



Department of Minerals and Energy
Pretoria

Capacity Building in Energy Efficiency and Renewable Energy

Report No. – 2.3.4-24

Building Energy Audit Training Project –
Marketing Plan

This Report contains restricted information and is for official
use only

November 2004



Department of Minerals and Energy Pretoria
**Capacity Building in Energy
Efficiency and Renewable Energy**

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Table of Contents

1.	Summary of Activities And Recommendations	3
1.1	Background	3
1.2	Target Market Identification: Demand Side	3
1.3	Training Authorities: Supply Side	3
1.4	ESETA	4
1.5	Marketing Mediums	9
1.6	Budget Development	12
1.7	Budget Recommendation	15
1.8	Implementation Plan	17
	Appendix A: SAAE Contact Details	19
	Appendix B: Tertiary Institutions	23
	Appendix C 1: Print Medium and Associated Costs	24
	Appendix C 2: Electronic Medium and Associated Costs	26
	Appendix C 3: Radio Mediums and Associated Costs	42
	Appendix D: Course Prospectus	43
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Abbreviations and Acronyms

-	BEE	-	Black Economic Empowerment
-	CaBEE	-	Capacity Building in Energy Efficiency and Renewable Energy
RE			
-	CB	-	Capacity Building
-	CEF	-	Central Energy Fund
-	DANI	-	Danish International Development Assistance
DA			
-	DDG	-	Deputy Director-General
-	DEAT	-	Department of Environmental Affairs and Tourism
-	DK	-	Kingdom of Denmark
-	DKK	-	Danish Kroner
-	DME	-	Department of Minerals and Energy
-	DTI	-	Department of Trade and Industry
-	EE	-	Energy Efficiency
-	ESETA	-	Energy Sector Education Training Authority
-	FIDIC	-	International Federation of Consulting Engineers
-	IDC	-	Industrial Development Corporation of South Africa
-	IPM	-	International Project Manager
-	NT	-	National Treasury
-	NER	-	National Electricity Regulator
-	NGO	-	Non-Governmental Organisation
-	PDI	-	Previously Disadvantaged Individual
-	PM	-	Project Manager
-	PQ	-	Pre-qualification
-	PSC	-	Project Steering Committee
-	PTT	-	Project Task Team
-	QA	-	Quality Assurance
-	RE	-	Renewable Energy
-	RSA	-	Republic of South Africa
-	SA	-	South Africa/South African
-	SALG	-	South African Local Government Association
A			
-	SANG	-	South African Non-Governmental Organisations' Committee
OCO			
-	SARS	-	South African Revenue Services
-	SMME	-	Small, Medium and Micro Enterprises
-	SP	-	Service Provider
-	ST	-	Short Term Adviser
-	TA	-	Technical Assistance
-	TOR	-	Terms of Reference
-	VAT	-	Value Added Tax
-	ZAR	-	South African Rand



1. SUMMARY OF ACTIVITIES AND RECOMMENDATIONS

1.1 Background

The TOR required the consultants to develop a “marketing and dissemination plan for the course material, complete with budgets” (revised TOR, dated 19 December 2003). It is understood that this requirement now replaces the original requirement to both produce such a plan and also to “publish” the training manuals. To satisfy this requirement, Nyathi will first utilise the evaluations produced by the two course trials, i.e. the basic energy audit course and the course for supervisors, to determine the appropriate target market for these courses. The project team will also obtain a list of accredited trainers from the E-SETA and relevant qualifications authorities, amending this list if necessary by direct dialogue with the client. They will then prepare a brief prospectus on the course, introducing both the course material and general methodology. This together with the list of accredited trainers will then be used to develop a detailed marketing plan, specifying target groups, potential trainers, costs of implementation for different configurations of the course, and a schedule for dissemination.

1.2 Target Market Identification: Demand Side

The following associations need to be contacted and informed of the developments with regard to Department of Mineral and Energy’s programmes:

South African Association of Consulting Engineers (SAACE)
South African Association of ESCO’s (SAAE)

SAACE currently has 457 member firm registered, and this constitute 3501 professional and 5600 technical staff members. SAACE also has 13 national branches. The contact person at SAACE is Mr. Johan van Schalkwyk. His contact details are:

- Tel: 011 4632022
- Email: johanv@saace.co.za

The current membership level of SAAE is composed of 80 members (refer to Appendix A), and the regional representation is as follows: 80% - Gauteng based, 8* - KwaZulu Natal based, 6% - Port Elizabeth based 1% - Western Cape based,. This database is managed by Mr. D. Krueger of North West University as the Secretary of SAAE.

1.3 Training Authorities: Supply Side

Both the tertiary and private sector can be approached to provide the training (refer to Appendix B). The tertiary institutions that will be geared are the Universities and Technikons. There are no accredited service providers.



1.4 ESETA

Background. The project team is working closely with the Energy SETA and its ETQA to ensure that both the unit standards and the course training materials are properly vetted with stakeholders and that the qualification for Buildings Energy Auditor is nationally registered. In this regard, the E-SETA will also play the key role in marketing and dissemination of both the qualification and the training materials.

This requirement was based on the assumption that the course would be “marketed” and ultimately “disseminated” by DME itself, as part of its roll-out of the Energy Audit Programme for national government buildings. In this model, national unit standards and a course designed to meet these standards would be developed in close coordination with the Energy Audit Programme, resulting in linked training programme that would then have to be marketed to training providers. In the event, the Consultants (with DME approval) identified a more effective approach to implementation of the qualifications and training programmes: Handing over responsibility for accreditation of trainers, approval of the unit standards and the course materials, and the eventual implementation of the course itself to the Energy Sector Education and Training Authority (ESETA). This was achieved by first developing a set of specific unit standards and then developing a Skills Programme based on these standards, both of which have now been submitted to the ESETA for final approval by their Education and Training Qualifications Authority (ETQA). This activity was carried out in parallel with the development of the training materials, ensuring that the latter were fully consistent with the unit standards. Finally, the ESETA itself proposed that the training materials be copyrighted by them for specific use in the Skills Programme.

This approach has had significant implications for the approach taken to the Marketing & Dissemination Plan, as will be further explained below.

The original terms of reference also assumed that there would be two distinct courses, one for energy auditors and one for their “supervisors”, and that marketing and dissemination would be different for each. Again, the development of the course programme followed a somewhat different path than expected. While separate training materials were developed for supervisors, it was agreed that in the trial both the “supervisor’s course” and the “auditor’s course” would be delivered as a single package. As a result, both supervisors and auditors were included in the trial course, and this approach may be continued in the final implementation of the actual training programme. The rationale for this approach was that supervisors will typically require some form of “refresher” to ensure that they fully understand the technical content and procedures of energy auditing, if they are to manage auditors effectively; asking supervisors to take some or all of the auditor course was therefore justified on the grounds that it would ensure a uniform level of understanding.

The delivery of the two parts of the course during the trial was therefore done on a continuous basis. Nevertheless, the team developed a separate set of supervisor modules which specifically address the issues of monitoring and verification of audit results, and these are expected to be taught only to supervisors albeit the supervisors may opt to take the auditor course as well.



Course Evaluation. The auditors' and supervisors' combined course was trialed in Pretoria and a report summarising participant evaluations of the course has already been submitted to DME as a precondition of finalising the course materials.

Course evaluations are not usually structured to provide information of relevance to marketing & dissemination; they are rather concerned with refining the method of instruction and the content of course materials. Thus the consultants are not able to identify "appropriate target markets" for the course(s) solely as a result of the evaluation. Nevertheless, through review of general comments made on the course, informal discussions with course participants, and discussion of the overall strategy for the course with the ESETA, a few broad conclusions can be drawn concerning the best approach to marketing the course:

There is a need for better coordination with ESKOM in rolling out the programme, and for collaborating with ESKOM to ensure that the concept of an "energy audit" as used in the DSM programme and in various ESKOM service programmes such as Industrelek is broadly similar to that utilized in the DME programme. ESKOM itself should therefore be a target for auditor training, and they should be involved in marketing the course to their own clientele.

