



**FEDERAL REPUBLIC OF NIGERIA**

**POWER SECTOR RECOVERY PROGRAMME:  
2017 – 2021**

**JANUARY 2018**

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## ABBREVIATIONS AND ACRONYMS

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<b>AfDB</b>	African Development Bank
<b>ATC&amp;C</b>	Aggregate Technical Commercial and Collection
<b>BPE</b>	Bureau of Public Enterprises
<b>BCR</b>	Business Continuity Regulations
<b>CBN</b>	Central Bank of Nigeria
<b>CBM</b>	Contract Based Market
<b>DFI</b>	Development Finance Institution
<b>DisCo</b>	Power Distribution Company
<b>DMO</b>	Debt Management Office
<b>ELPS</b>	Escravos Lagos Pipeline System
<b>EMS</b>	Electricity Market Support
<b>EMT</b>	Economic Management Team
<b>EPSRA</b>	Electric Power Sector Reform Act of 2005
<b>ERGP</b>	Economic Recovery and Growth Plan
<b>FGN</b>	Federal Government of Nigeria
<b>FMoBP</b>	Federal Ministry of Budget and Planning
<b>FMoF or MOF</b>	Federal Ministry of Finance
<b>FMoFI or MOFI</b>	Federal Ministry of Finance Incorporated
<b>FMoPWH</b>	Federal Ministry of Power, Works and Housing
<b>FMoPR</b>	Federal Ministry of Petroleum Resources
<b>Forex</b>	Foreign Exchange
<b>FSP</b>	Fiscal Strategy Paper
<b>GenCo</b>	Power Generation Company
<b>GSA</b>	Gas Supply Agreement
<b>GSAA</b>	Gas Supply and Aggregation Agreement
<b>IBRD</b>	International Bank for Reconstruction and Development
<b>IPP</b>	Independent Power Producer
<b>LCDP</b>	Least Cost Development Plan
<b>LCPIP</b>	Lease Cost Power Investment Plan
<b>LCPGP</b>	Least Cost Power Generation Plan
<b>MD</b>	Maximum Demand
<b>MDA</b>	Ministries, Departments, and Agencies
<b>MO</b>	Market Operations
<b>MTEF</b>	Medium Term Expenditure Framework
<b>MYTO</b>	Multi-Year Tariff Order
<b>MYTO 2</b>	Multi-Year Tariff Order issued June 2012
<b>MYTO 2.1</b>	Multi-Year Tariff Order issued January 2015
<b>MYTO 2015</b>	Multi-Year Tariff Order issued February 2016
<b>NGN</b>	Naira
<b>NAPTIN</b>	National Power Training Institute of Nigeria
<b>NBET</b>	Nigerian Bulk Electricity Trading Plc.
<b>NCC</b>	National Control Centre

<b>NDPHC</b>	Niger Delta Power Holding Company
<b>NELMCO</b>	Nigerian Electricity Liability Management Company
<b>NEMSA</b>	Nigerian Electricity Management Services Agency
<b>NEMSF</b>	Nigerian Electricity Market Stabilisation Facility
<b>NERC</b>	Nigerian Electricity Regulatory Commission
<b>NESI</b>	Nigerian Electricity Supply Industry
<b>NIPP</b>	National Integrated Power Project
<b>NNPC</b>	Nigerian National Petroleum Corporation
<b>OB-OB</b>	Obiafu – Obrikom pipeline
<b>PPA</b>	Power Purchase Agreement
<b>PSRP or the Programme</b>	Power Sector Recovery Programme
<b>REA</b>	Rural Electrification Agency
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>SO</b>	System Operations
<b>TCN</b>	Transmission Company of Nigeria Plc.
<b>US\$</b>	United States Dollar

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**Weights and Measures:**

1 gigawatt hour (GWh)	=	1 million kilowatt hour
1 kilowatt hour (kWh)	=	1,000 watts hour
1 megawatt (MW)	=	1,000 kilowatts
1 gigawatt (GW)	=	1,000 megawatts
1 megawatt	=	3.7MMscf
1 Mscf	=	1,000 square cubic feet
1 MMscf	=	1,000,000 square cubic feet
1 Mscf	=	1,030,000 Btu
1 MMBtu	=	1,000,000 Btu

**Currency:**

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1 US\$	=	305 Naira (MTEF specified rate)
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## 1. EXECUTIVE SUMMARY

### 1.1. INTRODUCTION

The Federal Government's Economic Recovery and Growth Plan 2017-2020 ("ERGP") sets out the medium-term structural reforms to diversify Nigeria's economy, with a top priority of expanding power sector infrastructure. The ERGP recognises the fundamental role of power to the development of all sectors of the economy.

In the long term, the ERGP aims to increase power generation by improving operational capacity, encouraging small-scale renewable projects and building additional generation capacity. Medium term, the ERGP aims to ensure the delivery of at least 10,000 MW (on-grid and off-grid) of operational capacity by 2020 by optimising the existing installed capacity available for generation, addressing gas supply issues including vandalism and completing major gas infrastructure lines for power. In addition, as part of the ERGP, the FGN aims to improve the financial capacity of the Nigerian Bulk Electricity Trading Plc. ("NBET") to support the electricity market, strengthen governance and institutional capacity of sector agencies, and improve the commercial viability of Generation Companies ("GenCos") and Distribution Companies ("DisCos"). It is on the above premise that the Power Sector Recovery Programme ("PSRP", or, the "Programme") was designed to address challenges in power sector reform.

The Federal Government of Nigeria launched a far-reaching set of power sector reforms in 2001 that led to the unbundling and subsequent privatisation of electricity generation and distribution companies in 2013. The design of the power sector reforms envisaged four stages of evolution that would culminate into a competitive, efficient and private sector-led electricity market regulated by the Nigerian Electricity Regulatory Commission ("NERC"), with the Ministry of Power providing general policy oversight. The four stages are envisaged as follows:

- (a) 1<sup>st</sup> stage - The Pre-transitional Period began with the unbundling of the Power Holding Company of Nigeria (PHCN) in 2005. During this period, privatisation of the Distribution Companies (DisCos) and Generation Companies (GenCos) occurred and was concluded in November 2013. The Interim period also commenced in November 2013 and was characterised by the allocation of sector cash deficits across all market participants due to the absence of commercial trading structures prior to expected tariff reviews;
- (b) 2<sup>nd</sup> stage - The Contract Based Market ("CBM"), also referred to as the Transitional Electricity Market (TEM), involves active trading of bulk power by NBET, as a buyer of power from GenCos and IPPs and a seller of purchased power to DisCos;
- (c) 3<sup>rd</sup> stage - The Medium-Term Electricity Market requires the cessation of NBET and novation of contracts between NBET and GenCos/Independent Power Producers (IPP) to the DisCos. In this stage, the DisCos will commence direct purchase of power from the GenCos/IPP for onward sale to consumers; and
- (d) 4<sup>th</sup> stage - The Long-Term Market will be characterised by bilateral contracts between electricity buyers and sellers at all levels and a central balancing mechanism through the creation of a spot electricity market.

Although on the 1st of February 2015, the 2nd stage (i.e. the contract-based market) was declared by an order of NERC, not all the prerequisites were in place; thus, the reform has not advanced beyond

the 1st stage. Three (3) years after privatisation, the sector faces infrastructure, liquidity and governance challenges that require specific, strategic interventions by FGN and NERC to reset the market.

## **1.2. CURRENT POWER SECTOR CHALLENGES**

The following challenges have created the need for a market RESET:

1. **Infrastructure constraints:** Nigeria has 13,400 MW of installed power generation capacity of which on average about 7,000 MW is mechanically available<sup>1</sup>. On average, less than 4,000 MW was dispatched to supply consumers between 2015 and 2017 due to constraints in gas supply, electricity transmission, and distribution. As a result, the lack of constant electricity supply has negatively impacted payment by consumers, contributing to revenue collection shortfall and consequent accrued sector cash deficit.
2. **Insufficient end user tariffs:** An essential element of privatisation was a multi-year tariff regime based on a set of assumptions on energy generation and its costs, efficiency indicators (incentive regulation regime) and an appropriate and sustainable tariff trajectory with periodic adjustment to reflect variations in generation costs, foreign exchange and inflation. Benefits of efficiency gains during the first regulatory multi-year period accrued to each DisCo, with efficiency gains being shared with the end customers over subsequent periods. However, rising costs due to unexpected infrastructure constraints, inflation and currency devaluation were not accompanied by timely adjustments to the tariff.
3. **Sector cash shortfalls:** Due to end user tariffs only reaching a cost recovery level for a brief period since June 2012, significant cash deficits have accumulated across the sector value chain. Between February 2015 and December 2016, the market shortfall (amount owed by DisCos to the rest of the market) is estimated at NGN 476 billion, of which the tariff shortfall (deficits caused by tariffs lower than cost of service delivery) is estimated at NGN 420 billion.
4. **Slow pace of loss reduction by DisCos:** The design of the power sector reform makes viability of DisCos critical to the long-term sustainability of the power sector. NERC's key performance indicators show DisCo performance declining between 2014 and 2016. Lack of investment in network rehabilitation (in part because of low tariffs) and metering has seen losses remain persistently high and service to customers little improved.
5. **Ministries, Departments, and Agencies (MDA) debts:** The MDAs on aggregate owe the electricity industry an estimated NGN 26 billion as at the end of 2016, contributing a significant portion of the accumulated cash deficit in the sector.
6. **Sector governance:** Although the design of Nigeria's electricity industry and its regulatory basis is sound, inconsistent enforcement of rules and policies has reinforced the challenges above.

## **1.3. WHAT IS THE PSRP?**

The Power Sector Recovery Programme (PSRP) is a series of carefully thought out policy actions, regulatory, operational, governance and financial interventions to be implemented by the Federal Government of Nigeria ("FGN") over the next five (5) years to restore the financial viability of Nigeria's power sector, improve transparency and service delivery, resolve consumer complaints, reduce losses and energy theft, and **RESET** the Nigerian Electricity Supply Industry ("NESI") for future growth. The "RESET" will entail the implementation of the results of the next major MYTO review,

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<sup>1</sup> Available capacity is the total capacity generating plants can produce without constraints.

the re-calibration of efficiency levels based on DisCo committed investments and the updated performance agreements becoming effective.

The Programme was developed with the support of the World Bank Group (WBG).

Analysis undertaken in developing the Programme included:

1. Macroeconomic and fiscal analysis;
2. Financial analysis of power sector participants;
3. Electricity sector legal review;
4. Development of a sector financial model; and
5. Transmission and gas infrastructure gap analysis.

#### **1.4. PSRP's OBJECTIVES AND COMPONENTS**

The objectives of the Programme are to:

1. Restore the sector's financial viability;
2. Improve power supply reliability to meet growing demand;
3. Strengthen the sector's institutional framework and increase transparency;
4. Implement clear policies that promote and encourage investor confidence in the sector; and
5. Establish a contract-based electricity market.

At its core, the Programme is comprised of the following areas of interventions:

##### **I. Financial interventions to fully fund historical and future sector deficits:**

1. **Establish sustainable and appropriate electricity tariffs:** Define a tariff adjustment trajectory, so that tariffs cover the revenue requirement of efficient service provision by 2021. Establish the revenue requirement of DisCos and transmission (TCN), and consistently apply tariff adjustments according to the defined tariff trajectory with automatic adjustments as service delivery improves.
2. **Dimension and commit to fully-fund projected sector deficits due to tariff shortfall from 2017 until 2021:** Develop a Financing Plan to fully-fund the shortfall (the difference between sector's revenue requirement and revenue under effective tariffs based on a defined tariff trajectory) until tariffs attain cost recovery levels, and support sector liquidity.
3. **Clear historical deficits due to tariff shortfall as part of the Financing Plan:** Include in the Financing Plan the funding of historical deficit due to tariff shortfall (NGN 420 billion shortfall from January 2015 to December 2016).
4. **Secure financing sources:** Identify and secure domestic and external financing sources to cover the total funding requirements in the Financing Plan up to 2021.
5. **Clear historical MDA debts and automate future payments:** Ensure MDA historical debts are paid and implement a payment mechanism for future electricity bills.



6. **World Bank funding:** The World Bank Group has expressed its willingness to assist the FGN in preparing and supporting the PSRP. The World Bank has indicated potential support for the Programme totalling up to US\$ 2.6 billion.

