# Sustainable models for financing renewable energy solutions in Nigeria's oil driven economy

Akachukwu Okafor[1]
Principal Partner, Change Partners International, Abuja Nigeria

## Abstract

In Nigeria's oil mono-economy, the fiscal federalism and the derivation principle ensures all federating states in Nigeria are able to fund its annual budgetary recurrent expenditure which sometimes constitute more than 60% of the budget and the rest for capital development projects. Most times these capital development projects are schools, health care centers, hospitals, office buildings and roads which are built without essential complimentary operating and service enhancement infrastructure such as electricity for powering, lighting, heating, cooling, water pumping purposes. As Nigeria's national power grid is still deficit and unreliable to meet growing electricity and energy demand, awareness for renewable energy solutions is increasing. However, one of the challenges that most governments at all levels are yet to find a solution to is a flexible, cost-effective, sustainable financing model that reduces that initial high CAPEX - capital expenditure for implementing renewable energy projects. Recently, in May 2019, a leading Nigerian renewable energy company signed a contract with a Plateau State government in Nigeria to deploy solar street lights in 73.51km of roads within the state at the cost of about $USD 8.04 million. The financing model which is the first of its kind in Nigeria provides a repayment period of 48 months (4 years) with an Irrevocable Standing Payment Order (ISPO) and Advance Payment Guarantee (APG). The project negotiations and contract signing which was done in less than 2 months is the single largest and fastest solar street light negotiation process will generate 504000kw and 2.2mwhr of energy daily. So far, more than 59km of the 73.51km road have been installed. The benefits that this financing model provides includes that: it totally removes the default of payment by government which normally occur for government projects in Nigeria; removes the abandonment of projects; reduces transactional cost of project financing for similar scale of projects; reduces corruption and kickbacks usually associated with projects in Nigeria; provides stability for the project developer to secure financing to execute project while payment is being processed; guarantees the deployment of highly efficient, reliable, durable and long lasting solutions; creates a mechanism for increased training and employment of young people in the assembling, installation and maintenance of the solutions. This model requires the political will of the government chief executives and the cooperation of the legislature to receive accelerated consideration and approval that this project received. Importantly, it is a very promising and sustainable solution out of the challenge of financing renewable energy solutions for Nigeria's economy.

*Key words: Financing model, Irrevocable Standing Payment Order (ISPO), Advance Payment Guarantee (APG) Solar street lights, Renewable energy, Revenue allocation, Jos*

# 1. Introduction

Like other nations that practice federalism, fiscal federalism in Nigeria started out of the need devolve power and improve governance and development at the grassroots through allocation of resources and spending to different tiers of government - federal, state and local (Ewetan, 2012). This comes from the concept that in a fiscal federalism, all tiers of government should have adequate resources to perform its duties without soliciting support from other tiers of government (Wheare, 1963), which helps to engender respect, equality, equity, justice and fair play amongst federating units and the central government (Ejeh and Orokpo, 2014). Else the tier of government that seeks assistance will become subordinate to the other tier of government and not in coordinate with it (Okeke and Eme, 2013). This is the current practice in Nigeria, some scholars have come to refer as fiscal centralism (Rodrigo, 2012). This problem became very evident from the 1970s and has been attributed to dominance of the federal government in revenue collection and sharing, protracted years military rule and its centralized hierarchical structure and over-reliance on the revenue from the federation account (Ejeh and Orokpo 2014; Ewetan, 2012).

