



CITY OF CAPE TOWN
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CAPE TOWN ENERGY AND CLIMATE CHANGE

Energy, Environment and Spatial Planning Directorate
Energy and Climate Change

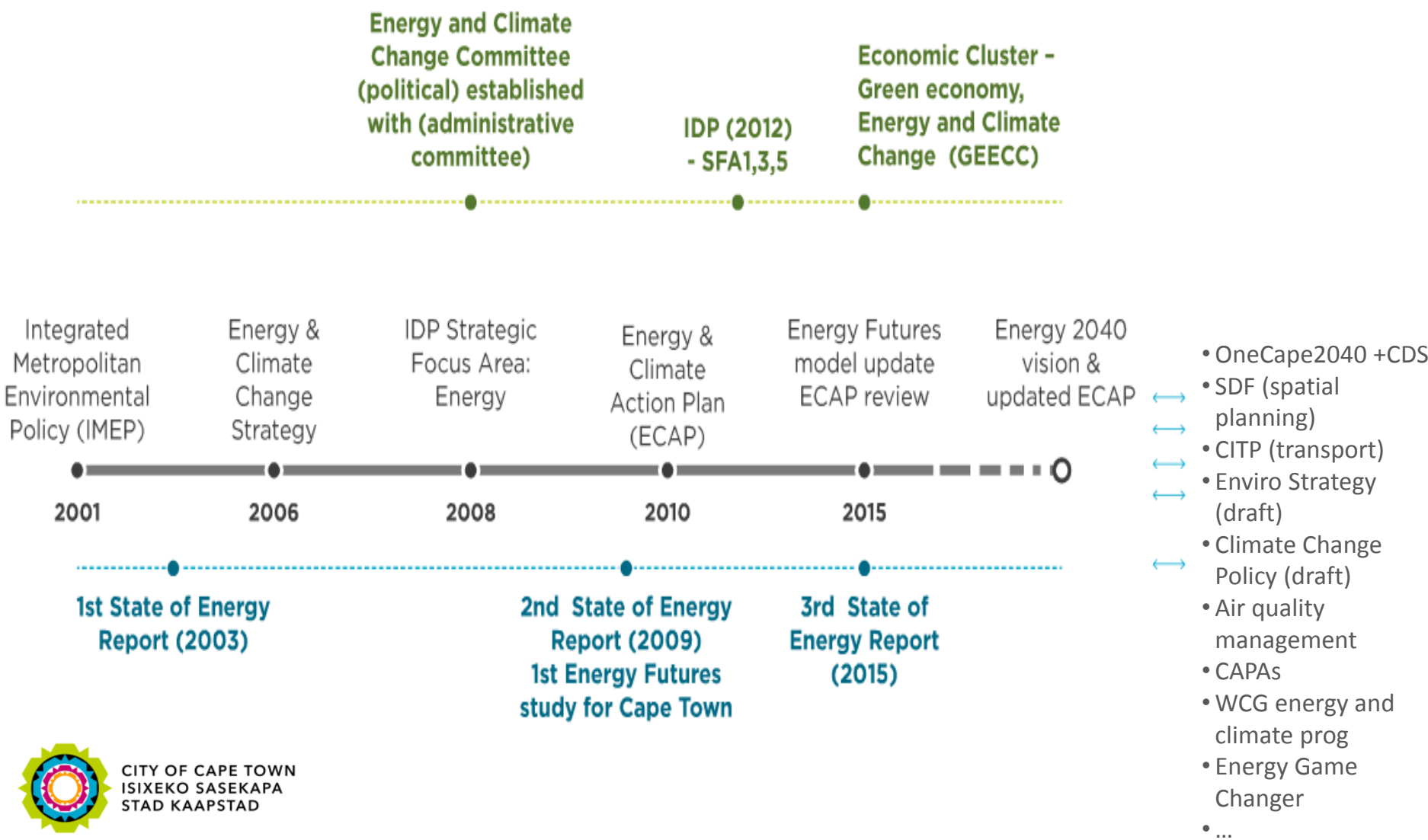
Making progress possible. **Together.**

Outline

- Background
- Cape Town Energy 2040 modelling and outcomes
- Carbon/energy targets and commitments
- Key projects
- Discussion

City of Cape Town

Energy & Climate Change Process Timeline





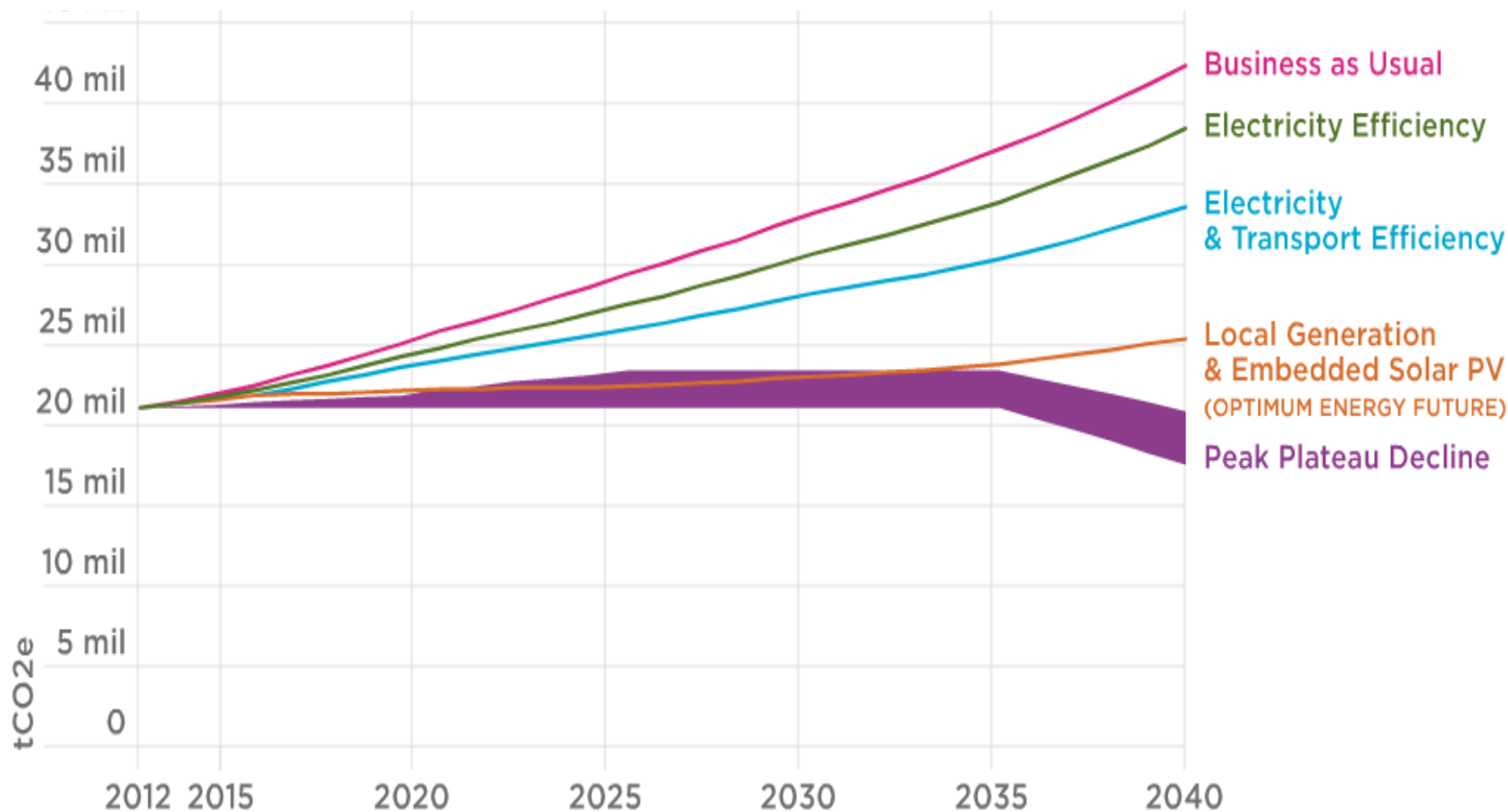
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Energy 2040 Vision for Cape Town

Exploring the implications of
different energy futures for the City
of Cape Town up to 2040

Cape Town's Energy2040 vision

– from business-as-usual to an optimum realistic energy future



CAPE TOWN IN CONTEXT

Western Cape

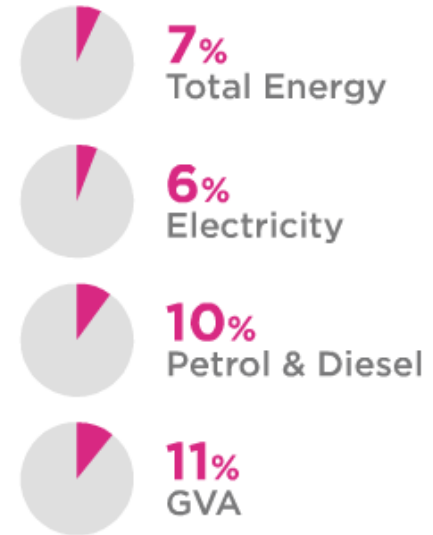
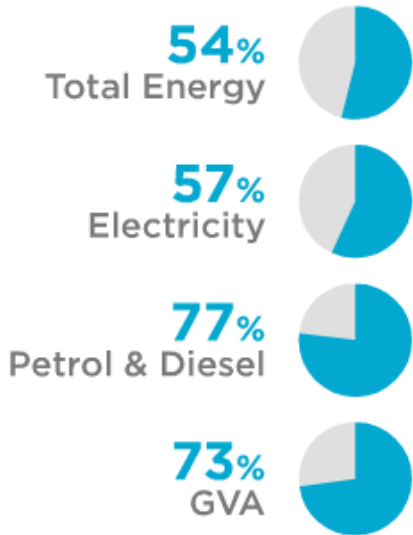