## II. **Operational / Technical interventions:**

1. **Baseline power generation, transmission and distribution:** Ensure minimum baseline power supply of 4,500 MWh/Hour to the national grid is distributed daily from 2018 to achieve grid stability and phase out operational shortages.
2. **Improve DisCo performance:** Improve DisCo performance by employing a balanced approach of incentive regulation, monitoring and enforcement, aimed at ensuring aggressive AT&C loss reduction (e.g. through a metering programme, upgrade of distribution and transmission interface networks) and improving operational efficiency. Develop, and implement when necessary, credible Business Continuity Plans.
3. **Adequate gas supply for power generation:** Address major issues constraining gas availability to the power sector, notably pipeline vandalism, arrears due to gas suppliers and lack of payment security for gas deliveries.

## III. **Governance interventions:**

1. **Restore sector governance:** Appointment of qualified persons to the Boards of government agencies and DisCos Boards to represent government interest.
2. **Improve sector transparency:** Assessment and regular publication of key operational and financial indicators of market participants (GenCos, TCN and DisCos) and the sector.
3. **Make contracts fully effective:** Promote and encourage a shift towards an effective contract based market which promotes competition and performance.
4. **Clear communication of PSRP:** Develop and implement a comprehensive communication strategy for the PSRP with bespoke outreach to the various groups of stakeholders including industry, lawmakers and citizens.
5. **PSRP Implementation Monitoring Team (PSRP IMT):** A dedicated team has been set up to coordinate and monitor the implementation of the PSRP. This team reports to His Excellency, the Vice President. The team will monitor and evaluate implementation and results of the PSRP, to address unexpected developments or delays, and inform the public in general. Inter-agency working groups will support the team in interventions that require coordinated actions and inputs from several agencies, including inter-agency teams for the review of the Financing Plan and the development and implementation of a Least Cost Development Plan (LCDP).

## IV. **Policy interventions:**

1. **Fiscal and monetary policies aimed at encouraging private sector investments:** Increase awareness of fiscal and monetary policies pertaining to the power sector such as duty waivers, and pioneer status.
2. **Increase electricity access:** Implement off-grid and renewable energy solutions, and creation of a framework for off-grid development plan including mini-grids and solar home systems.

3. **Economic procurement of power:** In order that additional generation capacity requirements are assessed and phased-in carefully, institutionalize the LCDP by designating a Ministry/agency with the responsibility for LCDP preparation and regular updates, as well as enforce governance arrangements that define roles and responsibilities of relevant agencies for ensuring that future investments are made consistent with the LCDP.

## 2. THE NIGERIAN POWER SECTOR REFORM: BACKGROUND

*The reform programme seeks to radically shift the ownership and management of the Nigerian power sector from public to private hands.*

### 2.1. a. LEGAL FRAMEWORK

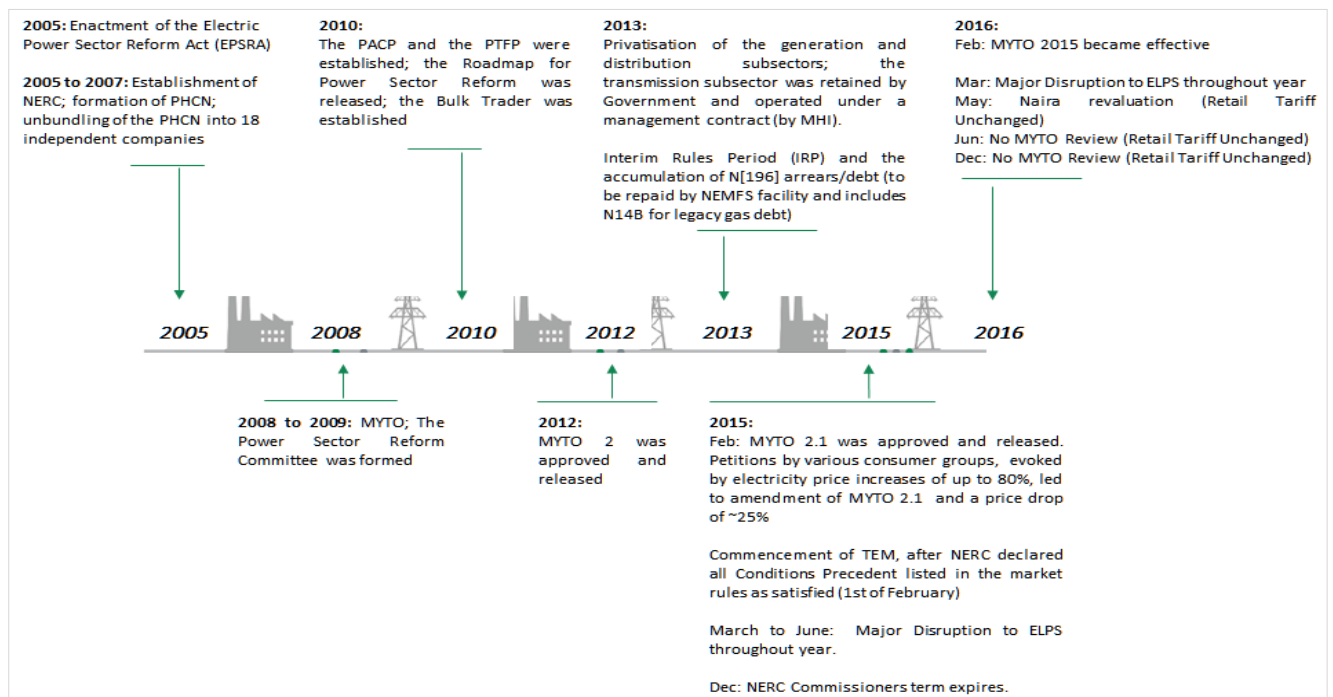
The power sector reform started with the publication of the National Electric Power Policy in 2001, followed by the landmark legislation - the Electric Power Sector Reform Act (“EPSRA”) in 2005 - which resulted in the unbundling of the PHCN, creating eighteen (18) new companies/corporate entities (“Successor Companies”): six (6) GenCos, eleven (11) DisCos and TCN. NERC was also established to regulate the power sector.

A turning point for the Nigerian power sector reform was the set-up of the Presidential Task Force on Power (“PTFP”) in June 2010, and the subsequent launch of the Roadmap for Power Sector Reform (the “Roadmap”) in August 2010. These two actions facilitated the acceleration of the power sector reform agenda by providing the government, investors, and Nigerians with a widely acceptable strategy for achieving steady and reliable power supply for every Nigerian over a ten (10) year period.

### 2.1. b. POWER SECTOR TIMELINE

The table below describes the sequencing of key activities that occurred between 2005 and 2016

**Figure 1: The Nigerian Power Sector Timeline (2005 – 2016)**



## 2.2. THE 2010 ROADMAP FOR POWER SECTOR REFORM (THE ROADMAP)

*The Roadmap was a clear and concise strategy document to accelerate the existing reform process in the sector.*

The Roadmap outlined plans to accelerate the pace of activities in the power sector reform already mandated under the Electric Power Sector Reform Act (“EPSRA”) and, at the same time a renewed drive to improve in the short term electricity service delivery.

It aimed to leverage on early milestones of the EPSRA, especially the unbundling of the Power Holding Company of Nigeria (“PHCN”) by facilitating the corporatisation, commercialisation, and eventual privatisation of the successor companies. It was designed to attract significant private sector investment through the creation of privately owned power generation and distribution companies that would result in a competitive electricity market.

The key principles of the Roadmap were as follows:

1. **Remove obstacles to private sector investment:** This includes various actions aimed at ensuring the financial viability of the sector such as addressing issues of pricing, sector credit status, existing sector liability etc.
2. **Clarifying the government’s strategy on the divestiture of the PHCN successor companies:** Whilst FGN was committed to resolving each of the specific obstacles to private sector investment, it was also conscious that potential investors in the sector would seek clear indications of the government’s overall strategy in respect to the divestiture of the 18 successor companies. Accordingly, the Roadmap summarised this as: (a) privatisation or concession of government owned generation and distribution infrastructure; and (b) concession of power sector infrastructure suited to natural monopolies, such as transmission.
3. **Reform of the gas-to-power sector:** The reform was anchored on gas as the primary fuel source for the sector. This was based on the principle of leveraging Nigeria’s vast resources of natural gas. As part of the Roadmap, the Federal Government was expected to implement complementary reforms in the gas industry, and provide incentives to attract additional investment in Nigerian gas development.

However, several lingering issues stalled its progress, in particular addressing legacy liabilities owed by the successor companies and developing mechanisms for addressing the non-existent credit history of distribution companies. These issues were subsequently resolved with the creation of the Nigerian Electricity Liability Management Company (“NELMCO”), which assumed all historical sector liabilities, and the creation of the Nigerian Bulk Electricity Trading Plc. (“NBET”) in 2010 to act as the bulk electricity trader for the industry.

The preceding activities combined with the implementation of a comprehensive regulatory framework (such as multi-year tariff order, procedures and requirement for the operation of the grid, responsibilities of DisCos as distribution investors and operators, etc.) and the preparations for the System Operator and the Market Operator to implement the operational and technical framework, enabled privatisation.

### **2.3. PRIVATISATION AND POST PRIVATISATION**

The major outcomes of the Roadmap were the privatisation of the DisCos and GenCos, attracting over US\$ 5 billion predominantly driven by confidence in the Roadmap. Unique to the privatisation exercise was the fact that participation was mostly by local sponsors financed by local banks.

TCN remained under the ownership of FGN and initially operated under a management contract that expired in July 2016.

The key activities post privatisation were:

1. NERC and the DisCos worked to establish the baseline ATC&C losses.
2. Tariffs were adjusted in January 2015 to account for the revised baseline for ATC&C losses and for energy projections.
3. The Nigerian Electricity Market Stabilisation Facility (“NEMSF”) was established in 2015 intended to fund the deficit that had arisen from November 2013 to December 2014 as a result of tariff shortfall.
4. NERC declared in February 2015 the start of the contract-based market.

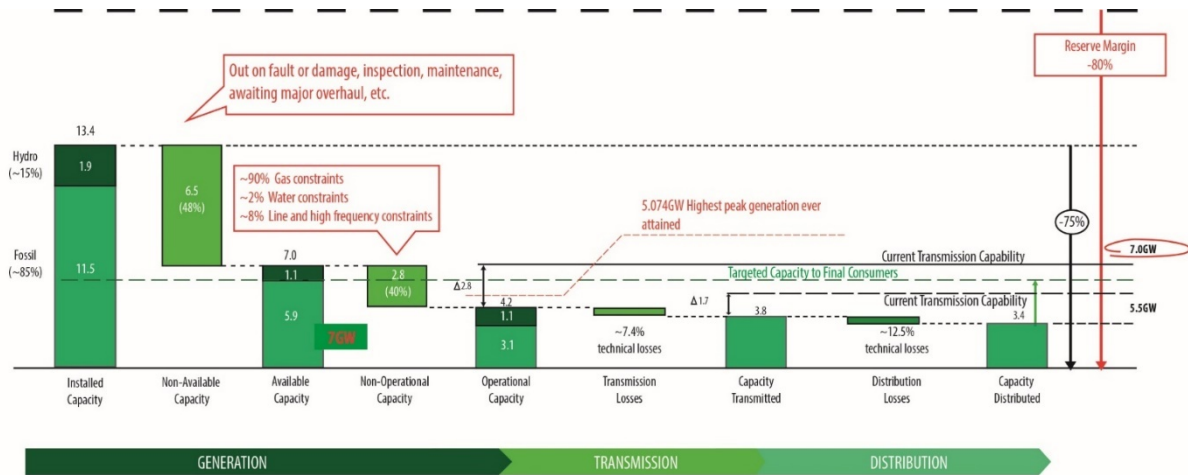
In March 2015, NERC announced a reduction in tariffs by eliminating collection losses previously included in ATC&C losses transferred to tariffs. This reduction caused a significant cash deficit, which was reversed in February 2016 when collection losses were re-added to the tariff. Since then, the tariffs have not been adjusted to allow for pass-through of foreign exchange (forex) variations and other automatic adjustments in the tariff methodology to recover costs outside the control of DisCos.

### 3. POWER SECTOR CHALLENGES

#### 3.1. INFRASTRUCTURE CONSTRAINTS

Nigeria has 13,400 MW of installed power generation capacity of which about 7,000 MW is mechanically available. Less than 4,000 MW was dispatched on average over the last 2 years due to constraints in gas supply, electricity transmission and distribution. The lack of constant electricity supply has negatively impacted payments, driven industries to pursue off-grid alternatives and contributed to the accrued sector cash deficit.

