INDEPENDENT EVALUATION UNIT
OFFICE OF EVALUATION AND INTERNAL OVERSIGHT

INDEPENDENT TERMINAL EVALUATION

Industrial Energy Efficiency Improvement in South Africa through Mainstreaming the introduction of Energy Management Systems and Energy Systems Optimization (SA IEE II Phase II GEF Project)

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Acronyms	Definitions
BUSA	Business Unity South Africa
COP26	Conference of the Parties of the UNFCCC
DEA	Department of Environmental Affairs
DHET	Department of Higher Education and Training
DMRE	Department of Mineral Resources and Energy
DOE	Department of Energy
dtic	Department of Trade, Industry, and Competition
EnMS	Energy Management Systems
ESO	Energy Systems Optimization
FET	Further Education and Training
GEF	Global Environment Facility
GHG	Green House Gas
IEE	Industrial Energy Efficiency
IFC	International Financial Corporation
ISO	International Organization for Standardization
KfW	KfW Development Bank
KPI	Key Performance Indicator
NBI	National Business Initiative
NCCRS	South African National Climate Change Response Strategy
NCPC	National Cleaner Production Centre of South Africa
NEEAP	National Energy Efficiency Action Plan
NEES	National Energy Efficiency Strategy
NQF	National Qualifications Framework
OECD-DAC	Organisation for Economic Co-operation and Development – Development Assistance Committee
PCU	Project Coordinating Unit
PSC	Project Steering Committee
SA IEE II	Industrial Energy Efficiency Improvement in South Africa Project Phase II
SABS	South African Bureau of Standards
SANEDI	South African National Energy Development Institute
SAQA	South African Qualifications Authority
SECO	Swiss State Secretariat for Economic Affairs
SME	Small and Medium Enterprise
ToC	Theory of Change
TOR	Terms of Reference
TVET	Technical and Vocational Education and Training
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization

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Executive Summary

This report is the final deliverable of an independent terminal evaluation (TE) of the second phase of the Industrial Energy Efficiency (IEE) Improvement project in South Africa, (SA IEE II) which was implemented from 2015 to 2022. The TE is undertaken to fulfil both the United Nations Industrial Development Organization (UNIDO) and the Global Environment Facility's (GEF) evaluation requirements and guidelines. This project built on the success of an earlier project – the GEF funded Industrial Energy Efficiency Improvement in South Africa Project, which was jointly executed by UNIDO and the National Cleaner Production Centre of South Africa (NCPC). This earlier project was implemented from 2010 to mid-2016.

The purpose of the TE is to independently assess the project for the purposes of both accountability and learning. To achieve this the TE assessed project performance according to UNIDO guidelines in accordance with the Organisation for Economic Co-operation and Development – Development Assistance Committee (OECD-DAC) criteria and from this assessment developed recommendations. This TE will assist UNIDO improve the planning, performance and results of ongoing and future programmes and projects. While the TE is aimed at being used primarily by UNIDO for the above purpose, lessons might also be applied by other agencies and stakeholders to improve their project design and implementation.

SA IEE II promoted the acceleration and adoption of Energy Management Systems (EnMS) and Industrial Energy Systems Optimization (ESO) with South African industry and was implemented as a joint project between the responsible departments of the NCPC, the Department of Trade, Industry, and Competition (dtic), the South African National Energy Development Institute, (SANEDI), and the Department of Mineral Resources and Energy (DMRE). The project constituted five technical components covering data quality improvement, strengthened policy environment, improved and mainstreamed technical training, increased awareness of IEE in South Africa, and promotion of investment in IEE. A sixth component covered project management, monitoring, evaluation, and reporting. The project document reported the project contributing towards assisting the Government to establish IEE monitoring systems, supporting the strengthening of energy management regulations and plans, government monitoring and verification (M&V) programmes and IEE incentive schemes as well as providing data and assistance to periodically review the National Energy Efficiency Strategy (NEES) and National Energy Efficiency Action Plan (NEEAP).

The project was designed to work with a range of stakeholder groups, including public and private stakeholders across a variety of sectors including education and training providers, financial institutions, large and smaller businesses across the economic spectrum, individual EnMS and ESO practitioners and consultants, as well as government departments and agencies.

The project started in December 2015 and underwent a midterm review in February 2020. It was completed in September 2022, after being granted several no-cost extensions. The first of these extensions related mainly to various delays in project start

up and the subcontracting of executing entities, and the second resulted mostly from COVID-19 pandemic related delays and the failure of the executing agencies to achieve targets. The pandemic started shortly after the midterm review and until the final evaluation restrictions prevailed, at that time impacting active engagement with various players including the private sector.

The evaluation was carried out as an independent in-depth exercise where all key parties associated with the project were informed and consulted throughout the process. The evaluation developed an evaluation framework guided by the OECD-DAC criteria. The framework identified key evaluation questions, which guided the collection of data. The evaluation used mixed methods, including documentary review, key informant interviews, and site visits, to collect data and information from a range of sources and informants. The evaluation team triangulated the data and used a theory of change approach[1] to analyse the collected data, before drafting findings, conclusions, lessons learned, and recommendations. In accordance with UNIDO and GEF guidelines, the evaluation team rated the project outcomes and outputs against a six-point scale, ranging from 'highly unsatisfactory' to 'highly satisfactory.'

Emerging findings, initial conclusions and potential recommendations were presented to national stakeholders in the country and UNIDO stakeholders in Vienna.

Findings

A summary of the findings, rated against the six-point scale is presented in Table 1.

Some fundamental assumptions within the project design were not realised early in the project implementation and this undermined the progression of the project. From a theory of change perspective, the causal pathway stopped at these assumptions, and with no clear alternative causal pathway, parts of the project floundered. Further, a lack of integration of components, which could be mutually supportive, undermined the achievement of outcomes and progress to impact. As a result, while some components were realised and may have exceeded their targets, the stagnation or delayed start of other components impacted the overall assessment of the project.

The technical design of the project was relevant to the South African context but needed to be more sensitive and aware of the socio-political, economic context in which it was working. To this end, it may have benefitted from developing alternative implementation strategies. Given this context, while the logframe was appropriate in that outputs generally contributed to the achievement of outcomes, the overall objective of the project was ambitious. While valuable and appreciated by their recipient institutions, it is not clear to what extent the achieved outputs will contribute towards the planned outcomes and impact, especially in the absence of the outputs from less successful components.

Substantial portions of the project's agreed co-financing did not materialise. Good progress was made in terms of some outputs, despite a substantially reduced budget, although the contribution of these outputs to outcomes may be undermined by the same lack of funds. Project efficiency is further realised in the final stages of the project where

[1] The theory of change will depict the causal and transformational pathways from project outputs to outcomes and longer-term impacts. It also identifies the drivers and barriers to achieving results.

no cost extensions were possible, given both the savings of the project, as well as prudent financial management including mechanisms such as the pursuit of VAT returns. However, it is also noteworthy that the project underspend was realised because of non-achievement of output targets in some areas, underpinning the need for the no cost extension.

The project was moderately effective, with some components achieving high levels of success. Given the apparent equal weighting of the components, and the wide range of achievements in this project, the evaluation team weighted the importance of the components according to the allocated GEF funding and calculated a final overall rating.

The project partners generally performed well, including executing partners who continued to deliver progress under difficult operational circumstances. The project management component performed by UNIDO faced challenges including considerable staff turnover but performed well. Programme management was not adequately effective due to its limitations in implementation and monitoring systems, and also because of its limitations in taking the larger picture into consideration or encouraging the executing partners to focus on delivery of outputs.[2] As a result, the project had limitations in contributing to impact, in managing cross cutting issues such as gender mainstreaming, and in providing strategic guidance to developing alternative implementation pathways.

Table 1: DAC criteria ratings according to UNIDO scale Project performance ratings

#	Evaluation criteria	Mandatory rating	
A	**Progress to impact**	**Moderately Unlikely**	**3/6**
B	**Project design**	**Moderately satisfactory**	**4/6**
1	Overall design	Moderately unsatisfactory	3/6
2	Logframe	Moderately satisfactory	4/6
C	**Project performance**		
1	Relevance	Moderately satisfactory	4/6
2	Effectiveness	Moderately satisfactory	4/6
3	Coherence	Moderately satisfactory	4/6
4	Efficiency	Moderately satisfactory	4/6
5	Sustainability of benefits	Moderately unsatisfactory	3/6
D	**Cross-cutting performance criteria**		
1	Gender mainstreaming	Moderately unsatisfactory	3/6
2	M&E	Unsatisfactory	2/6
	M&E design	Unsatisfactory	2/6
	M&E implementation	Unsatisfactory	2/6
3	Results-based Management (RBM)	Unsatisfactory	2/6
E	**Performance of partners**		

[2] These points were raised in a reflective workshop following up in revising the project theory of change in April 2019.

1	UNIDO	Satisfactory	5/6
2	National counterparts – dtic/NCPC	Satisfactory	5/6
	National counterparts – DMRE/SANEDI	Unsatisfactory	2/6
3	Donor	Satisfactory	5/6
F	**Overall assessment**	**Moderately satisfactory**	**4/6**

Based on the data analysis, the evaluation team has drawn a number of conclusions and made a number of recommendations.

Conclusions

SA IEE II was an ambitious project that aimed to influence the South African IEE landscape in the public and private sectors by building analytical, technical, and operational capacity and by influencing the public and private sector environments to develop appropriate regulatory policies and financial instruments to promote investment in IEE processes. However, because of various factors the project is unlikely to influence the South Africa EE operating environment. Four key weaknesses underpin these results:

- limited support from some public sector players whose involvement was vital to the project's success
- lack of integration of different project components despite their mutual interdependence
- absence of key sector institutions as strategic partners and collaborators in the project
- skewed budgetary allocation in favour of training and technical assistance, when in hindsight, more support was needed in the policy and regulatory field.

An integrated project design and implementation strategy was lacking, thus incapacitating a more holistic project roll out. Additionally, limited flexibility in logframe design, targets, and resource allocation translated into limited opportunities for the project to respond more effectively to changes in its operational environment.

The reliance on the participation of single representative structures from the private and financial sectors weakened project implementation. Not all targeted audiences were represented, leading to a missed opportunity for collaborative involvement and buy in.

The project was further impacted by the lack of intervention strategies bespoke to specific economic sectors or sections, thereby limiting opportunities for nuanced responses and implementation strategies.

Based on detailed feedback from project stakeholders and the evaluation's own findings, the following recommendations are made:

To UNIDO - Recommendation 1: In the future, project designs should allow for some level of flexibility in terms of institutional partnerships, achievement of targets, and allocation of budget and resources.

To UNIDO - Recommendation 2: When designing a new project, it is recommended that time and resources are dedicated proportionally to outcomes in accordance with anticipated impact.

To UNIDO and executing partners - Recommendation 3: It is recommended that the project monitoring is adequately resourced, and that capacity for monitoring matches the level of complexity of the project, (e.g., output verification or an aspect of outcome monitoring, rather than activity reporting). A project monitoring strategy should be developed and regularly reviewed as part of the project management process.

To executing partners - Recommendation 4: Due to the complex nature of the project, it is recommended that external specialist stakeholders be consulted as early as possible to make them aware of the project and to draw them into the co-creation process, or as part of a reference group, as needed. In the case of SA IEE II, examples of these external stakeholders could have included private sector, SME or sector representatives, financial sector players, and TVET colleges.

Project factsheet

Project title	Industrial Energy Efficiency Improvement in South Africa through Mainstreaming the Introduction of Energy Management Systems and Energy Systems Optimization
UNIDO project No. and/or ID	120487
GEF project ID	5379
Region	Africa-AFR
Country(ies)	South Africa
Planned implementation start date (for GEF projects, as indicated in CEO endorsement/Approval document)	14 October 2015
Planned implementation end date (for GEF projects, as indicated in CEO endorsement/Approval document)	Planned: 48 months (14 Oct 2019)
Actual implementation start date	1 December 2015
Actual implementation end date	30 Sep 2022 (83 months)
GEF Focal Areas and Operational Project (in addition, also indicate whether the project is linked to a GEF programme)	Climate Change (CCM)
Implementing agency(ies)	UNIDO
Executing partner(s)/entity(ies)	Department of Trade and Industry (dti), now [dtic] Department of Energy (DoE), [now DMRE] National Cleaner Production Centre of South Africa (NCPC-SA) The South African National Energy Development Institute (SANEDI)
Donor(s):	GEF
Total project allotment (for GEF: project grant)	USD 5,776,484
Total co-financing at design (in cash and in-kind)	USD 38,439,000
Materialized co-financing at project completion (in cash and in -kind)	Cash: In-kind:
Midterm review date	Feb 2020

1. Introduction, context, and background

This report represents the final findings and assessment of the independent terminal evaluation (TE) of the Industrial Energy Efficiency (IEE) Improvement project in South Africa through mainstreaming the introduction of Energy Management Systems and Energy Systems Optimization Phase II Global Environment Facility (GEF) Project (SA IEE II).

1.1. Purpose and scope

The evaluation terms of reference state that the overarching purpose of the evaluation is to independently assess the project to help UNIDO improve performance and results of ongoing and future projects and programmes?. To achieve this – and as is standard for many evaluations – the evaluation has an accountability objective (assessing project performance and results) and a learning objective (improving actions). This terminal evaluation independently assesses the project to assist UNIDO improve performance and results of ongoing and future projects and projects, as outlined in the evaluation objectives (Section 1.2), below.

The evaluation covers the whole duration of the second phase of project from its starting date of 1 December 2015 to its completion date in September 2022.

The primary audience for the evaluation report is UNIDO and is written with this organisation's purpose and scope in mind. Secondary audiences might include donors, implementing and executing project agencies, and departments and national counterparts. While some findings, recommendations and learnings might resonate with these agencies and departments, and examples or illustrations may speak to specific interventions, the evaluation reviews and reports on the project and its achievements as a whole.

1.2. Evaluation objectives

The evaluation has two specific objectives:

(i) Assess the project performance in terms of relevance, effectiveness, efficiency, sustainability, coherence, and progress to impact; and
(ii) Develop a series of findings, lessons, and recommendations for enhancing the design of new and implementation of ongoing projects by UNIDO.

1.3. Project background and overview

The GEF funded SA IEE II builds on the work of an earlier project, the 'Industrial Energy Efficiency Improvement in South Africa Project' (SA IEE Project),' which was implemented by UNIDO and the National Cleaner Production Centre of South Africa (NCPC). The project's first phase project began implementation in early 2010 and ended in June 2016.

SA IEE II started in December 2015, focused on promoting the acceleration and adoption of Energy Management Systems (EnMS) and Industrial Energy Systems Optimization (ESO) with South African industry with a view that these become sustainable and standard within the national industrial landscape. SA IEE II was implemented as a joint project between the responsible departments of the NCPC, the

Department of Trade, Industry and Competition (dtic) and the South African National Energy Development Institute, (SANEDI), the Department of Mineral Resources and Energy, (DMRE)[3].

Phase II aimed to improve energy efficiency in South African industry and the adoption of international energy efficiency standards, tools, and metrics to realize increased investment in industrial energy efficiency through an improved regulatory environment, improved technical capacity building, and the provision of technical assistance.

In addition to a project management and monitoring component the project sought to achieve this objective through five interlinked technical components. These components sought to improve energy data quality and reporting to improve energy management and guide policy and regulatory development. The project also looked to increase industry investment in both the capacity to implement and manage EnMs and ESO through the provision of applicable, appropriate, and accessible training, and to encourage greater EnMs and ESO uptake within industry through the provision of financial and tax incentives.

Different executing partners took responsibility for the delivery of different components. SANEDI had responsibility for the delivery of component 1. The NCPC were responsible for the delivery of components 3 and 4. Both SANEDI and the NCPC had joint responsibility for the delivery of component 2 and NCPC and UNIDO shared responsibility for the implementation of component 5. A final component, component 6, was the responsibility of UNIDO and focussed on the ongoing monitoring and reporting of the project, its midterm review and terminal evaluation.

An overall budgetary allocation was made to each of these components from GEF funding. Additional co-financing from various sources was anticipated[4] as outlined in Table 2.

Table 2: GEF finance and co-finance allocation per component as at project design

Component	GEF Funding (US$)	% Of total GEF funding	Total funding (US$)	% Of total funding[5]
Component 1	400 000	7,24	2 000 000	4,73
Component 2	750 000	13,57	5 000 000	11,82
Component 3	1 950 000	35,28	12 450 000	29,43
Component 4	1 576 484	28,53	18 655 484	44,10
Component 5	750 000	13,57	3 900 000	9,22
Component 6	100 000	1,81	300 000	0,71
Total	5 526 484		42 305 484	

To progress in each of these components and to achieve their associated outcomes, it was anticipated that the project work with six notable stakeholder groups:

[3] At project inception the South African Department of Energy (DoE) was the contracted government department responsible for SANEDI. In June 2019 the Department of Energy merged with the Department of Mineral Resources to form the Department of Mineral Resources and Energy, (DMRE). For the sake of consistency, the report will refer to the DMRE throughout.

[4] Not all the co-financing was realised. For the actual co-financing arrangements, please see Table 8

[5] This includes co-financing from a variety of sources. See Table 5.

- **Government departments**: the Department of Mineral Resources and Energy (DMRE), the Department of Trade, Industry and Competition (dtic), and the Department of Forestry, Fisheries, and the Environment (DFFE),
- **Government agencies:** such as the National Cleaner Production Centre of South Africa (NCPC) and the South African National Energy Development Institute (SANEDI),
- **Industrial enterprises** (and selected commercial) and their staff,
- **Financial institutions**, prospective financial institutions, and international financial institutions such as SASFIN Bank, the International Financial Corporation (IFC) and the German Development Bank (KfW),
- **Training institutions** and companies including Universities of Technology; Further Education and Training (FET) Colleges; Private Training Providers and Workplace Training Providers, and
- **EnMS and ESO practitioners** and consultants.