[1] Email: aka@changepartnersintl.com

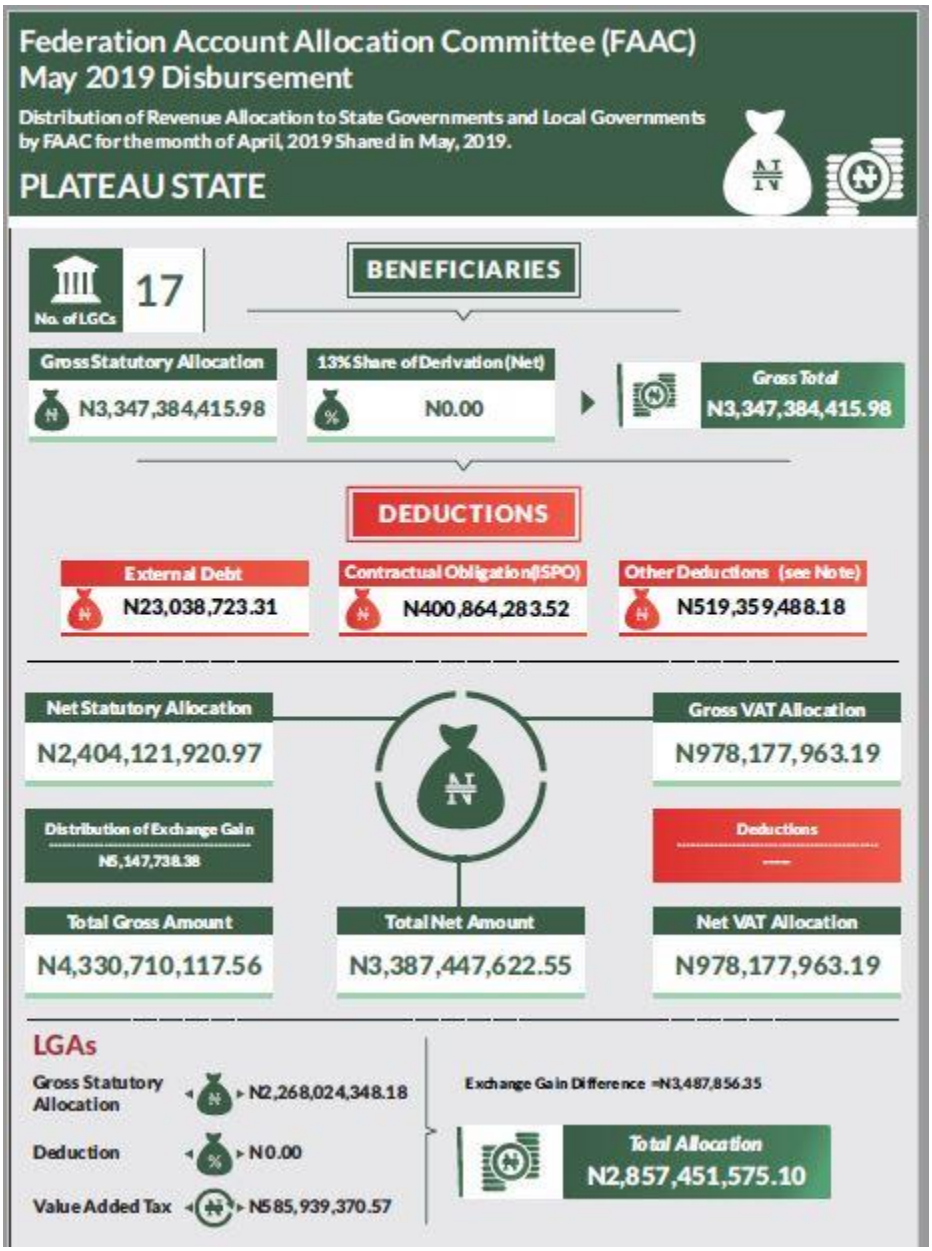
Since the 1940s, revenue allocation has been a subject of continuous debate, dialogue and reviews[2] (Adangor, 2015; Dang, 2013; Okeke and Eme, 2013; Ewetan, 2012; Rodrigo, 2012; Ovwasa, 1995) which have also been very controversial since 1958 with the introduction of the derivation principle especially with the discovery of oil which have long become Nigeria's main source of revenue (ibid).

In 1999, the 1989 decree that established the National Revenue Mobilization and Fiscal Commission (NRMAFC) was amended pursuant to the provisions of the 1999 constitution and the Revenue Mobilization and Fiscal Commission (RMAFC) was established with vested powers to monitor the accruals to and disbursement of revenue from the Federal Account and review from time to time, the revenue allocation formulae and principles in operation to ensure conformity with changing realities of Nigeria (NLIPW, 2019; Ejeh and Orokpo, 2014; Okeke and Eme, 2013; Ojo, 2010). Consequently, Nigeria's current vertical allocation formula as set by RMAFC provides that the Federal Government receives 52.68 per cent of the national revenue, while states and local governments receive 26.72 per cent and 20.60 per cent respectively (Punch, 2019; Okeke and Eme, 2013; Lukpata, 2013). This is after the 13% derivation from oil revenues have first been paid to oil producing federating states. The allocation received by the three tiers of government are then disbursed using different the allocation formula at the monthly Federation Account Allocation Committee (FAAC) meeting. Figure 1.0 shows a typical disbursement made to Plateau State at the May FAAC meeting. It shows the revenue allocation due paid to the state and also deduction from the allocation to service debts of the states and other obligations that the state committed to using the instrument of the monthly FAAC disbursements.

