The EU and sub-Saharan Africa: An energy partnership?

by Stefan Bössner and Gerald Stang

Three features dominate energy relations between Europe and sub-Saharan Africa (SSA). First, import-dependent Europe is interested in African supplies to help meet its oil and gas needs: 28% of SSA oil exports were directed to EU customers in 2012, accounting for 8% of EU oil imports. Natural gas has been a lesser focus, with SSA accounting for only about 1% of global production.

The second theme is energy poverty in Africa. Despite the vast energy resources of the continent, many Africans still lack access to clean, affordable and modern forms of energy. Efforts to address this problem have become central to the EU-Africa Energy Partnership. The third theme, climate change, has gained relevance as a result of the EU pushing for carbon cuts and renewables development abroad, and African governments becoming increasingly worried about the impacts of a changing climate.

Building coherence between the EU's energy, development, and climate policies can help facilitate progress in all three areas. A focus on sustainability in energy – for both fossil fuel production and the development of renewable energy sources (RES) – will be central to this effort.

African resources and European needs

Europe has long sought to diversify its sources of energy imports. Although SSA remains one of the world's least explored regions, many new oil and gas discoveries continue to be made. West and central Africa dominate oil production, with Nigeria, Angola, the Democratic Republic of the Congo (DRC), Equatorial Guinea and Gabon producing 92% of SSA's oil in 2012. Recent oil discoveries will soon allow Uganda, Ethiopia, Madagascar, Kenya and Niger to join the regional oil producers 'club'. When it comes to natural gas, Nigeria is the region's dominant player: it was the world's 4th largest exporter of liquefied natural gas (LNG) in 2012. Recent discoveries off the coast of east Africa (Mozambique, Tanzania) of up to 5 trillion cubic meters (tcm) of natural gas have also put this part of SSA on the gas map, with LNG exports expected to begin by 2020.

Even as this new production comes online, however, the US Energy Information Agency (EIA) predicts that SSA will account for only 7% of growth in the world's liquid fuels production by 2040, 75% of which will come from Nigeria and Angola combined. Though such growth will be limited and not all new SSA oil

and gas output will be directed to European customers, increased production helps improve EU energy security by shifting the global supply/demand balance and increasing market liquidity – thereby reducing market tightness and subsequent volatility problems. Working with energy producers to develop favourable investment conditions, strong market frameworks and effective fiscal management is thus important for EU energy interests.

The significant corruption and governance challenges facing Africa's energy producers, especially Nigeria and Angola, remain high on the agenda for their partners in Europe. Addressing these problems in order to avoid seeing them replicated in Africa's newer energy producers, has been emphasised in EU aid programmes. Governance, in particular, has been a focal area for aid delivered through the European Development Fund (EDF) to nearly every energy producer in SSA, though rarely with an explicit focus on energy or energy rents. Expanding SSA's participation in the Extractive Industries Transparency Initiative may help ensure such efforts are supported through multilateral mechanisms. As with energy producers elsewhere, high energy rents allow governments to resist external pressures and set their own agendas – but these rents also correlate with corruption and waste problems.

For the 2007-2013 period, the only producer in the region targeted with an energy-related focus from the EU aid programme was Nigeria, which included energy security as part of the trade and regional integration focal area. Despite having some of the world's largest oil and gas reserves, 82% of energy consumption in the country comes from traditional biomass and waste. Nigeria thus exports huge amounts of oil and gas but is unable to provide electricity to its citizens. As the country works to improve its governance, EU interests in buying Nigerian energy resources may therefore clash with Nigerian domestic interests in lighting homes and powering factories. A well-governed energy sector could allow Nigeria, as well as its fellow exporters, to earn more money from exports and to channel a higher share of production towards domestic needs. Getting this balance right will not be easy, however.

Poverty and energy poverty

The energy sector is poorly developed across much of Africa: the whole continent's primary energy demand in 2010 was one-third of that of the US. The International Energy Agency (IEA) predicts that energy consumption will continue to grow slowly: by 2035, Africa is expected to account for only 6% of global energy demand, despite accounting for 21% of the global population.

