www.eedadvisory.com

September 2014
14-Q3EA

Energy Access Review

Renewable Energy Feed-in Tariffs (FITs) and the changing electricity generation landscape in East Africa

In June 2014, Tanzania signed a cooperation agreement with General Electric (GE) and Symbion Power to develop a 400MW gas fired power plant in Mtwara. The discovery of vast offshore gas reserves presently estimated to be upwards of 40 trillion cubic feet (tcf) is rapidly changing the energy outlook of the country and similar but larger electricity generation projects are to be expected. Current proven reserves according to the Ministry of Energy and Minerals, are expected to rise to 200 trillion cubic feet (tcf) by 2016[2]. This will place Tanzania among the top ten countries by proven natural gas reserves together with Qatar, Saudi Arabia, Iran, Nigeria and Russia[3]. The country is on course to becoming the largest economy in East Africa by GDP. Across the border in Kenya, the Ministry of Energy and Petroleum awarded a tender to develop a 960MW coal fired power plant to a consortium led by Gulf Energy and Centum in September 2014[4]. 960 MW represents more than 50 percent of the country's current national installed capacity and will, at least in the interim, switch the country's main source of electricity from a renewable to non-renewable base. It is expected that the plant will be powered by coal from South Africa as the country looks to develop the Mui coal basin in Kitui and shift supply to local sources. Both countries have grid electrification rates of less than 30 percent and are desperate to improve access to modern energy. (Continue to pg. 2)

INSIDE THIS ISSUE

"Even the United States with its Silicon Valley innovation, vast natural resources and sophisticated Wall Street financing tools, still generates one out of every two kWh of electricity from coal."

[1] Reuters News Agency report on 21st June 2014 available here.
[2] MEM (2014), Press statement issued in April 2014 by the Ministry of Energy and Minerals of Tanzania. The statement confirms that 16 international energy companies are operating in Tanzania including British Gas, Statoil, Petrobras, Royal Dutch Shell, Exxon, among others.
[3] CIA (2013), Country comparison – Proven Natural Gas Reserves, The World Fact Book 2013-14, Central Intelligence Agency, Washington.
[4] Centum-Gulf (2014) Press statement issued on 2nd September 2014. Centum-Gulf was the winning consortium.

Some have argued that energy deprived countries do not have the luxury of choice when prioritizing energy sources on any other metrics apart from affordability and reliability. It is instructive that the top ten largest economies by GDP – developed and developing (save for Brazil) still depend on non-renewable sources for a larger portion of their electricity mix in spite of their technical and financial resources. Even the United States with its Silicon Valley innovation, vast natural resources and sophisticated Wall Street financial solutions, still generates one out of every two kWh of electricity from coal[1].

In this review we offer a few reasons why it is increasingly attractive to governments in the region, and other developing regions of world, to take this approach in spite of its impacts on climate change. But even more important, we maintain that this is not a deliberate move to non-renewable energy sources but simply an embrace of affordable and reliable sources of electricity - renewable or otherwise. We briefly discuss the evolution of the Renewable Energy Feed-in Tariffs (FITs) and their diminishing role in the rapidly changing landscape of East Africa's electricity generation matrix. We conclude that the notion of renewable versus non-renewable electricity generation sources is self-defeating within the development narrative.

A feed-in tariff (FIT) is both a market and policy instrument declaring an intention to purchase electric power (kWh) over a long period (typically 10-25 years) at a predetermined rate of payment. FITs not only provide price points but also guidance on purchase obligations, modalities of dealing with escalating costs,

In additional to actual generation projects feeding into the grid, FITs have created a new and innovative sub-sector with multiple global and local benefits.

currency fluctuation, eligible project sizes, transmission/interconnection arrangements among others. Feed-in tariffs are supplemented by other instruments including power purchase agreements (PPAs) and various forms of risk mitigation instruments which provide bankable assurances to investors. There are three main methods of determining the electricity tariff offered: (i) actual levelized cost of energy generation, (ii) avoided cost relative to most likely alternative or perceived value of renewable energy and (iii) auctions or bidding results. Auctions and bids are unique FITs as the tariff is offered by sellers as opposed to the purchaser[2].

