could be feasible if anchored on at least 1 000MW gas-to-power as envisaged by the IRP 2019. The RMIPPPP will also result in the early and temporary establishment of LNG handling and receiving infrastructure at Richards Bay from 2022 onwards potentially servicing some regional demand in addition to gas-to-power requirements.

- **Saldanha Bay LNG** – as reflected above, the Western Cape region suffers from the largest gas supply shortfall making the development of LNG infrastructure most feasible from an investment perspective when, as with Richards Bay and Coega, it is anchored on the development of at least 1 000MW gas-to-power as intended by the IRP 2019. Similarly, The RMIPPPP will also result in the early and temporary establishment of LNG handling and receiving infrastructure at Saldanha Bay from 2022 onwards potentially servicing some regional demand in addition to gas-to-power requirements.
- **Maputo LNG** – the Mozambique Government in 2019 granted the concession for the establishment of an LNG floating storage and regasification unit (FSRU) in the port of Maputo with unlimited gas importation allowances. This project is also anchored on another concession for the establishment of up to 2 000MW gas-to-power plant in Maputo and the aggregation of sufficient demand for gas energy in South Africa and Mozambique.
The development of this facility will be critically important to mitigate expected decline of natural gas supply from Pande/Temane from 2025 onwards and also to meet increased demand for natural gas in South Africa. Total in consortium with regional partners are looking to reach final investment decision (FID) in 2021 with implementation date in 2023/24 on the back of firm demand.
- **Current pipeline network capacity – the ability of the current gas delivery network is limited, providing little room for expansive natural gas usage.** Sasol's Central Processing Facility (CPF) at Pande/Temane has design capacity of some 190mGJ/a against Sasol's estimated supply of 190mGJ/a with no additional processing capacity at present. Pipeline gas transmission capacity is stated by Sasol for Rompco at 211mGJ/a, for Mpumalanga at 11,6mGJ/a, Gauteng at 135mGJ/a and Transnet's Lily at 24mGJ/a. It is estimated that the available capacity across the gas transmission networks is approximately for Rompco 20mGJ/a (120mGJ/a with loop line 3 & 4 upgrades); Mpumalanga at 7mGJ/a; Gauteng at 44mGJ/a and Transnet's Lily at some 2mGJ/a. The Rompco capacity will have to be reviewed in order to meet demand for gas over the short to medium term.

From the above it is evident that current gas supply is at risk. Furthermore, gas energy infrastructure remains inadequate to meet future demand. Industry remains concerned about the endemic energy risk that South Africa is facing. It would appear that current policy decisions are based on overcoming self-created crises and less so on enabling long term strategic energy planning in a fast-changing energy environment. Integrated energy planning, in conjunction with integrated infrastructure planning, needs to be urgently addressed and implemented in the context of a broad-based country Integrated Energy Plan and associated Gas Master Plan.

Gas energy availability is a business risk to the efficient operations of members of IGUA-SA and growth prospects of the South African economy. The year 2021 will require key outcomes from a policy and infrastructure investment perspective to ensure that these risks are sufficiently mitigated to ensure future investment of industry in the South African economy.



Current pipeline network capacity – the ability of the current gas delivery network is limited, providing little room for expansive natural gas usage.



From the above it is evident that current gas supply is at risk. Furthermore, gas energy infrastructure remains inadequate to meet future demand.

KEY DECISIONS AND OUTCOMES TO MONITOR

To meet South Africa's requirements for gas energy, IGUA-SA is of the view that key decisions and outcomes to monitor in the coming year will include:



