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This action is funded by the European Union

## ANNEX

of the Commission Decision on an individual measure in favour of Nigeria to be funded from the 11<sup>th</sup> European Development Fund

### Action Document for "Second Contribution to the African Investment Facility (AfIF) in support of the Energy Sector in Nigeria"

<b>1. Title/basic act/ CRIS number</b>	Second Contribution to the African Investment Facility in support of the Energy Sector in Nigeria CRIS number: NG/FED/040-050 Financed under the 11 <sup>th</sup> European Development Fund (EDF)			
<b>2. Zone benefiting from the action/location</b>	Nigeria (NG) The actions shall be carried out at the following location: Federal and State levels in the Federal Republic of Nigeria			
<b>3. Programming document</b>	National Indicative Programme (NIP 2014-2020) – 11 <sup>th</sup> EDF			
<b>4. Sector of concentration/ thematic area</b>	Priority area 2 – Sustainable energy and access to electricity	DEV Aid: YES		
<b>5. Amounts concerned</b>	Total amount of EDF contribution: EUR 65 000 000 This action is co-financed by entities and for amounts specified in the indicative project pipeline which is an appendix of this Action Document			
<b>6. Aid modality and implementation modality</b>	Project Modality This action regarding the African Investment Facility (AfIF) shall be implemented in indirect management by entities to be indicated in complementary financing decisions to be adopted at the end of the AfIF project procedure			
<b>7. a) DAC code(s)</b>	232 – Energy generation - renewable sources 23630 – Electric power transmission and distribution 23210 - Energy generation, renewable sources – multiple technologies			
<b>b) Main Delivery Channel</b>	Donor Government – 11000			
<b>8. Markers (from CRIS DAC form)</b>	<b>General policy objective</b>	<b>Not targeted</b>	<b>Significant objective</b>	<b>Main objective</b>
	Participation development/good governance		X	<input type="checkbox"/>
	Aid to environment		X	<input type="checkbox"/>
	Gender equality (including Women In Development)	X		<input type="checkbox"/>

	Trade Development		X	<input type="checkbox"/>
	Reproductive, Maternal, New born and child health	X	<input type="checkbox"/>	<input type="checkbox"/>
	<b>RIO Convention markers</b>	<b>Not targeted</b>	<b>Significant objective</b>	<b>Main objective</b>
	Biological diversity	X	<input type="checkbox"/>	<input type="checkbox"/>
	Combat desertification	X	<input type="checkbox"/>	<input type="checkbox"/>
	Climate change mitigation			X
	Climate change adaptation	X		<input type="checkbox"/>
<b>9. Global Public Goods and Challenges (GPGC) thematic flagships</b>	N/A			
<b>10. Sustainable Development Goals (SDGs)</b>	SDG Goal 7, to ensure access to affordable, reliable, sustainable and clean energy for all SDG 9, Build resilient infrastructure, promote sustainable industrialization and foster innovation SDG 13, Take urgent action to combat climate change and its impacts			

#### SUMMARY:

Electricity supply in Nigeria, the largest country in sub-Saharan Africa with a population of 180 million, is significantly impaired by critical and frequent outages and power unavailability for almost half of the population.

Within the framework of the 11<sup>th</sup> EDF National Indicative Programme 2014-2020 (NIP), the EU has allocated EUR 150 million to contribute to improving access to the sustainable supply of electricity, particularly for the poorest and in northern Nigeria. In line with the specific objectives identified under this sector in the NIP, this action proposes a contribution from the NIP to the AfIF to support blending operations in the following three areas:

**1. Support to grid management and stabilisation, to facilitate renewables feed-in:** this component is in line with the priorities of the Government of Nigeria to diversify the energy mix and promote the development of renewable energy, in particular on large scale solar. This component is also coherent with the first AfIF contribution, supporting a large scale solar plant in Bauchi State, and the interventions under the EU-Africa Infrastructure Trust Fund.

**2. Support to waste to power projects,** involving Nigerian States and Municipalities for a total estimated capacity of 40 MW: this component has been selected as a result of interest shown both by several States (especially Oyo, Lagos and Ogun States) and Financing Institutions (in particular Agence française de développement (AFD)) and as a result of the Sustainable Energy for All (SE4all) Technical Assistance Facility (TAF) mission was organised in Nigeria in 2016. As a result, the EU Delegation launched a feasibility study for a waste to energy project in Ogun State.

**3. Support solar home systems, mini-grids and rural electrification related projects:** new connexions will not be made by distribution companies (DisCos) in the medium term, as they are focusing on losses in the existing grid, and there is interest from other private operators to do so. The EU has strong experience in rural electrification and current interventions show the social and commercial benefits of promoting this type of investments. This component is the Nigeria window of the Electrification Financing Initiative - ElectriFI.

Blending shows a particular added value and enhances private sector participation by making investments in the energy sector more attractive and by scaling up interventions that otherwise would stay at a pilot level, as they would not be financially viable in the current context in Nigeria.

The action is complementary to other EU interventions in the sector. Indeed, the latter are supporting the government in creating the proper policy and regulatory framework for private sector investments in renewable energy (RE) and energy efficiency (EE). Pilot projects have been launched to show the replicability of viable business models, for example for mini-grids. Previous support to blending operations focused on vocational training, a credit facility for RE and EE, as well as the transmission line and feeder station for a large scale solar project in Bauchi.

Through its impact on economic activity, the project will contribute to mitigating the risks of irregular migration. The action will also contribute to the implementation of the Economic Partnership Agreement (EPA), as energy is one of the main factors affecting Nigeria's competitiveness.

