Energy and Economic Growth
Applied Research Programme

Governing procurement of renewable electricity amid power sector reforms:

A review of experiences from China, South Africa, and Ethiopia

November 2021

Oxford Policy Management

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Governing procurement of renewable electricity amid power sector reforms: A review of experiences from China, South Africa, and Ethiopia

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Abstract

Renewable energy procurement (REP) is gaining increasing importance globally as a policy instrument in driving energy diversification and sustainable development agendas, yet little is known about the institutional dynamics of how these policies evolve and integrate with broader energy sector reform agendas. In this paper, we discuss the institutional changes and interactions between REP policies and electricity sector reforms in China, South Africa, and Ethiopia. We argue that, for newly industrialised and developing countries, REP is embedded in the complexity of long-term sectoral reforms to serve various policy goals such as improving energy access and energy security, enhancing governance efficiency, or attracting private investment, along with assisting the transition to a modern and sustainable energy system. The introduction of REP into the prevailing energy system will inevitably impact on existing actor networks, institutional arrangement, and configurations of power and interest among key public and private entities, particularly when it involves foreign investors and newly established regulatory entities. Therefore, REP should not be viewed as a mere technical instrument: rather, it has the potential to destabilise the current political establishment and institutions in perspective countries. To be successful, REP must be designed to suit the specific historical and institutional context of a country and maintain a considerable level of flexibility to accommodate potential alternations as sectoral reforms proceed. This forward-looking strategy will inevitably demand strong state capacity in designing and implementing REP.

Acknowledgements

We would like to thank Neil McCulloch, Benjamin Klooss, Samson Hadush, and Tadesse Kuma for their comments on the earlier drafts of this working paper, and Ben Jackson for his assistance in proofreading and final editing. *Renewable Energy Procurement in Ethiopia* (www.energyeconomicgrowth.org/node/226) is a three-year research project aiming to identify and overcome the key obstacles in procuring non-hydro renewable energy from independent power producers in Ethiopia. It is part of the Ethiopia Country Programme under the Applied Research Programme on Energy and Economic Growth (EEG), managed by Oxford Policy Management (OPM) and funded by UK Aid from the UK government. The findings and conclusions contained herein are those of the authors and do not necessarily reflect positions or policies of the UK government or OPM. The authors remain responsible for any errors and omissions.

Introduction

In the past two decades, an increasing number of countries in Africa, Latin America, and East and South Asia have launched their first attempts at renewable energy procurement (REP) programmes.[1] This reflects another trend of renewable energy development—the shift of investment from the developed world to developing countries since 2015. Non-hydro renewable energy capacity grew by a record 240 GW in 2020, largely due to the fall of all-in cost for wind and solar as a result of technology improvements, economies of scale, and fierce competition in auctions (IRENA, 2021; UNEP, 2020). Investment in renewable energy capacities in the developing world made up 54% of the global total, outweighing developed economies for the fifth year running. Although this trend was somewhat affected by the ongoing COVID-19 pandemic, renewable electricity systems exhibited greater resilience compared to conventional power systems and are expected to play a more significant role for a green recovery (IEA, 2020a).

However, designing and implementing REP programmes can be more challenging in developing countries given that many face severe electricity shortages, inefficient and unstable transmission and distribution systems, and insufficient funding for renewable energy projects (IEA, 2020b). Therefore, the implementation of REP is often embedded in a set of more broadly defined power sector reforms that aim to enhance the efficiency of governance, electricity access, and the attractiveness for private investment. We argue that the success of these REP programmes depends crucially on their capabilities to integrate with fast-changing institutions around electricity governance in specific countries. In this paper, we focus on China, South Africa, and Ethiopia, viewing them through the lens of historical institutionalism (Lockwood *et al.*, 2016) to understand the implementation and contribution of REP programmes at various stages of domestic energy system reforms and transition.

We provide a comparative historical perspective on these countries' distinctive or innovative features of REP design to understand how efforts have been made to suit their broader institutional frameworks and changes at a given historical moment of energy transition. In China, we mainly focus on the government procurement programmes introduced between 2005 and 2009 amid the continuous reforms to liberalise its electricity generation and distribution sector, which sparked a decade-long surge in wind and solar energy deployment. In South Africa, we focus on the Renewable Energy Independent Power Producers' Procurement Programme launched in 2011 and its broader implications for decarbonising the country's electricity system. In Ethiopia, we focus on the procurement transactions on wind and solar projects and its links with ongoing public–private partnership (PPP) initiatives for energy procurement as the key institutional reform to attract private investment since 2017. Our main finding is that the effectiveness of REP programmes are constrained by the historical and institutional context of the electricity sector, yet the implementation of REPs will affect the process of electricity sector reforms by integrating new policy goals, intensifying political struggles, and presenting additional challenges. All these interactive factors need to be taken into consideration when designing and implementing REPs.

Problem statement

Most studies treat REP as an independent and isolated policy tool when discussing its design and efficiency. A few studies conceptualise REP as an integral part of the electricity transition, often with more comprehensive goals and complex institutional dynamics (Baker *et al*., 2014; Baker, 2017; Schmidt ***et al***., 2017; Shen, 2017). How is REP embedded in these institutional arrangements during sectoral reforms? How is REP capable of shaping existing institutions or helping nurture new ones? These are the often-overlooked dynamics, and this study aims to address them. We selected China, South Africa, and Ethiopia as case studies, because all three countries have adopted REP amid sectoral reforms and institutional changes in the past two decades. Despite the notable variance in the scale of energy market and technological deployment, all three countries have faced similar transition challenges, such as a highly inefficient incumbent in the electricity sector, notable shortages of supply, and a highly concentrated energy supply mix (Ethiopia was dependent on hydropower, whereas China and South Africa were dependent on coal-fired power when the REPs were introduced). The comparative analysis on the REPs being implemented in these institutional contexts can generate insights into how REP is both impacted and impacting broader institutional changes in electricity sector governance.

[1] In this paper, REP is defined as a competitive tender process designed to facilitate private sector investment into grid-connected renewable energy generation.

Literature review and methodology

The REP programmes in the three case study countries were launched against the context of long-standing ideological tensions, which can be summarised as state-ownership and control of the electricity sector on the one hand versus its liberalisation on the other (Baker *et al.*, 2021). During the first half of the twentieth century, most developed countries had their electricity sector operated and managed by vertically integrated state-owned utilities. Such an arrangement followed the rationale of the time, which saw the state as the 'custodian of the public interest'. However, this rationale started to shift towards the liberalisation of the electricity sector with the global neo-liberal trends of the 1980s and 1990s (Gratwick and Eberhard, 2008). This shift was led by England and Wales and was soon followed by others, including Norway, Chile, Australia, and New Zealand (Bacon and Besant-Jones, 2001). This resulted in the so-called 'standard model' of electricity sector reform, which quickly became a global template. The premise behind the standard model was that public ownership resulted in poor technical performance and was unable to meet the high levels of investment required by the electricity sector. Proponents of this model argued that a state-owned monopoly utility should be unbundled into private transmission, generation, and distribution companies on the basis of principles of efficiency and cost-effectiveness (Baker *et al*., 2021). At its most complete, this standard model also included a significant role for retail competition and wholesale markets and relied on the creation of a strong independent regulator to 'regulate the monopoly prone parts' of the industry (Eberhard, 2007). The model was later promoted by multilateral lending institutions, such as the World Bank, in developing countries as part of the loan conditionalities of structural adjustment programmes (Gratwick and Eberhard, 2008).

The logic behind the standard model and electricity sector liberalisation more generally failed to predict that its implementation in practice would be much more complex and would result in various forms of failure, incomplete implementation, and stranded assets (Patterson, 1999). A key criticism levelled at the standard model was that it made huge assumptions on a one-size-fits-all basis, regardless of the different national contexts in question and a diversity of factors such as the nature of electricity access, the reach of the transmission grid, national institutions of governance, and the national ability to attract investment (Eberhard and Godhino, 2017).

For instance, the high capital costs and long-term investment horizons of approximately 30 years for conventional power generation assets made it difficult to attract the anticipated levels of private investment, particularly in low- and middle-income countries (IEA, 2020a; Sen and Ganguly, 2017). Until the early 2000s, the risk-averse and profit-driven nature of investment tended to prioritise mature technologies over more innovative and sustainable ones, such as wind and solar. The negotiation of the contractual and regulatory terms was also highly challenging. Regulators, rarely as strong or as competent as the model prescribed, were undermined by vested interests and struggled to fulfil their mandate in a market where information was incomplete (Eberhard, 2007). A further sticking point was the importance assigned to the host government and/or to other national stakeholders to provide a sovereign-backed guarantee in order to reduce the risk for investors. In addition, the emphasis on market competition without counterbalancing targeted government interventions failed to protect the provision of basic energy services to the energy poor. It could also contributed to disastrous social and economic consequences if the process was not properly managed, as in countries like Nigeria (Hall and Van Niekerk, 2010). Consequently, there are few countries in which the standard model has been fully implemented (Sen, 2014).

