

Status of rooftop PV generation in South Africa

Conference presentation

Africa-EU Renewable Energy Research and Innovation Symposium 2018



CENTRE FOR RENEWABLE AND SUSTAINABLE ENERGY STUDIES

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Place: National University of Lesotho



The Centre for Renewable and Sustainable Energy Studies was established in 2007 to facilitate and stimulate activities in renewable energy study and research at Stellenbosch University.

The Department of Science and Technology has been funding the Renewable and Sustainable Energy (RSE) Hub at Stellenbosch University since its establishment in August 2006. The aims of the RSE Hub are to develop human capital, deepen knowledge, and stimulate innovation and enterprise in the field of RSE. Currently the DST is still sponsoring the work of the Centre with an annual grant administered by the National Research Foundation.

Stellenbosch University was designated as the Specialisation Centre in Renewable Energy Technology as part of the Eskom Power Plant Engineering Institute (EPPEI). The research and teaching activities sponsored by Eskom focus on concentrating solar power (CSP) and wind energy and also includes the Eskom Chair in Concentrating Solar Power.

The Sasol Technology group sponsored the new facilities for the Centre for Renewable and Sustainable Energy Studies as well as the work and facilities of the Solar Thermal Energy Research Group at Stellenbosch University.

Content

- Introduction
- International experience of rooftop PV
- Status of rooftop PV in South Africa
- Conclusions

Introduction

Background

- Worldwide rise in installations of rooftop PV
- The trend is now also being observed in SA
- ~280MW installed as of February 2017
- Rise from ~160MW in 2016
- Reasons: declining cost of PV technology, rising electricity prices and abundance of sunshine in the country

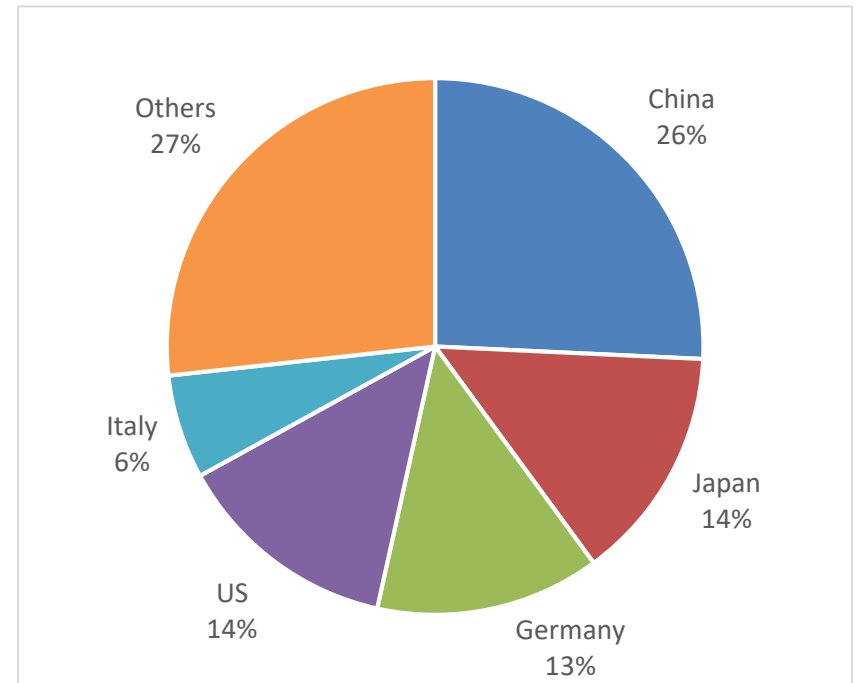
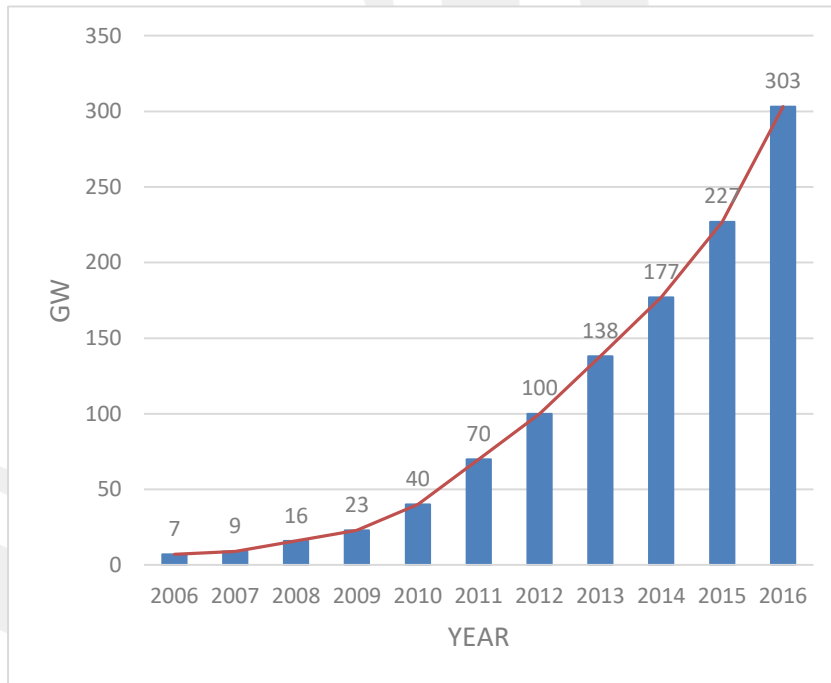
Introduction

