



2021 / 2022

Annual Report



IGUA-SA

Industrial Gas Users Association - Southern Africa



Report **Content**

- ▶ **Membership & Stakeholders**
- ▶ **Message from the Chairperson**
- ▶ **Message from the Executive Officer**
- ▶ **IGUA-SA Review:**
 - Gas Energy Availability
 - Gas Energy Pricing & Regulation
 - Gas Energy Policy

Who we are in 2022

Industrial Gas Users Association – Southern Africa: Our Mandate, Purpose & Principles

Gas Context

- South Africa **has an underdeveloped gas economy** compared to growing economies globally
- Leveraging the gas economy for **economic growth for SA**
- Inefficient and uncompetitive **energy pricing**
- **Demand far exceeds supply:** disconnect between supply and growing demand for gas
- Lack of gas energy **holding back strategic investment/growth** decisions for industry globally
- **Lack of supporting policy** to develop gas infrastructure & market

Focus Areas



Gas Policy

- Alignment & involvement in policy setting



Gas Supply

- Disconnect between stable supply and demand



Economic efficiency

- Lowering of overall cost of energy mix to improve efficiency & competitiveness

Vision

The promotion and coordination of the Southern African gas economy by gas users, to ensure the long term, efficient and sustainable availability of gas through appropriate stakeholder engagements at public and private levels.

Members / Target Sectors

Large scale end users of gas that:

1. Currently consumes gas in its processes
2. Require more gas for expansion purposes
3. Wish to switch to gas from costly, environmentally damaging alternative energy sources



Mining



Agriculture



Manufacturing



Transport

Members & Stakeholders



Message from the Chairperson:

Thomas Shaw



The Role of Gas

- The significant and growing demand for natural gas for industrial use, is fast exceeding the current supply. It is **therefore critical that opportunities for natural gas are leveraged**.
- Energy Security is key to the socio-economic recovery and growth of South Africa. IGUA-SA supports the developmental role of natural gas as part of **South Africa's just transition and COP 26 commitments** towards decarbonization.
- The "Just Transition and Climate Pathways Study for South Africa, 2021"* shows that natural gas will play a more prominent role in South Africa's energy mix with increased demand towards 2045, before levelling off. Like other emerging economies, **natural gas helps accelerate the pace at which these economies reduce their use of coal**.
- IGUA-SA remains critical of policymakers and energy commentators that 1) don't recognize the **multiple uses of gas energy** in industrial processes; and 2) who fail to seek realistic energy pathways that strike a balance between **security, affordability, and sustainability**.
- The IGUA-SA recommends the increased use of **natural gas in conjunction with increased use of renewable and clean energy sources**. Energy transition studies by various industrial gas users point towards an urgent need for access to more natural gas and renewable/clean energy at the same time.
- South Africa is **struggling to recover post-COVID**, impacted by unprecedented energy constraints; an outdated Integrated Energy Plan; an unfriendly energy investment environment; and slow delivery of energy policies and projects.

* A National Business Initiative (NBI) in collaboration with IGUA-SA & BUSA

Message from the Chairperson:

Thomas Shaw

“

In summary, South Africa 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.

”

SA Gas Policy Reality

- The **DMRE has not made significant progress** on its own timelines of developing a **Gas Master Plan**, despite SA's energy crisis with gas volumes which will decline in less than 36 months.
- The **increased 100MW licensing threshold for own power generation in 2021 has not helped industry**, as there is no extra gas energy available for power generation.
- Gas-to-power generation is seen as the catalyst for gas infrastructure developments, **yet the RMIPPPP and IRP 2019 fail** to provide timeous impacts on the harmonization of gas demand/supply.
- Despite **increased industrial demand, the gas energy sector is in decline** and will see a significant decline in 2024/25 due to resource depletion at Pande/Temane. The local market will see a shift in allocation of synthetic gas, with the current supply to KZN stopping in 2026.
- In the absence of clear energy pathways, **the gas industry is critically reviewing its medium-term capital investment programs.**

The State offers only **vague vision-type statements** instead of a concrete plan for an integrated energy policy that includes gas.

2012: National Development Plan – 489 pages

Constructing infrastructure to import liquefied natural gas and increasing exploration to find domestic gas feedstock (including investigating shale and coal bed methane reserves) to diversify the energy mix and reduce carbon emissions.

Incorporate a greater share of gas in the energy mix, both through importing liquefied natural gas and if reserves prove commercial, using shale gas. Develop infrastructure for the import of liquefied natural gas, mainly for power production, over the short to medium term.

South Africa has dedicated regulatory agencies for electricity, gas and petroleum pipelines, telecommunications and ports. These regulators are tasked with safeguarding reliable and competitively priced services for consumers.

Gas should be explored as an alternative to coal for energy production. Liquefied natural gas infrastructure will be in place to power the first combined-cycle gas turbines (over medium term).

2021: Economic Reconstruction and Recovery Plan – 38 pages

In terms of the Plan, the following priority interventions will be made:

- Aggressive infrastructure investment;
- Employment orientated strategic localization, reindustrialization and export promotion;
- Energy security;
- Support for tourism recovery and growth;
- Gender equality and economic inclusion of women and youth;
- Green economy interventions;
- Mass public employment interventions;
- Strengthening food security; and
- Macro-economic interventions

Finalise model and partnership for the LNG Import Architecture and Partnership within 6 months in order to unlock investment and value; intensify regional integration efforts; whether for access to gas in cases where neighbouring countries are endowed

Message from the Chairperson:

Thomas Shaw



Acknowledgements

- While IGUA-SA is recognized as a credible, objective and fact-based advocacy group, industrial gas users need to be more assertive and commanding if they want to ensure the viable security of supply of gas-energy. IGUA-SA may need to revisit its conventional mandate to ensure it is positioned for the changing market dynamics in South Africa.
- 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 in advancing the various strategic agendas for the industry.
- 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, in 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.