## **1 CONTEXT**

### **1.1 National, sector context**

Despite its rich gas and oil reserves and the corresponding export earnings, Nigeria continues to suffer from a chronic shortage of electricity. Nigeria has available capacity of only 2,500-3,500 MW to meet the needs of a population of almost 180 million. The estimated demand for electricity in Nigeria, as of January 2016, is 12,800 MW. The country lags far behind other developing nations in terms of grid-based electricity consumption, with about 126 kWh per capita, while Ghana and South Africa have an average consumption, respectively, of 361kWh and 3,926kWh. The energy mix is heavily reliant on fossil fuels.

Approximately 45% of Nigerians lack access to electricity and those with access face frequent power outages. Despite repeated attempts at reforms by successive governments, the country has the second largest access deficit in the world. Nigerians get much of their electricity from private, mainly diesel, generators at a higher cost (Nigerian Naira, NGN, 62 to 94 per kWh) than grid-based (NGN 26 to 48/kWh) power. Self-generation accounts for a significant portion of most businesses' recurrent expenditure and has resulted in environmental degradation and contributed to the increased price of goods and services. In the 2015 Nigeria Investment Climate Assessment, 83% of Nigerian business owners stated that lack of electricity is the biggest obstacle to doing business (compared to Indonesia 14% and Kenya 28%).

The Nigerian energy sector has changed fundamentally in the recent years. The power sector was unbundled and privatised in 2013, leaving only the transmission network in federal government's hands. A transitional electricity market is in force but, for most of 2016, a number of key agencies, principal officers and boards were to be appointed. Further, vandalism and unprecedented large-scale and well-orchestrated sabotage has crippled gas supply, creating chronic gas shortages at power plants and impacting available grid electricity volumes. Underinvestment in maintenance and infrastructure has constrained the transmission grid, as well as a tariff modelled for larger volumes of electricity. Liquidity is also a major sector issue: due to the lower amounts of power delivered, distribution companies are getting less revenues than expected and this has repercussions on the amounts paid throughout the value chain, up to the generation companies, who then have an incentive to provide even less

power. This inefficient energy sector is a constraint for the overall development of the country.

The Government has been encouraging investments in both renewable energy and energy efficiency for a few years, but systematic vandalism of strategic gas infrastructure in spring 2016 created a renewed sense of urgency regarding these investments. In a recent review of the energy sector<sup>1</sup>, an in-depth analysis was made on the potential for on-grid renewable energies especially hydropower, solar energy, wind energy as well as the conditions and possibilities for promoting rural electrification in remote areas. The Federal Ministry of Power, Works and Housing took the lead in coordinating efforts to exploit alternative energy sources for ensuring reliable electricity supply and improving energy access. 14 solar Independent Power Producers (IPPs) signed contracts with the Government in July 2016, for a tariff of 11.5 cents KWh and amounting to an estimated total capacity of 1200 MW. Financial closure of the projects is expected by July 2017. Some members of AfIF are among the prospective financial institutions.

Though there is no focus on regulation/green tariff development for Waste to Energy (WtE) generation at Federal level, at State and Municipality level, several initiatives and project development are ongoing to generate electricity using collected waste as a source. A TAF mission organised in Nigeria in July 2016 identified 4 projects to be supported in the short term. Feasibility studies are ongoing for two of them, in Ogun State and in Lagos, the former with EU funding. AFD is supporting several states, in particular Ogun State, to improve their solid waste management from collection to disposal including a blending approach to develop Waste to Energy component and implement innovative technologies along the value chain.

### ***1.1.1 Public Policy Assessment and EU Policy Framework***

The present administration has made the implementation of the sector development agenda, detailed in the 2005 ***Electricity and Power Sector Reform Act*** and its alignment across the industry a top priority in order to meet and deliver on its goals, following a bold privatisation of the sector.

A ***National Renewable Energy<sup>2</sup> and Energy Efficiency<sup>3</sup> policy*** (NREEEP) was adopted in May 2015 to create an enabling environment for investments in the sector. However, the action plan's precise timelines and targets have still not been agreed upon and the market system currently takes insufficient account of the specific requirements for renewable energy and energy efficiency. A Rural Electrification Fund has been set up to promote, support and provide rural electrification programmes through public and private sector participation, to expand the grid and develop off-grid electrification. However, the fund is not yet operational, mostly due to the low priority given to it by the government. A ***draft rural electrification strategy and implementation plan*** has also been submitted for approval.

The energy sector has benefitted from a large number of studies and initiatives including the ***Nigerian energy sector: an overview with a special emphasis on renewable energy, energy***

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<sup>1</sup> The Nigerian Energy Sector: an overview with special emphasis on renewable energy, energy efficiency and rural electrification – 2015 –GIZ (Gesellschaft für Internationale Zusammenarbeit – German Agency for International Cooperation).

<sup>2</sup> Renewable energy is understood as a flow of energy, produced from non-finite sources, including wind, solar, hydro and biomass.

<sup>3</sup> Energy efficiency is reducing the amount of energy needed for a product or service.

*efficiency and rural electrification* (GIZ - NESP 2015) which is considered a reference for the analysis of possible interventions in the sector. The main directions in the area of sustainable energy have been agreed in the *Sustainable Energy for all Action Agenda*, approved in July 2016, and the *Renewable Energy Action Plan*. The agenda sets the vision and targets for 2030 together with the priority action areas. Specific technical assessments have been undertaken under NESP 1 focusing on grid integration and grid flexibility; these studies identify infrastructure bottlenecks to the integration of variable renewable energy sources into the grid<sup>4</sup>.

