SOUTH AFRICAN LOCAL GOVERNMENT ASSOCIATION

SALGA

Inspiring service delivery

Local Government Energy Efficiency & Renewable Energy Strategy Guide

This guide was prepared by Sustainable Energy Africa (SEA), a Section 21 (not for profit) company, in collaboration with the South African Local Government Association (SALGA). This Guide has been made possible through the generous funding support of the GIZ–South African-German Programme (SAGEN).

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Message from the Chief Executive Officer of SALGA

In 2013, SALGA developed its first version of the Energy Efficiency and Renewable Energy Strategy Guide for Local Government, which was funded by the Swiss Agency for Development and Cooperation (SDC). The energy sector is undergoing a major transition both globally and nationally as renewable energy takes centre stage year-on-year. For example, the electricity supply landscape is increasingly becoming decentralized and competitive. These changes have warranted the need to update the Local Government Energy Efficiency and Renewable Energy Strategy in order to align with the developments and energy transitions.

SALGA wishes to thank its partner, the GIZ-South African-German Programme (SAGEN) for funding this revised strategy guide. Energy efficiency and renewable energy, at the local government level, cannot simply be seen as a technical issue, but must be addressed in the context of service provision, in which ensuring the sustainability of municipal revenue and electricity service delivery, addressing poverty and access to energy services, and stimulating local economic development are paramount. Therefore, this strategy guide seeks to reflect these municipal priorities.

This updated strategy guide 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. Furthermore, it aims to respond to the implementation challenges faced by municipalities. It is also designed to provide a clear programme of action. The priority areas are in line with the 2018 SALGA Energy Summit Declaration and Outcomes: to ensure collaborative leadership, an enabling environment, customer-centricity, operational resilience and new opportunities deployment.

SALGA, encourages local government to apply this strategy guide for the development and implementation of sustainable energy projects. We will therefore be rolling out this guide across the country as part of our endeavour to share knowledge and enrich existing practices among member municipalities.

Finally, we wish to acknowledge and appreciate the work and energy invested by all involved in updating this strategy guide for local government.

Mr Xolile George

Chief Executive Officer,
South African Local Government Association (SALGA)

Acronyms and Abbreviations

ADAM	Approach to Distribution Asset Management
AMEU	Association of Municipal Electricity Utilities
ATC&C	Aggregate technical, commercial and collection
BRT	Bus Rapid Transit
CFL	Compact Fluorescent Lamp/Light
COGTA	National Department of Cooperative Governance and Traditional Affairs
COS	Cost of Supply
CPI	Consumer Price Index
CSIR	Council for Scientific Innovation and Research
CSP	Cities Support Programme
CUoS	Connection and Use of System
DBSA	Development Bank of South Africa
DFFE	National Department of Forestry, Fisheries and the Environment (formerly known as Department of Environment Forestry and Fisheries)
DHS	Department of Human Settlements
DMRE	National Department of Mineral Resources and Energy (formerly known as Department of Energy)
DORA	Division of Revenue Act
DoT	National Department of Transport
DWS	National Department of Water and Sanitation
EE	Energy Efficiency
EEA	European Energy Award
EEBPIP	Energy Efficiency in Public Buildings and Infrastructure Programme
EEDSM	Energy Efficiency and Demand Side Management Programme
EGIB	Embedded Generation Investment Programme
EMS	Energy Management System
EPC	Energy Performance Certification
EPWP	Expanded Public Works Programme
ERA	Electricity Regulation Act (2006)
ESCO	Energy Savings Company
Eskom	Electricity Supply Commission
EV	Electric vehicle
FAQ	Frequently asked question
FBAE	Free Basic Alternative Energy
FBE	Free Basic Electricity
GBCSA	Green Building Council of South Africa
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German International Corporation)
HAD	Housing Development Agency
HVAC	Heating, Ventilation and Cooling
IA	Implementation Agreement
ICLEI	International Local Government for Sustainability
IDP	Integrated Development Plan

IEP	Integrated Energy Plan
IFC	International Finance Corporation
INEP	Integrated National Electrification Programme
IPP	Independent Power Producer
IRP	Integrated Resource Plan
IRPTN	Integrated Rapid Public Transport Network
ISDG	Infrastructure Skills Development Grant
ITP	Integrated Transport Plan
KPA	Key Performance Area
KPI	Key Performance Indicator
LCOE	Levelised cost of electricity
LEAP	Long-range Energy Alternatives Planning
LED	Light Emitting Diode
LED	Local Economic Development
LG	Local Government
LPG	Liquefied Petroleum Gas
MCEP	Manufacturing Competitiveness Enhancement Programme
MEMS	Municipal Energy Management System
MFMA	Municipal Finance Management Act
MIG	Municipal Infrastructure Grant
MISA	Municipal Infrastructure Support Agency
MSA	Municipal Systems Act
MSDF	Municipal Spatial Development Framework
MW	Megawatt
NBI	National Business Initiative
NCPC	National Cleaner Production Centre
NCPP	National Cleaner Production Programme
NDP	National Development Plan
NEEAP	National Energy Efficiency Action Plan
NERSA	National Energy Regulator of South Africa
NGO	Non-Governmental Organisation
NHFC	National Housing Finance Corporation
NLTA	National Land Transport Act
NMT	Non-Motorised Transit
NRS	National Regulatory Standard
NT	National Treasury
NT TAU	National Treasury Technical Assistance Unit
NURCHA	National Urban Reconstruction and Housing Agency
PFMA	Public Finance Management Act
PPA	Power Purchase Agreement
PPP	Public Private Partnership
PSEE	Private Sector Energy Efficiency
PTIG	Public Transport Infrastructure and Systems Grant
PTNG	Public Transport Network Grant

PTNOG	Public Transport Network Operations Grant
PTOG	Public Transport Operations Grant
PTSAP	Public Transport Strategy and Action Plan
PV	Photovoltaic
RE	Renewable Energy
RED	Regional Electricity Distributor
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
RSA	Republic of South Africa
RTSSA	Rural Transport Strategy for South Africa
SABS	South African Bureau of Standards
SACN	South African Cities Network
SAGEN	South African – German Energy Programme
SALGA	South African Local Government Association
SANEDI	South African National Energy Development Institute
SANS	South African National Standards
SARPPGC	South African Renewable Power Plants Grid Code
SDBIP	Service Delivery and Budget Implementation Plan
SDC	Swiss Agency for Development and Cooperation
SDF	Spatial Development Framework
SEA	Sustainable Energy Africa
SETA	Sector Education and Training Authority
SHRA	Social Housing Regulatory Authority
SOE	State-owned Enterprise
SONA	State of the Nation Address
SPA	Strategic Priority Area
SPLUMA	Spatial Planning and Land Use Management Act
SSEG	Small-Scale Embedded Generation
Stats SA	Statistics South Africa
STS	Scholar Transport Subsidy
SWH	Solar Water Heater
TPA	Third-party Access
TSA	Taxi Scrapping Allowance
UCGLA	United Cities and Local Governments of Africa
UCT	University of Cape Town
UISP	Upgrading of Informal Settlements Programme
UK PACT	United Kingdom Partnering for Accelerated Climate Transitions
WWF	World Wildlife Fund

PART

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INTRODUCTION

Photo archives of GIZ

Conventional energy production, distribution and consumption are changing, as the energy sector shifts towards more decentralised and variable solutions. This SALGA Energy Efficiency and Renewable Energy and Strategy Guide for Local Government is an update of the 2013 strategy that was funded by the Swiss Agency for Development and Cooperation (SDC) and undertaken in consultation with municipalities across the country. The 2013 Guide has been updated to reflect changes in the energy sector.

This Guide is produced through a partnership between SALGA and the GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit – German International Corporation) South African – German Energy Programme (SAGEN), coordinated by Sustainable Energy Africa (SEA). Its intention is to provide a clear programme of action for local government to promote the development of energy efficiency (EE) and renewable energy (RE) in line with national policy direction and within local governance mandates, thereby contributing to achieving national climate mitigation and efficiency targets. It is designed to offer technical support, led by SALGA, for those tasked with strengthening the capacity of municipalities to undertake this work.

The Guide arrives at an opportune time for South Africa's energy sector, which is rapidly changing, shifting from large-scale conventional power plants to low-carbon distributed generation. The emergence of low-cost renewable energy technologies and distributed energy generation makes it possible for municipalities to play a significant role in energy supply, distribution and EE. In addition, the growing importance of the green economy, as a lever to stimulate post-Covid-19 economic recovery, presents South African municipalities (particularly cities) with the opportunity to unleash their transformative potential, find their own innovative, decentralised solutions to meet their energy needs, and futureproof their energy systems.

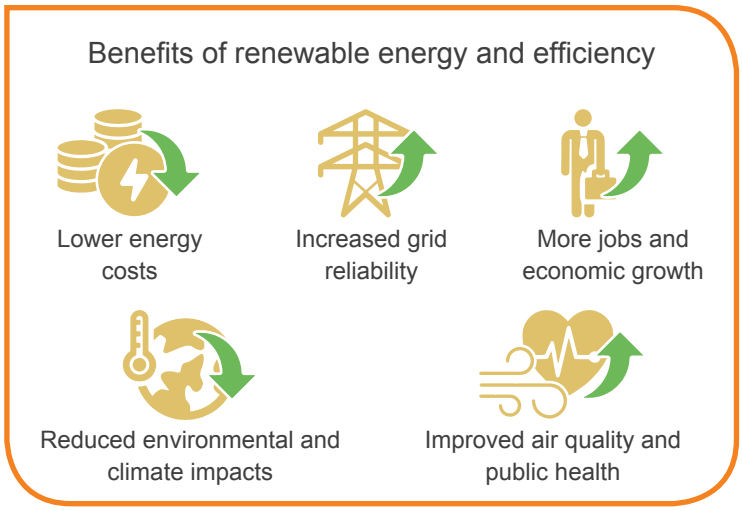
The Guide provides very practical information on the types of interventions that could form part of the energy strategy of individual municipalities. In effect, it offers a menu of options to municipalities, enabling municipal officials to develop energy strategies in-house. It is not prescriptive but multidimensional and can be adapted to the needs and capacity of all municipalities. It requires that municipalities adopt and adapt the broad strategic direction presented here within their own strategy and action plan.

This document provides an outline of key energy efficiency and renewable energy areas for local government to address, as well as an outline of key areas of support work to be taken forward by SALGA (in partnership with relevant national departments and key stakeholders), in order to enable, facilitate and strengthen local government's ability to address energy efficiency and renewable energy.

After an overview of the State of Energy Sector, the Guide's approach, vision and objectives are explained. It then provides a strategy for municipalities to implement EE and RE and a clear programme of support action, led by SALGA.

The Energy Sector

The energy sector is undergoing a major transition internationally and nationally. RE is becoming increasingly more feasible than fossil fuels, which have dominated the world's energy landscape for nearly a century. The benefits of RE and EE are numerous and include: lower energy costs (for countries, corporates and households), increased grid reliability, reduced environmental and climate impacts, improved air quality and public health, and more jobs and economic growth.



International context

In recent years, increased global investment in renewables has driven down the costs of renewable technologies. Between 2010 and 2018, the average price of solar photovoltaic (PV) solutions reduced by about 77%. These low costs make renewables the fastest-growing part of the electricity sector – in 2019, RE grew by more than 200 gigawatts (mostly in solar PV), and in 2020, new generation from RE outpaced all other energies.

Globally, cities are responsible for many local policies and services that have an impact on the uptake of renewables, especially in the building and transport sectors. Indeed, local governments often set more ambitious targets and implement more ambitious policies than their national counterparts. For example, more than 100 cities have announced their commitment to net zero carbon emissions by 2050.

National context

The energy sector lies at the heart of South Africa's economy and society. Over 90% of South Africa's energy is derived from fossil fuel, with high levels of associated carbon emissions. Since 2000, energy consumption in South Africa has reduced – energy intensity across all sectors has experienced an annual compounded decrease of 2.7%. This reduction is driven by several factors, including the introduction of regulations, technology advancements, higher-than-inflation increases in the cost of electricity, and supply constraints at Eskom. Intensive load-shedding is common due to insufficient generation capacity, an ailing grid and ageing infrastructure, and the unbundling of the national electricity entity, Eskom.

In 2019, Cabinet approved the updated Integrated Resource Plan (IRP), which is the electricity master plan for the country. For the first time, the IRP signalled a significant shift away from fossil fuels to renewable sources, predominantly wind and solar PV, for the bulk of new generation capacity. South Africa pledged to peak its carbon emissions between 2020 and 2025, allowing them to plateau for roughly a decade before they start to fall.

The IRP also points to greater contributions from medium-scale plants and embedded generators directly connected to municipal distribution networks. In his State of the Nation address 2020, the President announced that national government will "put in place measures to enable municipalities in good financial standing to procure their own power from Independent Power Producer (IPPs)". Subsequent amendments to regulations allowed 2 000 MW to be procured from a range of energy technologies, from 2019 to 2022. In October 2020, the Minister of Minerals and Energy gazetted a new directive that provides a framework for electricity generation: Section 34 of the Electricity Amendment Act allows municipalities to source their own power instead of being solely reliant on Eskom; no licence is required for small-scale distributed generation for own use up to 1 MW, while municipalities may develop additional grid capacity from RE, natural gas, hydro power, battery storage and coal.

Local context

EE and RE development have predominantly focused on the larger cities and towns, but also currently occur on a voluntary and ad hoc basis. Municipalities have asked for clarification and guidance as to what is required for EE and RE development at the local level. This strategy aims to address this need.

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, while Section 152(1b) mandates municipalities to provide services to communities in a sustainable manner. Moreover, the Municipal System Act requires municipalities to give priority to the basic needs of the local community (Section 73(1a)). The power and functions of the municipalities are further elaborated in the Municipal Structure Act Section 84, which deals with the bulk supply of electricity, including for the purposes of supply, transmission, distribution and, where applicable, generation of electricity. This is in line with Schedule 4B of the Constitution that mandates municipalities to render the electricity reticulation function.

Building on the guidance provided by the Constitution, the then Department of Environmental Affairs (now the Department of Forestry, Fisheries and Environment (DFFE)), through the National Climate Change Response Policy in 2011, recognises the important role of municipal government in meeting the challenges of climate change, including energy service delivery (Section 10.2.6). Furthermore, the role of the municipalities in addressing EE was brought to the fore by the Department of Energy (now the Department of Mineral Resources and Energy (DMRE)), through the National Energy Efficiency Strategy (2016), which 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 targets.[1] Municipalities are encouraged to have their own EE strategies that are informed by energy audits of their services and activities and aligned with provincial strategies. The municipal strategies should ensure that municipalities meet the targets set in the National Energy Efficiency Strategy (Table 1).

Table 1: Targets set in the National Energy Efficiency Strategy

National integrated energy objectives	Related municipal mandates or functions
▶ 20% reduction in the energy intensity (measured as energy consumption per head of population served) in the provision of electricity-intensive municipal services (street lighting, traffic lights, water supply and wastewater treatment). ▶ 30% reduction in the fossil fuel intensity of municipal vehicle fleets (measures as total fossil fuel consumption per head of population served).	▶ 33% reduction in the average specific energy consumption of new household appliances purchased in South Africa by 2030 relative to a 2015 baseline. ▶ 20% improvement in the average energy performance of the residential building stock by 2030 relative to a 2015 baseline, as measured by the energy consumption (excluding plug loads) per square metre of habitable space.

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 municipalities.

About the Strategy Guide

A sustainable energy approach lies at the heart of this Guide. 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 during the development of the Municipal Energy Efficiency and Renewable Energy Strategy: EE and RE must contribute to the overarching goals of service provision, poverty reduction and environmental protection. A demand-side led approach to energy development – looking at who needs energy for what purpose – focuses on the end-uses of energy and the services that energy provides for human beings. This brings energy planning solidly into the domain of local government.

Municipalities have been very receptive 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.

Energy 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 require that capacity, systems, service delivery and revenue models be addressed. This strategy intends to prepare the ground and to assist municipalities to respond to the changing energy landscape economically, legally, financially and institutionally.

Experience shows that the real challenge is implementation. Despite their strong commitment and desire to strengthen national energy security and climate response, address poverty alleviation and ensure sustainable service delivery, municipalities face multiple local energy issues and a rapidly changing energy landscape. To address these challenging circumstances, coordinated support is required, which is why the strategy highlights what kind of technical support will be required. The support required is extensive and, although this strategy is to be implemented by municipalities and led by SALGA, achievement of the strategy will require enormous levels of cooperation and partnerships across government as well as between government and the private sector and the NGO/academic/research sector.

Strategy guide development process

A cornerstone of the 2013 strategy development process was engaging and consulting with the country's municipalities via the SALGA provincial offices. Despite the challenges facing local government, the commitment, passion and calibre of local government officials and leaders working in this newly unfolding arena must be acknowledged. Valuable, pioneering EE and RE work is already underway in South African municipalities. The strategy development process has drawn extensively on this work and experience, and is also informed and shaped by the SALGA Energy Summit Action Plan, which guides municipalities in responding to the rapidly changing electricity sector.

