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ICLEI Local Governments for Sustainability AFRICA

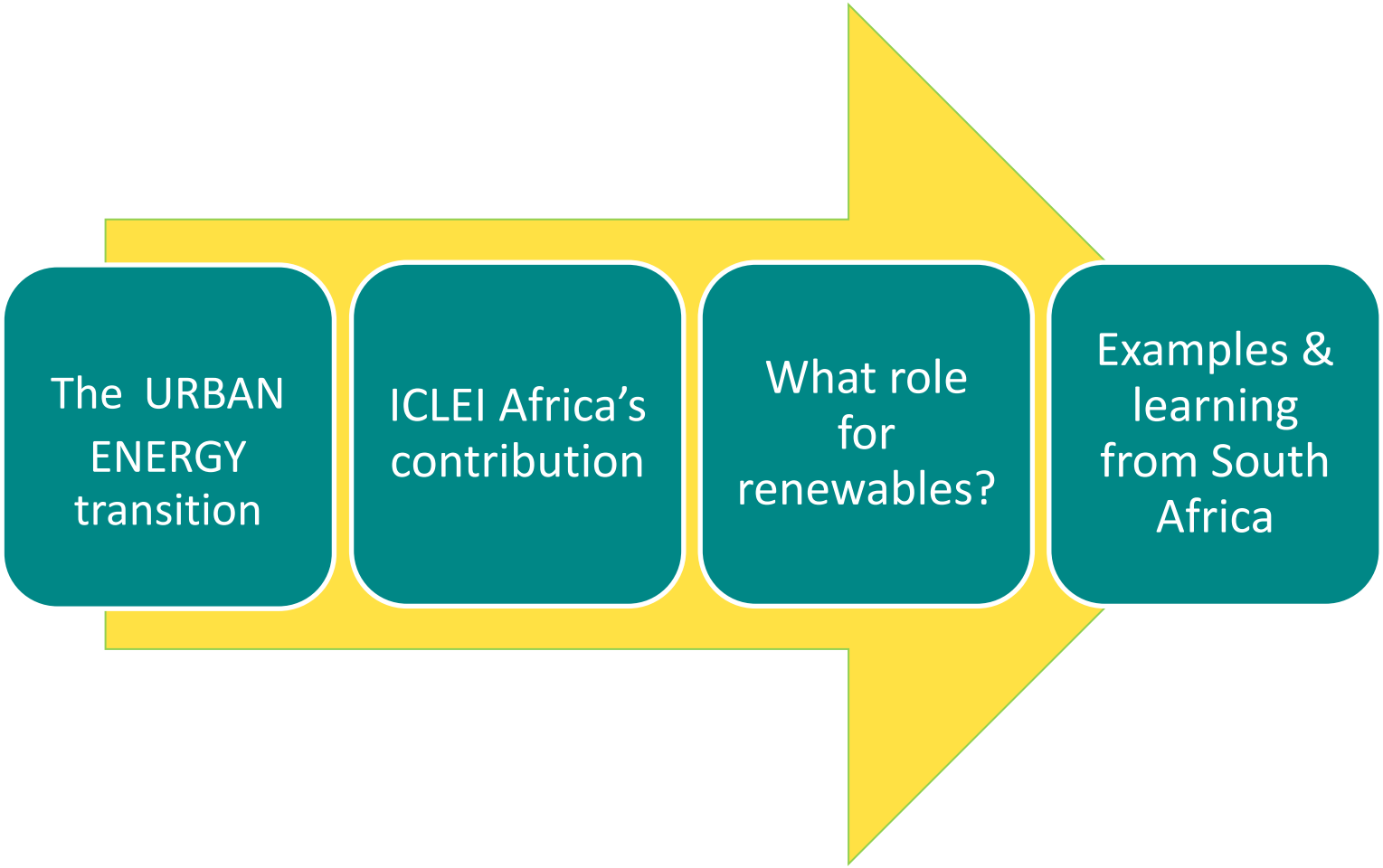
The global cities network

www.iclei.org

Connecting Leaders
Accelerating Action
Pioneering Solutions

Urban renewable energy: a contribution to our development objectives

Green Growth Knowledge Platform
Kinshasa, 02-03 April 2014


The URBAN ENERGY transition
ICLEI Africa's contribution
What role for renewables?
Examples & learning from South Africa

