



Twinning Project IL/11
Implementation and Strengthening the Environmental Framework for
IPPC, Resource Efficiency and Eco-Management in Israel



Guidance on a ,Mini‘ Energy Management System

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Standard ISO 50001 Energy Management

Core Principles:

- **Plan, Do, Check, Act - PDCA- Cycle**
- **Strategic Goals on Energy Policy within the Organization**
- **Commitment of Top Management**
- **Energetic Record and Assessment**
- **Economic Assessment**
- **Checklist, Measures, Organization, Communication, Involvement and Training of Personnel, Documentation**
- **Check of Impact, Measurement and Verification**
- **Monitoring and Improving Performance**
- **Continual Improvement**

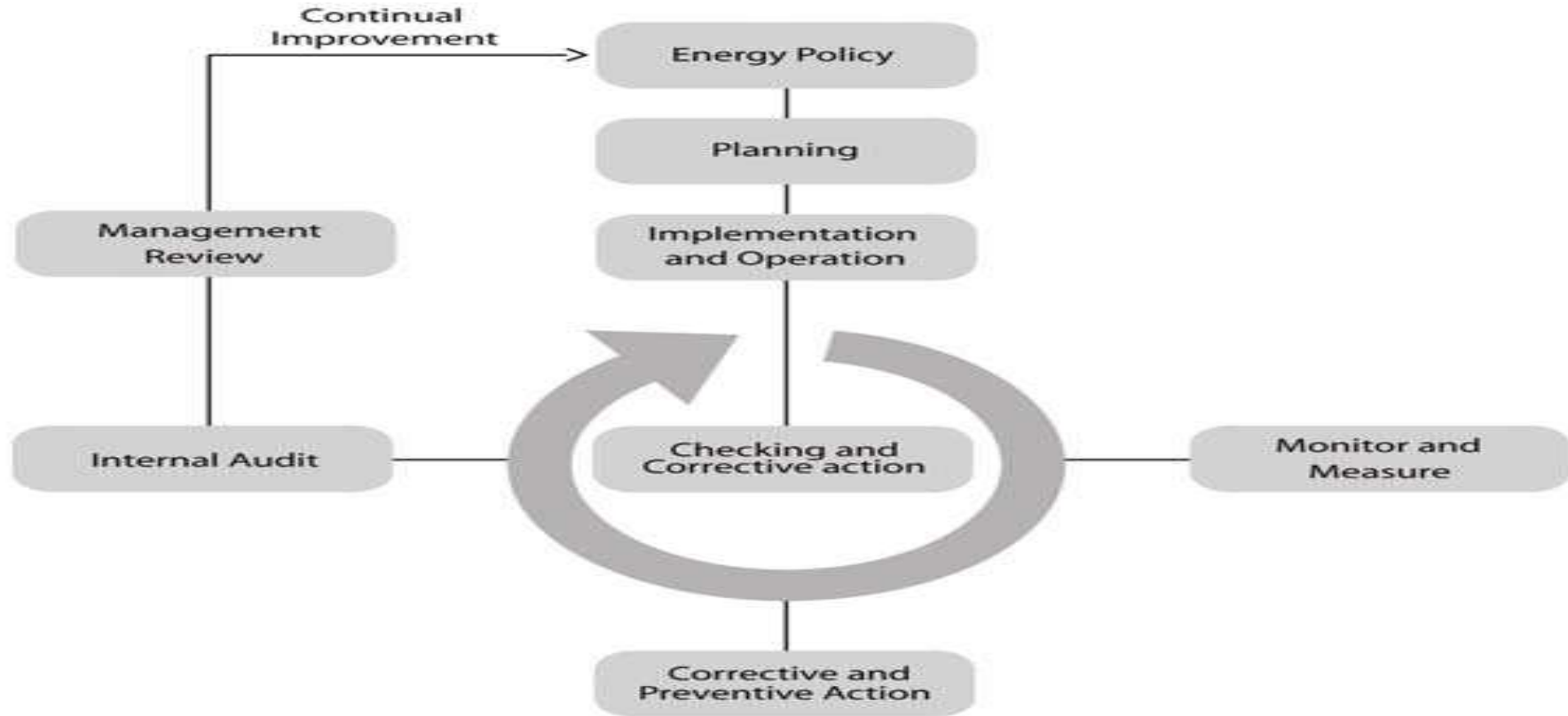




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Stakeholder Workshop on Material and Energy Efficiency

