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Study

MARKET INFO SOUTH AFRICA – PHOTOVOLTAICS

dena-Market Information System

www.export-erneuerbare.de or http://exportinitiative.dena.de

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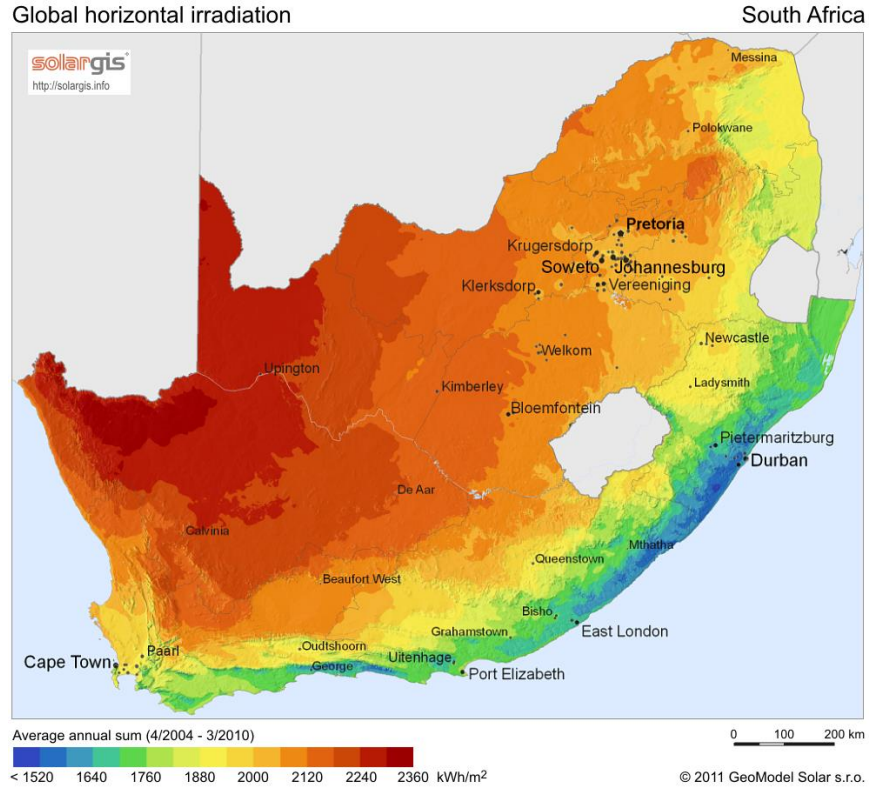
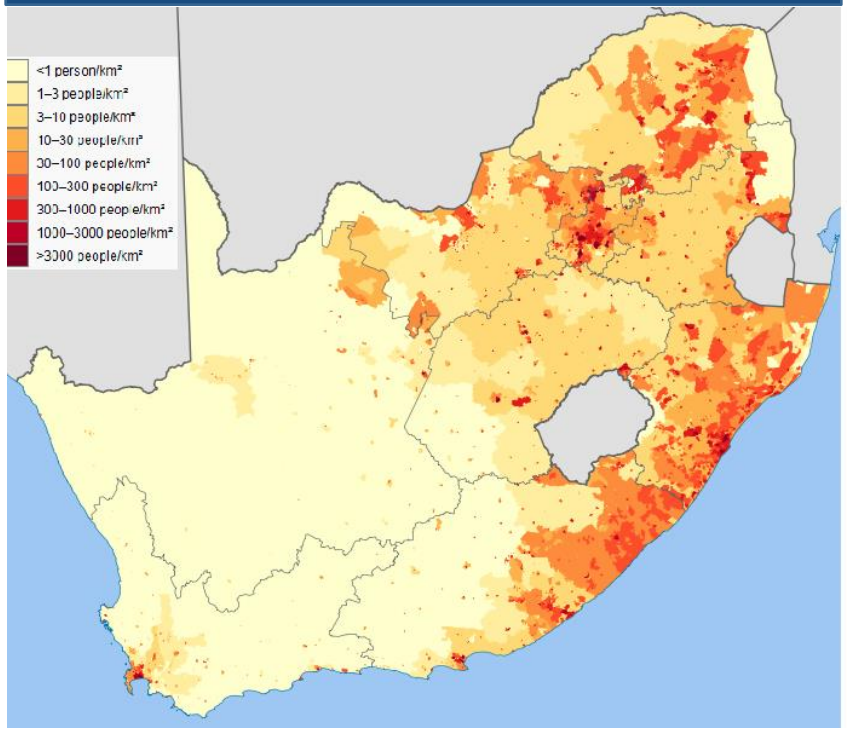
SOLAR IRRADIATION & POPULATION DENSITY

