



# USAID | SOUTH AFRICA

FROM THE AMERICAN PEOPLE

GENERAL MANAGEMENT ASSISTANCE CONTRACT (GMAC)

**Contract No: 674-C-00-01-00051-00**

**Demonstration of Monitoring and Targeting (M&T) and Development of Sustainable M&T Infrastructure for South Africa**

Grantee number: 0055-0402-G-GA24



This report was produced for review by the USAID.  
It was prepared as a performance milestone under Mega-Tech, Inc.'s prime contract.

The contents of this report address activities performed under USAID/South Africa's **Strategic Objective No. 6: Increased Access to Shelter and Environmentally Sound Municipal Services**

Please direct all queries regarding this report to:

Mega-Tech/South Africa  
Bank Forum Building  
Lobby 1, Second Floor  
337 Veale Street  
New Muckleneuk  
0181 Pretoria RSA  
Tel. 012 452 0060  
Fax 012 452 0070  
Email [megatech@intekom.co.za](mailto:megatech@intekom.co.za)

Or

Mega-Tech, Inc.  
180 South Washington Street, Suite 200  
Falls Church, VA 22046  
Tel. (703) 534-1629  
Fax (703) 534-7208  
Email [info@mgtech-world.com](mailto:info@mgtech-world.com)

## **Activity Summary and achievements:**

The main purpose of the grant was the demonstration of Monitoring & Targeting (M&T) and development of a Sustainable M&T Infrastructure for South Africa, which encourages the widespread use of M&T systems to deliver sustainable energy savings to industrial companies in South Africa.

To this end, M&T systems were implemented at 3 industrial companies in South Africa; 2 systems within large industries and 1 system within a small, medium, micro enterprise (SMME). The promotion of energy efficiency will result in reduced combustion of coal at the power station and, therefore, a corresponding reduction in harmful CO<sub>2</sub> emissions.

The two sites involved in the demonstration project funded by USAID are Frame Textiles (Texfin) and Lever Ponds (Personal Wash), both located in Durban, South Africa. In terms of M&T system development, both sites have an established M&T data collection, analysis and reporting system in place. Texfin have already made (and continue to make) significant energy and environmental savings, which are highlighted below. The Lever Ponds site has undergone several fundamental production changes and improvements during 2003 and into 2004, which has required the redefining of baselines and targets, as well as the rationalization of metering points and departmental accountability for utility usage. Despite this, Lever Ponds have already identified several areas of savings within the compressed air, steam, and chilling systems on site. These savings areas will be exploited once the current process changes have been fully completed during 2004.

The process of nationwide implementation of M&T practices was originally intended to be undertaken by national and regional M&T coordinators. This, however, has proven unworkable due to the capacity constraints within the relevant Governmental institutions. However, the Department of Minerals & Energy (DME) has recently drafted the first National Energy Efficiency Strategy for South Africa, and the promotion of M&T features within the strategy as one of the key industrial action plans. It is understood that the intention of DME is to further publicise the benefits of industrial energy management, including M&T, and to develop further case studies and demonstration projects to assist in the strategy roll-out.

Savings at Texfin have been identified and implemented within several of the site's dye-ranges. The savings have been manifested as a reduction in hot effluent to drain. Hot dye-water is produced via steam, which in turn is raised via an electrode boiler. The savings are calculated on an annual basis as follows:

- Effluent savings: 94,000m<sup>3</sup>
- Process water savings: 94,000m<sup>3</sup>
- CO<sub>2</sub> savings: 5,800 tonnes

## **Accessibility of Activity Results:**

The promotion and dissemination aspects of this project are being accomplished by close liaison with the DME regarding the design and implementation of the Energy

Efficiency Strategy. The draft version of the Strategy has already been circulated for internal (Government) comment, and will shortly be issued for public comment. The draft Strategy will be officially launched in Cape Town at the start of Energy Efficiency Month in May 2004. This launch will be followed by a short workshop in Cape Town (as part of the ICUE conference) and then a full publicity event on 17th May in Gauteng, aimed at industrial end-users.

