

SALGA
South African Local Government Association

Local Government Energy Efficiency and Renewable Energy Strategy

STRATEGY GUIDE FOR LOCAL GOVERNMENT



Prepared by Sustainable Energy Africa (a public benefit organisation) on behalf of the
South African Local Government Association (SALGA)



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LIST OF ACRONYMS AND ABBREVIATIONS

ADAM	Approach to Distribution Asset Management	MFMA	Municipal Finance Management Act
AMEU	Association of Municipal Electricity Utilities	MIG	Municipal Infrastructure Grant
ANC	African National Congress	MISA	Municipal Infrastructure Support Agency
BRT	Bus Rapid Transit	NEEAP	National Energy Efficiency Action Plan
CFL	Compact Fluorescent Lamp/Light	NBI	National Business Initiative
COGTA	National Department of Cooperative Governance and Traditional Affairs	NCPP	National Cleaner Production Programme
DEA	National Department of Environmental Affairs	NGO	Non- governmental Organisation
DHS	National Department of Human Settlements	NERSA	National Energy Regulator of South Africa
DoE	National Department of Energy (formerly known as Department of Minerals and Energy – DME)	NLTA	National Land Transport Act
DoT	National Department of Transport	NMBMM	Nelson Mandela Bay Metropolitan Municipality
DORA	Division of Revenue Act	NMT	Non- Motorised Transit
DSM	Demand Side Management	NRS	National Regulatory Standard
DTI	Department of Trade and Industry	NT	National Treasury
DWA	National Department of Water Affairs	NT TAU	National Treasury Technical Assistance Unit
EE	Energy Efficiency	PFMA	Public Finance Management Act
EEDSM	Energy Efficiency and Demand Side Management Programme	PPP	Public Private Partnership
EPWP	Expanded Public Works Programme	PSEE	Private Sector Energy Efficiency
ERA	Electricity Regulation Act (2006)	PTIG	Public Transport Infrastructure Grant
ESCO	Energy Savings Company	PTNOG	Public Transport Network Operations Grant
FBAE	Free Basic Alternative Energy	PTOG	Public Transport Operations Grant
FBE	Free Basic Electricity	PTSAP	Public Transport Strategy and Action Plan
FET	Further Education and Training	PV	Photovoltaic
GBCSA	Green Building Council of South Africa	RE	Renewable Energy
GHG	Greenhouse Gas	REBID	Renewable Energy Bids
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German International Corporation)	REIPPP	Renewable Energy Independent Power Producer Procurement Programme
GJ	Gigajoule	RSA	Republic of South Africa
GVA	Gross Value Added	RTSSA	Rural Transport Strategy for South Africa
HFO	Heavy Furnace Oil	SABS	South African Bureau of Standards
HPS	High Pressure Sodium	SACN	South African Cities Network
HVAC	Heating, Ventilation and Cooling	SAGEN	South African – German Energy Programme
IBT	Inclining Block Tariff	SALGA	South African Local Government Association
ICLEI	Local Governments for Sustainability	SANEDI	South African National Energy Development Institute
IDM	Integrated Demand Management	SANS	South African National Standards
IDP	Integrated Development Plan	SAPIA	South African Petroleum Industry Association
IMESA	Institute of Municipal Engineering of Southern Africa	SARPPGC	South African Renewable Power Plants Grid Code
INEP	Integrated National Electrification Programme	SDC	Swiss Agency for Development and Cooperation
IRP	Integrated Resource Plan	SDF	Spatial Development Framework
IRPTN	Integrated Rapid Public Transport Network	SEA	Sustainable Energy Africa
KPI	Key Performance Indicator	SEED	Sustainable Energy for Environment and Development
KPA	Key Performance Area	SETA	Services Sector Education and Training Authority
KSD	King Sabata Dalindyebo Municipality	SIPS	Strategic Integrated Projects
LED	Light Emitting Diode	SSEG	Small Scale Embedded Generation
LED	Local Economic Development	StatsSA	Statistics South Africa
LG	Local Government	SWH	Solar Water Heater
LPG	Liquefied Petroleum Gas	TSA	Taxi Scrapping Allowance
M&V	Measurement and Verification	V- NAMA	Vertically Integrated Nationally Appropriate Mitigation Action
MCEP	Manufacturing Competitiveness Enhancement Programme		

Introduction and Background

The development of this Local Government Energy Efficiency and Renewable Energy Strategy was funded through the Swiss Agency for Development and Cooperation (SDC) 'Energy Efficient Building Programme 2010 – 2013'. The programme directed support to contribute to the reduction of greenhouse gas (GHG) emissions in South Africa through energy efficiency interventions at policy, monitoring, research, training and implementation levels. The South African Local Government Association (SALGA) was the partner facilitating the implementation of the local government part of the Programme.

Substantial local level energy work is underway across the country, however this has been predominantly focussed within the larger cities and towns, and is also currently addressed on a voluntary and ad hoc basis. There is an expressed need from municipalities for clarification and guidance as to what is required in the area of energy efficiency and renewable energy development from the local level. This strategy aims to address this need and draw together national learnings and experience towards supporting all municipalities across the country in taking this work forward.

Alignment with national policy

The Draft National Energy Efficiency Action Plan of the Department of Energy (DoE, 2013), notes that efficiency must be undertaken primarily by end users (residents, businesses) and encourages sectors and other spheres of governance to develop their own plans towards national efficiency targets¹. The National Climate Change Response Policy (DEA, 2011), Section 10.2.6 recognises the important role of municipal government in meeting the challenges of climate change, including areas relating to energy service delivery. This strategy development aims to support these national goals.

Given the call from national government for local government to contribute to climate mitigation and efficiency targets, it also seems useful and necessary to begin to draw up a clear picture of the potential contribution that can be made at the local level and assess the support required to realise this potential. Importantly, this strategy will also ensure that the specific experience of local government, their particular challenges and opportunities, are brought to the fore, so that support programme can be strategically directed.

The shift towards more sustainable forms of energy services also anticipates the stimulation of the local economy. While energy efficiency and even, to an extent, renewable energy generation, may reduce total electricity sales, it is also putting money in the pocket of the customer (which may be spent locally), and developing local businesses, such as energy service companies, plumbing services, hardware businesses and creating jobs.

¹ *Development of a first Draft of a National Energy Efficiency Action Plan (NEEAP) for the RSA, Draft 5, DoE, 2013, p 9 and 56: this recognises the role of sub-national government and includes the development of an action plan to support municipal action.*

These transitions may also grow the available electricity for development and economic growth, given current capacity constraints. This important, and sometimes complex, aspect of the shift towards energy efficiency and renewable energy requires greater attention.

Section 154(1) of the Constitution of South Africa (1996) tasks both national and provincial government with supporting and strengthening the capacity of municipalities to manage their own affairs, exercise their powers and perform their functions. This strategy aims to provide a clear programme of action for local government, to promote energy efficiency and renewable energy development in line with national policy direction and within local governance mandates. It is also designed to provide a clear programme of action, to be led by SALGA, to those tasked with strengthening the capacity of municipalities to undertake this work.

Local government: a context of service delivery

A cornerstone of the strategy development process has been engagement and consultation with the country's municipalities via the SALGA Provincial offices. Despite challenges facing local government, the commitment, passion and calibre amongst local government officials and leaders working in this newly unfolding arena must be acknowledged. Valuable, pioneering energy efficiency and renewable energy work is already underway within South African municipalities. The Strategy development process has drawn extensively on this work and experience.

Local level consultation also made it clear that energy efficiency and renewable energy, at the local governance level, cannot simply be seen as a technical issue, but must be addressed in the context of service provision, in which ensuring sustainability of municipal revenue and electricity service delivery, addressing poverty and access to energy services, and stimulating local economic development is paramount. The strategy developed here aims to reflect these municipal priorities.

'Sustainable energy' proposes that the solution to energy challenges must contribute to, and be consistent with, resolving other major problems such as poverty and environmental degradation. This approach resonates with the priority areas raised by local government officials and leaders within the Municipal Energy Efficiency and Renewable Energy Strategy development process: energy efficiency and renewable energy must contribute to the overarching goals of service provision, poverty reduction and environmental protection. A needs- based approach to energy development – looking at who needs energy for what purpose-has a focus on the end-uses of energy and the services that energy provides human beings. This brings energy planning solidly into the domain of local government.

Energy transition

The energy sector is substantial and lies at the heart of the economy and of society. This energy in South Africa is substantially (98%) fossil fuel derived, with high levels of associated carbon emissions. Municipalities have been very responsive to the call for local energy management and proactive in responding to the challenge of climate mitigation. However, an energy transition involving a significant reduction in fossil fuel consumption is complex. In order to align with levels of emissions 'required by science' to curb catastrophic climate impacts, a fairly radical departure from 'business as

usual' needs to take place within municipal business. Thus, efficiency and renewable energy – in the experience of those who have pioneered implementation at the local level – cannot simply be 'added on' to municipal business, but requires that capacity, systems, service delivery and revenue models must be addressed. This strategy intends to prepare the ground.

The strategy development process

This strategy has been developed in consultation with municipalities across the country. Consultation workshops were convened by the local SALGA office in each of the 9 provinces. These workshops were extremely participatory, combining a process of developing an understanding of local energy issues, presenting local energy data for analysis and discussion, and strategy discussion. Levels of participation from an array of officials, spanning electricity, water, planning, environment, health sectors, was extremely good and this strategy reflects the issues and concerns raised in these sessions, and proposed responses. It also draws on the fifteen-plus years of local energy experience generated by pioneering municipalities in the country. Current research, stakeholders and leading experts have been consulted; however, the vision, priorities and goals presented here flow from the municipalities themselves.

The strategy is not prescriptive to municipalities, and requires that municipalities adopt and adapt the broad strategic direction presented here, towards their own strategy and action plan. The Status Quo Report developed to inform this strategy has a lot of useful and important information and data 'making the case' for and illustrating the various interventions. It will be important to consult this document for quantitative support for your strategic direction. This document is presented here as Part II. The strategy process also included the development of a Support Action Plan, to be lead by SALGA. This plan recognises and addresses the support that will be needed by local governments to enable them to undertake sustainable energy development. All of these supporting documents are available for download from the Urban Energy Web Platform on www.cityenergy.org.za.

Making it locally applicable

The strategy presented here is comprehensive and is applicable to all municipalities. However, being comprehensive, it runs the risk of overwhelming municipalities. It is very important that municipalities identify their priorities from within the broad strategic direction, in line with their own local goals and capacity. A rule of thumb is that meeting service delivery priorities must be first priority, then tackling energy efficiency (more economic than renewable energy) and only addressing renewable energy development where it provides an obvious economic opportunity for the municipality and/or there is pressure from residents relating to renewable energy development that must be addressed.

It is understood that in the face of enormous capacity constraints and service delivery backlogs, this area of work will often not receive sustained, focussed attention. To this end a "Key first steps plan" is also presented. For many of the resource-poor municipalities, with very low levels of energy consumption, this is sufficient activity. However, as is noted in the Status Quo document, changes in the energy domain are happening, whether led by municipalities or not, and the strategy presented here provides a sound programme towards ensuring that municipalities are able to respond to change

in such a way that best protects and enhances their ability to deliver on Constitutional service delivery responsibilities.

It is also well understood, through experience, that actual implementation is the real challenge. This strategy points towards the kind of technical support that will be required for this to happen. Realising the levels of technical and implementation support will be dependent on galvanizing national government and stakeholder capacity.