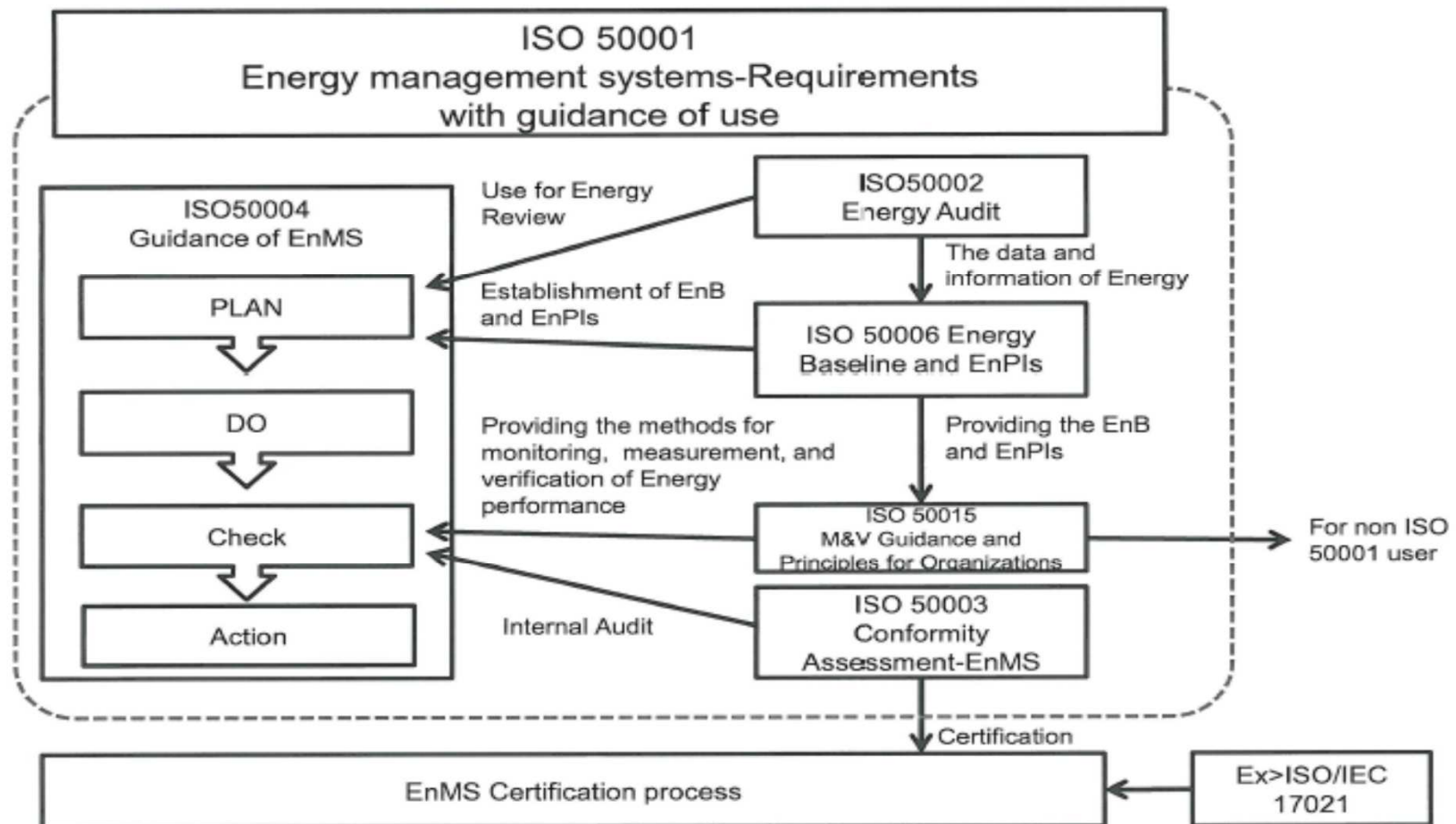


ISO Standard 50001 Energy Management System Model
 (Source: ISO Standard 50001 - 2011)





