

RE and LOCAL GOVERNMENT

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OBJECTIVES OF THIS PRESENTATION

- To give an overview of existing RE projects and initiatives with LG involvement
- To provide chosen illustrative example
- To highlight some of the thinking with LG space on the roles of municipalities in RE going forward.
- To ensure that LG is fully integrate in the upcoming state of RE report

OUTLINE

- **Status quo**
 - Municipalities own RE
 - SSEG
 - Energy Access
- The thinking go forward
 - New business models
 - Buying electricity from IPP / generating own electricity
- Conclusion

Municipal own RE

EXISTING MUNICIPAL RE PROJECTS

MANY EXISTING PROJECTS

- **Solar PV on municipal buildings:**
 - Cape Town +/- 250 kWp
 - eThekweni +/- 500 kWp
 - Ekurhuleni: +/- 500 kWp
- **Solar PV in WWTW:**
 - Camdeboo: 10.8 kWp
 - Hessaqua: 33 kWp
- **Greening municipal infrastructure:**
 - Taxi ranks: Cape Town, eThekweni
 - Green buildings
- **Biogas to energy in WWTW:**
 - Johannesburg +/- 2MW biogas to energy
 - Several other projects under appraisal
- **Landfill gas to electricity:**
 - Ekurhuleni: 1 MW
 - eThekweni: 7.5 MW
 - Johannesburg: up to 18.6 MW (11.5 MW connected?)

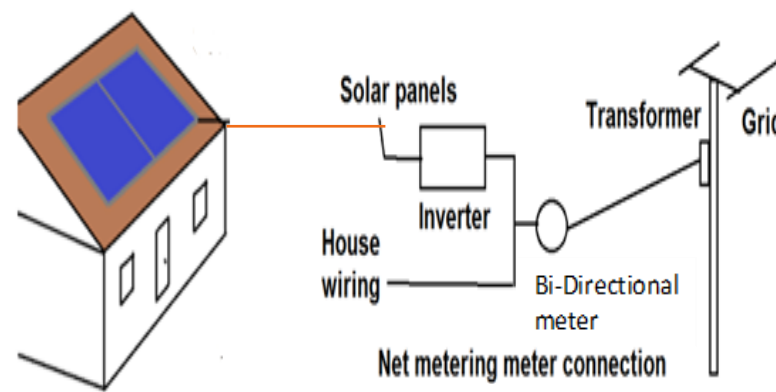
... and many more opportunities

Many benefits:

- Provide greener services
- Increase efficiency of existing installations
- Provide some level of hedge against Eskom tariff increases
- CO₂ emission reduction



