



# Advancing Premium Grids

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# About the Nigerian Energy Support Programme (NESP)

Commissioned by:



European Union

€ 35 Million



Federal Ministry  
for Economic Cooperation  
and Development

€13 Million

Implemented by:

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

In collaboration with:

Federal Ministry of Power

Duration:

**12/2017 – 05/2023 (NESP II)**

03/2013 – 11/2017 (NESP I)

Approach:

Provides advisory services to the Nigerian Government with regard to energy policy and management.

Objective:

**To promote investments in the domestic market for Renewable Energy, Energy Efficiency and Rural Electrification**



# Content

1. Background - Distributed/Decentralised Electrification Solutions
2. Electricity Distribution Franchising (EDF) & Key Factors for Implementation
3. EDF & Premium Grids
4. Case Studies
5. Value Proposition
6. Recommendations & Conclusions



# 1. Background - Distributed/ Decentralised Electrification Solutions

Nigeria:

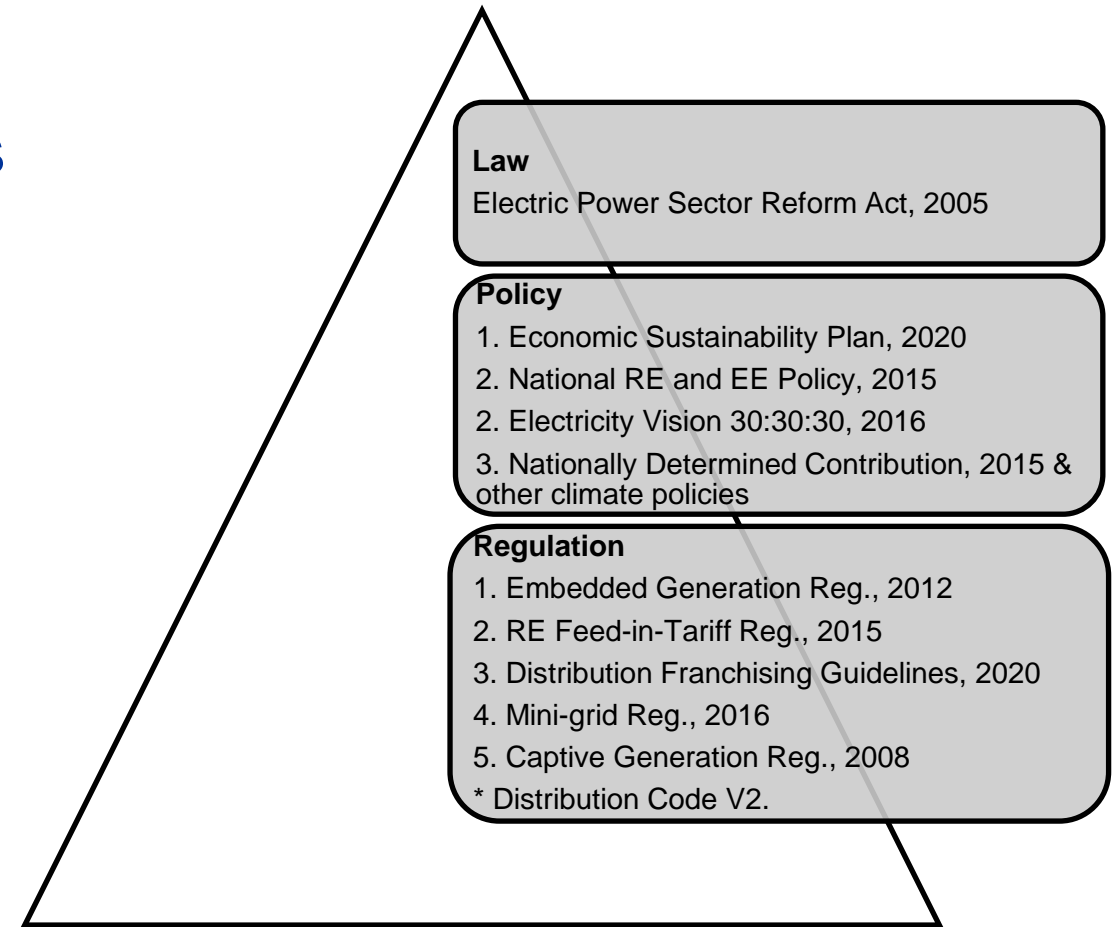
- About 50% of popn. have unreliable electricity access
- Self-generation reliance – large diesel gen. capacities.

