Department of Minerals and Energy Pretoria

Capacity Building in Energy Efficiency and Renewable Energy

Report No. – 2.3.4-32

Title: Energy Management Best Practise Roll-Out Plan

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September/2005

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Abbreviations and Acronyms

AEE	Association of Energy Engineers
BEE	Black Economic Empowerment
BP	Best Practice
BPP	Best Practice Programme
CaBEERE	Capacity Building in Energy Efficiency and Renewable Energy
CAIA	Chemical and Allied Industries Association
CB	Capacity Building
CBLA	Climate Business Leadership Action
CDM	Clean Development Mechanism
CEF	Central Energy Fund
CEM	Certified Energy Manager
CIEM	Certified Industrial Energy Manager
COP	Coefficient of Performance (dimensionless)
CSIR	Council for Scientific and Industrial Research
DANIDA	Danish International Development Assistance
DDG	Deputy Director-General
DEAT	Department of Environmental Affairs and Tourism
DK	Kingdom of Denmark
DKK	Danish Kroner
DME	Department of Minerals and Energy
DSM	Demand Side Management
DTI	Department of Trade and Industry
EDI	Electricity Distribution Industry
EE	Energy Efficiency
EEDSM	Energy Efficiency and Demand Side Management
EES	Energy Efficiency Strategy
EI	Energy Intensity
EM	Energy Management
EMBP	Energy Management Best Practice
ESETA	Energy Sector Education Training Authority
ESCO	Energy Service Company
ESI	Electricity Supply Industry
EUI	Energy Use Intensity
EUIG	Energy Use Intensity Group
FIDIC	International Federation of Consulting Engineers
HVAC	Heating, Ventilation and Air Conditioning
IDC	Industrial Development Corporation of South Africa
IEM	Industrial Energy Management
IPM	International Project Manager
M&T	Monitoring and Targeting
NBI	National Business Initiative
NT	National Treasury
NER	National Electricity Regulator
NGO	Non-Governmental Organisation
NQF	National Qualifications Framework
PDI	Previously Disadvantaged Individual
PM	Project Manager
PQ	Pre-qualification

PSC	Project Steering Committee
PTT	Project Task Team
QA	Quality Assurance
RC	Responsible Care
RE	Renewable Energy
RED	Regional Electricity Distributor
RSA	Republic of South Africa
SA	South Africa/South African
SAEEA	South African Energy Efficiency Association
SALGA	South African Local Government Association
SANGOCO	South African Non-Governmental Organisations' Committee
SANS	South African National Standards
SAPOA	South African Property Owners' Association
SAQA	South African Qualifications Authority
SARS	South African Revenue Service
SETA	Sector Education and Training Authority
SGB	Standard Generating Body
SGG	Standard Generating Group
SMME	Small, Medium and Micro Enterprises
SP	Service Provider
ST	Short Term Adviser
TA	Technical Assistance
TC	Technical Committee
TOR	Terms of Reference
VAT	Value Added Tax
ZAR	South African Rand

1 Acknowledgements

The NBI and CBLA Project are acknowledged for getting the Energy Efficiency Accord going.

2 Management Summary

The objective of this report is to provide guidelines for the development of a national rollout programme for Energy Management Best Practice.

The report provides a background review of the various components of the Energy Efficiency Strategy and the Energy Efficiency Accord, as well as National Energy Efficiency Month and the various reports and training programmes developed as part of the DME's work in this area. The international experience of Best Practice programmes, described in a separate report under this consultancy, is also summarised.

The report then proposes a Best Practice Programme containing the following elements:

1 An effective programme for training and certifying professional Energy Managers.

2 A marketing and informational strategy, which covers a range of activities, e.g. case study development, national recognition programmes for Energy Managers, and a pilot "Energy Leader" programme.

3 Development of an assessment methodology for Energy Management Best Practice (EMBP) within industry, to include reporting on both "soft" and "hard" data and to be reviewed periodically with stakeholders.

4 A national recognition programme for corporate Best Practice, incorporating the two "legs" of energy management:--Organisational and Technical—and resulting in a "Certificate of Excellence in Best Practice" to be awarded by DME.

Each of these elements is described in detail, and a proposed methodology for assessing Best Practice is presented, incorporating elements of the Energy Audit Protocol and the Energy Management Matrix.

Finally, an implementation programme and schedule presented, showing the roll-out of the programme over 3 years.

3 Background and Context

In the original Terms of Reference for this project, the following were suggested as possible components of such a programme:

- Detailed stakeholder meetings with industry to target most appropriate roll-out by sector/industry size;
- Development and agreement of an assessment methodology for Energy Management Best Practice (EMBP) within industry. This may take a similar format to the Energy Management Matrix developed by the UK Government under the EEBPP;
- An official certification of achievement in EMBP by National Government (DME);
- Periodic site reviews to ensure that best practice is being maintained;
- Undertake sample assessments via a voluntary arrangement with a small number of flagship enterprises;
- Launch of nationwide invitation for programme participants.

These proposed components are further discussed in sec. 5 below, and a revised set of components proposed.

The Roll-Out of South Africa's EMBP must be placed within the context of other national programmes relating to energy efficiency, including

1 The Energy Efficiency Strategy,

2 The Energy Efficiency Accord,

3 National Energy Efficiency Month and

4 The various training materials and programmes to be developed and eventually registered by SAQA under the National Qualifications Framework.

Elements of the roll-out have also been discussed in several of the previous reports submitted in this project, e.g.

1 *Survey of International Industrial Energy Management Best Practice Programmes*, dated April 2005.

2 *Industrial Energy Management Best Practice Programme for South Africa: Some advice and guidance on key components and effective action*, dated June 2005.

3 *Status Quo Assessment and Case Studies report* (September 2005)

Linkages to these programmes and reports are discussed in sections 4.1 through 4.4 below.

3.1 The Energy Efficiency Strategy

The Energy Efficiency Strategy (EES) has identified Best Practice programmes as a key element in long-term implementation. The strategy outlines the role of BP as follows:

"Of equal importance (to technical targets), are the non-technical opportunities for energy savings which exist within most sectors, in particular the buildings, industry and mining sectors. Such opportunities can be broadly defined as **Energy Management Best Practice**, and by inference tend to revolve around "soft" issues such as behavioural change arising from increased awareness, training, accountability and information systems. The importance of effective Energy Management has been demonstrated time-and-again, both in South Africa and abroad, and numerous case studies bear testament to this fact. *This Strategy recognizes that Energy Management Best Practice will play a vital role in achieving the national target*. DME has commenced an initiative to develop and roll-out an Energy Management training and awareness programme to be implemented within the industry and mining sectors.", EES 2005, page 13. (our italics)

This report confirms that addressing these "soft issues" must be a key part of implementing a national Best Practice programme. Of course, Best Practice is ideally an integration of both "soft" and "hard" elements, i.e. of the human, organisational and technological components of energy efficiency. As the next section will illustrate, the recent Energy Efficiency Accord focuses primarily on "hard" targets, e.g. improvements in energy intensity and final energy demand. The role of "soft" issues is implied but not addressed explicitly in the Accord.

Recommendation:

- The South African national Best Practice Programme should recognise efforts by both companies and individuals to integrate the human, organisational and technological components of energy efficiency.

3.2 The Energy Efficiency Accord

The Energy Efficiency Accord is a relatively new factor, having been jointly originated in 2004 by the National Business Initiative (NBI) and the Canadian-funded CBLA Project, and then developed to its present form by a task team comprised of key NBI association members, including CAIA, Chamber of Mines, SAPIA and CCPA among others. The final version of the Accord was signed by 32 associations and companies at a launch in May of 2005, and even more organisations have indicated an interest in signing since that time.

