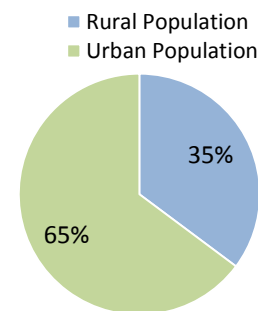


# Country: South Africa



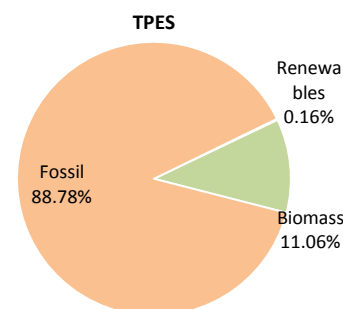
## Socio- economic framework

	Year	Unit	Value
Population	2014	million	54.00 <sup>1</sup>
Demographic growth	2014	%	1.57% <sup>1</sup>
Surface	2014	km <sup>2</sup>	1219090 <sup>1</sup>
GDP	2014	M US\$	350085 <sup>1</sup>
GDP per capita	2014	US\$ per cap	6483 <sup>1</sup>
GDP growth	2014	% /year	1.5% <sup>1</sup>
Fragile country status	2014	Index	No <sup>2</sup>
Governance	2014	Index	73 <sup>3</sup>
Governance variation over 5 years	2014	Index	0.9 <sup>3</sup>
Human development	2013	Index	0.666 <sup>4</sup>



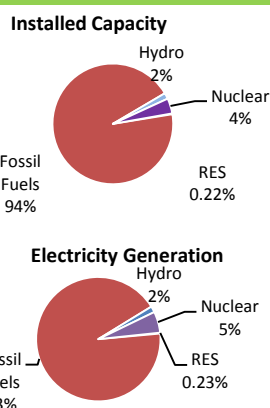
## Consumed Energy (million toe=11.65 MWh)

	Year	Unit	Value
Total Primary energy Supply (TPES)	2013	Million toe	141.27 <sup>5</sup>
Primary energy Supply - Biomass	2013	Million toe	15.26 <sup>5</sup>
Primary energy Supply - Fossil	2013	Million toe	122.5 <sup>5</sup>
Fraction of Non-Renewable Biomass	2009	%	25% <sup>6</sup>
Primary energy Supply - Renewable (incl..hydro)	2013	Million toe	0.22 <sup>5</sup>
Primary energy - Net Import electricity	2013	Million toe	-0.39 <sup>5</sup>
Primary energy - Net import hydrocarbon	2013	Million toe	-19.13 <sup>5</sup>
Total Final Energy Consumption	2013	Million toe	74.23 <sup>5</sup>
Final energy - Modern BLEN <sup>(*)</sup>	2013	Million toe	18.87 <sup>5</sup>
Final Energy - Electricity	2013	TWh	196.07 <sup>5</sup>