- ▶ Consistency of supply from the existing Pande/Temane gas fields.
- ▶ Further developments pertaining to Sasol's exploration of area PT5-C and field development under Sasol's Production Sharing Agreement.
- ▶ Sasol's disclosure of its ability to supply existing gas markets from 2025 onwards.
- ▶ Sasol's gas asset disposals.
- ▶ Final investment decision on the Matola LNG terminal by Total/BGC.
- ▶ Final investment decision of the LNG anchored Central Terminica de Bulelane gas-to-power plant in Maputo.
- ▶ Stabilisation of the terrorist insurgencies currently impacting construction of the LNG onshore facility on the Cabo Delgado coast of Mozambique lead by Total.
- ▶ The outcome of the feasibility study with regards to the gas-to-power conversion of Kelvin power station in Johannesburg.
- ▶ The outcome of Eskom's feasibility study for conversion of existing power plants to gas.
- ▶ The progression of the Gas Master Plan by the South African Government.
- ▶ The financial closure of the RMIPPPP bidding round with regard to gas (LNG)-to-power developments.
- ▶ The issuing and outcome of request for pricing for 3 000MW gas-to-power generation by the South African Government in terms of the IRP 2019.
- ▶ The issuing of request for pricing in terms of the Renewable Energy Independent Power Producer Procurement Programme by the South African Government.
- ▶ Decisions on the possible LNG infrastructure in the ports of Richards Bay, Coega and Saldanha Bay.
- ▶ Decisions around pipeline acquisitions, capacity upgrades, developments and investments for Rompco, Sasol Gas transmission network, Lily, Matola and Rovuma.
- ▶ Development and investment decisions regarding Luiperd and Brulpadda gas fields.



REVIEW BY IGUA-SA GAS ENERGY POLICY

The South African Government's view on gas energy is largely informed by the **IRP 2019** that calls for 3 000 MW gas-to-power by 2027 in Coega; the conversion of existing power plants from diesel to gas; its ambitions to develop and reposition South Africa as a serious player in the global gas market; the promotion and development of a domestic and regional gas market; and the development of enabling legislation to attract the necessary infrastructure investment across the gas energy value chain.

The South African Government's formal policy on gas energy is still in the early stages of development and IGUA-SA is of the view that the coming year will be critical in the establishment of an integrated, clear and progressive gas energy policy that is aligned to a broader Integrated Energy Plan for the country.

IGUA-SA is also of the view that gas energy policy will be informed by South Africa's commitments in terms of the upcoming 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), COP26, that will take place November 1-12, 2021, in the United Kingdom.

The decarbonisation of primary energy sources is a global imperative that is driving a rapid transition to clean energy consumption globally. IGUA-SA agrees with various energy commentators that South Africa's energy transition is the most important macro-economic process since democracy and its success will determine the economic and socio-economic future of this and future generations.

IGUA-SA therefore expects significant developments in policy formation for gas energy in the coming year, driven firstly by the South African Government renewed focus on gas energy planning, and secondly by its commitments in terms of COP26.

1. South African Government focus on gas energy policy

The South African Government's energy policy needs to be informed by the Integrated Energy Plan (IEP) that was last updated in 2016. It assesses the optimal energy mix between various primary energy sources i.e. coal, nuclear, natural gas, crude oil, renewable and alternative energy sources. The IEP should determine the optimal mix of energy sources and technologies to meet those energy needs in the most cost-effective manner for each of the scenarios. The associated environmental impacts, socio-economic benefits and macro-economic impacts are also analysed.