However,

- High Renewable Energy (RE) potential
- Emerging Distributed/Decentralised markets esp. via Solar – DRE solutions being encouraged by Govt.
- DRE support mechanisms & programs running.

**DRE solutions** incl.:

- a. Embedded Generation (possibly combined with Franchising, for large industrial areas).
- b. Mini-grids (for small industrial areas, up to 1 MW of demand).
- c. Captive (e.g. C&I) for individual industries.
- d. SHS & other smaller scale/stand alone solutions



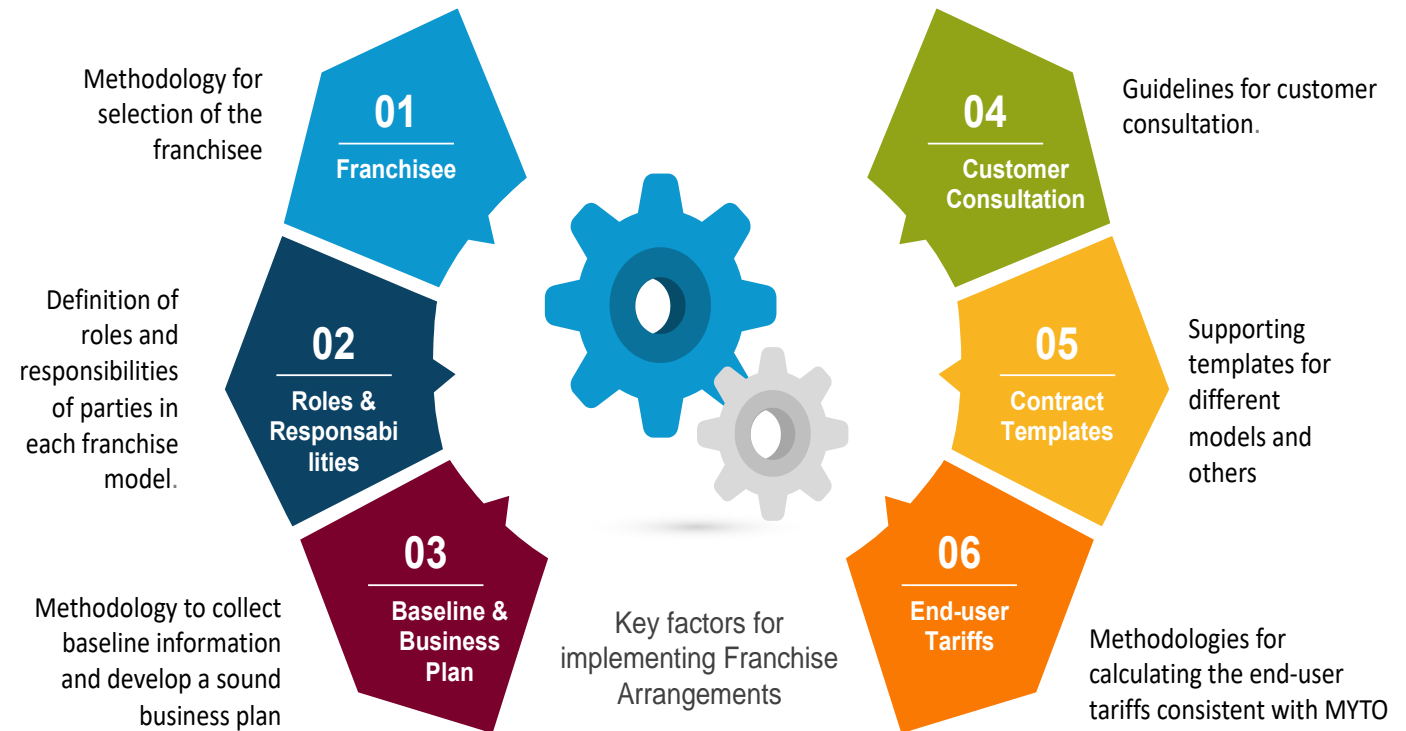
Main power sector framework for DRE Solutions



## 2. Electricity Distribution Franchising (EDF) & Key Factors for Implementation

NERC issued the **Guidelines on Distribution Franchising in NESI, 2020** (EDF Guidelines) to provide guidance to the distribution licensees (DisCos) on obtaining the **Commission's "No Objection"** for franchise arrangements.

