



DUALE, OVIA &  
ALEX-ADEDIPE

# Renewable Energy and the Sustainability of Nigeria's Grid System

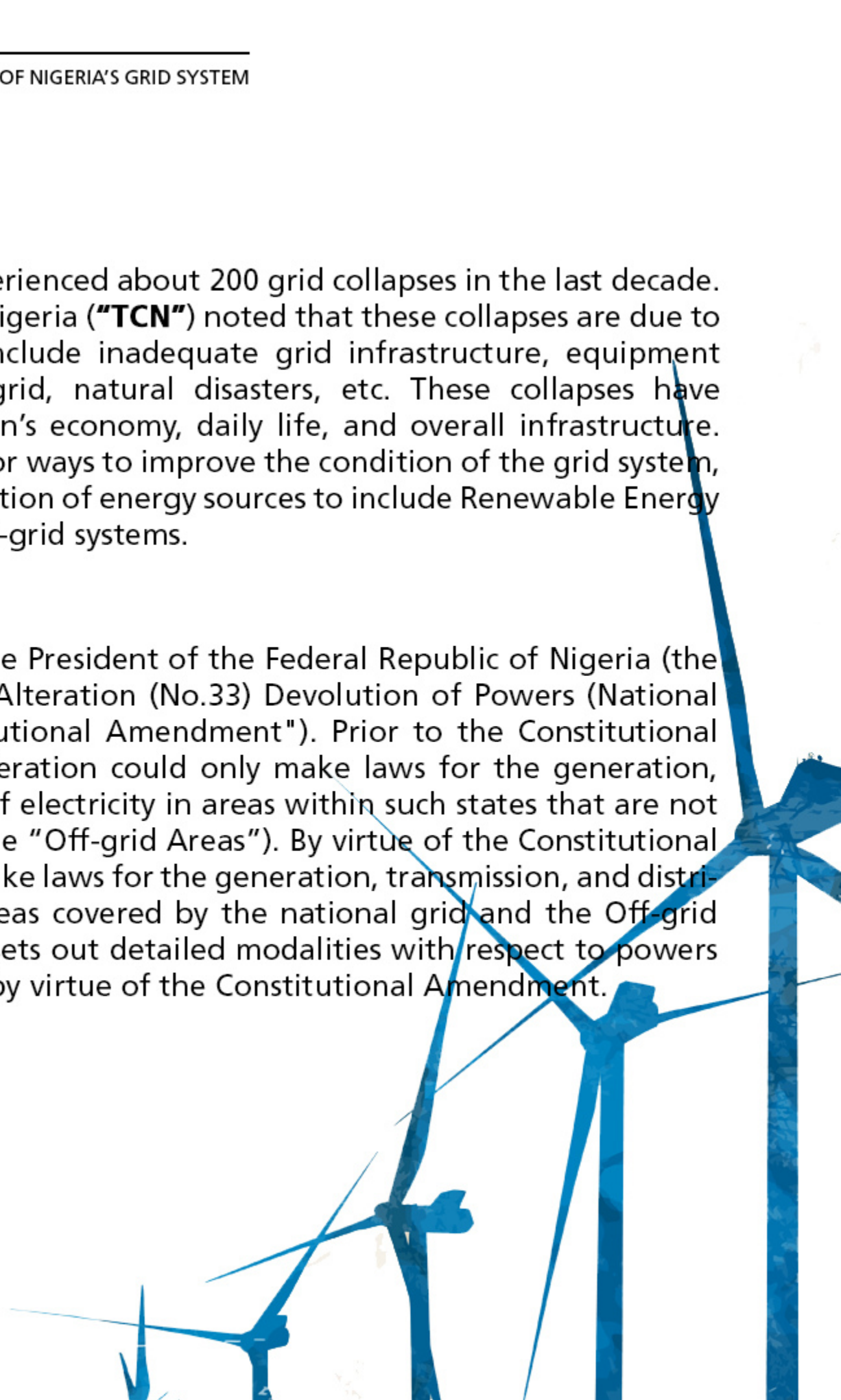


## Introduction

Nigeria is reported to have experienced about 200 grid collapses in the last decade. The Transmission Company of Nigeria ("**TCN**") noted that these collapses are due to a number of factors, which include inadequate grid infrastructure, equipment failures, overloading of the grid, natural disasters, etc. These collapses have significantly affected the nation's economy, daily life, and overall infrastructure. Several calls have been made, for ways to improve the condition of the grid system, among which are the diversification of energy sources to include Renewable Energy ("**RE**") and the expansion of off-grid systems.

## Legislative Intervention

On the 17th of March 2023, the President of the Federal Republic of Nigeria (the "**President**"). signed the Fifth Alteration (No.33) Devolution of Powers (National Grid System) Bill (the "Constitutional Amendment"). Prior to the Constitutional Amendment, States of the federation could only make laws for the generation, transmission, and distribution of electricity in areas within such states that are not covered by the national grid (the "Off-grid Areas"). By virtue of the Constitutional Amendment, States can now make laws for the generation, transmission, and distribution of electricity in both areas covered by the national grid and the Off-grid Areas. The Electricity Act 2023 sets out detailed modalities with respect to powers granted to State Governments by virtue of the Constitutional Amendment.



In relation to the grid system sustainability in Nigeria, State Governments can make regulations to incentivize the adoption of the decentralized energy system in order to reduce overreliance on our national grid. Among such regulations, would be the regulation on (1) adopting RE sources, like solar PV (Photovoltaic) systems, biomass, wind turbines, etc. and (2) a net-metering arrangement, where prosumers<sup>1</sup> feed excess electricity generated through a decentralized energy system back into the grid, and receive energy credits/offsets from their energy bills.

