Energy Efficiency
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2015
Market Intelligence Report
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GreenCape

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GreenCape would like to acknowledge and thank **Derik Coetzer, Andrew Payne, Helmut Hertzog** and **Jack Radmore** for the time and effort that went into compiling this Market Intelligence Report.

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List of acronyms

CFLs	Compact fluorescent light bulb
CHP	Combined Heat and Power
CIP	Critical Infrastructure Programme
CMVPs	Measurement & Verification Personnel
CO2e	Carbon Dioxide Equivalent
COP	Conference of Parties
DED&T	Department of Economic Development and Tourism
DFIs	Development Finance Institutions
DoE	Department of Energy
DPE	Department of Public Enterprises
EE	Energy Efficiency
EPC	Energy Performance Contracting
ESC	Energy Supply Contracting
ESCO	Energy service company
ESCos	Energy service companies
FIs	Financial institutions
IEP	Integrated Energy Plan
IFC	International Finance Corporation
IPAP	Industrial Policy Action Plan
IPAP2	Industrial Policy Action Plan 2012/2013-2013/14
IRP	Integrated Resource Plan
LED	Light-emitting diode
MCEP	Manufacturing Competitiveness Enhancement Programme
MWh	Megawatt hour
NBI	National Business Institute
NEES	National Energy Efficiency Strategy 2005
NERSA	National Energy Regulator of South Africa
NRCS	National Regulator for Compulsory Specifications
PI	Production Incentive
REEEP	Renewable Energy and Energy Efficiency Partnership
REIPPPP/REI4P	Renewable Energy Independant Power Producer Programme
SANEDI	South African National Energy Development Institute
SPII	Support Programme for Industrial Innovation
TWh	Terrawatt hour

1 – Introduction and purpose

This market intelligence report was compiled by GreenCape's energy efficiency sector desk. The report is aimed at investors and businesses who are currently active or interested in entering the energy efficiency sector in South Africa, and the Western Cape specifically. It provides an overview of the market, including the key players, legislation and regulation, opportunities and challenges, key developments and achievements.

GreenCape is a not-for-profit organisation that was established in 2010 by the Western Cape Government and the City of Cape Town to support the accelerated development of the green economy. The vision is for the Western Cape to be the green economy hub for Sub-Saharan Africa – the investment destination of choice, regional headquarters and manufacturing centre for leading companies in this space.

GreenCape's aim is to help unlock the investment and employment potential of green business, technologies and manufacturing. This, in turn, also contributes to improving the resource efficiency, carbon intensity and resilience of the regional economy.

We do this this by assisting viable green businesses across a range of sectors, including energy, waste and resources, to remove barriers to their establishment and growth – working with our partners in government, the private sector and academia.

Our business support activities range from helping potential investors to understand the local market and connect with the right people; providing policy and regulatory advocacy and support; facilitating access to funding; facilitating market access; establishing skills development partnerships; networking and information-sharing events; and publications.

For more information see www.greencape.co.za or email ee@greencape.co.za

2– Executive summary

Globally, the energy sector is beginning to adopt more sustainable energy practices, and to develop more energy efficient technologies. The energy efficiency marketplace is expanding rapidly, driven by increased awareness of the impact of carbon emissions, rising electricity costs, and improvements in and financial returns arising from energy efficiency technologies.

The trends are reflected in South Africa, where the combination of high emissions and constrained supply has influenced the country to set ambitious energy efficiency targets. Above-inflation electricity price rises, and predicted power shortages for at least another five years have motivated many individuals, businesses, government and industry to implement energy efficiency projects.

The South African government has introduced stringent targets, regulations and several investment-friendly policy initiatives designed to promote energy efficiency and a sustainable clean economy. The National Energy Efficiency Strategy (NEES) 2005 has set a target of reducing overall primary energy consumption of 12% by 2015.

Three main groups of service providers play a role in the industry: consultancy service providers, technology suppliers and energy service companies (ESCos). Their work is influenced by the Department of Energy (DoE), the Department of Public Enterprises (DPE), the South African National Energy Development Institute (SANEDI) and the National Energy Regulator of South Africa (NERSA).

The service providers are governed by a regulatory environment that spans several different government departments, regulatory bodies and standardisation agencies.