Annual global solar irradiation



Source: dena (2012)

Population density



Source: SEDAC (2011)

BASIC DATA

General basic data (2014)			
Area	1.22 m km²	GDP (est.)	3,671.8 bn ZAR (~248.6 bn €**)
Population (est.)	53.7 m	GDP per capita (est.)	68,379 ZAR (~4,629 €**)
Language	English, isiZulu, Afrikaans (i. a.)	GDP growth (est.)	2.3 %
Government type	Republic	Inflation (est.)	6 %
Administrative division	9 provinces	Unemployment rate (2013)	24.9 %

Basic energy market data (2012)	
Final energy consumption (2010)	1,941,940 GWh
Electricity consumption (total/per capita)	234.7 TWh / 4,830 kWh
Net electricity import	5,029 GWh
Total electricity generation	238.3 TWh
Electricity price (industrial 2013)	0.69 ZAR / kWh (~0.059 €/ kWh*)
Electricity price (residential 2013)	0.75 ZAR / kWh – 1.21 ZAR / kWh (~0.066 €/ kWh* - 0.1 €/ kWh*)
Share of renewable energy (electricity consumption)	1.6 %
Increase of electricity consumption (2012 - 2022)	4 % p. a.
Annual average solar irradiation	2,000 kWh/m²a

Detailed information: ESKOM Tariffs & Charges in 2014/2015

* Annual average exchange rate 2012 of the European Central Bank (ECB): 1 € = 11.55 ZAR
** Average exchange rate march 2014 (GTAI): 1 € = 14.771 ZAR

Sources: CIA (2013), ESKOM (2013), EZB (2013), IMF (2013), STATSSA (2012), GTAI (2014)

PHOTOVOLTAIC MARKET INDICATORS

Indicators				
Market size (annual installed capacity)	20010: 21.1 MW	2011: 23 MW	2012: 25 MW	2013: 98.25MW
National PV target	▪ 2014: 1,450 MW within the Renewable Energy Independent Power Producers Program (REIPP)			
Main market drivers 2013	▪ REIPP (Independent Power Producers) Program: In sum a capacity of 3,725 MW (all eligible renewable energy technologies) is granted. ▪ 1,484 MW of solar PV have been awarded through PPAs in the first three bidding procedures. There will be two more rounds of tendering, which will award an additional 1,041 MW until the target of 2,525 MW is reached. ▪ The South African "Integrated Resources Plan" sets the share of renewable resources in newly added electricity generation capacity at 42 %. ▪ Several provinces, e. g. Northern Cape, have a very high solar irradiation (approx. 2,300 kWh/m²a).			
Support for renewable projects 2012/13	▪ REIPP: Projects are selected depending on the offered price (70 %) and on local value creation (30 %). ▪ During the second bidding round (March - May 2012) a massive increase of bidding prices could be observed, especially for PV and wind capacity. The average offered price of PV project developer was 2.75 ZAR/kWh (23.8 € ct / kWh*) in the first round, which fell to 1.65 ZAR/kWh (14.2 € ct/kWh*) in the second round. ▪ Starting in July 2013, the 3rd bidding round within the REIPP programs (deadline August 2013) awarded the remaining PV capacity of 401.1 MW. For the 3rd round of tendering a price of 1.2 R/kWh (10.4 €ct) has been assumed. The main winner was Enel Green Power, which received 314 MW of PV capacity, followed by Total's SunPower with 86 MW.			
Recent changes to the PV support regulation/ Support in 2014	▪ The 4th and 5th round is expected for 2014. The deadline to hand-in proposals for the 4th round was 21st July 2014. ▪ The whole capacity of 200 MW for CSP has already been awarded. ▪ There will be a separate tender for small-scale RE projects (up to max. 5 MW),which will is opened since October 2013. Companies can hand-in proposals and a total of 100 MW will be allocated.			