DME should take primary responsibility for ensuring that a standard audit process/cycle and a standard reporting format is agreed by all key stakeholders, e.g. ESKOM, NER, and the ESETA. The training and roll-out programmes must also be coordinated and integrated by DME. (The initial effort to do this was undertaken as part of the BEAT programme).

The main "target" for the auditor course should be persons with at least a Level 5 qualification in mechanical, electrical or industrial engineering technology, i.e. holding a National Diploma.

The main "target" for the supervisor modules should be persons with at least a Level 6 qualification in these same areas, i.e. holding a B.Tech.

The great majority of auditor trainees will be drawn from the Consulting Engineering and Energy Service sectors, i.e. from companies specializing in the delivery of services in the energy field.

Clearly, the course trial has been of value primarily to ensure that errors and omissions in the materials themselves are corrected, and that some adjustments are made to the course structure to reflect participant comments. The most important single change made to the course as a result of the evaluation is to eliminate detailed treatment of "error correction" from the supervisors' course materials. Other than that, the final course package is presented as a single unit applicable to a wide range of persons from technical and management backgrounds, although with the option of breaking the course into two components if required.

Course Implementation Process. The project team worked closely with the Energy SETA and its ETQA to ensure that the unit standards, the skills programme and the course training materials will be properly vetted with stakeholders and that the qualification for Buildings Energy Auditor will in due time be nationally registered. The unit standards and the skills program for Building Energy Auditors were presented to the ETQA by its Chairman, Mr Johan Swanepoel of the Energy SETA on 12 June 2004.



The following are the steps which must now be followed to ensure that implementation occurs in a timely fashion:

The unit standards and skills programme will now be reviewed by the ETQA and its panel of professional consultants and, once approved by them, released for implementation.

The training materials, also presented to Mr Swanepoel, will be copyrighted following interaction with DME to discuss how this will be managed and why it is crucial for the success of the programme.

Once the above is completed, the E-SETA will advertise for trainers to deliver the course, and when it has received responses, will send a team to accredit the trainers. The master list of technicians which the E-SETA maintains has already been presented to DME as part of efforts to recruit trainers to the trial presentation of the course.

The accreditation process will result in a short-list of trainers capable of presenting the course materials. These will be forwarded to DME and will serve as a basis for discussion of the final implementation of the skills programme. A course prospectus, specifically designed for training providers, is attached to this report and should be used as part of the marketing of the course to SETA-accredited trainers.

This prospectus is aimed at training providers, and not at prospective trainees; the providers will themselves take on the task of promoting this course to their clientele, assisted by the E-SETA. The E-SETA will also play the key role in marketing and dissemination of both the qualification programme and training materials.

Basic Concept. Two alternative scenarios for marketing and dissemination of the course are presented here: (i) using the E-SETA both to market and disseminate the course, with DME acting in an advisory role, or (ii) DME marketing the course itself, using the E-SETA only to implement the course.

The consultants recommend the former scenario as the most effective and most appropriate; however, for purposes of balance, both scenarios are presented in detail below.

M & D through the E-SETA:

DME should liaise formally with the E-SETA to finalise a *collaboration agreement* for the training materials and the standards and qualifications programme, using this collaboration as a basis for eventual marketing and dissemination by the E-SETA. The resulting collaboration would have the following features:

The E-SETA would be responsible for copyrighting the training materials (after they have been trialed and finalised by the DME), for accreditation of training providers to deliver the programme, and (through the ETQA) for national registration of the unit standards and the qualification programme for Building Energy Auditors. Their promotional input would relate to



these two linked activities, i.e. the standards and the skills programme would be listed on the E-SETA website and the ESETA would mount a promotional initiative aimed at attracting trainees to the programme. At a later date, once the standards are nationally registered, funding would be available for the registration of learnerships for this form of training.

DME would be responsible for the trialing and finalisation of the training materials, including the trainers' Guidebook, and for creating the regulatory and market conditions for implementation of a mandatory audit programme for government buildings, and perhaps later for privately owned buildings. They would also be responsible for national promotion of the audit programme, and perhaps for promoting the qualifications programme as a pre-condition for auditors involved in the national roll-out.

In this preferred model, primary responsibility for both promotion and dissemination of the auditor training programme is given to the E-SETA, who will use their own media to implement this. DME's role would be supportive, i.e. they could promote the programme through their own media (newsletters, website, national launch events) in order to ensure a high take-up rate once the final course and qualifications programme is launched. Finally, the ESETA would be able to use its discretionary funds to pay for all or part of the skills program, reducing entry costs and minimising DME's own budget inputs.



Marketing through DME and Dissemination by the ESETA:

DME will take responsibility for marketing and dissemination itself, using the ESETA only as a conduit for this activity. This arrangement would have the following features:

The DME would make the training materials available on a free basis to potential training providers, using a list provided by the ESETA; and they would organize the training programme directly with 4-5 of these providers in selected centres around the country.

The ESETA would get approval for the unit standards and perhaps the skills programme, and would then turn the organisation of the training programme back to DME. No discretionary funds would be available from the ESETA to reduce the training costs.

In this model, DME's costs would be much higher (or the selected training providers would have to shoulder more of the risk, should enrolments be less than required), and the ESETA would have only a very limited role in the process.

Schedule of Implementation. Marketing and dissemination will follow from the implementation of two key activities:

Launch of the national buildings energy efficiency programme in at least the government sector; and

Approval by the ESETA-Energy ETQA of the unit standards and the auditor qualifications programme.

Because these two activities are pivotal yet their implementation dates have not been finalised, an exact schedule cannot be provided at this time. However, a rough estimate of elapsed time required for the ongoing promotion and dissemination would be as follows:

Item	Party Responsible	Elapsed Weeks
Announcement of Audit Training Qualifications Programme	E-SETA/DME	1
Accreditation of Trainers	E-SETA	6-8
National registration	ETQA	20-24
First course delivery	E-SETA/trainers	15-20
First Full Qualification Completed	Training providers	?



It should be noted that once the training materials are trialed and completed, and the ETQA has approved the unit standards and the qualifications programme based on them, full-scale training could start immediately provided that the E-SETA is willing to proceed on accreditation of training providers before approval is complete.

At the same time, DME is free to use existing (non-accredited) training providers to deliver the course for purposes of moving the government buildings programme forward; and it is possible (though not certain) that those trained could claim credit retroactively towards the auditor qualification, once this is approved by the ETQA.

1.5 Marketing Mediums

NYATHI has provide a survey of print, electronic (television and email), and radio medium where marketing can be effectively achieved (refer to Appendix C).

The core pillar of the marketing strategy should be based on the Public Relationship Format. The pillars of the PR format are:

- Breakfast Seminars
- Direct email
- Print medium, national publications and daily newspapers
- Conferences – Energy Month

1.5.1 The Breakfast Seminars

Breakfast seminars should be organised as the launching pad for the National Roll-Out Plan. Two formats should be considered;

- Invitation of news agencies and decision markers (Government), and
- Invitation of Prospective ESCO's. and Trade Associations.

The announcement that will be delivered, by key spokespersons of the Department of Minerals and Energy, Department of Public Works, and the National Energy Regulator (NER), should set the tone of the over all Roll-out Plan.



The delivery should focus on the following;

- The commitment of the government to energy efficiency and energy management;
- Geographical Spread of the Programme;
- Achievable targets that have been set;
 - Number of buildings that form part of the Programme;
 - Target number of enterprises that will implement the programme;
 - Time frame for the implementation of the programme;

An information package should be prepared for the delegate. This should include best practise material for household and the commercial sector. Sponsorships should be secured for light bulbs, posters and geyser blankets.

Key selected newspaper agencies will be allowed to interview the spokespersons and the delegates. This approach will be sensitive and obtain a buy-in from selected news paper agencies and the decision makers. The news paper agencies will then publicise the event nationally.