Overview of FITs in Tanzania, Kenya and Uganda

Uganda was the first country in Sub Saharan Africa (SSA) to enact a FIT policy in 2007. This first version would only cover biomass (bagasse cogeneration) and hydro power. In January 2011, a new tariff structure based on levelized cost of electricity production was released. This was supported by the Global Energy Transfer Feed-in Tariff (GET FIT) subsidy program which was officially launched in the second quarter of 2013. The main purpose of the program was "to fast track a portfolio of 15 small-scale projects with a cumulative installed capacity of approximately 125 MW". 8 projects were selected during the first call. These would add

[1] EIA (2014), Annual Energy Review, Electricity Net Generation: Total (All Sectors) Energy Information Administration, Washington, US

[2] NREL (2010) A Policymaker's Guide to Feed-in Tariff Policy Design, National Renewable Energy Laboratory, Colorado, USA

85 MW and 482 GWh production per annum to the National grid by 2015[3]. With the successful administration of the second request for proposals, 4 new projects were added onto the program. 12 projects out of the planned 15 had been so far approved, with an expected capacity of 103 MW and 600 GWh per annum.

Kenya instituted a FIT policy in March 2008 (Version 1.0). The second iteration of the FIT was released in 2010 (Version 2.0) by which time only four SSA countries had a similar policy instrument (South Africa, Tanzania and Uganda)[4]. The FIT policy was further revised in December 2012 (Version 3.0). Version 1.0 covered only three technology (wind, small hydro and biomass) options with a pass through cost shielding KPLC from any tariff costs above US¢ 2.6/kWh. Version 2.0 expanded the technology option to six including biogas, solar and geothermal for the first time. The pass through cost constitutes 70% of the FIT (85% solar PV). Both version 1.0 and 2.0 had a firm and non-firm tariff structure, an open negotiation option for the PPAs and a provision where the interconnection costs could be paid by KPLC and recovered from the payments to the IPPs. Version 3.0 differentiates solar into grid and off-grid (feeding into isolated grids), eliminates the firm versus non-firm distinction and introduces a standardized PPA from small generators (up to 10 MW) with a take-or-pay arrangement where this capacity is embedded in the system as opposed to being dispatched systematically[5]. Total capacity from all small generators should not exceed 10% of the total installed capacity. For example if the installed capacity at the time is 1700 MW, only up to 170 MW of small RE projects can be accepted into the system[6]. Connection costs are borne by the developer upfront (except in some unspecified circumstances).

In Tanzania, a FIT policy was introduced in 2009 by the Energy and Water Utilities Regulatory Authority (EWURA) for small power projects (SPPs) with a maximum installed capacity of 10 MW. Unlike Kenya and Uganda, the tariff is not differentiated based on technology, is priced in local currency (Tanzania Shillings)[7] and based on an avoided cost calculation. Avoided cost, as mentioned above, is a tariff setting method where the rates are based on the cost that the utility would incur to produce the same amount of electricity using conventional sources. Tariffs are also differentiated based on point of connection and the influence of weather on hydrology and are revised annually. Tariffs are higher during the dry season as compared to the wet seasons for example. The FIT policy is supported by a standardized power purchase agreement (SPPA) that sets a price floor and a cap to insulate the developer from sharp fluctuations. Mwenga hydro by the Rift Valley Energy Limited is considered the first project under the SPPA arrangement. It is a generation and distribution project – selling electricity to TANESCO as well as supplying 5,600 households adjacent to the production site[8]. At least three other projects are in operation including Ngombeni Power (biomass), TANWAT (biomass) and TPC co-generation (biomass) and several others in the pipeline.

[3] Electricity Regulatory Authority (2013) Official website, Media notices http://www.era.or.ug/

[4] REN21 (2010), Renewables 2010 Global Status Report, REN21 Secretariat, Paris

[5] Standardized PPA agreement introduced for the first time under version 3.0

[6] MoE (2012) Feed-in Tariff Policy on Wind, Biomass, Small-hydro, Geothermal, Biogas and Solar, Government of Kenya

[7] EWURA provides regular updates on the exchange rate against hard currencies

[8] Rift Valley Corporation (2014) available at http://www.riftvalley.com/mwenga-hydro/

The FIT programs are largely an outcome of development agencies support. In addition to actual generation projects, FITs have created a new and innovative sub-sector with multiple global and local benefits. Ubbink East Africa, a joint venture between Dutch based Ubbink B.V. and a Kenyan based company Largo Investment, was set up in Naivasha in 2009 as the first solar module factory in East and Central Africa and is an example. In spite of these successes, FITs remains on the margins of the electricity generation in East Africa and are bound to be pushed further with ongoing energy sector development. Development support has remained dedicated to advancing renewable energy technologies. The two largest climate finance sources are the Climate Investments Funds (CIF) and the Global Environment Facility (GEF). Under GEF5 [9] Tanzania, Kenya and Uganda each was allocated US$ 27.4 million, US$ 18.2 million and US$ 10.7 million respectively [10]. Tanzania and Kenya each have received US$ 50 million from the CIF in 2013 and 2011 respectively. Uganda has now been selected under the next portfolio of countries to receive CIF support and US$ 50 million has been set aside for this program [11]. These funds typically leverage other funds to create larger national programs. While it is important to state that the role of advancing the energy sector rests with the national governments, it is interesting to note that the US$ 50 million allocated to Uganda by the CIF could not pay for Angel Di Maria - a football player recently purchased by Manchester United for a reported transfer fee of about £60 million (US$ 97 million).