**Figure 2: The Operational Capacity in Nigeria**



Source: NESO (Nigeria Electricity System Operator) daily operational report; TCV (Transmission Company of Nigeria) daily operational report

Between January 2015 and March 2017, average generation capacity available for dispatch was 3,308 MW, which is less than 30% of Nigeria's installed capacity. Apart from liquidity issues, the infrastructure constraints that affect dispatchable generation and the supply to consumers are (i) gas constraints (low gas production and deficient gas transportation infrastructure); (ii) generation unavailability; (iii) transmission constraints; and (iv) distribution constraints.

##### 3.1.1. GAS SUPPLY CONSTRAINTS FOR POWER GENERATION:

Gas is the predominant fuel for thermal power generation in the Nigerian power sector with an installed capacity of 12,000 MW gas fired power plants and mechanically available capacity of 7,000 MW (as of December 2016).

A major threat to gas supply is pipeline vandalism, but there are also several other industry-wide issues, notably arrears to gas suppliers, inactive gas supply agreements (GSAs) with generation companies (none of the 24 gas supply contracts is effective), and deficient gas infrastructure.

- Inadequate gas pipeline infrastructure:** The capacity of the gas pipeline infrastructure is insufficient to meet the gas demands of the existing power plants operating at full installed capacity. Although trunk line capacity is nominally sufficient, there is a need for investment to reinforce the network and overcome local bottlenecks.
- Gas supply constraints and vandalism:** Gas supply to the sector has been largely inadequate as most of the gas supplied to the power plants is on a "best endeavour" basis. This has been further compounded by GenCos large payment arrears to the gas suppliers (total gas supply indebtedness of power plants from January 2015 to December 2016 is NGN 155 billion). As a

result, gas supply has been unreliable, resulting in some cases in 1,400 MW of constrained generation. Vandalism of oil and gas delivery infrastructure occasionally significantly reduces gas production (resulting in additional 2,900 MW of constrained generation for lengthy periods during 2016).

### 3.1.2. GENERATION CONSTRAINTS

Some generating units are out of service pending relatively minor repairs. GenCos have been unable to undertake these repairs and/or required maintenance due to lack of funding. Addressing these constraints can unlock up to 1,700 MW of existing installed generation capacity for dispatch.

### 3.1.3. TRANSMISSION CONSTRAINTS AND GRID STABILITY

The transmission system was designed to deliver hydro generation from the north to Lagos and to bring gas fired generation from the southeast to Lagos. Barring the Oshogbo-Benin-Lagos ring<sup>2</sup>, the 330kV system was partially radial and the 132kV system was completely radial (usually with single circuits).

The NIPP transmission projects commissioned between 2014 and 2016 created a ring-based system at 330 kV:

- Lagos (primary load): Oshogbo-Benin-Egbin-Ikeja West
- West (hydro): Oshogbo-Benin-Abuja-Shiroro-Jebba
- Southeast (gas): Onitsha-Alaoji-Afam-Ikot Ekpene-Enugu
- East: Shiroro-Abuja-Benin-Onitsha-Enugu-Makurdi-Jos-Kaduna

However, the transmission system needs investment at transformation from 330/132 kV and 132/33 kV. Although the aggregate transformer loading appears adequate, many individual transformers are fully loaded and others, lightly loaded (c.f. Table 2 below).

**Table 1: September 2017 Verified Transmission Statistics**

<b>Peak Generation to Date</b>	5,075 MW
<b>Installed Capacity in Operation</b>	7,223 MW
<b>Maximum Daily Energy Generated</b>	109,372 MWh
<b>Installed Capacity 330/132 KV</b>	11,712 MVA
<b>In Service Capacity</b>	9,794 MVA
<b>Installed Capacity 132/33Kv</b>	13,402 MVA
<b>In Service Capacity</b>	12,192 MVA
<b>Number of 330kv Substations</b>	31
<b>Number of 132KV Substations</b>	130

<sup>2</sup> The ring consists of a double circuit from Oshogbo to Ikeja West (one via Ayede, delivering hydro generation), a double circuit from Benin to Ikeja West (delivering gas generation) and a single circuit cross-link from Oshogbo to Benin.

**Table 2: December 2016 Transformer Loading Statistics**

Voltage	Installed MVA	Number	In Service MVA	Number	I-S MW	Load MW	Load %
330/132 kV	11712	78	9794	65	7835	4481	57%
132/33 kV	13402	309	12192	280	9754	6041	62%
<b>Summary Statistics</b>							
Voltage	Max Load %	Min %	Over 80%	% of I-S	Under 20%		Average
330/132 kV	100%	10.0%	21	32%	6		60%
132/33 kV	114%	0.3%	82	29%	10		64%

While the transmission system managed to evacuate a record peak capacity of 5,074 MW on February 2, 2016, the system is operating well below international reliability and security standards. There were 22 full collapses and 9 partial system collapses in 2016. Frequency and voltage recordings often exceed established norms. System collapses are caused (besides gas pipeline vandalism) by inadequate reserves and maintenance, and the lack of a comprehensive and modern Supervisory Control and Data Acquisition (“SCADA”) system required for real time data to control and keep the balance in the power system.

### **3.1.4. DISTRIBUTION CONSTRAINTS**

DisCos currently face constraints at the transmission interfaces and at various other points in their distribution system.

Generally, there has been little or no investment to alleviate congestion at the transmission and distribution interfaces. The distribution network downstream of interfaces with transmission requires significant investment to enable operational flexibility and reliability and improve access.

Operational data released by TCN System Operator demonstrates a pattern of load rejection (up to 2,000 MW) by DisCos once generation levels reach 4,500 MW.

### **3.2. APPROPRIATE AND SUSTAINABLE TARIFF**

For the sector to be financially viable, the end-user tariff must be sustainable (i.e. a tariff that fully covers the efficient cost of providing electricity to end users including an adequate return on capital invested). Although the existing tariff regime is based on such principles, historically, there have been delays in implementation that contributed to growing sector deficits. Without a tariff setting regime that supports the financial viability of the sector, it will remain difficult to attract further credible private investment into the sector. Payment discipline should improve throughout the supply chain to ensure that sector companies have sufficient cash flow. The DisCos must improve performance in revenue collection so that sufficient cash can flow and attract investment to related upstream sectors to remediate existing bottlenecks. Before tariffs are made to reflect cost of service delivery, the Government’s objective is to ensure that the service delivery to consumers improves.



### 3.3. SECTOR LIQUIDITY

Due to end user tariffs only reaching sustainable levels between February and March 2015, significant cash deficits have accumulated across the sector value chain. Lack of adequate power is causing the national economy to lose significant revenue (estimated loss to GDP in excess of US\$ 25 billion) annually.

Sector cash deficits of approximately NGN 213 billion were accumulated between November 2013 and January 2015 and this has been managed through NEMSF over a 10-year period through the tariff. Analysis now shows that the accumulated tariff shortfall from January 2015 to December 2016 amounts to approximately NGN 420 billion.

### 3.4. DISCO MANAGEMENT AND PERFORMANCE

The viability of the DisCos is key to the long-term sustainability of the power sector. The operational and commercial performance of the DisCos since privatisation has been poor and has affected the financial viability of the entire value chain.

**Low cash remittance:** A review of 2015 – 2016 data on cash remittance from DisCos to NBET shows that: (i) DisCos have not made full payment for energy received since the transfer of management in 2013; and (ii) DisCos have retained more of collected revenues than allocated under MYTO.

As shown in the table 3 below, DisCos increasingly retained a larger share of collected revenues in 2016 compared to 2015. In 2016, DisCos achieved a collection rate of 57% from their customers and on average and settled only 29% of invoices issued by NBET.

**Table 3: DisCo collections vs. payment to NBET & MO**

DisCos	DisCo collection rate		DisCo invoice settlement rate	
	2015	2016	2015	2016
<b>Abuja</b>	64%	67%	53%	29%
<b>Benin</b>	67%	53%	56%	31%
<b>Eko</b>	73%	74%	83%	52%
<b>Enugu</b>	62%	59%	47%	26%
<b>Ibadan</b>	63%	62%	69%	34%
<b>Ikeja</b>	69%	69%	54%	38%
<b>Jos</b>	41%	37%	35%	19%
<b>Kaduna</b>	41%	39%	25%	17%
<b>Kano</b>	54%	51%	38%	17%
<b>PH</b>	53%	44%	44%	15%
<b>Yola</b>	57%	51%	30%	19%
<b>Total</b>	<b>61%</b>	<b>57%</b>	<b>53%</b>	<b>29%</b>

**Low ATC&C loss reduction:** DisCos have not shown any significant reductions in ATC&C losses, as a weighted average ATC&C loss for 2016 is 54.3% versus 32.1% in MYTO projections. However, NERC's delay in implementing tariff reviews has impacted DisCo performance.

**Load rejection:** The level of ATC&C losses due to the poor state of the DisCos' network has resulted in the under-utilisation of load by the DisCos. Resolving this issue will require sector discipline including better coordination between TCN System Operator and DisCos, and each Disco submitting load forecasts at each substation/connection to TCN grid for System Operator operation planning and dispatch.

**Investments:** The average annual capital expenditure for all DisCos over 3 years (2014-16) amounted to US\$ 104 million compared to US\$ 301 million expected in MYTO determination, resulting in average US\$ 198 million underspent each year. The DisCos face several challenges and constraints in terms of accessing capex funding, including:

- **High leverage including acquisition debt** – The commercial banks are reluctant to extend further credit to the power sector due to high exposure to the acquisition companies during the 2013 privatisation.
- **Lack of confidence** – There is a lack of confidence in the Nigerian power sector by local and international lenders and investors who see the sector as nascent, lacking the requisite mitigation arrangements required to meet their risk acceptance criteria.

**DisCos financial status:** The financial performance of the DisCos has been poor. In the event that MO or NBET were to call for full payment of their unpaid invoices, most DisCos would be forced to declare bankruptcy unless significant cash injections are made by their shareholders. Consolidating the acquisition debt to the operating company level will result in most DisCos having negative equity.

### **3.5. GOVERNMENT MINISTRIES, DEPARTMENTS AND AGENCIES (MDA) ELECTRICITY DEBTS**

MDA electricity bills are a source of cash shortfall in the sector that needs to be addressed. The Government will institute rigorous discipline in the payment of its electricity bills. FGN has resolved to settle all outstanding arrears from MDAs.

### **3.6. SECTOR GOVERNANCE**

Lack of effective governance has resulted in limited enforcement of rules, regulations and policy. The regulatory framework in Nigeria is comprehensive and in line with international best practice but has been poorly implemented and enforced. The content of regulations (in particular, the Grid Code, Distribution Code and the Market Rules) include mechanisms to improve performance. Lack of payment discipline has stalled implementation of contractual arrangements (that are contained in vesting contracts between DisCos and NBET) that would ensure payment and improve the performance of the distribution subsector. Enforcement of rules and regulations is critical for the sector to function as designed and to be financially sustainable in the long term.

There is need for the Government to act as an informed and active owner of state-owned institutions. It will act as active co-owner of state invested enterprises (such as the DisCos) to ensure that these are managed in a transparent and accountable manner with a high degree of professionalism, effectiveness and autonomy without political interference.

FGN therefore needs to:

Regarding DisCos:

1. Exercise its ownership rights according to the legal structure of the DisCos.
2. Ensure proper representation at general meetings and effectively exercise its voting rights.
3. Participate fully in the nomination of Board Members and Board Committees by ensuring that a well-structured, transparent and merit based board nomination process is in place.

Regarding MDAs and corporate governance:

4. Create an effective monitoring and reporting system to monitor, audit and assess the corporate governance performance of MDAs and DisCos.
5. Implement accountability structures that provide information to the relevant stakeholders.
6. Comply with the provisions and spirit of the Freedom of Information Act.
7. Subject annual financial statements of MDAs to independent external audit.

Equally important, there is a need for NERC to drive PSRP implementation by effectively regulating the sector by:

1. Enforcing performance standards for each DisCo and for TCN establishing monitoring systems including data provision and reporting requirements by utilities, validating and assessing compliance,
2. Public and online disclosure or reporting of financial and operational data relevant to tariffs or performance of market participants.
3. Developing effective business continuity plans in case of non-performing DisCo to ensure continuity of services and improved performance.
4. Consultation processes that involve stakeholders, including the public in general, for revisions to regulations, tariffs reviews and approval of plans.

## 4. POWER SECTOR RECOVERY PROGRAMME

*The PSRP is FGN's response to the issues the sector faces, and the need for urgent decisive action.*

### 4.1. THE PSRP PRINCIPLES

The Federal Government of Nigeria ("FGN") has prepared the Power Sector Recovery Programme (PSRP) recognising that the deterioration in the financial viability of the sector is linked to the decline in electricity service to industries, commercial and households, leading to severe economic consequences.