The project was implemented by UNIDO which provided technical support, coordination, and oversight under the mandate of the GEF. It was coordinated by a Project Coordinating Unit (PCU) staffed by UNIDO, SANEDI, NCPC, and dtic, which was advised by a Project Steering Committee (PSC).[6] The PSC was designed as a collaborative body for representatives of government departments, government agencies, and private sector associations. In reality only public sector representatives and UNIDO sat on the PSC. Together with the UNIDO Project Management Team, the NCPC and SANEDI were central to the implementation and the reporting for the project.

Phase II of the project started in December 2015 and underwent a midterm review in February 2020. It was completed in September 2022, after being granted several no-cost extensions, related to both the underachievement of targets, and later because of COVID-19 pandemic related delays.

[6] In the record of the first PSC meeting, 25/10/2016, the PSC was noted as an advisory and oversight body, making recommendations, and not decisions.

2. Methodology

This evaluation was conducted in accordance with the UNIDO Evaluation Policy, the UNIDO Guidelines for the Technical Cooperation Project and Project Cycle, and UNIDO Evaluation Manual. In addition, the GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations, the GEF Monitoring and Evaluation Policy and the GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies were applied. The evaluation was carried out as an independent in-depth exercise where all key parties associated with the project were informed and consulted throughout the process. The evaluation team leader liaised with the UNIDO Independent Evaluation Unit on the conduct of the evaluation and methodological issues.

2.1. Overall evaluation approach and data collection

The evaluation used mixed methods to collect data and information from a range of sources and informants, including both primary and secondary sources, and a theory of change approach[7] to analyse the collected data. Data collection methods included: documentary review, stakeholder interviews, observation, and site visits. The evaluation team triangulated the data before drafting the assessment, lessons learned and recommendations.

2.2. Evaluation framework

The evaluation purpose and objectives, theory of change, and the evaluative requirements of both UNIDO and the GEF all provide the basis for the evaluation framework, (**Error! Not a valid bookmark self-reference.**), which in turn underpinned and guided the evaluation. The framework is structured against the standard OECD-DAC criteria agreed for the evaluation (relevance, coherence, efficiency, effectiveness, sustainability). In line with UNIDO Evaluation Manual and acknowledging the early nature of the project's potential contributions to long-term impact, the evaluation will assess 'progress to impact' of the project.

2.3. Logical framework

The framework identifies key evaluation questions, supported by guiding sub-questions. The framework was also informed by a set of indicative questions presented within the evaluation TOR. Each of the sub questions was used as a root question to develop pertinent, probing questions to guide both documentary review and stakeholder interviews. In the case of the latter, these sub questions were used as root questions to guide semi-structured interviews.

A logical framework outlining the proposed impact, outcomes, and outputs of the project was drafted as part of the project inception documents in 2015.[8] This document guided project implementation and was core to determining the extent to which the project progress can be assessed as satisfactory or unsatisfactory. This logical framework was used as a foundational instrument in this terminal evaluation. A full

[7] The theory of change will depict the causal and transformational pathways from project outputs to outcomes and longer-term impacts. It also identifies the drivers and barriers to achieving results.

[8] The project logframe, and commentary against its achievements is included in Annex 8.

logframe with comments is provided in Annex 8, but a summary table is shown below in Table 3.

Table 3: Summary logframe showing project objective and outcomes

	Narrative	Target
Project Objective	To accelerate and expand the introduction of Energy Management Systems (EnMS), Industrial Energy Systems Optimization (ESO), and the Energy Management Standard ISO50001 within the South African industrial (and selected commercial) context in order to realize increased investment in industrial energy efficiency (IEE) through the wide-scale adoption of the two methodologies and ISO 50001 under (i) enhanced institutional frameworks and regulatory environments, (ii) technical and implementation assistance to industry and (iii) multi-level engineer, technician and operator capacity building programmes	Cumulative direct emission reduction of 3,280,000 tCO2e
		Indirect emission reduction of 25,233,800 tCO2eq from 2020 to 2029
		Implementation of EnMS and ESO improvements in 150 enterprises lead to lifetime fuel and energy savings of 32,422,400 GJ Primary Energy
Outcome1	Strengthened energy planning (and related energy and GHG emissions reduction target setting) through improved data and reporting on energy consumption and potential savings under EnMS and ESO	Industrial subsectors baseline mapped for energy use and benchmarked for EnMS and ESO potential
Outcome2	Enhanced promotion of investment in IEE through strengthened policy and regulatory frameworks and support to increase the uptake of energy management standards	2 revised / enhanced policies / regulations that support increased investment in IEE
		25% increased national accredited certification capacity for SANS/ISO 50001 Series
Outcome3	Expansion of the EnMS and ESO capacity building programme with the inclusion of new ESO topics and multi-level enterprise trainee courses under parallel NQF institutionalization and market capacitation enhances the capacity of the South African industrial sector to implement EnMS and ESO and achieve energy savings	150% increase in national EnMS and ESO trained capacity
		NQF Occupational Qualification Course materials are developed
		Professional body for EnMS and ESO practitioners working group is established
Outcome4	Access to finance increased with the energy and cost saving benefits of EnMS and ESO proven within the South African industrial context, with industry actively and progressively pursuing enhanced IEE	Mix of 150 enterprise EnMS / ESO implementations under the Project's Demonstration Programme
		Increased access to IEE incentive mechanisms (200 enterprises accessing incentives). Local banks provide finance for IEE (10% increase in loans for IEE investments)
Outcome5	Enterprise management (across the entire South African industrial sector and selected commercial sectors) is aware of the potential financial, economic and climate change mitigation benefits that adopting EnMS and ESO can yield	51% of individual enterprises aware of financial and energy benefits of IEE, EnMS and ESO and the potential energy and financial benefits
Outcome6	The GEF Project is fully monitored and evaluated under periodic implementation assessment of impact, based on the 'Theory of Change' methodological approach	Theory of Change operational
		Scheduled monitoring, evaluation or impact assessment exercises undertaken

The logframe was not revised during the project. Several respondents mentioned revised logframe targets but other than reports to the PSC, were not able to provide documentation supporting these revisions. Beyond records of these meetings, there was no supporting documentation explaining, for example, the rationale for the changes, the impact of the changes on the overall project and its anticipated outcomes, or the budgetary implications of the changes. These changes were also not highlighted in the Theory of Change workshop, which was held midway through the project, even though lack of progress towards their achievement, was noted. The midterm review shows no

evidence of changed targets. Based on these conversations with project respondents, the evaluation team sought the advice of UNIDO's evaluation officer. It was agreed to continue to evaluate the project according to the terms of reference that reflected the original logframe targets.

2.4. Theory of change

A theory of change maps out the causal pathways that a project anticipates it will follow in implementation, tracking the actions, processes, actors, external factors, assumptions, and outputs that contribute to the project's mechanisms of change. Through regular reflection on progress and using the theory of change as a tool, a project management can amongst other things, track changes to its implementation process, and provide commentary on the speed of its implementation. All of these are useful tools for reflection in an evaluation of the project.

The theory of change is mentioned regularly throughout this project's documentation. An initial theory of change for the project was developed in the 2016 and was reviewed in 2019.[9] The target changes referred to above, and their impact on the overall project, were not reflected in the revised theory of change. As part of the evaluation, the evaluation team tracked project implementation against the original theory of change to assess the project performance.

2.5. Evaluation methods

The evaluation team collected data using several methods, including:

- **Documentary review:** Documents related to the project, including the original project document, monitoring reports (such as progress and the midterm review report), technical reports, and relevant correspondence as well as notes from committee meetings were reviewed for two purposes: (i) to provide answers to the evaluation questions and (ii) to guide the evaluators in their interviews with key stakeholders.
- **Stakeholder interviews**: Stakeholder interviews for the evaluation team were facilitated by UNIDO. Semi-structured interviews were held with stakeholders from some of the stakeholder groups identified above. Where organisational stakeholders were identified the evaluation team tried to identify and interview key representatives who played a significant role in the organisation's participation in the project. Interviews were conducted both in person and remotely. As far as possible both members of the evaluation team conducted interviews, but in some cases, often because of time differences, only one team member was available. After seeking the permission of the respondent most interviews were recorded. A list of respondents is provided in Annex 3.
- **Field visits in South Africa:** A two-week site visit took place between the 13th and the 24th of June 2022. Seven site visits to participating organisations and institutions were conducted. The evaluation team also met with members of the

[9] Both theories of change are included in Annexes 5 and 6. In response to the initial draft of this report, SANEDI reported conducting an additional theory of change workshop focussing on components 1 and 2 in November 2020. The results of this workshop were not made available to the evaluation team. An alternative theory of change developed by the terminal evaluation team is presented in Annex 7.

PSC and presented emerging findings to the final PSC meeting. A list of these sites is provided in Annex 4.

- **Observation:** During the site visits some observation was conducted and this data was fed into the overall data set for analysis.

2.6. Analysis and reporting

Collected data was categorised following the structure of the evaluation framework and, in alignment with the UNIDO and GEF guidelines identified above, the evaluation rated each of the project components, in alignment with the Terms of Reference, against a six-point scale, ranging from 'highly unsatisfactory' to 'highly satisfactory,' (See Table 4).

Table 4: UNIDO project rating scale

Rank	Score	Definition	Category
6	Highly satisfactory	Level of achievement presents no shortcomings (90% - 100% achievement rate of planned expectations and targets).	Satisfactory
5	Satisfactory	Level of achievement presents minor shortcomings (70% - 89% achievement rate of planned expectations and targets).	
4	Moderately satisfactory	Level of achievement presents moderate shortcomings (50% - 69% achievement rate of planned expectations and targets).	
3	Moderately unsatisfactory	Level of achievement presents some significant shortcomings (30% - 49% achievement rate of planned expectations and targets).	Unsatisfactory
2	Unsatisfactory	Level of achievement presents major shortcomings (10% - 29% achievement rate of planned expectations and targets).	
1	Highly Unsatisfactory	Level of achievement presents severe shortcomings (0% - 9% achievement rate of planned expectations and targets).	

The evaluation team analysed the collected data, and matched this against the project's theory of change, to determine where the audience might learn from the project's achievements and shortcomings. The team then rated the project according to UNIDO and GEF criteria, and developed emerging findings, lessons learned, and recommendations.

Following a presentation of emerging findings to the PSC, additional information was provided to the evaluation team. This data was then assimilated, and a draft final report was circulated to UNIDO, SANEDI, and NCPC. Comments[10] from these institutions were then addressed in this final report.

2.7. Changes to the proposed methodology

The evaluation team were adaptive in their data collection, and as a result there were several proposed processes in the inception report that were not followed in the field.

Institutional interviews: In the inception report, training institutions and financial service providers were identified as possible institutional representatives. The project had no substantial interaction with any of these types of providers, and as a result none were interviewed.

Government departments and agencies: In several interviews with respondents from government departments, it became apparent that the Department of Higher Education

[10] A separate comments tracker was submitted to the UNIDO Independent Evaluation Unit together with this final draft.

and Training, (DHET), played no ongoing, active role in the project. Similar findings emerged regarding the South African Bureau of Standards, (SABS). No interviews were conducted with these departments and agencies.

Industrial and commercial enterprises: In the original project design and in the early stages of the project the National Business Initiative, (NBI) was identified as a role-playing stakeholder. However, as an institution they opted to participate in another project and played no substantial role in this project. The organisation Business Unity South Africa (BUSA) played no role in the project. No interviews were conducted with these institutional stakeholders.

Site visits: The project facilitated site visits for the evaluation team in the Western Cape, in KwaZulu-Natal and in Gauteng. The evaluation team was provided with a list of businesses which had participated in the project, and chose several potential respondents, spread across economic sectors. However, due to several reasons including a lack of response, the lack of availability of specific personnel, and in the case of a KwaZulu-Natal due to severe flooding, several businesses were not able to host the evaluation team. The evaluation team identified other potential sites to visit, and where possible these requests were accommodated.

Unavailability of specific personnel: In two of the planned site visits individuals who had participated in the actual project were not available to participate in the evaluation interviews. In one case the evaluation team met with company representatives that were recent appointments and were not able to speak with confidence about the company's participation in the project. The evaluation team terminated this visit early. In a second case where it became obvious that a similar situation would emerge, the visit was cancelled a few days before it was scheduled.

2.8. Challenges and limitations

As with many evaluations, a considerable amount of qualitative data was based on individual perceptions feedback and opinions. To mitigate any subjective bias, data was - as far as possible - triangulated across sources.

There was a substantial loss of institutional knowledge within the project itself through the natural replacement of personnel. While project personnel who had played a role in earlier parts of the project generously made themselves available for interviews, the lack of their institutional knowledge often left gaps in tracing the rationale and context of decision making. This had significant implications for the theory-based component of the evaluation.

The evaluation was contracted against the specified Terms of Reference. In interviews some respondents reported that the specified project targets had been revised, but on further enquiry were not able to provide the evaluation team with documentary evidence of these revised targets, other than PSC reports stating that targets had been achieved. The evaluation team sought guidance from UNIDO evaluation officer regarding this issue and were advised to conduct the evaluation against the Terms of Reference.

The appointment and contracting of the evaluation team was made as the project entered its final phase of operation, and the project team were requested to assist with arranging site visits at relatively short notice. This impacted on the availability of sites which could accommodate the evaluation team. As a result, there was no representative sampling for site visits. While this may impact on detail relating to some of the findings, the evaluation team is of the opinion that this limitation would not have significantly influenced the overall evaluation rating or the theory-based findings.

Recent floods in KZN, a province of South Africa, impacted on site visits and interviews in the province. One interview was cancelled, and one site visit was restricted, as the one section of the business was closed because of food damage to a downstream customer. These limitations did not significantly impact the overall quality of the data collected.

A few weeks before the site visits, the South African government lifted most COVID related restrictions which allowed the evaluation team to conduct site visits.

3. Evaluation findings

3.1. Progress to impact

The SA IEE II phase II was designed to contribute to improved energy efficiency in South African industry and the adoption of international energy efficiency standards, tools, and metrics through an improved regulatory environment, improved technical capacity building, and the provision of technical assistance. However, there were a complex array of barriers and assumptions to be overcome, importantly including internal capacity and willingness to participate of responsible government departments and institutions. This capacity and willingness on the part of the government for ongoing engagement is identified in the 2015 Project Document as a key assumption.

The SA IEE II had a moderately positive effect in terms of economic performance and social inclusiveness (contributed to cost savings of companies; changes and improvements in training) yet it is very unlikely that the proposed expected long-term effects will be materialized, given that the conditions for a transformational process are not in place and there appears to be little in place to promote the project's advances beyond the end of the project.

There are some positive developments including a draft National Energy Efficiency Strategy (NEES) submitted to Cabinet for approval (current NEES is from 2016) but without any date set for approval; and it is unclear to what extent the current project contributed to this strategy.[11] There is also a tax incentive to provide support to some businesses that undertake IEE interventions. This incentive was in existence before the project, but the project has developed material to communicate its benefits. However, the continuation of the incentive is fully dependent on yearly budgetary negotiations and eventual appropriations. It is not clear to what extent this is a budgetary priority.[12]

One of the design phase assumptions was the "authorities' commitment and participation" however institutional stakeholders have displayed a varying degree of engagement, which was essential to drive the intended impact. Government departments formally confirmed their interest, and in some cases, their financial commitment, in the design phase of the project but this did not translate directly into an active participation during implementation. This lack of participation in turn affected the trajectory of specific outputs and outcomes, especially those impacting on the regulatory environment.

In the deployment of the SA IEE II, the first component[13] did not reach the prescribed output target. The project only baselined, mapped, benchmarked, and assessed 2 out of the 8 industrial subsectors. Several interviewed stakeholders suggested that there was a tacit agreement amongst the parties that the number of studies be reduced, but the evaluation team could find no documentary evidence of this agreement, and the

[11] The project currently under evaluation formally launched on 1 December 2015.
[12] SANEDI reports that 12L tax incentive scheme is extended from 2022 to 2025, and that this is, in their opinion, an indication that energy efficiency is a high priority within the South African government. It is not clear to what extent the project contributed to this extension.
[13] Component 1: Data Quality Improvement to Facilitate Data Rich Industrial Energy Efficiency and Energy Management Policy Implementation.

logframe against which the project is assessed reflects the target of 8 studies.[14] It is highly unlikely that these two components would be able to contribute to the expected outcomes and intended impact. The fourth component[15] did not meet the targets set for advising, matchmaking, and providing targeted technical support to promote investment in EnMS and ESO projects.

Consequently, without data to assess the opportunities in several of the industrial sectors, which in turn may influence the policy environment, creating a more facilitative regulatory environment, nor the engagement financial sector and the subsequent financial mechanisms to promote industrial investment in IEE it is unlikely the SA IEE II will promote the envisaged transformation regarding IEE uptake in South Africa.

However, two elements – the embedding of technical assistance and the building of awareness about energy efficiency - may have contributed towards the intended impact. However, both elements faced some challenges in implementation.

First, the expansion of EnMS and ESO capacity building courses and the developing of training material to administer and train workers, along with the institutionalization of EnMS and ESO training courses within the National Qualifications Framework (NQF), increases the possibility of mainstreaming EnMS and ESO in South Africa. The process of embedding the curricula within the NQF has begun, but at the time of the evaluation has not yet gained traction.

Second, the communications strategy and associated activities to raise awareness, have promoted the IEE message. However, the communications component was hampered by the lack of progress in other components and was only able to communicate progress in areas of achievement. In areas where there was little or no progress (e.g., progress in components 1 and 2, qualifications at NQF level 5 and below, financial incentives and vehicles for funding IEE, etc) no communication was possible.