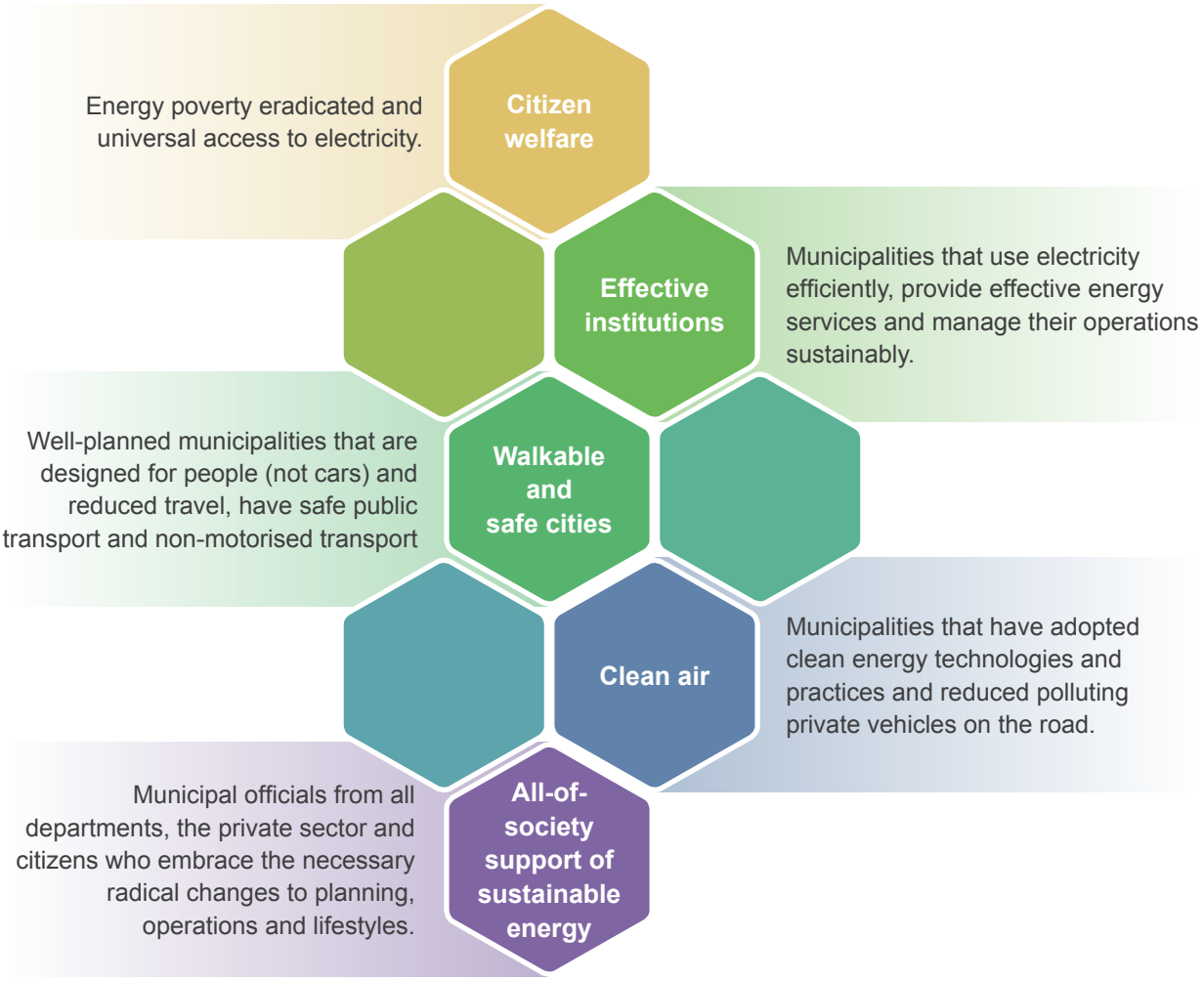
"Valuable, pioneering EE and RE work is already underway in South African municipalities

A consultation workshop was convened by the local SALGA office in each of the nine provinces. These participatory workshops combined developing an understanding of local energy issues, presenting local energy data for analysis, and discussing strategy. Participation from an array of officials, spanning the electricity, water, planning, environment and health sectors, was extremely good, and this guide reflects the issues and concerns raised in these sessions and proposed responses. It also draws on two decades of local energy experience from pioneering municipalities in the country. Current research, stakeholders and leading experts have been consulted, but the vision, priorities and goals presented here flow from the municipalities themselves.

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

Vision

The vision of the strategy is to contribute to affordable energy for all, and to minimise the negative effects of energy usage on human health and the environment, through encouraging sustainable energy development and energy use through efficient practices.



Strategic Priority Areas

Eight strategic priority areas (SPAs) were identified through the consultative workshops and are aligned to the 2018 SALGA Energy Summit Declaration and Outcomes, which were to ensure collaborative leadership, an enabling environment, customer centricity, operational resilience, and new opportunities deployment .

Local Energy Governance

To develop local, flexible and integrated energy plans, and leadership able to participate in national energy development planning

Municipal 'Own' Energy Efficiency

To manage efficiently the energy consumption in municipal facilities and operations

Energy Access for All

To provide all households with access to affordable, safe and clean energy sources

Energy Efficiency in the Residential, Commercial and Industrial Sectors

To support the efficient use of electricity through the built environment and economy

Renewable Energy Development

To make renewable energy options a significant component of local energy supply, where technically / economically feasible

Electricity Services and Business Models

To deliver sustainable electricity services that accommodate and promote access to electricity, renewable energy development and efficiency

Efficient Transport Mobility

To have walkable, 'smoleless' municipalities with safe mobility for all, good transport networks, and public transport as a sought-after mode of transport

Spatial Planning

To create well-planned, livable municipalities where all citizens have access to the amenities and economic opportunities

Alignment with SALGA Energy Summit Outcomes

This Guide is aligned to the five thematic outcomes of the SALGA Energy Summit held in March 2018 (under the theme "Defining the Energy Future of Local Government") from which emerged the SALGA Energy Summit Action Plan. Below is a summary of the eight strategic priority areas (goals and strategies) that are aligned to five outcomes: Collaborative leadership, operational resilience, customer centricity (increased energy access), enabling environment and new opportunities deployment.

Strategic Priority Area 1: Local Energy Governance	**Outcomes**
To develop local, flexible and integrated energy plans, and leadership able to participate in national energy development planning: ▶ Institutionalise a local level "energy mandate". ▶ Build political and senior management leadership and obtain buy-in. ▶ Develop local-level energy policy, strategy and plans. ▶ Support local energy plans and strategy implementation. ▶ Develop technical, legal and business skills and processes for engaging with IPPs. ▶ Build capacity and develop skills in monitoring, reviewing and reporting.	**Collaborative leadership** ▶ Establish a local project management capability, to set up and support the energy transition political and administrative leadership structure and buy-in.

Strategic Priority Area 2: Municipal 'Own' Energy Efficiency	**Outcomes**
To manage efficiently the energy consumption in municipal facilities and operations: ▶ Implement building and lighting efficiency. ▶ Implement water and sanitation service efficiency. ▶ Develop an efficient vehicle fleet. ▶ Support waste reduction, management and efficiency.	**Operational resilience** ▶ Optimise the municipal business and municipal operations to become more efficient through EE, adequate maintenance and revenue management strategies. ▶ Develop asset management strategies and tactical plans to monitor asset performance, improve the value of the grid and address electricity infrastructure maintenance, refurbishment and strengthening backlogs.

Strategic Priority Area 3: Energy Access for All	2018 ENERGY SUMMIT | 8 SALGA Outcomes
To provide all households with access to affordable, safe and clean energy sources: ▶ Expand electrification to all urban and rural households. ▶ Develop and roll out workable Free Basic Alternative Energy (FBAE) delivery models. ▶ Support poor households through tariffs and subsidies. ▶ Improve thermal performance and safety in poor households. ▶ Develop a household energy service package approach.	**Customer centricity – increase energy access** ▶ Develop specific strategies to protect the interests of the poor from an energy provision perspective. ▶ Design innovative energy access programmes – assess the possibility of starting a programme similar to Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) but for energy access, through a tender scheme, with municipalities as service authorities and service providers providing the services.

Strategic Priority Area 4: Energy Efficiency in the Residential, Commercial and Industrial Sectors	2018 ENERGY SUMMIT | 8 SALGA Outcomes
To support the efficient use of electricity throughout the built environment and economy: ▶ Encourage and enforce efficiency through building and development approval processes. ▶ Promote efficiency and localisation where appropriate.	**Operational resilience** ▶ Optimise municipal business and municipal operations to become more efficient through EE, adequate maintenance and revenue management strategies.

Strategic Priority Area 5: Renewable Energy Development	2018 ENERGY SUMMIT | SALGA Outcomes
To make RE options a significant component of local energy supply, where technically/ economically feasible: ▶ Promote the installation of Small-Scale Embedded Generation (SSEG) in different sectors. ▶ Promote the installation of distributed generation (1–10 MW). ▶ Generate RE for municipal 'own' use. ▶ Facilitate landfill gas and wastewater gas electricity generation. ▶ Facilitate micro-hydro projects.	**Enabling environment** ▶ Redesign policy framework – municipalities to procure electricity from the IPPs for own use; develop or finalise the policy and regulatory frameworks to allow for trading, 'wheeling' and the supply of decentralised energy at the local level. **New opportunities deployment** ▶ Promote and implement RE by supporting selected municipalities in developing local energy plans. ▶ Ensure these plans are integrated into IRP development processes. ▶ Propose strategies to optimise and diversify the energy portfolio and develop mini grids where new customer connections are required in remote areas. ▶ Promote small-scale embedded generation and waste-to-energy options as an integral part of local infrastructure development plans.

Strategic Priority Area 6: Electricity Services and Business Models	2018 ENERGY SUMMIT | SALGA Outcomes
To deliver sustainable electricity services that accommodate and promote access to electricity, efficiency and RE development: ▶ Develop sustainable revenue models and alternative revenue streams. ▶ Facilitate the adoption of SSEG while preserving the integrity of the distribution system (see Priority Areas 2 and 5). ▶ Introduce smart technology appropriately. ▶ Protect existing revenue. ▶ Procure electricity from third parties (SSEG customers and IPPs).	**Customer centricity – increased energy access** ▶ Develop specific strategies to protect the interests of the poor from an energy provision perspective. ▶ Design innovative energy access programmes – assess the possibility of starting a programme similar to REIPPPP but for energy access, through a tender scheme, with municipalities as service authorities and service providers providing the services. ▶ Regulate and inform municipal electricity tariffs by cost of supply and economic studies, and rationalise and unbundle tariffs (separating wires and energy charges).

Strategic Priority Area 7: Efficient Transport Mobility	2018 ENERGY SUMMIT | SALGA Outcomes
To have walkable, 'smokeless' municipalities with safe mobility for all, good transport networks, and public transport as a sought-after mode of transport: ▶ Develop integrated, local transit plans and regional linkages. ▶ Develop non-motorised transit (NMT) facilities. ▶ Develop and improve public transport modalities. ▶ Support and promote greener fuels, fuel efficiency and electric vehicles.	*Transport and mobility were not part of discussions at the SALGA Energy Summit.*

Strategic Priority Area 8: Spatial Planning	2018 ENERGY SUMMIT | SALGA Outcomes
To create well-planned, liveable municipalities where all citizens have access to amenities and economic opportunities: ▶ Use municipal tools to support mobility, transport efficiency and access by the poor to amenities and economic opportunities. ▶ Closely coordinate spatial plans and transport plans to support common objectives.	*Spatial planning was not part of discussions at the SALGA Energy Summit.*

Making the Strategy Locally Applicable

The strategy is comprehensive and applicable to all municipalities but runs the risk of being overwhelming. Therefore, municipalities need to identify their priorities from within the broad strategic direction, in line with their own goals, objectives, capacity and SDBIP.

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."

Photo archives of GIZ

Recognising the enormous capacity constraints and service delivery backlogs facing municipalities, a "Key first steps plan" is presented. This plan may be sufficient for resource-poor municipalities, with very low energy consumption. Figure 2 shows the issues that must be addressed within the Municipal EE and RE Strategy:

Figure 2: Local government RE and EE strategic issues

Leadership and political direction	▶ Build on and develop existing commitment to tackling these issues. ▶ Translate EEand RE into the language of local government, i.e. basic service delivery. ▶ Address local priorities – poverty alleviation – and include energy poverty/access issues. ▶ Be visible, with tangible benefits – pilot projects are recommended. ▶ Have more engagement between national and local government in policy development.
Mandates, institutions and governance	▶ Clarify the role of municipalities in national policy, provide guidance (directives) for articulating policy at local level, and address the capacity of municipalities to meet their responsibilities. ▶ Integrate new or clarified responsibilities into the system – Municipal Manager's job description and IDP requirements and related systems. ▶ Focus on internal energy for municipal 'own' facilities and operations. ◀ **START HERE!** ▶ Strengthen the SALGA platform for municipalities and the SALGA-AMEU working relationship. ▶ Develop municipal revenue models that can support this work.
Energy planning and electricity business within municipalities	▶ Ensure that data is available for energy and electricity planning, and streamline data reporting requirements. ▶ Build capacity for the planning, billing and metering needed for sustainable electricity service delivery, and address capacity shortages, particularly in technical positions. ▶ Clarify the regulatory framework, particularly relating to embedded generation. ▶ Maintain the grid. ▶ Protect revenue protection (including eradicating electricity theft) and grid stability (relating RE uptake).
Implementing energy efficiency and renewable energy projects	▶ Provide capacity support, possibly through technical and financial units. ▶ Expand funding streams (e.g. ringfence efficiency savings, include embedded generation within the RE Independent Power Producers Programme (REIPPP) funding streams, explore PPPs). ▶ Train existing staff (e.g. in enforcing SANS 204). ▶ Support partnership development for renewable and efficiency development (PPPs). ▶ Invest in networking platforms, innovation hubs and knowledge sharing. ▶ Highlight the importance of the practicality and viability of projects - avoid technology dumping.
Implementation priorities	▶ Focus on internal energy for municipal 'own' facilities and operations. ◀ **START HERE!** ▶ Align bulk infrastructure projects across departments and include efficiency within all projects. ▶ Prioritise access to energy for the poor, including thermal efficiency low-income housing, on- and off-grid electrification, improved wiring, FBE/FBAE, tariffs, efficient lighting and alternative/clean appliances/technologies for cooking and lighting. ▶ Clarify where this mandate lies within municipalities, as it is not within the licensed mandate of utility distribution licences under NERSA/the Electricity Regulation Act.
Built environment – enforcing new energy efficiency regulations	▶ Promote spatial planning to stem urban sprawl and inefficient growth. ▶ Support NMTand public transport. ▶ Undertake community awareness and education.

Prioritising and phasing the strategy

The reality is that different municipalities have quite different priorities, capacities and functions, which will guide them in what they do and how they take this work forward. Therefore, a broad approach of prioritising and phasing the strategy is provided in Figure 2.

National level

- Mandates and institutions: Clarify the energy responsibility at the local level. Municipalities may have the right to administer the reticulation of electricity and gas, but their constitutional and legislative mandates for electricity distribution and reticulation are unclear. The Inter-Ministerial Task Team's Advisory Panel on Electricity Reticulation and Distribution is currently working to provide such clarity.
- Technical and implementation support: Boost existing support provided through the COGTA MISA.

Local level

- Policy, strategy or action plan: Develop a local plan (outlining activities, responsible departments and budgets) that is integrated into municipal planning processes (e.g. IDP, SDF, electricity master plans). This can be either extensive and detailed (in metros and secondary cities) or simpler and draw on this strategy (in other municipalities). What is important is that the municipality has a clear (strategic, not ad-hoc) idea of this work and how it relates to municipal development goals.

- Implementation: Table 2 provides an example of phasing and priority actions.

Table 2: Implementation guide – key actions for each phase

PHASE 1	PHASE 2	PHASE 3
Deliver sustainable energy services for all.	**Become efficient and resilient.**	**Grow RE services and economies.**
▶ Deliver all new government-delivered subsidy housing as efficient and in line with new regulations. ▶ 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. ▶ Improve revenue collection and credit control. ▶ Begin 'own' efficiency: retrofit municipal building lights with efficient alternatives. ▶ Enforce SANS 10400-XA and SANS 204 in building approval processes. ▶ Develop a simple COS for the electricity distribution business. ▶ Reduce and/or prevent the non-technical loss rate especially in informal settlements.	▶ Meter and record municipal energy consumption. ▶ Retrofit water pumps with efficient alternatives. ▶ Undertake communication and awareness programmes among staff. ▶ Procure vehicles based on operating (life cycle) cost, not just capital cost. ▶ Develop and implement energy management system (EMS). ▶ Drive efficiently, by managing driving, and monitoring and changing trips. ▶ Engage with smarter technology and private sector programmes, to improve residential, commercial and industrial efficiency. ▶ Support SWH roll-out programmes through endorsement schemes, information and subsidy programmes (where available).	▶ Develop clear and simple procedures (in line with NRS 097-2-1 and NRS 097-2-3) for the application and adoption of small-scale embedded generated power. ▶ Establish the feasibility, develop a business plan and possibly engage with the private sector on waste-to-energy projects. ▶ Engage with the development of natural gas as an energy supply option. ▶ Develop an Energy Master Plan for the municipality with clear goals and deliverables. ▶ Engage with the national processes being developed to enable municipal procurement from IPPs. ▶ Explore PPP RE projects (solar PV, wind, waste-to-electricity).

One or two visible pilot projects can be used to generate political will and leadership, as well as community support. While growing RE may not be a priority, particularly where municipalities are struggling to meet service delivery commitments, in many instances pressure from the ground is forcing municipalities to tackle this issue. For instance, the municipality needs to be able to respond to requests from developers for RE grid feed-in and approaches.

Funding and financing

Further work on financing and funding of this work needs to take place. This will rest largely with national government. However, much can be achieved through existing municipal budgets, while donor-funded pilot initiatives can provide important learning and awareness-raising opportunities.

PART

2

STRATEGIC PRIORITY AREAS

Strategic Priority Area 1

Local Energy Governance

GOAL

To develop local, flexible and integrated energy plans, and leadership able to participate in national energy development planning

Local government is an important partner in meeting national mitigation and adaptation targets, including energy efficiency (EE) at the local level and renewable energy (RE) development.[2] Municipalities have substantial powers and functions over the built environment and infrastructure sectors, which account for a large portion of the national energy consumed, and are responsible for delivering free basic services, including energy. Although energy generation is not a local government mandate, municipalities may generate energy. Several metros and secondary cities have developed detailed energy data reports and energy and climate change strategies which they are actively implementing.

RELEVANCE FOR LOCAL GOVERNMENT

- Without intervention, energy consumption and related emissions will increase at an unacceptable rate at high economic cost, and result in South Africa not meeting its climate change commitments.
- The municipal mandate includes providing cost-effective electricity services (which is increasingly leaning towards distributed and RE services), ensuring that services do not harm the environment and future generations, and promoting local economic development (LED).
- Municipalities need to respond urgently to the growth in RE and distributed energy in order to avoid losing a significant portion of municipal revenue from electricity sales. They also risk missing out on economic development opportunities, as investment in energy is moving from generation to distribution.
- Responsibilities for EE still need to be institutionalised, which is a complex undertaking because EE cuts across multiple sectors and requires new approaches to executing current powers and functions, and not additional powers or functions.
- Municipalities lack the financial ability and capacity to contribute to an efficient and sustainable future.

2 National Climate Change Response White Paper, 2011: Section 10.2.6

MANDATE OF LOCAL GOVERNMENT

The following are local government's powers and functions (Schedules 4 and 5 of the 1996 Constitution) relevant to achieving the national energy objectives laid out in the Integrated Energy Plan (2016), which is derived from the Energy Act (2008).

National integrated energy objectives	Related municipal mandates or functions
Ensure the security of supply.	Electricity reticulation; FBAE; LED.
Minimise the cost of energy.	Electricity reticulation (tariff setting, cross subsidisation); human settlements (housing delivery); public transport (limited); non-motorised transport.
Increase access to energy.	Electrification; FBAE; human settlements (thermal efficiency); public transport; spatial planning.
Diversify supply sources and primary sources of energy.	Electricity reticulation; waste management.
Minimise emissions from the energy sector.	Electricity reticulation; building codes and planning approval, spatial planning.
Promote EE in the economy.	Management of public facilities; building codes and development approval; air quality management; electricity distribution.
Promote localisation and technology transfer and the creation of jobs.	LED.
Promote the conservation of water.	Water service delivery.

