

# **What is the City of Cape Town doing about Energy and Climate Change?**

*“Facing an uncertain climate future, Cape Town aims to be a low-carbon city – a city that is resilient, adapting well, and always acting for the common good, with social justice as our guiding principle.”* - City of Cape Town Executive Mayor

The City of Cape Town recognises that its economic, social and environmental well-being is vulnerable: to poor energy security, to high carbon and to climate change impacts. To address energy security and mitigate and adapt to climate change, the City is implementing a rigorous, pioneering programme that links these issues to its development strategy. 50 programme areas, made up of 115 projects, are co-ordinated through an Energy and Climate Action Plan that will see a lower carbon, more modern, liveable and equitable city which builds on its competitive advantages.

## **Facts and figures**

Population:	3.7 million (1 million households)
Average density:	12.28 persons per ha
Growth rate:	4% city-wide average, informal settlements 13%
Housing backlog:	need 17 000 units per year
Unemployment:	21%
GDP:	R 130bn (R38 000/capita) (2007)
Carbon footprint:	6.21 tons per person
Natural environment:	The Cape Floristic Kingdom is a true global hotspot of biodiversity, being the smallest and richest on Earth, while having the highest number of threatened plant species in the world of any city. The City lies within the Cape Floral Region, a UNESCO World Heritage Site.

## **Cape Town’s Challenges**

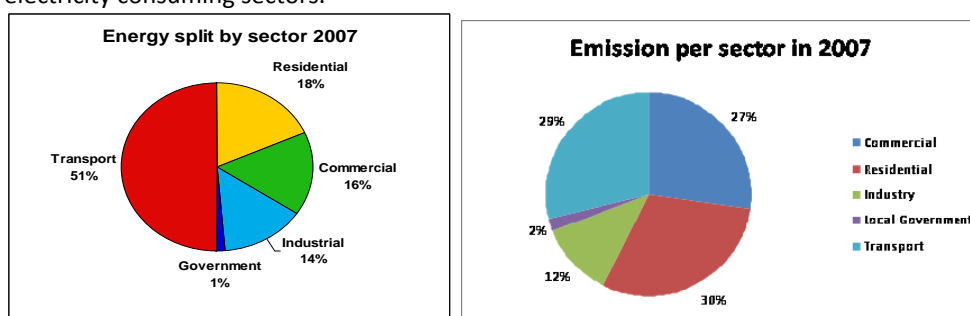
Cape Town is a coastal city highly dependent on power from coal power stations nearly 2000 km away. Historically, cheap electricity has meant very low levels of energy efficiency in households and production processes. Now the country has been hit with unanticipated severe and worsening national electricity supply constraints resulting in the threat of black outs and sharp tariff increases.

Urban sprawl is compounding these challenges and is entrenching social inequities as the poor generally live far from resources. People remain dependent on private vehicles, and only now are the first steps being taken to replace a weak and under-resourced public transport system.

Today, the City faces a triple challenge: a high carbon footprint, poor energy security and vulnerability to the impacts of climate change.

## **The Cape Town Energy Picture**

The City’s energy consumption is dominated by transport, but, due to the reality that most of the City’s electricity comes from coal power stations in the north of the country, its high carbon derives mainly from the electricity consuming sectors.

