

Understanding ECOWAS Energy Policy

*From national interests to regional
markets and wider energy access?*

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This background paper is part of a series on the Political Economy Dynamics of Regional Organisations (PEDRO). It was prepared in March 2017. In line with ECDPM's mission to inform and facilitate EU-Africa policy dialogue, and financed by the Federal Ministry for Economic Cooperation and Development, BMZ, the studies analyse key policy areas of seventeen regional organisations in Sub-Saharan Africa. In doing so they address three broad questions: What is the political traction of the organisations around different policy areas? What are the key member state interests in the regional agenda? What are the areas with most future traction for regional organisations to promote cooperation and integration around specific areas? The studies aim to advance thinking on how regional policies play out in practice, and ways to promote politically feasible and adaptive approaches to regional cooperation and integration. Further information can be found at www.ecdpm.org/pedro.

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1. Introduction

This study presents a political economy overview of ECOWAS and its role in promoting energy integration in the region. It focuses in particular on the West African Power Pool (WAPP) and ECOWAS efforts in promoting energy integration and creating a regional energy market.

West Africa has long suffered from large deficits in the supply and distribution of energy in the sub-region. Expensive and unreliable power supply impede private sector and industrial (manufacturing) activities development, depriving it of critical investment capital (Chambers et al., 2012). At the same time, the ECOWAS region is among the African regions with the most energy production potential both from non-renewable (oil; gas; uranium) and renewable sources (hydroelectric power; solar and wind energy).

Against this background, ECOWAS developed an ambitious regional energy agenda, rooted in the ECOWAS founding treaty of 1975. The early objectives were to promote cooperation and development in all fields of economic activity, including energy (Treaty of the ECOWAS, 1975, p. 20); and increase the collective energy autonomy of the subregion.¹ However, it was only 24 years later in 1999 that this regional agenda and its implementation slowly started to materialise with the establishment of the West African Power Pool (WAPP) and the ECOWAS Energy Protocol in 2003 which sought to promote long-term cooperation, increase complementarity and attract investments to promote regional energy trade in West Africa. The agenda was further expanded with the establishment of the West African Gas Pipeline (WAGP) in 2005 and the ECOWAS Centre for Renewable Energy and Energy Efficiency in 2010.

While significant investments have been made to boost energy production through these regional energy initiatives, almost all of them experienced major challenges in the form of repeated delays and/or increased transaction costs. With few exceptions, West Africa's energy markets remain inward-looking and highly dependent on expensive thermal power. Nigeria, Ghana and to some extent Côte d'Ivoire are net exporters, largely through historical bilateral arrangements while the majority of ECOWAS countries largely depends on imports and fossil fuel for electricity supply. Regional infrastructure has the potential to drive down electricity prices and power development in the long run, however, the poor state of national grids and markets, both in net producing and net consuming countries remains a major obstacle for further integration and prevents interest to converge in the short run. As infrastructure development in West Africa is on the rise again, and several countries are in the process of building new renewable power plants, the momentum for the WAPP however may pick up again in the near future provided that its institutional framework - such as the payment and enforcement mechanisms, also strengthen.

This report looks at one of the three pillars of the ECOWAS Energy Agenda, namely the WAPP with a view to address the following three questions²: What is the political traction of ECOWAS in driving or steering the regional energy agenda? What are the interests of member states in using ECOWAS to address their energy challenges? Which are the specific areas or sectors with most potential future traction for ECOWAS to focus in continuing to address energy at a regional level?

The report is based on a literature analysis and a selection of interviews with relevant stakeholders based in Abuja, Nigeria.

¹ As stated in the ECOWAS Energy Policy (1982). See: <http://allafrica.com/stories/201311191358.html>.

² The scope of this report is limited to one pillar of the ECOWAS energy agenda, as it would hardly be possible to cover all political economy factors of the three (different) pillars sufficiently in depth.

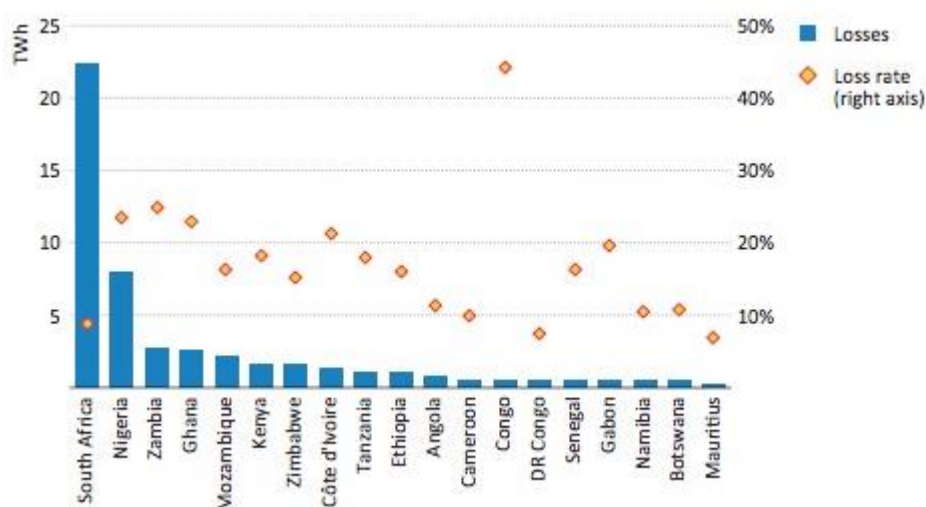
2. Assessing the political traction of the ECOWAS energy agenda

2.1. Structural and foundational factors

West African energy production and consumption

Despite the region's natural endowments and energy potential, current installed capacity is 10,640 MW of which only around 60% (ca. 6,500 MW) is fully functional and meets demand. At the same time, overall demand is increasing, reinforced by a growing population and urbanisation, estimated to be about 22,000MW, far more than the actual production capacity (AfDB, 2011). This gap is exacerbated by high commercial and technical losses estimated at 21.5% in West Africa in 2010 (ECREEE, 2014).

Figure 1. Transmission and distribution losses and loss rates, 2012

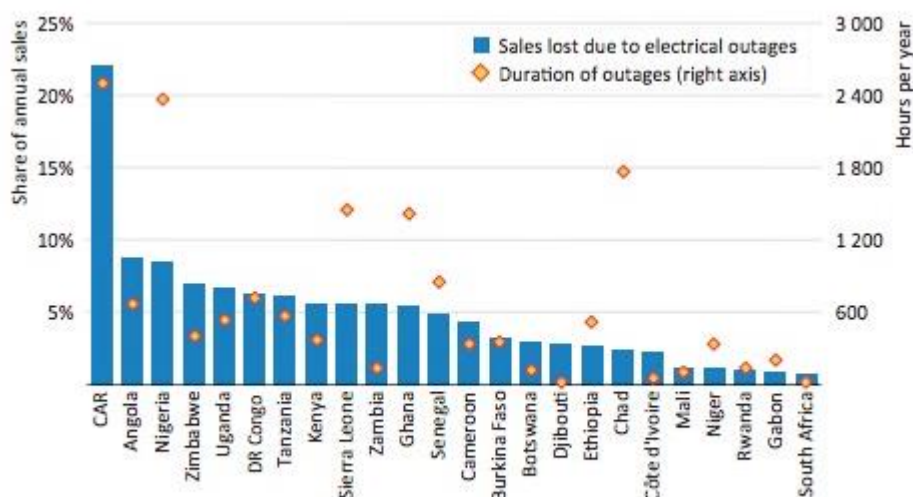


Source: OECD/IEA, 2014

The region's annual per capita electricity consumption is less than 150 kWh³, which is among the lowest in the world. Household access is only 20%. The lack of access to energy also has negative social and economic impacts - frequent power shortages reduce overall productivity and drive up operating costs, pushing many economic operators (including exporters) to rely on expensive energy from generators (three to five times the cost of electricity from the grid) (Mbekeani, 2013).

