



PUBLIC-PRIVATE PARTNERSHIP AND INDEPENDENT POWER GENERATION IN EDO STATE, NIGERIA: AN ASSESSMENT OF THE AZURA AND OSSIOMO IPP PROJECTS

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Abstract

The study assessed the impact of Azura and Ossiomo Independent Power Plants within the purview of the Public-Private Partnership arrangement in Edo State, which was conceived due to the failure of the public sector's inability to provide electricity for the population of Nigeria. To achieve the goal of this paper, the study throws up three research objectives. To have a robust understanding of the subject matter of discourse, the researcher reviewed relevant literature in the area of the study and provided robust comments on it. The paper, through the use of secondary data, adopted the Public Choice Theory as a lens through which this study was analysed. Furthermore, the study established that Azura and CCETC Ossiomo are PPP-driven IPPs that have improved electricity generation reliability in Edo State with strong developmental outcomes that have contributed to the national grid and contributed to 22 to 24-hour power supply in the coverage areas. The study further established that the dollarisation of the value chain of Edo Azura and Ossiomo IPPs, breach of the Joint Venture agreement by the actors to the Edo IPPs agreement, remain the governance and contractual agreements that have, in recent times, affected the performance outcomes of these IPPs. The study further espoused some challenges that are associated with Azura and Ossiomo IPP in Edo State. The study concluded appropriately and recommended the de-dollarisation of the Edo IPPs value chains, renegotiation of the joint venture agreement between Edo State Government and CCETC Ossiomo power plants management, among others.

Keywords: *Assessment, Azura, Edo State, Independent Power Plants, Ossiomo*

Introduction

Access to dependable and secure electricity infrastructure is still crucial for long-term economic growth and development worldwide. Over the past 20 years, public-private partnerships,

or PPPs, have become a popular way for governments all over the world to construct infrastructure, mainly to satisfy the citizens' ever-increasing desires (Garvin, 2009). Prior to now, the government was the only entity responsible for providing infrastructure and services to the general population. However, the government appeared to be falling short of expectations in meeting the infrastructure needs of its residents due to population expansion, limited resources, and the need to guarantee that other areas are similarly developed. Today, governments around the world collaborate with the private sector to supply and oversee infrastructure in their nations. This type of agreement is known as a public-private partnership. One way to conceptualise public-private partnerships is the government's use of the private sector to provide services to its population (Fadeyi *et al*, 2016). It is a type of agreement for the provision of services between the public sector (government) and the private sector (society). It may also be viewed as the government using the private sector to deliver services.

As a way out of the failure of the public sector's inability to provide electricity for the population of Nigeria, public-private partnership was embraced as an alternative approach to improve and expand electricity service delivery. In order to provide electricity, a number of Nigerian sub-national governments have used Public-Private Partnership, which involves the deployment of independent power plants. A shining example is Lagos State, which takes a proactive approach to power plant development through PPPs. An independent Power Plant is a power generation facility that is privately owned and operated, not owned by the public utility or government. It generates electricity for sale to utilities, directly to end-users, or into power. Lagos State is a shining example of a state that has collaborated with the private sector to build independent power plants in Nigeria. Others include Rivers State Public-Private Partnership in Infrastructure Development Law 2009 and Cross River, which introduced its PPP legislation in 2010 (Koya, Adegbamigbe & Ikeokwa, 2024).

To expand the state's power market, the Edo State government in 2014 entered a PPP agreement with Azura- Edo Independent Power Plant with a capacity to produce 461 megawatts of electricity, whereby the Edo State holds a 25% equity stake in the plant. This stake was granted in exchange for the compulsory acquisition of 100 hectares of land under the Land Use Act of 1978 and the provision of necessary road infrastructure. Added to the above, the Obaseki-led government in Edo state in the year 2020 entered into a commercial agreement model with the CCETC-Ossiommo Power Plant Company with a capacity to generate 95 megawatts of electricity

and make power more available to government offices and business places to boost economic and business activities. The Ossiomo Power Plant operates as an Independent Power Producer (IPP) and plays a vital role in meeting the electricity needs of households, businesses, government offices and parastatals in its area of jurisdiction. It is against this backdrop that this paper intends to assess the impact of the Azura and Ossiomo IPP projects (2016-2025).

Further to the above, Azura and Ossiomo Power plants are two independent power plants inaugurated to address the power deficit in Edo State and beyond. However, the two IPPs' infrastructure is faced with a plethora of problems. For example. The Azura power plant is a dollar-funded IPP with a construction cost of \$900m funded by World Bank, IFC, a gas payment in dollars to Seplat, turbine maintenance and replacement of spare parts and the subsequent payment of Azura Power Plants in dollars by NBET via Power Purchase Agreement PPA in dollars. The problem arose when Azura and Ossiomo Edo IPPs were unable to convert naira into dollars to buy gas, pay for debts, and spare parts, resulting in the facility running below capacity. Since Azura is 8% of Nigeria's grid, every forex crisis will amount to less power for Edo State. Until CBN provides foreign exchange or a tariff to fully reflect the market USD rate, plants like Azura will stay vulnerable.