It is advisable that the two formats should not be combined as a single activity as this might result in acrimonious bickering between the parties. This will result in a perception that the programme is flawed and the unachievable.

1.5.2 Direct Email

Direct emails will be circulated nationally to all registered and prospective ESCO's and trade associations informing them of the following processes:

- National Roll-out Plan ;
- Training Opportunity;
- Accreditation Process; and
- Funding Mechanisms;

1.5.3 In-House Sensitisation

It is critical that communication with tenants / occupiers of the identified buildings for the programme be made aware of the Roll-out programme. This will ensure buy-in, and also in creating a conducive environment for the implementation stages. The following should be done:

- Preparation of weekly / monthly awareness presentations;



- Create notice boards demonstrating the programme plan
- Distribution of Best Practise posters with focus to office house keeping issue;
- Distribute energy efficiency light bulbs and geyser blankets;
- Create notice board announcements setting targets to be achieved;

1.5.4 Print and Radio Medium

A radio and publication announcements have to be prepared. The radio announcement involves the following:

- Script writing;
- Translation into at least 4 national languages;
- Sourcing of script reader;
- Studio production; and
- Identification of preferred radio station.

NYATHI recommends that 4 to 6 radio station be selected for the flighting of the announcement (Refer to Appendix C 3). The selected radio station are in line with the geographical spread of the registered ESCO's. The time slots for flighting should be for 6:00 – 9:00 and 15:00 – 18:00 and be from Monday to Friday. The duration should be 30 seconds to 1 minute per slot, and the frequency should be 3 times per selected time slot, and 3 times a week and over 4 months.

The publication announcement involves the following:

- Communication development;
- Internal Approval;
- Identification of publication; and
- Publication.

NYATHI recommends that trade linked publications with national distribution coverage, and regional newspapers be selected for the dissemination of the announcement. (Refer to appendix C 1). A series of advertorials should be prepared and published.



1.5.5 Conferences

Linkages to the annual conferences like the ETA awards, Energy Month should be utilised to reflect on commitments made, and demonstrate achieves and targets reached. This should be linked to site inspections of demonstration projects that formed part of the programme. The enterprises that were part of the project implementation should be required to the tour guides. This interaction will demonstrate capability building, skills \transfer, and the success of the Roll-out programme.

1.6 Budget Development

NYATHI assumes that the preparation of documentation and production activities will be done separately to this brief. The cost associated to these activities is not included in this budget development exercise.

NYATHI advises that a communication agency be retained for undertaking the overall management and implementation of this marketing plan.

The approximate budget for executing this marketing plan is broken-down as follows:

- **Breakfast seminars:** **R 34,000.00**
- **In-house sensitisation:** **R 396.000.00**
- **Radio Medium:** **R 1,113,960.00**
- **Print Medium:** **R 671,394.00**
- **Support Staff:** **R 79,200.00**

NYATHI recommends that DME develop a budget based on the benchmark costs surveyed



1.6.1 Breakfast Seminars

The cost for running a breakfast seminar is as follows:

- Venue rental **R 2,000.00**
- Rate per person **R 100.00 – R 150.00**
- The approximate number of delegates to be invited is **50 – 100** per session.
- Standard equipment and material for a conference are included in the price stipulated.
- The equipment included will be:
 - Projector
 - Flipcharts
 - Writing pads
 - Pens
 - Markers

1.6.2 Direct Email

The cost associated to the direct distribution of the invitation and announcement is based on the percentage fee of delivering of the training modules. The **rate is 10%**. This will cover administration costs and telephone link-up. This cost can be absorbed by the training providers as a marketing cost.

1.6.3 In House Sensitisation

The capital required for the production of posters will be approximately **R 800.00 per set of 6 posters**. The man hours required in preparing and presenting the awareness programmes will be **1-man month** equating to **R 26,400.00 per site**. This is based on a rate of R 150.00 per hour. The overall cost will be **R 396,000.00** assuming **15 sites** will form part of the programme.



1.6.4 Radio Medium

The production costs relating to script writing, translation, studio production and script reading will be approximately **R 30,000.00**.

The flighting costs are based on 30 second recorded time slots. The approximate cost for running a 30 seconds slot on **6 radio stations**, with a frequency of 3 times per selected time slot, and 3 times a week and over 4 months will be **R 1,083,960.00**

1.6.5 Print Medium

The production cost is approximately **R 10,000.00**. The cost of publication, in **10 monthly magazines** over 4 months, is approximately **R 330,528.00**. The cost of publication, in **6 regional daily newspapers** twice an month and over 4 months, is approximately **R 330,866.66**.

1.6.6 Support Staff

NYATHI recommends that support staff be allocated as back office assistance and management. The cost is **R 79,200.00** and is based on 4 man months.

NYATHI recommends that DME develop a budget based on the benchmark costs surveyed



1.7 Budget Recommendation

NYATHI recommends that DME implement the following initiatives at a cost of **R 113,200.00**:

- DME communicates with the Energy SETA to devise means of sharing the marketing cost. Preliminary discussions held with ESETA (Mr. Swanepoel) have shown a willingness by ESETA to sponsor some of the initiatives; however the decision will be taken by the board of ESETA.
- A communication agency is retained for undertaking the overall management and implementation of this marketing plan. The cost allocated for a communication agency is **R 79,200.00**. This cost is based on 4 man months and could be reduced depending on the responsibilities and time allotted to the agency.
- Breakfast seminars, costing **R 34,000.00**, should be organised as the launching pad for the National Roll-Out Plan. Two formats should be considered separately;
 - Invitation of news agencies and decision markers (Government), and
 - Invitation of Prospective ESCO's and Trade Associations.

The announcement that will be delivered, by key spokespersons of the Department of Minerals and Energy, Department of Public Works, and the National Energy Regulator (NER), should set the tone of the over-all Roll-out Plan.

The communication should focus on the following;

- The commitment of the government to energy efficiency and energy management;
- Geographical Spread of the Programme;
- Achievable targets that have been set;
- Number of buildings that form part of the Programme;
- Target number of enterprises that will implement the programme;
- Time frame for the implementation of the programme;

An information package should be prepared for the delegate. This should include best practise material for household and the commercial sector.

Sponsorships should be secured for light bulbs, posters and geyser blankets.

Key selected newspaper agencies should be allowed to interview the spokespersons and the delegates. This approach will be sensitive and obtain a buy-in from selected news paper



agencies and the decision makers. The news paper agencies will then publicise the event nationally at no cost to the department.

- Direct Email: The cost associated to the direct distribution of the invitation and announcement is based on the percentage fee of delivering of the training modules. The **rate is 10%**. This will cover administration costs and telephone link-up. This cost can be absorbed by the training providers as a marketing cost, resulting in no cost to the department.
- DME develops a budget based on the benchmark costs surveyed.



