

By LeAnne Graves, Editor

## ENERGY POLICY Trial and Error

*Navigating the area of renewable energy legislation is tricky, forcing legislators to look to the past to gain a better insight to the appropriate measures to catapult the industry.*

As the renewable energy sector continues to grow, the need for functioning regulatory provisions becomes more prevalent. Maybe the best way to look toward the future of renewable energy is to examine the regulatory processes that the conventional energy sector faced from its humble beginnings abroad and into Africa.

London streets were lit via coal in 1807, 50 years later the first kerosene lamp was developed, and four years after that in 1861 the first shipment of oil was recorded from the US to the UK. In the 1920s, oil prices peaked. Many analysts predicted supply depletion leading to the US subsidizing the sector. This incentive helped increase investment which resulted in the discovery of large new oil reserves. The following decade was the complete opposite: prices were low and continued to fall. Instead of eliminating the subsidies, the incentives remained in addition to a price-support system being enacted. Similar situations were seen in the 1950s and 1970s when the US government only reacted to the current peak and failed to amend policies to properly reflect market fluctuations.

Subsidies have cropped up around the globe to help catapult renewable energy, none so well known as the feed-in tariff (FIT). The policy mechanism was designed to accelerate the growth of renewable energy, and although not referred to by FIT, one of the earliest versions was released in 1978 under US President Jimmy Carter's National Energy Act. The five-prong act encouraged energy conservation and the development of new energy resources including wind, solar, and geothermal power; yet the US continues to face growing energy problems today.

The first known FIT made an appearance in Germany's 2000 Renewable Energy Sources (RES) Act, forcing system operators to take electricity feed-in generated from renewable energy and is currently in its third phase of existence. Phase I focused on scaling up domestic renewable energy generation which resulted in rapid declines in the cost of solar photovoltaic (PV) modules. Thus, Phase

II (2009) prompted German officials to adjust PV technologies in order to create a balance in the volume of annual PV installations. Phase III, effective in 2012, continues to see adjustments being made to make PV, wind, and biomass more cost competitive with traditional sources of electricity. The World Future Council (WFC) said that as of 2012, 65 countries implemented some form of a renewable energy FIT, driving 64% of global wind installations and 87% of the photovoltaic (PV) capacity that was installed worldwide. While the majority of these installations have occurred in industrialized countries, particularly within Europe, the African continent still has significant untapped renewable energy potential.



Source: Mauritius Commercial Bank, Ltd.

*The Mauritius Commercial Bank is the greenest building in the southern hemisphere and the first building to be certified*

### Stepping into Africa

In 2006, Kenya's parliament began hearings held in connection with the UN Climate Conference with later meetings resulting in the introduction of a private members bill to parliament in 2008. Africa's first FIT stipulated the price that the country's power utility Kenya Power and Lighting Co. should buy the electricity generated from renewable energy sources with limited financing implications.

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The government released its first revisions in January 2010 detailing that two power purchase agreements (PPAs) had been signed while negotiations were ongoing for the establishment of a PPA with another four developers. However, developers began complaining of being unable to undertake projects at the set tariff rates as a result of the increase in generating costs, equipment, and financing. The Ministry of Energy said, "It is apparent that to attract private investment, a realistic review of the tariffs needs to be undertaken, while also widening the scope to cover all the other green energy sources, particularly geothermal." And now the country is preparing its next tariff review, scheduled for 2014, to add modified tariffs applicable from 2014-2017. The first process will have SNC Lavalin carrying out a study on the country's electricity costs, with results expected to reduce power prices within the country.

Mauritius has over a period of nearly two decades developed a FIT policy on co-generated power. The country, like Kenya, proved that it is feasible that an oil-importing country has the ability to reduce its dependency on crude imports with a successful FIT in place. WFC director of Africa Ansgar Kiene said to *Alternative Energy Africa*: "The longest running program at the WFC [shows] the renewable energy FIT policy as the most successful regulation for the accelerated uptake of renewable energy to counter climate change."

## Changing with the Times

Subsidies should only be a temporary mechanism in order to get a sector off the ground or else a dependency is created which hurts the subsidized industry and a country's economy. Suani Teixeira Coelho, the Executive Secretary of the Centro Brasileiro de Referencia en Biomasa (CENBIO), said that Brazil's biofuels program, established in 1975, was subsidized but a step-down plan was implemented. Now subsidies have been taken out of the country's program altogether and the South American nation farms biofuel crops on only 1% of

its arable land, but produces about 50% of the nation's fuel needs. Gasoline in Brazil must contain 22% bioethanol which helped the country become one of the world leaders in the biofuel sector.

One country in East Africa is applying the same technique. Uganda joined the FIT ranks in January 2011, but offered a twist compared to its other African counterparts. The country geared its FIT to a plethora of sectors, including varying tariffs for hydropower projects that range from 1 MW to 8 MW, geothermal, and bagasse. The tariff also proposed capacity caps per year, less than 20 MW, for each technology; however, projects with an installed capacity greater than 20 MW were required to negotiate a tariff and PPA with the system operator on a case-by-case basis.

And two years later, Uganda followed the likes of Brazil by taking out unnecessary subsidies adjusting to decreased market prices. The country made necessary changes to its program by dropping its PV FIT as solar prices on the world market decreased; however, other forms of renewable energy will still be subsidized. Kiene said, "When tailored to the country's specific conditions and incorporated in a nation's wider development agenda the FIT policy has the potential to transform societies and economies in a tangible way."