Also, there's an ongoing ownership tussle between Ossiomo Power Plant and the Infrastructure Company CCETC, a Chinese firm, which led to the shutdown in September 2025. More so, a recent clarification by the Governor of Edo State, Senator Monday Okphebolo, that Edo State has no equity stake in Ossiomo Power IPP. The state functions primarily as a major customer, purchasing power from government buildings and streetlights. Following this crisis, the current administration shifted away from reliance on Ossiomo and migrated back to BEDC. With the above challenges bedevilling these power plants' infrastructure. The current study tends to answer the following questions: To what extent have Azura and Ossiomo IPPs improved electricity generation reliability in Edo State? What governance and contractual factors have influenced the performance outcomes of Azura and Ossiomo IPP in Edo State? What development outcomes are attributable to these PPP projects? Following the research questions above, this study raised the following research questions which are to: to examine how Azura and Ossiomo IPPs have improved electricity generation reliability in Edo State, evaluate how governance and contractual factors have influenced the performance outcomes of Azura and Ossiomo IPPs in Edo State, and

find out the development outcomes that are attributed to these Azura and Ossiomo IPPs in Edo State.

However, the study's main focus was to evaluate the effects of the Azura and Ossiomo Independent Power Plants projects in Edo State between 2016 and 2025. The selection of the two-administration period was based on the fact that it was the time when both power plants were operating at full capacity, which was thought to be essential for achieving a solid research result and conclusion.

Literature Review and Theoretical Framework

Conceptual Clarification

A Public-Private Partnership, as defined by the National Council for Public-Private Partnership, is a “contractual agreement between a public agency (federal, state, or local) and a private sector entity. Through this agreement, the skills and assets of each sector (public and private) are shared in delivering a service or facilities for the use of the general public. In addition to the sharing of resources, each party shares in the risk and reward potential in the delivery of the service and /or facility. In effect, the key defining elements of a PPP are the focus on service delivery and a real partnership that involves the sharing of risk and rewards (ICRC, nd).

PPP has been used for the delivery of services worldwide in sectors like power, education, roads, aviation and even in some specific segments of defence services like facility maintenance, simulators procurement and training. It should be noted that not all collaborations or agreements between private ventures and the government are described as PPP. For example, PPP is not privatisation or disinvestment; PPP is not borrowing money from the private sector; PPP is more about creating a structure, in which a greater value for money is achieved for services, through private sector innovation and management skills, delivering significant improvement in service efficiency levels. PPP means that the public sector no longer builds roads, it purchases kilometres of maintained highway, no longer builds prisons, it buys custodial services, no longer operates ports but provides port services through a world-class operator, and no longer builds power plants but purchases power plants among others (ICRC, nd)

Understanding the concept of Infrastructure Development

The fundamental physical structures needed for a civilisation to function, such as buildings, roads, bridges, businesses, hospitals, and governments, are all considered infrastructure

(Oluwafemi, 2012). The primary elements of infrastructure in developing countries are roads, electricity networks, sewage systems, and transportation infrastructure. In the past, the government has provided infrastructure through budgetary allocations supported by taxpayers. But in emerging nations, governments' incapacity to sufficiently fund the expanding demand for infrastructure has dire repercussions (Oluwafemi, 2012).

Types of Infrastructure

- i. **Hard Economic Infrastructure:** Highways, ports, trains, bridges, power plants, and other structures that are regarded as crucial intermediary services for companies and industries make up this type of infrastructure. The power plant infrastructure, which this study is out to examine, falls under this category.
- ii. **Soft Economic Infrastructure:** Institutions that encourage export-oriented, company financing, technology transfer, research and development, and vocational training fall under this category.
- iii. **Hard Social Infrastructure:** Sewage, homes, schools, hospitals, and water supply are examples of this. This is seen as providing households with access to necessary services, improving community welfare and quality of life, especially for those with lower incomes. The fact that some of these are periodically provided by private sector institutions like hospitals and schools may be of interest to you.
- iv. **Soft Social Infrastructure:** This comprises the social security system, several community services, and environmental protection agencies (Grimsy & Lewis, 2007)

Understanding the Concept of Power Plant

A power plant is a system that uses energy resources such as solid fuel, natural gas, hydro, nuclear, wind, and tidal, among others, to produce electricity. Despite the nation's abundance of natural resources, their development, adoption, and exchange for other items are the only ways to turn them into wealth. Without energy, this is not possible. Any nation's citizens can rise from the capital level to the highest standard of life if there is sufficient energy available and it is used properly. The expansion of the gross national product, which represents the affluence of the populace, is indicated by the growth of the power generation business. Lack of it and inadequate action can stifle the nation's entire economy and well-being. In order to meet the country's current

and future power needs, ongoing efforts have been made to create power facilities in several sectors, including hydro, thermal, nuclear, solar, wind, and tidal (Saif, 2024).