1.8 Implementation Plan

Activities	Marketing Implementation Plan: Time Frame															
	September			October				November				December				
Announcement of Audit Training Qualification Programme																
Accreditation of Trainers																
National Registration																
First Course Delivery																
First Full Qualification																
Breakfast Seminars																
Solicit Sponsorship																
Secure Venue																
Secure Spokespersons																
Invitation of News Agencies																
Invitation of ESCO's & SAACE members																
Prepare Communication Brief																
Prepare Information Packages																
Delivery Announcement																
Debrief and Interview Session																



Activities	Marketing Implementation Plan: Time Frame												
	September			October			November			December			
Direct Email													
Formalize Link With SAACE and ESCO Association													
Distribute Announcement													
In-House Sensitization													
Weekly / Monthly Awareness Presentations													
Notice Boards: Development and Installation													
Distribution of EE Packages													
Radio													
Script Development													
Translation													
Sourcing of Script Reader													
Studio Production													
Announcement flighting													
Publication													
Communication Development													
Internal Approval													
Identification of Publications													
Publish													



Appendix A: SAAE Contact Details

Current SAAE Membership Levels

South African Association of ESCO's

Company	Name	Telephone/Cell number	Fax number	E-mail address
ALSA	Wallington, Barry	083 750 3607	014-534 0581	bswal@netactive.co.za
AngloGold	Arnold, Keith		011-637-6508	KEArnold@anglogold.com
Danfoss	Potts G	082 772 1384	011 803 8244	Pottsg@danfoss.co.za
DSI Services	Crowder S	082 753 1142	021 946 1163	Shawn.dsis@telkomsa.net
DSM	Etzinger A	082 655 3463/011 800 5316		Andrew.etzinger@eskom.co.za
DSM	Lawrence V	011 800 2089/082 653 4053	011 800 5839	Vic.lawrence@eskom.co.za
TSI	Bredenkamp, Barry	011-629-5264 / 083 655 6891		Barry.bredenkamp@eskom.co.za
DSM	Mashao M	082 604 5044	011 800 5839	John.mashao@eskom.co.za
DSM	Matlala T	011 800 6228	011 800 5839	Tsholo.matlala@eskom.co.za
DSM	Nixon R	011 800 2776	011 800 5839	Ray.nixon@eskom.co.za
DSM	Sifile K	011 800 2694	011 800 5839	Khan.sifile@eskom.co.za
E A Ludwig cc	Ludwig, Edgar	021 556 8804 / 082 3456 670	021 556 8804	eludwig@deunet.co.za
Energy Training Foundation	Lane IE	012 348 4154/082 576 2330	012 348 4154	Eneficy@mweb.co.za
Escotek	Van Jaarsveld A	012 347 7034/082 789 9721	012 347 7034	Atpolaris@mweb.co.za
Eskom DSM	Sebaeng, Ms Chrisie	011-800-4779	011-800-5839	Chrisie.sebaeng@eskom.co.za
Excotech	Ranyaka, Ituneleng	072 261 2999	-	itu@kitsotech.co.za
F&S Business Enterprises	Moyo, Shela	0822 752 9847 / 011-443 1614	011-443-2460	moyofs@tiscali.co.za
Company	Name	Telephone/Cell number	Fax number	E-mail address



Farad (Pty) Ltd	Gerber, Peter	011-726-4090 / 082 901 9222	011 726 4531	farad@farad.co.za
Fluoro Save	Murphy TW	083 255 2487	021 975 2830	Terry.m@absamail.co.za
Fluoro Save	Doo Vuyiswa	083 440 9800	021 913 5908	Vudoo@global.co.za
HSC Technologies	Sekabe, Alex	084 701 3766		Alex.sekabe@nyamezela.co.za
HSC Technologies	Mabusela, John	073 156 7190		johnm.otech@mailbox.co.za
HVAC Int	Vand der Bijl, Johan	083 227 8513		johan@rems2.com
HVAC International	Kleingeld M	083 373 4549	012 991 5716	Mkleingeld@rems2.com
Independent Consultant	Falk M	011 784 6800/082 552 3400		Mark.falk@mweb.co.za
IP Systems	Botha A	082 777 6344	031 563 8798	ComholD@comholD.com
IP Systems	Dettmer H	083 963 0265	031 563 8798	Dettmer@pmt.co.za
Iskhush Power	Hager O	011 392 4838	011 392 5751	Otto@iskhus.co.za
Iskhush Power	Potgieter A	083 655 6888	011 392 5751	Antonp@iskhus.co.za
IST	Nell C	082 574 3548	012 365 1467	Chrisn@ist.co.za
Lebone Engineering	Radebe K	011 802 6370/082 850 6893	011 802 6371	Kelvinr@lebone.com
Lemay Electrical	Nicholson H	011 622 6170	011 616 1506	Info@lemaysecurity.co.za
Lemay Electrical	McCartney N	011 622 6170	011 616 1506	Info@lemaysecurity.co.za
Light-Be	Müller M	011 762 6874/083 458 4871	011 769 1655	Mikem@global.co.za
Magnitech (Pty) Ltd	Jon Cinman	011 618 2720 / 082 579 8872	011 614 9603	joncinman@magnitech.co.za
ManoA Group	Lefeng, Pontsho	083 973 4000		pontsho@emailaccount.com



Company	Name	Telephone/Cell number	Fax number	E-mail address
Motla Engineering	Johan Mocke	083 632 0319		info@motla.co.za
National Power	Bekink DE	083 610 0343	016 365 5006	Dave@natpower.co.za
Nationwide Electrical	Chetty, Ravan	082 202 3854	031-206 1589	nepi@mweb.co.za
	Reddy G	012 401 4744	012 401 4700	Ganasen.reddy@ner.org.za
North West University	Krueger D	084 408 6020 / 012-991-5110	012-991-5716	dkrueger@rems.com
North West University	Mathews, Prof EH	012 991 3181	012 991 5716	Ehmathews@researchtoolbox.co.za
North West University	Grobler LJ	082 452 9279	018 299 1320	Mgiljg@puk.ac.za
Nova Lighting	Edgar M	021 706 4451	021 705 9215	Mike@nova.co.za
Nova Lighting	Edgar P	021 706 4451	021 705 9215	Peter@nova.co.za
Nova Lighting	Edgar D	011 825 4201	011 8730392	Dave@nova.co.za
Nyathi Energy Services	Matsiliza L	011 233 7834/082 418 5496	011 807 1362	Lm@wspgroup.co.za
Owens Corning	Reynolds, Ms Lisa	082 773 2928	011 817 1082	Lisa.Reynolds@owenscorning.co.za
Palenque	Bluff E	012 653 8693	012 635 8693	Esme@palenque.co.za
Palenque	Leopeng P	021 653 8693	012 635 8693	Peter@palenque.co.za
Rebserve FM	Kritzing G	082 338 3452	012 663 4918	Kritzingerg@tfmc.co.za
Robmet Meters, cc	Robinson, Ian	083 251 1932	011 469 0461	robmet@mweb.co.za
Siyadingana Consulting	Sahlawuld, Sicelo	072 180 2565	-	Siyadingana consulting@yahoo.com
SunTank Solar TGC	Hurwitz, N Venter F	082 442 1200 082 780 9993	011 396 4510	nerielh@suntank.com Friktgc@iafrica.com
Thamela Technologies	Pontes J	072 683 5868	011 887 9262	Jose@thamela.co.za



Company	Name	Telephone/Cell number	Fax number	E-mail address
Thamela Technologies	Shangase ASV	072 476 8855	011 887 9262	Sibusiso@thamela.co.za
Thermal Insulation Assoc of SA, (Isofoam SA)	Harris, Howard	083 252 5750, 012-342 0576,	012 342 0579	howard@zamail.co.za
Tsebo Resources	Mathaha P	084 774 2301	011 452 7935	Mathaha80@yahoo.com
Tsebo Resources	Matji R	083 725 1552	011 452 7935	Tsebo@netactive.co.za
TSI	Chapman D	011 629 5487	011 629 5264	Darryl.chapman@eskom.co.za
TSI	Pillay P	072 695 3748	011 800 5188	Pragasen.pillay@eskom.co.za
TSI	Pillay, Pragasen	072 695 3748	011-629-5264	Pragasen.pillay@eskom.co.za
Venn Diagnostics	Strydom, Johan	073 505 9028 / 011-883-0000	011-883-6616	johangs@venn.co.za
Voltex	Donald D	011 622 4910	011 616 9149	Ddonald@voltex.co.za
Zamori ESFM Zaptronix	Gouws, Johan Stratenwerth J	082 572 5681 082 460 6695	- 011 807 9293	jfg@absamail.co.za Jens@zaptronix.co.za
Zenergy	Passmore D	011 442 4419	011 442 4449	Donp@zenerglms.co.za
Zenergy	Townsend H	011 442 4419	011 442 4449	Henryt@zenerglms.co.za



