

Financing clean energy technology in BRICS cities: Recommendations from renewable energy financing experts in BRICS

Summary

The role of cities in the battle against climate change must be strengthened. Considering the acceleration of urbanisation, the high numbers of people now living in cities and their importance from an asset value and economic growth perspective, cities are well-positioned to respond to the challenge of climate change. But cities have limited powers. Decentralised structures in countries such as China show promising results in developing new technologies and industries that support their economies to transition away from fossil fuels. These developments also contribute to reimagining the typical energy sector economy, through innovations that create new jobs, new supply chains and higher productivity.

BRICS, in particular, has identified cooperation as central to developing new insights and solutions related to tentpole challenges such as climate change. Formations such as the BRICS Energy Research Cooperation Platform highlight the BRICS commitment to

facilitating knowledge exchange in the bloc. Institutionalising knowledge exchanges is key to enabling innovations in clean energy technologies. This includes the BRICS summits declarations, which always emphasise clean energy sources and technology. Particular reference is made to the 12th BRICS 2020 Summit Moscow Declaration, para. 67:

We reiterate our willingness to further deepen international cooperation in the field of energy on the basis of equality, non-discrimination and full respect for sovereignty and national interests, noting the pivotal role of energy in promoting sustainable development. Ensuring access to affordable, reliable, sustainable and modern energy for all remains the priority of international energy policy and we intend to enhance cooperation to combat energy poverty. We emphasise that sustainable and efficient use of all energy sources, energy efficiency and technology deployment are essential for each country's energy

transitions, and for building reliable energy systems and strengthening energy security. We emphasise the importance of BRICS countries' greater contribution to the global energy agenda in line with their share in the world's energy production and consumption.¹

Accessing multilateral climate finance or establishing green bonds have proven to be complex arrangements. At the local government level, weak credit ratings associated with poor financial management and governance, have been impediments to accessing such funds. Integrated and well-coordinated efforts are needed in the energy sector to direct funds to projects that show more significant signs of impact. Successful projects need to be scaled in areas where it is appropriate to do so. The unique context of cities and their surrounding regions often require tailored clean energy technology projects with energy regulations that are more decentralised. Local government associations have critical roles to play in facilitating knowledge exchanges, which can strengthen a municipality's ability to develop and structure innovative climate finance instruments such as green bonds. It is recommended that Local Government Associations are integrated into the BRICS Energy Research Cooperation Platform to expedite knowledge exchanges at the municipal level. In addition, the manner in which cities govern clean energy technology projects is essential. Delivering on basic good governance provides the city with a platform to secure good credit ratings, which fosters private investment in clean technology and renewable energy projects. China has made great strides in reducing the costs of clean energy technologies. Closer cooperation between South Africa and China must be promoted, to enable the sharing of such insights.

Introduction

The South African BRICS Think Tank's (SABTT) Energy Architecture cluster convened a webinar on 19 March 2020, bringing together clean technology financing experts from South Africa, China, India and Russia. In South Africa, participants included representatives from academia, the South African Local Government Association and the Western Cape provincial government. The webinar afforded the SABTT the opportunity to discuss the findings of the Energy Architecture Clusters' research into the financing of renewable energy projects among a selection of BRICS cities, while identifying best practices from BRICS to inform policy recommendations for cities in South Africa, in particular, and the BRICS countries in general. This policy brief discusses the recommendations made by the webinar's participants.

Several common themes emerged during the course of the discussion. It was noted that despite the BRICS commitment to the Conference of the Parties (COP) negotiations and United Nations Framework Convention on Climate Change (UNFCCC), the bloc has not managed to transition effectively to carbon-neutral economies with renewable energy sources or through the use of clean technologies. Cities are recognised as an optimal structure of government to respond to the challenges of climate change, but they lack the powers to make autonomous decisions around energy policy, regulation and governance. The BRICS countries, to varying extents, are willing to decentralise the control of their respective energy sectors, where for example China has multiple companies responsible for the generation and transmission of electricity, while South Africa continues to investigate decentralised control of the sector. As this sector evolves, local government associations will play an essential role in championing the cause of capacity and

skills development in the battle against climate change. This involves promoting knowledge sharing pertaining to the details of the Paris Agreement, the National Determined Contributions (NDCs) and the commitments into which the BRICS leaders enter.² This is needed to help bridge the gap between political rhetoric and policy implementation. Such efforts must be strengthened, particularly in South Africa, where, as of 2015, only 50% of municipalities referred to the concerns of climate change within their Integrated Development Plans.² These plans need to cater both to climate change mitigation and to adaptation agendas, as cities must contend with increasing frequencies and magnitudes of extreme weather events while attempting to reduce their Green House Gas (GHG) emissions.