Accessing funding is a major challenge for sector participants. Subsidies are available and funding can also be accessed from the private sector, quasi-governmental and government organisations.

While there is a lack of substantial data about the size of the national energy efficiency market, in 2012, the Industrial Development Corporation (IDC) assessed that the ESCo market would be as large as R8 billion per annum by 2022.

In the Western Cape the energy efficiency market is estimated to be R1.3bn by 2019, with ±1000 job opportunities being created through ESCos, equipment manufacturers and installation and maintenance contractors.

3–
Industry overview

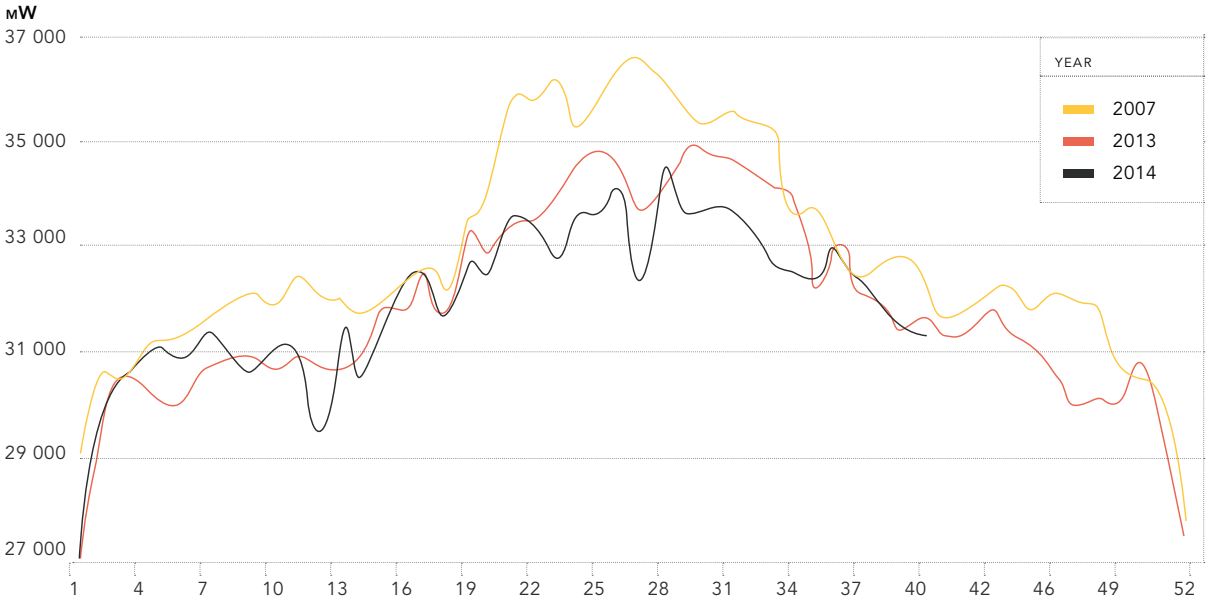
Published in 1998, the white paper on the energy policy of South Africa warned that the country did not have sufficient power generation capacity to meet the requirements of the country by 2007. In the fourth quarter of 2007, overall demand for electricity exceeded Eskom's generating capacity, triggering a national crisis. The shortage was caused mainly by unplanned equipment failures, a shortage of coal supply and coal quality issues (South African Government, 2008). The situation was aggravated by high levels of maintenance activities, which were planned to be performed during the summer months when demand levels are traditionally lower, and unusually wet weather which worsened the coal supply situation.

The lack of reliable energy supply after 2007, coupled with the global financial crisis of 2007-2008, has had a significant impact on power demand in South Africa. In addition, the national utility, Eskom, significantly increased electricity prices. Domestic tariffs rose from 45 cents per kilowatt hour in January 2009 to 172 cents per kilowatt hour in July 2014, a 276% increase in five and a half years.

That trend is likely to continue. In response to these factors, consumers have significantly reduced their power demands.

The graph below shows that peak power demand remains below 2007 levels.

