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***Implementation of  
Energy Management System  
through EPC  
Experience from the EMPRESS project***

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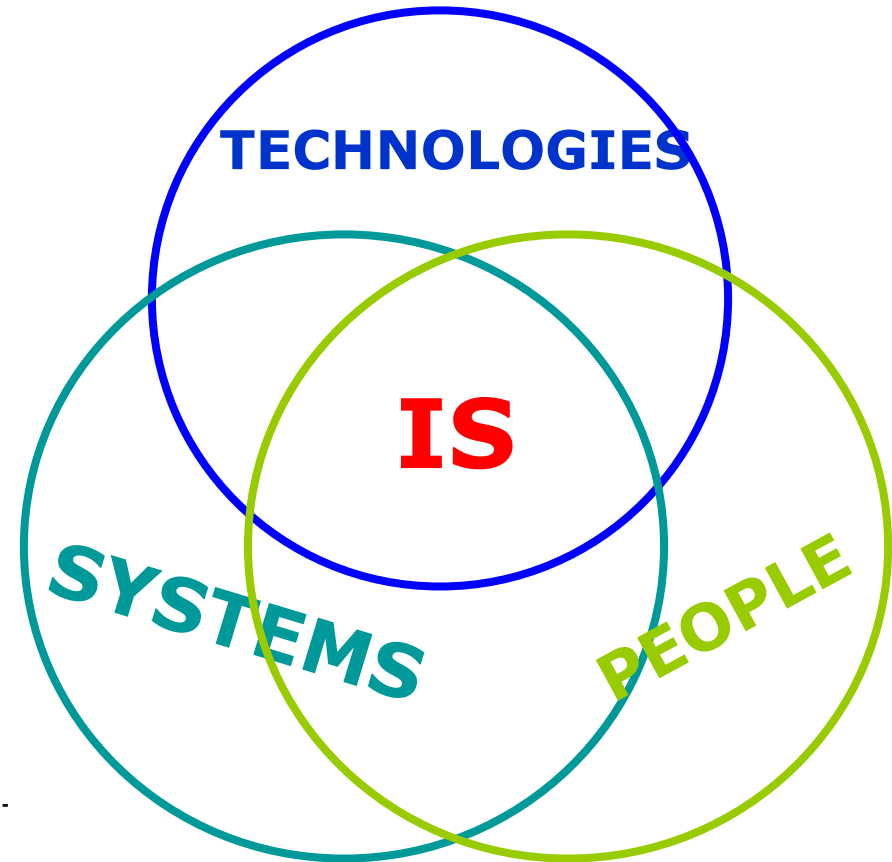
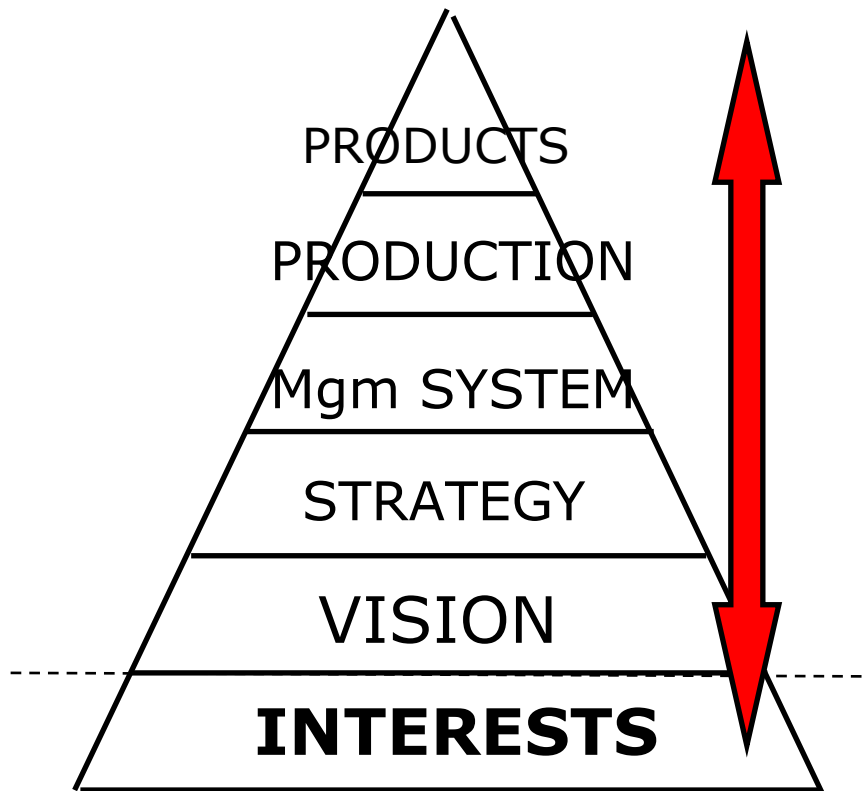
# CONTENT