Local Government Energy Efficiency and Renewable Energy Strategy

Vision Elements

- The welfare of citizens is supported through the eradication of energy poverty
- Effective municipal institutions exist that are able to support the efficient use of electricity through smart systems, provide effective energy services into the future, and manage their operations sustainably
- Municipal areas are well planned and are designed for people rather than cars, the need for travel is reduced, safe public transport is widespread, and where non-motorised transport is facilitated and cities are walkable and safe for children
- Municipalities have clean air through the adoption of clean energy technologies and practices and reduction of polluting private vehicles on the road
- Municipal officials from all departments, the private sector and citizens alike embrace the radical new approaches in planning, operations and lifestyles to meet the sustainable energy challenges

Strategy Overview: Priority Areas, Goals and Strategies

Priority Area	Goal	Strategies
1: Local sustainable energy governance	Good governance through the development of local, flexible and integrated sustainable energy plans and leadership that can engage in applicable national energy-related development planning.	<ul style="list-style-type: none"> ➤ Institutionalise a local level sustainable energy 'mandate' through provision of clear direction on IDP and related planning requirements. ➤ Build political and senior management leadership. ➤ Develop local level sustainable energy policy and plans Support local sustainable energy plan implementation.
2: Municipal 'own' energy efficiency	Efficient institutions able to manage energy consumption in their own facilities and operations and transform local waste to energy where viable.	<ul style="list-style-type: none"> ➤ Implement building and lighting efficiency Implement water and sanitation service efficiency. ➤ Develop an efficient vehicle fleet Support waste reduction, management and waste to energy development.
3: Energy access for all	All households have access to affordable, safe and clean energy sources.	<ul style="list-style-type: none"> ➤ Electricity tariffs and subsidies support use of electricity by poor households. ➤ Electrification expanded to reach all households, including informal households on urban/dense settlement areas and rural households. ➤ Workable Free Basic Alternative Energy models are developed and rolled out where appropriate. Thermal performance in poor households is improved, focussing on existing houses without ceilings. ➤ Develop a household energy service package approach.
4: Energy efficiency in the residential, commercial and industrial sectors	Effective institutions able to support the efficient use of electricity throughout the built environment and economy.	<ul style="list-style-type: none"> ➤ Encourage and enforce efficiency through building and development approval processes. ➤ Promote efficiency (and localisation, where appropriate) through information provision and product/systems/supplier endorsement programmes. Encourage and enforce efficiency through electricity services technical interventions
5: Renewable energy development	Renewable energy options are a significant component of local energy supply where they are technically and economically feasible, contributing to low carbon development and local economic growth/sustainability.	<ul style="list-style-type: none"> ➤ Promote small-scale embedded generation, with an initial focus on solar PV. ➤ Facilitate landfill gas and wastewater gas electricity generation where appropriate. ➤ Facilitate micro-hydro generation where feasible.

Priority Area	Goal	Strategies
6: Electricity Services	Sustainable electricity service delivery that can accommodate and promote access to electricity, efficiency and renewable energy development.	<ul style="list-style-type: none"> ➤ Adopt sustainable revenue models in response to revenue loss challenges resulting from efficiency, embedded generation and requirements of infrastructure maintenance and expansion. ➤ Facilitate small-scale embedded generation in a way that preserves financial and technical integrity of the distribution system. ➤ Rollout informal settlement electrification. Introduce 'Smart'² technology, appropriately and based on a detailed understanding and long-term vision of its role. ➤ Reduce electricity theft to protect revenue.
7: Efficient Transport and Mobility	Walkable, 'smokeless' municipalities that support safe mobility for all and good transport networks; and where public transport is a sought-after mode of vehicle transport.	<ul style="list-style-type: none"> ➤ Develop integrated, local transit (i.e. all mobility modes) plans. ➤ Develop Non-Motorised Transit (NMT) facilities ➤ Develop and improve public transport modalities. ➤ Support and promote greener fuels and fuel efficiency.
8: Spatial Planning	Well-planned municipalities where all citizens have access to amenities and economic opportunities.	<ul style="list-style-type: none"> ➤ Spatial Development Frameworks support mobility, transport efficiency and access by the poor to amenities and economic opportunities. ➤ Land development criteria support urban objectives of improved mobility and transport efficiency, and energy efficiency and renewable energy implementation. ➤ Spatial plans and transport plans are closely coordinated to support common objectives.

Prioritising and Phasing of the Strategy

As noted in the introduction to the Strategy, the idea is to provide a comprehensive Sustainable Energy (or Energy Efficiency and Renewable Energy) Strategy to guide all municipal action. The actions contained in the Strategy document are of relevance to all municipalities; however, the reality is that there are vast differences in capacities and functions across the different municipalities. Municipalities will have slightly different priorities, capacities and contexts and these will guide what and how they take this work forward. A broad approach of prioritising and phasing the Strategy, developed out of the municipal context, is provided below³.

²Smart systems are not only limited to certain components such as smart meters but also imply introduction of smart grid or smart technology. The "grid" includes supply chain logistics, generation, transmission, distribution and customer. A good article on this may be found on www.cityenergy.org.za, under Electricity Services

³Local government representatives in the consultation process emphasised that service delivery and addressing poverty is the uppermost mandate that they have as local government, hence the emphasis here on addressing energy poverty through energy service delivery; the next most critical aspect raised was 'leading by example', i.e. we must run our own business well and efficiently. Local economic development is high on the agenda, hence the third priority; this also arises as many municipalities are confronted by 'action on the ground' whether they like it or not – i.e. residents who are turning to efficient or renewable energy services on their own, and this must be accommodated..

Priority Action: National Level

1. Mandates and Institutions

Clarification of the energy responsibility at the local level is a vital first step towards local energy development. This needs to be coordinated by SALGA, and led by Departments of Energy and Cooperative Governance. Once clarified, this needs to be institutionalised.

2. Technical and Implementation Support

Boosting of the existing support, such as that provided through the Municipal Infrastructure Support Agency, needs to be done.

Priority Action: Local Level

1. Policy, Strategy or Action Plan

A local plan outlining activities, responsible departments and budgets needs to be developed by each municipality, and integrated into municipal planning processes, such as the IDP, SDP and Electricity Master Plans.

The energy planning process can be an extensive and detailed activity (for example in larger and more complex municipalities), resulting in a municipal Strategy; or can be a more simple process, identifying priorities (drawing on this Municipal EE and RE Strategy), and including these into the existing municipal planning processes. What is important is for the municipality to have a clear idea (strategic rather than ad hoc) of where they are taking this work and how it relates to their municipal development goals.

2. Implementation

As a 'rule of thumb', the following phasing and priority actions should apply:

Phase 1	Phase 2	Phase 3
Delivering sustainable energy services for all	Becoming efficient	Growing renewable energy services and economies
Key actions	Key actions	Key actions
<ul style="list-style-type: none"> - all new government housing is efficient, in line with new regulation - Retrofit existing housing with ceilings - Upscale electrification (formal and informal areas) - Develop an energy services 'package' for households - Tighten and improve electricity distribution and billing systems - Begin 'own' efficiency: retrofit municipal building lights with efficient alternatives - In line with legislation: enforce SANS 10400-XA and SANS 204 in building approval processes 	<ul style="list-style-type: none"> - Meter and record municipal energy consumption - Retrofit water pumps with efficient alternatives - Awareness program amongst staff - Vehicle procurement to look at operating (life cycle) cost not just capital cost - Efficient driving: driving management and trip monitoring or changing - Engage with smarter technology, and private sector programs, to improve residential, commercial and industrial efficiency - Support solar water heater rollout programs through endorsements schemes, information, subsidy programs (where available) 	<ul style="list-style-type: none"> - Develop clear and simple procedures (in line with NRS097-2-1) for the application and adoption of small-scale embedded generated power - Establish feasibility, develop business plan and possibly engage with private sector on waste to energy projects and municipal rooftop PV - Engage with the development of natural gas as an energy supply option

It is important that there are one or two visible pilot projects undertaken and that these are used to generate political will and leadership, as well as community support. While growing renewable energy may not be a priority, particularly where municipalities are struggling to meet service delivery commitments, in many instances municipalities are being forced to tackle this issue through pressure from the ground – requests for renewable energy grid feed-in, approaches from developers, and the municipality needs to be able to respond.

3. Funding and Financing

The Strategy notes that further work on financing and funding of this work needs to take place. This will largely rest with national government. However, much of this activity CAN be achieved through existing municipal budgets. Obtaining donor funding, where possible, for funding of pilot initiatives, can provide important learning and awareness-raising opportunities.

Strategic Priority Area 1: Local Sustainable Energy Governance

Goal

Good governance through the development of local, flexible and integrated sustainable energy plans and leadership that can engage in national energy-related development planning.

Strategies

- Institutionalise a local level 'sustainable energy mandate'
- Build political and senior management leadership
- Develop local level sustainable energy policy and plans
- Support local sustainable energy plan implementation

Status Quo and Key Challenges Synopsis

- A substantial portion of national energy consumed relates to activities that are influenced by the built environment and infrastructure over which municipal government has substantial powers and functions.
- Modelling indicates that without intervention, energy consumption and related emissions will increase at an unacceptable rate given resource limitations and climate change commitments. This trajectory is also likely to be economically costly⁴.
- The responsibility to delivery free basic services, including energy, rests with local government; other functions and responsibilities of local government that have a bearing on national policy relating to energy efficiency and renewable energy development are detailed in Table 1 below.
- Responsibilities relating to energy efficiency are relatively new (emerging out of the Energy White Paper of 1998, the Energy Act 2008 and the Energy Efficiency Strategy 2005) and need to be institutionalised. This is complex as energy efficiency requires new approaches to executing current powers and functions, rather than an additional power or function, and also occurs across multiple sectors.
- Renewable energy is not a mandate of local government per se, but may be brought into local government policy and operation through the pursuit of local economic development, environmental and sustainability concerns and the built environment. National government's renewable energy programme may also impact on local government as it takes place in local areas, and increasingly may even be 'embedded' within the distribution network of local governments.

⁴Long Range Energy Alternatives Planning (LEAP) modelling for Cape Town and Durban give an idea of potential growth trajectories (SEA 2013); however, demand trajectories are also undergoing rapid change, making this an important area for further research and investigation.

- The National Climate Change Response White Paper (2011) identifies local government as an important partner in meeting national mitigation and adaptation targets (Section 10.2.6) flowing from their responsibilities as detailed in the objectives and powers and functions accorded to local government in the Constitution of South Africa (108 of 1996) and the Municipal Systems (32 of 2000) and Structures (117 of 1998) Acts. These climate response responsibilities include energy efficiency at the local level, and renewable energy development. SALGA is specifically identified here as a key support in enabling local government to realise the national climate response.
- A number of metropolitan areas and secondary cities have developed detailed energy data reports and energy and climate change strategies and are actively implementing these.
- Municipalities across the country feel strongly that they wish to contribute to an efficient and sustainable future, but require the financial ability and capacity to do this. There are also very real barriers to taking this forward, for example, not wishing to place restrictions on possible development that might lead to local economic growth.

Mandates, Powers and Functions

A detailed overview of legal work to date on the issue of sub-national energy and climate change mandates is provided in the accompanying Status Quo Review document. Below is an overview of the interaction between national energy objectives and related municipal powers and functions.