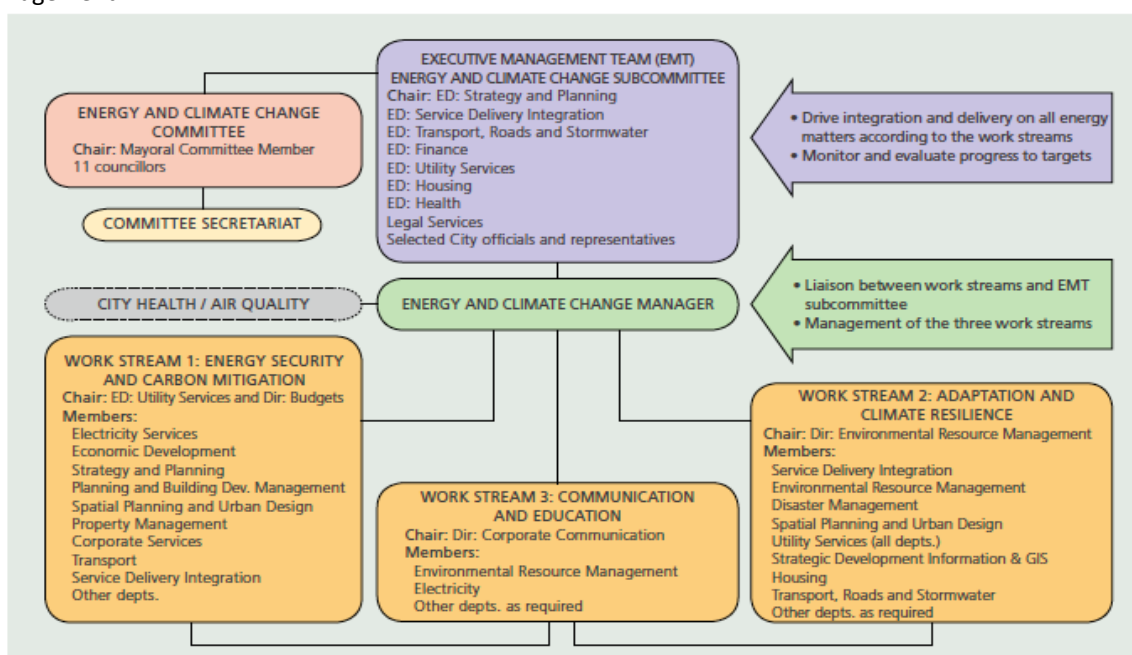


## Serious About Sustainability

To address these challenges, the City adopted its Energy and Climate Change Strategy in 2006, setting concrete objectives, targets and measures. These were based on data from the State of Energy Report which maps out the City's energy profile and related issues.

Because this implies a long-term and fundamental shift to sustainability, the path to implementation required re-evaluation of related policies, strategies and plans. One of the key changes made was in the City's Integrated Development Plan (IDP), which sets out long-term goals for the city. One of the IDP's 8 strategic priorities is 'Energy for a Sustainable City'.

Being serious about implementation also meant making difficult institutional changes to help ensure ownership, accountability, proper resourcing and alignment with institutional and individual performance management.



## Ready to Do More

The City's comprehensive Energy and Climate Action Plan comprises 50 programme areas and more than 120 projects. The Action Plan operationalises the City's commitments, demonstrates its leadership role, and forms the basis to prioritise, budget for, implement, monitor and evaluate the energy and climate change programme. The Objectives, Issues and Programmes are outlined below:

Objective	Issues	Programmes
City-wide: 10% reduction in electricity consumption by 2012 (3.3%/annum 2010-2012)	<ul style="list-style-type: none"> <li>Poor electricity security</li> <li>Risk of load shedding</li> <li>Inefficient electricity usage</li> <li>High carbon footprint</li> </ul>	<ul style="list-style-type: none"> <li>Electricity consumption reduction</li> <li>Solar Water Heating</li> <li>Smarter metering</li> <li>Limited electricity supply to new developments</li> <li>Green development criteria</li> <li>Reduction in electricity theft</li> </ul>
10% Renewable and cleaner energy supply by 2020; all growth in electricity demand to be met by cleaner / renewable supply	<ul style="list-style-type: none"> <li>High carbon footprint</li> <li>Dependency on one supplier (Eskom) and one source (coal)</li> <li>No energy supply diversification in the City</li> </ul>	<ul style="list-style-type: none"> <li>Renewable Energy large scale supply</li> <li>Electricity generation from municipal operations</li> <li>Renewable Energy supply at utility rates to City</li> <li>Renewable Energy small scale supply</li> </ul>