The major thrust of the Accord is to agree to a 15% reduction in "final energy demand" by 2015, as stipulated by the EES for the industrial sector. The signatories expect to do this through the following actions:[1]

- promote the development of sector specific strategies;
- promote the use of Demand Side Management contracts concluded with energy suppliers;
- develop common reporting requirements for energy usage from all energy sources, taking into account, where possible, existing internationally recognised protocols;
- define industry-specific projected energy use in the future, based on Business-as-usual (BAU) growth expectations;
- agree on 2000 as the baseline year against which performance will be measured;
- establish methodologies that will allow the baseline quantification for energy use/intensity;
- establish methodologies to take into account increased production so that the pursuit of improved energy efficiency does not hamper industrial growth;
- develop a generic energy auditing protocol that can be adapted for use by the individual sector and company signatories;
- endeavour that, where appropriate, training material prepared during the course of this accord be accredited through the relevant SETA;
- where appropriate, exploit opportunities presented by energy efficiency projects to develop CDM projects.

[1] The items listed here are a summary of the actions to which signatories have committed; persons wishing to see the expanded list should consult the full Accord, attached as Appendix 1to this document.

This sets out a fairly ambitious set of activities, but interestingly, "Best Practice" is not among them. Instead, this activity is assigned to DME in the Accord, viz.

. "…government…agrees that (it) will work cooperatively with industry signatories to…identify and share Best Practices (where appropriate to the South African context) among all parties and consider them as the basis for the establishment of standards…."

The actions agreed to by industry also contain an interesting variation on the approach suggested in the EES: Whereas the EES sets out a target based on "final energy demand", and the signatories have agreed to meet this target in principle, they have also proposed that the actual methodology used to measure efficiency improvements should be based on *energy intensity*, i.e. energy used per unit of production.

It is assumed by most economists that the South African economy will continue to grow at more than the 2.4% factored into the EES[2]. If this is so, and providing that the signatories remain committed to both the final demand reduction figure and also to improving their energy intensity, then it should be possible to reach the 2015 target of a 15% reduction in final demand even if the economy's growth exceeds the 2.4%level.

Recommendations:

- Use the Energy Efficiency Accord as the basis for overall Energy Management monitoring and reporting, but insist that both the "soft" or organisational elements and the "hard" or technical elements are included in the reporting process.

- Review with industry the indicators to be used for measuring Accord compliance, and ensure that these are also used in the reporting programme and are consistent with the requirements of the EES.

3.3 National Energy Efficiency Month

The introduction of an Energy Efficiency Month in May of year provides a useful target for annual reporting, award-giving and other publicity events. The 2005 EE Month was highlighted by the introduction of the EE Accord, and in the same way it seems appropriate for the 2006 EE Month to be highlighted by the introduction of the Best Practice programme, proba-

[2] This is "real growth", i.e. net of inflation.

bly focused on a small "pilot" version of the programme which we have called "Energy Leaders". In the discussions which follow as well as in the suggested schedule at the end of the report, the use of EE Month as a target for annual stock-taking is a persistent feature.

Recommendation:

- Use EE Month as the annual focal point and target for roll-outs of various BP activities and sub-programmes.

- Use the 2006 EE Month as the launch event for the BP pilot programme.

3.4 National Qualifications Framework

South Africa's National Qualifications Framework (NQF) provides an essential basis for the sustainable development of the human resources required for successful implementation of energy management. Because it is outcomes-based, it is well-suited to industry's needs, and it provides the additional incentive that monies already allocated by industry to the training levy can be recovered to pay for a substantial portion of training costs—provided that the training is based on unit standards registered with the NQF.

As part of the IEM project, five unit standards for energy management have now been developed and formally presented to the Energy SETA, for onward submission to their Standards Generating Body (SGB). After approval by the SGB they be submitted to SAQA for national registration.

The unit standards submitted, their resulting credits and the hours required for each, are as follows:

Unit Standards for Energy Management

No.*	*Title*	*Credits*
1,2,3	Develop an understanding of and implement energy management strategies within an organisational structure	5
4,5,6	Develop an energy management policy with its own organisational structure which includes training and communication	7
7	Monitor, target and report on energy management	5
8	Develop the business case for energy management opportunities	4
9	Develop an understanding of, and follow a structured process towards energy management implementation	5
Total Credits Required for Certification		26
Total Hours Required Including On-Job & Self-Directed Learning		260

*Refers to modules covered in EM Training Course

These standards are closely linked to the Industrial Energy Management Training course developed as part of this assignment, and the numbers in the left column show the relationship between the unit standards and the course modules.

A more detailed discussion of the relationship between the standards and the training programme, as well as the link between these and the overall programme for certifying Energy Managers, is found in section 5 below.

3.5 Best Practice Case Studies

The project team undertook a detailed search for "best practice" case studies in South Africa, with the intention of identifying examples from several different subsectors. As outlined in the separate report on this activity,[3] this search uncovered only a few instances of genuine "best practice", and from only three subsectors: textiles, chemicals and food/beverage.

There are doubtless many other examples but these have not been made available to the consultants. Moreover, there are numerous energy audits of industrial facilities, which point the way to "best practice", but for the most part, the recommendations in these audits have not been implemented.[4]

The development of a culture of Best Practice within industry remains crucial to this roll-out, and in section 6 below, we suggest a number of options for increasing the flow of information on BP in South Africa, and encouraging companies to publicise their successes.

3.6 International Experience

Reports 1 and 2 from the project, as noted in section 3 above, have provided detailed information on the international framework for BP and suggest that the South African programme should have some or all of the following characteristics:[5]

- effective networks between key stakeholders and commitment from senior management of the companies taking part
- clear demonstration of value – in terms of financial benefits (to the company), economic benefits (to the nation) and social and environmental benefits
- clear support from agencies/government and wide dissemination of information and funding opportunities.

[3] Cite report name

[4] Cite ERI studies; CBLA audits.

[5] *Survey of International Industrial Energy Management Best Practice Programmes,* April 2005

- the impact of successful schemes on future energy policy

- the importance of a process of continuous improvement to ensure long-term savings

- the benefits that a sectoral approach brings in achieving early success.

- The use of voluntary agreements, i.e. a carrot rather than stick approach.

Taking this to the next level of concreteness, report no. 2 suggested the following minimal components for a BP programme in South Africa:[6]

- Workforce engagement

- Methodology for company assessment

- Benchmarking tools & measures

- Energy Expertise

- Technology

While the BP programme presented in this report contains many of these features, several of them—e.g. benchmarking and continuous improvement—can be seen as aspects of larger programme components and are not dealt with separately. These features are also characteristic of so-called "cleaner production" programs, and this in turn suggests that as part of the BP programme a link should be made to the National Cleaner Production Centre at CSIR.

[6] *Industrial Energy Management Best Practice Programme for South Africa: Some advice and guidance on key components and effective action*, June 2005.

4 Proposed BP Programme Components

Based on the above, the consultants propose that the "Roll-Out" of a Best Practice programme for South Africa must include at least four separate but integrated elements:

5 An effective programme for training and certifying professional Energy Managers.

6 A marketing and informational strategy, which covers a range of activities, e.g. case study development, national recognition programmes for Energy Managers, and a pilot "Energy Leader" programme.

7 Development of an assessment methodology for Energy Management Best Practice (EMBP) within industry, to include reporting on both "soft" and "hard" data and to be reviewed periodically with stakeholders.

8 A national recognition programme for corporate Best Practice, incorporating the two "legs" of energy management:--Organisational and Technical—and resulting in a "Certificate of Excellence in Best Practice" to be awarded by DME.

All four of these elements are also crucial for the effective implementation of the Energy Efficiency Accord: The training of Energy Managers will provide the human resources necessary to implement systematic targeting, monitoring and reporting, while the marketing and information strategy together with the national BP recognition programme will provide additional incentives for business involvement.