Questions

- Are the conditions in SA going to continue encouraging property owners to install rooftop PV?
- What are the findings from other countries that has experienced high rooftop PV installations?
- Are there major constraints that can impede the further development of rooftop PV in SA?

International Experience

Global solar PV trends



International Experience

Policies, incentives and challenges

China

Capacity: 6.6 GW (2015),
15% of total PV capacity

Incentives: Self
consumption with
surplus injection into the
grid or full injection into
the grid (2014)

Challenges: Lack of
financing options,
permitting and
regulatory hurdles, lack
of suitable rooftops

Germany

Capacity: 25 GW (2015),
60% of total PV capacity

Incentives: EEG and FIT
programme (2000)
followed by self
consumption (2013)

Challenges: Migration
from FIT to self
consumption, difficulty in
recovering project costs,
stagnating demand

Japan

Capacity: 8.2 GW (2015),
23% of total PV capacity

Incentives: FIT
programme (2012)

Challenges: Power
curtailment due to
congestion, Government
shift from small to utility
scale PV

Australia

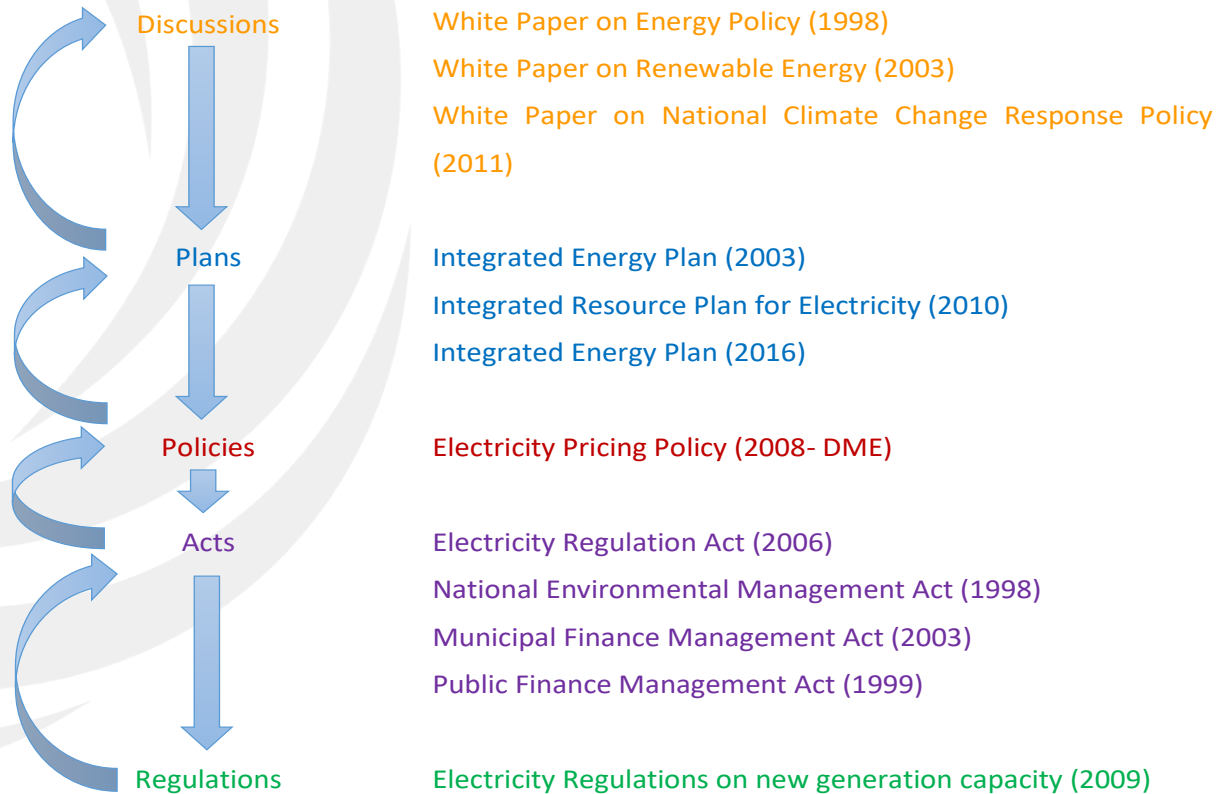
Capacity: 4.5 GW (2015),
90% of total PV capacity