Appendix B: Tertiary Institutions

Company	Name	Telephone/Ce ll	Fax number	E-mail address
RAU	Prof Laubscher	011-4892119 011-4892386		
Tshwane Uniniversity of Technology	Prof S.D. Roos Mr. Chapman	012-3185001 0828830890		
North West University	Prof Albert Helberg Prof J. de Kock	018-2991978 0828882003		eeijack@puk.ac.za
Stellenbosch University	Ms du Toit Ms. Hannelie van Wyk	021-8084374 021-8084979	021-8084958	idunt@sun.ac.za
University of Cape Town	Prof K. Bennett	012-6503893	021-6864838	kbennett@ebe.uct.ac.za
University of KwaZulu Natal	Mr. G. Diana	031-2601030		gdiana@nu.ac.za
Witwatersrand University	Dr. Chapbell	011-7177367		
Central University of Technology	Prof Masu	051-5073087	051-5073254	lmasu@tfs.ac.za
Pentech	Mr. H. Fawkes	021-9596496		fawkesh@pentech.ac.za



Appendix C 1: Print Medium and Associated Costs

Publication	Readership Level	Cost for Full Colour Advert
Air-conditioning & Refrigeration		
African Heating & Cooling	2 808	A4 R7 150 ½ pg R4 950
SA Refrigeration & Air-conditioning	3 367	A4 R5 700 ½ pg R4 700
The Cold Chain	2 500	A4 R4 100 ½ pg R3 600
The Cold Link	3 559	A4 R6 970 ½ pg R5 140
Architecture & Building		
Journal of Facilities Management	2 300	A4 R6 750 ½ pg R4 950
Electrical & Electronics		
African Energy Journal	2 300	A4 R8 745 ½ pg R7 535
Dataweek	3 000	A4 R10 220 ½ pg R7 200
Electricity & Control	5 000	A4 R7 820 ½ pg R4 770
Elektron	5 562	A4 R7 344 ½ pg R3 819
Energize	4 606	A4 R8 078 ½ pg R6 353
ESI Africa	5 000	A4 R9 975 ½ pg R8 595
Quantum	4 000	A4 R6 400 ½ pg R4 200
Sparks	6 973	A4 R9 755 ½ pg R6 690
Vector	5 855	A4 R8 078 ½ pg R5 979
Engineering		
Civil Engineering	7 200	A4 R7 500 1/2 pg R5 200
Engineering News	14 994	A4 R13 500 1/2 pg R6 400
Mechanical Technology	4 000	A4 R9 670 1/2 pg R6 620
SA Mechanical Engineer	3 959	A4 R7 500 1/2 pg R5 770
SEIFSA News	2 800	A4 R7 550



The Civil Engineering Contractor	3 139	1/2 pg R A4 R7 950 1/2 pg R6 850
Municipal		
Imiesa	3 836	A4 R5 210 1/2 pg R3 145
Government Digest	4 000	A4 R8 760 1/2 pg R6 130
Property		
SA Property Review	4 000	A4 R7 393 1/2 pg R5 175
Shopping SA	3 500	A4 R8 845 1/2 pg R6 185
Gauteng Dailies		
Beeld	101 517	A4 1/2 pg
Business Day	42 057	R141.34 per single column cm A4 R20 160.90 1/2 pg R13 440.60
Pretoria News	97 000	R69.38 per single column cm
The Citizen	112 000	A4 1/2 pg
The Daily Sun	235 000	A4 1/2 pg
The Sowetan	123 600	A4 R 40,629 1/2 pg R R31, 600
The Star	171 336	R230.63 per single column cm
Cape Dailies		
Cape Argus	73 206	R131.78 per single column cm
Die Burger	82 166	A4 1/2 pg
The Cape Times	48 812	R112.63 per single column cm
KZN Dailies		
The Daily News	51 131	R112.79 per single column cm
The Mercury	39 235	R95.14 per single column cm
The Natal Witness	23 408	A4 1/2 pg
Free State Dailies		
Volksblad	22 179	A4 1/2 pg



Appendix C 2: Electronic Medium and Associated Costs

Sell out based on 12 minutes per hour ; 6 minutes per half hour						
Time	Fri	Saturday	Sat	Sunday	Sun	Time
Channel	Rate	4-Sep	Rate	5-Sep	Rate	Channel
05h00 - 05h30	1000	Hallelujah Africa	1000	Hallelujah Africa	1000	05h00 - 05h30
05h30 - 06h00	3000	Out of Africa	3000	Rhema	1000	05h30 - 06h00
06h00 - 06h30		The World This Week	3000	The World This Week	3000	06h00 - 06h30
06h30 - 07h00						06h30 - 07h00
07h00 - 07h30						07h00 - 07h30
07h30 - 08h00						07h30 - 08h00
07h30 - 08h00						07h30 - 08h00
08h00 - 08h30	12000	Infomercial	15000	Rhema	1000	08h00 - 08h30
08h30 - 09h00	5000	Craz-e	6000	Caitlan's Way	7000	08h30 - 09h00
09h00 - 09h30	5000			Craz-e	6000	09h00 - 09h30
09h30 - 10h00	8000	Sam & Max	7000	Courage The Cowardly Dog	7000	09h30 - 10h00
10h00 - 10h20		Jackie Chan	7000	Craz e	6000	10h00 - 10h20
10h20 - 10h30						10h20 - 10h30



10h30 - 11h00	7000	Backstage Omnibus	12000	Jeopardy	7000	10h30 - 11h00
11h00 - 11h30				Beetlejuice	8000	11h00 - 11h30
11h30 - 11h50						11h30 - 11h50
11h50 - 12h00				Sun Movie: 18 min		11h50 - 12h00
12h00 - 12h20						12h00 - 12h20
12h20 - 12h30		Infomercial				12h20 - 12h30
12h30 - 13h00	7000	e-Shibobo	7500			12h30 - 13h00
13h00 - 13h30	8000	Reversal of Fortune	10000	Uefa Magazine	9000	13h00 - 13h30
13h30 - 13h50	11000			20 Something	9000	13h30 - 13h50
13h50 - 14h00		Feat lunch: 21 min				13h50 - 14h00
14h00 - 14h20				Airbud: Golden Receiver	12000	14h00 - 14h20
14h20 - 14h30						14h20 - 14h30
14h30 - 15h00	7000			Feature: 18 min		14h30 - 15h00
15h00 - 15h30		Grease	12000			15h00 - 15h30
15h30 - 16h00		Feature: 21 min				15h30 - 16h00
16h00 - 16h30				Fast Lane	10000	16h00 - 16h30
16h30 - 17h00	10000					16h30 - 17h00



17h00 - 17h30		WWE Wrestling Velocity	27000	WWE Wrestling Raw	27000	17h00 - 17h30
17h30 - 18h00	15000					17h30 - 18h00
18h00 - 18h05		News	15000	News	15000	18h00 - 18h05
18h05 - 18h15		Doc Internat. Series	16000	Strong Medicine	17500	18h05 - 18h15
18h15 - 18h30	13000					18h15 - 18h30
18h30 - 19h00	24000					18h30 - 19h00
19h00 - 19h30	23000	News	23000	News	23000	19h00 - 19h30
19h30 - 20h00	30000	Money Go Round	18000	Becker	30000	19h30 - 20h00
20h00 - 20h30	32000	Beetlejuice	34000	Exit Wounds	40000	20h00 - 20h30
20h30 - 21h00		Sat 8pm: 18 min				20h30 - 21h00
21h00 - 21h30				BlockBus:18min		21h00 - 21h30
21h30 - 21h35		Lotto Draw Live	Not Avail. 2 Sell			21h30 - 21h35
21h35 - 22h00		Beetlejuice	34000			21h35 - 22h00
22h00 - 22h15	18500	Layover	17500	Walker Texas Ranger	20000	22h00 - 22h15
22h15 - 22h25	17500					22h15 - 22h25
22h25 - 22h30		Sat Lat: 18 min				22h25 - 22h30



