

P O L I C Y B R I E F

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Accelerating Economic Growth through Municipal Renewable Energy Expansion

Comparing South African and Chinese municipal experiences

Executive Summary

South Africa is currently grappling with a nationwide energy crisis due to a substantial 33 GW energy shortfall. The country's 2019 Integrated Resource Plan (IRP) outlines a gradual shift from coal to renewable energy sources, with a more significant emphasis on this transition by 2030. However, the current energy crisis may require an accelerated transition to change the energy sector. Positively, this crisis could potentially create new markets and job opportunities, particularly at the local level.

Addressing political will, governance, and technical capacity challenges at the municipal level could potentially unlock economic growth opportunities from this accelerating renewable energy adoption. While there is a need for skilled workers in procuring, constructing, and operating renewable energy plants and manufacturing components, there is also a need for technical expertise in managing these functions at the municipal level. The HSRC's study into renewable energy promotion at the municipal level has revealed that many municipalities view climate adaptation mitigation efforts as an unfunded mandate, thus leaving the function to Eskom to manage.¹

Developing renewable energy skills is essential in transitioning to renewable energies. There is a need for a pool of skilled workers who can contribute to these plants and factories. South Africa can learn from China's experiences

because they have adopted innovative strategies to promote renewable energy to support its economic requirements. South Africa's Special Economic Zones (SEZs), similar to China's High-Tech Industrial Development Zones (HTIDZs), can significantly support renewable energy component manufacturing. The HTIDZs also prioritise technical skill development, focusing on their renewable energy production requirements. While boosting manufacturing capacity, HTIDZs also bring together a range of stakeholders by offering specialised incentives for incubators, universities, investors and businesses. Such collaboration has been crucial in developing renewable energy capacity in China. In South Africa, similar arrangements with the Technical Vocational Education and Training (TVET) sector and incubators will contribute to solving the skills gap and will allow Renewable Energy Independent Power Producers (REIPPs) to create long-term local jobs to maintain their facilities instead of sourcing these from international providers.

Against this backdrop, the policy brief outlines a series of interventions identified through a comparative study of South African and Chinese adoption of renewable energy generation within a municipal context.¹ These recommendations are particularly relevant for the Presidential Climate Commission (PCC) as it charts a course for South Africa's Just Energy Transition.



Introduction

In 2022, the HSRC released a study in partnership with the South African BRICS Think Tank (SABTT), comparing China's and South Africa's transition to renewable energy adoption and its subsequent contribution to economic development opportunities. This study explores the views of staff from two municipalities and private sector representatives. These views are triangulated with a broad literature review examining experiences in China and South Africa and public engagements hosted by the SABTT. Later that year, the PCC released its Just Energy Transition Investment Plan (JET IP) 2023-27. This policy brief highlights policy recommendations for the PCC in refining its Just Energy Transition plans.²

Current national energy crisis

South Africa's recent energy crisis has escalated, prompting businesses, industries and municipalities to generate power. The former Eskom CEO Andre de Ruyters described a 33 GW energy shortfall requiring ZAR1,2 trillion expenditure to address the generation, distribution and transmission challenges.³ In dealing with these challenges, President Ramaphosa proposed regulatory changes to encourage renewable energy generation development and increased Eskom's maintenance budget to address weaknesses in coal generation.⁴ However, while Eskom focuses on maintaining its coal-power stations in the short term, the country's energy security also depends on its ability to expand and diversify its electricity generation capabilities. Renewable energy is considered the quickest and most cost-effective way to address the global crisis. This point was confirmed by the Renewable Energy Independent Power Producers Procurement Programme's (REIPPPP's) Bidding Window (BW) five's preferred bidders, where the average cost of renewable energy in the form of wind and solar was cheaper than the Eskom-produced coal power.⁵

Thus, municipalities can take advantage of these savings and boost renewable energy generation while promoting opportunities for local economic development.

Is renewable energy generation an unfunded municipal mandate?

South African municipalities have Constitutional powers to distribute electricity. While their generation capacity is limited, it is within their mandate to generate or procure electricity from private producers.⁶ In the past, generation depended on signoff from the Minister of Mineral Resources and Energy, which caused a bottleneck in the expansion of municipal energy generation projects. This point was a source of tension between the City of Cape Town and the National Government, resulting in a legal challenge raised by the city.⁷ In October 2020, electricity regulations were amended, allowing municipalities to procure their power, potentially unleashing a new stream of power procurement.⁸ For instance, eThekweni plans will request proposals to construct 400 MW of power generation capacity in 2023.⁹ The City of Cape Town procured 200 MW in 2022 and plans to procure an additional 500 MW in 2023.¹⁰ Similarly, the City of Johannesburg is developing an Independent Power Procurement Programme to procure an additional 500 MW.¹¹ While metropolitan municipalities have commenced power procurement plans, local and district municipalities have not taken advantage of the revised electricity regulations. The HSRC study also found that many municipalities perceive climate adaptation and mitigation strategies as an unfunded mandate. Municipalities face challenges with revenue collection and debt owed to their creditors, which are attributed to weak governance and inadequate management and technical capabilities, which impact their ability to provide electricity and water services. Given these challenges, several municipalities believe that their power procurement programmes would struggle and preferred