The objective is to facilitate the development of favourable business models that would **attract third party investment and interested developers, with the aim of improving the service experience of end-user customers.**





## 3.1. EDF & Premium Grids

- The Guidelines provide a light-handed framework, contemplating various franchising models but open to any other innovative model proposed, and listing the requirements for the commercial and contractual arrangements to obtain **NERC's "No Objection"**.

#	NERC's Franchising Model	Market Potential	Phase	Redefined Franchising Model	Description
1	Loss Reduction & Provision of Embedded Generation	Mainly urban areas	Long-term solution	<b>Premium Grid</b>	Distribution function, revenue cycle management & protection, procurement & installation of meters, procurement of additional energy to bridge power gap.



## 3.2. Premium Grids – NESP Special Focus

NESP is facilitating the development of **Electricity Distribution Franchising (EDF)** projects **bundled** with **Renewable Energy Embedded Generation** for **delivering premium services**, branded as **Premium Grids**, which is equivalent to the EDF Guidelines' "Loss Reduction and Provision of Embedded Generation".

### Profitability

- Ring fenced areas for investment and revenues
- Aggressively reduce ATC&C losses
- Apply cost-reflective tariffs in line with MYTO methodology

### Network Reliability

- Expand, modernise, upgrade and refurbish the distribution network
- Ensure reliability of power supply to all users



### Power Availability

- Ensure 24/7 power supply to all users
- Combine on-grid supply with embedded generation that covers demand at any moment

