



OFF-GRID SYSTEMS FOR ENERGY POVERTY ALLEVIATION

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IEEE South Africa today

- ▶ 43 years old 😊
- ▶ 13 local Chapters/Committees representing 27 technical Societies and Councils
- ▶ 18 units at 7 local universities
- ▶ Hold 30 to 90 events and 10-12 conferences per year, attracting thousands of people
- ▶ 1000 members
- ▶ 15 IEEE Awards Recipients from South Africa since 1977

Get involved.....
What would YOU like to achieve with IEEE?

Dedication towards CPD

- ▶ ECSA relies on institutes to deliver programmes towards **Continuing Professional Development**

Of critical importance to the Nation

- ▶ Subject matter is of this webinar
- ▶ Ref: Constitutional Court Judgement on 4 October 2000. Case CCT 11/00 RSA Vs Grootboom...

Section 37: Emphasis on the state's obligation to provide adequate housing {including access to electricity}

Access to Electricity

Electricity Act 41 of 1987....# 10

10. (1) Every licensee shall up to the limit, if any, of electricity which he may generate or supply in terms of his licence, supply electricity within the area of supply mentioned in his licence to every applicant who is in a position to make satisfactory arrangements for payment therefor.

55

ELECTRICITY REGULATION ACT, 2006....# 22

Powers and duties of licensee

22. (1) A licence issued in terms of this Act empowers and obliges a licensee to exercise the powers and perform the duties set out in such licence and this Act, and no licensee may cede, transfer any such power or duty to any other person without the prior consent of the Regulator.

35

(2) A licensee may not discriminate between customers or classes of customers regarding access, tariffs, prices and conditions of service, except for objectively justifiable and identifiable differences approved by the Regulator.

(3) A transmission or distribution licensee must, to the extent provided for in the licence, provide non-discriminatory access to the transmission and distribution power systems to third parties.

40

Access to Electricity

- ▶ Seen by many and the Constitutional Court as fundamental to Human rights



Electrical Energy

- ▶ Power drawn over a period of time

- ▶ Requires the base infrastructure [Access]

A few realities

- ▶ Geographical Size
- ▶ Location of urban and rural areas
- ▶ Structure of the main grid
- ▶ Competing use of existing resources
- ▶ Priorities

A few realities: Cont'd

- ▶ 190% of the households will be connected to the national grid by 2025
- ▶ 17% will use quality off-grid options by 2025
- ▶ ¹About 31% of the South African population lives in rural areas of the country. In these areas, more than 60% of households have no access to electricity.
- ▶ ¹The consumption levels of rural customers remain low
- ▶ Recovery capital and operations costs? *[Jamal]*

Opportunities dependant on energy



OFF-GRID SYSTEMS FOR ENERGY POVERTY ALLEVIATION

- ▶ Main Grid
- ▶ Off Grid
- ▶ Energy Poverty

Micro-grids

- "mini-grids"
- **Off-grid** electricity distribution network
- Relatively small-scale electricity generators
- Scope: Relatively small area compared to the main grid
- May include energy storage systems
- Consist of renewable / non renewable energy

Role of Mini-grids in SSA

- ▶ ¹How much the expansion in grid electrification in Africa can contribute to economic development in the nearer term.
 - Rwanda Case, research concluded that:
 - Around 3.5 years after electrification,
 - The quantity of consumed electricity remain low.
 - Weak evidence for impacts on classical poverty indicators such as income, health, and education. *[Lenz Et all, 2017]*
- {A holistic approach is needed to drive those indicator}- *dto*
- ▶ Will be explored in more detail by Prof. Henry Louie

THANK YOU

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