The national priorities are fully aligned to the EU vision to ensure access to secure, affordable, clean and sustainable energy services which has been identified by the European Union's Agenda for Change as one of EU's priorities and a key driver for inclusive growth. The EU strongly supports the United Nations' (UN) Sustainable Development Goal 7 (SDG) on affordable, reliable and clean energy and has been one of the leaders in the UN initiative on Sustainable Energy for All (SE4ALL), aiming at ensuring universal access to modern energy services, doubling the share of renewable energy in the global energy mix and doubling the global rate of improvement in energy efficiency. The EU's target is to help developing countries to provide access to sustainable energy services to 500 million people by 2030. These are in line with targets established within the Africa-EU Energy Partnership. Recently ElectriFI emerged as a label to unlock, accelerate and leverage investments on access to affordable, reliable, sustainable energy. The response of the private sector and financiers to the first ElectriFI invitation for applications, in 2016, was significant, namely in Nigeria, from which 19 proposals originated and 1 was approved. Based on this experience and the difficulties faced by private developers, the current intervention proposes to open a window for Nigeria for the component on rural electrification projects.

The proposal is at the core of the National Indicative Programme's (NIP) overall objective which is to contribute to improving access to the sustainable supply of electricity, particularly for the poorest and in the least developed states in northern Nigeria.

**1.1.2 Stakeholder analysis**

Stakeholder	Analysis
<p><b>Federal Ministry or Power Works and Housing (FMPWH)</b></p>	<p>FMPWH is central to power development in Nigeria, even in the framework of a privatised market. Since 2015, the Ministry has undergone some reform and has a standalone department of Renewables and Energy Efficiency, which makes proposals and coordinates government actions in this field. The Ministry has experienced challenges adapting to its new role post-privatisation and has stepped in into the responsibilities of some of the mandated institutions.</p>
<p><b>Nigerian Electricity Regulatory Commission (NERC)</b></p>	<p>NERC is the sector regulator, responsible for setting tariffs, which are not yet fully cost-reflective, and licensing. It coordinates well with other power sector institutions and should</p>

<sup>4</sup> "System adequacy reporting in Nigeria: assessing the requirements for an electrical energy grid system to attain grid adequacy" and "Grid integration study for PV in Nigeria: Investigations on the technical and economic short-term impact of addition of renewable energy to Nigeria's electrical energy grid", defining achievable short-term targets for renewable energy.

	be independent. Nonetheless, NERC has not had a functioning Board since December 2015 and lacks certain specialised skills, which does not always allow it to fully fulfil its mandate.
<b>Nigerian Bulk Electricity Trading Plc (NBET)</b>	NBET purchases bulk electric power and related services from Independent Power Producers (IPPs), such as the generation companies privatised in 2013 (GENCOs). Its role in integrating large scale solar power to the grid is key. It has signed 14 Power Purchase Agreements- PPAs - with private developers in July 2016 and is looking at setting competitive bidding for the next rounds.
<b>States</b>	<p>States are meant to create an enabling environment for better electricity supply in their distribution zones. They are responsible for generation, transmission and distribution of electricity to rural off-grid communities and have the authority to allocate land and right of way. Some states are taking a keen interest in improving access but planning capacities are still low.</p> <p>States like the Anambra, Kaduna, Lagos, Ogun, Oyo States are actively encouraging the development of projects integrating waste collection to generation and combating climate change via re-forestation and tree planting actions.</p>
<b>Transmission Company of Nigeria (TCN)</b>	TCN houses the System and Market Operator and is one of the weakest links in the overall grid system due to project management and investment capacity constraints. The distribution companies, most of which have states as minority investors, face significant liquidity challenges, as well as high commercial and operational losses.
<b>Private sector</b>	The private sector promotes and implements Renewable Energy projects. Developers for large scale solar include Nigeria Solar Capital Partners and Pan-Africa Solar. Until now, different companies have focused on stand-alone home systems, such as Nova-Lumos Power. Other known providers for solar include Creeds Energy, Anergy, Bluecamel Energy, G.V.E. Energy, Consistent Energy, SOSAI Energy and Anjeed Innova. The latter's projects range from stand-alone home systems, mini-grids and in some cases, micro-grid systems. They also include solar home appliances such as lamps and cooking stoves. The expected increasing demand for renewable energy and related products and services should provide opportunities for the development of a supply chain of local Small and Medium Enterprises (SMEs).

### ***1.1.3 Priority areas for support/problem analysis***

The key problem areas the action seeks to address are the dependence on fossil fuels, the low generation capacity available as well as lack of access to electricity in disadvantaged areas. The bulk electricity system has been affected by insufficient and inadequate capacity in generation, transmission and distribution and is marred by high levels of system failures, electricity losses and vandalism.

The **first component of the programme** aims at supporting **grid management and stabilisation, to facilitate renewables feed-in**. Indeed, a number of solar projects are expected to reach maturity this year and most of them are located in the North West of the country. The large scale solar projects will require additional investment to adapt the transmission system to integrate additional capacity and operate with intermittent/variable energy resources. The investments under this action could substantially accelerate the improvement of grid operations, grid stability and thus **renewables feed-in**. As a result the action will allow for the diversification of the energy mix and improvement of energy security. For this type of intervention, blending is the most appropriate funding tool.