FUNDING MECHANISMS

Municipalities across the country want to contribute to an efficient and sustainable future but require the financial ability and capacity to do this. Available funding mechanisms include:

- Municipal Budget Capital Expenditure and Operating Expenditure
- Municipal Infrastructure Grant (MIG)
- National Treasury's Cities Support Programme (CSP) – for cities only
- National Treasury's Integrated Sustainable City Grant – for cities only
- Energy Efficiency and Demand Side Management Grant

STRATEGIES AND ACTION PLANS

Action	Responsible Departments	Municipal Support Needed
Institutionalise a local level "energy mandate".		
▶ **Establish a department to be 'home' to the sustainable energy mandate.** *The department should be based on what is appropriate for the municipality (e.g. Mayor's office, Environment, Electricity and Energy Services) and build on existing initiatives where possible.*	Municipal Manager Energy Champion/ Unit	✓ Ensure that the local government level energy mandate/responsibility is clear and officially circulated. ✓ Fund the mandate, by ensuring that resources match responsibilities through economic and fiscal research (SALGA in partnership with NT and National Department of Cooperative Governance and Traditional Affairs (COGTA)). ✓ Include new responsibilities in job description and key performance areas of the Municipal Manager.
▶ **Establish a cross-sector energy coordinating committee.** *Departments should be included based on functional need, drawing in those who have a role to play in implementing the municipal energy plan.*	Municipal Manager Energy Champion/ Unit	✓ Include EE indicators in the Integrated Development Plan (IDP), Spatial Development Framework (SDF) and sector plan requirements. ✓ Consider including a Municipal Energy Efficiency Management Strategy as an IDP requirement.
Build political and senior management leadership and obtain buy-in.		
1. **Train and inform political leadership.** *People need to understand the short- and long-term impacts of climate change.*	SALGA	✓ Provide information and training aimed at countering the common view that EE and more sustainable development approaches impede LED. ✓ Form, manage and run an Energy and Climate Change Committee.

Action	Responsible Departments	Municipal Support Needed
2. Develop appropriate messaging and visibility. *Energy and climate response must be integrated into service delivery planning and operations, with demonstrable social, economic, environmental benefits.*	SALGA	✓ Pursue funds to support pilot projects. ✓ Explore the viability of a benchmarking awards system. This could be integrated into the planned SALGA Municipal Awards planned (Note: only if it will NOT increase reporting requirements of municipal staff, but rather encourage and support initiatives and action.)
3. Develop a platform for local government to engage in provincial and national policy development. *Multi-level governance is key, as municipalities cannot transition to a RE-based system in isolation but must align to – and inform – national policy and regulations.*	SALGA Energy Champion/ Unit Electricity Transport	✓ Make contributions on policy direction, to inform SALGA policy briefing notes and information sessions that collate input from municipalities. ✓ Participate in inter-governmental forums through SALGA.
Develop local-level energy policy, strategy and plans.		
1. Develop a local-level energy picture. *This can be a commissioned exercise or carried out internally. Local-level energy data may be challenging to collate.*	Municipal Manager Energy Champion/ Unit	✓ Compile data on energy demand and supply or draw on information from the municipal EE and RE analysis, available data and local knowledge and experience. ✓ Engage national data holders to assist in collecting the data required to compile a local-level energy picture: Eskom, DMRE, Statistics South Africa (Stats SA).

Action	Responsible Departments	Municipal Support Needed
2. Develop an energy strategy/plan with clear, achievable targets. *Metros and larger towns may choose to commission this detailed strategy process, but most municipalities should draw on the various municipal EE and RE guidelines produced by SALGA and build on existing plans and actions (e.g. electricity master plan).*	Municipal Manager Energy Champion/ Unit SALGA	✓ Obtain input into strategy from all departments and stakeholders to ensure that the energy strategy and action plan are robust and have broad buy-in. ✓ Align targets to the National EE strategy (e.g. 20% from municipal services by 2030) and the IRP (for RE). ✓ Consult SALGA prior to approving and implementing the strategy and plans, to seek comments, obtain facilitation support and ensure the inclusion of the outcomes from SALGA's Energy Summit. ✓ Circulate the SALGA Municipal EE/RE guidance documents and other best practice examples.
3. Include Council-approved energy strategy/plan into sector plans and monitoring systems. *These include IDP, Key Performance Indicators (KPIs), Service Delivery and Budget Implementation Plans (SDBIPs) and electricity master plans.*	IDP Office Provincial LG/IDP Depts Energy Champion/ Unit	✓ Access technical support on integrating EE and RE into municipal sector plans. ✓ Explore institutional options for locating technical support. (Note: these options should be wide and varied, e.g. Municipal Infrastructure Support Agency (MISA), regional DMRE, provincial SALGA offices, Non-Governmental Organisations (NGOs)/ academics, and include web-based information, e.g. www.cityenergy.org.za).
4. Identify additional funding requirements. *Where possible, the actions should be aligned to the municipality's core business and main funding processes.*	Energy Champion/ Unit	✓ Identify, drive and coordinate appropriate funding streams. ✓ Support capacity development for municipal business plans. ✓ Engage with the Technical Unit at NT for support in developing public-private partnerships (PPPs) where appropriate. (Note: NT and stakeholders are exploring new municipal revenue models to enable the energy transition.)

Action	Responsible Departments	Municipal Support Needed
Support local energy plans and strategy implementation.		
1. **Integrate planning across departments and align bulk infrastructure projects within municipalities and across spheres of government.**	Energy Champion/ Unit Sector Depts	✓ Ensure energy aspects are considered within the planning phases of all municipal projects, e.g. housing delivery. ✓ Ensure that large infrastructure programmes are energy conscious when funded by, for example, the Municipal Infrastructure Grant (MIG) or Approach to Distribution Asset Management (ADAM) Programme.
2. **Introduce efficiency requirements into procurement systems.**	Procurement	✓ Provide 'green procurement' guidance and direction based on best practice. ✓ Clarify interpretations of the Municipal Finance Management Act (MFMA) in relation to integrating resource efficiency, sustainability and life-cycle accounting into procurement processes.
3. **Develop a communication and awareness plan.**	Communications Relevant Depts	✓ Publicise commitments and new approaches, so that citizens and potential partners are provided with information that will enable them to engage in new projects. ✓ Consider how to improve the communication of critical concepts related to energy and low-carbon development, e.g. electricity tariffs, etc. ✓ Strengthen Energy Forums (with support from the DMRE and provincial SALGA offices).
4. **Secure financing and funding.**	Energy Champion/ Unit Municipal Manager Implementing Depts	✓ Identify, drive and coordinate appropriate funding streams and enhance/expand funding streams. ✓ Engage with the Technical Unit at NT for support in developing PPPs where appropriate. (Note: NT and stakeholders are exploring new municipal revenue models to enable the energy transition.)

Action	Responsible Departments	Municipal Support Needed
Develop technical, legal and business skills and processes for engaging with IPPs.		
1. Develop the key skills and processes required to engage with IPPs.	Energy Champion/ Unit Municipal Manager	✓ Coordinate the development of better practice guidelines aligned to local legislation and municipal procurement requirements. ✓ Include guidelines for power purchase agreements (PPAs), implementation agreements (IAs), connection and use of system agreements (CUoS), generic 'wheeling' agreements and Third-party Access (TPA) tariff development methods.
Build capacity and develop skills in monitoring, reviewing and reporting.		
1. Develop skills, knowledge and capacity.	SALGA Relevant Depts COGTA (MISA) Provincial Depts Regional Offices of National Depts	✓ Obtain information on training courses, capacity-development programmes and knowledge-sharing platforms, including www.cityenergy.org.za. ✓ Strengthen Energy Forums (with DMRE and provincial SALGA offices) ✓ Address technical staff shortages, including the failure of Sector Education and Training Authorities (SETAs), possible bursary schemes and artisanal training (pre-SETAs), issues relating to 'cadre deployment' and political interference in technical decision-making (with support of SALGA, provinces and COGTA). ✓ Develop technical capacity support through government-coordinated regional platforms and central 'shared service' opportunities; boost existing national technical support units (MISA, South African National Energy Development Institute (SANEDI) as technical/innovation 'hub').

Action	Responsible Departments	Municipal Support Needed
2. **Develop monitoring and reporting systems.**	Energy Champion/ Unit Electricity Implementing Depts	✓ Support a process to explore the streamlining of national data/reporting requirements (IDP, National Energy Regulator of South Africa (NERSA), Eskom, DMRE, DFFE) and commission SALGA. ✓ Share best practices in EE and RE monitoring and evaluation.

INFORMATION AND SUPPORT

1996	National White Paper on Transport
1998	White Paper on the Energy Policy of the Republic of South Africa
2003	White Paper: Renewable Energy
2008	National Energy Act (No. 34)
2011	National Climate Change Response White Paper
2011	The Green Economy Accord
2012	Post-2015 National Energy Efficiency Strategy and related National Energy Efficiency Action Plan
2012	The National Development Plan (NDP)
2016	Integrated Energy Plan (IEP)
2016	Integrated Resource Plan (IRP)
2017	Department of Transport's Strategic Plan 2014/15–2019/20
2019	Green Transport Strategy for South Africa 2018–2050
2019	Integrated Resource Plan (IRP)

Programmes that support the development of local energy planning and implementation in South Africa include:

- Sustainable Energy Africa and the City Energy Support Unit Programme (technical and capacity development support to cities and towns) http://www.cityenergy.org.za/category.php?id=1
- ICLEI – Urban-LEDs Programme
- NT: Sustainable Cities Programme

Internationally, several South African metros and towns engage in global initiatives through programmes such as the C40 Cities, United Cities and Local Governments of Africa (UCLGA), International Local Government for Sustainability (ICLEI) Covenant of Mayors and the Earth Hour City Challenge.

SALGA Support - See page 82

IDEAS TO TAKE FORWARD

- District and local municipalities can obtain guidance from the various provincial-level energy and climate strategies, for example: Gauteng, Eastern Cape, Western Cape and Mpumalanga.
- Some provinces are developing provincial EE and RE registries: The Eastern Cape is about to publish a best practice registry, while the Western Cape is busy finalising a sustainable energy projects database of EE and implementing RE and sustainable transport projects.
- Several metros and secondary cities have developed and are actively implementing detailed energy data reports and energy and climate change strategies.
- Long-range Energy Alternatives Planning (LEAP) modelling for Cape Town and Durban gives 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.

Municipal 'Own' Energy Efficiency

2 Strategic Priority Area

GOAL

To manage efficiently the energy consumption in municipal facilities and operations

About 1–2% of total energy consumed within a municipality is by the municipality itself, from its buildings and facilities, street and traffic lighting, water supply and wastewater treatment and vehicle fleet. This makes the municipality the single largest consumer of energy, except for municipalities that are home to large, energy-intensive industries. By reducing its consumption through EE, the municipality not only sends an important signal to citizens of the importance of EE but also reaps its benefits. These include lower maintenance costs due to increased lifespan of the new technologies, improved energy security due to decreased demand, a reduction in carbon emissions and the creation of green jobs.

RELEVANCE FOR LOCAL GOVERNMENT

- National government is in the process of implementing Energy Performance Certifications (EPC) for building regulations, which means that buildings will have to monitor and log their energy usage with government and display their energy consumption. Municipalities will need to do this for public buildings, and help with the registration and data collection for private buildings on behalf of SANEDI and DMRE. These will apply to public buildings 1 000 m^2 and private sector, non-residential buildings with a total net floor area of over 2 000 m^2.
- Data on internal energy consumption of municipalities is not readily available because either the data has not historically been measured or monitored, or it is not centrally managed and often obscured in budgets (making accessing data difficult), or it is recorded differently by municipalities (making comparisons difficult).
- Although these data challenges make it difficult to determine precisely the potential savings from EE, studies indicate savings can be achieved from making vehicle management, public lighting (street and traffic), buildings and wastewater pumping more energy efficient.
- Building efficiency can result in savings of 17–35%, through full retrofitting of multi-storey office blocks and simple efficient lighting in smaller, single-storey compound facilities.

MANDATE OF LOCAL GOVERNMENT

- The Constitution of the Republic of South Africa (1996: Sections 152 and 153) requires local government to deliver services in a sustainable manner, promote social and economic development, and promote a safe and healthy environment. These objectives inform the municipal responsibility relating to efficiency (financial and environmental) within its own operations.
- The MMFA also requires municipalities to operate prudently and use their resources effectively, efficiently and economically.
- The draft post-2015 National Energy Efficiency Strategy requires that municipalities develop energy action plans in order to reduce their energy consumption across all operations.

FUNDING MECHANISMS

- DMRE: Municipal Energy Efficiency and Demand Side Management Programme (EEDSM) grant
- Municipal Infrastructure Grant (MIG)
- Regional Bulk Infrastructure Grant
- Water Services Infrastructure Grant
- Neighbourhood Development Partnership Grant
- Urban Settlements Development Grant
- Integrated City Development Grant
- Department of Public Works and Infrastructure Programme (retrofit of government-owned buildings)

STRATEGIES AND ACTION PLANS

Action	Responsible Departments	Municipal Support Needed
Implement building and lighting efficiency.		
1. **Implement a Municipal Energy Management System (MEMS).** *A MEMS makes energy visible to management, identifying usage, planning and monitoring, and evaluating impacts. It is the key to saving energy, optimising energy use and reducing costs.*	Municipal Manager Energy Management Committee All Departments	✓ Institutionalise energy management, become energy efficient and identify EE projects. ✓ Use, expand and adopt tools from the Energy Management Systems Programme for municipalities provided by SALGA-GIZ-DMRE.
2. **Retrofit lights and install meters in municipal-owned buildings.** *Meters ensure that consumption is accurately recorded and monitored, efficient alternatives for lights are available, and practical, energy saving devices such as motion sensors are included.*	Procurement Architecture/ Building Management Electricity	✓ Engage DMRE/Eskom in a roll-out programme and look at using existing funding streams through the EEDSM Programme/ Energy Efficiency in Public Buildings and Infrastructure Programme (EEBPIP). ✓ Clarify financing barriers with NT – MFMA, procurement and contracting Energy Savings Companies (ESCOs). ✓ Ensure technology is sensible, viable and based on sound technologies – avoid technology dumping. ✓ Clarify insurance issues relating to new lights in old fittings.
3. **Replace all incandescent traffic lighting/signals and street lighting with Light Emitting Diode (LED) systems.**	Electricity Procurement Roads and Traffic	✓ Engage DMRE/NT in discussion on upscaling existing programmes to a national roll-out programme. ✓ Ensure that LED specifications comply with the South African National Standards (SANS) standards. ✓ Access latest research and information on technologies from SALGA.

Action	Responsible Departments	Municipal Support Needed
4. Retrofit council hostels and facilities/depots.	Procurement Architecture/ Building Management	✓ Install EE water heating systems, such as solar water heaters (SWH) and heat pumps. ✓ Engage DMRE/ NT in discussions about upscaling existing programmes to a national roll-out programme. ✓ Engage provincial departments of human settlements about raising awareness of effective water usage in rental stock and at handover of government-delivered housing.
5. Undertake full building efficiency audits and retrofit processes.	Procurement Architecture/ Building Management	✓ Retrofit multi-story office blocks, but simply replace lighting with LED bulbs in smaller buildings. ✓ Obtain guidance on contracting private ESCOs from SALGA, based on sharing outcomes from the EEBPIP. ✓ Access information on best practices (see Support section).
6. Incorporate 'green' principles into the procurement process.	Procurement	✓ Ensure all new efficiency technical specifications are included in the procurement process. ✓ Establish 'green procurement' principles when purchasing and operating office equipment. ✓ Access and provide information on best practices.
7. Raise awareness of the importance of energy saving internally and externally.	Energy Champion Building Management Environment	✓ Train building managers in EE approaches and monitoring and facilitate peer-to-peer learning exchanges. ✓ Make energy consumption of facilities visible and encourage energy-saving practices by publishing energy savings results. ✓ Access and provide best practice examples and information.

Action	Responsible Departments	Municipal Support Needed
Implement water and sanitation service efficiency.		
1. Ensure EE objectives are visible in planning documents.	Water Services Energy Champion/ Unit Electricity Planning	✓ Engage with water sector KPIs. ✓ Include EE objectives in water services planning and water infrastructure development plans. ✓ Obtain technical information on efficient pumps and other approaches (pipe sizing to reduce leaks, etc.), and build on/develop technical services available from national departments, e.g. MISA and Department of Water and Sanitation (DWS).
2. Improve water infrastructure operation and maintenance.	Water Services IDP and Budget	✓ Ensure that whole systems run optimally and that energy-intensive equipment, such as motors, are correctly operated and regularly serviced. ✓ Liaise with relevant water sector processes to ensure EE solutions are included in planning.
3. Procure efficient water pumps and/or control technology.	Water Services Procurement	✓ Explore funding programmes, e.g. expansion of the DMRE EEDSM Programme. ✓ Obtain the necessary technical information for procurement.
4. Run awareness campaigns.	Water Services Communications	✓ Promote efficient water consumption and support DWS programmes already underway. ✓ Promote appropriate installation and use of household water tanks.

Action	Responsible Departments	Municipal Support Needed
Develop an efficient vehicle fleet.		
1. Work with procurement to develop an efficient fleet.	Procurement	✓ Replace energy inefficient vehicles with more efficient models. ✓ Bring in operational and life-cycle costing into assessments. ✓ Clarify within the MFMA the understanding of 'efficient' in terms of upfront capital costs vs life cycle costs. ✓ Develop and share best practice information. ✓ Build capacity of staff working in procurement.
2. Improve trip efficiency.	Fleet Management Waste Management	✓ Track trips and plan routes more efficiently (e.g. waste collection routes). ✓ Train drivers, e.g. in advanced driving courses, to improve efficiency. ✓ Review and share best practices.
3. Encourage use of public transport and non-motorised transport.	All Departments	✓ Develop guides that address transitioning away from private car subsidy support (car allowances).
Support waste reduction, management and efficiency.		
1. Encourage residents and businesses to manage waste efficiently.	Waste Services Communications	✓ Run an awareness campaign on reducing, re-using and recycling waste. ✓ Highlight case studies and best practices.
2. Support recycling initiatives.	Waste Services	✓ Support programmes already underway within the sector. ✓ Share best practice stories.
3. Reduce on-site energy consumption through wastewater gas-to-energy solutions.	**See Strategic Priority Area 5: Renewable Energy**	

INFORMATION AND SUPPORT

2007 SANS 10098-1 details the technical standards for public lighting on Group A and B roads.

2020 New energy efficiency building regulations SANS 10400-XA would apply to all new buildings or major renovation of public buildings.