64%
Population

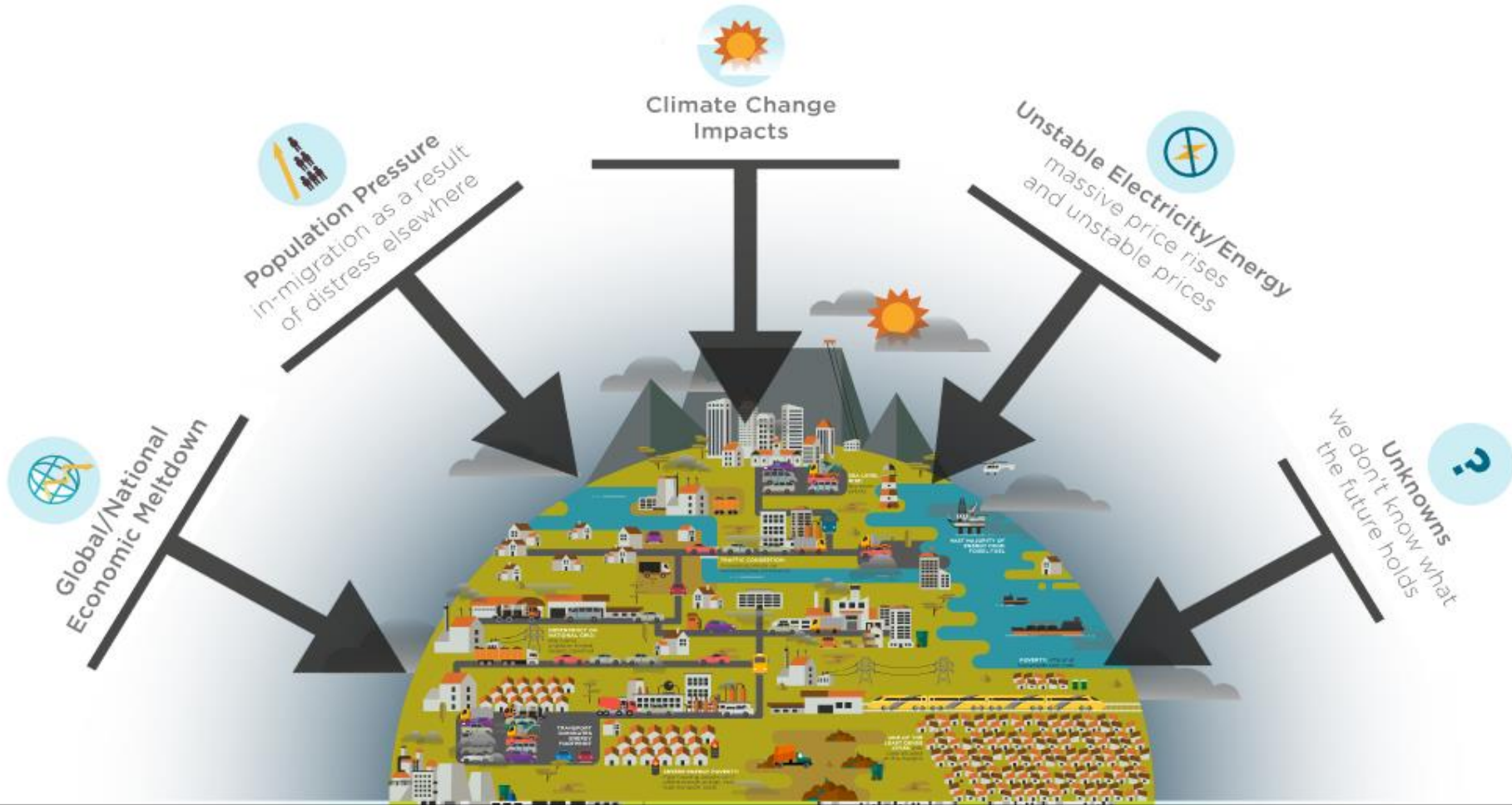
National



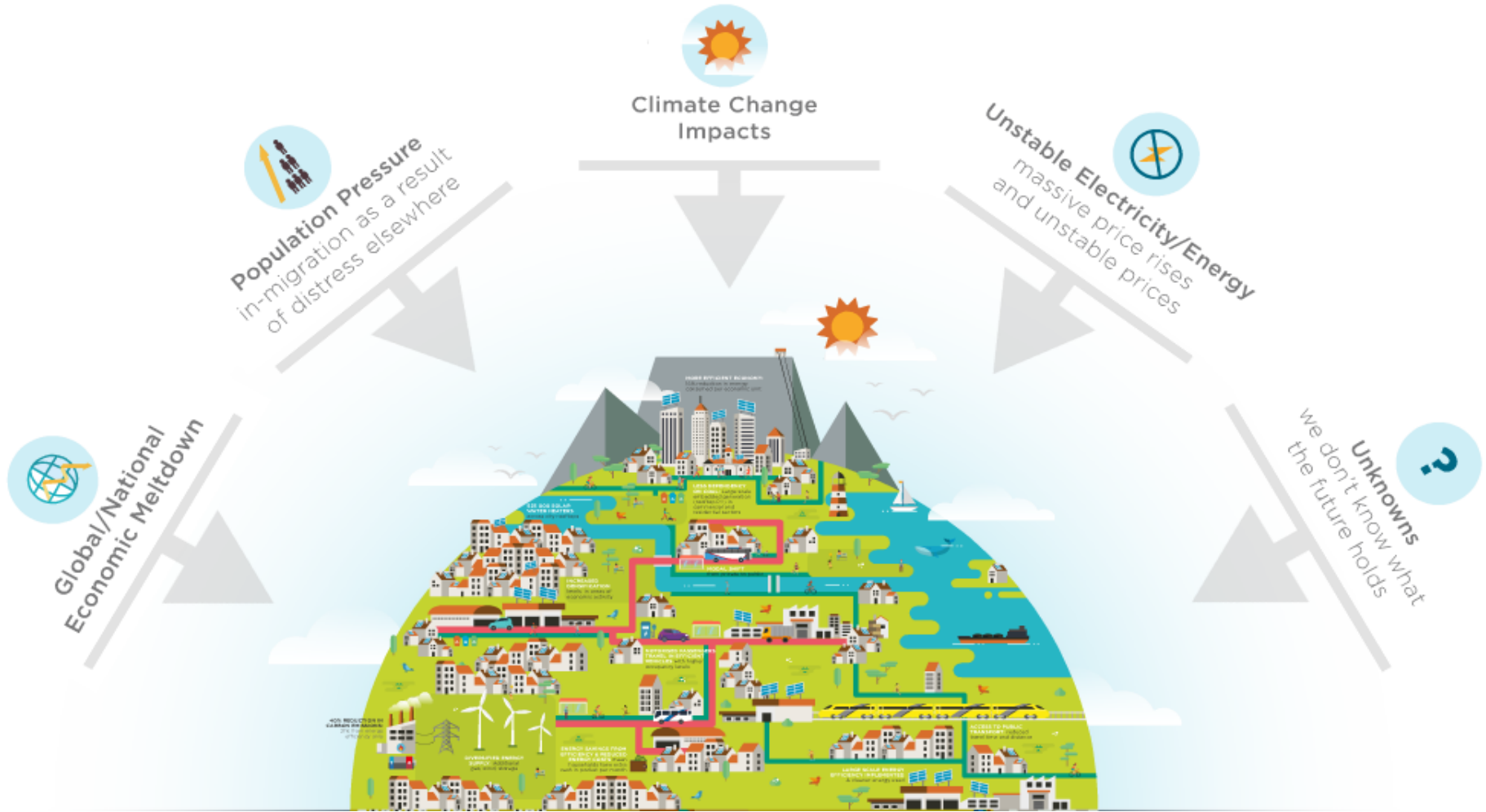
7%
Population



VULNERABLE CITY



RESILIENT CITY



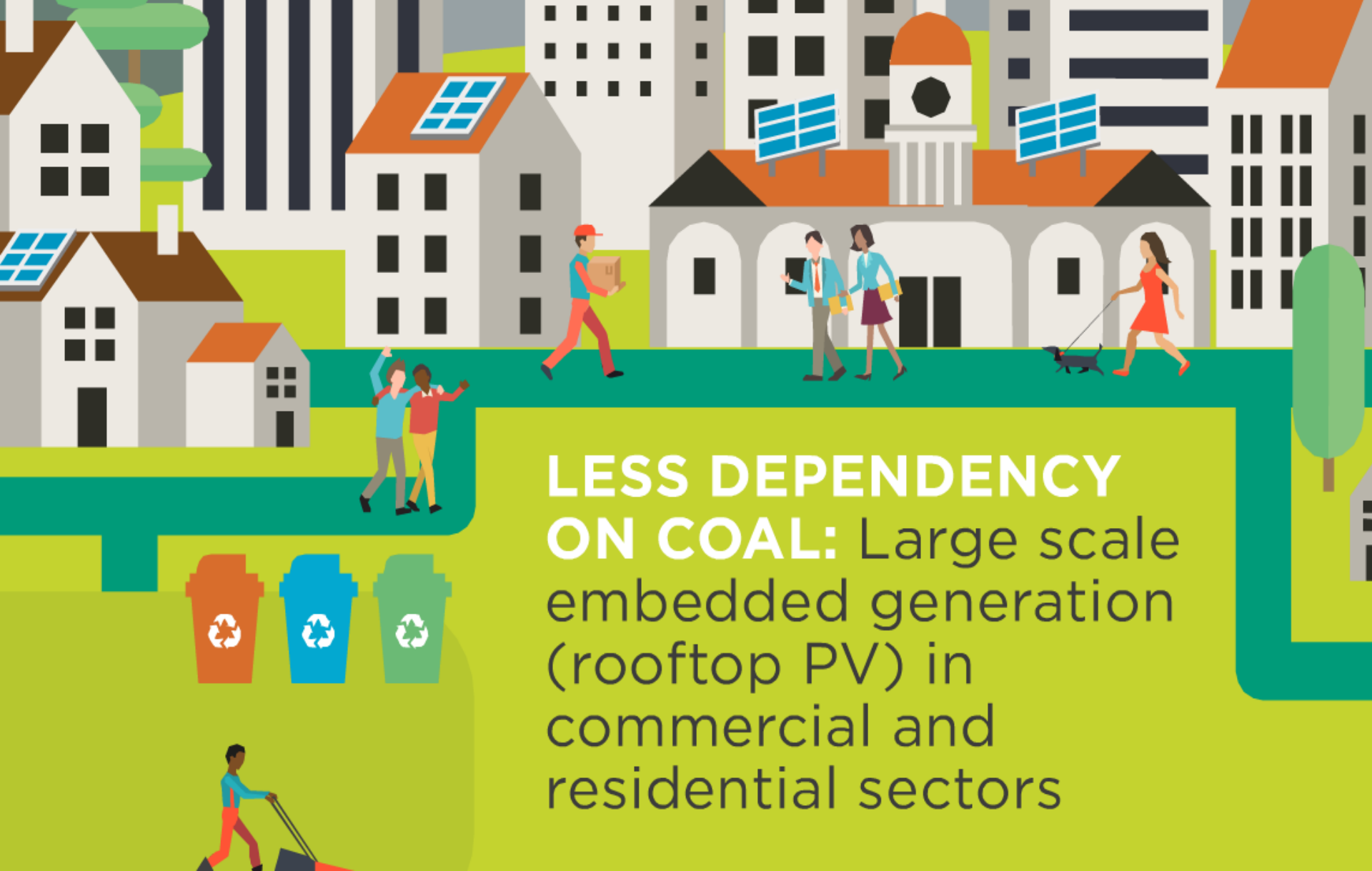
MORE EFFICIENT ECONOMY: 16% reduction in energy consumed per economic unit



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



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**LESS DEPENDENCY
ON COAL:** Large scale
embedded generation
(rooftop PV) in
commercial and
residential sectors



525 000 SOLAR WATER HEATERS across city rooftops