Privatisation has been implemented, with the transition of the energy generation and distribution segments to private ownership and management, but is affected by investment constraints in energy generation and liquidity issues, starting at the distribution end. This means that the grid system will not be extended to reach isolated areas in the north in the near future and alternative solutions have been explored at state and municipal levels.

The **second component of the programme** aims at addressing the waste management issues by generating energy from the collected waste. This is a solution that several States are actively pursuing. The TAF mission in July 2016 outlined a number of projects which have already been prepared with a clear ownership structure under a private-public partnership scheme. The mission also highlighted that waste to energy is a viable option to help meet the energy needs of Nigeria. Projects under this component could potentially be replicated in other locations in Nigeria. Waste to energy and the implementation of innovative technologies can be integrated into the waste to management value chain.

The **third component** is designed to reply to the strong need for further electrification of areas without stable supply of electricity, as grid extension is currently not foreseeable. The interventions under this component look at off-grid renewable energy solutions as potential alternatives to promote rural electrification and a study has been undertaken by the Nigeria Energy Support Programme, highlighting where decentralised systems would be most cost effective. This component is aligned with the interventions made under Solar Nigeria and also represents a strong opportunity to scale up pilot interventions promoted under the NESP programme. It is aligned with the *EU Support to the Energy Sector's* second component, aiming at bringing solar power to remote areas especially in the North, and with the Borno package under preparation, which has an energy component focused on rural electrification through renewable energy.

**2 RISKS AND ASSUMPTIONS**

Risks	Risk level (H/M/L)	Mitigating measures
Debt sustainability could negatively impact blending operations, as the Debt Sustainability Report 2016 reclassified Nigeria from a "low-risk of debt distress" to a "medium-risk of debt distress" country. Debt-to-Revenue and Debt Service-to-Revenue exceeded country-specific thresholds. These changes can be directly linked to the currency devaluation and decline in oil	M	Project application forms contain information about debt sustainability provided by Financial Institutions (FIs). FIs also have internal policies in terms of sovereign lending. The EU Delegation is consulted in this process. Nigeria has scope to take on further debt. Debt to Gross Domestic Product (GDP) ratio has risen from about 12% in 2015 to 13.5% in 2016, but this is still far below 40% of GDP for

revenues due to unrest in the Niger Delta.		countries in Nigeria's peer group. Nigeria is estimated to be able to borrow up to USD 22 billion in domestic and foreign loans in 2017 without risk of default.
The existence and application of favourable policies by Nigeria in the energy sector will be of high importance and should be considered when deciding about support to an operation in such a way that a systemic impact is being aimed at.	M	Electricity is a key area for the Buhari administration and long-lasting results are being sought out in order to ensure the successful transition to a fully private sector led market. The current tariff is based on inaccurate volume projections, leading to liquidity constraints.
Blending projects crowd out private sector financing.	L/M	The risks inherent to investment in Nigeria and the current foreign exchange challenges are a deterrent to private investment and justify EU involvement. An assessment on the additionality of EU funds will be made in all blending operations proposed.
Low quality pipeline of project proposals and also of renewable energy (RE) and rural electrification (RrE) projects.	M	Pre-feasibility studies and technical assessments on potential projects will be conducted through the programme and the Technical Assistance Facility (TAF).
No large scale solar projects reach financial closure during 2017.	L	The EU grant should ensure closure of a handful of projects in the course of 2017, given the degree of interest by specialised investors and development banks.
Security risks and non-acceptance by local communities affects project implementation.	M	None of the projects is currently in areas controlled by Boko Haram. Social and economic impact studies recommend proper mitigation measures, which are implemented.
The EU grant creates market distortions.	M	Pre-feasibility studies and technical assessments on potential projects will be conducted through the programme, other EU-funded projects (such as the Nigeria Energy Support Programme 2) or the EU SE4all Technical Assistance Facility (TAF).
<b>Assumptions</b>		
<ul style="list-style-type: none"> <li>• A sufficiently stable political and financial climate is in place to promote and secure investments.</li> <li>• Financial Institutions are engaged in actively identifying projects susceptible to involve blending operations, in close cooperation with the partner country and the EU delegation.</li> <li>• The Federal Government of Nigeria continues to be committed to the promotion of RE, EE and RrE.</li> <li>• Private funds are available to finance projects.</li> </ul>		

### 3 LESSONS LEARNT, COMPLEMENTARITY AND CROSS-CUTTING ISSUES

#### 3.1 Lessons learnt

Since 2007, the EU has set up 8 blending facilities<sup>5</sup>, achieving worldwide coverage. Globally, by the end of 2015, the support approved under the facilities from the EU budget and EDF resources has reached a sum of more than EUR 2.7 billion, generating EUR 50 billion total investments. In Africa, the EU-Africa Infrastructure Trust Fund was set up in 2007 and has provided since then support to projects for a total of more than EUR 700 million mainly in the energy, transport and water sector. During its mid-term evaluation, a number of recommendations were made; notably in terms of improvements to the decision-making structure and in particular the role of EU delegations and partner countries, further exploring the involvement of private sector, the use of specific financial instruments such as risk mitigation instruments, and finally the implementation of a result measurement framework.

In this context, the Court of Auditors published a special report on blending in October 2014, which recommended:

- a. ensuring documented assessment of the additionality resulting from the EU grant;
- b. ensuring the maturity of projects submitted to executive boards and produce guidelines;
- c. ensuring a more proactive role of Delegations;
- d. simplifying the decision making process and improving the Commission's monitoring of the projects;
- e. ensuring appropriate visibility for EU funding.