22h30 - 22h45						22h30 - 22h45
22h45 - 23h00						22h45 - 23h00
23h00 - 23h15				Friday the Thirteenth III	7500	23h00 - 23h15
23h15 - 23h30				Sunlate: min		23h15 - 23h30
23h30 - 00h00						23h30 - 00h00
00h00 - 00h15	5000	Passion & Romance:	5000			00h00 - 00h15
00h15 - 00h30		Ocean of Dreams				00h15 - 00h30
00h30 - 00h45		Adult		Domino Principle	2500	00h30 - 00h45
00h45 - 01h00						00h45 - 01h00
01h00 - 01h30						01h00 - 01h30
01h30 - 02h00	2500	End of Innocence	2500			01h30 - 02h00
02h00 - 02h30						02h00 - 02h30
02h30 - 05h00						02h30 - 05h00



Sell out based on 12 minutes per hour ; 6 minutes per half hour						
Time	Fri	Saturday	Sat	Sunday	Sun	Time
Channel	Rate	11-Sep	Rate	12-Sep	Rate	Channel
05h00 - 05h30	1000	Hallelujah Africa	1000	Hallelujah Africa	1000	05h00 – 05h30
05h30 - 06h00	3000	Out of Africa	3000	Rhema	1000	05h30 – 06h00
06h00 - 06h30		The World This Week	3000	The World This Week	3000	06h00 - 06h30
06h30 - 07h00						06h30 - 07h00
07h00 - 07h30						07h00 - 07h30
07h30 - 08h00						07h30 - 08h00
07h30 - 08h00						07h30 - 08h00
08h00 - 08h30	12000	Infomercial	15000	Rhema	1000	08h00 - 08h30
08h30 - 09h00	5000	Craz-e	6000	Caitlan's Way	7000	08h30 - 09h00
09h00 - 09h30	5000			Craz-e	6000	09h00 - 09h30
09h30 - 10h00	8000	Sam & Max	7000	Courage The Cowardly Dog	7000	09h30 - 10h00
10h00 - 10h20		Jackie Chan	7000	Craz e	6000	10h00 - 10h20
10h20 - 10h30						10h20 - 10h30



10h30 - 11h00	7000	Backstage Omnibus	12000	Jeopardy	7000	10h30 - 11h00
11h00 - 11h30				Congo	8000	11h00 - 11h30
11h30 - 11h50						11h30 - 11h50
11h50 - 12h00				Sun min Movie:		11h50 - 12h00
12h00 - 12h20						12h00 - 12h20
12h20 - 12h30		Infomercial				12h20 - 12h30
12h30 - 13h00	7000	e-Shibobo	7500			12h30 - 13h00
13h00 - 13h30	8000	Babylon 5 The River of Souls	10000	Uefa Magazine	9000	13h00 - 13h30
13h30 - 13h50	11000			20 Something	9000	13h30 - 13h50
13h50 - 14h00		Feat lunch: 18 min				13h50 - 14h00
14h00 - 14h20				About Sarah	12000	14h00 - 14h20
14h20 - 14h30						14h20 - 14h30
14h30 - 15h00	7000			Feature: 18 min		14h30 - 15h00
15h00 - 15h30		Grease II	12000			15h00 - 15h30
15h30 - 16h00		Feature: 21 min				15h30 - 16h00
16h00 - 16h30				Fast Lane	10000	16h00 - 16h30



16h30 - 17h00	10000					16h30 - 17h00
17h00 - 17h30		WWE Wrestling Velocity	27000	WWE Wrestling Raw	27000	17h00 - 17h30
17h30 - 18h00	15000					17h30 - 18h00
18h00 - 18h05						18h00 - 18h05
18h05 - 18h15		News	15000	News	15000	18h05 - 18h15
18h15 - 18h30	13000	Doc Internat. Series	16000	Strong Medicine	17500	18h15 - 18h30
18h30 - 19h00	24000					18h30 - 19h00
19h00 - 19h30	23000	News	23000	News	23000	19h00 - 19h30
19h30 - 20h00	30000	Money Go Round	18000	Becker	30000	19h30 - 20h00
20h00 - 20h30	32000	Congo	34000	Judge Dredd	40000	20h00 - 20h30
20h30 - 21h00		Sat 8pm: min				20h30 - 21h00
21h00 - 21h30				Block Bus: 18 min		21h00 - 21h30
21h30 - 21h35		Lotto Draw Live	Not Avail. 2 Sell			21h30 - 21h35
21h35 - 22h00		Congo	34000			21h35 - 22h00
22h00 - 22h15	18500	Albino Alligator	17500	Walker Texas Ranger	20000	22h00 - 22h15
22h15 - 22h25	17500					22h15 - 22h25



22h25 - 22h30		Sat min	Lat:			22h25 - 22h30
22h30 - 22h45						22h30 - 22h45
22h45 - 23h00						22h45 - 23h00
23h00 - 23h15				Friday the Thirteenth IV	7500	23h00 - 23h15
23h15 - 23h30				Sunlate: min		23h15 - 23h30
23h30 - 00h00						23h30 - 00h00
00h00 - 00h15	5000	Passion & Romance:	5000			00h00 - 00h15
00h15 - 00h30		Scandal				00h15 - 00h30
00h30 - 00h45		Adult		Dark Prince	2500	00h30 - 00h45
00h45 - 01h00						00h45 - 01h00
01h00 - 01h30						01h00 - 01h30
01h30 - 02h00	2500	Babylon 5 The River of Souls	2500			01h30 - 02h00
02h00 - 02h30						02h00 - 02h30
02h30 - 05h00						02h30 - 05h00



Sell out based on 12 minutes per hour ; 6 minutes per half hour						
Time	Fri	Saturday	Sat	Sunday	Sun	Time
Channel	Rate	18-Sep	Rate	19-Sep	Rate	Channel
05h00 - 05h30	1000	Hallelujah Africa	1000	Hallelujah Africa	1000	05h00 - 05h30
05h30 - 06h00	3000	Out of Africa	3000	Rhema	1000	05h30 - 06h00
06h00 - 06h30		The World This Week	3000	The World This Week	3000	06h00 - 06h30
06h30 - 07h00						06h30 - 07h00
07h00 - 07h30						07h00 - 07h30
07h30 - 08h00						07h30 - 08h00
07h30 - 08h00						07h30 - 08h00
08h00 - 08h30	12000	Infomercial	15000	Rhema	1000	08h00 - 08h30
08h30 - 09h00	5000	Craz-e	6000	Jackie Chan	7000	08h30 - 09h00
09h00 - 09h30	5000			Craz-e	6000	09h00 - 09h30
09h30 - 10h00	8000	Sam & Max	7000	Courage The Cowardly Dog	7000	09h30 - 10h00
10h00 - 10h20		Dexters lab	7000	Craz e	6000	10h00 - 10h20
10h20 - 10h30		Backstage Omnibus	12000			10h20 - 10h30



10h30 - 11h00	7000			Jeopardy	7000	10h30 - 11h00
11h00 - 11h30				The Bachelor	8000	11h00 - 11h30
11h30 - 11h50						11h30 - 11h50
11h50 - 12h00				Sun Movie: min		11h50 - 12h00
12h00 - 12h20						12h00 - 12h20
12h20 - 12h30		Infomercial				12h20 - 12h30
12h30 - 13h00	7000	e-Shibobo	7500			12h30 - 13h00
13h00 - 13h30	8000	Babylon 5 In the Beginning	10000	Uefa Magazine	9000	13h00 - 13h30
13h30 - 13h50	11000	Feat lunch: 18 min		20 Something	9000	13h30 - 13h50
13h50 - 14h00						13h50 - 14h00
14h00 - 14h20				Clueless	12000	14h00 - 14h20
14h20 - 14h30				Feature: 18 min		14h20 - 14h30
14h30 - 15h00	7000	The First Wives Club	12000			14h30 - 15h00
15h00 - 15h30						15h00 - 15h30
15h30 - 16h00		Feature: 18 min				15h30 - 16h00
16h00 - 16h30				Fast Lane	10000	16h00 - 16h30
16h30 - 17h00	10000					16h30 - 17h00