- The *Urban Energy Support* website contains documents to support municipal EE and RE implementation, and archives all city energy materials, resources and data from several programmes. http://www.cityenergy.org.za/category.php?id=2
- *Adapt and Save: A Guide on Implementing Municipal Energy Management Systems* shows municipalities how to set up an energy management system in order to save energy and reduce costs. http://www.cityenergy.org.za/uploads/resource_486.pdf
- *A Practical Guideline for Energy Efficiency Audits at Wastewater Treatment Works* provides an overview and methodology for performing energy efficiency audits at wastewater treatment works. http://www.cityenergy.org.za/uploads/resource_490.pdf
- *Guide for Energy Savings in Motor-Driven Systems at Municipal Wastewater Treatment Plants* provides information on how to reduce energy consumption in wastewater treatment plants, specifically through the maintenance and/or replacement of motors. http://www.cityenergy.org.za/uploads/resource_488.pdf
- *How to Include Energy Efficiency and Renewable Energy in Existing Infrastructure Grants* provides guidance on which EE and RE interventions can be financed with specific infrastructure grants. http://www.cityenergy.org.za/uploads/resource_435.pdf

SALGA Support - See page 85

IDEAS TO TAKE FORWARD

- For an individual municipality to undertake extensive EE retrofitting, the transaction costs are enormous, and so municipalities should explore opportunities for programmatic interventions; e.g. a centralised Eskom-DMRE-COGTA programme rolling out efficient building lighting across all smaller municipalities building/facility stock.
- New efficiency technical specifications must be included in procurement processes, so as to avoid 'rebound' effects and ensure that funding is catalytic and leads to system change, rather than a 'once off' initiative. 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

To provide all households with access to affordable, safe and clean energy sources

In South Africa, 87% of households have access to electricity, as a result of the Integrated National Electrification Programme (INEP). Although electrification has led to a significant decline in the use of hazardous household fuels, such as paraffin and candles, their use persists due to high electricity tariffs, which have been exceeding the Consumer Price Index (CPI) annually – 47% of South Africa's households are considered energy poor. Rapid urbanisation has led to a growth in informal housing and increasing demand for services. Since 1994, the state has sponsored large-scale, low-income housing programmes, delivering over three million houses. However, only in 2013 was legislation introduced requiring all low-income housing to include ceilings, insulation and other sensible thermal performance improvements. As a result, over two million households throughout the country require retrofitting to improve their thermal performance.

RELEVANCE FOR LOCAL GOVERNMENT

- National government funds low-income electrification and provides an ongoing Free Basic Electricity (FBE) consumption subsidy for indigent households. It has also attempted to introduce an indigent subsidy for non-electrical energy (such as Liquid Petroleum Gas (LPG) or ethanol gel), but implementation of this FBAE scheme has proven problematic, and no effective and workable FBAE roll-out models exist yet.
- Municipalities have traditionally financed FBE through cross-subsidisation from higher-end users (residents, commercial and industrial). However, revenue from electricity sales is decreasing, as a result of the shift in consumer demand (higher-end users moving to RE sources, and consumers generally reducing usage in response to higher electricity prices) and incorrect billing or non-payment of municipal bills. As a result, less revenue is available to cross-subsidise FBE.
- The FBE subsidy is still not reaching all indigent households, and allocations vary across municipalities according to the indigent household register and the amount of subsidy provided to households. Reasons for the low reach of FBE in some municipalities include growing informality and illegal connections, and inadequate systems or criteria for identifying indigent households.

MANDATE OF LOCAL GOVERNMENT

- Electrification within municipal areas is within the mandate of municipalities that are electricity distributors; where municipalities are not distributors, Eskom undertakes all electrification. National government funds the electrification, with some support from the municipal budget.
- FBE is implemented by municipalities and funded from the national Equitable Share Grant as part of the Division of Revenue Act (DORA). Municipalities often have to supplement this subsidy from their own budgets in order to reach as many poor households as possible. In Eskom distribution areas, Eskom is appointed as FBE implementing agent on behalf of municipalities.
- FBAE is also funded from the national Equitable Share Grant, with municipalities having the responsibility to implement FBAE within their jurisdiction and supplement it from their municipal budget.
- Since 2015, the National SWH programme has been implemented by the DMRE after it took over from Eskom.
- Subsidised housing is a national and provincial government function, as per the concurrent competencies set out in Section 4 of the Constitution. Certain functions are undertaken by state entities such as the Housing Development Agency (HDA), Social Housing Regulatory Authority (SHRA), National Housing Finance Corporation (NHFC), and National Urban Reconstruction and Housing Agency (NURCHA).

FUNDING MECHANISMS

- Equitable Share Grant
- Integrated National Electrification Programme (INEP)
- Free Basic Electricity (FBE)
- Free Basic Alternative Energy (FBAE)
- Donor funding

STRATEGIES AND ACTION PLANS

Action	Responsible Departments	Municipal Support Needed
Expand electrification to all urban and rural households.		
1. Lobby for the development of a national Energy Poverty/ Integrated Energy Services Delivery Policy.	DMRE	✓ Provide input and contribution through SALGA.
2. Implement informal electrification programmes.	Services/Utilities Electricity	✓ Assess the extent of informal housing, identify priority electrification projects and secure resources. ✓ Get clarity (from SALGA and Association of Municipal Electricity Utilities (AMEU)) on Eskom's informal electrification programme in the municipality. ✓ Ensure that resources for electrification are aligned with those of Eskom. ✓ If not a distributor, engage with Eskom to undertake electrification of informal settlements. ✓ Learn from other municipalities with experience in the electrification of informal settlements. ✓ Grow the business case for mini-grid projects for the electrification of informal settlements where the Upgrading of Informal Settlements Programme (UISP) is not feasible – and lobby national government through SALGA.
3. Implement rural electrification programmes.	Electricity Department Eskom	✓ Coordinate status quo on rural electrification. ✓ Develop community awareness around renewable off-grid alternatives.

Action	Responsible Departments	Municipal Support Needed
Support poor households through tariffs and subsidies.		
1. Identify and implement suitable metering arrangements to reduce excessive charges for on-selling.	Electricity	✓ Access research and experiences of Eskom and bigger municipal distributors related to metering options (with AMEU) from SALGA. ✓ Consider focusing initially on backyard shack metering.
2. Improve indigent registry process.	Social Services	✓ Monitor subsidy targeting.
3. Implement appropriate tariffs regime.	**See Strategic Priority Area 6: Electricity Services and Business Models**	
Develop and roll out workable FBAE delivery models		
1. Clarify where the mandate for FBAE lies within municipalities. *The mandate is not within the licensed mandate of utility distribution licences under NERSA/the Electricity Regulation Act (ERA).*	DMRE Energy Office	✓ Through SALGA, work with DoE and COGTA to clarify the mandate for FBAE, ideally within the framework of an integrated energy policy, or energy services delivery policy.
2. Roll out FBAE in appropriate areas and under suitable conditions.	Mandated or Interested Department	✓ Develop workable models for FBAE roll-out, drawing on pilot projects before a full roll-out. ✓ Ensure that funding arrangements are satisfactory and sufficient municipal capacity is available to implement such schemes.
Improve thermal performance and safety in poor households.		
1. Implement ceiling retrofit programmes in existing housing stock.	Department of Human Settlements (DHS)	✓ Lobby national government to secure resources for ceiling retrofit programmes.
2. Include thermal requirements (SANS 10 400XA) in all housing post-April 2014.	DHS (norms & standards)	✓ Circulate new information.

Action	Responsible Departments	Municipal Support Needed
3. Improve wiring levels in electrified households.	Electricity Eskom	✓ Share best practices.
4. Instal SWHs.	**See Strategic Priority Area 4: Energy Efficiency**	
Develop a household energy service package approach.		
1. Raise safety and efficiency awareness through training and information.	Communications, Social Services, Electricity DHS (local and provincial), Energy Champion	✓ Share information and best practices. ✓ Promote energy efficient components, such as 'hot box' for efficient cooking, solar lights for non-electrified households and Compact Fluorescent Lamps/Lights (CFLs) for electrified households.
2. Promote accessibility and localisation of LPG.		✓ Use community members to leverage their pre-existing social networks.
3. Explore energy-use patterns in households.		✓ Use these patterns to plan and design policy interventions aimed at improving access to clean, safe, affordable energy services.

INFORMATION AND SUPPORT

2005 FBE Policy: aimed at supporting indigent households to meet their basic energy needs – an allocation of 50 kWh per month should be provided to all poor households connected to the national electricity grid.

2007 FBAE Policy: aimed at supporting indigent households in unelectrified areas to meet their basic energy needs.

2011 Policy Guidelines for the Electrification of Unproclaimed Areas: national government response to electricity service provision in different categories of informal settlements.

2012 Integrated National Electrification Programme (INEP): sets out guidelines in line with the Energy White Paper for the electrification programme.

2013 National Norms and Standards for the Construction of Stand-Alone Residential Dwellings and Engineering Services and Adjustment of the Housing Subsidy Quantum: lists the thermal improvements to be included in subsidised housing of minimum size 40 m2 and quantifies the subsidy increase available for this.

2013 New Households Electrification Strategy: defines universal electrification (90% grid, 10% non-grid solar systems) and includes a plan to increase efficiency in planning and delivery.

- The *Urban Energy Support website* contains documents to support municipal EE and RE implementation, and archives all city energy materials, resources and data from several programmes. http://www.cityenergy.org.za/category.php?id=2
- *Our Piece of the Sun* is a short video produced by Sustainable Energy Africa that explores the challenges of energy, gender and poverty in urban South Africa, with the aim of raising awareness and inspiring innovative improvements in energy service delivery and access for low-income households, which will in turn improve socio-economic development. https://www.youtube.com/watch?v=1hGPui9ls3s

SALGA Support - See page 87

IDEAS TO TAKE FORWARD

- Belhar, Cape Town: DHS and housing development 'efficiency' through EDGE case study.
- Aganang, Bushbuckridge and Great Letaba, Limpopo Province: FBAE roll-out of bioethanol gel pilot project.
- City of Cape Town: ceiling retrofit programme funded through the Green Economy Fund.
- Western Cape DHS: Joe Slovo housing development 'efficiency' case study.
- Provinces can assist through including EE/electricity usage awareness in their consumer education training sessions provided to beneficiaries at the time of taking occupation of homes.

Strategic Priority Area 4

Energy Efficiency in the Residential, Commercial and Industrial Sectors

GOAL

To support the efficient use of electricity throughout the built environment and economy.

The NDP's objectives include reducing greenhouse gas emissions (GHG) and improving EE. In South Africa, coal-based electricity is the major energy source for the residential, commercial and industrial sectors, although some households and industries use liquid fuels (LPG, paraffin), coal, gas or diesel. As a result, the built environment and economic sector activities contribute substantially to GHG emissions. Four metro cities – City of Cape Town, City of Johannesburg, eThekwini Municipality and City of Tshwane – contribute a third (36%) of the energy-related GHG emissions from residential and commercial buildings. EE in municipalities remains a cornerstone of a sustainable and cost-effective energy future. Greater efficiency in electricity usage would contribute to mitigating climate change and result in financial saving and economic efficiencies.

RELEVANCE FOR LOCAL GOVERNMENT

- Local government is responsible for implementing the EE standards for new buildings and major refurbishments of old buildings (SANS 10400-XA) that were issued by national government. In other words, compliance with the EE standards must be part of building plan approval.
- Indicative modelling by SEA demonstrates that implementing SANS 10400-XA in four metros (Cape Town, eThekwini, Johannesburg and Tshwane) would lead to the halving of electricity consumption from new buildings by 2050.
- Studies suggest that 20% energy savings could be achieved in municipalities through efficiency measures, such as retrofitting low-income housing with efficient lighting and ceilings, encouraging households to instal SWHs, and incentivising businesses to retrofit efficient heating, ventilation and air conditioning systems.
- EE poses a challenge to municipal finance, as municipalities that distribute electricity rely on revenue from electricity sales to support municipal revenue and cross-subsidise other services and free basic service delivery. With rising electricity prices and increased EE measures, total electricity sales in municipalities have begun to flatten or even decline, without a correlative decline in economic growth.

MANDATE OF LOCAL GOVERNMENT

- Local government has important powers relating to building/development approval and electricity distribution.
- Building approval regulations now have efficiency requirements, which local government must enforce.
- As electricity distributors, municipalities are in a strong position to influence electricity consumption through pricing, information and communication (including behaviour campaigns, smart and real-time metering).
- National government has implemented EPC for building regulations. This means that buildings (private sector, non-residential buildings with a total net floor area of over 2 000 m2) will have to monitor and log their usage with government and will be required to display their energy consumption using the certificates provided. Municipalities will need to do this for public buildings, and help with the registration and data collection for private buildings on behalf of SANEDI and DMRE.

FUNDING MECHANISMS

- Green Energy Efficiency Fund.
- The 12L Tax incentive that provides an allowance for businesses to implement EE savings, i.e. tax deduction of 95c/kwh saved on energy consumption. RE sources are excluded. The South African National Energy Development Institute (SANEDI) approves applications and issues 12L tax incentive certificates.

STRATEGIES AND ACTION PLANS

Action	Responsible Departments	Municipal Support Needed
Encourage and enforce efficiency through building and development approval processes.		
1. Enforce the new SANS 10400-XA regulations.	Planning Department	✓ Review available SANS 10400 training, identify capacity needs and develop plan to meet these needs. ✓ Engage with DTI and COGTA (MISA) around providing interim capacity. ✓ Support the mainstreaming of accredited free and accessible EE design software.
2. Establish and maintain EPC registry. *This will ensure energy consumption by the largest buildings is reported.*	Development Management	✓ Develop EPC registry templates. ✓ Undertake EPC awareness campaigns.
3. Facilitate or catalyse building retrofitting through promoting point-of-sale efficiency reporting.	Environment or Planning	✓ Engage with the real estate sector. ✓ Provide efficient building design support on the municipal website. ✓ Obtain materials from SALGA relating to the metro net zero carbon programme (see Ideas to Take Forward below).
4. Develop and run behaviour change campaigns.	Environment Communications	✓ Ensure efficiency awareness is developed within education curricula. ✓ Share best practice approaches and material (including technical savings sheets from SEA).

Action	Responsible Departments	Municipal Support Needed
5. Develop green building best practice within the planning process.	Planning and Development Management	✓ Share best practice and grow knowledge in the sector. ✓ Share the Green Building Council of South Africa (GBCSA) toolkit. ✓ Explore delinking municipal revenue from sales of services, to ensure that EE does not have a substantial impact on revenue.
Promote efficiency and localisation where appropriate.		
▶ **Support efficient water heating in the residential sector.**	Electricity Environment Communication	✓ Pursue national funding for low-income housing and participate in the planning of national programmes, which should include provision for adequate maintenance. ✓ Explore supplier endorsement programmes for middle/high-income households and consider appropriate localisation requirements for all endorsed products. ✓ Explore options for rolling out SWHs as a component of municipal energy services. ✓ Provide information and best practices.
▶ **Explore and encourage more efficient fuels for cooking.**	DMRE	✓ Pursue regulation of the gas price (to ensure stable prices). ✓ Participate in commercial and industrial energy forums for information exchange.
▶ **Encourage customers to support efficient technology uptake.**	Electricity Communications	✓ Provide and circulate up-to-date information including information relating to energy audits, such as Private Sector Energy Efficiency (PSEE), National Cleaner Production Programme (NCPP) and technology.Provide information on tax rebates and subsidy schemes. ✓ Encourage smart irrigation systems/solar boreholes in the agricultural sector.

Action	Responsible Departments	Municipal Support Needed
▶ **Encourage a 'green' hospitality and tourism sector.**	Communications Environment	✓ Disseminate information and tools to support a 'green' sector, e.g. Fair Trade in Tourism, free audits via National Cleaner Production Centre (NCPC) and the National Business Initiative (NBI) PSEE programme.
▶ **Encourage and enforce efficiency through technical interventions.**	Electricity	✓ Provide information on installing geyser ripple control. ✓ Engage top consuming customers via meter processes, including real-time feedback and preferential treatment in load shedding in exchange for achieving efficiencies. ✓ Create an effective metering and billing system to ensure robust revenue collection.

INFORMATION AND SUPPORT

2005 & 2011 SANS 10400-XA: 2011 and SANS 204: 2008: Energy efficiency in buildings standards that must be adhered to in all new buildings, including low-cost housing, and in major refurbishments of existing buildings.

2012 The NDP commits to strengthening the energy efficiency requirements set out in SANS 204, in order to achieve a net zero carbon building standard by 2030.

- The *Urban Energy Support website* contains documents to support municipal EE and RE implementation, and archives all city energy materials, resources and data from several programmes. http://www.cityenergy.org.za/category.php?id=2
- The *National Energy Efficiency Accord* managed by the NBI and Business Union of South Africa.
- PSEE managed by the NBI.
- NCPP and the Industrial Energy Efficiency Improvement Programme run by the NCPC.
- Manufacturing Competitiveness Enhancement Programme (MCEP).
- The GBCSA, a private initiative, promotes green buildings, including higher energy efficiency.

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IDEAS TO TAKE FORWARD

- Midvaal Municipality: Limiting the size of the electricity connection in order to encourage developments to meet additional energy needs through RE or EE.
- Hessequa Local Municipality (Riversdale): A small-town SWH programme that was implemented for the mid–high income group.
- City of Cape Town: A SWH Supplier endorsement programme aimed at boosting EE in the mid–high income residential sector. Endorsing pre-approved service providers ensures quality of supply and creates trust among residents. Benefits for the municipality include peak load shifting, meeting carbon targets, and job and enterprise development. The risk is carried by the private sector, and so the municipality may choose to encourage the market through mitigating the business risk.
- City of Cape Town: Engagement with real estate agents to encourage a voluntary 'point-of-sale' EE and sustainable resource declaration for property sellers/buyers.
- Cape Town, eThekwini, Johannesburg and Tshwane: Working towards achieving net zero carbon emissions from newly built buildings by 2050. It involves building energy performance (through policy, regulations or bylaws); implementing across the city (after piloting in certain types of building, e.g. office buildings); and sharing lessons among cities throughout the process.