Ubbink East Africa is a trail blazer in the renewable energy space. Their plant in Naivasha is the first solar module factory in East and Central Africa. FITs can create a demand that can sustain such enterprises.

Figure 1: Angel Di Maria (Picture Source: Daily Mirror)

"While it is important to state that the role of advancing the energy sector rests with the national governments, it is interesting to note that the US$ 50 million allocated to Uganda by the CIF could not pay for Angel Di Maria - a football player recently purchased by Manchester United for a reported transfer fee of about £60 million (US$ 97 million)."

[9] GEF fifth replenishment cycle, 2010 - 2014
[10] Global Environment Facility official website http://www.thegef.org/gef/ . Information extracted September 2014

[11] Climate Investment Fund official website https://www.climateinvestmentfunds.org/cif/. Information extracted September 2014.

Figure 2: The Oil crisis of 1973 – Cars lining up for gasoline in Vermont, USA. Many point to this period as the trigger for research and investments in alternative (renewable) energy sources. Picture credits: Daniel Strohl

A Brief history of the renewable versus non-renewable dichotomy

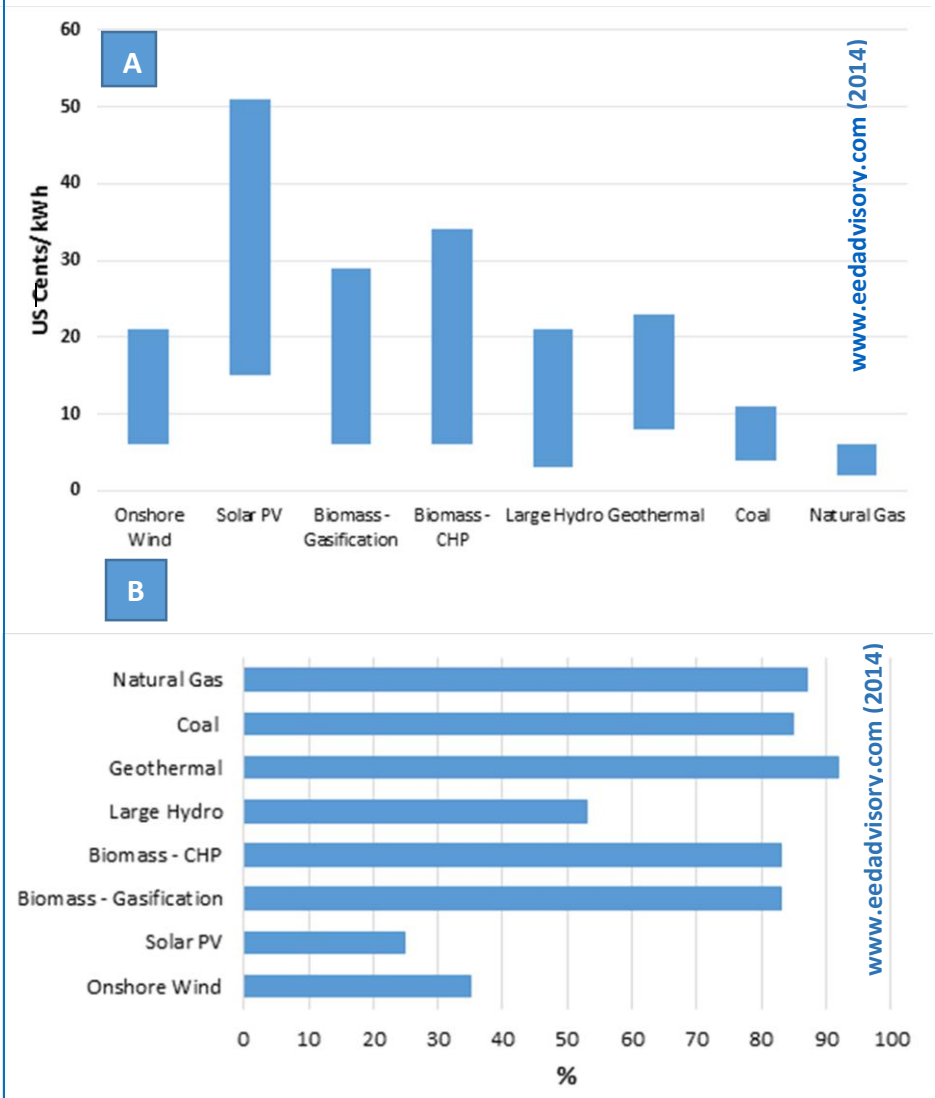
The distinction between renewable and non-renewable sources for electricity generation only emerged in the recent past. While its remains an open discussion when the term "renewable energy" was first used, it is probably accurate to point to the 1973 oil crisis as the first trigger that shifted attention to alternative energy sources[12]. The energy crisis led to greater interest in renewable energy research especially wind and solar. In 1977, the US Department of Energy launched the Solar Energy Research Institute later renamed the National Renewable Energy Laboratory (NREL). In the early 1990s with the formation of the Intergovernmental Panel on Climate Change (IPCC) and the release of the First Assessment Report, renewable energy gained traction shored by the ever increasing climate change narrative. At present, the renewable versus non-renewable dichotomy is spoken of as a given.