Past ⟹ Present ⟹ Future

Transition

Inevitable destination

Unpredictable journey

Samuel: We are in an energy transition

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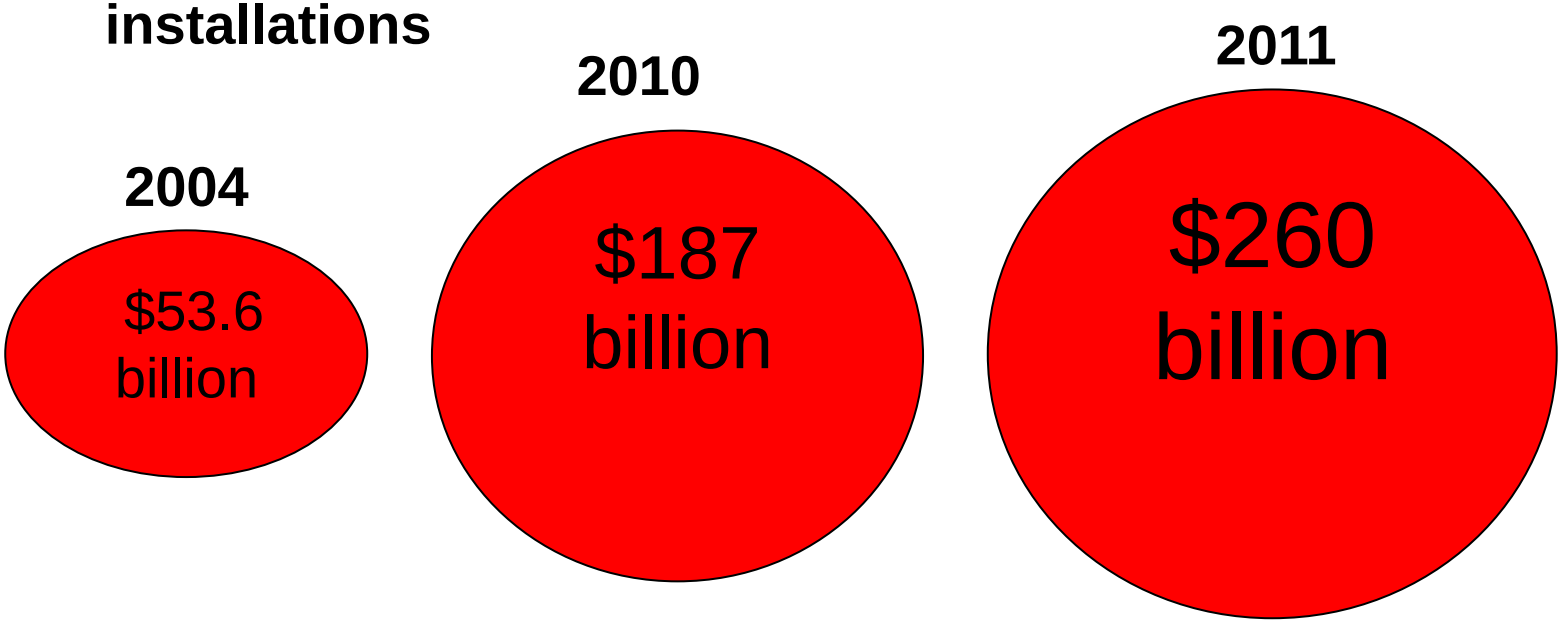
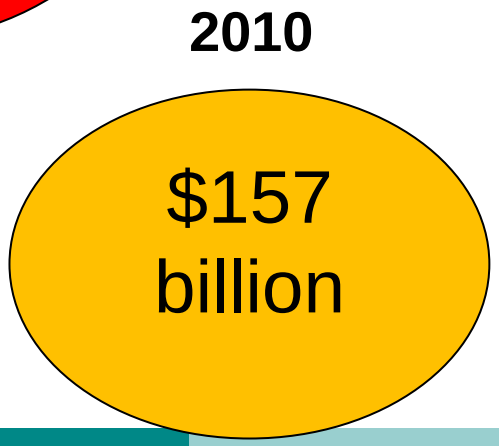
⇨**Global investments in new renewable energy installations**



⇨ **Global investments in new natural gas, oil and coal plants**



2nd transition:
The largest migration in human History

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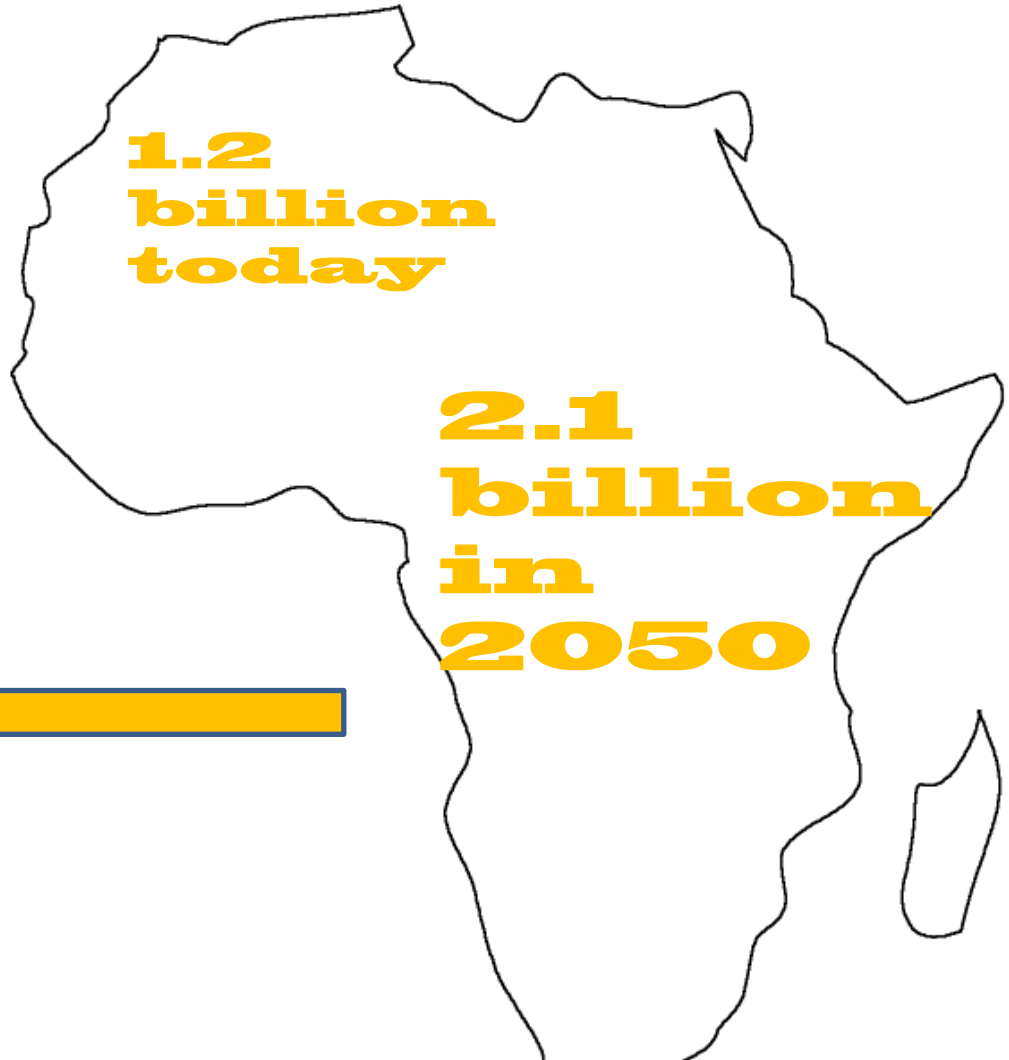