These elements are discussed in detail in sections 5-8 following.

There is a fifth and equally important component of the BP programme:

5 Provision of incentives within the national fiscal programme for companies achieving significant improvements in efficiency or meeting agreed targets.

This last element is beyond the scope of the current report, but it is a critical element nonetheless. It is discussed in further detail in section 6.6 below.

5 Training and Certification of Energy Managers

5.1 Training Programme

As discussed in section 3.4 above, the training course for Industrial Energy Managers developed for this project is closely linked to the unit standards, which will be used to assess learners for the Certification programme. The modules in the course are also modelled on the sequence of learning, which must occur within an organisation if it is to achieve "Best Practice" status. For example, the first eight modules of the course are concerned almost exclusively with the organisational and strategic elements in the development of an energy management capability, and show a flow from basics through assessment, policy development, structural development, training and communication, introduction of M & T, and finally developing a business case:

Module 1: Introduction to Industrial Energy Management (Basic Concepts)

Module 2: A Strategic Approach to Energy Management

Module 3: Assessing the Organisation

Module 4: Developing an Energy Policy

Module 5: Organisational Structure for Energy Management

Module 6: Training and Communicating for Energy Management

Module 7: Energy Monitoring, Targeting & Reporting

Module 8: Developing the Business Case

Module 9: 7 Steps for Energy Management

The ninth and final module is effectively a distillation of the major technical issues which an Energy Manager is ideally expected to understand, and is conceptualised using the "7 Steps" format developed by the Canadian Institute for Energy Training (CIET), which prepared the training materials.

The overall course is designed for persons having at least an NQF level 5 qualifications in engineering, and who have the following "learning in place":

- An understanding of electrical engineering principles in industrial systems.
- An understanding of mechanical engineering principles in industrial systems.
- A working knowledge of operations maintenance in industry.
- A working knowledge of relevant sections of SANS.
- A working knowledge of relevant sections of the OSH Act.
- A working knowledge of management principles.

5.2 Proposed Certification Programme

The Industrial Energy Management course ideally leads to a "certificate" in Energy Management awarded for completion of a Skills Programme. The Skills Programme itself combines course learning, on-job learning, self-directed learning, and mentoring or "coaching", totalling 260 hours of work (as indicated in the right-most column of the table in section 3.4).

The rationale and purpose of this skills programme is described briefly in the text box on the next two pages.

In achieving certification, the last unit standard—corresponding to module 9 of the training programme—could also be met by establishing that the learner has sufficient prior learning in this area, or has another qualification, e.g. the CEM qualification. Since the unit standard corresponding to this module (like the other 4 standards) is set at Level 6 in the NQF, prior learning would also have to be at this level, i.e. a B. Tech or equivalent plus adequate industrial experience. This would be determined by a qualified assessor, who would decide if the prior learning was sufficient to meet the standard or would have to augmented by additional training or on-job learning.

The proposed terminology for this certification is: ***Certified Industrial Energy Manager (CIEM).*** (The possible overlap with, and differences from, the CEM certification are discussed in section 5.5 below)

Persons achieving the **CIEM** certification would also be qualified as energy managers of commercial/institutional or government buildings, since the concepts and strategic framework covered by the first 4 unit standards can apply equally to energy management in buildings. Moreover, the "7 Steps" approach presented in module 9 or the EM course and covered by the 5th unit standard can be applied to building systems as well as to industrial. Technical issues peculiar to the built environment, e.g. the thermal characteristics of building envelopes or the specific attributes of building HVAC systems, could be addressed through on-job learning or self-directed learning.

Alternatively, learners pursuing a more buildings-focused programme could conceivably be given a separate qualification—e.g. *Certified Buildings Energy Manager*—if circumstances and the assessment warrant. The consultants believe that this issue requires further discussion between DME and the E-SETA, and is outside of the terms of this assignment.

Skills Programme for Industrial Energy Managers

Rationale of the skills programme

This is an occupational based skills programme for learners that reflects the workplace-based needs of the energy field as expressed by employers and employees, both now and for the future. This skills program provides the learner with accessibility to be employed within the energy field and provides the flexibility to pursue different careers in the broader energy sector.

For those who have acquired experience in the workplace, this skills program represents part of the RPL process to acknowledge workplace skills acquired without the benefit of former education or training.

Purpose

This skills program will allow a person to advance through learning to an industrial energy manager skills program at NQF level 6. The unit standards provide credits that will eventually allow access to both vertically and horizontally articulated skills programs subject to the unit standards being registered through SAQA on the NQF. This however is the prerogative of the ESETA ETQA or the relevant SGB should the unit standards be incorporated into a new or existing qualification. This skills program will enhance the social status, productivity and employability of the learner within the energy sector and contribute to the quality, production rate and growth of the energy sector.

Through the critical cross-field component of the skills program, learners are able to demonstrate vocational skills through which they are able to engage in life skills activities, small business development, health and environmental issues.

A person acquiring this skills programme will have skills, knowledge and experience to:

- Carry out tasks as industrial energy manager, by using procedures and equipment required to be an industrial energy manager.
- Explain, interpret and use acquired knowledge in performing the tasks related to the industrial energy audit field or specialised contexts.
- Relate, organise and analyse significant information and use data, theories and principles as an industrial energy manager and related situations and work in a disciplined manner.
- Execute roles and responsibilities by being able to summarize, classify, discuss and estimate application processes required through mathematical concepts, technical and schematic diagrams, computer and technology usage in a range of different contexts.
- Communicate with peers, customers and members of supervisory/management levels by demonstrating the ability to summarise and source information and express opinions in spoken and written form.
- Determine requirements and demonstrate ability to utilise entrepreneurial opportunities.

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5.3 ESETA and SAQA role

The consultants and DME have been careful throughout the project to ensure that the eventual roll-out of training and of the certification programme—key features of the overall roll-out—is coordinated with the Energy SETA and ultimately with the South African Qualifications Authority (SAQA). This has resulted in a programme of unit standards and a skills programme which closely parallel the training materials developed for the project, but which are also *outcomes-based*, meaning that they could be implemented by accredited training providers using different (but qualitatively similar) training materials if appropriate or necessary.

The next steps in this process are:

1 Review and eventual approval of the unit standards by E-SETA's SGB.

2 Submission of the approved standards to SAQA for national registration.

3 A period of public review, as required by SAQA regulations.

4 Final registration as national standards.

[The above process, steps 1 through 4, can take anywhere from 6 months to 2 years, depending on whether the various reviews produce a requirement for further modification.]

5 Copyrighting the training materials by the E-SETA and/or DME (This step is optional, as training materials are not normally "locked into" a set of unit standards, but this may be desirable from a quality control viewpoint).

6 Approval of the skills programme by the E-SETA's SGB, for eventual certification of Energy Managers. This should happen concurrently with review and approval of the unit standards.

Recommendations:

- Continue liaison with the Energy SETA to ensure that the approval and eventual registration process proceeds with optimal speed.

- Resolve the issue of copyrighting training materials, since this will have a significant effect on the speed of the roll-out.

- Ensure that the skills programme is submitted for registration by SAQA on the National Qualifications Framework.

- Ensure that companies are made aware of the value of this qualification, and if possible, provide incentives to companies that have qualified energy managers. This last point is discussed further in section 6.6.

- Ensure that industry SETAs are made aware of the qualifications. This would happen in the normal course of events once the skills programme and unit standards are nationally registered, but the DME can adopt a more pro-active role by promoting this programme through national media and meetings with other industry SETAs.