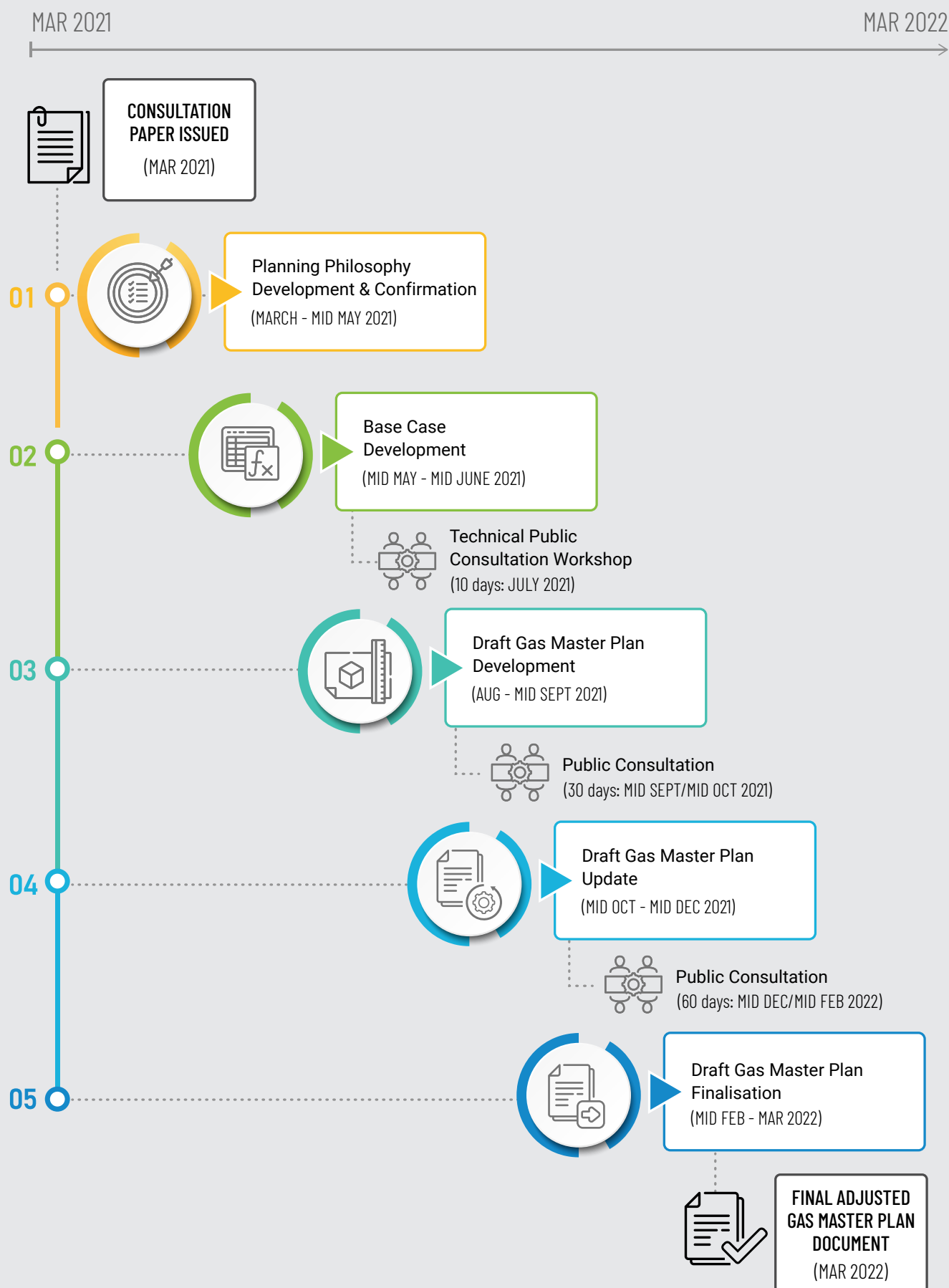
IGUA-SA in 2019 stated that the policy landscape for gas energy in South Africa appears to be in an indeterminate state. However, during the second half of 2020 the South African Government made various public statements that would point to the importance and need of policy development and focus on gas energy availability and supply.

- ▶ "Specific interventions in the energy sector include: Finalise model and partnership for the LNG Import Architecture and Partnership within 6 months in order to unlock investment and value; issuing of a request for qualification on the gas to power programme." (Presidency, SA Economic Recovery Plan, Oct '20)
- ▶ "An immediate positive result of separating oil and gas from the mining legislation, has been the exploration by Total. The company has again, this year, brought another oil and gas drilling rig for the Luiperd prospect in Block 11B/12B off the Mossel Bay coast"; "...with an estimated local of spend R1.5 billion". (DMRE, Oct'20)