## Electricity

	Year	Unit	Value
Peak demand	2013	MW	36276 <sup>7</sup>
Installed connected capacity	2013	MW	44170 <sup>8</sup>
Thermal installed capacity (fossil fuels)	2013	MW	41559 <sup>8</sup>
Hydro installed capacity	2013	MW	714 <sup>8</sup>
Nuclear installed capacity	2013	MW	1860 <sup>8</sup>
Renewable installed capacity (ex.hydro)	2013	MW	97 <sup>8</sup>
IPP/installed capacity	2013	%	6% <sup>9</sup>
Total Electricity production	2013	GWh	256073 <sup>10</sup>
Electricity generation from fossil fuels	2013	GWh	237349 <sup>10</sup>
Electricity generation from hydro	2013	GWh	4040 <sup>10</sup>
Electricity generation from nuclear	2013	GWh	14106 <sup>10</sup>
Electricity generation from renewable	2013	GWh	578 <sup>10</sup>
Electricity consumption including self-consumption and losses	2013	GWh	248382 <sup>10</sup>
Average consumption per capita	2013	kWh per cap	4330 <sup>10</sup>
Total losses (technical and non-technical) as a production %	2013	%	9% <sup>11</sup>
Total losses (technical and non-technical)	2013	GWh	22351 <sup>11</sup>
Imports (+) exports (-)	2013	GWh	-4501 <sup>10</sup>
Global electrification rate	2012	%	86% <sup>1</sup>
Urban electrification rate	2012	%	97% <sup>1</sup>
Rural electrification rate	2012	%	67% <sup>1</sup>
HV lines <sup>(**)</sup>	2014	km	31107 <sup>12</sup>
MV lines <sup>(**)</sup>	2014	km	482780 <sup>12</sup>
LV lines <sup>(**)</sup>	2014	km	281510 <sup>12</sup>
Renewable energy/global electricity production (incl. hydro)	2013	%	1.8% <sup>10</sup>
Connections to the LV network <sup>(***)</sup>	2014	Thousands	5338 <sup>12</sup>
Average tariff	2014	US\$/kWh	8.97 <sup>13</sup>
Ratio cost/tariff	2014		



To be confirmed



## Legal, regulatory and institutional framework

Energy policy	<ul style="list-style-type: none"> <li>- National Development Plan to 2030 (2012).</li> <li>- New Households Electrification Strategy, Department of Energy (2013)</li> <li>- Integrated Resource Plan 2010-2030 (March 2011) updated in November 2013, Dept. of Energy (DoE).</li> <li>- Integrated Energy Planning (June 2013) (DoE).</li> <li>- Integrated National Electrification Programme (INEP), DoE 2016.</li> <li>- Policy to support the energy efficiency and DSM, DoE 2008. National Energy Efficiency Strategy 2009.</li> <li>- Biofuels Industrial Strategy 2007.</li> </ul>
Energy laws	<ul style="list-style-type: none"> <li>- National Energy Act 34/2008. Nuclear Energy Act 46/1999. National Nuclear Regulator Act 47/1999.</li> <li>- National Energy Regulator Act 40/2004. Electricity Regulation Act 4/2006 and Amendment Act 28/2007.</li> <li>- Petroleum Products Amendment Act 58/2003 and Amendment Act 2/2005. Petroleum Pipelines Act 30/2003 and Petroleum Pipelines Levies Act 28/2004. Gas Act 48/2001 and Gas Regulator Levies Act 75/2002.</li> </ul>
Enforcement texts	Electricity Regulations on New Generation Capacity (amendment of 2015). Amendment of Regulations made in terms of Petroleum Pipelines Act (2015). Amendment of Regulations regarding Petroleum Products Site and Retail Licenses (2012). Regulations regarding the Mandatory Blending of Biofuels with Petrol and Diesel (2012). Amendment of Regulations regarding Petroleum Products Specifications and Standards (2012). Piped Gas Regulations (2007).
Electricity/energy regulator	The National Energy Regulator of South Africa (NERSA) established by the National Energy Regulator Act (2004) "to regulate the electricity, piped gas and petroleum pipeline industries". The National Nuclear Regulator regulates "nuclear activities" including nuclear power stations.
Electricity operators	ESKOM Holdings Ltd a public vertically integrated company that generates 95% of the electricity is the owner of the National Grid. There are more than 90 renewable energy IPPs after three bid rounds. A number of IPPs exist who own coal fired, gas fired and hydro power plants. A number of distributors (mainly municipalities) supply electricity to local consumers.
Rural electrification body	No. The Integrated National Electrification Programme (INEP) is managed by a unit within the Department of Energy (DoE).
Renewable energy body	The DoE is responsible for RE policy and planning. The South African National Energy Development Institute (SANEDI) is a state owned entity whose main function is to direct, monitor and conduct applied energy research and development, demonstration and deployment as well to undertake specific measures to promote the uptake of Green Energy and Energy Efficiency.
Energy conservation body	The DoE is responsible for EE policy and planning. SANEDI contributes to applied research and development.
Energy objectives	The National Development Plan foresees that 97% of households will have access to electricity by 2030 and 300,000 households will be electrified with quality non-grid solutions by 2025. Renewables are planned to reach 17.8GW installed capacity by 2030. There is a long-term vision of 5 million SWH installations by 2030. There was a target of 2% penetration level of biofuels in the national liquid fuel supply by 2013.
Feed-in tariff policy	A REFIT programme was established in 2009 but it ended in 2011 (without operating at all) and was replaced by a competitive bidding process the Renewable Energy IPP Procurement Programme (REIPPPP). REIPPPP has successfully completed three bidding rounds until 2015.
Metering policy for billing	Distribution Metering Code sets the requirement and procedures for tariff metering installations. A large share of ESKOM's customers use prepayment meters.
Public procurement (auctions)	The Renewable Energy IPP Procurement Programme (REIPPPP) established in 2011 is a competitive bidding process for RE. Currently there are competitive bidding programmes for coal and gas fired electricity plants as well as CHP plants.
Unbundling	ESKOM is the state owned vertically integrated company that owns the National Grid. There is a considerable number of IPPs (mainly renewable energy installations) and licensed distributors of electricity (mainly municipalities that act as redistributors).