5.4 Accreditation and Training of trainers

Qualified training providers are a crucial part of the process of certifying energy managers, and will also be crucial to the BP assessment process outlined in section 7 below. The process of accreditation is the responsibility of the Energy SETA, which undertakes this process through a standardized application and review process. Again, it is crucial that DME work with the E-SETA to ensure that training providers for the EM course as well as the two auditor courses—IEAT and BEAT—are accredited and ready to deliver these courses when the roll-out is underway. If necessary, staff at the University of Johannesburg who are rolling out all 3 courses, will need to provide training or other assistance to new training providers.

Recommendation: DME must liaise with the E-SETA to ensure that the accreditation of trainers proceeds in parallel with the approval of the standards and skills programmes.

5.5 Relation to other local & international programmes

The UK Programme. As previous reports from this project have suggested, there is a wide variety of programmes supporting Best Practice in energy management internationally, and numerous training programmes providing a path to qualifications for Energy Managers. The

training and certification programme we have proposed is most closely aligned to the UK programme, because it is based on a combination of individual qualifications (of energy managers) and corporate recognition of best practice, and because it is outcomes-based.

In the proposed South African energy management programme as in the UK programme, both activities operate within a single framework: the Energy Management Matrix is used to assist companies to self-assess their organisational performance while the "results" of this activity are used to generate improvements in energy efficiency which are recognised as "Best Practice." From a training perspective, both elements—training in "soft" or management skills and training in "hard" or technical skills—are essential to the implementation of Best Practice, and in the UK example both are part of the major qualification for Energy Managers, the "Energy Management" diploma awarded by the Institute of Energy and supported by the University of Bristol.

The CEM Programme. The Certified Energy Manager (CEM) programme is one of several training programmes offered by the Association of Energy Engineers (AEE), based in the US. The CEM designation is awarded on the basis of two factors:

1 Passing a multiple-choice examination covering a range of technical and policy issues. The pass-rate is usually set at 50%, and the AEE also provides a 4-day refresher course for persons intending to take the exam.

2 Meeting prior experience and/or qualifications criteria established by AEE, which includes a range of technical and non-technical qualifications and must be corroborated by supervisors or academic records.

It is only on completion of both of these requirements that the CEM is awarded.

In South Africa, the CEM programme is delivered under license by Prof. L J Grobler of the University of the Northwest. There are at present some registered CEMs in South Africa.

In the context of the Best Practice roll-out, it is important to recognise that the CEM is *not* a training programme in the accepted sense of that term, and, despite its name, it is not a *qualification* for energy management in the sense in which the term is used in this project. Rather it is a *recognition programme* for persons having pre-existing experience and qualifications as energy efficiency practitioners. More importantly, neither the short refresher course nor the

subsequent exam include more than a very cursory coverage of the organisational and management issues covered by the IEM course in South Africa.

The CEM programme has been well-received in South Africa, in part because of a lack of alternatives and in part because there are many experienced practitioners who wish to gain recognition for their existing skills. Its impact in future may be more limited as the backlog of experienced practitioners is gradually reduced, but it could remain a part of the "recognition" programme for energy efficiency in South Africa. However it will not supplant the need for more rigorous and outcomes-based training of either energy efficiency specialists or energy managers, and it will not be able to address the need for access to such training by persons having lower qualifications levels or lacking adequate experience as energy specialists.

Recommendations:

- The training materials and associated unit standards developed by this project under the South Africa NQF should be adopted as the basis for the Best Practice programme, because they are outcomes-based and are an important element in the implementation of energy efficiency improvements.

- The CEM programme will continue to function as a "career recognition" programme and will be available to learners who already have sufficient experience and qualifications to bypass the CIEM and IEAT programmes. Alternatively, it could serve as a "prior learning" qualification for advanced entry to the CIEM or IEAT programmes.

- The DME should consult with SAEEA to ensure that the designation "CIEM" is not interpreted as an infringement on the "CEM" trademark.

6 Marketing and Informational strategy

6.1 Roll-out/publication of case studies

The ongoing publication of Best Practice case studies is an important part of the roll-out programme. The project team's experience is that clear-cut case studies demonstrating effective energy management are rare in South Africa, and those case studies identified by the team are in fact really studies of improved energy efficiency.

This only serves to emphasise that the roll-out programme must contain a clear strategy for collecting case study materials and making them available through a variety of media.

The case study roll-out should include the following steps:

6.1.1 Develop a template for the case studies, e.g. similar to those developed for the UK Best Practice programme.

This would facilitate rapid provision of information and stimulate companies to review their current practices in hopes of providing case studies. The template could provide a check-list of typical organisational and technical improvements, together with a system for quantifying them into a single measure, e.g. intensity or final demand.

Once started, the case studies would be published by relatively inexpensive methods, e.g. 2-sided sheets in 2- or 3-colours. These would be handed out at workshops and seminars, or distributed by direct mail on request.

6.1.2 Develop a promotional campaign through sectoral publications and technical news media.

As the project's report on international experience indicated, "The value of sharing information and best practices to enable effective replication of results has been invaluable in allowing new programmes to make early progress." It is therefore critical that the programme begin with a major publicity drive to expose businesses to the BP concept.

This effort need not be costly, particularly if targeted at specific subsectors rather than at business in general. This strategy will permit the use of relatively inexpensive industry publications rather than the mass media. Publications such as CAIA's *ChemNews*, the Chamber of Mines' C*ompendium*, and NBI's *Quick Brief* offer inexpensive (usually free) access to the membership of these organisations. The South African Association for Energy Efficiency also publishes a newsletter which can be used to promote training and other energy management initiatives, and the Energy Research Centre at the University of Cape Town has published *Energy Management News* for more than six years, which also has provision for free articles and public advertisements.

This campaign would identify companies that believe they have examples of "best practice" and are willing to share them. The adverts would ideally include a series of leading questions, e.g.

- Do you have an energy efficiency policy in your company?
- Have you appointed someone to be responsible for efficiency improvements?
- Are you measuring and monitoring your energy efficiency improvements?
- Do you have targets for efficiency improvement?
- Do you monitor the targets?

Adverts could also include the template or form noted in 6.1.1 above, which would then be submitted by the company to DME staff (or to whoever is collecting the information), permitting follow up with more specific questions if required.

The objectives of this campaign would be to shift public attention to the "soft" side by emphasising policy and management issues rather than purely technical issues; and to attract inputs from companies which might previously have underestimated the importance of their work.

6.2 Create a national recognition programme for Top Energy Managers

Recognition of individual achievement in energy management is as important to the development of Best Practice as is the recognition of corporate achievement. Making an award for the outstanding energy manager is a logical and appropriate way to do this.

This award would be similar to the Eskom Energy Efficiency Awards or the SAEEA awards, but rather than put the emphasis on technological innovation or advances in load management or the media impact of individuals, this programme would be aimed exclusively at rewarding top energy managers for their *organisational contributions* to the improved efficiency of their companies. Ideally, the award would highlight the key attributes of being a good energy manager, e.g.

- Making the company's energy policy apparent to all staff
- Promoting an awareness campaign that draws analogies between energy use in the home and at work
- Using constant reminders within the workplace of energy efficient actions – e.g. light switching, etc.
- Setting up an 'energy forum' that ensures a cross section of employees are involved (particularly those who might need convincing)
- Using rewards, incentives and challenges in motivating staff effectively e.g. Instituting annual competitions among divisions of companies as to who saves the most energy and providing a portion of energy saved as a reward
- Using the Energy Management Matrix to diagnose current perceptions of energy use within the workplace.[7]

[7] Industrial Energy Management Best Practice Programme for South Africa –Some advice and guidance on key components and effective action, p. 6.

Recommendations:

- Establish the existence of the award through a brief publicity campaign focusing on the value of energy management, which could also serve as a recruitment vehicle for the EM course.

- Announce the competition for the award at the same time as the announcement of the programme for Energy Efficiency Month.