Rather than create a liberalised electricity sector with a competitive market, attempts at privatisation merely facilitated the creation in a number of countries of new forms of private control over the market, or—in the case of China—of new forms of state-oligopoly, as the example of the 'Big Five' state utilities illustrates. More recently, the underlying logic of electricity sector liberalisation has been challenged by rapid technological changes and the increase in electricity generation from renewable energy, at both utility and distributed scales (Baker *et al*., 2021). More diverse models have emerged in the past decade, including various forms of hybrid or dual markets in which vertically-integrated, state-owned utilities remain as the dominant player and the single buyer, but independent power producers (IPPs) contribute a certain amount of generation capacity (Eberhard *et al*., 2014)—as is the case, for instance, in South Africa. It has become increasingly evident within mainstream thinking that a more flexible, and context-specific, approach is needed to develop a strong and capable power sector (Foster and Rana, 2019).

With the above context in mind, the introduction of REP programmes in many countries has been located within highly diverse national contexts at various stages of liberalisation, institutional efficiency, and regulatory capacity. For example, China's wind and solar photovoltaic (PV) auctions have been carried out since 2007 amid reforms intended to move from a centralised electricity sector that is fully controlled by the energy ministry to a limited competitive market dominated by a handful of large state-owned electricity generation and transmission companies. Such reforms have also been intended to

attract foreign direct investment (FDI) in order to revitalise the country's highly inefficient centrally planned electricity system. South Africa's renewable energy IPP programme (REI4P), an auction programme for utility-scale renewable energy projects, was launched in 2011 into an otherwise state-owned, coal-fired monopoly electricity sector. The launch of the programme took place in a political and economic climate that has long witnessed strong ideological opposition to private ownership and the introduction of foreign companies. South Africa has also been characterised by a national electricity sector that has resisted many features of the standard model of power sector reform. Since 2017, Ethiopia's focus on introducing renewable projects via a PPP arrangement has aimed to partially relieve the pressure of public debt obligations on financing large energy infrastructure for the country's fast-growing economy. In this paper, we seek to understand these policy goals in their historical context before analysing the performance of each respective REP programme.

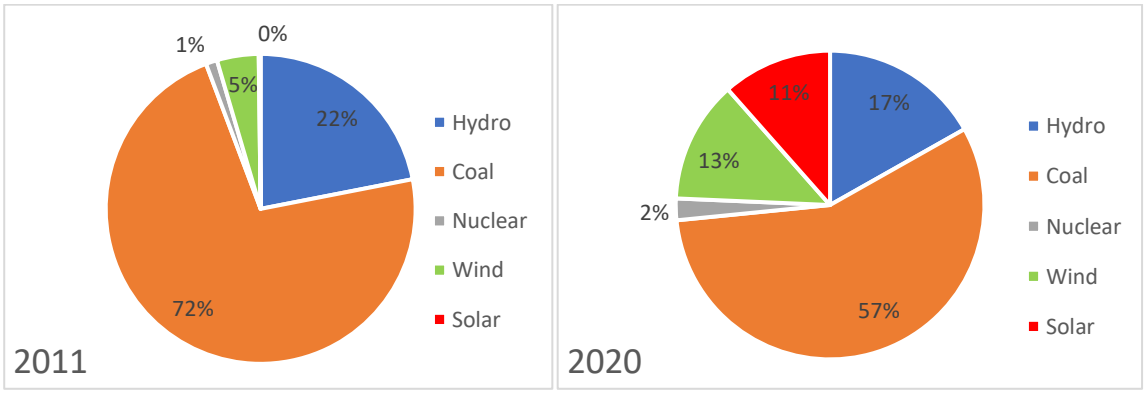
In the subsequent sections, these country cases are examined in more detail through secondary data analysis of grey literature, including policy documents and media coverage, along with a discussion of the key findings before concluding with general lessons and implications.

REP and power sector reforms: a comparative institutional analysis

China: when REP meets expansionary state-owned enterprises (SOEs)

Today, China has the world's largest electric power industry, with coal accounting for 57% of the electricity generation mix in 2020 (Figure 1). The enormous Chinese electricity system is highly centralised, with the majority of assets owned by SOEs. The current system include two state utility companies operating monopolistically in Northern and Southern China; the five largest electricity generation companies owned by central government; four smaller local electricity generation companies owned by local governments; and several engineering, construction, and consulting companies (Figure 2). The regulatory system for the electricity sector is increasingly complex (Figure 2), with the main authority in the hands of the National Energy Administration (NEA), which operates under the supervision of the National Development and Reform Commission. The NEA was established in 2008 and is responsible for setting the energy development plans, making energy policies and regulations, overseeing the energy market activities, and approving proposals of individual energy investment. Apart from the NEA, two other central regulators are also involved in the governance structure. The State-Owned Assets Supervision and Administration Commission of the State Council supervises the management of energy SOEs and supports organisational reforms to improve their performance. The Ministry of Industry and Information Technology is responsible for the supervision of energy technology innovation and standard-setting, particularly regarding the manufacturing sector for energy equipment.

Figure 1: Total installed capacity for electricity generation in 2011 and 2020



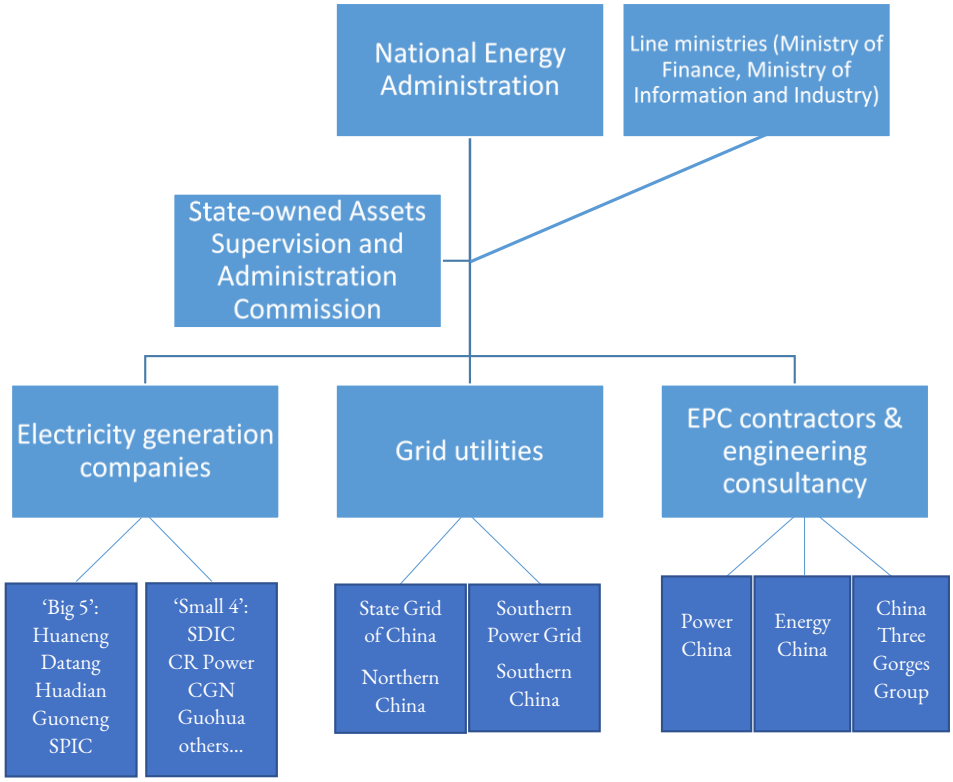
Source: China Electricity Council, compiled by the authors

It took China about 40 years to supply sufficient electricity to meet its fast-growing demand, during which the total electricity generation capacity, the grid connection rate, the number of energy end-users, technological development, and energy sector governance all progressed tremendously.[2] The continuous institutional reforms since the late 1970s on energy governance

[2] For example, China achieved total electrification in 2015 and its total power generation capacity reached 2,200 GW by 2020, an increase by 36 times on the 1978 level.

systems have played a significant role in this progress (Andrews-Speed and Zhang, 2019). China has gradually managed to transform from a Leninist centrally planned energy system, with one meta-energy ministry owning and controlling all the energy assets and production systems until the late 1990s, into a distinctive hybrid system that is still heavily regulated by the state but with increasing space for market competition (mainly among central and local energy SOEs) (Figure 2).