that Eskom manage the power generation and distribution functions. By not addressing these municipal capacity challenges, the country's overall generation capacity is not operating to its full potential. While the JET IP highlights the need for a participatory approach to enhance transparency, accountability, impact, and continual improvement,² there is a need to focus on the local and district municipality's power procurement strategies to address this weakness.

Economic growth opportunities

A shift from coal to renewable energy sources has the potential to generate diverse employment opportunities within the energy sector, possibly resulting in the creation of 2,1 million additional jobs across Africa by 2050. These projects can promote job creation in plant construction, operation, and maintenance, especially in rural communities near project sites.¹² As a result, skills development initiatives must be prioritised to ensure a steady flow of qualified workers is directed toward these projects. In addition, the new plants will also foster surrounding economies, creating indirect jobs to service the new plants in the area.¹³ Different energy forms create a varied number of jobs while decommissioning coal power will reduce the number of available coal-mining jobs. There are questions about how such workers might transition into renewable energy construction, maintenance or support, given that coal plants are not generally located in wind or solar hotspots.

The high importation costs of equipment and materials used in renewable energy plants stifle local renewable energy expansion.¹⁴ Scaling up local renewable energy plant component manufacturing capacity could promote economic growth through greater sector industrialisation. Given the 2019 IRP's defined transition from coal to renewable energy, the demand for locally produced components will expand.¹⁵ Additionally, local components will be in higher

demand through an expanding Small-Scale Embedded Generation programme launched at the municipal level, allowing consumers to sell power to their respective electricity grids.¹⁶ Further, such plants could supply components to the rest of the African continent, where project owners currently import components and equipment from Europe and Asia. Even though the REIPPPP's requirement for Independent Power Producers (IPPs) to procure 40% of their plant components from local manufacturers was discontinued due to the current energy crisis, IPPs will prefer to procure quality local components if there are clear cost savings. Given these opportunities, there are questions about the best-policy configuration to accelerate such initiatives. In this respect, the JET IP is silent on how to incentivise the growth of the local manufacturing of renewable energy components.²

Chinese experiences

China and South Africa share similarities in promoting their transition to renewable energies, as they both primarily source their energy from coal and are working towards decommissioning their coal plants while launching new renewable energy-powered plants. In the past two decades, China has adopted novel strategies to promote renewable energy while supporting the needs of its economy.¹⁷ The country has invested in technology and introduced novel policy frameworks prioritising innovation, manufacturing and renewable energy-related trade. Given the pace of change in China, South African policymakers should consider the applicability and adaptability of China's policy and regulatory structures. In addition, South Africa has resources and insights that might be valuable to Chinese policymakers or practitioners.¹⁸ This study, therefore, focuses on promoting an exchange of ideas to build new knowledge in solving the problems of climate change faced by all.



Study findings

Policy consistency

A stable and reliable policy framework and environment play a pivotal role in instilling confidence among investors in the renewable energy market, as the HSRC study affirmed.¹ Renewable energy procurement at a municipal level was contested for an extended period. China's consistent policy framework gives the private sector a clear understanding of the state's demand for private power.¹⁹ In contrast, South Africa's fractious policy environment has resulted in a policy framework that unreliably limits potential investment. Potential investors in renewable energy need assurances that power will continue to be procured in the long term to ensure that their investment bears positive returns in at least a 15- to 20-year window. While the JET IP acknowledges the importance of clear policy signals and a predictable regulatory environment for successfully implementing renewable energy projects, it does not refer to the damage caused by policy inconsistency.

During HSRC interviews, it was noted that the South African Local Government Association (SALGA), in partnership with the German Development Foundation (GIZ), has developed a 'Green Policy', which outlines the rules and regulations for municipalities to follow to procure power from IPPs. Although these documents are valuable for procurement processing, they have not been widely shared, resulting in municipalities not benefiting from SALGA's efforts. The SALGA Green Policy framework must be widely shared to limit renewable energy procurement confusion among municipal officials. If needed, the framework must be revised to capture regulatory changes that followed the 2020 amendment to the Electricity Regulations Act (ERA)²⁰ and subsequent Presidential announcements of regulatory changes in 2022.