Figure 1: National power demand trends 2007-2014

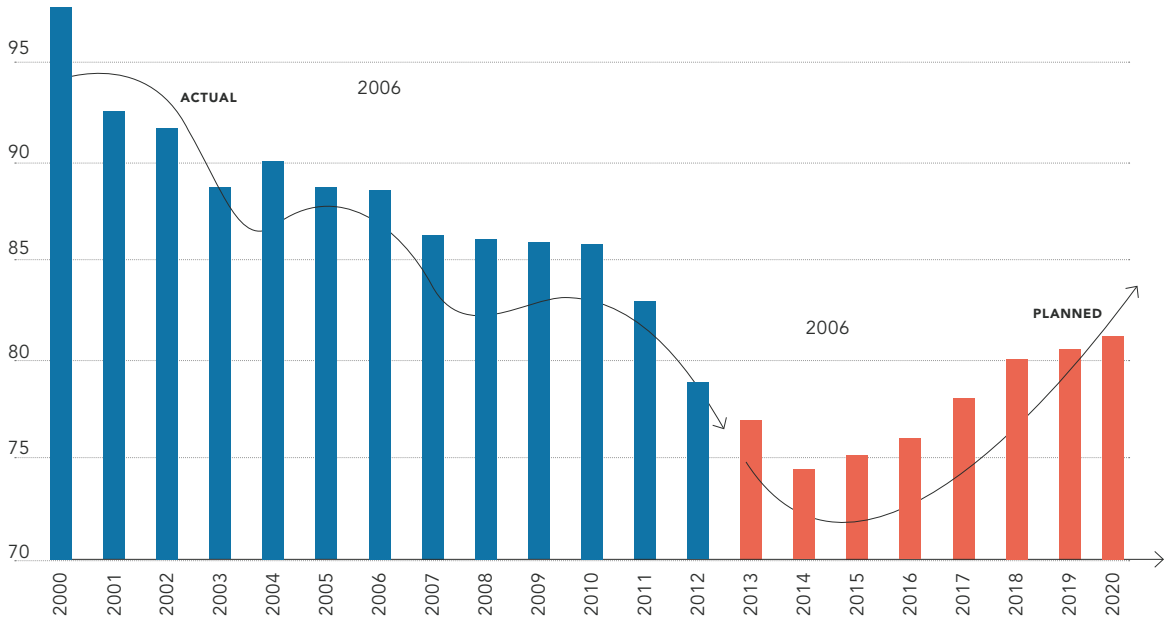


(Source: UCT Graduate School of Business)

Despite reducing consumer demand, at the time of writing (February 2015), South Africa's energy situation is worse than seen in 2008. At the end of 2014 and by early 2015, load-shedding led to regular rolling blackouts in different municipal areas in the country.

It is widely expected that power shortages will continue for at least another three years, exacerbated by the delay in the completion of the Medupi and Kusile power plants. In addition, 32 of the existing 87 coal generating units are in critical condition and require major upgrades. Eskom's precarious financial position is adding to the crisis. The graph below illustrates the precariously low Eskom generation plant availability, with no immediately foreseen improvement.

Figure 2: Eskom generation plant availability



(Source: Presentation by Prof Anton Eberhard to SANEA NDP Energy Dialogue (Nov 2014))

Consequently the state of the electricity system in South Africa is one of the major drivers for energy efficiency services in South Africa. In addition, South Africa has a higher energy usage intensity compared with developing countries like India, China, Brazil and Mexico. Combined, these facts show that there is a significant opportunity for introducing energy efficiency solutions in South Africa.

4 – Key players in the energy efficiency market

Energy service providers are key components in promoting energy efficiency technologies and solutions. The energy service industry uses many different definitions to reflect the varying interests of the broad spectrum of stakeholders involved. It is therefore helpful to classify different groups of service providers based on their services, without placing any value on them. Three main groups of service providers play a role in the industry:

Consultancy (service) providers such as energy auditors, planning engineers, certified Measurement & Verification Personnel (CMVPs), accountants, lawyers and others who provide advice. The consultant risks are typically limited to professional indemnity insurance, while project performance risks remain with the client. Payments for consultancy services are commonly agreed upon based on their inputs (hourly rates or a lump sum). In some cases consultants also use performance-based components – also known as share of savings to determine their remuneration.

Technology suppliers of energy efficiency hardware such as re-lighting, combined heat and power (CHP) and solar components or systems; or software – such as energy accounting or management packages; and related operation and maintenance services – such as servicing burners, technology maintenance services or software updates. They all supply individual components of energy efficiency projects and are paid for supplying these components, though typically not for their performance or outputs. The supplier risks are typically limited to product warranties and vendor liabilities while project performance risks remain with the client.