At this point, the federating states are to utilize their allocation from the Federation Account in addition to their internally generated revenue (IGR) to fund their annual budget which include provision of basic social infrastructure and services roads, education, health care, water and sanitation and payment of salaries. With recurrent expenditure of the budget usually taking up more than 60% of the budget estimate. For instance, in Plateau state, the recurrent expenditure for year 2018 was 67.87% and capital expenditure was a mere 32.13% compared to the infrastructural development needs of the state (Plateau State Govt, 2019). Interestingly, for the 2019 budget, the figure for capital expenditure increased to 43.93% with a Two Billion, Three Hundred and Six Million, Twenty-Three Thousand, Six Hundred and Forty-Four Naira (N2,306,023,644.00) as an increase from 2018 budget of One Hundred and Forty-Five Billion, Four Hundred and Eighty-Eight Million, Sixty-Six Thousand, Three Hundred and Fifty-Two Naira (N145,488,066,352.00) only (ibid).

[2] Since 1946, there have been over 15 committee, conferences and summits that had as part of its mandate to review revenue allocation. Recently, in June 2019, a new board of the Revenue Mobilization, Allocation and Fiscal Commission was sworn in by the Nigerian President with additional mandates to its task - https://www.channelstv.com/2019/06/27/top-eight-duties-assigned-to-rmafc-by-president-buhari/. In August 2019, the Chairman of the Board constituted a committee with the task of reviewing Nigeria’s revenue formula - https://punchng.com/rmafc-to-set-up-new-revenue-formula-committee/.

*Figure 1.0: FAAC Revenue Disbursement for the Month of May 2019 to Plateau State*




*Source: National Bureau of Statistics, 2019*

What this means is that for the government to successfully and sustainably fund the 2019 budget which it tagged "BUDGET OF RESCUE AND INFRASTRUCTURAL GROWTH", it must explore innovative and sustainable financing mechanisms.

## 2. Financing Renewable Energy Solutions in Nigeria

The huge electricity generation and access deficit in Nigeria - about 54.4% (World Bank, 2017) makes it more challenging for infrastructural development and growth. This is because most basic social amenities and infrastructure such as water and sanitation, health care, education, micro, small and medium scale enterprises – agricultural processing including access roads construction electricity services to function.

With unreliability of the grid and energy access challenges, advocacy efforts on the reliability, sustainability and efficiency of renewable energy solutions particularly as a tool for making development projects functional, actualizing and accelerating sustainable development is becoming fruitful. Government is more consciously designing projects that are powered by renewable energy, however financing these projects remains a significant challenge due to the usual initial high capital expenditure that renewable energy solutions require. A recent study conducted by the Nigerian Rural Electrification Agency (REA) in collaboration with the World Bank and the Rocky Mountain Institute (RMI) found out that at least USD $9.2 billion is required annually for develop Nigeria's off-grid electricity market that will complement the grid (REA, 2017).

Several renewable energy financing initiatives already exist and are continuously being setup to help solve the renewable energy financing problem. Some of the recent financing include the World Bank's USD $350 million Nigeria Electrification Project (NEP) funding to the REA (World Bank, 2018), the African Development Bank (AfDB) and African Growing Together Fund USD $200 million in joint funding to support the NEP (AfDB, 2018). Others include the European Union (EU) €30 million for sustainable energy investment fund (EU, 2019), €22 million German government funding to support her Nigerian Energy Support Programme (NESP) (The Guardian, 2018), the U.S Agency for International Development (USAID) Power Africa initiative - Nigeria Power Sector Support Program (NPSP) USD $1.5 million lending to support the private sector driven new Energizing Economies Initiative (EEI) implemented by REA (USAID, 2019) and the UK Department of International Development (DFID) £10,517,080 Solar Nigeria Programme which started in 2014 and will end in 2020 (DFID, 2019).

While these most of these funding focus on medium to large scale renewable energy community or institutional projects, other funding such as the USD $100 million partial risk Green Energy Fund Programme (GEF-P) by the African Guarantee Fund (AGF) provide access local currency concessional loans the Central Bank of Nigeria (CBN), Development Bank of Nigeria (DBN) and Bank of Industry (BOI) for micro, small, medium and large scale enterprises (CAFL, 2019).