Table 1: Local Government powers and functions (Schedules 4 and 5, Constitution RSA 1996) relevant to achieving national energy objectives (as set out in the Draft Integrated Energy Plan, 2012, and derived from the Energy Act (2008))

8 Key National Integrated Energy Objectives	Related municipal mandates, or functions (Constitution of RSA 1996; Municipal Systems Act, Municipal Services Act)
1. Ensure the security of supply	Electricity reticulation; Free Basic Alternative Energy
2. Minimise the cost of energy	Electricity reticulation (tariff setting, cross subsidisation); Human settlements (housing delivery); Public transport (limited); Non-motorised transport;
3. Increase access to energy	Electrification; Free Basic Alternative Energy; Human Settlements (thermal efficiency); Public transport; Spatial planning
4. Diversify supply sources and primary sources of energy	Electricity reticulation; Waste management
5. Minimise emissions from the energy sector	Electricity reticulation; Building codes and planning approval
6. Promote energy efficiency in the economy	Manage public facilities; Building codes and development approval; Air quality management; Electricity distribution
7. Promote localisation and technology transfer and the creation of jobs	Local economic development
8. Promote the conservation of water	Water service delivery

Related Standards, Policies

- Energy Act 2008 (and Integrated Energy Plan; Integrated Resource Plan 2010)
- The National Energy Efficiency Strategy (2005; Rev 2008; 2011) and related National Energy Efficiency Action Plan (2012)
- White Paper: Renewable Energy (2003)
- National Climate Change Response Policy (2011)
- The Green Economy Accord
- The National Development Plan (2012)

Related Programmes

- Programmes specific to other Priority Area goals are recorded in each Area, but it is worth noting that inside South Africa programmes that support the broad development of local energy planning and implementation include:
- SALGA: EE Monitoring and Implementation Pilot in 5 Cities (SDC funded, closing 2013/2014)
- Sustainable Energy Africa and the City Energy Support Unit Programme (technical and capacity development support to Metros, and broader network of cities and towns)
- ICLEI – Urban-LEDs Programme (2 cities – detailed support; 5 cities secondary support levels).
- At the international level, a number of South Africa metros and towns engage in this global initiative through programmes such as the Mexico Pact, the C40 Cities and the Earth Hour City Challenge.
- National Treasury: Sustainable Cities Programme.

Funding Mechanisms

- Municipal Infrastructure Grant (MIG)
- Integrated Sustainable City Grant (NT for cities only)

Strategy and Action Plan

Action	Responsible department/s	Support needed and SALGA Action
Institutionalise a local level 'sustainable energy mandate'		
Appoint a department to be 'home' to the sustainable energy mandate. <i>This should ideally not be prescriptive, but based on capacity and functional appropriateness in any particular municipality, e.g. Mayor's office, Environment, Electricity and Energy Services. Build on existing initiatives wherever possible.</i>	Municipal Manager Local "champion"	<ul style="list-style-type: none"> > Municipal EE/RE Strategy is adopted by SALGA with a clear plan of action for taking it forward; Local level energy mandate/responsibility is clear (through provision of clear direction on IDP and related planning requirements) and officially circulated; > Mandate is funded: ensure resources match responsibilities through economic and fiscal research (SALGA in partnership with NT); Include new responsibilities within Job Description of Municipal Manager and related KPAs; > Explore the option of efficiency and renewable energy requirements in the distributor license requirements (NERSA).
Establish municipal cross-sector energy coordinating committee <i>The relevant departments to include should be based on functional need rather than prescription – draw in those who have a role to play in line with the municipal energy plan.</i>	Municipal Manager Local "champion"	<ul style="list-style-type: none"> > Energy efficiency and renewable energy related indicators are included within IDP, SDF and Sector Plan requirements - <i>Possible consideration of an Energy Efficiency Sector Plan as requirement of IDP.</i>
Build political and senior management leadership		
Train and inform political leadership <i>Efficiency, more sustainable development approaches, are often seen as possibly retarding local economic development. Development awareness and understanding of impacts, short and longer term, is important.</i>	SALGA	<ul style="list-style-type: none"> > Information and training provision; manage and run Climate Change committee.
Develop appropriate messaging and visibility <i>Energy and climate needs to be packaged in a service delivery mode, with demonstrable social, economic and environmental benefits</i>	SALGA	<ul style="list-style-type: none"> > Pursue funds to support pilot projects; Explore viability of a benchmarking awards system (<i>Note, this should only be pursued if will NOT increase reporting requirements of municipal staff, but rather encourage and support initiatives and action</i>).
Develop a platform for engagement of local government in provincial and national policy development <i>This is particularly important as energy domain broadens into areas of energy demand and distributed energy supply; also issues of gas reticulation should this come on line.</i>	SALGA Energy 'unit' or champion Electricity Transport	<ul style="list-style-type: none"> > Provision of policy briefing notes and or information sessions and collation of input from municipalities on key policy directions; Representation of local government in inter governmental forums.
Develop local level energy policy and plans		
Develop a local level energy picture <i>This can be a commissioned exercise, compiling detailed data on energy demand and supply; or simply draw on information from the Municipal EE and RE Status Quo analysis, accessible data and local knowledge and experience (noting local level energy data can be challenging to collate – see Status Quo Report).</i>	Municipal Manager and energy 'unit' or champion department	<ul style="list-style-type: none"> > Engage national data holders to facilitate easy collection of data required to compile a local level energy picture: Eskom, DoE, StatsSA.

Action	Responsible department/s	Support needed and SALGA Action
Develop local level energy policy and plans		
Develop an energy strategy and/or action plan <i>This can be a detailed strategy process, commissioned out (this may be the case for metros and larger towns), but recommendation for most municipalities is simply to draw on the SALGA Municipal EE and RE Strategy for action appropriate to the location. Obtain input into strategy from all departments and stakeholders to ensure that it is robust and 'buy-in' is developed. This can also build on existing plans and actions, e.g. Electricity Master Plans.</i>	Municipal Manager and energy 'unit' or champion department	SALGA Municipal EE/RE Strategy in place; Circulation of guidance and best practice examples ; Facilitation support.
Inclusion of council approved strategy/plan into Sector plans and municipal monitoring systems: IDP, KPIs, SDBIPs, and Electricity Master Plans.	IDP office Provincial Local Government departments (IDP) Energy 'unit' or champion department	➤ Ensure technical support to sector plan efficiency components is available: explore institutional options for location of technical support, noting that these should be wide and varied (e.g. MISA, regional DoE, Provincial SALGA offices, NGOs/academics); also including web based information.
Identify additional funding requirements <i>As far as possible align actions to core business of the municipality and main funding processes.</i>	Energy 'unit' or champion department	➤ Identify, drive and coordinate appropriate funding streams ➤ Support municipal business plan capacity development ➤ Technical unit – NT – to support development of PPP where appropriate <i>* National Treasury and stakeholders to explore new municipal revenue models to enable the energy transition.</i>
Support local energy plan implementation		
Integrate planning across departments and alignment of bulk infrastructure projects within municipalities and across spheres of government <i>Ensure energy aspects are considered within the planning phases of all municipal projects, e.g. housing delivery.</i>	Champion department Sector departments	➤ Ensure large infrastructure programmes (ADAM, MIG) are energy conscious.
Introduce efficiency requirements into Procurement systems.	Procurement	➤ Provision of "green procurement" guidance and direction based on best practice; ➤ Clarify interpretations of the MFMA in relation to integrating resource efficiency, sustainability and life cycle accounting into Procurement processes.
Develop monitoring and reporting systems.	Energy 'unit' or champion Electricity All implementing departments	➤ Support (or commission) a process to explore streamlining of national data/reporting requirements (IDP, NERSA, Eskom, DoE, DEA); Share best practice.

Action	Responsible department/s	Support needed and SALGA Action
Support local energy plan implementation		
Develop skills, knowledge and capacity.	SALGA All relevant departments COGTA (MISA) Provincial departments Regional offices of national departments other.	<ul style="list-style-type: none"> ➤ Engage with and provide information on training courses, capacity development programmes and knowledge sharing platforms; ➤ Address technical staff shortages in municipalities: including failure of SETA's, consider bursary schemes and Artisanal training (pre-SETAs), tackle issues relating to 'cadre deployment' and political interference in technical decision making; ➤ Develop technical capacity support: government to coordinate regional platforms and central 'shared service' opportunities; boost existing national tech support units (MISA, SANEDI as technology / innovation 'hub') ➤ Develop web based information portal ➤ Strengthen Energy Forums (with DoE and provincial SALGA offices).
Secure financing and funding <i>As far as possible align actions to core business of the municipality and main funding processes.</i>	Energy 'unit' or champion, MM, Implementing departments.	<ul style="list-style-type: none"> ➤ Identify, drive and coordinate appropriate funding streams/ enhance and expand funding streams ➤ Support municipal business plan capacity development through Technical unit – NT – which can also support development of PPP where appropriate; ➤ Lobby NT to clarify interpretations of the MFMA in relation to barriers to energy efficiency contracting.

More Information and Supporting Documents:

<http://www.cityenergy.org.za/category.php?id=1>

Important or Interesting Ideas to take Forward

Provincial Support:

Provincial level energy and climate strategies that can guide all district and local municipalities (Gauteng, Eastern Cape and Western Cape have examples)

Provincial level Energy efficiency and Renewable Energy registries (Eastern Cape Province is about to publish a best practice registry; similarly, the Western Cape is busy finalising a Sustainable Energy Projects database of energy efficiency, renewable energy and sustainable transport projects being implemented in the Western Cape.)

Strategic Priority Area 2: Municipal 'own' Energy Efficiency

Goal

Efficient institutions able to manage energy consumption in their own facilities and operations and transform local waste to energy where viable

Strategies

- Implement building and lighting efficiency
- Implement water and sanitation service efficiency
- Develop an efficient vehicle fleet
- Support waste reduction, management and waste to energy development

The Status Quo and Key Challenges

- Data on internal energy consumption of municipalities in delivering services is not readily available. The reasons are varied: historically this has often simply not been measured or monitored; municipalities record data differently, making comparisons difficult.
- Where data exists, it points to local government consuming some 1-2% of total energy consumed within the municipality across all municipal types.
- Local government may not represent an enormous proportion, but it is the single largest consumer (usually – save for towns housing large industry) and thus is in a position to have a fairly sizeable impact on consumption.
- The Constitution requires municipalities to deliver services in a sustainable manner
- Efficiency will bring savings to the municipality – this is also an important signal to citizens.
- Savings potential is difficult to determine precisely, as municipal 'own' consumption data is challenging to collect, but studies indicate potential savings within vehicle management, public lighting (street and traffic), building efficiency and efficiency in wastewater pumping. Savings of 17 – 35% can be realised through building efficiency. The data indicates targeting multi-storey office blocks for full retrofit programmes, and simply rolling out efficient lighting in smaller, single storey compound facilities.
- Major challenges experienced by municipalities include funding of efficiency retrofits.
- The need for improved waste management was raised, but, as with the Water Services Sector, much of the strategies and actions relating to this are held elsewhere. This strategy will only look at specific energy related aspects.

Mandates, Powers and Functions

The municipal responsibility relating to efficiency (financial and environmental) within its own operations is drawn from the three overarching objectives accorded to local government within the Constitution of the Republic of South Africa, 1996 (section 152 (1)), namely to ensure the provision of services to communities *in a sustainable manner; to promote social and economic development and to promote a safe and healthy environment.*

Related Standards, Policies

- New energy efficiency building regulations SANS 10400-XA would apply to all new buildings or major renovation of public buildings.
- SANS 10098-1 detail the technical standards for public lighting on Group A and B roads.