3.2. Project design

3.2.1 Overall design

The project followed on the back of the success of the 2010-2016 UNIDO 'South Africa Industrial Energy Efficiency Improvement Project (SA IEE Project)' to further assist the Government of South Africa to capacitate the industrial and engineering sectors in the methodologies of Energy Management Systems (EnMS) and Energy Systems Optimization (ESO) and ensure long-term and sustainable improvements in energy performance within the industrial sector. SA IEE II sought to increase IEE in South Africa by contributing to national efforts to improve energy security and electricity supply continuity. The ambitious scope of this second phase expanded to include influencing the regulatory environment by improving the quality and process of data collection and analysis to support and guide energy frameworks and policy implementation, and to this end this project expanded to include SANEDI as an

[14] According to the 2018 Progress Update Report (GEF ID:5379) the eight industrial sectors were identified as: Industrial sector baseline studies in agro-processing, Claybrick, Cement, Automotives, Pulp & Paper, Mining and Chemicals and Liquid Fuels undertaken and expected to last throughout the Project. The midterm review of June 2020 confirmed this selection.

[15] Component 4: Investment Promotion in IEE through EnMS and ESO Demonstration and Financial Mechanisms and Incentive Access Support for Industry and Selected Commercial Sectors

executing partner. These changes were partly in recognition of the significantly constrained South African government's capacity for IEE policymaking and implementation.

To this end two of the five components and just over 20% of GEF funding[16] focussed on improving data, systems, and processes within the regulatory environment to improve the recognised constraints. The outputs and anticipated outcomes of the SA IEE II is highly consistent with national priorities. The provision of technical assistance and policy formulation was designed to overcome these recognised constraints. However, several barriers prevented the realization of strategies resulting in incomplete plans hindering the success of policy and legislative measures to achieve improved IEE.

The project could have benefited in the design stage from bringing on board policy and technical counterparts from the national institutions along with private sector representatives, to develop ownership of the interventions, to facilitate implementation, and to communicate to target groups accordingly. The project could have also been benefited from the engagement of the educational sector in the design phase in particular involving (i) the Technical and Vocational Education and Training, (TVET), sector to contribute to the capacity building pillar, (ii) trade associations involvement regarding pipeline development, and (iii) financial lenders and other financial stakeholders to contribute to the design of the outputs relate to financial incentives. Related to this latter example, PSC minutes from 13 September 2019 recognise that there are a number of constraints that the project faced in trying to engage commercial banks in the lending process, without having involved them in the project design. The midterm review similarly identified this as a constraint, commenting, "stretched resources and competences of the NCPC-SA, the Evaluation Team would question the extent to which the needed expertise and networks are available to deliver on this aspect [Outputs 4.2 and 4.3] of the component." The midterm theory of change workshop recognised these shortcomings but overlooked the opportunity to redesign the causal pathways (See Section 3.2.2).

A number of respondents reported that the DMRE representatives were not integrally involved in the design of this project, and this may have contributed to their protracted uptake and participation. These same respondents suggested that this oversight may have been exacerbated the apparent division between the DMRE and the dtic on energy related matters, and the fact that the two departments appear to work in silos in this area. The respondents suggest that the active involvement of DMRE representatives during the design phase might have mitigated against this and prevented later implementation problems. Further this lack of engagement from this key player was repeated until at least halfway through the project.[17]

3.2.2 Project theory of change

This is one of the first UNIDO projects that developed Theory of Change (ToC). A ToC development exercise[18] was carried out in 2016 resulting in ToC for four of the five

[16] See Table 2.

[17] The record of the reflection workshop on the project Theory of Change from April 2019 records the absence of DoE (DMRE) officials despite invitations to participate.

[18] The report from the midterm (2019) Theory of Change workshop appear not to reflect on the original ToC or to use this as a foundation to create a new ToC based on project experience. For example, core assumptions are listed as having high likelihood of being realised, and yet no alternative causal pathways are identified.

technical components[19] and an additional overall high level project level theory. Figure 1 illustrates this high-level project ToC.[20]

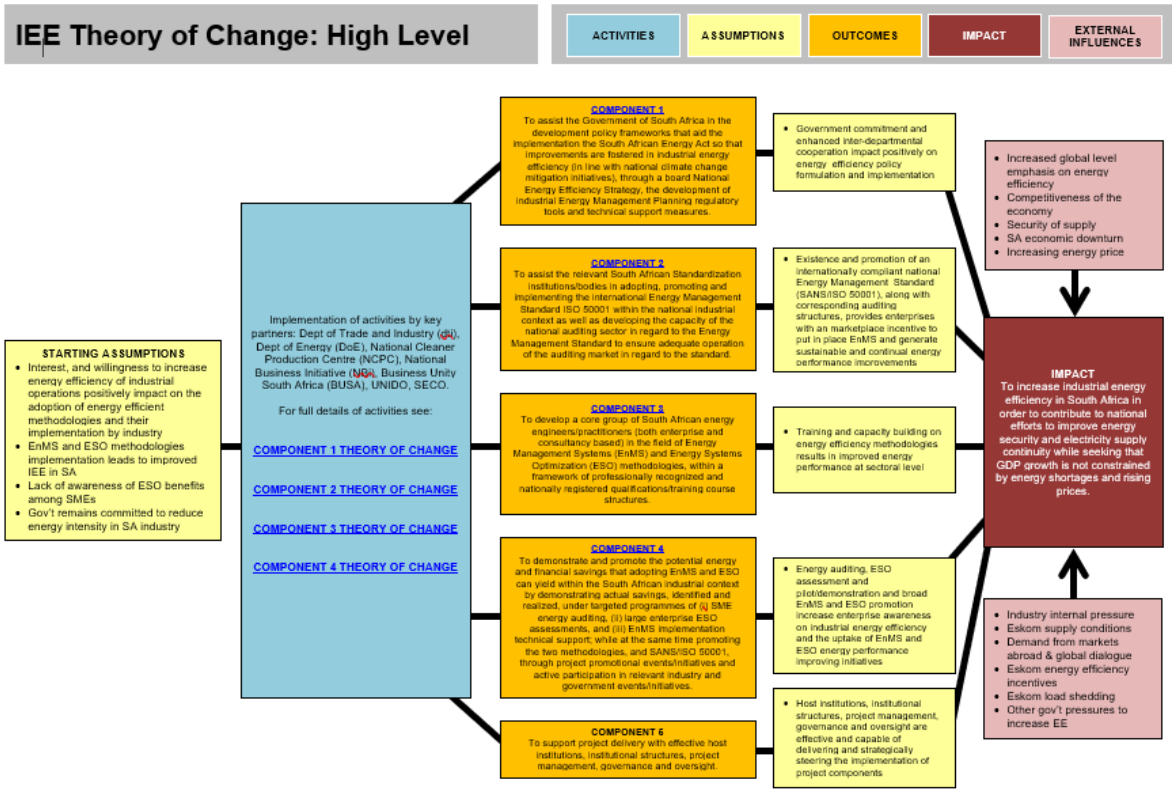
In each of the four components the design of the ToC is linear with little evidence of consideration given to outside influences or causal pathways. No consideration is given in the component ToCs for contributions to or from other project components. The rationale for developing standalone theories of change for components that should be integrated and mutually supportive is not clear. There is no integration of the components either in terms of their activities or outputs until the impact level, suggesting a lack of integration and interdependence between components. This artificial separation of components is particularly important for SA IEE II where the policy related changes would, over the medium to longer term, underpin both the development and uptake of financial mechanisms for IEE investment, and the increased demand and subsequent supply of technical capacity. Similarly, an increase of availability of appropriate financial incentives and vehicles, as well as appropriate communication of the same, would have influenced private sector uptake of investment in IEE.

The ToC reflects a project design that progresses along several unidirectional pathways and does not consider impediments, delays, or alternate options for progress. Pertinent and accurate risks and assumptions were identified. However, if some of the assumptions were not realised, suitable mitigation strategies and alternative causal pathways were not identified. For example, with the unidirectional nature of the causal pathways, and lack of integration between components, suggests that each component could deliver in isolation from the others. A cursory glance at the outputs and outcomes on the logframe reflects several opportunities for integration.

Ideally ToC should be used as a reflective tool, guiding the development of project progress, and considering means for overcoming or circumventing challenges. A ToC workshop was held with UNIDO and NCPC representatives in 2019. Several challenges were identified during this exercise which could have been used to reconceptualise the project, to suggest a redeployment of resources, or to redesign the implementation strategy. However, a revised ToC was developed that envisaged the ongoing impact of the project after its close.[21] Assumptions that were not realised in the first iteration of the ToC remained unrealised in the second iteration, and the central importance of these on the project and the potential impact on project performance did not change the strategic direction of the project, or its implementation strategy.

[19] There appears to have been no ToC developed for component 5, although aspects of this component appear included in the ToC for component 3 and component 4.
[20] This high-level ToC is replicated in Annex 5 together with the component specific ToCs which follow a similar structural pattern.
[21] A copy of the 2019 ToC is included in Annex 6.

Figure 1: IEE high level theory of change (2016)



SANEDI reports holding a separate ToC session in 2020 to focus on its responsibilities within the project. The fact that this was a separate ToC session reinforces the points made above regarding the siloed, non-integrated way the programme was designed and implemented, negatively affecting the project's intended impact.

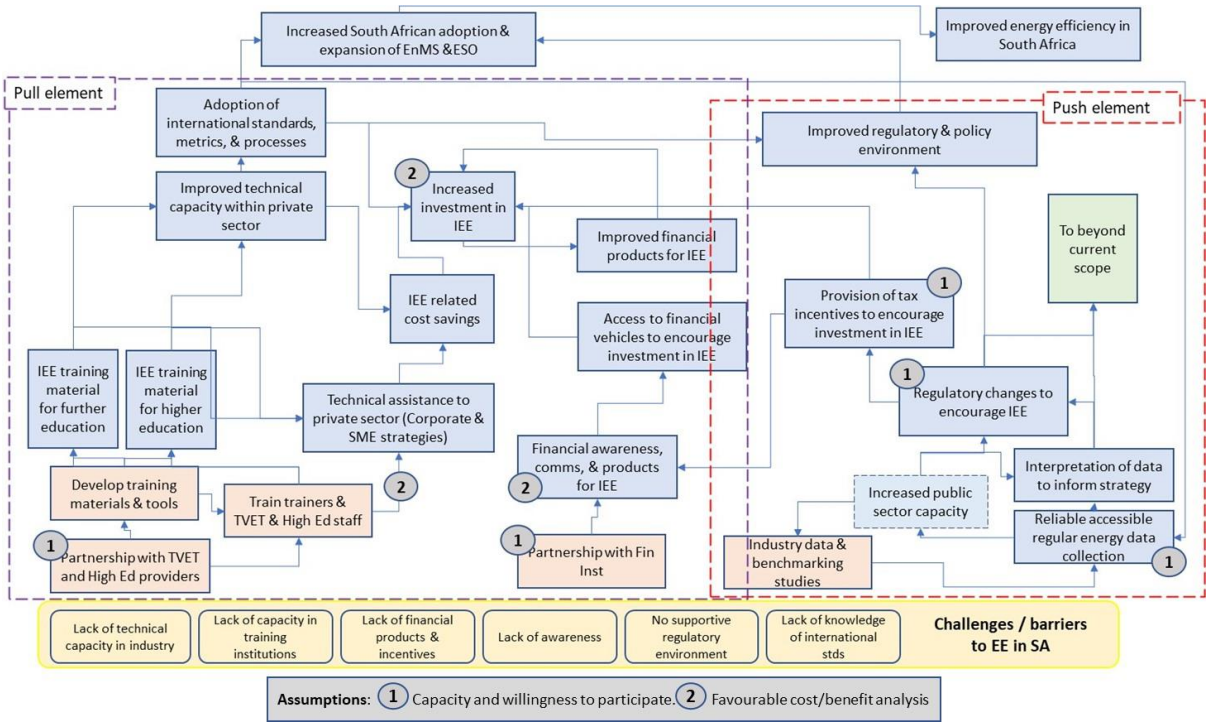
As part of this terminal evaluation, the evaluation team prepared an alternative ToC, (See Figure 2), that might have been used to guide the project in its implementation.[22] This ToC integrates the various components, allowing for some alternative pathways to impact. This alternative ToC identified the challenges the project faced in mainstreaming IEE thinking, adoption, and investment. It suggests that there are two interdependent but separate components to the implementation strategy. The first is a "push" element strategy where regulatory authorities collect, analyse, and use energy related data to inform energy strategies and policies, and which influences the development of industry incentives to implement IEE practices. The second is a "pull" element where commercial players and industry, recognising the benefits of implementing IEE practices, and working within a more facilitative regulatory environment, taking advantage of tax and financial incentives, demand technical capacity from training service providers, and demand appropriate financial products from financial institutions.

Two key assumptions are identified; the first that there is sufficient willingness and capacity to engage in the project, of particular importance when working with the public sector entities, and that the benefit of both developing financial products and

[22] A larger version of this alternative ToC is available in Annex 7.

investing in both IEE capacity and technical infrastructure is seen as beneficial by stakeholders.

Figure 2: Terminal evaluation alternative theory of change



3.2.3 Project logframe

The expected result-chain (impact, outcomes, and outputs) reflected in the original project logframe is clear and logical. Generally, the indicators measure results and change at each result level. Yet the scope of the indicators is ambitious in parts,[23] with significant assumptions. In hindsight it is possible that the success of the first phase of this project influenced the ambitious nature of Phase II despite the assumptive challenges.

In some places it is not clear in what way the indicators contribute to the achievement of the specific output, and a comprehensive ToC would have aided this understanding and process. While most of the indicators have quantifiable targets, some are less specific and measurable[24], and as such are open to vagaries of interpretation. For example, what constitutes a large enterprise as opposed to a small or medium enterprise (SME), as outlined in Output 4.1? Similarly, a strict interpretation of the 2016 Theory of Change would suggest that there is no overlap between the women delegates attending various capacity building initiatives (Outputs 3.1 and 3.3). A more holistic view of the ToC, envisaging a project with integrated initiatives may encourage this overlap. Performance indicator methodology sheets[25] or similar may have assisted in addressing these shortcomings.

[23] The ambitious nature of the targets is also mentioned in the midterm review.
[24] For example, a target for Output 3.3 is "A professional body for IEE practitioners is established" with no clear indication of what constitutes this achievement.
[25] See for example, https://usaidlearninglab.org/sites/default/files/resource/files/performance_indicator_reference_sheet_pirs_ads_maf_r.doc

A number of the indicators[26] were unrealistic and inconsistent with the activities and stakeholders' awareness, especially those in the private sector. Respondents from within the project, also reported that there were too many stand-alone key performance indicators[27] (KPI) against which they were required to report, and reporting against these impeded on their ability and commitment to deliver on the actual outputs.

It is not always clear the way in which outcome related targets indicate progress towards an outcome. For example, Outcome 1 is "Strengthened energy planning (and related energy and GHG emissions reduction target setting) through improved data and reporting on energy consumption and potential savings under EnMS and ESO", but the target associated with this outcome is an assimilation of the output targets, "Industrial subsectors baseline mapped for energy use and benchmarked for EnMS and ESO potential", and in no way indicates strengthened energy planning, or how this improved behaviour will be assessed or measured. A similar comment can be made in relation to Outcome 2. Outcome 3 focuses on the expansion of the capacity building programme, when it was possibly intended to focus on the enhanced capacity of industry to access improved technical capacity. As a result, the outcome focuses on the achievements of the project, rather than the change in the environment because of the project.

The logframe could have benefitted from clearer definition and in some cases the specific allocation of targets. Similarly, project reports stated that a number of targets have been exceeded, but in cases there is no quantitative target, making it unclear as to how undefined targets could have been surpassed. Much project reporting reflected outputs related to specific output *activities,*[28] the sum of which were assumed to equal the attainment of the output.

Changes to targets which respondents alluded to in interviews, were not recorded, leading the evaluation team to question the effectiveness of the project monitoring processes. For example, in several interviews, anecdotal evidence revealed that one of the reasons the number of benchmarking studies was decreased, was because in the opinion of some stakeholders, existing studies provided the same information. Other interviews alluded to capacity and time related constraints. In this instance the purpose, function, and even draft scope of a benchmarking study might have contributed to a greater understanding of their purpose and function within the wider project. In other instances, amendments were made to KPI targets, by executing agencies reporting them at PSC meetings. The minutes of the meeting simply record that the "adapted KPIs were shared"[29] and not that these were agreed to by the PSC, the Project Coordinating Unity (PCU), or by UNIDO, nor was a record of discussions regarding the implications for the achievement of logframe targets, the overall project regarding any revised targets, if there were any budgetary implications, nor to what extent these amended targets or

[26] For example, Outputs 1.1 and 1.2 are clear that 8 baseline studies need to be performed, but these were not revised even when it became apparent that this target could not be reached. Output 4.2 promotes access to finance, while there were no known financial services available.
[27] KPIs were introduced to the project as a subset of project outputs. In some PSC meetings components reported on the achievement of KPIs rather than on the achievement towards output targets.
[28] These are the KPIs referred to in footnote 27, above.
[29] See for example minutes of the PSC meeting 20 March 2020. The evaluation team were not provided with any documentation from the PCU.

processes affected the causal pathway towards the overall project outcomes and contribution to impact.

3.3. Project implementation

3.3.1 Relevance and coherence

South Africa faces considerable energy related challenges and constraints to increasing their power generation. These challenges impact on the effectiveness and the efficiencies of the South African economy. As a result, the part of the project focussed on increasing the energy efficiency of the private sector, of increasing capacity to improve energy efficiency and of publicising and promoting this as a business strategy were well placed and relevant.

Similarly, the project's intended impact to assist South Africa in decreasing its reliance on carbon generated power provided an opportunity for regulatory change, and changes in power use, well in advance of recent Conference of the Parties of the United Nations Framework Convention on Climate Change, (UNFCCC), (COP26) commitments. As a result, SA IEE II is consistent with South Africa´s stated priorities, UNIDO's Inclusive and Sustainable Industrial Development, and GEF´s priorities and policies. While the SA IEE II is a technically sound solution and completely in line with UNIDO´s comparative advantage, its scope and focus to drive the intended impact were limited.