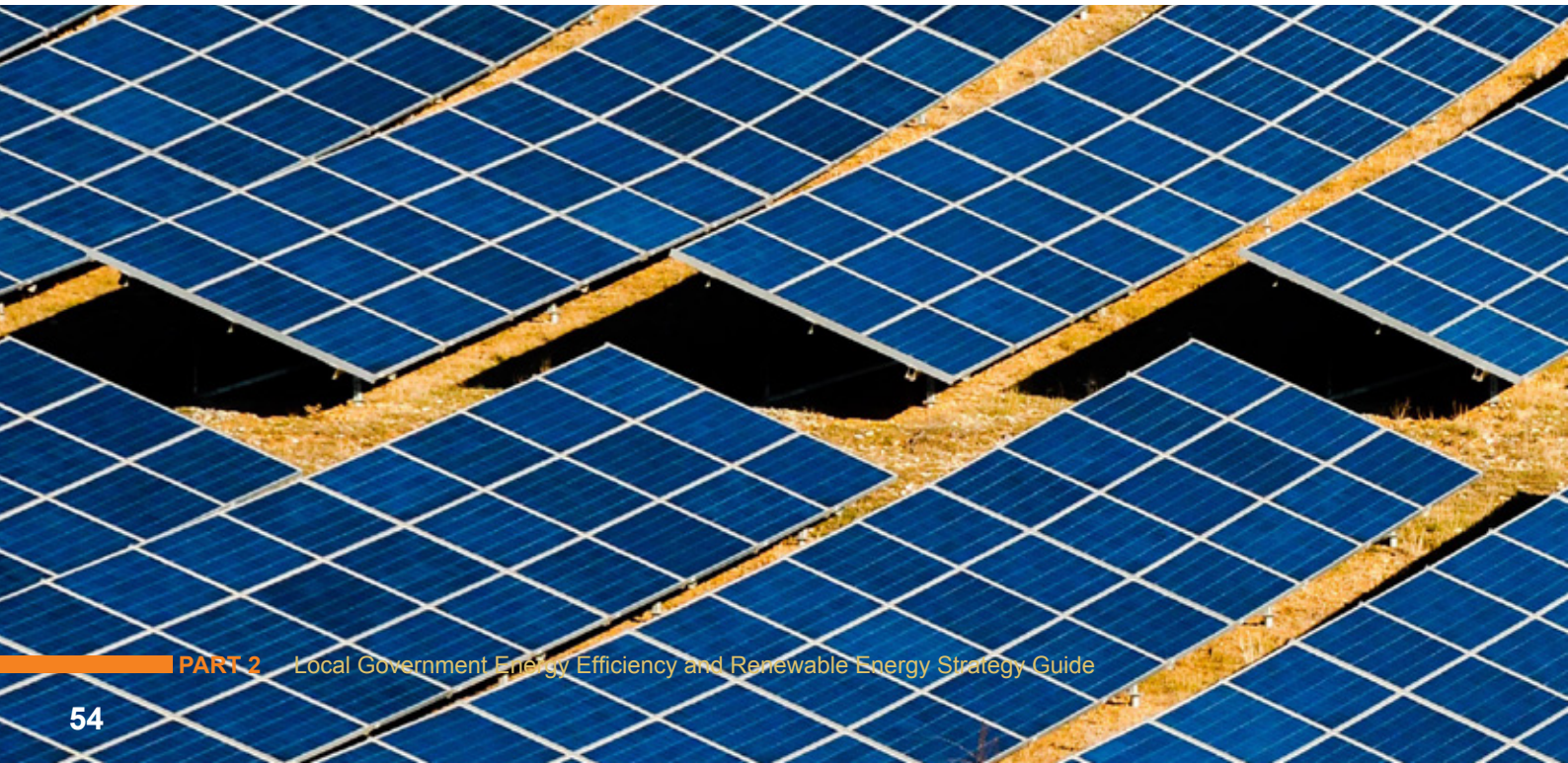
Strategic Priority Area 5

Renewable Energy Development

GOAL

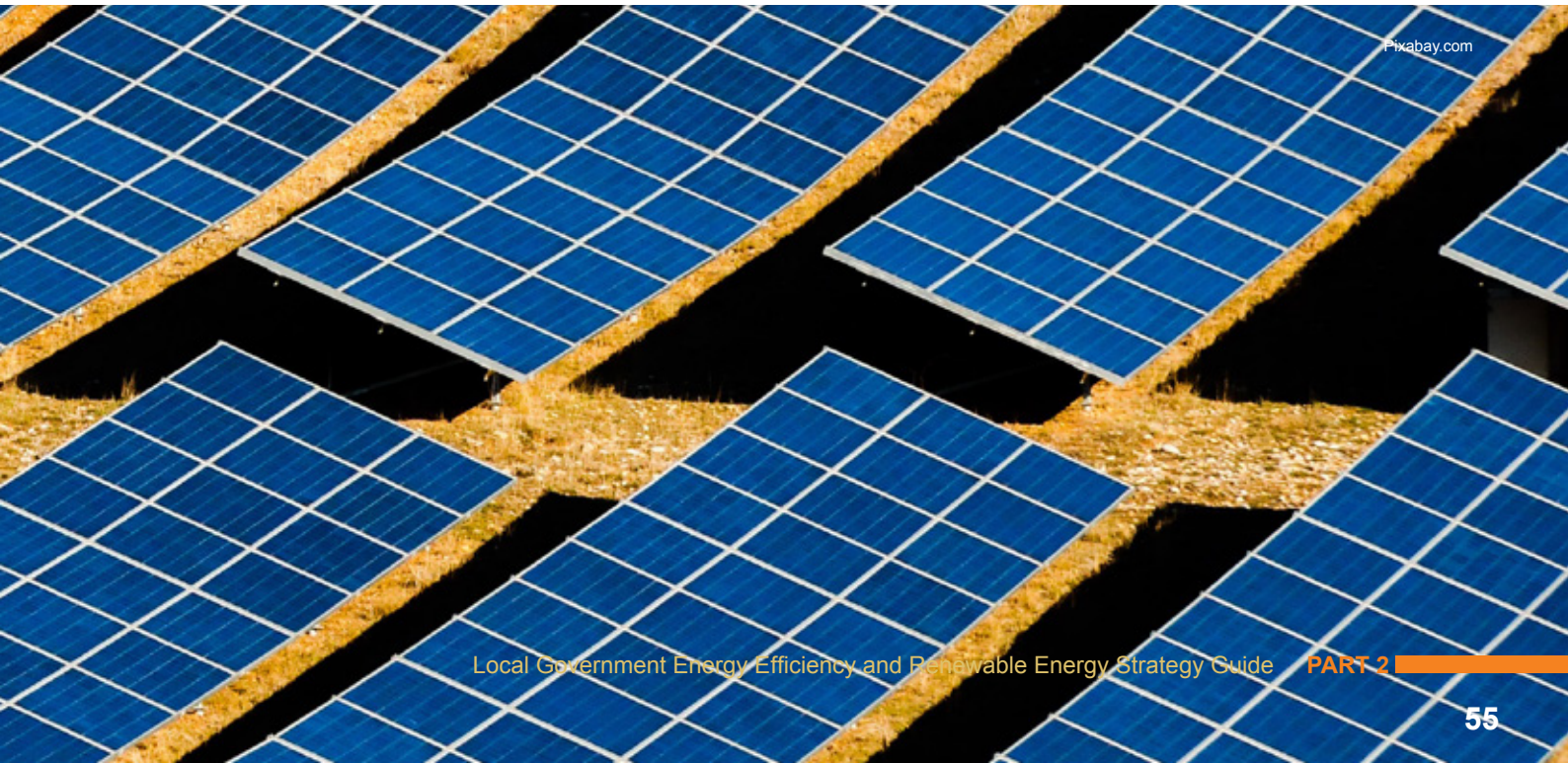
To make RE options a significant component of local energy supply, where technically/economically feasible.

RE options contribute to low-carbon development and local economic growth/sustainability. The options range from SSEG to landfill gas and sewage methane generation. SSEG refers to facilities of under 1 MW that are connected to the electricity distribution network, with solar PV being the most common form. SSEG has been technically feasible for decades but has only recently become financially feasible for end users. This is as a result of the rapidly decreasing cost of solar and wind technology coupled with the dramatic increases in national electricity prices in recent years. Embedded generation could assist in alleviating the country's electricity crisis and bring economic benefits to municipalities and the country because the owner, not government/Eskom, bears the costs of investing in embedded generators. It is also an industry with significant job creation potential. Generating electricity from either landfill gas or sewage is economically feasible and a low-carbon supply option, but implementation and ongoing operations are demanding. Nevertheless, some municipalities have generated electricity from landfill gas and from sewage methane. For instance, Ekurhuleni Metropolitan Municipality uses four landfill sites for this purpose (Simmer and Jack, Weltevreden, Rooikraal and Rietfontein), and the City of Johannesburg has initiated the Northern Works Biogas to Energy Plant. Other options are micro-hydro installations embedded in the municipal water supply network, and biofuels, although liquid fuel mix changes rest largely with national, not local, government.



RELEVANCE FOR LOCAL GOVERNMENT

- More households and businesses are likely to instal solar PV SSEG, to reduce both their emissions (by 'going green') and costs (by avoiding annual increases in electricity prices). In doing so, they can also avoid load shedding. These moves have a detrimental effect on municipal electricity revenue (refer to Strategic Priority Area 6).
- Local government distributors have started to develop the frameworks and processes related to connecting embedded generation. As of June 2020, 34% of municipalities allowed SSEG installations, 26% had established application processes for customers wishing to connect systems to the municipal electricity grid, and 19% had NERSA-approved SSEG tariffs that permitted them to compensate their customers. These numbers are expected to increase due to programmes such as the SALGA-GIZ-DMRE SSEG Development Support Programme supporting numerous municipalities to develop their SSEG processes.
- However, in some municipalities, there is resistance to SSEG systems because of the perceived impact on municipal revenue and the potential impact on the municipality's electricity grid. This leads to challenges in having SSEG policies approved by Councils and SSEG tariffs developed. Despite these misgivings, municipalities need to develop frameworks for SSEG installations, as experience shows that households are likely to instal these systems without municipal approval, resulting in potential safety and power quality issues.
- Municipalities have considered generating RE for own use but face the challenge of the high upfront costs. Nevertheless, many municipalities have been able to find the funding for own-use SSEG facilities.



MANDATE OF LOCAL GOVERNMENT

- Although electricity generation is not a municipal function, municipalities may apply to NERSA for a licence to generate electricity from systems larger than 1 MW, which include municipal-owned landfill or sewage gas. NERSA will then assess whether this is in accordance with the current IRP.
- For SSEG, existing legislation requires that anyone generating electricity 'not for own use' must obtain a generating licence from NERSA, but clarity is needed about whether feeding surplus generation back into the utility grid and then drawing the same amount of electricity off the grid for consumption at a later stage is considered 'generation for own use'. Recent NERSA guidelines and the amendment of Schedule 2 of the ERA specify that a licence is not required for generators of less than 1 MW,but these must be registered with their distributor (the municipality or Eskom). In these cases, the municipality can accept such systems without a NERSA licence, subject to applicable technical standards and provided that the electricity generated is not more than the electricity consumed (i.e. remains a net consumer).
- Municipalities are interested in procuring electricity directly from IPPs, which was supported by the President's February 2020 State of the Nation Address (SONA). The purchasing of electricity would enable municipalities to reduce energy costs, ensure security of supply, and reduce their carbon footprint. However, to date municipalities have had little success in obtaining the required ministerial exemptions (through a determination), which is provided for in amendments to the Electricity Regulations on New Generation Capacity. (Previously, based on a 2007 Cabinet decision, Eskom had the exclusive right to purchase from IPPs.)

FUNDING MECHANISMS

- DMRE EEDSM funding provides investment subsidies for municipal EE interventions such as EE street lighting or traffic lights. Some municipalities have also used this funding for installing solar PV on municipal buildings.
- The Development Bank of South Africa's Embedded Generation Investment Programme (EGIB) supports up to 470 MW of solar PV and wind IPP electricity development with municipal off-take via a blended finance mechanism.
- Donor funders, such as the GIZ-SAGEN programme, International Finance Corporation (IFC) and United Kingdom Partnering for Accelerated Climate Transitions (UK PACT), offer capacity building and technical assistance to municipalities, through SALGA's facilitated process.

STRATEGIES AND ACTION PLANS

Action	Responsible Departments	Municipal Support Needed
Promote the installation of SSEG in different sectors.		
1. Institutionalise SSEG procedures for municipal operations.	Electricity	✓ Adhere, through these procedures, to the National Regulatory Standard (NRS) 097-2-1 and NRS 097-2-3, among others, to ensure safety, power quality and grid stability standards, based on what is appropriate for the municipality (e.g. Mayor's office, Environment, Electricity and Energy Services) and build on existing initiatives wherever possible. ✓ Participate in SALGA's Municipal SSEG Support Programme, to learn from municipalities that have developed SSEG procedures. See www.sseg.org.za. ✓ Establish clear and simple application procedures, to ensure SSEG registration. Systems installed 'under the radar' without official approval may compromise safety and power quality standards. It is important that simpler requirements are put in place for such small systems to avoid a proliferation of unapproved installations. ✓ Clearly communicate requirements and/or regulations, to ensure greater compliance.
2. Revise metering and billing systems to enable bi-directional flows of electricity.	Electricity Finance	✓ Get support from SALGA for learning and information exchanges with other cities that have revised their metering and billing systems. ✓ Engage with SALGA in developing best practices and understanding the different types of meters and systems for municipalities. ✓ Engage with NERSA around acceptable approaches to tariff redesign.

Action	Responsible Departments	Municipal Support Needed
3. Develop cost-reflective tariffs so that embedded generators pay their fair share of costs. *Embedded generators need to contribute to the operation and maintenance of the distribution infrastructure.*	Electricity Finance	✓ Attend programmes organised by SALGA that assist with tariff development and cost of supply (COS) studies. ✓ Conduct COS and tariff development studies. NERSA (with SEA, SALGA and COGTA) has developed a tool to assist municipalities in developing COS studies. Its aim is to assist municipalities that lack the capacity to undertake a comprehensive study.
4. Obtain Council approval for SSEG policies. *This is necessary to ensure that the municipality ca regulate adequately the installation of SSEG systems, thus addressing technical and financial challenges.*	Electricity Finance	✓ Attend sessions with councillors, to provide the gravitas required to convince participants of the importance of SSEG, and the need for the Council to approve SSEG policies and bylaws. ✓ Encourage councillors to attend SALGA's Electricity and Energy Councillor Induction Programme, which empowers them to make decisions on SSEG.
5. Access best practice methods, guides and case studies from SALGA.	Electricity Finance	✓ Undertake grid impact studies to determine the SSEG hosting capacity on networks. ✓ Monitor and report on SSEG installations (as required by NERSA). ✓ Launch a communication campaign on the new SSEG system and tariff design.
Promote the installation of distributed generation (1–10 MW).		
1. Obtain support for engaging with private sector large-scale RE developers.	Energy Office/ Electricity Environment	✓ Gather information on how to deal with environmental impact assessments, community development and procurement from IPPs. ✓ Engage with NT (IPP Office), SALGA, metros/ cities that have practical experience in this area.

Action	Responsible Departments	Municipal Support Needed
1. **Obtain support for engaging with private sector large-scale RE developers.**	Energy Office/ Electricity Environment	✓ Research the progress and size of privately developed projects located within the municipal grid network to assist in planning how, when and how much capacity could be brought online through an IPP procurement process. ✓ Engage with GreenCape and Council for Scientific Innovation and Research (CSIR).
2. **Develop a municipal RE IPP procurement programme.** *This would demonstrate the business case for such a programme and highlight the commercial, legal and technical aspects and risks that need to be considered.*	Energy Office/ Electricity	✓ Assess the need, and set targets for, alternative electricity generation and procurement. This could feed into a general municipal energy procurement strategy that would analyse all scenarios and options and their respective costs. ✓ Assess infrastructure (e.g. wastewater treatment works, building roofs, parking lots, etc.) for the possible integration of alternative electricity technologies. ✓ Calculate the levelised cost of electricity (LCOE) for the potential installation. ✓ Conduct a feasibility study of potential installations. ✓ Investigate financing options, which could include different types of ownership and investment options. ✓ Issue terms of reference for installations and conduct the procurement process.
3. **Engage with available resources at national level.**	Energy Office/ Electricity	✓ Engage with the NT City Support Programme, to assist with IPP procurement process development. ✓ Obtain DMRE/NERSA advice on determinations relating to the procurement of new generation capacity from a range of energy technologies. ✓ Cooperate with SEA, CSIR, SAGEN to explore the impact of demand profile changes in terms of Eskom's load balancing and related punitive tariffs on the viability of programmes. ✓ Support CSIR, SEA, SAGEN and metros with practical experience to explore the role of storage/ peaking plants to ensure security and their optimisation.

Action	Responsible Departments	Municipal Support Needed
Generate RE for municipal own use.		
1. Assess RE resources available in the municipality.	Energy Unit/ Electricity	✓ Identify viable solar PV project sites on vacant municipal-owned land and wastewater and energy facilities. ✓ Develop a general energy procurement strategy for the municipality that analyses all scenarios and options and their respective costs.
2. Develop a Municipal 'Own Generation' Framework.	Energy Unit/ Electricity Legal Department	✓ Assess the need and set targets for alternative electricity generation and procurement. ✓ Assess infrastructure (e.g. wastewater treatment works, building roofs, parking lots, etc.) for possible integration of alternative electricity technologies. ✓ Conduct a feasibility study of potential installations. ✓ Ensure budget allocation, issue terms of reference for installations and conduct a procurement process. ✓ Include in the framework: rules and procedures for implementing small-medium scale renewable and waste-to-energy projects on city-owned land and assets; and the roles, benefits and responsibilities of the various actors in the development and operation of these projects. ✓ Access support from SALGA for cost-efficient procurement of PV assets and training of municipal employees on efficient PV procurement.
Facilitate landfill gas and wastewater gas electricity generation.		
1. Clarify the status of municipal energy streams and applicable disposal regulations.	Supply Chain Management	✓ COGTA and NT to develop a brief clarifying applicable regulations.

Action	Responsible Departments	Municipal Support Needed
2. Implement landfill gas electricity generation projects where feasible.	Electricity Solid Waste	✓ Carry out a detailed feasibility analysis before implementing such projects, which may be financially feasible only under certain circumstances. ✓ Engage with SALGA around threshold feasibility guidelines for landfill gas projects and technical support and information exchange from other municipalities.
3. Implement sewage methane electricity generation projects where feasible.	Electricity Water and Sanitation	✓ Carry out a detailed feasibility analysis before implementing such projects, as they are relatively new and financially feasible only under certain circumstances. ✓ Engage with SALGA around threshold feasibility guidelines for sewage methane projects, technical support capacity for business plan development, and technical support and information exchange from pioneer municipalities.
Facilitate micro-hydro projects.		
4. Implement micro-hydro projects where feasible. *These may be within the municipal water distribution system ('run-of-pipe') or separate hydro schemes.*	Electricity Water and Sanitation	✓ Carry out a detailed feasibility analysis before implementing run-of-pipe projects, as they are relatively new and financially/technically feasible only under certain circumstances. ✓ Engage with SALGA around guidelines on the feasibility of differently configured micro-hydro schemes, and the technical lessons from experienced municipalities.