## Private sector environment

Sector private bodies	South African Independent Power Producers Association (SAIPPA). Southern African Bioenergy Association (SABA). South African Wind Energy Association (SAWEA). South African PV industry Association (SAPVIA). South Africa Solar Thermal and Electricity Association (SASTELA). IPPs (mainly renewable energy).
Public incentives	Public funding is available for the installation of solar water heaters. Energy Efficiency Tax incentives for verified energy savings in companies.
Financial grants	The Green Fund supports green initiatives for the transition to a low carbon economy. The financial support may take the form of grants, loans or equity and the project include EE, waste-to-energy and RE electricity.
IPPs	There is a number of RE IPPs and some thermal and hydro plants IPPs. The DOE is actively looking for more investments by IPPs through its IPP procurement programme for gas, coal, renewables and cogeneration plants.
PPPs	REIPPPP is considered as a successful PPP approach. The concept of PPP is actively promoted in all sectors of the economy.
Business index	Listed 73 out of 189 countries by the WB "Ease of doing business" index in 2015 <sup>14</sup> .

## International Cooperation in the energy sector

Joint Declaration EU-country	No. The South Africa-EU Strategic Partnership Joint Action Plan was signed in May 2007 and the SA-EU Trade, Development and Cooperation Agreement in 1999.
Energy as focal sector for 11th EDF	No.
Donors active in the country	EU, EIB, AfDB, AfD, GEF, GIZ, KfW, Norad. Austrian Development Cooperation, Energy and Environment Partnership (EEP), Spanish Gov.
Coordination among donors	According to the National Official Development Assistance (ODA) guidelines, all requests for funding needs flow through the International Development Cooperation Directorate (IDC) and all donors need to approach work in SA through the IDC.

## Main issues and opportunities

- Load shedding in the electricity system due to inadequate levels of installed capacity.
- High level of CO<sub>2</sub> emissions due to the electricity generation based on coal fired power plants.
- Rural electrification is still at 67% and should be increased to reach the 2030 target.
- Non-grid electrification should be developed since “universal access” cannot be achieved with grid electrification only.
- Important solar and wind potential that can be exploited.
- Local coal resources that could be utilised in new clean coal installations.

(\*) BLEN includes Biogas, LPG, Electricity and Natural Gas.

(\*\*) HV is 765kV, 533kV DC, 400kV, 275kV, 220kV, MV is 132kV, 88-33kV, LV is below 22kV

(\*\*\*) The number stated here are ESKOM residential customers. There are also 804 redistributors with their own LV customers.

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- 14 World Bank, Available at: <http://data.worldbank.org/indicator/IC.BUS.EASE.XQ>, [Accessed on 16/03/2016].