SSEG

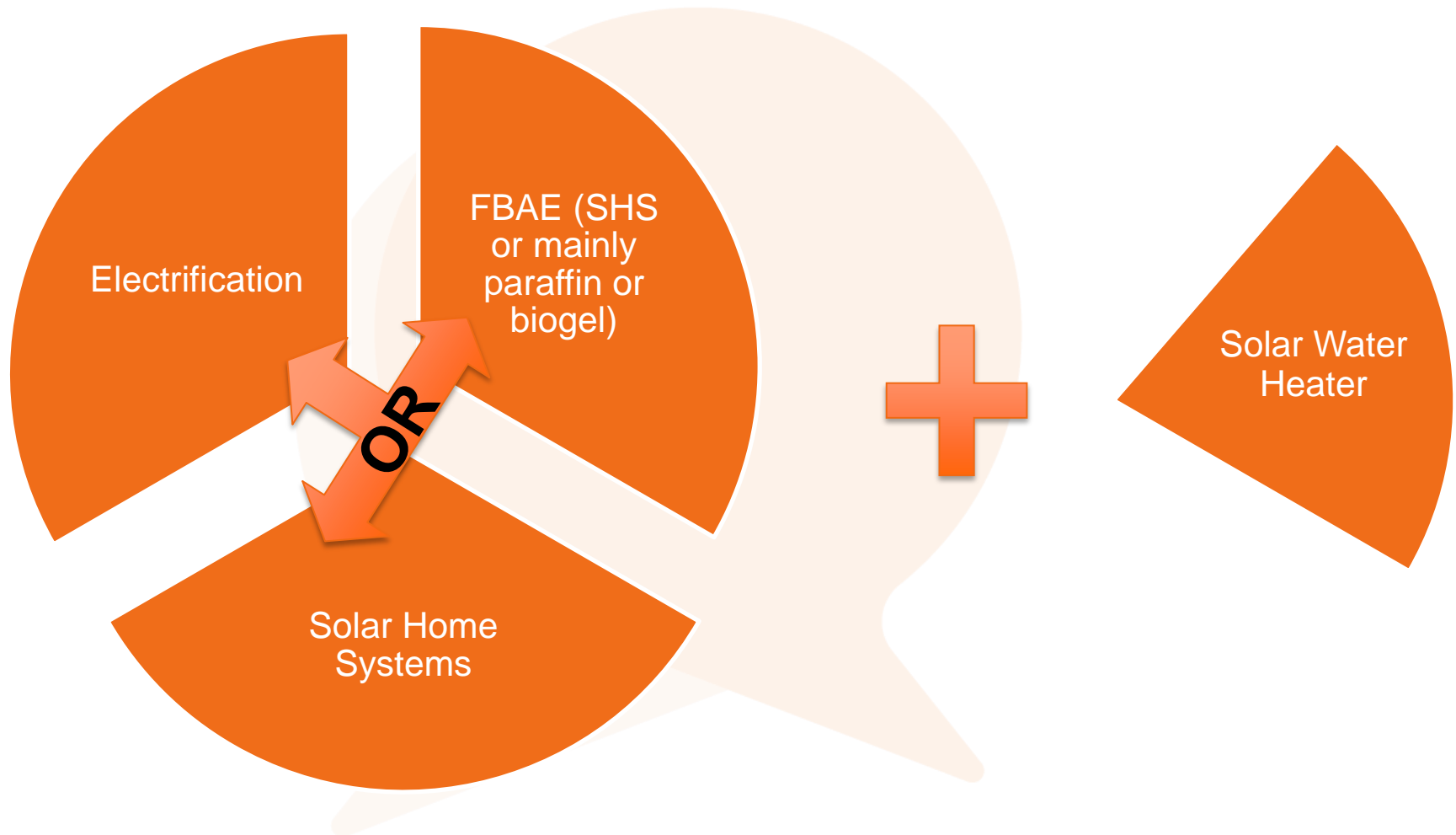


Typical SSEG installation

Province	Keeping track of existing installations	Official application system	Approved SSEG tariffs	Number of installations	kWp installed
Eastern Cape	2	2	1	195	1,384
Gauteng	4	2	1	77	24,813
KZN	1	1	1	18	70
Limpopo	1	0	0	3	265
Western Cape	14	12	9	322	9,787
North West	1	0	0	10	2,000
Mpumalanga	0	0	0	-	-
Northern Cape	1	0	0	4	183
Free State	1	1	0	3	400
TOTAL (Nov 2016)	25	18	12	621	38,389
PAST DATA to track progress					
TOTAL (Aug 2016)	23	16	12	495	17,029
TOTAL (Feb 2016)	10	3	5	264	9,044

Energy Access

Existing approach

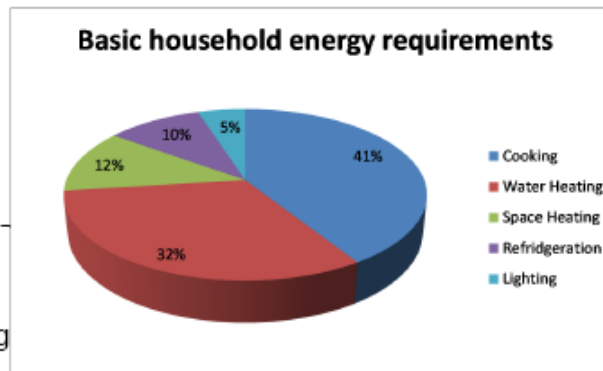


UNDERSTANDING ENERGY NEEDS

Basic household energy requirements

- In terms of the “Energy Outlook” published by the Department of Energy in 2013, it is estimated that the energy requirements in a typical household is as follows:

- Cooking – 41%
- Water Heating – 32%
- Space heating – 12%
- Refrigeration and entertainment – 10%
- Lighting – 5%