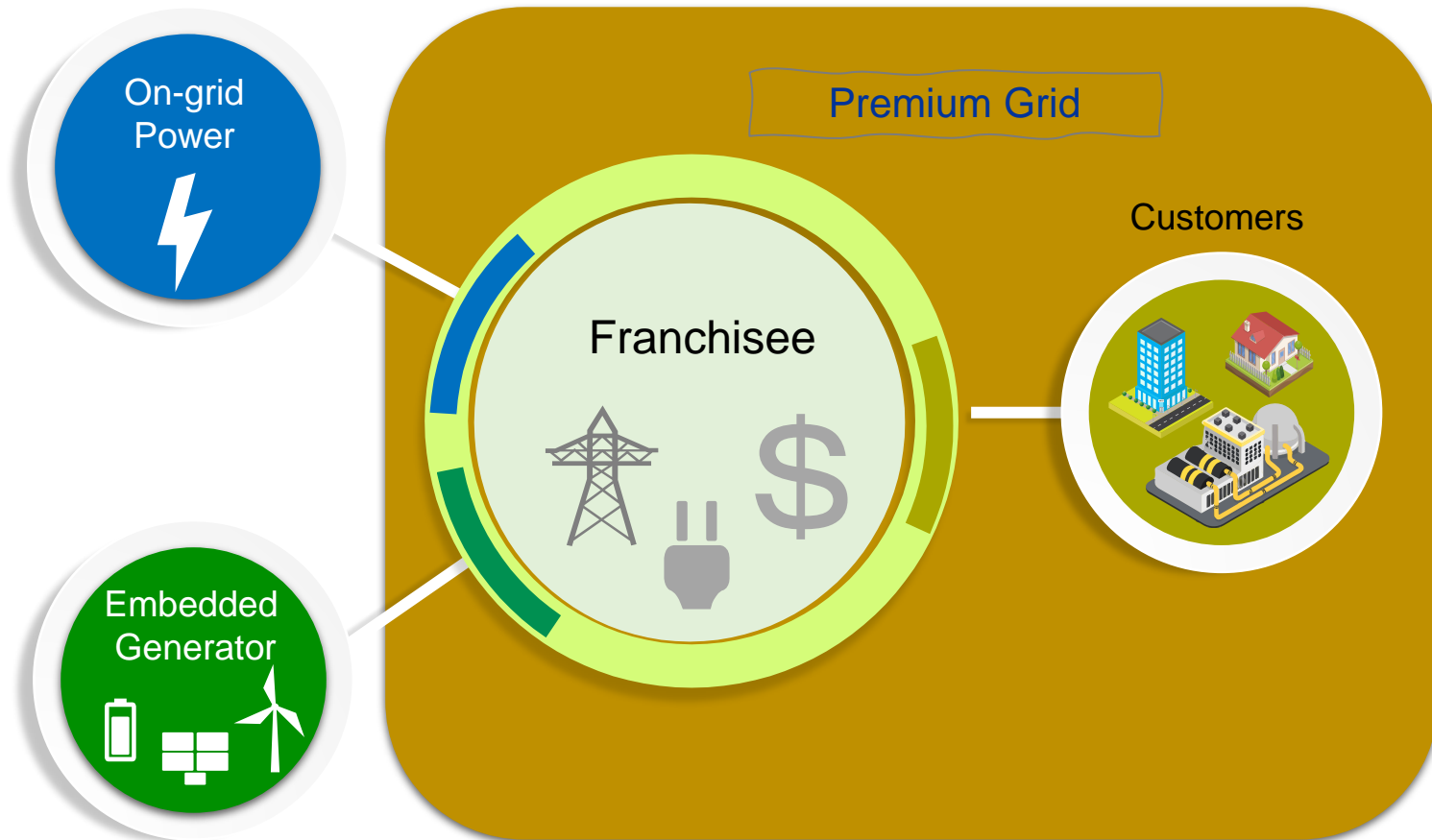
### GHG reduction

- Replace fossil-based captive generation with Embedded Generation (total or partial)
- Promote renewable energy, hybrid solutions and energy storage



## 3.2.1. The Concept of Premium Grids

1. A Premium Grid aims to deliver a **24/7 reliable service to its customers** covering the **total demand** of the area (**unsuppressed demand**).
2. A **Franchisee** will take **control of all the duties and responsibilities** of the host DisCo.
3. The Franchisee will procure power through a **Power Purchase Agreement with the EG** and/or a **Bilateral Agreement with the host DisCo** and/or a **Bilateral Agreement with a GenCo**.