The PSRP is a series of carefully thought out policy actions, operational, governance and financial interventions to be implemented by the FGN over the next five (5) years to restore the financial viability of Nigeria's power sector, improve transparency and service delivery, address customer complaints, reduce losses and electricity theft, and **RESET** the Nigerian Electricity Supply Industry ("NESI") for future growth.

### 4.2. THE PSRP's OBJECTIVES

The objectives of the Programme are to

1. Restore the sector's financial viability;
2. Improve power supply reliability to meet growing demand;
3. Strengthen the sector's institutional framework and increase transparency;
4. Implement clear policies that promote and encourage investor confidence in the sector; and
5. Establish a contract-based electricity market.

### 4.3. SUMMARY OF INTERVENTIONS OF THE PSRP

To address power sector challenges and RESET the market, the PSRP comprises of 17 reform actions in four groups of interventions – financial, operational/technical, governance and policy interventions, which are described in detail below.

#### **i. Financial interventions to fully fund historical and future sector deficits:**

1. Establish sustainable and appropriate electricity tariffs.
2. Dimension and commit to fully fund sector deficits due to tariff shortfall from 2017 to 2021 (Financing Plan).
3. Clear historical sector deficits due as part of the Financing Plan.
4. Secure financing sources for the Financing Plan.
5. Clear historical MDA debts and automate future payments.
6. Secure World Bank financial support.

#### **ii. Operational / Technical interventions:**

1. Baseline power generation, transmission and distribution.
2. Improve DisCo performance.
3. Adequate gas supply for power generation.

#### **iii. Governance interventions:**

1. Restore sector governance.
2. Improve sector transparency.
3. Make contracts fully effective.
4. Clear communications of PSRP to key stakeholders including citizens.
5. PSRP Implementation Monitoring Team.

**iv. Policy interventions:**

1. Fiscal and monetary policies aimed at encouraging private sector investments.
2. Increase electricity access.
3. Economic procurement of power.

## 5. DETAILED COMPONENTS – FINANCIAL INTERVENTIONS

### ***Implement an electricity tariff trajectory that ensures sustainable tariffs in the next five (5) years and commit to fund historical and future sector deficits (2017 – 2021)***

The interventions under this component have the objectives of (i) addressing and funding sector's revenue shortfall, (ii) establishing and consistently implementing an efficient tariff regulatory framework that promotes quality service delivery and has adequate monitoring systems; and (iii) achieving a self-sufficient Nigerian power sector.

The Financing Plan is key part to achieve these objectives, to quantify and ensure funding of (i) the historical tariff shortfall; (ii) the future revenue shortfall until tariffs reach cost recovery level, and the debt payments associated with the financing of the shortfall.

#### **5.1. ESTABLISH SUSTAINABLE AND APPROPRIATE ELECTRICITY TARIFFS**

The private sector (both international and local) will only invest in Nigeria's power sector if there is clarity and confidence on how to recover capital and operational costs. Approximately 65% of the cost of electricity in Nigeria is USD denominated (cost of turbines for power plants, natural gas to power the turbines, and other operating and maintenance costs). Due to the depreciation of the Naira, decrease in gas supply from the Niger Delta, and delays in implementing tariff adjustments, the average electricity tariff is now much lower than the cost of producing and delivering electricity to consumers. The implementation of a sustainable tariff methodology that reflects the full efficient cost of supplying electricity is required to provide that clarity and confidence.

FGN recognises that a sustainable tariff must be achieved over the next 5 years in order to allow market participants to recover the efficient cost of supply and promote investments. This RESET intervention involves a combination of policy and regulatory measures. The FGN will issue a policy guiding the tariff trajectory towards cost recovery level by 2021 at the completion of Reset, consistent with improvements in service.

To implement the policy, NERC will refine the procedures/approaches within the existing MYTO methodology for determination of the main parameters of the revenue requirement of each DisCo (e.g. OPEX, CAPEX, regulatory asset base (RAB), rate to be applied for remuneration on investments, remuneration of investments (depreciation), allowance on losses, etc.) in full consistency with the applicable laws and policies, and taking into consideration the specificities of the situation of the distribution segment at the time.

NERC will determine the revenue requirement for DisCos and for TCN, through a consultation process (i.e. NERC will implement a major MYTO review). The process will require that DisCos prepare Performance Improvement Plan (including investment plans) according to guidelines to be issued by NERC. Assumptions on generation costs will be based on generation operation plan prepared by the System Operator. Allowed revenue requirement will be subject to achievement of performance targets, and NERC will monitor implementation of the approved Performance Improvement Plans and actual performance.

During the transition path, the revenue shortfall (the difference between the tariff to recover the full approved revenue requirement and the tariff paid by consumers) is allocated to generation costs and funded through financial interventions (the Financing Plan).

#### **Action Steps**

Actions steps towards implementation are as follows:

1. NERC issues Guidelines for DisCos to prepare Performance Improvement Plans (PIP) as part of MYTO Major Review (Reset);
2. NERC finalizes and approves after consultation, refinement of the MYTO methodology for determining the revenue requirement of DisCos and for TCN, taking into consideration FGN tariff policy, inputs by the System Operator and including procedures and formulae for periodic adjustment;
3. TCN files for new MYTO revenue requirement following the revised methodology, including the transmission investment plan, for NERC review, consultation and determination;
4. Each DisCo prepares and submits to NERC the PIP covering the requirements and procedures in NERC guidelines;
5. NERC reviews the tariff application (based on their revenue requirement) filed by each DisCo following the MYTO methodology, including the PIP, and the setting of performance baselines and targets, and carries out consultation/hearing;
6. NERC issues the MYTO order for each DisCo and for TCN;
7. NERC monitors implementation of approved PIP, and of performance results compared to baseline and targets to evaluate improvement of each DisCos, and reports in its website for each DisCo progress in implementation of the PIP and evolution of performance compared to baseline and targets; and
8. Automatic adjustments (minor reviews) are implemented as required in the methodology subject to the tariff trajectory policy during the tariff period, for each DisCo and for TCN.

## **5.2. DIMENSION AND COMMIT TO FULLY FUND FUTURE SECTOR DEFICITS FROM 2017 TO 2021**

***Develop and execute a plan to fully fund the required Electricity Market Support due to revenue shortfall, until tariffs attain cost recovery levels from 2017 to 2021.***

The financial sustainability of the power sector is at the core of the PSRP. The PSRP recognises that until tariffs reach cost recovery, the government must make up the difference between the costs that the tariff allows market participants to recover and the approved full revenue requirement. The Financing Plan for the PSRP reflects the FGN's commitment to address historical and ongoing retail tariff shortfalls in the sector as the electricity market transitions to an efficient and sustainable tariff regime.

To develop a comprehensive, credible and fiscally sustainable Financing Plan, the FGN established a multi-agency team, consisting of representatives from NERC, PSRP IMT, CBN, NBET, FMOF, the Budget Office and the Debt Management Office (DMO).

The Financing Plan contains the following:

1. Estimates of the funding requirements to fully cover the annual recurring revenue shortfall of the sector 2017-2021, the settlement of the historical tariff shortfall (2015-2016), and the debt service payments associated with the debt financing of the Plan.
2. The sources of funding identified by the Financing Plan are the Payment Assurance facility funded by the CBN and managed by NBET, additional FGN budgetary contribution, and a World Bank Performance Based Loan (PBL).

3. Analyses of the associated fiscal costs: public expenditures and gross financing needs and the impact of the debt financing on public debt stock.
4. A base case scenario and a set of risk scenarios with contingency plans.

The Financing Plan is contained in the 2018-2020 FSP/MTEF approved by the National Assembly and in the 2018 FGN annual budget awaiting legislative approval. The Plan is premised on a series of macro and sectoral assumptions and is consistent with the most up-to-date MYTO. However, this will require periodic reviews to ensure that it remains credible and fully funded as the base assumptions change. The multi-agency task team will quarterly review the Financing Plan and update it, as necessary. The Financing Plan will be reflected in the annually revised FSP/MTEF and the FGN annual budgets.

### Action Steps

1. Develop and update the Financing Plan to ensure that the Plan remains fully funded to cover all Tariff shortfalls;
2. Analysis of fiscal sustainability and contingent liabilities of the sector and analysis of the multiplier effect of the proposed government support; and
3. Develop the detailed funds flow mechanism for the payment of tariff shortfalls on monthly basis.

### 5.3. CLEAR HISTORICAL SECTOR DEFICITS DUE TO TARIFF SHORTFALL

#### ***Clearing historical accumulated sector revenue deficits (2015 to 2016) as part of the Financing Plan***

The power sector liabilities/deficits before privatisation in 2013 were absorbed into NELMCO. In December 2014, the accumulated deficits between November 2013 and December 2014 were NGN 213 billion when that deficit was finalised as part of the MYTO 2015 review. The NEMSF loan from CBN to the electricity sector was designed to fully pay off this deficit. While NEMSF has not been fully disbursed to date, the NGN 60 billion outstanding balance will be disbursed. Discounting the forex devaluation since 2014 should fully eliminate the sector cash deficit through December 2014.

The deficit can be separated in two parts:

- A. Market Shortfall of NGN 476 billion:** This is the total amount underpaid by all the DisCos to NBET and MO for invoices submitted to each DisCo for electricity delivered to their distribution networks. It was calculated by deducting each DisCos monthly payment to NBET and the MO from the value of each month's electricity invoice issued by NBET and MO.
- B. Tariff Deficit of NGN 420 billion:** This is the aggregate amount of shortfall in the allowed revenue for each DisCo due to the lack of a sustainable tariff. The NGN 56 billion excess of the Market Shortfall (A) over the Tariff Deficit (B) is, by definition, the net amount due from DisCos as a group to the "market". In aggregate, these deficits reflect payments due to all sector stakeholders and service providers. This historical tariff shortfall will be covered in the Financing Plan.

FGN recognises the impact of the historical deficits on sector viability and confidence. In addressing these deficits, FGN expects that responsibility for these deficits should be allocated to responsible parties. As such, FGN accepts responsibility for the tariff deficit, and expects that the NGN 56 billion excess of the market shortfall over the tariff deficit will be addressed under the existing vesting contracts between NBET and the DisCos.



### Action Steps

Actions step towards implementation are as follows:

1. A process for settlement of deficits due from DisCos in net payable positions to be agreed between the DisCos, NBET and the MO, and communicated to the Ministry of Finance, Ministry of Budget & Planning and the Ministry of Power, Works and Housing; and
2. Prepare liability management strategy for NELMCO.

### 5.4. SECURE FINANCING SOURCES

***Identify and secure domestic and external financing sources to cover the total funding requirements estimated in the Financing Plan during 2017-2021***

To ensure that the sector remains liquid and to prevent the accrual of further deficits, FGN is firmly committed to securing all necessary funding to support the sector's revenue shortfall as described in this financial component of the PSRP. Current estimates of the projected total tariff shortfall from 2017-2021 is NGN 1.150 trillion. The sources of funding are outlined below:

1. NGN 701.9 billion funding commitment guaranteed by FGN through the Payment Assurance facility to NBET, a CBN short-term bridge financing facility to assist NBET in meeting payment obligations under its Power Purchase Agreements (PPAs) with GenCos and IPPs.
2. US\$ 1 billion Performance Based Loan from the World Bank
3. NGN 927 billion to be funded through budgetary contribution.

**NBET PAYMENT ASSURANCE FACILITY:** CBN has provided a NGN 701.9 billion facility to assist NBET in meeting its payment obligations within generation invoices and ease the liquidity challenges. The Payment Assurance facility is a loan to NBET from CBN, guaranteed by the FMOF, to support NBET's payments to GenCos and their associated gas suppliers. For the Payment Assurance programme to be effective, it is important that it is not viewed as a bailout facility that supports the existing market behaviour but one that supports a credible plan towards achieving an efficient and self-sustainable market. It is expected that the market will improve on its bill payment performance with declining drawdowns from the facility, to address payment gaps over the next 2 years, through the implementation of interventions described in the Policy and Governance Components.

Under the PSRP, the Payment Assurance is used as a bridge financing for 2017-2018, until other financing sources are realized, starting in 2018 (FGN budgetary contribution and World Bank Performance Based Loan). The terms and conditions of planned funding interventions need to consider the long-term sustainability. Without the timely resolution of outstanding issues relating to adequate market liquidity and behaviour, disbursement of funds under this programme will not achieve the expected impact and outcomes.