- Provide a nomination framework based on the points noted above, i.e. a listing of possible actions and achievements which qualify the person as an effective Energy Manager.

- Strike a selection committee drawn from key industries and industry associations, possibly also including SAEEA.

- Make the award itself at the launch banquet of EE Month, i.e. around the beginning of May.

6.3 Create a national corporate recognition programme based on the Energy Efficiency Accord

We believe that integrating the goals of the EE Accord with the goals of the national EMBPP is essential to the success of both initiatives. The corporate recognition programme for Best Practice should therefore be coordinated with whichever organisation takes over the implementation and monitoring of the Accord—and if possible, overall responsibility for management of the BP programme should also be turned over to that organisation.

This will require considerably more time and effort than the recognition programme for Energy Managers. First, the broad sectoral targets for industry under the Accord have not been devolved to individual sub-sectors, nor have annual targets for improvement been set by either the sub-sectors or individual companies. Second, the indicators for reporting on the Accord have not been decided, as mentioned in section 3.2 above. It is thus clear that a number

of decisions have to be made before a reporting programme can be implemented, and that reporting must be in place before a recognition programme can even be considered.

Nevertheless, using the Accord as a centre-point for corporate recognition makes good sense from both a marketing and policy viewpoint: the Accord already has significant visibility and support, and many signatories are pressuring NBI to set up a reporting system of some kind to monitor compliance. It must be added that the Accord has galvanised many corporate entities to commence action in energy efficiency improvement. Before the Accord a significant proportion of industry were engaged in plain DSM activities.

At the same time, the signatories badly need information on how to proceed: that is, what kind of programmes to set up in their respective companies that will guarantee regular progress towards the targets in the Accord, and enable them to report reliably on this progress. It should be self-evident that setting up a proper Energy Management system, with monitoring and targeting against established baselines, is the best solution to the demands of the Accord. The DME must of necessity set up a Task Force to assist companies to set up energy management systems.

The methodology for assessing progress against Accord targets would ideally be based on two related and sequenced activities:

1 Establishing an Energy Management system, with M & T features, that can then be used to establish the reporting baseline and to specify annual improvements on the baseline; and

2 Using an Energy Audit Protocol to provide a detailed assessment of the improvements, as proposed already by the Energy Accord signatories.[8]

A protocol of this kind has been developed for the Chemical and Allied Industries Association, and is being implemented under their Responsible Care programme.[9] This protocol is basically a methodology for RC participants to use in estimating both their baseline energy use and any improvements on it during specified reporting periods. To quote from the introduction to the Protocol,

[8] See section 4, item 8 in the Accord.

[9] This Protocol was developed jointly by CAIA and the CBLA Greenhouse Gas Mitigation project.

> "The…Protocol describes the method to be utilised to establish current and historical energy consumption by the company/facility under consideration, based on specific activities being undertaken and the cost for the energy. Using the baseline information collected, energy efficiencies are calculated, and where appropriate potential energy saving options may be identified and quantified, and expected savings evaluated.
>
> The company/facility's energy demand and consumption can be benchmarked against industry averages for similar operations to identify potential areas for energy saving as well as mechanisms for realising savings. By reviewing energy consumption on an ongoing basis, unexpected increases in demand or consumption will be highlighted and can be addressed. (Responsible Care Energy Audit Protocol, 2004, p. 2)

The RC Protocol is extremely detailed, and provides a lengthy checklist of possible efficiency measures as well as a methodology for evaluating their impact on overall energy consumption. Although developed for the chemical industries, it is sufficiently generic to be used in any South African industry or even in buildings.

Recommendations:

- Liaise with NBI and the Accord signatories' technical working group to agree on a framework for reporting on the Accord, and the linkages between this reporting and the EMBPP.
- Liaise with CAIA to obtain a copy of the RC Protocol;
- If necessary, adapt the Protocol to generic use for reporting on the Accord;
- Set up a reporting system with NBI or its successor to monitor progress against the Accord by signatories at yearly intervals.

It is assumed that DME will be represented on the Technical Committee to implement the Energy Efficiency Accord. The activities noted above should therefore be brought to the Committee by DME for appropriate action.

6.4 Energy Leaders programme for energy-intensive users

The most effect way to "kick start" the Best Practice programme is to initiate a high-profile pilot programme involving large energy consumers, ideally from the Energy Intensive Users' Group (EIUG).

The EIUG presently has 21 Members whose combined electricity consumption is 35% of the electricity sales in South Africa. Membership comprises large industry in the fields of mining, materials beneficiation and materials manufacture.[10]

Membership in the EIUG has been restricted to the very large consumers who consume in excess of 500GWh per annum but it is now the intention of the EIUG to invite industrialists who consume more than 100GWh per annum to increase the breadth of the large industry energy sector interaction and representation. EIUG members are also large consumers of other energy forms, notably coal.

Although not primarily concerned with energy efficiency issues, the EIUG has on several occasions expressed interest in developing energy management programmes addressing their unique needs. Members of the EIUG are also for the most part signatories to the Energy Efficiency Accord.

The EIUG thus offers a unique opportunity to introduce Best Practice with maximum impact and visibility, and it is therefore proposed that a special "Energy Leaders" programme be developed with the EIUG to provide maximum visibility to the EMBPP roll-out.

This programme would be similar to the U.S. Grand Challenges programme, which is also focused on large energy-intensive users, or Canada's Industrial Energy Innovators (IEI), which is not but which is intended to identify industry "champions" to drive other elements of the country's industrial efficiency programme.

Energy Leaders would be in essence a pilot Best Practice programme designed to focus on 5-6 major users, enabling each company to institute a comprehensive energy management pol-

[10] Details of the EIUG can be obtained on its website, www.eiug.org.za.

icy and framework, aiming to achieve a 15% reduction within, say, 5 years instead of the 10 postulated in the Accord.

The programme would be managed by a joint industry/government task group, which would identify key programme elements including training, awareness programmes, and incentive/reward systems.

Recommendations:

- Arrange a meeting with the EIUG, at which senior DME staff are also present, as well as representatives from appropriate industry associations such as CAIA and Chamber of Mines.

- Use this meeting to present a concept proposal for an ”Energy Leaders” programme.

- Promote an early roll-out of the programme, e.g. by enlisting those EIUG members who have signed the EE Accord to initiate a Best Practices programme targeting early adoption of their Accord commitments.

- Gear the outcomes of this early roll-out to produce results in time for Energy Efficiency Month 2006.

The premise behind Energy Leaders is that the energy-intensive industries are keen to “lead by example”, and are also extremely sensitive to their somewhat tarnished public image as massive consumers of natural resources. At the same time, those companies that have shown reluctance to undertake such publicly-accessible programmes in the past will more likely to do so if their competitors and/or other large companies take the same risks.

There is a possibility of overlap between the Energy Leaders programme and other aspects of the BPP Roll-Out, particularly the two recognition programmes outlined in sections 6.2 and 6.3. However the premise behind Energy Leaders is that it is transitional and will allow a relatively rapid and visible implementation of many of the key elements of the BPP, which can then be rolled into a more comprehensive programme involving a wider range of industries. The recognition programmes can of course include participants in Energy Leaders, and if the full roll-out does not happen in sufficient time to implement awards by the 2006 Energy Efficiency Month, then Energy Leaders can provide a temporary source of publicity and endorsement for the BPP.

6.5 Linkages to the ESKOM DSM programme

The Demand-side Management Programme implemented by Eskom under the auspices of the NER is now playing a significant role in reducing electricity demand, and to a lesser extent, improving energy efficiency. The programme operates in both the commercial (buildings) and industrial sectors, and offers up to 100% subsidies for capital and related costs for load shifting projects and up to 50% for efficiency projects.

