



South African Industrial Energy Efficiency Project International Energy Project of the Year 2020

A winning partnership





About the award

The AEE's International Awards recognize achievements in energy around the world. The "Energy Project of the Year: International" award covers energy management projects developed and implemented outside the United States.

According to the organizers' official communication, the awards identify those who exemplify the very best in their fields, and recognize the important work that is being done by individuals, organizations, agencies, and corporations.

"South Africa's largest energy efficiency initiative, the SA Industrial Energy Efficiency (IEE) Project, was awarded the highest international accolade for an energy programme – **the International Energy Project of the Year** – by the global Association of Energy Engineers (AEE) in October 2020.

The project received the award in recognition of its efforts to transform the energy use patterns in South African industry and mainstream energy management systems across economic sectors."

(Media release, October 2020)



ENERGY SAVED

6 524 GWh



CO₂e MITIGATED

6.4 million tonnes



COST SAVINGS

R5 275 million



EXPERTS TRAINED

>200



PROFESSIONALS TRAINED

> 6 000



TRAINING COURSES
IN EnMS AND ESO

12

South African Industrial Energy Efficiency Project

The making of an award-winning project

Since the first implementation in 2011, the IEE Project team has assisted more than 450 large and small industrial companies to save 6.5 TWh of energy – equivalent to five years of load shedding at the 2019 level of 1.352 TWh. This translates to cumulative cost savings of R5.3 billion in these companies.

The success of the project proves that energy efficiency maximises the use of existing power supplies and reduces the need for additional generation capacity.

Currently in its second phase, the IEE Project aims to bring about increased investment in industrial energy efficiency through the wide-scale adoption of energy management systems (EnMS) and energy systems optimization (ESO) and the ISO 50001 series through a holistic approach that involves government, industry and selected regulatory bodies and education institutions.

The project is implemented by a dedicated team of professionals in five partner organisations, supported by consulting experts across South Africa.

Ground-breaking partnership approach

The original phase of the IEE Project in South Africa (2010 – 2015) was the first of its kind, and served as an international pilot project. Similar EnMS/ESO projects are now operational through UNIDO in 17 other countries worldwide. Phase II of the project, the “GEF South African Industrial Energy Efficiency Project”, began in 2016 and is funded by the Global Environmental Facility.

Building on the success of the first phase, the project approached its goals through four distinct but mutually dependant components, led by different project partners and focusing on:



- COMPONENT 1:** Supporting energy efficiency policy
- COMPONENT 2:** Developing IEE skills in relevant sectors
- COMPONENT 3:** Technical support to industry
- COMPONENT 4:** Demonstrating the impact through sharing energy savings achieved

From the many nominations received by the AEE Awards Committee, the South Africa National Industrial Energy Efficiency Project has been selected ... Congratulations from all of us at AEE! – AEE AWARDS COMMITTEE



The project is funded by the Global Environment Facility (GEF) with co-funding through the South African Department of Trade, Industry and Competition (**the dtic**). The work of the project is implemented by the United Nations Industrial Development Organization (UNIDO), the National Cleaner Production Centre South Africa (NCPC-SA), the Department of Mineral Resources and Energy (DMRE) and the South African National Energy Development Institute (SANEDI).

The IEE Project journey 2010 – 2020



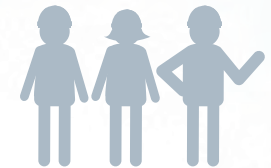
- First four demonstration plants record **87.7 GWh of energy saved**, equivalent to R63 million
- **Collaboration with the Mining and Industrial Energy Optimisation (MIEO)** in a series of seminars across the country to create awareness of energy optimisation opportunities
- Input in the final draft **National Energy Efficiency Strategy (NEES)** submitted to the Department of Energy (DoE).

