Put energy management into practice
IN-HOUSE ENERGY COMPETENCE DEVELOPMENT

Resource Efficient Management of Energy (REME)

In-house energy competence development

Looking into

- EnMS training requirements

- Assess training needs

- Addressing training needs

- Develop tailored training

- Organisational issues

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Requirements as per ISO50001

ISO50001 references

7.2 Competence

- determine the necessary competence of person(s) doing work under its control that affects its energy performance and EnMS;

- ensure that these persons are competent on the basis of appropriate education, training, skills or experience;

- where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken;
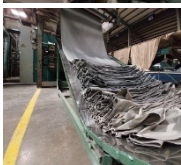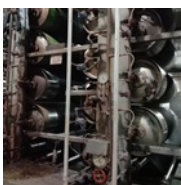
Requirements as per ISO50001

ISO50001 references

7.3 Awareness

- Persons doing work under the organization's control shall be aware of:

a) the energy policy

b) their contribution to the effectiveness of the EnMS, including achievement of objectives and energy targets, and the benefits of improved energy performance

c) the impact of their activities or behaviour with respect to energy performance

d) the implications of not conforming with the EnMS requirements

Requirements as per Higg FEM
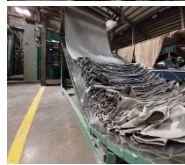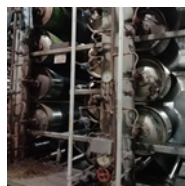
Higg FEM references

EMS Level-2

8. Do employees at your facility responsible for environmental management have the technical competence required to do their job?

EMS Level-3

9. Does your facility promote awareness of the environmental strategy to employees?

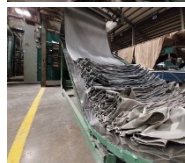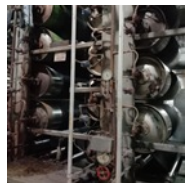# Applying good practices in training delivery

" The disaster training "

How to avoid a disaster

….., but it would be to easy – so

let us start "vice-versa":

✓

Exercise: How can we make sure _that our_ training fails

✗ ?

Time: 15 min

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Competence development
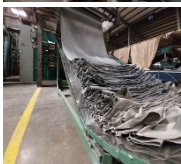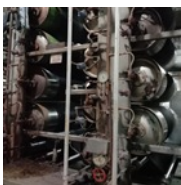Approaches

Formal training

- General induction training and refresher training

- Special skills training

- …

Re-enforcement

- Workplace supervision/briefings

- Work instructions and signs

- …

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Competence development
Subject areas for consideration

For example

- ☐ Operational controls related to energy performance
- ☐ Significant energy uses and their operational controls
- ☐ Identification and reporting of NPOs at workplace
- ☐ Good housekeeping practices and their impact on energy performance
- ☐ Hazards associated with fuels, pressure vessels and other combustibles at workplace.
- ☐ Hazards associated with and possibility of exposure to electrical installations, fuels, or hot surfaces at workplace.
- ☐ Preventive environmental and work safety practices
- ☐ Good resource efficiency practices
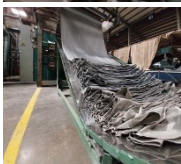- ☐ Emergency prevention and response
- ☐ ….
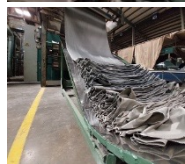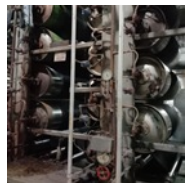
Competence development
Basic questions to ask

| Why	Why training at all? What would be an alternative?
	What are the training objectives?
	What should the participants think and/or do at the end of the training?
What	What can I put over in the available time?
	What intellectual level will I pitch my training?
	What audiovisual aid will/can I use?
Who	Who is the target group? Age? Nationality? Level? Language abilities? Prior experience? Expectations? Mind sets?
When	What is a good timing for the training?
	How much time do I have for the training?
Where	Building? Room? Layout? Seating patterns? Interruptions? Temperature? Noise?
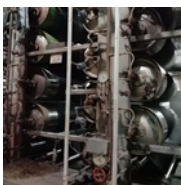
Competence development
Organisational issues