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**INCREASED
DENSIFICATION**
levels in areas of
economic activity



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**ACCESS TO PUBLIC
TRANSPORT:** reduced
travel time and distance



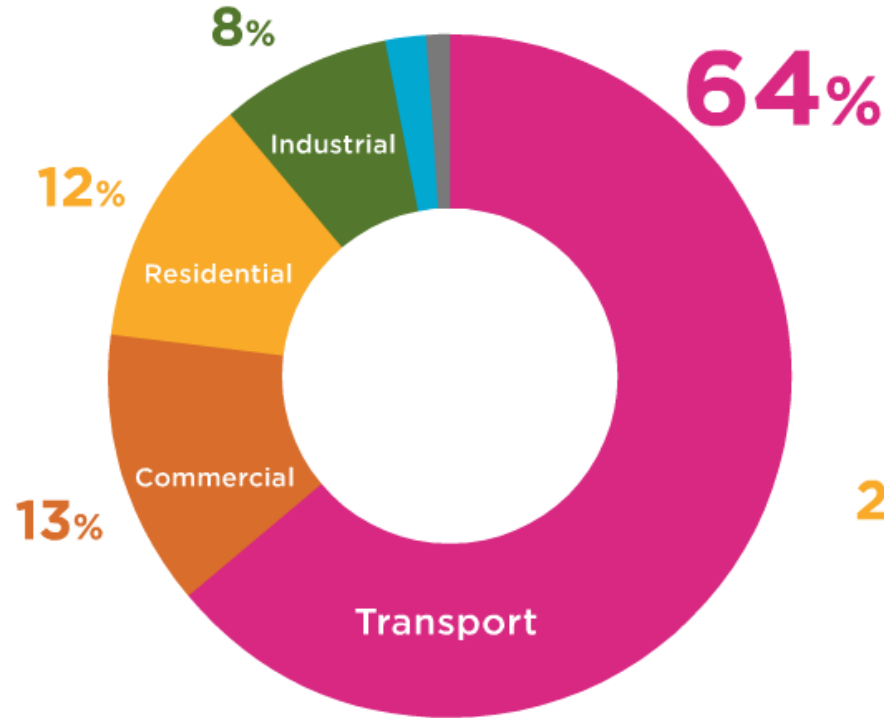
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LOOKING AT THE DETAILS

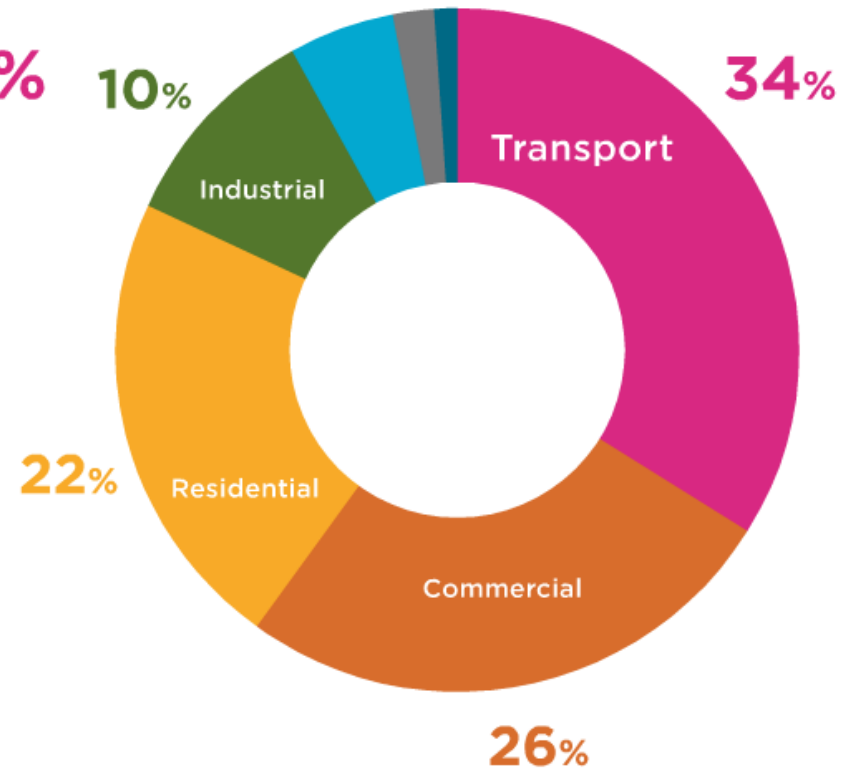


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CAPE TOWN ENERGY CONSUMPTION BY SECTOR (2012)



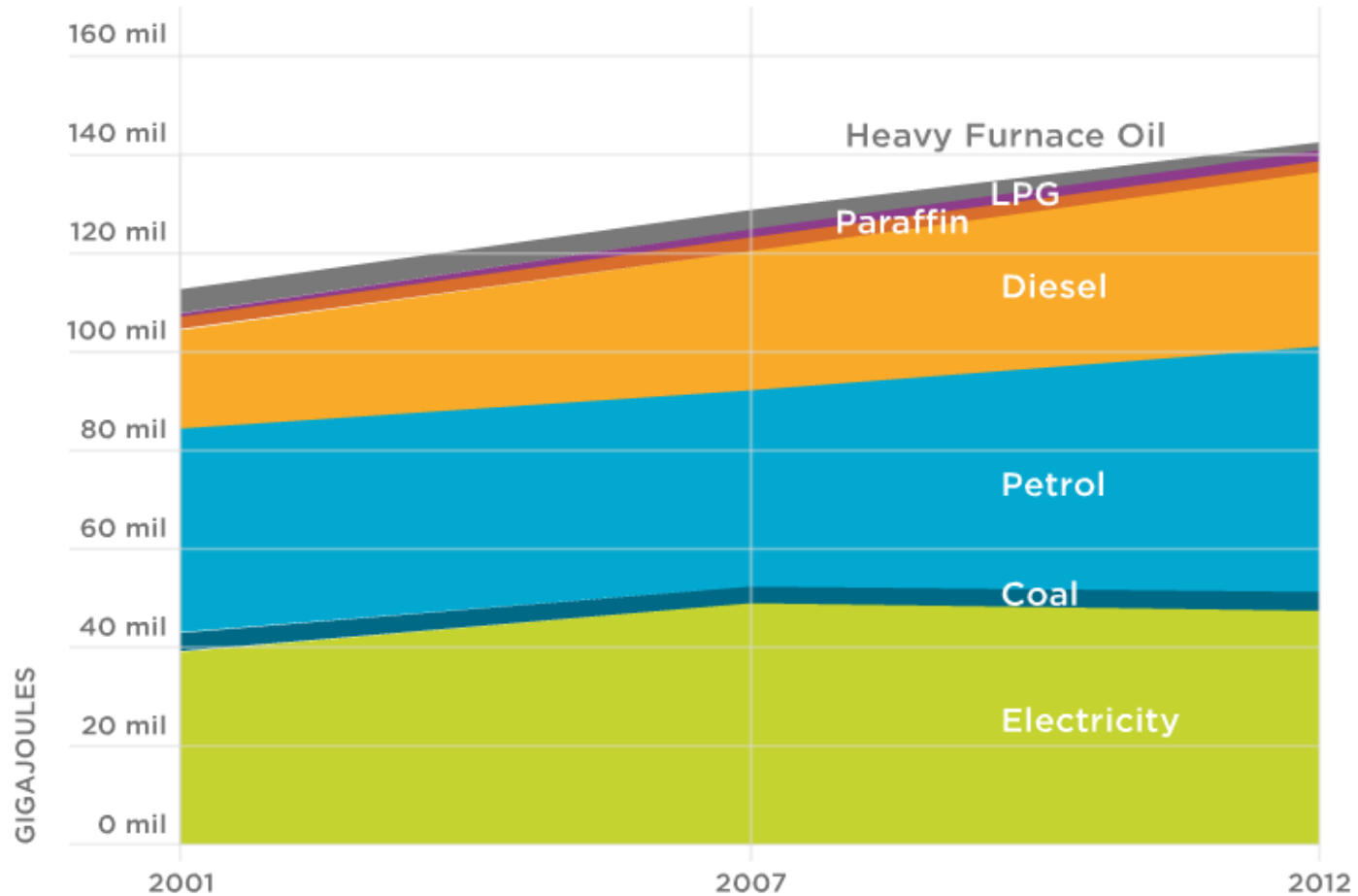
CAPE TOWN EMISSIONS BY SECTOR (2012)



