

**Develop the business case for energy management opportunities.**



<b>LEVEL:</b>	6
<b>CREDITS:</b>	4
<b>FIELD:</b>	Physical Planning and Construction
<b>SUBFIELD:</b>	Industrial Energy Managers
<b>ISSUE DATE:</b>	
<b>REVIEW DATE:</b>	
<b>PURPOSE OF THE UNIT STANDARD:</b>	

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

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

- Establish the business case for energy management investments
- Calculate the simple payback and return on investment of a proposed project
- Identify costs and cash flows that need to be included in life cycle costing
- Use discount factors to determine net present value and internal rate of return for a project
- Propose alternative strategies for financing projects
- Consider the use of energy performance contracting as a means to procure turn-key implementation of projects
- Assess the opportunity for and value proposition of generating a cash stream from employing the clean development mechanism (CDM)

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 SANS
- 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
- A relevant working knowledge of investments and finance

## **SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA**

### **SPECIFIC OUTCOME 1:**

**Build the business case for energy management investments.**

### **ASSESSMENT CRITERIA:**

1.1 Energy management investment is understood in terms of the application of funds.

Range: Funding applications include but is not limited to: Process improvements, equipment, renovations, training, implementation or upgrade of energy information systems, etc.

1.2 The business case for energy management is understood in terms of sound business processes and investment priorities.

1.3 The baseline situation is assessed in terms of the energy management investments, plant performance, energy costs, operation and maintenance etc.

1.4 Energy management opportunities are identified in terms of priorities.

1.5 Investments into energy management opportunities are understood explained and applied in terms of investment appraisal objectives.

1.6 Investments into energy management opportunities are analysed in terms of standard investment criteria.

Range: Investment criteria include but are not limited to: Simple Payback Period, Cash Flows, Return on investment Life Cycle Costing and Risk and Sensitivity Analysis.

### **SPECIFIC OUTCOME 2:**

**Build the business case for financing energy management.**

#### **ASSESSMENT CRITERIA:**

1.1 Financing of energy management opportunities is understood and applied in terms of where capital will be sourced from and how the savings will be applied.

1.2 Key decisions for financing energy management opportunities are motivated in terms of in-house or outside options, time frames and permanent options.

1.3 Internal energy management opportunity financing options are evaluated in terms of the source.

Range: Internal financing options include but are not limited to: Central budget, a departmental budget, payment for services by individual departments and retaining savings.

1.4 Internal funding options for energy management opportunities are evaluated on the basis of savings allocations.

Range: Savings allocations can include but is not limited to: Dividend to staff or shareholders, absorbed into central or departmental budgets or absorbed into the energy management budget.

1.5 External energy management opportunity financing options are evaluated in terms of the source and the conditions.

### **SPECIFIC OUTCOME 3:**

**Understand and apply the services of Energy Performance Contracts and ESCOs**

#### **ASSESSMENT CRITERIA:**

1.1 Energy Performance contracts and ESCO is understood and described in terms of the concept, and background.

1.2 Third-party financing understood and applied in terms of its benefits.

1.3 Information exchange with ESCOs is understood and managed in terms of evidence for energy management improvements.

- 1.4 Risks are understood and managed in terms of changed operating hours, changed equipment, changed schedules, unplanned building use changes, additional “plus-in” technology etc.

#### **SPECIFIC OUTCOME 4:**

**Understand and manage Clean Development Mechanism projects.**

#### **ASSESSMENT CRITERIA:**

- 2.1 Clean Development Mechanism projects are understood, explained and defined in terms of Green House Gas emission reductions.
- 2.2 Clean Development Mechanism projects are understood, explained and managed in terms of the development steps.
- 2.3 Clean Development Mechanism projects are understood explained and managed in terms of the development process.
- 2.4 Clean Development Mechanism projects are evaluated in terms of project size and transaction costs.

#### **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 business case to be developed.)
2. Organise and manage oneself (Identify and prioritise opportunities.)
3. Communicate (Contracts are negotiated with ESCOs and consultants.)
4. Use science and technology (Data processing and finance software tools are used to develop the business case.)
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 management principles.
- An understanding of load profiles, energy use profiles and maximum demand.
- An understanding of investment analysis and investment criteria.
- An understanding of risk and sensitivity analysis.
- An understanding of finance principles.
- An understanding of Clean Development Mechanisms.

## 3. SUPPLEMENTARY INFORMATION:

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

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

### **SUPPLEMENTARY READING**

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

**CREDITS**

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

	<b>Activity</b>	<b>Hours</b>
	Classroom learning	5
	On-the-job learning	24
	Self directed learning	6
	Coaching required	5
	Other	
	<b>TOTAL</b>	<b>40</b>

**CREDITS ACHIEVED:**