The DSM programme relies on so-called Energy Service Companies (ESCOs) to identify projects and manage their implementation, and maintains a list of accredited ESCOs for this purpose. Because ESCOs are the prime driver in this programme, and client companies therefore bear little risk and often have little involvement in the management of the projects, the DSM programme has not necessarily stimulated better "energy management" practices—though it may have indirectly improved awareness of efficiency opportunities by demonstrating the value of saving electricity.

Similarly, the projects selected for DSM are not necessarily "best practice", because there is strong financial pressure to maximize demand reductions—that is, measures that provide the greatest benefit to Eskom—and because of this, projects are not subjected to systematic financial analysis by the client companies to identify least-cost options. Indeed, it is probable that entirely different projects would be selected by the companies if they were paying for the capital costs themselves.

One clear benefit of the DSM programme is the opportunity it has created for the development of ESCOs. Although this term is applied to a wide variety of businesses, from engineering consultants through equipment suppliers through, in a few cases, the recipient companies themselves,[11] there is no doubt that the programme has had a simulative impact on the services sector.

For present purposes, it will be important for DME to identify companies participating in the DSM programme, and contact them with information on the Best Practice programme and related training and recognition activities. It is possible that some of these companies may well have examples of BP which they wish to share with DME; and if not, they will still provide a significant opportunity for marketing of the concept.

[11] SASOL, for example, has been accredited as an ESCO for purposes of developing its own internal DSM projects.

Recommendations:

- Meet with Eskom DSM Management to identify participant companies.
- Include these companies in initial promotions for BP Case Studies and also in promotions for EM training programmes.

6.6 Linkages between the EMBPP and government incentives

The EMBPP outlined in this report has been developed without final knowledge of the framework of incentives (or regulatory actions) which government may introduce as part of the EES or the Energy Bill. The EES refers to several possibilities, including (on the regulatory side):

- Introduction of efficiency standards for industrial equipment such as motors, lighting and boilers;
- Mandatory energy audits for energy-intensive industries, including the possibility of enforced adoption of the recommended measures;
- Monitoring and targeting programmes linked to the achievement of EES targets; and
- Certification of energy auditors and inspectors to verify mandated efficiency standards or compliance audits.

By contrast, the programmes suggested here are entirely voluntary in concept, with the possible exception of the proposed linkage between Energy Management and Energy Auditor training and the introduction of specialised reporting systems for the Accord. The consultants recognise that in a low-price energy environment such as South Africa continues to experience, regulatory programmes or additional incentives may be required to move the process forward. In addition to the suggestions in the EES, DME may wish to consider some of the following:

- Making the appointment of a certified Energy Manager a mandatory requirement for all companies above a certain size or energy consumption level. This has been done with great success in Japan, India and New Zealand (with varying degrees of enforcement), and provides a very effective incentive for the training programmes required for certification.

- Providing financial incentives for companies meeting their Accord targets or achieving a specified level of energy savings. The UK has done this in a somewhat different way, by reducing contributions through the Climate Change Levy by 80% for those companies meeting their voluntary targets.

- Work with the NER and Eskom to re-direct the existing energy efficiency levy to incentivise efficiency improvements over a wider range of uses, e.g. including rebates for thermal improvements and/or for the setting up of Energy Management programmes.

7 Development of an assessment methodology for Energy Management Best Practice

The development of an assessment methodology is crucial to the success of the Best Practice programme, and some elements of it have been discussed above. Before presenting the contents of the proposed South Africa programme, it is well to review what is included in a similar programme in the UK, which served as a model for this work.

These criteria are summarised in the text box on the following page.

As can be seen, the UK programme works at 3 levels:

- Management commitment
- Investment in E.E. measures
- Documentation of efficiency improvements

Although the UK programme has taken many years to reach its present level of sophistication and detail, and is extremely well-financed by government, the key lesson for South Africa is that successful programmes like these contain a mixture of "hard" and "soft" assessment tools.

In Section 6.4 we suggested using the EIUG to launch an "Energy Leaders" pilot programme for introducing Best Practice recognition. This pilot could be used to test a methodology for assessing BP which once finalised could be rolled out with other sectors and companies (or through more recent members of the EIUG, if they expand their membership). The following sections propose a more detailed framework for this methodology, based on using the Energy

Management Matrix and Energy Audit Protocol as a basis for assessment and following the UK example of an integrated approach.

7.1 The Energy Management Matrix

The Energy Management Matrix, presented as part of the Energy Management training course, is basically a self-rating system for evaluating overall corporate performance on key organisational and management factors influencing energy management "Best Practice".

The Matrix is included as Appendix 2.

This matrix has been used extensively in the UK and more recently in Canada to assist companies in rating their own energy management performance. It can also be used as a tool for external evaluation, e.g. by DME or some other entity wishing to assess the success of companies participating in the Best Practice programme. It also has considerable value as a teaching instrument, since it provides a valuable framework for implementing energy efficiency improvements in a company or facility. However the latter purpose is best served by introducing the matrix through a formal energy management training programme.

We therefore propose using the EM Matrix as the basic evaluation tool for the BP Assessment Methodology.

Recommendations:

- Introduce the EM Matrix through the EM training course to a select group of companies. The target group for this introduction should be senior management, and these should ideally come from EIUG members, as an initial activity of the Energy Leaders programme outlined in section 6.4 above.

- Ensure that participants in the training course are able to take on the responsibility for ongoing reporting, or alternatively, able to organise others to do this.

- As a major outcome of the course, establish a semi-annual reporting requirement for all participants in the pilot Energy Leaders programme, and establish an entity either in DME or NBI or a successor organisation to monitor this.

Energy Efficiency Accreditation Scheme: UK Carbon Trust

Assessment Criteria

The assessment falls into three major parts:

1. **Management commitment to energy efficiency**

   (Provide evidence of the following)

   - A clear statement of policy which shows the commitment of management to the efficient use of energy
   - A management structure which identifies where responsibilities lie
   - Systematic procedures for monitoring and controlling energy consumption
   - Operational procedures which encourage the efficient use of energy
   - Awareness and training programmes for staff
   - Support for programmes aimed at progressive improvement of energy efficiency
   - Calculation of energy consumption in CO_2 equivalent terms and how is it reported to stakeholders
   - Where appropriate, incorporation of emissions trading and the carbon management approach in financial plans.

2. **Investment in energy efficiency measures**

   (The following is assessed)

   - Capital investment in recent years specifically to improve energy efficiency
   - Provision in plans and budgets for further investment
   - Energy efficiency being properly taken into account in other capital investment decisions
   - Other forms of expenditure to improve energy efficiency, e.g. in manpower, in management practices, in training, in outsourcing energy services, in transport systems.

3. **Energy efficiency improvements**

   (Provide evidence of the following)

   - Reduction in specific energy consumption, e.g. GJ per square metre or unit product
   - Trend over the past three years on a properly comparable basis
   - Performance against national norms, where appropriate.

- The responsible organisation should expect to provide random monitoring of the reported results, by visiting a sample of participants to confirm the claimed improvements.

7.2 Energy Audit Protocol

The elements of the Energy Audit Protocol (EAP) have already been discussed in section 6.3, with specific reference to the EE Accord. We believe this tool should be used as an accompaniment to the EM Matrix, to assess and confirm the gains in energy final demand and/or intensity achieved through better energy management.

The EAP can only be used by technically qualified personnel, so its adoption by participating companies would have to be preceded by an appropriate training programme or by accreditation of the users through other means. The most logical approach would be to require that corporate participants enrol their technical personnel in the Industrial Energy Audit course, as presently being taught by the University of Johannesburg. This course provides most of the important technical and procedural information needed to undertake an assessment of energy baselines, the impact of efficiency improvements, and the overall measurement of energy use.

