UNIDO Activities

Climate Change Response Measures & Responses to Carbon Tax Impacts

Highlights: 2014 - 2018
Global Cleantech Innovation Programme for SME’s

• Find, foster & connect Innovators, Business Mentors & Funders (small, start-up).
• Highly pertinent to international/regional/national priorities.

• Needs and interests of its beneficiaries.
• Multi-country programmes.

• 7 areas:
  - Water Efficiency (critical)
  - Energy Efficiency (critical)
  - Renewable Energy
  - Waste Beneficiation
  - Green Transport (Fuel & Electric Vehicles)
  - Green Buildings
  - Environmental Protection
GCIP Outreach in SA

- **Institutional capacity-building for the organisation of the Competition–Accelerator**
- **Strengthening of policy and regulatory framework for the development of a supportive local innovation ecosystem**
- **Establishment and operation of national-level coordinating platform for Cleantech Competition–Accelerator**

Map of South Africa showing regions:
- Limpopo
- North West
- Gauteng
- Mpumalanga
- Free State
- Kwazulu Natal
- Eastern Cape
- Western Cape
- Northern Cape

Main cities:
- Pretoria / Johannesburg
- Durban
- Cape Town
SA GCIP Project interventions

- Annual, national accelerator programmes organized, including post-programme support.

- Successful clean technology innovators participated in regional and global networking activities for market readiness and market share – *greening* the economy.

- Various panels established, business mentors recruited and trained, etc.

- Experience shared with other countries.

- Possibility to replicate GCIP in the SADC region, Nigeria, Kenya, Middle East.

- National needs assessments, national priorities – by sector, skills, industrial reality.

- Carbon calculations, KWh saved and costs saved!
GCIP SA Poster Companies

- **Blue & Green Tower – Mr. Andre Nel – Renewable Energy**

- 2016 Turnover: ZAR 615,000.
- 2017 Turnover: ZAR 1.76m.
- 2018 Turnover: ZAR 3.9m
- 2019 Turnover: ZAR 40m.

- Currently valued at ZAR 15m.
GCIP SA Poster Companies

- Vehicle Energy Harvesting System – Mr. Clement Mokoene

- Portable power plant that harnesses the power of traffic by extracting pressure from the road and using it to drive a turbine and generate renewable electricity. This transforms roads and traffic into a major alternative energy source.
Project Focus Areas


2: Strengthening Policy Implementation and **Support Frameworks** for Energy Management Systems (EnMS), and Energy Systems Optimization (ESO) and Energy Management Standards.

3: Mainstreaming EnMS & ESO **Training and Skills Development** Programmes.

4: **Investment Promotion in IEE** through demonstration of EnMS and ESO and support to access financial mechanisms and incentives for industry and selected commercial sectors.

5: EnMS and ESO Awareness, Promotion, Service Demand Generation and **Lessons Sharing**.
Possible Carbon Tax in South Africa:

• **Who:**
  - Business and Companies
  - Significant energy users/carbon emitters – industry.

• Those dependent on national Utility, Eskom (annual price hikes)

• Internal combustion engines (ICE) and liquid fossil fuels.

• **Tax Rate:** R120 per tonne of CO2e – “lite” transitioning period.

• **Power quality and holistic approach to energy in manufacturing.**
Socio-economic realities of Carbon Tax:

- Behaviour Change methods (behavioural economics)
- Unemployment risks in key manufacturing sectors (iron and steel)
- Petrol and Diesel car owners – estimated 24% fuel price increase!

- Knock-on effects:
  - fuel price hikes = cost of living and cost of business price hikes.
  - Less cash flow in industry and risks for lower wage increases of workers.

- Some industries will not reduce emissions by 2020 = higher tax, higher consumer prices & higher transaction costs,
- slowing economic growth & in turn, reducing consumer spending.
IEE Project Highlights (most recent in 2018):

- 41 ESO assessments, 25 demonstration plants, 21 case studies completed.
- Support for DoE’s **12L Tax Incentive** through the review of industry 12L applications and Tax Incentive Incubation Programme. *(95c/kWh)*
- Tiger Brands implementation projects at their Mobeni & Jacobs plants produced combined savings of 15.3 GWh equating to ZAR 3.9 million.
- IEE Project represented at first regional mine closure workshop for the Mpumalanga Coalfields.
- Training: **1 012 candidates** were trained in 75 training events culminating in the qualification of 24 EnMS experts.
- **411 women** were trained across various disciplines representing 40% of total delegates trained.
- 45 EnMS and 17 Energy System Optimisation expert candidates trained.
- Training support partnerships in Namibia, Mauritius, Mozambique, Botswana.
## Project Savings in 2017

<table>
<thead>
<tr>
<th>Project Period</th>
<th>Energy Saved</th>
<th>CO2e Mitigated</th>
<th>Rands Saved</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>460 GWh</td>
<td>273 000 tonnes</td>
<td>ZAR 138 million</td>
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<tr>
<td>Phase II</td>
<td>799 GWh</td>
<td>600 000 tonnes</td>
<td>ZAR 429 million</td>
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<tr>
<td>Project Life</td>
<td>4 280 GWh</td>
<td>3.0 million tonnes</td>
<td>ZAR 3.3 billion</td>
</tr>
</tbody>
</table>
Cleaner Mobility context:
Opportunities to reduce negative carbon tax impacts

**EV’s form part of South Africa’s NDC’s.**
- SA has no official legislation concerning EV’s yet.
- SA has highly established liquid fuels industry, making transition to cleaner fuels slow.

**Energy Data and Emissions Reporting**
- Databases, baselines, validation of energy generation and consumption needed for accurate policy developments – comparative data relevant for SA.
- EV’s charged by renewables and by traditional grids have greater potential at achieving reduced GHG emissions.

**EV’s: mitigating carbon tax**
- EV’s will by themselves be a response measure: EV owners charging with RE = save.
- Solar charging infrastructure & electric highways will alleviate tax burden.
EV benefits

GHG impacts associated with EVs charged using the existing grid

Transitioning from ICE to EVs (current grid charged) - GHG impact
EV benefits continued

GHG impacts associated with EVs charged using renewable energy sources

Transitioning from ICE to EVs (RE charged) - GHG impact

- tCO2e
- No change
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

% of maximum EV penetration potential

EVs (RE charged)

Existing ICE
Conclusions and Suggestions:

• Clean technology businesses and sustainable procurement = lower risks for carbon tax burden in industry and along the value chains.

• Innovative funding mechanisms for low carbon technologies needed to increase climate resilient uptake of goods and services; eco-labels.

• Economic diversification and low carbon pathways need cross-cutting and integrated policy instruments to protect industrial development.

• Energy Management Trainings programmes required to place experts into the manufacturing sector to know HOW to mitigate carbon.

• E-Mobility (policy coherence) = carbon avoidance for end user and reaching targets related to the NDC’s.

• Holistic understanding of economic greening, overall green jobs growth vs some losses; future skills orientation – digital skills, carbon skills, labour productivity.
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THANK YOU FOR YOUR ATTENTION!