Planning your training

- Clearly identify your training target groups

- Decide on training/awareness raising objectives

- Define expected learning outcomes

- Select training methods and identify resources needed

- Assess requirements and availability of trainers

- Set training course dates, duration, agenda and venue, frequencies

- Establish methods to evaluation and follow-up of training results
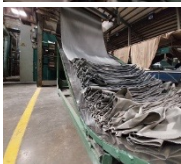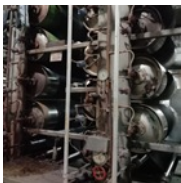
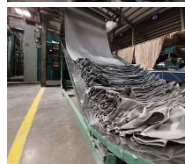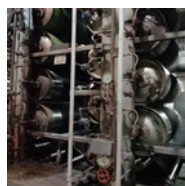# Competence development
Possible target groups

- Management personnel
- Supervisors
- Worker
- Specialists
- Suppliers
- Contractors
- …

Ask yourself…

- What are the required knowledge and skills to allow the person to perform his/her role, task in context of energy management ?
- What are the current knowledge/ skill gaps?

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Understanding your target audience

- Distinguish between teaching students and industry people

Adult learners from industry	Students
Senior with a lot of working experience	Young, with less or no working experiences
Very short time slots for learning	Abundant time to study and learn
Reflection of the learnt content with the work environment / industry	No or little reflection with the „practice" /industry
Preference for experiential learning	Preference for comprehensive theoretical learning

Understanding your target audience

Distinguish between teaching students and industry people

1. Adult learning principles

2. Using concept of experiential learning

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Understanding your target audience
Key Adult Learning Principals

Experts from industry:

- Want to demonstrate their own willingness to learn,

- Prefer self-directed learning

- Desire to bring their experiences into the learning process,

- Aim to solve the problems of their everyday life based on learnt content

	Pedagogy	Andragogy
The learner	Depending on teacher	Self-directed
Experience	No experience	Lots of different experiences
Readiness to learn	Told to have to	Need to or want to
Orientation	Acquiring prescribed subjects	Organisued around life/work situations, task focused
Motivation	External pressure, grades	Usually internal motivation, self-actualisation,
Role of teacher	Designs learning process and decided subjects	Facilitator, enabler

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Key Adult Learning Principles

1. Adults learn by doing.

Act as a facilitator.
The ultimate learning experience comes from getting people to throw themselves into the task at hand.

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Key Adult Learning Principles

1. **Adults learn by doing**

2. **Use realistic examples**

So use examples that they can relate to.
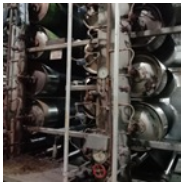Adults relate their learning to what they already know

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Key Adult Learning Principles

1. **Adults learn by doing**

2. **Use realistic examples**

3. **Variety is the spice of life.**

   Use tone and pace during the course of training
   Resort to various delivery modes to get the message across with fun and flair.
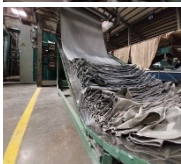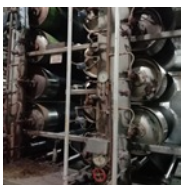
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Key Adult Learning Principles

1. **Adults learn by doing**

2. **Use realistic examples**

3. **Variety is the spice of life**

4. **Conduct training in informal environment**

Provide for friendly learning environment.
Simple social activities or get-together sessions

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Key Adult Learning Principles

1. **Adults learn by doing**

2. **Use realistic examples**

3. **Variety is the spice of life**

4. **Conduct training in informal environment**

5. **Inform learners of learning objectives.**

Establishing clear objectives = key
Allow learners to keep track
Communicate at beginning and reflect at end

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Key Adult Learning Principles