INFORMATION AND SUPPORT

2014	NRS 097-2-3: (Part 2: Small Scale Embedded Generation – Section 3: Simplified Utility Connection Criteria for low voltage connected generators)
2015	Consultation Paper on Small Scale Embedded Generation: Regulatory Rules (NERSA has not yet released the final SSEG Regulatory Rules.)
2016	Amendment to the Income Tax Act (Section 12B) came into effect on 1 January. It allows companies to deduct the cost incurred from investing in assets that are used directly to produce RE, provided that the generation capacity is less than 1 MW, and applies to wind, biomass, hydropower and PV.
2016	South African Renewable Power Plants Grid Code (SARPPGC)
2017	NRS 097-2-1 (Part 2: Small Scale Embedded Generation – Section 1: Utility Interface)
2017	Schedule 2 Notice of Electricity Regulation Act: Licencing Exemption and Registration Notice
2020	Amendment to Schedule 2 of the Electricity Regulation Act

- The *Urban Energy Support website* contains documents to support municipal EE and RE implementation, and archives all city energy materials, resources and data from several programmes. http://www.cityenergy.org.za/category.php?id=2
- SALGA's Municipal SSEG Support Programme, to learn from municipalities that have developed SSEG procedures. See http://www.sseg.org.za.
- AMEU SALGA Small-Scale Embedded Generation Resource Pack contains procedures for rolling out SSEG (especially solar PV) and offers training support. (More than 40 municipalities have already attended.) https://www.sseg.org.za/category/ameu-salga-resource-pack/
- NERSA (with SEA, SALGA and COGTA) has developed a tool to assist municipalities in developing COS studies. This simplified tool was developed with the aim of assisting municipalities that lack the capacity to undertake a comprehensive study. www.nersa.org.za

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IDEAS TO TAKE FORWARD

- Many municipalities have developed application procedures that clarify technical and other requirements of small-scale embedded generation installations, focusing on solar PV. Supporting documents and templates can be found here: AMEU SALGA Small-Scale Embedded Generation Resource Pack (2019)
  https://www.sseg.org.za/category/ameu-salga-resource-pack/
- Several municipalities are at various stages of feasibility analysis or implementation of sewage methane or landfill gas projects.
- EThekwini has undertaken a feasibility analysis of micro-hydro potential in their main municipal water pipes. http://cityenergy.org.za/uploads/resource_170.pdf
- The City of Cape Town has established successful micro-hydro projects for several years.
- The Bethlehem Hydro Project has been initiated in the Free State and the scope of the project includes a 3 MW project at the Sol Plaatje Dam and 4 MW project at the Merino Hydro Power Plant.
  https://www.ee.co.za/wp-content/uploads/legacy/Gen%20-%20Bethlehem%20Hydro.pdf

Strategic Priority Area 6

Electricity Services and Business Models

SALGA is currently underway with substantial work on the sustainable distribution industry. This priority area focuses only on elements related to RE/EE transitions.

GOAL

To deliver sustainable electricity services that accommodate and promote access to electricity, efficiency and RE development.

National power shortages, fast-rising electricity prices and the economic downturn have significantly changed the dynamics of the municipal electricity sector. Demand growth is slowing or stagnating, customers are focusing on electricity efficiency, and end-users are increasingly adopting alternative generation technologies, including solar PV. At the same time, peak demand is not reducing, largely driven by low-income households. Electricity revenue is often an important source of income for municipalities, enabling them to cross-subsidise the poor and fund other important municipal services. However, the increasing adoption of SSEG and the reduction in the demand for electricity are having an impact on revenue for municipalities that are electricity distributors. At the same time, short-term budgetary pressures (or political interference) have resulted in inadequate allocations for electricity grid maintenance and expansion. This has led to escalating fault levels, adding to the pressure on electricity department staff, and an inability to accommodate new clients on the network. Further deterioration in municipal electricity infrastructure risks destroying the 'golden goose' of the municipality – the electricity revenue generating system.

RELEVANCE FOR LOCAL GOVERNMENT

- Many municipal electricity departments are understaffed and lack the capacity to deal adequately with demands such as the pressure to electrify informal areas, the theft of electricity (in some municipalities as much as one fifth of electricity revenue is lost through non-technical losses) and the introduction of smart technologies (smart meters, smart grids, etc.).
- In the fast-challenging electricity supply and demand environment, municipal electricity departments must deal with new technical and billing challenges, develop accurate COS studies in order to rework their tariff models, and consider purchasing electricity from IPPs. This requires a level of sophistication and capacity that many municipalities do not have and may struggle to find. For instance, tariff escalations are often included in PPAs entered into with IPPs, but such escalations could mean that in future municipalities will pay more for electricity than for bulk purchases from Eskom.
- Municipalities should be undertaking energy planning, i.e. both master planning and mini IRP-type planning (optimal supply, impact on grid, etc.). However, many municipal electricity departments halted planning with the announcement of a new institutional regime, the

Regional Electricity Distributors (REDs). Unfortunately, when the REDs did not materialise, most municipalities did not adequately reinstate electricity planning due to limited staff capacity.

- Municipalities and developers are considering the possibility of 'wheeling' electricity using municipal distribution networks — the ERA of 2006 states that there should be non-discriminatory network access to all users of the transmission and distribution system. However, 'wheeling' poses its own unique set of challenges: determining how much to charge users of the grid (the current guidelines and rules are under review); losing customers who are buying electricity from 'wheeling'; ensuring these customers still pay their fair share of costs (by setting proper grid tariffs); revising billing systems in order to differentiate between ordinary customers and customers who procure electricity from a third party, which increases the municipality's administrative burden.
- Municipalities are also considering the possibility of investing in various forms of energy storage systems, which often come with high capital costs, and so careful consideration is needed before acquiring this technology.

MANDATE OF LOCAL GOVERNMENT

- Municipal distributors are responsible for providing sustainable electricity services in their areas of jurisdiction.
- Municipal distributors are legally obliged to apply stringent safety standards, as per the various applicable national technical standards.
- The local government fiscal architecture means that most municipalities depend on revenue from electricity sales to meet their service delivery financial commitments. Therefore, many municipalities who distribute electricity are de facto responsible for boosting municipal revenue.

FUNDING MECHANISMS

- The AMEU has negotiated with NERSA to permit the costs incurred by the consultant's cost of supply study be recouped via the electricity tariff.
- The European Union's €100-million Infrastructure Investment Programme for South Africa (administered by the Development Bank of Southern Africa (DBSA)).
- GIZ (through the CSIR, SEA etc.) supports municipalities to develop sustainable electricity businesses, including COS studies and capacity-building activities.

STRATEGIES AND ACTION PLANS

Action	Responsible Departments	Municipal Support Needed
Develop sustainable revenue models and alternative revenue streams.		
1. Undertake a COS study and cost-informed tariff development. *To determine the true costs of the grid and energy, and inform the wires business and separate energy business plus new revenue streams (e.g. data, efficiency audits, etc.)*	Electricity NT	✓ Engage with SALGA for a template COS spreadsheet and guide, and resources available from NT (studies and recommendations for municipalities); use NERSA methodology. ✓ Access the required financial and technical support.
2. Develop appropriate tariffs to support a sustainable revenue model.	Electricity NT	✓ Engage SALGA around undertaking a tariff study to determine appropriate use of system and feed-in tariffs. ✓ Liaise with NERSA and AMEU regarding such studies.

Action	Responsible Departments	Municipal Support Needed
Facilitate the adoption of SSEG while preserving the integrity of the distribution system.		
See Strategic Priority Area 2: Energy Access for All		
See Strategic Priority Area 5: Renewable Energy		
Introduce smart technology appropriately.		
1. Develop guidelines on the adoption of smart technologies.	Electricity	✓ Research and develop guidelines for adopting smart technologies (smart meters, smart grids etc.) in municipalities. ✓ Consider the long-term implications of adopting different systems, including the following issues: proprietary technologies, financial, billing and revenue impacts, associated data production and analysis abilities, ongoing staff capacity and maintenance implications.

Action	Responsible Departments	Municipal Support Needed
2. Implement a smart meter pilot programme.	Electricity	✓ Use the programme to demonstrate the benefits of a smart grid roll-out focused on eliminating aggregate technical, commercial, and collection losses. ✓ Obtain financial and technical support to implement a smart meter pilot programme.
Protect revenue.		
1. Implement a programme to identify and reduce theft of electricity.	Electricity NT	✓ Carry out forensic audits. ✓ Access financial and technical support to implement a theft reduction programme via SALGA.
2. Create an effective metering and billing system.	Electricity	✓ Engage with SALGA and the MISA for capacity-building support in this area.
Procure electricity from third parties (SSEG customers and IPPs).		
1. Develop an overall strategy for wheeling.	Electricity DMRE	✓ Develop a ‘‘wheeling’ mechanism, i.e. a programme to enable third-party RE generators to sell energy to municipal consumers using the municipality’s electricity grid. ✓ Design a ‘wheeling’ tariff to cover the cost of using the distribution network fairly. ✓ Through SALGA, engage with national processes in relation to standardised TPA agreements and the implications of ‘wheeling’ for local government. ✓ Engage with SAGEN regarding tools currently under development.
2. Revise billing system to accommodate wheeling charges and third-party sales.	Electricity	✓ Draft a generic CUoS agreement. ✓ Participate in capacity-building initiatives and learning exchanges with municipalities, organised by SALGA.

INFORMATION AND SUPPORT

1999	Public Finance Management Act (No. 1)
2003	Municipal Finance Management Act (No. 56)
2005	NRS 057 South African National Standard Code of practice for electricity metering
2006	Electricity Regulation Act (No. 4)
2014	NRS 097-2-3 Simplified Connection Criteria for LV connected generators
2016	NRS 049 Advanced Metering Infrastructure Requirement for Smart Metering System
2017	NRS 097-2-1 Grid Interconnection of Embedded Generation – Utility Interface

- The *Urban Energy Support website* contains documents to support municipal EE and RE implementation, and archives all city energy materials, resources and data from several programmes. http://www.cityenergy.org.za/category.php?id=2
- *Sustaining Local Government Finances (2013)* is a study by the Financial and Fiscal Commission that identifies the critical need for municipal revenue allocations to ensure adequate network maintenance and expansion.
- *The SSEG Municipal Resource Portal* is a rich resource of all the documents required by a municipality to accommodate SSEG onto their distribution grids safely. It also includes municipal training course presentations and training videos of the Municipal SSEG Support Programme, as well as a tariff model tool to measure the financial impact of proposed SSEG tariffs on municipal finances and to evaluate the business case for customers who have installed solar PV systems based on the proposed SSEG tariffs. https://www.sseg.org.za/

SALGA Support - See page 92

IDEAS TO TAKE FORWARD

- Midvaal Local Municipality passed a bylaw specifying that all sectional title properties will be limited to a 20-amp electricity connection. Households would need to meet anything beyond this through alternative energy sources.

Strategic Priority Area 7

Efficient Transport and Mobility

GOAL

To have walkable, 'smokeless' municipalities that have safe mobility for all, good transport networks, and public transport as a sought-after mode of transport.

South Africa is experiencing rapid growth in car ownership, which puts pressure on local road infrastructure and parking capacity, and increases congestion (affecting quality of life, health and the environment). As a result, although liquid fuel from the transport sector contributes less than electricity to GHG emissions, the sector is the most rapidly growing GHG emissions sector in South Africa. It contributes over half of the energy consumed in urban centres, due to urban sprawl and inefficient and unequal public transport. Most energy (81%) consumed by passenger transport comes from cars, whereas most passengers (62%) travel by public transport or on foot – about 70% of households in Gauteng do not own a car, and 29% of trips during peak hours are on foot.[3] Most poorer households are also located far from work opportunities and have to spend a large portion of their income on transport. Most government subsidies are focused on bus and rail (privileging metros and larger towns), whereas the majority of the populace uses minibus taxis or walks to work or school.

RELEVANCE FOR LOCAL GOVERNMENT

- Effective, efficient linkages and mobility are a cornerstone of economic and social development, including non-motorised transit. Therefore, transport planning needs to be included in urban and regional land use and economic planning frameworks.
- Climate change (increases in storm severity and intensity), along with a lack of budgeting and procurement around infrastructure maintenance and upgrading, is resulting in road degradation, particularly in rural areas. Rural municipalities also face the particular challenge of 'peak' transport situations on 'market' (pension/social grant) days.
- Very low population densities make viable public transport systems unfeasible in many secondary and smaller towns and rural municipalities, meaning that efficient transport networks and innovative uses of private transportation need to be supported and developed. These may include using 'periodic access systems' and strengthening and regulating the 'bakkie' sector.
- In urban areas, denser and mixed-use cities concentrated around transport corridors could decrease the need for travel at the outset (by decreasing travel distances) and increase the financial viability of public transport. This would require a strong focus on urban planning, including zoning restrictions to enforce the urban edge (to prevent urban sprawl), densification or tall buildings policies, and engagement with developers.

3 http://www.cityenergy.org.za/uploads/resource_366.pdf; Gauteng Province Household Travel Survey Report 2019/20 https://www.csir.co.za/sites/default/files/Documents/GHTS%20201920%20FINAL_LOW%20RES%20%281%29.pdf

MANDATE OF LOCAL GOVERNMENT

- The Constitution (1996) assigns public transport as a concurrent national and provincial government competence (Schedule 4) and municipal public transport as a local government function (Schedule 4B).
- The Municipal Structures Act (1998) assigns powers and functions relating to the regulation of passenger transport to district municipalities (Section 84(1)(g)).
- The National Land Transport Act (NLTA) of 2009 assigns functions to national (Section 11 (1)(a)), provincial (Section 11 (1)(b) and Section 11 (2)) and local (Section 11 (1)(c) and Section 11 (4)) government. The Act is currently under review and may assign greater functions to local government, based on capacity to implement.
- Municipal functions related to transport include town planning and urban development, and roads and traffic management. However, many transport planning functions lie outside of municipal jurisdiction: rail and major roads rest with national government, buses tend to be provincial, and fuel mix standards are a national function.

FUNDING MECHANISMS

- Public Transport Infrastructure and Systems Grant (PTIG)
- Public Transport Network Grant (PTNG)
- 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 (STS)
- Infrastructure Skills Development Grant (ISDG)

STRATEGIES AND ACTION PLANS

Action	Responsible Departments	Municipal Support Needed
Develop integrated, local transit plans and regional linkages.		
1. Develop integrated transit plans.	Transport IDP	✓ Include all mobility modalities in the mandatory integrated transport plan (ITP) that is an integral part of the IDP. ✓ Include technical support to undertake the ITP and work towards building technical capacity support in this area. ✓ Attend transport training courses organised through SALGA.
2. Play a proactive role in regional transport planning forums and in the development of plans and policies. *In particular, the Rural Transport Strategy for South Africa (RTSSA) and the Public Transport Strategy and Action Plan (PTSAP).*	Transport Town Planning Economic Development	✓ Identify the local regional planning forum (via SALGA). ✓ Support the SALGA discussion document related to improved delivery of the RTSSA and PTSAP. ✓ Support SALGA in lobbying for dedicated funding streams (beyond the MIG and equitable share).
3. Ensure roads and transport-related infrastructure and NMT are budgeted for and implemented.	IDP Infrastructure LED Transport Planning, Procurement	✓ Assist in the development of KPIs and IDP evaluation by Provincial Local Government (LG) IDP offices. ✓ Develop procurement capacity relating to roads maintenance contracts.
Develop NMT facilities.		
1. Construct and micro-engineer NMT facilities.	Infrastructure Roads Transport Environment/Parks	✓ Do a street audit and identify pedestrian safety problem areas. ✓ Build pavements, bridges and public walkways and cycle paths where required.

Action	Responsible Departments	Municipal Support Needed
1. Construct and micro-engineer NMT facilities.	Infrastructure Roads Transport Environment/Parks	✓ Plant trees along walking routes for shade/cooling. ✓ Lobby NT, with National Department of Transport (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 the possibility of the Expanded Public Works Programme (EPWP) for support for small-scale changes (possibly involving training of artisans in implementation). ✓ Identify linkages with RTSSA.
2. **Develop NMT awareness campaigns.**	Communications Environment/Parks	✓ Run information and awareness campaigns showing the health, financial and environmental benefits of walking and cycling. ✓ Generate and share general information or best practice campaign material. ✓ Work to change transport behaviour.
Develop and improve public transport modalities.		
1. **Improve infrastructure and safety and security for public transport (bus and taxi ranks, linkages).**	Infrastructure Roads Transport LED Community Safety	✓ Lobby NT (with DoT) to include public transport in the municipal services component catering for public transport facilities. Obtain guidance in best practices from SALGA. ✓ Identify linkages with RTSSA.
2. **Engage with developers on contributions to public transport development.**	Planning Infrastructure Roads Transport	✓ Give preference to walking and cycling options, (rather than car transport and traffic engineering) where appropriate. ✓ Be guided by best practice examples.

Action	Responsible Departments	Municipal Support Needed
3. Develop Bus Rapid Transport (BRT): for metros and larger secondary cities or towns ONLY.	Infrastructure Roads Transport	✓ Link to and align with the PTSAP. http://www.cityenergy.org.za/uploads/resource_212.pdf
Support and promote greener fuels, fuel efficiency and electric vehicles.		
1. Optimise traffic management systems.	Infrastructure Roads Transport Street/traffic lights	✓ Consider traffic circles instead of traffic lights, to reduce idling and speeding. ✓ Access best practice information from SALGA. ✓ Capacity and funding.
2. Promote densification, in-fill residential and mixed-used development in the zoning and land use review/SDF.	Planning Transport	✓ Support the finalisation of a single land use planning system across the country. ✓ Include training and best practice on SDF and sustainable resource management. ✓ Build and develop political leadership.
3. Maintain roads and storm-water systems.	Infrastructure Roads Transport LED	✓ Make the links and alignment with RTSSA. ✓ Source funding to develop the EPWP/ local artisan training (possibly using green or climate funds).
4. Promote travel smart ideas through information campaigns.	Communication Education Environment Transport	✓ Encourage multiple occupancy of vehicles. ✓ Design parking plans. ✓ Engage large employers to initiate travel-smart programmes. ✓ Review school transport systems; involve schools in travel-smart awareness and information campaigns.
5. Facilitate the adoption of electric vehicles (EVs).	Transport Electricity	✓ Develop an EV Framework to assist in promoting and managing the growth of EVs. ✓ Develop policies that target EE and emission control measures in all transport modes.

INFORMATION AND SUPPORT

1996	White Paper on National Transport Policy
2007	Public Transport Strategy and Action Plan (modal upgrading and Integrated Rapid Public Transport Network (IRPTNs))
2007	Rural Transport Strategy of South Africa (RTSSA, packaged in the IRMA project)
2009	The National Land Transport Act (No. 5)
2011	SALGA, Accelerating a move towards prioritisation of efficient public transport: a discussion document
2017	Green Transport Strategy for South Africa 2018–2050

- Vehicle recapitalisation and fast-track development of high quality IRPTNs (rapid rail and bus corridors) in 12 cities; public transport network package for six rural districts (intended to 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.

SALGA Support - See page 94

IDEAS TO TAKE FORWARD

- 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

To create well-planned, liveable municipalities where all citizens have access to amenities and economic opportunities.

South African cities are generally sprawling and low density, resulting in energy-inefficient cities and making sustainable transport difficult to implement. The apartheid spatial legacy, of poor communities being located on the periphery and far from economic opportunities, remains and has been entrenched by the post-apartheid large-scale national housing programme. The result is that poor residents remain far from economic opportunities, benefit little from urban amenities and have high transport costs.

RELEVANCE FOR LOCAL GOVERNMENT

- In South Africa, the financial and other benefits of a denser, more appropriately zoned city are generally accepted.
- Municipalities produce SDFs and ITPs, which are interdependent but are often hampered by poor inter-departmental communication and coordination.
- Sustainable transport efforts need to be supported by urban densification, potentially along corridors, and firmly held, appropriate zoning schemes and an urban edge.
- Development applications can be required to conform with sustainable energy criteria specific to the municipality through establishing an overarching sustainable energy policy, which is referred to in the zoning scheme.