- ▶ "We continue to advance our Gas to Power projects with the Coega Special Economic Zone (SEZ) identified as the first Liquefied Natural Gas (LNG) import terminal. It is envisaged that various local companies and industries will benefit from the project." (DMRE, Oct 20)
- ▶ "We are obviously thrilled with the confidence shown by Total in our Government and our country and hope for even a bigger find of oil this time around." (DMRE, Oct 20)
- ▶ "This lays a foundation for Gas to Power plants and converting existing power plants from Diesel to Gas. To this end, a Technical Working Group that will produce a commercial business plan for the development of the LNG import-export facilities across various ports of our country, has been established." (DMRE, Oct '20)
- ▶ "The Gas Amendment Bill will be tabled in Parliament. The Bill aims to, among others, attract infrastructure investment for LNG imports." (DMRE, Oct '20)
- ▶ "The national Gas Master Plan 2020 is being developed. This will consolidate our participation in the development of the SADC Regional Gas Master Plan..." (DMRE, Oct '20)

IGUA-SA, in respect of the Gas Master Plan (GMP) 2020, have engaged constructively with the DMRE on the overall approach and high-level structure for the Gas Master Plan. Through its association with BUSA, IGUA-SA shares the joint Chairmanship of the DMRE's Technical Task Team for the development of the Gas Master Plan. Industry and business are further represented by a team that covers technical, commercial, finance and legal expertise in the gas energy environment. Followed by an initial planning phase, the development of the Gas Master Plan 2020 is set to commence in April 2021 through to the final approval by Cabinet in the second half of 2022.

Key stages to be followed in the development of the Gas Master Plan 2020:



The onset of the COVID-19 pandemic and the subsequent adverse impact on the South African economy resulted in South Africa's business community identifying those actions by the South African Government that are **imperative to the recovery of the South African economy**. Business stakeholders across South Africa prioritised six integrated focus areas for infrastructure investment and development i.e. energy; transport & logistics; information communications and technology (ICT); water; human settlements and social infrastructure. Stakeholders discussed and developed a prioritised action plan, comprising of short-term and longer-term time frames.

The prioritisation criteria of investment projects are based upon a portfolio of projects delivering optimal impact and benefits to the economy and include:

- ▶ Economic multipliers, inclusive growth, job stimulation, increased tax revenue
- ▶ Jobs – short term (i.e. during construction) and long term (i.e. ongoing operations and maintenance)
- ▶ Fundability – balancing of social vs. commercial opportunities, attracting more projects with a reliable income stream and limited reliance on the fiscus
- ▶ Leveraging of Public Private Partnerships and Private Sector Participation– projects with ability to leverage private sector, international and donor funding
- ▶ Sustainability – projects which can attract funding and longer-term solutions such as the green economy
- ▶ Time to market – projects with accelerated time frames i.e. feasibility studies readiness, and short construction to implementation phases

As far as the focus area of energy is concerned, the following key actions have been identified to contribute to the immediate economic growth imperative:

Immediate/Short term actions (0-6 months)

1. *Stabilise Eskom*
2. *Fast-track additional generation capacity to avoid economic losses*
3. *Incentivise private investment through simplified and expedited regulation and licencing processes*
4. *Approve multi-port location(s) for LNG terminals*

Medium/longer term actions (12 – 18 months)

1. *Restructure Eskom*
2. *Access green energy funding and establish stimulus package*
3. *Enable Just Transition by linking job creation to Green projects*
4. *Facilitate distribution and access to natural gas industrialisation*
5. *Accelerate South Africa's role in hydrogen production and exports*
6. *Stabilise municipality power distributors with public private partnerships*

The objectives of the National Development Plan are not fully reflected in the current gas energy policy landscape and the following regulatory and policy interventions and/or recommendations should be pursued in policy setting:

- ▶ The overarching Integrated Energy Plan (IEP) should be updated as a matter of urgency and reflect the role of gas into the future through the focussed re-implementation of the Gas Utilisation Master Plan (GUMP). An understanding of energy requirements in the longer term for gas is key to setting short- and medium-term objectives in this regard. Consultation on and finalisation of the IEP is therefore key and needs to be prioritised.