### Action steps

Actions steps towards implementation are as follows:

1. Secure funding for historical debt and future revenue shortfalls until tariffs are appropriate and sustainable;
2. Secure funding to address system constraints such as transmission/distribution interface bottlenecks;

3. The PSRP IMT reviews and updates the Financing Plan on a quarterly basis, with the support of the multi-agency financing working team;
4. CBN, NBET and FMoP to ensure timely payment to GenCos; and
5. FMoF and Budget Office to ensure adequate funding provision and timely disbursements.

#### 5.4.1. SUMMARY OF FINANCING PLAN

The Federal Government has included in the 2018-2020 Medium Term Expenditure Framework and Fiscal Strategy Paper (MTEF/FSP) approved by the National Assembly in December 2017 an estimated funding requirement for a total of NGN 1,934 billion / US\$6.34 billion over the period 2017-2021. This comprises of funds to fully cover the expected revenue shortfall for 2017-2021, the clearance of historical sector revenue deficit from 2015-2016, and the debt service (interest and principal) payments NBET will make through the CBN Payment Assurance facility during 2017-2021.

**Table 4: Projected Funding Requirements 2017-2021 by Use of Funds**

	NGN Billion	USD Million	%
<b>Sector Revenue Shortfall (2017-2021)</b>	1,150	3,770	<b>59.5</b>
<b>Sector Historical Deficit (2015-2016)</b>	420	1,378	<b>21.7</b>
<b>CBN Payment Assurance Facility Debt Service</b>	363	1,191	<b>18.8</b>
<b>Interest</b>	132	434	
<b>Principal repayments/amortization</b>	231	757	
<b>Total Funding Requirements</b>	<b>1,934</b>	<b>6,339</b>	

A total of NGN 1,934 billion/US\$ 6.34 billion of financing to fully fund these payments has been identified and committed to: The CBN Payment Assurance Facility (short-term bridge financing for only 2017-2018); the World Bank performance-based loan; and Additional Federal Government Budgetary Contribution to the power sector<sup>3</sup>.

**Table 5 : Projected Financing 2017-2021 by Source**

	NGN Billion	USD Million	%
<b>CBN Payment Assurance Facility (debt-domestic)</b>	702	2,301	36.3%
<b>Additional FGN Budgetary Contribution (debt-mixed)</b>	927	3039	47.93%
<b>World Bank performance-based loan (debt – external)</b>	305	1,000	15.8%
<b>Total Government Financing</b>	<b>1,934</b>	<b>6,339</b>	

The Financing Plan is underpinned by a set of assumptions on key macroeconomic (exchange rate, inflation) and sectoral variables, which may change over the PSRP implementation period, and affect the funding requirements. There are also risks to the realization of the identified financing sources, for example: under-execution of the proposed additional Federal Government Budgetary Contribution due to fiscal revenue shortfalls. Therefore, the Financing Plan will be updated on a semi-annual basis at the same time as the MYTO minor review process to ensure that it remains accurate, credible, and fully funded.

<sup>3</sup> Included in the approved 2018-2020 MTEF/FSP and in the 2018 FGN budget as: 'Service-wide vote Power Sector Reform Programme' expenditure line item. The associated expenditures are assumed to be financed as part of the FGN budget deficit with a mix of external and domestic medium to long-term debt instruments, as per the Government's debt management strategy.

The PSRP Implementation Monitoring Team will monitor on a quarterly basis and update semi-annually the Financing Plan, with the support of the multi-agency financing working team as described in the Governance Component of the PSRP.

The Financing Plan, as updated, will be fully funded and included in the MTEF and FSP that the FGN sends to the National Assembly. The proposed draft budget will identify and commit the budgetary contribution required by the Financing plan.

**Appendix 1** contains an analysis of the total fiscal costs of the Financing Plan for the Federal Government.

### **Action Steps**

Actions steps towards implementation are as follows:

1. The initial Financing plan is approved;
2. Analysis of fiscal sustainability and contingent liabilities of the sector and the multiplier effect of the proposed plan;
3. The annual 2018 FGN budget to include the FGN Budgetary Contribution provision per the MTEF;
4. PSRP IMT with the multi-agency financing team reviews and updates quarterly the Financing Plan to reflect revenue shortfall and have a fully funded Financing Plan;
5. The PSRP is updated each year to incorporate the updated Financing Plan, and the FSP/MTEF is updated accordingly; and
6. For each Fiscal Year (FY), the FGN annual budget submitted to the NASS includes the FGN budgetary contribution needed as specified in the Financing Plan.

### **5.5. CLEAR HISTORICAL MDA DEBTS AND AUTOMATE FUTURE PAYMENTS**

***FGN intends to retire all the accrued MDA debts and ensure that mechanism is in place in order to forestall accruing future deficits.***

FGN is committed to settling historical MDA debts owed to DisCos, and has completed the verification of MDA outstanding power bill invoices. The Federal Government will ensure that future MDA electricity bills are paid on a timely basis.

MDA's total verified unpaid electricity debts owed to DisCos is NGN 26 billion. FGN has resolved to settle all MDA outstanding arrears. CBN will develop an MDA debt payment system, and NERC will implement a mechanism for regular payment of MDA electricity bills in future. NGN 40 billion (US\$ 131.1 million) was included in the 2017 federal budget to pay MDA electricity debts.

The verified MDA debts of NGN 26 billion were included in the 2017 budget.

### **Action steps**

Actions steps towards implementation are as follows:

1. Historical debt of MDAs is cleared;
2. Government issues a directive specifying the mechanism to ensure timely payment of electricity bills by all MDAs and its implementation timetable;

3. Implementation of Government directive to ensure regular payment for power consumed and encourage energy efficiency at all MDAs;
4. On a monthly basis, DisCos informs NERC any late or non-payment by each customer that is a MDA, and the accumulated debt; and
5. NERC informs the FGN and reports in its website progress in payment by MDAs and in implementation of the mechanism in the directive.

## 5.6. WORLD BANK FINANCIAL SUPPORT

The World Bank has expressed its willingness to assist the FGN in preparing and achieving a credible power sector. The World Bank has indicated potential support for the Programme totalling up to US\$ 2.6 billion, aimed at supporting the Financing Plan, funding transmission infrastructure needs, investments to reduce DisCos ATC&C losses, and enhancing energy access through off-grid initiatives.

**Table 6: The World Bank potential support**

S/N	Item	Description	WB potential funding (US\$'mn)
1	Performance based loan for financial support to eliminate cash flow deficits	Performance based loan as a funding source of the Financing Plan intended to ensure that every sector company receive their full revenue requirement (DisCos, TCN, etc.) and GenCos paid for invoices, subject to each the interventions being implemented	1,000
2	Loss Reduction in distribution including metering	Support funding of the priority measures that will be identified in the Performance Improvement Plans (PIPs) of DisCos approved by NERC	500
3	Support to TCN	Financing programme for TCN priority projects.	486
4	Rural electrification initiatives	Solar mini grid projects, social solar electrification projects – schools, hospitals, and rural electrification fund	350
5	Guarantees	International Bank for Reconstruction and Development (“IBRD”) securities for private sector investment in generation and distribution	305
	<b>Total</b>		<b>2,641</b>

### Action Steps

Actions steps towards implementation are as follows:

1. World Bank to clarify their internal processes to FGN on these projects; and

2. FGN to fulfil the conditions precedent pre-agreed with the World Bank in order to ensure timely drawdown and utilisation of the funds.

## 6. DETAILED COMPONENTS: OPERATIONAL / TECHNICAL INTERVENTIONS

Associated with this component, the Nigerian Electricity Management Services Agency (“NEMSA”) plays a role on quality and safety in the power system. NEMSA manages and enforces technical standards and regulations as well as technical inspection in the Nigerian Electrical Supply Industry. NEMSA collaborates with relevant government agencies, including the Standards Organisation of Nigeria, to ensure that all major electrical materials and equipment used in Nigeria are of the right quality and standards.

### Action Steps

1. NEMSA to conduct network integrity and safety ranking audit of all NESI assets;
2. Increase availability of NEMSA’s support services; and
3. NEMSA periodic publication of information beneficial to safety and growth of power system.

### 6.1. BASELINE POWER GENERATION, TRANSMISSION AND DISTRIBUTION

**Ensure minimum baseline power supply of 4,500 MWh/Hour to the national grid is distributed daily from 2018 to achieve grid stability and phase out operational shortages.**

With this goal, a coherent strategy and plans will be developed to address the constraints across the electricity supply chain.

Analysis shows that at 4,000 MW equivalent of power generation, there is noticeable improvement in power supply. In the past, daily peaks have surpassed 4,500 MW but the annual average (or baseline) has always been low despite optimistic projections<sup>4</sup>. The generation projection is important because this is a component by which tariffs are determined in MYTO. Failure to achieve the generation projection results in the accumulation of cash deficits.

To facilitate the execution of a tariff trajectory that ensures appropriate and sustainable tariffs in the next five (5) years, it is critical to improve customers’ perception of service delivery by ensuring a minimum available supply of 4,500 MWh/Hour. Whereas generation levels are still far below Nigeria’s estimated power requirements of 13,000 MW, it delivers a minimum threshold of power at which customers are likely to be satisfied with improvements in power supply.

With this in mind, the Programme has developed power generation forecasts, starting with an estimated energy sent out of circa 3,628 MWh/Hour in 2017 and increasing to 6,182 MWh/Hour by 2021.

The PSRP has identified a list of existing thermal plants that based on their 2016 tested capacity and gas availability in addition to the list of hydro plants, could deliver energy above the baseline power supply level.

Key to achieving the baseline power supply level is the resolution of constraints affecting thermal power plants, especially as at September 2017, gas availability and the transmission grid capacity could support delivery in excess of 4,500 MW.

### Action Steps

Actions steps towards implementation are as follows:

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<sup>4</sup> MYTO 2015 assumes a generation level of 5,465 MW in 2016

1. Identification and prioritisation of power plants to be supported to achieve the minimum 4,500 MWh/Hour baseline;
2. TCN prepares transmission expansion plan and submit for approval to NERC as part of the MYTO reset process;
3. TCN publishes in its website the approved transmission expansion plan;
4. NERC monitors progress in TCN implementation of the transmission investment plan approved in the tariff order, and publishes quarterly/annually in its website;
5. Each year the System Operator prepares an annual generation operation plan, including an assessment of expected transmission and system security constraints; and
6. Each year, TCN updates transmission expansion plan.

## **6.2. IMPROVE DISCO PERFORMANCE**

This technical – operational intervention complements the RESET of MYTO methodology and determination of DisCos revenue requirements, to cover commitments by each DisCo on investments and performance improvements.

The long-term sustainability of the country’s power sector is dependent on the operational, commercial and financial performance of the DisCos. This includes their ability to collect revenue from customers for electricity consumed and aggressively reduce the high ATC&C losses.

The PSRP recognizes the need for a demand-based distribution investment plan for each DisCo, using a bottom-up approach, to phase out distribution constraints and improve DisCos performance, in order for consumers to benefit from the increased generation/transmission capability. Network improvement is important to ensure distribution efficiency while network expansion is required to support both the on-going and proposed investments in the transmission and generation segments of the value chain.

As described in the financial component on the tariff RESET, Performance Improvement Plans (also known as Business Plan) will be prepared by each DisCo, reviewed and approved by NERC under the associated Guidelines. The NERC Guidelines will require the Performance Improvement Plans (“PIP”) to take into consideration and address the current situation of the distribution systems and factors negatively affecting its performance, such as low metering rates, high non-technical losses, poor collection, inexistence of reliable databases (customers and networks), and dilapidated condition of network infrastructure leading to bad quality in electricity supply. Therefore, the PIP approved with the tariff order of each DisCo could include investments in metering systems, additional distribution lines and substations, reconfiguration of the existing distribution network, including re-conductoring, improving reactive power and upgrading distribution transformers. The PIPs should aim to remove distribution constraints and meet performance standards set by NERC regulations.

**Metering options to improve performance:** The lack of improvement in DisCo efficiencies has been attributed partly to the very poor investment in metering. The high level of unmetered customers indicates that commercial and collection losses will not be resolved in the short term. The PSRP’s interventions through the MYTO reset will commit each DisCo to PIP to achieve performance targets, including effective revenue protection programs and metering strategies, relevant metering technologies and communications, collection and security of metered data.

**Business continuity measures:** There is a need for the industry to have mechanisms of prevention and recovery (business continuity measures) to deal with failure of one or more of the DisCos to perform. Proactive and well thought out business continuity measures will limit events that could negatively impact the services provided to consumers by a DisCo.

NERC is currently taking a proactive step in this regard with its proposed “Business Continuity Regulation” which seeks to ensure continuity of business and operational functions of a DisCo (or GenCo) should they fail to perform or become insolvent.