Persons having prior learning qualifications could either be exempted from the course, or given partial credit for this, as provided in the unit standards.

Using the EAP would also require permission from CAIA and possibly a review by a third party to ensure that the present form of the protocol was appropriate for use in other sectors.

The Protocol should be considered by the Technical Committee set up to implement the Accord.

Recommendations:

- Adopt the Energy Audit Protocol developed by CAIA as the basic instrument for assessing energy efficiency performance, both for Accord signatories and for participants in the Energy Leaders programme (in the event that they are not Accord signatories).

- In promoting this, support the use of the IEAT programme for necessary training of industry personnel who will use the protocol.

- Establish a reporting system for the Protocol, to be used in parallel with the reporting on the EM Matrix. Ideally, participants in the Energy Leaders programme will report semi-annually, as follows:

    - The first report will include an assessment using the EM Matrix, plus a report on the energy baseline for the company.

    - The second report at end of the year will include both an update of the EM Matrix and a first report on the complete Audit Protocol.

    - Thereafter, mid-year reports will use the Matrix only, and end-of-year reports will use both the Matrix and the Protocol.

    - The exact reporting system should be considered by the Technical Committee set up to implement the Energy Efficiency Accord.

8 Summary of National Best Practice Programme

In summary, the principal components of the proposed NBBP are:

8.1 An effective programme for training and credentialing *Certified Industrial Energy Managers*, linked to other local and international programmes for certifying energy efficiency professionals and forming part of the qualification for corporate participation in the national Best Practice programme.

8.2 A national recognition programme for corporate Best Practice, incorporating the two "legs" of effective energy management—Organisational and Technical—and resulting in a "Certificate of Excellence in Best Practice" to be awarded by DME.

8.3 A marketing and informational strategy which includes a more aggressive search for BP case studies through industry media (including a standard template for recording of case study information), introduces national recognition programmes for both individual Energy Managers and Corporate achievement through the Energy Accord, and launches an Energy Leader programme among energy-intensive companies as a way of attracting early visibility and buy-in from industry.

8.4 Development of an assessment methodology for Energy Management Best Practice (EMBP) within industry, to include reporting on both "soft" and "hard" data using the EM Matrix and the Energy Audit Protocol, piloted in an early version with an Energy Leaders programme and thereafter to be reviewed periodically with stakeholders.

8.5 Provision of incentives for companies achieving BP targets or efficiency targets through the EE Accord.

9 Recommended implementation programme

The Gantt chart on the following page itemises specific activities, which will need to be implemented in the short/medium/long terms to ensure an effective roll-out of the programme. The list is not intended to be exhaustive, but does cover most of the major activities/programmes mentioned in the report. The dates are only indicative and will require further consultation with stakeholders, but the sequencing is based on a careful examination of the linkages between various activities and should be followed as closely as possible.

Short-term activities: to June 2006

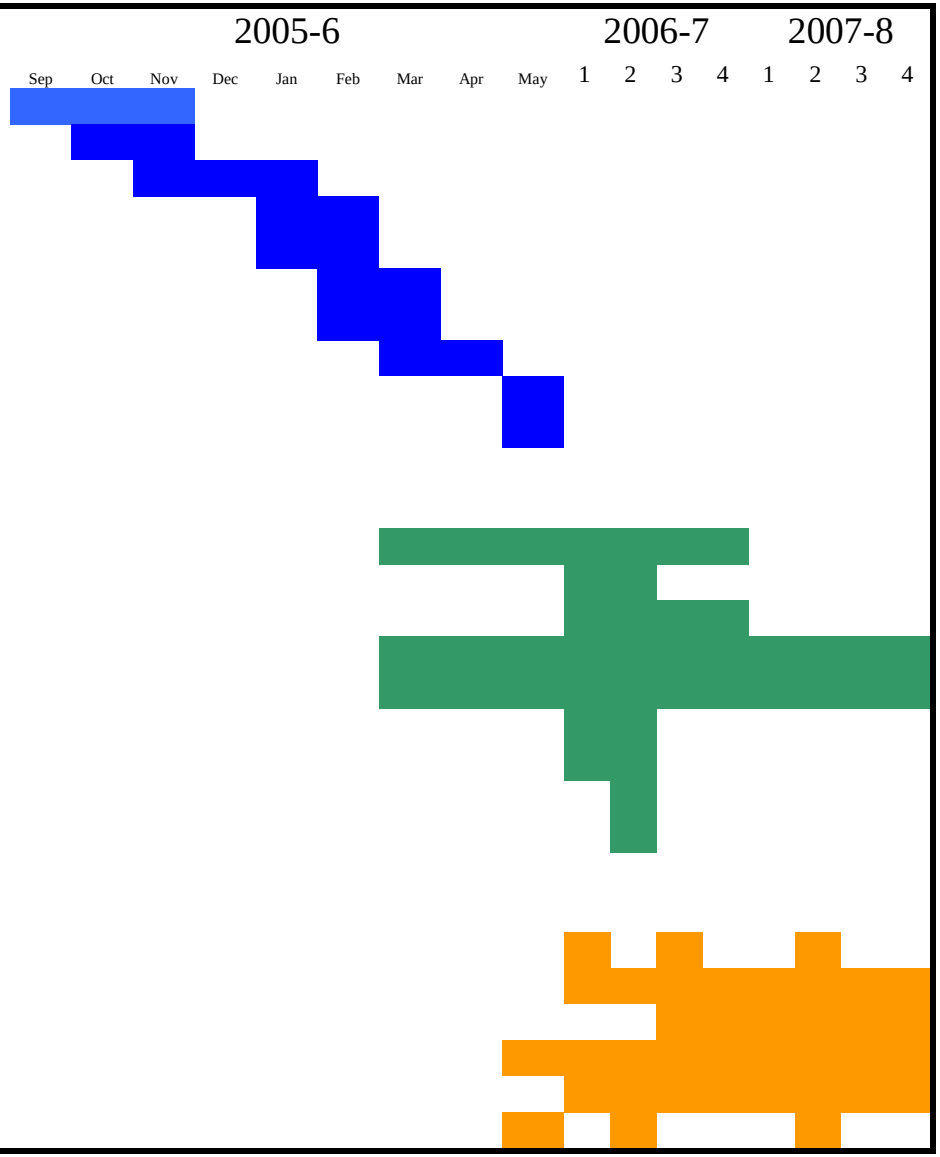
Stakeholder meetings, particularly EIUG and Accord signatories
Approval of unit standards and skills programme by E-SETA
Accreditation of training providers through ESETA
Launch of training/certification programme for EM
Advertising for BP case studies
Introduction and trialing of EM Matrix and EA Protocol
Launch of Energy Leaders programme
Publicity/information campaign for EE Month 2006
Energy Manager Recognition Award
Energy Efficiency Month 2006

Medium-term activities: July 2006 to June 2007

Ongoing monitoring of EM certification programme
National registration of unit standards by SAQA
Expanded collection of data through EM Matrix and EA Protocol
Continued promotion and collection of BP case studies
Accreditation of new training providers
Introduction of full BP Corporate Recognition programme
Publicity/information campaign for EE Month 2007
EM and corporate awards.
Energy Efficiency Month 2007

Long-term activities: Ongoing to 2008

Periodic re-assessments of progress against strategy
Continued promotion and collection of BP case studies
Introduction of regulatory framework for EM and EE
Expand Accord signatory group
Continued and expanded recognition programmes
Annual stock-taking during EE Month



Appendix 1:

Energy Efficiency Accord

ENERGY EFFICIENCY ACCORD

Between

The Government of South Africa, Department of Minerals and Energy (DME)

and

Company/Association

1. PARTIES

This document constitutes an accord between the Department of Minerals and Energy (DME) and the undersigned associations and individual companies using energy in their business operations.