In the long term, South African policy formulation will benefit from adopting elements from the Chinese approach to policy and regulatory changes, prioritising consistency through five-year policy revision cycles, which is crucial to inspire investor confidence in the country's renewable energy sector. Municipal regulatory procedural requirements should also mirror national requirements, with changes made on a predictable and consistent frequency.

Boosting manufacturing via Special Economic Zones

South Africa's Special Economic Zones (SEZs) are vital for promoting industrialisation and manufacturing. China's success with HTIDZs in the green sector is attributed to clear business eligibility criteria and supportive regulatory environments.^{21, 22} In contrast, South Africa's SEZs grapple with a low-skilled workforce and insufficient training for manufacturing renewable energy components. In this regard, Technical and Vocational Education and Training (TVET) colleges could address this skill gap. The SEZ must develop partnerships with TVET colleges to create a recruitment pipeline that absorbs low-skilled, semi-skilled and technically skilled workers into the SEZ factories.²⁰ The TVET colleges need to align their training programmes with the needs of renewable energy IPPs. While the JET IP acknowledges that the SEZ should function as a hub for sustainable manufacturing, it does not indicate the need to connect the SEZ to a pipeline of skilled workers or build partnerships with the TVET sector.²

South Africa's SEZs, particularly Atlantis SEZ and Coega Industrial Development Zone, are not fully utilised. This underperformance is attributed to ineffective incentive



programmes and bureaucratic obstacles. Additionally, infrastructural deficiencies and limited investor attraction are major setbacks.²³ In addition, China's HTIDZs effectively integrate various stakeholders, such as businesses, incubators, investors, universities and training facilities, to create an entire innovation value chain.

Furthermore, there are opportunities for South African SEZs to support the automotive market, especially in battery manufacturing. In particular, SEZs, such as Coega, East London, the Dube Trade Port and Tshwane, concentrate on supporting the automotive market.²³ Given Southern Africa's rich raw material resources for batteries, there is an opportunity for local manufacturing to meet domestic and international demands, especially in African and BRICS countries. This would allow better control over the quality and cost of these energy storage devices.

Furthermore, SEZ incentive programmes (VAT and Customs Relief, Employment Tax Incentives, Building Allowance, and reduced Corporate Income Tax) have not produced the desired results.²⁴ In addition, it was noted that businesses have struggled to access the necessary information linked to these benefits from the Department of Trade Industry and Competition's (DTIC) One-Stop-Shop Facility. A crucial hindrance has been a lack of clarity on the application process to locate businesses in these zones. Municipal officials are not entirely aware of the DTIC processes and cannot succinctly communicate these terms to prospective businesses.

Biomass energy generation in smaller municipalities

Skills transitioning is a crucial concern in South Africa and China, as both countries negotiate a path that involves decommissioning coal-powered plants. As these plants close, many workers will lose their jobs, and it will not be possible for all coal workers to switch to wind and solar-powered plants.²⁵ These coal mines are not located in areas with high wind and solar resources, making it difficult for these workers to chart a path to find alternative work in such plants. On the other hand, biomass energy is an alternative energy source that is more appropriate to transition coal mine workers into the renewable energy sector. These biomass energy generation plants are more labour-intensive than wind or solar interventions, meaning

they can potentially create more jobs per unit of energy generated.²⁶ Furthermore, these plants do not require highly skilled workers, making it ideal for coal mine and semi-skilled workers, such as waste pickers, to transit and find formal work opportunities.²⁷ Biomass energy generation was promoted in China to assist in its energy transition. The country has established several biomass energy plants that use agricultural and forestry waste products to generate heat and electricity. These plants have contributed to substantial job creation in China's rural communities, while rural communities in South Africa have an opportunity to promote biomass energy generation, leveraging their surplus agricultural waste as fuel sources for such energy generation.

Recommendations

1. The Department of Cooperative Governance and Traditional Affairs (COGTA) and the South African Local Government Association (SALGA) should define the municipalities' roles in renewable energy within Integrated Development Plans, encompassing generation, transmission, and climate mitigation strategies. The PCC should further clarify the role of local and district municipalities within its JET IP.
2. SALGA must ensure the widespread dissemination of the SALGA/GIZ 'Green Policy' to all municipal staff for informed implementation of renewable energy initiatives.
3. The Department of Trade, Industry and Competition (DTIC) should revise the SEZ policy to include specific incentives for boosting energy storage manufacturing, focusing on accelerated development and export capabilities.
4. SALGA must promote municipal staff training on energy procurement to clarify roles in renewable energy generation and transmission processes, thereby promoting public generation and procurement.
5. The DTIC must prioritise the employment of low-skilled workers in South Africa's SEZs and establish integrated skills training programmes in partnership with TVET colleges.
6. The PCC must encourage municipalities, especially in rural areas, to support biomass energy generation by incentivising local farmers and waste producers to supply biomass for electricity generation.



Endnotes

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