"The award is an excellent recognition of the strong ownership, committed leadership and multi-stakeholder partnership driving industrial energy efficiency in South Africa. The programme has always been a great example inspiring other countries within the UNIDO global programme where its impacts transcend beyond South Africa."

RANA GHONEIM, CHIEF: ENERGY SYSTEMS AND INFRASTRUCTURE DIVISION, UNIDO



- **Tenneco** becomes the **first company in SA to be ISO 50001-certified**, with the support of the IEE Project
- In 2013/14 more than 230 SME energy assessments were undertaken, with **potential savings of 525 372 000 kWh** and **502 781 tonnes of CO₂ saved**



- **ISO 50001 certification support** provided at 12 sites
- **Conclusion of Phase I** of the IEE Project

2010

- Established as the **first project of its kind** in the world

2011

- First **EnMS expert-level training** commences, followed soon by **ESO expert-level training**
- IEE Project supports the SABS in **adopting ISO 50001 as SANS 50001**
- **Official launch** at the COP17 conference in Durban

2012



2013

- IEE Project hands out **certificates to 68 experts**
- **31 lead auditors** for ISO 50001 **trained and certified**

2014



2015

SAVINGS PHASE 1

Energy saved (TWh)	2.12
CO ₂ mitigated (tonnes)	1 984 922
Cost avoided (ZAR)	1.7bn

ENERGY EFFICIENCY Lack of finance hinders energy efficiency implementation in companies



Milisha Pillay

Milisha Pillay argues that there has never been a more opportune time for financial institutions to become more invested in structuring energy efficiency projects

Fortified by steeply rising electricity prices, stricter environmental regulations and energy insecurity, the decision of businesses in South Africa to become more energy efficient has become somewhat of a revolutionary one. The National Cleaner Production Centre South Africa's (NCP-ISA's) Industrial Energy Efficiency Project has seen a perceptible sharpening of focus among companies with regard to the implementation of energy efficiency. The trajectory for South Africa has not moved with quite the same momentum and this remains a significant opportunity for the financial sector.

Despite more and more South African companies borrowing money off their balance sheet, the three main costs associated with energy efficiency projects can be categorised into upfront costs (which include activities such as initial assessment and post-project savings measurement), capital costs and operational costs.

Enterprises in South Africa are fortunate to have access to other sources of finance, such as international development agencies, governmental, energy services companies and energy efficiency original equipment suppliers. Finance options may be sector-specific (especially in the case of government grants) and have important minimum qualifying requirements, operating and maintaining a piece of equipment over its lifetime.

- Assess the finance options that are appropriate for the energy efficiency project and the company.
- Evaluate any additional fiscal options to exploit other savings benefits, such as tax incentives.
- Make provision for the cost of an independent auditor or specialist accredited auditor or specialist required, especially for carbon tax incentives.

- Phase II commences, launched at the Africa Energy Indaba 2016
- Gender mainstreaming becomes a measurable outcome of the IEE Project
- Two energy efficiency occupational qualifications are registered on the NQF



- Registered as one of only two **Nationally Appropriate Mitigation Action (NAMA) projects** registered with the UNFCCC in Africa (a set of policies and actions undertaken by countries as part of a commitment to reduce greenhouse gas emissions)
- Training and assessments for EnMS and ESO undertaken in Mauritius, Nigeria and Ghana, in support of national energy efficiency projects in these countries

2016

- NCP-SA wins Achiever Award, for "Best training provider in the Public Sector" for its training



2017

- Participated in the National Energy Efficiency Strategy post-2015 review
- Release of the EnMS and ECO toolkit video as art of the NCC-SA online tools

2018



2019

- IEE Project becomes the custodian of the SANS/ISO 5001 Certification Register in South Africa
- Recognised by the Southern African Energy Efficiency Confederation as the **South African Energy Project of the Year**.