Regardless of these financing initiatives, renewable energy sector in Nigeria is still largely underfunded, especially renewable energy projects that can't not demonstrate financial viability. Some of these projects include renewable energy electricity services for health care centres, schools, public libraries, community development centers, street lights especially in remote resource constrained communities. However, there is conscious effort to by some development actors to develop business models for some of these categories of facilities. For instance, there is an ongoing effort by the United Nations Foundation in collaboration with UK DFID to develop income generation models from Solar PV systems it deployed at health clinics in Ghana and Uganda (UN Foundation, 2018). While some renewable energy projects such health care centers, schools can attract financing irrespective of their financial viability for funding by development partners or financial institutions, some others such as solar street lights projects are not able to attract such financing because they are not directly financially viable.

# 3. Funding indirect financially viable renewable energy projects: Jos Solar Street Light Project

Jos popularly referred to as the "Tin City" is the capital of Plateau state and celebrated as the "home of peace and tourism" with a 2016 estimated population of 925,000. It has an average elevation of 4,200 ft (1,280 m) with some surrounding high plains exceeding 3,200 ft. Having a near temperate climate with an average temperature of $18^0$C and $22^0$C and temperature drop to $11^0$C at night, Jos became home to many Europeans especially during colonial era and is still home to many expatriates based in Nigeria and tourists that visit the city (Britannica, 2019; Plateau State Govt, 2018).

As with many cities in Nigeria, major roads and streets are always dark during the night, a situation that fosters crime, insecurity and fear amongst citizens to move around freely and continue to engage in commercial activities much longer into the night. Jos being a city that thrives on tourism and known for its night life, the Plateau State Government was committed to at lightening up the major roads of the city through a renewable energy powered street light project that is sustainable and functional unlike some street light projects in other cities. For instance, most of the street light projects in the city of Lagos, Nigeria implemented in 2015 – 2018 are powered by hybrid system of Compressed Natural Gas (CNG) and diesel generators (Ogunbiyi, 2016) which is very expensive, unsustainable and not as functional as planned (The Guardian, 2018; Tell, 2017).

With an interest to implement a sustainable solar street light project through a sustainable financing model, in April 2019, the Plateau State Government approached Blue Camel Energy Ltd, a leading Nigerian renewable energy company with a proven track record of sustainable project delivery, maintenance and support services and training capacity with very sustainable model of project financing.

Blue Camel Energy Ltd (Project Developer) operates a financing model for credible and creditworthy private, government – public sector and institutional clients that their projects require high CAPEX to implement, where by a payment schedule (usually on a monthly or quarterly basis) is developed and agreed to by the project developer and the client. This payment schedule is backed up by a either a bank guarantee or an irrevocable standing payment order (ISPO).

Plateau State Government agreed to an ISPO that was to be domiciled with the Federal Ministry of Finance that convenes the monthly Federation Account Allocation Committee where disbursement from the Federation Account is done to all tiers of government through Central Bank of Nigeria. With this mechanism in place, as long as the Plateau State Government receives her monthly allocation from the

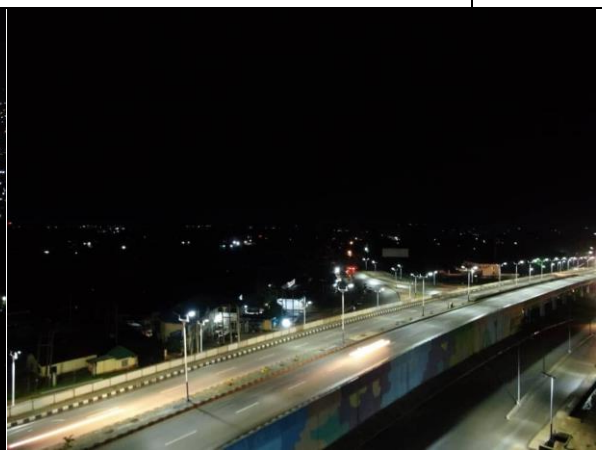
Federation Account, Blue Camel Energy will automatically receive scheduled payments directly to its bank through the Central Bank of Nigeria. Within a month negotiation was concluded between the Plateau State Government and Blue Camel Energy on the scope of the project, cost and implementation schedule