Primary energy demand (million tonnes of oil equivalent)

	2010	2020	2035
Africa	690	819	984
Europe	1837	1829	1847
USA	2214	2260	2187
China	2416	3359	3872
India	691	974	1516

Source: IEA, World Energy Outlook 2012, new policies scenario

With such low aggregate energy consumption, it is no surprise that a huge share of SSA's population currently lacks access to modern forms of energy. In 2010, 589 million people in the region did not have electricity – a figure the IEA predicts may reach 655 million by 2035. The installed power capacity of SSA stands at roughly 80 GW (50% of which is in South Africa) – less than the installed capacity of Spain. This energy poverty has a profound impact on poverty reduction strategies. Even though the portion of the population living below the UN poverty line of $1.25 per day has decreased in relative terms (from 58% in 2000 to 49% in 2010), more people in SSA live under this threshold today (413 million) than in 1999 (376 million). Although the African Development Bank calculated that SSA is on track to miss five of the eight Millennium Development Goals (MDGs) by 2015, it also estimates that making electricity universally accessible would raise African GDP growth by between 2% and 3% and business productivity by some 40%.

These challenges help explain why the EU has offered to work closely with Africa on energy and sustainable growth. When EU and African officials met during the 2nd High Level Conference of the EU-Africa Energy Partnership in February 2014, they reaffirmed the 2020 targets set at the previous meeting, namely:

- bringing modern and sustainable energy to an additional 100 million Africans;
- doubling the capacity of electricity interconnections within Africa and between Africa and the EU;
- doubling natural gas use in Africa;

- doubling gas exports to the EU;
- building 10,000 MW of new hydropower facilities, 5,000 MW of wind power capacity and 500 MW of solar energy capacity, and tripling the capacity of other renewables;
- improving energy efficiency in Africa in all sectors.

Apart from the call to double gas exports and the ambitious goal of increasing electricity interconnections to the EU (the grandiose plans of the last decade have sunk under the weight of high costs), the list is focused on helping Africa provide energy – and in particular clean energy – to its citizens. DG Energy has highlighted the goal of improving access to sustainable energy for developing countries, with efforts targeted at helping reform legal and regulatory frameworks, catalysing investment in both small and large scale generation and interconnections projects, and mainstreaming energy in all EU development policy instruments.

As many African nations move up the development ladder, the importance of providing energy in an affordable and sustainable manner for EU-Africa relations will grow. Economic trends in SSA have been positive during the past decade, with GDP increasing by an average of 5% between 1998 and 2008. Africa also proved relatively resilient to the global economic crisis, with growth rates averaging 2.6% from 2009 to 2011 and returning to 5% in 2012 and 2013. This growth has been supported by both robust domestic demand and rising exports, and the World Bank estimates that this positive trend is set to continue over the coming years. Between 2002 to 2012 the value of merchandise and mineral exports (including oil) also increased from $156 billion to $688 billion. While the EU remains the most important trading partner for Africa as a whole, however, China has become the most important trading partner of SSA. Again between 2002 and 2012, the share of SSA's exports going to the BRIC countries (Brazil, Russia, India and China) rose from 9% to 36%, nearly matching exports to the EU and the US combined.

Foreign Direct Investment (FDI) inflows have also been on the rise, going from $10.7 billion in 2002 to $38.5 billion in 2012. While the majority of FDI inflows still come from advanced economies, the BRICS (including South Africa) invested 4% of their FDI in Africa between 2009 and 2011, higher than the 3% of the EU and US respectively. Infrastructure investment, in particular, is increasingly financed by non-European actors. Although the EU remains the continent's largest aid donor (€22.7 billion in the 10th EDF framework alone), China had overtaken the World Bank as the leading funder for infrastructure projects in SSA in 2010. Beijing focused its investments in resource-rich countries like Angola, Nigeria, Sudan, the DRC and now Tanzania, where it is funding the planned $1.2 billion gas pipeline from its promising gas fields to the capital, Dar-es-Salaam. This level of investment signifies an expectation that Africa will continue to grow quickly, and that this growth will lead to both expanded energy development and increased greenhouse gas emissions.