Figure 2: Current governance framework of electricity sector (regulators and SOEs) in China



Source: Authors' own data

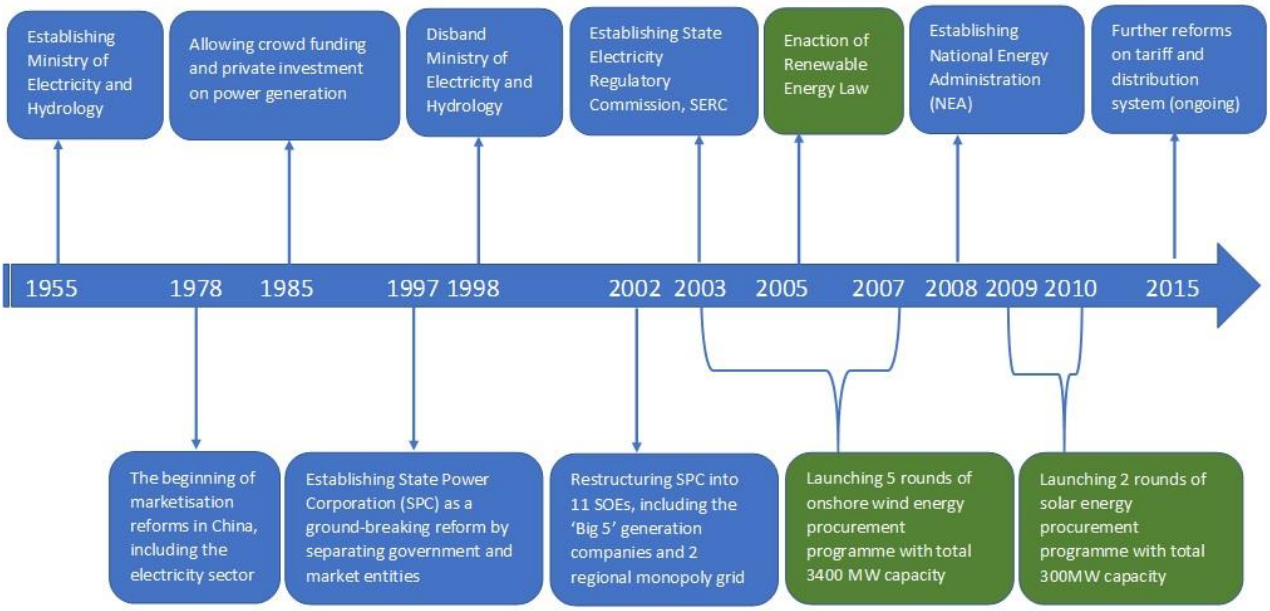
China's electricity market was tightly state-controlled throughout the 1990s, with several rounds of decentralisation reforms to encourage local governments developing crowd-funded small power plants across the country (Figure 3) (Cherni and Kentish, 2007; Xu and Chen, 2006; Wu, 2003). Even before China joined the World Trade Organization in 2001, the power generation sector was gradually opened up to foreign and private investors. Central and local governments prescribed generous offers under power purchase agreements (PPAs), including guarantees of non-generation lost in case of curtailment,[3] fixed feed-in tariffs (FITs), and even investment returns ranging from 15% to 20%. Such commitment for return on investment is rare, and made China's electricity generation sector a popular investment destination in the 1990s. Altogether, 39 Western companies were approved to enter the Chinese electricity generation market, including major investors such as Siemens, EDF, American Electric Power, and Alstom. By 1997, FDI accounted for 14.5% of annual investment in the country's electricity generation sector (Wu, 2003); by 1998, foreign IPPs (all coal-fired power stations) contributed 12% of total installed capacity in China.

Only a few years later, however, most of these foreign investors started to withdraw from the Chinese market. By 2004, FDI had shrunk to less than 5% of the annual investment (Wang and Chen, 2012). Leading foreign investors were all selling their IPP assets to local Chinese companies. There were several reasons for this. First, most of the generous commitments for return on investment could not be fulfilled by local governments, as many PPAs were reneged on, particularly after the energy shortage crisis was eventually relieved. Second, the rising price of coal led to huge losses, particularly for the IPPs, as the state-owned power plants could secure their coal supply from local government and state-owned coal suppliers (often referred to as 'planned coal', and normally about 20% to 50% cheaper than the market price), whereas foreign and private power plants could

[3] Often referred to as a 'Take or pay contract', as power producers can get paid in case of curtailment for the energy they would have generated but do not in reality due to issues like grid constraints or oversupply.

not access these sources and could only purchase coal from the open market. The dual coal supply system was essentially biased against non-state investment, making it more vulnerable, particularly during the period of power oversupply between 1999 and 2002 (China Dialogue, 2010).

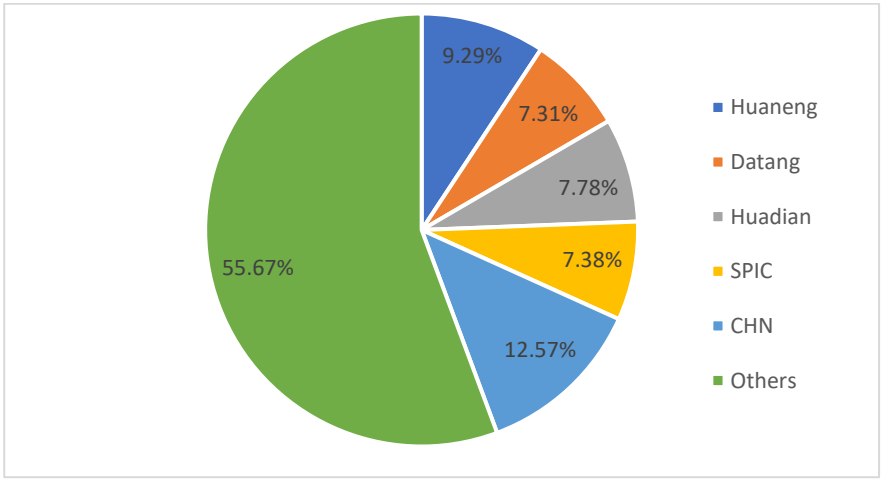
Figure 3: Timeline of the electricity sector reforms and REP in China



Source: Authors' own data

Finally, the retreat of FDI was also due to the rise of giant state-owned electricity generation companies as a result of the electricity sector reforms mentioned above. In 2002, China initiated the most significant round of reforms, which disintegrated the previous State Power Corporation into 11 SOEs, including two grid companies responsible for both transmission and distribution services (in Northern and Southern China respectively) and five electricity generation companies (State Council, 2002). However, once the five state-owned electricity generation companies (often referred to as 'the Big Five') were created (Figure 4), they started to compete intensively with each other to secure the biggest share of the power generation market. Their massive expansion since 2002 has gradually squeezed out private Chinese companies and foreign investors in the market. Just like most of the SOEs in China, the Big Five put market share and capital expansion as their priority strategy, with less concern for the profitability of each individual investment, as larger market share and corporate assets often indicate greater political influence (Cull and Xu, 2003; Ralston *et al*., 2006). This 'size-over-profit' strategy presents a stark contrast to the strategy of most private investors. Consequently, the Big Five have dominated China's electricity generation market, with their total share of installed power generation capacity increasing continuously from 35% in 2003 (when they were created) to 45% in 2018 (Figure 4), with remaining capacity largely owned by local SOEs or private companies.

Figure 4: The share of installed generation capacity of the 'Big 5' (Huaneng, Datang, Huadian, State Power Investment Corporation (SPIC), and CHN Energy) in China by 2018



Source: Authors' own data from the annual reports of the Big Five

It is in the context of the rapid and profound electricity sector reforms that initiatives focused on developing the renewable electricity sector emerged on the policy agenda. Between 2002 and 2005, China was again in the midst of a notable electricity shortage after the crisis of the mid-1990s. Renewable energy generation, particular from onshore wind energy, was for the first time considered a key potential source of additional energy supply. In contrast, solar PV was considered by the regulators as too expensive in the early 2000s to be operationalised for large-scale deployment. The Renewable Energy Law was enacted in 2005, mainly to encourage an increase in the deployment of what was then unconventional electricity generation. Between 2003 and 2007, China launched five rounds of procurement programmes for onshore wind farms across the country, which resulted in 15 projects with a total contracted capacity of 3.4 GW. In the first four rounds of auctions, the bidding tariff was the most important selection criteria. As a result, the newly established Big Five won all the contracts with a much lower bidding price than their private or foreign competitors due to their previously explained expansionary strategy. Most of the private and foreign investors were eventually forced out of the auction programmes due to their uncompetitive tariff in facing state-owned giants. In Round 5, the selection criteria were changed by NEA to award the bid that was closer to the median bidding price as a counter-measure to avoid predatory prices from large SOEs, but by then little appetite remained from private or foreign investors on these auctions.

Another incentive for the SOEs to dominate the wind energy market with lower-than-market tariffs was the newly introduced renewable energy quota under the 2005 Renewable Energy Law. This law required that electricity generation companies with over 5 GW of capacity should have at least 3% of installed generation capacity from non-hydro renewable energy by 2010, and at least 8% by 2020. Wind resources were believed to be the most 'realistic' renewable energy sources to achieve the quota at the time, and the financial loss of developing wind farms with lower tariffs could be compensated by the profit of other energy project types, such as hydro or coal-fired power plants (Lema and Ruby, 2007; Zhang *et al.*, 2017).