This dichotomy also leads to renewable energy being perceived as expensive yet large hydro and geothermal continue to offer some of the most affordable electricity prices in the world when compared on a levelized cost.

The usefulness of this dichotomy exists only while considering environmental aspects of energy generation and use, more specially – greenhouse gas emissions. In fact, a geothermal plant (renewable) is closer in operational specifications to a fossil fuel thermal plant (non-renewable) than to solar PV plants. Large hydro, like a gas fired power plant can be used for base load and has relatively high capacity factors unlike wind power plants for example. Biomass (cultivated) is similar to a coal fired plant in relation to the recurrent cost of feedstock/fuel. This dichotomy also leads to renewable energy being perceived as expensive yet large hydro and geothermal continue to offer some of the most affordable electricity prices in the world when compared on a levelized cost.

[12] Akins, J. E., (1973) The Oil Crisis: This time the wolf is here, Foreign Affairs, pg. 462 - 490

Figure 3: (A) LCOE Spread/Technology, (B) Maximum Capacity Factors/Technology



Data Sources:

IRENA (2014), Renewable Power Generation Costs, International Renewable Energy Agency, Abu Dhabi, UAE

EIA (2012) Estimated LCOE, Energy Information Administration, US Government, Washington DC

NREL (2010), Cost and performance for modelling electricity generation technologies, National Renewable Energy Laboratory, Colorado, US

Comparing renewable energy options

Cost, reliability and more recently impact on environment are key decision factors that determine national policies.

Cost attributed to a type of technology is often discussed on the basis of the installation cost ($/W installed) or on levelized cost of electricity (LCOE) – see figure 3. In layman terms, installation cost is the price tag of installing a generation unit equivalent to 1 watt (figure 3A). In other words, a 100 MW (100,000,000 W) plant costing $200 million has a cost of $2/W installed.

Levelized cost of electricity is the price tag of generating a unit of energy (commonly in kWh) calculated over the useful life of the plant. This includes both the installation cost and recurrent operation costs. Levelized costs varies significantly even within a family of technologies like hydro power. Small hydro (< 100 kW) is extremely different in terms of capacity factors, installation cost and levelized cost when compared to large hydro (> 100 MW).

So if the 100MW plant above will generate 11 billion kWh over its lifetime while incurring operation costs of $20,000,000, then the LCOE is $0.02/kWh ([installation

cost = $200,000,000 + operational costs = $220,000,000]/ 11,000,000,000 kWh). Both units of comparison are influenced by several factors including size, brand, location, taxes, operational cost, among others. The illustrations above give a range for the LCOE for various technologies.

For this review, we use the term reliability in place of the more technical term "capacity factor". Capacity factor again in layman's terms is a measure of how many times out of a hundred times, a power plant will have the capacity to deliver the maximum rated capacity. It is denoted as a percentage value. For example, a 50MW wind farm will only generate up to the rated capacity when sufficient wind is blowing. A 100 MW solar PV park will deliver its rated capacity probably at noon on cloudless days. A coal plant, however can run as long as there is coal – save for maintenance time. Coal plants therefore have higher capacity factors than wind or solar and are therefore easy to manage. Technologies with low capacity factors are considered intermittent.