The project was aware of and made moderate use of current legislation and linked with other non-project partners to further their purpose, e.g., trainers identifying tax incentives for companies that might benefit and identifying some educational stakeholders to embed the developed curriculum. However, some of these linkages could have been strengthened, resulting in a greater confluence of efforts. For example, only towards the end of the project did the project's relationship with the TVET sector to promote the adoption of the energy efficiency curriculum, gain momentum. This relationship might have been made earlier to promote uptake in Further Education sector, while in parallel promoting the uptake in Higher Education.

Further, while the overall project is relevant to the wider context, giving it external coherence, there are significant shortcomings in its relevance to groups of stakeholders, straddling components of the project design, its relevance, and its effectiveness. These shortcomings indicate weaknesses in the project's internal coherence. The absence of prioritising the regulatory and policy work which underpins the sustainability of the technical capacity, financial vehicles, increased investment, and greater adoption of international metrics, shows this internal incoherence. The debated absence of engagement of DMRE representatives in the project design, the lack of involvement and strategic communication with the private sector, financial institutions, and TVET colleges as integral stakeholders indicates low levels of project relevance to those institutions. This non-involvement of stakeholder groups, who are central to ongoing delivery, speaks to a project operating alone rather than one coherently integrated into its operating environment.

As an example, while the project design spoke to the involvement of the National Business Initiative[30] (NBI) this organisation chose to commit to another energy focussed project, funded by UKaid[31]. No replacement organisation was identified to engage with the project at this strategic level and the project moved forward with no private sector representation at PSC level, despite a significant portion of its budget being focussed on private sector implementation. The project did engage with private sector bodies and with individual companies during implementation, but none fulfilled the role anticipated for the NBI, and none were approached to be part of the project, but as beneficiaries of the project. A similar shortcoming relates specifically to component 4, which focussed on investment promotion and the promotion of support and incentives to access finance for energy efficiency interventions. Although in the design phase a co-financing letter was received from a commercial lending agency, their involvement at any stage of the project is not apparent. The project failed to generate momentum towards this component's objectives, despite access to finance for energy efficiency being a central challenge impeding private sector uptake of IEE. As a third example, a similar shortcoming relates to the involvement of TVET representatives in the development of curricula for component 3, a shortcoming that severely impacted the uptake of the developed curricula by TVET training providers within the project timeframe.

3.3.2 Effectiveness

The SA IEE II completed or partially completed five out of the thirteen outputs planned, achieving moderately satisfactory results. A copy of the project logframe, with the targets, the achievements and commentary is provided in Annex 8.

In terms of **Outcome 1**, two outputs were listed with targets. These original output targets[32] were not achieved, with only two of the original target of eight industrial baseline subsectors were produced. As a result, while there has been movement towards the outcome, this outcome has not been achieved.

Outcome 2 listed three outputs with the targets largely achieved. The outcome itself however was not achieved and points to an assumption that capacity building will result in changed behaviour (in this case enhanced policies and regulations).

Outcome 3 had three associated outputs with targets. Targets for the numbers of individuals trained were met or exceeded. These constituted the majority of targets for this outcome. Targets for other outputs were either not met or were partially met, to the extent possible by the project, with further delivery being the responsibility of stakeholders beyond the project. Taking the inadequate wording for this outcome into consideration (See Section 3.2.3), this outcome was largely met, with some aspects outstanding as a result of being beyond the project mandate.

Three outputs contributed to the achievement of **Outcome 4**. These output targets, and the outcome, were not met. In terms of the first output related to this outcome, the

[30] The National Business Initiative (NBI) is a voluntary coalition of South African and multinational companies, working towards sustainable growth and development in South Africa and is the South African representative of several global networks.
[31] UKaid is a challenge fund designed to support the UK's commitment to reducing poverty and achieving the Global Goals.
[32] As mentioned elsewhere in this evaluation, project respondents reported that the original target of 8 subsector baselines was revised to 2, but this is not supported by project documentation other than PSC reports.

targeted was disaggregated into 50 large and 100 small businesses. While the project exceeded this overall target in terms of numbers, if the disaggregation is considered, the project only achieved 54% of its SME target.

Two outputs contributed to the achievement of **Outcome 5**. In numerical terms these targets were substantially exceeded. However, given the project inclusive nature of the scope of the target, "Communication and awareness outreach activities to promote *uptake of policy frameworks, standards, learning circles, financing opportunities, training and capacity building activities*, and EnMS and ESOs," the project was unable to communicate opportunities and activities that had not occurred. This particular outcome wording is generic and is difficult to attribute progress directly to the project. Further it is not clear to what extent the outputs reached "enterprise management (across the entire South African industrial sector and selected commercial sectors)".

In terms of **Outcome 6**, two targets relating to the monitoring and evaluation of the project were achieved, although both the midterm review and the terminal evaluation were delayed. Further, in terms of the achievement of the outcome, the discussion above (Sections 3.2.1 and 3.2.2) speaks to weaknesses in the application of lessons and observations from the review process, and other weaknesses in the project monitoring processes. As a result, while the output targets were achieved, the outcome has not been achieved.

While the project plan was clear, parts of it were ambitious, given the capacity of the executing partners. Where this project built on the success of the earlier project phase, plans and targets especially for component 3 and for a large portion of the outputs of component 5, could largely be seen as an extension of this earlier process. However, for components 1, 2 and 4, institutional relationships needed to be established and developed. This, together with capacity and willingness to actively partner with the project, impeded early gains for components 1 and 2, affecting the overall impact of the project. The perception of the absence of the DMRE in the project design phase, discussed above in section 3.2.1, may have impaired the project's understanding of this department's capacity to undertake the project, which impeded the project's effectiveness, specifically the achievement of outputs in components 1 and 2.

Three reasons that prevented the SA IEE II from fully meeting its overall objectives are explored below:

- First, the premise about the government´s priorities and capacity assumed that the commitment from the public sector stakeholders and any required regulatory or institutional change would follow; and
- Although the project was designed to engage with both private and public sector entities, private sector involvement was absent from the strategic decision making or guidance from initial stages of the project. Any private sector participation was reactive and subject to direct engagement from the project, limiting their involvement to components 3 and 5. This lack of active engagement from the private sector in project design and planning, and the sector's reactive involvement during implementation impacted severely on some outputs, e.g., the development and roll out of financial mechanisms to fund business' uptake of energy efficient technologies.

- Further, the private sector was treated as a homogenous grouping, with no clear differentiation between different sectors, or between different sizes of business or different business sectors. It is well established that SMEs engage in business practices in a different manner to larger corporates. Appropriate engagement and communication vehicles need to be employed to effectively interact with SMEs. Further, the South African government has a stand-alone Department of Small Business Development (DSBD) and various small business financial initiatives. These were not approached to participate in the development of an appropriate strategy to engage with or communicate to SMEs or to explore opportunities to leverage their access to finance for SME IEE investment.

Project respondents reported that they would rather engage with a larger corporate entity that had the resources to implement energy efficient solutions, than a smaller business, which might have similarly needed the support but had limited resources to implement any solutions. It was felt that the uptake of solutions by a larger corporate provided the project with a greater achievement, for the same level of effort in terms of project engagement.

This project faced considerable implementation challenges. Annual reviews and the midterm evaluations spoke of, *inter alia*, challenges in terms of implementing components 1 and 2. While key informants have spoken about attempts to overcome these challenges with the respective government departments and agencies, these appeared to have little impact. One of these attempts involved a high-level visit from UNIDO headquarters to South African public sector stakeholders, but this may have been too little involvement, too late in the process, [33] although to some extent this visit reinvigorated delivery for components 1 and 2. The midterm evaluation summarised the effect of this institutional disagreement on the project as, "the profound disagreement… took far too long to resolve, with corresponding delays, missed synergies ... and perceptions of insufficient attention to protocol and respect for the host government's processes. The observed reluctance to proactively step in suggests an insufficient level of risk assessment and lack of timely oversight."

Even in the face of this "profound disagreement" small steps towards progress in components 1 and 2 were made because the responsible executing partner adopted operational changes at a day-to-day level. However, these had little impact on moving the components forward in the larger context. No opportunity was used to redesign or to refocus the project in the face of considerable challenges in the operational environment and delays in implementation. These delays and implementation challenges were further exacerbated by the COVID-19 pandemic and associated lockdowns. The pandemic provided an opportunity for the project to apply for and be granted no cost extensions, yet despite these, progress in several areas remained poor. One exception to this was the movement of the training courses to an online portal and offering attendance on the courses as free of charge to promote uptake.

While SA IEE II is perceived by stakeholders as a good initiative with a robust methodology, with a limited budget, and given the national institutional capacity and

[33] There is some debate as to whether it was the responsibility of UNIDO as a specialised UN agency to assist towards resolving the tension and move towards clarifying the mandates of the government agencies as this is beyond the scope of both the project and agency.

the absence of an enabling incentives and regulatory environment, its initiatives face difficulties in being adopted by a wider audience and being implemented sustainably. Wider inclusion at the design phase, (See Section 3.2) may have resulted in more comprehensive or sustainable changes in key sectors.

Based on the results above, each of the outputs was ranked according to the UNIDO ranking in Table 4, above. These results are displayed in Table 5.

Table 5: UNIDO rating per output

	6 Highly satisfactory	5 Satisfactory	4 Moderately satisfactory	3 Moderately unsatisfactory	2 Unsatisfactory	1 Highly unsatisfactory
Outcome1						x
Output1.1					x	
Output1.2					x	
Outcome2					x	
Output2.1			x			
Output2.2		x				
Output2.3	x					
Outcome3			x			
Output3.1		x				
Output3.2		x				
Output3.3	x					
Outcome4					x	
Output4.1		x				
Output4.2					x	
Output4.3						x
Outcome5			x			
Output5.1	x					
Output5.2		x				

Given the significant spread of these ratings, the evaluation team averaged these weightings per output[34], rounding up as needed, and multiplied these against the percentage of GEF budgetary allocation for each of the components. These results are displayed in Table 6 and present an overall rating for the project as a 4,08, rounded down to 4, or "moderately satisfactory".

Table 6: Output ratings calculated against budgetary allocation

Component	GEF Funding (US$)	% Of total GEF funding	Weighting as per Table 5	Final Output Rating
Component 1	400 000	7,24	2	1,8
Component 2	750 000	13,57	5	4,8
Component 3	1 950 000	35,28	5	4,8
Component 4	1 576 484	28,53	3	3
Component 5	750 000	13,57	6	6
Total	**5 526 484**		**Average**	**4,08**

3.3.3 Efficiency

The SA IEE II project received GEF funding of US$5.5 million and raised a co-financed amount of US$15.86 million, (Table 8). The SA IEE II used these funds for delivering the planned outputs and outcomes. Based on the final output ratings[35] given in Table 6 above, the evaluation team then used these weightings together with the value of GEF funding to determine efficiency of each component regarding the achievement of their

[34] Outcomes were not taken into consideration in these calculations for a variety of reasons including lack of outcome baselines and project attribution.
[35] Given that we are using the output ratings provided above, outcomes are not taken into consideration in this calculation.

respective outputs, (Table 7), Based on this assessment component 5 was the most efficient while component 1 was the least efficient.

Table 7: Efficiency ratio per component

Component	GEF Funding (US$)	Final Output Rating (Table 6)	Efficiency Ratio (Final Output Weighting/6) * %
Component 1	400 000	1,8	30%
Component 2	750 000	4,8	80%
Component 3	1 950 000	4,8	80%
Component 4	1 576 484	3	50%
Component 5	750 000	6	100%
Average	5 526 484	4,08	

SA IEE II adhered to a tight budget and reported regularly on its expenditure per component. Project expenditure did not exceed the agreed value. However, when it became apparent that co-financing from certain sources was not going to materialise, (Section 3.3.3.2) it may have been useful to revise activities and logframe targets. It would also have been useful to reflect these changes in a project theory of change, to ensure that the project was still on track to its final objective.

The project was slow in delivering on many of the output targets. Four major reasons delayed or prevented the delivery of these outputs. These reasons are outlined in more detail below but all of them contributed to the need for the project to extend beyond its 48-month to an 83-month project lifespan. These contributing factors resulted in many activities outlined in annual workplans being delayed to the next reporting cycle.

i. Staff turnover. The departments, with which the executing partners had working relationships, had a wave of turnovers, along with the hiring of project managers. These elements resulted in a steep learning curve for new staff appointments, and impacted project traction and output delivery.
ii. Competing responsibilities between departments. The responsibilities between DMRE and dtic had an overlap which created tensions between the departments.
iii. Institutional change. The Department of Energy and Department of Mineral Resources were merged, creating DMRE, which led to adjustments internally and externally; and
iv. COVID-19 pandemic. The measures implemented to address the pandemic put restrictions in certain activities, which resulted in reprogramming their delivery.

Given the complex array of barriers and assumptions the project could have leveraged a range of expertise beyond its immediate executing partners to increase its efficiency and assisting the project to achieve greater results. For example, involving commercial lenders may have allowed the project to facilitate the lenders' development of appropriate financial vehicles and communications regarding these opportunities, contributing to improved delivery of component 4. In contrast, but in the same vein of argument, the use of outside consultants to achieve the output deliverables of component 1 does little to increase internal public sector competence and understanding of the data and its purpose in the wider environment. This undermines the sustainability of the project with the public sector and speaks to longer term inefficiency.

3.3.3.1 Project management

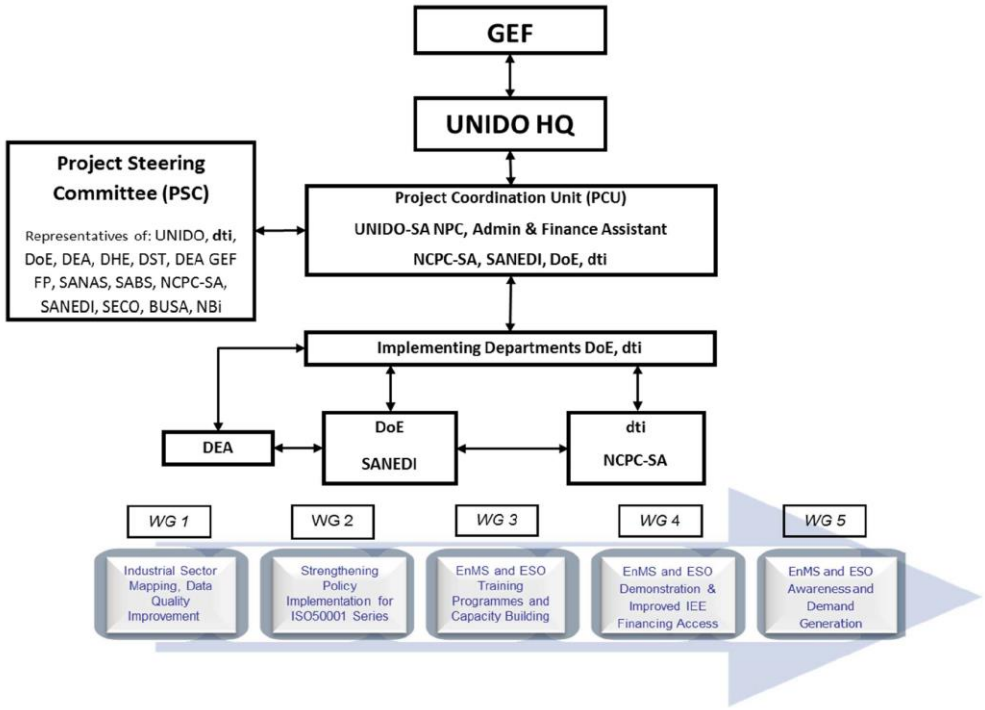
A project management structure was proposed in the project design phase (See Figure 3) and for the most part this structure was adopted and applied throughout the project implementation. Each of the bodies within this management structure had a specific purpose and ideally would have facilitated the smooth implementation of the project. Two executing partners were largely responsible for the implementation of the project activities, SANEDI and NCPC. While these agencies reported respectively to the DMRE and the dtic, they reported their project activities in parallel to the Project Coordination Unit, (PCU), which then reported to UNIDO and onward to GEF. The PCU was in turn advised and guided by the Project Steering Committee, (PSC), on which representatives of the project stakeholders sat. This representation and provision of strategic advice from partner institutions is vital to ensure the ongoing buy in and commitment of these institutions to the overall purpose of the project. The PSC met regularly and minutes of these meetings as well as presentations made at these meetings were kept.

There was considerable personnel overlap between one of the executing partners and the implementing agency. A number of key respondents, at the time of the evaluation, were working for UNIDO, but were interviewed as they had played a central role with the executing partners in the earlier project phase, or in the design or early implementation stages of the current project. Some of the current project management staff had also played a role in the same implementing agency at some point in time. This overlap in personnel can be both advantageous and a matter for concern. In the first instance, an intimate knowledge of the project, its institutional workings, the challenges it faces and its working environment, can assist a donor in managing a project more effectively, by ensuring targets, causal pathways, and timeframes are realistically achievable. However, the same overlap can also result in a lack of accountability and in the creation of an "inner circle" of knowledge that other participants in the project struggle to break into and contribute to the project in a meaningful manner.

In the opinion of the evaluation team this project was affected both positively and negatively by this personnel overlap. The intimate knowledge of the executing partner's working context and environment allowed for a realistic understanding of working constraints and processes, but this also may have impacted on the extent to which the partner was held to account and may have impacted on more potentially innovative solutions to project constraints and obstacles. Further, there may have been confirmation bias in favour of one executing partner, although this may also have resulted from the performance of one partner and the underperformance of the other.

Importantly component 6 and the responsibility for project monitoring is not provided for in the organogram. This might be because it is seen as an integral part of project reporting, upwards to UNIDO and GEF, and this possible oversight is unpacked more in Section 3.4.2

Figure 3: SA IEE II project organogram[36]



3.3.3.2 Co-financing

In the project design phase, different agencies were identified as potential co-financing partners. These additional funds were offered in co-financing letters and constituted a mix of both financial and in-kind contributions. A summary of these anticipated co financing sources is presented in Table 8.