- ▶ The development and placement of gas pipeline and LNG import infrastructure through the optimal aggregation of demand and utilisation of existing infrastructure
- ▶ In the absence of sufficient market competition, the development of a fair and equitable gas pricing methodology that will ensure and facilitate the long-term sustainable supply and usage of gas energy, the development of infrastructure and skills, and the financing thereof
- ▶ The Integrated Resource Plan (IRP 2019) makes provision for 3GW gas (1GW in 2023 and 2GW in 2027 respectively) and provides the opportunity for more gas in tandem with renewable energy. In this regard, baseload gas-to-power presents one of the largest opportunities to step up demand to result in economically feasible gas infrastructure projects from which the broad economy could benefit
- ▶ The need to also focus on gas energy industrialisation in conjunction with power generation
- ▶ The implementation of suitable bi-lateral agreements between Mozambique and South Africa to enable the importation of gas from and/or through Mozambique
- ▶ The draft Upstream Petroleum Resources Development Bill needs to reflect the early development stage of the gas industry and the need for South Africa to remain competitive
- ▶ The Gas Act to further enable infrastructure development and stimulate the gas market
- ▶ Collective demand aggregation to optimally leverage anchor customers, infrastructure investment and the sustainable development of the gas economy

Given the current economic circumstances, the limited fiscal space, and the need to attract investment especially in infrastructure, the South African Government should create an enabling environment for large-scale gas infrastructure development and investment by the private sector. This will allow for efficient and timely investments to ensure gas energy security.

2. Decarbonisation and gas energy policy

The global debate about climate change and the role of energy is at a critical juncture. A general concern is that the world is not on a path to meet the Paris Accord ambition of limiting global warming to well below 2 C.

Internationally there is recognition that different nations face different challenges and have different means to achieve a sustainable decarbonisation pathway. South Africa is faced with unique challenges in that it is a developing nation and yet one of the largest carbon emitters globally. This calls for a careful review and implementation of a just transition to ensure that energy security, cost efficiency and employment are optimally balanced with South Africa's commitments under the Paris Accord.

In this context, The National Business Initiative (NBI), with financial support of the German Government, is creating an analytical fact-base to support and inform decision making, policy setting and support a coordinated effort among Government, national and international key stakeholders. Whilst the report, titled **"Climate Pathways and a Just Transition for South Africa"**, is expected to be published during mid-2021, it is likely to take on an informing role in energy policy formation and business decisions in South Africa with regards to energy in the coming decades to 2050. **IGUA-SA had the opportunity to provide extensive inputs in terms of the current and future gas energy and infrastructure needs to ensure energy security and availability over the medium and long terms.**



The outcome of the study aligns with IGUA-SA's demand for gas and infrastructure requirements up to 2030, but goes further to add the following two decades in the context of a changing mix with clean and renewable energy resources to align with the objective of zero-carbon emissions by 2050.

Key outcomes from the draft report point towards the following:

- ▶ Gas energy is required as mid-merit and peaking power generation options to support the roll-out of large-scale renewable energy resources and to decarbonise the petrochemical sector. A combination of renewable energy, energy storage and gas energy results in the cheapest option to decarbonise the power sector and provide stable electricity supply. For the petrochemical, industrial and logistics sectors, gas serves as a cleaner feedstock and a transitional energy source.
- ▶ There are three possible long-term, 'large-scale gas plays' for South Africa and one alternative 'LNG play'. In this regard Brulpadda/Luiperd and

Rovuma are considered to be the only two large scale gas energy supply options for South Africa, whilst the development of LNG infrastructure is a critical enabler and mid-term solution to meet demand for gas energy.

- ▶ In order to reach South Africa's net-zero decarbonisation targets by 2050, gas needs to either be phased-out eventually or negative emission technology systems such as Direct Air Capture and Carbon Capture Utilisation & Storage at scale will need to become viable. Without availability of negative emission technology, gas needs to be phased out eventually in a net-zero scenario.





REVIEW BY IGUA-SA

GAS ENERGY PRICING AND REGULATION

IGUA-SA actively engages NERSA on behalf of its members on a range of matters that include gas energy pricing, tariffs, licensing and responding formally to NERSA's various public consultation processes from time to time. IGUA-SA performs regular and ongoing analyses on gas energy and tariff applications that are considered by NERSA and respond where deemed necessary.