1.23 billion in urban areas

Drivers for an urban energy transition

- Reduce demand on intermittent grid
- Increase resilience (eg of people's livelihoods)
- Improve health/reduce air (esp. indoor) pollution
- Contribute to national targets
- Concentration/agglomeration of resources (financial, natural): waste that can be harnessed
- Local job creation
- Sub-Saharan cities well endowed: 6-8Kwh/m2/day

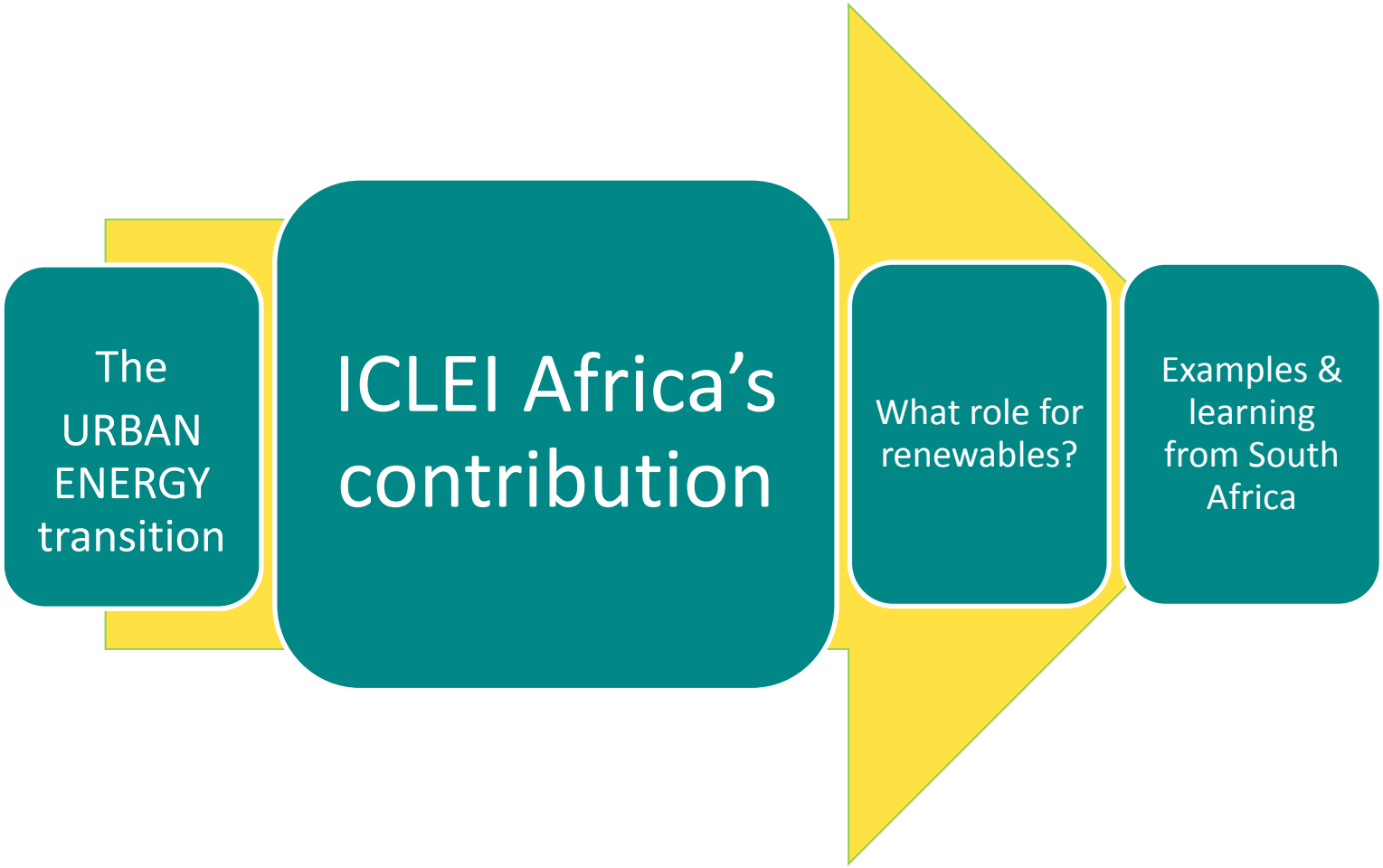
The unique African energy/urbanisation challenge?

Unbroken global trend

„By 2050, within 40 years, we must build once more the same urban capacity as we have built over the last 4000 years."

- 40% electricity access in urban areas (intermittent-illegal?)
- The urbanisation of poverty? Goats in the city