Gas Turbine Plant: The gas turbine is the most satisfactory power-developing unit among various means of generating mechanical power. It is done due to its excellent reliability, freedom from vibration, and capability to produce large power from units of small size and

However, Azura and CCETC are examples of gas turbine power plants. The gas turbine is the most satisfactory power development unit among various means of generating mechanical power to electricity. It is done due to its excellent reliability, freedom from vibration, and capability to produce large power from units of small size and weight with minimal environmental effects. (Saif, 2024).

Empirical Review of Related Literature

Cascady and Suarez-Aleman (2025) investigate the impact of public-private partnership (PPP)- enabling conditions on infrastructure development in Latin America and the Caribbean (LAC). Using a unique longitudinal dataset, their study analyses how institutional conditions in 26 LAC countries influenced PPP investment activity between 2009 and 2022. The findings indicate political and social will, along with institutional capacity, are significant predictors of PPP investment, while market reliability, transparency, governance mechanisms, and regulatory regimes, although important, are less impactful. These findings highlight the critical importance of political stability and strong institutional frameworks in driving PPP investment activity in the region. The authors are commended for their excellent job of showing how political will promotes PPP. However, this study will beam its search lights on the importance of power infrastructure on development.

Smith (2025) examines how PPPs, especially in hydroelectric projects, can unlock Africa's manufacturing potential, create jobs, and drive lasting economic upliftment. The research is based on a thorough review of recent and foundational literature, using databases like ProQuest, SpringerLink, and ScienceDirect. The sources span from 2004 to 2024, ensuring a mix of time-tested insights and the latest developments. Search terms such as "Public-Private Partnerships in Africa," "energy infrastructure," "PPP risk management," and "sustainable manufacturing growth" guided the selection of articles and studies. By pulling together the lessons from past

successes and failures, this paper shows how properly structured and managed PPPs can be a key strategy for powering Africa's future.

Mundonde and Makoni (2025) analyse the factors influencing renewable energy infrastructure public-private partnership (PPP) financing, using data from 28 countries covering the period from 1996 to 2024. A composite institutional quality index was constructed using Principal Component Analysis (PCA). The analysis employs a panel econometric framework: the autoregressive distributed lag (ARDL) model to capture short- and long-term dynamics. The results highlight the significance of the time dimension on renewable energy PPP financing. In the short term, none of the predictor variables is significant, reflecting the inherently long-term character of renewable energy PPP investments. However, in the long term, gross domestic product per capita, inflation dynamics, efficiency in energy transmission, and institutional quality are identified as key determinants of renewable energy investment. The findings suggest that strengthening sector-specific regulatory frameworks and improving various aspects of institutional quality, as defined by the World Governance Indicators, can be important to attract private capital in energy PPPs. These institutional reforms, complemented by growth-oriented macroeconomic policies, would contribute to making renewable energy markets more attractive while reducing exposure to macroeconomic and institutional risks.

Fernando, Nana, Yakkara, and Hapugoda (2024). Their research examines the success factors of Public Private Partnerships in developing power generation infrastructures in Sri Lanka, using quantitative data from a questionnaire distributed to stakeholders in CEB. The data analysis tools of descriptive and inferential statistics were used to analyse the collected data. The economic viability of the project, credibility of government policies, legal and regulatory framework, equitable risk allocation, transparent and efficient procurement process, financial market, a strong and good private consortium, and political stability were found as the main CSFs for the development of mega power plants. The study was concentrated on the public agency of CEB, for generalisation investigation to be extended to private investors, practitioners, and policymakers in the power sector. Further, a comprehensive study on the exploration of CSF to attract private investors to PPP for the development of mega power plants in Sri Lanka would be most beneficial to the industry. The framework developed in this research would be the benchmark for identifying

critical success factors for improvement in PPP projects in Sri Lanka. Keywords: Ceylon Electricity Board, critical success factor.

Okonoboh, Emhenya, and Ogbeide (2024) explore the impact of the Public-Private Partnership (PPP) model on the development of the Edo Specialist Hospital in terms of quality, modern infrastructure, and its effectiveness in enhancing access to healthcare services. They leveraged on neo-liberal theory and deployed a mixed-methods research design to comprehensively explore the impact of Public-Private Partnership (PPP) on the infrastructure development of the Edo Specialist Hospital in Benin City, Edo State, Nigeria. Findings from the study showed that the PPP model impacted Edo Specialist Hospital in terms of delivering quality healthcare services, deploying modern healthcare infrastructure, among others. It concluded that the Healthcare facility deepened its investment in healthcare infrastructure and recommended that various stakeholders in the provision of healthcare infrastructure build adequate infrastructure with quality and modernisation, among others. The authors did an excellent job of looking at how PPP has impacted healthcare infrastructure in Edo State. However, this present study will examine how PPP has impacted Power Plants Infrastructure in Edo State.