1. **Adults learn by doing**

2. **Use realistic examples**

3. **Variety is the spice of life**

4. **Conduct training in informal environment**

5. **Inform learners of learning objectives.**

6. **Guide and prompt; do not tell.**

Provide all the help learners need – Giving examples, demonstrations, using multimodality approach
Allow participants to think through the lesson on their own and discover the answer
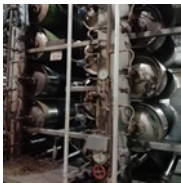
Assessing training needs

General purpose

1. To develop or change attitudes?
2. To enhance knowledge?
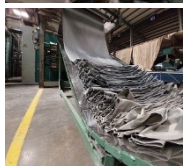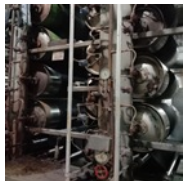3. To develop/enhance specific skills?

Type of training

- General orientation or refresher
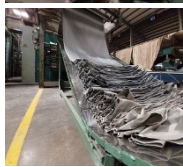- Into-the-job (Induction)
- On-the-job
- ….

Document training needs
Basic Training Matrix - Example
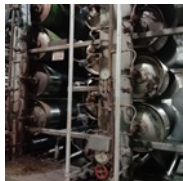
Learning objective or subjects Job title	Energy efficiency practices	SEUs and their operational control	Energy performance monitoring	GHG and air emission control	EnMS Internal Auditing	…
CEO/ Director/ GM		●	●	●	●	
Production manager	●	●	●	●	●	
Production supervisor	●	●	●	●		
Energy / Utilities manager	●	●	●	●	●	
Utilities staff	●	●	●	●		
Workers	●	●	●			
EHS Officers	●	●	●	●	●	
Admin.	●		●		●	
…..						

Document training needs
Detailed Training Matrix - Example

Learning objective or subjects / Job title	Energy efficiency practices	SEUs and their operational control	Energy performance monitoring	GHG and air emission control	EnMS Internal Auditing	...
CEO/ Director/ GM		I	O	I	O	
Production manager	D	D	D	D	S	
Production supervisor	S	D	S	S		
Energy / Utilities manager	D	D	D	D	S	
Utilities staff	S	D	S	S		
Workers	S	S	I			
EHS Officers	O	O	D	D	D	
Admin.	I		I		I	
.....						

Legends
D = Detailed
S = Specific
O = Overview
I = Information only

Resource Efficient Management of Energy (REME)

Document training needs
Training matrix

Use training matrix to

▶ identify and organize training requirements and needs for each job at your company

▶ distinguish between training topics that apply to a broad target group (all company staff e.g. induction training) vs. those that apply to a narrower target group (utilities staff, boiler operators, EHS officers => special skills or knowledge)

▶ track individual target group member`s progress toward completing their training requirements

▶ assess training effectiveness

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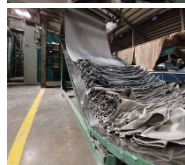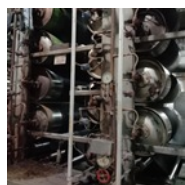
Defining learning outcomes / objectives
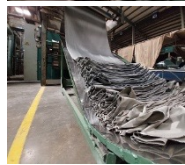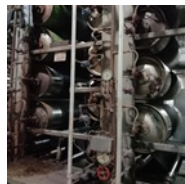
To development and implement effective training, remember and keep in mind the following phrase:

"At the end of this training the participants will be able to…"

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# Defining learning outcomes / objectives

Examples:

"At the end of this training the participants will be able to**…**

- Explain the meaning of awareness posters and work instruction related to energy performance
- Explain the effects of operating parameters of their processes on energy performance
- Correctly operate the machine according to devised controls and work instructions related to energy performance
- Record energy data in the log sheet of the process
- Safely shut-down the machines and their energy supplies
- ….