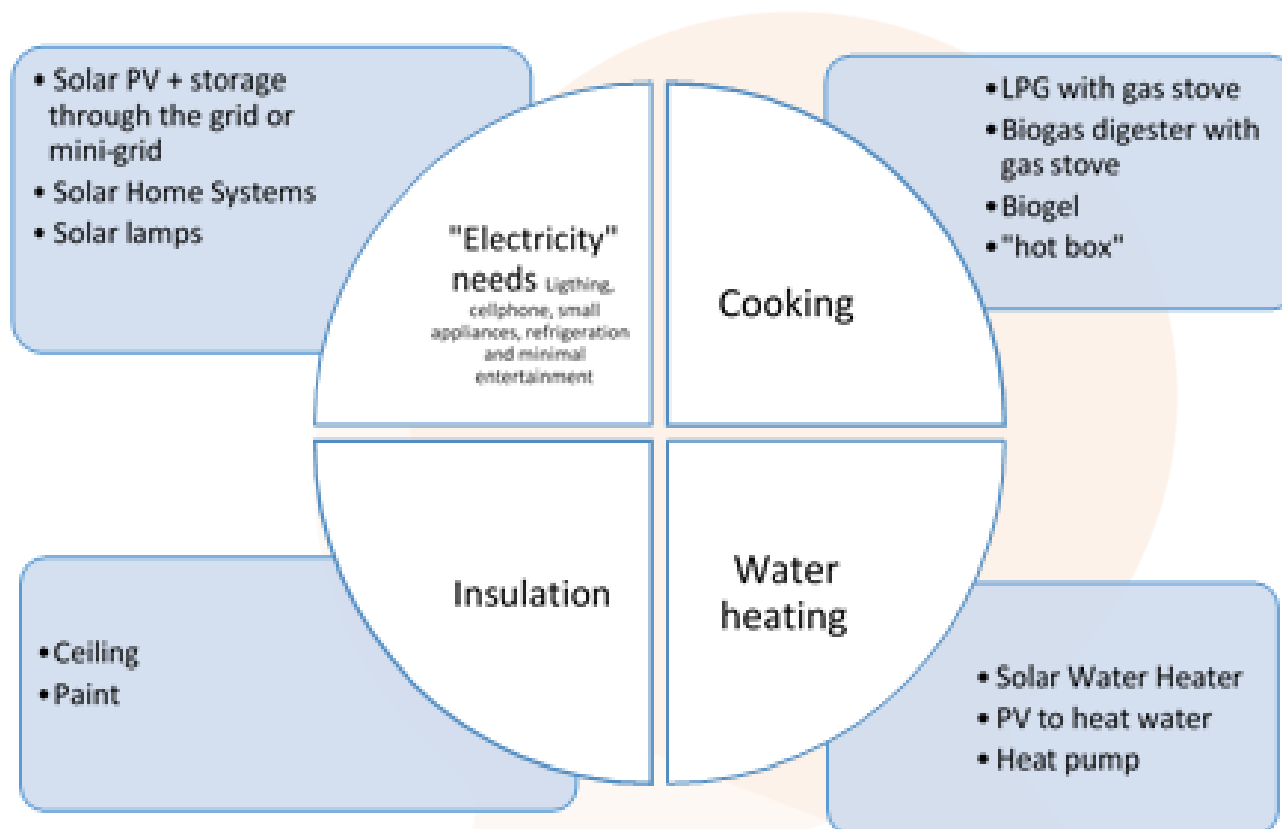
- 73% is for cooking and water heating
- Thermal Requirements**

- 17% of total national demand is to supply households

Ratios may apply, but how much is enough per person?

		Basic needs – How much is enough?
“Electricity” needs	Lighting	Xx hours of lighting
	Phone charging	2 cellphones
	Refrigeration	20 kWh / month
	Small appliances	
	Entertainment (TV, Radio)	2 hours / day
	Bigger appliances	--
	More entertainment	--
Thermal needs	Cooking	2 hours /day
	Water Heating	
	Insulation	Passive
	Space heating	--

TOWARDS AN HOUSEHOLDS ENERGY PACKAGE APPROACH



Suggestions for an affordable, modern energy package. The technology lists are only examples and aren't exhaustive lists.