Figure 3.1. Sheep in the heart of Awassa city, southern Ethiopia.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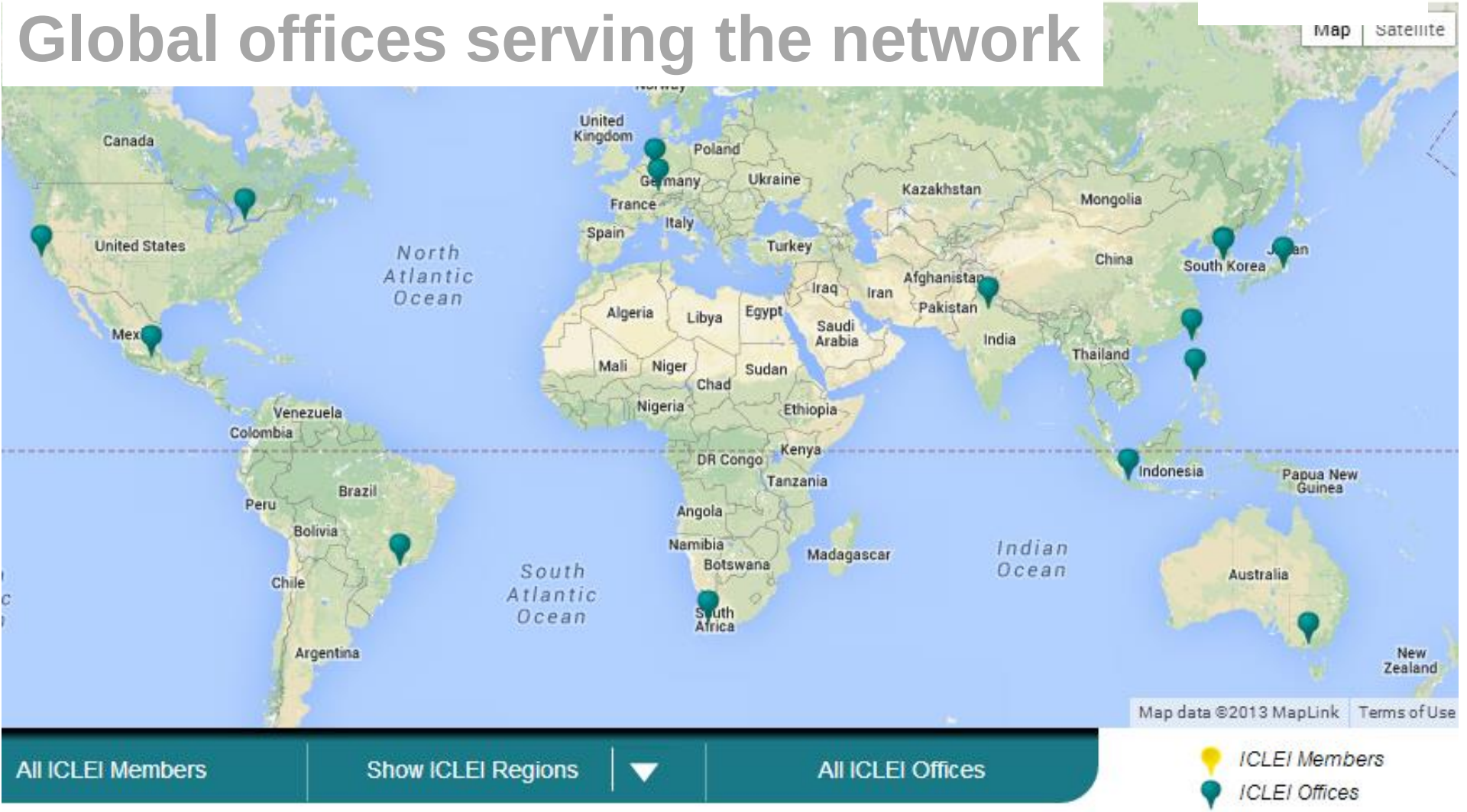
Drawing on the worlds largest network of local governments working on Sustainability

15

Global offices serving the network



The worlds largest network of local governments working on Climate Change, Biodiversity, water & sanitation, energy, food, Nexus… Sustainability

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A Managing Urban Europe Initiative
CHAMP
Local Response to Climate Change

SustainableNOW

RAMSES
science for cities in transition

Local Government Climate Roadmap
Recognize • Engage • Empower

LAB
Local Action for Biodiversity
AN ICLEI – IUCN PROGRAMME

URBIS
urban biosphere initiative

Adaptation
IDRC CRDI DFID

Adaptation Database and Planning Tool (ADAPT)

GREEN BUSINESS CHALLENGE
AN ICLEI USA PROGRAM

World Mayors Council on Climate Change

reeep
renewable energy & energy efficiency partnership

carbonn Cities Climate Registry

EcoMobility WorldFestival

Resilient Cities series

RESILIENT COMMUNITIES FOR AMERICA

HEATPlus
HARMONIZED EMISSIONS ANALYSIS TOOL

EU Cities Adapt

BUILDING ADAPTIVE & RESILIENT COMMUNITIES (BARC)