The AfIF was set up as a result of these different findings and recommendations, with a governance framework that improves the accountability of the decision making process while reducing transaction costs.

Previous blending operations in Nigeria show the difficulty in sticking to timelines when negotiations with the government are ongoing and authorisations needed, as shown for the Katsina Pan-Africa Solar and Bauchi Nigeria Solar Capital projects. Further, the commercial line set up for distribution companies with AFD allows underlining the eagerness of the private sector to get structured support. These considerations are taken on board in the dialogue with the IFIs and the Government and have impacted on the selection of the components.

The 10<sup>th</sup> European Development Fund financed the *Nigeria Energy Support Programme* (NESP), implemented by GIZ (Gesellschaft für Internationale Zusammenarbeit – *German Agency for International Cooperation*), supports improved access to energy through renewable energy and energy efficiency measures. A policy for RE and EE was adopted, feed-in-tariffs and grid codes revised, support was given to the bulk trader and pilots have been launched, namely on rural electrification. The latter show the need for a share of subsidy for mini-grids, which provide access to large numbers. The current intervention is fully aligned with the areas of work covered by previous and current projects while taking on board the need for a degree of flexibility due to the specific security and economic features of Nigeria including the ongoing strong recession that affects the country.

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<sup>5</sup> EU-Africa Infrastructure Trust Fund (ITF), Neighbourhood Investment Facility (NIF), Latin America Investment Facility (LAIF), Investment Facility for Central Asia (IFCA), Asian Investment Facility (AIF), Caribbean Investment Facility (CIF) and Investment Facility for the Pacific (IFP) and Western Balkan Investment Framework (WBIF).

### **3.2 Complementarity, synergy and donor coordination**

By enabling joint operations (combining bilateral and EU grant funding with eligible Finance Institutions loan operations), the projects financed under the AfIF will generate greater coherence and better coordination between donors, in line with the Paris Declaration principles and in compliance with the EU Financial Regulation. Member States' resources will reinforce the EU effort. The AfIF will finance larger operations, better supporting partners in the necessary reforms and investments, and bringing greater visibility for the European dimension of external cooperation. Co-financing with non-EU financial institutions will certainly further improve donor coordination and harmonisation.

Special attention will be given to ensure complementarity with other existing EU financial instruments for the region notably the African, Caribbean and Pacific Investment Facility (ACP IF) under the ACP-EU Partnership Agreement ("Cotonou Agreement"), and the EU-Africa Infrastructure Trust Fund.

In addition, several development partners are already active or planning to get involved in supporting the energy sector in Nigeria. Indeed, EU, GIZ, AFD, AfDB (African Development Bank), Japan International Cooperation Agency (JICA), Department for International Development UK (DFID), United States Agency for International Development (USAID), World Bank, finance and implement various types of institutional support measures, actions, studies and capacity building programs. A donor coordination group, co-chaired by DFID and the World Bank, is in place to exchange information, conduct policy dialogue with Government and avoid overlap of donor activities. Policy dialogue between the EU and the Nigerian Government takes place at technical level, through regular exchanges namely with the FMPWH and the National Authorizing Officer (NAO), and through meetings at Ministerial and Permanent Secretary, level with the Ambassador of the European Union to Nigeria and Economic Community Of West African States (ECOWAS) and the Head of Operations, usually three times a year.

DFID funds the Nigeria Infrastructure Advisory Facility (NIAF) which supports institutions in the energy sector, mainly to implement the initiated reform measures and to do strategic planning. Solar Nigeria has provided electricity to schools and clinics, while bringing down barriers to entry for solar to private consumers and SMEs and, finally, encouraging on-grid solar.

GIZ has implemented the EUR 24 500 000 Nigerian Energy Support Programme (NESP) for the EU and the German Government, including components on large scale RE and rural electrification.

AFD is contributing to transmission system upgrade and extension, supporting distribution companies (DisCos) and vocational training (National Power Training Institute of Nigeria (NAPTIN)), including with EU grants. It will look into energy efficiency gains and renewable energy through a credit line, Sustainable Use of Natural Resources and Energy Finance (SUNREF), supported by EU-ITF and NIP funding approved in 2016. This line will look at small and medium scale projects, including hybridisation, and is expected to be operational in the second semester of 2017.

The World Bank has focused on improving gas supplies to thermal power stations and the transmission and distribution infrastructure. Other programmes aim to rehabilitate hydro power plants and to improve access, namely by mapping least-cost expansion of the grid.

Similarly, AfDB provides direct financing to FMPWH and partial risk guarantees have been made available in support of the privatisation. AfDB has just launched its New Energy Deal and is looking to create synergies with other donors in Nigeria.

JICA provides technical advisory services in the fields of energy planning and hydro power development.

USAID provides general energy policy consultancy, has set up a financing facility for renewable energy and is scaling up its support through the Power Africa initiative.

Other development banks active in the Nigeria power sector are IFC (International Finance Corporation), FMO (Dutch Development Bank "Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden"), OPIC (Ogun State Property and Investment Corporation) and Proparco (private sector financing arm of AFD).

The European Investment Bank (EIB) took interest in large scale power plants but withdrew its involvement for security and procurement concerns, namely because the signature of the PPAs was not the result of a structured procurement process in line with EIB rules.