CAPE TOWN

ENERGY CONSUMPTION BY ENERGY SOURCE

2001 - 2012



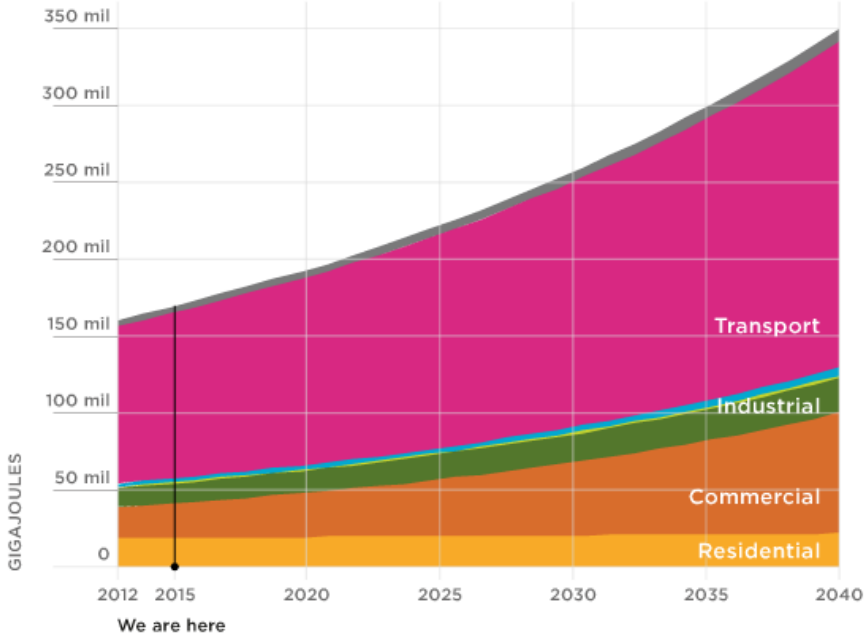
Sources: CCT, DoE, Eskom, SAPIA, SEA



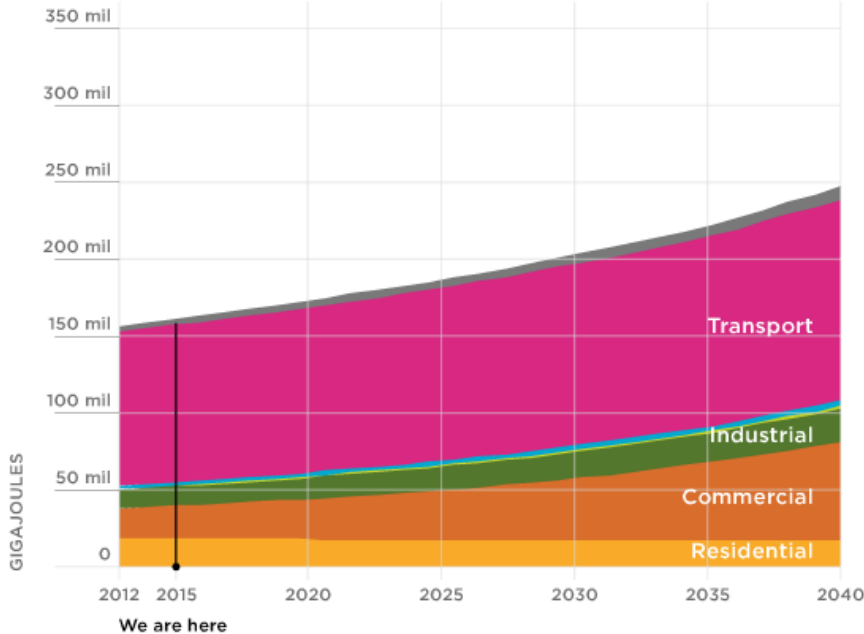
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CAPE TOWN ENERGY DEMAND BY SECTOR