Mustapha, Oladejo, and Raji (2025) examined the impact of the partnership agreement between the Edo State Government and CCETC Ossiomo Power Plant Company on the provision of electricity to government parastatals and businesses in Benin City metropolis to the service provided by Benin Electricity Distribution. The study relied on the mixed scanning approach by combining both qualitative and quantitative research methods and concluded that Ossiomon Power Plant company has demonstrated the potential of PPP models in improving electricity access in Edo State. It was recommended that the government should provide the enabling environment for the Ossiomo power company to be able to generate and distribute its targeted 55 megawatts of electricity, among others. A major vacuum which this present study sought to fill is by expanding the impact of Ossiomo power service beyond government outfits and private businesses in Edo State, whereby a holistic assessment of how the various power infrastructure in Edo State has contributed to the local economy is conducted.

Theoretical Framework

The theory adopted is public choice theory. The main proponents of public choice theory were Nobel laureates Buchanan and Tullock (1962) in their book *Calculus of Consent*. In which they opined that public choice theory could aid in the study of various policies, political processes, and institutions. They held the view that applying economic concepts to something makes it more reasonable and efficient (Buchaana & Tollison, 1984). However, the theory, as used in this work, means that the public has a choice in choosing from either using the services provided by Benin Electricity Distribution Company or the services provided by Azura and Ossiomo Independent Power Plant.

The core assumption of public choice theory is that to improve public goods and services, it emphasises replacing democratic governance, emphasising that governments are not good at managing business. It seeks to decentralise authority and encourage citizen participation. Additionally, it seeks the welfare and freedom of all customers. The primary goal is to eliminate the government's monopoly so that private companies can play a bigger role in supplying consumers with commodities (Buchaana & Tollison, 1984).

Further to the above, it finds its usefulness in this study as it aids practitioners and researchers in comprehending that the establishment of Azura Power and Ossiomo Independent Power Plant is a private sector intervention to improve the consistent supply of electricity to the people of Edo State, breaking from the monopoly previously established by Benin Electricity Distribution Company (BEDC). This is consistent with the fundamental tenet of public choice, which holds that the role of private players aids in the supply of goods and services by creating choices for consumers to have multiple choices of services.

Methodology

The study relied on secondary source of data collection which include books, journals, Concession Regulatory Commission (ICRC) documents; Nigerian Bulk Electricity Trading PLC (NBET) documents; NBET is a government owned company that buy electricity from Generation Companies (GenCos) and sell to Distribution Companies (GenCOs), Nigerian Electricity Regulatory Commission (NERC) report and Edo budget documents constituted the sources of data to this study. The choice for a secondary source of data is hinged on the grounds of cost and time

efficiency, possibility of having access to large-scale and historical data, possibility for a broader and comparative analysis, among others. A desk analysis of the data collected was done, and on the basis of that, conclusions were drawn and recommendations made. The rationale for using a desk analysis is based on its speed and cheapness, its provision for context and background information, and its ability to identify patterns and trends over time, among others.

An Evaluation of Power Plants in Edo State

The Azura power station, which is situated close to Ihovbor, Benin City, in Edo State, about 316 kilometres (196 miles) east of Lagos, Nigeria's commercial capital, is the first greenfield power plant in Nigeria since the country's power sector reform in 2013. This location is roughly 445 kilometres (277 miles) southwest of the nation's capital, Abuja. The Muhammadu Buhari administration has approved the initiative, which was initially proposed under the Goodluck Jonathan administration. However, disagreements between the financiers and the Nigerian government caused the project's 2014 commencement to a halt. After those issues were settled, construction started up again in 2015. The project firm, Azura Power West Africa Ltd., is sponsored by a group of private investors (97.5%) and the Edo State Government (2.5%). A joint venture comprising Amaya Capital Ltd. and Actis GP LLP (51%), AIF2 Power Holding Ltd. (29%), Aldwych Azura Ltd. (14%), and ARM-Harith Infrastructure (6%) constitutes the consortium. Under a 20-year power purchase agreement (PPA) supported by a Put Call Option Agreement (PCOA) with the Federal Government of Nigeria, the plant has only one off-taker: the state-owned Nigeria Bulk Electricity Trader (NBET). A 15-year contract with a Nigerian upstream production and development company, Seplat Petroleum Development Corporation would provide gas to run the facility (World Bank Group, 2017). The project involved building, running, and maintaining a 459 MW gas-fired open-cycle power plant close to Benin City in Edo State, Nigeria.

In addition, a short underground gas pipeline spur connecting the power plant to the nation's primary gas trunk line, the Escravos Lagos Pipeline System, and a short 330kV transmission line connecting the power plant to the Benin North substation were built. The project was required to supply the national grid with much-needed electricity (Ebalu, 2025; Uwuoruya, 2026).

