

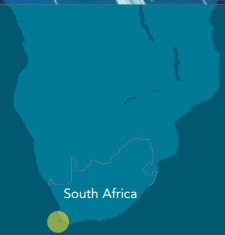


CITY OF CAPE TOWN  
ISIXEKO SASEKAPA  
STAD KAAPSTAD



# CAPE TOWN ENERGY2040

Towards a more resilient, low carbon and  
resource efficient future for Cape Town



South Africa

Making progress possible. Together.

# CAPE TOWN ENERGY PROFILE

2015 Cape Town State of Energy report (2012 data year).

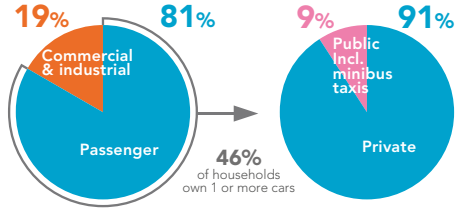
## CAPE TOWN STATS

Province: Western Cape  
 Area: 2 461 km<sup>2</sup>  
 Population: 3,8 million  
 Density: 1 563 persons/km<sup>2</sup>  
 GDP: 34,1 billion USD  
 Carbon footprint:  
 5,6 tCO<sub>2</sub>e/capita

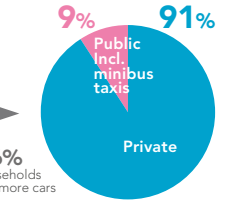
## PROPORTION OF SOUTH AFRICA

Population: 7%  
 Total energy: 7%  
 Petrol & diesel: 10%  
 Electricity: 6%  
 GDP: 11%

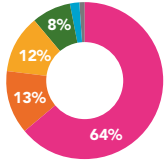
## TRANSPORT SECTOR ENERGY CONSUMPTION



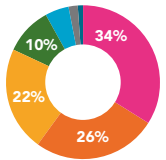
## PASSENGER TRANSPORT ENERGY CONSUMPTION



## ENERGY CONSUMPTION BY SECTOR



## CARBON EMISSIONS BY SECTOR



Electricity is carbon heavy in South Africa.

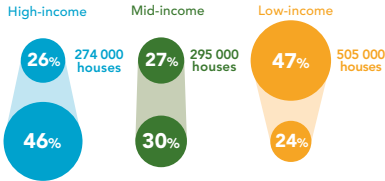
- Transport
- Commercial
- Residential
- Industrial
- Local Government

94% of households are electrified

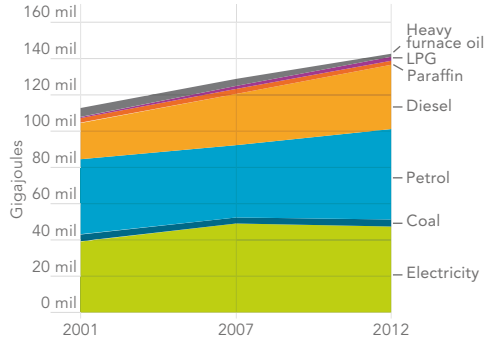
Number of households in Cape Town residential sector

Energy consumption in Cape Town residential sector

## RESIDENTIAL ENERGY CONSUMPTION



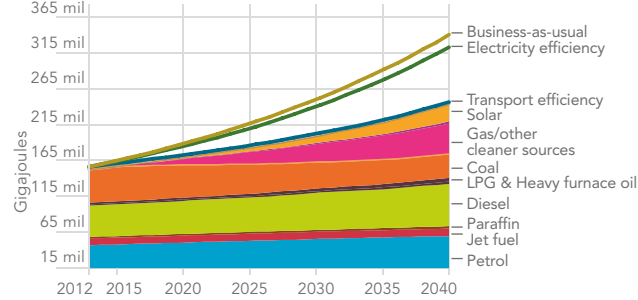
## ENERGY CONSUMPTION BY SOURCE OVER TIME



