



**USAID**  
FROM THE AMERICAN PEOPLE

**SOUTH AFRICA**

---

# Low Emissions Development Program

Energy Efficiency Modelling & Policy Impacts  
Scoping Session, SANEDI, Johannesburg

19 November 2018



# USAID | SOUTH AFRICA

FROM THE AMERICAN PEOPLE



In Partnership with  
Department of Environmental Affairs (DEA) &  
Department of Science and Technology (DST)



**USAID**  
FROM THE AMERICAN PEOPLE

# What does SA-LED Do?

- Supporting the Government of South Africa to transition to a **low-carbon economy by promoting green growth within relevant policy framework**
  - **Climate Change Bill, EE Policy + Standards**
  - **SAGEM**
- Focus is on helping municipalities move LED projects through the project development cycle
- Strengthen Project Development Capacity for LED Projects
- Increase LED core competencies through technical assistance and learning







**USAID**  
FROM THE AMERICAN PEOPLE

# Project Development Process

## WHAT WE DO

To support the implementation of South Africa's Climate Change Response Policy, SA-LED focuses on the following in line with DEA's National Flagship Programs:

- Support the Government of South Africa to transition to a low-carbon economy by promoting green growth
- Help municipalities plan, finance, and implement LED projects
- Strengthen Project Development Capacity for LED Projects
- Increase LED core competencies through technical assistance and training
- Facilitate private sector participation and investment in LED projects
- Create an enabling environment that will institutionally support LED efforts across local, provincial, and national government

## AREAS OF WORK

- Embedded technical expertise
- LED project capacity building
- Development facilitation
- Business development
- Technical Studies
- Support of the development of the municipal procurement processes

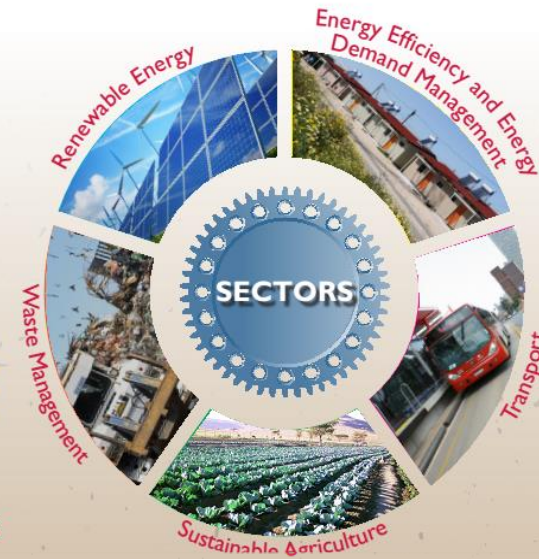
## CONTACT:

**Project Development Specialist**  
Christelle Beyers  
Email: [cbeyers@southafricaled.com](mailto:cbeyers@southafricaled.com)

## Communications Specialist

Anabel Tennassie  
Email: [atennassie@southafricaled.com](mailto:atennassie@southafricaled.com)  
Tel: +27 12 346 0848