Key developments and focus areas of IGUA-SA during the past year included:

- ▶ Responding to NERSA's April 2020 Record of Decision in terms of the new Maximum Price Methodology of April 2020 and Sasol's subsequent Maximum Gas Pricing application.
- ▶ IGUA-SA's May 2020 application to the High Court of South Africa to review and overturn the November 2017 NERSA maximum gas price decision approving maximum gas prices for Sasol for the period from 1 July 2017 to 30 June 2020. The objective of this application is to also make this period inclusive in terms of the Constitutional Court judgement of 2019, which ruled that NERSA's pricing methodology from 2014 to 2017 was unlawful and irrational. At the time of writing this report, the High Court in May 2021 ruled in favour of IGUA-SA's unopposed application, effectively making the Constitutional Court judgement effective from 2014 until a new pricing methodology is adopted.
- ▶ Responding to NERSA's consultation documents: 1) Inquiry into Features of the Gas Distribution Level of the South African Piped-Gas Value Chain that may impede the Achievement of the Objects Outlined in the Gas Act; and 2) Amendments to the Guidelines Used for the Assessment of Inadequacy of Competition in the South African Piped-Gas Industry

For IGUA-SA, to which it reports in further detail below, particular focus was given to NERSA's April 2020 Record of Decision in terms of the new Maximum Price Methodology and Sasol's subsequent Maximum Gas Price application of Sasol.

NERSA published its Record of Decision in terms of the new Maximum Gas Price Methodology in May 2020, following a July 2019 judgement by the Constitutional Court that its 2013 pricing methodology was unlawful and irrational. This followed an extensive public consultation process from November 2019 through to March 2020 in which **NERSA considered a new maximum price application based on three options:**

- Option 1 proposed that the maximum price is the volume-weighted average price of piped gas in the United States of America and Europe.
- Option 2 proposed a *cost pass-through approach* that is a cost-based price build-up, including at the least the cost of the procured or produced gas and any transportation or regasification costs, but excluding any transmission and distribution tariffs.
- Option 3 proposed an *amended cost pass-through approach* that considers Sasol's costs (as per option 2) in order to determine a floor of the maximum price using Sasol's actual costs of production. To this an economic surplus is determined, then equally divided and added to Sasol's actual cost of production to determine a price for gas energy.

The outcome, in summary, was that NERSA adopted a new maximum gas energy price methodology in April 2020 that is based on two approaches:

- **International benchmarking price** that sets a formula for determining maximum gas energy prices, inclusive of a trading margin, that uses competitive hub prices i.e. Henry Hub, TTF, NBP, are applicable to Sasol gas supply and that also considers cost recovery with reference to the cost of gas acquisition and trading margin:

Max Price = 0.4 (HH) + 0.5 (TTF) + 0.1 (NBP) where:

Maximum Price of Gas = Maximum price for gas energy (R/GJ)

Henry Hub (HH) = Twelve months simple average of the Henry Hub monthly prices with a 40% weight in the energy basket

Transfer Title Facility (TTF) = Twelve months simple average of the TTF monthly prices with a 50% weight in the energy basket

National Balancing Point (NBP) = Twelve months simple average of the NBP monthly prices with a 10% weight in the energy basket.

- **Cost pass-through price** that sets a formula for the pass-through of costs applicable to LNG imports:

Max Price = JKM + pass-through cost (trading, transport, storage, regasification, storage, margin) where:

Maximum Price of Gas = maximum price for gas energy (R/GJ)

JKM = Japan Korea Marker maximum allowed price for gas energy molecules

Pass-through costs = trading cost + margin + transport cost + regasification cost etc.

Sasol's maximum gas price application was subsequently published in January 2021 where Sasol motivated and applied for a price based on certain material deviations from NERSA's methodology i.e. changing the weightings of NERSA's methodology, adding another hub (JKM) to the formula, adding the trading cost to the weighted hub pricing, and changing the formula for the determination of the trading cost level.

Sasol's application for maximum gas pricing is based on the period March 2014 to June 2021 to comply with the retrospective application of the new pricing methodology to comply with the Constitutional Court judgement and the May 2021 High Court ruling.