* Annual average exchange rate 2012 of the European Central Bank (ECB): 1 € = 11.55 ZAR

Sources: DoE (2013), EPIA (2013), dena (2013) ,REIPP (2013), EScience Associates et. al (2013)

MAIN PV SUPPORT SCHEMES

Awarding criteria and recent bidding round	
Recent bidding rounds	▪ In the 3rd round of biddings under REIPPP 435 MW of PV have been awarded to six bidders. ▪ Financial arrangement with the six awarded bidders was not concluded – as scheduled – on 30th July 2014 . A new date will be announced soon. ▪ The deadline to hand-in proposals for the 4th round was 21st July 2014.
Awarding criteria & local content rules	▪ Apart from economic aspects, local content regulations set by the government play an important role in which projects are chosen. ▪ In connection with Black Empowerment those projects will receive a positive rating that enhance local economic development. ▪ Furthermore, companies with historically disadvantaged employees should be involved in PV projects – ideally – along the whole value chain. ▪ In addition to the lack of available capital this criteria is seen as a major barrier by bidders.
Involved institutions/ decision-making authority	▪ Department of Energy (DoE): renewables capacity planning
	▪ Department of Trade and Industry (DTI): local content, industry development
	▪ National Regulator of South Africa (NERSA): approval of granted tariff within the PPAs
	▪ Electricity Supply Commission (ESKOM): State-owned utility, grid operator
	▪ Department of Environmental Affairs (DEA): environment assessment study
	▪ Communities: distribution grid operator, land use

For detailed information concerning bidding rounds see following links:
- Renewable Energy IPP Program (REIPP): www.ipprenewables.co.za
- South African Photovoltaic Association (SAPVIA): www.sapvia.co.za

Sources: REIPP (2013), DoE (2013), dena (2013)

FURTHER PV SUPPORT SCHEME: FIT

Category	Details	
Eskom IDM Standard Offer Program	This program has been in place since June 2012. It forms part of ESKOM's Integrated Demand Side Management and aims at reducing electricity demand. PV systems with an installed capacity between 200 kW and 5 MW are subsidised for a period of three years. The program was put on hold in October 2013 due to significant financial constrains experienced by ESKOM. In October 2014, Eskom has launched a smaller and more restricted tariff scheme.	

	Applicability	▪ Applicants have to be clients of the governmental electricity provider Eskom.
		▪ The systems have to fulfill the following requirements:
		  ▪ Systems need to have a meter on the consumer site.
		  ▪ Systems have to be in line with latest technological standards.
		  ▪ None-grid connected systems have to replace a connection, meaning they generate electricity, which otherwise would have been supplied by the grid.

	Remuneration	▪ The FIT is 1.20 ZAR (ca. 8.55 € ct*) per kWh.

*Exchange rate from 14/10/2014: 100 ZAR = 7.12 €

Sources: dena (2014), ESKOM (2014)