MANDATE OF LOCAL GOVERNMENT

- Local governments have a strong influence over the spatial form of the urban landscape primarily through the zoning schemes, which are derived from SDFs and are legally binding.
- Municipalities can develop densification and urban-edge policies to promote a more sustainable urban form.

FUNDING MECHANISMS

- DMRE: Municipal EEDSM (Grant)
- Municipal Infrastructure Grant (MIG)
- Regional Bulk Infrastructure Grant
- Water Services Infrastructure Grant
- Neighbourhood Development Partnership Grant
- Urban Settlements Development Grant
- Integrated City Development Grant

Photo archives of Sustainable Energy Africa

STRATEGIES AND ACTION PLANS

Action	Responsible Departments	Municipal Support Needed
Use municipal tools to support mobility, transport efficiency and access by the poor to amenities and economic opportunities.		
1. Include explicit sustainable energy objectives in the SDF.	Planning	✓ Include all mobility modalities in the mandatory integrated transport plan (ITP) that is an integral part of the IDP. ✓ Include technical support to undertake the ITP and work towards building technical capacity support in this area. ✓ Attend transport training courses organised through SALGA.
2. Develop land development criteria that support sustainable energy objectives.	Town Planning	✓ Identify the local regional planning forum (via SALGA). ✓ Support the SALGA discussion document related to improved delivery of the RTSSA and PTSAP. ✓ Support SALGA in lobbying for dedicated funding streams (beyond the MIG and equitable share).

Action	Responsible Departments	Municipal Support Needed
3. Lobby for well-located land for urban development.	Town Planning DHS	✓ Assist in the development of KPIs and IDP evaluation by Provincial Local Government (LG) IDP offices. ✓ Develop procurement capacity relating to roads maintenance contracts.
Develop NMT facilities.		
1. Institute joint planning procedures with transport and spatial planning departments that support sustainable transport and energy agendas.	Planning Transport	✓ Promote public transport viability via priority node/corridor development, densification, NMT and suitable zoning mixes (aimed at reducing the number of trips). ✓ Engage with SALGA for guidelines on a joint spatial planning/transport planning process (proposed structure and issues to be addressed).

INFORMATION AND SUPPORT

1998	White Paper on Local Government
2000	Local Government Municipal Systems Act (MSA)
2012	National Development Plan (NDP)
2013	Spatial Planning and Land Use Management Act (SPLUMA)

- The *Urban Energy Support* website contains documents to support municipal EE and RE implementation, and archives all city energy materials, resources and data from several programmes.
  http://www.cityenergy.org.za/category.php?id=2
- COGTA, with the SA Cities Network (SACN), has developed an Integrated Urban Development Framework which seeks to align spatial planning, transport planning and other urban functions towards a more sustainable future.
  https://iudf.co.za/

SALGA Support - See page 96

IDEAS TO TAKE FORWARD

- In recent years, some municipalities are placing obligations on developers to implement projects that support urban sustainable energy objectives, such as EE or access to transport, that go beyond the national building standards detailed in SANS 10400-XA.
- The City of Johannesburg has developed criteria for development approval which support sustainable energy objectives. Its Green Building Policy is part of the broader programme towards carbon neutrality by 2050. The Western Cape Province DHS 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.
- KwaDukuza Municipality has developed a Green Building Strategy and is looking at developing an appropriate bylaw.
- EcoDistricts offer a new model of urban development to empower just, sustainable, and resilient models for neighbourhoods. The model has been piloted in Cape Town and Johannesburg.
  https://ecodistricts.org/2019/02/14/ecodistricts-goes-to-south-africa-lessons-learned-from-johannesburg-and-cape-town-low-emissions-program/

PART

3

SALGA SUPPORT STRATEGIES AND RELATED ACTION PLANS

Strategic Priority Area 1

Local Energy Governance

GOAL **To develop local, flexible and integrated energy plans, and leadership able to participate in national energy development planning**

SALGA Action	Support Organisation
Institutionalise a local level "energy mandate".	
▶ Adopt the Municipal EE/RE Strategy and a clear plan of action for taking it forward. (This would need to include an evaluation of capacity and process for adoption.)	Working Group SALGA Executive
▶ Drive legal/mandate clarification and resource alignment. ▶ Draw on existing legal opinions, which may require economic and fiscal research to ensure resources match responsibilities.	COGTA, DMRE, NT
▶ Include new responsibilities within the job description of Municipal Manager and related Key Performance Areas (KPAs).	COGTA
▶ Explore the option of EE and RE requirements in the distributor licence requirements.	NERSA, AMEU
▶ Develop EE related indicators and drive inclusion into IDP, SDF and Sector Plan requirements. ▶ Possibly consider a Municipal Energy Efficiency Management Strategy as a requirement of IDP.	COGTA, DMRE
Build political and senior management leadership and obtain buy-in.	
▶ Coordinate the Climate Change committee and other leadership programmes, and conduct training for political leadership. ▶ Integrate energy and climate responses into service delivery planning and operations, with demonstrable social, economic and environmental benefits.	DFFE, COGTA
▶ Provide a platform for local government to engage national government around policy development that affects it. ▶ Ensure local government is suitably briefed, by providing policy briefing notes and/or information sessions. ▶ Collate input from municipalities on key policy directions.	

SALGA Action	Support Organisation
▶ Represent local government in inter-governmental/ministerial forums and task teams.	DMRE, DFFE, other relevant national departments
▶ Explore the viability of a benchmarking awards system. This could be integrated into the planned SALGA Municipal Awards. *(Note: only if it will NOT increase reporting requirements of municipal staff, but rather encourage and support initiatives and action.)*	GIZ, European Energy Award (EEA), SEA
Develop local-level energy policy, strategy and plans.	
▶ Engage national data holders to assist in collecting the data required to compile a local-level energy picture: Eskom, National DMRE, Stats SA.	SEA, DMRE, Eskom, Stats SA, SACN
▶ Provide facilitation support.	SEA, ICLEI
▶ Initiate discussions around appropriate institutional capacity support for new energy mandates/functions: shared service approaches, technical support availability, provincial support capacities and roles.	DMRE, DFFE, COGTA, NT, Provinces, SALGA Provincial offices, GIZ-SAGEN, NGOs
▶ Develop and enlarge technical capacity support (including business/financial). Note: these should be wide and varied, and build on/boost existing platforms, e.g. MISA, DMRE Energy Forum, NGOs/academics. ▶ Consider shared service opportunities and SANEDI as a technology/innovation 'hub'. ▶ Address the specific support areas raised: threshold feasibility of waste-to-energy projects, PPP development, business plan development skills.	MISA, AMEU, IDP offices, SALGA Provincial offices, SAGEN, NGOs, NT units
▶ Promote the use of the City Energy Support and the SSEG web-based information portals, both partnership initiatives of SALGA, SEA, CSIR and SAGEN. *Note: These web portals are a rich source of valuable information (about approaches, technical issues and best practices covering all strategic priority areas) tailored for local government.*	SEA, SALGA, SACN, GIZ-SAGEN
▶ Develop the guideline on energy management system and master plans.	CSIR, SALGA, SEA

SALGA Action	Support Organisation
Support local energy plans and strategy implementation.	
▶ Ensure that large infrastructure programmes are energy conscious when funded by, for example, MIG or ADAM Programme.	NT, MISA, SALGA
▶ Reduce financial barriers by clarifying MFMA interpretations, particularly relating to integrating resource efficiency, sustainability and life-cycle accounting into procurement processes, as well as barriers to EE contracting.	NT
▶ Support (or commission) a process to explore the streamlining of national data/reporting requirements (IDP, NERSA, Eskom, DMRE, DFFE).	DFFE, DMRE
▶ Identify, drive and coordinate appropriate funding streams, and enhance and expand these streams. Specifically, identify funding for pilot projects to enhance visibility and leadership and community 'buy-in'.	NT, DMRE, Eskom, International Green Funds
Develop technical, legal and business skills and processes for engaging with IPPs.	
▶ Provide support in developing the relevant skills and processes necessary to engage with IPPs. ▶ Coordinate the process towards the development of a national municipal IPP procurement programme.	NT, DMRE, COGTA
Build capacity and develop skills in monitoring, reviewing and reporting.	
▶ Provide information on training courses, capacity development programmes and knowledge-sharing platforms.	
▶ Address technical staff shortages in municipalities and present an action plan to take this forward. ▶ Include the examination of issues raised: the failure of SETAs, possible bursary schemes and artisanal training (pre-SETAs), issues relating to 'cadre deployment' and political interference in technical decision-making.	

Municipal 'Own' Energy Efficiency

2 Strategic Priority Area

GOAL

To manage efficiently the energy consumption in municipal facilities and operations.

SALGA Action	Support Organisation
Support all 'own' efficiency strategies (building and lighting, water and sanitation services,-vehicles and waste).	
▶ Initiate debate and discussion on upscaling existing programmes to a national roll-out of municipal building lighting, street and traffic lighting, SWH facilities and water pumps. ▶ Lobby for procurement adjustments to be included as a requirement of the programme.	DMRE, Eskom, NT
▶ Explore the possibility of systematising (through regulation) efficient procurement within all municipal systems and develop a plan of action to do this.	
▶ Share information on efficient building management and provide training support to municipal officials.	
▶ Lobby NT to provide clarification (in an official circular) on municipal financing barriers relating to procurement and contracting ESCOs.	NT
▶ Coordinate and develop the technical capacity for ensuring that any technology being considered is sensible, viable and technically sound. ▶ Provide the latest research and information, for example on LEDs, water pumps and water distribution systems. ▶ Provide quick access to 'threshold' feasibility information on recycling and on waste/wastewater to energy. ▶ Clarify any related technical issues, such as insurance issues relating to new lights in old fittings.	COGTA, DMRE

SALGA Action	Support Organisation
▶ Provide the latest research, information and guidance (via a web portal and events) on technologies, contracting ESCOs, green building/public building retrofit processes, energy savings behaviour campaigns, waste reduction campaigns and community initiatives, public vehicle fleet efficiency, 'smart drive' vehicle maintenance and trip tracking approaches, and green procurement across the board (vehicles, public lighting, appliances).	DWS, SEA, GBCSA, others
▶ Engage with water sector KPIs and other processes already underway, to ensure EE is included.	DWS, SALGA (water sector)
Engage with MIG.	
▶ Support relevant sector programmes already underway (waste and water management).	DFFE, COGTA
▶ Provide support to municipalities institutionalising energy management in order to become energy efficient, and to identify EE projects. ▶ Offer an Energy Management Systems Programme to support municipalities.	SALGA with donor partners and DMRE

GOAL **To provide all households with access to affordable, safe and clean energy sources.**

SALGA Action	Support Organisation
Expand electrification to all urban and rural households.	
▶ Support and encourage the development of a national Energy Poverty/Integrated Energy Services Delivery Policy. This includes identifying and clarifying the responsible local government department(s).	
▶ Obtain clarity on available resources for informal electrification; share lessons from municipalities with experience in informal electrification.	DMRE-INEP, SEA guide
▶ Obtain clarity on Eskom electrification programmes (formal, informal, rural, urban).	DMRE-INEP, AMEU, Eskom
▶ Support programmes that promote community receptivity to off-grid, modern, RE systems where the grid is not feasible and the UISP is not fully achievable.	Eskom, DMRE-INEP
▶ Ensure resources for electrification are properly aligned between Eskom and municipalities (i.e. municipalities electrifying in Eskom areas without concomitant resources).	DMRE-INEP, Eskom, AMEU, local government, private sector investors
Support poor households through tariffs and subsidies.	
▶ Support the development of pro-poor metering arrangements through facilitating research and sharing of metering options experiences from Eskom and bigger municipal distributors.	AMEU, Metros
▶ Monitor FBE subsidy targeting.	NT
Develop and roll-out workable FBAE delivery models.	
▶ Draw on pilots already undertaken; identify appropriate areas and conditions for roll-out, solutions to the current unsatisfactory funding arrangements and lack of municipal capacity to implement such schemes; ensure practical piloting before roll-out.	

SALGA Action	Support Organisation
Improve thermal performance and safety in poor households.	
▶ Improve thermal performance in poor households, focusing on existing houses without ceilings.	
▶ Lobby national government to secure resources for municipalities to implement ceiling retrofit programmes.	
▶ Circulate new information relating to the application of SANS 10400-XA in low-income housing delivery.	
Develop a household energy service package approach.	
▶ Provide information and share best practices.	

Energy Efficiency in the Residential, Commercial and Industrial Sectors

4 Strategic Priority Area

GOAL

To support the efficient use of electricity throughout the built environment and economy.

SALGA Action	Support Organisation
Encourage and enforce efficiency through building and development approval processes.	
▶ Review training available on SANS 10400-XA/SANS 204 and support municipalities to attend training.	DTI, GBCSA
▶ Engage with DTI and COGTA (MISA) around providing interim capacity, in a shared capacity approach, to ensure new regulations are enforced.	DTI, COGTA (MISA)
▶ Liaise with NT around municipal revenue models and disseminate information on approaches and planning tools.	NT, AMEU, NERSA, SEA
Promote efficiency and localisation where appropriate.	
Provide supporting information and guides on: ▶ Behaviour campaigns and related material. ▶ Commercial and industrial EE forums. ▶ EE funds or tax incentives for private sector uptake (NCPP, PSEE). ▶ Models and examples of efficient water heating programmes for mid-to-high income households. ▶ Information on rolling out a national SWH programme in low-income communities. ▶ Green building regulation and development best practice. ▶ Green hospitality support (e.g. greening manuals such as with Fair Trade Tourism). ▶ the NCPC, and the PSEE Programme, and the free audit process for the hospitality and other sectors.	Various cities, GBCSA, SEA, DMRE, NT, NBI, NCPC, SAGEN
▶ Provide a communications platform to ensure that national programmes rolled out to municipalities are well-managed, involve local government in planning, have adequate maintenance plans and do not result in negative consequences or costs for municipalities (e.g. for roll-out of low pressure SWHs).	
▶ Provide best practice information on technical interventions that have been successful.	Learning networks, AMEU

Renewable Energy Development

GOAL

To make RE options a significant component of local energy supply, where technically/economically feasible

SALGA Action	Support Organisation
Promote the installation of SSEG in different sectors.	
▶ Facilitate the dissemination of documents and experience from metros that have developed SSEG application procedures to all municipal distributors.	DTI, GBCSA
▶ Support programmes that facilitate the development of municipal processes for processing SSEG installations.	DTI, COGTA (MISA)
▶ Support processes that minimise the impact of efficiency and small-scale RE on municipal revenue, by facilitating the dissemination of existing revenue impact studies and engaging with NERSA around acceptable approaches to tariff redesign.	NT, AMEU, NERSA, SEA
Promote efficiency and localisation where appropriate.	
▶ Support a programme for municipalities that facilitates engagement with national government to assist with developing an IPP procurement process.	NT, DMRE
▶ Support municipalities to engage DMRE/NERSA on determinations relating to the procurement of new generation capacity from a range of energy technologies.	NERSA, DMRE

SALGA Action	Support Organisation
Generate renewable energy for municipal 'own' use.	
▶ Develop centralised technical support capacity to assist municipalities with assessing the feasibility of viable solar PV project sites on vacant municipal-owned land and wastewater and energy facilities.	
▶ Provide a support programme to assist municipalities with developing a Municipal 'Own' Generation Framework. ▶ Include in the framework: rules and procedures for implementing small-to-medium scale renewable and waste-to-energy projects on city-owned land and assets; the roles, benefits and responsibilities of the various actors in the development and operation of these projects.	CSIR, SEA, GreenCape
Facilitate landfill gas and wastewater gas electricity generation.	
▶ Clarify the status of municipal energy streams and applicable disposal regulations.	COGTA, NT
▶ Develop general threshold feasibility guidelines for landfill gas projects, sewage methane projects and different configurations of micro-hydro schemes.	MISA, SANEDI
▶ Develop the centralised technical support capacity to assist with pre-feasibility, feasibility and business plans development.	MISA and others
▶ Facilitate the technical support and information sharing from pioneer municipalities.	Various cities, learning network platforms

Strategic Priority Area 6 | Electricity Services and Business Models

SALGA is currently underway with substantial work on the sustainable distribution industry. This priority area focuses only on elements related to RE/EE transitions.