Meanwhile, after the second auction round in 2005, local content criteria became increasingly important in picking the winners, indicating a changing policy goal from promoting electricity generation capacity alone to nurturing domestic manufacturing capacity. Another trend noted in the auction programme was the role of original equipment manufacturers (OEMs) and operation and maintenance companies in China's fast-growing wind electricity sector. In earlier years, foreign OEMs and engineering, procurement, and construction firms (EPCs) had dominated the Chinese market, accounting for about 66% of total capacity installed in 2006. The biggest wind energy suppliers were Vestas, Gamesa, and GE Wind, with about 50% of the total installed wind energy capacity. These foreign turbine manufacturers invested in joint ventures or local companies, bringing advanced turbine manufacturing technology, expertise, and skills into China (Lewis, 2012). However, after 2007, following the growth of China's home-grown turbine technology industry, these foreign companies gradually lost their competitiveness in the Chinese market. In 2018, foreign manufacturers (Vestas, Siemens Gamesa, and GE) accounted for less than 5% of the annual wind energy instalment in China.

The wind energy auction programme between 2003 and 2007 was China's first attempt to use competitive market instruments to promote renewable energy investment. It largely achieved multiple policy goals, including identifying an appropriate tariff

range, developing additional generation capacity, and nurturing domestic technology (Lema and Ruby, 2007; Liu and Kokko, 2010).

The success of the wind auction programme also inspired the regulators to initiate two rounds of solar PV procurement programmes in 2009 and 2010, with 14 projects of total capacity of 300MW contracted. These procurement programmes paved the way for a more flexible FIT arrangement for the wind and solar energy projects, ushering in an dramatic market expansion with total wind generation capacity increasing from 590MW to 60.83 GW between 2008 and 2012 (Shen, 2017). China now has a relatively standard policy process to promote specific renewable energy sources, which often start with open auctions programmes; once the price signal is clear, FITs are introduced based on regional variance of energy sources across China (Zhang and He, 2013; Ye *et al*., 2017).

Several implications can be drawn from China's case of REP and its relations with broader energy system reforms, particularly regarding the relations between state, private, and foreign investment. First, the rapid development of China's renewable electricity sector is set against a broader institutional context in which the biggest challenge of energy shortages gradually gave way to the challenge of enhancing energy system efficiency after the late 1990s. The institutional reforms that separated electricity generation and the transmission sector, and the creation of large electricity generation SOEs since 2002, have had a profound impact on how REP has been developed and implemented. The newly created Big Five tried to seize the emerging market opportunities and left little space for private or foreign companies. However, the fast-growing renewable electricity sectors imposed tremendous pressure on the resilience of the grid companies,[4] and this has become the key source of political struggle within the renewable energy policy community in the following decade (Luo *et al*., 2016). The conflict can has evolved around issues ranging from the technological standard, curtailment practices, FIT level, subsidy payment, and regional transmission plans (Garcia, 2011).

Second, as for foreign and private investment, China's experience indicates that it is difficult to differentiate preferential and discriminatory treatment in a hybrid governance system. State commitment on investment return was a preferential treatment of foreign investment over domestic investment, which encouraged Western companies to enter the Chinese market at an earlier stage. The generosity of this policy was mainly driven by the desperation of the energy shortage in the 1980s and 1990s when the economy took off, which was not sustainable at a time when supply and demand were balanced. Meanwhile, foreign IPPs in the 1990s faced hidden discriminative practices and implicit transaction cost, as noted in relation to the coal supply, and hence were more vulnerable in facing policy changes or market fluctuations. The associated risks due to such vulnerability eventually squeezed them out of this promising market. Therefore, how to make sure foreign investment can compete on equal terms with domestic companies—particularly SOEs with stronger political and financial power—can be a crucial challenge for regulators.

The last implication is about dealing with multiple goals of using REP for scaling deployment of renewable energy (IRENA and CEM, 2015). The Chinese regulators' primary goal of introducing wind and solar REPs was to identify a proper tariff range for the following FIT schemes. In this regard, the procurement programme does not need to be very large; instead, the projects included need to be highly representative of different geographic contexts where renewable energy sources and costs vary. Another policy priority in China is to promote domestic manufacturing capability, particularly for the production of wind turbines. Yet protective measures on domestic manufactures may again have a negative impact on foreign investors' appetite and discourage investment.

South Africa: REP as a parallel pathway to the incumbent

South Africa's electricity sector is dominated by its state-owned monopoly utility, Eskom, the primary generator and sole transmitter of electricity via the country's high-voltage transmission grid. Eskom is also responsible for 60% of distribution, of which the majority of its sales are to mining and industrial customers and, to a lesser extent, to residential, international, and commercial customers. Eskom's generation depends on the country's abundant coal, which still constitutes approximately 80% of South Africa's installed generation capacity (Eskom, 2020). Key regulatory developments in the last decade have resulted in the introduction of utility-scale renewable electricity from IPPs, which now accounts for a small but significant proportion of generation. However, Eskom continues to hold significant influence over decision making in the power sector,

[4] China has two state-own grid companies—the State Grid and the China Southern Grid—which provide geographic monopolise connection, transmission, and distribution services. The State Grid is operated in the Northern provinces whereas the China Southern Grid is operated in the five Southern provinces, plus Hongkong and Macao.(see Figure 2).

despite having been at the centre of national scandals on state capture and corruption and ongoing crises of management and finance (Bhorat *et al*., 2018).

After the end of apartheid and the introduction of the new democratic government in 1994, the country attempted to introduce its own 'self-imposed' structural adjustment programme with the aim of tackling the long-standing inefficiencies in its SOEs, including Eskom (Baker *et al*., 2021). Consequently, the 1998 White Paper on Energy Policy proposed a gradual liberalisation of the electricity sector and the corporatisation and outsourcing of various functions of Eskom, including the creation of an independent transmission utility and system operator, to be owned by the state in the first instance and anticipating its sale at a future date (Eberhard, 2007). The cabinet memo in 2001 that followed the 1998 White Paper announced that 30% of electricity, including from renewable energy, would be generated by IPPs. This memo was followed by a cabinet ruling that prevented Eskom from building new electricity generation (Baker *et al*., 2021). The subsequent Eskom Conversion Act of 2001 introduced a corporate governance structure for the utility, converting it from a statutory body into a public company and requiring it to pay tax and dividends for the first time. The intention of this conversion was to allow the creation of independent transmission, distribution bodies, and generation companies as per the standard model (Gaunt, 2008).

Key aspects of the 1998 White Paper were not implemented, and some are still outstanding. For instance, an independent transmission utility has never been established, and the approval of the Independent Systems and Market Operator bill that would facilitate this has been continually postponed.[5] Significantly, despite the 2001 cabinet ruling removing Eskom's right to construct new electricity generation capacity, the anticipated participation from IPPs failed to materialise and no new generation was built between 1998 and 2003. The reasons for this are complex, but include the following factors. First, there was strong political opposition to the introduction of IPPs, reflecting the spectrum of long-standing ideological differences between those advocating for state control and those advocating for market reform of the electricity sector. Such tensions can be found between and within different government departments, the African National Congress (the ruling party), Eskom, and trade unions (Baker and Burton, 2018). Second, Eskom had lost considerable management and construction expertise as white staff members left the country after the end of apartheid. Third, in the immediate post-apartheid era, there were reduced incentives for new construction in the country given a surplus of generation capacity after a period of intensive project construction during the 1980s (Eberhard, 2007).

Fourth and finally, while the construction of new generation capacity by IPPs had been approved, it was not accompanied by an appropriate regulatory framework, without which there was no clarity over who would be the buyer of power from IPPs. Moreover, IPPs were in no position to compete with Eskom's electricity tariffs, which were already well below cost. Eventually, in the absence of the construction of new generation, reserve margins started to fall and threatened an electricity supply crisis. A cabinet memorandum in 2007 granted Eskom the right to construct further power plants, but also stipulated that 30% of any new generation should be built by IPPs.

A regulatory framework for the procurement of privately generated power eventually came in the form of the country's REI4P in 2011, the Renewable Energy White Paper, published by the then Department of Minerals and Energy (DME) in 2003 with support from the Danish foreign aid agency DANIDA, was the first national document to refer to the procurement of renewable energy from IPPs (Baker, 2016). But the paper's commitments to expand renewable energy generation were considered weak and vague by any potential renewable energy industry, with little political recognition.

