The role of SA municipalities in renewable energy, a review of business models

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Co-authors: Nhlanhla Ngidi and Lungile Manzini, SALGA

Main Sources:
- The role of SA municipalities in renewable energy, a review of business models, Discussion Paper, by Gaylor Montmasson-Clair (TIPS), Karin Kritzinger (CRSES), Louise Scholtz and Manisha Gulati (WWF), commissioned by GIZ
- 4 Briefing papers on cities and electricity
Background – current trends in the sector

- Energy supply challenges
- Increased electricity prices,
- Decreased technology costs and increased product quality,
- Increased awareness of the benefits of low carbon sources of electricity
- Weak local (and international) economy

**LEADS TO:** Decreased electricity demand, as consumers:
- reduce their electricity consumption (energy efficiency or “supressed needs”),
- Non-technical losses
- generate their own electricity from renewable energy and small-scale embedded generation, and
- sometimes even contemplate moving off the grid (this would be the worst case for the electricity distribution industry).

**AS A RESULT:** Sales of electricity in the municipalities decrease, in turn also reducing ability to cross-subsidise and raise surpluses to finance other non-trading services

**AT THE SAME TIME:** Many opportunities are created for municipalities to provide affordable, modern, safe and environmentally-safe services to their residents.

**The pace of change is accelerating**
Revenue challenges in municipalities

The “death spiral” (impact of energy efficiency and renewable energy), pushing wealthy customers off the grid

Theft and non-payment, the vicious cycle, challenging payment capacity of poor households

Instead the industry could:
- Tariff structure
- New business models
- …
Are these trends real? .. It’s tempting to think so

**Figure 5: Change in real GDP versus change in Eskom electricity sales**
Problem Statement

The electricity distribution industry is currently experiencing rapid structural and behavioral changes.

Limiting electricity regulations and policies which constrains the capacity of the municipalities to turn opportunities into reality, threatening the sustainability of municipalities.

Rapid changes in the industry, Technologies advancement

Market driven: “Uberisation”

Pressure from customers (alternative technology, own generation, theft and non-payment)

Change is needed (the business model, the industry, policy framework, grid maintenance, technology ....)

Electricity industry approaching ‘breaking point’, City Power warns

By: Terence Cremer. Johannesburg’s electricity utility City Power is warning that the current structure of South Africa’s electricity sector is unsustainable and that, in the absence of a coherent national policy, the sector is approaching “breaking point”. Demand- and supply-side manager Paul Vermeulen says that... →
NEW BUSINESS MODELS

Discussion Papers:

• New Business Models for Municipalities in Electricity and Energy Sector – German Approaches
# The realm of business models

<table>
<thead>
<tr>
<th>Roles</th>
<th>The realm of business models</th>
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<tbody>
<tr>
<td><strong>Building generation capacity</strong></td>
<td>On municipal infrastructure</td>
</tr>
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<td></td>
<td>Stand-alone power plants</td>
</tr>
<tr>
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- Develop their own electricity generation from renewable energy: often small projects for own use within the municipality (buildings, water works) through solar panels or waste to energy options. Several projects are in operation.
- Compare LCOE with current energy mix
- Take into account added benefits
## The realm of business models

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**SSEG**

Changing our business model already

**IPPs**

Exploring options
# SSEG UPTAKE IN MUNICIPALITIES

(Oct 2017 – not final)

<table>
<thead>
<tr>
<th>Province / Number of municipalities ...</th>
<th>Allowing SSEG installations</th>
<th>With official application system</th>
<th>With SSEG tariffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Cape</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Free State</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gauteng</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>KZN</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Limpopo</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>North West</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Western Cape</td>
<td>18</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td><strong>TOTAL (Draft Oct. 2017)</strong></td>
<td><strong>31</strong></td>
<td><strong>23</strong></td>
<td><strong>18</strong></td>
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Percentages of licensees (total: +/- 165)

- Allowing SSEG installations: 19%
- With official application system: 14%
- With SSEG tariffs: 11%


AMEU SALGA SSEG Resource Pack

GIZ SALGA SSEG tariff model
SSEG UPTAKE IN MUNICIPALITIES
(Oct 2017 – not final)

STATUS QUO SSEG PROCESSES & TARIFFS
(OCT 2017 – NOT FINAL)

- Allowing SSEG installations
- Application process
- SSEG tariffs

NUMBER OF MUNICIPALITIES

FEB-16  MAY-16  AUG-16  NOV-16  FEB-17  MAY-17  AUG-17
0  5  10  15  20  25  30  35

- Allowed
- Under Development

UPSTATE OF SSEG PROCESSES IN MUNICIPALITIES
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Examples of new electricity and energy services:
- Use renewable energy and other technologies to increase energy access and reduce energy poverty
- Install and maintain energy systems (such as smart metering systems, rooftop solar PV systems or solar water heaters) against a service fee,
- Facilitate and/or provide energy efficiency services (energy audits, design and implementation of energy savings opportunities), directly or on-bill financing
- Others: retrofitting, energy conservation, energy infrastructure outsourcing, power generation and energy supply, etc.
Some recommendations from the studies

- Transition to a new business model: Embark on experimenting with some of the business models, unpack each business model with the objective of clarifying the regulatory frameworks

Develop new skills and competences, improve knowledge base
- Understanding costs of distribution business & Pricing and revenue impacts (ToU, fixed charges, subsidy…)
- Understand technology (GRID, meters, customers and demand management, rooftop PV, electric vehicles, storage) and its impacts
- Refine/Improve forecasting, budgeting and investment models

- Greater consideration should be given to the role of municipalities in electricity planning
- Further engage national government about the role of municipalities in the electricity supply industry
- In-depth discussions on the funding models of South Africa’s municipalities

Urgent finalisation of SSEG policy, regulations and related standards
SOME QUESTIONS FOR THE NEXT FEW DAYS

• Look at the technology options
• How can they assist in each model?
• The importance of the grid, as a place to trade energy
  – What does a pure wires business look like?
• Do electric vehicles offer municipalities a business opportunity?
• The next revolution: storage?
MAJOR DISRUPTIONS IN THE SECTOR

...REQUIRING POLICY SHIFTS
Phased Approach to the Energy Summit

SALGA is proposing an Energy Strategy aiming to deal with the radical changes taking place in the energy sector through a 3-phases approach.

Energy Leadership Summit

“Something needs to change”
to explore current disruptions and transitions in the energy sector
February 2018 - Joint DoE / SALGA

Outcomes: A compact to taking us into energy transition, Buy-in from all stakeholders

International Energy Conference

- "the future of energy starts today”, “policy change is needed”
- to develop evidence-based, nationally appropriate, scenarios to respond to the disruptions in the energy space
- FY 2018/19

Policy Shift Propositions

- “Embracing the Transition
- Working process to propose innovative policy, legislative and institutional frameworks which will enable South Africa to adapt to the disruptions in the energy space

Outcomes: A compact to taking us into energy transition, Buy-in from all stakeholders

Stakeholder Engagement

proper decision making Post-Summit

Strategic approach, no mourning and groaning

SMART implementable goals and solutions

Effective facilitation

Focused Approach (What, Who, What and How)
Thank you

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

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

Credits: Bruce Sutherland CCT