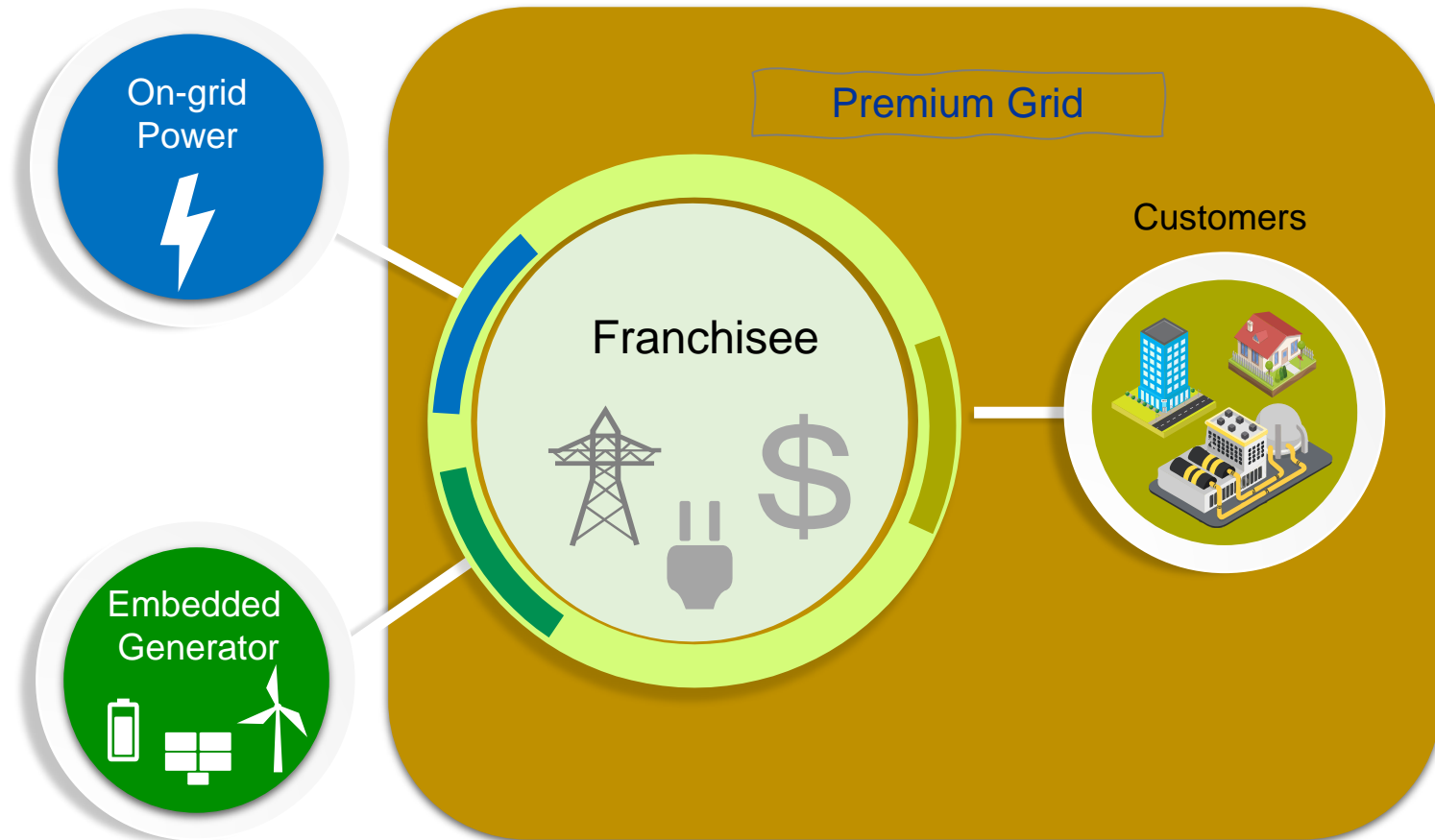






## 3.2.2. The Concept of Premium Grids (Cont.)

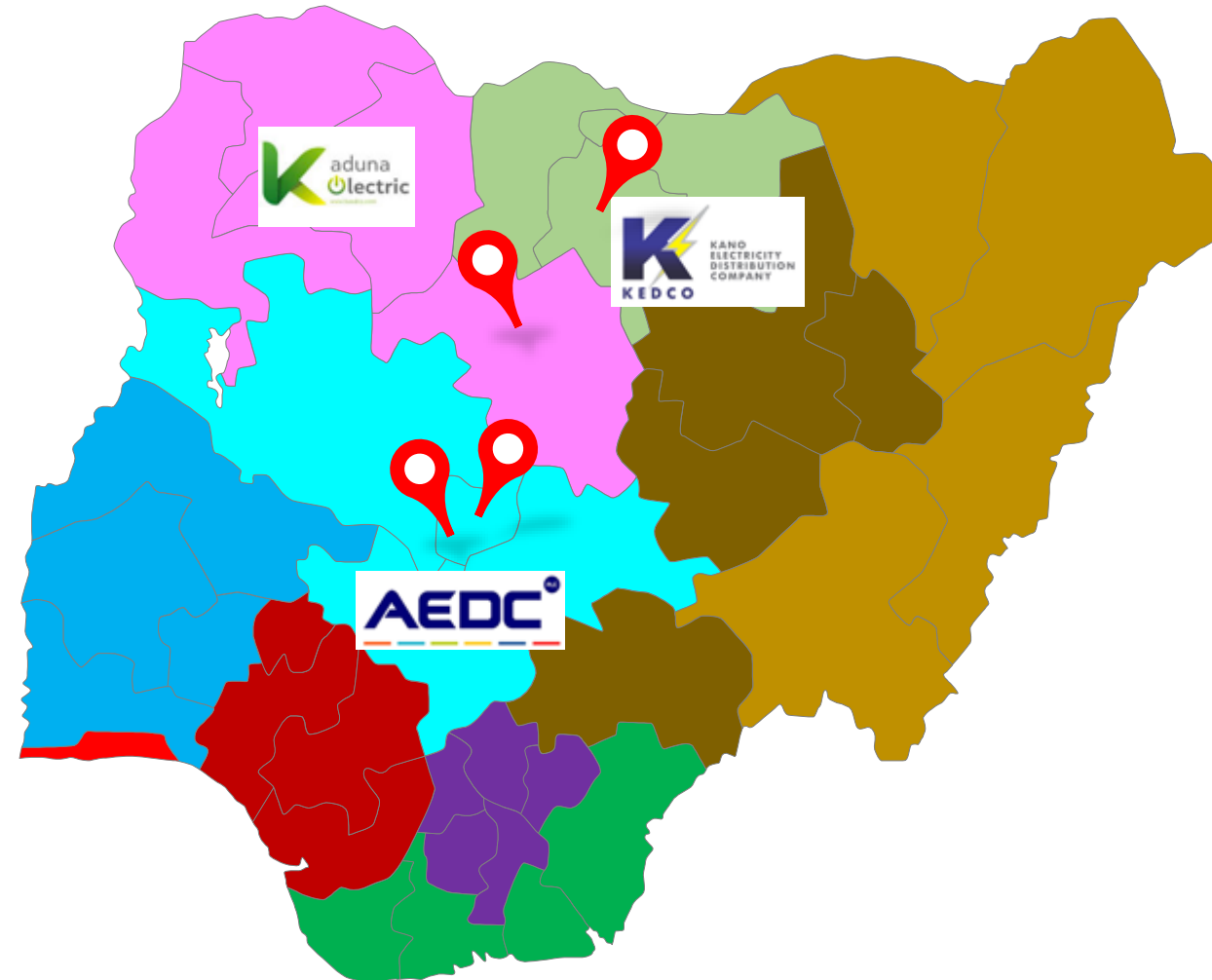
4. Depending on the **strength of reliability** offered to the end-users, different solutions might be proposed, which at the end will determine different **end-user tariffs**.
5. Any model is only **feasible if the end-user tariffs are:**
  1. **competitive for the anchor customers;** and,
  2. **affordable for the residential customers**