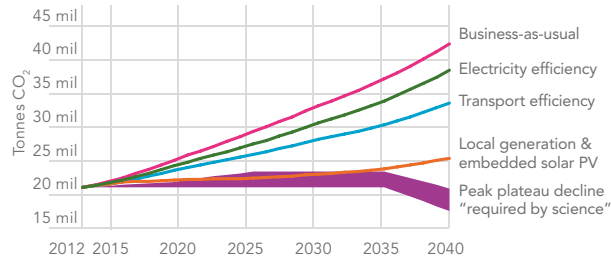
# CAPE TOWN ENERGY2040

The City has made institutional and strategy changes to address vulnerability to threats like poor energy security and climate change impacts, and to reduce its high carbon footprint. Energy2040 informs the sustainable energy action plan into the future.

## ENERGY2040 ENERGY DEMAND & SUPPLY



## ENERGY2040 CARBON EMISSIONS



## CARBON EMISSIONS TARGETS\*

	2020	2030	2040
Electricity efficiency	-3,7%	-7,7%	-9,3%
Transport efficiency	-3,2%	-7,2%	-11,2%
Cleaner electricity supply	-6,2%	-13,9%	-15,9%
Total carbon reduction off business-as-usual	-13%	-29%	-37%
Tonnes of CO <sub>2</sub> /USD million GDP	820	600	490
Tonnes of CO <sub>2</sub> /capita	5,4	5,3	-

\*The energy and carbon emissions targets are conditional on the Energy2040 modelling assumptions remaining constant.

1st Cape Town State of Energy Report

2003

Energy & Climate Change Strategy

2006

Integrated Development Plan Focus Area: Energy for Sustainable Development  
 Political and administrative institutional changes

2008

2nd Cape Town State of Energy Report and 1st Energy Futures study

2009

Energy and Climate Action Plan adopted

2010

3rd Cape Town State of Energy Report & 2nd Energy Futures study  
 Energy2040 vision

2015





Updated Sustainable Energy Action Plan

2016

## MEASURES TO ACHIEVE THE 5-YEAR TARGETS ... BY 2020

Energy2040 covers a range of measures over the next 5 years towards achieving the goal of a low carbon, resilient and resource efficient city. The projects behind these measures form the City's Action Plan which is informed by Energy2040. Many involve close collaboration with residents and business.

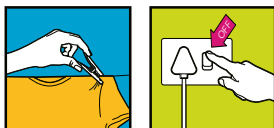
### RESIDENTIAL

-  10% of houses have efficient water heaters
-  80% of residential lighting is efficient
-  40% of fridges are efficient
-  12% of houses have efficient shower heads



Twist





Install






Dry

Press







### COMMERCIAL

-  80% of lighting is efficient
-  30% of buildings have efficient heating and cooling
-  40% of water heating is efficient
-  12% of refrigeration is efficient

### ELECTRICITY GENERATION

-  120MW of rooftop photovoltaics installed
-  300MW of gas (or other cleaner supply)
-  100MW of large scale renewables

### TRANSPORT

-  9% of vehicles are more fuel efficient
-  4% decrease in fuel consumption through increased car occupancy from 1,45 to 1,53 people per car
-  A doubling in passenger kms of the Bus Rapid Transit system
-  30% of minibus taxis and buses efficient
-  2% shift of passenger kms from private to public modes
-  3% freight shift from road to rail transport

## PROJECTS

A number of programmes and projects currently support Cape Town Energy2040 and the associated targets. These are a few examples:



- To reduce the impact of the national electricity supply crisis on Cape Town, the City of Cape Town and the Western Cape Government are collaborating on an **Energy Game Changer programme** to drive energy efficiency and a rapid diversification of the energy supply mix. Renewable and cleaner energy supply is a key component of this initiative.
- The City of Cape Town's innovative **Electricity Savings Campaign** for commercial and residential sectors is an effective communication platform. Efficient water heating is a focus of the residential programme and the Energy Efficiency Forum addresses commercial business.
- Energy efficiency and renewable energy in municipal operations** - the City of Cape Town is leading by example by retrofitting street lights, traffic lights and buildings with energy efficient lighting, and by installing rooftop photovoltaic systems. This is accompanied by energy management training for facilities staff, smart driver training for fleet, and behaviour change programmes for building users.
- Transport and spatial planning programmes** focus on public transport, transit oriented development, maintenance of the urban edge, non-motorised transport and transport demand management.
- The **Smart Living and Working programme** targets learners, teachers, office workers, households, municipal staff and councillors in resource efficiency across energy, water and waste.