The Federal Government of Nigeria views the Azura-Edo IPP as a priority project, and it is scheduled to be the first greenfield IPP post-sector reform to be implemented. The first entirely project-financed IPP in Nigeria is Azura-Edo. As a result, it is seen as a ground-breaking initiative

that would open the door and establish crucial standards for upcoming project-financed, private sector-driven IPPs in Nigeria. A group of twenty multinational banks and equity finance organisations from nine different nations have contributed loans totalling US\$900 million to cover the power plant's development costs. In May 2018, the 461MW Phase 1 power plant went operational (Wikipedia, 2020).

Further, to the above, in 2020, the Edo State government under the leadership of Governor Godwin Nogheghase Obaseki entered a Power Purchase Agreement (PPA) of 55MW with Ossiomo Power and Communication Clean Energy Technology Company (CCETC-Ossiomo Power). This happens to be a game-changer in the energy market in Edo State. It is a 95MW gas-fired power plant located in Ologbo in Ikpoba Okha Local Government Area, providing 24/7 electricity to government buildings, businesses and communities in the Benin City metropolitan area. The plant has a network of approximately 200KM of transmission and distribution lines, with over 14 major substations on the 33km line. The power was commissioned in April 2020 and has been providing a 24-hour power supply, which is in line with World Bank metrics, which include power generation technologies, power transmission technologies and power distribution technologies, as well as digital metering technologies and advanced payment systems and technology, among others (Ebalu, 2025; Uwuoruya, 2026).

Electricity Generation Reliability of Azura and Ossiomo Independent Power Plants in Edo State.

Furthermore, the Azura and Ossiomo Edo-IPP are outfitted with cutting-edge gas turbines that efficiently transform natural gas into electricity. With the help of three General Electric (GE) 9E gas turbines, the Azura Edo-IPPs facility can generate 461 MW of electricity, which is enough to power more than 14 million Nigerians. This cutting-edge technology is a reasonably clean energy source since it not only guarantees high output but also complies with strict environmental regulations. Due to its performance, the plant has become a model for privately funded power generation in Nigeria, assisting the nation's economic expansion and energy reform objectives (Soluap, 2024).

The Azura-Edo IPP, which was launched in 2018, is a ground-breaking move towards an autonomous, privately funded electricity-producing project. It promotes operational efficiency and

transparency while lessening the financial burden on the public, making it a model for energy reform. The plant, which produces 461 MW, is one of Nigeria's biggest privately funded power projects. It contributes significantly to the nation's electricity grid and benefits both urban and rural residents in Edo State, where it is located, as well as other states that the power plant serves (Uwuoruya, 2026). On the other hand, the Osiomo Edo IPP is a 55 MW gas-fired power plant providing almost uninterrupted power supply between 22 to 24 to villages, companies and government buildings in the Benin City metropolitan area. For example, Benin Owena River Basin Development Authority, a Federal Government organisation, Edo Production Centre, the 5500bdp Edo Modular Refinery, Phil Hallmark Supermarket, Nigeria Observer premises, Edo State Secretariat Complex, NUJ Secretariat and Benin Club and Golf Course, University of Benin Teaching Hospital (UBTH), Constantial Hotel, Lilly Hospital, Benin Airport, Westview Hotel and others are some of the businesses associated with the Ossiomo Power plant under the administration of Godwin Obaseki. In addition to being competitive, the Ossiomo Power Plant reduces the workload of the Benin Electricity Distribution Company (BEDC) by providing dedicated power to the Benin Enterprise Park and several churches in Benin City. The Ossiomo plant availability in Edo State alters the game; investing in Edo makes excellent commercial sense because there are very few electricity-related concerns, and the impact above aligns with the thrust of the New Public Choice theory. This is still arguably one of the most famous things the Obaseki-led government did to draw in investors (Soluap, 2024; Uwuoruya, 2026).

In addition to producing electricity, the Azura and Ossiomo Edo IPP projects have significantly boosted the local economy of their host communities and state by generating jobs and promoting skill development. The projects have contributed positively to the surrounding communities. For example, thousands of Nigerian workers were hired during the construction of the Azura and Ossiomo Power Plants, with a strong emphasis on skill development in fields like engineering, project management and operational maintenance. Local talent is empowered by this skill transfer, which also enhances Nigeria's labour market by producing people qualified to work on related projects in the future. In a similar vein, both power facilities have boosted the Edo State economy, helping local companies that provide the plants with goods and services. In the neighbouring states of Ondo, Kogi, Ekiti, Delta, and others, improved access to electricity also helps small companies and entrepreneurs, fostering stability and economic progress (Soluap, 2024; Uwuoruya, 2026).