Related Programmes

- Municipal Energy Efficiency and Demand Side Management Programme (Department of Energy / NT): funds public lighting (street, traffic signal and building) and building efficiency audits and retrofit (HVAC, efficient water heating, and energy management devices).
- Public Works Programme relating to retrofit of government owned buildings
- GIZ funded V-NAMA vertical integration pilot process (Public Works, DEA, DoE, pilot cities)
- Eskom IDM: Integrated Demand Management Programme provides funding towards a variety of efficiency retrofit interventionsSACN-commissioned detailed analysis of 9 metropolitan cities 'own' - energy consumption and set of detailed recommendations around potential efficiency (underway).

Funding mechanisms

- DoE: Municipal EEDSM (Grant)

Strategy and Action Plan

Action	Responsible department/s	Support needed and SALGA Action
Identify strategic priorities		
Analyse municipality's energy consumption patterns (where possible) and identify strategic priorities, i.e. most energy reduction for least capital cost.	Energy offices, Electricity, Infrastructure services	> A SEA-SA Cities Network tool to facilitate this is under development. This will be an iterative process – as the monitoring (below) improves, the data for analysis will improve.
Implement building and lighting efficiency		
Install meters in municipal owned buildings and ensure consumption is recorded and monitored	Building Management Electricity	
Retrofit all building lights with efficient alternatives and, where practical, energy saving devices such as motion sensors, etc.	Procurement Architecture/ Building management	<ul style="list-style-type: none"> > Ongoing support by SALGA to DoE and GIZ in implementation of the Municipal Energy Efficiency Programme (MEEP)/EEDSM; Engage DoE/Eskom in a rollout programme; clarify financing barriers with NT (re MFMA and procurement and ESCO contracting); involve SABS in ensuring that technology uptake is sensible, viable and based on sound technologies – avoid technology dumping; > Clarify insurance issues relating to new lights in old fittings
Replace all incandescent traffic lighting / signals with LED.	Procurement Roads and traffic	<ul style="list-style-type: none"> > Ongoing support by SALGA to DoE and GIZ in implementation of the Municipal Energy Efficiency Programme (MEEP)/EEDSM; Engage DoE / NT in discussion on upscale existing to national rollout programme; information provision > Explore options to make this mandatory.
Retrofit street lighting with appropriate, energy efficient alternatives <i>These need to comply with SANS standards for road lighting.</i>	Electricity Procurement Roads infrastructure	<ul style="list-style-type: none"> > Ongoing support by SALGA to DoE and GIZ in implementation of the Municipal Energy Efficiency Programme (MEEP)/EEDSM; Engage DoE / NT in discussion on upscale existing to national rollout programme; > Provide latest research and information on technologies
Retrofit council hostels and facilities/depots with large hot water consumption, with solar water heaters.	Procurement Architecture/ Building management	> As above. Provincial Departments of Human Settlements can also ensure effective water usage awareness in rental stock and handover of government delivered housing.
Undertake full building efficiency audit and retrofit processes <i>As per note above, this need only apply to multi-story, office-blocks; for smaller buildings simply replace lighting.</i>	Procurement Architecture/ Building management	> Guidance on contracting of private ESCOs; best practice information provision via web portal
Insert all new efficiency technical specifications are included within the Procurement process.	Procurement	> Share best practice and experience
Establish 'green procurement' principles in office equipment purchase and operation.	Procurement	> Provide guiding documents via web portal

Action	Responsible department/s	Support needed and SALGA Action
Implement building and lighting efficiency		
Develop and run behaviour campaigns to make the energy consumption of facilities visible and encourage energy-savings practices. <i>NB: publish and demonstrate savings</i>	Energy unit or champion, Building management, Environment	➤ Provide best practice examples and information.
Train building managers in energy efficiency approaches and monitoring.	Environment Building Management	➤ Share best practice and training information.
Implement water and sanitation service efficiency		
Ensure energy efficiency objectives are visible in Water services planning, and water infrastructure development plans.	Water services Energy unit Electricity SDF Infrastructure master plans	➤ Engage with water sector KPIs; ➤ Engage with MIG; Provision of technical information on efficient pumps and other approaches (pipe sizing to reduce leaks, etc.) – build on and develop technical services available via MISA and DWA.
Improved water infrastructure maintenance.	Water Services IDP and budget	➤ Liaise with relevant water sector processes to ensure energy efficiency is held here
Procurement of efficient water pumps.	Water services Procurement	➤ Explore funding programmes – expansion DoE EEDSM Programme; ➤ Ensure technical information is provided for procurement update.
Promote efficient water consumption through awareness campaigns.	Water services Communications	➤ Support DWA programmes underway.
Promote appropriate installation and use of household water tanks.	Water services Communications	
Develop an efficient vehicle fleet		
Work with Vehicle fleet procurement to bring in operational and life cycle costing into assessments.	Procurement	➤ Develop best practice information; Develop capacity of Procurement staff; ➤ Clarify within MFMA the understanding of “efficient” in terms of upfront capital costs vs life cycle costs.
Trip efficiency: trip tracking, advanced driving courses to improve efficiency.	Fleet management Waste management services	➤ Review and share best practice and identify the capacity needed to promote this; ➤ Training opportunities.
Support waste reduction, management and waste to energy development		
Track waste truck trip routes and explore more efficient options for fuel consumption reduction.	Waste services	➤ Share best practice.
Run awareness campaigns relating to reduce, re-use, recycle.	Waste services Communications	➤ Support programmes underway within the sector; share best practice.
Recycling initiatives feasibility.		➤ Support programmes underway within the sector; share best practice; may be useful to establish ‘threshold’ feasibility to not pursued when not viable.
<i>Establish feasibility of using wastewater gas for energy to reduce on-sight energy consumption.</i>	<i>See Renewable Energy Objective</i>	
<i>Waste to energy feasibility.</i>	<i>See Renewable Energy Objective</i>	
<i>Waste or wastewater project development.</i>	<i>See Renewable Energy Objective</i>	

More Information and Supporting Documents:

<http://www.cityenergy.org.za/category.php?id=2>

Important or Interesting Ideas to take Forward:

There are enormous transaction costs for each municipality to undertake efficiency retrofit interventions, so it would make sense to try and identify where opportunities for programmatic interventions are possible, for example a centralised Eskom-DoE-COGTA programme rolling out efficient building lighting across all smaller municipalities building/facility stock.

It is also important to get new, efficient specifications into Procurement processes in order to avoid 'rebound' effects and in order to ensure that funding is catalytic and results in system change, rather than 'once off'. This should be a condition of participation in any funding programme.

Municipalities should ensure that efficiency is part of any general refurbishment or council housing stock upgrade process.

Strategic Priority Area 3: Energy Access for All

Goal

All households have access to affordable, safe and clean energy sources

Strategies

- Electricity tariffs and subsidies (FBE) support use of electricity by poor households.
- Electrification expanded to reach all households, including informal households in urban/dense settlement areas and rural households.
- Workable Free Basic Alternative Energy models are developed and rolled out where appropriate.
- Thermal performance in poor households is improved, focussing on existing houses without ceilings
- Develop a household energy service package approach.

The status Quo and Key Challenges

- The national electrification drive to support poverty alleviation has reached almost all urban, and the vast majority of rural, formal houses and electrification is being extended into informal settlements by some municipal distributors. However, a proportion of rural households and informal settlements still do not have access to electricity because of distributor grid limitations or because settlements are located on land which precludes electrification – such as private land, power line reserves or swampland. The provinces of the Eastern Cape and KwaZulu- Natal have particularly low rates. More research on the particular challenges to electrification encountered here is required.

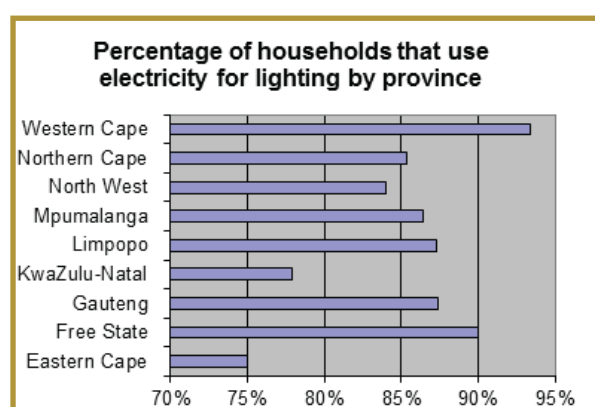


Figure1: Electrification levels across South African provinces, 2011
Data from: StatsSA census 2011

- A steady urbanization rate (1.2%pa) has led to a growth in informal housing as the national housing programme has not been able to keep up with the demand. Currently around 13.6% of South Africa's population live in urban informal housing. National or local government support services reach few of these people, and even though informal settlement electrification is gaining ground in the country, this group remain amongst the most marginalized.

- National government funds low income electrification, and provides an ongoing Free Basic Electricity (FBE) consumption subsidy for indigent households. While electricity is recognised as the most sought- after and beneficial energy source, national government has also attempted to introduce an indigent subsidy for non-electrical energy (such as Lor ethanol gel) but implementation of this Free Basic Alternative Energy (FBAE) scheme has proven problematic, and no effective and workable FBAE rollout models are yet in existence.
- Roll out of the national electricity/energy subsidy is not reaching all indigent households. Some municipalities use an indigent register, but the indications are that not all poor households are registered; households may also be receiving their electricity through an informal or illegal connections, and are thus excluded from the subsidy (for example, although some 90% of households in eThekweni are using electricity for lighting – the StatsSA proxy for electrification – the number of FBE grant claims represents only 37% of ‘extreme indigent’ households and a mere 13% of all poor households⁵). Subsidy ‘slippage’ occurs in municipalities that provide the FBE to all households below a set consumption level: wealthy households with low consumption levels receive the subsidy intended for the poor, while poor households with many occupants, or servicing multiple houses on a single connection, will consume above the subsidy allocation level.
- In addition to FBE, municipal distributors are required by NERSA to institute an inclining block tariff which allows poor customers (i.e. low electricity consumers) to purchase electricity relatively cheaply. Municipalities cross subsidise these customers from other consumer groups.
- While the inclining block tariff is a sound principle, in practice the situation is more complicated, as customers often on-sell to backyard shacks or adjoining informal houses, pushing their consumption up into the more expensive tariff brackets. There are also safety concerns with such informal wiring extensions. In addition, they often on-sell at a very high rate as a means of income generation, and the backyard shacks and adjoining informal households therefore receive no benefit from the subsidised tariff. Some municipalities are now providing meters for backyard shacks, but the situation is likely to persist until a formal electricity supply is available to all households.
- Large- scale state sponsored low-income housing programmes have delivered over 3 million houses in the past decades. However these houses generally have poor thermal performance, thereby experiencing reduced comfort levels and higher expenditure for space heating. Since 2009 houses build in the Southern Coastal Condensation Problem Area have included ceilings, and legislation released in 2013 requires all low income households to include ceilings, insulation and other sensible thermal performance improvements (as detailed in the subsidy quantum letter issued by the Department of Human Settlements in December 2013). However over 2 million households around the country were built prior to these initiatives, and retrofitting them to improve their thermal performance remains a huge challenge.
- Electrification has seen a significant decline in the consumption of hazardous household fuels, such as paraffin and candles. However, the use of such fuels still persists and subjects the very poor to ill health and fire, which has devastating consequences, destroying not just houses, but entire asset bases of the poor.

⁵Euston-Brown, M, for Durban Climate Change Strategy Introductory Report: Sustainable Energy, 2013

- Integration of housing delivery planning with service delivery, including electrification and transport planning, is often a challenge.