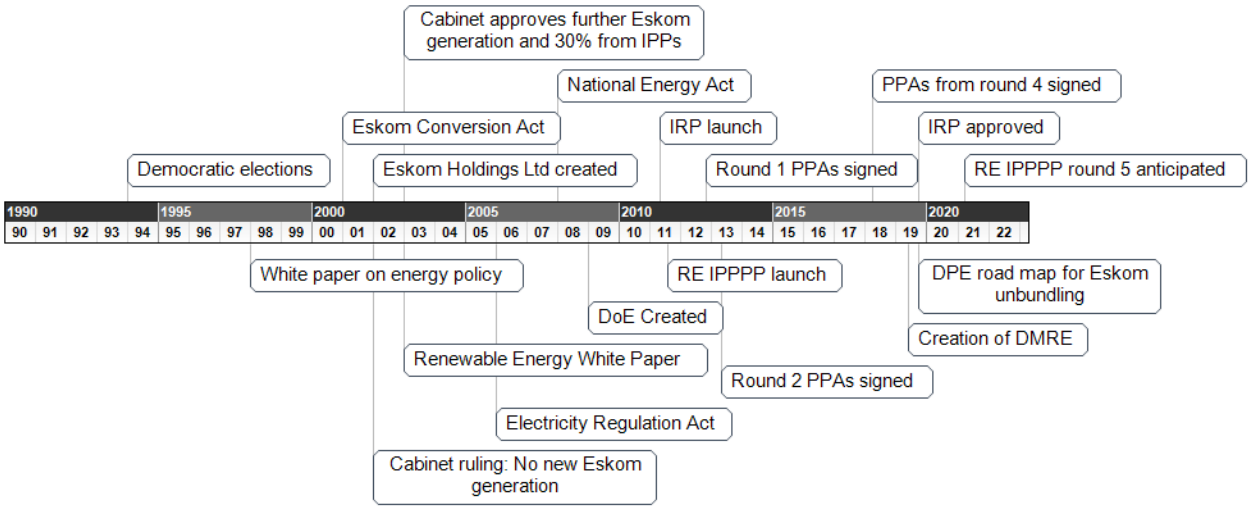
Beyond the long-standing tensions between state and market control of South Africa's electricity, the sector's policymaking and governance has long been beset by weak institutional capacity and national uncertainty over how it should be governed (Newbery and Eberhard, 2008). Today, the Department of Mineral Resources and Energy (DMRE)[6] has overall responsibility for energy policy and planning, and its formal powers arise from the 2006 Electricity Regulation Act. However, in reality, many of the decisions made in the name of the DMRE are influenced and negotiated, formally or informally, by various state and market entities, including the energy intensive users' group, members of which currently consume 40% of the country's electricity and contribute 20% of its GDP.[7]

[5] Most recently in 2019, a presidential task team announced that an independent transmission entity would be created by March 2021 as part of the unbundling of the sector (Green Cape, 2020).
[6] Established in June 2019 as a merger between the Department of Energy (DoE) and DME. The DoE existed between 2009 and 2019. Before that, energy policy and planning fell under the remit of the DME.
[7] https://eiug.org.za/about/.

Meanwhile, the Department of Public Enterprises (DPE) has oversight responsibility for Eskom, as it has had for other SOEs since the late 1990s. The DPE is Eskom's principal shareholder and, following the 2001 Eskom Conversion Act, is responsible for the utility's operability. The National Energy Regulator of South Africa (NERSA), which was set up in 2004, determines the country's electricity tariffs, sets the conditions under which electricity may be sold in the country, approves licences for generation, distribution, and transmission, and oversees the import, export, and trading of electricity. As with the DMRE, NERSA also reports to the energy minister. The Treasury is responsible for Eskom's financial exposures (Baker, 2017).

Despite the responsibilities of the DMRE as outlined above, much of the regulatory success for procuring privately generated power (discussed below) has been due to the IPP Office. The office acts on behalf of the DMRE but was set up in 2010 by the National Treasury's PPP unit with support from technical consultants from the Development Bank of Southern Africa. A Memorandum of Understanding was signed by all three entities. The office has a dedicated mandate to manage REI4P as well as other IPP projects with its three main functions being professional advisory services; procurement management; and monitoring, evaluation, and contract management (Green Cape, 2020:5). In this sense, the IPP Office operates somewhat outside of formal departmental governmental structures and, perhaps for this reason, is seen as a transparent and reliable professional body because it 'did not start out with the level of mistrust … that sometimes characterises other government agencies in South Africa' (Eberhard *et al*., 2014:9).

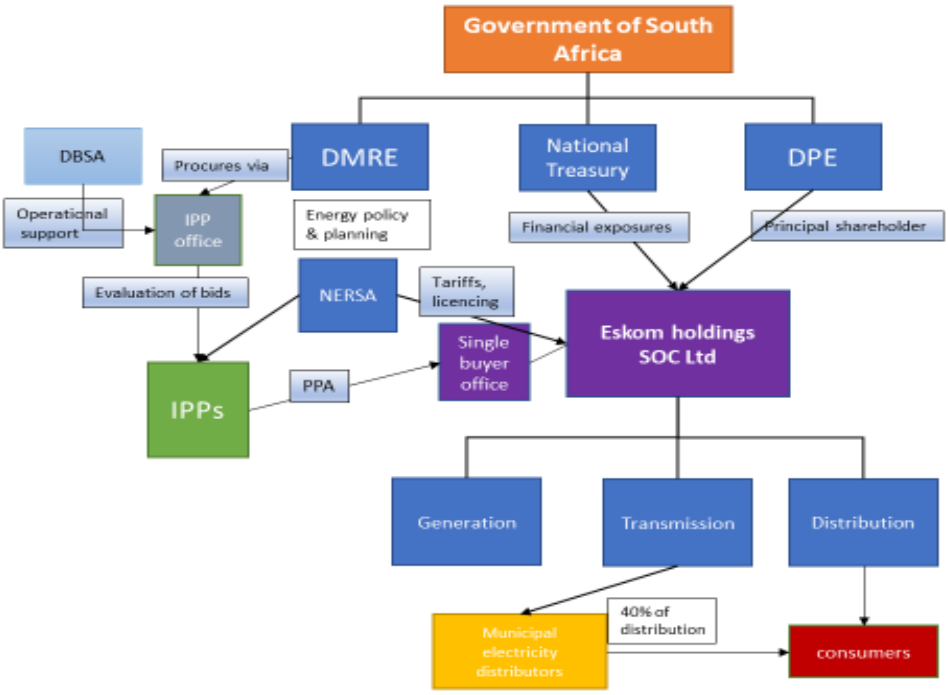
Figure 5: Timeline of key events in South Africa's electricity sector, 1994–2021



Source: Adapted from Baker (2017)

Two significant regulatory developments were introduced in 2011 that paved the way for the emergence of South Africa's renewable electricity sector. The first was a national electricity master plan, the Integrated Resource Plan (IRP), which established a new institutional process for national electricity planning and set a national renewable energy target of 17.8 GW of generation by 2030, which, if built, would deliver 9% of electricity supply by 2030 (Baker, 2016). This IRP was recently updated in 2019 (Figure 5). The second development was the introduction of the country's REI4P, of which one key objective was to help meet the IRP's national target of 17.8 GW of new generation capacity.

Figure 6: The governance structure of electricity in South Africa



Source: Author's own analysis

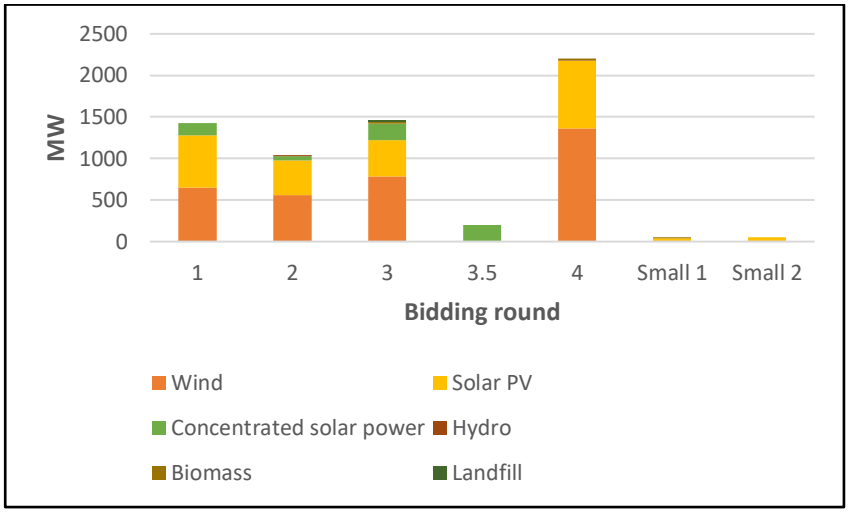
Although NERSA started to develop plans in 2009 to introduce a renewable energy FIT, this process was eventually converted into an auction programme in August 2011 in a move backed by the National Treasury and carried out by the then DoE. This reflected the shift in global trends in REP from FITs to auctions (Baker *et al.*, 2021). The subsequent design of the auction programme was influenced by technical advice to the South African government from bilateral donors, including from Germany, Denmark, and Spain—countries with strong renewable electricity sectors that were seeking investment opportunities elsewhere in the light of domestic market saturation and the reduction of FITs that affected investment appetite. Importantly, REI4P marked the first time in South Africa that electricity was procured from renewable energy and from IPPs, feeding into an otherwise coal-dominated state monopoly. Under REI4P, Eskom's role was reduced to that of a designated off-taker of electricity, with no influence over the selection of projects.

REI4P was introduced following important legislative changes to the 2006 Electricity Regulation Act to allow for the procurement of privately generated power and after a lengthy and contested negotiation process between different government departments, Eskom, NERSA, commercial banks, investors, project developers, and civil society. Specific points of negotiation included the definition and allocation of investor risk, and the significance of having a government-backed PPA as an essential de-risking mechanism for project developers (Baker, 2017).