Co-benefits of providing an integrate, modern and affordable energy package to households

- **Affordable, safe and sustainable** energy service
- A **reduction of peak** consumption (through the use of alternative energy for heating and cooking mainly) thereby a **reduction financial losses** for the distribution utilities
- **Less grid capacity constraints**
- A **reduction of the need for cross-subsidies** (the investment by a municipality in a PV panel can be seen as a long term subsidy for low income households at a fixed price for 20 years)
- The possibility to create **opportunities for small business** development
- The provision of **safer energy**: reduced risk of fire, increased indoor air quality
- A **reduction of theft and criminalisation** of poor communities (when they are not able to afford electricity through the full month)
- Solutions to energise **informal houses** where grid access is not possible
- **Financial sustainability for municipalities**, as the current model of energy provision is not sustainable
- Options to meet **low carbon/climate commitments**

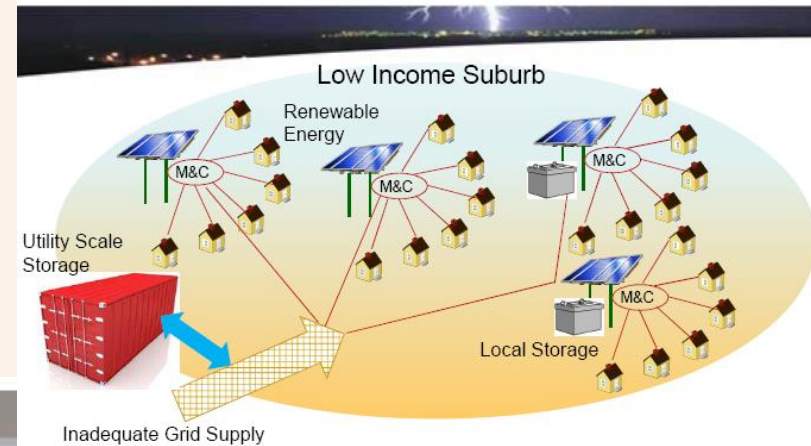
Example: City Power - Thembelihle

Problem Statement

- ❑ The provision of electricity to new customers remains challenging
- ❑ Informal settlements are often most neglected
- ❑ Illegal electricity distribution and use is a serious concern
 - Safe Living Environment
 - Financial Loss Management and curtailment
- ❑ Affordable, alternative energy sources - LPG, Solar PV to support the grid and energy storage with load management proposed
- ❑ Critical project success factors include:
 - Sustainability, Maintainability and integrated operations with current City Power business
 - Creating local employment and empowerment



Systems Thinking Approach



+



Coming soon... a map to showcase municipal green projects

8SALGADo you want to contribute? [Sign up](#) or [Log in](#)

Projects Plans

Search & Filter

Projects

Sectors

Show All Hide All

- Renewable Energy
- Small Scale Embedded Generation
- Waste to Energy
- Municipal "Own" Energy Efficiency
- Energy Efficiency in the Economy
- Energy Access
- Green and Public Transport
- Waste Management
- Other climate mitigation project
- Adaptation

Municipalities

Provinces

Show All Hide All

- Eastern Cape

Map Satellite

Google

Reset Map Export Project/Plans

Regions Selected: 0 provinces 0 districts 0 metros 0 locals

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Municipalities adopt RE Targets