BUSINESS AS USUAL



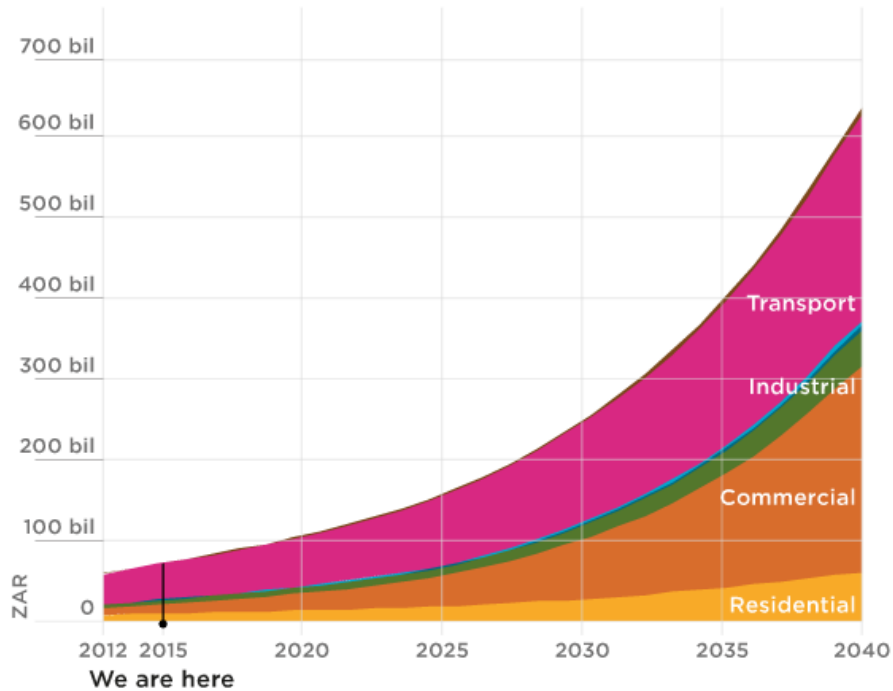
OPTIMUM ENERGY FUTURE



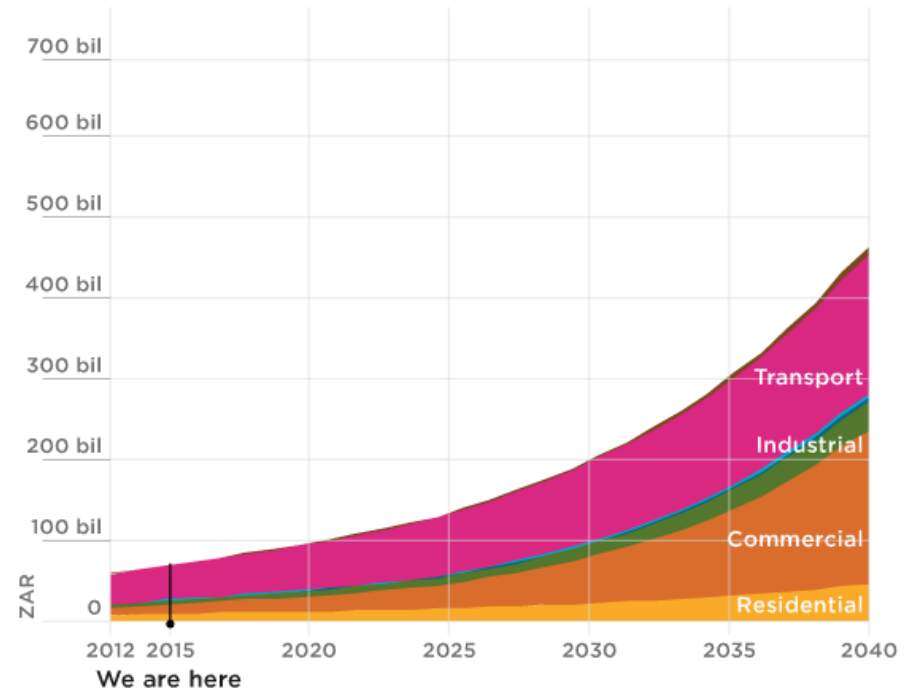
CAPE TOWN

COSTS BY SECTOR

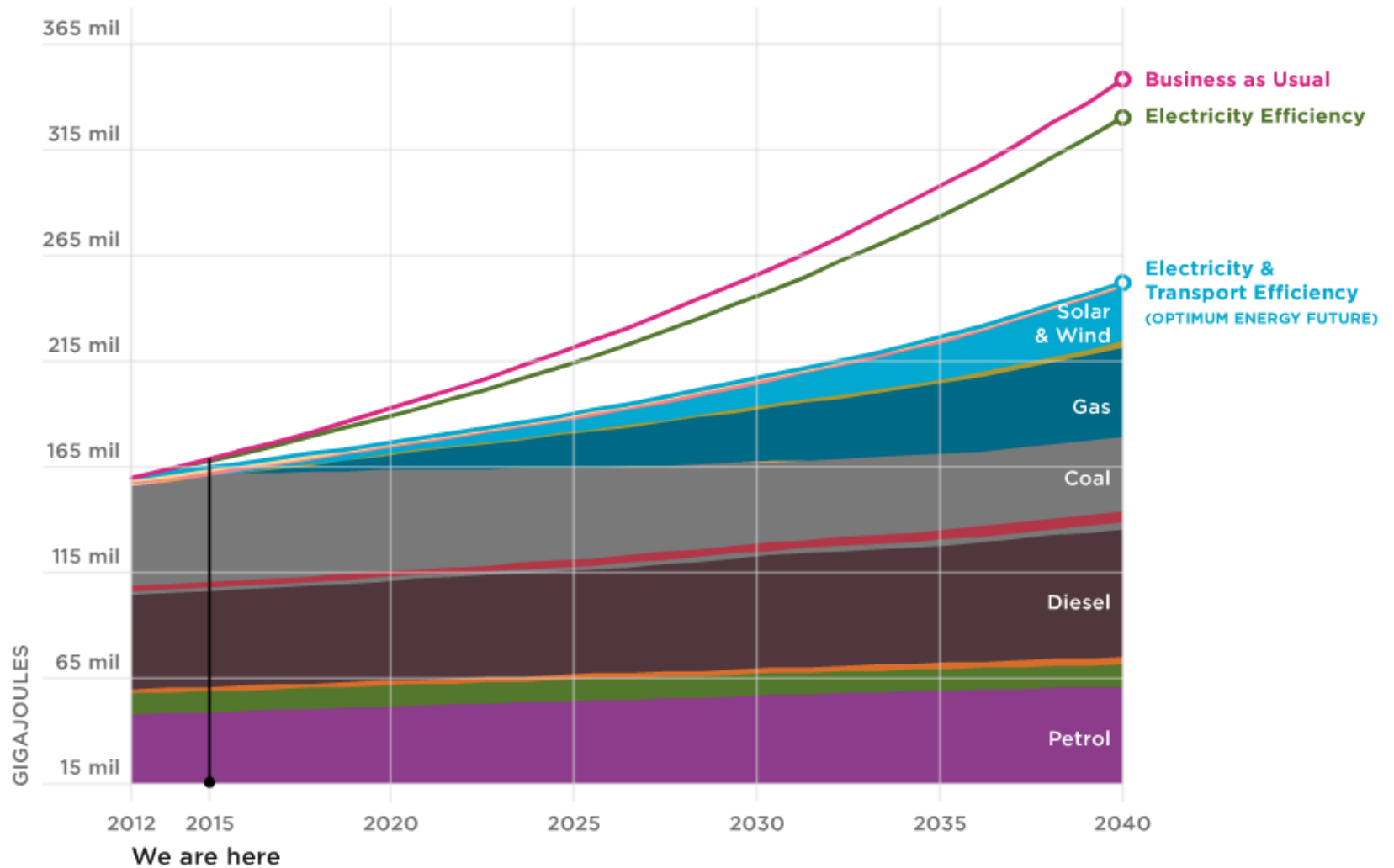
BUSINESS AS USUAL



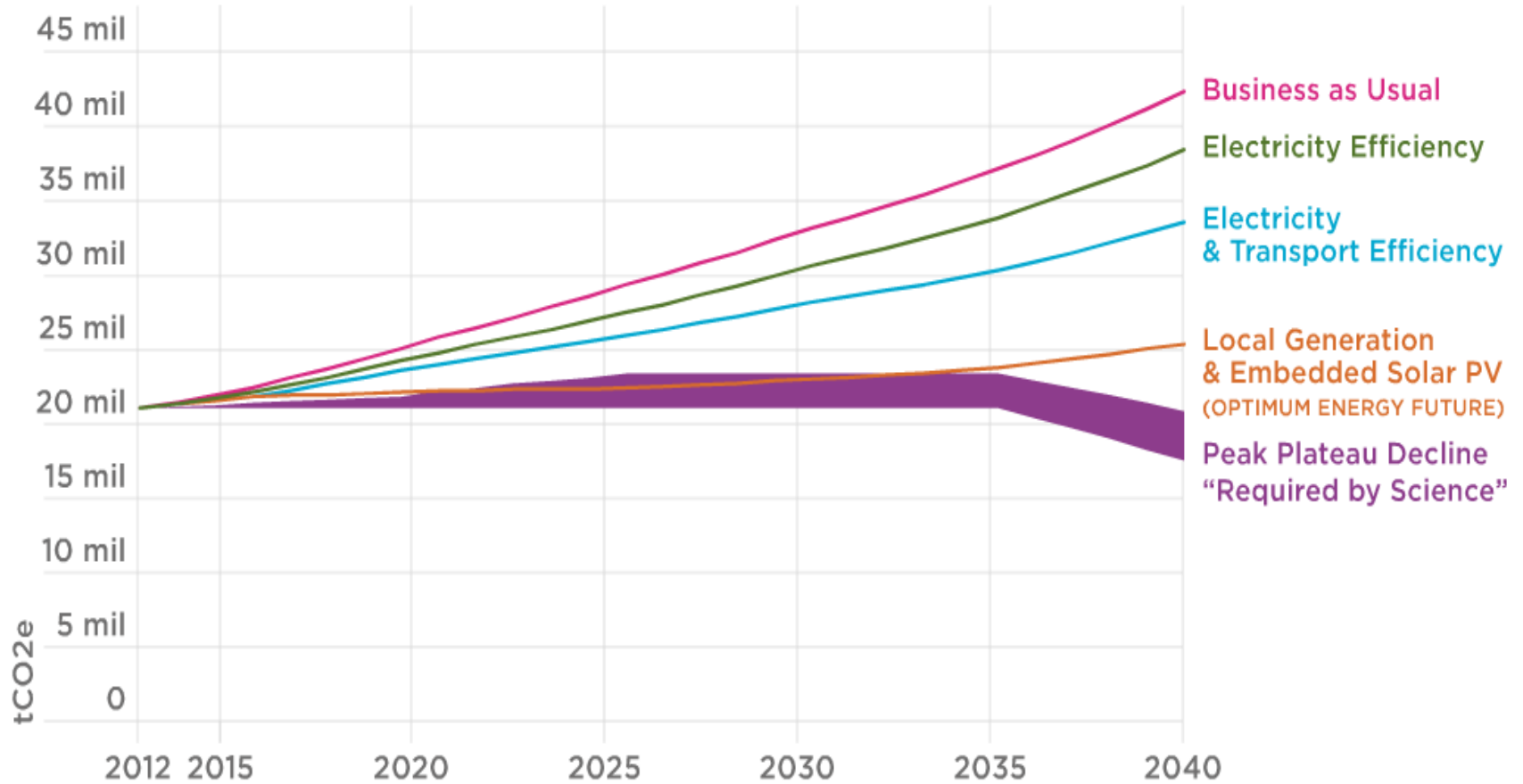
OPTIMUM ENERGY FUTURE



ENERGY DEMAND & SUPPLY BY SOURCE



FUTURE EMISSIONS



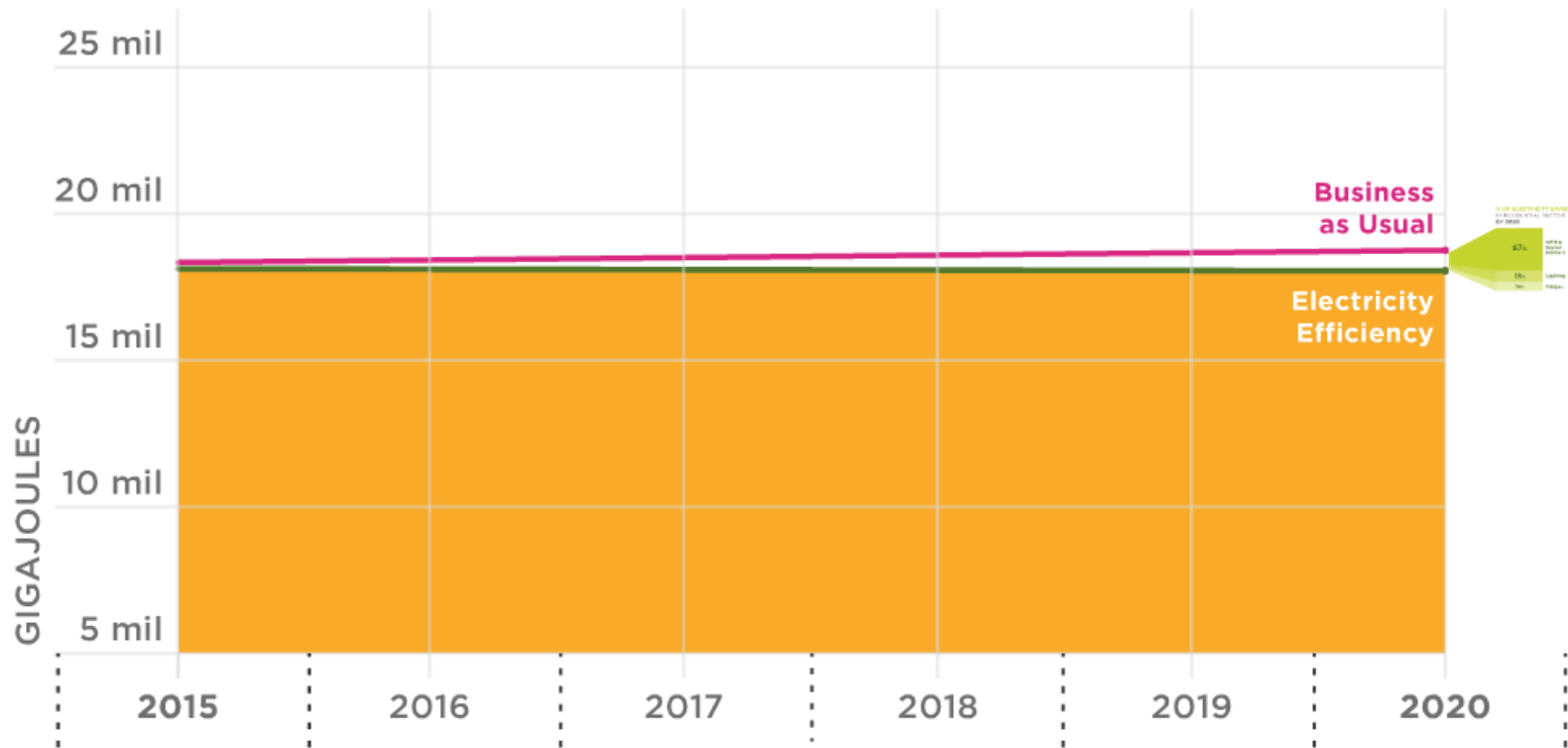
RESIDENTIAL SECTOR



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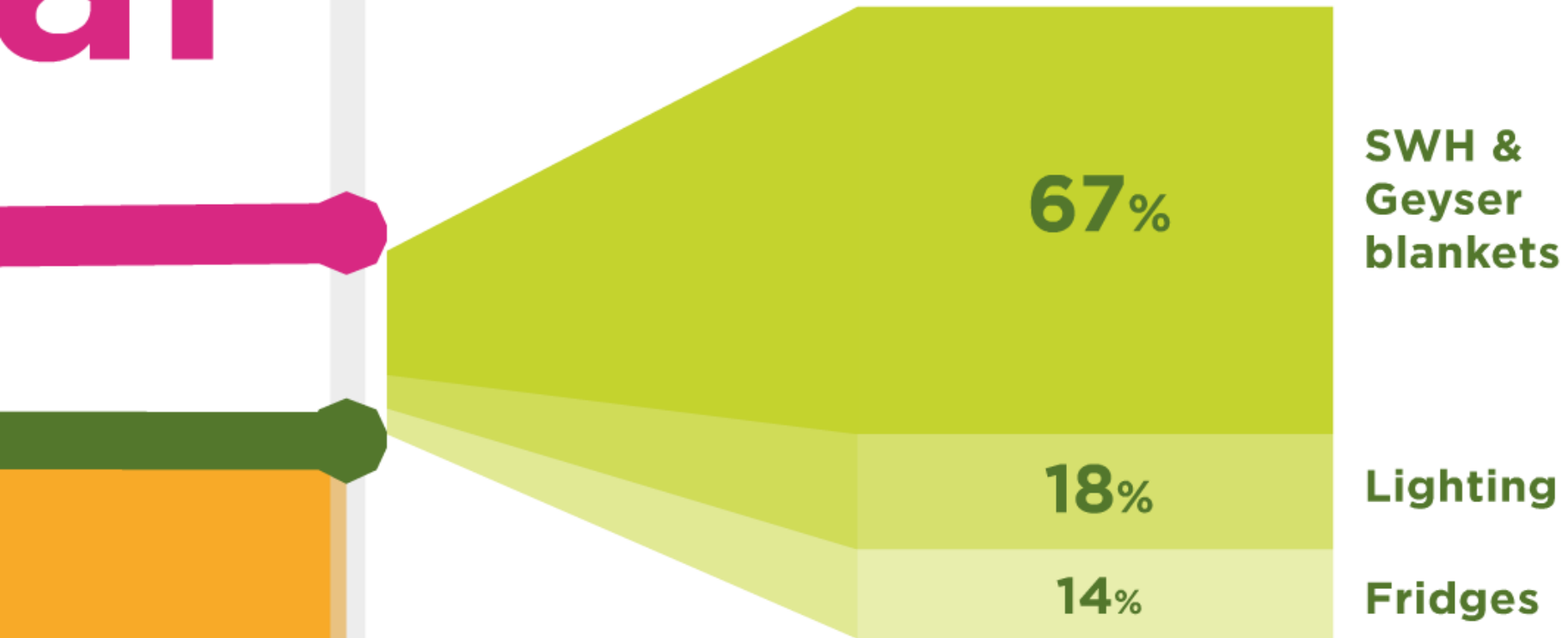
RESIDENTIAL

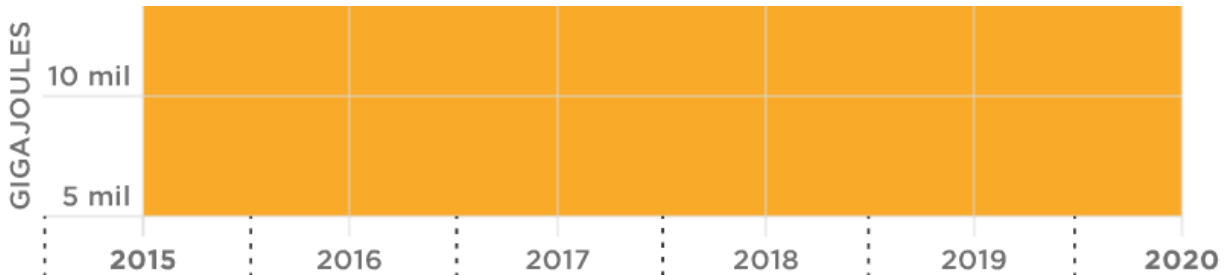