## HOW WE WORK



**SA-LED PROJECT DEVELOPMENT PROCESS**



## EE in context of SA-LED's CC mitigation work:

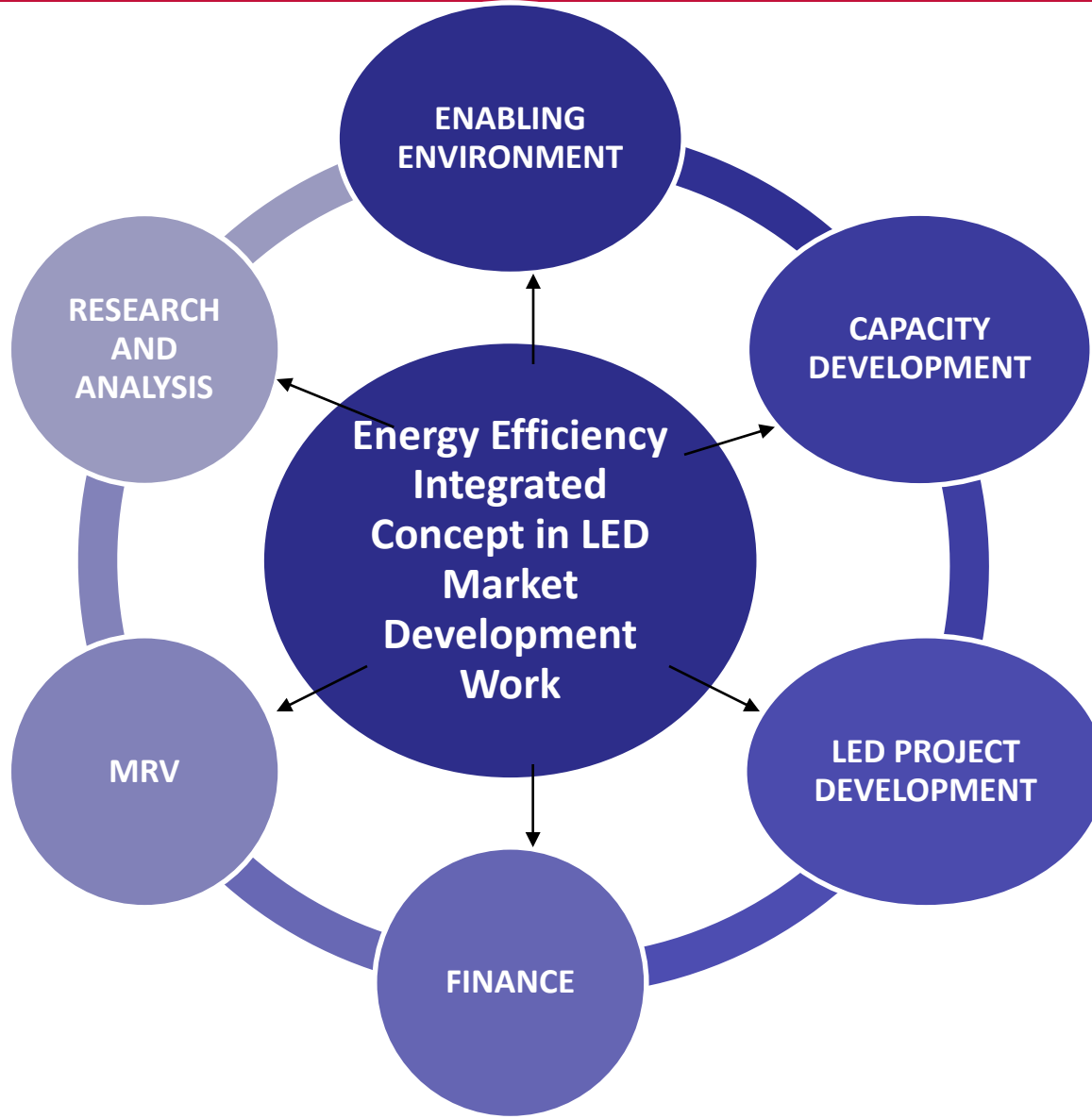
- Long history of EE and EEDSM support in South Africa
- Multiple stakeholders and support in the market
- Baseline for struggling municipalities
- Mainstream in view of DoE's EEDSM funds
- Value-addition niche
- Energy efficiency standards and practices
- Sub-national implementation of Government policies





# USAID | SOUTH AFRICA

FROM THE AMERICAN PEOPLE







**USAID**  
FROM THE AMERICAN PEOPLE

# Capacity Building – Internationally Recognised Tools and Standards

Project Name	Project Description
CLEER Tool Training	Enhlazeni District Municipality, Nelspruit Nkangala District Municipality, Middelburg Gert Sibande District Municipality, Ermelo
SANSI0400XA Pilot Training	SA-LED partnered with South African Local Government Association (SALGA), City of Tshwane, and the Green Buildings Group (GBG) to pilot a training workshop on the revised South African National Standards I0400-XA (SANS I0400-XA) at Tshwane House, Pretoria





**USAID**  
FROM THE AMERICAN PEOPLE

# Capacity Building: TVET Students

Project Name	Project Description
Polokwane Local Municipality Energy Audits	Polokwane Local Municipality requested assistance with the 2018/2019 application for funding under the DoE's EEDSM program. This involved conducting energy audits and populating the various DoE EEDSM funding application template reports as per their requirements.