Mandates, Powers and Functions:

Electrification within municipal areas is within the mandate of municipalities who are electricity distributors, and this includes informal electrification. However funds for such electrification are provided by national government. Some municipalities also draw on their own funds for this purpose. Where municipalities are not distributors, Eskom undertakes all electrification.

FBAE is also intended for implementation by municipalities, although the capacity and resources to implement FBAE must be sourced from within the municipality and the existing equitable share.

Subsidised housing is a provincial function, although larger municipalities also may implement housing projects.

Related Policies, Strategies and Standards:

- Free Basic Electricity (FBE) 2005
- Free Basic Alternative Energy Policy (FBAE) 2007: this policy outlines the intentions of national government regarding the provision of FBAE to indigent households.
- Policy Guidelines for the Electrification of Unproclaimed Areas – DoE 20 Jan 2011 rev6 (p8): National government response to electricity service provision in different categories of informal settlements.
- Enhancements to the National Norms and Standards for the Construction of Stand- Alone Residential Dwellings and Engineering Services and Adjustment of the Housing Subsidy Quantum. Department of Human Settlements, 19/12/2013: This communication lists the thermal improvements to be included in subsidised housing and quantifies the subsidy increase available for this.
- Integrated National Electrification Programme (INEP) 2012/2013 – sets out guidelines in line with the Energy White Paper for the electrification Programme.
- New Households Electrification Strategy, June 2013 – defines universal electrification, 90% will be grid and remainder non grid solar systems and develops a plan to increase efficiency in planning and delivery

Related Programmes

- INEP, Eskom electrification, Free Basic Alternative Energy

Funding Mechanisms

- Equitable Grant, INEP, FBE, FBAE, Donor funding

Strategy and Action Plan

Action	Responsible department/s	Support needed and SALGA Action
Lobby for and support the development of a national Energy Poverty/ Integrated Energy Services Delivery Policy.	DoE	➤ SALGA to provide municipal input and contribution.
Electricity tariffs and subsidies support use of electricity by poor households		
Implement appropriate tariff regime which provides cheap electricity to the poor, yet is financially sustainable for the municipality.	<i>Addressed under Electricity Services– revenue models</i>	
Identify and implement suitable metering arrangements to reduce excessive charges for on-selling <i>This may initially be focused on backyard shack metering.</i>	Electricity Department	➤ Facilitate necessary research; sharing of experience from Eskom and bigger municipal distributors regarding metering options (with AMEU).
Improve indigent registry processes.	Social services	➤ Monitor subsidy targeting.
Electrification expanded to reach all households, including informal households in urban/dense settlement areas and rural households		
Implement informal electrification programmes <i>This involves assessing the extent of informal housing, identifying priority electrification projects, and securing the resources for such electrification.</i>	Electricity Department	➤ Facilitate clarity on available resources, and lessons sharing from municipalities with experience in informal electrification.
<i>If municipality not a distributor:</i> Engage with Eskom to undertake informal settlement electrification.	Services/utilities or Electricity Department	➤ Clarity on Eskom informal electrification programme, and role for municipalities to encourage rollout thereof (SALGA and AMEU); Ensure that resources for electrification are properly aligned between Eskom and Municipalities (i.e. Municipalities electrifying in Eskom areas without concomitant resources).
Implement rural electrification programmes.	Services/utilities or Electricity Department Eskom	➤ Coordinate status quo on rural electrification; Support community awareness development around renewable off-grid alternatives.
Improve wiring levels in electrified households.	Electricity departments/Eskom	➤ Share best practice.
Workable Free Basic Alternative Energy delivery models are developed and rolled out where appropriate		
Clarify where the mandate for FBAE lies within municipalities as it is not within the licensed mandate of utility distribution licenses under NERSA/the Electricity Regulation Act.	DoE, Energy offices, Electricity departments	➤ Work with DoE and COGTA to clarify this ideally within the framework (action above) of developing an integrated energy poverty, or energy services delivery policy.

Action	Responsible department/s	Support needed and SALGA Action
Workable Free Basic Alternative Energy delivery models are developed and rolled out where appropriate		
Based on proven FBAE rollout models, undertake FBAE rollout in appropriate areas and under suitable conditions (to be identified in 'Support needed').	Mandated or interested department	➤ Develop workable models for FBAE rollout, including appropriate areas and conditions for rollout, and pilot implementation thereof before further rollout. This is to draw on pilot projects already undertaken, and find solutions to the current unsatisfactory funding arrangements and lack of municipal capacity to implement such schemes.
Thermal performance in poor households is improved, focusing on existing houses without ceilings		
Source resources and implement ceiling retrofit programmes in <i>existing</i> housing stock	Human Settlements Department	➤ Lobby national government and facilitate the securing of resources to implement ceiling retrofit programmes.
Ensure thermal requirements in terms of SANS10400 are included in the delivery of <i>all housing post April 2014</i>	Human Settlements Department	➤ Circulate new information.
Solar water heater programme implementation	<i>see Energy Efficiency section</i>	
Develop a household energy service package approach		
Consider and evaluate household energy service package components that may make sense. This could include, for example: <ul style="list-style-type: none"> - Safety and efficiency awareness training or information - 'hot box' rollout for efficient cooking - Solar lights for non-electrified households - Regular rollout of CFLs for electrified households This may also include demand side management measures, such as low pressure solar water heating, to reduce cost of electricity supply to this sector (see Electricity services).	Communications, Social services, Electricity, Human Settlements departments (LG and provinces)	➤ Information and best practice sharing Provinces can also assist through including energy efficiency / electricity usage awareness information in their consumer education training sessions provided to beneficiaries at the time of taking occupation of homes.

More Information and Supporting Documents:

<http://www.cityenergy.org.za/category.php?id=4>

Important or interesting ideas to take forward:

- Department of Human Settlements, Joe Slovo housing development "energy efficiency" case study.
- FBAE rollout of bioethanol gel pilot project in three municipalities (Aganang, Bushbuckridge, and Great Letaba) in Limpopo Province.
- City of Cape Town ceiling retrofit programme funded through the Green Economy Fund.

Strategic Priority Area 4: Energy efficiency in the residential, commercial and industrial sectors

Goal

Effective institutions able to support the efficient use of electricity throughout the built environment and economy

Strategies

- Encourage and enforce efficiency through building and development approval processes
- Promote efficiency (and localisation, where appropriate) through information provision and product/systems/supplier endorsement programmes
- Encourage and enforce efficiency through electricity services technical interventions

The Status Quo and Key Challenges

- The IRP 2010 Update Report indicates that there are limited supply side solutions to meeting the current electricity supply constraints in the country and notes the importance of efficiency in the next couple of years if we are to avoid costly load shedding (IRP Update Report, 2013, (13.5)).
- The residential and commercial and industrial (built environment) sectors in South African municipalities are largely reliant on electricity to meet energy needs, with some use of liquid fuels (LPG, paraffin), coal and wood for indoor heating and cooking, and some solar for water heating.
- Industrial processing, manufacture and agriculture are also very dependent on electricity as their major energy source, with some coal, gas and diesel for certain industrial processes.
- This substantial dependence on coal-based electricity means that the built environment and economic sector activities contribute substantially to GHG emissions. South Africa has had, historically, very cheap electricity, which resulted in entrenched inefficiency in electricity consumption.
- Greater efficiency will contribute to climate change mitigation goals, but will also result in financial savings and economic efficiencies.
- However, upfront capital costs and high transaction costs related to implementing energy efficiency measures act as barrier to uptake, despite financial viability.
- Further, municipalities that are distributors rely on revenue from electricity sales to support municipal revenue and cross subsidise other services and free basic service delivery. Under these circumstances, energy efficiency poses a challenge to municipal finance.
- Studies point to a 20% plus potential for energy saving through efficiency. Strategically important energy efficiency interventions, considering municipal 'reach', impact on energy savings and

addressing poverty, are:

- efficient lighting in low income housing
 - ceiling retrofit (thermal efficiency) in existing low income housing stock
 - efficiency retrofit (SWH or heat pump) of residential mid-high income water heating appliances through endorsement and other schemes,
 - efficiency retrofit of HVAC systems in commercial sector – through information and other schemes
 - efficient lighting across all sectors
- Two of the larger metros, for which data has been analysed, have seen an approximately 10% reduction in energy consumption amongst mid-high income households post the 2008 price increases. Total electricity sales in these municipalities have begun to flatten out/decline, without a correlative decline in economic growth, pointing to efficiency across the municipality (further research is needed to get clarity on the decline: whether suppressed demand, fuel switching, behaviour or technological change has been involved).
 - The energy efficiency standards for new buildings (SANS 10400-XA), recently issued by DTI, are an important step forward for the country. Local government has the responsibility for the implementation of these standards. Serious capacity shortages in this regard need to be addressed.

Mandates, Powers and Functions

Although these sectors lie within the private domain, local government has important powers relating to building and development approval and electricity distribution (Constitution RSA 1996, Section 56 (1) and Schedules 4B and 5B). Building approval regulation now has energy efficiency requirements, which local government must enforce. As distributors, municipalities are in a strong position to influence electricity consumption through pricing, information and communication (including behaviour campaigns, smart and real time metering). Retrofit Programme to improve the efficiency of existing building stock is more challenging. Industrial processes are also very specific and will usually be tackled vertically through industrial bodies.

Related Standards

- Both the SANS 10400- XA:2011 and SANS 204:2008 documents cover energy use in buildings. SANS 10400- XA supports the National Building Regulations which are mandatory for all new buildings and extensions and additions to existing buildings. 10400-XA requires that new buildings comply with the energy efficiency requirements set out in 204.
- SANS 204 has tables which stipulate the maximum energy demand and the maximum annual energy consumption for various kinds of buildings in the various climatic areas of South Africa. Any performance above these maxima must be justified through rational design by a competent person.

- Electrical appliances in new buildings are required to have an energy rating while thermal system equipment and components have to have insulation which minimises heat loss or gain.
- There is a specific requirement for solar heating of at least 50% of the hot water unless a competent person can prove that it is not feasible. In such cases it is necessary to make up the solar shortfall from waste heat recovery, heat pumps, or something similar. There is a more general requirement that renewable energy sources are to be maximised and can be utilised to mitigate where the maximum allowable demand and energy consumption have been exceeded.