Message from the Executive Officer :

Jaco Human



Global & Local dynamics

- The **global Post-Covid economic recovery** has been upended by the Ukraine/Russia crisis; and Energy markets face greater uncertainty on both demand and supply.
- **Gas prices are reaching unprecedented levels**, but is expected to normalize over the next 24 months. Europe will find alternatives for Russian gas, and Africa stands to gain significantly from future gas exploration, infrastructure developments and supply.
- **NERSA's irrational methodology** (linking local gas prices to foreign markets), will cause SA Gas prices to increase 300%, with severe consequences for the SA economy.

Global energy and gas consumption: 2020

Oil, coal, hydro, renewables, nuclear	Gas	Coal, Oil	Renewables, Hydro, Nuclear
World:			
557 000 PJ	24,5% 137 000 PJ	58,5%	17%
South Africa:			
4 900 PJ	3% 150 PJ	92%	5%

Key Global Energy Trends



The ambitions of country governments to reduce carbon emissions have grown, but there is still uncertainty about whether they will meet carbon reduction targets by 2050.



The importance of fossil fuels is declining as renewable energy technologies and sources become more prevalent.



Natural gas is supported globally and demand will grow in developing countries due to industrialization and reduced coal usage.



Wind & solar power will continue to increase rapidly requiring increased investment.



Low carbon hydrogen emerges as a cost efficient and environmentally friendly alternative to carbon fuels.



Carbon capture starts to play a central role in supporting a low-carbon energy system.

Message from the Executive Officer :

Jaco Human



The natural gas landscape faces various challenges related to policy, availability, and pricing. 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 implored to join IGUA-SA to collectively address these challenges, share knowledge, and participate in the strategic actions undertaken by IGUA-SA.



Global & Local dynamics

South Africa has a gas demand that significantly outstrips supply due to failed energy policies.

GAS SUPPLY SINCE 2015



190PJ/a

Supply remained unchanged with no additional molecules becoming available in South Africa

GAS DEMAND IN 2022



350PJ/a

Demand at present from the power conversion, private power, industrial, petrochemical and logistics sectors.



Gas Supply

- There are no definitive infrastructure plans in 2022 to overcome the demand and supply imbalance, in addition to the impending decline in natural gas availability from Mozambique.



Gas Policy

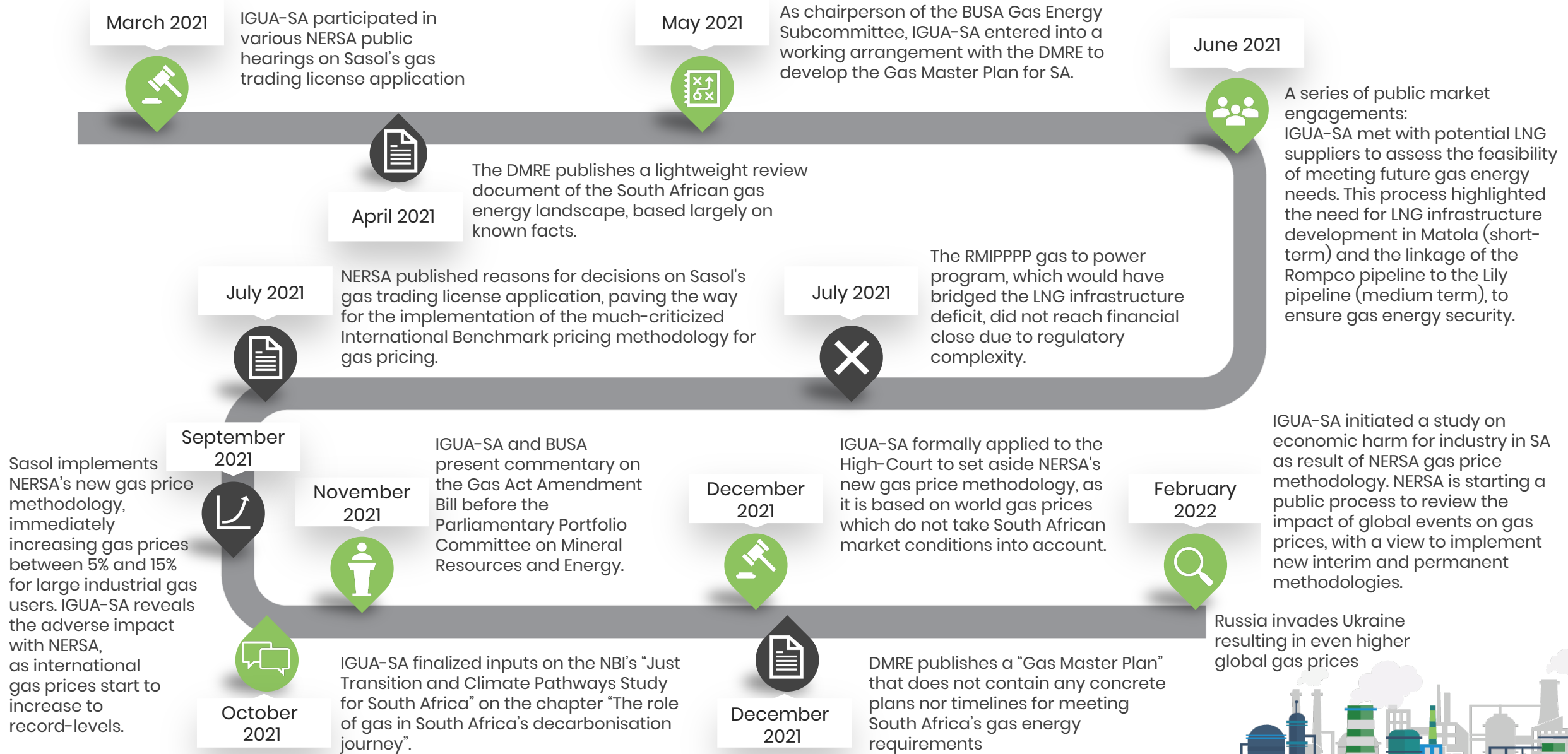
- Gas energy security remains a significant risk to the economy of South Africa if plans are not being put in place in the next year.