### **3.3 Cross-cutting issues**

Cross cutting issues will be addressed in all activities implemented under of the project. Regional organisations, partner countries and eligible financial institutions will ensure that all projects financed with EU resources respect EU principles in terms of environmental and social impact (e.g. gender issues, indigenous people's rights, governance, etc.), public procurement, state aid, and equal opportunities. All activities must also respect the principles of sound financial management with effective and proportionate anti-fraud measures as well as good governance and human rights (applying the Rights Based Approach Toolbox).

Environmental and social issues will be a key part of the project design and assessment process in terms of ensuring positive environmental and social impact of infrastructure projects, as well as climate-proofing the proposed projects. All projects will be subject to an Environmental Impact Assessment as per the AfIF guidelines in order to identify their potential environmental impacts and measures to integrate in their design to ensure they will not result in significant adverse impacts on the environment during their construction, operation and decommissioning. Further, the increased on-grid electricity supply and use of RE will reduce the need for the combustion of fossil fuels (diesel and petrol generators), charcoal and firewood, as well as ensure sustainable global benefits in slowing the growth rate of greenhouse gas emissions. Particular attention will be given to waste management derived from the deployment of renewable energies. The project will contribute to CO<sup>2</sup> emission reduction. Indeed, it is estimated that a solar plant of 25 MW prevents the emission of 23 000 tonnes of CO<sup>2</sup> per year during 25 years. If 500 MW come on stream, related grid investments would contribute to 460 000 t CO<sup>2</sup> savings per year.

Energy projects can contribute to gender equality and women empowerment by engaging women throughout the value chain and in decision-making roles from which they have traditionally been excluded. The National Gender Policy and its Strategic Implementation Framework and Plan were adopted in 2006 and 2007 respectively, as policy documents to guide the country in the implementation of various national, regional and global commitments on women's development, empowerment; as well as gender equality in Nigeria.

A major challenge for the Nigerian Government is moving from the policy goals to implementation.

## 4 DESCRIPTION OF THE ACTION

### 4.1 Objectives/results and options

This programme is relevant for the United Nations 2030 Agenda on Sustainable Development. It contributes primarily to the progressive achievement of SDG Goal 7, to ensure access to affordable, reliable, sustainable and clean energy for all, SDG 9, Build resilient infrastructure, promote sustainable industrialization and foster innovation and SDG 13, Take urgent action to combat climate change and its impacts. This does not imply a commitment by the country benefiting from this programme.

The **overall objective/impact** of the action is to contribute to Nigeria's economic and social development through better access to reliable and sustainable energy.

The **specific objectives** for the action are as follows:

- To enable and foster investments for sustainable energy
- To allow the diversification of on-grid generation capacity through renewable energy
- To improve access to electricity for disadvantaged, mostly rural, communities

Expected **results** are:

- Increased private investment in RE projects
- Increased electricity generation through on-grid and off-grid renewables
- CO<sup>2</sup> emissions reductions and scaling up sustainable business models in the sector

### 4.2 Main activities

Indicative activities will contribute to investment projects to improve access to sustainable energy, with a particular focus on grid management and stabilisation, waste to power and rural electrification.

**1. Support to grid management and stabilisation to facilitate renewables feed-in:** investments in the grid allowing for the inclusion of variable energy sources such as solar could be done through AFD, through its foreseen loan supporting the transmission sector, Electricity Sub-sector Support Project - PASSEN, and in close relation with GIZ. Indeed, the latter will implement the Nigeria Energy Support Programme 2 from October 2017 until September 2020, as approved by the European Development Fund Committee in November 2016, and will provide technical assistance to allow for successful integration of renewables to the grid. The NIP funds transferred to AfIF would allow the Transmission Company of Nigeria - TCN, and possibly, the DisCos, to increase transmission capacity, rehabilitate the existing network and improve grid stability and flexibility to allow for an efficient operation of the grid with renewable energy sources. These investments are needed for rehabilitation/extension of the existing network, in particular regions with high potential for solar development, information and communication technology (software and hardware) for the National and Regional Control Centers, into upgrades or installation of automatic measurement and control equipment at transmission, distribution and generation assets, e.g. Supervisory control and data acquisition –SCADA-. Further, a generation forecasting system for variable renewables (solar, wind) will have to be established at TCN-ISO (TCN-International Standards) and potentially for DisCos that intend to directly contract variable renewable generation capacity. Implementation support for most of the above measures is a part of NESP I and II but additional financing for the investments themselves will be needed.

NIP funds to support these concrete investments would build on GIZ technical assistance and studies, substantially accelerating the improvement of grid operations, grid stability and thus facilitating **renewables feed-in**.

**2. Waste to energy projects:** under this component, the EU would join the forces with AFD to include a waste to energy component in the waste management value chain. Indeed, AFD would support several states, in particular Ogun State, to improve their solid waste management from collection to disposal. A blending approach would be used to develop waste to energy component and implement innovative technologies along the value chain. This approach would contribute to reduce the cost of waste management for beneficiaries and make projects more sustainable with a huge demonstration effect. It would also have a strong impact on improving public health in the targeted states. Using the blending approach would be one option. Another option would be to implement waste to power projects as a preferred technology under an ElectriFI dedicated Nigeria window. The final choice will depend on the financial models, technical set-up and institutional arrangement recommended by the feasibility study. It is only after the completion and approval of the feasibility study that an informed decision will be taken.

**3. Support solar home systems, mini-grids and rural electrification related projects:** support to small scale renewables would be done through an IFI, following a call for proposals labelled ElectriFi and specific to Nigeria. The proposal aims to leverage significant funding from financiers and the private sector, in line with the intention to move, whenever possible, from traditional grant schemes to reimbursable schemes, as foreseen under AfIF, so as to bridge the financial gap and bring more projects to bankability status. It will have a demonstration effect that is expected to result in replication of the business models supported to a point where it would not require any concessional funding and financing.