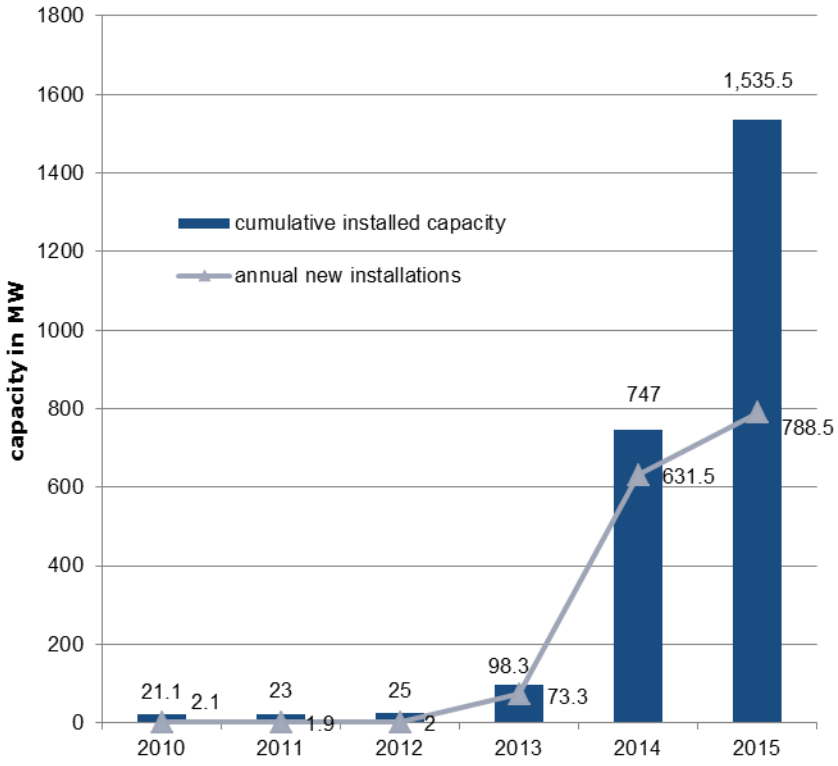
FURTHER PV SUPPORT SCHEMES

Programme	Information
Integrated Resource Plan (IRP) 2010 - 2030	▪ The IRP defines a 42 % share of renewable resources for newly added power generation capacity. ▪ Planned installation of approx. 17 GW capacity until 2030: 8 GWp PV, 1 GW of concentrated solar power plants, 8 GW of wind power ▪ The updated version of the IRP was published in December 2013. The target for installed PV capacity was increased from 1.33 GW to 9.33 GW.
Solar-roof-program	▪ At the moment, DoE and ESKOM are developing a Solar-roof-program, with the target to install PV systems on 300,000 South African roofs.
Clean-Technology Fund (CTF) (World Bank)	▪ CTF is co-financing projects for renewable electricity generation and for increasing energy efficiency with a total amount of 500 m US Dollars. ▪ With these projects a further sum of one bn US Dollars from bi- and multilateral lenders and private investors should be capitalised.
Energy and Environment Partnership Programme Southern and East Africa (EEP)	▪ The EEP is supported by the donor countries Finland, Austria and United Kingdom for renewable energy and energy efficiency projects. ▪ Technology: Every renewable technology can receive a project specific support. ▪ The call for proposals will be released on the following website: http://www.eepafrica.org/
SAGEN (South African German Energy Programme)	▪ Technical cooperation with the German governmental development institution GIZ in the area of renewable energy technologies. ▪ Support of solar energy through the facilitation of knowledge transfer. ▪ Support of energy efficiency.

Sources: Climate Investment Funds (2012), ESKOM (2012a),. EEP Africa (2012)

MARKET DEVELOPMENT AND BARRIERS

Development of installed PV capacity



Sources: EScience Associates et. al (2013), GIZ (2013)

Main barriers in the South African PV market

Energy policy barriers:

- Enormous coal resources (which are the main source for electricity generation in the country) result in little interest and possibilities for on-grid renewable electricity generation.

Lack of financing through local banks:

- Little experience in financing renewable energy projects hinder local banks to issue loans. This caused massive delays in project development within the first bidding round.

Local content rules:

- Barriers for project development are time consuming bidding processes and the requirements within the local content rules.

Interconnection fees:

- Costs for interconnection (which are expensive in South Africa) and possibly needed power lines must be paid by the project owner.

Pricing pressure:

- During the first two bidding rounds a rapid decrease of bidding prices could be observed. In future more and more pressure on prices is expected.