## 4. Case Studies

1. Since 2020, NESP has been collaborating with Nigerian DisCos in the identification of profitable EDF projects in ring-fenced areas.
2. So far, NESP has completed four WTAs in industrial clusters collaborating with three DisCos.
3. The **main findings** are:
  1. **Huge unsuppressed demand** versus the suppressed demand billed by the host DisCo
  2. **Need for large EG supply** that will complement the on-grid electricity supplied by the DisCo
  3. **Large investment** required in a **Distribution Investment Plan** in order to transform the area into a Premium Grid (24/7 reliable service)
  4. The feasibility of the project is **highly dependent on having a large share of energy billed to large MD customers.**
  5. **Fossil fuels subsidies** (petrol, diesel, etc.) is a major threat.





## 5. Value Proposition

### Power Availability

- An optimal combination of on-grid power supplied by the DisCo and the power supplied by embedded generation and/or energy storage will cover the demand at any moment.



### Network Reliability

- The existing network will be refurbished, upgraded and expanded in line with N-1 redundancy criterion to ensure reliability.
- Consistent network expansion anticipating the demand growth.
- Optimal operational and maintenance services.



### Customer Satisfaction

- A 24/7 reliable power will displace expensive and polluting captive generation used by all customers, in particular MD customers.
- MD account managers will secure willing buyer – willing seller agreements with the MD customers and deliver customised service to them.
- Metering installation to all customers.

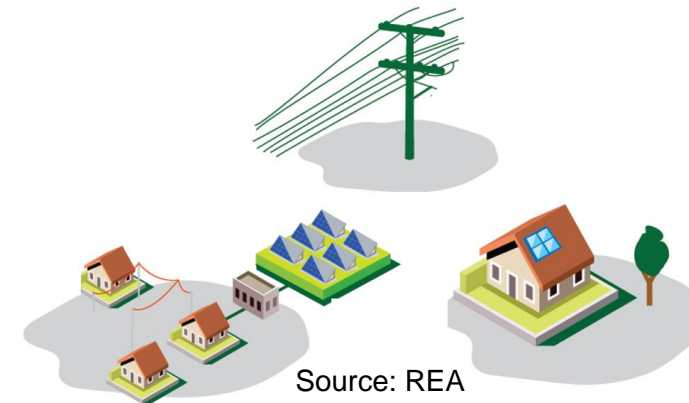




## 6. Recommendations & Conclusions

PG is an innovative concept with high potential to transform NESI. Its feasibility is highly dependent on the end-user tariff being affordable for the non-MD customers and competitive for the MD customers versus their captive generation. It is however necessary to promote:

1. Stakeholder engagement & Collaborations: DisCos & Industries/MD customers, private investors, potential financiers, regulators, etc.
2. Capacity Building, Integration, Synergy
  - a. Data: Identifying, mapping, defining potential Premium Grid areas
  - b. Trainings.
  - c. Effective & strategic harmonisation and update of relevant regulations, frameworks and standards.
  - d. Leverage advanced Technologies
3. Monitoring and evaluation, application of lessons learned, knowledge sharing & knowledge management.



DRE Solution	Benefits for Industrial Sector	Benefits for Power Sector
Premium Grids©	+++	+++
Mini-grids	+	++
Captive C&I	++	- +

© Premium Grids is a commercial name branded by NESP for the combination of Franchising projects that incorporates an Embedded Generation for guaranteeing a 24/7 reliable power.

# Thank you!

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