5 YEAR PROGRAMME



os
al

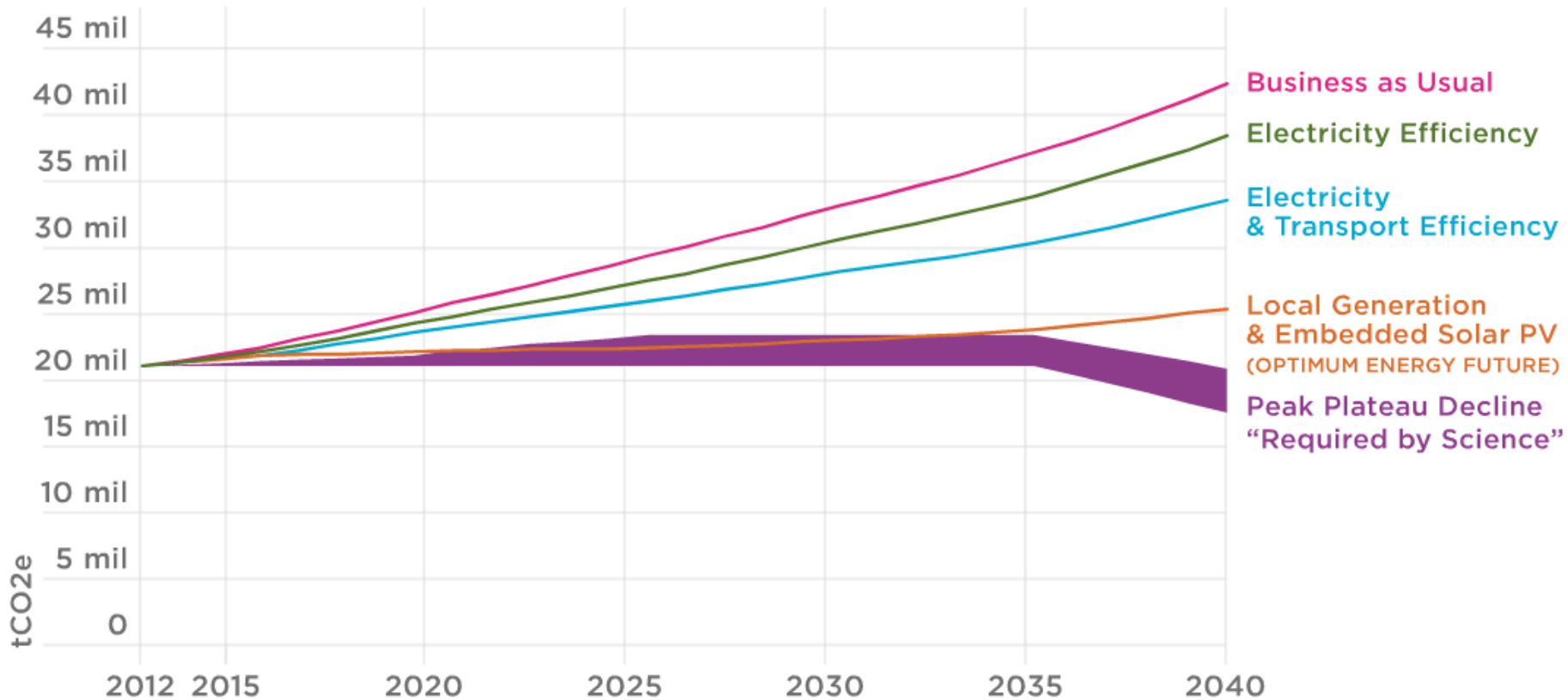
% OF ELECTRICITY SAVED IN RESIDENTIAL SECTOR BY 2020





INTERVENTIONS:	Total Households:						PENETRATION:
	2015	2016	2017	2018	2019	2020	
SWH (low & high pressure)	25 000	36 500	53 500	72 000	92 500	116 000	10%
Efficient Lighting	784 000	806 000	828 000	850 000	872 000	894 000	80%
Efficient Fridges	293 000	324 500	356 000	387 500	419 000	450 500	40%
Geyser Blankets & Efficient Shower Heads	104 500	110 000	115 500	121 000	126 500	132 000	12%
Electricity Pricing							
Revenue Protection							