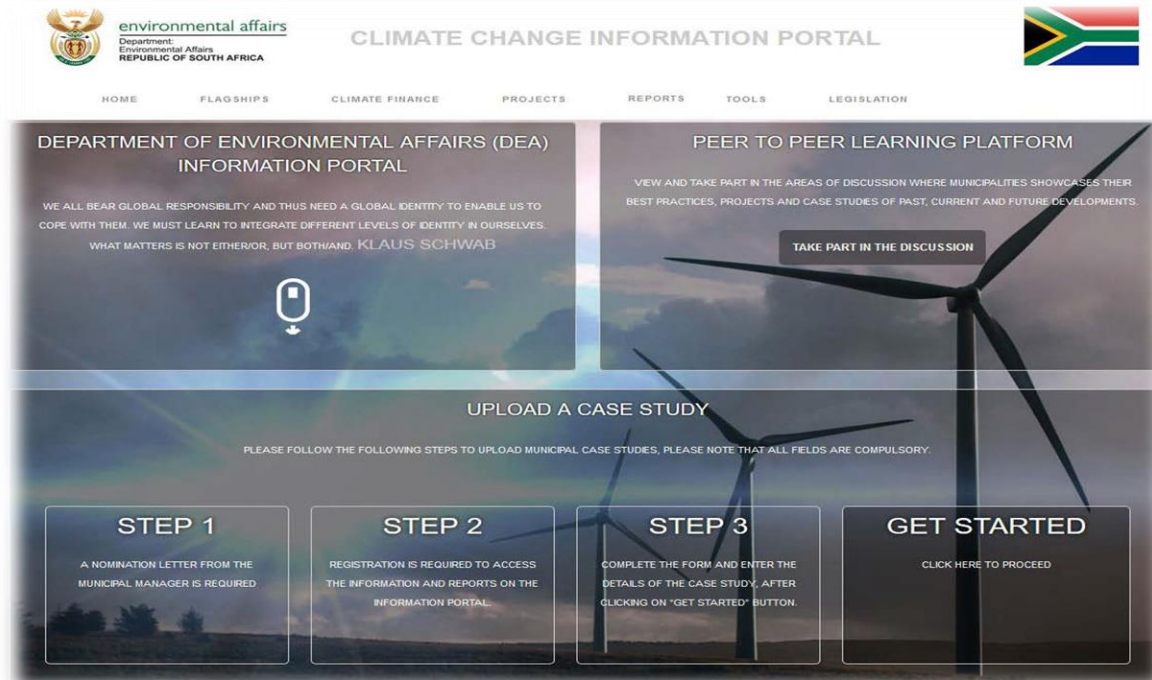




**USAID**  
FROM THE AMERICAN PEOPLE

# Enabling Environment

Project Name	Project Description
DEA Webportal	The Department of Environmental Affairs (DEA) identified a need to develop a web information portal useful for information dissemination and exchange on climate change policies, regulations and case studies.
Chris Hani; OR Tambo and Eden District Municipalities Climate Change Forums	SA-LED was invited to participate in the Chris Hani District Municipality (CHDM) Climate Change Forum meetings





**USAID**  
FROM THE AMERICAN PEOPLE

# Energy Efficiency Projects

## **Thabo Mafutsanyane District Municipality and Nketoana, Dihlabeng and Setsoto Local Municipalities**

- The DoE requested SA-LED to provide technical assistance to the municipalities selected to receive 2018/19 EEDSM grants

## **Municipal LMs EE in WWTW**

- George, Chris Hani, requested support from SA-LED to conduct energy efficiency audits of their waste water treatment plants





**USAID**  
FROM THE AMERICAN PEOPLE

# Govan Mbeki High Mast Lighting EEDSM Energy Audits

SA-LED has supported Govan Mbeki Municipality with its application for funding under the DoE's EEDSM Programme to implementing energy efficiency retrofits of its high mast public lighting.

High Masts Lighting Savings			
<b>Current Annual Energy Usage (kWh/a):</b>	2 547 408.00	Ratio Proposed Energy Savings / Current Usage	50.00
<b>Proposed Annual Energy Savings (kWh/a):</b>	1 273704.00	Current Average Annual Energy Usage / Unit (kWh/a/unit):	1,752.00
<b>Total no. of units:</b>	1 454.00	Proposed Average Annual Saving (kWh/a/unit)	876.00
<b>Current Annual Cost of Energy (ZAR/a)</b>	R 443 758.47	Current Average Annual Cost / Unit (ZAR/a/unit)	R305.20
<b>Proposed Annual Energy Saving (ZAR / a)</b>	R 221 879.24	Proposed Average Saving (ZAR/a/unit)	R152.60





**USAID**  
FROM THE AMERICAN PEOPLE

# Strategies & Policies

- Buffalo City Metropolitan Municipality LED Roadmap
- GHG Inventory and Development of Climate Change Mitigation Strategy for Govan Mbeki Local Municipality
- GHG Inventory and Development of Climate Change Mitigation Strategy for Chris Hani District Municipality
- Updating and finalization of Polokwane Municipality's Climate Change Strategy.





**USAID**  
FROM THE AMERICAN PEOPLE

# EcoDistricts Green Urban Precincts

A key component of this work is SA-LED's ongoing integrated green urban precincts work with municipalities. More specifically, continuing work with the Green Building Council of South Africa (GBCSA) to accelerate green building principles. EcoDistricts provides unique technical expertise and methodologies for urban regeneration and sustainable green communities.