The projects earmarked for financing at this stage are indicative and will be the subject of detailed applications to AfIF by the financial institutions responsible for the projects. The specific quantifiable targets of the interventions will be at the core of the negotiations with the selected financing institutions during the formulation of the projects.

The role of the EU in the selected components can be summarized as follows:

**Component 1:** increase the supply of on-grid electricity through RE by supporting grid reinforcement/rehabilitation and integration of technologies required to

- Increase transmission capacity
- Increase grid stability and flexibility
- Improve grid operations procedures

**Targets:**

- Facilitate grid stability/increase wheeling capacity in order to support the Federal Government's objective to increase the percentage of solar energy into the total energy mix and to ensure a minimum electricity contribution of 3% by 2020 and 6% by 2030
- Reduce CO<sup>2</sup> emissions by supporting the greening of Nigerian energy mix
- Strengthening the energy transmission network of the country, and in particular in the North West of Nigeria. Project benefits will include reduction in losses on the transmission network, enhanced reliability and quality of electricity supply. Beneficiaries will be the 75 million grid-connected customers

**Component 2:** support energy generation and waste management through Waste to Energy (WtE) projects

- Feasibility Studies leading to project bankability/blending potential
- Grant component to support integration of small scale, off-grid power plants using collected waste from municipalities into the waste to management value chain in selected states
- Technical assistance for operation, maintenance or other purposes

**Targets:** up to 4 projects, for an estimated maximum amount of 40 MW.

Given the recession and liquidity constraints in Nigeria in 2016, some of the projects under components 1 and 2 may not reach full maturity before the end of 2018. In this case, the Commission may reallocate the funding from these components into component 3.

**Component 3:** Provide access to power to previously un-electrified populations through sustainable and scalable solutions:

- Solar home systems (SHS)
- Mini-grids
- Consideration of other options which could be submitted for Nigeria under a dedicated ElectrIFI call of proposals

**Targets:** 8-15 projects supported through ElectrIFI.

### **4.3 Intervention logic**

N/A

## **5 IMPLEMENTATION**

### **5.1 Financing agreement**

In order to implement this action, it may be foreseen to conclude a financing agreement with the partner country, referred to in Article 17 of Annex IV to the ACP-EU Partnership Agreement.

### **5.2 Indicative implementation period**

The indicative operational implementation period of this action, during which the activities described in section 4.2 will be carried out and the corresponding contracts and agreements implemented, is 84 months from the date of entry into force of the financing agreement or, when none is concluded, from the adoption of this Action Document.

Extensions of the implementation period may be agreed upon by the Commission's authorising officer responsible by amending this decision and the relevant contracts and agreements; such amendments to this decision constitute non-substantial amendment in the sense of Article 9(4) of Regulation (EU) 2015/322.

### **5.3 Implementation of the budget support component**

N/A

## 5.4 Implementation modality

### 5.4.1 Contribution to the African Investment Facility (AfIF)

This contribution may be implemented under indirect management with the entities called Lead Financial Institutions, and for amounts to be identified by a complementary decision, in accordance with Article 58(1)(c) of Regulation (EU, Euratom) No 966/2012, applicable in accordance with Article 17 of Regulation (EU) 2015/323.

The entrusted budget implementation tasks consist of the implementation of procurement, grants, financial instruments and payments. The entrusted Member State agency or international organisation shall also monitor and evaluate the project and report on it.

The Lead Financial Institutions are not definitively known at the moment of adoption of this Action Document but are indicatively listed in its appendix. A complementary financing decision will be adopted under Article 84(3) of Regulation (EU, Euratom) No 966/2012 to determine the Lead Financial Institutions definitively.

Certain entrusted entities are currently undergoing the ex-ante assessment in accordance with Article 61(1) and 140(13) of Regulation (EU, Euratom) No 966/2012 applicable in accordance with Article 17 of Regulation (EU) 2015/323. The Commission's authorising officer responsible deems that, based on the compliance with the ex-ante assessment based on Article 140 of Regulation (EU, Euratom) No 1605/2002, they can be entrusted with budget-implementation tasks under indirect management.

### 5.5 Scope of geographical eligibility for procurement and grants

The geographical eligibility in terms of place of establishment for participating in procurement and grant award procedures and in terms of origin of supplies purchased as established in the basic act and set out in the relevant contractual documents shall apply.

The Commission's authorising officer responsible may extend the geographical eligibility in accordance with Article 22(1) (b) of Annex IV to the ACP-EU Partnership Agreement on the basis of urgency or of unavailability of products and services in the markets of the countries concerned, or in other duly substantiated cases where the eligibility rules would make the realization of this action impossible or exceedingly difficult.

### 5.6 Indicative budget

	EU contribution* - NIP (in EUR)	Indicative third party contribution (including 11 <sup>th</sup> EDF –RIP), in the identified currency
5.4.1 Contribution to the African Investment Facility	65 000 000	The contributions from the financial institutions will be decided at a later stage
5.9 Evaluation, 5.10 Audit	To be covered by another measure constituting a financing decision	N/A
5.11 Communication and visibility	Covered by the contribution to the African Investment Facility (5.4.1)	N/A
<b>Totals</b>	<b>EUR 65 000 000</b>	The contributions from the financial institutions will be decided at a later stage
* The contribution to the Africa Investment Facility includes the fees to be paid to the Lead Finance Institutions, as defined in the contractual arrangements of each specific project.		