SOUTH AFRICAN LOCAL
GOVERNMENT ASSOCIATION

transition - delivery

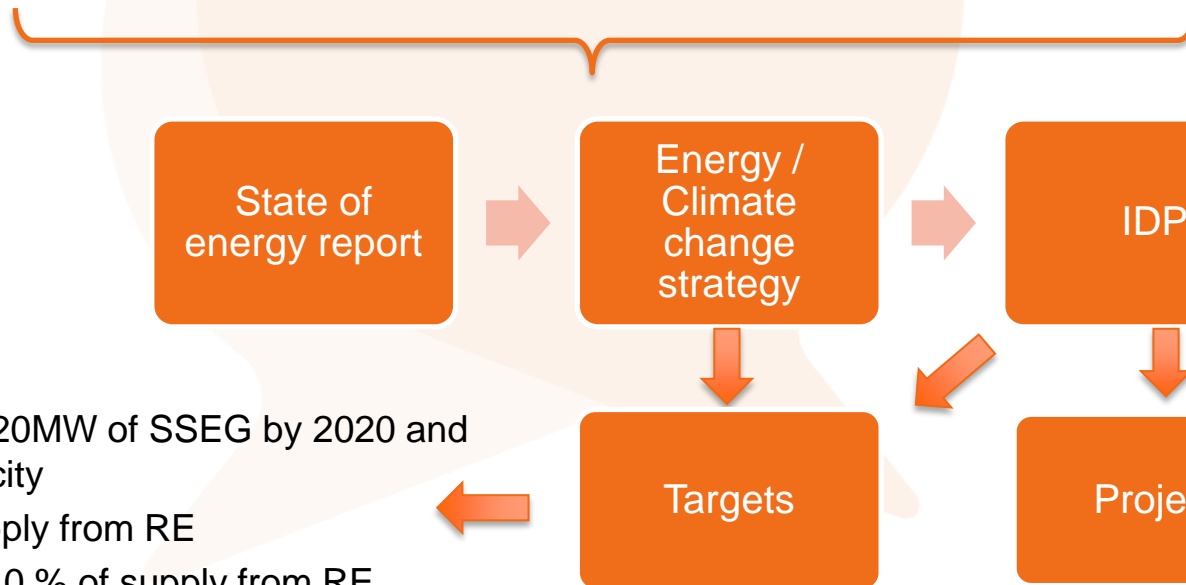
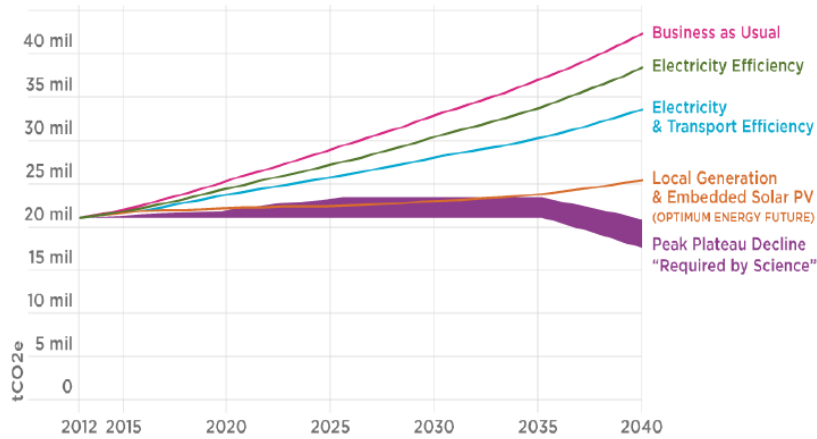
2014 - 2024