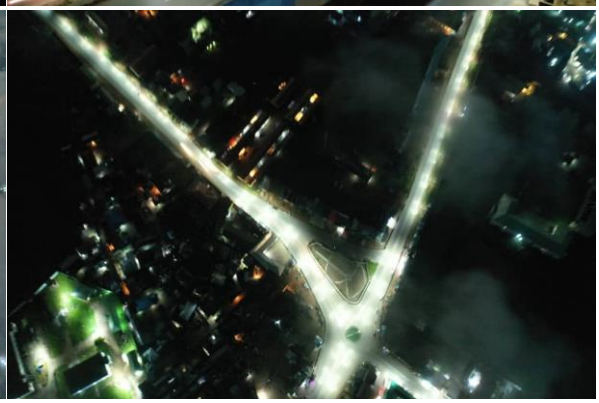
and obligations of both parties. The Plateau State Government in compliance with procurement rules got the State House of Assembly to approve the project and financing mechanism. It also got the State Tender Board to evaluate the project, approve it and a contract award letter issued. To commence the project

the Plateau State Government had to pay a mobilization sum equivalent to 20% of the total project cost using an Advance Payment Guarantee (APG). See Box 1.0 for project details and pictures.

Box 1.0: Project details, benefits and aerial photos of the project

| No | | | | **Project Benefits** |
|---|---|---|---|---|
| 1 | **Client** | Plateau State Government (Ministry of Works) | | 1. Through the project 15 youths from Plateau State were trained in Solar Photovoltaic Supervision and Installation for 4 weeks at the project contractors renewable energy training academy at the expense of the project contractor.<br>2. The project contractor has opened an office in Jos with 10 training graduands permanently employed.<br>3. The new office opened in the state has a training center were more youths of the state will be trained at the expense of the project developer.<br>4. Over 500 youths from Plateau State have been employed temporarily across the value chain of the product – assembling of the street lights, fabrication of poles, civil works, installation and other services.<br>*Note: These benefits are not inclusive of terms of the contract.* |
| 2 | **Project Contractor** | Blue Camel Energy Limited | | |
| 3 | **Project Name** | Supply and Installation of Solar Powered Street Lighting on some selected Streets | | |
| 4 | **Project Location** | Jos and Bukuru, Plateau State | | |
| 5 | **Contract Sum** | USD $8.04 million (Local Currency = N2,895,375,374.89) | *Exchange rate = 360* | |
| 6 | **Contract Duration** | 24 weeks (May 30, 2019 – November 30, 2019) | | |
| 7 | **Length of Coverage** | 73.51KM | | |
| 8 | **Initial Payment** | USD $1.61 million (Local Currency = N579,075,074.98) | *This sum represents 20% of the total project sum was paid using an Advance Payment Guarantee (APG)* | |
| 9 | **Monthly Payment Schedule** | USD $171,988.78 (Local Currency = N61,915,964.27) | *Remaining 80% of project cost is paid starting from 3 months from project commencement at an interest rate of 9.98%.* | |
| 10 | **Payment Duration** | 45 months | | |
| 11 | **Number of Poles** | 2,096 | | |
| 12 | **Number of Lamps** | 4,192 | | |
| 13 | **Specification** | 80W IP65 | Integrated solar streetlight | |
| 14 | **Generation Capacity** | 504000kw and 2.2mwhr of power daily | | |
| | *Note: As at the end of September 2019, over 59KM of roads and streets have been covered by the project.* | | | |



Interestingly, 3 months into project delivery, due to bureaucratic bottlenecks and variances in expected allocation from FAAC and other obligations that the Plateau State Government had given in prior to the contract the ISPO at the Federal level could not be executed (Suleiman, 2019). However, it resorted to using the ISPO at the state level using its internally generated revenue at the State Board of Internal Revenue. The project is in its 5th month and going on successfully.

## 4. Discussions – Benefits of Financial Model

To analyze the benefits of the financing mechanism that was used for this project, it will be instructive to highlight the factors made it possible for the conceptualization of the project that necessitated design of the financial model and its current successful execution.

**A. High Rate of Street Light Project Failure:** First factor was the numerous cases of unsustainable and ineffectively designed and implemented street light projects in the country that have become case studies of how not to spend public resources. In an effort to implement solar street light projects that will be used as a reference the Governor commissioned an independent team that had the Terms of Reference of identifying why street light projects in other cities failed.