2020

IEE Project wins the International Energy Project of the Year by the Association of Energy Engineers

Demonstrating the impact

Impact by numbers



Large companies supported..... **274**



Manufacturing SMEs supported **180**



Energy saved* **6.5 GWh**



Cost savings **R5.3 billion**



CO₂e mitigated **6.4 million tonnes**

***Equivalent to the electricity required to power 900 000 middle income SA homes for 12 months**



Please pass on our huge congratulations to all of the NCPC-SA staff for this amazing achievement. It is wonderful to see the NCPC being recognised for the excellent work.

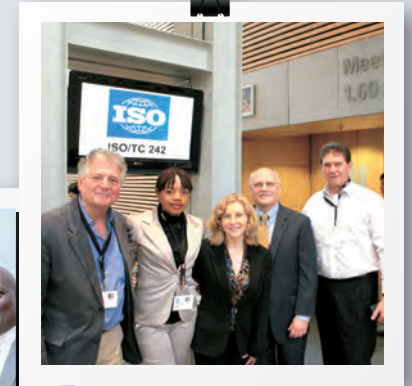
— DR CLINTON CARTER-BROWN,
CSIR ENERGY CENTRE





Gender mainstreaming

The IEE Project is committed to ensuring and promoting an improved gender balance within the energy efficiency industry in South Africa. This includes promoting greater participation of women in energy efficiency through policy engagement, inclusion of women in capacity development, participation in thought leadership, networking and role model initiatives and outreach programmes at tertiary institutions.



Capacity building

6500 engineers, technicians and managers **trained** (private and public sector)

223 national experts **trained in EnMS and ESO**, and deployed in plants

116 national trainers **trained**, some of whom are being contracted to train and advise internationally

12 different **courses developed** and offered

40 lead **auditors for ISO 50001 trained**

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Ndivhuho Raphulu, Director

Covid19 forced a lot of us to cut away the noise and focus on the basics. To 'Do more with less'.

This mantra is at the centre of all the work we do at the National Cleaner Production Centre South Africa (NCPC-SA) through resource efficient and cleaner production (RECP).

In practical terms, RECP entails the continuous application of preventive environmental strategies to processes, products and services so as to increase efficiency and reduce risks to humans and the environment. RECP addresses the three sustainability dimensions: heightened economic performance through improved productive use of resources, environmental protection by conserving resources and minimizing industry's impact, and social enhancement by providing jobs and protecting the wellbeing of workers and communities.

This methodology has become critical to not only how we do business



but to a lot of companies that experienced a loss of sales; a smaller workforce whilst needing to meet or exceed targets expenditures on personal and protective equipment and transportation costs for staff during the pandemic.

At the NCPC-SA, we have assisted companies to achieve cumulative resource savings valued at R 1.9 billion in the past five years alone.

As South Africa recovers, we can focus our energy on providing practical tools (found on www.ncpc.co.za) to continue to support industry.

2020: A YEAR TO FORGET (AND REMEMBER)

Alf Hartsenburg, National Project Manager, IEE Project at the NCPC-SA

2020 was not all bad news. In a great national achievement, the South African Industrial Energy Efficiency Project was recognised by the global Association of Energy Engineers (AEE) as the 2020 International Energy Project of the Year. This project, implemented by the NCPC-SA, Sanedi and UNIDO, received the award for its ongoing efforts to transform the energy use patterns in South African industry.

In the IEE Project team, we truly believe that now, more than ever, the benefits of energy management can support companies of all sizes to "build back better".

Since 2011, companies participating in the IEE Project have saved 6.5 TWh of energy; achieving cumulative cost savings of R5.3 billion. When 2021 rolls around, the economic

slowdown and the strained electricity grid are not going to be corrected without a shift in behaviour.

We would like to urge companies of all sizes to look at their energy management with fresh eyes – the benefits are multifaceted and genuinely affect the bottom line.

And if you don't know where to start, our mandate is to assist and support programme is to assist and advise, so feel free to email ncpc@esir.co.za for help.





NCPC-SA

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