## **Contents of this report:**

- 1. Letter from Department of Minerals and Energy to indicate progress of grant and its input into the National Energy Efficiency Strategy of South Africa (June 2004),**
- 2. Presentation on Monitoring & Targeting – presented by Dave Mercer at a site-visit (August 2004),**
- 3. Final Annual Narrative Report submitted to USAID (FY04)**



## DEPARTMENT OF MINERALS AND ENERGY

### DME-Danida Capacity Building in Energy Efficiency & Renewable Energy

Room F808, Mineralia Building, 391 Andries Street, Pretoria, 0002

Tel: (012) 317 9552

Private Bag X59, Pretoria, 0001

Fax: (012) 317 9511

E-mail: [nassiep@mepta.pwv.gov.za](mailto:nassiep@mepta.pwv.gov.za)

MEGA-TECH, Inc.  
Bank Forum Building  
337 Bronkhorst Street  
New Muckleneuk

Attention: Ms Nomonde Mdhuli

### USAID Project: Demonstration of Monitoring & Targeting in Industry

Dear Ms Mdhuli,

I am writing concerning the above project, upon a request received from the project consortium partners Enviro Consulting and Enerwise Africa. I am happy to take this opportunity to elaborate as to how the project is of relevance to the South African energy efficiency programme, and how we intend to now take matters forward.

In order to meet South Africa's sustainable development needs, the DME has drafted the first *Energy Efficiency Strategy of the Republic of South Africa*. The development of the strategy commenced during the early months of 2003 and has now reached its final draft stages. The vision of the Strategy is to improve energy utilisation and development by promoting and encouraging energy efficient practices and processes. It is envisaged that these improvements will be achieved through enabling instruments and interventions, including economic and legislative means, information and awareness raising, energy audits, etc.

The structure of the draft strategy provides for specific interventions targeted appropriately for each of the major economic sectors (i.e. Industry, Buildings, Transport, Residential, and Power Generation). Within the Industrial programme the DME has included a provision for "Energy Management Best Practice" and the following paragraph, quoted from the draft strategy, summarises its content:

*A solid Energy Management foundation is essential in any firm in order to optimize energy efficiency best practice. The key tenets of good Energy Management are information (Monitoring & Targeting), Training & Awareness (Motivation) and corporate commitment (company policy). The importance of these will be demonstrated and promoted.*

It is evident, therefore, that the USAID M&T demonstration initiative is of direct relevance to the objectives of our national Energy Efficiency Strategy, and the DME is delighted to learn of the success of the project so far. At this stage it is our intention to promote further demonstration activity in the key aspects of Energy Management, raising awareness through both participation and dissemination. To this end, we would hope to utilize (or possibly develop) case study material arising from this USAID project for the ongoing promotion of the National Strategy.

Att. Dave Mees

We understand that an integral element of the demonstration project is to develop an underlying infrastructure capable of promoting and advising upon the practice of M&T. It is the intention of the DME to achieve this via specific action plans contained within the draft National Strategy. Whilst the appointment of regional and national M&T coordinators currently falls beyond the capacity of this Department, we believe that the approach we have adopted will adequately satisfy the necessary objectives of infrastructure development.

Asides from developing case study material already mentioned, the DME has presented launch events for the draft National Strategy. The first of these was held in Cape Town on 10<sup>th</sup> May 2004, at the annual ICUE conference, and comprised the formal launch of the draft Strategy together with a workshop aimed at commerce and industry. A second event, hosted by DME and aimed at industry alone, was held on 17<sup>th</sup> May at Caesars Palace in Gauteng. The main objective of this workshop was detailed dissemination of the industrial programme within the draft Strategy. An important aspect of this event in particular was awareness-raising in several aspects of Energy Management, including M&T.

Although concise, I hope that the above paragraphs have highlighted the importance the DME perceives in this demonstration project. On this basis I trust that USAID will deem the objectives of the project "Milestone 4" to have been met. May I take this opportunity to acknowledge the funding provided by USAID and the participating industries, as well as the diligent efforts of the project consultants themselves.

All the best for the future.