By March 2019, REI4P had secured the procurement of 6.4 GW of peak generating capacity from 92 utility-scale IPPs and 99 MW from 20 small-scale IPPs under six bidding rounds (Green Cape, 2020; Figure 5). Of this, 4.2 GW of generation capacity from 64 projects had been connected to the national grid by early 2020 (Eskom, 2020:44). According to the updated IRP 2019, a further 8.5 GW of renewable energy is anticipated to start generating before 2025 (Eskom, 2020:94; Figure 6). The levelised cost of electricity from projects generated under REI4P has now fallen below Eskom's average cost of supply from its new coal-fired power plants (CSIR, 2020). By March 2019, REI4P had secured US$ 13.8 billion[8] in investment commitments (debt and equity), of which 20% came from foreign investors (IPP Office, 2020:33; Green Cape, 2020:20).

[8] R209.7 billion, at an exchange rate of 0.066 ZAR to US$ (January 2021).

Figure 7: Technology capacity procured from REI4P to date

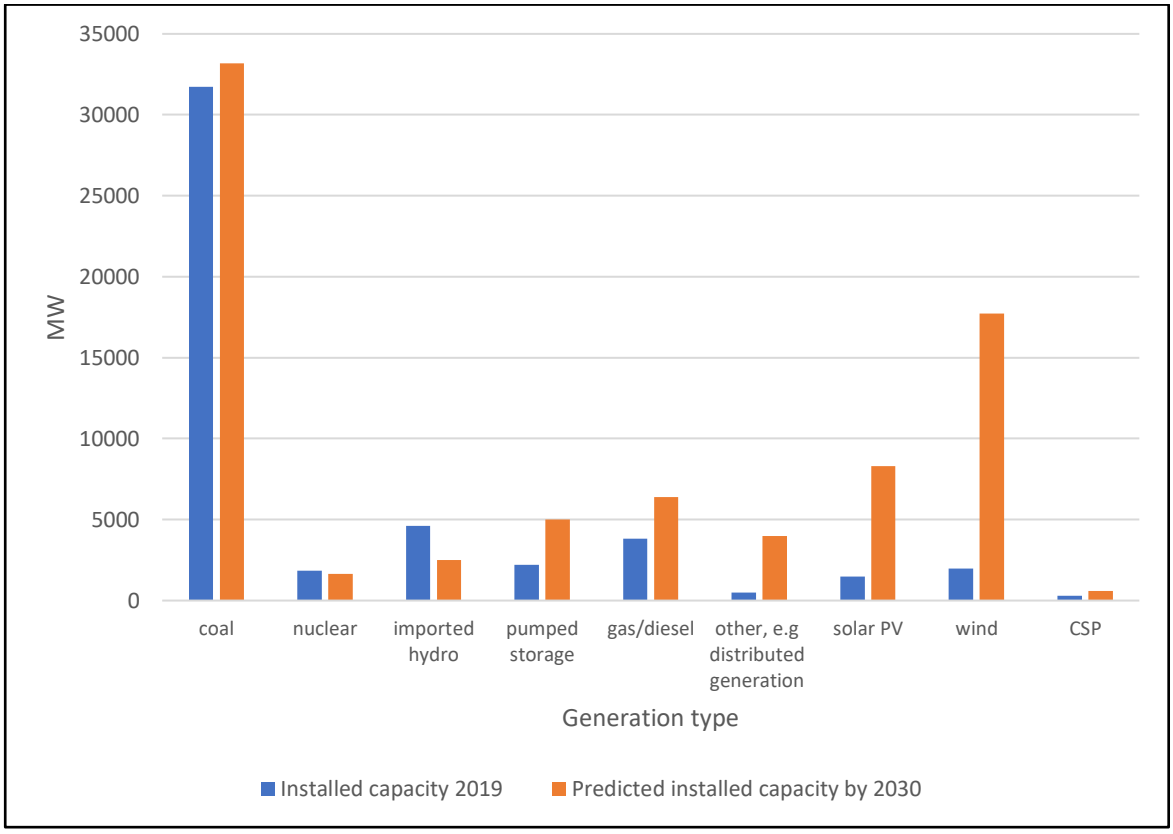


Source: Adapted from IPP Office, 2020

Under REI4P, project developers bid to supply renewable electricity below a certain tariff cap. Successful projects then sell electricity to Eskom's grid under a 20-year, local currency-denominated, government-backed PPA. However, in addition to submitting a competitive tariff, projects must also adhere to socioeconomic development criteria of national significance to qualify, e.g. job creation, community ownership, and local content. Projects are scored 70% on the tariff submitted and 30% on socioeconomic development criteria, of which the latter includes requirements for the inclusion of national companies. Notably, domestic companies must hold a 40% shareholding in the project companies. Of that 40%, a minimum of 12% must be held by black-owned companies as part of the post-apartheid policy on the economic empowerment of historically marginalised individuals. A 2.5% shareholding must also be allocated to the local community within a 50km radius of the project site. However, despite these apparently progressive requirements, REI4P has increasingly privileged large international developers, EPCs, OEMs, and established domestic companies. Local stakeholders have had a less significant role, usually participating in joint ventures or in consortia with their international counterparts. One reason offered for this is because of the priorities of finance and investment with local companies considered too high risk for large-scale participation (Baker and Sovacool, 2017).

In its early years, REI4P was internationally celebrated as a success story for REP and the introduction of similar models across the globe followed, including in Mexico, Argentina, and Chile. The REI4P model has also since been applied to non-renewable sources in South Africa, including gas, coal, and co-generation (Baker and Burton, 2018). Since 2015, however, the programme's successes have been undermined by severe delays, in large part due to strong political and ideological resistance by Eskom. Eskom refused to sign outstanding PPAs from Round 4, arguing that it would make a loss from having to purchase energy from IPPs and claiming that, as the country had returned to an electricity surplus in 2016, additional capacity from renewable energy was unnecessary (Baker, 2017). The PPAs were not signed until April 2018, following the inauguration of President Cyril Ramaphosa, who unlocked some of this political opposition. As a further result of such delays, Round 5, which was to have been released in November 2018, was finally launched in March 2021.

Figure 8: Installed capacity by 2019 vs. predicted installed capacity by 2030



Source: Green Cape (2020:17) and IPP Office (2020:1)

As a state-owned incumbent, Eskom has been institutionally opposed to the sector's liberalisation, to the generation of electricity from IPPs, and to renewable energy—all of which pose a challenge to its monopoly control of generation and transmission, and continued reliance on coal-fired mega-projects. Eskom's opposition has been supported by various factions within government and trade unions, as well as by the opposition party, the Economic Freedom Fighters, who also see liberalisation and renewable energy as a threat to their interests. Resistance to IPPs has also been encouraged by false or exaggerated claims, including over the cost of the IPPs to Eskom and the loss of jobs in coal mining and coal-fired power (Paton, 2019).

The delays to REI4P are also linked to significant delays in updating the IRP, which as a living plan should have been updated every two years after its launch in 2011. However, after years of protraction and various draft revisions released for public comment, an update was eventually issued in March 2019 following a consultation process in the preceding year. The plan was officially approved by the cabinet in October 2019, giving the green light for the DMRE to announce Bid Window 5 of the REI4P, launched in 2021. In the updated version of the IRP, coal is set to supply 46% of the country's electricity generation by 2030, with further decommissioning of coal generation up until 2050. The supply of solar PV, hydro, and wind sources is set to increase as a proportion of total generation, and there is a total determination of 20 GW for additional renewable energy in the plan (excluding distributed generation from solar PV of 4 GW), coal-fired plants of 1.5 GW, and gas-fired power plants of 3.1 GW (IPP Office, 2020:1; Figure 6).

These delays have had further knock-on effects, including the significant loss of manufacturing and balance-of-plant[9] capabilities, something the industry will need to build up again once new renewable energy development resumes in earnest (Creamer, 2020). In addition to this complex political resistance, there are also evident technical challenges to integrating renewable electricity into the country's transmission grid. To accommodate an increase in variable and intermittent generation sources from renewable energy, the grid requires significant upgrading and investment. At the same time, Eskom's credibility is

[9] In the case of a solar PV plant, all components of the plant other than the panels, and in the case of a wind farm, all infrastructural components other than the turbine and tower.

in tatters due to the long-standing and unsustainable debt level, the crisis of electricity supply and mismanagement, and a state capture enquiry (Bhorat *et al*., 2018).

A final significant challenge to the future of renewable energy development in South Africa is whether the 2018 recommendation of the presidential task team to unbundle Eskom into separate generation, distribution, and transmission companies between 2019 and 2022 will actually be carried out effectively as planned in the road map by the DPE 2019 (DPE 2019). This process is predicted to be 'complex and sensitive', and its first step is for the establishment of a separate transmission entity, now expected to be complete by mid-2022. Whether, how, and when this plan will be carried out is an area to watch, given Eskom's institutional strength and political inertia, which has thus far presented a significant barrier to the decarbonisation of South Africa's electricity sector.