17h00 - 17h30		WWE Wrestling Velocity	27000	WWE Wrestling Raw	27000	17h00 - 17h30
17h30 - 18h00	15000					17h30 - 18h00
18h00 - 18h05		News : 2 min.	15000	News : 2 min.	15000	18h00 - 18h05
18h05 - 18h15		Doc Internat. Series	16000	Strong Medicine	17500	18h05 - 18h15
18h15 - 18h30	13000					18h15 - 18h30
18h30 - 19h00	24000					18h30 - 19h00
19h00 - 19h30	23000	News	23000	News	23000	19h00 - 19h30
19h30 - 20h00	30000	Money Go Round	18000	Becker	30000	19h30 - 20h00
20h00 - 20h30	32000	The Bachelor	34000	Mercury Rising	40000	20h00 - 20h30
20h30 - 21h00		Sat 8pm: min				20h30 - 21h00
21h00 - 21h30				Block Bus: 21 min		21h00 - 21h30
21h30 - 21h35		Lotto Draw Live	Not Avail. 2 Sell			21h30 - 21h35
21h35 - 22h00		The Bachelor	34000			21h35 - 22h00
22h00 - 22h15	18500	The Godson	17500	Walker Texas Ranger	20000	22h00 - 22h15
22h15 - 22h25	17500	Sat Lat: `8 min				22h15 - 22h25
22h25 - 22h30		21h55 - 2355				22h25 - 22h30



22h30 - 22h45						22h30 - 22h45
22h45 - 23h00						22h45 - 23h00
23h00 - 23h15				Friday The Thirteenth V	7500	23h00 - 23h15
23h15 - 23h30						23h15 - 23h30
23h30 - 00h00						23h30 - 00h00
00h00 - 00h15	5000	Passion & Romance:	5000			00h00 - 00h15
00h15 - 00h30		Same Tale		Cypress Edge	2500	00h15 - 00h30
00h30 - 00h45		Adult				00h30 - 00h45
00h45 - 01h00						00h45 - 01h00
01h00 - 01h30						01h00 - 01h30
01h30 - 02h00	2500					01h30 - 02h00
02h00 - 02h30		Babylon 5 In the Beginning	2500			02h00 - 02h30
02h30 - 05h00						02h30 - 05h00
:Changes Made:						
Sell out based on 12 minutes per hour ; 6 minutes per half hour						
Time	Fri	Saturday	Sat	Sunday	Sun	Time



Channel	Rate	25-Sep	Rate	26-Sep	Rate	Channel
05h00 - 05h30	1000	Hallelujah Africa	1000	Hallelujah Africa	1000	05h00 - 05h30
05h30 - 06h00	3000	Out of Africa	3000	Rhema	1000	05h30 - 06h00
06h00 - 06h30		The World This Week	3000	The World This Week	3000	06h00 - 06h30
06h30 - 07h00						06h30 - 07h00
07h00 - 07h30						07h00 - 07h30
07h30 - 08h00						07h30 - 08h00
07h30 - 08h00	12000	Infomercial	15000			07h30 - 08h00
08h00 - 08h30	5000	Craz-e	6000	Rhema	1000	08h00 - 08h30
08h30 - 09h00	5000			Caitlans' Way	7000	08h30 - 09h00
09h00 - 09h30	8000	Sam & Max	7000	Craz-e	6000	09h00 - 09h30
09h30 - 10h00		Jackie Chan	7000	Courage The Cowardly Dog	7000	09h30 - 10h00
10h00 - 10h20				Craz e	6000	10h00 - 10h20
10h20 - 10h30	7000	Backstage Omnibus	12000			10h20 - 10h30
10h30 - 11h00				Jeopardy	7000	10h30 - 11h00
11h00 - 11h30				Anti Trust	8000	11h00 - 11h30
11h30 - 11h50						11h30 - 11h50



11h50 - 12h00				Sun Movie: 21 min		11h50 - 12h00
12h00 - 12h20						12h00 - 12h20
12h20 - 12h30		Infomercial				12h20 - 12h30
12h30 - 13h00	7000	e-Shibobo	7500			12h30 - 13h00
13h00 - 13h30	8000	Neverending Story II	10000	Uefa Magazine	9000	13h00 - 13h30
13h30 - 13h50	11000	Feat lunch: 15 min		20 Something	9000	13h30 - 13h50
13h50 - 14h00						13h50 - 14h00
14h00 - 14h20				Running Mates	12000	14h00 - 14h20
14h20 - 14h30				Feature: min		14h20 - 14h30
14h30 - 15h00	7000					14h30 - 15h00
15h00 - 15h30		Into Thin Air: Death on Everest	12000			15h00 - 15h30
15h30 - 16h00		Featurw:18 min				15h30 - 16h00
16h00 - 16h30				Fast Lane	10000	16h00 - 16h30
16h30 - 17h00	10000					16h30 - 17h00
17h00 - 17h30		WWE Wrestling Velocity	27000	WWE Wrestling Raw	27000	17h00 - 17h30
17h30 - 18h00	15000					17h30 - 18h00



18h00 - 18h05		News 2 min.	15000	News	15000	18h00 - 18h05
18h05 - 18h15		Doc Internat. Series	16000	Strong Medicine	17500	18h05 - 18h15
18h15 - 18h30	13000					18h15 - 18h30
18h30 - 19h00	24000					18h30 - 19h00
19h00 - 19h30	23000	News	23000	News	23000	19h00 - 19h30
19h30 - 20h00	30000	Money Go Round	18000	Becker	30000	19h30 - 20h00
20h00 - 20h30	32000	Anti Trust	34000	Long Kiss Goodnight	40000	20h00 - 20h30
20h30 - 21h00		Sat 8pm: 21 min		Block Bus: 24 min		20h30 - 21h00
21h00 - 21h30		Lotto Draw Live	Not Avail. 2 Sell			21h00 - 21h30
21h30 - 21h35		Anti Trust	34000			21h30 - 21h35
21h35 - 22h00						21h35 - 22h00
22h00 - 22h15	18500	The Faculty	17500	Walker Texas Ranger	20000	22h00 - 22h15
22h15 - 22h25	17500	Sat Lat: 18 min				22h15 - 22h25
22h25 - 22h30						22h25 - 22h30
22h30 - 22h45						22h30 - 22h45
22h45 - 23h00						22h45 - 23h00



23h00 - 23h15				Friday The Thirteenth VI	7500	23h00 - 23h15
23h15 - 23h30						23h15 - 23h30
23h30 - 00h00		Passion & Romance:	5000			23h30 - 00h00
00h00 - 00h15	5000	Double or Nothing				00h00 - 00h15
00h15 - 00h30		Adult				00h15 - 00h30
00h30 - 00h45						00h30 - 00h45
00h45 - 01h00						00h45 - 01h00
01h00 - 01h30		Midnight Vendetta	2500	Apology	2500	01h00 - 01h30
01h30 - 02h00	2500					01h30 - 02h00
02h00 - 02h30						02h00 - 02h30
02h30 - 05h00						02h30 - 05h00



Appendix C 3: Radio Mediums and Associated Costs

Radio Stations	Monday - Friday							
	Programme Schedule							
	00:00–05:00	5:00–6:00	6:00-9:00	9:00-12:00	12:00-15:00	15:00-18:00	18:00-21:00	21:00-24:00
SA FM		210	2640	930	900	1200	210	180
RSG	210	2310	4800	2100	2610	2160	600	210
Ukhozi	330	2850	4020	2760	2400	3960	2970	420
5FM	330	510	3990	2010	2130	2700	1980	330
Good Hope	180	180	1740	1980	1710	1350	480	180
Metro	300	1290	4500	3840	2970	3450	2180	740