Yours sincerely,



**Kevin Nassiep**  
Chief Director – Energy  
Department of Minerals and Energy  
Date:

**Memorandum**

**To:** Files  
**From:** Trish Heimann  
**Date:** August 19, 2004  
**Re:** Grantee office meeting  
 GA# [0055-0402-G-GA24]: [Enerwise]

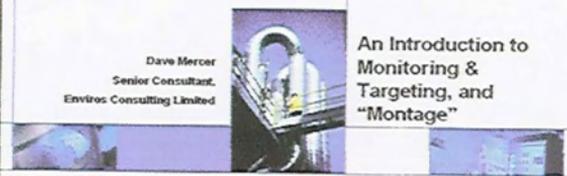
1. Meeting Date:	19 August 2004
2. Meeting Location:	Airport – Durban and Frame Textiles Factory - Durban
3. Attendance:	Joe Asamoah (Enerwise), David Mercer (Enviros) and Trish Heimann (MTI)

A site visit was made with the Grantee on 19 August 2004 to discuss the status of the project. The following captures the visit:

<b>Site visit:</b>	
	David Mercer did a powerpoint presentation to explain the Monitoring and Targeting system called 'Montage' that has been put in place in the factories (refer to presentation notes attached).
	This system has provided the basis whereby the factories are able to monitor their energy efficiency and improve where problems occur at specified factory points.
The visit to the factory was interesting. No cameras were allowed. Trish was taken on a tour of the factory and shown what is done with the materials and fabrics. The Monitoring and Targeting system was shown by observing the physical points as well as the software program kept in the Management office. Energy savings are successful with this system, as demonstrated.	
<b>Reporting:</b>	
Semi-annual and annual reporting	Trish discussed the requirements for reporting to USAID. The Grantee will be required to submit relevant reports related to the annual report in September 2004. The Grantee agreed to submit the required reports, as well as any data on energy efficiency and global climate change.
MTI comparison of hard evidence against objectives	It is clear that the grant objectives have been reached.

© Enviro

Dave Mercer  
Senior Consultant,  
Enviros Consulting Limited



An Introduction to  
Monitoring &  
Targeting, and  
"Montage"

**ENVIROS**  
knowledge in motion solutions

---

---

---

---

---

---

---

---

© Enviro

### What is Monitoring & Targeting?

- A **process** to bring Energy and Environmental Management into the mainstream of the business
- A **management system** to identify, achieve and maintain Best Practice
- A **set of tools** to provide useful information from the data your business already has
- An **accounting system** for utilities

**ENVIROS**  
knowledge in motion solutions

---

---

---

---

---

---

---

---

© Enviro

### What M&T will offer

- **Reduced costs**
  - Typically 5-15% of utility bill
  - Up to 1% of raw materials bill
- **Reduced risk**
  - Less CO<sub>2</sub> emissions
  - Environmental compliance
  - Process knowledge
- **Better management**
  - Supports decision-making at all levels of business
  - Empowers and supports staff
- **Better communication** to stakeholders



**ENVIROS**  
knowledge in motion solutions

---

---

---

---

---

---

---

---

## How?

- By providing a **true measure of performance**
- Making the people who most influence the performance **responsible**
- ... if you can't measure it ... you can't manage it!

The bottom line:

It is -

simple to understand  
easy to implement  
impossible to deny (Honest, Fair and Achievable targets)



**ENVIROS**  
knowledge in motion solutions

© Enviros

---

---

---

---

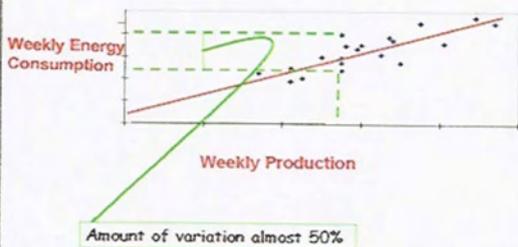
---

---

---

---

## Weekly Energy Use



**ENVIROS**  
knowledge in motion solutions

© Enviros

---

---

---

---

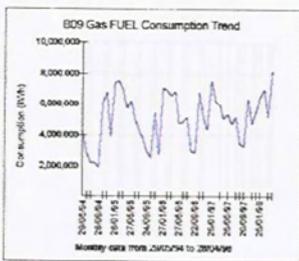
---

---

---

---

## Trend Data



Trend data is a powerful tool for controlling energy use.

All we can determine from the pattern of consumption in this boiler is that we have used more gas in the Winter than in the Summer!