dac durban adaptation charter

AsianCitiesAdapt

EARTH HOUR CITY CHALLENGE 60+

Local Climate Solutions for Africa 2013

ULAS URBAN LEADERSHIP FOR AFRICAN SUSTAINABILITY

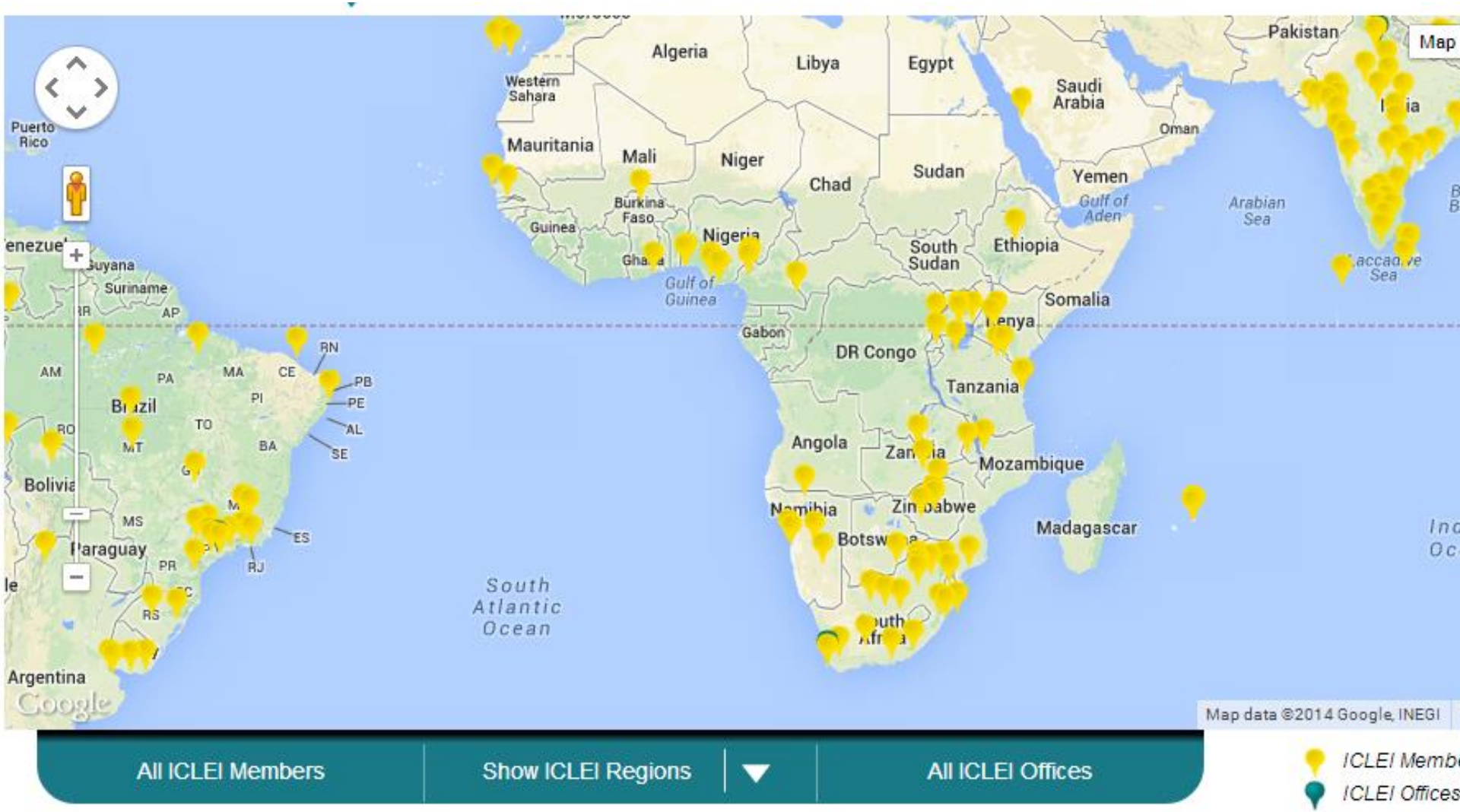
EcoMobility ALLIANCE

URBAN LEDS
URBAN LOW EMISSION DEVELOPMENT STRATEGIES

ICLEI Members in Sub-Saharan Africa:

Driving the agenda for cities & local sustainability in Africa

77



URBAN LEDS

URBAN LOW EMISSION DEVELOPMENT STRATEGIES

Delivering low-emission development in 8 model cities in 4 emerging economies

- 3 year
- Working

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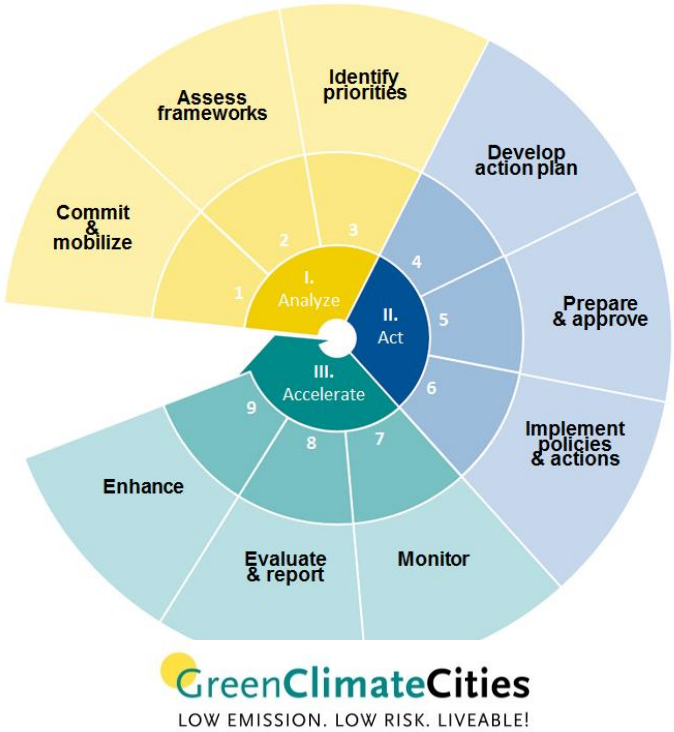
Main objec cities in emerging e