Council operations: 10% reduction in energy consumption by 2012 (3.3%/annum 2010-2012)	<ul style="list-style-type: none"> <li>• Wasteful usage and expenditure</li> <li>• Poor energy security</li> <li>• High carbon footprint</li> <li>• City must lead by example</li> </ul>	<ul style="list-style-type: none"> <li>• Council Buildings retrofit</li> <li>• Greening upgrade of rental stock</li> <li>• Greening the Procurement Policy</li> <li>• Energy efficient pumps</li> <li>• Street and traffic lighting retrofit</li> <li>• Greening the Fleet</li> <li>• Video conferencing facilities</li> </ul>
Compact resource efficient city development	<ul style="list-style-type: none"> <li>• Urban sprawl Poor living furthest from urban goods</li> <li>• Low densities at urban nodes</li> <li>• Trip distances great</li> </ul>	<ul style="list-style-type: none"> <li>• Spatial Development Framework Plan – activity routes, nodes and urban edge</li> <li>• Densification around transport nodes</li> <li>• Planning for a low carbon city information development and exchange</li> </ul>
Sustainable transport system	<ul style="list-style-type: none"> <li>• Predominance of private transport</li> <li>• Inefficiency: high consumption and emissions</li> <li>• Traffic congestion</li> <li>• Poor access to safe and affordable public transport</li> <li>• Poor air quality</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated Rapid Transit System (IRT)</li> <li>• Non Motorised Transport</li> <li>• Air quality management</li> <li>• Metropolitan Transport Forum</li> <li>• Travel Demand Management</li> </ul>
Adapting to and building resilience to climate change impacts	<ul style="list-style-type: none"> <li>• Coastal city, with water shortages</li> <li>• High risk of impact requiring active Disaster Management</li> </ul>	<ul style="list-style-type: none"> <li>• Climate Adaptation Plan of Action</li> <li>• Coastal Zone Management</li> <li>• Disaster Risk Management</li> <li>• Metropolitan Open Space Strategy</li> <li>• Fresh water programme</li> </ul>
More resilient low income / vulnerable communities	<ul style="list-style-type: none"> <li>• High unemployment</li> <li>• Poor quality and poorly located housing leading to poor health</li> <li>• Energy poverty</li> </ul>	<ul style="list-style-type: none"> <li>• Resource efficient Low income housing</li> <li>• Well located housing:</li> <li>• Greening of housing development</li> <li>• Free Basic Electricity/Energy rollout</li> </ul>
Development of carbon sales potential on projects	<ul style="list-style-type: none"> <li>• Constrained budget</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon projects scoping and development</li> <li>• Carbon projects capacity development</li> <li>• Carbon sales policy</li> </ul>
Local economic development in the energy sector	<ul style="list-style-type: none"> <li>• High unemployment</li> <li>• Potential to retool existing business</li> <li>• Dependence on imports</li> </ul>	<ul style="list-style-type: none"> <li>• Renewable energy business development in Cape Town/Western Cape</li> <li>• Renewable energy and energy efficiency skills development</li> </ul>
Communication and education programmes	<ul style="list-style-type: none"> <li>• Poor awareness of the environmental impacts</li> <li>• of using fossil fuels</li> <li>• Lack of information on how to use energy more efficiently – behaviour and technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Electricity Saving Campaign</li> <li>• Energy Efficiency Forum - Commercial facility managers</li> <li>• Youth Environmental Schools Programme</li> <li>• Smart Living Campaign</li> <li>• Staff training</li> <li>• Publications</li> <li>• Green development criteria</li> </ul>
Research and development; monitoring and evaluation	<ul style="list-style-type: none"> <li>• New area requiring integration and assessment across all city operations and activities</li> </ul>	<ul style="list-style-type: none"> <li>• Research and Development</li> <li>• Energy data management, monitoring and evaluation</li> <li>• Policy linkages and alignment</li> <li>• Integration into cross city key performance areas and score cards</li> </ul>

## Taking Action Today

Under this Action Plan, the City is currently implementing a large number of projects. The City is dedicated to leading by example and to this end is rolling out projects to improve energy efficiency in its own operations through energy upgrades of its buildings and facilities, EE water and sewerage pumps, traffic signals and streetlights, greening its fleet and so on.

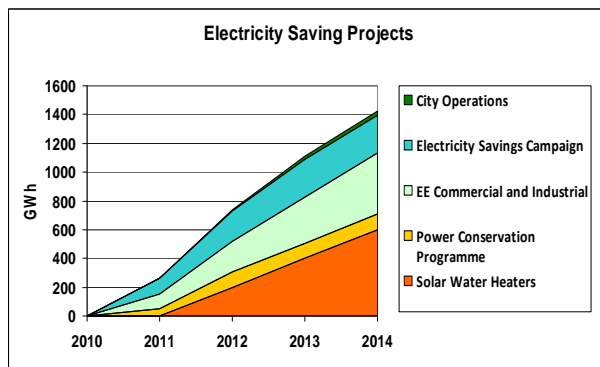
Some of the key projects are described below:

### Kuyasa Energy Efficient Low Cost Housing CDM Project

This pilot project, Africa's first registered Clean Development Mechanism (CDM) project, is installing solar water heaters, insulated ceilings and compact fluorescent light bulbs in 2 300 houses in Phase 1 which is now complete. The Kuyasa project received a platinum Impumelelo Award in 2010.