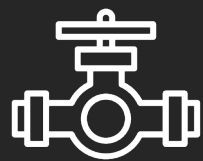


Economic impact

- Gas prices in South Africa will increase by 300% because of NERSA's irrational methodology.

Key events over the past year include:





IGUA-SA position on Gas Availability

IGUA-SA REVIEW

Supply and Demand

- **South Africa has experienced no growth in gas energy consumption since 2015.**
Sasol, the only primary supplier of gas, supplies approximately 190PJ/a to South Africa consisting of approximately 125PJ/a for Sasol and 65PJ/a (40PJ/a natural gas; 25PJ/a methane-rich gas) to third party industrial users.
- **Natural gas supply will diminish by approximately 12% per annum from 2025.** Sasol will stop supplying methane-rich gas from 2026 to Kwazulu-Natal and Mpumalanga.
- **Significant disconnects exist** in terms of declining gas availability, increased gas demand, non-existent infrastructure plans and lagging Government policy.
- IGUA-SA sees demand and supply as follows across four **key market nodes**:



1
Mpumalanga/Gauteng



2
KwaZulu-Natal



3
Eastern Cape (Coega)



4
Western Cape

Demand and supply across key market nodes






GP & MPU	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
IND	165	166	167	168	219	220	221	222	224	225	226
Petrochem	120	120	120	120	170	170	170	170	170	170	170
Industry	45	46	47	48	49	50	51	52	54	55	56
PWR PVT	3	6	9	13	16	19	22	25	28	32	35
PWR IRP											
PWR RMIPPP											
PWR CONV						25	75	75	75	75	75
LOG			0.25	1.00	1.10	1.21	1.33	1.46	1.61	1.77	1.95
Demand Total	168	172	177	182	236	265	320	324	329	333	338

KZN	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
IND	20	20	21	21	22	22	23	23	24	24	25
PWR PVT					6	8	10	12	14	15	17
PWR IRP								25	25	25	25
PWR RMIPPP					12	12	12	12	12	12	12
PWR CONV					3	3	3	3	3	3	3
LOG & MIN			1.0	1.1	1.2	1.3	1.5	1.6	1.8	1.9	2.1
Demand Total	20	20	22	22	44	47	49	77	79	82	84

EC	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
IND						5	5	5	5	5	6
PWR PVT						0.32	0.63	0.95	1.26	1.58	1.89
PWR IRP								25	25	25	25
PWR RMIPPP					18	18	18	18	18	18	18
NC MINING											
PWR CONV							2.5	2.5	2.5	2.5	2.5
LOG				1	1	1	1	1	1	1	1
Demand Total	0	0	0	1	19	24	27	52	53	53	54

WC	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
IND	0	0	0	0	2	3	87	109	109	110	110
Petrochem							82.5	82.5	82.5	82.5	82.5
Industry			0.20	0.20	2	3	4	26	27	27	28
PWR PVT					1	2	3	4	5	6	7
PWR IRP								25	25	25	25
PWR RMIPPP					12	12	12	12	12	12	12
PWR CONV						12.7	12.7	12.7	12.7	12.7	12.7
LOG			1	1	1	1	1	1	1	1	1
Demand Total	0	0	1	1	16	30	115	163	164	166	168

Legend:

-  **IND** – Industrial sector including Petrochemical sector plus Industry
-  **PWR PVT** – embedded gas to power generation
-  **PWR IRP** – gas demand as a result of the IRP 2019 gas-to-power objectives
-  **PWR RMIPPP** – gas demand for gas-to-power under the RMIPPP in Coega, Saldanha Bay and Richards Bay
-  **PWR CONV** – conversion of Kelvin 400mw power station at 25pj/a from 2025, Eskom Komati 1000mw at 50pj/a from 2026, Ankerlig, Avon and Dediza
-  **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

South Africa Demand

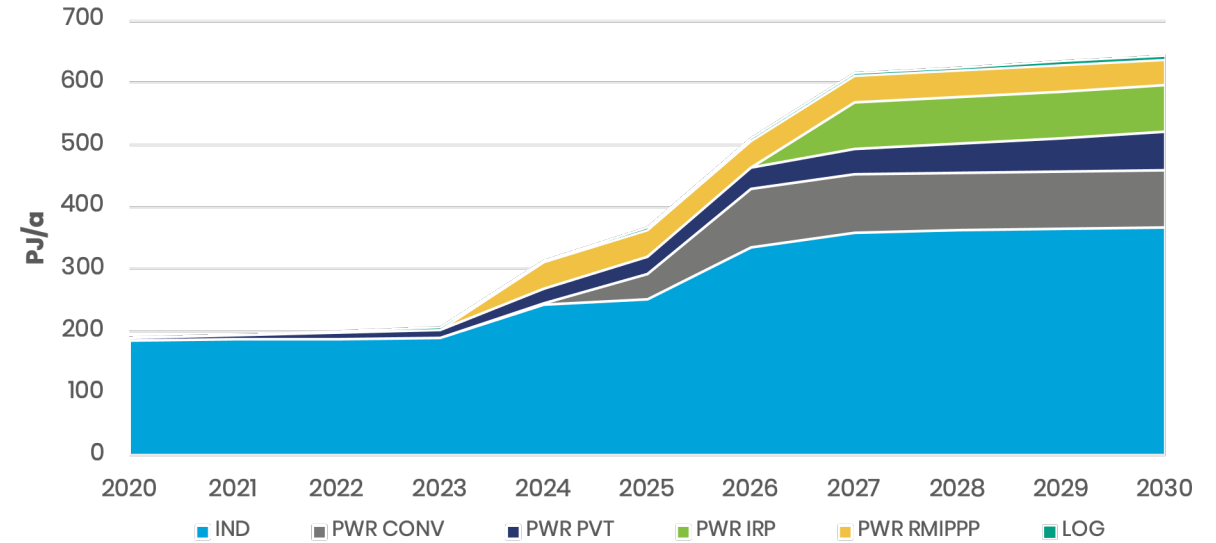
South Africa Demand	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
IND	185	186	188	190	243	250	336	359	362	364	367
PWR PVT	3	6	9	13	23	29	35	42	48	54	61
PWR IRP	0	0	0	0	0	0	0	75	75	75	75
PWR RMIPPP	0	0	0	0	42	42	42	42	42	42	42
PWR CONV	0	0	0	0	3	41	93	93	93	93	93
LOG	0	0	2	3	3	4	4	5	5	6	6
Demand Total	188	193	199	205	314	366	510	616	625	634	643