From climate talks to sustainable projects

International climate negotiations have long pitted developing countries (focused on providing access to affordable energy to their populations) against developed countries, responsible for most of the greenhouse gases emitted to date but leading the shift to greener energy sources. The Joint Africa-EU Strategy Action Plan for 2011-2013 called for work to strengthen African capacities for adaptation and mitigation; to work towards common positions on climate change; and to reinforce coherence between the United Nations Framework Convention on Climate Change (UNFCCC) negotiations and the EU-Africa partnership. Much work is still needed to achieve progress on this agenda, as European and African approaches to climate negotiations and emissions cuts remain divergent.

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The developed world has promised significant investments in climate change mitigation and adaptation projects for developing countries. As the developing world's energy demand continues to boom, helping to ensure that such demand is met in a low-carbon, sustainable manner will be an important factor for directing investment. African states able to develop clean energy without breaking the bank will likely be more open to tougher emission restrictions in future climate talks.

The EU is a major supporter of the UN's Sustainable Energy for All initiative, which calls for universal access to modern energy services, doubling the rate of improvement in energy efficiency and the share of renewable energy in the global energy mix. The EU has also enshrined the concepts of sustainable development and access to clean energy in the Commission's Green Paper on EU development policy [COM (2010) 629] and the 'Agenda for Change' [SEC (2011) 1172]. The Union has taken several measures, including the launch of the EU Energy Initiative (EUEI), to ensure those policy goals are implemented.

In Africa, as elsewhere, the development of clean energy will require good investment frameworks and cost-benefit analyses that take into account both developmental and environmental requirements.

In 2010, the World Bank estimated that South Africa – the most industrialised country in SSA – has the potential to develop renewable energy production equivalent to 1.3 times the existing consumption; for Benin, Sierra Leone, Namibia and Kenya, the potential was estimated to be 10 to 12 times. With RES technologies becoming more mature and price-competitive, particularly in the solar sector, renewables potential continues to grow. The International Renewable Energy Agency (IRENA) showed that in several east African regions, the levelised cost of energy (LCOE) for fossil fuel-based power generation is higher than for hydro, wind, biomass and geothermal options. Some countries, such as Tanzania, are already experimenting with large scale RES deployment using feed-in tariffs and other support schemes. The European Commission's Joint Research Centre (JRC) calculated in 2013 that 34% of the rural population in SSA could be served most cost efficiently by rapidly deployable mini- and off-grid photovoltaic solar power. The study showed, however, that grid extension to connect power users to central power supplies is likely to remain the most efficient solution in 39% of the regions studied – and will play a vital role in fostering economic growth.

Another source for sustainable electricity production can be found in the region's vast, largely untapped hydro potential (only 20% of SSA's estimated potential has been developed). Much of this lies in two countries: the DRC and Ethiopia. Expansion of the dam at Inga falls in the DRC alone could potentially yield 40 GW of electricity, increasing SSA electricity capacity by 50%. The backlash over the $4.7 billion Ethiopian Renaissance dam project, however, highlights the investment, land access and water management challenges facing hydro projects.

Overall, RES deployment has to be carefully adapted to geographic, demographic and developmental predispositions, striking a balance between large infrastructure projects that harness economies of scale and remote off-grid solutions that can provide energy for rural Africans.

Looking ahead

With the 4th EU-Africa Summit approaching and negotiations on Economic Partnerships ongoing, the EU has all the cards it needs to strengthen energy relations, foster sustainable growth in Africa, and make progress on its own long-term energy security. Supporting fossil fuel exporters in good governance and resource management practices – i.e. pursuing a balanced and sustainable development of fossil fuel resources – can help countries strengthen their energy management and reap both external and domestic benefits.

In addition, European technical and legal assistance could provide essential arrows in the region's quiver to confront future energy and climate change challenges. The need to face up to climate change may also point to appropriate ways to strike the balance between supplying energy to Europe and reducing energy poverty in SSA. Helping Africa onto a cleaner growth path than the one followed by the West and China can pay dividends not only for the climate but also for EU energy security, as reduced demand for fossil fuels from Africa will impact international energy markets and make more affordable those fossil fuels that the EU does choose to burn.

The turn towards sustainable energy is not only a political ambition but can also be seen as an economic necessity. The EIA estimates that sub-Saharan countries spend more on oil imports than they receive in international aid. And through its own mixed efforts in pursuing sustainable energy, the EU has gained unmatched experience in surmounting the technological, social and economic obstacles to improving energy efficiency, deploying RES and cutting carbon emissions.

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