Energy Service Companies (ESCos) who provide performance based energy contracting, also referred to as ESCo or energy efficiency services. The two basic business models are: Energy Supply Contracting (ESC) – which delivers units of use energy measured in Megawatt hour (MWh); and Energy Performance Contracting (EPC) – which provides energy savings measured in comparison with a previous energy cost baseline.

For both models, the ESCo's remuneration depends on the respective outputs of the services provided and not on the inputs consumed, for example, fuels or person hours. This model introduces an intrinsic interest for the ESCo to increase efficiency of the technologies deployed and to reduce final energy demand and related emissions.

All three groups of service providers are needed to develop an energy efficiency industry. At the same time, there is notable variation in their role in the value chain and scope of service, their degrees of risk acceptance, business models and remuneration schemes.

In addition to Eskom, the following stakeholders each play a role in influencing the investment in energy efficiency services on a national level, and further supporting the growth of South Africa's ESCo industry:

- **The Department of Energy (DoE)** is the custodian of all energy policies and energy security in South Africa.
- **The Department of Public Enterprises (DPE)** is responsible for the country's energy infrastructure The South African National Energy Development Institute (SANEDI) is responsible for achieving the objectives of the NEES.
- **The National Energy Regulator of South Africa** (NERSA) is of particular importance as it sets and approves the annual Eskom tariff increases.

5 – Energy efficiency market: size

Globally, the marketplace for energy efficiency and alternative energy is expanding rapidly, a trend which is reflected in the South African market. The International Institute for Energy Conservation lists several key elements that support growth in the efficiency marketplace, all of which are present in South Africa. They include:

Energy prices trending upwards

Enabling energy policies from local and national government

Utility programs and incentives

Energy efficiency initiatives, such as tax incentives and financing programmes

New regulations that support efficiency

Furthermore, energy efficiency technologies are well proven, and can achieve significant savings at attractive paybacks.

The following table provides an overview of the most common system processes that can achieve energy savings.

Table 1: Common energy savings systems

System processes	Available energy efficiency measures	Potential energy savings	Payback
Heating, ventilation and air conditioning (HVAC) systems	Maintaining various HVAC system components	20%	<3 years
	Retrofitting HVAC systems	20-30%	5 years
	Using alternative HVAC systems such as heat pumps or central air conditioning units that have a higher performance coefficient	30-40%	5 years
Lighting	Replacing magnetic ballasts with electronic ballasts; replacing incandescent, halogen and mercury vapor lights with compact fluorescent lightbulbs (CFLs) and light-emitting diode (LED) lighting.	40%	3.5 years
Water heating	Replacing electrical geysers with solar water heaters	60%	5 years
	Replacing electrical geysers with heat pumps	65%	3-5 years
Compressed air	Optimising air usage, reducing air leakage, optimising system operating pressure and increasing compressor inlet pressure	20-40%	1-2 years
Motors	Replacing motor belt drives with variable speed drives	5-10%	7 years
	Installing energy efficient motors	5-7%	6 years
Steam systems	Steam trap maintenance, improved boiler efficiency, isolating steam from unused lines, repairing steam leaks, optimising condensate return, minimising vented steam	20%	1.5 years

(Source: USAid: Energy Efficiency Finance report)

Very few studies have been commissioned to quantify the energy saving potential of energy efficient technologies in South Africa's industrial sector.

Without detailed modelling it is difficult to accurately estimate the market potential for ESCos in South Africa.

However, a study initiated by Eskom indicated that 12 933 MW of energy demand savings could be achieved in South Africa. This is illustrated in Table 2 on the following page.

Table 2: Potential energy demand savings from energy efficiency

Technology	Residential	Commercial	Industrial	Total MW
Efficient Lighting	939	115	116	1170
Solar Water Heating	3713			3713
Domestic Cooking Conversion	2144			2144
Infrared Heating	766			766
Heat Pumps	960	224	569	1753
Showerheads & Restrictions	240	160		400
Load Managment		9	200	209
HVAC		14	70	84
Agricultural Initiatives		144		144
Efficient Compressed Air			1255	1255
Motor Efficiency			408	408
Variable Speed Drivers			417	417
Fan / Pumps			530	530
Total	8 762	666	3 565	12 993

(Source: IDC: Developing a vibrant ESCo market report)

As mentioned earlier in the report, ESCos are seen as key participants to enable the energy efficiency market to reach its full potential. Taking into account Eskom's long-term saving targets of 5 500MW by 2020, the growth potential within the ESCo industry remains strong. The target is in line with the NEES, albeit that the timeframe is slightly more accelerated.