# CAPE TOWN ENERGY2040 SECURING CAPE TOWN'S FUTURE

A business-as-usual future indicates a doubling of energy consumption and emissions, and a tenfold increase in energy costs to the Cape Town economy by 2040.

Such a future would make Cape Town extremely vulnerable to external impacts and shocks, and the increased emissions would further contribute to human-induced climate change. The input costs to the economy would be unsustainable.

Energy2040 models a more resilient, lower carbon, resource efficient and equitable future for Cape Town which significantly reduces its exposure to external threats.



**MORE EFFICIENT ECONOMY**  
16% reduction in energy consumed per economic unit

**LESS DEPENDENCY ON COAL** with extensive embedded renewable generation in the commercial and residential sectors

**OVER 500 000 SOLAR WATER HEATERS & HEAT PUMPS** installed by residents

**MODAL SHIFT** from private to public transport

**INCREASED DENSIFICATION & MIXED USE** in areas of economic activity

**THERMALLY EFFICIENT LOW COST HOUSING** with better access to energy services

**MOTORISED PASSENGERS TRAVEL IN EFFICIENT VEHICLES** with higher occupancy levels

**ENERGY SAVINGS FROM EFFICIENCY & REDUCED ENERGY COSTS** mean households have extra cash in pocket per month to circulate in Cape Town's economy

**INCREASED ACCESS TO PUBLIC TRANSPORT** with reduced travel time & distance

**37% REDUCTION IN CARBON EMISSIONS**  
21% from energy efficiency only

**DIVERSIFIED LARGE SCALE ENERGY SUPPLY** with photovoltaics, wind, storage and possibly natural gas

**HIGH LEVEL ENERGY EFFICIENCY IMPLEMENTED**

**WASTE MINIMIZATION, RECYCLING & REUSE**

# LOCAL CITY ACTION GLOBAL CHANGE

The City of Cape Town's commitment to addressing climate change is demonstrated by its active engagement in international energy and climate change networks, pacts and reporting platforms, as well as awards received:

- WWF Global Earth Hour City Capital, 2014
- Member of the C40 Climate Leadership Group – lead for municipal energy efficiency theme
- Member of ICLEI – Local Governments for Sustainability
- Signatory to the Global Cities Covenant on Climate (the Mexico City Pact) and Durban Adaptation Charter
- Joined the Compact of Mayors – fully compliant by 2015
- Data reported annually to Cities Climate Registry and Carbon Disclosure Project

## **The City of Cape Town would like to thank**

Sustainable Energy Africa for their invaluable work on the State of Energy reports and the Cape Town Energy Futures studies

Friedrich Naumann Foundation for Freedom for support in publishing this pamphlet

## **CONTACT DETAILS & LINKS**

**Cape Town 2015**

**State of Energy Report:**

[www.capetown.gov.za/  
environmentalreports](http://www.capetown.gov.za/environmentalreports)

**Cape Town Energy  
Futures study 2015  
summary:**

[www.capetown.gov.za/  
environmental/policies](http://www.capetown.gov.za/environmental/policies)

**City of Cape Town:**

[www.capetown.gov.za](http://www.capetown.gov.za)  
[enviro@capetown.gov.za](mailto:enviro@capetown.gov.za)

**Electricity Savings  
Campaign:**

[www.savingelectricity.org.za](http://www.savingelectricity.org.za)

**Transport for Cape Town:**

[www.tct.gov.za](http://www.tct.gov.za)

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