The key issue in the event of failure would be facilitating the entry of new management to ensure continuity pending re-privatisation. NERC will develop the necessary procedures that could culminate in an eventual change of ownership if/where required.

**NERC will establish tighter regulatory oversight over the performance of DisCos.** NERC will establish performance standards focusing on key operational indicators of DisCos, including technical and non-technical losses, collections and service quality and reliability. NERC will establish a robust monitoring framework for the DisCos that is aimed at increasing the likelihood of ATC&C loss reductions; monitoring of implemented capex, and public disclosure of performance indicators (KPIs). The assessment of DisCos progress in performance will determine applicable business continuity measures in case of deterioration.

### Action Steps

Actions steps towards implementation are as follows:

1. NERC to ensure that each DisCo commences and updates a complete customer data base, to identify their customers and commence metering programme;
2. NERC reviews and approves the PIP for each DisCo;
3. NERC monitors each DisCo’s progress in implementation of PIP, and evolution of performance indicators, and enforcing compliance with committed investments;
4. NERC to finalise business continuity regulation after consulting with stakeholders including investors and management of DisCos;
5. Based on approved targets and baseline in MYTO reset for each Disco, BPE updates Performance Agreements with private investor of each DisCo, to incorporate key performance indicators in MYTO reset and clarify each party’ obligations and the consequence(s) for failure to perform; and
6. BPE monitors Performance Agreements based on information provided by NERC and assesses compliance.

### 6.3. ADEQUATE GAS SUPPLY FOR POWER GENERATION

Nigeria’s gas supply was particularly volatile in 2016, with production dropping to circa 450 MMscf/d at its lowest point, which decreased available generation. Maintaining gas supply for power generation to support 4,500MW of thermal generation capacity, is critical to ensuring the power sector is sustainable. If actual gas production falls below the assumptions in MYTO, the sector will require adjustments of tariff increases to cover the additional costs and ensure the tariff remains appropriate and sustainable.



To guarantee a baseline generation level of 4,500 MW (with hydros providing an average capacity of 700 MW), it is estimated to require 800 MMscf/d gas supply to power plants (excluding own-use supply to Afam VI and Okpai). The average annual supply was only 553 MMscf/d and 450 MMscf/d in 2015 and 2016 respectively, based on reasonable endeavour as there were no effective gas supply contracts.

Nevertheless, the government is confident gas delivery to power plants can be increased to required levels as Nigerian gas production is sufficient to meet demand (daily production is circa 1,300 MMscf/d). The Government will address major issues constraining gas availability to the power sector, notably pipeline vandalism, arrears due to gas suppliers and lack of payment security for gas deliveries.

**High level political engagement:** His Excellency, the Vice President of the Federal Republic of Nigeria visited the Niger Delta region in November 2016, the first of a planned series of meetings. This visit reaffirmed FGN's commitment to the region, and emphasized the importance of the dependence on the Niger Delta – particularly the energy and power sectors – to Nigeria's economic recovery. Total gas production by Nigerian National Petroleum Corporation (NNPC) has increased 123% from 327 MMscf/d in June 2016 to 730 MMscf/d by June 2017.

### Action Steps

The following actions are intended to reinforce the government engagement:

1. Strategic level engagement led by His Excellency, the Vice President with Minister of State for Petroleum and 9 state governors to identify critical development priorities for each state in the region;
2. Operational engagement by representatives of various MDAs, including the Office of the Vice President to convert the region's development priorities into specific projects;
3. Ownership stakes by host communities in oil and gas assets to create incentives to safeguard these assets;
4. Engaging host communities to secure assets in their townships;
5. Completion of critical projects in the affected Niger Delta communities;
6. Full disbursements of NEMSF to ensure historical debts are paid to gas suppliers;
7. Ministry of Petroleum Resources to develop clear plan on gas vandalism prevention strategy; and
8. Project manage the delivery of key gas pipeline infrastructure (including the Ob-Ob pipeline) to ensure that gas is readily available where it is needed.

## 7. DETAILED COMPONENTS: GOVERNANCE INTERVENTIONS

In the interest of proper market growth and viability of the NESI, it is critical that efficient sector governance is improved and maintained. The current industry regulations and rules contain provisions that are comprehensive. However, there is a need for continuous implementation and enforcement, combined with review and updates to align with sector realities.

### 7.1. RESTORE PROPER SECTOR GOVERNANCE

#### ***Restore proper sector governance to improve investor confidence***

The FGN will appoint qualified persons to the Boards and management of related government agencies and DisCos to represent Government's interest.

Investor confidence will largely be determined by effective, predictable and consistent regulatory actions and credible sector institutions.

Restoring governance will involve timely appointment of qualified professionals to the MDA boards and the government representative in Discos' Boards, a capacity development plan for institutions and a training programme for FGN's board representatives.

Governance arrangements for the Board include (i) at least one member of the Board of Directors being independent; and (ii) there is an Audit Committee established and functional.

#### Action Steps

Actions steps towards implementation are as follows:

1. Current BPE directors in Discos' Board are replaced by qualified independent professionals through a transparent process;
2. Identification and appointment of qualified board of sector agencies including NBET, TCN, NELMCO, NEMSA, NDPHC, and REA;
3. Provide extensive and continuous training for FGN board representatives; and
4. FGN to put in place a special police department or provide DisCos with required police staff to help them enforce payment discipline. Engage State Governments to use local courts to adjudicate energy offences.

**The Bureau of Public Enterprises ("BPE"):** BPE is responsible for the privatisation of the NESI. In line with the Performance Agreements, DisCos are required to fulfil minimum performance standards, particularly loss reduction performance targets to ensure that sector financial projections are attained. The governance arrangements of BPE will be enhanced by coordinating with NERC to update Performance Agreements based on MYTO reset performance standards, and in matters related to business continuity.

#### Action Steps

Actions steps for BPE towards implementation are as follows:

1. Obtain all management accounts from each DisCo on a monthly basis;
2. Obtain all audited accounts yearly;
3. Develop continuity process in the event of DisCo failure; and
4. Present proposal on way forward for TCN.

## **7.2. IMPROVING SECTOR TRANSPARENCY**

### ***Regular publication of key operational and financial information on the power sector***

PSRP's success is dependent on transparency and availability of up-to-date information by sector stakeholders, the FGN and the public.

#### **1. Access to Operational Data:**

Operational results and performance should be fully transparent and available to stakeholders and consumers. Market participants and NERC are expected to use their websites to promote transparency, access to information and facilitate public awareness on their core activities. Disclosing of information, documentation and results of monitoring and enforcement will demonstrate improvement in performance and accountability of DisCos.

#### **2. Access to Commercial Data:**

Promoting transparency of power companies' revenues, income and expenditures is an important aspect to rebuild investor confidence in the NESI. Non-transparent billing, settlement and payment systems reduce consumer confidence and can contribute to the high collection losses. To rebuild trust and confidence in the sector, a system that is comprehensive and accessible needs to be promoted.

- **Public disclosure of regulatory information:** Nigerian power companies must produce audited reports and accounts within six months of the end of their financial year. They must also produce quarterly revenue and expenditure statements in accordance with the regulatory accounting guidelines which must be widely accessible on their websites. There must also be a reconciliation of information provided in the audited accounts to the information submitted to NERC.
- **Data access by consumers:** Mobile telephony penetration in Nigeria is at approximately 90% (there are 155 million mobile telephone lines for 180 million people). Basic operational and commercial data should also be transparent to electricity consumers. A basic mobile phone application (App) should be designed and accessible by all consumers. This can be done in conjunction with the communications strategy on the PSRP going forward.

The regulated power sector companies will be required to submit periodically to NERC operational and financial information. NERC will assess and publish in its website key operational and financial information and indicators on a quarterly basis, including: (a) energy sent-out by each GENCO (in kWh), the resulting invoices to NBET, and NBET payments against these invoices; (b) the electricity delivered to each DisCo (in kWh), the resulting DisCo bill (invoice amount), and DisCo payment against these invoices; (c) load shedding and the number of hours of electricity delivered to end users by each DisCo; and (d) amount of funding disbursed to cover the revenue shortfall of the sector.

### **Action Steps**

Actions steps towards implementation are as follows:

1. At the end of each fiscal year, NERC publishes on its website: (i) audited financial statements of GenCos, DisCos, NBET and TCN; (ii) NERC monitoring report;

2. Quarterly, NERC publishes in its website operational and financial (market settlement) data of DisCos and TCN, and operational data of GenCos, the System Operator and the Market Operators; and
3. FGN manages a centralised website (NESISTATS) that provides up to date information and a feedback loop to check the progress and activities of the PSRP.

### **7.3. MAKE CONTRACTS FULLY EFFECTIVE**

***Encourage and support a fully effective contract based market that promote competition and performance.***

FGN's ultimate goal with power sector reform is to create an efficient electricity sector that delivers reliable electricity to end users and enables competition. Without contracts between market participants (in particular contracts to buy and sell electricity) being effective, it will be difficult to hold sector participants accountable for their operational and management responsibilities. For the privatised GenCos and DisCos, it will also be difficult to enforce their obligations, including investments and maintenance.

The industry contracts (such as Vesting Contracts between NBET and DisCos, PPAs between NBET and GenCos, and GSAs between GenCos and gas suppliers) have not been formalised since privatisation. This is partly due to the cash deficits in the sector as described previously and lack of enforceable payment securities to backstop payment obligations between contractual counterparties. Full activation of the GSAs will allow gas suppliers to become eligible for take-or-pay payments from GenCos even if they are unable to utilise the volumes of gas contracted for. The GenCos will become eligible for available capacity payments once the contractual commercial arrangements are effective.

The sustainable operation of the power sector is dependent upon the activation and consistent enforcement of contracts, including Power Purchase Agreements (PPAs) and Gas Supply Agreements (GSAs) with GenCos and Vesting Contracts of NBET with DisCos. This intervention involves increasing activation and enforcement of PPAs/GSAs and Vesting Contracts in two phases: pre-Reset and post-Reset.

In the short-term, the goal is ensuring that sufficient contracted capacity that can be accommodated by the system have activated / effective contract, to meet the base generation capacity of 4,500 MW. The activation of contracts upstream needs to be done with caution, in order not to overburden the market with payment for generation capacity which cannot be utilised at this stage. Phased contract activation commensurate with the volume of energy that can be utilised would be the viable path towards maintaining market stability in the interim.

Each year, the revenue requirements for TCN and DisCos will be set based on the MYTO order and automatic adjustments, and the full pass-through of the generation costs consistent with contract activation arrangements for GenCos.

Annually, the System Operator will develop the generation operation plan, identifying the power plants and energy generation necessary to meet forecasted demand by an economic dispatch within system security constraints, including operational reserves. The System Operator demand forecasts will be based on a bottom-up approach (demand projections provided by DisCos) monthly and consolidated based on historical demand and load profile identified in actual system operation.

Each year, NBET will design a strategy and plan the GenCos contract to become effective, in coordination with the System Operator to take into consideration the generation operation plans for next 12 months.

NBET will enforce full payment of invoices by DisCos so no new arrears are accumulated from DisCos. To that end, before the Reset, NERC will instruct NBET to (i) adjust DisCos invoices so DisCos can cover their revenue requirement, subject to target losses; and (ii) partially activate and enforce vesting contracts (to the invoice amount). Vesting contracts will become effective, to pay the invoice amount with reduction resulting from a NERC order, and all DisCos provide a Payment Security (usually in form of Bank Guarantees (“BG”) or Letter of Credit (“LC”).

These actions will allow NBET to define the share of GenCos’ invoices that will be settled through DisCos’ remittances to NBET and the share that will be funded from the financing plan until the tariffs reach efficient cost recovery level.

After the tariff adjustment, DisCos will receive their full revenue requirement, subject to target losses, and their vesting contracts will be fully activated and enforced. In the extreme case of a DisCo non-payment (even after withdrawal of LCs by NBET), provisions in the vesting contract for payment default will apply. Additionally, NERC will exercise disciplinary action and financial performance considerations will be assessed as may be relevant for business continuity regulations.

The medium-term goal is to fully activate a contract-based electricity market in coordination with the MYTO review and the mechanism to ensure funding of revenue shortfalls, under the financial component of the PSRP. The PPAs/GSAs with GenCos are expected to be fully activated by 2020.