Related Programmes

- Eskom Integrated Demand Management (IDM) Programme (current status unclear)
- National Energy Efficiency Accord, managed by the National Business Initiative and Business Unity South Africa
- Private Sector Energy Efficiency Programme (PSEE), managed by the National Business Initiative (NBI)
- National Cleaner Production Centre: runs the National Cleaner Production Programme (NCPP) and the Industrial Energy Efficiency Improvement Programme
- Manufacturing Competitiveness Enhancement Programme (MCEP)
- Green Building Council of South Africa

Funding mechanisms

- Eskom Integrated Demand Management (IDM) Programme (current status unclear)
- Green Energy Efficiency Fund

Strategy and Action Plan

Action	Responsible department/s	Support needed and SALGA Action
Encourage and enforce energy efficiency through building and development approval processes		
Enforcement of the new SANS 10400-XA regulation	Planning	<ul style="list-style-type: none"> ➤ Review of available training; identify capacity needs; develop plan to meet these needs. ➤ Engage with DTI and COGTA (MISA) around provision of interim capacity in shared capacity approach.
Develop and run behaviour change campaigns and ensure that energy efficiency awareness is developed within education curricula.	Environment Communications Electricity	<ul style="list-style-type: none"> ➤ Share best practice approaches and material (including technical savings sheets – SEA)
Continue to grow and develop the Planning approval process towards green building best practice and an increasingly radically new and more energy efficient ways of developing	Planning	<ul style="list-style-type: none"> ➤ Share best practice and grow knowledge in this sector; share Green Building Council of South Africa toolkit
Explore options around de-linking municipal revenue from service sales in order to ensure that efficiency does not have a substantial impact on revenue		<ul style="list-style-type: none"> ➤ Disseminate research and planning tools; Liaise with NT around municipal revenue models
Promote efficiency (and localisation, where appropriate) through information provision and product/systems/supplier endorsement programmes		
Support efficient water heating in the residential sector <ul style="list-style-type: none"> - Pursue national funding for low income housing rollout (this is important for peak demand management) - Explore supplier endorsement programmes for mid-high income rollout - Explore options to rollout SWH as a component of municipal energy services <i>Consider appropriate localisation requirements in all endorsed products.</i>	Electricity Environment Communication	<ul style="list-style-type: none"> ➤ Provision of information and best practice; ➤ Ensure national rollout programmes involve local government in planning and have adequate maintenance programmes
Explore and encourage more efficient fuels for cooking, such as gas <i>This requires being able to ensure price stability</i>	DoE	<ul style="list-style-type: none"> ➤ Pursue regulation of gas price.
Provide information to customers to support efficient technology uptake, including information on tax rebates and subsidy schemes	Electricity	<ul style="list-style-type: none"> ➤ Provide and circulate up to date information including information relating to energy audits (PSEE, NCPP) and technology. (NT, DoE, SANEDI, IDM)

Action	Responsible department/s	Support needed and SALGA Action
Promote efficiency (and localisation, where appropriate) through information provision and product/systems/supplier endorsement programmes		
Host commercial and industrial energy forums for information exchange		
Encourage smart irrigation system uptake/solar boreholes in the agricultural sector		
Encourage a 'green' Hospitality and tourism sector	Communication Environment	Disseminate information and tools to support, e.g. Fair Trade in Tourism, free audits via NCPD and the PSEE of the National Business Initiative
Encourage and enforce efficiency through electricity services technical interventions		
Geyser ripple control installation	Electricity	With MISA, provide best practice information
Engage top consuming customers via meter processes: this can include real time feedback, preferential treatment in load shedding if efficiencies achieved	Electricity	
Create an effective meter and billing system to ensure revenue collection is robust	Electricity	Support capacity initiatives to improve this area (MISA)

More Information and Supporting Documents:

<http://www.cityenergy.org.za/category.php?id=2>

Important or Interesting Ideas to Take Forward

New approaches to electricity connection size to encourage developments to meet additional energy needs through renewable energy or efficiency (Midvaal Municipality)

Riversdale – small town SWH programme amongst the mid-high income group

City of Cape Town Solar Water Heater Supplier endorsement programme

Strategic Priority Area 5: Renewable Energy Development

Goal

Renewable energy options are a significant component of local energy supply where they are technically and economically feasible, contributing to low carbon development and local economic growth/sustainability

Strategies

- Promote small-scale embedded generation, with an initial focus on solar PV
- Facilitate landfill gas and wastewater gas electricity generation where appropriate
- Facilitate micro-hydro generation where feasible

The status Quo and Key Challenges

- While small-scale embedded renewable electricity generation has been technically feasible for decades, it has only recently become a financially feasible option for end users due to consistent large national electricity price increases, as well as a global reduction in the costs of small-scale renewable energy technologies (in particular PV).
- Local government distributors and Eskom distribution have only recently started developing frameworks to allow small generators to connect to, and feed into the grid in a way that is feasible for both the distributor and small-scale generator. Many distributors have not yet engaged with this issue.
- In the absence of workable frameworks for connecting to the grid, experience shows that such systems are installed without official approval. Such installations are accelerating rapidly at present, with potential safety and power quality concerns.
- There are concerns regarding the impact on municipal revenue of large-scale adoption of solar PV and other small scale embedded generation options. Appropriate tariffs will need to be developed and implemented to avoid this situation. However, discussions are underway (led by DoE and Eskom) relating to the possible design of a standard offer approach in line with the national REIPP Programme that would purchase energy from embedded generators at a set prices so as to render municipalities indifferent between their Eskom supply and embedded generators (IRP Update Report, 2013).
- The regulatory system remains unclear regarding the need for licensing of small generators and the role such embedded generators have in national electricity generation plans (the IRP)
- Because capital investment for embedded generators is borne by the owner and not government or the national utility, and job creation potential in this industry is significant, promotion of such

generators has the potential to be economically very beneficial for municipalities and the country as a whole.

- Landfill gas electricity generation has potential to be an economically feasible and important low carbon supply option. However experience shows that implementation and ongoing operation is demanding, and its feasibility therefore needs investigation before being pursued by individual municipalities.
- Sewage methane electricity generation holds some promise as being a financially attractive low carbon energy option. The threshold feasibility of this generation option needs to be clarified so that municipalities can be guided regarding its pursuit.
- Micro- hydro installations, sometimes embedded in the water supply network of municipalities, can be viable in certain circumstances. Clarity is needed on conditions for viability.
- Greater clarity is required with regard to IPP access to municipal “assets”, such as municipal waste streams, landfill gas, water pressures, etc: are these considered as “assets” to be disposed of under the Asset Transfer regulations? The concern is that following the usual Public-Private Partnership (PPP) approach might kill many potential projects.
- Biofuels are an important component of a low carbon energy trajectory for urban areas. However promotion of liquid fuel mix changes largely rests with national government, not local government.

Mandates, Powers and Functions

While electricity generation is not a function of municipalities, they may apply to NERSA for a licence for such generation, for example in the case of landfill gas methane electricity production.

Small scale embedded generation: Existing legislation requires that anyone generating electricity “not for own use” must obtain a generating license from the National Energy Regulator of South Africa (NERSA). Clarity is still required whether feeding surplus generation back onto the utility grid and then drawing the same amount of electricity off the grid at a later stage for consumption is regarded as being “generation for own use” (i.e. a customers total input into the grid over a year is equal to or less than what it has drawn out of the grid over that same year – a net feed-in of zero). The most recent NERSA guidelines imply that a license is not required for generators with generation capacity less than 100kW, and thus that municipal distributors can accept such systems, subject to applicable technical standards, without a NERSA license, and provided they do not generate more electricity than is consumed on the site on average.

Systems larger than 100kW, which would include city-owned landfill or sewage gas generation, require a license from NERSA, who will in-turn see that it is in accordance with the current IRP.

Biofuels promotion is largely a national government function.

Related Standards

Small-scale embedded generation: NRS 097-2-1 (Part 2: Small Scale Embedded Generation). This document serves as the standard for the interconnection of SSEG's to the utility network and applies to embedded generators smaller than 1000kVA connected to LV networks of type single, dual or three-phase. This document is still a DRAFT document and as such has not yet been gazetted.

South African Renewable Power Plants Grid Code (SARPPGC). This document sets out the technical and design grid connection requirements for renewable power plants (RPP) to connect to the transmission or distribution network in South Africa.

Related Programmes

- SALGA, Eskom, GIZ and Sustainable Energy Africa are supporting local government with developing procedures to facilitate the rollout of small scale embedded generation, with a focus on solar PV.
- Cities such as eThekweni, Johannesburg and Cape Town have developed application procedures which clarify technical and other requirements of small scale embedded generation installations, focusing on solar PV.
- Several municipalities are at various stages of feasibility analysis or implementation of sewage methane or landfill gas projects.
- EThekweni has undertaken a feasibility analysis of micro-hydro potential in their main municipal water pipes.

Funding Mechanisms

- An embedded generation subsidy, within the REIPP Programme, to render Eskom and embedded RE power cost neutral for municipalities, is under discussion and development (DoE and Eskom)

Strategy and Action Plan

Action	Responsible department/s	Support needed and SALGA Action
Promotion of small-scale embedded generation		
Develop clear procedures for the application and adoption of small-scale embedded generators into the municipal grid. <i>These procedures need to ensure that technical issues specified in the NRS097-2-1 (until such time as this is superseded by final, gazetted standards) amongst others are adhered to in order to ensure safety, power quality and grid stability standards.</i>	Electricity Department	<ul style="list-style-type: none"> ➤ Ongoing support through engagement with the existing GIZ SAGEN programme; ➤ Facilitate dissemination of documents and experience from metros that have developed procedures to other distributors; ➤ Engage substantially with NERSA towards clarification of regulatory situation, including the compilation of gazetted standards, regarding small scale embedded generators under 1MW with regard to licensing requirements and definition of 'own consumption' (and possible lifting of cap for those not requiring a license to 1MW, with annual municipal reporting to NERSA).
Develop and implement tariffs which protect municipal revenue in the face of large-scale rollout of small scale embedded generators <i>This is necessary to ensure that such generators continue to contribute to the operation and maintenance of the distribution infrastructure. Revenue impact studies have been completed to inform this work.</i>	Electricity Department	<ul style="list-style-type: none"> ➤ Facilitate dissemination existing of revenue impact studies. Engage with NERSA around acceptable approaches to tariff redesign.
Facilitate landfill gas and wastewater gas electricity generation		
Clarify status of municipal energy streams and applicable disposal regulations	Supply Chain Management	<ul style="list-style-type: none"> ➤ COGTA and NT to develop a brief clarifying applicable regulations.
Implement landfill gas electricity generation projects where feasible <i>Such projects can be demanding and are only financially feasible under certain circumstances. Detailed feasibility analyses are advisable before proceeding.</i>	Electricity Department, Solid Waste Department	<ul style="list-style-type: none"> ➤ Development of general threshold feasibility guidelines for landfill gas projects. ➤ Facilitate technical support and information exchange from a central unit and experienced municipalities.
Implement sewage methane electricity generation projects where feasible <i>Such projects are relatively new in South Africa and are only financially feasible under certain circumstances. Detailed feasibility analyses are advisable before proceeding.</i>	Electricity Department, Water and Sanitation Department	<ul style="list-style-type: none"> ➤ Support work underway by GIZ-SAGEN towards the development of general threshold feasibility guidelines for sewage methane projects (and technical support capacity for business plan development where feasible). ➤ Facilitate technical support and information exchange from pioneer municipalities.

Action	Responsible department/s	Support needed and SALGA Action
Facilitate micro-hydro projects		
<p>Undertake feasibility analyses and implement micro-hydro projects where feasible. These may be within the municipal water distribution system ('run-of-pipe') or separate hydro schemes.</p> <p><i>Run-of-pipe projects are relatively new in South Africa and are only financially and technically feasible under certain circumstances. Detailed feasibility analyses are advisable before proceeding.</i></p>	Water and Sanitation Department, Electricity Department	<ul style="list-style-type: none"> ➤ Develop general guidelines on feasibility of different configuration micro-hydro schemes. ➤ Facilitate technical lessons sharing from experienced municipalities.

More Information and Supporting Documents:

<http://www.cityenergy.org.za/category.php?id=3>

Important or interesting ideas to take forward

Establish simple application procedures for very small embedded generators: Current technical standards and application procedures for small embedded generators are demanding to the extent that they will be out of proportion to the costs of very small systems - say below 5 or 10kW. In these circumstances aspiring generators are likely to install systems 'under the radar' without seeking official approval. This may result in compromised safety and power quality standards. It is important that simpler requirements are put in place for such very small systems to avoid a proliferation of unapproved installations.

Engagement with large- scale RE developments in municipal boundaries: there may be a need for information and support to be provided to municipalities around engaging with large scale RE developers with regard to issues such as Environmental Impact Assessment; community development.