South Africa Supply

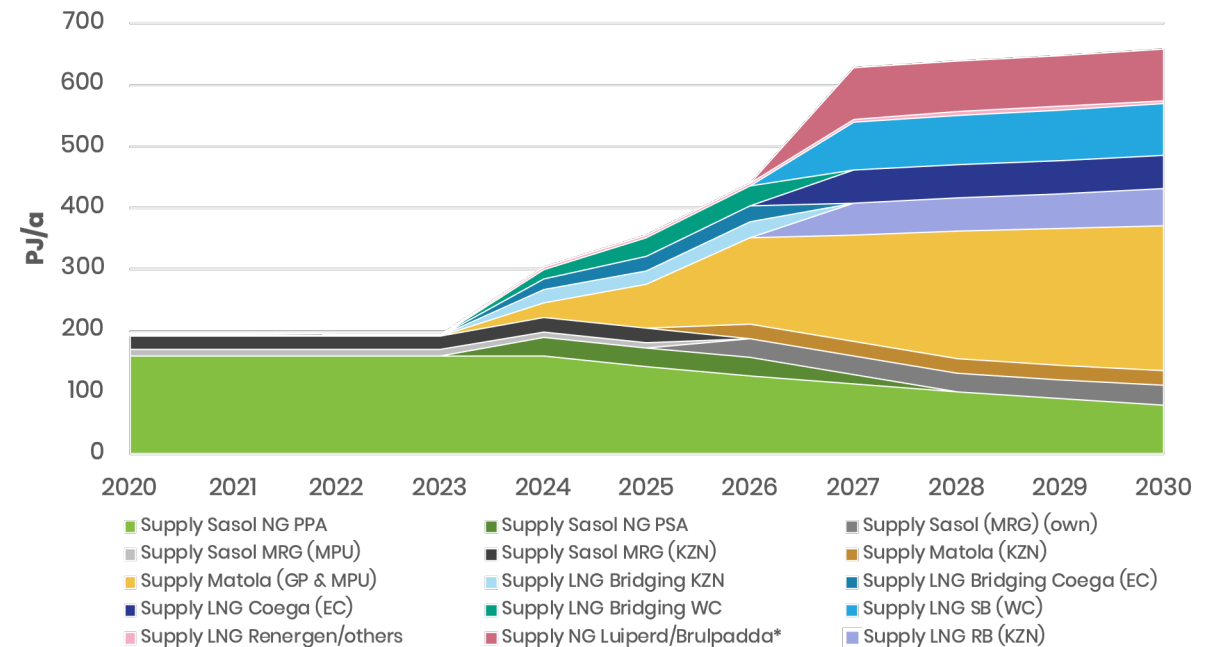
South Africa Supply	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Supply Sasol NG PPA	160	160	160	160	160	142	127	113	100	89	80
Supply Sasol NG PSA					30	30	30	15			
Supply Sasol (MRG) (own)							31	31	31	31	31
Supply Sasol MRG (MPU)	9	9	9	9	9	9					
Supply Sasol MRG (KZN)	22	22	22	22	22	22					
Supply Matola (KZN)							23	23	24	24	25
Supply Matola (GP & MPU)					45	92	162	195	227	242	256
Supply LNG RB (KZN)								52	55	57	59
Supply LNG Bridging KZN					21	23	25				
Supply LNG Bridging Coega (EC)					19	24	27				
Supply LNG Coega (EC)								52	53	53	54
Supply LNG Bridging WC					15	30	32				
Supply LNG SB (WC)								79	81	83	84
Supply LNG Renergen/others			2	3	3	4	4	5	5	6	6
Supply NG Luiperd/Brulpadda *											
Gas availability	191	191	193	194	324	375	460	565	576	586	595

*To be confirmed

South Africa Demand



South Africa Supply



Demand

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:

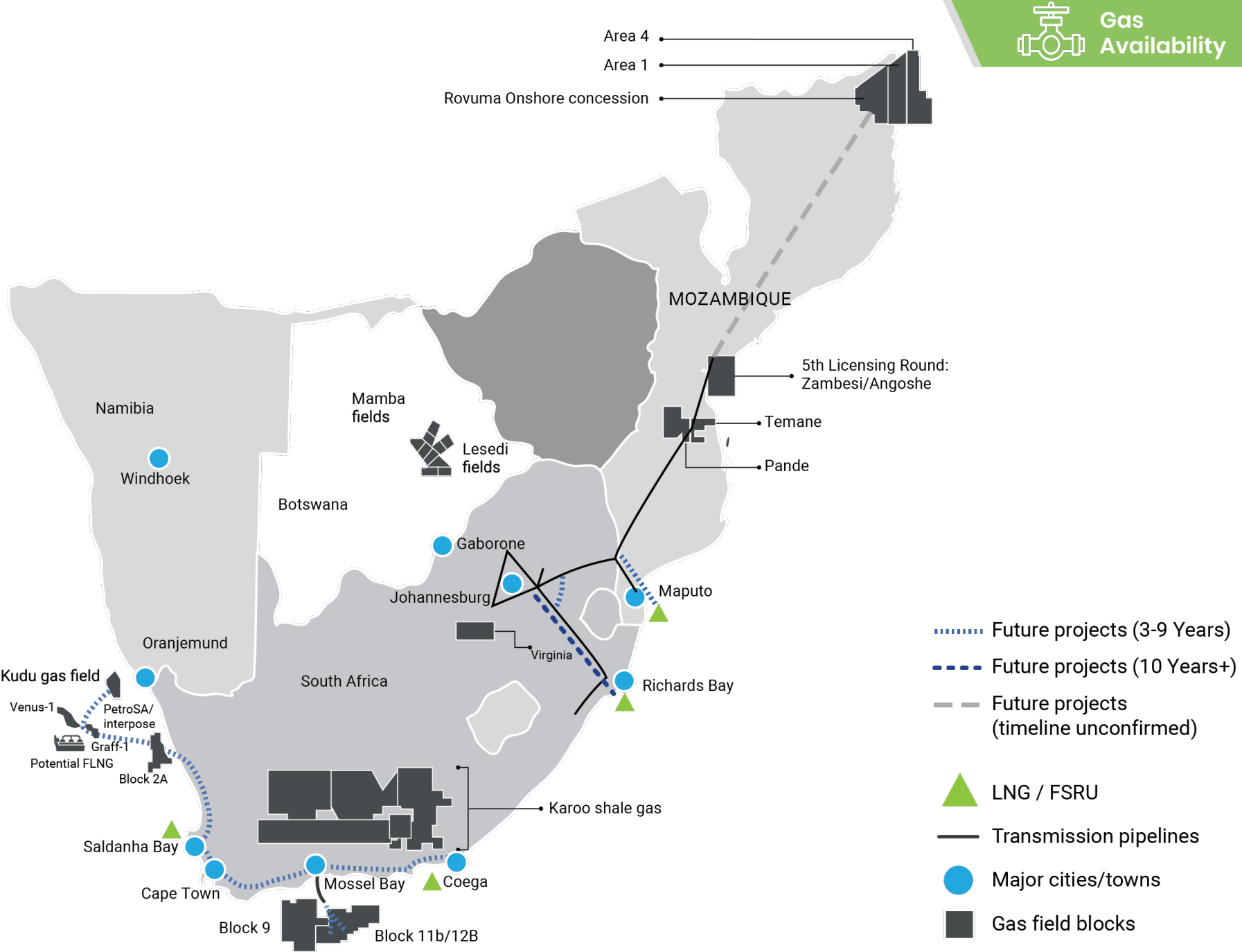
- **IND** – Industrial sector including Petrochemical sector plus Industry. The petrochemical sector (Sasol) demand assumed to increase by 30PJ/a ex-Mozambique from '24-'26, thereafter ex-MRG. Industrial demand growth is linked to long term GDP outlook at 2,3%/a over next 10 years from 65PJ/a in 2020.
- **PWR PVT** – embedded gas to power generation. Demand for 2020 assumed to be 150MW, growing at 150MW/a, with provincial allocation GP = 50%, WC = 33%, KZN = 17%, 50%eff./100% use.
- **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.
- **PWR RMIPPPP** – refers to gas demand for approximately 1 200mw gas-to-power under the RMIPPPP in Coega, Saldanha Bay and Richards Bay.
- **PWR CONV** – assumes conversion of Kelvin 400mw power station at 25PJ/a from 2025, Eskom Komati 1000mw at 50PJ/a from 2026, Ankerlig, Avon and Dediza.
- **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 growing at 10%/a from a low base.

Supply

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. The gas supply outlook is therefore underpinned by:

- Sasol Pande/Temane gas flow reduction from 2025 onwards at 11%/a
- Temporary importation from 2024 to 2027 of additional Mozambique gas
- Sasol stopping MRG supply from 2026 impacting KZN and MPU
- BGC/TotalEnergies assumed supply through Rompco/Lily/SWM link from 2026
- RMIPPPP linked temporary LNG bridging infrastructure up to 2027 at Richards Bay, Coega and Saldanha Bay
- IRP 2019 linked LNG infrastructure at Richards Bay, Coega and Saldanha Bay from 2027
- Some small scale LNG supply and imports
- LNG ex-Virginia
- Piped gas Luiperd/Brulpadda (To be confirmed)

South Africa's Gas Block Developments and Gas Master Plan Considerations





IGUA-SA position on Gas Pricing

IGUA-SA REVIEW

NERSA's new methodology, based on international benchmarking, is fundamentally flawed:



Just like the previous basket of alternatives methodology (which was rejected by the Constitutional Court), the current methodology is based on prices that are irrelevant to the supply of piped gas in South Africa. Foreign gas prices are outside of the control of NERSA, Sasol Gas, or Sasol Gas' customers.



The current methodology is not grounded in an assessment of the monopolist's actual costs, nor the South African context.



The current methodology causes gas users to suffer the consequences of the international prices rising well above the level of Sasol Gas' prudently incurred costs plus a reasonable return.



The current methodology allows Sasol Gas to earn profits that are far in excess of its relevant economic costs plus a reasonable return.