³ By comparison, kWh per capita energy consumption is approximately 500 in Sub-Saharan Africa, 650 in South Asia, 1,600 in East Asia and Pacific, 1,850 in Middle East and North Africa, 2,200 in Latin America and the Caribbean, and 4,500 in Europe and Central Asia.

Figure 2. Duration of electrical outages and impact on business sales in selected countries



Notes: CAR = Central African Republic. Data is from the latest available business survey for a given country.
Sources: World Bank (2014b); IEA analysis.

Source: OECD/IEA, 2014

At the household level, ECREEE (2014, p. 12) notes that the reliance on “*traditional biomass and solid fuels for cooking and heating has led to more than 257.8 million people being affected by household air pollution from indoor smoke, small particle pollution, carbon monoxide, and nitrogen oxides*”.

Improving energy production and market integration in the region is hoped to yield high economic and social returns. Among other tasks, promoting inter-state collaboration in terms of policy development; capacity building and investment is considered key to ensuring effective progresses in terms of energy security and reliability, production and distribution at an affordable price for the consumers (ECREEE, 2014).

The origins of ECOWAS energy integration

Regional cooperation in the energy sector started in the late 1960s. Following the construction of the Kainji Dam in Northern Nigeria (1968) a transmission line between Nigeria and Niger ensures the supply of Niamey at a historically set low price point⁴. In the 1970s, the first electricity interconnections were built between Togo and Ghana (1972), and Ghana and Benin (1973), allowing Ghana to export energy from the Akosombo Lake hydroelectric dam on the Volta River to its neighbouring countries. This was followed in 1983 by the construction of interconnections between Ghana and Côte d'Ivoire, Côte d'Ivoire and Burkina Faso in 2000, and between Nigeria and Benin in 2003 (Thiam, 2009). In the 1970s Senegal, Mali and Mauritania (no longer a member of ECOWAS) started developing joint infrastructure under the Senegal basin organisation, the OMVS. Over the years, these countries developed a 1,700 km network to connect the Manantali dam in Mali to all three national grids.

These early developments illustrate that Ghana, Nigeria and Côte d'Ivoire led in terms of energy production as early as the 1970s and 1980s. A position the countries maintain until today. But they also illustrate the importance of bilateral and trilateral arrangements, including the willingness of certain subgroups of countries to cooperate beyond their narrow national interests such as in the case of the OMVS.

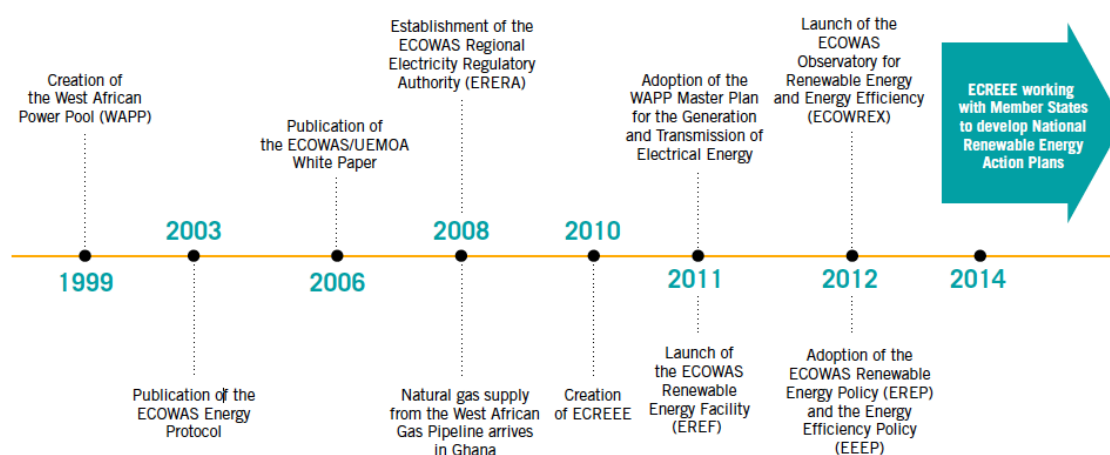
Building on these bilateral connections, the ECOWAS energy agenda and priorities first feature in the 1975 ECOWAS treaty, the ECOWAS Energy Policy (1982) and its 1993 revised version. These

⁴ Until today, Niger depends for ca 80% on Nigerian exports. See: <http://www.afd.fr/home/pays/afrique/geo-afr/portail-niger/nos-projets/energie-3>.

emphasise the need to harmonise and coordinate national energy policies among member states and promote integration programmes, projects, and activities; and increase the collective energy autonomy of the subregion⁵. Energy is also mentioned as one of the twelve priority sectors for achieving collective self-reliance and economic modernisation (Hancock, 2015).

Over the years, these ambitions have been translated into three key pillars: i) the creation of the West African Power Pool (WAPP) in 1999, regulated by the 2003 ECOWAS Energy Protocol; ii) the development of the West African Gas Pipeline which was first conceived in 1982, but for which implementation started in 2003 (World Bank, 2014); and iii) the creation of the Energy Centre for Renewable Energy and Energy Efficiency (ECREEE) in 2010. This study focuses primarily on the WAPP.

Figure 3. Milestones for energy cooperation and integration in ECOWAS



Source: see endnotes 63-70 for this section.

Source: ECREEE, 2014

The WAPP was launched by the ECOWAS Energy Ministers in 1999. The Power pool aims to connect all the (national) power networks of 14 of the 15 ECOWAS countries.⁶ The WAPP builds on the lessons learnt from the establishment and development of the Southern African Power Pool and benefits from technical assistance provided by the United States Agency for International Development (USAID). Its ultimate aim is to promote the development of infrastructure for power generation and transmission, to create a real regional power market that would be attractive for investors, and to encourage under-supplied and over-supplied countries to share their energy resources (Thiam, 2009). In essence, the WAPP creates a platform for bilateral or tripartite agreements on interconnection, power generation, transmission and distribution among member states.

While Ghana was one of the key drivers towards regional energy trade (World Bank, 2007), member states with energy deficit and/or with a small market such as Togo, Benin and the Sahelian countries were also very much interested in this regional programme. Producers like Nigeria, Côte d'Ivoire, and Ghana could also benefit from improved security of supply and economic exchange of short-term power (Castalia, 2009).

⁵ See: <http://allafrica.com/stories/201311191358.html>.

⁶ The WAPP includes all ECOWAS countries except Cabo Verde which as a small Island state is self reliant in electricity. More information at https://www.researchgate.net/publication/272399480_Energy_regionalism_and_diffusion_in_Africa_How_political_actors_created_the_ECOWAS_Center_for_Renewable_Energy_and_Energy_Efficiency.

Figure 4. Transmission networks and prospective interconnection projects of the WAPP



Source: <http://www.nsong.org/Pages/WAPP.aspx>

The unequal distribution of supply and demand in the ECOWAS region

Today most of the region's energy generation *potential* is in Nigeria (oil and gas), Guinea (hydro), Côte d'Ivoire (oil and gas), Ghana (hydro, oil and gas), Niger (uranium); and Benin and Togo (hydro). The region's hydroelectric potential is primarily located in the Senegal, Niger and Volta river basins and concentrated in five of the 15 Member States (UN, 2015). The region also has potential for solar and wind energy, which contrary to the traditional sources of oil, gas, coal and water⁷ are more equitably distributed and could provide opportunities for all ECOWAS member states.

Table 1. Sources of energy and distribution in the region

Source of energy	Distribution in the region
Oil and gas	Nigeria owns about 98% of proved crude oil and natural gas reserves in West Africa; while West Africa possesses 30% of proven African crude oil reserves (3017 million tonnes) and 31% of natural gas (3581 billion m3)
Hydropower	While West Africa has a potential of 23.9 GW of exploitable hydropower, 91% of the hydropower potential is concentrated in five countries: Nigeria (37.6%), Guinea (25.8%), Ghana (11.4%), Côte d'Ivoire (10.9%) and Sierra Leone (5.2%)
Solar irradiation	Solar irradiation are higher than 5 kW·h/m ² /day, available practically in all West African countries.