NERSA is in the process of finally reviewing Sasol's application together with the responses of IGUA-SA and others, but it is noted that during its Piped-Gas Subcommittee Meeting in March 2021, the subcommittee members indicated that they would like to recommend to NERSA the approval of Sasol's maximum price application based on NERSA's maximum-price methodology, as was published in March 2020.

If NERSA were to approve the maximum price application on this basis, it is IGUA-SA's view that it would once again have directly failed to regulate or place any substantial constraint on the prices imposed by Sasol as monopoly gas supplier. Such a decision would be especially difficult to understand given that there is a clear, transparent, and practical alternative, the cost-build up approach, which complies with the Gas Act, the Piped-gas Regulations, the Constitutional Court decision and is reasonable and rational, both in economics and law:

- ▶ sections 4(3)(a)-(e) of the Piped-gas Regulations ("the Regulations"), read together with section 4(g) and section 21(1)(p) of the Gas Act ("the Act"), state that NERSA must be objective, fair, non-discriminatory, transparent, and predictable.
- ▶ the objectives of the Act state that NERSA must regulate maximum prices where it has determined that there is inadequate competition, and in doing so to consider the interests and needs of all parties on an equitable basis.
- ▶ **the Constitutional Court decision states that NERSA must consider Sasol's actual marginal costs to supply gas (paragraphs 65, 66, 74, 75 and 78).**
- ▶ the Constitutional Court decision states that NERSA must equitably allocate the economic surplus that exists above Sasol Gas's actual marginal costs, but below consumers' willingness to pay, between Sasol Gas and consumers (see paragraphs 65, 74 and 78).
- ▶ section 4(4) of the Piped-gas Regulations states that maximum prices must enable Sasol Gas to recover all efficiently and prudently incurred investment and operation costs, and make a profit commensurate with its risk.

Accordingly, IGUA-SA maintains that Sasol should not be permitted to earn any more than an amount that allows it to recover all efficiently and prudently incurred investment and operation costs, and make a profit commensurate with its risk as per the Constitutional Court decision, paragraph 76.



The Constitutional Court decision requires that NERSA must determine maximum prices that mimic competitive gas prices in the piped-gas market in South Africa.

The Constitutional Court decision requires that NERSA must determine maximum prices that mimic competitive gas prices in the piped-gas market in South Africa. These considerations are also consistent with a rational economic approach to the regulation of a monopolist. A competitive price is one that allows firms to recover their prudently incurred operating and capital costs, and earn a return that is commensurate with risks, but no more.

The international benchmarking approach will therefore inevitably fail to replicate a competitive price in the South African piped-gas market, and will fail to constrain historically allowed and charged monopoly prices for gas energy.

NERSA maintains and motivates that the new maximum gas price methodology as being considered complies with the requirements of the Gas Act, 2002, Piped Gas Regulations and the Constitutional Court judgment. Despite the methodology indicating momentary gas price curtailments at times, mainly for the period July 2020 to June 2021, the reality is that it does little to lower gas pricing over time and even less so when looking at gas prices based on the new maximum gas price methodology that are forecasted to continue at historical price levels.

The resultant prices of NERSA's new maximum gas pricing methodology are very similar to what a typical large industrial user has actually paid from 2014 to date when applied retrospectively.

Therefore an obvious indication of the fatal flaws in the international benchmarking approach, amongst other, is that it generates prices that are similar to, and at times higher than, the actual prices set by Sasol for a typical large industrial gas user. On average over the period 2014 to date there is little if no difference in the maximum prices generated by the new maximum gas price methodology and that set by Sasol for a typical large industrial user – that which in IGUA-SA's view the Constitutional Court requires NERSA to correct. Also, both of Sasol's actual prices, and the prices that emerge from the international benchmarking approach are vastly in excess of the actual costs incurred by Sasol to supply gas.

