



South African Industrial Energy Efficiency Project

Between 2010 and 2015, the original phase of the South African Industrial Energy Efficiency (IEE) Project assisted industrial companies to reduce energy use by **1 220 GWh**, saving participating companies some **R1.7 billion** in energy costs.

Now in its second phase (2016-2019), the South African IEE Project is implemented by the National Cleaner Production Centre South Africa (NCPC-SA), together with international implementing agent, the United Nations Industrial Development Organization (UNIDO).

The project offers a holistic approach to saving energy, through the promotion and implementation of **Energy Management Systems (EnMS)** and **Energy Systems Optimisation (ESO)** as well as the strengthening of industry capacity in the energy efficiency field.

The current phase is funded by the Global Environment Facility (GEF) and the Department of Trade and Industry (the dti); and supported by the Department of Energy, Department of Environmental Affairs, the South African National Energy Development Institute (SANEDI) and the Council for Scientific and Industrial Research (CSIR).

“The **IEE Project** in South Africa was the **first of its kind**, developing from concept to implementation over five years – and has served as an **international pilot project**. Similar projects are operational through UNIDO in **17 other developing countries worldwide.**”





IEE Project highlights:

2 140 GWh of energy **saved**

2 million tonnes CO₂e **mitigated**

3 800 people trained in **ENMS** and **ESO**

161 **experts** trained

53 **national trainers** trained

29 ISO50001 **lead auditors** trained

10 companies supported in **SANS/ISO 50001 certification**



295 000 homes could be **electrified**
for 12 months with the **energy**
saved to date by the IEE Project





Services and outcomes



Partnering with companies to save them energy

The IEE Project team will be part of energy efficiency projects in participants' facilities from start to finish, assisting with funding options, providing technical support, training and project management guidance, and collecting savings data on completion.



Data collection and curation

A data-rich regulatory framework for energy efficiency will be informed by data collected and curated in a system designed by the IEE Project, so as best to utilise existing research and information, as well as identify areas in which to support new research. Information will be made available to public and private sectors to inform regulations and policies.





Strengthening support

The IEE Project will work with various government departments and agencies to strengthen energy management system and energy systems optimisation support frameworks. This includes working with the Department of Energy and the South African Bureau of Standards to develop training programmes for auditors in SANS/ISO standards 50001, 50002, 50003, 50006 and 50015.



Gender mainstreaming

The IEE Project team is committed to stimulating better gender balance within the energy efficiency industry. This requires a baseline of current demographics to be determined and for areas in need of support to be identified.



Financial mechanisms

To improve incentives and access to funding options, the IEE Project is consulting with South African financial institutions and Energy Service Companies (ESCOs). The aim is to ensure the finance sector has the expertise to service energy efficiency projects.





IEE Skills Development

Since 2010, the IEE Project has capacitated over 3 500 professionals and trained over 160 experts in industrial energy efficiency. The internationally benchmarked and locally relevant content not only equips candidates with the skills required to save energy in their companies, but promotes them along a career development path of scarce and critical skills.

This is because the IEE Project course material has been used as the basis for occupational qualifications (NQF levels 6 and 8) in energy efficiency, now registered by the South African Qualifications Authority.

Training programmes

Training is presented at two levels: a technical advanced level offered in a two-day workshop format, and expert level training, which is completed over a period of 6-9 months and includes theoretical and in-plant training, and an actual workplace implementation component.



Energy Systems Optimisation

The ESO training programmes include individual courses on a number of energy systems, including **pumps, compressed air, fans, steam, motors, solar thermal, chillers and refrigeration.**

They combine science and theory and cover management processes, case studies, training on appropriate software toolkits and practical sessions. The programmes are also offered at **advanced and expert level.**



Energy Management Systems



This programme takes a methodological approach to managing energy usage, based on SANS/ISO 50001.

- **The advanced course** equips trainees with the knowledge, understanding and tools to initiate the development and implementation of an EnMS aligned with ISO 50001.
- **The expert-level course** equips delegates with the knowledge, skills and tools to support the adoption and implementation of EnMS in companies. Delegates gain practical experience in implementing and reviewing an EnMS, and reporting on its performance.

Opportunities for participation

In addition to the above services, industrial enterprises can participate and benefit from the IEE Project by becoming a:

Host or candidate plant By allowing expert level training at their plants, companies are enabled to identify energy saving opportunities. In the case of ESO, participating companies receive a systems assessment report compiled by UNIDO/NCPC-SA experts at no charge. They may also enrol two delegates in training programmes.

Demonstration plant Companies that choose to implement some or all recommendations from the assessment report may volunteer as a demonstration plant. The IEE Project will partner with the company to develop a case study on the implementation process and the energy savings resulting from it. The IEE Project has to date collated more than 30 case studies in South Africa.



Contact the IEE Project team today to see if your company qualifies: ncpc@csir.co.za





South African **Industrial Energy Efficiency Project**

is implemented by the NCPC-SA and UNIDO,
with thanks to our funders and partners



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