Source: IAEA, 2016

⁷ Nigeria is the primary supplier of natural gas in the region and the country also accounts for about 43.4% of regional hydropower generation, closely followed by Ghana, which generates 40.9% of regional hydropower. The remaining production is shared by Côte d'Ivoire, Guinea, Mali, and Burkina Faso. (Cheto and Brooks, 2013).

In terms of actual power generation, however, Nigeria, Ghana and Côte d'Ivoire are the clear leaders. Their combined installed and available capacities represent respectively over 82.5% and 90% of the region, with about two thirds of the electricity generated in thermal power plants, and one third comes from hydroelectric power stations (IAEA, 2016).

Table 2. Existing power generating capacity (MW)

Country	Oil	Coal	Gas	Hydro	Total
Burkina Faso	146			23	169
Cote d'Ivoire			765	585	1,350
Gambia	49			0	49
Ghana	685		180	1,044	1,909
Guinea	19			95	114
Guinea-Bissau	4			0	4
Liberia	13			0	13
Mali	114		20	153	287
Niger	15	32	20	0	67
Nigeria			3,858	1,358	5,216
Senegal	395		49	68	512
Sierra Leone	44			56	100
Togo/Benin	57			65	122
Total	1,541	32	4,892	3,447	9,912

Source: IRENA, 2013

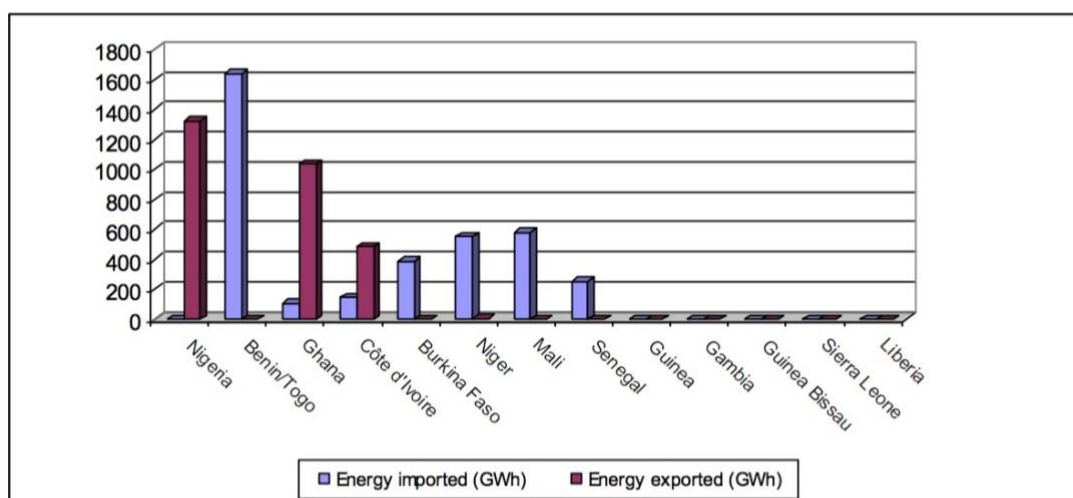
Fossil fuel, hydroelectric power and imports/other sources of energy represent respectively 64, 31 and 5% of the region's total energy supply (Adeyemo, 2014). Emergency energy solutions - which still account for a major part of installed capacity in a number of countries, mainly rely on fossil fuel, even though these are the most expensive means for generating electricity. The costs of emergency generation are in the range of US \$0.2 to US \$0.3 per kWh, which is much higher than the cost of conventional generation (AfDB, 2013).

Oil and gas reserves as well as hydroelectric power are location specific, which is key to understanding the state of play of energy in West Africa. In contrast to Nigeria, Ghana or Côte d'Ivoire, landlocked and sparsely populated countries of Mali, Burkina Faso and Niger; and small coastal countries such as Liberia, Sierra Leone, Guinea and Guinea-Bissau are not particularly well endowed with readily exploitable energy, which drives some of these countries like Benin, Burkina Faso, Mali, Niger, Togo to rely on expensive imported heavy fuel oil or diesel, or electricity imports from neighbouring countries. However, this has limited impact if one looks at electrification rates, which remain among the lowest in the region (Figure below). Only Senegal, Nigeria, Côte d'Ivoire, Ghana and Cabo Verde manage to provide electricity for at least over 45% of their population (Cabo Verde being the only providing universal access).

Figure 5 below illustrates the asymmetrical energy relations within the WAPP with three main net producers and exporters and a series of smaller consumers. While for several decades, this situation has remained fairly stable, today, several of the smaller players are in the process of developing their own infrastructure to gain a higher degree of energy independence. Mali, Niger and Guinea, for example have started or are starting with the construction of hydroelectric capacity on the Niger river (see the ABN case study in this series), and the OMVS (Senegal, Mali, Guinea and Mauritania) are in the process of increasing their jointly owned capacity with several smaller power plants in the Senegal basin (which are in fact taken up in the WAPP priorities list). That said, these projects are primarily

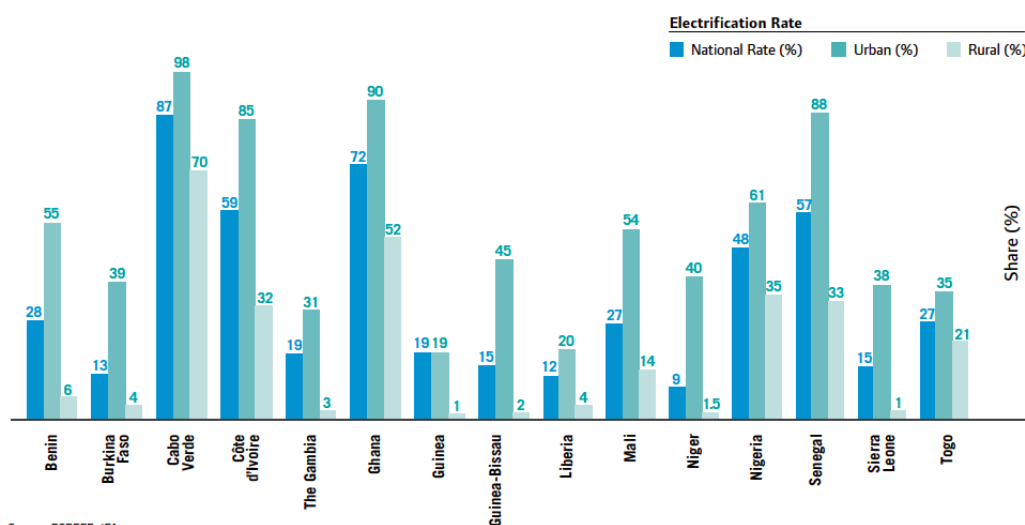
geared at improving national and/or subregional energy security, and will not shift the balance of power towards those countries. The modernisation of national energy infrastructure, however, may facilitate regional cooperation in the long run.

Figure 5. Energy imports and exports per country in 2010 (GWh)



Source: WAPP: *Système d'Echanges d'Energie Electrique Ouest Africain, Aperçu des Projets/WAPP, Projects at a Glance*, May 2011.