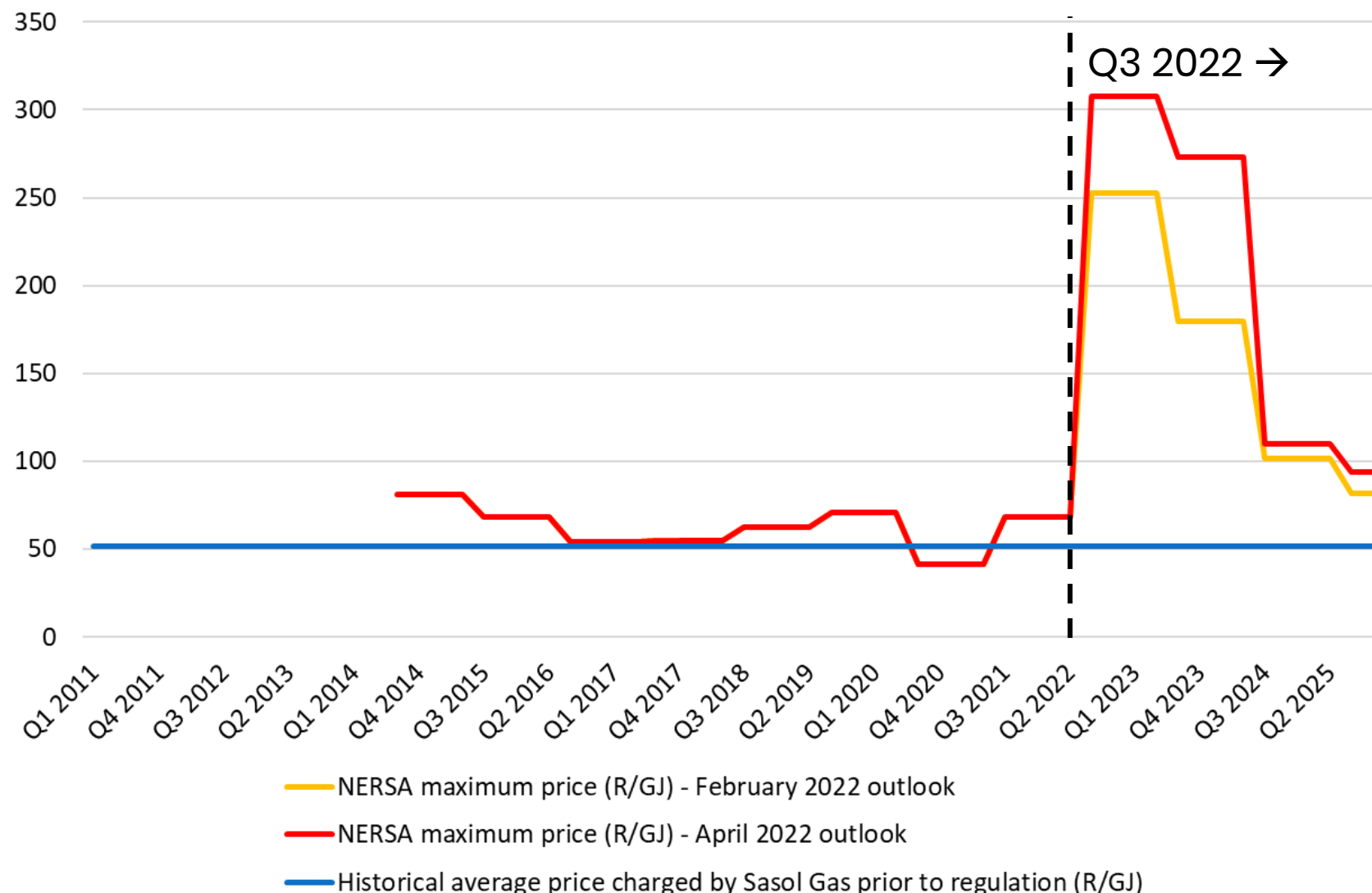
IGUA-SA has previously and repeatedly warned of the likelihood of these unintended adverse consequences.



NERSA has entirely failed to adhere to the Constitutional Court's clear instructions to regulate piped gas prices from 2014 to the present day.

COST TO SA
ECONOMY
= R27 BILLION
Over 3 Years

Reality – Already excessive prices will rise even higher



Source: Historical HH and TTF prices obtained from the World Bank. Historical NBP prices obtained from Ofgem. Forward-looking prices obtained from Poten & Partners. Exchange rates obtained from the South African Reserve Bank and the Bureau for Economic Research.

There will be significant economic harm

- **Piped gas is an important input** into the production and manufacturing processes for many industrial users in South Africa.
- IGUA-SA is an industrial manufacturer group that is **under pressure due to the Covid-19 pandemic and poor economy**.
- Our **members have been suffering due to Sasol Gas' unconstrained monopoly prices**. Any substantial gas price increase will only make the situation worse, causing significant and irreparable harm.
- The current methodology **artificially links the maximum price in South Africa to prices that occur in entirely different contexts**, which is harmful IGUA-SA members and exposes SA customers to idiosyncratic price shocks.

IGUA-SA members have undertaken internal assessments to better understand the likely impact of these imminent changes in piped gas prices.

The massive price hikes are likely to:

- Cause entire or partial reductions in operations, and/or restrictions in output (e.g. shutting marginal operations, or a portion of overall operations that become no longer viable).
- Cause cancellations of projects, investments, expansions, and innovations that would otherwise have been undertaken.
- Cause lost time-sensitive opportunities that are no longer viable (e.g. seasonal / cyclical opportunities to produce for export). Some time-sensitive opportunities would then be permanently lost.
- Adversely impact members' abilities to employ workers.
- Cause harm to a set of indirect stakeholders, such as upstream suppliers and downstream customers.