The Azura Edo IPP makes an impact given that it closely aligns with Nigeria's Power Sector Recovery Programme (PSRP), which aims to guarantee the energy sector's financial stability, decrease inefficiencies, and expand access to electricity. The project directly supports the Nigeria Energy Reform Act of 2005, which aims to improve the sustainability and dependability of the nation's power supply. By closing in the gaps in electricity access and fostering economic growth by providing a steady power supply to additional areas, the plants help Nigeria achieve its energy goals. The achievement of the project has also made it possible for comparable suppliers to start operating, assisting Nigeria in achieving its objectives of sustainable energy independence (Soluap, 2024; Uwuoruya, 2026).

The Azura-Edo Independent Power Plant (IPP) is a revolutionary accomplishment in Nigeria's search for dependable and sustainable electricity. The Azura-Edo IPP is a privately funded power plant that supports Nigeria's larger energy reform efforts while simultaneously addressing the severe electricity shortage. The plant is a potent illustration of how cutting-edge technology and private investment can work together to supply millions of people's energy requirements while establishing a benchmark for similar projects in the future (Soluap, 2024).

Also, the electricity generated by Azura- Edo IPP integrates seamlessly into Nigeria's national grid, making it accessible to communities throughout the country. Due to its advantageous position in Edo State, the plant can supply electricity to important distribution networks and lessen the frequency of blackouts. Power supply stability is improved by the grid's capacity to disperse such a large amount of energy, giving homes, businesses, and industries more dependable access to electricity (Soluap, 2024; Uwuoruya, 2026).

In addition to the aforementioned, the Azura and Ossiomo Edo IPPs project incorporates sustainability measures to reduce its environmental impact. In comparison to conventional coal-fired plants, the plant's gas turbine technology generates fewer emissions, helping Nigeria's energy infrastructure to create greener electricity. The Azura-Edo IPP is a more sustainable choice that is in line with climate communities since it prioritises natural gas, a fossil fuel that burns cleaner (Soluap, 2024; Uwuoruya, 2026).

Governance and Contractual Factors that Influenced the Performance Outcomes of Azura and Ossiomo Independent Power Plants in Edo State, Nigeria

Azura Power West Africa Limited's (APWAL) governance structure made it possible for competent supervision, openness, and efficient risk management. The project was developed by a consortium with significant experience, with investors like AIIM (African Infrastructure Investment Managers) contributing to high-level technical expertise, supporting the 30-week construction schedule. With an availability rate of more than 96%, Azura-Edo IPP has supplied more over 8% of the electricity on the national grid since May 2018. The initiative established a model for future developments by proving that large-scale, privately funded infrastructure projects are bankable in Nigeria (Azurapower.com).

The Azura-Edo Independent Power Plant (IPP) in Nigeria, which became operational in 2018, is often seen as a model for privately funded infrastructure in Africa. It has a forced outage rate of less than 2% and an operational availability of over 96%. A complicated, highly de-risked contract structure and strong corporate governance helped it perform well by reducing the risks that come with the Nigerian power sector. Azura- Edo IPP project got a reliable, long-term gas supply from Seplat Petroleum Development Company PLC and the Nigerian Petroleum Development Company (NPDC), which was very important for keeping the availability rate above 96% (Azurapower.com).

Further, the Azura-Edo IPP also signed a Put-Call Option Agreement (PCOA) with the Ministry of Finance. This gave them a clear way out (termination payment assurances) that protected them from regulatory changes or government default, which made lenders more confident. However, significant retention payments were included in the Engineering, Procurement, and Construction (EPC) contract with Siemens and Julius Berger, provided that the project was completed successfully. This directly led to the plant being completed 8 months ahead of schedule (Azurapower.com).

One of the governance factors that affected the performance of the Ossiomo power plant was the discovery by the incumbent Governor of Edo State that the Edo State Government had no supposed five per cent shares in the Ossiomo power plant, contrary to the claim by the former Governor, but was committed to monthly payments. The governor rejected the 500 million monthly bill and asked all federal agencies to be disconnected from the 11kva line, as well as the Edo Government House. Other

government buildings, the streetlights, Dr Samuel Ogbemudia Stadium, Edo Specialist Hospital, health centres and others were left on the line, and the Government later reconnected its 11kva line to the BEDC, bringing the government wage bill on electricity to less than N200 million monthly, even as it paid additional N48 million monthly to the BEDC (Otabor, 2026).

Another factor which led to the shutdown of the Ossiomo Power plant was the violation of the joint venture agreement between the CCETC and their Nigerian partner, Ossiomo Power and Infrastructure Company, owned by Dr Uwa Igiehon, which metamorphosed into the CCETC Ossiomo Power Company Limited (COPC), which was registered in 2018. In line with the above agreement, a top Director of the CCETC, who simply gave his name as Mr Wi stated thus:

The share equity of the Ossiomo Power Plant was 25 per cent for Dr Uwa and 75 per cent for CCETC. The Director stated that the agreement was that monies paid by subscribers be paid into the COPC account as contained in the JV agreement. He said monies were paid into the Ossiomo E-Technology account, another company registered by Dr Uwa. According to him, “We came to Edo State in 2018, and we signed the joint venture agreement with the local partner, the Ossiomo Power and Infrastructure. The equity was 25 per cent and 75 per cent. The 25 per cent is from Ossiomo Power and Infrastructure, and its equity is for the land and licences. They did not bring any money (Otabor, 2026).