Finally, impact on environment can be measured using various metrics. The more common metrics is the "emission factor". This (again in layman's terms) is the amount, in kilograms, of greenhouse gases (GHG) generated for every unit of electricity. In other words, how many kilograms of GHG were emitted to generate a kWh of electricity? Non-renewable energy sources including coal and diesel have very high emission factors. It is easy to see how energy deprived developing countries will place a premium on affordability and reliability when selecting energy options. GHG emission is a tertiary issue. In fact, without serious commitments from developed countries to drastically reduce their emissions, efforts in developing countries will not amount to much since global warming, is a - global - issue. With developed countries less forthcoming about taking new targets under the second commitment period of the Kyoto Protocol (January 2013 to either 31st December 2017 or 31st December 2020) [13], developing countries are reflecting the lethargy. The UN Secretary General organized a high level meeting in New York in September 2014 dubbed the Climate Summit to address this issue[14]. He is quoted to have said that he is "deeply concerned about the lack of progress in signing up to new legally-binding targets to cut emissions". Unfortunately the summit was overshadowed by discussions on the Ebola outbreak in West Africa and the ISIS/L crisis in the Middle East. There is a growing restlessness among developing countries that "mitigation is failing" and perhaps all attention should now focus on building their adaptive capacity with dangerous climate change seemingly inevitable. Plus many perceive the pledged support for technology

Definitions in layman's terms

1. **Capacity factor:** A measure of how many times out of a hundred times, a power plant deliver its maximum rated generation capacity.
2. **Installation cost:** Cost of installing a single generation unit, typically equivalent to 1 watt
3. **Levelized cost of electricity:** Cost of generating a unit of electric energy (commonly in kWh) calculated over the useful life of the plant. This includes both the installation cost and recurrent operation costs.
4. **Power purchase agreement:** Contract between an energy generator and an energy buyer outlining the terms of the sale.

[13] Second commitment period as defined by the draft decision, "outcome of the work of the ad hoc working group on the further commitments for Annex 1 parties to the Kyoto protocol at its sixteenth session". Further details available here.

[14] UN Climate Summit, September 2014. Official website http://www.un.org/climatechange/summit/

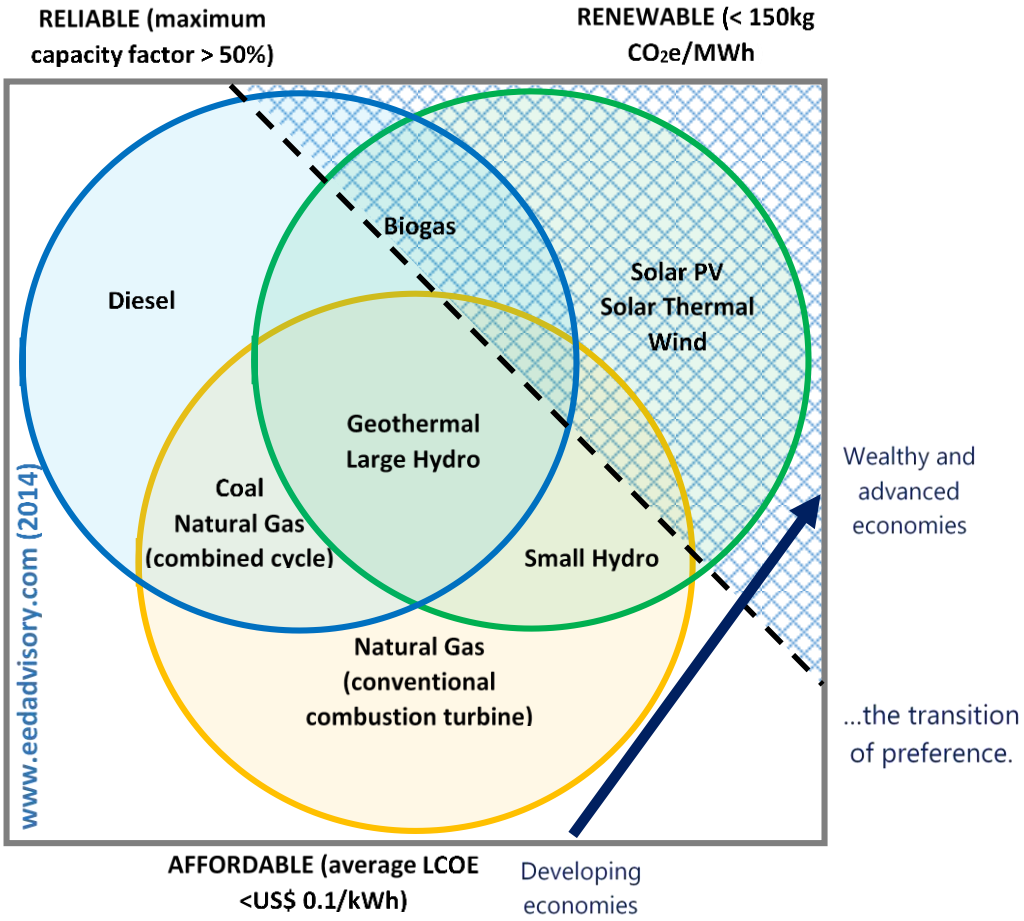
transfer, adaptation and mitigation support from developed to developing countries as wanting and waning. Simone Borghesi, a leading climate change commentator and a Professor at the University of Siena see this consistent failure to meet pledges as "the behavior of a jumper in a pole vault competition who keeps on raising the height of the pole aiming at a world record although he missed even the initial attempts at low levels".