UNITED NATIONS DECADE OF
SUSTAINABLE
ENERGY FOR ALL



Cape Town's Energy2040 vision

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



Cape Town: target is 120MW of SSEG by 2020 and 300 MW of own electricity

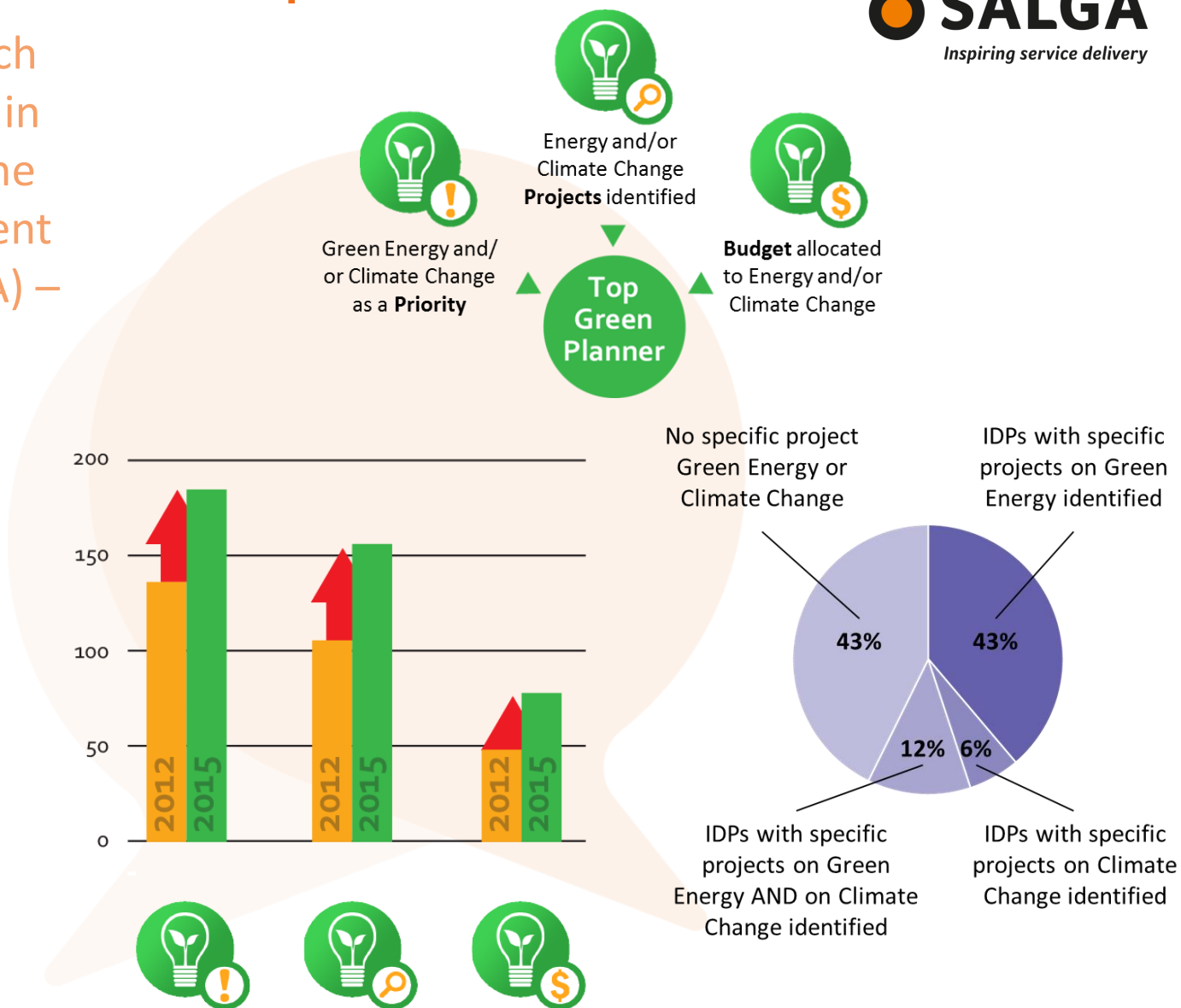
Ekurhuleni: 10% of supply from RE

Nelson Mandela Bay: 10 % of supply from RE

RE in municipal IDPs

A report on research undertaken by GIZ in partnership with the SA Local Government Association (SALGA) – Dec 2015

Based on an analysis of all 278 IDPs:
Identify municipalities that have adopted measures in their IDPs to promote RE, EE and more generally GHG reduction