Furthermore, another issue that affected the performance outcome of Ossiomo Power Plant was the non-transfer of the generating licence by Ossiomo Power Plant to CCETC. In a similar vein, an official of CCETC hinted thus “

After we signed the JV agreement and rejected the Ossiomo E-Technology Company, Ossiomo was supposed to transfer the generating licence to the CCETC Ossiomo Power Company (COPC). Till today, they have not transferred those licenses to the COPC. They did not follow the JV agreement. “Our partner, Dr Uwa, connected some customers along our 33kV lines and the customers paid to the account of Ossiomo E-Technology Company and not to the COPC account. The E-technology is from Ossiomo Power and Infrastructure Company. COPC paid the gas fee, and the power fee did not come to the COPC account. The customers did not pay into the COPC account. The E-Tech company will collect N100m and pay N50m to the COPC account. COPC is generating all the power but has no agreement with the customers using the power. The customers did not pay into the COPC account, which is wrong. We requested the local shareholder to transfer all the customers to the COPC and change the account for collecting payments to the COPC. The Instruction to shut down was because we were losing lots of money and did not get any return on investment (Otabor, 2026).

Development outcome of Azura and Ossiom Power Plant

The Ossiomo and Azura IPP project's development benefits include bringing much-needed extra power to Nigeria and, in turn, the larger West African power grid. The project is expected to give about 14 million residential customers access to affordable electricity at a much lower cost than generating their own power (World Bank, 2017).

The Azura and Ossiomo Edo IPP has shown a strong demonstration effect and sets a standard for future private sector investors in the gas-to-power value chain. It has a lot of government support, a dedicated lead sponsor, strong technical and engineering support, and is located close to both the country's main gas trunk line and the national transmission grid (World Bank, 2017).

Challenges associated with Azura and Ossiomo Independent Power Plants in Edo State, Nigeria

Indeed, political instability and interference are major challenges in PPPs in Nigeria. Constant change of government and policy priorities often stalls ongoing PPP projects, leading to uncertainty for investors and partners. This instability can affect long-term planning, delay project implementation, and undermine confidence in the viability and continuity of PPP initiatives. Addressing these political risks is crucial to increasing the success rate of PPPs in Nigeria. According to Flinders (2005), the change of government can result in the cancellation or renegotiation of contracts, and this erodes investor confidence. Moreover, bureaucratic and operational bottlenecks, such as delays in getting the required approvals and permits, add even more to the problem (Institute for Public Policy Research, 2004). For example, the change in political leadership and the subsequent interference by Senator Monday Okphbholo's administration in Edo State have affected the operations of Ossiomo Power Plant, resulting in the abrupt shutdown of the power plant infrastructure. In the case of Azura Power Plant, when the Buhari Government came on board, it questioned the Azura deal and threatened to repudiate it. Officials warned this could lead to an international arbitration case like P&ID (Isamotu, 2020). This whole episode tends to create uncertainty and scare off other investors

Further to the above, funding and financing challenges constitute a great hiccup to Public Private Partnership (PPP) in Nigeria. This is because these challenges limit the ability of

contractual parties (both the government and the private sector) to finance large infrastructural projects. PPP projects often call for large capital expenditures and protracted repayment terms, but Nigeria has a number of financial issues that deter investors and postpone project execution. Most Nigerian banks provide short-term loans, but PPP infrastructure, such as power plants, roads, etc require long term financing. Also, high interest rates are another challenge owing to the high cost of financing PPP projects. The high cost of borrowing reduces profit margin and discourages investors. This incongruity makes it difficult for private investors to secure adequate funds for project execution (Alamu, Hassan, Asa & Odunayo, 2024). The joint venture agreement between Ossiomo Power Plant and the CCETC further complicated the challenge of funding and finance. CCETC put in an equity stake of 75%, and Ossiomo Power Plant put in an equity stake of 25%, which was for land and license only, meaning Ossiomo Power Plant did not put in any money (Otabor, 2026). The above scenarios are cases of funding challenges that faced the agreement.