Among other factors responsible for failed street light projects, the team reported on two main factors:

i. **Lack of Sustainability**: Street light projects most cities were not properly designed with sustainability in mind particularly the high operational costs involved with diesel or gas purchases, maintenance of generators through the life cycle of the project, vandalization and theft of batteries, solar panels and charge controllers in some cases where integrated solar streetlights were not used. Other sustainability challenges were lack of trained technical personnel that would provide required maintenance and support services needed for optimal performance of the street lights.
ii. **Corruption and Lack of Capacity to Execute:** Most street light projects were designed in a way that the contractor is paid fully upon successfully completion of the projects, this way the contractor has no obligation to the functionality of the street lights after project implementation and the contract signed by the contractor doesn't cover maintenance and support services and even in instances that maintenance and support are covered, the contractor doesn't have the capacity to meet the obligations. The financing model that fully pays the contactor immediately after project execution doesn't provide an incentive for the contractor use quality and standard materials for the project. Unfortunately, in Nigeria's dominant procurement system that bad contractors are not punished, prosecuted or blacklisted, the contractor doesn't seek the need to do the right thing especially as the next contract will be secured on the basis on contacts in government.

**B. Limited Resources:** The scale of infrastructural development that the state plans to achieve to sustain its drive of increasing economic activity are tremendous compared to the merger resources it receives from the Federation Account and the internally generated revenue it generates from within the state. Compared to other federating states in Nigeria, Plateau state is the 8th state that receives the least allocation out of 36 states (NBS, 2019). So, there was pressure for the state to be resourceful, hence it

was committed to having value for her money as it doesn't have resources to finance projects that may soon fail.

**C**. **Political Will/ Sincere Commitment:** From the time Blue Camel Energy was mentioned to the Governor of Plateau state, he took direct responsibility of all meetings and negotiations that led to an agreement between the state government and Blue Camel Energy. At every meeting, most officials of government that could be involved with such scale of project implementation was in attendance with the goal of removing any form of barrier and bottleneck encountered during negotiations. When there was a challenge in executing the ISPO at the Federal Ministry of Finance, the ISPO was now initiated and executed at the state level. The Governor wouldn't have taken these steps without political will and sincere commitment.

**D. Proven Capacity of the Contractor:** Most important to the government of Plateau State was that the project contractor had a proven capacity to implement the project sustainably with other multiple benefits to the state government and people of the state. See Box 1.0 for some additional benefits that have been achieved through the project.

## Benefits of the Financial Model

The financial model has the following benefits to both parties:

1. It puts the contractor under no obligation and pressure to "appreciate", give bribes or kickbacks to have payments for projects released on schedule since payments come automatically and without usual bureaucracy of other payment mechanisms.

2. It minimizes corruption and extreme cost of project design and implementation that plague most of Nigeria's procurement process with close to 30% of project cost going to bribes and kickbacks to government officers and contract facilitators to further help facilitate the release of payments by government. With this in place a project contractor will be robbed of funds to successfully execute projects to required standards and quality.

3. It helps government fund several critical development projects progressively and payments made in installments over an extended period without usual pressure of allocating scarce resources to a few projects that would starve other critical projects of resources.

4. It gives the project contractor the stability and confidence to secure other sustainable financing to implement projects with the knowledge that it will receive its payments on schedule and equally helps in the adequately plan and schedule project supplies with other vendors and sub-contractors.

5. It reduces the risk of both clients – government in this case and project contractors defaulting on projects as the mechanism secures the commitment of both parties and should any party choose to end the implementation agreement, no party is at loss.

6. It provides a platform for credible and competent project contractors to be given the opportunity to implement projects without project implementation awarded to portfolio companies that are only interested in receiving funds from government and disappearing without implementing projects as often

is the case. This is because its only credible and competent project contractors that will agree to such financing model.

These benefits of this financial model have the potential of positively accelerating the development and growth of renewable energy market in Nigeria through possible model adoption by other governments and project developers. For instance, the project contractor is in discussion with other state governments in financing solar street light projects and other renewable energy projects using this financial model. Importantly, the success of the financial model hopes to have positive knock-on effect and impact on Nigeria's procurement system.

## 5. Policy lessons and Conclusion

The factors that necessitated and enabled the interest and commitment of the Plateau State Government to seek sustainable solar street light project were complementary and cumulated her to first realize that it must take the bold step in requesting that Blue Camel Energy to present a project proposal. The project proposal was extensively debated and evaluated against previous proposals it received in the past against the state's development needs and priorities.

With both parties reaching a decision on what the scope of the project should be in achieving the government's development objectives, the ground was laid for exploring financing models that is appropriate and sustainable for the project.

Therefore, it is important to highlight that before clients particularly government ministries, departments and agencies (MDAs) are concerned about financing model for their development projects, it should first conceptualize and develop projects that are deliberate, sustainable, people centered, inclusive, cost effective, reliable, functional, holistic, appropriate, has value for money with additional multiple benefits to the government and citizens.