Figure 6. Electricity access rates in ECOWAS Member States 2010-11

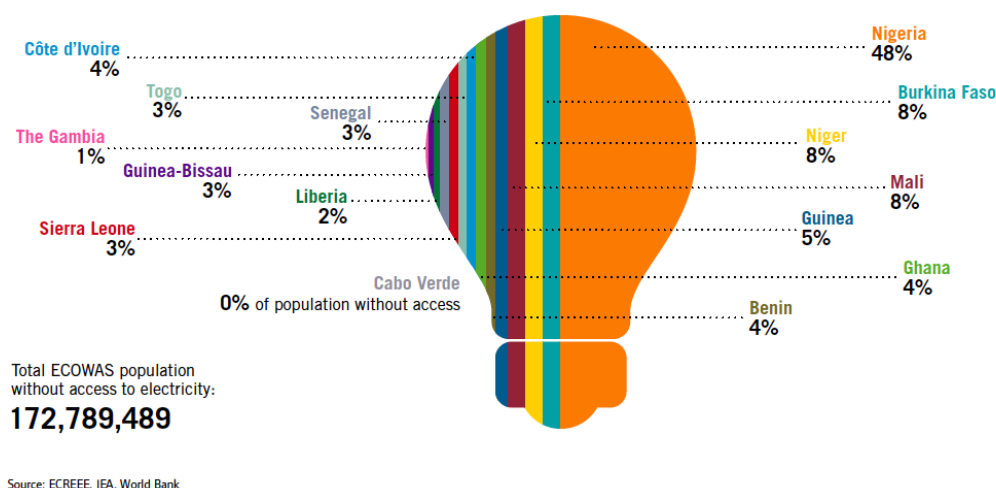


Source: ECREEE, IEA

Source: ECREEE, 2014

Electricity access varies remarkably between rural and urban areas in all ECOWAS countries. The disparity and low consumption of the rural market, influenced by the inability of consumers to pay and the high costs of diesel generation (Vilar, 2012), makes traditional electricity generation projects hardly viable in rural areas. Traditional biomass is already the main source of energy for the poor and accounts for 80% of total energy consumed for domestic purposes (ECREEE, 2012). This partly helps explain why most of the ECOWAS population without access to electricity is located in Nigeria, and Sahelian countries (Burkina Faso, Mali and Niger).

Figure 7. Share of ECOWAS population without access to electricity



Source: ECREEE, 2014

At the same time, demand continues to outgrow production capacity, increasing the need for load shedding in recent years (Diallo, 2015). Population growth and rapid urbanisation further exacerbates this trend.

This picture of the regional energy potential, production and consumption already shows some of the difficulties for deepening energy integration: for example, in a country like Nigeria, which produces about 56% of the total electricity in the region, but whose electricity access rate is relatively poor (less than 50%), what would be the country's interest in contributing to increasing energy trade in the region? This picture could be possibly extended to the other energy resource rich countries. On the other hand, for other countries with limited capacities such as the Sahelian countries or the "smaller" countries, the ECOWAS energy agenda's objectives would converge with their needs and interests.

In addition, the EU imports large amounts of oil and gas from West Africa (and especially Nigeria), representing 4.2% for oil, 3.6% for natural gas, and 12.7% for uranium of the overall EU energy supply. Although these figures are relatively small, *"these volumes are significant at the margin (in terms of prices) and Nigeria represents a core market for a number of major European businesses such as Shell, Total and Eni that employ large numbers of EU citizens, pay large amounts of tax in the EU and support numerous other service companies"* (Akoutou et al., 2014, p. 61). Therefore, sales to the EU also reduce incentives for ECOWAS Member States to invest in regional energy trade and infrastructure.

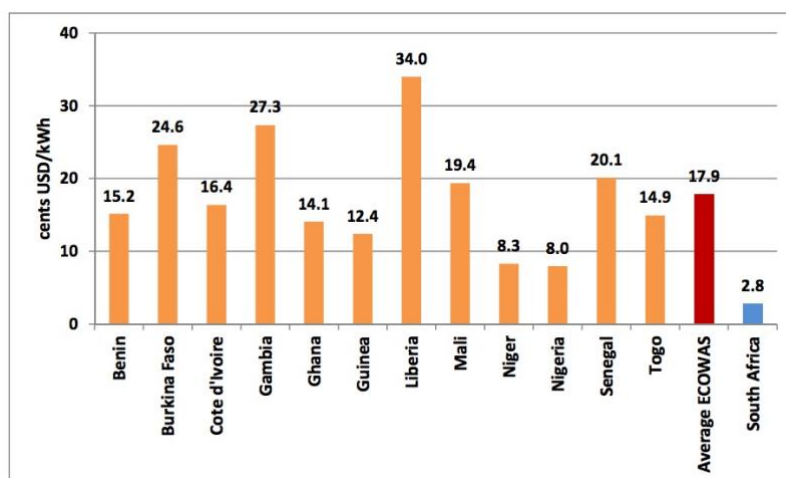
Box 1: Climate change, an issue for regional energy integration?

During the last decade, the number of electricity supply interruptions increased dramatically in many countries in West Africa. In 1998, because of the drought, the lack of water in the Akosombo dam caused an electricity crisis in Ghana, and as a result in Benin and Togo who both rely on the electricity produced by the Akosombo dam. This happened again - though to a lesser degree of severity - in 2006 and 2007. Except Côte d'Ivoire, Nigeria (2001), Senegal, Mali and Guinea have all suffered for several years from frequent disruptions of electricity supply due to droughts. Such phenomenon affects particularly countries like Ghana, Nigeria, Benin, Togo, Guinea and Mali, which rely significantly on hydropower - and are thus dependent on weather conditions (Gnansounou et al., 2007). These uneven weather events add up to the cost of generating and transmitting electricity in countries with challenging geographic conditions (AfDB, 2013). Such events actually undermined ECOWAS traction in the field of energy, as Member States first reflex was not to think of solutions at regional level, but rather implement sometimes expensive and often short-term national solutions. The energy crisis has hence led ECOWAS Member states to adopt non-optimal solutions that have deviated from the ECOWAS vision for an integrated, sustainable and vibrant electricity market in West Africa (Diallo, 2015).

Sector characteristics: national energy markets in West Africa

Most West African countries rely heavily on thermal power and obsolete power plants, which means that electricity costs in West Africa are among the highest in the world (see figure below). In addition, transmission and distribution losses are extremely high, aggravating the problem (IAEA, 2016). The most cost-effective way of generating electricity is through large power plants that serve a wide population, both within and between countries, allowing for economies of scale (AfDB, 2013). However, partly because of the limited size of the market, the power generation industry in West Africa tends to be dominated by costly small-scale power systems. While these allow connecting remote areas to the national grid, they lead to “*higher transmission and distribution costs, mainly arising from electrical losses*” (AfDB, 2013). This affects thus the potential for energy trade, as promoted by the ECOWAS energy agenda and the WAPP.

Figure 8. Comparison of electricity prices for medium voltage users in West Africa



Over-reliance on inefficient and under-capacitated power systems is in the first place linked to limited financing capacity, which prevents countries from investing in new technologies and additional capacity. Donors, led by the World Bank historically pushed for a complete privatisation of state-owned electricity companies in all countries of the region (Gnansounou et al., 2007). While this seems to have succeeded in Ivory Coast⁸, privatisation and energy market liberalisation failed to deliver in Senegal, Guinea and Mali⁹. In most ECOWAS countries the electricity sector remains vertically integrated¹⁰ and under majority state-ownership: only Cape Verde and Côte d'Ivoire have a power sector owned in majority by (foreign) private companies.

Finally, only Burkina Faso, Côte d'Ivoire, Ghana, Nigeria, and Senegal have independent power producers (Pineau, 2007). In general terms, Besant-Jones (2006, p. 10) observes that the following

⁸ One critical factor underlined by one of the IPP operating in Côte d'Ivoire as that there was: “a defined set of rules for how CIE has to pay the independent power generators. This “waterfall” structure gives IPPs a relatively high place in the payments queue. “That allows transparency in the sector and all the operators know that we are going to get paid. It is the basis for everything that has made Côte d'Ivoire attractive for investment. There are very few countries that have such a clear organisation and structure.” See more information at <http://www.smartcityafrica.com/en/media/blog/here-why-investors-benefit-electricity-sector-privatization-cote-divoire> and http://www.proparco.fr/jahia/webdav/site/proparco/shared/PORTAILS/Secteur_prive_developpement/PDF/SPD18/SPD18_Amidou_traore_UK.pdf.