Another visible challenge of Public Private Partnership (PPP) agreements in Nigeria is contractual disputes between the government and the private sector. Contractual disputes are disagreements between parties to a contract as to what the contract means, whether it was breached or what to do about it. The disputes that always greet the PPP arrangement in Nigeria may include disagreement over what was actually agreed in the concession agreement, output specifications and performance standards, government delays or defaults on availability payments, risk allocation disputes, regulatory and policy changes, among others. For example. The Ossiomo Power Plant was embroiled in a contractual dispute, a joint ownership tussle that led to the shutdown of the Plant, court orders and arbitration. “It’s a battle for ownership and control of the plant and infrastructure.” Azura, on the other hand, has contract disputes with the public sector over the financial terms of the Power Purchase Agreement and Put Call Option Agreement (PPA/PCOA), specifically the requirement to pay for power not used, and concerns about sovereign liability(Cable, 2020; Akpan, 2020).

One of the foremost issues in the implementation of PPPs in Nigeria is the inadequate regulatory and legal framework. Despite the establishment of the Infrastructure Concession Regulatory Commission (ICRC) in 2005, there remain significant gaps and inconsistencies in the legal provisions governing PPPs. A robust legal framework is essential for providing clarity and security to private investors (Idornigie, 2012). Regulatory and policy inconsistencies refer to

unstable, conflicting, or unclear laws, regulations, and government policies that change during the life of a public-private partnership and create uncertainty for both the public and private partners. After the Electricity Act of 2023, the Ossiomo Power plant faced concurrent regulatory jurisdiction as powers were devolved to states, whereas Ossiomo Power was established under the old system, where generation and distribution were under NERC and BEDC. However, Azura- Edo Power Plant was constrained by a federal policy inconsistency on gas supply and tariff, take-or-pay controversy, Transmission Company of Nigeria (TCN) planning not in alignment with Independent Power Plant (IPP), among others (Idornigie, 2012). Conversely, Ojebode (2016) notes, the absence of specific laws on PPPs often creates uncertainties and risks that dissuade private sector participation.

Furthermore, both Azura and Ossiomo IPP were also met with some public accountability challenges, for example, the JV disputes with the Chinese partner CCETC led to petitions to EFCC questioning Edo State's financial stake and how revenue was handled through the Quadrant Consolidated System Engineering, and the non-transferring of the operating license by Ossiomo E. Technology Company to CCETC Ossiomo Power Company (COPC), and the operation of a secret account by Ossiomo E. Technology Company. The E-Tech company will collect N100m and pay N50m to the COPC account. COPC is generating all the power, but has no agreement with the customers using the power (Otabor, 2026). Azura IPP also exhibited accountability and transparency issues with "take-or-pay" payments. Between January and June 2023, Azura received over #18 from National Bulk Electricity Transmission PLC (NBET) as excess tariff payment and other settlements, but failed to disclose or account for these funds when the House of Representatives ad hoc Committee on Power Sector Reform queried them. These are a few cases of public accountability among many, which the two Azura and Ossiomo Power Plants faced (Asaolu, 2025).

Conclusion

This paper espoused power plants infrastructure and evaluated the impact of Azura and CCETC Ossiomo Power Plants Infrastructure in Edo State, which showed that the power plants infrastructure aligns with the Nigeria Power Sector Recovery Programme, which directly supports the Nigeria Energy Sector reform Act of 2025. The study disclosed further that Azura and CCET Ossiomo are both gas power plant facilities built through a public-private partnership (PPP)

agreement to ameliorate the power challenge bedeviling Edo and its sister states. The study further revealed that the Azura and CCETC Ossiomo Power are outfitted with cutting-edge gas turbines with a minimal environmental impact that efficiently transform gas into electricity, and were observed to have significantly contributed to the nation's electricity grid by providing a 24/7 power supply to urban and rural residents in Edo and its sister states. Furthermore, due to the plant's advantageous position in Edo State, the plant has supplied electricity to an important distribution network and lessened the frequency of blackout by distributing a large amount of energy to homes, businesses, and industries, thereby supporting economic growth and productivity (Soluap, 2024; Uwuoruya, 2026).

Recommendations

Arising from the plethora of discussions and evaluations above, the following recommendations were made:

- (i) That all the processes that involve the payment of gas, spare parts and debt between Azura and Ossiomo IPPs and their contracting party should be paid in naira instead of USD. This is because both plants suffer as gas is priced in USD, but revenue is in Naira. During a foreign exchange shortage, they cannot pay gas suppliers, and a shutdown becomes inevitable. Dedollarization of the entire value chain will guarantee a steady supply to the end consumers.
- (ii) The incumbent government in Edo State should revisit the joint venture agreement that birthed Ossiomo Power Plant with a view to acquiring a five per cent or more equity stake in Ossiomo Power to enable the plant to be well-positioned for better service delivery to the Edo State people.
- (iii) Given the tremendous economic impact of Azura and Ossiomo Edo IPP governments across Nigeria should collaborate with the private sector in order to deepen their investment in Independent Power Plant so as to help alleviate energy poverty, which the country is currently battling with.
- (iv) That parties to the Independent Power Plants Joint Venture Agreement should be transparent and honest in the course of doing business with all contractual parties.

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