2. BACKGROUND

Both South African business and the Government recognise that improvements in energy efficiency are needed if the country is to remain competitive internationally whilst dealing effectively with potential electricity capacity shortages, environmental concerns and the steadily rising price of all energy sources.

The Government of South Africa, through the DME, has issued the Energy Efficiency Strategy of the Republic of South Africa in March 2005. One element of this Strategy is the encouragement of business-led, voluntary initiatives to improve energy efficiency. This Accord stands as a commitment between government and industry to support this specific objective of the Strategy. Energy efficiency commitments should not be seen in isolation of the national imperatives of increased investment, economic growth and job creation or the business drivers of efficiency, competitiveness and safety standards

3. PURPOSE

The DME and the industry signatories agree to collaborate to establish a mutually beneficial framework for voluntary energy efficiency initiatives that will help move the country towards its goals of attracting investment in Clean Development Mechanism (CDM) projects and efficient energy use.

Specifically, the DME and the industry signatories will work together to establish a programme that individual industry associations and companies will be able to join voluntarily.

4. COMMITMENTS

The Parties recognise the national imperative to achieve higher economic growth rates and agree that energy efficiency improvements need to be considered within the context of this overarching imperative.

The Parties agree to cooperate to pursue energy efficiency targets on a voluntary basis, recognising that energy usage is a major contributor to greenhouse gas emissions in South Africa. They also agree to collaborate on initiatives that could result in CDM projects. The success of voluntary based initiatives will form part of the regular reviews provided for in the Energy Efficiency Strategy.

4.1 Targets

Industry signatories acknowledge the target, set in terms of the Energy Efficiency Strategy of the Republic of South Africa, of a national final energy demand reduction of 12% by 2015, expressed as a percentage reduction against the projected national energy use in 2015, with a final energy demand reduction target for the industry and mining sector as a whole of 15% by 2015. The industry signatories commit to the following actions towards this target.

4.2 Industry

We, the undersigned industry signatories, agree to collaborate with each other and Government to:

- promote the development of sector specific strategies and targets, in partnership with Government, that will contribute to the achievement of the overall energy efficiency target set by Government;
- promote the use of Demand Side Management contracts concluded with energy suppliers, where they exist, and to negotiate additional such contracts where appropriate, towards achievement of the above target;
- develop common reporting requirements for energy usage from all energy sources, taking into account, where possible, existing internationally recognised protocols for reporting such as those developed by the Global Reporting Initiative;
- define industry-specific projected energy use in the future, based on Business-as-usual (BAU) growth expectations;
- agree on 2000 as the baseline year against which performance will be measured;
- establish methodologies that will allow the baseline quantification for energy use/intensity (consumption per unit of production or any other relevant denominator) in various subsectors, and to take into account the need to measure specific energy intensity (providing for the differing subsectors) rather than absolute energy use in order to promote industrial growth whilst achieving energy efficiency and recognising the energy conservation measures already in use in some subsectors*;*
- establish methodologies to take into account increased production so that the pursuit of improved energy efficiency does not hamper industrial growth;
- develop a generic energy auditing protocol that can be adapted for use by the individual sector and company signatories;
- endeavour that, where appropriate, training material prepared during the course of this accord be accredited through the relevant SETA and that the sector skills plans of the various sectors include the development of the skills necessary to sustain the commitments made in this accord; and
- where appropriate, exploit opportunities presented by energy efficiency projects to develop CDM projects.

4.3 The DME

I, the undersigned, on behalf of government, agree that we will work cooperatively with industry signatories to realise the above commitments and to:

- engage with industry signatories leading up to the three yearly interval reviews that are envisaged in the Strategy;
- develop strategies, including the provision of fiscal and other incentives with signatories to incentivise the achievement of agreed sectoral targets by industry on a sector or enterprise basis;

- afford signatories the opportunity to provide input to the concept and structure of future energy related strategy, regulations and standards;
- build a relationship of trust and cooperation with signatories;
- encourage and enable information sharing and networking activities with the private sector and to seek synergy with the greenhouse gas initiatives undertaken by the Department of Environmental Affairs and Tourism;
- identify and share Best Practices (where appropriate to the South African context) among all parties and consider them as the basis for the establishment of standards;
- recognise industry signatories as contributors to the ongoing process to revise the Energy Efficiency Strategy; and
- promote CDM projects as a vehicle to achieve improved energy efficiency.

5. MILESTONES

The Parties acknowledge the Energy Efficiency Strategy of the Republic of South Africa and agree that the strategy will be reviewed every three years in a collaborative process between the Parties.

The Parties acknowledge further that the Energy Bill, which will be enacted by the end of 2005, will contain elements relating to energy efficiency and agree that implementation of these elements will take place in consultation amongst the Parties.

Each energy using industry signatory, individually and/or with the assistance of and through collaboration with industry associations where appropriate, commits to the development of a specific energy efficiency strategy within one year of the signing of this Accord.

6. INSTITUTIONAL ARRANGEMENTS

The Industry signatories agree that the National Business Initiative will act as the liaison with Government in the implementation of this Accord. In this regard, Business Unity South Africa is recognised as one of the formal and representative business organisation mandated to deal with formal legislative and policy negotiations.

Industry parties will collaborate with Government in the compilation of an annual National Progress Report, including energy data and progress against the agreed targets.

Signed at Kyalami, Johannesburg, South Africa, this fourth day of May, 2005

_____

Phumzile Mlambo-Ngcuka

For the DEPARTMENT OF MINERALS AND ENERGY

_____

Name

For company/association

Appendix 2:

Energy Efficiency Matrix

	Energy Policy	Organizing	Skills & Knowledge	Information Systems	Marketing & Communicating	Investment
4	Energy policy, action plan and regular review have commitment of top management as part of a business & environmental strategy ❑	Energy management fully integrated into management structure. Clear delegation of responsibility for energy consumption. ❑	All energy users receive specific energy training integrated into other development activities. Workshops facilitate a sharing of knowledge. ❑	Comprehensive system sets targets, monitors consumption, identifies faults, quantifies savings and provides budget tracking. ❑	Communicating the value of energy efficiency and the performance of energy management within the organization and outside. ❑	Positive discrimination in favour of green schemes with detailed appraisal of all new-build & refurbishment opportunities. ❑
3	Formal energy policy but no active commitment from top management. ❑	Energy manager accountable to energy committee representing all users. ❑	Key energy users receive regular and specific training. Brief awareness training provided to all energy users. ❑	Monitoring and targeting reports for individual areas based on sub-metering, but savings not effectively reported to user. ❑	Program of staff awareness and regular publicity campaigns. ❑	Same payback criteria employed as for all other investments. ❑
2	Unadopted energy policy set by senior manager or senior departmental manager. ❑	Energy manager in post, reporting to ad-hoc committee but line management and authority unclear**.** ❑	Key energy users receive awareness training, also occasional system-specific training. ❑	Monitoring and targeting reports based on supply meter data. Energy unit has ad-hoc involvement in budget setting. ❑	Some ad-hoc staff awareness training. ❑	Investment using short term pay back criteria only. ❑
1	An unwritten set of guidelines. ❑	Energy management the part-time responsibility of someone with only limited authority or influence. ❑	Key employees participate occasionally in awareness training. Some information passed informally to energy users. ❑	Cost reporting based on invoice data. Engineer compiles reports for internal use within technical department. ❑	Informal contacts used to promote energy efficiency. ❑	Only low cost measures taken. ❑
0	No explicit policy. ❑	No energy management or any formal delegation of responsibility for energy use. ❑	Energy users rely on their existing knowledge. ❑	No information systems. No accounting for energy consumption. ❑	No promotion of energy efficiency. ❑	No investment in increasing energy efficiency in the plant. ❑