Industry forces that will contribute to ESCo growth include: the continued fear of rolling black outs, penalties, tax incentives, carbon tax requirements, commercial and residential building energy saving initiatives, process optimisation required to reduce costs, and a greater focus on green and sustainable initiatives within big business.

Other driving forces will come from state-owned funding institutions and Development Finance Institutions (DFIs) whose involvement can create an environment of low interest loans; other competitive finance options; grants to assist with feasibility studies; energy audits; and technical assistance. More relaxed lending criteria are linked to cashflows, collateral-based lending or a combination of both.

In addition, better knowledge and greater skills development within financial institutions will help organisations to appraise ESCo projects more efficiently.

The price of electricity is expected to increase above inflation for the foreseeable future, and will further motivate many individuals, businesses, government and industry to implement energy efficiency projects.

However, the available information is not sufficiently detailed or comprehensive enough to make an accurate, scientifically based estimate of this market potential in South Africa. In 2012, IDC conducted a study to confirm the widely-held belief that the ESCo industry presents significant growth and revenue generation opportunities. The report estimated the ESCo market to be as large as R8 billion p.a. by 2022. An International Finance Corporation (IFC) study sized the ESCo industry as follows:

- **Annual savings** 8.7-10TWh
- **Annual investment** $365m- 450m
- **Active companies** >500
- **People employed** >1 500

Despite the lack of publicly available information, it is clear that potential energy efficiency savings could be achieved and that there is significant potential in the energy efficiency market, and consequently the ESCo market.

6 – Energy efficiency market: finance and incentives

A major challenge in pursuing energy efficiency projects is understanding where to access funding. Subsidies can reduce project costs, and increase economic viability. Table 3 is taken from a report published by National Business Initiative (NBI) on the funding available from the private sector, quasi-governmental and government organisations.

Table 3: Summary of funding sources for energy efficiency projects

Funding option	Sectors Included	Sectors excluded	Company size	Project size
Funding through loans				
Green Energy Efficiency Fund	All	None	Medium and large	Medium and large
Commercial banks	All	None	Small to large	Small to large
Anglo American Green Fund	All	None	Small and medium	Small and medium
Evolution One Fund	All	None	Small and medium	Small and medium
Funding through ESCos				
Various ESCos	All	None	Medium and large	Medium and large
Funding through cash grants				
Manufacturing Competitiveness Enhancement Programme (MCEP)	Manufacturers, engineering companies and conformity assessment companies	Higher hurdle for pulp, paper and paperboard, petroleum refineries, nuclear fuel, basic chemicals, basic precious and non-ferrous metals. Tobacco completely excluded and companies receiving other incentives. Certain government entities and trusts	All	Medium and large

Table 3: Summary of funding sources for energy efficiency projects (Cont.)

Funding option	Sectors Included	Sectors excluded	Company size	Project size
Eskom	Major power users	Companies which are not major power users, and no aggregators of smaller loads other than municipalities	Large	Large
Renewable Energy and Energy Efficiency Partnership (REEEP)	Varies depending on funding window	This focuses on cutting edge technology	Medium and large	Medium and large
The Green Fund	Varies depending on funding window	Varies depending on window	Large	Large
Critical Infrastructure Programme (CIP)	Manufacturing and mining	Retail and housing	Large	Large
Funding option	Sectors Included	Sectors excluded	Company size	Project size
Funding through tax deductions				
12L of Income Tax Act	Most companies	Energy generated from renewable sources and co-generation other than waste heat recovery. Minimum size for captive power plants.	Medium and large	Medium and large
12I of Income Tax Act	Manufacturers	Alcohol, tobacco, arms and ammunition, biofuels if impacts food security	Medium and large	Medium and large
Funding through research and development				
Support Programme for Industrial Innovation (SPII)	Manufacturing or related industrial fields, and software	Military projects and projects limited due to licensed technology	Medium and large	All
11D of Income Tax Act	All industries	Oil and gas exploration, financial instruments and products	Medium and large	Medium and large