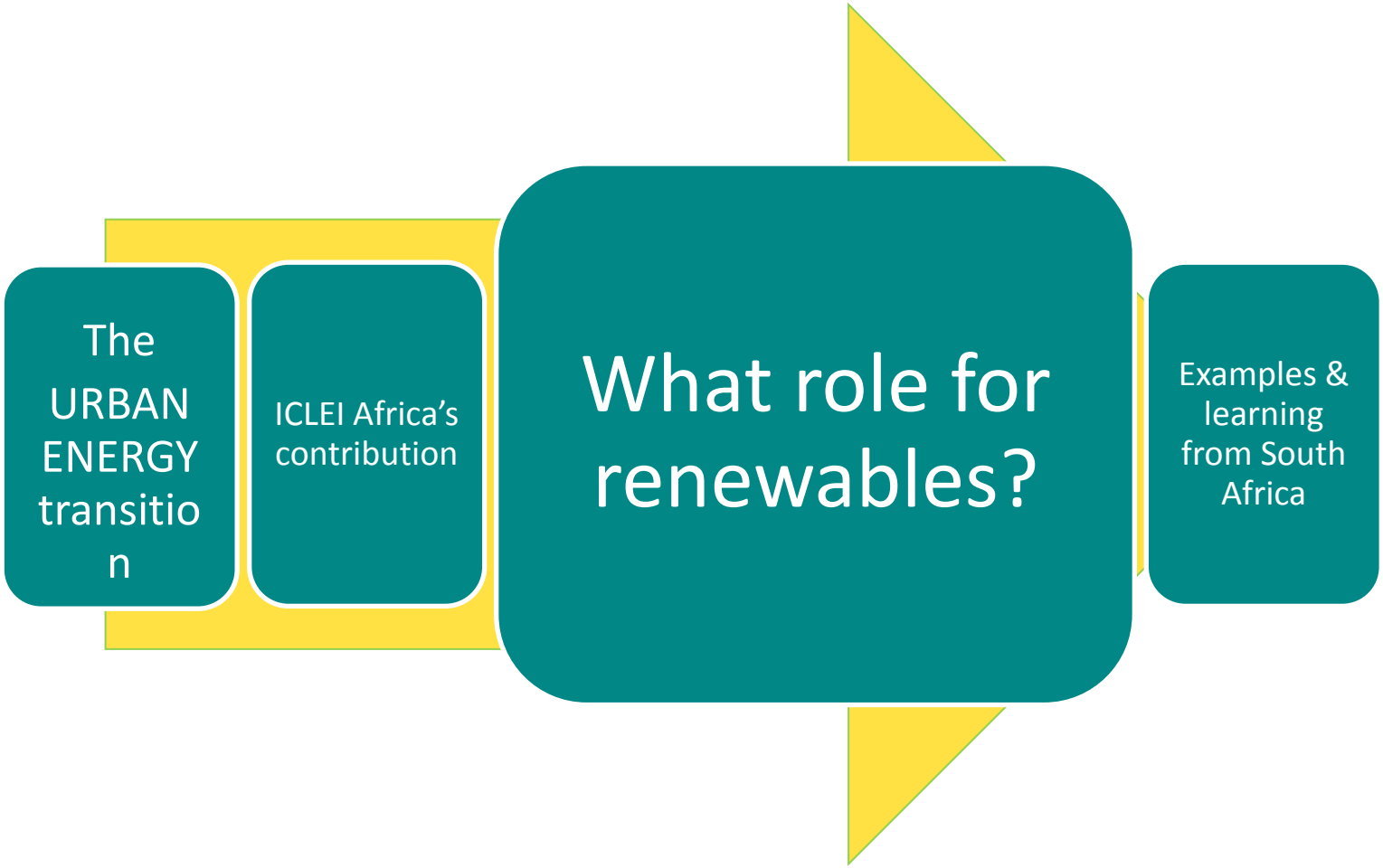
- Strategy & action plan development
- Implementation of projects
- MRV of emissions
- Capacity building & training
- S-S-N Learning
- National & international advocacy

What is an Urban-LEDS?

An **Urban Low Emission Development Strategy**, or low emission urban development strategy, defines a pathway to transition a community to a low-emission, green and inclusive urban economy, through its integration into city development plans and processes.

ICLEI's GreenClimate Cities methodology

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Cities and energy generation: different approaches

- “Clean up the grid” (national)

- “Rural off-grid, cities on-grid”

- “Combination of cleaner grid + distributed solutions in rural *and* urban areas”

What are the (urban) renewable energy technology options?

Fig 1: Landfill Gas Flare at Bisasar Road Landfill site

SEED award winners – ENERGY SECTOR

Kigali, Rwanda: BioGas

Urban, domestic and industrial waste to pressurized biogas for cooking

Busia, Uganda: Eco-briquettes

Women – processing solid waste into eco-briquettes for cooking

But why not more renewable energy in African cities?!

- Up-front costs: who pays? Need for financial model innovation
- Lack of reliability; nascent markets
- Lack of support services (installers, standards)
- Lack of policy support (local/national)
- Pressure of urbanisation on services
- Negative perceptions
- Cultural barriers

Key enablers

- Innovative finance mechanisms
- Role for entrepreneurs/private service providers
- Integrated energy planning between different tiers of government
- Regulation
- Procurement
- Education and awareness

Whose responsibility?

National government	Local government
Grid electricity provision; with increasing mix of renewables	Purchasing green electricity?
Setting national building regulations for SWH adoption etc	Enforcing & setting own local byelaws/policies
Decentralisation (mandate/ of built environment functions)	Urban Planning policies which incorporate energy efficiency & renewable energy
National energy planning; rebates, FIT's etc	Local energy strategies and plans
National SWH programme	Local SWH programme
Installing medium-scale but decentralised renewables	Installing renewables for municipal operations
	Develop "energy services packages" for low-income households

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EARTH HOUR CITY CHALLENGE 2013-2014

Lead South Africa's low carbon future and let your municipality inspire the world

CITY OF TSHWANE

COMMITMENTS
- 15% of energy from renewable sources by 2015

POLICY-PLAN-INSTITUTIONAL
- Non-Motorised Transport Plan (2008)
- 2055 Growth and Development Strategy (2013)
- Green Economy Strategic Framework (2013)
- Green Buildings Byelaw (2013)

FLAGSHIP ACTIONS
- Bus Rapid Transport infrastructure under way; 30% of buses will run on cleaner fuel (2013-)
- 16 KwH hydropower installation; when completed Tshwane will be the first municipality in South Africa to use hydropower (2011-)

CITY OF JOHANNESBURG

COMMITMENTS
- Improve energy efficiency of council premises/buildings by 10% in 2010 (2008)
- Improve the energy efficiency of new housing development by 10% in 2010 (2008)

POLICY-PLAN-INSTITUTIONAL
- Energy and climate change strategy (2008)
- Energy efficiency guidelines in spatial development (2012)