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Select mode of delivery

Depending on intended learning outcomes

- Lecture/demonstration/presentation

- Exercise

- Case study

- Role play

- Drill

- Film

- …

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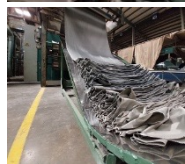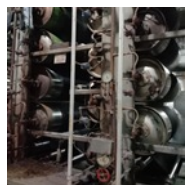
Example of Video

[Napo in... Shocking situations - YouTube](#)

The Effectiveness of "Learning through Experience" –

1. Adult - Experiential Learning

When learning, you remember by

👂	hearing / listening	20%
👁	seeing	30%
👂+👁	hearing / listening and seeing	50%
🗨	discussing / expressing yourself	70%
👷	application /making personal experience	90%

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Experiential Learning Cycle

The Experiential Learning Cycle

1
Action/Experience
to do

2
Publishing
to show

3
Processing
to look back

4
Generalisation
to look around

5
Application
to look forward

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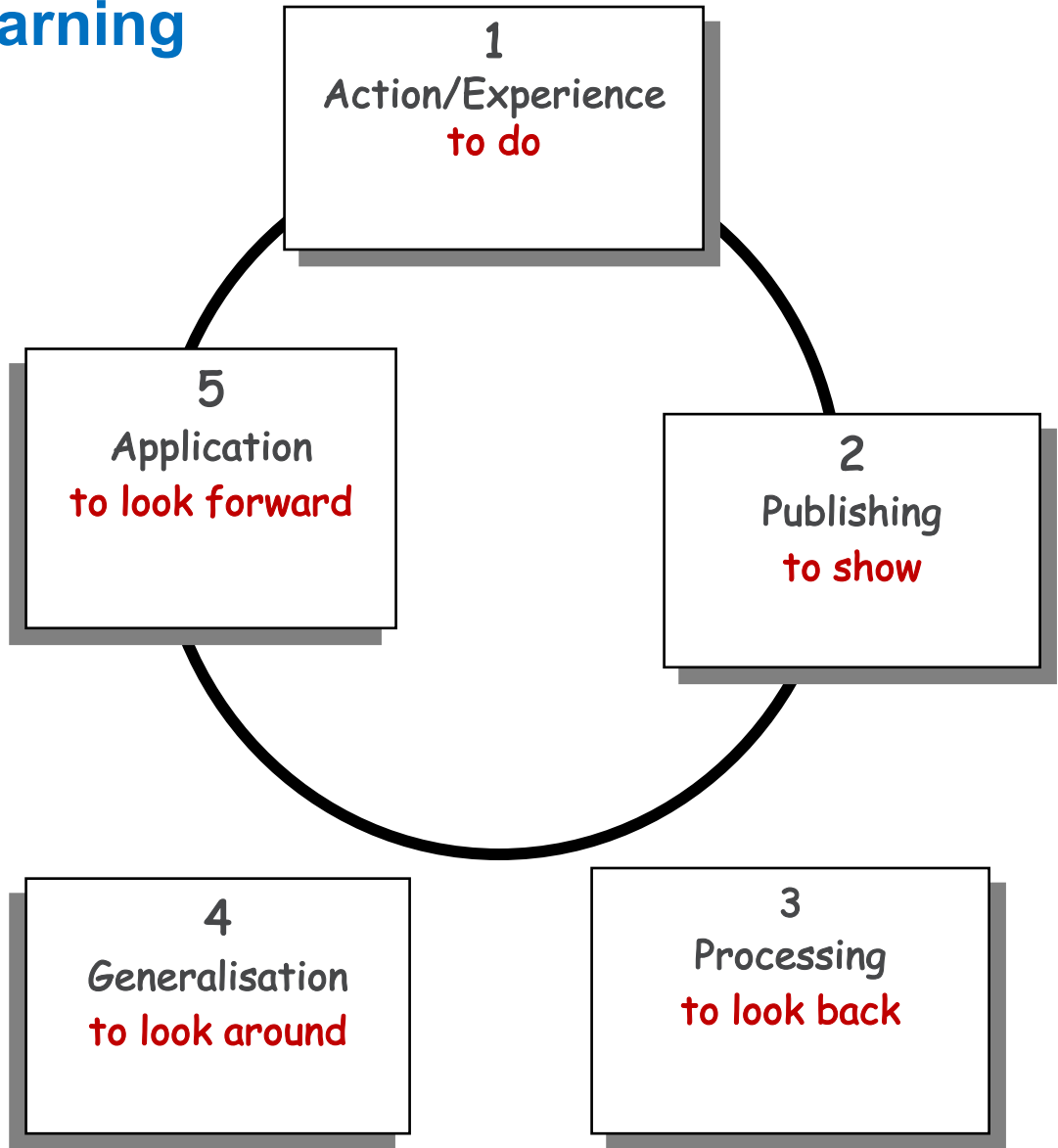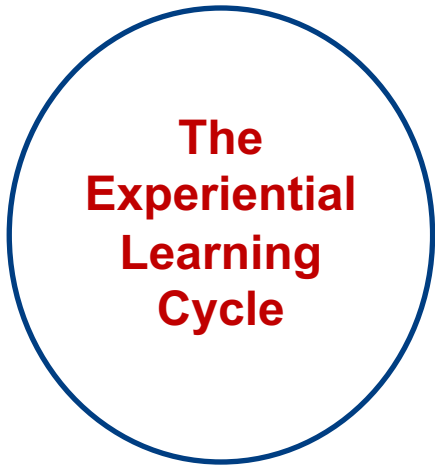
Experiential Learning Cycle