⁹ Pineau (2007:3-4) notes that “in Mali, re-nationalization even occurred in 2005, five years after selling the electricity company to the French company Bouygues (Perez, 2005). Important price increases along with political and investment problems were at the root of this withdrawal, with shares of the private owner sold to the State of Mali and to Industrial Promotion Services (West Africa), a subsidiary of the Aga Khan Fund for Economic Development (AKDN, 2005)”.

¹⁰ Except for three countries with independent distribution companies: Benin, Ghana and Togo.

characteristics still describe the sector: “excessive costs, low service quality, poor investment decisions, and lack of innovation in supplying customers”. Looking at the financial capacities of state-owned electricity enterprises, and of ECOWAS Member States¹¹, it is unlikely that significant investment will occur to modernise the sector - limiting the perspective for regional energy trade.

At the same time, the high cost of producing electricity forces many governments, including net producers such as Nigeria to subsidise consumption (OECD/IEA, 2014). This is not unique to the region, and in 2010 the average effective electricity tariff in Africa was US\$0.14 per kWh compared to an average production cost of US\$0.18 per kWh (AfDB, 2013). These market dynamics therefore undermine the feasibility of a regional power pool without more additional investment in large-scale energy production.

Beyond this aspect, and as importantly, the structure of national markets - vertically integrated monopolist or vertically integrated monopolist and independent power providers (IPPs)¹² (Besant-Jones, 2006) - as they currently operate, represent an impediment to private sector participation and hence the development of the regional market (Elayo, 2013). This in turn affects the ability of the WAPP to promote investment in the electricity sector.

In addition, West Africa does not currently have a strong dominant player in regional electricity supply or demand. Nigeria has the energy resources to potentially fill this role, but at present it is struggling to ensure domestic supply. Until domestic demand can be reliably met, it is unlikely that Nigeria will play a more prominent role in the region as an electricity exporter (World Bank, 2014). In addition, Nigeria is not centrally situated and would require substantial investment in transmission lines to allow for large exports (Eberhard et al., 2011).

2.2. The development of a regional agenda and institutional basis for the WAPP

Legal and institutional framework

The Energy Protocol (2003)¹³ provided the necessary legal and institutional framework to promote energy cooperation and development, and facilitate ensuring free trade of energy and related equipment¹⁴. This was a key condition for the WAPP to become operational.

The creation of the WAPP in 1999 was in the first place a policy commitment by ECOWAS member states, but it was not until 2006 that the WAPP became operational with the creation of a secretariat in Cotonou, Benin. While the ECOWAS Commission has an energy department at the Energy and Mines Commission headquarters in Abuja, Nigeria, there are now three regional agencies specialised in energy: the WAPP, a regulatory authority (ERERA, based in Ghana)¹⁵ and a centre for renewable energy promotion (ECREEE, based in Cabo verde)¹⁶.

¹¹ Ten WAPP member states are subject to borrowing restrictions as Highly Indebted Poor Countries (HIPC). The HIPC status also places borrowing restrictions on government-owned utilities, limiting the sources of finance that can be used for new investment. This can be to some extent mitigated by the use of grants and soft credits from multilateral development banks (Castalia, 2009). Many countries within WAPP have difficulty securing financing to construct new generation and transmission facilities.

¹² With the notable exception of Nigeria and Ghana (ECREEE, 2012a).

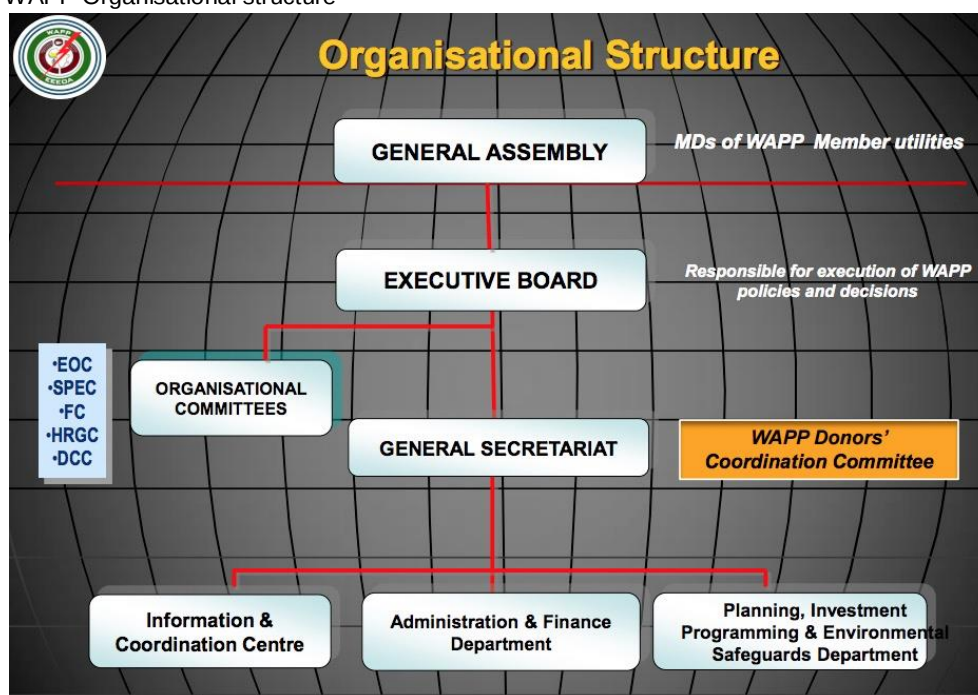
¹³ The Energy protocol was modelled after the European Energy Charter Treaty (ECREEE, 2014).

¹⁴ Of interest, Sierra Leone did not ratify it immediately but only in 2010 while Liberia did not sign it yet - demonstrating at that time at least little interest in the WAPP.

¹⁵ The ECOWAS Regional Electricity Regulatory Authority (ERERA). ERERA's main objective is to “ensure the regulation of interstate electricity exchanges and to give appropriate support to national regulatory bodies or entities of the Member States”.

¹⁶ These specialised institutions are governed by ECOWAS but act as independent bodies - within the legal, administrative and financial framework of the ECOWAS' rules and regulations (including staff, procurement and

Figure 9. WAPP Organisational structure



Source: Ki, 2016

The institutional structures of the WAPP include (i) a General Assembly with policy-making authority, consisting of representatives (heads of their respective national electricity companies - Bartuah, 2014) from each ECOWAS member, with majority decision-making rules; (ii) Executive Board, which is the organ responsible for implementation of the decisions of the General Assembly; (iii) The Organisational Committees, which provides support and advice to the Executive Board on all matters regarding collective policy formulation functions; and (iv) The WAPP General Secretariat which is the administrative and technical organ in charge of the day to day management of the activities of WAPP. In addition, 26 private and public companies are members of the WAPP, as well as several donors such as USAID, African Development Bank, the EU, and the World Bank, which provide a significant share of the necessary funds; but also help determine priorities and provide technical assistance.

On the surface, the institutional framework of the WAPP can be said to be quite advanced. The ECOWAS protocol specifically addresses key issues such as protecting foreign investments; establishing non-discriminatory conditions for energy imports and exports; resolving disputes between participating states and establishing strong legal entities and institutions (Castalia, 2009). These provisions can help the WAPP to attract investments in regional energy projects. That said, there is still progress to be made: even though ERERA is in the process of designing a Dispute Resolution Procedures & Enforcement Rules (Bogler, 2016), there is no binding enforcement mechanism - which would ensure more predictability for foreign and/or regional investors. Further institutionalisation may therefore be a *'conditio sine qua non'* for the feasibility of future regional energy infrastructure.