GOAL

To deliver sustainable electricity services that accommodate and promote access to electricity, efficiency and RE development

SALGA Action	Support Organisation
Develop sustainable revenue models and alternative revenue streams.	
▶ Facilitate resources to undertake revenue model studies — liaise with NT around studies and recommendations for municipalities.	SEA (tool), NT
▶ Facilitate the undertaking of studies to develop appropriate tariffs for sustainable service delivery under changing conditions — liaise with NERSA and AMEU regarding such studies.	NERSA, AMEU
▶ Support the adoption of software suites to enable proactive, notified maximum demand management, liquidity assessments, account data cleansing and bill verification.	MISA
Introduce smart technology appropriately.	
▶ Research and collate existing information and develop guidelines on the adoption of smart technologies (smart meters, smart grids, etc.) in municipalities. ▶ Consider the long-term implications of adopting different systems, including the following issues: proprietary technologies; financial, billing and revenue impacts; associated data production and analysis abilities; ongoing staff capacity; and maintenance implications.	MISA, SANEDI

SALGA Action	Support Organisation
▶ Facilitate a smart meter pilot to demonstrate the benefits of a smart grid roll-out focused on eliminating aggregate technical, commercial and collection (ATC&C) losses.	MISA, SANEDI
Safeguard revenue.	
▶ Facilitate and encourage enhanced end-to-end metering infrastructure (meters, back-office software, integration into existing billing/vending systems).	MISA, AMEU
▶ Facilitate the necessary financial and technical support to implement theft reduction programmes.	MISA, SANEDI, Eskom
▶ Support capacity-building initiatives to improve theft reduction.	MISA, Eskom
Procure electricity from third parties (SSEG customers and IPPs).	
▶ Assist in the development of a clear methodology and process for determining COS for the electricity grid; support and build capacity to develop and analyse the COS studies in municipalities.	NERSA, SEA, GIZ, Eskom
▶ Finalise the NERSA rules and guidelines and “Rules on Network Charges for Third Party Transportation of Energy”.	NERSA
▶ Achieve a greater understanding of the impact on municipal revenue (through the COS study).	NERSA
▶ Secure policy clarity from the DMRE and other national departments around municipalities procuring electricity from IPPs.	DMRE, NT
▶ Provide dedicated support for assisting IPPs through the licensing process.	NERSA
▶ Assist municipalities to develop their own procurement programmes.	DMRE, NT

Efficient Transport and Mobility

GOAL

To have walkable, 'smokeless' municipalities that have safe mobility for all, good transport networks, and public transport as a sought-after mode of transport

SALGA Action	Support Organisation
Develop integrated, local transit plans and regional linkages.	
▶ Include technical support to undertake ITPs and help build and expand technical capacity in this area.	DoT, COGTA, MISA
▶ Support municipalities to attend city transport training courses (under development) and develop short courses appropriate to smaller cities and towns.	NT Green Cities, DoT, University of Cape Town (UCT), World Wildlife Fund ( ), SEA
▶ Pursue recommendations of the SALGA discussion document and engage with key national programmes to ensure local government is well represented in the RTSSA and the PTSAP.	DoT
▶ Enhance regional transport planning approaches through identifying and supporting local government participation in all forums.	DoT, Provinces
▶ Ensure the development of KPIs and IDP evaluation relating to efficient transport and mobility; provide best practice on budgeting for infrastructure maintenance and resource efficient SDF development.	COGTA, DoT
▶ Target municipalities most in need of support and develop procurement capacity relating to roads maintenance contracts within municipalities.	DoT
▶ Lobby national government to consolidate and coordinate funding for public transport, related facilities and NMT. ▶ Ensure funding streams include ALL municipalities across the country. ▶ Review national policy (as outlined in SALGA discussion document) for equity between urban and rural, different transport modes, etc. ▶ Provide funding information to all municipalities.	DoT, NT

SALGA Action	Support Organisation
▶ Encourage the development of political leadership through supporting municipalities to develop visible projects, such as improving taxi/bus ranks, planting trees, involving local artisans in NMT/storm-water infrastructure development (through sourcing funding and information).	
Develop non-motorised transit (NMT) facilities	
▶ Explore possibility of using the EPWP to assist in developing municipal NMT and maintain roads (small-scale changes), including supporting business plan development (could involve training of artisans in implementation).	DPW (EPWP)
▶ Lobby for public transport to be included in the public municipal services component to cater for NMT facilities (funding for implementation of measures, e.g. traffic calming, better signage, and improved drop-curbs) and public transport-linked facilities.	NT, DoT
▶ Generate and share general information or best practices on safe and healthy mobility campaigns.	Other cities
Support and promote greener fuels, fuel efficiency and EVs.	
▶ Develop political leadership that supports densification and mixed-zone, in-fill development through training and awareness.	
▶ Provide information and best practices on 'travel smart' approaches.	Academic institutions, other cities

Strategic Priority Area 8

Spatial Planning

GOAL To create well-planned, liveable municipalities where all citizens have access to amenities and economic opportunities

SALGA Action	Support Organisation
Use municipal tools to support mobility, transport efficiency and access by the poor to amenities and economic opportunities.	
▶ Engage with municipalities around including explicit sustainable energy objectives in their SDFs.	Other cities
▶ Develop land development criteria that support sustainable energy objectives.	
▶ Lobby national and state-owned enterprises to release well-located land for urban development.	SACN
Closely coordinate spatial plans and transport plans to support common objectives.	
▶ Provide guidance on instituting joint planning procedures with transport and spatial planning departments to support sustainable transport and energy agendas.	SACN

PART

4

CONCLUSION AND APPENDICES

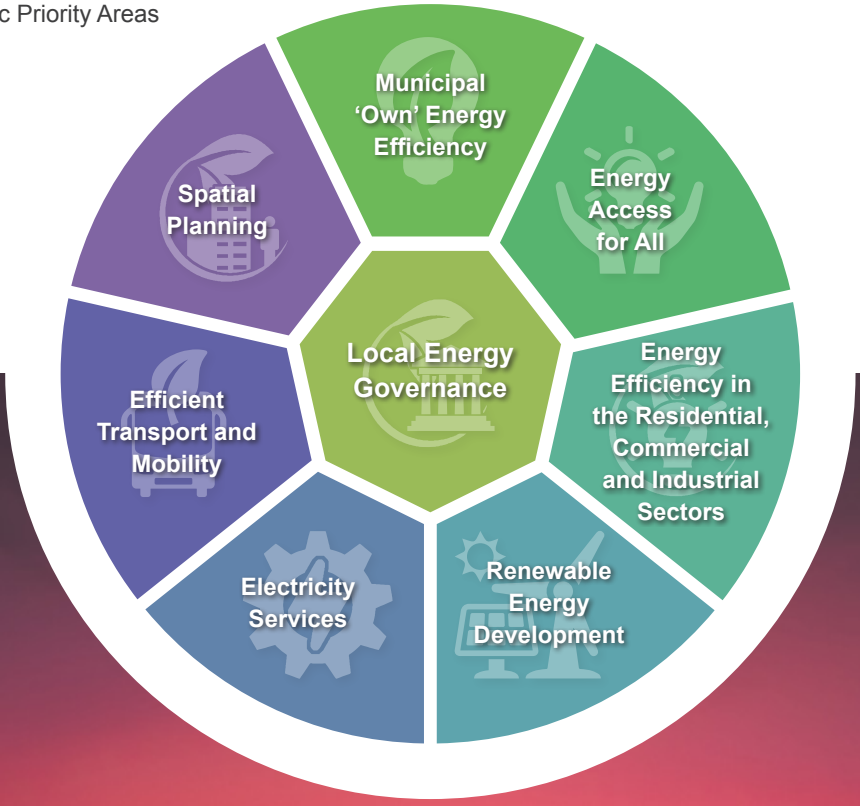
Conclusion

SALGA, through its national office and provincial offices, is currently working together with all role players to implement this Strategic Framework. As the formal representative of local government, SALGA has assumed responsibility for ensuring the development of the detailed activities and strategies to give effect to this framework.

SALGA has adopted a programme of action, drawn from the Strategic Framework, with phases of implementation and associated timeframes. Some of the RE and EE support work are well underway, following on from the SALGA Energy Summit Declaration and accompanying Action Plan.

Eight strategic priority areas are identified, but this Guide offers a menu with actions and support areas that each municipality can use to build its own strategy based on its own needs and capacity. Figure 1 shows the eight priority areas and highlights the importance of Strategic Priority Area 1: Local Energy Governance in ensuring and driving the other priority areas.

Figure 2: Strategic Priority Areas



Pixabay.com

Appendix 1:
Resources and Support Documents

- COGTA/SACN, Integrated Urban Development Framework: A new deal for South African cities and towns. 2016. South Africa's policy framework to manage urbanisation, for cities and towns to become more inclusive, resource efficient and liveable, as per the vision outlined in the NDP. https://www.sacities.net/wp-content/uploads/2019/11/IUDF-2016_WEB-min.pdf

- GIZ–SAGEN Programme and SEA, Adapt and Save — A guide on Implementing Municipal Energy Management Systems. 2020. A guide for municipalities on how to practically set up an energy management system, as a means to save energy and reduce costs. http://www.cityenergy.org.za/uploads/resource_486.pdf

- SEA guides and supporting documents, including guides on public lighting, Heating, Ventilation and Cooling (HVAC) and commercial building lighting, informal electrification, how to energise South African cities and green procurement. Available here: www.cityenergy.org.za

- SEA, State of Energy in SA Cities Reports. 2006, 2011, 2015 and 2020. Reports that examine the sustainable energy development path of key cities in South Africa. Available here: www.cityenergy.org.za

- Urban Energy Support website. A Sustainable Energy Africa–SALGA–SACN partnership initiative that hosts documents to support municipal EE and RE implementation, and archives all city energy materials, resources and data developed across various programmes. www.cityenergy.org.za

Climate Change

- DEFF, SALGA and GIZ, Practical Guide on Unlocking Municipal Climate Finance. 2020. A step-by-step guide to support municipalities with preparing projects to leverage climate finances and accessing different funding and financing schemes currently available. http://www.letsrespondtoolkit.org/home/climate-finance-training/resources

- National Treasury (NT) Technical Assistance Unit (TAU), Increasing Investment in Climate Change Related Projects at the Sub National Level, Diagnostic Report: Barriers and Challenges to Implementing Climate Change Projects. 2013. An overview of challenges faced at the local level in developing climate response projects and proposed key interventions to overcome these. https://www.westerncape.gov.za/eadp/files/atoms/files/Phase%20I%20Diagnostic%20Report%20-%20Barriers%20and%20Challenges%20to%20Implementing%20Climate%20Change%20Projects.pdf

- NT TAU, Increasing Investment in Climate Change Related Projects at the Sub National Level, Phase 2: Towards a Financing Framework for Implementing Climate Change Projects. 2013. Detailed technical financial information towards supporting investment in local level climate response projects. https://www.westerncape.gov.za/eadp/files/atoms/files/Phase%20II%20-%20Towards%20a%20Financing%20Framework%20for%20Implementing%20Climate%20Change%20Projects_0.pdf

RE and EE

- NT TAU, Energy Efficiency Guidelines, Guide for Municipal Officials in South Africa. 2013. A stepped approach to developing internal EE policy within municipalities or provinces and detailed guidance on undertaking building/facility efficiency project implementation. https://www.westerncape.gov.za/eadp/files/atoms/files/Municipal%20Energy%20Efficiency%20Guidelines%20%282013%29.pdf

- SACN, Consolidation of Lessons Learnt for EE and RE Initiatives within Cities, Development of a Roadmap for Future Uptake. 2013. A summary of cities' vulnerabilities as they transition towards sustainability. https://sacitiesnetwork.co.za/wp-content/uploads/2015/12/SACN-Sustainable-Cities-Report-WEB.pdf

- SAGEN website. Support documents for local government on RE and EE, to enable government and the private sector to improve the framework conditions for RE and EE. https://www.sagen.org.za/publications

- SAGEN, Promoting energy-efficient technologies: Generating biogas from the digestion of municipal wastewater sludge. 2019. A fact sheet describing the development and piloting of a practical guideline on anaerobic digestion of municipal wastewater sludge, to improve the capacity of the process controllers and wastewater practitioners through theoretical and practical (on-site) training. https://www.sagen.org.za/publications/energy-efficiency/84-fact-sheet-generating-biogas-from-the-digestion-of-munciipal-wastewater-sludge/file

- SAGEN, RE scenarios for municipalities in South Africa. 2018. A summary of various RE options, along with key challenges and risks that municipalities can explore, including procuring, generating and facilitating electricity. https://www.sagen.org.za/publications/61-renewable-energy-scenarios-for-municipalities-in-south-africa/file

- SEA, Sustainable Energy Solutions for South African Local Government — A Practical Guide. A comprehensive manual that provides support for local government on implementing EE and RE options. Covers SWH, efficient lighting, efficient building management, public transport, waste-to-energy, solar PV and wind energy. http://www.cityenergy.org.za/uploads/re source_434.pdf

SSEG

- AMEU SALGA Small-Scale Embedded Generation (SSEG) Resource Pack. 2019. A full complement of templates and documents for municipalities to establish sound SSEG permitting procedures, for the adoption of SSEG in a way that preserves the financial and technical integrity of municipal distribution systems and standardises the approach across municipalities. https://www.sseg.org.za/category/ameu-salga-resource-pack/

- How to set Solar PV/SSEG Tariffs. A user friendly, easy- to-understand video conveying the practicalities of SSEG tariff setting to support South African municipalities with SSEG tariffs. https://www.youtube.com/watch?v=v0ra-NFqByY

- SSEG Municipal Resource Portal. A SALGA–SEA–CSIR–GIZ SAGEN partnership initiative that provides a rich resource of all the documents required by a municipality to accommodate SSEG safely onto their distribution grids. These range from template policy and bylaw documents to tariff design guidelines, from the regulations relevant to SSEG to municipal training course presentations and training videos of the Municipal SSEG Support Programme. It also includes a tariff model tool to

(1) measure the financial impact of proposed SSEG tariffs on municipal finances; and (2) evaluate the business case for customers who have installed solar PV systems based on the proposed SSEG tariffs. https://www.sseg.org.za/

- SSEG Frequently Asked Questions (FAQ) Handbook: This clear and easy-to-read document covers questions municipalities may have on SSEG, including the topics of batteries, metering and municipal regulations. https://www.sseg.org.za/faq/

SALGA guides and supporting documents:

- A Guideline on Energy Efficiency and Renewable Energy in Municipal Wastewater Infrastructure. 2014. A resource for municipal officials that addresses assessing and planning energy consumption reduction in water and wastewater infrastructure, and choosing the right EE technologies and cost-effective options for generating RE from water and wastewater infrastructure. http://www.cityenergy.org.za/uploads/resource_264.pdf

- A Guideline for Energy Efficiency Audits at Wastewater Treatment Plants. 2020. A guide for municipalities on how to reduce energy consumption in wastewater treatment plants, specifically through the maintenance and/or replacement of motors. https://www.sagen.org.za/publications/all-publications/99-a-practical-guideline-for-energy-efficiency-audits-at-waste-water-treatment-plants

- Accelerating a Move towards Prioritisation of Efficient Public Transport: A discussion document. 2011. The document outlines the background of the current public transport discourse in South Africa, assesses current challenges, proposes appropriate solutions and discusses the implementation and timelines of the new public transport strategy. http://www.cityenergy.org.za/getfile.php?id=211&category=7

- How to include EE (EE) and Renewable Energy (RE) in existing infrastructure grants. 2017. A guide on EE and RE interventions that reduce municipal 'own' consumption and can be financed by specific infrastructure grants. https://www.salga.org.za/SALGA%20Energy%20Summit%202018/Energy%20Summit%20Web/Document/Including%20EE%20and%20RE%20in%20grants.pdf

- Opportunities for EE for Municipalities in South Africa. 2019. An overview of how municipalities can respond proactively to transitions in the electricity sector, targeted at municipal councillors and officials. It summarises several scenarios that a municipality may face when adopting increasing EE. http://www.cityenergy.org.za/uploads/resource_454.pdf

- Status of SSEG in Municipalities. 2018. A resource document with details of SSEG installations in municipalities throughout the country and resources available to support municipalities in adopting SSEG technologies. http://www.cityenergy.org.za/uploads/resource_481.pdf

Appendix 2:
Applicable Legislation, Policies, Strategies, Plans and Standards

Acts

- Electricity Regulation Act (ERA), No. 4 of 2006: Amendment to Schedule 2
- Energy Act, No 34 of 2008
- Local Government Municipal Systems Act (MSA), No. 32 of 2000
- Municipal Finance Management Act (MFMA), No. 56 of 2003
- Provincial Finance Management Act (PFMA), No. 1 of 1999
- Spatial Planning and Land Use Management Act (SPLUMA), No. 16 of 2013
- The National Land Transport Act (NLTA), No. 5 of 2009

White Papers

- Climate Change Response White Paper (2011)
- Integrated National Electrification Programme (INEP) 2012/2013: guidelines for the electrification programme aligned to the Energy White Paper (1998)
- White Paper on Local Government (1998)
- White Paper on National Transport Policy (1996)
- White Paper on Transport (1996)
- White Paper: Renewable Energy (2003)

Policies

- Free Basic Alternative Energy Policy (FBAE) 2007. This policy is aimed at supporting indigent households in unelectrified areas with free basic energy to meet their needs.
- Free Basic Electricity (FBE) 2005. This policy is aimed at supporting indigent households in meeting their basic energy needs, and states that an allocation of 50 kWh per month should be provided to all poor households connected to the national electricity grid.
- Policy Guidelines for the Electrification of Unproclaimed Areas. 2011. This is the national government response to electricity service provision in different categories of informal settlements.

Strategies and Plans

The National Development Plan (NDP) (2012) commits to strengthening the EE requirements set out in the South African National Standards (SANS) 204, in order to achieve a net zero carbon building standard by 2030.

Department of Transport (DoT)

- Green Transport Strategy for South Africa 2018–2050
- Public Transport Strategy and Action Plan (PTSAP) 2007 (modal upgrading and IRPTNs)
- Rural Transport Strategy of South Africa (RTSSA) 2007
- Strategic Plan 2014/15–2019/20

Department of Mineral Resources and Energy (DMRE, formerly known as Department of Energy)

- Draft Post-2015 National Energy Efficiency Strategy 2016 (requires that municipalities develop energy action plans in order to reduce their energy consumption across all operations)
- Integrated Energy Plan (IEP) 2016
- Integrated Resource Plan (IRP) 2019
- National Energy Efficiency Action Plan (NEEAP) 2012
- New Households Electrification Strategy 2013 (defines universal electrification: 90% grid and remainder non-grid solar systems, and develops a plan to increase efficiency in planning and delivery)

Norms, Standards and Regulations

- 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. 2013. Includes the thermal improvements to be included in subsidised housing of minimum size 40 m2 and quantifies the subsidy increase available for this.
- SANS 10098-1 details the technical standards for public lighting on Group A and B roads.
- SANS 10400-XA: 2011 and SANS 204: 2008. Two standards for EE in buildings published by the South African Bureau of Standards (SABS). All new buildings, including low-cost housing, and major refurbishments of existing buildings must adhere to these standards. SANS 10400-XA supports the National Building Regulations, which are mandatory for all new buildings and extensions and additions to existing buildings. It requires that new buildings comply with the EE requirements set out in SANS 204. SANS 204 specifies the maximum energy demand and the maximum annual energy consumption for various kinds of buildings in the various climatic areas of South Africa. Electrical appliances in new buildings are required to have an energy rating, while thermal system equipment and components must 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 RE sources are to be maximised and can be used to mitigate where the maximum allowable demand and energy consumption have been exceeded. A SANS version 2 (still to be implemented at time of publication) will have far more stringent EE requirements.
- SSEG: NRS 097-2-1 (Part 2: Small Scale Embedded Generation – Section 1: Utility Interface). “This section of NRS 097-2 aims to be technology neutral and focuses on the interface between the embedded generator and the utility, although it is expected that the specification will mainly apply to photovoltaic grid connected systems interfaced through static power converter technology.”
- SSEG: NRS 097-2-3: (Part 2: Small Scale Embedded Generation – Section 3: Simplified Utility Connection Criteria for low voltage connected generators). “This section of NRS 097 is intended to guide South African distributors in terms of simple rules to be applied when applications for LV connected embedded generators are being assessed.”

Others

- Consultation Paper on Small Scale Embedded Generation: Regulatory Rules. 2015. The paper suggests a fair balance between deployment of SSEGs and meeting national energy needs, adequacy of revenues to municipalities, the protection of interests of vulnerable groups, and the wellbeing and safety of citizens. NERSA has committed to finalising the SSEG Regulatory Rules, which have not yet been released.
- Energy Performance Certification (EPC) for building regulations. Buildings will have to monitor and log their usage with government and will be required to display their energy consumption using the certificates provided. Municipalities will need to do this for public buildings, and help with the registration and data collection for private buildings on behalf of SANEDI and DMRE.
- Municipal Spatial Development Framework (MSDF). A framework that seeks to guide overall spatial distribution of current and desirable land uses within a municipality in order to give effect to the vision, goals and objectives of the municipal IDP.
- South African Renewable Power Plants Grid Code (SARPPGC). This document sets out the technical and design grid connection requirements for renewable power plants to connect to the transmission or distribution network in South Africa.
- The Green Economy Accord. 2011. The Accord includes commitments by stakeholders (government, business, organised labour and civil society) towards a greener economy in South Africa that promotes employment creation and improves conditions for the poor.