Ethiopia: PPP-based REP comes to the scene

Ethiopia is undergoing rapid socioeconomic transformation. For most of the past 15 years, its economy has seen double-digit GDP growth (Ayele, 2021). Economic reforms have been driven by public investment in many key sectors, including the electricity sector, where the focus has been on hydropower projects. However, despite being endowed with abundant renewable resources, only 44% of over 115 million Ethiopians have access to electricity. Ethiopia aims to reach 100% access by 2025 and, to meet its ambitious goals, over the past eight years it has taken monumental steps towards procuring electricity from solar PV, wind, and geothermal sources, including from IPPs (Ministry of Water, Irrigation, and Energy (MOWIE), 2019; MOWIE, 2020). Taking a historical perspective, this section explores the political economy incentives and drivers, identifying policies, institutions, and the governance of renewable energy to unravel the constraints and opportunities to sustainable renewable energy development in Ethiopia.

While electricity was believed to have arrived in Ethiopia and lit Emperor Menelik II's palace in the late 1890s (Gnogno, 2019), there was hardly any access to electricity by the general public or for industrial use for most of the first half the 20th century (Carr, 2017). Arguably, inadequate levels of trained engineers, investment, and institutions were the main reasons for the slow growth of the industry. That said, 1956 can be seen as the baseline for the policies, the institutions, and the technical capacity development of electricity in Ethiopia, as it saw the establishment of an independent vertically integrated Ethiopian Electric Light and Power Authority (EELPA) under the Ministry of Mines and Energy (Teferra, 1991). EELPA was tasked with generating, transmitting, and providing access to electricity, with mandates to develop technical and human capacity. EELPA's generation capacity from small and large dam projects (such as Koka and Melka Wakena) grew, but never exceeded 850 MW until 2009 (MOWIE, 2019). In 1997, EELPA was restructured into two parts: the Ethiopian Electric Power Corporation (EEPCo) to generate, transmit, distribute, and sell electricity, and the Ethiopian Electricity Authority (EEA) to regulate the sector.

The reform made EEPCo nominally independent of its line ministry to reduce bureaucratic delays in key decision making and, at least in theory, to determine tariff rates based on commercial principles. More radical reforms have ensued since 2013. EEPCo was further unbundled into Ethiopian Electric Power (EEP) and Ethiopian Electric Utility (EEU).[10] EEP was mandated to generate power and build transmission lines, while EEU distributes, sells, and manages national electricity operations. Several factors led to these changes. First, the state monopoly EEPCo had been dependent on public finances, and this was draining public finances, leaving EEPCo hugely indebted. Its investment capacity was limited, and it was not able to switch to non-hydropower renewable sources (World Bank, 1996). Its tariff rates also failed to reflect production cost and demand (World Bank, 1996; World Bank, 2018). Second, there was insufficient investment to meet the ambitious target set by the government in its second Growth and Transformation Plan, aiming to achieve 17,208 MW by 2020, up from 4,300 MW in 2016/17 (NPC, 2016; World Bank, 2018). Third, droughts and climate change have been threatening sustainable power generation from hydropower sources. Fourth and finally, there has also been a pressing need to make a transition towards a cleaner energy system, as more than 80% of the population depend on unsustainable traditional biomass energy sources (World Bank, 2018).

[10] EEA, however, continued to play the autonomous regulatory role of energy efficiency, conservation, safety, and quality, as well issuing licences, determining tariffs, and setting performance standards.

While engagement with IPPs was ongoing from 2013, in 2017, a PPP policy was launched to facilitate private investment into major infrastructure projects, including activities in the electricity sector (Ministry of Finance (MOF), 2017).

The evolution of the electricity sector in Ethiopia, as briefly discussed above, highlights some perennial challenges, particularly the sector's increasing dependence on publicly financed hydropower and the state monopoly of the sector, which impeded procurement from private suppliers. The most recent reforms have been meant to diversify electricity generation sources through the procurement of renewable energy by private sector suppliers. Ethiopia has abundant and diverse renewable energy resources, including hydropower, solar, geothermal, and wind energy, which have not yet been sufficiently exploited (Table 1). Hydropower is the most developed, but remains below 10% of its potential, whereas the exploitation rate for solar, geothermal, and wind sources is negligible. That said, power generation capacity has shown a huge jump over the past decade, from about 850 MW in 2009 to 4413 MW in 2020 (MOWIE, 2020). However, the gap is also notable: with only 44% of electricity access, and with a *per capita* electricity consumption *per annum* of 100KWh, Ethiopia has the second-largest electricity access deficit in sub-Saharan Africa (MOWIE, 2019). Therefore, enhancing the deployment of non-hydro renewable resources via promoting private investment in this area has become one of the top policy goals for the Government of Ethiopia in recent years.

Table 1: Ethiopia's indigenous energy resources

Resource	Unit	Exploitable reserve	Exploited (%)
Hydropower	MW	45,000	<10%
Solar/day	kWh/m2	Avg. 5.5	<1%
Wind power	GW	1,350	<1%
Wind speed	m/s	>6.5	
Geothermal	MW	7,000	<1%
Wood	Tonnes	1,120	50%
Agricultural waste	Tonnes	15–20	30%
Natural gas	Billion m3	113	0%
Coal	Million tonnes	300	0%
Oil shale	Million tonnes	253	0%

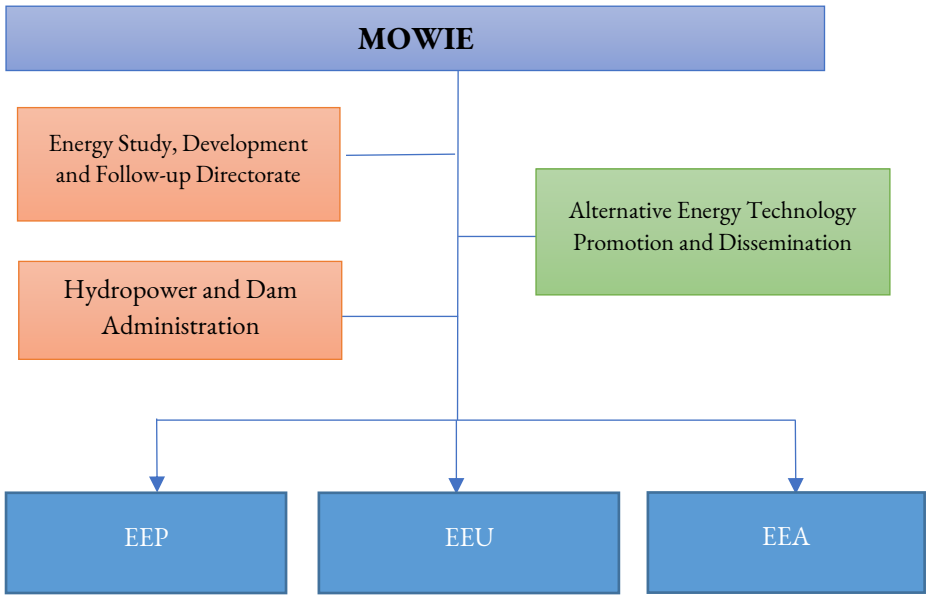
Source: MOWIE, 2019

Currently, the federal MOWIE oversees the governance of the electricity sector. It coordinates a complex and diverse range of actors within the government (including the regional Bureaus of Energy) and non-state actors, cooperatives, the private sector, and donor communities. It monitors sector performance and is accountable for progress and performance (MOWIE, 2019). MOWIE supervises the three main electricity agencies (Figure 9):

- EEP, which operates and maintains 18 power plants (14 hydropower plants, three wind power plants, and one geothermal plant); it also operates and maintains all high-voltage transmission lines across the country;
- EEU, which owns, operates, and manages the electricity distribution networks across Ethiopia and is responsible for maintaining, upgrading, and modernising distribution networks to ensure adequate capacity to meet the needs of existing and prospective customers; and
- EEA, the regulatory agency for the electricity sector, mandated to issue licences for generation, transfer, distribution, and sales, as well as for the import and export of electricity in Ethiopia. It licences IPPs and monitors compliance.

It is important to note that, besides MOWIE and its subsidiaries, there are regional Bureaus of Energy and several line ministries involved in the governance system. The Ministry of Finance and Economic Development plays an important role in charge of public finances.