Of the 11 sources of co-financing (total value US$38.8 million) four co-financing sources did not materialise (US$23 million or 59% of the co-financing budget, or 54% of the total planned budget). This resulted in a very constrained budget. It is not clear from project documentation or from respondents why co-finance did not materialise[37]. Small amounts of additional co- financing were sourced during the course of the project, but the lack of promised co-financing affected the project, delaying roll out and impacting on the achievement of targets.

With regard in kind co-financing there is no provided calculation of the number of hours or level of effort that the executing partners committed to fulfil this co-financing commitment. It is therefore taken as read that these in-kind contributions were provided and the level of effort to the project met the co-financing obligations in full.[38]

[36] Please note that this organogram is a jpeg capture from an earlier project document. DOE was a valid acronym at that time but should be read as DMRE for this report.
[37] The MTR does report that the "PIR 2018 indicated that SECO's withdrawal of its USD2 million funding commitment" but neither this report, nor the PIR 2018 provides any reason for this withdrawal.
[38] The MTR did report that "The CSIR's Financial Team is currently in the process of collating information in order to quantitatively report on the realised levels to date." No further information regarding these calculations was provided.

Table 8: SA IEE II value and sources of co-finance (USD)

Sources of Co-financing	Name of co-financier	Type of co-financing	Co-financing at approval	Co-financing at completion	NOTES
GEF Agency	UNIDO	Cash	$ 100 000,00	$ 100 000,00	Confirmed
GEF Agency	UNIDO	In-kind	$ 210 000,00	$ 210 000,00	Confirmed
National Government	the dtic / NCPC	In-kind	$ 10 000 000,00	$ 10 000 000,00	Confirmed (NCPC and the dtic participating in the IEE project)
National Government	the dtic & MCEP	Cash	$ 17 600 000,00		Unfulfilled
National Government	DMRE	In-kind	$ 1 000 000,00	$ 1 000 000,00	Confirmed (DMRE colleagues working with SANEDI on the IEE project, as well as participating in the PSC)
National Government	DFFE	In-kind	$ 50 000,00	$ 50 000,00	Confirmed (DFFE colleagues and the GEF focal point participating in the IEE project and the PSC)
National Government	CSIR	In-kind	$ 3 500 000,00	$ 3 500 000,00	Confirmed (CSIR colleagues working on the IEE project and participating in the PSC)
National Government	SANEDI	Cash	$ 900 000,00		Unfulfilled
National Government	SANEDI	In-kind	$ 1 000 000,00	$ 1 000 000,00	Confirmed
Bilateral Aid-Agency	SECO	Cash	$ 2 500 000,00		Unfulfilled
Private Sector	SASFIN Bank	Cash	$ 2 000 000,00		Unfulfilled
Total Co-financing			**$ 38 860 000,00**	**$ 15 860 000,00**	

3.3.4 Sustainability

Some of the benefits from the SA IEE II project outputs are likely to continue; most notably those associated with the development of the training curricula, alignment of the curricula with national standards, and the accreditation of the curricula and the trainers. However, it is not clear to what extent the curricula have been institutionalised within training providers, and to what extent there will be ongoing demand from industry for these changes. It is likely that the digitisation of the curriculum (an innovation resulting from the COVID-19 pandemic) will increase uptake and may allow for uptake in areas not originally envisaged, such as other southern African countries. Despite regular communications regarding the project's progress within industry media, it is also not clear to what extent this has catalysed change within the wider industry.

Results and benefits that are likely to be sustained after the end of GEF´s funding will do so for two main reasons: 1) some of the interventions delivered an outcome that would be permanent, e.g. certification manuals and accreditations; and baselines for some subsectors on energy savings potential; and 2) there is some follow-on funding secured to continue with some of the activities developed focused on training.

The lack of progress towards outputs in components 1 and 2 suggest that there has been little traction in the policy environment and a move towards data driven decision making in the relevant government departments. As a result, it is unlikely that any of the outputs that have been achieved in these components will elicit any form of sustainable outcome, or behaviour change. There appears to have been little traction in the financial environment influenced by component 4 and it is unlikely that any future change in this area could be directly attributable to the project.

While there has been uptake of energy audits and associated activities from participating businesses, it is unlikely these businesses have managed to act as catalysts amongst their own communities, attracting businesses in similar situations to follow suit. None of the site visits respondents were able to refer the evaluation team to any other business that might have begun a journey towards increased energy efficiency because of the participating business' journey.

The NCPC developed and presented a sustainability strategy. This strategy envisages the NCPC continuing some of the project activities beyond the project lifespan while ceasing to deliver on others. Certain activities, such as the provision of training, will fall to training providers, while the NCPC will continue to develop training material. The strategy does not speak to the sustained or ongoing uptake of the project deliverables such as curricula and training opportunities, offered beyond the NCPC, and it might be assumed by the NCPC that these will continue. Part of this sustainability strategy is to charge for some of the services, but it is not clear to what extent these will be able to continue without additional external funding. It is also not clear to what extent the proposed charges may act as a deterrent for some stakeholders, for example it is not clear whether TVET colleges or Universities of Technology would agree to pay a license fee to access training material, and this may perhaps negatively affect the greater dissemination of the material and skills, negatively influencing one purpose of the project, the wider spread and offering of technical capacity in energy efficiency. It is not clear to what extent any of these continued or new activities by NCPC will be sustained given the lack of transformation in the policy environment.

3.4. Cross cutting issues

3.4.1 Gender mainstreaming

As part of its component aimed at strengthening policy implementation and support frameworks, the project aimed to "focus on the promotion of gender equality aspects, where beneficial…" At approval, the project's gender marker was assigned as 2A, meaning that the project would pay significant attention to gender and was expected to contribute gender equality[39]. Further, gender is specifically identified as an aspect of project components, specifically in:

- Component 2 – where the project is to conduct an institutional needs assessment including "a review of industry related gender issues and how to actively promote increased participation of women in IEE",
- Component 3 – requiring the project to develop and deliver gender sensitive resource packages and learning materials in relation to its capacity building courses and specifically the development of "gender responsive TVET vocational-level EnMS and ESO teaching materials and teacher support packages",

[39] Since 2015 all UNIDO technical assistance projects have been assigned a gender marker and their design are screened based on a gender mainstreaming check-list before approval. UNIDO's gender marker is in line with UN System-wide action plan (SWAP) requirements, with four categories: 0 — no attention to gender, 1 — some/limited attention to gender, 2a — significant attention to gender, 2b — gender is the principal objective (https://www.unido.org/sites/default/files/files/2019-11/UNIDO%20Gender%20Strategy%20ebook.pdf)

- Component 5 – ensuring the project support gender inclusive marketing and communication activities, aimed at increasing interest and demand in the sector, specifically, to include an "extensive set of gender sensitive/inclusive awareness raising and communications materials and editorial pieces", and
- Component 6 – requiring the project's monitoring component to include gender as an active aspect of its monitoring, including ensuring gender awareness is reflected in the project theory of change, KPIs, and that gender related data is accurately tracked and regularly reported on, including speaking to possible gender related outcomes.

In review of these gender specific inclusions in the components:

- In component 2 no review of industry related gender issues and how to actively promote increased participation of women in IEE, although component 1's "Analysis of the existing legislative instruments and governance structures to determine relevance to Industrial Energy Efficiency" includes fundings and recommendations on gender mainstreaming. The project's gender impact study also reports that "SANEDI plays a key role to support the DMRE in this process and the development of the DMRE Women's Empowerment and Gender Equality Strategy which implies a voice and influence in energy policy development and implementation."[40] However, it is unclear to what extent this contributes to meeting the output of an institutional needs assessment.
- In component 3, the number of women trained by the project is favourable, given global and South African statistics. Women hold just over 33% of the jobs in the renewable energy sector as opposed to a global estimate of 32%. Of the 4800 people trained by the project, 41% were women. In addition, the project specifically targeted women in its capacity building initiatives through a focused requirement drive centred on Women's Month (August) where women could register for any SA IEE II training course for free[41], and ensured that women were consistently profiled in its communications. Given the absence of TVET accreditation of the training material it is not possible to speak to the "gender responsive TVET vocational-level EnMS and ESO teaching materials and teacher support packages."
- There was a strong gender focus on communication in component 5, with one respondent reporting, "Most of the gender mainstreaming efforts were to ensure all tools and communications products were inclusive".
- In component 6 the gender of participants in the projects activities was largely recorded and reported on. However, the project's original ToC does not reflect gender and there are not gender specific outcomes in the project logframe. Gender is reflected as a stand-alone item in 2020 ToC for components 1, 3, and 5.

While some of the project gender activities may have influenced some management decision making within participating companies there "is no outward evidence of the project's development of support tools for gender responsive EE policy development. In

[40] Mollmann, G., & Mackie, G. "Assessment of the Impact of the Industrial Energy Efficiency (IEE) Project in SA on Gender Mainstreaming in the Energy Efficiency Sector in South Africa," July 2022.
[41] The training course could be taken at any time, as long as registration was made during women's month.

addition, there are no systematic approach to document, attribute and learn from the IEE project's impact on improving the gender responsiveness of EE policies."[42] In keeping with this finding no respondent was able to speak to any gender related activity other than the women's month initiative and the communications directive of ensuring that women were profiled as part of all project communications. One respondent stated, "[Gender] was a big component, but also it wasn't…. I never had a conversation with a CEO about the role of women in their company."

While gender related activities were regularly reported, gender mainstreaming appeared to have fallen by the wayside for most of the project implementation. As an example, gender is not reflected in any of the project ToCs nor is it reflected in the project logframe except in output targets as disaggregated data. Gender played a significant part in project reporting and communication but is not integrated into the project design, thinking, strategy, and implementation. In other words, it is not mainstreamed.

3.4.2 Monitoring and evaluation and results-based management

SA IEE II does include a results-based management and reporting plan but does not include a monitoring and evaluation plan, although one is mentioned in the project document. The absence of project monitoring in the project organogram (See Figure 3) and its absence in any of the project theories of change may simply be an oversight but it might also speak to the weight and emphasis given to this project component in the project design and subsequent resourcing, despite recommendations.

In terms of results-based monitoring the project submitted regular refined workplans reflecting on what could be achieved in the next reporting period. These were used to assess progress and were also used as motivation to request no cost extensions. The reasons for these no cost extensions are presented in Section 3.3.3 above.

Results based reporting was largely reporting against activities rather than the achievement of outputs and their contribution to outcomes. Regular reporting by the project to UNIDO reported on the achievement of outputs. It is not clear if these reported outputs were verified. Simple foundational components of a monitoring system such as a clear and transparent filing system were partially established There was no attempt to monitor progress to outcomes other than where these targets were simply an assimilation of output targets.

Shortcomings regarding the logframe have been discussed elsewhere in this report but it was used as a regular reporting framework by the executing agencies. Although consistent with the logframe, some of the indicators and baselines were not in line with the targets set for the project. For example, the outcome 2 indicator reads "Revised and strengthened policies and regulatory frameworks", the baseline is "no strengthened IEE policies/regulation exist", but the outputs all relate to the provision of technical assistance (Sections 2.1 and 2.2), and training (2.3). There is no activity dealing with strengthened policies or regulations. While it is understood there is a need for increased

[42] Mollmann, G., & Mackie, G. "Assessment of the Impact of the Industrial Energy Efficiency (IEE) Project in SA on Gender Mainstreaming in the Energy Efficiency Sector in South Africa," July 2022.

capacity to improve the regulatory environment, the outcome should then focus on this increased capacity, rather than assimilating the output targets.

The project has a Theory of Change and a logframe, but the internal monitoring of the project was weak. For example, in the design phase there is no clear indication of how targets will be measured or how often this data will be collected. In implementation there is no clear unified system, independent of the executing agencies which collects, audits, verifies or simply collates the submitted data presented at PSC meetings. No supporting documentation other than the executing agencies' presentations is examined or retained as proof of execution and achievement. These shortcomings are despite a clear lesson from phase 1:

> *Analysis of the SA IEE II Project relieved that for such complex project, a robust M&E system should have set up from the start of project implementation in order to ensure proper data collection and analysis.*

The lesson further advised that:

> *Under the GEF Project a M&E system will be established from the outset of the project which will focus on identifying what information is required (linked to the project's Theory of Change); aligning these requirements with the reporting requirements of Government (to avoid duplicity); creating formal data collection systems; and the updating of stakeholder contact details.*

This recommendation was not enacted in any viable sense, and there was no clear project results-based monitoring system in place. Measurements against output targets were not verified or audited in any fashion. The achievement of outputs was accepted as fact. Further, some of the reported KPIs and their relations to the output targets were subject to interpretation. Changed logframe targets are discussed elsewhere in this report and these changes were not formally recorded in any way, and no project results-based monitoring mechanisms were implemented to determine the rationale for the changes and the implication of these changes for the wider project.

The project appears to take little cognisance of observations made during monitoring reports, e. g. The GEF 2018 Annual Monitoring Report stated that "Ministries do not show interest in facilitating a conducive environment for increased IEE." While this resulted in a high-level engagement between UNIDO and the government, there was no change at the project planning or implementation level, either as a result of the statement or as a follow up as a result of the high-level exchange. While some aspects of the project were changed (although not recorded and communicated, as mentioned earlier), others appeared to elicit no change to the project planning (e.g., the absence of financial sector partners within component 4). It is not clear why some changes were implemented, and other opportunities overlooked.

As discussed above in Section 3.2, the theory of change was reviewed midway through implementation, but this appeared to have very little influence in the way the project was implemented.

3.5 Performance of partners

Four partner organisations participated in this project. The participation of each is dealt with below.

UNIDO was responsible for the conceptualisation and design of the project, and mobilised adequate technical expertise for its oversight and management, and implementation of the project. The organisation experienced considerable personnel turnover at both UNIDO head office, and subsequently within the PCU. The organisation reacted quickly to these personnel issues, but the turnover inevitably adversely affected project implementation. As recorded in the 2018 annual monitoring report, "two Project Managers left the team and a further two Project Managers went on maternity leave, almost within the same period of time. The loss of these key Project members was debilitating."

The UNIDO project management team consistently reported on time to UNIDO head office. The UNIDO project management team managed their budget well, with the use of funds, procurement and contracting of goods and services being implemented efficiently. When project extensions were considered the project management team negotiated these with UNIDO head office in a timely manner. An overall exit strategy was planned together with the implementing agencies to ensure that tools and knowledge would be left permanently in country.

The most significant project related challenge to which the organisation responded commendably was the high-level discussions with South African government representatives regarding the absence of active participation of the Department of Energy, the forerunner to the DMRE. After these discussions UNIDO made changes to the personnel at UNIDO head office overseeing the project. A follow-up to address implementation bottlenecks and the personnel changes helped support SA IEE II, however, a coordination mechanism to engage with different government ministries could have been beneficial had it been introduced earlier.

While UNIDO's performance in certain defined areas such as results-based monitoring could have been improved the performance of the project, taking the larger picture into consideration was remarkable. The evaluation team are of the opinion that UNIDO was faced with a unique and fluid implementing context and they responded and adapted as best could be expected.

GEF played a funding role in the project and disbursed funds in a timely manner.

Two main national counterparts were responsible for the implementation of the project, the dtic and its implementing agency, the **NCPC**, and the DMRE and its implementing agency **SANEDI**. For its part as a line department, the dtic actively engaged as both the chair and a member of the PSC, promoting national government ownership and involvement.

There was considerable variability between the performance of the two agencies' implementation. The NCPC mostly delivered on its components, while SANEDI had to overcome considerable challenges. These performance differences were largely because of three factors:

i. Political commitment from responsible departments. As has been pointed out elsewhere in this report, SANEDI is a line agency of the DMRE. While the project received political commitment from the DMRE in its conceptualisation, the level of ownership and obligation to the project differed between the dtic and the DMRE. The DMRE was reportedly not actively involved in the design of the original project and was not active in its early stages. As a result, SANEDI had difficulty in accessing resources and support and in developing traction to deliver on this project.

ii. Project and institutional memory. As identified earlier in the document, this project was built on the success of an earlier project, which had been implemented by NCPC. Much of the project resources was focussed on continuing the delivery and embedding these successes. NCPC were not required to overcome initial institutional inertia and were able to continue to deliver in line with their earlier track record. In contrast SANEDI had to overcome both institutional inertia, as well as political resistance. In areas where NCPC had little or no institutional knowledge and traction (e.g., component 4 and in working with TVET colleges), the agency did not perform as well.

iii. Internal capacity. Related to (ii) NCPC already had considerable internal capacity to deliver on their project components, while SANEDI needed to develop and allocate these resources. The difference in level of capacity can be seen in the levels of in-kind commitment to the project as per Table 8, above.

4. Conclusions, recommendations, and lessons learned

This section provides a summary of the evaluation's findings, which are underpinned by the preceding analysis and justifications, are the basis for drawing lessons, and recommendations in line with the evaluation's objectives.

4.1. Conclusions

Following on the success of the GEF funded first phase SA IEE, the second phase was designed as an ambitious project moving beyond the provision of increasing technical capacity and into the policy, regulatory, and financial arenas. The project aimed to influence the landscape in these areas by; building public sector capacity to gather and analyse EE data to inform EE planning and strategic decision making, by working with public and private sector training providers to sustainably offer the improved IEE technical training developed as part of the first phase, and improved upon in phase two, and by working with financial institutions to develop and offer opportunities for industry to invest cost effectively in IEE initiatives. These threads would combine demonstrating an increased uptake and application of international IEE best practice, measures, and reporting processes.

However, because of various influences explored throughout this report, the project is not likely to influence the South Africa EE operating environment.

Despite no cost extensions adding almost 75% timeframe to the project, only three of the five components either delivered or substantially delivered towards their output targets. While there is a lack of project data tracking progress to outcomes, observation within the socio-economic context suggests that there has been only moderate contribution of the project to two or three project outcomes.