Overview, Structure and Relationship of Standards within ISO 50000 Series





- **ISO 50001 Energy Management Systems**
- **ISO/CD 50002 Energy Audits**
- **ISO/CD 50003 Energy Management System Audits and Auditor Competency- Conformity Assessment**
- **ISO/CD 50004 Guidance for the Implementation, Maintenance and Improvement of an EnMS**
- **ISO/CD 50006 Energy Baseline and Energy Performance Indicators (EnPIs) - General Principles and Guidance**
- **ISO/CD 50015 Measurement and Verification of Organizational-- Energy Performance- M&V**





Structure of Energy Management Systems

• Basic Component (1)

- Commitment of Top Management & Decision on Responsibilities
- First Status Analysis, Assessment und Recommendations
- Legal Compliance Check
- Cost- /Benefit Analysis for Measures of Energy Savings
- Draft Energy Policy and Objectives
- Comparative Assessment of Management Options and Decision about Measures
- Decision upon further implementation of ISO 50001, Targeted Application of Energy saving Measures, Further use of the Basic Component

• Implementation and Operation (2)

- Competence & Training
- Establish Communications, Documentation, Operational Control, Design, Procurement
- Conformity Review of taken Measures, Organizational changes, Full Functionality

• Checking and Management Review (3)

- Monitoring, Measurement and Verification
- Evaluation of Legal & other Requirements
- Internal Audit of EnMS
- Nonconformities, Correction, Preventive Action and QA on Records
- Assessment/Review of the Energy Management





Stepwise Energy Management System

- **Energy Use Checklist**
 - Identify typical and main Sources of Energy Consumption
 - Select Benchmarks for technical equipment, systems and processes
 - Compare Energy consumption figures with Benchmarks
- **‘Mini’ Energy Management System**
Basic Component (1) of ISO 50001 Energy Management is comprising:
 - Energy Profile
 - Saving Potential
 - Cost/Benefit Analysis
 - Recommended Measures
- **ISO 50001 Energy Management Systems**
 - Implementation and Operation (2)
 - Checking and Management Review (3)





Operational Flow Scheme on a Stepwise System of Energy Management

Step 1: Apply Checklist of typical Energy Uses

**Results: Estimates about Energy Uses and Saving Potentials
Plausibility Check for Energy Management**



Step 2: 'Mini' Energy Management System

Results:

Decision Point for the Top Management

- **Use the results of the adapted Energy Management as such and / or possibly apply for grants or other incentives**
- **Continue to implement the full ISO 50001 Energy Management**



Step 3: Continue to Energy Management System ISO 50001

Step II Implementation and Operation

Step III Full Operation, Review and Control, Feedback to Top Management, Decisions, Continual Improvement





‘Mini’ Energy Management System

(Superimposable with: Step I ISO 50001 Energy Management Systems)

- Written Commitment of Top Management to implement ‘mini’ Energy Management System
- Appointment of Energy Manager, sufficient decision capacity and resources
- Energetic Assessment
- Compilation and Analysis of Fuel
- Compilation and Analysis of Energy Use
- Data compilation in forms of Excel spreadsheets
- Inventory of Energy Users
- Measurement and/or Estimating
- Analysis and Assessment (Energy Baseline / Energy Performance Indicators)
- Check on Plausibility and Error Analysis
- Assessment on Energy Saving Potentials
- Economic Assessment of Measures to use Reduction potentials
- Use of energy saving potentials
- Documentation
- Feedback to the Top Management
- Top Management: Decision about possible measures and documentation about it
- Decision / Review on Energy Policy





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Mini' Energy Management System

Main actions to be taken:

1. Written Commitment of Top Management to implement 'mini' Energy Management System

Including furthermore:

- Designation of the Energy Manager
- Provisions of financial and human resources
- Delegation of responsibilities and capacities to Energy Manager
- Communication within the enterprise
- Decisions on feedback and reporting to Top Management
- Documentation of all implementation steps, decisions, time tables, reporting and records

2. Recording and Analysis of Energy Sources

Year	Used Energy/ Energy Source(Fuel)	Consumption (kWh/year)	Proportion of total Energy Consumption in %	Costs in EUR	Proportion of Costs in %	Measurement System	Accuracy/ Calibration

3. Recording and Analysis of Energy using Equipment and technical Systems

Energy using Equipment /System				Used Energy (kWh) and Energy Source	Waste Heat (Level of temperature)	Measurement system/ Type of Measurement or alternative way of recording and analysis	Degree of Accuracy/ Calibration
No.	Tech. System / Part	Age	Capacity				





Mini' Energy Management System

Main actions to be taken: **Continue**

4. Identification and Assessment of Energy and Costs Saving

- **Identify the saving potentials (e.g. optimization of technical equipment/system)**
- **Assessment of saving potentials according to economic criteria**
- **Cost effective Analysis**

Assessment of internal Interest Yield and Payback period

General items				Internal Interest Yield	Static Payback period
Investment/ Measures taken	Amount invested	Saving	Technical Utilization	Return on Investment/a	Reflux of capital
	[Euro]	[Euro/Year]	[Years]	[%]	[Years]

5. Feedback to the Top Management and Decision how to proceed with the results achieved

- **Regular feedback to the Top Management**
- **Records of Meetings and Decisions**
- **Documentation**