This further provides a template for governments to harness local resources and become less independent on scare development aid and international funds to finance important development projects that would have been possible with political will and sincere commitment. If this financing model was successful for a project that had no direct financial viability for sustenance and no direct impact to the livelihoods and wellbeing of citizens, it proves to be more successful for development projects that help to provide basic and improved health clinics, schools, water and sanitation facilities, decent housing, agricultural production and processing facilities, community libraries and skill development centers and other big infrastructural projects. Interestingly, this model shows that renewable energy projects and other development projects doesn't necessary require grants and subsidies to implement if policy makers are committed to development objectives.

A significant policy lesson is that this model can be utilised along with other financing models to unlock funds that couldn't have been available within regular financial organizations and funding mechanisms to fund projects of different scales, so far as the projects are sustainable and will positively impact the lives of people especially the poor, vulnerable and underserved.

# References


ADANGOR, Z. (2019). The Principle of Derivation and the Search for Distributive Justice in the Niger Delta Region of Nigeria: The Journey So Far. *Journal of Law, Policy and Globalization*, 41(ISSN 2224-3259).

AFDB (2018). *The African Development Bank and Africa Growing Together Fund to Provide US$ 200 Million in Joint Financing to support the Nigeria Electrification Project*. [online] African Development Bank - Building today, a better Africa tomorrow. Available at: https://www.afdb.org/en/news-and-events/the-african-development-bank-and-africa-growing-together-fund-to-provide-us-200-million-in-joint-financing-to-support-the-nigeria-electrification-project-18769 [Accessed 27 Sep. 2019].

Britannica (2019). *Jos | Location, History, Facts, & Population*. [online] Encyclopedia Britannica. Available at: https://www.britannica.com/place/Jos [Accessed 2 Oct. 2019].

CAFL (2019). *$100 Million Green Energy Fund Programme | Climate Finance Advisory*. [online] Climatefinanceadvisory.com. Available at: https://climatefinanceadvisory.com/green-energy-fund [Accessed 1 Oct. 2019].

CHANNELS TV (2019). *Top Eight Duties Assigned To RMAFC By President Buhari*. [online] Channels Television. Available at: https://www.channelstv.com/2019/06/27/top-eight-duties-assigned-to-rmafc-by-president-buhari/ [Accessed 3 Oct. 2019].

Dang, D. (2013). Revenue Allocation and Economic Development in Nigeria. *SAGE Open*, 3(3), p.215824401350560.

DFID (2019). *Solar Nigeria Programme - DevTracker Project GB-1-203674*. [online] Devtracker.dfid.gov.uk. Available at: https://devtracker.dfid.gov.uk/projects/GB-1-203674 [Accessed 3 Oct. 2019].

Ejeh, A. and Orokpo, O. (2014). Fiscal Federalism in Nigeria: An Analysis of Issues and Challenges. *International Journal of Peace and Conflict Studies (IJPCS)*, 2(1).

EU (2019). *EU launches €30 million renewable energy support to Nigeria*. [online] EEAS - European External Action Service - European Commission. Available at: https://eeas.europa.eu/delegations/nigeria_en/61223/EU%20launches%20%E2%82%AC30%20million%20renewable%20energy%20support%20to%20Nigeria [Accessed 1 Oct. 2019].

Ewetan, O.O. (2012), "Fiscal federalism in Nigeria: Theory and practice", *International Journal of Development and Sustainability,* Vol. 1 No. 3, pp. 1075-1087.

Lukpata, V. (2013). Revenue Allocation Formulae in Nigeria: A Continuous Search. *INTERNATIONAL JOURNAL OF PUBLIC ADMINISTRATION AND MANAGEMENT RESEARCH (IJPAMR)*, 2(1).

NBS (2019). *Federation Account Allocation Committee (FAAC) (MAY 2019 Disbursement)*. [online] Nigerianstat.gov.ng. Available at: https://nigerianstat.gov.ng/download/965 [Accessed 27 Sep. 2019].

NLIPW (2019). *REVENUE MOBILISATION, ALLOCATION AND FISCAL COMMISSION ACT*. [online] Nigerian Law Intellectual Property Watch Inc. Available at: https://nlipw.com/revenue-mobilisation-allocation-fiscal-commission-act/ [Accessed 1 Oct. 2019].

Ogunbiyi, D. (2016). *Lagos State Government Energy Initiatives*. [online] Akindelano.com. Available at: https://www.akindelano.com/pdf/Mrs.%20Damilola%20Ogunbiyi%20(LSEB)%20Presentation%20at%20the%20ALP%20Seminar%20on%20Power.pdf [Accessed 25 Sep. 2019].