Key weaknesses underpin these results; an ambitious project design with limited support, some public sector players significantly delayed processes that were vital to the success of the overall project, different components not integrated in their delivery in spite of being mutually interdependent, and a lack of involvement of key institutions as strategic partners denying them opportunity to actively participate, and a budgetary emphasis on the delivery of one component over others that may have had a more significant longer lasting impact.

As a result, we can draw several lessons and subsequent recommendations from this project.

4.2. Lessons learned

4.2.1 Project design

The project design was ambitious with multiple engagement pathways including finance, technical capacity, training providers, and policy. It drew on the success of an earlier phase which had gained traction and made considerable progress in the provision of technical support and the training. The multiple pathway second phase exposed several design weaknesses including:

- the lack of synergy and mutual interdependence of the multiple pathways, and the lack of mutual interdependence and cooperation of the implementing institutions.
- the budgetary allocation was skewed in favour of the delivery of training and technical assistance, when in hindsight, more support was needed in the policy and regulatory field.
- an apparent lack of engagement of key public sector stakeholders in key departments in the project design phase, and the lack of capacity in these institutions.
- the lack of active engagement with representative bodies from specific sectors (e.g., TVET, private sector, financial services), severely affected project traction. As a result, project implementation was also adversely affected.
- in the case of engagement with private sector representatives, the reliance on engaging with a single representative body.

A more flexible approach incorporating an understanding of the project's political context and environment could have ensured a more robust project design including a bespoke management and reporting structure.

It is recognised that the bulk of the resourcing for this project was committed to continuing the outputs of an earlier phase, which was considered successful. However, when viewed from a legacy viewpoint, the creation of a viable, enabling environment is essential. To this end the components targeting data, policy and institutional capacity within the regulatory environment should have been resourced and weighted more generously than they were.

4.2.2 Project implementation

The project was implemented well but also missed a number of opportunities that might easily have added tremendous value to the project.

The project may have more deeply embedded and substantially advanced the legacy of the training curricula had it earlier involved intended delivery institutions and leveraged their expertise to pursue engagement with the NQF at level 5 and below. In this specific case the public sector TVET are not encouraged to adopt independently developed curricula. Had the TVET sector been involved from the start of the project and assisted in co-creating the curricula and trainers' guides, the training material could have bene claimed as TVET initiated, and this may have increased the speed of quality assurance and the registration process. This process may also have assisted in the identification and training of personnel already in contact with industry, allowing businesses to upskill existing staff, possibly making use of their skills development levies.

The project adopted a homogenous outlook regarding their provision of technical support and had no effective strategy to engage with the SME sector appearing to treat engagements with these businesses in the same way as larger commercial entities. This is of particular importance, given the disaggregated data target of engaging with 100 SMEs. Several project staff mentioned preferring to engage with larger commercial entities as they had the resources to potentially implement IEE solutions. This speaks to

a lack of understanding of the challenges facing SME in terms of capacity, resourcing, and financial capacity.

A similar opportunity for the project to focus on, or to develop, nuanced engagement strategies for specific commercial and industrial sectors, was overlooked. Different sectors have diverse energy needs, and while the broad principles of energy efficiency may be applicable, designed instruments, tools, processes, etc specific to sectors may go some way to increase uptake within these specific areas. This lesson echoes the original project design of developing eight benchmarking studies, as well as the recommendation to SANEDI to "determine the state of each sector by developing industrial sector plans with targets to monitor policy, [calling] for a comprehensive analysis of the costs that energy efficient businesses incur"[43].

The absence of internal project skills to meet and deliver on the specialised targets, speaks to the need for the project to engage with other stakeholders where it needs specific skills. In contrast, where the project was supposed to promote an increase in capacity (e.g., component 1), the outsourcing of output delivery undermines this objective.

4.2.3 Monitoring and evaluation

SA IEE II is complicated and deals with a range of diverse stakeholders. The monitoring processes and allocated resources to support such a complex programme were inadequate.

Outcomes and their respective targets were not always well defined, nor was it always clear to what extent the outputs contributed to the outcomes. Similarly, outputs and their respective targets could have been better defined. In providing detail to workplans the executing partners developed KPIs related to outputs, but it is not always clear how the achievement of KPIs contributed to an output target. A better-defined set out outputs with contributing KPIs would have gone some way to overcoming this challenge. No verification processes were performed on the executing partners deliverables, and there is no central repository of evidence of outputs and outcomes.

Project decisions were made with no record of the key rationale for these decisions, and no record of their impact on both the project and the budget. The project had opportunity to refocus the project or redesign the scope and did not fully exploit these opportunities. There were opportunities where the project could have been rescoped with some components being withdrawn from the project, and targets redesigned reflecting more modest outputs. Resources could then have been reallocated within a revised project scope, aimed at similar objectives. Importantly the rationale for these decisions, and the overall effect these decisions would have on the project (both in terms of impact and budget) should be recorded for later assessment.

[43] SANEDI, Accruetech Energy (2021) "An analysis of the existing legislative instruments and governance structures to determine relevance to industrial energy efficiency implementation in South Africa"

4.3. Recommendations

Based on detailed feedback from project stakeholders and the evaluation's own findings and analysis, the following recommendations are provided. These speak to both the project design and implementation processes.

To UNIDO - Recommendation 1: While preliminary contextual diagnostics were performed as part of the project design, implementation environments were fluid. In the future, project designs should allow for some level of flexibility in terms of institutional partnerships, achievement of targets, and allocation of budget and resources.

To UNIDO - Recommendation 2: When designing a new project, it is recommended that time and resources are dedicated proportionally to outcomes in accordance with anticipated impact. This is of particular importance when working within a regulatory environment, where more operational aspects, may depend on regulatory changes. These allocated resources should also reflect in a weighting within the project results framework to ensure that the priority of the project is clearly communicated to all stakeholders.

To UNIDO and executing partners - Recommendation 3: From a project monitoring point of view, it is recommended that the project monitoring is adequately resourced, and that capacity for monitoring matches the level of complexity of the project, (e.g., output verification or an aspect of outcome monitoring, rather than activity reporting). A project monitoring strategy should be developed and regularly reviewed as part of the project management process. Monitoring processes should regularly use a range of monitoring and evaluation tools to strategically reflect on project direction and depth of impact. This input can then be used by the project to strategically influence the level and intensity of its actions and influence any revision of targets and any subsequent redeployment of resources.

To executing partners - Recommendation 4: In a project as complex as this one, it is recognised that the project team cannot be expected to deliver on a range of specialist expertise. It is recommended that external specialist stakeholders be consulted as early as possible to make them aware of the project and to draw them into the co-creation process, or as part of a reference group, as needed. In the case of SA IEE II, examples of these external stakeholders could have included private sector, SME or sector representatives, financial sector players, and TVET colleges. The project should also look to include multiple representatives of sectors for the sake of redundancy, safeguarding against the withdrawal of one representative or institution.

List of Annexes

1. Evaluation framework
2. Terms of reference
3. List of stakeholders consulted
4. List of site visits
5. 2016 Theory of Change
6. 2019 Theory of Change
7. Terminal evaluation suggested Theory of Change
8. Logframe

Annex 1: Evaluation framework

Key evaluation questions	Guiding sub-questions
RELEVANCE	
1. How relevant was the project to the needs, priorities of South Africa?	**1.1 To** what extent was the project relevant to the needs, priorities and strategies of South African government and its agencies?
	1.2 To what extent was the project relevant to the needs, priorities, and strategies of South African industry?
COHERENCE	
2. To what extent was the project aligned with the other initiatives in South Africa, including regulatory initiatives?	**2.1 How** did the project identify and coordinate with other initiatives in South Africa?
	2.2 How did the project ensure alignment with existing policy development processes in South Africa?
	2.3 How did the project ensure alignment with existing South African institutional and capacity development processes?
EFFICIENCY	
3. How efficient was project delivery?	**3.1 Was** the project's plan clear, appropriate, and realistic?
	3.2 How efficient and effective were the project's management arrangements?
	3.3 How effective were the project's monitoring processes?
	3.4 Was the originally anticipating co-financing secured?
	3.5 Were roles, responsibilities, and accountabilities sufficiently clear? Did all stakeholders perform their roles efficiently?
EFFECTIVENESS	
4. Did the project achieve its planned outputs and outcomes?	**4.1 What** policies, incentives and technical standards were developed and adopted as a direct result of the project?
	4.2 To what extent and how were public and private institutional capacities developed as a direct result of the project?
	4.3 Were the piloted technologies, processes, and business models technically viable, commercially attractive, and contextually appropriate?
	4.4 To what extent did the project deliver increased awareness and knowledge of IEE? Is there evidence of behaviour change amongst stakeholders?
	4.5 To what extent did the project deliver increased funding or incentives for IEE?
PROGRESS TO IMPACT	
5. How likely is it that the project's outputs and outcomes will contribute to long-term impacts?	**5.1 To** what extent has South African regulatory environment adapted to reflect project outcomes?
	5.2 To what extent has project data driven these changes?
	5.3 To what extent have financial institutions offered incentives or products to encourage IEE?
	5.4 To what extent has the national training environment adopted IEE as an offering?
	5.5 To what extent has the project influenced business interest and commercial activity relating to IEE?
SUSTAINABILITY	
6. To what extent are the project's outputs and outcomes likely to be sustained in the long term?	**6.1 What** are the key factors that will affect (negatively or positively) the sustainability and uptake of the project's results?
	6.2 To what extent has the project put in place mechanisms to support further mainstreaming beyond the project duration?
	6.3 What gaps and needs were not addressed by the project?

Annex 2: Evaluation TOR: can be accessed from https://www.unido.org/sites/default/files/files/2022-07/GFSAF-120487_TOR_2204.pdf

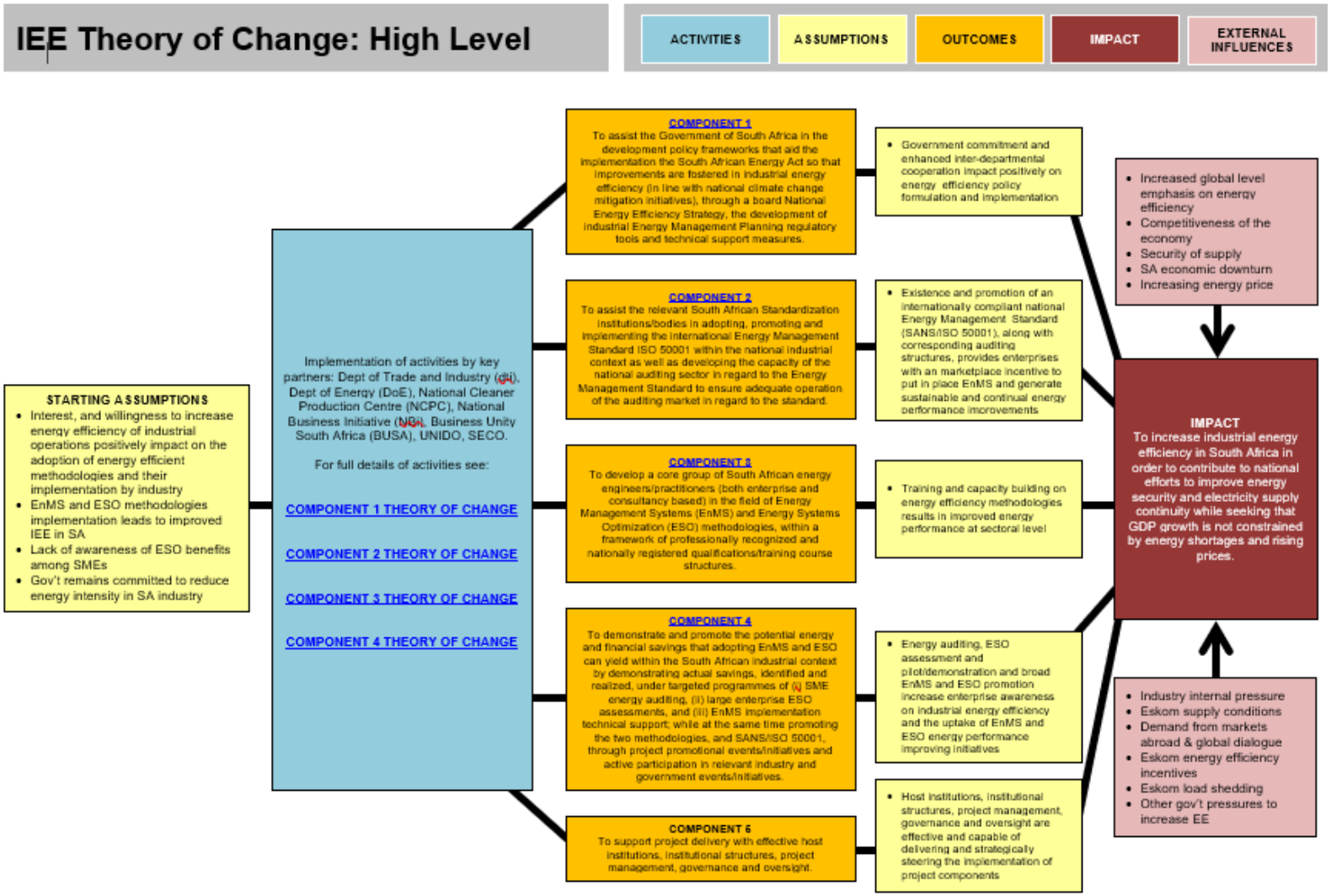
Annex 3: List of stakeholders consulted

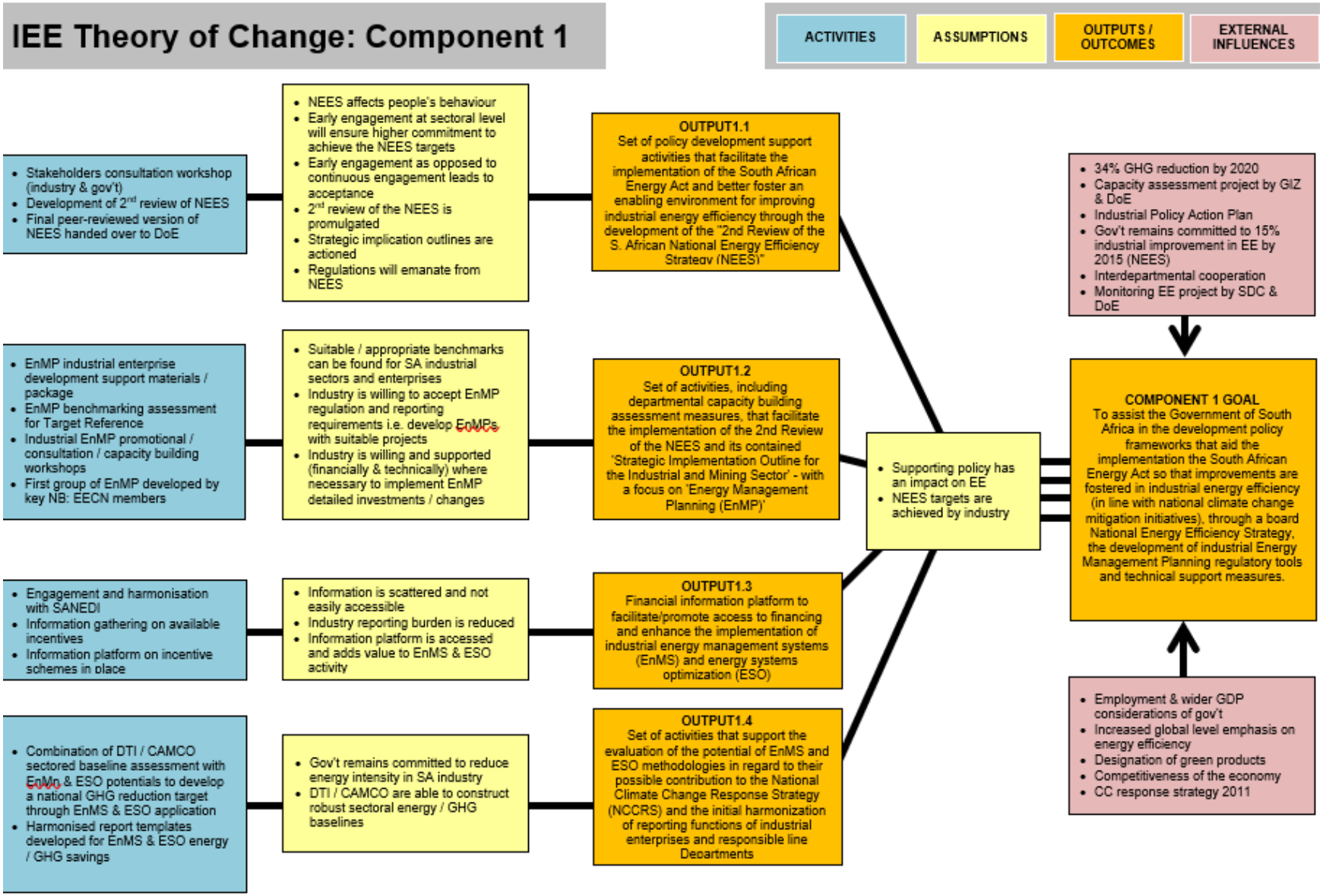
Name	Surname	Institution
Andre	Arendse	Atlantis Foundries
Hannah	Baleta	Klein River Cheese
Maggie	Baleta	Klein River Cheese
Peter	Baleta	Klein River Cheese
Nicholas	Baleta	Klein River Cheese
Louis	Bosch	Arcelor Mittal, Vanderbilpark
Michael	Botha	First National Battery
Barry	Bredenkamp	SANEDI
Kevin	Cilliers	NCPC
Petronella	De Wet	UNIDO
Gerhard	Fourie	dtic
Rana	Ghoneim	UNIDO
Valerie	Geen	Ex-UNIDO
Alf	Hartzenburg	Ex-NCPC
Conrad	Kassier	Ex-UNIDO
Bianca	Latchman	NCPC
Ngoanathari	Maja	NCPC
Kenneth	Mbedzi	First National Battery
Gerswynn	Mckuur	UNIDO
Faith	Mkhacwa	Ex-NCPC
Minenhle	Myamya	Tiger Brands
Mogendhiran	Nadasen	Tiger Brands
Lindelani	Ncwane	NCPC
Nikola	Niebuhr	UNIDO
Luvo	Ngqeza	Atlantis Foundries
Luvuyo	Njovane	DMRE
Shahkira	Parker	DFFE
Chris	Parnell	Hesto Harnesses
Milisha	Pillay	Ex-NCPC
Sashay	Ramdharee	Ex-NCPC
Ndivhuho	Raphulu	NCPC
Adrian	Rudolph	Ex-NCPC
Riley	Somiah	Tiger Brands
Blanche	Ting	UNIDO
Johan	van der Merwe	First National Battery
Wynand	Van der Merwe	NCPC
Chris	van Zyl	Vineyard Hotel
Christine	Viljoen	NCPC
Julie	Wells	NCPC
Teslim	Yusuf	SANEDI