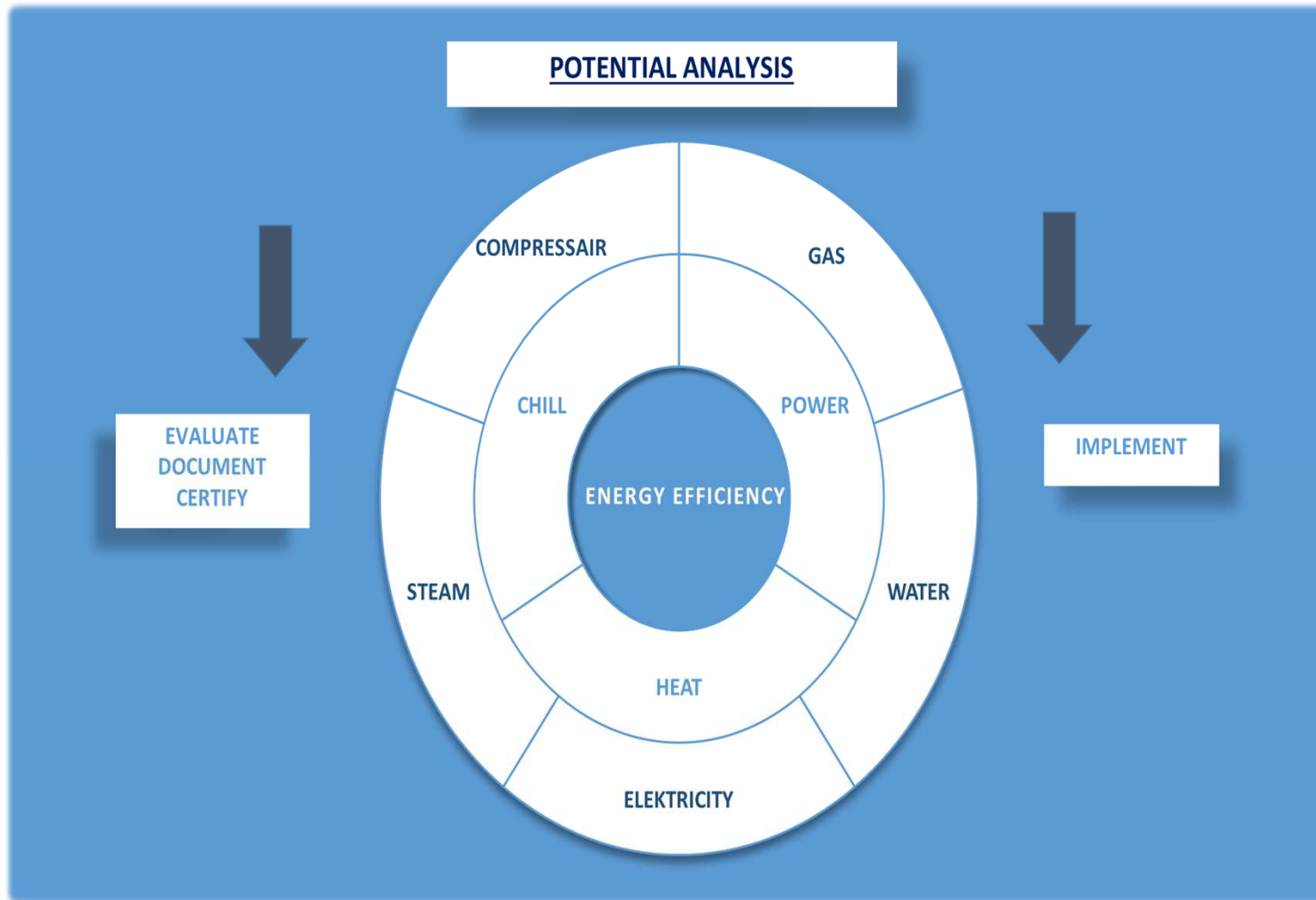
Improve Energy efficiency: Conclusions

- Energy costs are controllable
- By implementing simple and effective energy efficiency measures, businesses can cut energy costs, reduce overhead expenditure and consequently increase profit margins
- Reduced energy cost contribute direct to the bottom line profitability.





The potential Analysis Process in a Mini - EnMS





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Excel Spreadsheet / Worksheet for Record and Assessment of the ,Mini' Energy Management

Commitment and responsibilities

The first step and the most important prerequisite for the successful introduction and maintaining an energy management system is clear commitment of the management to systematically save energy. At the same time must be determined who is responsible for introduction and maintenance and what capacities are cleared for the purpose.

Declaration of Engagement

*EXAMPLE, PLEASE ADJUST:
 "We, the company XXXXXXXX Ltd .committed an alternative energy management system according SpaEFV §3 para. 1 no. 2 to implement and operate. For the required financial and time resources are provided and subjected to the system of regular monitoring of the management*

Responsibles

Nomination of the Energy Manager:

*EXAMPLE, PLEASE ADJUST:
 "The responsible person or the introduction and operation of the energy management system is Mrs Mr. The necessary mandate, time, resources and rights to execute this will be allocated to her/him. "*

For a smooth flow, it is necessary that responsibilities are clearly delineated and assigned another. ie for.

Area	Responsible
Top Management	
Energy Manager	
Accounting	
Operation	

In the following tasks that need to be processed as part of the energy management system are listed