## **5.7 Organisational set-up and responsibilities**

The organisational set-up and responsibilities are those put in place in the context of the African Investment Facility.

The contribution will be implemented under the governance of the EDF blending framework with a decision-making process organised on a two-level structure:

- opinions on projects will be formulated by the Board, held whenever possible back-to-back with EDF Committee meetings
- opinions will be prepared in dedicated Technical Meetings, where the project application forms completed by the lead finance institution are assessed. These opinions will be supported by the assessments formulated by the EU Delegation to Nigeria, which liaises closely with the Nigerian National Authorising Officer (NAO)

The activities will be implemented under indirect management by the Lead Financial Institutions.

A Steering Committee composed of representatives of the EU, the Federal Government of Nigeria and other stakeholders involved in the implementation of projects will be established and will meet at least once a year to ensure adequate monitoring of all the activities of the various projects.

## **5.8 Performance monitoring and reporting**

The day-to-day technical and financial monitoring of the implementation of individual projects will be a continuous process and part of the implementing partner's responsibilities. To this aim, the implementing partner shall establish a permanent internal, technical and financial monitoring system for the individual projects and elaborate regular progress reports (not less than annual) and final reports.

Every report shall provide an accurate account of implementation of the project, difficulties encountered, changes introduced, as well as the degree of achievement of its results (outputs and direct outcomes) as measured by corresponding indicators established for each project, using as reference the relevant minimum set of indicators defined in the EU blending results framework and the relevant indicators defined in the regional programme.

The report shall be laid out in such a way as to allow monitoring of the means envisaged and employed and of the budget details for the project. The final report, narrative and financial, will cover the entire period of the project implementation.

The Commission may undertake additional project monitoring visits both through its own staff and through independent consultants recruited directly by the Commission for independent monitoring reviews (or recruited by the responsible agent contracted by the Commission for implementing such reviews).

The selected IFI will do at least two support missions per year. The EU Delegation to Nigeria and ECOWAS should be informed of these missions, at least one month before their foreseen dates, and will participate whenever possible to these missions.

## **5.9 Evaluation**

At the level of the individual projects, evaluation tasks will be carried out under the responsibility of the Lead Financial Institution and will be organised according to the requirements of each project. If the Commission finds it necessary, it reserves the right to undertake evaluations on one or several specific projects implemented under this action.

Having regard to the nature of the action, a mid-term and a final evaluation may be carried out for this action or its component via independent consultants contracted by the Commission. They may be carried out for problem solving purposes, in particular with respect to potential issues with implementation and to the consolidation of lessons learned.

The Commission shall inform the implementing partner at least one month in advance of the dates foreseen for the evaluation missions. The implementing partner shall collaborate efficiently and effectively with the evaluation experts, and inter alia provide them with all necessary information and documentation, as well as access to the project premises and activities.

The evaluation reports shall be shared with the partner country and other key stakeholders. The implementing partner and the Commission shall analyse the conclusions and recommendations of the evaluations and, where appropriate, in agreement with the partner country, jointly decide on the follow-up actions to be taken and any adjustments necessary, including, if indicated, the reorientation of the project.

The financing of the evaluation shall be covered by another measure constituting a financing decision.

### **5.10 Audit**

Without prejudice to the obligations applicable to contracts concluded for the implementation of this action, the Commission may, on the basis of a risk assessment, contract independent audits or expenditure verification assignments for one or several contracts or agreements.

The financing of such audit shall be covered by another measure constituting a financing decision.

### **5.11 Communication and visibility**

Communication and visibility of the EU is a legal obligation for all external actions funded by the EU.

The individual projects financed under this action shall contain communication and visibility measures which shall be based on a specific Communication and Visibility Plan of the Action, to be elaborated at the start of implementation of the operations.

The European Commission and its implementing partners will abide by the visibility rules for European Union financing as per relevant provisions in the respective project agreements and contracts.

For each individual project, a communication plan will be prepared by the lead FI, allowing for the involvement of the EU Delegations at key stages of the projects to have visibility potential. Additional communication measures might be taken if necessary.

In terms of legal obligations on communication and visibility, appropriate contractual obligations shall be included in, respectively, the possible financing agreement, procurement and grant contracts, and delegation agreements.

The Communication and Visibility Manual for European Union External Action shall be used to establish the Communication and Visibility Plan of the projects financed under this Action and the appropriate contractual obligations.

## APPENDIX: indicative list of projects/plans for funding

<b>No.</b>	<b>PROJECT TITLE</b>	<b>SECTOR</b>	<b>BENEFICIARY</b>	<b>LEAD FINANCIAL INSTITUTION</b>	<b>ESTIMATED TOTAL COST (EUR)</b>	<b>ESTIMATED NIP GRANT (EUR)</b>	<b>MATURITY</b>
1	Electricity Sub Sector Support Project (PASSEN)	Energy	Federal Republic of Nigeria (FGN)	AFD	200 000 000	25 000 000	Medium
2	Several Waste-to-Energy projects involving Nigerian States and Municipalities for a total estimated capacity of 40 MW	Energy	FGN, States, Municipalities	AFD	60 000 000	10 000 000	Medium
3	Solar home systems (SHS), mini-grids and other rural electrification related projects	Energy	FGN	TBD	90 000 000*	30 000 000	Low

\* Up to 40% grant needed for mini-grids, solar home systems and other investments have a higher leverage rate