Strategic Priority Area 6: Electricity Services

Goal

Sustainable electricity service delivery that can accommodate and promote access to electricity, efficiency and renewable energy development

Strategies

- Adopt sustainable revenue models in response to revenue loss challenges resulting from efficiency, embedded generation and requirements of infrastructure maintenance and expansion
- Facilitate small- scale embedded generation in a way that preserves financial and technical integrity of the distribution system
- Rollout informal settlement electrification
- Introduce 'Smart' technology, appropriately and based on a detailed understanding and long-term vision of its role

The status Quo and Key Challenges

- National power shortages, together with fast rising electricity prices and the economic downturn of the past few years have changed the dynamics in the municipal electricity sector significantly. Amongst the key impacts has been a slowing or stagnation of demand growth, greater focus on electricity efficiency amongst customers, and an accelerated adoption of alternative generation technologies by end-users, including solar PV.
- At the same time, maximum demand is not reducing. This is largely driven by low income households. Supply of electricity to this sector is costly and reducing peak demand would benefit electricity distribution business.
- The above trends pose challenges for municipal electricity distributors. Chief amongst these is the impact on revenue. Efficiency, small embedded generator installations, and general reduction in demand due to its price elasticity all tend to reduce electricity revenue. This is of great concern, since electricity revenue is often an important source of income for municipalities to enable cross-subsidisation of the poor and funding of other important municipal services.
- In many municipalities general pressures on finances or political interference has led to inadequate allocations for electricity grid maintenance and expansion, with escalating fault levels and associated pressure on electricity department staff. Some municipalities have had to turn new customers away due to an inability for the network to accommodate them. This situation is now recognised as being critical, as a medium-to long-term deterioration in municipal electricity infrastructure because of other short-term budget pressures will destroy the 'golden goose' of the municipality – the electricity revenue generating system.
- Electricity departments face new challenges with the rise of small-scale embedded generators

- such as solar PV, and many struggle to find the capacity to address the necessary technical and billing challenges that emerge.
- In the face of fast changing electricity supply and demand environment, including the prevalence of embedded generation and efficiency, municipalities need to rework their tariff models and introduce a level of sophistication that they often do not have the capacity to tackle.
 - Long- term planning in electricity departments was dealt a blow when the Regional Electricity Distributors (REDs) were announced, as many electricity departments halted such planning in the face of the imminent new institutional regime. The regime never materialised, but electricity planning has generally not been adequately reinstated in municipal distributors for staff capacity reasons.
 - Electricity departments are increasingly under pressure to electrify informal areas. While this is a necessary and sound developmental strategy, it stretches the capacity of many municipalities who are already understaffed.
 - Theft of electricity is serious in some municipalities (with reports of as much as ⅓ of revenue lost through non- technical losses). Revenue loss from theft is significant, as the municipality still pays Eskom for the purchase of the power, but receives no revenue for its sale. Municipalities seldom have the capacity to address this situation adequately.
 - There is an increasing focus on ‘smart’ technologies (smart meters, smart grids, etc.) as being an important component of future electricity supply systems, yet there is a general lack of clarity concerning whether and how to introduce such technologies into municipal operations. Guidance, based on a thorough understanding and a long- term vision, is urgently needed.

Mandates, Powers and Functions

Municipal distributors are responsible for sustainable electricity service provision in their areas of jurisdiction.

They are under legal obligation to apply stringent safety standards as per the various applicable technical standards.

Many such distributors are also de facto responsible for boosting municipal coffers.

Related standards

Multiple standards apply and policies relate (including: NRS, Grid code, Electricity Regulation Act, MFMA, PFMA).

Related Programmes

- The Financial and Fiscal Commission has undertaken studies which identify the critical need for municipal revenue allocations to ensure adequate network maintenance and expansion. (Sustaining Local Government Finances, 2013. Financial and Fiscal Commission).
- Sustainable Energy Africa has undertaken assessments of the impact of energy efficiency and small scale embedded generation on municipal revenue (2014).

Strategy and Action Plan

Action	Responsible department/s	Support needed and SALGA Action
Adopt sustainable revenue models to respond to the challenges of revenue loss through embedded generation energy efficiency, requirements for infrastructure maintenance and expansion		
Undertake studies to explore and develop sustainable revenue models. <i>These should:</i> <ul style="list-style-type: none"> - Undertake demand projections for municipalities, including consideration of elasticity of demand - Ensure adequate revenue for network maintenance - Allow for network expansion to meet growth needs - Preserve revenue in the face of energy efficiency and small scale embedded generation adoption 	Electricity Department, Treasury	➤ Facilitate resources to undertake revenue model studies. Liaise with National Treasury around studies and recommendations for municipalities.
Undertake studies to develop appropriate tariffs to support a sustainable revenue model	Electricity Department, Treasury	➤ Facilitate the undertaking of tariff studies. Liaise with NERSA and AMEU regarding such studies.
Facilitate the adoption of small scale embedded generation in a way that preserves financial and technical integrity of the distribution system		
(actions under 'Renewable Energy' section)		
Increase informal settlement electrification		
(actions under 'Access to Energy' section)		
Consider peak reduction strategies in the low income household sector, for example solar water heating; and, in the longer term, the expansion of gas for cooking.	Electricity Dept. Energy	
Introduce 'Smart' technology appropriately, based on a detailed understanding and long-term vision of its role		
Introduce Smart technologies as appropriate, based on guidelines and noting: Smart systems are not only limited to certain components such as smart meters but also imply introduction of smart grid or smart technology. The "grid" includes supply chain logistics, generation, transmission, distribution and customer. A good article on this may be found on www.cityenergy.org.za , under Electricity	Electricity Departments	➤ Research and develop guidelines on the adoption of Smart technologies (smart meters, smart grids etc.) in municipalities. <i>This work is to consider the long term implications of adopting different systems, issues regarding proprietary technologies, financial, billing and revenue implications, associated data production and analysis abilities, ongoing staff capacity and maintenance implications, amongst others.</i>

Action	Responsible department/s	Support needed and SALGA Action
Reduce electricity theft to protect revenue		
Implement programme to identify and reduce theft through forensic audits and other means.	Electricity Department, Treasury	> Facilitate necessary financial and technical support to implement theft reduction programme
Create an effective meter and billing system to ensure revenue collection is robust	Electricity	> Support capacity initiatives to improve this area (MISA)

More Information and Supporting Documents:

<http://www.cityenergy.org.za/category.php?id=5>

Important or Interesting Ideas to Take Forward:

Midvaal: by law passed that all sectional titles will only be allowed 20 amp connections; remainder they must themselves meet through alternatives.

Strategic Priority Area 7: Efficient Transport and Mobility

Goal

Walkable, 'smokeless' municipalities that support safe mobility for all, and good transport networks; and where public transport is a sought-after mode of vehicle transport

Strategies

- Develop integrated, local transit plans
- Develop Non- Motorised Transit (NMT) facilities
- Develop and improve public transport modalities
- Support and promote greener fuels and fuel efficiency

The Status Quo and Key Challenges

- A substantial portion of mobility in our municipalities takes place on foot. Figures for this are outdated (latest census didn't record this in this manner), but the indications are that on average within the Metros, this represents some 43% of all mobility and in the 'Secondary' and smaller towns this is, on average 53% (StatsSA 2001). These figures are sizeable and from the perspective of addressing poverty, inequality and access it is important this be noted, and non- motorised transit support be a cornerstone of any transport/mobility related municipal strategies.
- Petrol and diesel contribute over 50% to the energy consumption across all municipalities (save for industrial municipalities where this proportion is skewed). This indicates that the transport sector is the single highest energy consuming sector in our municipalities.
- Although liquid fuel from the transport sector still contributes less than electricity to GHG emissions, this is the most rapidly growing GHG emissions sector in South Africa.
- Substantial dependency on oil-derived fuels, with long supply lines, render municipalities vulnerable to price hikes, fuel shortages and, in the long run, enormous economic costs.
- Municipalities exhibit the legacy of apartheid planning, with sprawling suburbs, townships outside of urban centres, poor integration and poor public transport.
- The majority of government subsidies go towards bus and rail (privileging metros and larger towns), while the majority use taxis or walk to places of work or school.
- Very low densities mean that viable public transport systems are not feasible in many secondary and smaller towns and rural municipalities. Efficient transport networks and innovative use of private transportation need to be supported and developed in these instances (e.g. promotion of shared car-trip systems).

- Rapid growth in car ownership is being experienced in South Africa and this puts pressure on local road infrastructure and parking capacity and increases congestion (affecting quality of life, health, and environment).
- Climate change (increase in storm severity and intensity), along with a lack of budgeting and procurement towards infrastructure maintenance and upgrading, is resulting in road degradation, particularly in rural areas.
- Effective, efficient linkages and mobility are a cornerstone of economic and social development.
- There is a need to include transport planning within urban and regional land use and economic planning frameworks.
- Rural South African municipalities face the particular challenge of transport “peak” situations on ‘market’ (pension/social grant) days. Policy and programmes to address these challenges are underway, including exploration of ‘periodic access systems’ and the strengthening and regulating of the “bakkie” sector as means to address a variety of rural freight and passenger transport needs.

Mandates, Powers and Functions

Part A of schedule 4 of the Constitution of the Republic of South Africa (1996) assigns concurrent national and provincial legislative competence with regard to public transport to both national and provincial government. Public transport is also assigned to municipalities as indicated in Part B of Schedule 4 of the Constitution. Section 84 (1) (g) of the Municipal Structures Act, 1998, further assigns powers and functions relating to the regulation of passenger transport to district municipalities. The National Land Transport Act (NLTA), 2009, further assigns functions: Section 11 (1)(a) – national, Section 11 (1)(b) and Section 11 (2) – provincial and Section 11 (1)(c) and Section 11 (4) – local. This act is currently under review and may assign greater functions to local government, based on capacity to implement.

However, many transport planning functions lie outside of municipal jurisdiction: rail and major roads rest with national government, busses tend to be provincial and fuel mix standards are a national function. However, municipalities all have functions relating to the related areas of town planning and urban development, roads and traffic management.

Related Standards, Policies

The National Land Transport Act 5 of 2009 (NLTA), administered by the Department of Transport; White Paper on National Transport Policy, 1996, Public Transport Strategy and Action Plan, 2007 (modal upgrading and IRPTNs); Rural Transport Strategy (RTSSA, packaged in the IRMA project).

SALGA: Accelerating a move towards prioritisation of efficient public transport: a discussion document

Related Programmes

Public Transport Strategy and Action Plan (PTSAP) (2007 – 2020):

Vehicle recapitalisation and fast track development of high quality IRPTNs (rapid rail and bus corridors) in 12 cities; public transport network package for 6 rural districts (idea was that this would cover over half of the country's population).

Rural transport strategy: to address rural access and mobility needs in a sustainable manner ("beyond roads"); promote coordinated rural nodal and linkage development and demand-responsive, balanced, sustainable rural transport systems.

