Energy Services Company Opportunities in South Africa

ESCos demands according to NEES post 2015 and V-NAMA

2017 SAECC Conference, Emperors Palace, Ekurhuleni, Gauteng

Wednesday, 15 November 2017
1. Background: SAGEN

2. SA’s climate change mitigation process

3. Why is Energy Efficiency important?

4. National Energy Efficiency Programmes

5. Municipal EEDSM programme: requirements and opportunities

6. Energy Efficiency ESCO Model

7. Conclusion
South African German Energy (SAGEN) Programme

- Collaboration Agreement between the South African and German governments for the implementation of the South African German Energy (SAGEN) Programme.

- Focus on Energy Efficiency and Renewable Energy Technical Support including capacity building and training, system development and advise on policy development.

- Energy Efficiency & Demand Side Management Programme include support on:
  - implementation of the Solar Water Heating Programme.
  - Installation of LED Street Lighting Technologies.
  - planning and installation of energy efficient technologies in public infrastructure.
  - planning and implementation of co-generation projects.
  - development of the ESCO market.
South Africa's Mitigation Process

South Africa's obligations under the UNFCCC

Climate change policy framework (National Climate Change Response White Paper)

National Development Priorities - poverty alleviation, economic growth, employment, etc.

Peak, Plateau and Decline national emissions benchmark range

5-year national emissions budgets

Long-term, Medium-term, Short-term Desired Emission Reduction Outcomes for each sector of the economy

Carbon Budgets system (large emitters)

supportive measures

measures for smaller emitters / sectors not covered by CBs

Carbon Tax

Air quality and energy reporting systems

GHG reporting systems

Source: Department of Environmental Affairs (DEA), Energy Research Centre, University of Cape Town, 2015
Why is Energy Efficiency important?

SA’s vision is to promote energy efficiency as the “first fuel” in driving balanced, socially inclusive and environmentally sustainable economic growth, boosting job creation, and leading innovation across the region.

Source: IEA, World Energy Outlook Special Report (Climate and Energy) 2015
National EEDSM Programme: under post-2015 NEES

Cross-cutting energy efficiency measures

- Support the professionalisation of ESCOs
- Energy endorsement label
- Energy efficiency technology hub

Institutional measures

- Continuous improvement of 12L to become more relevant

Fiscal measures

- Tightening of building standards
- Energy performance certificates for buildings
- Tightening and broadening of minimum energy performance standards

Legal & regulatory measures

Municipal Energy Efficiency

Building energy efficiency

Industrial energy efficiency

Residential Energy Efficiency

Other sectors incl. Transport, Agriculture, Power
Energy Efficiency Measures – residential

- Awareness-raising targeting households and including school curriculum
- Engaging municipalities in the delivery of household energy efficiency
  - Energy performance certificates for buildings
  - Energy endorsement label
  - Energy Efficiency technology hub

- Financial incentives for thermal retrofits of dwellings
- Scrappage scheme for appliances

- Legal & regulatory measures
  - Tightening of MEPS for appliances
  - Tightening of building standards

- Conduct regular household energy surveys

Residential Sector
### SA Minimum Energy Performance Standards (MEPS) for Residential Sector

<table>
<thead>
<tr>
<th></th>
<th>New MEPS</th>
<th>EU MEPPS</th>
<th>Share of Residential Energy Use</th>
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<tbody>
<tr>
<td>Geysers</td>
<td>B</td>
<td>A</td>
<td>40%</td>
</tr>
<tr>
<td>Refrigerators</td>
<td>B</td>
<td>A+</td>
<td>17%</td>
</tr>
<tr>
<td>Lighting</td>
<td>Not covered</td>
<td>B</td>
<td>17%</td>
</tr>
<tr>
<td>Air Conditioners</td>
<td>B</td>
<td>A</td>
<td>5%</td>
</tr>
<tr>
<td>Freezers</td>
<td>C</td>
<td>A+</td>
<td>4%</td>
</tr>
<tr>
<td>Washing Machine</td>
<td>A</td>
<td>A</td>
<td>3%</td>
</tr>
<tr>
<td>Tumble Dryers</td>
<td>D</td>
<td>C</td>
<td>3%</td>
</tr>
<tr>
<td>Dishwashers</td>
<td>A</td>
<td>A</td>
<td>3%</td>
</tr>
<tr>
<td>Audio &amp; Visual Equipment</td>
<td>Passive standby power ≤1W</td>
<td>Passive standby power ≤0.5W</td>
<td>3%</td>
</tr>
</tbody>
</table>
South Africa 1st Mandatory S&L Programme

- The new S&L program implemented by DOE is contributing to save 5.5 TWh by 2030
- the equivalent of approximately a 800 MW Coal Power Plant
Case Study

Municipal EEDSM programme
Purpose of the municipal EEDSM Programme

• To provide subsidies to municipalities to implement Energy Efficiency and Demand Side Management (EEDSM) initiatives within municipal infrastructure in order to reduce electricity consumption and improve energy efficiency.