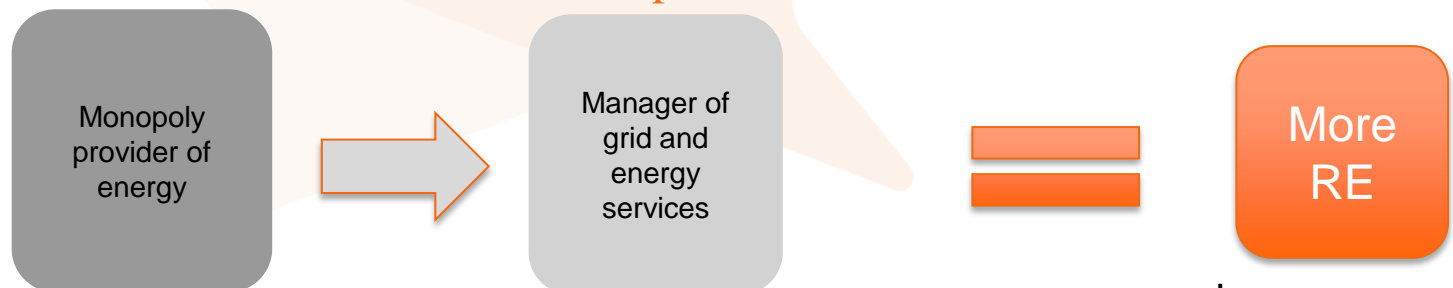


New business models

PROBLEM STATEMENTS OR QUESTIONS THAT MUST BE ANSWERED

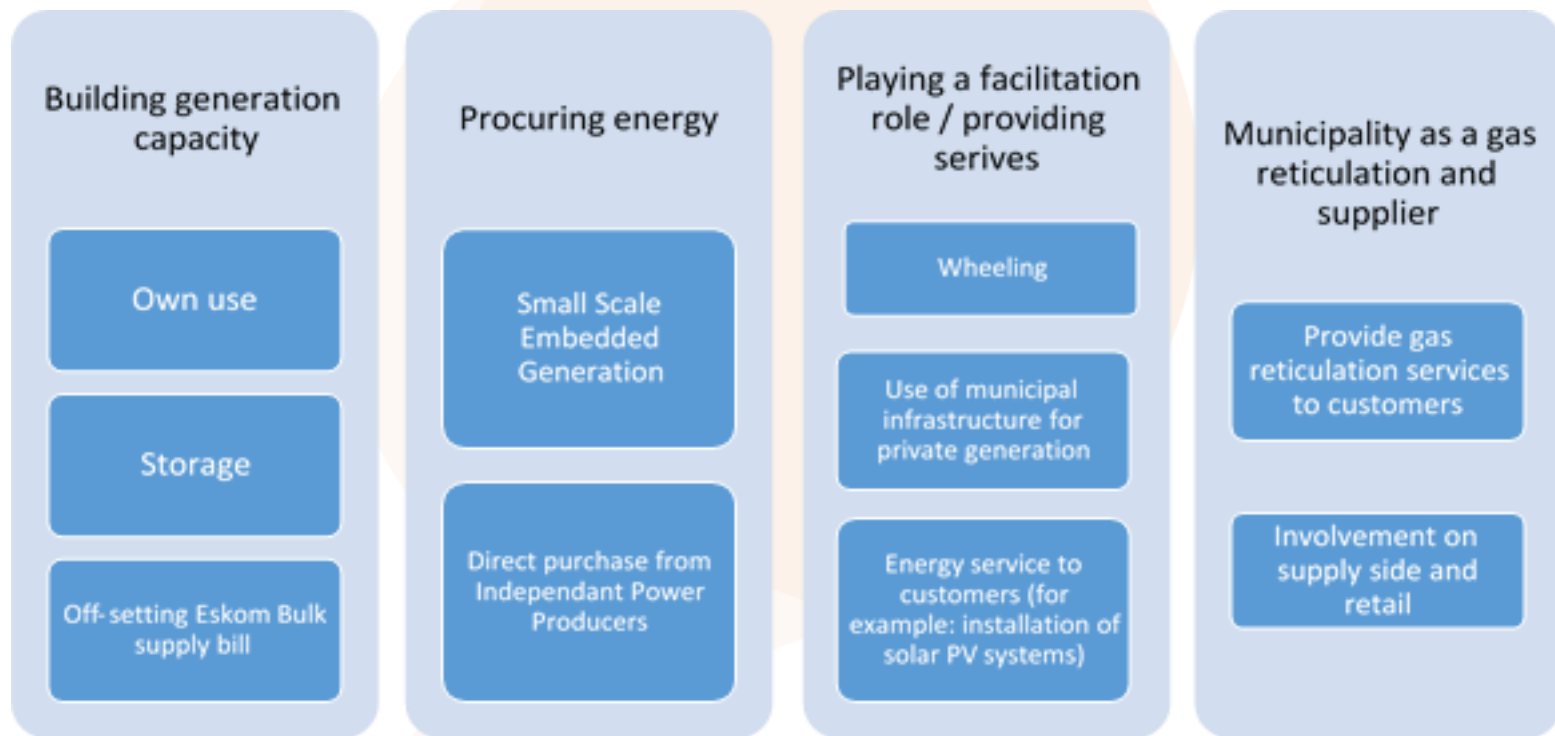
- *How can municipalities*
 - *ensure sufficient revenue for sustainable operations and optimal service delivery in a changing environment?*
 - *reduce dependency on state grants and build sustainable electricity and energy utilities – sustainable funding model for municipalities?*
 - *ensure that their revenues made from electricity are protected and sustained?*
 - *ensure that they provide safe, sustainable and affordable energy services to all?*
 - *adapt and keep up with the forces of change in the electricity distribution industry?*
 - *participate within the renewable energy space in the country and what are the policy shifts needed?*

Core proposition: The electricity distribution business model is under threat and must evolve. Inaction and business as usual is not an option.



EXPLORING BUSINESS MODEL OPPORTUNITIES

The new value proposition of being grid connected is not necessarily to access cheap Eskom energy, but rather to use the grid to balance local supply and demand (which otherwise requires significant local storage which is still expensive), use the grid for backup power and finally, to provide the marketplace for any surplus that a neighbour can consume.



Examples of some new business models for municipalities identified through prospective studies and international exchanges

Buying electricity from IPP / generating own electricity

Benefits:

- own investments in renewable energy as a hedge against increasing costs of Eskom energy, to secure cross-subsidies. A significant investment in RE will fix the price of such a block of energy, that can also be used to reduce the future costs of cross subsidies from commerce and industry and having to use Eskom power to cross-subsidize the poor.
- The intent is also to ultimately reduce to cost of power to commerce and industry to assist them to be as globally competitive as possible.