(Source: NBI)

7 – Energy efficiency market: policies & regulations

The energy efficiency sector is affected by a regulatory environment that spans several different government departments, regulatory bodies and standardisation agencies. The following is a summary of the various policies and regulations that have been adopted by the South African government in recent years that are relevant to the development of energy efficiency initiatives:

Energy White Paper of 1998. This paper identifies the need for demand-side management and the development and promotion of energy efficiency in South Africa. It requires energy policies to consider energy efficiency and energy conservation within the framework of the Integrated Resource Plan (IRP) in meeting energy service needs from both supply- and demand-side.

NEES 2005, (reviewed in 2008). NEES sets outs a national energy efficiency target of at least 12% by 2015. Sector targets range from 9% for transport, through to 15% for industry, commerce and the public sector.

Electricity Regulation Act (Act 4 of 2006). The Act established a national regulatory framework for the electricity supply industry which made NERSA the custodian and enforcer of the national electricity regulatory framework. The Act states that NERSA must encourage energy efficiency initiatives.

National Energy Act (Act 34 of 2008). The National Energy Act was legislated to ensure that diverse energy resources are available to the South African economy, in sustainable quantities and at affordable prices, in support of economic growth and poverty alleviation. The Act takes into account environmental management requirements and interactions among economic sectors. It provides for the development of the Integrated Energy Plan (IEP) and the formation of SANEDI.

IRP 2010. The IRP's revised balanced scenario sets out specific targets for renewable energy and energy efficiency. The IRP provides insight into the proposed new-build options including renewables, as well as the energy savings expected from demand-side management programmes.

Industrial Policy Action Plan (IPAP2) 2012/2013-2013/14. IPAP2 aims to better align trade and industry policies for selected industries. Among others, the green and energy saving industries have been included.

Industrial Policy Action Plan (IPAP) 2014/2015 (released by the dti for public comment 2012). IPAP 2014/2015 includes the MCEP that will provide enhanced manufacturing support. The Production Incentive (PI) programme will include a Green Technology Upgrading Grant of between 30-50% for investments in technology and processes that improve energy efficiency and greener production processes.

Income Tax Act – regulations on tax allowances for energy efficiency savings. S12I allows for additional depreciation allowances of up to 55% for greenfield projects over R200 million, with energy efficiency savings being one of the rating criteria. S12L provides a tax deduction to a taxpayer who is energy efficient, with a focus on renewable energy. S12C, S11E and S13 stipulate tax allowances for ESCos and other compliant businesses that provide for general depreciation of asset allowances.

Building regulations and building codes (SANS 10400-XA:2011) with SANS 204. These regulations require construction standards on energy efficiency and energy use in the built environment, with all new buildings requiring energy efficiency initiatives before receiving municipal approval.

SANS 941 - Energy efficiency of electrical and electronic apparatus. This standard covers energy efficiency requirements, measurement methods and appropriate labelling of energy efficiency electrical and electronic apparatus. This standard therefore has implications for manufacturers and importers.

Carbon Taxes. It is envisaged that a carbon tax, proposed by the National Treasury, will be implemented in 2016/2017 at a rate of R120 per ton of carbon dioxide equivalent (CO2e) on direct emissions, increasing by 10% p.a. until 2020.

Energy Efficiency Tax Incentive. Together with SANEDI, the National Treasury and the Department of Energy have implemented an Energy Efficiency Tax Incentive at 45c per verified kWh. Roadshows were held throughout 2014 to publicise the incentive and attract further investment in energy efficiency.

Relevant new changes to laws, policies and standards that have not been discussed in previous reports include:

VC9004 – Compulsory specification for integral and close-coupled domestic solar water heaters, and thermal collectors for domestic solar. This compulsory regulation intends to regulate the SANS 1307 as the current standard for solar hot water systems. The specification is currently on hold until the development of a suitable component testing standard has been developed.

VC9006 – Compulsory specification for hot water storage tanks for domestic use. This compulsory specification was enacted in February 2014. All domestic hot water cylinders imported, manufactured, sold or installed in South Africa must now adhere to the SANS 151 standard and cross referenced sub-standards. In addition, each product offered for sale must have a recent valid test report not older than one year. This is proving to be a challenge as the SABS does not issue full test reports for each model on the mark scheme.