South Africa toggled its very own FIT since 2009 only to nix it in mid-2011 for a new procurement process. The country's energy ministry determined that 3,725 MW of energy needed to be generated from renewable energy sources in order ensure uninterrupted supply of electricity. With several delays in the renewable energy FIT policy and IPP tender process, South Africa's national treasury and energy ministry decided to introduce a new financing mechanism. Instead of the National Energy Regulator of South Africa (Nersa) deciding the pre-set tariff pricing system, the energy ministry, assisted by the treasury, will conduct the procurement process.



Source: Sun Biofuels

*Brazil modeled a system suited to its biofuel needs, and the potential to do the same exists in Africa*

The Body of Knowledge on Infrastructure Regulation's Eric P. Chang said that newcomers face several obstacles when entering the market and are dependent on the already-established companies for interconnection. This leads to unfair interconnection terms. He said, "Regulatory guidance to promote fair competition is vital, and brings us back to the primary objectives of non-discrimination, cost-based interconnection pricing, and transparency."

In November 2011, South Africa announced that it had received 53 bids valued at \$12 billion to build 2.1 GW of renewable energy projects. The deadline for these companies to meet the deadline for financial close was in June with some developers securing capital from the African Development

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Bank (AfDB), Absa Bank, Standard Bank, and the World Bank's lending arm IFC. The second bid round of the program resulted in 79 new offers being announced in May 2012, as the Department of Energy received bids of about 3.2 GW of potential power.

## Regulating Energy Monopolies

But the energy sector faces another problem, if taking a lesson from the early days from the rise of the oil and gas empire. As the hydrocarbon sector began to boom in the US, one of America's first tycoons emerged capitalizing on the burgeoning industry. J.D. Rockefeller founded an oil refining company creating a near monopoly on the US' refining sector. Standard Oil Co. of Ohio came under fire after a campaign from an Ohioan senator, John Sherman, resulted in an anti-trust act. The legislation authorized the federal government to deconstruct any business that prohibited competition. Ohio's attorney general filed suit against Rockefeller and his company in 1892 resulting in the breakup of the company.

Standard Oil splintered into various subsidiaries controlled by a board of directors similar to the current situation of Power Holding Co. of Nigeria (PHCN). Nigeria is rushing to privatize its power sector because the dominating faction has been anything but successful. With the largest population in Africa, less than 40% of the Nigerian population has access to reliable electricity.

The West African country announced in mid-October the preferred bidders for 10 state power distribution firms (DISCOs) it is selling, part of its plans to privatize the country's electricity sector; however, this is not the first time the government has attempted to privatize its power industry. The government promises this recent process to be more transparent than the previous attempts. Although some of the preferred bidders lack the proper experience in the sector, they are paired with international firms with some experience in the industry.

Integrated Energy, chaired by former military ruler Abdulsalami Abubakar and partnered with Manila Electric out of the Philippines, bid the highest efficiency target for four distribution companies in Yola, Ibadan, and the two covering the commercial capital Lagos; Eko and Ikeja. Chrome Energy, which is by businessmen Emeka Offor, is part of the highest bid for assets in Enugu and Abuja. Aura Energy was the sole bidder for the Jos unit and could win by default, while 4Power Consortium, which is made up of several Nigerian companies and an Indian firm, was the only bidder for Port Harcourt. Sahelian Energy was the lead company in the only consortium bidding for the Kano firm. Sahelian has no experience in the sector.

In September the government released the names of the preferred bidders for five state power generation plants, which is also part of privatization plans. A consortium including Nigerian firm Transcorp was the highest bidder for the Ughelli Power Co, offering \$300 million, the Bureau of Public Enterprises said at a ceremony in Abuja. Geregu Power plant was won with a bid of \$132 million by a group which includes Forte Oil, a petrol firm majority-owned by Nigerian billionaire oil tycoon Femi Otedola.



*PHCN's ad highlighting Nigeria's ongoing privatization*


And most recently, Niger Delta Power Holding Company (NDPHC) advertised in local newspapers that it would divest 80% of its interest from the National Integrated Power Projects (NIPP) through a sale process to strategic investors. NDPHC said prospective bidders should register their interest by completing requisite forms online or submit them to its Abuja office on or before June 28.

Chang added, "One of the obligations of regulators is to promote an environment that best simulates a market that would exist if sufficiently competitive." He said that the ultimate goal of regulation for economic prosperity was to increase social welfare. He added, "The goal of regulators is not necessarily to eliminate monopoly operators; but rather, to ensure that if only one (or a small number of) operators control the market, they are the ones that are most cost-efficient."

## Lessons from Oil

A better path to the future is to look at the past, and in this case, the hydrocarbon sector is a great example of the do's and don'ts. One prime example is to look at Algeria's windfall tax implemented back in 2006 which taxed excess profits upwards from 5-50% on profits every day that Brent crude averaged over \$30 per barrel. The country's oil exports began dropping as soon as the legislation passed resulting in lower profits for Algeria. Only five years later, the Algerian government began reconsidering its tax law in a bid to regenerate interest in its hydrocarbon sector from international firms.

And then there were the signing bonuses in Angola, Libya, and Nigeria. Angola allowed signing bonuses to be publicly disclosed in May 2004, included a \$300-million deal with Chevron Texaco Corp. extending the company's exploration concession on one of Angola's most lucrative oil blocks. In fact, Angola had some of the highest signing bonuses ever which ultimately prevented smaller firms from gaining entry into its burgeoning oil and gas sector. Smaller firms are important for less prospective basins, allowing countries to better exploit their resources.

Taking cues from conventional forms of energy, the renewable energy sector can avoid certain pitfalls that the hydrocarbon sector has seen. The most important step is to create regulations that are specific to a country's needs and goals, while also creating an investor-friendly atmosphere. And for renewable energy in Africa, small-to-medium-enterprises could hold the answers. 

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