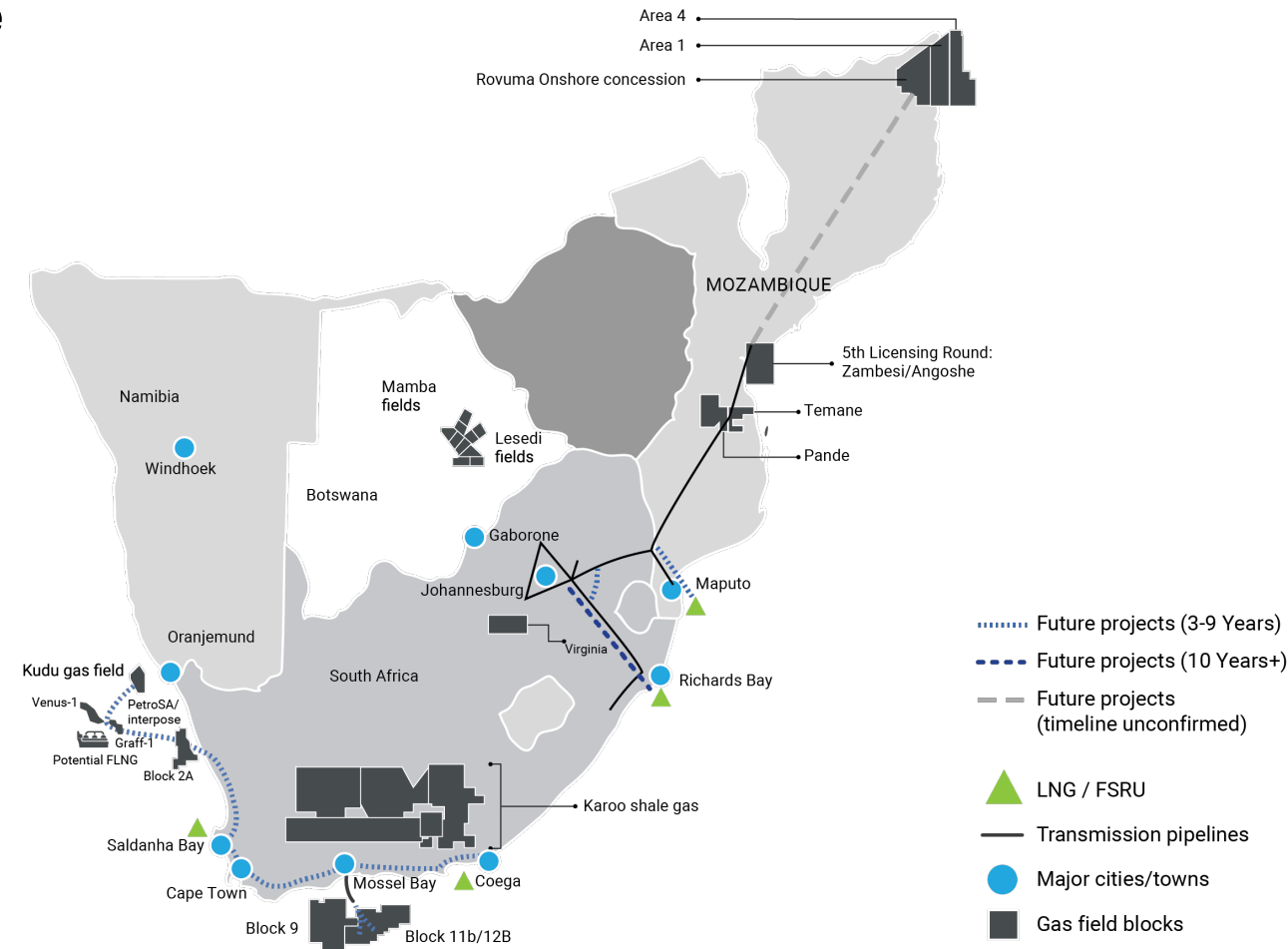


IGUA-SA position on Gas Policy

IGUA-SA REVIEW

Gas Industrialisation Plan – Landscape

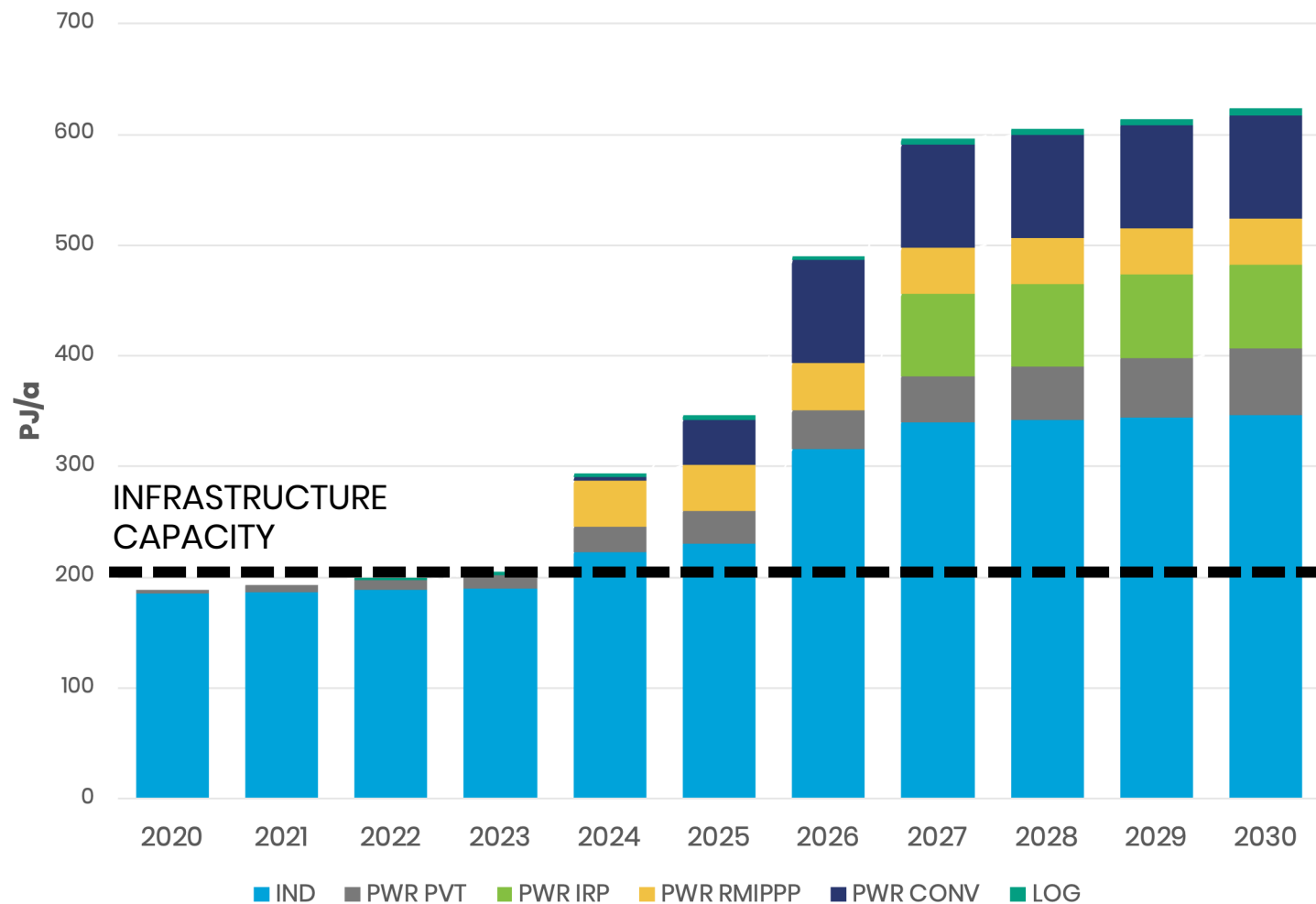
- Pande Temane: reduce 10–15%/a, '24/'25
- **No fixed plans for infrastructure**
- Demand outstrips supply
- **KZN gas (MRG) flow stop in 2026**
- R/Bay LNG (Transnet) >7–10y
- Rovuma pipeline deemed unfeasible
- TotalEnergies key regional player for SA
- No Gas Master Plan at present
- DMRE focused on IRP 2019 only
- 4 regions requiring distinct solutions
1) GP / MPU 2) KZN 3) EC (Coega) 4) WC
- DMRE/CEF/Transnet gatekeepers with no State urgency
- **Need for Gas Industrialisation Policy**



Infrastructure Capacity plans vs. Demand are not aligned :

- x Sasol supply ending by 2026 (KZN)
- x Sasol supply 42% less by 2030 (GP, MPU)
- x Lack of integrated gas energy infrastructure plans
- x Lack of gas energy industrialisation plans
- x Lack of investment framework in the gas energy sector
- x Lack of urgency and misalignment of timelines
- x Gatekeeper and market roles of SOE's (Transnet / CEF) not sustainable

Gas Industrialisation Plan – Economic Risks



Policy Poverty and Risks to the South African Economy



1. Sasol supply of gas coming to an end

The South African economy is reliant on two sources of gas:

- A. Pande/Temane, Mozambique** (majority-owned by Sasol) supplies est. 163PJ/a gas to South Africa through the Rompco and Sasol gas transmission pipelines. The available gas is expected to decline by 42% between 2024 and 2030. The PPA fields have produced at a plateau since 2015, and as of July 2020, available gas resources are ± 760 PJ or 4 years production at current supply levels. Sasol is not extending any gas supply agreement beyond 2024 because they anticipate a decline in available gas resources.
- B. Methane-rich gas (MRG):** As a by-product of its internal processes, Sasol supplies 30PJ/a MRG to KZN and Mpumalanga. However, to meet its own demand, Sasol will cease supplying MRG to 3rd parties in Kwazulu-Natal and Mpumalanga by 2026.

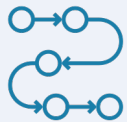


2. NERSA Pricing Methodology

A new methodology for the determination of gas prices was approved in July 2021, but it is deemed more irrational than the first method, with real and adverse implications on the South African manufacturing sector.