Sharing knowledge across sectors among the BRICS members is equally vital, as technological advances in one country can be shared within the bloc. China, for example, has invested in clean technology research over the past decade, resulting in the production of solar and other renewable energies at costs lower than that of coal-based electricity production.³ BRICS Energy ministers have long advocated for greater BRICS energy cooperation, and formed the BRICS Energy Research Cooperation Platform in 2018.⁴ The platform is tasked with coordinating independent BRICS research and assisting in the implementation of joint investment projects in the energy sector, among other goals. This platform will play a vital role in facilitating knowledge exchanges in BRICS as it becomes more established over time.

In the South African context, partnerships with countries and organisations that specialise in more efficient coal technologies such as carbon, capture and storage (CCS) are needed to reduce the greenhouse gases produced from such infrastructure.

This is especially important due to the country's predominant reliance on coal,⁵ and given its investments in new power stations such as Medupi and Kusile. South Africa must balance its need to respond to energy poverty challenges while investing in CCS and other clean technologies as it plans its transition to renewable energy alternatives.

Study findings

Intergovernmental coordination challenges in the energy sector

BRICS cities are introducing innovative projects that reduce GHG emissions and promote the production of renewable energies. However, the contribution of such projects in reducing fossil fuel consumption in the BRICS countries has been minimal. Cities contribute, on average, 75% of carbon-dioxide emissions worldwide,⁶ but in contrast, according to C40 data, possess limited powers to scale effective clean energy technologies.⁷ There is a challenge to effectively manage GHG emissions across sectors of the economy through sectoral departments or vertically through the three spheres of government (local, provincial and national). Regulatory and financial control resides at the national level, while the knowledge of appropriate initiatives often lies with local government. Local governments have been successful at implementing innovative projects that show promising results, but are unable to scale the rollout of these programmes. These challenges have been found to be shared in South Africa, China and India. Beyond coordination in government, community participation is lacking. To effectively implement changes to behaviours, new methods are needed to democratise the design and implementation of climate change policies. Cities are better positioned to institutionalise such arrangements with communities.⁸ Decentralising the degree of control over the energy system will

help introduce necessary flexibilities to enhance the deployment of renewable energy while ensuring that local government expertise and knowledge is leveraged.

Knowledge sharing in BRICS

The counterpoint to decentralising the control of energy regulation is the limited capabilities that some municipalities possess within the renewable energy and clean technology sector. To address these concerns, it is necessary to promote the development and training of municipal staff to take greater responsibility for the energy sector in their region. Municipalities need to promote capacity building endeavours with experts that specialise in this field. This approach has been found to be successful in Europe with the Global Covenant of Mayors (GCOM) platform introduced by the European Union, to assist cities in developing plans for affordable and sustainable access to clean energy. Through this initiative, climate change experts are linked to cities as they introduce clean energy development plans.⁹

Capacitating municipalities is crucial, as found in China, to: achieve new energy efficiencies; create new technologies and industries; enhance the production and supply of new materials; and develop new clean infrastructure and skills to design, build and operate the green industries.¹⁰ These advances have taken place in China after years of investments in alternatives to carbon-emitting technologies, which are now starting to show results. The BRICS members could benefit from these advances if BRICS Ministries of Energy introduced institutional processes that promote knowledge sharing with clean energy technology industry experts. These processes should allow resource exchanges and apply language translation technologies to overcome barriers in culture and

language. Adaptations of these translation technologies or knowledge exchanges should be applied within the socio-cultural and environmental context of each BRICS country. These modalities of the knowledge exchange will be crucial in ensuring that public benefits accrue from such endeavours. Local Government Associations or similar structures in BRICS countries are critical actors fulfilling this role, as their mandate involves both capacity building and knowledge and information sharing. These associations/structures need to engage the BRICS Energy Research Cooperation Platform or introduce a concurrent structure that provides the BRICS local governments with an institutional framework for sharing knowledge located across BRICS cities.