FLAGSHIP ACTIONS
- Solar Power Traffic Lights roll-out (2010-)
- Mass Rapid Transport Rea Vaya Phases 1A and 1B (2011)
- Landfill Gas-to-Energy Project (2011)
- Cosmo City climate proofing programme (2012)

CITY OF CAPE TOWN

COMMITMENTS
- 10% renewable energy by 2020
- √ 10% energy efficiency improvement by 2012

POLICY-PLAN-INSTITUTIONAL
- Energy and Climate Change Strategy (2006)
- Energy and Climate Change Action Plan (2010)
- Climate Adaptation Plan of Action (2012)
- Technical and Political level Energy and Climate Change Committees
- Integrated Development Plan (2012); City Development Strategy (2012)

FLAGSHIP ACTIONS
- Green Electricity purchase from Darling Wind Farm (2006-)
- Energy efficiency forum for commercial sector (2009-)
- Electricity savings campaign (2009-)
- Mass ceiling roll-out in low income households (2010-)
- Integrated Rapid Transport System (2010-)
- Solar water heater roll out programme (2012-14)

ETHEKWINI MUNICIPALITY

COMMITMENTS
- 33% reduction in Carbon dioxide equivalent by 2020 (2006)

POLICY-PLAN-INSTITUTIONAL
- Municipal Adaptation Plan for Climate Change (2009)
- Energy Strategy (2010)
- Solar City Framework (2012)
- Currently developing comprehensive Climate Change Response Strategy (2013-)

FLAGSHIP ACTIONS
- Landfill gas to electricity project (2004-)
- Domestic Orange Bag Recycling Programme (2007)
- Wind Resource Map for eThekwini Municipality (2010)
- Community renewable energy projects including energy efficiency, solar PV units at wind turbine and bus depots and Durban market (2011)
- Staff Bicycle Programme (2012-)
- KwaZulu-Natal Sustainable Energy Forum (2012-)

BUFFALO CITY METROPOLITAN MUNICIPALITY

COMMITMENTS
- 12% energy efficiency improvement by 2015 (2008)
- 10% renewable energy by 2010 (2008)

POLICY-PLAN-INSTITUTIONAL
- Sustainable energy and climate mitigation policy and strategy (2008)

FLAGSHIP ACTIONS
- Energy efficient streetlight retrofits (2010)
- Replacement and upgrading of equipment of the electricity distribution system (switchgear) (2011)
- Solar-powered street lights pilot project (2013)
- Energy efficiency measures and solar water heaters in newly electrified low-income households (2013)
- 75 MW solar PV farm within Industrial Development Zone (2014, planned)

NELSON MANDELA BAY MUNICIPALITY

COMMITMENTS
- Procurement of 10% energy from green energy sources
- 15% community renewable energy by 2015

POLICY-PLAN-INSTITUTIONAL
- Green Procurement Implementation Strategy (2011)
- Integrated Environmental Policy (2012)

FLAGSHIP ACTIONS
- Solar water heater rollout in 38 000 low-income households (2012)
- 2 MW methane from waste water for electricity generation (2012)
- Phase one of integrated public transport system (2012)
- Residential Small Scale Embedded Energy Generation reverse metering pilot (2013)
- Waste Minimisation and Exchange programme (2013)

Endorsing partners

Nelson Mandela Bay

Embedded Generation: Municipal

- Proved Small scale grid tide connection is technical feasibility
- Feed-in tariff needed but price decreasing rapidly

Embedded Generation: Consumers

- Experimenting with net metering

Purchasing green electricity

- Played role in pushing for grid wind energy development locally
- Developments = 20% of local demand

Solar water: free energy?!

National government low-pressure system roll-out stalled

Mandatory on all state-subsidised housing

Local implementation models:

- Nelson Mandela Bay: Funded by Eskom (state energy provider) and carbon credits: low-income
- Cape Town: SWH byelaw: never passed

Cape Town's residential solar water heater accreditation programme

- Mid-to high income households
- Role of local authority: Facilitator, accreditor, marketing
- Role of private service providers: instalment finance, through for eg. ESCO's, maintenance etc

ACCREDITED
BY THE CITY OF CAPE TOWN
SOLAR WATER HEATER PROGRAMME
SERVICE PROVIDER
REFERENCE NUMBER: 0045

Solar Water Heaters - impact

Target – high electricity consumers

For each 100,000 installed

R 400million p.a. that would have been paid to Eskom kept in City

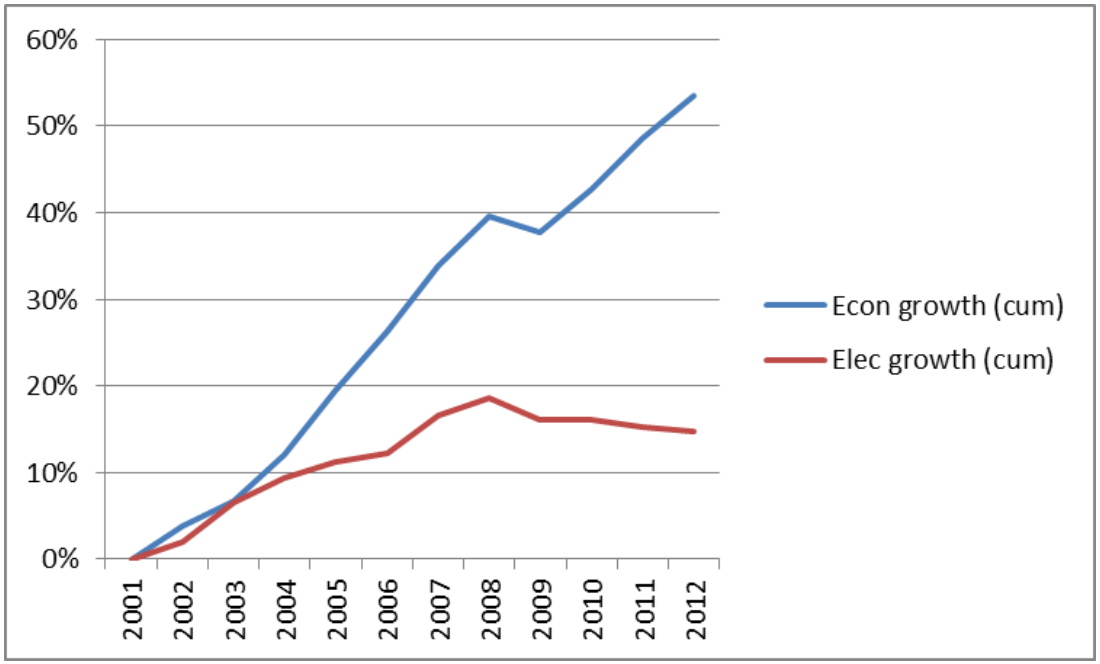
When SWH's are paid off will result in ~R1billion p.a. savings in households pockets to be spent in CT economy