FUTURE EMISSIONS



Measures to achieve the carbon targets ... by 2020

Basis for 5 year action plan

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

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

Energy2040: Carbon Targets - approved by Council 2015

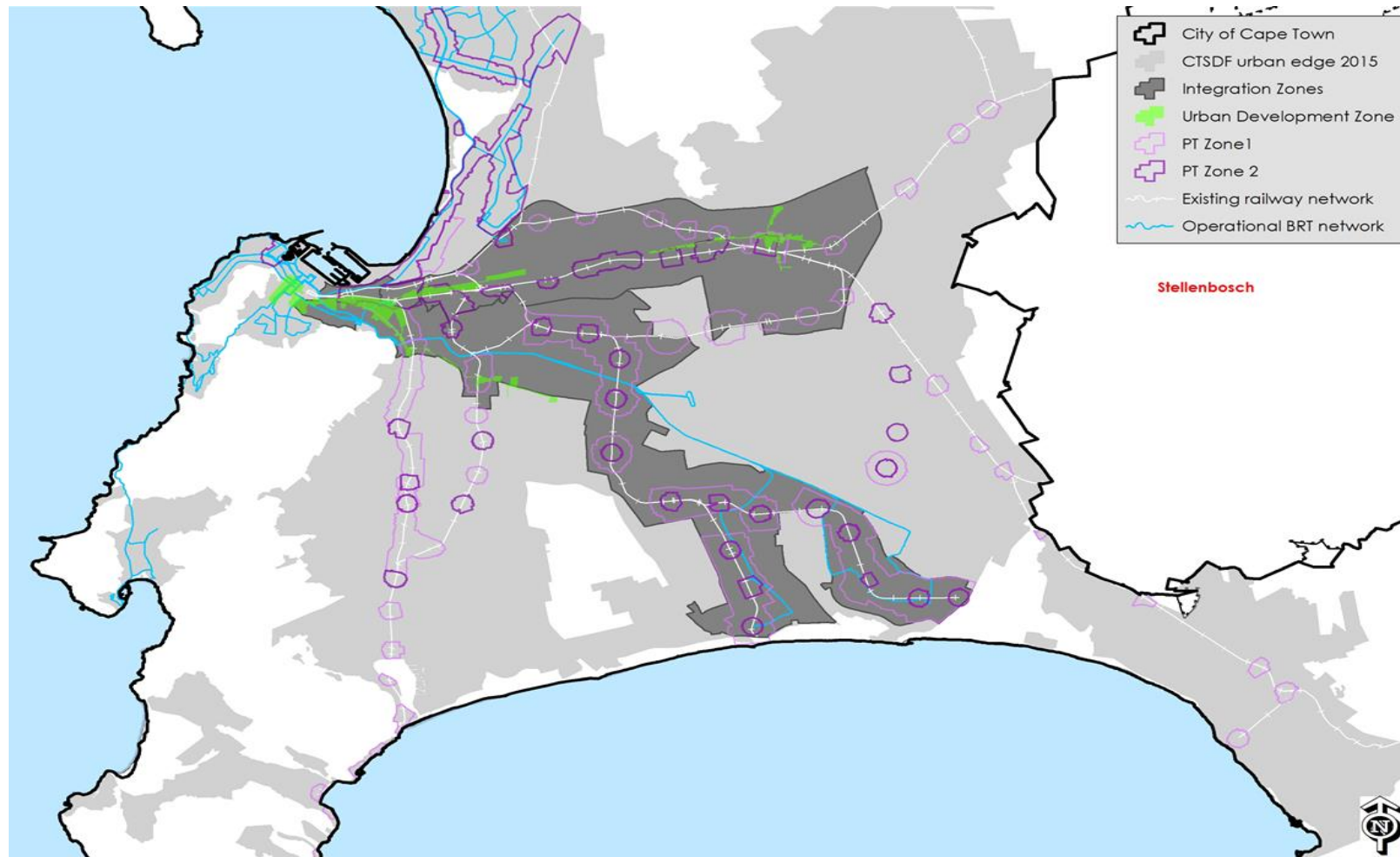
(assumptions remaining constant)

EMISSIONS (tCO ₂ e)	2020	2030	2040
Electricity Efficiency	-3.7%	-7.7%	-9.3%
Residential	-0.9%	-1.9%	-2.0%
Commercial	-2.3%	-5.0%	-6.5%
Industrial	-0.2%	-0.3%	-0.4%
Local government	-0.2%	-0.4%	-0.4%
Transport	-3.2%	-7.2%	-11.2%
Cleaner Generation	-6.2%	-13.9%	-15.9%
Local generation (gas, wind, PV)	-4.9%	-10.0%	-10.1%
Embedded generation (PV)	-1.3%	-4.0%	-5.9%
Carbon Emission Target 1 Energy2040 Vision Total Carbon reduction off business-as-usual	-13%	-29%	-37%
Carbon Emission Target 2 tCO₂/R million GVA	82	60	49

Key projects

- Spatial transformation – densification and transit orientated development
- Energy Efficiency Forum for the commercial sector
- Campaigns – education and information - behaviour and tech change
- Public transport + NMT
- Diversification of electricity supply to ensure energy security and include renewables
- Resource efficient development criteria
- Solar Water Heater programme
- SSEG programme

Spatial Transformation – densification and transit oriented development





ENERGY EFFICIENCY FORUM

CAPE TOWN COMMERCIAL SECTOR

A proud partnership of:

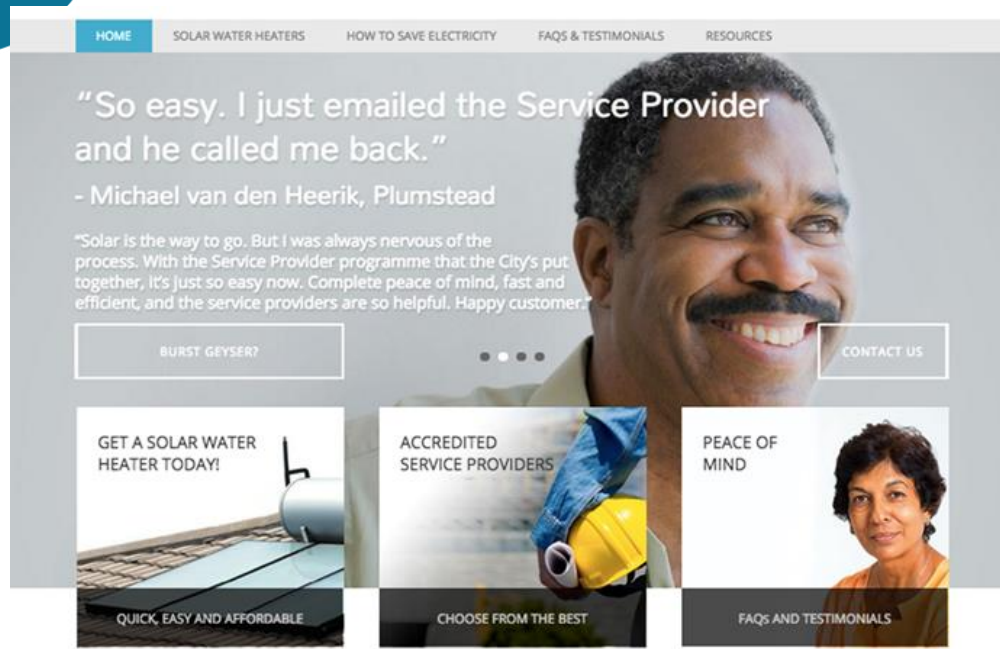
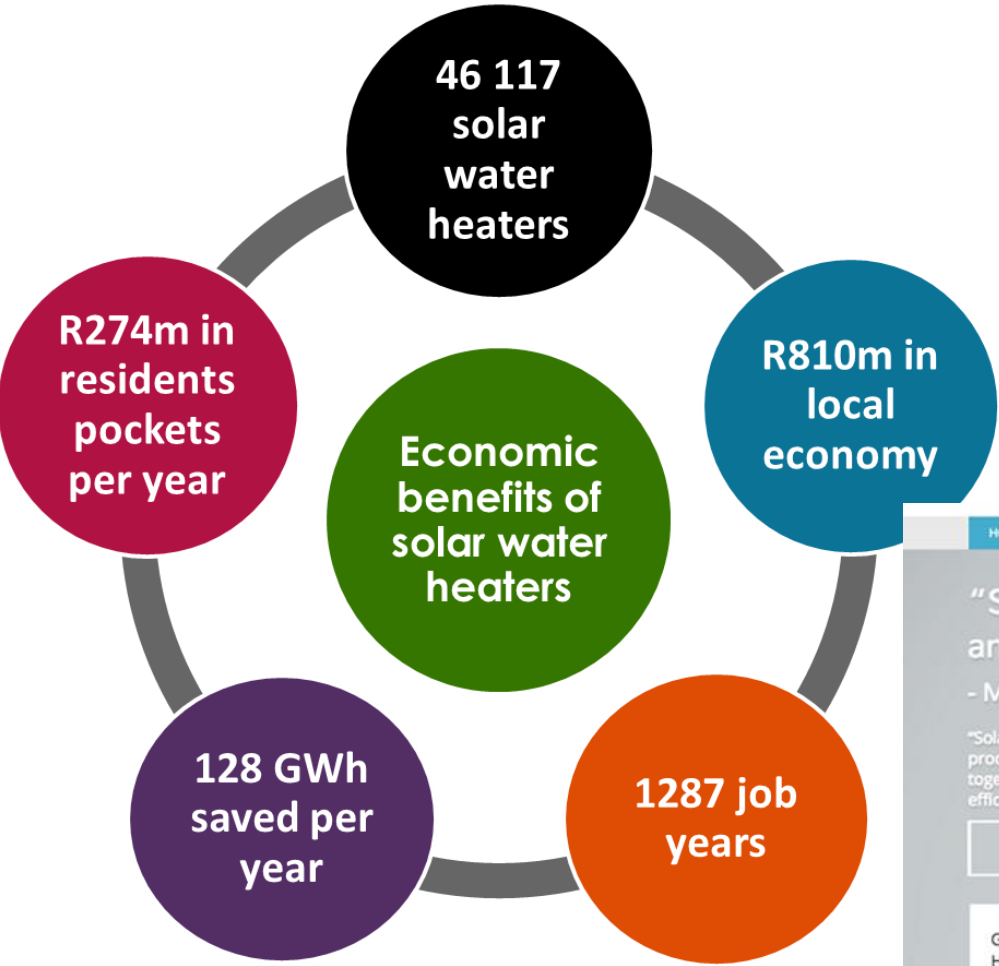


Supported by:



Also supported by Accelerate Cape Town, Cape Peninsula University of Technology, Cape Town Partnership, Green Building Council SA, SA Council of Shopping Centres, University of Cape Town and Western Cape Government.