Incentives: FIT (2010-
2012) followed by self
consumption

Challenges: Oversupply
and power spikes in the
network

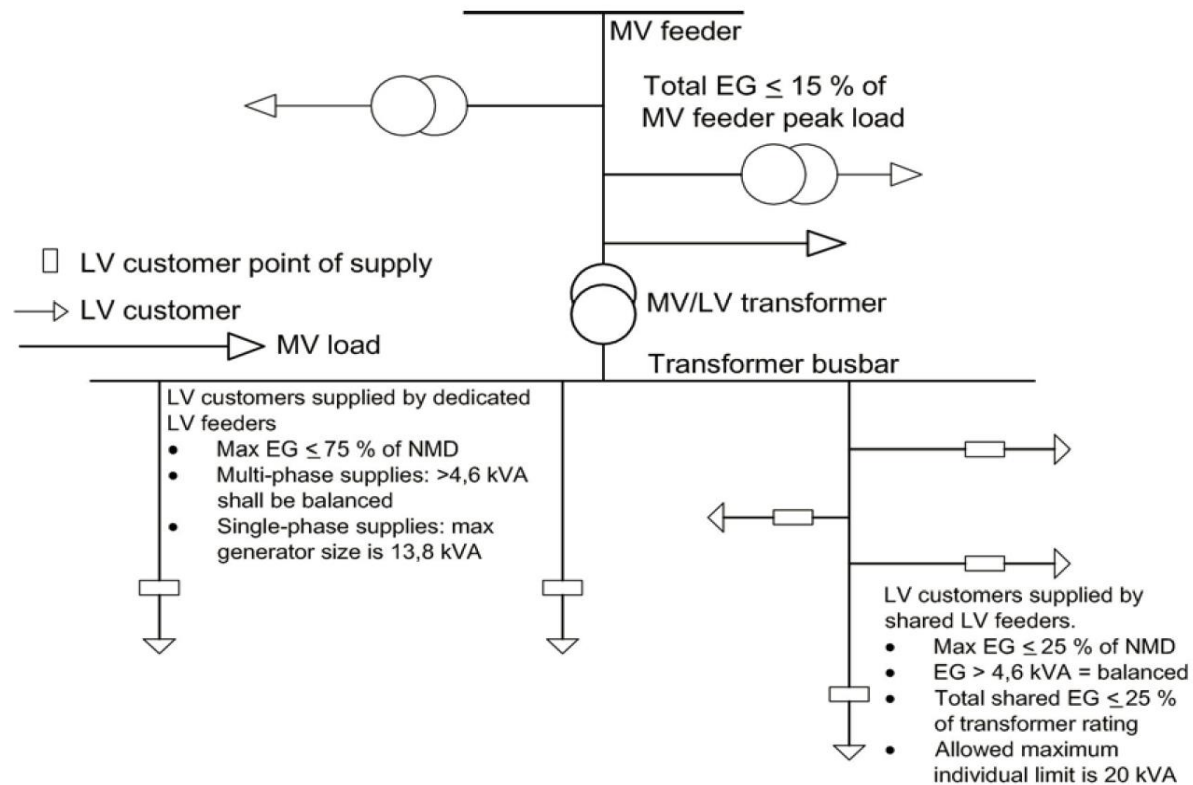
Status of rooftop PV in SA

Government process



Status of rooftop PV in SA

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Status of rooftop PV in SA

Remarks

- Eskom does not allow PV systems on LV network (unless customer is on dedicated feeder)
- The reason is lack of regulatory standards
- Most municipalities do not allow grid-tied PV installations
- Municipalities that do allow such connections require:
 - Written approval from them
 - New metering equipment
 - Compliance with minimum standards
 - Sign off by qualified person
 - Additional fixed monthly fee is most often introduced

Status of rooftop PV in SA

Remarks

- Systems that feed back to the grid are usually not approved
- Restrictions and administrative burden have led to installations without the knowledge of distributors
- Spinning type credit meters = net metering scheme
- Roof owners are only restricted by roof space and personal financial constraints

Conclusions

International Experience

- Rooftop PV has been fuelled by policies, financial incentives, metering arrangements, regulations of grid connectivity and successful business models
- When RE targets had to be met, FITs and direct subsidies were used
- Net metering schemes are introduced to encourage generation capacity dependent on captive load, reducing the overall connections

Conclusions

Status of rooftop PV in SA

- SA is committed to low carbon economy and diversifying the energy sector
- Rooftop PV remains an under explored RE market in SA
- Regulations and incentives have not been made to facilitate such installations
- The market relies on property owners with financial means and available rooftop space
- More often than not without the knowledge of the distributors



Thank you

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