Current reforms and challenges

In the past decade, the WAPP has sought to assist member states in developing regional priority projects. These priority projects are identified by Member States (with the support from donor agencies) and introduced into a regional Masterplan, which is updated on a regular basis, and endorsed in the various WAPP fora. The most recent version dates from December 2011, following

financial regulations) – and its legal status, governance structure and mission statement (ADA/AECID/ECOWAS/UNIDO, 2014).

significant delays observed in the development of other projects (Ki, 2016). Because of the slow progress in the implementation of the WAPP masterplan, ECOWAS member countries adopted the model of a Special Purpose Company (SPC) in 2008. A SPC is structured as a public-private partnership (PPP) with the interested WAPP member countries' utility companies and a strategic private partner holding equity participation. By overseeing the design, construction, and commissioning of regional power plants identified by Member States, SPCs aim to facilitate implementation of priority regional power projects (AfDB, 2011).

In addition, in order to make progress on key investments, the WAPP reduced its focus on a smaller number of projects, emphasising political acceptability and implementation (Castalia, 2009). This shows quite clearly that the WAPP is now trying to think and work politically. It would therefore be interesting to look at how this change of approach materialise itself on the ground. In 2016, the General Assembly, approved a 2016-2019 business plan of the WAPP, aiming *inter-alia* to update the revised masterplan and set up the WAPP Information and Coordination Center (Ki, 2016).

While the WAPP was launched over a decade ago, regional energy trade remains limited (Oseni and Pollitt, 2014). In October 2016, only six (out of the 25 planned priority projects) had been completed (Ki, 2016). The few bilateral trading exchanges between member countries are mostly based on separate and pre-existing arrangements, and are hence not driven at regional level. While this may illustrate the limited political (and economic) traction of the WAPP and the lack of Member state interest in a regional approach, it also raises questions about its implementation: how to translate these policies in practice? What are some of the constraints and opportunities to deepen regional energy integration?

2.3. Drivers and blockers

Private sector engagement

In view of the limited capacity of national energy providers, ECOWAS, through the WAPP, has consistently tried to engage with the private sector - both involving them in governance mechanisms (PPPs) and at the operational level. The WAPP for example involved 26 private and public companies in its governance. Although not part of this study, the WAPCo (funded by regional private sector actors) is the key driver of the WAGP to transport natural gas from Nigeria to customers in Benin, Togo and Ghana in a safe, responsible and reliable manner, at prices competitive with other fuel alternatives. WAPCo has been instrumental in overcoming several political and economic challenges of the WAGP: dealing with language, cultural, social and institutional barriers (different law systems); combining different practical experiences (Nigeria having built pipelines contrary to the other three countries; and agreeing on electricity prices.

However engaging (foreign) private sector actors can also bring challenges: the lack of transparency was pointed out in one of the WAPP projects, a turbine plant in Marie Gleta, Benin: *"There have been several contract amendments since the initial account was won by the Group Chevron. Unconfirmed reports suggest that while some delays and contract amendments may have arisen from genuine (albeit severe) underestimation of original costs and a lack of capacity among constructing agents, they likely indicate illicit agreements between those responsible for authorising some of the work under the WAPP and those contracted"* (Chambers et al., 2012, p. 10). Similarly, in relation to the WAGP, Onuoha (2008) questions the responsibility and accountability of oil companies, which tend to neglect the environmental and socio-economic impacts of the projects. He also underlines the organisational culture of *"keeping the details of development project away from the reach of host communities and civil society groups by oil multinationals"* (2008, p. 100), which contributes to tensions during project development in the context of the WAGP (vandalism, environmental damages...).

These examples show at least two things: (1) micro political economy issues matter as much as the macro economic ones¹⁷; and (2) the need for transparent, accountable and responsible ways to engage the private sector in developing further regional energy integration and cooperation. Kappiah (2014, p. 199) underlines that *“public and private interests are often in contradiction and the short-term policy goals of governments may sometimes compromise these regional objectives and endanger the sustainability of projects and the security of investments”*. All of these then represent challenges to how ECOWAS addresses regional energy policy. The institutional governance and framework for energy cooperation at regional level is sophisticated yet some crucial aspects remain absent.

The role of ECOWAS

ECOWAS has succeeded in brokering significant upstream progress through institutional reforms such as the Energy Protocol, ERERA; developing technical standards and financial mechanisms such as the Special Purpose Company in the WAPP, and dealing with cross-border gas tariff issues as in the WAGP. However, downstream, physical integration of the WAPP's power systems, which is a prerequisite for an extended power exchange among the separate blocs or national systems, still remains to be implemented (Kappiah, 2014).

While countries need to achieve a certain minimum level in adopting and implementing regional standards as a prerequisite for safe operation of the regional network, ECOWAS Member States have yet to establish regulatory institutions that will define the mandates, obligations and duties of the regional market operator. This suggests that there will be significant challenges to implement the needed liberalisation policies at the national level (Kappiah, 2014). In addition, while the WAPP seeks to harmonise the different national standards, past attempts to interconnect countries have sometimes been deadlocked because neighbouring countries could not reach compromises on differing standards (Senanu, 2009).

The financial capacities of the ECOWAS Commission and Member States are also quite limited - most funds for project design and implementation (taking place at national level) actually come from donor agencies and development partners. Finally, the fact that heads of state at ECOWAS are continually changing and lack of trust between ECOWAS member states are said to be a factor leading to non-continuity in regional policy implementation (Agbodo, 2016).

On the other hand, when Member states were committed to engage in a regional approach to energy development, this led to impressive results: WAGP negotiations were difficult because they involved countries with very different political experiences and orientation. At the same time, with the president Eyadema of Togo serving twice as Chairman of ECOWAS (1977/78 and 1999), Ghana's President John Agyekum Kufuor being the Chairman of ECOWAS during 2003–05, (i.e. the critical years during which the key agreements between the four countries were negotiated and signed), they were deeply involved and committed to ECOWAS, which was a sound basis to foster the WAGP agreement. The common commitment to ECOWAS was clearly instrumental in the successful conclusion of the agreements (World Bank, 2014).

The influence of donors funding: politics or investment?

According to Pineau (2007), lack of national and African ownership is a critical factor in explaining some of the WAPP's shortfalls. He argues that many WAPP sub-projects have been designed and implemented by non-African entities, and often take insufficient account of the local political, technical and social realities of the energy sector in West Africa. Furthermore, these projects are primarily

¹⁷ Such example of macroeconomic issue can be found in the WAPP and the tensions between Nigerian interests and Ghanaians (see below).

funded by donor agencies and development partners, allowing West African governments to feel less involved than if it was their own resources at stake: *“they simply feel being [like] “agents” with diffuse responsibilities”* (Pineau 2007, p. 12). This influence remains also visible looking at the other ECOWAS energy agenda pillars such as the ECREEE where *“the answer to which states are key players in the creation and ongoing support of ECREEE is not dominant regional powers (Nigeria and Ghana) or former colonial powers. The answer appears to have more to do with identity as a supporter of renewable energy [(Spain, Austria and Brazil)], which is likely also linked to commercial opportunity, as well as an ongoing relationship with the West African states”* (Hancock, 2015, p. 111).

The US “Power Africa” initiative, while contributing to better access to electricity in Africa, also conveys some of their own interests. In times where US policies encourage domestic oil production and shale gas exploitation, thus causing a likely decrease of crude oil imports, US oil and gas companies need to find new markets to sell their products. It therefore makes sense for the US to support Africa’s use of hydrocarbons particularly for power production (Adam, 2012). This could in turn support the WAPP in attracting further investments and increasing energy trade in the region at least in the short and mid term. In the long term, however, the region will need to shift its consumption from expensive oil sources to cheaper alternatives including gas, hydropower and renewable energy.

Finally, Bossuyt (2015) notes that the emergence of China and other emerging powers such as Brazil or India, whose foreign policy in the region is based on procuring commodities, especially minerals and oil, may undermine ECOWAS efforts towards regional energy policy as they work on a bilateral basis with supplier countries. In the case of China, Adam (2012, p. 5) notes that their policy of “Infrastructure loans for natural resources” is very expensive for some resource rich countries as a “result of delays in loan disbursements whilst natural resource supply to China increases”.