Accessing multilateral climate finance

The Green Climate Fund (GCF), which is the primary financing mechanism under the Paris Agreement, highlights that the developed world aims to make USD 100 billion annually from 2020 to 2025. However, access to these funds by cities is unclear. Should cities acquire direct access to the multilateral climate funds, the key question will be whether financial management and governance records will be adequate. The Organisation for Economic Cooperation and Development (OECD) argues that for financial systems to be more accommodating to innovative activities and investors, there is a need to promote regulation and supervision in governance procedures. Weak internal control of operational risks and poor credit ratings are flagged as concerns which limit investment opportunities.¹¹ This may inhibit certain BRICS cities from accessing climate finance. In South Africa's case, its municipalities lack the creditworthiness to access loans and other forms of debt instruments made available by institutions such as the World Bank.¹²

Complexities of green bonds

Green bonds have also been noted as being a potentially important financial mechanism to mobilise green capital flows in BRICS cities. The City of Johannesburg and the City of Cape Town have already issued green bonds to fund projects with positive climate benefits.¹³ For example, the Johannesburg Green Bond has successfully supported the rollout of building smart meters, solar water heaters, hybrid buses and converting buses from diesel to natural energies. Green bonds are debt instruments that raise capital for 'green' projects. However, despite the perceived benefits of green bonds to assist in raising funds, there have been challenges in successfully introducing green bonds in developing countries. Some of these challenges have been experienced by under-capacitated municipalities where there is limited awareness about the international practices pertaining to green bond transactions. In addition, structuring green projects to fulfil multiple purposes, including social and economic development, could result in limited environmentally friendly applications, disqualifying the project from the green bond issuance. To ensure that green bonds deliver real climate benefits, appropriate monitoring and evaluation processes need to be implemented. Additionally, to better leverage the benefits of green bonds in under-capacitated municipalities, sharing knowledge artefacts and staffing resources among municipalities across the BRICS countries will provide a means to share insights about green bonds.

Addressing energy poverty

Although there is a danger of 'green' projects fulfilling multiple functions that also serve social and economic development purposes, there is a need to address energy poverty in South Africa. Urban growth in South Africa differs from the trends in the developed world, where population growth

manifests in the form of economic growth. Instead, due to the influences of inequality, urbanisation tends to exacerbate the effects of inequality. Low-income households in informal settlements are unable to access and/or afford the cost of electricity for lighting, cooking and heating. As an alternative to electricity, such households opt for cheaper and less safe fuel sources such as kerosene and paraffin. The challenge when advancing clean technologies is to address the dependence on fossil fuels but also to provide a cheaper renewable energy alternative for low-income households. Distributed renewable energy, which has found some success in China,¹⁴ is a potential option to solve this challenge, as it reduces the costs associated with electricity transmission and is linked to advances in battery storage technologies. Such advances must be carefully assessed for their applicability in the local context and for whether resources can be sourced cost-effectively to maintain the potential cost savings.

Promoting small-scale embedded generation

Small-scale embedded generation (SSEG) provides municipalities with an opportunity to supplement the electricity supply through electricity generation facilities owned at commercial or industrial sites. In South Africa, photovoltaic solar panel systems are predominant among the SSEG sector.³ This sector will begin to benefit from the decreasing costs of such technology. As of 2019, the costs of solar photovoltaic power have decreased in China and are cheaper than the production costs of coal-based electricity.¹⁵ As recommended by the Forum on China–Africa Cooperation (FOCAC) in July 2018, Africa can benefit from partnering with China in developing clean energy projects using solar energy. Due to the decrease in costs over time, it is expected that the capacity that SSEG contributors can

provide will increase, which is likely to stimulate growth, skills development and entrepreneurship.³ The challenge is in regulating such suppliers effectively to ensure the safe supply of electricity into the national grid. In addition, regulators need to improve the management of SSEG-related tariffs. The tariffs employed must find a balance as they need to be high enough to ensure the financial and operational health of the system, but also low enough to incentivise investors, promote economic growth and protect the needs of low-income communities. By adapting the principle of cost-reflectivity for each country context, whereby tariffs are priced based on the cost of service delivery, tariffs can be structured affordably and sustainably.

Recommendations

1. The national energy regulator must decentralise the control of energy regulators to allow capacitated cities an opportunity to scale clean energy technology projects at a regional level.
2. Local Government Associations or similar structures across BRICS should facilitate intra-BRICS partnerships and be integrated into the BRICS Energy Research Cooperation Platform to support the exchange of knowledge pertaining to capacity building in the field of clean energy technologies and to institutionalise mechanisms which support the exchange of knowledge artefacts and staffing resources from one context to another.
3. Municipalities should concentrate on developing their governance measures in the management and operation of clean energy technology projects. Large cities, which have successfully issued green bonds, should introduce optimal methods of sharing knowledge pertaining to the structure and requirements of issuances.

4. The role of civil society in participating in clean, renewable energy must be expanded so that all sectors are integrated and coordinated against a silo approach, to unleash a clean energy grid that is affordable and sustainable.
5. Concurrent to the recommendations from the FOCAC, greater cooperation is needed between South Africa and China in the development of clean energy technology projects, in particular greater sharing of knowledge related to the production and installation of photovoltaic systems, energy storage and more efficient coal technologies.

Endnotes

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