## Benefits of the Decentralized Energy Systems

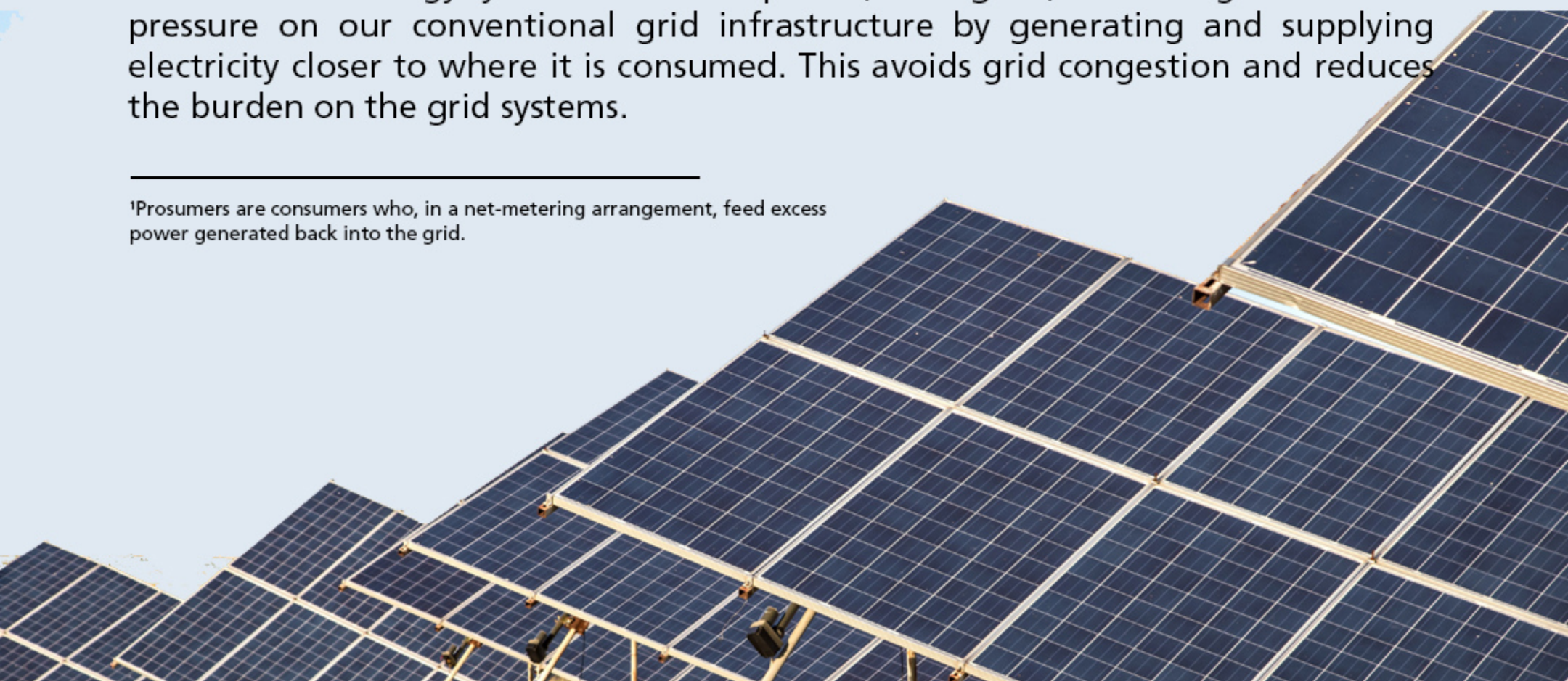
There are attendant benefits in the adoption of decentralised energy systems as a means of reducing the burden on our grid system and enhancing the sustainability of our grids. Some of them are discussed below:

### 1. Grid relief

Decentralised energy systems like rooftop solar, microgrids, and mini-grids alleviate pressure on our conventional grid infrastructure by generating and supplying electricity closer to where it is consumed. This avoids grid congestion and reduces the burden on the grid systems.

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<sup>1</sup>Prosumers are consumers who, in a net-metering arrangement, feed excess power generated back into the grid.



## 2. Energy access and reliability

Mini-grids and microgrids using renewables provide electricity access in remote villages and areas unserved or underserved by the conventional grid infrastructure. Local generation improves reliability and improves access to energy by consumers.

## 3. Innovation

Adopting decentralised renewable systems drives innovation in smart meters, battery storage, peer-to-peer energy trading platforms, etc. It encourages innovation in energy technologies and all these reduce overreliance on the conventional grid systems.

## 4. Reduction of ATC&C (Aggregate, Technical, Commercial and Collection) losses

Shorter transmission distances in decentralised energy systems tend to lower technical losses –decentralised electricity is generated close to the point of consumption and electric power will now travel over a much shorter distance. Local distribution also reduces commercial losses like theft/pilferage by improving accountability.



## 5. Economic opportunities

Decentralised renewables create jobs in installation, operation and maintenance at the local level. Local manufacturing and skills development can also be promoted. It enhances the creation of jobs and stimulates the economy.

### Conclusion

The adoption of renewable energy sources to reduce the burden on our grid system in Nigeria is not just a sustainable choice; it is an essential one. The challenges faced by the national grid can be effectively mitigated by embracing and strategically injecting RE into our energy mix through the instrument of the decentralised energy systems.

In relation to policy support, the Electricity Act 2023 is a great step in the right direction. However, there is a need for more granular rulemaking at State level in order to unlock the full potential of RE and enhance the sustainability of our grid infrastructure.