As confidence is restored to the sector, tariffs move to sustainable levels, the sanctity of contracts will prevail. At this stage of market development, additional available capacity that is uncontracted can be brought on stream as the market matures and the payment guarantees are less likely to be used as primary means of settling market obligations. Lost capacity can be recovered from existing brownfields, any outstanding NIPP projects will be completed and the gas required contracted for. Additional greenfield projects under construction and with PPAs (signed or under negotiation) will also be completed. This may provide an available generation capacity of up to 10,000 MW.

The long-term goal is to add greenfield IPPs through projects identified in the least cost development plan and the competitive procurement framework being developed by NERC, as described in the policy intervention. The issuing of sovereign guarantees for greenfield developers may eventually lead to a “run on the sovereign” if NBET fails to meet its payment obligations under its PPAs, or mandate the sovereign to acquire the plants at a pre-determined price.

### Action Steps

Actions steps towards implementation are as follows:

1. Each year, System Operator prepares an operational plan of generation based on economic dispatch of planned available generation, within system constraints, and demand forecast developed in consultation with DisCos;
2. The System Operator updates after six months the annual generation operation plan;
3. In coordination with NERC, NBET designs a plan for the phased activation of PPAs and GSAs to meet the baseline generation capacity of 4,500 MWh/Hour and the operational plan of the System Operator;

4. NERC issues order to NBET on allowable power purchase costs to DisCos in vesting contract invoices;
5. NBET makes vesting contracts effective up to invoice cap in NERC order, subject to DisCo posting required LC; and
6. Each year, NBET increases the PPAs level of activation.

#### **7.4. CLEAR COMMUNICATION OF PSRP**

***Develop and implement a communication strategy for the PSRP implementation that will facilitate stakeholder engagement and outreach to the public.***

A clearly defined Power Sector Recovery Programme communications strategy is fundamental to fully achieving PSRP's objectives at every stage of implementation.

The success of the PSRP critically depends on the support and engagement of the key stakeholders. The multi-faceted stakeholder landscape includes the Federal Government, MDAs, the National Assembly, private sector operatives, organized private sector, investors, civil society organisations, national and international media and the public.

Additionally, communication with the public is important to start building trust in the power sector, which has been eroded as a result of sector underperformance.

The objective of the communications strategy is to effectively deliver targeted messaging to all the PSRP stakeholders (particularly the public), and garner support on the objectives and benefits of the Programme. The strategy will involve educating the public about core power sector issues, public advocacy on the Programme objectives and goals, establish consistent channels of communication, and dialogue on PSRP activities with stakeholders.

#### **Key PSRP Communications Strategy Components**

1. **Messaging strategy for specific stakeholders:** The communication strategy outlines core strategic messaging, supported by tactical messaging tailored to each stakeholder group based on their role and interest in the Programme and the power sector.
2. **Conduct sector stakeholder engagements:** A stakeholder analysis has been conducted to enable government to successfully engage with stakeholders and achieve communications objectives throughout implementation.
3. **Public sensitisation campaign:** A comprehensive nationwide public awareness campaign will be conducted to build public trust, shape the national dialogue about the power sector, and raise awareness to the PSRP goals.
4. **Measure, evaluate, and assess communication impact:** Given the scope and scale of the communications strategy, thorough monitoring and evaluation is integral to assess the communications impact and effectiveness on the target audience. As such, a monitoring and evaluation (M&E) framework has been developed to identify areas of improvements and communication gaps based on stakeholder feedback. This will be supported by surveys and feedback by key stakeholders throughout the PSRP implementation.

#### **Action Steps**

Actions steps towards implementation are as follows:

1. Implementation of a communications strategy that promotes understanding and buy-in of the PSRP by all sector stakeholders. This would involve core messages for key stakeholders, stakeholder engagements, and media communications with the public;
2. Engage the services of a reputable communications firm that will lead the communications strategy implementation and tactical activities of the nationwide PSRP campaign to build public confidence and trust in the Government's plans;
3. The Power Sector Communications Team (PSCT), comprising of MDA media and communications representatives, will be a critical vehicle to execute various aspects of the communications and stakeholder engagement strategy; and
4. Engagement of all arms of government (Executive, Judiciary): This is required to promote and facilitate knowledge building and alignment within Government.

#### **7.5. PSRP IMPLEMENTATION MONITORING TEAM**

A dedicated implementation monitoring team has been set up to coordinate and monitor the implementation of the PSRP and report to His Excellency, The Vice President. The implementation monitoring team provides the expertise to deliver the various interventions in the PSRP on behalf of the FGN. The team will undertake planning, execution and control, monitoring and evaluation, and extensive stakeholder management in the various activities required to meet the PSRP objectives.

The team will monitor and evaluate implementation and results of the PSRP, to address unexpected developments or delays. To enable strong coordination, multi- agency teams will support the IMT for components and interventions that involve several agencies, in particular multi-agency teams for financing and least cost development plans.

Specialist roles may be contracted as needed to support the team.

1. **Programme Coordinator** will provide overall leadership and is accountable for all aspects of the delivery of the Programme and its team. The role will lead the engagement, interaction and communication with Donors, FGN, International Finance institutes and other high-level stakeholders relevant to attaining the objectives of the PSRP. In addition to ensuring oversight of the team, the Supervisor will support problem solving at the appropriate levels to meet the Programme's objectives.
2. **The Project Manager (PM)** will coordinate the daily activities of the Implementation Monitoring Team in alignment to the various interventions of the PSRP and thereby set the activities of the team.
3. **The Communications Specialist** will be responsible for the development and delivery of the communications and engagements with stakeholders (including the public) that would facilitate alignment and buy-in into the Programme via strategic communication products and activities.
4. **The Financial Specialist** will lead and manage all aspects of the planning and design of financial mechanisms, implementation and the monitoring of the financial interventions included in the PSRP.

5. **The Legal Specialist** will develop legal reviews on various interventions within the PSRP. The specialist leads the planning, design, implementation and monitoring of the governance initiatives in the PSRP.
6. **The Technical Lead** will manage all aspects of the assessment, planning, design, implementation and monitoring of the operational and technical interventions required to achieve growth and address infrastructure deficits and weaknesses across the sector.
7. **The Document Manager** will provide an administrative secretariat function to the implementation team through standard document management services.
8. **Monitoring and Evaluation specialist** will develop and implement the M&E plan for the PSRP
9. **Disco turnaround expert** will provide support to NERC and the DisCos to prepare, implement and evaluate the PIPs.
10. **Economist** will assist in evaluating the contingent liabilities on a periodic basis.

### **Action Steps**

Actions steps towards implementation are as follows:

1. Identify the critical roles for the PSRP Implementation Monitoring Team;
2. Commence the resourcing process to identify and recruit suitable candidates;
3. Commence onboarding process and inaugurate team members;
4. Organize and operationalize a multi-agency financial team; and
5. Organize and operationalize a multi-agency LCDP team.



## 8. DETAILED COMPONENTS: POLICY INTERVENTIONS

### 8.1. FISCAL AND MONETARY POLICIES TO ENCOURAGE PRIVATE SECTOR INVESTMENTS

***Increase awareness of fiscal and monetary policies relevant to the power sector e.g. duty waivers, pioneer status, capital importation, and foreign exchange policy, in order to encourage private sector investments.***

In addition to resolving the financial challenges of the sector, the process for channelling private sector investment into Nigeria's power sector could be further streamlined to reduce project development time and cost. This will enhance private sector investment into the sector.

As multiple agencies decide on various aspects of the project development cycle, templates will need to be established to avoid a lengthy process and reduce the cost of project development.

Government has developed options for sustaining the sector by providing fiscal and monetary policies to encourage investment such as duty waivers, pioneer status for tax holidays and capital importation. These are designed to prioritise industry requirements for a given period to encourage private sector investments.

#### **Action Steps**

Actions steps towards implementation are as follows:

1. Review and update existing policies and incentives to ensure alignment with PSRP objectives;
2. NBET to develop simplified templates for IPP key project documents; and
3. Recommend measures for adoption across PSRP interventions;

### 8.2. INCREASE ELECTRICITY ACCESS

***Implement off-grid and renewable energy. Create a framework for the off-grid development plan including mini-grids, and solar home systems.***

The REA in line with its mandate to increase electricity access is championing and promoting renewable and other distributed off grid power solutions.

#### **OFF GRID SOLUTIONS**

***Increase electricity access by implementing off grid renewable solutions***

As part of its plan to fast track achieving the overall objective of the government outlined in the ERGP and PSRP, the Rural Electrification Agency (REA) has developed the off-grid electrification strategy with the primary objective of increasing electricity access to rural and underserved communities within the country and to optimise the delivery of at least 10,000 MW (off-grid and on-grid) of operational capacity by 2020.

The off grid electrification strategy is premised on the need to shift from centralised power generation and distribution to a decentralised approach with a view to achieving economic viability, demand driven, market oriented and private focused electricity market. With this goal, the Mini Grid Regulation 2016 was enacted to accelerate electrification in underserved areas and poorly electrified communities and non-functional distribution grid.

REA has identified the following off grid solutions for immediate implementation and promotion:

1. **Rural mini-grids:** This component would fund the electrification of unserved and underserved areas that have high economic potential. The focus would be on solar-based mini grids, which can be rolled out quickly, and later integrated with DisCos. The tentative target is 200,000 households, subject to scaling up or down during project preparation. REA will also encourage the development of mini-grids by communities and private enterprises.
2. **Stand-Alone Home Solutions:** This component would promote the development and roll-out of stand-alone systems including Solar Home Systems (SHS) and solar lanterns, among other products, for areas where mini-grids are not viable. The stand-alone solutions may include individual photovoltaic (PV) systems that can provide sufficient electricity to satisfy the needs of households and small commercial enterprises (e.g., lighting, radio, TV, fan). In addition, the standalone solutions will provide better services at lower cost than kerosene, small petrol generators and battery powered torches. These systems will provide critical services to the hardest-to-reach customers.
3. **Reliable power for federal universities and teaching hospitals:** The focus will be on Nigeria's Energising Education Programme. The objective is to develop off grid independent power plant (IPP) projects for the generation and provision of adequate power supply to 37 federal universities, 7 university teaching hospitals across the country (including street lighting) and surrounding communities. The Federal Ministry of Power, Works and Housing will implement this component. The power will come from off-grid systems ranging from 1 MW to 10 MW. This programme has been broken down into phases and is expected to be completed within a 12 month period. The first phase consists of 9 universities and 1 teaching hospital distributed across the six geo-political zones.
4. **Economic clusters:** The focus is to provide adequate power to select economic clusters with high levels of commercial activities. The goal is to provide efficient, clean and sustainable power to catchment areas that have high growth impact on the economy and rely heavily on electricity to run their businesses. These catchment areas include Somolu Printing Community in Lagos State, Ariaria Market Community in Abia State and Sabon Gari Market in Kano State.
5. **Energy database:** The focus is to provide online visualisation on communities, economic clusters, population, energy demand and solar irradiance.
6. **Eligible Customer:** Customers that utilise more than 2 MW of energy from the grid have the right to competitively purchase electricity directly from GenCos as they have been declared by Government policy to be eligible customers.

The REA has identified and selected catchment areas in the North West, South East and South Western parts of the country for immediate intervention under the eligible customer directive using specific industry indicators such as population density, trade, employment sustainability, amongst others. The focus on the Micro, Small and Medium Enterprises (MSMEs) sector cannot be over emphasized as they constitute the bedrock of economic development in most countries.

### **Action Steps**

Actions steps towards implementation are as follows:

1. Impact analysis on DisCo and GenCo businesses;

2. Developing a framework for eligibility;
3. NERC to finalize consultation with stakeholders on the framework for eligibility; and
4. NERC to release regulation on Eligibility.

**Developing Off-grid Master plan:** The Rural Electrification Agency's objective is to increase electricity access and to accelerate electricity service penetration across the country to meet national development goals. Key components as stated above include the mini-grid regulation, off-grid solutions such as the rural mini grids, Solar Home Systems, captive generation and eligibility.

### **Action Steps**

Actions steps towards implementation are as follows:

1. Review existing policy frameworks to determine their adequacy;
2. Develop strategy document that outlines the goals and approaches for off-grid solutions;
3. Set targets of rural electrification access in line with Government's overall electricity objectives; and
4. Conclude the consultation process for the mini-grid regulation and Eligibility.

This complementary programme will be assessed for World Bank support and potentially for support from other donors.

**REA PMU:** The overall objective of the PMU is to address the Rural Electrification Agency (REA) Management needs associated with the Energising Education. Critically, the team will need to develop the necessary documentation to meet the prescribed service standards of the World Bank. The PMU will provide the monitoring and coordination and will be required to build capacity in the REA whilst interacting with normal operations.