Other factors

Countries in conflict perform worse in terms of infrastructure development than countries at peace (Eberhard et al., 2011). War has seriously damaged power infrastructure in Liberia and Sierra Leone. Political instability is also a major constraint for the private sector investment. Global fluctuations in the price of crude oil also affect countries like Senegal, The Gambia and Guinea-Bissau (Gnansounou, 2007; World Bank, 2015), all of which rely heavily on oil to produce electricity. Security is also an important determining factor for the location of electricity interconnections.

3. On the political interests of member states

Analysing the dynamics within member states, their individual strategic interests, and how these influence cooperation is key to better understand why things are the way they are in ECOWAS energy integration. Understanding member state interests and incentives allows us to go beyond the conventional assumption that *“African governments lack the political will and commitments to execute cooperative initiatives coupled with poor enforcement mechanisms and weak institutions”* (Eyita, 2014, p. 4).

One key aspect affecting the regional energy agenda is the differentiated access to energy sources at member state level: states are not equally endowed with resources or energy production capacities. Likewise, their energy needs vary depending on their population and level of development. In practice, these differences mean that some states - notably those with greater energy capacities, have leverage over others in the region: in the context of ECOWAS, Nigeria and Ghana, and to a lesser extent Côte d’Ivoire are the dominant players.

Starting from the assumption that states participate in a regional cooperation initiative only if the benefits outweighs the costs, this section aims to understand better the incentives and constraints of ECOWAS member states in contributing to regional objectives in the energy sector.

WAPP

Both net exporters and importers can benefit from regional cooperation and energy integration through the WAPP. Relatively large power distribution in Nigeria, Côte d'Ivoire, and Ghana for example would benefit from investments to improve security of supply as well as economic exchange of short-term power. The WAPP could also contribute to significantly reducing power generation costs. For example, it is estimated that Nigeria and Côte d'Ivoire could reduce their oil thermal generation costs from 8 cents to 10 cents per kilowatt-hour to between 3.5 cents and 4.5 cents per kilowatt-hour.¹⁸ f

Energy demand in Benin and Togo on the other hand is too small to justify the large-scale (and expensive) power plants that could be developed within their borders (Soumonni, 2010). The WAPP is therefore an opportunity to import electricity in a reliable, efficient and safe way. Further, more economical electricity could be transported to energy-scarce, landlocked countries and disconnected areas in Mali, Burkina Faso, and Niger, as well as to the inland areas of coastal countries, which currently rely on off-grid diesel generator systems.

However, progress will remain limited as long as national priorities do not converge with regional ones. The Coastal Transmission line Backbone (CTB) project to connect the energy networks of coastal countries is a case in point. Implementation is said to be very slow because the Communauté Électrique du Bénin has held up implementation of the Tema (Ghana) Mome-Hagou portion of the 330KV CTB (Eyita, 2014). In the absence of a steady (contractual) supply from import sources, the countries appear to be more focused on securing other sources of supply instead of investing in the transmission line capacity (Eyita, 2014). This lack of convergence between the WAPP objectives and the priorities of Togo and Benin has thus caused a delay in the realisation of this particular WAPP priority project.

As Eyita (2014, p. 48) explains, *"accomplishing reliable interconnection requires the expertise of engineers and economic analysis on anticipated transfer over the lines."* Building interconnections brings additional costs for utilities, and other energy producers as generators need to be adjusted to accommodate utilities elsewhere on the regional grid. Unless there is a mechanism to compensate countries that bear additional cost in adjusting their distribution capacity to include other utilities, then there may be limited short-term motivation to incur such costs.

In addition to generating further capacities, utility companies need to be assured that the necessary power-exporting infrastructures are in place so as to ensure low-risk and low-cost energy transmission. Some executives may prefer not to pursue regional opportunities because of unstable or poor socioeconomic and political factors - Benin and Togo for example reportedly suffer from this type of investment bias (Gilmartin, 2013).

Export commitments can also interfere with domestic demand, such as in the case of Nigeria.¹⁹ In the context of the WAPP priority project, a Gas Supply Agreement was agreed, with Nigeria providing gas through the West African Gas Pipeline for the 440MV Maria Gleta Thermal Power Project in Benin. However, Nigeria went through a crisis of gas supply to local power utilities in Nigeria due to its weak gas pipeline infrastructure within the country. As a result, Nigeria chose to stall the start of the Maria Gleta project - a decision based on political motivations to ensure domestic supply. This example

¹⁸ http://siteresources.worldbank.org/AFRICAEXT/Resources/AFR_Growth_Advance_Edition.pdf.

¹⁹ See more information at <http://www.nigeriaelectricityhub.com/2014/04/04/nigeria-pays-wapp-for-gas-liquidation-damages/>.

shows that limited power supply at member state's level prevents Member States from thinking regionally - or when they do, to take into account not only their own strategic interests. Second, while the efforts to coordinate and build synergies between the WAGP and WAPP are laudable, this only works if/when both programmes are reliable.

Export opportunities can also generate increases in the local price of electricity in the exporting country (Pineau, 2007). The pricing factor is one of the most sensitive aspects member states need to deal with: setting the price too low can lead to power shortages and the perpetuation of poor sector conditions; setting it too high may lead to social unrest and service delivery protests (WAPP, 2008). What is especially important to understand is that pricing is not only based on economic matters, but is very much linked to the political and social context of the countries. Therefore one can easily imagine that price convergence may also become a source of frustration, in countries with more abundant and relatively cheaper electricity (Pineau, 2007).

This also means that changing power relations and competition can impede, or indeed accelerate regional energy projects. For example, Niger imports ca 80% of its electricity from Nigeria at a reduced cost, as part of a historic deal that was meant to compensate Niger for not pursuing dam construction upstream from Nigeria's two main hydroelectric power stations. While historically, Nigeria had used its diplomatic channels to prevent the proliferation of dams upstream on the Niger river. Since 2008, it consented to the development of a series of (smaller) dams in Guinea, Mali and Niger²⁰, which will likely reduce Niger's dependence on Nigeria in the long run (see the ABN case study in this series).

The delicate question on financing, and the associated risks, costs and benefits of regional energy pooling are also key factors in determining Member State interests. The total investment requirement for the WAPP (2012-2025) amounts to over US\$26bn (Adeyemo, 2014). Considering that the ECOWAS member states cannot afford to incur this cost, there is need for external investment for project financing.

Another concern linked to collaborative initiatives is that most states wish to use aid for their own benefits rather than for regional benefits. For example, when Ghana succeeded in securing a loan to facilitate the construction of transmission lines between Ghana and Burkina Faso in the context of the WAPP, it is Ghana alone who takes on the burden of paying the loan - the incentive to invest resources into the regional grid can be offset by the possibility of others failing to meet their own end of the bargain. This often relates to political tensions and instability, adding unpredictability to the mix as in the case of vandalism in Nigeria, or tensions in Côte d'Ivoire. The energy exporting country may turn off the supply - thus causing important economic and social damages. Hence, countries dependent on electricity import may see no benefit in investing in a warring exporting country because of high cost risk (Eyita, 2014). This may have been the case in the context of the CEB, as described in the box below.

Box 2. How do these interests play out in practice?

The Coastal Transmission line Backbone (CTB) project, a subproject of the WAPP, was undertaken by key energy exporters and importers in the ECOWAS region: Ghana, Ivory Coast and Nigeria; the importers being Benin and Togo. The macro- economic and political situation among these countries puts Ghana in the lead position. Togo and Benin are small countries compared to Ghana and Nigeria hence, development is not at the same pace. The CTB project was largely a failure because it was expensive for Togo and Benin to upgrade their national transmitting capacity to match the regional generation one. That is, they had to install transmission lines and power plants that could accommodate the Kilowatts of electricity coming from the other countries through the regional grid. Due to the sluggishness of Togo and Benin in meeting their commitment,

²⁰ This is the result of a negotiated infrastructure development scenario for the Niger basin through the Niger Basin Authority (NBA).