Retrospective maximum gas price differential (R/GJ)

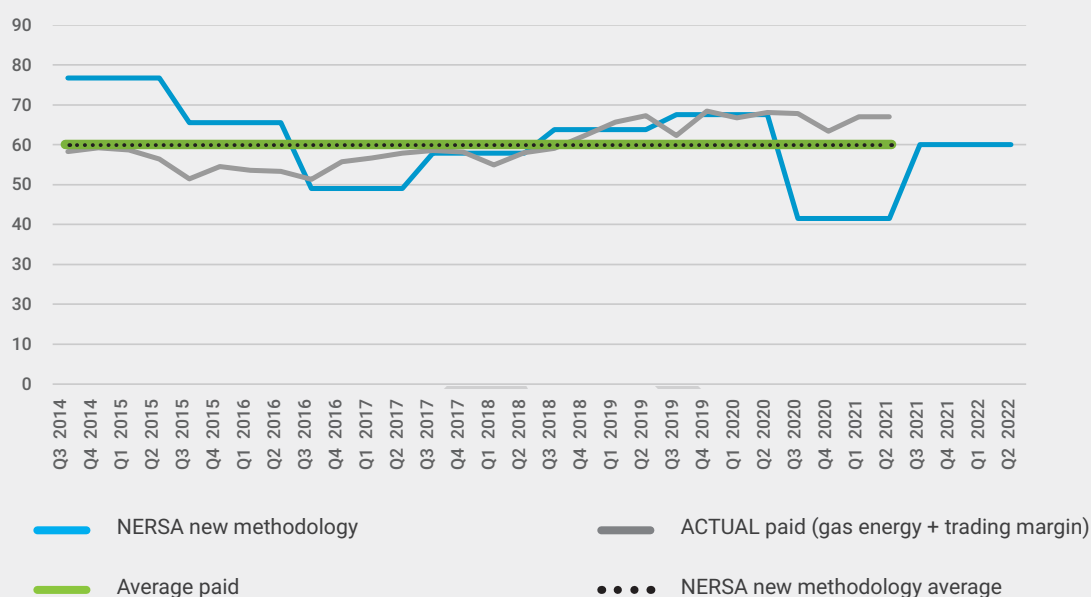


Figure 4: Impact of NERSA new maximum gas price methodology

IGUA-SA expects NERSA's record of decision on the implementation of the new maximum gas price methodology to be published by May 2021.



On average over the period 2014 to date there is little if no difference in the maximum prices generated by the new maximum gas price methodology and that set by Sasol for a typical large industrial user



MEMBERSHIP

IGUA-SA's founding members included:



Membership over the last year included these founding members:



The IGUA-SA is governed by a formal constitution as adopted by its founding members and provides for a formal platform to conduct its business.

IGUA-SA engages various other gas users and interested parties on a continuous basis to deliver on its primary objective to ensure the efficient availability of hydrocarbon gas in Southern Africa. This takes place in the context of a growing demand for natural gas - both by organisations requiring more gas to expand and organisations wishing to switch to gas from costly and environmentally harmful alternative energy sources.

IGUA-SA's membership is open to the broader gas value chain and includes various tiers of membership i.e.:

- ▶ **Gas user membership** – non-vertically integrated gas end users (current & future) who have voting rights, are represented on the Exco and who reserve right of admissions
- ▶ **Industry membership** - new gas suppliers, gas traders, new gas transmission/distribution organisations
- ▶ **Associate membership** – consultants and professionals in the operating, financial, marketing and legal communities; and others who provide services to the natural gas industry
- ▶ **Affiliate membership** - international organisations that are interested in natural gas activities in Southern Africa.



It is evident the natural gas landscape is faced with various challenges related to policy, availability and pricing in the immediate future. These can only be effectively addressed if more organisations participate in IGUA-SA's work.

Stakeholders are therefore implored to join IGUA-SA to collectively address these challenges and to jointly share in the knowledge and participate in the strategic actions undertaken by IGUA-SA. Appropriate resources are being deployed and utilised on an ongoing basis.

A broader participation in membership will not only assist in achieving IGUA-SA's strategic objectives but will also assist in efficiently meeting its financial obligations through a wider membership base.



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