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Africa, sustainable development and climate change  
*Prospects of Paris and beyond*

**ClimDev-Africa**



# Solar Energy as a Mitigation Strategy in South Africa

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# Problem statement 1/2

- **The Intergovernmental Panel on Climate Change -IPCC (2007a, 2007b) notes that human activities are the primary cause of increase in temperature and climate change.**
- **It has been propounded that taking time to deal or failure to act on climate change impacts can lead to an extended war (Stern, 2006).**
- **Production and income activities are likely to be significantly affected by climate change.**
- **This therefore calls for comprehensive and effective policy response among different countries.**

# Problem statement 2/2

- **South Africa finds itself in a precarious situation whereby it is both a high emitter of greenhouse gases**
- **Also it falls in the category of countries that have been predicted to experience greater impacts of climate change.**
- **Alongside South Africa has been facing electricity supply constraints.**
- **Therefore solar energy should form part of the energy mix to alleviate some of these challenges**

# Methods

- **Desk top study**
- **Based on extensive literature review.**
- **Content Analysis**
- **Analyse relevant policy documents and reports.**
- **Institutional reports such as ESKOM annual reports to assess contribution of solar technologies to GHG emissions.**

# Key Findings

- **Solar technologies are being implemented in South Africa.**
- **Owing to the country's abundance in renewable sources South Africa is in a unique position to benefit from the shift to a greener development path.**
- **There has been increased commitment to sustainable development in the last few years, notably in the field of renewable energy with Solar PV leading the way.**
- **The development and implementation of solar energy technologies has been shaped Policies, Institutions and programmes.**
- **REIPPPP**

# Key Findings

Bid window	Preferred bidders	MW	Connected to the Grid
1	28	1425	Yes contributing about 1709 MW
2	19	1040	
3	17	1456	Not all of them
Special bid for concentrated solar power project	2	200	
4a	13	1121	Not yet
4b	13	1084	Not yet, some still to sign the contracts

# Key findings

- **The DoE states that, 4,294 GWh REIPPPP actual energy is contributed to the National Grid. About 4.4 Mton CO<sub>2</sub> renewable emission emissions reduction achieved about Eskom generated power.**
- **The Grid Emission Factor (GEF) of the total electricity generated is 1.015tCO<sub>2</sub>/MWh.**
- **A positive environmental impact (i.e., a GHG emissions reduction in the present case)**

# Conclusions/Recommendations

- **South Africa is introducing numerous renewable energy technologies in particular solar PV through the REIPPPP, which has been viewed as a positive and innovative programme.**
- **Regarding GHG emissions mitigation, an implementation of solar-based electricity is less costly and also it is promoting local social-economic development.**
- **Ever since the introduction of solar energy technologies and their connection to the grid there has been a marginal reduction in GHG emission by ESKOM.**



# Conclusions/Recommendations

- **Even its Grid emission factor has slightly gone down.**
- **This is a positive contribution towards achieving sustainable development and economic development.**
- **The good thing with the REIPPPP is that with every bid it has managed to increase local content thus providing jobs for the people.**
- **The prices have been going down, making it accessible and affordable to the ordinary people.**
- **The study is limited to literature review and content analysis.**
- **Future studies may look at life cycle assessments of solar energy technologies introduced and their impact to the environment and socio-economic development.**