Ghana has turned its focus to building an interconnection line with Burkina Faso while building its domestic generating, transmitting and distributing capacity.

From the above illustration, it is evident that it is in the best interest of Togo and Benin to collaborate with Côte d'Ivoire, Ghana and Nigeria to diversify their sources of energy. This is an objective the energy importers aim to achieve. But the importing countries defected in meeting their commitments because of real economic constraints. Money has been invested in building an interconnection from sub-stations in the exporting countries; this can be a waste of investment if Togo and Benin do not pull through with the agreement. In the meantime, the exporting countries have decided to 'Hunt Hare' [meaning achieve smaller energy outcome which does not require cooperation with other countries] by building their national electricity sectors to improve the quality of supply to their domestic populations.

The World Bank is a major financier of the CTB project. In a report the World Bank stated that the project deadline needs to be pushed [i.e. postponed] further by two and a half years. This shows that commitment to the project as well as shortage of funds have served to impede the success of this programme. Other contributing factors could be the unrest in Nigeria and the Ivory Coast which have swayed the attention of these governments and their respective utilities to attend to more pressing national issues. In the meantime, some of these countries have focused on improving their national utility for fear of a failed regional project leaving them wanting. Ghana has made huge capital investments in its electricity sector. This means that the source of electricity for the importing countries is uncertain in the face of recurring civil and religious strife in the supplying countries. Applying the stag hunt game shows that Nigeria defecting in its commitment to the CTB program has resulted in Ghana (another energy exporter) focusing its resources on its national energy sector and finding a new partner to share in the deal – Burkina Faso. This move leaves the Togo and Benin worse off. Togo is still grappling with energy supply as most of its energy comes from traditional biomass. The options for these energy importing countries are to find alternative supply while remaining dependent on the traditional biomass energy source.

Source: Eyita, 2014

The ambivalent role of national utilities and the private sector

National utilities can be reluctant to give up their monopoly over power distribution and transmission. As argued by Plunkett (2001, p. 9), pooling electricity regionally also means “*overcoming the natural reluctance of national utilities to give up their monopoly power in favor of a more reliable and cheaper regional electricity system.*” These structures and their leadership can be deeply entrenched in the economic and political status quo and may be difficult to convince that “electricity trading for the greater public good is more beneficial than maintaining the status quo, for their own personal gain and wellbeing.” National (public) utilities can therefore delay or block further regional energy cooperation, as this also means more competition.

Much in the same way that governments tend to favour national over regional interests, the private sector tends to prioritise short-term needs and interests, which can slow down or delay long-term structural investment in the sector. For example, because of unreliable source of power necessary to produce cement, the Dangote Group recently declared that it will shift to coal from than gas to fire its kilns, to cope with gas shortages and reduce energy costs. At the same time, Ashaka Cement, a subsidiary of Lafarge Africa is setting up the new Akko Independent Power Plant (IPP), using a coal mine in Akko Local Government Area of Gombe State, Nigeria. In this case, regional energy integration is undermined by the growing direct needs of private sector actors for secure and reliable energy supply, reinforcing nationally based approaches, which may not be in line and/or coordinated with regional or long-term national aspirations.

However sometimes private sector interests and regional energy integration can converge. The Dangote Group again recently announced that it would build a \$17bn gas refinery in Lagos, to satisfy both for local and regional demand. This investment was praised in Nigeria and Togo, and Dangote even recognised that the refinery will also “contribute immensely to solving the fuel supply challenge

in West Africa”.²¹ However, it remains to be seen how this project will land in practice (it will be operational in 2019).

4. On the areas with most traction for regional cooperation

This final section draws conclusions from the previous sections with attempts at looking to where most political traction may lie to deepen regional energy integration in the ECOWAS region.

Ghana - better placed to take the lead on regional energy integration agenda

For numerous reasons, Ghana occupies a central place in WA energy that give it a potential lead in the regional energy agenda. This is partly thanks to its geography. Ghana occupies a strategic spot, being located in the centre of Nigeria, Côte d'Ivoire, Sierra Leone and Liberia, which are key players in the energy sector. It is therefore perceived that Ghana could position itself as a hub for services and petrochemical hub of the region.²²

Further, Ghana is a potentially key regional player thanks to its stability, relative predictability and good relations with neighbouring countries. Stability and predictability are two key factors reducing transaction costs for both partner countries or private sector actors, willing to invest in energy in, through and/or with Ghana. Its good relations with its neighbours (notably Côte d'Ivoire), based on political and economic commitment (Côte d'Ivoire exports dozens of Megawatts per year to Ghana), could generate further opportunities. Both countries, with large deposits of oil and gas, plan on increasing production to export to countries such as Guinea and Sierra Leone, thus becoming a regional energy hub for the region.²³

Further, Ghana looks likely to become self-sufficient in energy in the near future. Indeed, while they used to rely on the WAGP and Nigerian gas to supplement their hydropower, Ghana has invested in new gas operations (e.g. at Sanzule in the Ellembele District in the Western Region) and a pipeline from Takoradi in the west to Tema in the East²⁴. This decision was also motivated by the disagreement on tariff prices of the WAPCo which were deemed too high²⁵.

Finally, Hon Buah - Minister of Energy and Petroleum and new chair of the West African Gas Pipeline Project Committee of Ministers has stated his aims to make Ghana the leader of the WAGP to ensure that WAPCo works effectively, thus providing a regional champion for the initiative.²⁶

Reconnecting the WAPP to the political economy realities

Regional energy integration cannot be achieved without supporting the development of national markets as precursors to a well-functioning regional integration. The state of national energy infrastructures and markets as they are today provide a limited sustainable basis for a regional network. Indeed, the gap between the current infrastructures and what is required to make the WAPP

²¹ See more information at <http://www.vanguardngr.com/2016/08/dangote-transforming-african-economy-togolese-president/>.

²² <http://www.theafricareport.com/West-Africa/electricity-ghana-and-cote-divoires-cooperation-to-fight-crises.html>.

²³ See more information at <http://pulse.com.gh/business/ghana-cote-divoire-a-new-country-ghanivoire-could-weld-together-west-africa-id4964065.html>.

²⁴ See more information at <http://www.myjoyonline.com/news/2016/October-10th/disruption-in-gas-supply-could-affect-vra-debt-repayment-minister.php>.

²⁵ See more information at <http://www.graphic.com.gh/news/general-news/decision-to-build-gas-pipeline-due-to-high-wapco-tariffs.html>.

²⁶ See more information at <http://www.ghanaweb.com/GhanaHomePage/features/Ghana-to-say-a-final-bye-bye-to-Nigeria-Gas-462324>.

a modern regional power market, is too large - both in terms of financing and technical needs. The involvement of foreign actors to compensate for this gap is not a sustainable solution, as seen in the WAPP where the lack of local ownership is highlighted as a factor impeding the development of the WAPP. Therefore the WAPP must complement regional programmes with initiatives to develop national energy markets with a view to provide private and public sector actors incentives to go regional; and foster competition. Such incentives could take the form of compensation mechanisms where the WAPP creates losers (whether these belong to the public or private sectors).

The WAPP approach needs to better reflect and integrate the interests of member states: these may be changing depending on the evolution of the sector at the regional level, affecting power relations between member states; and foster or impede collaboration between member states. In practice, this means that the list of priority projects may lose relevance over time, and thus miss opportunities to further deepen regional energy cooperation, as shown in the CTB example above. The list therefore needs to be adaptive and flexible, so as to integrate short, mid, and long-term interests of member states - this in turn would generate more local ownership, and projects that fit the political economy realities on the ground.

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