Radio Stations	Saturday							
	Programme Schedule							
	00:00–05:00	5:00–6:00	6:00-9:00	9:00-2:00	12:00-15:00	15:00-18:00	18:00-21:00	21:00-24:00
SA FM		180	900	450	360	300	180	180
RSG	210	690	1980	2190	2400	1320	450	210
Ukhozi	300	1860	3360	2970	2010	1950	1500	990
5FM	330	330	330	1530/2220	990	510	360	330
Good Hope	180	180	720	1860/810	810	510	210	180
Metro	330	660	2970	3990	2750	1470	990	540

Radio Stations	Sunday							
	Programme Schedule							
	00:00–05:00	5:00–6:00	6:00-9:00	9:00-12:00	12:00-15:00	15:00-18:00	18:00-21:00	21:00-24:00
SA FM		180	420	330	300	300	210	210
RSG	210	420	1530	1020	780	210	210	210
Ukhozi	300	1140	2760	2040	1950	1950	1350	330
5FM	330	330	930	1920	870	360	330	330
Good Hope	180	390	390	900	660	450	300	180
Metro	300	390	1680	1920	1890	1800	810	300



Appendix D: Course Prospectus

In order to deliver energy efficiency recommendations for the Public and Commercial Buildings sector which are integral to the Energy Efficiency Strategy for South Africa, it has been decided to ensure that capacity exists at national, provincial and local levels to undertake comprehensive building energy audits of consistently high standard.

To ensure that this objective is achieved, the Department of Minerals & Energy (DME), in collaboration with the Energy Sector Training & Education Authority (ESETA), is supporting the implementation of a *Skills Development Programme for Building Energy Auditors*. This programme has been developed and trialed under a special contract issued by DME and is now suitable for delivery by training providers accredited by the ESETA.

The course has been developed using a modular format and includes a wide range of support materials and worked examples. It also includes several modules designed for training of supervisory personnel, i.e. for management of, and quality control over, the building audits. The course can be delivered in several different forms, for example:

A comprehensive course presented over 5 days, targeting both trainee auditors and their supervisors.

Two separate courses, including a 4-day course for auditors and a 1-day course for supervisors.

A longer work-study course involving a series of modules delivered in 1-day sections over 4-5 weeks and linked by in-service work assignments.

With some further modification, a correspondence course delivered through the internet or by post.

The ESETA has assumed responsibility for both accreditation of training providers to deliver the course and for the issuance of certificates for those completing the course. As the course is outcomes-based, the certificate provides assurance that those completing it are fully competent to perform energy audits of government and commercial buildings as part of the national programme.

Training providers interested in delivering this course are requested to contact the following:

Mr. Johan Swanepoel
Energy Sector Education & Training Authority
P.O. Box 5983
Johannesburg
2000

Persons interested in enrolling for the course and becoming certified as Buildings Energy Auditors should contact:



Mr. Tony Golding
Department of Minerals & Energy
Private Bag X59
Pretoria
0001

A summary outline of the course is attached.



DME Buildings Audit Training Programme Curriculum Outline

Introduction

The DME Buildings Audit Training curriculum consists of three elements:

A **Building Energy Audit Course**, to develop the skills and knowledge required of individuals carrying out energy audits in designated government buildings;

A **Supervising Engineers Course**, to develop the skills and knowledge required of engineers who will act on behalf of the building owners to monitor the audit programme;

A **Trainer's Guidebook**, to support the delivery of these two courses by training providers.

The following Curriculum Outline describes the content and structure envisioned for these three program elements.

The Building Energy Audit Course

Trainee Profile:

Trainee auditors will have completed tertiary education at, as a minimum, the technologist level in a mechanical, electrical or other building systems discipline. They will have prior knowledge of operations and maintenance of generic building systems, including building envelope, HVAC, refrigeration plant, heating and boiler plant, domestic hot water systems, lighting, motors, pumps and other driven loads, electrical plug loads, and building control systems.

Course Overview:

The Building Energy Audit Course is designed for delivery in at least two modes:

- As an intensive, four-day (nominally 8 hours/day or 32 hours total) course, including an on-site practicum; and
- As a continuing education or in-service course structured as 9 three-hour instructional classes plus a five-hour practicum or equivalent supervised practical experience in building auditing.

The course outline below provides details of the course content; the Trainer's Guidebook provides details of the learning itinerary for both delivery modes.



Module 1: A Context for Building Energy Audits

1.1 The Context for Building Audits

1.2 Good Practice in Building Operations

Module 2: Basic Principles of Energy

2.1 Energy and Its Various Forms

2.2 Units of Energy

2.3 Electricity Basics

2.4 Thermal Energy Basics

2.5 Heat Transfer - How Heat Moves

2.6 Energy Estimation Calculations

Module 3: Overview of Building Energy Audits

3.1 A Systems Approach to Energy Auditing

3.2 Defining the Energy Audit – from Walk-through to Detailed Audit

3.3 Planning and Implementing the Audit

3.4 The Steps in the Audit

Module 4: Historical Energy Assessment

4.1 Measurement and Data Collection

4.2 Instrumentation for Energy Audits

4.3 Historical Data Analysis - Analysing the Energy Tariff

4.4 Comparative Analysis

Module 5: Analysing the Demand Profile



- 5.1 Introduction
- 5.2 Obtaining a Demand Profile
- 5.3 Interpreting the Demand Profile

Module 6: Energy Assessment - Load Inventory

- 6.1 The Electrical Load Inventory
- 6.2 Thermal Load Inventory

Module 7: Energy Assessment - EMOs

- 7.1 A Three Step Approach to EMO Identification
- 7.2 Assessment of the Costs and Benefits

Module 8: Energy Efficiency in Electrical Building Systems

- 8.1 Applicable building performance standards
- 8.2 The Building as an Energy System
- 8.3 Energy Efficient Lighting
- 8.4 Plug Loads
- 8.5 Motors, drives and driven equipment
- 8.6 Compressed Air Systems

Module 9: Energy Efficiency in Building Thermal Systems

- 9.1 Energy Efficiency in the Building Envelope
- 9.2 Heating, ventilating and air conditioning systems
- 9.3 Building Control Systems



Module 10: Interpreting the Business Case

- 10.1 Investment Appraisal
- 10.2 Investment Criteria
- 10.3 Life Cycle Costing
- 10.4 Risk and Sensitivity Analysis

Module 11: Reporting for Implementation

- 11.1 Introduction
- 11.2 Some General Principles for Good Audit Report Writing
- 11.3 A Template for the Audit Report



Supervising Engineers Course

Trainee Profile:

Supervising engineers will be qualified professional engineers in a mechanical, electrical or other building systems discipline. They will have prior knowledge covering the same scope as the trainee auditors, plus facilities management and/or design knowledge, and project management experience.

Course Overview:

The Supervising Engineers Course is comprised of two components:

- (1) Supervising Engineers will participate in the Building Energy Audit Course, excluding the practicum, module 6; this will enable them to gain first hand knowledge of the audit process as it will be carried out by qualified auditors, to interact personally with the auditors, and to enhance their own understanding of building systems, efficiency and energy management measures.
- (2) During the Audit Course practicum, Supervising Engineers will take Modules 12, 13 and 14, described below; this module provides instruction in the management aspects of the Audit and actions arising from the Audit.

The module outline below provides details of the course content; the Trainer's Guidebook provides details of the learning itinerary.

Module 12: Audit Quality Assurance

- 12.1 DME Audit Guidelines
- 12.2 Quality Assurance

Module 13: Project Development Cycle

- 13.1 Step 1: Project Definition and Scope
- 13.2 Step 2: Technical Design
- 13.3 Step 3: Financing
- 13.4 Step 4: Contracting
- 13.5 Step 5: Implementation and Performance Monitoring



Module 14: Savings Verification

- 14.1 An Overview of Measurement and Verification (M&V)
- 14.2 A Statistical Basis for M&V
- 14.3 A Framework for Verification
- 14.4 Verification Applied
- 14.5 Case Study:IPMVP Option C–Whole Building Multiple ECM Project
- 14.6 M & V Checklists