

Energy Efficiency Management

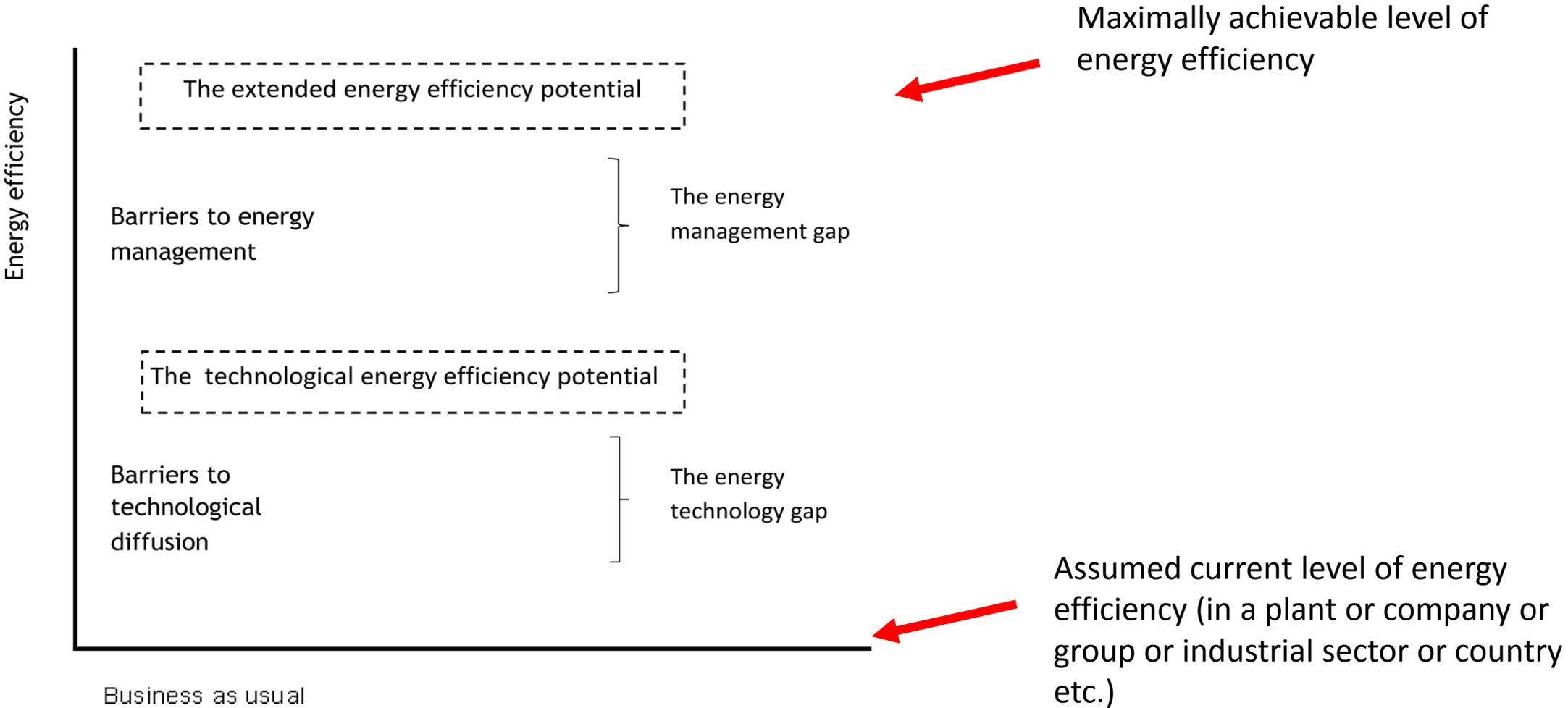
Organisational and Behavioural Aspects

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Overview

- The Energy Gap: what is it and why is it relevant?
- Closing the Energy Gap: external and internal barriers to energy efficiency
 - External Barriers
 - Internal Barriers
 - Organisational Barriers– staff and processes
 - Behavioural Barriers – attitudes, preferences, interests
- Best Practices
 - Organisational Structures
 - Energy Management Infrastructure
 - Supportive HR Management

The Energy Efficiency Gap I



The Energy Efficiency Gap II

- The 'Energy Efficiency Gap' refers to the difference between the real degree of energy efficiency and a theoretically achievable, optimal degree of energy efficiency
- We can distinguish between a 'technological' and a 'social' energy efficiency gap
- In this module, we focus exclusively on the 'social/managerial' gap
- More specifically, the focus will be on a brief but systematic exploration of the barriers that contribute to the 'social' energy efficiency gap



Barriers to Optimal Energy Efficiency I

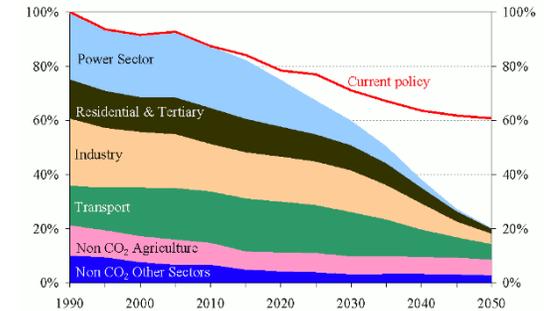
Basic distinction between *external* and *internal* barriers