About R1billion invested in local solar water heater business – jobs, economic sector developed

Electricity savings of 280 000 MWh p.a. (4% of total current consumption) (280 000 tons carbon)

BUT

- Not a solution for the urban poor?
- Requires significant LG capacity and established local industry



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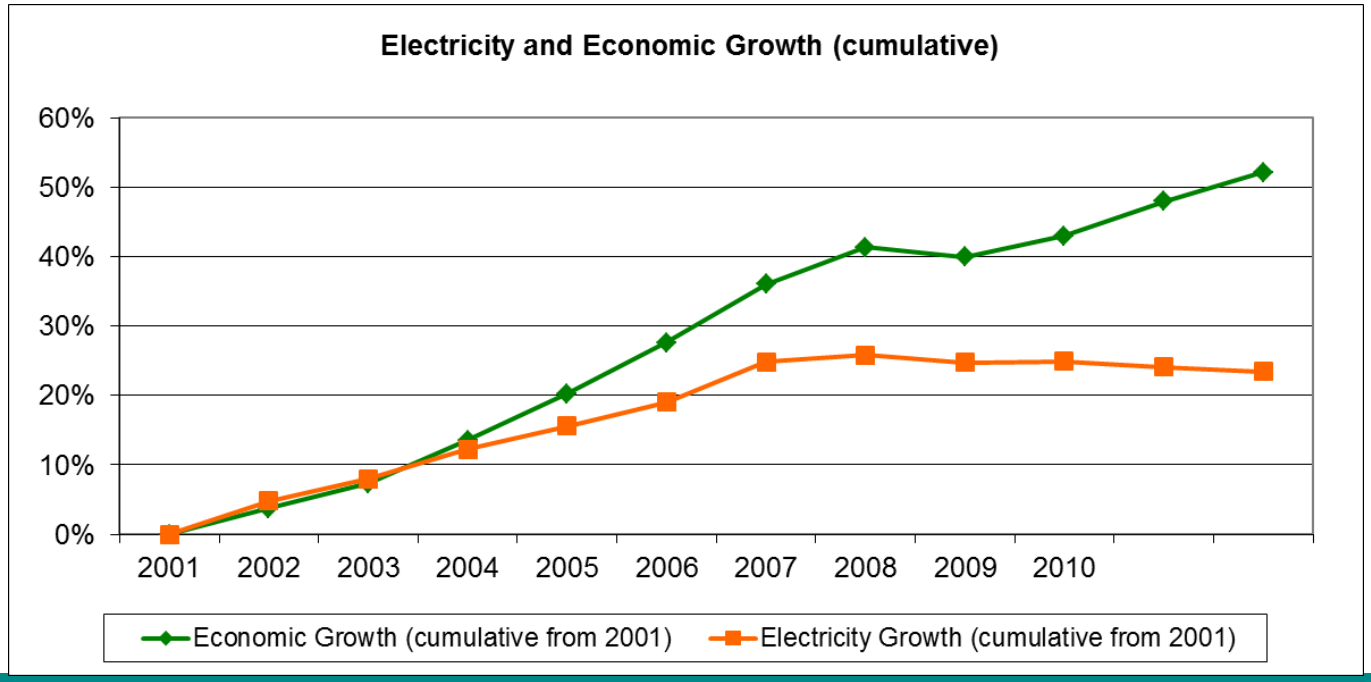
Electricity relative to Economic growth: eThekwini and Cape Town



Source: Sustainable Energy Africa

Doesn't have to be high-tech

Wonderbags

Used 2-3 times a week:

- 1.6l paraffin
- 1.3kWh electricity
- 500kg c02/year

Efficiency is cheapest form of renewable energy!

Lessons from the SA experience

- Renewables largely restricted to SWH's, small scale embedded (also for municipal operations)
- Not just about technology; must be embedded in processes, structures, revenue models
- Create spaces for multi-level dialogue
- Regulatory, policy environment may need changing/clarifying
- Strengthened the developmental role of sub-national governments
- Financial innovation needed to up-scale

5 questions

- To what extent is the renewable energy potential in urban areas, and the contribution of local government, being enabled?
- To what extent does governance deal with the “city-region”- aiming for sustainable city-regions (urban/peri-urban/rural)
- Is it an either/or between centralised vs decentralised solutions in urban areas?
- Who is working on innovative financing mechanisms?

Thanks for listening!

ICLEI – Local Governments for Sustainability is the oldest and longest standing network of local governments and cities working on Sustainability, with over 1200 members world wide. Over 20 years ago, the organisation was started by local governments, and is led by local governments for local governments.

It is served by over 250 urban sustainability professionals in 15 offices around the globe.

The network is the **Local Government and Municipal Authorities (LGMA) Major Group** coordinator at the UNFCCC, and UN CBD. It leads on the Mexico City Pact, the Durban Adaptation Charter, and the Local Government Climate Roadmap.

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