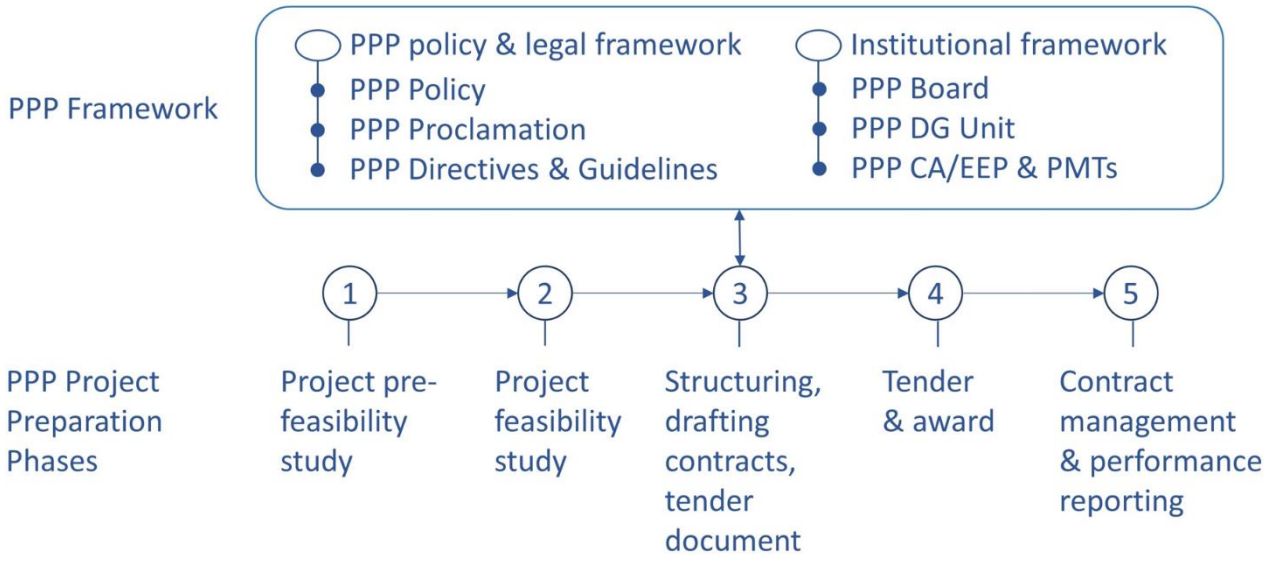
Figure 9: Governance of the electricity sector in Ethiopia



Source: MOWIE, 2019

As noted above, in 2017, the Government of Ethiopia put a PPP framework in place to promote and facilitate the implementation of privately financed infrastructure projects, including procuring renewable energy capacities from IPPs (RE-IPPs), and this constituted a major departure from the electricity governance structure led by MOWIE. For a start, MOF was given the lead role to design PPP programmes and to facilitate the implementation of privately financed infrastructure projects to support Ethiopian economic growth and maintain macroeconomic stability, by reducing growth in public debt and ensuring transparency, fairness, value for money, efficiency, and long-term sustainability (MOF, 2017). A PPP Board (the Board) was set up comprising a senior panel of ministers, including seven from MOF, the National Bank of Ethiopia, MOWIE, the Ministry of Transport, the Ministry of Public Enterprises, the National Planning Commission, and the Ministry of Federal and Pastoralist Affairs, and two private sector appointed representatives. Chaired by the Minister of Finance, the Board makes the ultimate decisions on PPP projects. Likewise, within MOF, a unit called the PPP Director General Unit (PPP–DGU) was established to provide technical assistance and support to the Board on all matters relating to PPP projects. This new governance framework (Figure 10) provides a complete set of policy, legislation, and institutional arrangements for governing PPP/IPP projects, covering the project preparation stage—e.g. feasibility studies, financial viability, procurement processes, project agreement, approving tender or negotiation results, selecting the private actors to participate in the PPP, and coordinating additional government support. Based on its guidelines for selecting and procuring projects (including competitive auction-based bidding procedures), the PPP–DGU implements procedures related to project preparation, procurement procedures, bid documents, and project agreements. It also monitors and evaluates the progress of PPP project implementation. Under PPP, EEP (along with its project management teams) plays the role of the implementing agency and contracting authority for RE-IPPs. EEP thus enters into PPP agreements with private parties.

Figure 10: Governing RE-IPP under the PPP framework



Source: Authors (based on Beyene, 2019; MOF, 2019)

The major challenges related to the above governance structure have been that the governance of the electricity sector has become fragmented and lacks coherence, as investors have to navigate both MOWIE and MOF's systems and often undergo bureaucratic hurdles. As it is new, PPP–DGU has few staff with sector-specific skills (such as energy tariffs and finance) to manage RE-IPPs, whereas EEP has comparatively better technical skills and more experience of dealing with investors and donors. The shortage of expertise at MOF/PPP–DGU and the often inharmonious working relationships with EEP have impeded the implementation of renewable energy projects through IPPs. As a result, despite the number of pipeline projects, Ethiopia's REP from wind, solar, and geothermal sectors are all significantly behind schedule. While successive energy sector reforms have been made, several challenges remain regarding implementation of REP transition. Lack of coordination between central and regional government over project sites is one of them, as regional governments are not formally involved in the decision making process regarding project planning and preparation but are required to issue permission of land uses. As working with the private sector on the renewable energy sector development is a new experience for the energy sector officials and technical experts, many government staff do not have sufficient knowledge or expertise. Hence, from project identification to finalising PPA, lack of capacity leads to hesitation among public managers when making decisions or during negotiations with the private partners. This is particularly acute for the newly established PPP–DGU, but also within key energy actors like MOWIE and EEP, where there are few dedicated departments and experts working on renewable energy projects and development. Significant capacity building is needed among these government agencies in order to speed up the procurement programme design and project transaction negotiations. A more balanced role and responsibility sharing mechanism between PPP–DGU and EEP is crucial for the long-term success of REP in Ethiopia.

Lastly, as contracting agencies, all IPPs will have to sell their energy to the state-owned EEP, the creditworthiness of which has been questioned in the past and which has been a risk factor to foreign investors. Most private investors would insist on additional payment guarantees from the central government, which can be difficult to obtain due to soaring sovereign debt levels over the past decade, which have continued to worsen since the COVID-19 pandemic. However, in a bid to make EEP creditworthy, the government has been taking measures to transfer EEP's commercial debt to MOF,[11] and a Renewable Energy Guarantees Program has also been developed to support IPP projects (World Bank, 2019).

Understanding the development of renewable energy tendering in Ethiopia has to take into consideration a unique historical context blended with reforms of its state-controlled electricity sector, as well as severe constraints on public finance, foreign currency reserves, and regulatory capacities. In general, the financial constraints of the central government have led to a new PPP model directed by MOF. The lack of sector-specific expertise in this new governing model, however, has become a bottleneck for renewable energy tendering and project development. These political and technical factors further exacerbate

[11] www.ethiopianreporter.com/article/18666.

the already high risks perceived by investors in renewable energy projects in Ethiopia, including off-taker credit risk. As a result, enhancing the successful implementation of renewable tendering requires further capacity building and institutional reforms within both the finance and the energy regulatory systems to fully enable them to design and implement tendering, and to encourage innovative financial solutions in a highly constrained context.

Conclusion

The comparative review of REP in China, South Africa, and Ethiopia illustrates that REP is often used as part of the policy mix in a broader sense than enhancing renewable energy deployment. Procurement as a policy instrument is inevitably embedded in a highly complex institutional framework developed over decades to govern electricity. Therefore, the introduction of this instrument into existing systems will challenge existing institutions and stakeholders, as well as configurations of power and interest among key public and private entities. This is particularly so when involving foreign investors and newly established regulatory entities, as we see in all three cases. The smooth integration of these new actors and institutions into the existing system of electricity governance is crucial for the success of the procurement programme. In this sense, procurement should not be viewed as a mere technical instrument but as a political one, with the potential to destabilise current political stalemates in energy transition and reforms. This holds in all three cases when China was trying to liberalise a purely state-owned energy regulation system; when regulation was introduced in South Africa, posing a challenge to Eskom's monopoly on electricity generation; and when Ethiopia intended to tie more financial strings to its state utilities given tight public finance constraints. In all three cases, the initiation of REP faced resistance from the incumbents, not least from the monopoly utilities, for both political and technical reasons. While the technical barriers can to some extent be resolved by investing in the upgrade of the transmission system, the political barriers can only be resolved by building up strong opposing coalitions against the incumbent (Shen, 2017; Shen and Xie, 2018).

The political implications of REP can also affect its economics. For example, in China, the policy goal of discovering the appropriate level of supportive FIT was jeopardised by the predatory low bidding prices of large SOEs, which eventually dominated the market despite the Chinese government's efforts towards market diversification. However, in countries relying on foreign investors and technology suppliers, the cost of electricity generation is still the central driver and negotiation around PPAs and their execution are core barriers that cannot be easily side-stepped by restructuring the financial model or governing institutions. The fundamental conditions and logic do not change significantly for successful project development, such as off-taker creditworthiness and predictability of state support. In both cases, political struggles as a result of ongoing sector reforms affect the process and outcome of REPs in all three countries.

The last implication is that, given the context-specific requirement in developing REP programmes, the policy process must be implemented in a highly flexible fashion in order to deal with various unexpected or fast-changing situations. In China, the changing criteria for selecting bid winners and switching procurement to FIT is an illustration of how close monitoring is needed to identify and correct undesirable situations during experimentation. In Ethiopia, meanwhile, the main challenge is the inefficiency of the decision making system after the establishment of new governing institutions and the resulting lack of enthusiasm and confidence among private investors. Different countries have adopted REPs for different goals, ranging from addressing energy poverty and acquiring technology to filling the void of public financial shortages. Such a variety of purposes also affects how procurement programmes are designed and governed. Although some of these policy goals can be pursued simultaneously, the priorities should be set by the government at any given stage of development as the basis for policy adjustment.

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The views expressed in this Working Paper do not necessarily reflect the UK government's official policies.