Conclusion

Pushing renewable energy among energy deprived countries only for the sake of green credentials is akin to lecturing a starving person on the need to watch their cholesterol intake. There are cases though that an energy source has all the three elements. Examples include geothermal and large hydro, although large hydro projects are now threatened by the projected long-term impacts on precipitation due to climate change.

Figure 4 below provides a stylized depiction of different electricity generation sources based on affordability, reliability and impact on environment (emission factors). The cut off mark for affordability, reliability (capacity factor) and impact on environment (GHG emission factor) is US$ 0.1/kWh, 50% and 150kg CO_2e/MWh respectively. In a business as usual setting, affordability and reliability remain the key determinants of choice for grid-tried generation options. Unless there is significant

Figure 4: Stylized depiction of the different electricity generation sources



Data Sources:

IRENA (2014), Renewable Power Generation Costs, International Renewable Energy Agency, Abu Dhabi, UAE

EIA (2012) Estimated LCOE, Energy Information Administration, US Government, Washington DC

NREL (2010), Cost and performance for modelling electricity generation technologies, National Renewable Energy Laboratory, Colorado, US

MoE (2012), Feed-in Tariff Policy on Wind, Biomass, Small-hydro, Geothermal, Biogas and Solar Resources Generated Electricity, Government of Kenya, Nairobi

EWURA (2009), Guidelines for development of small power projects in Tanzania, Republic of Tanzania, Dar es Salaam

external support, it is highly unlikely that energy deprived developing countries will focus beyond the black dotted line in the illustration. This is in reference to grid-tied generation options. The same may not always apply for decentralized solutions including institutional based and household energy solutions, especially for rural and remote areas.

There is need to move away from the renewable energy versus non-renewable energy dichotomy in the context of development. Development agencies have been promoting clean energy technologies while developing countries understand the language of affordability and reliability – the two need not be mutually exclusive as some clean technologies are also affordable and reliable. A rigid push for just clean technologies at all costs will inevitably achieve modest successes. The shift to reliable and cost-effective energy sources in East Africa, green or otherwise, is only bound to expand. FITs as currently constituted, support small projects, typically less than 10MW in an environment that craves larger projects that can deliver quickly and at scale. This is a key technical constraint that is difficult to address because electricity utilities can only integrate a certain proportion of intermittent generation capacity into their mix without resulting in grid instability[15]. With large thermal plants lined up to supplement power generation in Kenya and Tanzania, and with potential for export to landlocked countries like Uganda, Burundi and Rwanda, promotion of renewables through FITs could be relegated to the margins of the electricity sector. Unless of course, the renewables are also reliable and affordable.

Development agencies have been promoting renewable energy technologies while developing countries understand the language of affordability and reliability – the two need not be mutually exclusive as some clean technologies are also affordable and reliable. A rigid push for just renewable energy technologies at all costs will inevitably achieve modest successes.

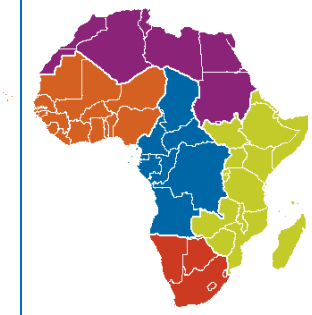
[15] This applies mostly to solar PV and wind as other renewable energy technologies have higher capacity factors.

Third Quarter 2014 Energy Access News Highlights

- **TANESCO to be unbundled by 2017**: The Ministry of Energy and Minerals, *Electricity Supply Industry Reform Strategy ad Roadmap 2014-2025* proposes, among other things, the unbundling of the state utility TANESCO by 2017. TANESCO will be floated on the local stock exchange with the Government retaining at least 51% of the shareholding. In the preparation, the Government plans to inject about US$412 million to offset TANESCO's debts.
- **Continental acquires stake in Ruaha Power**: Continental Energy Corporation acquires 42.5% stake in Ruaha Power Company. Ruaha is a renewable energy power developer based in Dar es Salaam that seeks to develop small to mid-sized power projects as an IPP as well as developing and operating mini-grids. The company is currently developing a solar PV-diesel hybrid Mini-Grid at Malolo and a biomass-diesel hybrid Mini-Grid at Ulelingombe, both villages in central Tanzania. It is also conducting a feasibility study on, a 25MW development of grid-connected generation capacity at potential run-of-river hydropower sites on Tanzania's Lukosi River.
- **Online Mining Cadastre Transactional Portal**: Tanzania launches the OMCTP which is a public facing mining cadastre geo-portal that will allow stakeholders to apply for mineral rights, maintain their existing rights, submit reports and production returns electronically and undertake online payments by using mobile phone money payment modalities or plastic (VISA/MasterCard).