VC9008 – Compulsory specification for energy efficiency and labelling of electrical and electronic apparatus. This specification was enacted in April 2014 and makes the SANS 941 a compulsory standard. It requires that a range of electrical and electronic apparatus adhere to certain minimum energy performance standards. It also requires that all appliances listed display the energy efficiency rating on the appliance.

SANS 151 – Fixed electrical storage water heaters. This standard prescribes methods for testing durability, safety and performance of electrically heated hot water storage tanks. The latest revision was published in 2013. The standard currently contains a section that prescribes minimum standing heat loss for different geysers. In the next draft, this section will be moved from this standard to SANS 941 for energy performance. The minimum requirement for electrical geysers will be raised to that of the current solar water heater requirements.

SANS 941 – Energy performance and labelling of electrical and electronic apparatus. This standard was first published in 2012 and will be revised with the addition of energy performance standards for electric water storage cylinders.

SANS 1544 – Energy performance certificates for buildings. This is a new draft standard that will be published soon. It specifies the methodology for calculating energy performance in existing buildings. It will initially be a voluntary standard but may become a mandatory standard through the National Regulator for Compulsory Specifications (NRCS) regulation process.

SANS10106 – Installation of solar hot water systems. This standard was revised and the new version published in November of 2014. It updates the requirements for installation of domestic solar water heaters.

SANS 50010 – Measurement and verification of energy savings. Published in 2011, it specifies the methodology for calculating energy savings. This is a required tool for calculating savings for projects submitted on the 12L energy efficiency tax rebate programme.

SATS 1286 – Local goods, services and works: measurement and verification of local content. This technical standard has become highly relevant with the application for designation of solar water heaters.

8 – Energy efficiency market: Western Cape

The Western Cape comprises five district municipalities, 24 local municipalities and one metropolitan area, which is Cape Town. The province houses approximately 10% of South Africa's population, contributes approximately 10% to the country's GDP and accounts for approximately 10% of the country's energy consumption.

The Western Cape has a diverse economy. Finance, insurance, real estate and business services contribute the largest proportion of GDP (see table 4 for detail).

More than 80% of the value from this sector is generated in the City of Cape Town district. Manufacturing, wholesale and retail trade, catering and accommodation are other strong economic sectors.

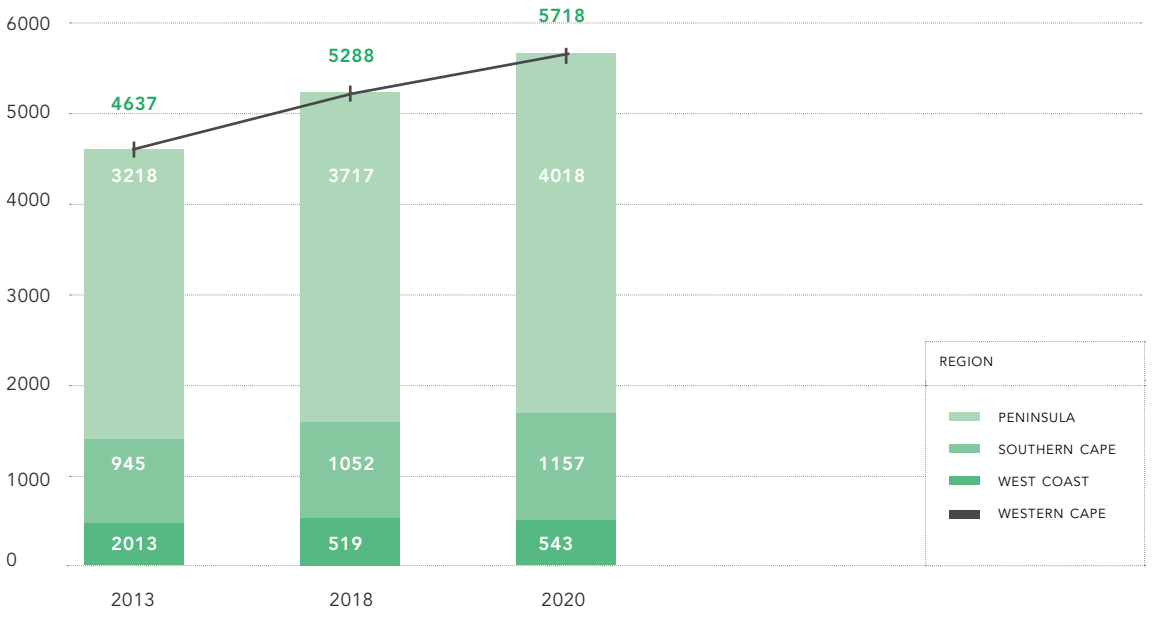
In 2011, the province's GDP was R252.9 billion.