**ENVIROS**  
knowledge in motion solutions

© Enviros

---

---

---

---

---

---

---

---

## Proven

- Technique of **Monitoring and Targeting**
  - Supported by UK Government since mid-1980's
  - Enviros (March Consulting) considered leading practitioners
- Independently **verified** results
- In Enviros - refined as "**onManage**"
  - Extending beyond utilities to waste and other resources
  - Consideration of capital projects
  - Rigorous methodology and quality process

ENVIROS  
know|ing|invest|solutions

---

---

---

---

---

---

---

---

## The software

- **Easy** to use
- Easy to "connect" to existing data and systems
- **Flexible** and extensible
- **Powerful** analysis of savings opportunities
- Conforms to IT **standards**

*onManage*

ENVIROS  
know|ing|invest|solutions

---

---

---

---

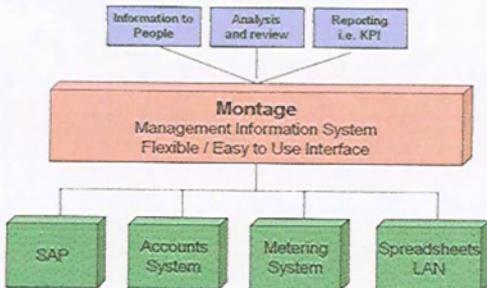
---

---

---

---

## The role of the software



ENVIROS  
know|ing|invest|solutions

---

---

---

---

---

---

---

---

## ***GMAC Grantee Narrative Report***

Grantee \_\_\_\_\_ EnerWise Africa \_\_\_\_\_

Agreement No.: 0055-0402-G-GA24 [Amendment 5]

Report for the period:

October 1, 2003 through September 30, 2004

**Please complete a one-two page narrative summary of your main accomplishments between October 1, 2003 – September 30, 2004. To complete this narrative report, it is recommended that you work through Attachment 1B and provide narrative information on accomplishments that contributed specifically to the strategic objectives and intermediate results listed in the attachment.**

The two sites involved in the demonstration project are Frame Textiles (Texfin) and Lever Ponds (Personal Wash), both located in Durban, South Africa. In terms of M&T system development, both sites have an established M&T data collection, analysis and reporting system in place. Texfin have already made (and continue to make) significant energy and environmental savings, which are highlighted below. The Lever Ponds site has undergone several fundamental production changes and improvements during 2003 and into 2004, which has required the redefining of baselines and targets, as well as the rationalization of metering points and departmental accountability for utility usage. Despite this, Lever Ponds have already identified several areas of savings within the compressed air, steam, and chilling systems on site. These savings areas will be exploited once the current process changes have been fully completed during 2004.

The process of nationwide implementation of M&T practices was originally intended to be undertaken by national and regional M&T coordinators. This, however, has proven unworkable due to the capacity constraints within the relevant Governmental institutions. However, the Department of Minerals & Energy (DME) has recently drafted the first National Energy Efficiency Strategy for South Africa, and the promotion of M&T features within the strategy as one of the key industrial action plans. It is understood that the intention of DME is to further publicise the benefits of industrial energy management, including M&T, and to develop further case studies and demonstration projects to assist in the strategy roll-out. The roll-out will be facilitated by the setting up of sectoral energy efficiency targets as well as a national energy efficiency standard.

Savings:

Savings at Texfin have been identified and implemented within several of the site's dye-ranges. The savings have been manifested as a reduction in hot

effluent to drain. Hot dye-water is produced via steam, which in turn is raised via an electrode boiler. The savings are calculated on an annual basis as follows:

- . Effluent savings: 94,000m<sup>3</sup>
- . Process water savings: 94,000m<sup>3</sup>
- . CO<sub>2</sub> savings: 5,800 tonnes

**Next Steps:**

The promotion and dissemination aspects of this project are being accomplished by close liaison with the DME regarding the design and implementation of the Energy Efficiency Strategy. The draft version of the Strategy has already been circulated for public comment. The draft Strategy was officially launched in Cape Town at the start of Energy Efficiency Month in May 2004. This launch was followed by a short workshop in Cape Town (as part of an Industrial and Commercial Use of Energy conference) followed by a full publicity event on 17th May in Gauteng, aimed at industrial end-users.

The DME will award contracts in early October 2004 for a service provide to undertake Monitoring of Energy Efficiency Targets as implementation of M&T practices within industry and commerce. This will assist DME to gauge the extent to which the industrial and commercial energy efficiency targets are realistic and achievable. The targets set by the DME in the Draft Energy Efficiency Strategy are to be achieved by 2014.