Annex 4: Site visit list

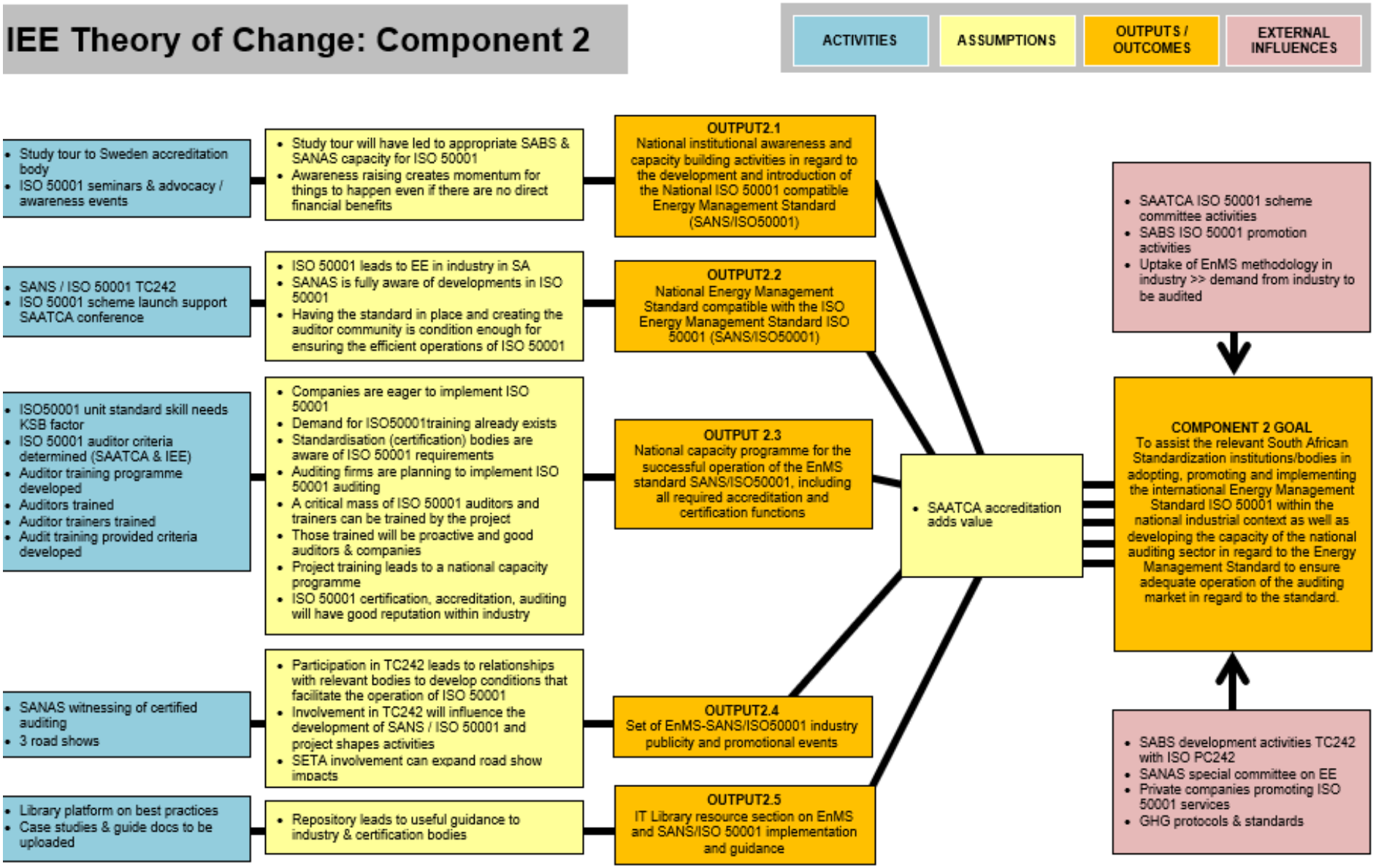
Date	Site	Contact
13-Jun	The Vineyard Hotel, Cape Town	Chris van Zyl
13-Jun	Atlantis Foundries, Atlantis	Andre Arendse
14-Jun	Klein Rivier Cheese Farm, Overberg	Peter Baleta
15-Jun	Tiger Brands, Mobeni	Riley Somiah
15-Jun	Hesto Harnesses, Stanger	Chris Parnell
20-Jun	Arcelor Mittal, Vanderbilpark	Louis Bosch
20-Jun	First National Battery, Benoni	Michael Botha

Annex 5: 2016 theory of change

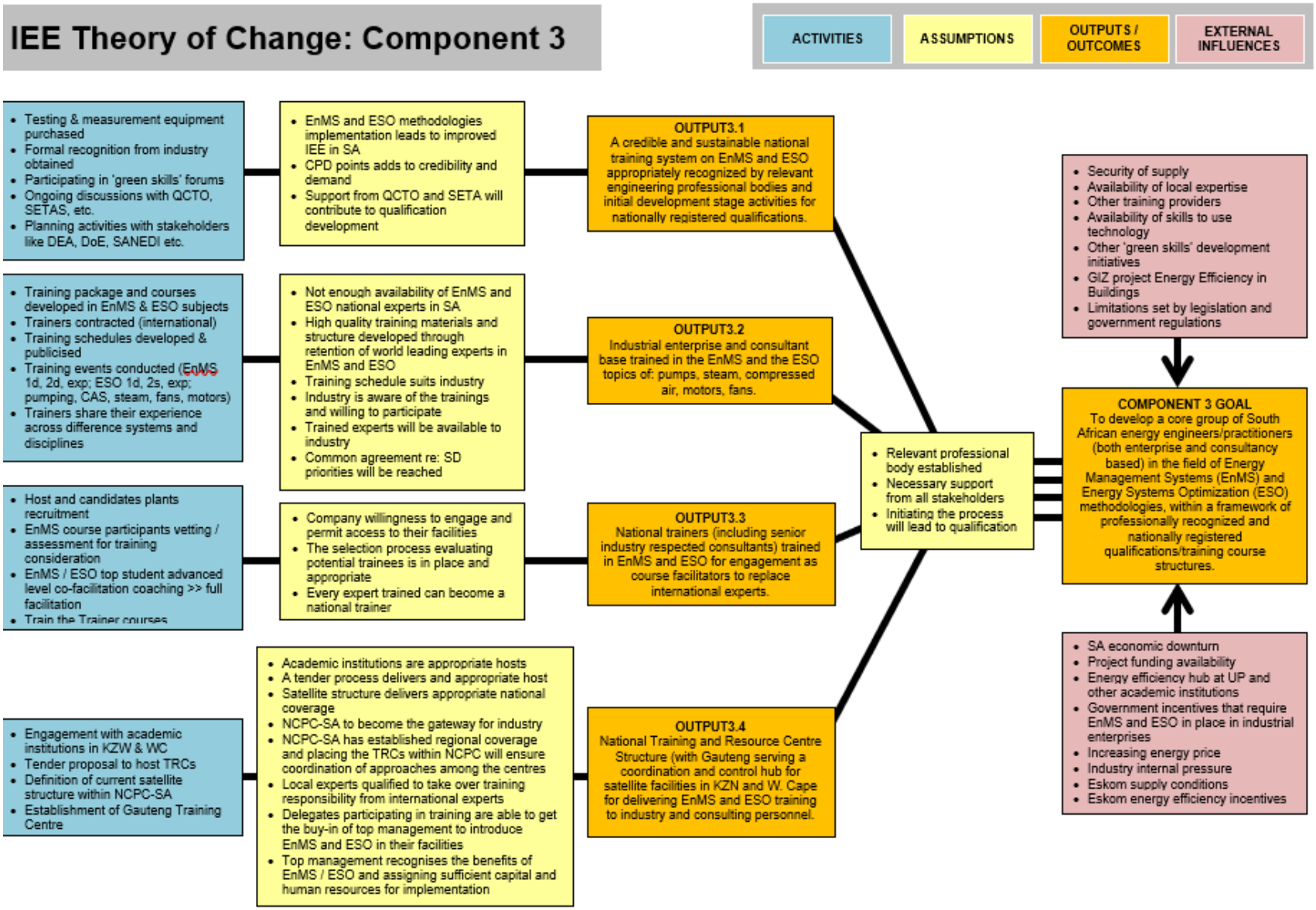



IEE Theory of Change: Component 1
ACTIVITIES
ASSUMPTIONS
OUTPUTS / OUTCOMES
EXTERNAL INFLUENCES
Stakeholders consultation workshop (industry & gov't)
Development of 2nd review of NEES
Final peer-reviewed version of NEES handed over to DoE
NEES affects people's behaviour
Early engagement at sectoral level will ensure higher commitment to achieve the NEES targets
Early engagement as opposed to continuous engagement leads to acceptance
2nd review of the NEES is promulgated
Strategic implication outlines are actioned
Regulations will emanate from NEES
OUTPUT1.1
Set of policy development support activities that facilitate the implementation of the South African Energy Act and better foster an enabling environment for improving industrial energy efficiency through the development of the "2nd Review of the S. African National Energy Efficiency Strategy (NEES)"
EnMP industrial enterprise development support materials / package
EnMP benchmarking assessment for Target Reference
Industrial EnMP promotional / consultation / capacity building workshops
First group of EnMP developed by key NB: EECN members
Suitable / appropriate benchmarks can be found for SA industrial sectors and enterprises
Industry is willing to accept EnMP regulation and reporting requirements i.e. develop EnMPs with suitable projects
Industry is willing and supported (financially & technically) where necessary to implement EnMP detailed investments / changes
OUTPUT1.2
Set of activities, including departmental capacity building assessment measures, that facilitate the implementation of the 2nd Review of the NEES and its contained 'Strategic Implementation Outline for the Industrial and Mining Sector' - with a focus on 'Energy Management Planning (EnMP)'
Engagement and harmonisation with SANEDI
Information gathering on available incentives
Information platform on incentive schemes in place
Information is scattered and not easily accessible
Industry reporting burden is reduced
Information platform is accessed and adds value to EnMS & ESO activity
OUTPUT1.3
Financial information platform to facilitate/promote access to financing and enhance the implementation of industrial energy management systems (EnMS) and energy systems optimization (ESO)
Combination of DTI / CAMCO sectored baseline assessment with EnMo & ESO potentials to develop a national GHG reduction target through EnMS & ESO application
Harmonised report templates developed for EnMS & ESO energy / GHG savings
Gov't remains committed to reduce energy intensity in SA industry
DTI / CAMCO are able to construct robust sectoral energy / GHG baselines
OUTPUT1.4
Set of activities that support the evaluation of the potential of EnMS and ESO methodologies in regard to their possible contribution to the National Climate Change Response Strategy (NCCRS) and the initial harmonization of reporting functions of industrial enterprises and responsible line Departments
Supporting policy has an impact on EE
NEES targets are achieved by industry
34% GHG reduction by 2020
Capacity assessment project by GIZ & DoE
Industrial Policy Action Plan
Gov't remains committed to 15% industrial improvement in EE by 2015 (NEES)
Interdepartmental cooperation
Monitoring EE project by SDC & DoE
COMPONENT 1 GOAL
To assist the Government of South Africa in the development policy frameworks that aid the implementation the South African Energy Act so that improvements are fostered in industrial energy efficiency (in line with national climate change mitigation initiatives), through a board National Energy Efficiency Strategy, the development of industrial Energy Management Planning regulatory tools and technical support measures.
Employment & wider GDP considerations of gov't
Increased global level emphasis on energy efficiency
Designation of green products
Competitiveness of the economy
CC response strategy 2011