Solar Water Heater Programme



Renewable energy PPAs and Small Scale Embedded Generation – feed-in tariff

Black River Park

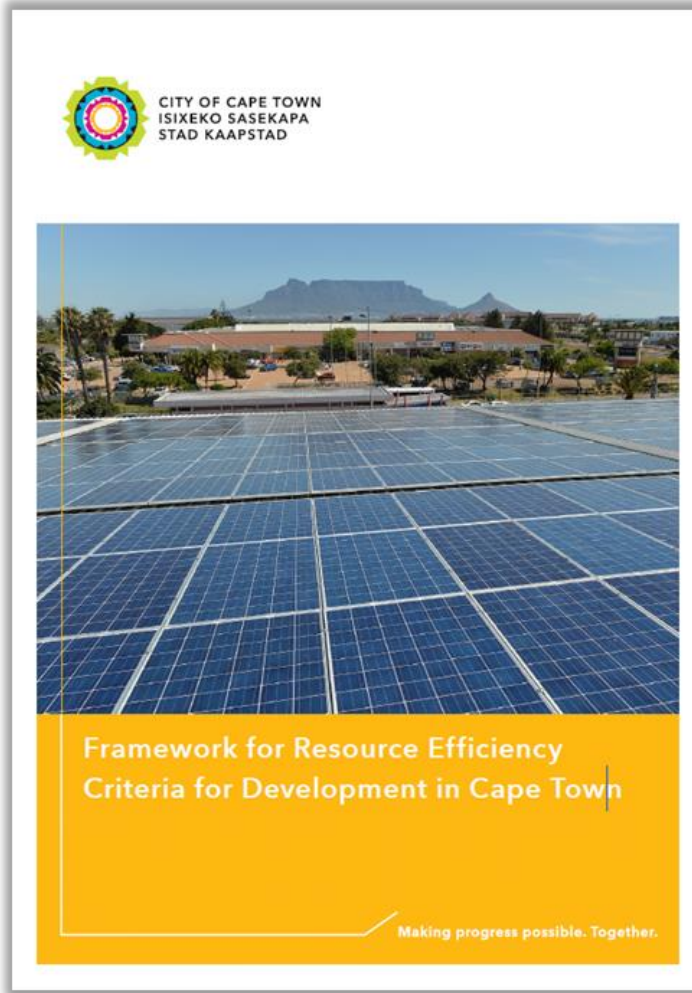
Darling Wind Farm

PPA with City of Cape Town
about 6.5GWH per year

<u>Rooftop PV</u>	
2012	2016
105kWp	Total approved projects: 6.5MWp (August 2016) made up of: 114 Residential 55 Comm/Indus

Resource Efficient Development Criteria

Enforcement of new National Building Regs EE provisions



REGULATION



POLICY



BEST-PRACTICE
GUIDELINES



PROCESS



Campaigns – education and information – behaviour and technology change

ELECTRICITY CRISIS | **SAVING TIPS** | SOLAR WATER HEATERS | PV & RENEWABLES | FAQs | RESOURCES | CONTACT US

WHERE YOU CAN SAVE

By developing smart energy use habits in your household, you can start saving 10% or more on your electricity bill at no cost. You can save 30% or more by adding a few low-cost items, usually for less than R1000. But if you want to make a real difference and save 50% or more of your electricity bill every month, you should invest in energy-efficient equipment - check out the invest-to-save options.

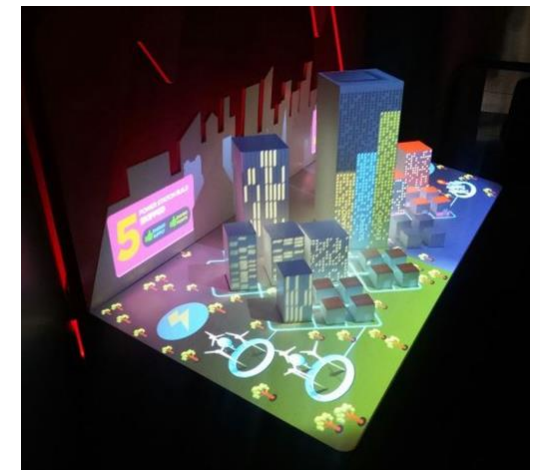
Adopting energy-saving practices will also help safeguard the environment and help ensure energy security for the future.

Download [Top Ways to Save Electricity at Home](#), [Ways to Save Electricity in Winter](#), [Household Guide Checklist](#) and [How to Get a Solar Water Heater](#).

<p>GET QUOTES FOR SOLAR WATER HEATERS TODAY</p>	<p>TOP WAYS TO SAVE ELECTRICITY</p>	<p>FAQs</p>
SOLAR WATER HEATER QUOTES	ELECTRICITY SAVING TIPS	FAQS AND TESTIMONIALS

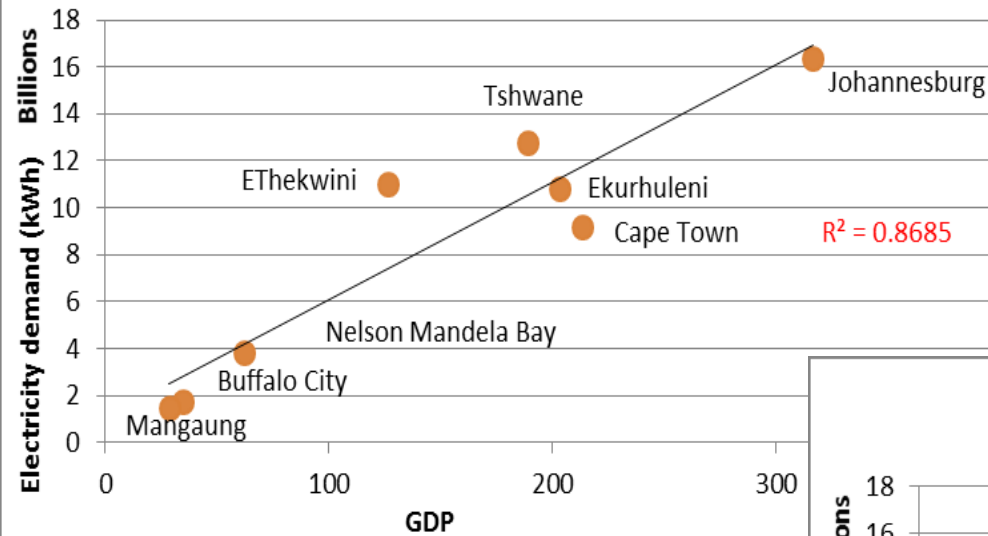
Click on these icons to find out how and where you can save:

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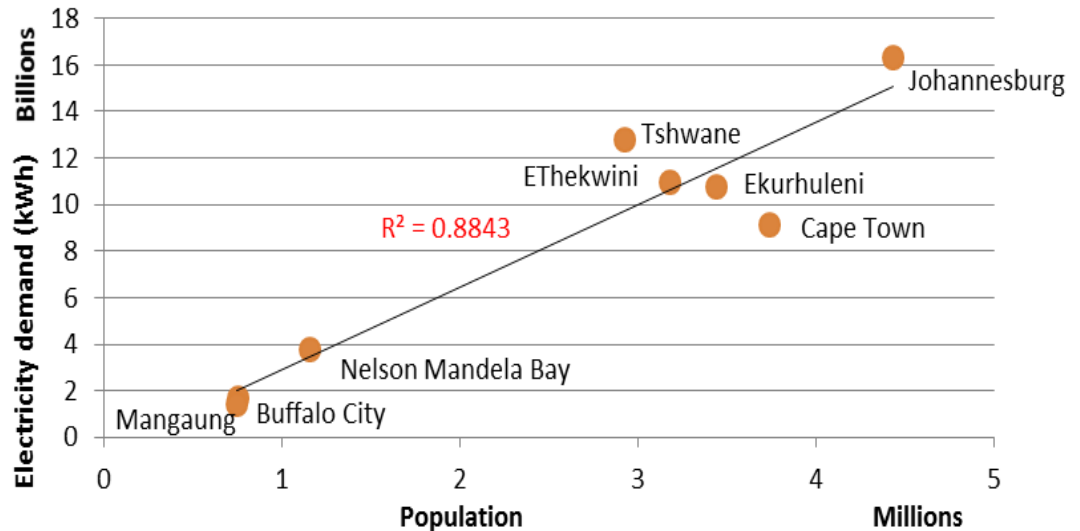


Metro electricity demand vs GDP and Population

Metro electricity demand vs. GDP



Metro electricity demand vs. population





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Thank You

For queries contact Sarah Ward: sarah.ward@capetown.gov.za

Making progress possible. Together.