Table 4: Comparison of the provincial and national economy based on GDP contribution by sector for 2011

Sector	Western Cape	South Africa
	% contribution to GDP	% contribution to GDP
Finance, insurance, real estate and business services	32.4	23.7
Manufacturing	17.1	17.2
Wholesale and retail trade, catering and accommodation	15.4	13.8
Transport, storage and communication	10.0	10.1
General government	10.3	15.3
Community, social and personal services	5.1	6.1
Construction	4.4	3.4
Electricity, gas and water	1.4	2.1
Agriculture, forestry and fishing	3.8	2.4
Mining and quarrying	0.1	5.9
Total	100	100

(Source: The Green House)

Figure 3: Western Cape projected electricity demand



(Source: Eskom Transmission Ten-Year Development Plan, 2013)

The analysis of the national energy efficiency market, as seen in Figure 3 above, shows the significant opportunities that exist to deliver cost savings from reduced electricity consumption in the industrial and commercial sectors.

It is feasible that savings in excess of 20% can be achieved, generating returns in under five years.

The size of the energy efficiency market in the Western Cape can be as large as R1.3bn by 2019, with ±1000 job opportunities being created through ESCos, equipment manufacturers and installation and maintenance contractors.

9 – Investment incentives

There are a number of investment incentive programmes open to greentech manufacturing and service companies planning to set up in Cape Town and the Western Cape. They include:

Atlantis GreenTech Special Economic Zone (SEZ)

GreenCape is the project management office tasked with the preparation of an application for designation of the greentech Manufacturing Special Economic Zone (SEZ) in Atlantis, Cape Town (dti, 2015). As part of the national SEZ programme, the Atlantis SEZ will provide incentives for investments into greentech manufacturing (dti, 2015), which includes the manufacturing of energy efficiency, renewable energy and related technologies. These regulations are yet to be ratified by the dti. Some of the proposed incentives include a 15% company tax and building allowance.

Department of Trade & Industry (DTI) Incentives

The Department of Trade and Industry (dti) also offers a wide range of incentives across industries and sectors for businesses located anywhere in South Africa. Please refer to www.investmentincentives.co.za for more information on incentives that apply to your business.

10 – Overview of GreenCape's activities in this sector

The Energy Efficiency Sector Desk, which wrote this report is part of GreenCape's Energy Programme. The programme aims to encourage economic development and job creation through the transformation of the energy sector – both by increasing energy efficiency and increasing the supply of cleaner energy. These two paths towards a lower carbon energy economy form the basis of GreenCape's work in this space.

The focus of our energy efficiency work includes energy efficient buildings – both new build and retrofit – energy efficiency standards, smart grids, demand side management and energy efficiency financing.

GreenCape's support for increasing the supply of cleaner energy comes through our renewable energy work – both in the large-scale utility and small-scale (embedded generation) renewable energy sectors.

- We work with project developers and investors on the promotion of large-scale renewable energy projects within the province, and to position the Western Cape as a preferred location for the manufacturing of renewable energy components.
- We are also actively driving the enabling and uptake of small scale embedded generation by helping address the barriers to market growth. This work looks primarily at policies and tariffs, and aims to allow legal connection of embedded generation and feed-in of energy in Western Cape municipalities. Linked to this, GreenCape is involved in developing a national prepaid smart metering standard, which will help enable both demand reduction and the connection of embedded generation.

To ensure that local skills are available to meet the needs of this exciting and growing industry, GreenCape has a major focus on skills development in the renewable energy space. The South African Renewable Energy Technology Centre (SARETEC) at CPUT is already training wind turbine technicians, and our next major focus is on rooftop solar PV mounting skills training.