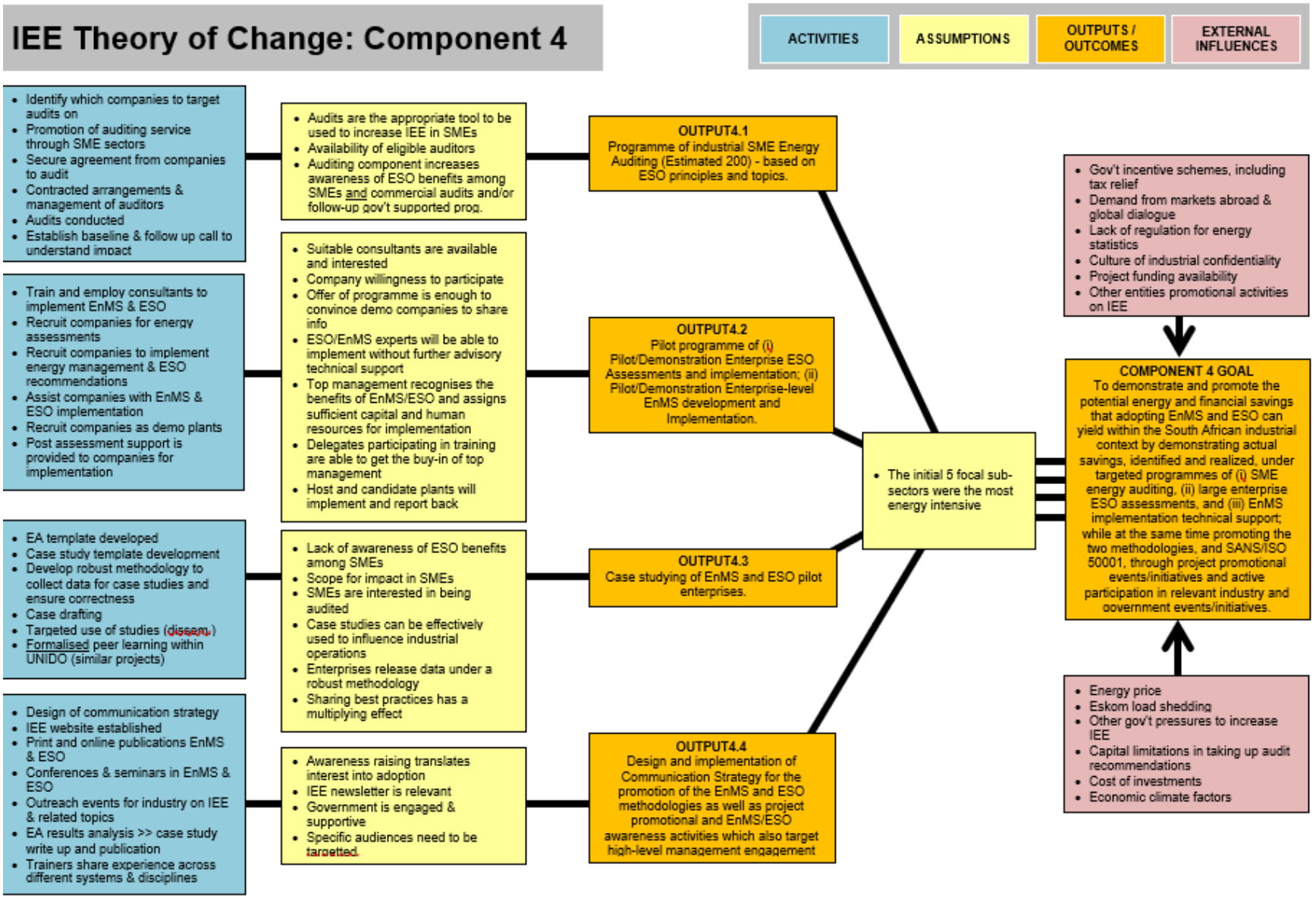
IEE Theory of Change: Component 2



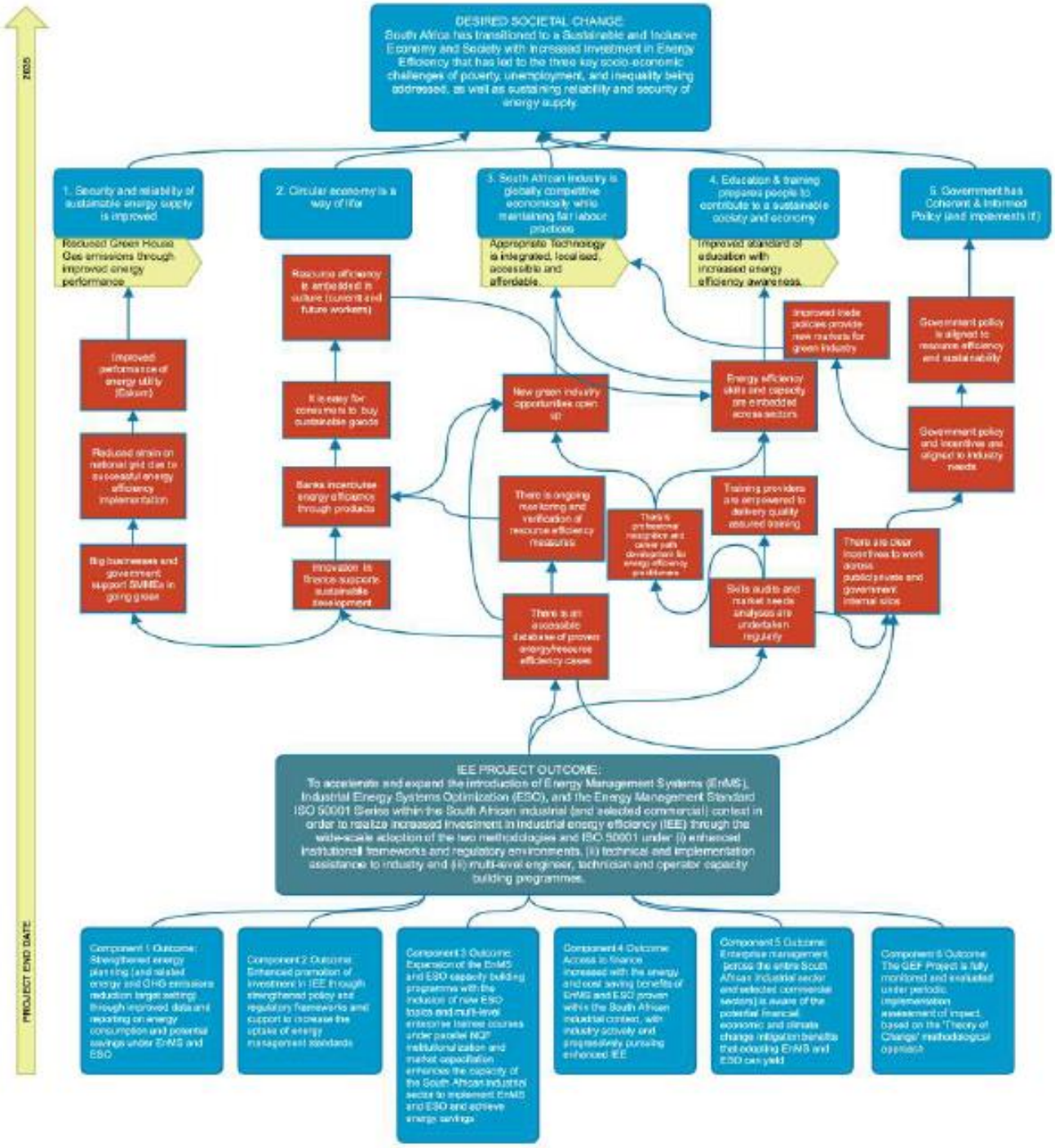
IEE Theory of Change: Component 3



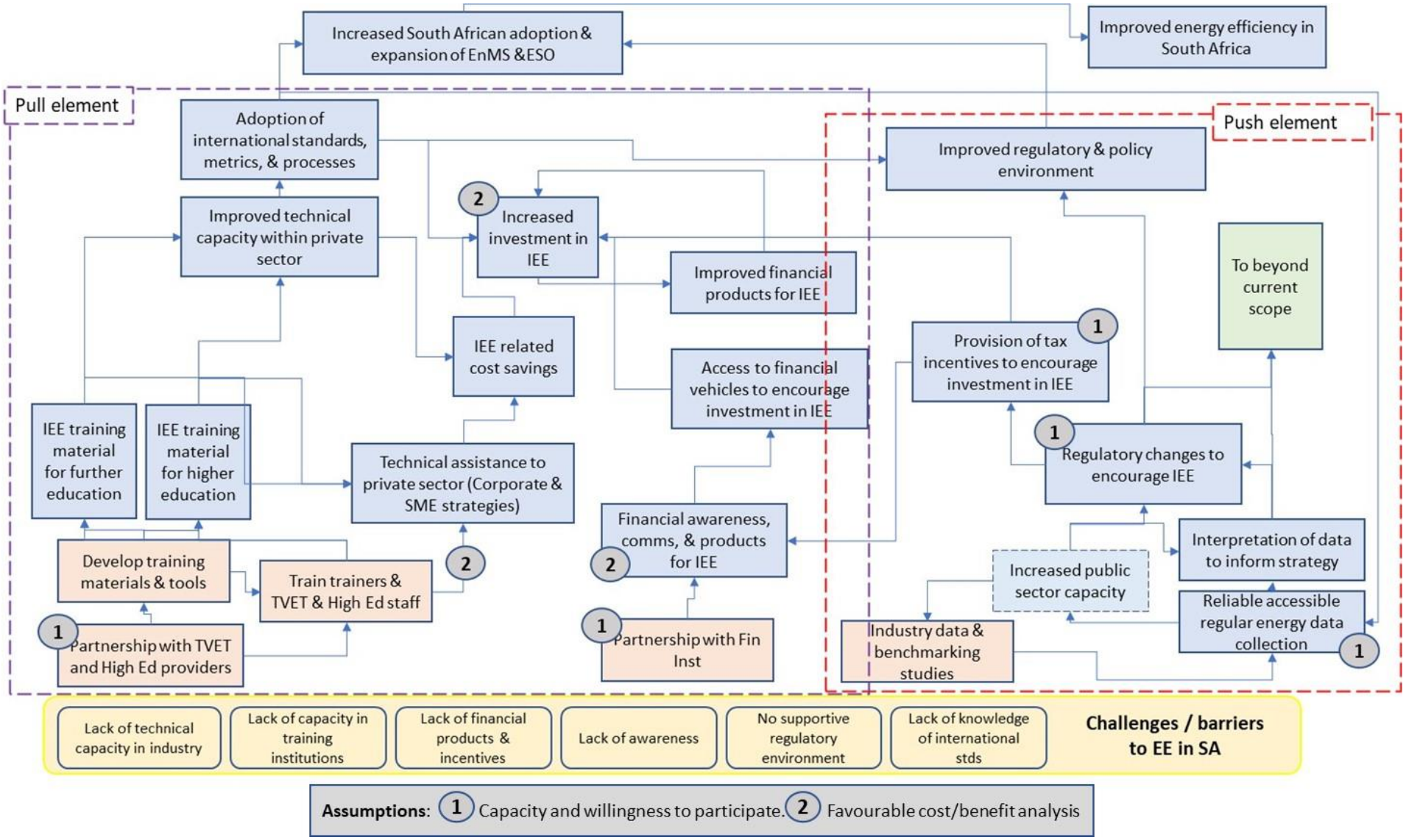
IEE Theory of Change: Component 4



Annex 6: 2019 High level theory of change



Annex 7: Alternative theory of change (Terminal Evaluation)



Annex 8: SA IEE II logframe with terminal evaluation comments

#	Narrative	Target	Achieved	Comment
Project Objective	To accelerate and expand the introduction of Energy Management Systems (EnMS), Industrial Energy Systems Optimization (ESO), and the Energy Management Standard ISO50001 within the South African industrial (and selected commercial) context in order to realize increased investment in industrial energy efficiency (IEE) through the wide-scale adoption of the two methodologies and ISO 50001 under (i) enhanced institutional frameworks and regulatory environments, (ii) technical and implementation assistance to industry and (iii) multi-level engineer, technician and operator capacity building programmes	Cumulative direct emission reduction of 3,280,000 tCO2e		
		Indirect emission reduction of 25,233,800 tCO2eq from 2020 to 2029		
		Implementation of EnMS and ESO improvements in 150 enterprises lead to lifetime fuel and energy savings of 32,422,400 GJ Primary Energy		
Outcome1	Strengthened energy planning (and related energy and GHG emissions reduction target setting) through improved data and reporting on energy consumption and potential savings under EnMS and ESO	Industrial subsectors baseline mapped for energy use and benchmarked for EnMS and ESO potential	There has been progress towards strengthened energy planning, but considerable work needs to be done. The challenge is that without increased capacity for benchmarking or data improvement it would be difficult to strengthen planning, therefore, it is an outcome that was not achieved. The outcome target is not sufficiently defined to warrant an assessment of achievement.	
Output1.1	Energy consumption/performance mapped with the savings potential determination, against potential penetration rate and implementation challenges of EnMS and ESO in line with ISO 50006 methodologies within selected industrial and commercial sectors	At least 8 additional industrial subsectors are fully baselined	2 subsectors baselined	**Original target not met:** Project team members repeatedly mentioned that this target had been reduced to 2 subsector studies, but there is no project documentation that records this change or its implications for the wider programme.
Output1.2	Country specific EnMS and ESO best practice technology and process benchmarks established in line with the National Energy Efficiency Strategy (NEES) and the National Energy Efficiency Action Plan (NEEAP)	At least 8 industry subsectors best practice and process benchmarked		
Outcome2	Enhanced promotion of investment in IEE through strengthened policy and regulatory frameworks and support to increase the uptake of energy management standards	2 revised / enhanced policies / regulations that support increased investment in IEE 25% increased national accredited certification capacity for SANS/ISO 50001 Series	While the outputs of this component were largely realised, they have yet to result in the achievement of the outcome regarding a strengthened policy and regulatory framework supporting increased IEE investment. From a ToC perspective the absence of an updated NEES along with the corresponding budget makes it difficult to see a strengthening of policy implementation for IEE.	
Output2.1	Targeted technical assistance and capacity building to enhance and implement IEE policies, incentives and regulatory frameworks supporting EnMS and ESO uptake and strengthening the coordination of associated activities across government agencies	4 capacity development workshops held Interdepartmental IEE project coordination established through 8 working groups and/or interdepartmental workshops IEE gender equality needs assessment 2 policy tools	4 training workshops 8 data reference groups	
Output2.2	Assistance to operationalize South African National Standard SANS/ISO 50001 with additional advisory support, and recommended actions for Government and Standards Bodies to promote and mainstream Energy	ISO 50002, 50003 and 50006 best-practice analysis and institutional capacity building; 5 SANS/ISO 50001 Series promotional events 3 workshops for M&V Auditors under SANS 50010.	Target exceeded through 2 EnMS (ISO 50002/3 information sessions and 24 EnMPI (ISO 50006) 5 online workshops	

	Audit (ISO 50002); Conformity Assessment (ISO 50003); and Energy Baselines and Performance Indicators (ISO 50006)	Accreditation technical support to 8 potential auditing/ certification bodies	2 training sessions 39% female participation	
Output2.3	Training courses with supporting tools for the ISO 50001 Series to assist in the introduction of Energy Audit (SISO 50002), Conformity Assessment (ISO 50003) and Energy Baselines and Performance Indicators (ISO 50006) as well as promote increased Measurement & Verification and the uptake of SANS50010	Updated SANS/ISO 50001 training course and associated support materials; 2 training workshop sessions held; Training workshops (complete with course and associated support materials) / events held: ISO 50002 - 8 sessions; ISO 50003 - 2 sessions; ISO 50006 - 8 sessions 5 training courses/ technical sessions on M&V auditing under SANS 50010 Promotional materials targeting women; 35% female participation in SANS/ISO 50001	Material developed 2 training courses 15 EM101 workshops 245 training candidates 7 enPMI training workshops 120 training candidates 21% female participation 5 day M&V auditing piloted	
Outcome3	Expansion of the EnMS and ESO capacity building programme with the inclusion of new ESO topics and multi-level enterprise trainee courses under parallel NQF institutionalization and market capacitation enhances the capacity of the South African industrial sector to implement EnMS and ESO and achieve energy savings	150% increase in national EnMS and ESO trained capacity NQF Occupational Qualification Course materials are developed Professional body for EnMS and ESO practitioners working group is established	This component was largely a follow on from the first phase of the project and the outputs have largely been achieved. The absence of training providers in the project from a strategic point of view has weakened the achievement of this outcome. While there is still a need for an independent professional body to be operational, the project initiated this process.	
Output3.1	Expanded engineer-level EnMS and ESO Industry Capacity Building courses developed and delivered, including new professionally recognized ESO topics, graduate mentorship and SME EnMS Implementation Guide resource packages, and learning materials	Delivery of EnMS and ESO training courses under GEF Project (120 experts trained & 750 Advanced-Level graduates)) Comprehensive training packages/ curriculum for additional ESO disciplines (with gender sensitive planning) SMEs Implementation Guide developed At least 25% ESO Expert-Level course graduates' benefit from the ESO Mentoring 10% increase in women's participation in EnMS courses and 5% rise for the ESO courses over baseline	319 experts trained (22% women) 2209 advanced level experts trained 100% candidates mentored	Training target exceeded SME implementation guide not developed
Output3.2	EnMS and ESO Technician-Level Courses developed and delivered with supporting bridging courses for enterprise staff as well as development of Vocational EnMS and ESO Training Course Modules and supporting materials	EnMS and ESO training programmes for technician/plant operator staff developed and delivered 500 technician/operator staff trained Teaching support package and EnMS/ESO course modules prepared and delivered by TVET institutions Support tools for women's participation / development as EnMS/ ESO trained industry technicians / operators	500 staff trained TVET material available but colleges require to apply for accreditation	Training target met Material not delivered by TVET
Output3.3	Institutionalized and National Qualifications Framework (NQF) Compliant EnMS and ESO training course materials developed and provided to the commercial Training Providers combined with targeted capacity building and market development initiatives as well as assistance to establish a Green Industry Professional Association	Developed and NQF approved Occupational Qualification EnMS and ESO course module materials exist for both qualification courses · Training provided to 5-10 Commercial Training Providers to achieve accreditation · Commercial Training Providers offering NQF Qualifications	Peer - peer networks established and the need for a professional network agreed. To be taken forward.	Target achieved

		· 20% women enrolled in the NQF Occupational Qualifications · Train-the-trainer courses actively promote 15% of women as Training Provider staff / contractors · A professional body for IEE practitioners is established		
Outcome4	Access to finance increased with the energy and cost saving benefits of EnMS and ESO proven within the South African industrial context, with industry actively and progressively pursuing enhanced IEE	· Mix of 150 enterprise EnMS / ESO implementations under the Project's Demonstration Programme · Increased access to IEE incentive mechanisms (200 enterprises accessing incentives). Local banks provide finance for IEE (10% increase in loans for IEE investments)	The achievement of outputs towards this outcome have been partially fulfilled, in terms of its targets. However, without the active participation of a financial or lending partner the achievement of the outcome was out of reach. Project participants at enterprise level frequently mentioned they were not aware of any policy or financial support to undertake IEE. Which is consistent with not having a NEES nor the accompanying budget, nor the institutions that could help deploy financially the incentives to industry. There is still considerable work to do with the financial service providers to encourage them to develop bespoke products for the private sector to access and implement IEE.	
Output4.1	EnMS and ESO demonstration programme of 150 individual enterprises (50 large, 100 SMEs) across multiple industrial and selected commercial sectors	New EnMS and ESO implementation demonstrations in 150 enterprises · 10% women in EnMS management teams and 5% prevalence in leadership roles	EnMS and ESO interventions were delivered at 173 sites (119 Large and 54 SME sites)	Target partially achieved Overachieved in terms of larger companies but only 54 SME reached
Output4.2	Support to industrial enterprises through a financial proposal advice/match-making support mechanism/service and other assistance programmes to assist access to, and understanding of, IEE private sector financing and Government financial incentive programmes	Support centre for IEE projects · Financial proposal development guidelines published · 15 financial proposal development workshops for industry personnel	24 companies were linked to financial mechanisms to fund the implementation of EnMS/ ESO projects.	
Output4.3	Targeted technical support to FIs/IFIs and Government providers of IEE finance to develop, enhance access and evolve funding mechanisms, incentives and financial packages/credit streams for industrial enterprises implementing EnMS and ESO measures	10 Training workshops conducted on financial schemes to enhance awareness of financial staff of at least 3 local FIs and 2 IFIs.		
Outcome5	Enterprise management (across the entire South African industrial sector and selected commercial sectors) is aware of the potential financial, economic and climate change mitigation benefits that adopting EnMS and ESO can yield	51% of individual enterprises aware of financial and energy benefits of IEE, EnMS and ESO and the potential energy and financial benefits	This outcome is quite generic, and it is difficult to attribute progress towards this outcome directly to the project. Having said this the project actively promoted the achievements of certain project components and exceeded the output targets. From a holistic point of view achievement in this component was undermined by the inability to promote or communicate achievements for components 1, 2 and 4. Further it is not clear to what extent the outputs reached "enterprise management (across the entire South African industrial sector and selected commercial sectors)".	
Output5.1	Holistic Awareness and Communications Strategy to increase awareness and showcase the benefits of implementing EnMS and ESO methodologies	Holistic communications strategy implemented including gender issues and targets as well as new gender relevant stakeholders		
Output5.2	Communication and awareness outreach activities to promote uptake of policy frameworks, standards, learning circles, financing opportunities, training and capacity building activities, and EnMS and ESO	10 specific GEF Project convened EnMS and 10 specific GEF Project convened EnMS and ESO events; 50 wider IEE seminar events Enterprise ESO/EnMS IEE Quick Self-Help Guides are available		

		Formal peer-to-peer Energy Circles established Over 150 different media releases and editorials		
Outcome6	The GEF Project is fully monitored and evaluated under periodic implementation assessment of impact, based on the 'Theory of Change' methodological approach	Theory of Change operational Scheduled monitoring, evaluation or impact assessment exercises undertaken	Scheduled events were undertaken and the project theory of change was reviewed as per the schedule. However, the theory of change was not operational as a result of core assumptions not being realised and no alternative pathways being implemented.	
Output6.1	Monitoring and evaluation (M&E) mechanism, in line with the Theory of Change approach and determined Key Performance Indicators, established with regular monitoring exercises conducted, and tracking tools prepared with periodic reporting	All monitoring and reporting activities completed	All monitoring and reporting activities were undertaken	Monitoring was dependent on reporting from executing partners. There was little or no verification checks but in place. Record keeping is not systematic. Financial reporting is excellent. Reporting from the project to the respective stakeholders was performed on time.
Output6.2	Midterm review and final project evaluations conducted, an evolving project 'Theory of Change' facilitated by M&E over the project's lifetime, with reviews, reports, and post project completion impact assessment(s)	Project reviews and evaluations conducted Project theory of change updated	Project reviews and evaluations were conducted Project theory of change was updated	All the activities were carried out, but both the midterm review and the terminal evaluation were delayed.