### Solar Water Heater Rollout

The City is developing a SWH mass rollout plan with a target of 300 000 SWHs by 2014. When fully implemented, it will reduce demand by 600GWhs (5% of current consumption).



### Greening the Fleet

Fuel efficiency targets are now a key requirement of all new vehicles procured for the City's fleet of some 6 000 vehicles.

### Green Development Guidelines and Spatial Development Framework

These guidelines promote the sustainable use of resources in the design, construction, renovation, and operation of buildings and developments. The City's Spatial Development Framework promotes a compact city which is more resource-efficient.

### Integrated Rapid Transport System (IRT)

The IRT is the sustainable transport package of accessible and reliable public transport, encompassing bus and rail. Improved public transport, along with other infrastructure development, will encourage private car users to switch to public transport. Phase 1 of the City's Bus Rapid Transit programme was rolled out with the World Cup.

### Waste to Energy Projects

The City is developing a CDM landfill biogas programme across its landfill sites. It is intended that the methane rich biogas will be used to generate electricity. There are also pilot projects on bioenergy sourced from the anaerobic digestion of sewerage and solid waste. Together with SANERI, the City is pursuing further uses of biogas for electricity generation, thermal and heating uses and for transport.

### Electricity Savings Campaign

This campaign targets residential consumers in order to reduce consumption. It promotes efficient technologies as well as the behavioural change to support them.

The Energy Efficiency Forum supports commercial facility managers; it currently has 200 (and growing) participating companies. A Large Consumers Group also exists, which shares information on national government consumption reduction requirements and on how to achieve these.

#### **Green Audits of Schools**

The Youth Environmental School (YES) programme made energy and climate change its major focus in 2009/2010. Schools are undergoing energy, water, waste and biodiversity audits. This will be followed by a retrofitting programme appropriate to the findings of the audit process.

#### **Basic Environmental Awareness Training (BEAT)**

City electricity, waste and water department staff members are undergoing basic environmental training based on the Smart Living Handbook (SLH). One of the four themes of the SLH is Energy.

#### **Smart Living Corporate/Industry Campaign**

Training workshops, based on the City's Smart Living Handbook, are being held at various companies across the city. A Smart Events Handbook has also been produced.

#### **Darling Wind Farm Green Energy Certificates**

The City of Cape Town is the only city in South Africa purchasing wind power through its Renewable Energy Power Purchase Agreement with Darling Wind Farm (10MW supply capacity). The power is being sold through publicly available Green Energy Certificates. Regulations are also being developed to support the installation of small and micro wind turbines on commercial and private residences across the city.

#### **Green Goal 2010**

Host City Cape Town's Green Goal (GG) is the official programme to ensure that the 2010 FIFA World Cup™ soccer tournament is as environmentally friendly as possible, and to create legacy projects for the City. GG consists of 41 projects relating to energy, water, waste, landscaping, biodiversity, transport, tourism, sustainable lifestyles, and communication. Green Goal was honoured with the Impumelelo Sustainability Award in 2010.

#### **Sea-level Rise Assessment**

This research project involved a risk assessment to formulate a range of sea-level rise scenarios the City may face. Sea-level rise will have a huge impact on a coastal city like Cape Town, as scientists predict an 85% chance of a 4,5 metre storm surge sea-level rise in the next 25 years. In response, the City is implementing coastal management plans as well as development guidelines and restrictions.

#### **Biodiversity Network**

Healthy, functioning ecosystems are globally recognised as critical in mitigation and as the first line of defence against climate change impacts. Development therefore has to enhance natural ecosystems, and protect biodiversity. The City's Biodiversity Network (BioNet) has identified the minimum natural vegetation remnants needed to conserve Cape Town's biodiversity.

#### **Climate Change Think Tank**

Comprised of more than 30 top academics and specialists from Cape Town institutions, the Think Tank brings together key thinkers to assess climate change and its effects on the city and its people. The first of its kind, the Think Tank will meet quarterly for a two year period, publishing regular updates.