Sources: EPIA (2012 / 2013), SESSA (2012a)

MARKET NEWS (1/2)

Date	Topic	Source
03/10/2014	South Africa Power Price to Rise 13% to Offset Eskom Costs South African power prices will rise more than first planned from April to help the state-owned utility recover 7.8 billion rand ($693 million) of unbudgeted costs, the regulator said. Electricity tariffs will increase by an average 13 percent, more than the 8 percent initially approved for the year through 31st March 2016, the Pretoria-based National Energy Regulator of South Africa said in an e-mailed statement today.	Bloomberg
25/09/2014	Blackouts Present Biggest Risk to South Africa's Economy South Africa has an electric bill coming due that's threatening everything from its swimming pools to its sovereign debt. Consumers are asked almost daily to switch off their water heaters, pool pumps and anything else that will save power during peak periods. Industrial customers are also asked to conserve energy, even if it means reducing production. And when that's not enough, Eskom Holdings SOC Ltd. orders managed blackouts.	Bloomberg
11/08/2014	JinkoSolar opens PV module factory with an annual production capacity of 120MW in South Africa Located in Cape Town, the factory covers an area of 5,000m² and has annual production capacity of 120 MW. JinkoSolar invested a total of approximately USD 7.5 million in the factory which is expected to create 250 jobs. First foreign solar manufacturer's PV module factory in South Africa modeled after Chinese standard.	SolarServer
30/07/2014	South Africa Faces Higher Power Fee as Eskom Claim Approved South Africa's energy regulator said Eskom Holdings SOC Ltd.'s costs exceeded projections in the three years through 2013, possibly enabling bigger power-price increases in April. The company that provides 95 percent of South Africa's electricity didn't recover 7.8 billion rand ($735 million) of spending incurred from 2010 to 2013, the Pretoria-based regulator said in an e-mailed statement today. Eskom in August asked that it be allowed to get back 18.4 billion rand. Nersa, which last year said the utility can raise fees by an average of 8 percent in each of the five years through March 2018, did not say by how much more tariffs will increase.	Bloomberg

MARKET NEWS (2/2)

Date	Topic	Source
13/03/2014	Lease finance initiative for rooftop PV Powerway PV SA and InnoVent, with the support of TÜV Rheinland, have developed a model where the consumer is paying a lower price for power generated from solar PV compared to conventionally generated electricity without a capital outlay being required by the consumer. The under the leasing model installed modules will be produced in the joint venture production facility from Powerway PV SA and JA Solar. The implementation date is not yet know.	www.esi-africa.com
05/02/2014	Hopes for a CIGS boom in South Africa The South African PTiP together with the German Singulus commissioned a CIGS production facility. This modern production and research facility will be able to manufacture and further develop CIGS modules with a seize of 1200 mm x 600 mm.	PV-Magazine
17/10/2013	Solar energy to undercut coal in South Africa According to a study of the South Africa Photovoltaic Industry Association (SAPVIA) the price for solar power could decline to 0.74-1.26 R/kWh (6.4-10.9 € ct/kWh) by 2020 and thus become the cheapest power in South Africa. Already by 2018 solar power could reach the price level of coal, which could go up to 1.69 R/kWh (14.6 € ct/kWh) by 2020.	PV-Tech

CONTACT INFORMATION

Category	Name	Website
National Ministry of Energy	Department of Energy (DoE)	www.energy.gov.za/
National Market Regulator	National Energy Regulator of South Africa (NERSA)	www.nersa.org.za
State-owned Utility	Eskom Holdings Limited (ESKOM)	www.eskom.co.za
German-South-African Chamber of Commerce	Deutsche Industrie- und Handelskammer für das südliche Afrika (AHK)	www.suedafrika.ahk.de
Photovoltaic Industry Association	South African Photovoltaic Industry Association (SAPVIA)	www.sapvia.co.za
Renewable Energy Association	South African Renewable Energy Council (SAREC)	-
National Partner for Project Financing and Development	South African Renewables Initiative (SARI), Department of Trade and Industry	www.sarenewablesinitiative.wordpress.com

Source: dena (2012)

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