### **Action Steps**

Actions steps towards implementation are as follows:

1. Develop blueprint for the REA PMU structure;
2. Develop work plan for the implementation of the REA PMU actions; and
3. Increase electricity access by implementing off grid renewable energy solutions: Rural Mini Grids, Standalone Home Solutions (SHS), IPPs for federal universities and teaching hospitals.

## **ON GRID SOLAR SOLUTIONS**

In addition to the above mentioned off-grid solutions, improved electricity access can also be achieved through on-grid solar power solutions. NBET has signed PPAs with 14 frontrunner solar developers (IPPs) and it is expected that these projects will add between 1,000 -1,100 MW of power once completed.

### **8.4. ECONOMIC PROCUREMENT OF POWER**

***Promote least cost generation entry and ensure competitive procurement of power.***

Although installed generation capacity is currently not a major constraint, new generation capacity should be planned in advance in a least cost and transparent manner to ensure economic procurement that benefits consumers and enables competitive tariffs.

It is essential that additional generation capacity requirements are assessed and phased-in carefully, in parallel to the removal of the existing constraints. This will help manage power sector costs and contingent liabilities; thus allowing the sector to achieve financial sustainability with lower tariff adjustments.

The existing regulatory framework provides steps and processes relevant to planning:

1. The Grid Code includes conditions for the System Operator to develop 20 years demand projections, and data exchange for planning purpose. However, demand projections are established mainly with a top down approach.
2. A complementary mechanism or procedure should incorporate also the bottom-up approach based on demand projections of DisCos, which could be built based on the Distribution Code that require the DisCo to carry out demand forecasting and load profiling.
3. The Grid Code establishes the standards and procedures for the System Operator to develop the transmission expansion plan.
4. The Market Rules (for TEM) include a procedure to determine every year load forecast and the need for new generation entry or power procurement:
  - i. the System Operator prepares and NERC approves a Load Projection Report, covering 10 years demand forecast for each DisCo and total demand, reserve requirements and an assessment of the adequacy of the transmission grid.
  - ii. The Market Operator submits the generation adequacy report for NERCs review and approval.
  - iii. based on the assessment of each Disco and total demand for the system, MO determines the adequacy of contracted generation to supply future demand and reserves, as defined in the approved Load Projection Report, and quantifies the need for new generation.

The LCDP will also assess the implications on average electricity tariff to recover costs, covering not only generation investments but also transmission investments for system reliability and economic dispatch. The LCDP combined with the generation adequacy report will guide the timing of new generation procurement.

Generation capacity will be procured based on approved LCDP through competitive procurement procedures to manage sector costs and contingent liabilities. During the implementation of the LCDP, NERC and NBET will ensure that new generation capacity procurement is competitive and consistent with the LCDP. As part of the LCDP approval, oversight for some pipeline projects may be required (those with signed PPAs) while carefully reviewing cost/contingent liability implications.

### **Action Steps**

Actions steps towards implementation are as follows:

1. The FGN issues a policy/strategy to guide generation mix, including targets on renewable energy resources and interconnections;
2. Each year, the System Operator prepares demand projection based on Grid Code and Market Rules, working closely with DisCos, following which NERC reviews and approves;

3. Each year, the Market Operator prepares the generation adequacy report established in the Market Rules, based on the System Operator Load Projection approved by NERC;
4. A planning multi agency working group is established, led by the System Operator and under the oversight and coordination of the Ministry of Power, Works and Housing, to prepare the generation expansion plan based on demand projection scenarios and generation mix policy;
5. In coordination with the LCDP team and standards established in the Grid Code, the System Operator together with TCN develops the transmission expansion plan;
6. The LCDP with the generation expansion plan and the System Operator transmission expansion plan are submitted to NERC, for review and approval;
7. The LCDP is reviewed annually;
8. Clarify the entity responsible for the preparation of the LCDP;
9. NERC updates its power procurement regulations adjusted to establish that new generation capacity is procured competitively and consistent with the generation expansion in approved LCDP;
10. NBET prepares the standard bidding documents for competitive procurement of new generation, consistent with NERC regulations; and
11. Based on generation adequacy report and the LCDP, NERC assesses the need for new generation entry and authorized tender for new power procurement.

## 9. ACTION PLAN AND TIMELINES

### 9.1. ACTION PLAN – PSRP TASKS FOR NEXT 12 MONTHS

MDA	Action Item	Target Date
Federal Government of Nigeria	1. FEC approval of the Power Sector Recovery Implementation Programme	Completed
	2. Inclusion of the Financing Plan in the Fiscal Strategy Paper/MTEF 2018-2020	Completed
	3. Policy statement that tariff must be appropriate and sustainable over the next 5 years	Completed
	4. Established boards for NBET and TCN	April 30 2018
	5. Established boards for BPE, NDPHC, NAPTIN, NEMSA and NELMCO	April 30 2018
	6. Designate professional directors in representation of BPE on DisCo boards	April 30 2018
	7. Payment of MDA past debt settlement	March 31 2018
	8. Commence mechanism to ensure Payment of MDA future electricity bills	March 31 2018
Office of the Vice-President	9. Establish transparent and comprehensive sector website	Completed
	10. Project manage FGN deliverables for World Bank Group prior Disbursement Linked Indicators (DLIs)	April 30 2018
	11. Conduct desktop verification process for MDA debts	Completed
	12. Conduct physical verification exercise for MDA debts	Completed
Federal Ministry of Power, Works and Housing	13. Coordinate FGN communication strategy preparation and roll-out	Completed
	14. Establish communications strategy for PSRP	Completed
	15. Issue clear directives on tariff (i.e. proposed funding to cover shortfall)	Completed
	16. Ensure all requirements for NEMSF are met to allow completion of full disbursement	March 31 2018
Nigerian Bulk Electricity Trading Company (NBET) Plc.	17. Finalize and make effective vesting contracts with DisCos (Abuja, Kaduna, Benin, Yola)	March 31 2018
	18. Commence phased activation of Power Purchase Agreements (PPAs)	June 30 2018
	19. Develop competitive procurement plan	June 30 2018

<b>MDA</b>	<b>Action Item</b>	<b>Target Date</b>
Bureau of Public Enterprises (BPE)	20. Legal review of Performance Agreements	Completed
	21. Obtain all management accounts from each DisCo on a monthly basis	Ongoing
	22. Obtain all audited accounts yearly	Ongoing
	23. Conduct legal review of contracts and direct/bank agreements with the consequences of all types of terminations	Completed
	24. Comment on NERC Draft Business Continuity Regulation	Completed
	25. Present proposal on way forward for TCN	Completed
	26. Conduct assessment of ATC&C losses	March 31 2018
	27. Report on Adequacy of DisCos technical partners	Completed
Nigeria Regulatory Commission (NERC) Electricity Commission	28. Conduct tariff methodology reviews and include quarterly updates	December 31 2018
	29. NERC to engage with BPE on DisCo revised business plans to be negotiated, finalized and effected	March 31 2018
	30. Implement mechanism for regular future payment of MDA electricity bills	March 31 2018
	31. Develop process of management contractor in the event DisCo failure	Completed
	32. Pause on new generation procurement (unsolicited)	June 30 2018
	33. NERC to conduct forensic audit of all DisCos	September 30 2018
	34. Commence the activities leading to the RESET	Completed
	35. Phased implementation of the RESET commences	October 1 2018
	36. Completion of Implementation of RESET	June 30 2019
	37. Publish tariff review results on NERC website	June 30 2018
	38. Publish all audited accounts of DisCos, NBET and TCN on NERC website	January 31 2018
	39. Project sustainable tariff over the next 5 years	January 31 2019

<b>MDA</b>	<b>Action Item</b>	<b>Target Date</b>
	40. Build capacity of NASS, Judiciary, etc. on sector activities and publicize	April 30 2018
	41. Require DisCos to identify all customers and commence metering Programme	September 30 2018
	42. Establish compliance strategy for licensees and publicize	Ongoing
	43. Finalize business continuity regulation after completing consultation	March 31 2018
	44. NERC enhances website (communication) and includes performance evaluation of DisCos and TCN	March 31 2018
Transmission Company of Nigeria (TCN)	45. MO to execute market participation agreements and make LCs effective	March 31 2018
	46. SO submit demand projection report for 5 years to NERC for approval and SO publishes Report in website	June 30 2018
	47. MO Submit generation adequacy report to NERC for approval and publishes in MO website	June 30 2018
	48. Submission of least cost generation and transmission expansion plan for NERC approval and TCN adoption of transmission expansion plan	June 30 2018
	49. Update Grid Code as needed to ensure feasibility and management of shortages, including demand forecast bottom up approach and open access provisions	March 30 2018
	50. Regularly submit to NERC performance data and planned transmission investment (Monthly)	Ongoing
	51. Publish in TCN website: updated transmission expansion plan, standard connection and use of system agreement, and procedures for new connections	March 30 2018
Nigerian Electricity Liability Management Company (NELMCO)	52. Prepare strategy on liability settlement	March 30 2018
Ministry of Finance	53. Payment mechanism for MDA debt payment	March 31 2018
	54. Advise on possible funding options for PSRP and operational mechanism	Completed
Central Bank of Nigeria	55. Accelerate LC resolution for Abuja and Kaduna	March 31 2018
	56. Complete NEMSF disbursement	June 30 2018
	57. Conclude upstream payment assurance plan	Completed



<b>MDA</b>	<b>Action Item</b>	<b>Target Date</b>
Niger Delta Power Holding Company (NDPHC)	58. Complete all projects to evacuation stage for all 10 power plants	September 30 2019
	59. Complete all transmission projects	September 30 2019
	60. Privatize Calabar, Geregu 2, Ihovhor and Omotosho power plants in conjunction with BPE	December 31 2018
	61. Finalize all commercial agreements	September 30 2019
Ministry of Petroleum Resources/ NNPC/NGC	62. Develop clear plan on completion of gas-to-power projects	September 30 2018
	63. Develop clear plan on gas vandalism prevention strategy	Completed
	64. Activate gas supply agreements and contracts	Ongoing
Nigeria Electricity Management Services Agency (NEMSA)	65. Conduct Networks integrity and safety audit of DisCos and TCN	September 30 2018
	66. Increase accessibility and availability of NEMSA's support services	October 1 2018

## APPENDIX 1

### Fiscal Expenditures and Gross Financing Requirements of the Financing Plan

To assess the total fiscal costs of the Financing Plan for the Federal Government, it is necessary to include the estimated debt service payments associated with government borrowing incurred in order to finance the additional FGN Budgetary Contribution<sup>5</sup>.

To estimate the total fiscal expenditure requirements, the interest payments of the CBN Payment Assurance Facility and the debt financing of the Additional FGN Budgetary Contribution are added to the expected revenue shortfall for 2017-2021 and the accumulated deficit from 2015-2016. The total fiscal expenditure requirements for 2017-2021 are estimated at NGN 1,840 billion/USD\$ 6.03 billion under base case macro and sector assumptions.

To estimate the total gross financing requirements, the principal repayments/amortization of the CBN Payment Assurance Facility and the debt financing of the Additional FGN Budgetary Contribution are added to the expenditure requirements. The total gross financing requirements for 2017-2021 are estimated at NGN 2,071 billion/USD\$ 6.79 billion under base case macro and sector assumptions.

**Table 7 : Projected Fiscal Expenditures and Gross Financing Requirements 2017-2021**

	NGN	Billion	USD Million	%
<b>Sector Revenue Shortfall (2017-2021)</b>	1,150		3,770	62.5%
<b>Sector Historical Deficit (2015-2016)</b>	420		1,378	22.9%
<b>Interest Payments</b>	270		884	14.7%
<b>CBN Payment Assurance Facility (debt-domestic)</b>	132		434	7.2%
<b>Additional FGN Budgetary Contribution (debt-mixed)</b>	137		451	7.5%
<b>Total Expenditure Requirements</b>	<b>1,840</b>		<b>6,033</b>	
<b>Principal repayments/Amortization</b>	231		757	
<b>CBN Payment Assurance Facility (debt-domestic)</b>	231		757	
<b>Additional FGN Budgetary Contribution (debt-mixed)</b>	0		0	
<b>Total Gross Financing (Inc. amortization) Requirements</b>	<b>2,071</b>		<b>6,790</b>	

The financing sources identified so far will fully fund the estimated total expenditure requirements: 2017-2021 sector revenue shortfall, accumulated historical deficit 2015-2016, and interest payments from the financing of the plan.

<sup>5</sup> The debt service payments associated to the World Bank performance-based loan during 2017-2021 are still being estimated and so are not included in the calculations; however, these payments are expected to be of a small magnitude compared to other financing sources.