- External Barriers: factors that in some way hinder the realisation of optimal energy use that are located 'outside' of a company (or group, plant, facility etc.)
 - Local to global
 - Political, cultural, legal, financial, etc.
- Internal Barriers: factors that in some way hinder the realisation of optimal energy use that are located 'within' a company (or group, plant, facility etc.)
 - Organisational – way staff or processes organised
 - Behavioural – staff attitudes, interests, preferences



External Barriers

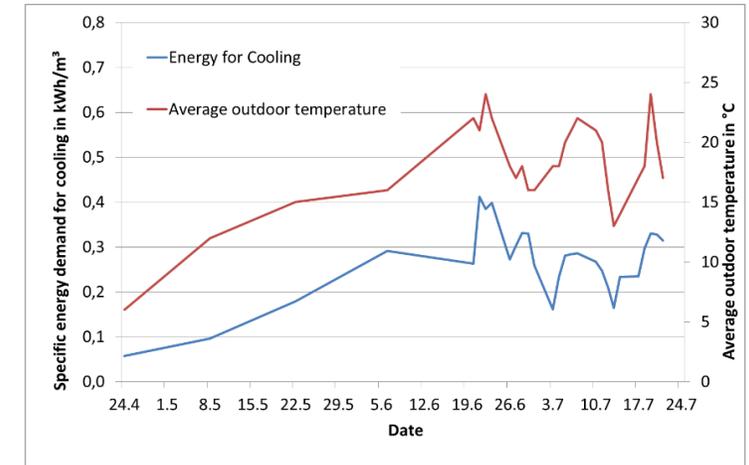
- The ‘external’ character of these barriers means that individual companies might only have a limited scope to influence or change them
- Examples of External Barriers
 - Lack of publically available information about energy efficient technologies prevents companies from even considering them
 - Restricted/ limited access to credit might make it impossible for companies to access capital needed to invest in energy efficient technologies
 - Tax system or low energy prices might dis-incentivise energy efficient technologies
 - Regional or national legal framework might prohibit or restrict or fail to promote use of certain technologies (e.g. solar, wind turbines) and/or permit inefficient/polluting technology to be used (regulatory failures/controls e.g. nitrous oxide)
 - Beneficial Constraints



(Internal) Organisational Barriers

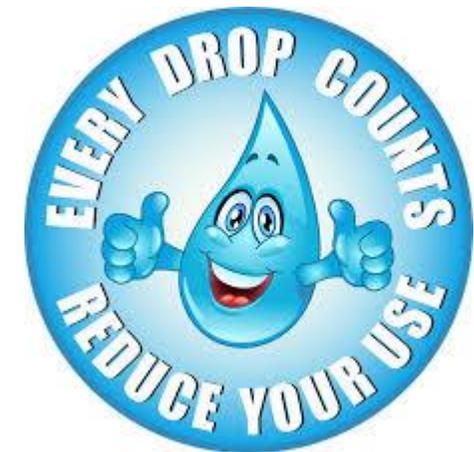
- Individual companies should have more scope to overcome internal barriers compared to external barriers
- Examples of Organisational Barriers
 - Lack of internal data on energy use prevents informed decision-making
 - Structure of Budgets within a company might only allow for small, incremental improvement of energy efficiency even if bigger investments would lead to greater efficiency
 - Sub-optimal maintenance regime will diminish notional energy efficiency of technology
 - Structure of contract with energy supplier (e.g. flat rates)

Energy demand of a cooling circuit of a rolling mill:



(Internal) Behavioural Barriers

- Examples of Behavioural Barriers (e.g. Managers and Operators)
 - Low prestige attached to work that aims at improving energy efficiency (often due to priority attributed to cost effectiveness or output growth)
 - Resistance to change that might be required to implement energy efficient technologies
 - Lack of knowledge or ignorance of benefits of energy efficiency technology
 - Lack of internal communication can prevent good practices to spread within company
 - Lack of trust in often relatively uncertain promises of future benefits of energy efficiency investment



Best practice I: Organisational Structures

- Commitment from senior management to energy efficiency
- Provision of adequate resources for investment in energy efficient technology as well as for information dissemination and training
- Targets for Energy use such as quantitative energy-saving goals for company set by senior management, cascaded down the organisation and integrated into operating, maintenance and purchasing procedures
- Accountability for the achievement of these objectives, at departmental, section and employee level (possibly linked to financial incentive/bonus schemes)



Best practice II: Energy Management Infrastructure

- The creation and dissemination of a formal company-specific energy policy
- The implementation of a formal energy management system e.g. maintenance
- Regular and meaningful engagement of all staff in improving energy efficiency
- Regular energy auditing to gain knowledge about energy flows
- The establishment of Energy Teams in each production unit comprised of engineering, maintenance and production personnel



Best practice III: Supportive HR Management

- Ensuring that the organisation has appropriate technical skills in place
- Regular training courses both to develop technical skills and raise awareness of energy efficiency
- Ongoing communication and regular sharing of information
- Performance against energy objectives for departments, sections, teams and individuals to be formally assessed in appraisals with links to reward schemes



**BEST
PRACTICE**

Literature

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