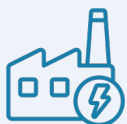
Sasol's implementation of NERSA's new gas pricing methodology is set to cost the manufacturing sector R27 billion over the next three years – for no underlying structural reason other than a pricing methodology of NERSA. Such exponentially escalating costs will substantially prejudice downstream gas users, and harm the manufacturing industry which is vital to the future growth and development of South Africa's already fragile economy.

Policy Poverty and Risks to the South African Economy



3. Lack of integrated gas energy infrastructure plans

The demand for gas exceeds the ability to supply, due to a lack of infrastructure plans. The DMRE's delay in developing an integrated Gas Master Plan, has led to a backlog in gas energy infrastructure plans.. Any plans being considered by the DMRE at present is 5-10 years off from implementation and largely focused on power generation at Coega.



4. Lack of gas energy industrialization plans

There is currently no gas industrialization plan that will ensure fast-tracking and alignment of all regulatory requirements. The DTIC is better positioned than any other government department to ensure the development of a gas industrial plan, and its implementation to fast-tracked projects that can mitigate immediate gas supply risks and meet future demand.



5. Lack of investment framework in the gas energy sector

SOE's, mainly Transnet, hold the key to any future development of the gas economy and ensuring gas energy security. Global interest in investing in the sector is significant, but not at all being entertained by Transnet, who in turn is mandated by the DMRE on any gas infrastructure developments.



6. Lack of urgency and misalignment of timelines

South African demand for gas energy exceeds supply, and the current availability of gas will start to decline in 36 months. The unstable and increased cost of electricity in South Africa is viewed as critical to industry to maintain operations and global competitiveness. Industry in South Africa does not have confidence in government to urgently find solutions to the gas energy deficit.



IGUA-SA

Industrial Gas Users Association - Southern Africa

THANK YOU