• The municipal EEDSM programme is fully (100%) financed through the fiscus by National Treasury under section 5B of the Division of Revenue Act (DoRA), and is managed by the Department of Energy (DoE).

• Support with respect to strategic and administrative management of the programme is provided by the South African-German Energy Programme (SAGEN) implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
“municipal EEDSM is one of the world’s largest and most successful energy efficiency programmes at municipal level.”
The programme has been implemented for the past seven years with annual allocated budget.

Municipalities are expected to prepare and submit an energy consumption baseline information with possible retrofits of the following:

- Traffic signals
- Public street lights
- Building lights
- HVAC system
- High masts lights
- Water services plants
- Co-generation
### Implementation strategy of EE Street Lighting Retrofit Project – SAGEN funded through SECO

<table>
<thead>
<tr>
<th>Key Driver</th>
<th>Energy management and efficiency improvement in municipalities</th>
</tr>
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<tbody>
<tr>
<td>Pre-Pilot / LED Demo site</td>
<td>Demonstration Projects in 1) Ekurhuleni (high masts) and 2) Tshwane (Street lights) to showcase innovative technology 3) These include project planning, design, and implementation</td>
</tr>
<tr>
<td>LED Pilot</td>
<td>1) Project planning, design, implementation and monitoring 2) Retrofit of High Masts of 40m height in Matjhabeng to test innovative technical specifications and realise massive savings (1000W HPS to ~400W LED)</td>
</tr>
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**EEDSM project cycle 16/17**
1) Technical Assistance (EEDSM project planning & design) to four municipalities: Dr Beyers Naude, Makhado, Mbombela and Msunduzi

**EEDSM project cycle 17/18**
1) Technical assistance (EEDSM project planning & design) to six municipalities to pilot centralised planning etc. 2) Technical & financial support (EEDSM project planning, design, implementation, M&E) to 2-3 non-EEDSM municipalities to simulate a transversal procurement approach
Energy Efficiency Measures – Municipalities

**Institutional measures**
- Develop energy efficiency strategies
- Support identification/implementation of energy efficiency measures
- Energy rating scheme for municipal services
- Professionalisation of ESCOs

**Legal & regulatory measures**
- Establish rating system for rating of municipal services

**Financial measures**
- Identify innovative financial solutions for service improvements

**Municipal Services Sector**
Energy Efficiency Measures – Public Buildings

Institutional measures:
- Leading by example – developing the brand
- Green procurement
- Super ESCO
- Energy management
- Professionalisation of ESCOs
- Establish sectoral technology hub

Legal & regulatory measures:
- Expansion of mandatory EPCs
- Expansion of standards & labelling
- Tightening of buildings codes

Financial measures:
- Identify innovative financial solutions
- Super ESCO

Public Buildings Sector
municipal EEDSM allocations

<table>
<thead>
<tr>
<th>Year</th>
<th>Allocation (R)</th>
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<tbody>
<tr>
<td>2015/17</td>
<td>100,000,000</td>
</tr>
<tr>
<td>2016/17</td>
<td>200,000,000</td>
</tr>
<tr>
<td>2017/18</td>
<td>250,000,000</td>
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</table>
Provincial 2017/18 EEDSM Allocations
Annual energy savings in GWh/a – budget year

Annual energy savings in GWh/a
(planned by EE measures during a budget year)
Energy Services Company Opportunities

**Climate Change EE Flagship Projects**
1) Energy Efficiency in Public Buildings and Infrastructure – V-NAMA Initiative
2) Deployment of energy efficient appliances and SWH units – Global Climate Fund Project

**Carbon Off-set scheme**
1) Support of the climate change mitigation through Carbon Tax

**Municipal EEDSM project**
1) Various energy efficiency measures including co-generation and possible small scale renewable energy technologies

**Private Sector Energy Efficiency**
1) Partnership with the National Business Initiative (NBI)
3) Income tax Allowance (12L) for Energy Efficiency
Conclusion

- An **Energy Service Company (ESCO)** that is either a commercial or non-profit business offering but not limited to the following broad range of energy solutions:
  - designs and implementation of energy saving projects,
  - retrofitting of inefficient technologies,
  - energy efficient infrastructure,
  - co-generation,
  - capacity building and training,
  - Project financing,
  - Monitoring, reporting and evaluation,
  - ….etc

- SAGEN through DoE, SANEDI & GIZ has established an **ESCO register**.
- The next step is to implement an **ESCO incubation process** that will support the implementation of the EEDSM programmes across sectors.
THANK YOU FOR YOUR ATTENTION