Status

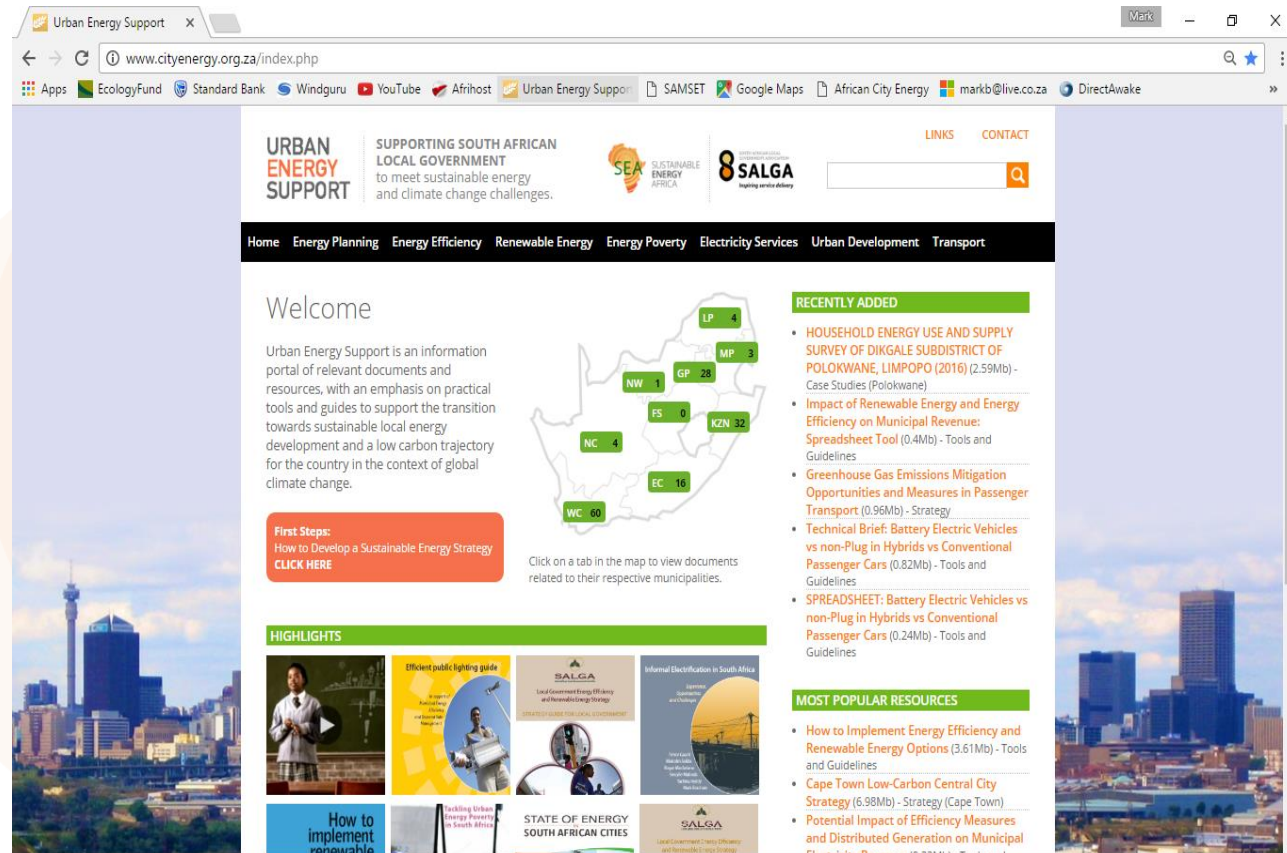
- Several municipalities are currently buying from IPPs, at small scale or short term. More is needed to meet climate and others objectives.
- The City of Cape Town has frequently asked for a Ministerial Determination (Section 34) to enable CCT to own own gen/have PPAs over 1MW;

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IN CONCLUSION

- GTAC / NT / ERLN task team
- Urban Energy Network
- There is much happening on RE at LG level. It is only a start and will keep growing





Credits: Bruce Sutherland CCT



Implemented by:
giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



Thank you

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*NMBM small scale embedded
generation pilot project installed in
2008 –
copyright / photographer: D Liebenberg*

*A 25kW PV installation connected
to a municipal grid in Limpopo*



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for local government