Example: Eco-mapping to identify energy NPOs

1
Action/Experience
to do

Ask participants to develop eco-map for the Textile Company

5
Application
to look forward

Repeat concepts and ideas in one's own factory

2
Publishing
to show

Participants presents their eco-maps in plenum

4
Generalisation
to look around

Think does this relate to own situation

3
Processing
to look back

Discuss the results and get further inputs

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Resource Efficient Management of Energy (REME)

Competence development
Learning Objectives - Example

Exercise

Situation

The management of the „Textile Company" wants to engage you as external trainer to help the company with training its workforce on Energy Efficiency. The company has requested your help for the following tasks:

- Identify one target group for training

- Define learning objectives for this training

- Select suitable training delivery mode

- Suggest how would you verify the training impact
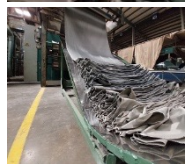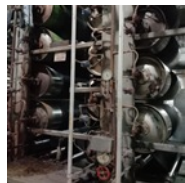
Time: 30 minutes

Developing moderation plan
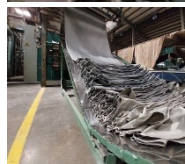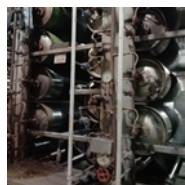
- Moderation plan provides information on;
    - Target audience
    - Learning objectives
    - Mode of delivery
    - Training schedule
    - Time plan of training describing;
        - Titles of sessions and their time
        - Content to be covered, key points to discuss/delivery, summary of activities to be performed, key messages in reflection…
        - Mode of delivery of the session
        - Training material for each session
   - Responsibilities
        - …..

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Moderation Plan
Example

Min.	Outcome/Objective	Content&Remarks	Responsible	Materials
30	**Welcome and introduction**	Welcome Quick review of Agenda Take a Group Photo		**List of participants** **Workshop materials, agenda** **Miro board**
70	**001- Establish common understanding of framework for Energy Efficiency**	Familiarise with framework of international and national "obligations" • Provide overview of relevant international standards and guidelines e.g. ISO50001 • Requirements and Plans of prominent T&G buyers/brands on Energy and Climate targets		**Presentations –** **EE 1101_EE Overview**
5	**mini break**			
30	**001- Establish common understanding of framework for Energy Efficiency**	Familiarise with framework of international and national "obligations" (continued) Reflection in Plenary: take participants views on the international requirements; participants share their experience of working with textile companies and what they observe in this regard (if any); Contribution from participants to add country specific EE requirements		**Miro frame to record responses**