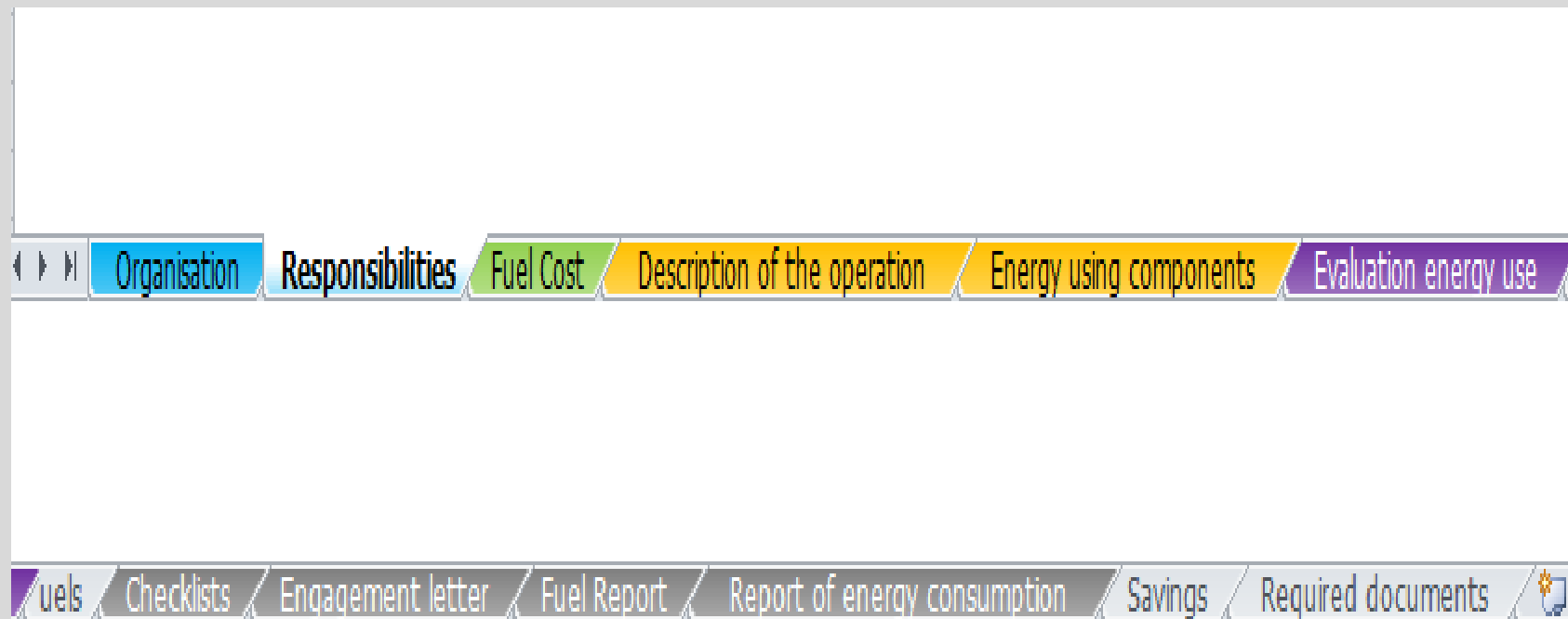
Task	Responsible	support
Write & sign the Commitment		
Assign responsibilities		
Allocate resources		
Monitor implementation of the Mini EnMS		
Planning, implementation and evaluation		
Recording of energy-related data		
Proposals for energy efficiency measures		
Evaluate and economically prioritize measures		
Information management		
Decision to implement measures		
Coordination of the implementation of measures		
Monitor effectiveness & efficiency		
Control Documentation		
Purchasing energy and energy-efficient products		
Application for government grant		





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Excel Spreadsheet / Worksheet for Record and Assessment of the ,Mini' Energy Management





Step 3: Continue to Energy Management System ISO 50001

Energy Management System

continue: ISO 50001

Step II Implementation and Operation

- Objectives to improve Energy Efficiency
- Energy Policy of the Organization
- Determining policy and targets for the Management System
- Implementation of Measures
- Documentation of the Implementation (e.g. Manual, Procedures)
- Organizational Structure
- Documentation System , Rules for Feed In and administrative Procedures
- Rules and criteria for Calls of Tenders, Purchase conditions, Life Cycle Costing
- Planning of Infrastructure
- Training of Employees
- Setting principles for communication and assuring proper communication
- Gathering and structuring proposals for improving the Energy and Economic Performance of the Organization
- Yearly Planning for Energy supply, consumption and tendering
- Planning for Energy supply, Measurement- and Assessment instruments





Continue:

Energy Management System

continue: ISO 50001

Step III Full Operation, Review and Control, Feed Back to Top Management and Continual Improvement

- Extensive and Full Operation of the Energy Management System (PDCA-Cycle) focused on continual improvement
- Updated plan for saving Energy (Plan)
- Records from the ongoing Energy Controlling (Do)
- Internal Energy Audit, Audit Plan and Report (Check)
- Analysis and Assessment of the Energy situation,
- Updating the Energy Goals and Documentation of Energy Reviews (Act)