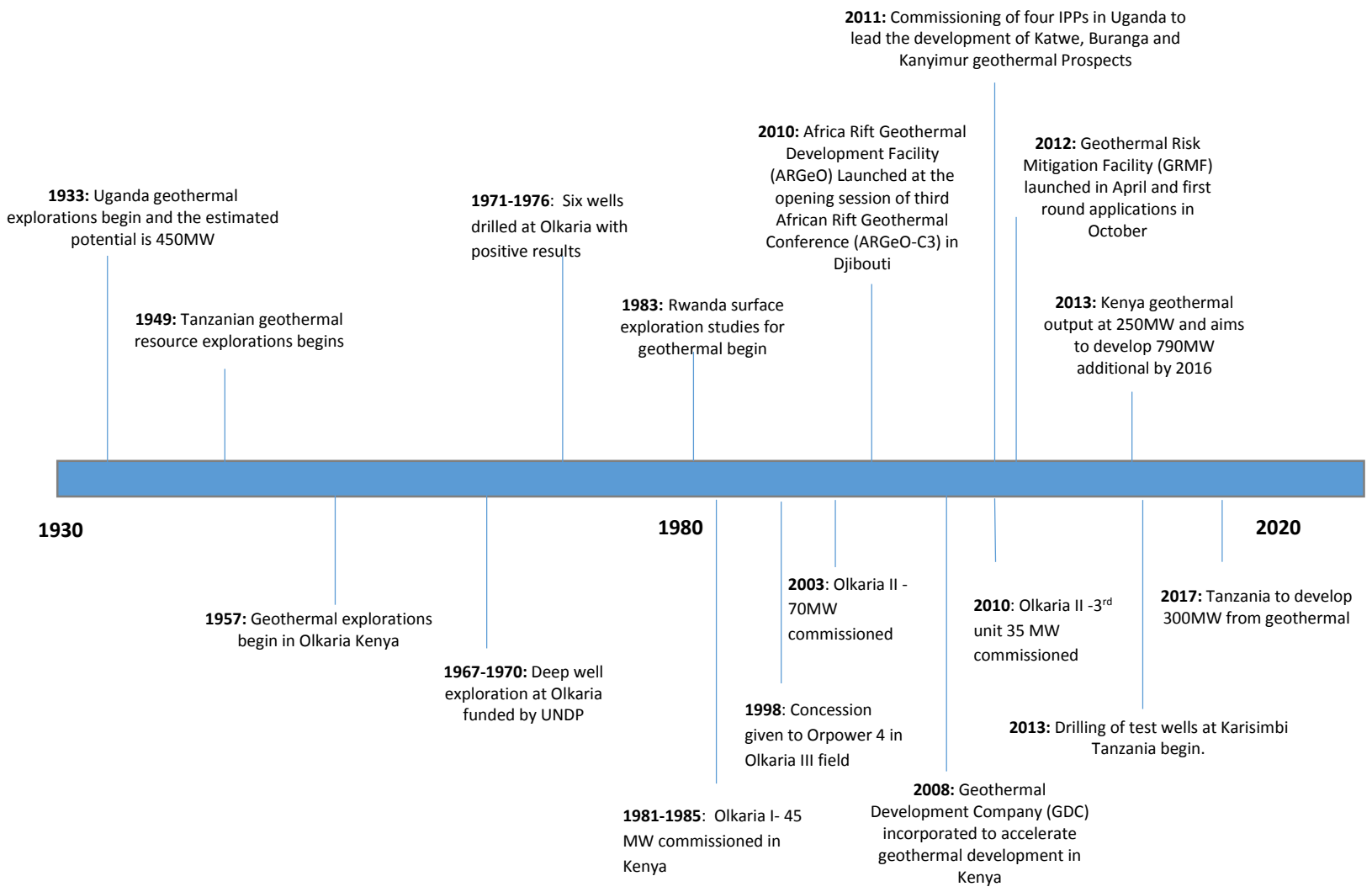
- **960MW coal fired power plant tender issued**: A consortium led by Kenyan Companies Gulf Energy and Centum Investments, together with Sichuan Electric Power Design and Consulting Company Limited (SEDC), Sichuan No. 3 Power Construction Company (SEPCC) (both subsidiaries of Chinese energy giant, Power China) and China Huadian Corporation Power Operation Company (CHD) was awarded the bid amid controversy. Losing bidders have indicated intentions to challenge the award citing irregularities.
- **Tullow oil announces successful results:** Tullow Oil Plc announces the successful results from a series of exploration, appraisal and testing activities conducted in Block 10BB and 13T onshore Kenya. Based on this and other results, the Ministry of Energy and Petroleum now estimates the country's oil reserves to be 600 million barrels up from 300 million.
- **40 MW of wind expected in 2015:** Bluesea Energy Limited, a Nairobi based company, announces that it will begin producing 40 MW of electricity from wind in the second half of 2015. The electricity will be sold to the national grid through a power purchase agreement with Kenya Power.