Funding Mechanisms

Public Transport Infrastructure Grant (PTIG)

Public Transport Network Operations Grant (PTNOG)

Municipal Infrastructure Grant (MIG)

Public Transport Operations Grant (PTOG)

Municipal Own Revenue, Provincial equitable share,

Taxi scrapping allowance (TSA)

Scholar transport subsidy

Strategy and Action Plan

Action	Responsible department/s	Support needed and SALGA Action
Develop integrated, local <i>transit</i> plans and regional linkages		
Develop integrated transit plans – inclusive of all mobility modalities and also include these ideas and plans into the mandatory integrated transport plans <i>ITP – integral part of the IDP - located in terms of the NLTA with all municipalities = cornerstone of efficient transport planning</i>	Transport IDP	<ul style="list-style-type: none"> > Include technical support to undertake ITP into tech capacity support expansion; > Support municipalities to attend Transport training courses
Review national policy and programmes to ensure local priorities are well supported (e.g. transport subsidies only directed to larger towns and metros) and enhance implementation		<ul style="list-style-type: none"> > Take forward the SALGA discussion document recommendations (inclusion of all municipalities within current national transport programmes and action plans; and coordination and consolidation of dedicated funding to support transport plans)
Play a proactive role in regional transport planning forums and development of plans and policies, notably the RTSSA and the PTSAP	Transport Town planning Economic Development	<ul style="list-style-type: none"> > Identify all regional planning forums and convey information to municipalities; pursue the SALGA discussion document towards improved delivery of these national strategies; support development of dedicated funding streams (beyond MIG and equitable share)
Ensure that roads and transport related infrastructure and NMT are supported within budget and regularly undertaken	IDP Infrastructure: roads and storm water LED Transport Town planning Procurement	<ul style="list-style-type: none"> > Assist in the development of KPIs and IDP evaluation by Provincial Local Government IDP offices; > Develop procurement capacity relating to roads maintenance contracts
Develop Non-Motorised Transit (NMT) facilities		
NMT micro engineering and construction: do a street audit and identify pedestrian safety problem areas	Infrastructure: roads, transport	<ul style="list-style-type: none"> > Lobby NT, with DOT, for inclusion of public transport in the public municipal services component to cater for NMT facilities (funding for implementation of measures, e.g. traffic calming, better signage, improved drop curbs); Explore possibility of Expanded Public Works programme for support for small scale changes (can involve training of artisans to implement); Identify linkages with RTSSA
Build pavements, bridges and public walkways and cycle paths where required	Infrastructure: roads, transport	<ul style="list-style-type: none"> > MIG > Identify linkages with RTSSA
Plant trees along walking routes for shade/cooling	Environment/ Parks	<ul style="list-style-type: none"> > Funding > Involve leadership in tree planting...
Develop information and awareness campaigns showing benefits from walking and cycling (health, financial, environmental)	Communications Environment/ Parks	<ul style="list-style-type: none"> > Generate and share general information or best practice campaign material.

Action	Responsible department/s	Support needed and SALGA Action
Develop and improve public transport modalities		
Improve infrastructure and safety and security for public transport (bus and taxi ranks, linkages)	Infrastructure: roads, transport LED Policing/community safety	<ul style="list-style-type: none"> ➤ Explore MIG ➤ Provide best practice guidance ➤ Identify linkages with RTSSA ➤ Lobby NT, with DOT, for inclusion of public transport in the public municipal services component to cater for public transport facilities
Engage with developers on contributions to public transport development, walking and cycling options, (rather than car transport and traffic engineering) where appropriate and good opportunities	Town planning: building approval Infrastructure: roads, transport	<ul style="list-style-type: none"> ➤ Best practice examples
Develop BRTs: ONLY for metros and larger secondary cities or towns.	Infrastructure: roads, transport	<ul style="list-style-type: none"> ➤ Linkages via the PTSAP
Support and promote greener fuels and fuel efficiency		
Optimise traffic management systems to reduce idling and speeding: consider traffic circles in place of traffic lights	Infrastructure: roads, transport/Street and traffic lighting	<ul style="list-style-type: none"> ➤ Best practice information ➤ Capacity and Funding
Zoning and land use review/ SDF development to examine densification, in-fill residential and mixed-use development - considering implications for transport efficiency and social and economic development	Town planning Transport planning	<ul style="list-style-type: none"> ➤ Support finalization of single land use planning system across the country; ➤ Training and best practice on SDF and sustainable resource management; ➤ Build and develop political leadership.
Road maintenance and storm water management and maintenance	Infrastructure: roads, transport LED	<ul style="list-style-type: none"> ➤ Links with RTSSA; Source funding and develop expanded public works programme / local artisan training (possible Green or Climate funds)
Promote Travel SMART ideas – multiple occupancy of vehicles – through information campaigns, parking plans , engage large employers to initiate Programmes, review schools transport systems/involve schools	Communication Education Environment Transport	<ul style="list-style-type: none"> ➤ Share best practice ideas

Important or Interesting Ideas to Take Forward:

- Begin to pilot functional regional planning approaches in Gauteng
- George Integrated public transport plan as a best practice approach for secondary and smaller urban areas
- The message to be translated into what matters for people: quality of life, safety of children, financial relief, health and quality of life, jobs.

Strategic Priority Area 8: Spatial Planning

Goal

Well-planned municipalities where all citizens have access to amenities and economic opportunities

Strategies

- Spatial Development Frameworks support mobility, transport efficiency and access by the poor to amenities and economic opportunities
- Land development criteria support urban objectives of improved mobility and transport efficiency, and energy efficiency and renewable energy implementation
- Spatial plans and transport plans are closely coordinated to support common objectives

The Status Quo and Key Challenges

- South African cities are generally sprawling and low density. This has resulted in energy inefficient cities which make sustainable transport implementation difficult.
- Apartheid-based urban layout led to poor communities being located on marginal land. The spatial aspects of the apartheid urban form change slowly and still prevail. In fact some argue that it is now harder to change this inequity due to its being entrenched by the infrastructure investment programmes which targeted these areas.
- The large- scale national housing programme has delivered over 3 million houses in the past decades. However these houses often perpetuate the low density urban characteristic, and are usually located on land far removed from city. Poor residents therefore remain far from economic opportunities, benefit little from urban amenities and have high transport costs.
- Municipalities must produce Spatial Development Frameworks and Integrated Transport Plans. While these documents are very interdependent, communication and coordination between the responsible departments is often seriously lacking. Sustainable transport efforts need to be supported by urban densification, potentially along corridors, and the firm holding of appropriate zoning schemes and an urban edge.
- Analyses in South Africa and internationally are clear on the financial and other benefits of a denser (healthy densification), appropriately zoned city, and this imperative is now generally accepted.
- Developers implementing projects on land are currently under little obligation to support urban sustainable energy objectives such as energy efficiency or facilitating transport to their development, beyond the national building standards detailed in SANS 10400-XA. Some cities are placing such further obligations on developers, and this should become more widely adopted.

Mandates, Powers and Functions

Local governments have a strong influence over the spatial form of the urban landscape primarily through the zoning schemes, which are derived from Spatial Development Frameworks, and are legally binding. Development applications can be required to conform with sustainable energy criteria specific to the municipality through the establishment of an overarching sustainable energy policy which is referred to in the zoning scheme (such as Johannesburg has done). Densification and urban edge policies can also be developed by municipalities to promote a more sustainable urban form.

Related Programmes

The Department of Cooperative Governance, with the SA Cities Network, is developing an Integrated Urban Development Framework which seeks to align spatial planning, transport planning and other urban functions towards a more sustainable future (see Towards an Integrated Urban Development Framework, COGTA, 2013)

Strategy and Action Plan

Action	Responsible department/s	Support needed and SALGA Action
Spatial Development Frameworks support mobility, transport efficiency and access by the poor to amenities and economic opportunities		
Lobby for well-located land for urban development owned by national or state-owned enterprises be made available for the location of human settlements	Town planning, Human Settlements	
Spatial Development Frameworks are developed so they explicitly address objectives linked to sustainable energy. <i>These include appropriate public transport facilitation, densification, mixed-use zoning, and provision of well-located land for the poor, and urban edge parameters and measures, amongst others (refer also to Local Energy Governance)</i>	Town Planning	<ul style="list-style-type: none"> ➤ Develop and disseminate guidelines on how sustainable energy issues can be incorporated into the SDF. ➤ Facilitate information sharing forums with experienced municipalities.
Land development criteria support urban sustainable energy objectives		
Develop criteria for land development planning approval which promote sustainable energy objectives. <i>These include improved mobility and transport efficiency, and energy efficiency and renewable energy implementation</i>	Town Planning (Building Planning Approval)	<ul style="list-style-type: none"> ➤ Develop and disseminate guidelines on how sustainable energy issues can be incorporated into the development planning approval process. ➤ Facilitate information sharing forums with experienced municipalities.
Spatial plans and transport plans are closely coordinated to support common objectives		
Institute joint planning procedures with transport and spatial planning departments so that they are mutually supportive in pursuing sustainable transport and energy agendas. <i>This includes promotion of public transport viability via priority node/corridor development and densification, non-motorised transport facilitation, and trip avoidance through suitable zoning mixes, amongst others.</i>	Town Planning, Transport Department	<p>Develop and disseminate guidelines on key issues to be addressed in joint spatial-transport planning process, and proposed structure of</p> <ul style="list-style-type: none"> ➤ such a joint process.

More Information and Supporting Documents:

<http://www.cityenergy.org.za/category.php?id=6> and www.planning.cityenergy.org.za

Important or Interesting Ideas to Take Forward

The City of Johannesburg has developed criteria for development approval which support sustainable energy objectives

The Western Cape Province Department of Human Settlements has developed and utilises a Sustainability Criteria document for land development planning approval, in line with the objectives of resource sustainability and enhanced social development through healthy densification and access to services.

Conclusion

Implementing the Strategic Framework

SALGA, through its national office and provincial offices, will work together with all role players to implement this Strategic Framework. As the formal representative of Local Government, SALGA will assume responsibility for ensuring the development of the detailed activities and strategies to give effect to this framework.

The next steps will include adopting a programme of action, drawn from the Strategic Framework, with phases of implementation and associated time frames.

The support required is extensive and, although this strategy is to be held by municipalities and led by SALGA, achievement of the strategy will require enormous levels of cooperation and partnerships across government and between government and the private sector and the NGO/academic/research sector.

RESOURCES AND SUPPORT DOCUMENTS

- Urban Energy Support website: www.cityenergy.org.za (a Sustainable Energy Africa – SALGA partnership initiative).
- COGTA/SACN: Towards an Integrated Urban Development Framework: discussion document, October, 2013
- National Treasury Technical Assistance Unit, 2013, Energy Efficiency Guidelines, Guide for Municipal Officials in South Africa (Project No. 662): provides a stepped approach to developing internal energy efficiency policy within municipalities or provinces and detailed guidance on undertaking building/facility efficiency project implementation.
- National Treasury Technical Assistance Unit, 2013, Increasing Investment in Climate Change Related Projects at the Sub National Level, Phase 1: Diagnostic Report: Barriers and Challenges to Implementing Climate Change Projects (Project No. 662), Prepared by Misuka Green Development Solutions: provides an overview of challenges faced at the local level in developing climate response projects and proposed key interventions to overcome these.
- National Treasury Technical Assistance Unit, 2013, Increasing Investment in Climate Change Related Projects at the Sub National Level, Phase 2: Towards a Financing Framework for Implementing Climate Change Projects (Project No. 662), Prepared by Misuka Green Development Solutions: provides detailed technical financial information towards supporting investment in local level climate response projects.
- SA Cities Network: Consolidation of Lessons Learnt for EE and RE Initiatives within Cities, Development of a Roadmap for Future Uptake, November 2013. Prepared by Aurecon.
- Sustainable Energy Africa (SEA) guides and supporting documents, including: Public Lighting guide, HVAC and Commercial Building Lighting guide, Informal Electrification guide, How to Energise SA Cities guide, Green Procurement guide.
- Sustainable Energy Africa: Revenue Impact Tool, 2014.
- Sustainable Energy Africa: State of Energy in SA Cities 2006 and 2011

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