Monitor, target and report on energy management.

LEVEL:	6
CREDITS:	5
FIELD:	Physical Planning and Construction
SUBFIELD:	Industrial Energy Managers
ISSUE DATE:	
REVIEW DATE:	

PURPOSE OF THE UNIT STANDARD:

This unit standard is for persons in the Engineering, Construction and Energy Sectors.

A person credited with this unit standard will be able to:

- Understand how MT&R can produce the information you need to manage your energy consumption downward;
- Appreciate the immediate actions that you can take to better understand the information that can be derived from existing energy data.
- Describe the difference in purpose and activity of M&V and M&T

This unit standard will contribute to the full development of the learner within the engineering, construction and energy environment by providing recognition, further mobility and transportability within the field of Physical Planning and Construction. The skills, knowledge and understanding demonstrated within this unit standard are essential for social and economic transformation and upliftment within the engineering, construction and energy environment.

LEARNING ASSUMED TO BE IN PLACE:

The following knowledge, skills attitude and / or equivalent:

- A minimum of a National Diploma (Engineering) at NQF Level 5 or equivalent.
- An understanding of electrical engineering principles at in the context of industrial systems.
- An understanding of mechanical engineering principles in the context industrial systems.
- A working knowledge of operations maintenance in industry.
- A working knowledge of relevant sections of the OSH Act.
- A working knowledge of management principles.
- A working knowledge of reporting
- A working knowledge of data processing

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA

SPECIFIC OUTCOME 1:

Understand energy monitoring targeting and reporting.

ASSESSMENT CRITERIA:

1.1 Monitoring, targeting and reporting is understood and explained in terms of its rationale.

1.2 Monitoring, targeting and reporting is understood and explained in terms of scope and information sources.

1.3 Monitoring, targeting and reporting is understood and explained in terms of its definitions.

1.4 Monitoring, targeting and reporting is understood and explained in terms of data and information.

SPECIFIC OUTCOME 2:

Understand and quantify the relationship between energy and production.

ASSESSMENT CRITERIA:

1.1 The relationship between energy and production is understood and explained in terms of its theoretical basis.

1.2 The relationship between energy and production is quantified and graphically represented in terms of energy use and production data.

1.3 Plant energy performance is quantified, graphically represented and interpreted through the use of CUSUM graphs.

1.4 Energy performance models are developed, and interpreted in terms of energy performance models, control chart data sets and control charts.

SPECIFIC OUTCOME 3:

Set targets for energy management.

ASSESSMENT CRITERIA:

1.1 Targeting is understood and explained as an integral part of energy management in terms of target elements.

Range: Target elements are: The measure of the level to which consumption can be reduced and the time by which the reduction will be achieved.

1.2 Targets are set in terms of performance benchmarks, preliminary targets, target revision and performance variability.

1.3 Targets are set in terms of preliminary targets and target revision.

1.4 Targets are set in terms of performance variability.

SPECIFIC OUTCOME 4:

Report on energy management.

ASSESSMENT CRITERIA:

2.1 The purpose of reporting is understood and explained in terms of its functions.

Range: The function of reporting can include but is not limited to: To motivate, performance reporting, monitor costs and monitor savings.

2.2 A reporting structure is developed on the basis of who needs the information and what information do they need.

2.3 Measurement and verification are understood explained and applied in terms of formalised monitoring and targeting.

2.4 Comprehensive, quality and appropriate reports are written, on energy management, in terms of the functions of reporting.

ACCREDITATION AND MODERATION OPTIONS:

1. Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
2. Any institution offering learning that will enable achievement of this unit standard must be accredited as a provider through the relevant ETQA.
3. Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures

NOTES:

1. CRITICAL OUTCOMES

The following critical outcomes are addressed in this unit standard:

1. Identify and solve problems (Identify potential barriers and practical problems and solve them to enable the energy monitoring, targeting and reporting to be carried out.)
2. Organise and manage oneself (Understand and manage the energy monitoring, targeting and reporting process.)
3. Communicate (Report on energy monitoring and targeting)
4. Use science and technology (Use appropriate instrumentation for energy monitoring.)
5. Understand the world as a set of related systems (Understand the global impact of the efficient use of energy in terms emission mitigation.)

2. ESSENTIAL EMBEDDED KNOWLEDGE

Knowledge that will help me understand and that I will be able to explain:

- An understanding of energy monitoring, targeting and reporting principles.
- An understanding of load profiles and energy use profiles.
- An understanding of spreadsheet based assessment tools.

3. SUPPLEMENTARY INFORMATION:

SPECIFIED REQUIREMENTS include legal and legislative specific requirements and are contained in one or more of the following documents

- Relevant ISO Standards
- OSH Act
- Relevant SANS standards and codes
- South African Building Code
- Specifications, agreements, policies and procedures of the relevant organisation
- User manuals supplied by manufacturers

SUPLEMENTARY READING

- Energy-wise Practice 12, NZ Energy Efficiency and Conservation Authority.
- Good Practice Guide 148: Monitoring and targeting in the textiles industry, UK Best Practise Programme.
- Best Practice Program GPG 231
- ASHREA Guideline 14-2002
- U.S. Department of Energy, M&V Guidelines: Measurement and Verification for Federal Energy Projects.

A ***glossary of terms*** about the terminology of
CONTEXT SPECIFIC

CREDITS

Total hours required by the learner to achieve the required outcomes:

Activity	Hours
Classroom learning	5
On-the-job learning	32
Self directed learning	5
Coaching required	8
Other	
TOTAL	**50**

CREDITS ACHIEVED: 5