**USAID**  
FROM THE AMERICAN PEOPLE

# Multiple – Benefits with UN ICAT and WRI

From the start, SA-LED needed selection criteria to select projects that meet the program indicators. When applying the selection criteria, it became clear that we need to expand the **development impact analysis and associated selection criteria**. By integrating the multiple-benefits into the project development process, we have a clearer understanding on how to select projects on the technical and development merits







**USAID**  
FROM THE AMERICAN PEOPLE

# Monitoring & Evaluation Data Lessons

- Audits need to be **well planned and coordinated**; required information/documents/equipment such as utility bills, floor maps, keys, ladders etc. should be readily available to support accuracy and completeness (saves time and money)
- **Municipal officials must be involved** in the audits to understand the ‘why’ of conducting the audits to make themselves available and provide the required information (particularly cost/budget implications) in the correct formats
- Manage and maintain data quality through **timely data capturing** (of the audits); supports on-site, in time data quality issues that can be immediately resolved
- **Capture** audit data **immediately** after filling out forms



*SA-LED Monitoring and Evaluation Specialist conducting the spot check of the operational facilities of the fish farm*



**USAID**  
FROM THE AMERICAN PEOPLE

# Project Specific Lessons Learnt





**USAID**  
FROM THE AMERICAN PEOPLE

# Project Specific Lessons Learnt

## **Good opportunities for savings exist at municipalities:**

- Improved behaviour and awareness of energy usage and consumption
- There appears to be *ad hoc*/ little ownership of how energy is managed
- Formal energy awareness campaigns and training of municipal staff could have a major impact

## **Lead time for contracted audit teams should be increased, with a certain minimum amount of information to be provided before commencement of site works, incl:**

- List and location of sites to be audited
- Tariff structures and Energy bills (minimum 12 months to establish baseline and trends) for each location to be audited.
- Contact person and details at each location.
- A basic listing of equipment at each location.

**Seems to be a tendency for municipalities to neglect basic maintenance of electrical equipment when they have a potential project to replace equipment using EEDSM. Specifications (labels) and templates/requirements should be modified to limit the possibility of this happening**





**USAID**  
FROM THE AMERICAN PEOPLE

# Project Specific Lessons Learnt: Multiple 1

## Experiences and lessons learned in providing technical assistance to: Govan Mbeki, Polokwane and Dihlabeng municipalities:

1. Energy-efficient traffic lights.
  2. Energy efficient street lights and new LED lights on high masts.
  3. Energy efficient building lighting, and heating, ventilation and air conditioning (HVAC).
  4. Energy efficient water infrastructure (i.e. water pumps) and energy efficient wastewater treatment.
  5. Pilot Energy Audit in Buildings using in service training for FET based College students
- EEDSM participants indicated “**disconnections**” in-between the steps in the formal application process. I.e. Step1 appears “disconnected” from Steps 3-5. Proposals in Step 1 appear to be made and approved at a high level of management and informed by, but not necessary based on Steps 4 and 5.
  - Audits appear to be done by one or **several different internal and or external entities**
  - Equipment in **disrepair**, in some cases non-existent and in others new: Appears that EEDSM funding is sought to support negligent maintenance programs and some new works
  - Misaligned budgets, finances and tariffs: A key housekeeping step is **supply and demand side energy and costs optimisation to identify low hanging fruit**. Should be targeted for any EEDSM retrofit supported by policies which ensure that such savings are re-invested in further energy savings projects



**USAID**  
FROM THE AMERICAN PEOPLE

# Project Specific Lessons Learnt: Multiple 2

- **Review of EEDSM Process**
- **Collective municipal departmental drive to promote, implement and maintain EE:**
  1. The Asset Division.
  2. The GIS Spatial / Town Planning Division.
  3. The Finance Division
  4. The Facilities Management Division – for external contractor liaison
  5. Metering Division.
  6. Energy of Electricity department / implementing Division
  7. Supply Chain Management Department (Procurement) to issue and get equipment pricing or issue RFI's/RFQ's.



**USAID**

FROM THE AMERICAN PEOPLE

# Modelling Implications

- Rigorous and standardised data collection required per modelling platform
- Aggregation of data & units of measurement to meet Government targets/modelling (grass-roots up impact and methodologies)
- Quantification and qualification of EE data and development impacts – type of modelling?
- Business case: Integration of various EE interventions into market specific products for range of audiences
- Aligned partnerships for legacy (project analysis, tools and methodologies)
- Labelling in these various methods of deploying EE @ sub-national level





**USAID** | **SOUTH AFRICA**  
FROM THE AMERICAN PEOPLE

Thank you

**CONTACT:**

**Christelle Beyers**

USAID, SA-LED Snr Project Development Specialist

[cbeyers@southafricaled.com](mailto:cbeyers@southafricaled.com)