- **500 billion cubic feet of natural gas find**: The Energy and Mineral Development Minister reveals the discovery of 500 billion cubic feet of natural gas. This is an additional to the recent findings of more than three billion barrels of oil. It is now estimated that Uganda has more than 6.5 billion barrels of commercially viable oil. The gas reserves were found on the Albertine Rift which is the western branch of the East African Rift Valley, covering parts of Uganda, the Democratic Republic of the Congo (DRC), Rwanda, Burundi and Tanzania. It extends from the northern end of Lake Albert in Uganda to the southern end of Lake Tanganyika in Tanzania.
- **Power connection loan scheme**: The Minister of State for Energy Hon. Simon D'Ujanga, launched a Power Connection Loan Scheme for consumers in the West Nile Region, on Thursday August 28, 2014 at Arua Public Primary School in Arua District. The scheme will enable prospective electricity consumers in the West Nile Region to acquire loans to meet the cost of wiring their houses/premises, making power connections and where necessary converting from diesel-operated systems to hydroelectricity-run systems. The West Nile Rural Electrification Company Ltd (WENRECo) is implementing the pilot scheme in partnership with Centenary Bank and Uganda Energy Credit Capitalization Company (UECCC). The loans given to the consumers will attract an interest of 15% and will be payable over a maximum period of two years.



- **Africa's largest power plant (6,000 MW) on course**: Ethiopia will begin generating electricity within 18 months from what will be Africa's largest power plant. The Grand Ethiopian Renaissance Dam hydropower project will supplement local capacity and sell excess electricity to Sudan, Djibouti and Kenya. Ethiopia is also in discussions with Yemen and South Sudan.
- **138 MW wind farm completed**: Globeleq, the leading private power generation company in Africa has celebrated completion of another of its renewable energy projects in South Africa, the 138 MW Jeffrey's Bay Wind Farm located between the towns of Jeffrey's Bay and Humansdorp in the Eastern Cape. With planned annual production of 460 GWh, it is expected Jeffrey's Bay will avoid production of 420,000 tonnes of CO_2 per year and provide a source of renewable electricity for nearly 100,000 average South African households.
- **Ghana load-shedding blamed on inconsistent gas supply**: The Electricity Company of Ghana has released a load-shedding schedule. Inconsistent supply of gas from Nigeria has led to the interruptions.
- **Conferencing highlights**: Various Energy Conferences were held within the month of September in the continent. These include: i) The PV Project Development Africa 2014 Conference took place on Sept 9th-10th in Johannesburg, South Africa; ii) The Argus Africa LPG 2014 Conference took place in Cape Town, SA on Sept 16th-17th; iii) The inaugural Rwanda Mining and Energy Conference and Exhibition was held in Kigali, Rwanda on Sept 24th-25th .

The geothermal appeal in East Africa: Eighty years in the making



In the Next Issues of Energy Access Review

- Tracking the grid: A discussion on the transmission and distribution networks and options in East Africa
- From Berlin (COP 1) to Warsaw (COP 19): Snapshot of the nineteen years of climate talks and what it means for energy access in the region.
- NAMAs in Numbers: Counting progress through Nationally Appropriate Mitigation Actions (NAMA)
- Plus the regular roundup of news on energy and environment from the region

Citation: EED Advisory (2014) *Energy Access Review*, Energy, Environment and Development Advisory, Publication number; 14-Q3EA, Nairobi, Kenya.

Contact us: Direct questions and comments to newsletter@eedadvisory.com.

Address: 6 Nas Court, Milimani Road, Nairobi |**Telephone**: +254 (20) 257 4927/ +254 (20) 524 9705
URL: www.eedadvisory.com |**Email**: contact@eedadvisory.com |**Twitter**: @eedadvisory |**FB**: EED Advisory