Ojo, E. (2010). THE POLITICS OF REVENUE ALLOCATION AND RESOURCE CONTROL IN NIGERIA: IMPLICATIONS FOR FEDERAL STABILITY. *Federal Governance*, 7(1).

Okeke, M. and Eme, I. (2013). Issue of Fiscal Federalism and National Development in Nigeria during Obasanjo Administration. *Journal of Educational and Social Research*.

Ovwasa, L. (2015). Fiscal Federalism in Nigeria: A Historical Analysis. *Transafrican Journal of History*, 24, pp.70-83.

Plateau State Govt (2018). *Report of the Accountant General: With Financial Statements 2018*. [online] Plateaustate.gov.ng. Available at: https://www.plateaustate.gov.ng/assets/documents/2019/ACCT-Sign.pdf [Accessed 27 Sep. 2019].

Plateau State Govt (2019). *Plateau State Approved Budget 2019 Fiscal Year*. [online] Plateaustate.gov.ng. Available at: http://www.plateaustate.gov.ng/assets/documents/2019/2019-PLATEAU-STATE-APPROVED-BUDGET-1.pdf [Accessed 20 Sep. 2019].

PUNCH (2019). *RMAFC to set up new revenue formula committee*. [online] Punch Newspapers. Available at: https://punchng.com/rmafc-to-set-up-new-revenue-formula-committee/ [Accessed 2 Oct. 2019].

REA (2017). *NEWS RELEASE - NEW ANALYSIS FINDS $9.2B OFF-GRID ELECTRIFICATION OPPORTUNITY IN NIGERIA PRESENTED AT AFRICA ACTION LEARNING EVENT ON SCALING MINIGRIDS — Rural Electrification Agency*. [online] Rural Electrification Agency. Available at: https://rea.gov.ng/newrelease/ [Accessed 26 Sep. 2019].

Rodrigo (2012). *Derivation Principle of Revenue Allocation in Nigeria – The WritePass Journal*. [online] The WritePass Journal. Available at: https://writepass.com/journal/2012/11/centre-for-energy-petroleum-and-mineral-law-and-policy/ [Accessed 25 Sep. 2019].

Suleiman, Y (2019). Interview on Jos Solar Street Light Project: Okafor Akachukwu, 17 August 2019

Tell (2019). *Lagos' Blind Street Lights - TELL*. [online] TELL. Available at: https://tell.ng/lagos-blind-street-lights/ [Accessed 26 Sep. 2019].

The Guardian (2019). *Epileptic streetlights threatening 'Light Up Lagos Project' | The Guardian Nigeria News - Nigeria and World News*. [online] The Guardian Nigeria News - Nigeria and World News. Available at: https://guardian.ng/sunday-magazine/epileptic-streetlights-threatening-light-up-lagos-project/ [Accessed 29 Sep. 2019].

The Guardian (2019). *Germany provides €22m to address energy, climate change issues in Nigeria | The Guardian Nigeria News - Nigeria and World News*. [online] The Guardian Nigeria News - Nigeria and

World News. Available at: https://guardian.ng/business-services/germany-provides-e22m-to-address-energy-climate-change-issues-in-nigeria/ [Accessed 1 Oct. 2019].

UN Foundation (2018). *Study of Income Generation Models from PV Systems at Health Clinics in Ghana and Uganda*. [online] Energyaccess.org. Available at: http://energyaccess.org/wp-content/uploads/2018/07/UNF-Powering-Health-Consultancy.pdf [Accessed 20 Sep. 2019].

USAID (2019). *Power Africa Helps Nigeria Tap the Private Sector to Boost Off-Grid Electricity for Small Businesses | News | Nigeria | U.S. Agency for International Development*. [online] Usaid.gov. Available at: https://www.usaid.gov/nigeria/news/power-africa-helps-nigeria-tap-private-sector-boost-grid-electricity-small [Accessed 28 Sep. 2019].

Wheare, K.C (1963): Federal Government. New York: Oxford University Press

World Bank (2018). *Nigeria Electrification Project*. [online] World Bank. Available at: https://projects.worldbank.org/en/projects-operations/project-detail/P161885?lang=en [Accessed 30 Sep. 2019].

World Bank (2019). *Access to electricity (% of population) | Data*. [online] Data.worldbank.org. Available at: https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?view=map [Accessed 2 Oct. 2019].