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Using a Moderation Plan
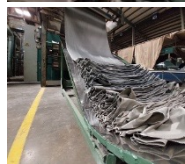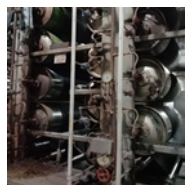
Before the workshop the moderation plan serves:

- Structure the workshop with regard to the participants' (target group's) assumed learning objectives, the contents, the didactic material, the time requirements

- Have a script for the workshop to clarify the learning objectives of each element/unit of the workshop

- Plan and check the materials required for the workshop for each element/unit

- Distribution of responsibilities among the facilitators

- As a basis for communication among the facilitators
  - To reach a common understanding among the facilitators with regard to objective, contents, logistics, materials, possible critical points etc. of the workshop
  - To define possible criteria for mutual feedback and evaluation of the workshop results

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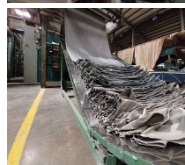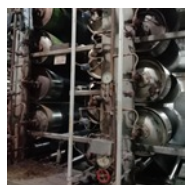
Using a Moderation Plan

During the workshop the moderation plan serves:

- As 'script' and 'central thread' that always has to be present during the sequence of units and steps of the exercises

- Avoid to forget the contents and important points to ask or mention, especially during the introduction and processing of the exercises

- To do proper time management and take adaptive measures (it is recommended to note real time requirements for each unit during the workshop!)

- As a basis for the daily evaluation at the end of each day and the mutual feedback

- Identify potential modifications to the moderation plan for the following day
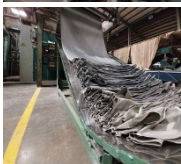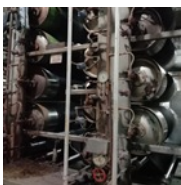
Using a Moderation Plan

After the workshop the moderation plan serves:

- As a basis for the final evaluation at the end of the workshop

- To verify whether objective, contents and timetable were achieved (here, it is important to note the real time requirements and adaptations made during the workshop)

- Check whether the expected results and effects were achieved

- To analyze the reasons why certain aspects were not achieved

- To develop adaptive measures/modifications for the next workshop or to plan adequate follow-up measures

- To facilitate the preparation of future workshops, especially reduce preparation time

- To provide valuable information to the facilitators' network (and receive the same from other colleagues).

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Using a Moderation Plan
Experience sharing

- How do you structure your trainings?

- Do you develop moderation plan? What information does it provide?

- What are major differences in moderation plans for face-to-face and online trainings?

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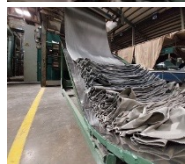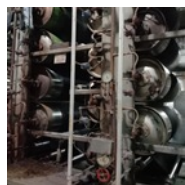
Task

Refer to the learning objectives you developed for The Textile Company in previous group work and perform following tasks in groups:

- Develop moderation plan for the training
- Present your results in plenum

Time: 30 minutes

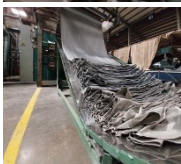giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Competence development
Maintain documents and records

What should be documented and recorded:

- ✓ Dates when training events occurred
- ✓ Content summary or topics outline
- ✓ Training methods used (demonstration, drill, lecture, briefing …)
- ✓ Names and qualifications of trainers
- ✓ Attendance records (name, department, topic/course name, date of training and attendee signature)
- ✓ Copies of performance verification and written tests, and test scores for all participants (as applicable)

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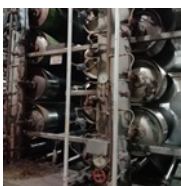
Competence development

Where do you stand in your company?

☐ Energy training needs identified?

☐ Training matrix (indicating target groups and training subjects/ objectives) available and maintained?

☐ Annual training schedule available and maintained?

☐ Training documentation and records maintained?

☐ Training effectiveness verified?

☐ Training programme reviewed and updated?