- Introduction of energy management system through Monitoring and Targeting
- And its financing from savings within the EMPRESS project
- Results and lessons learned

# Information system (IS)

is a backbone of an effective energy management system

*Management pyramid*



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# Introduction of energy management system through Monitoring and Targeting

## Monitoring and targeting (M&T)

focuses on establishment of an effective information system on **efficiency of**

**use** of energy and enables

**accountability of people** influencing this efficiency

# M & T

## **MONITORING** and **TARGETING**

- Data collection

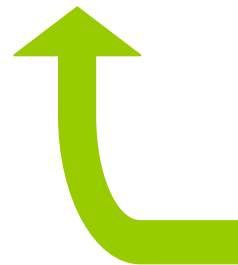
*(consumption, production, other factors influencing consumption)*



- Data analysis

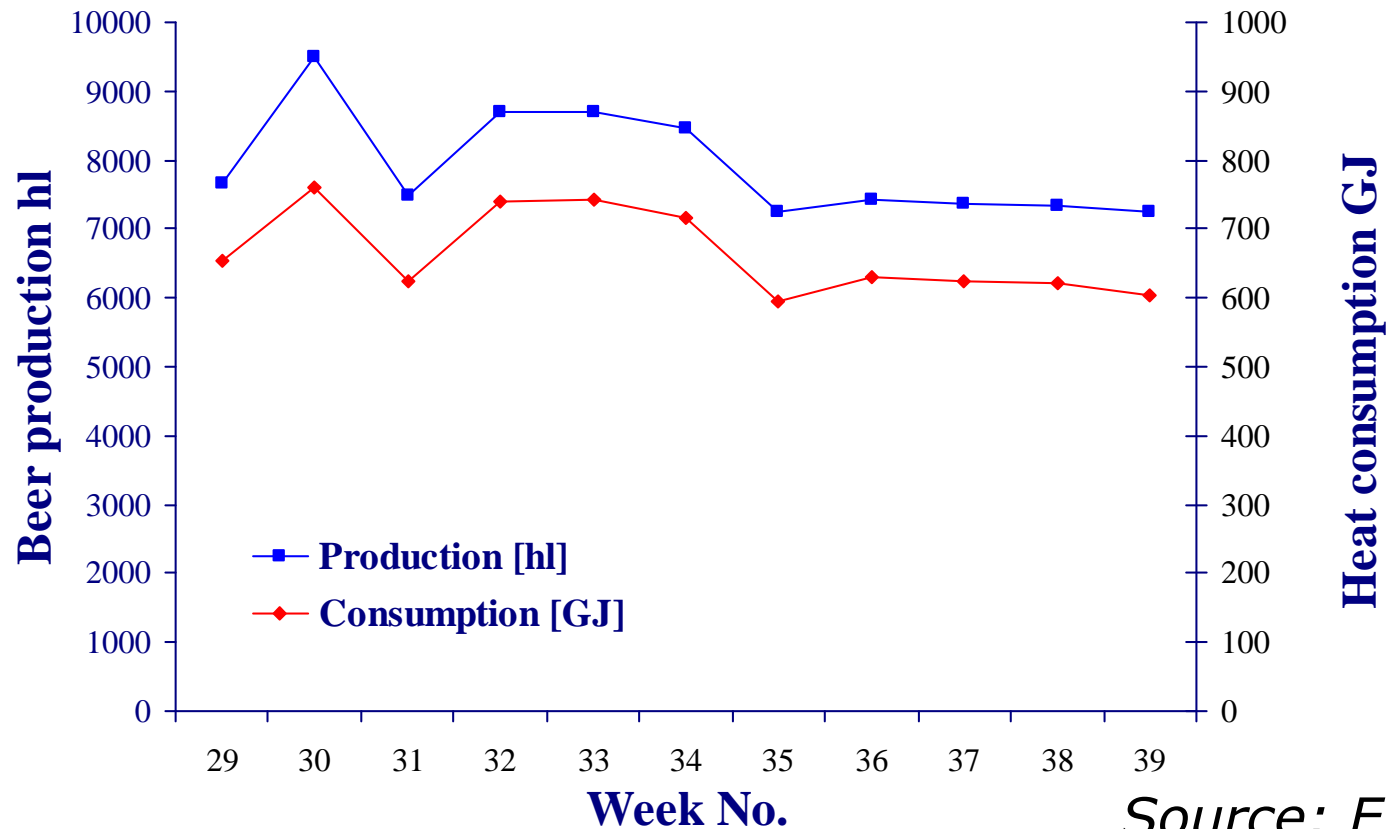
*Understanding causes*

- Accountability
- Measures
- Implementing and sustaining change



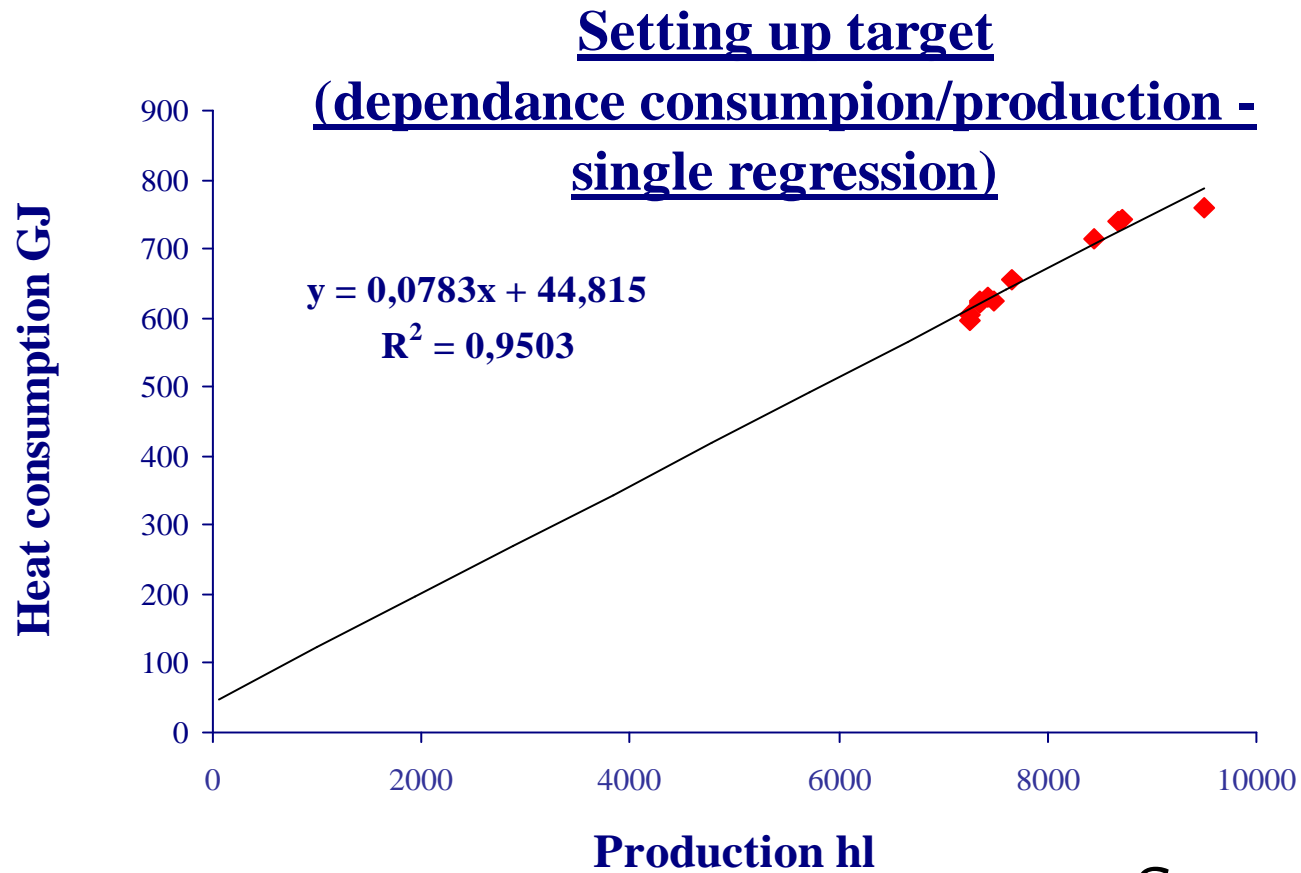
# Monitoring within M & T - example

## Use of heat in beer production



Source: ENVIROS

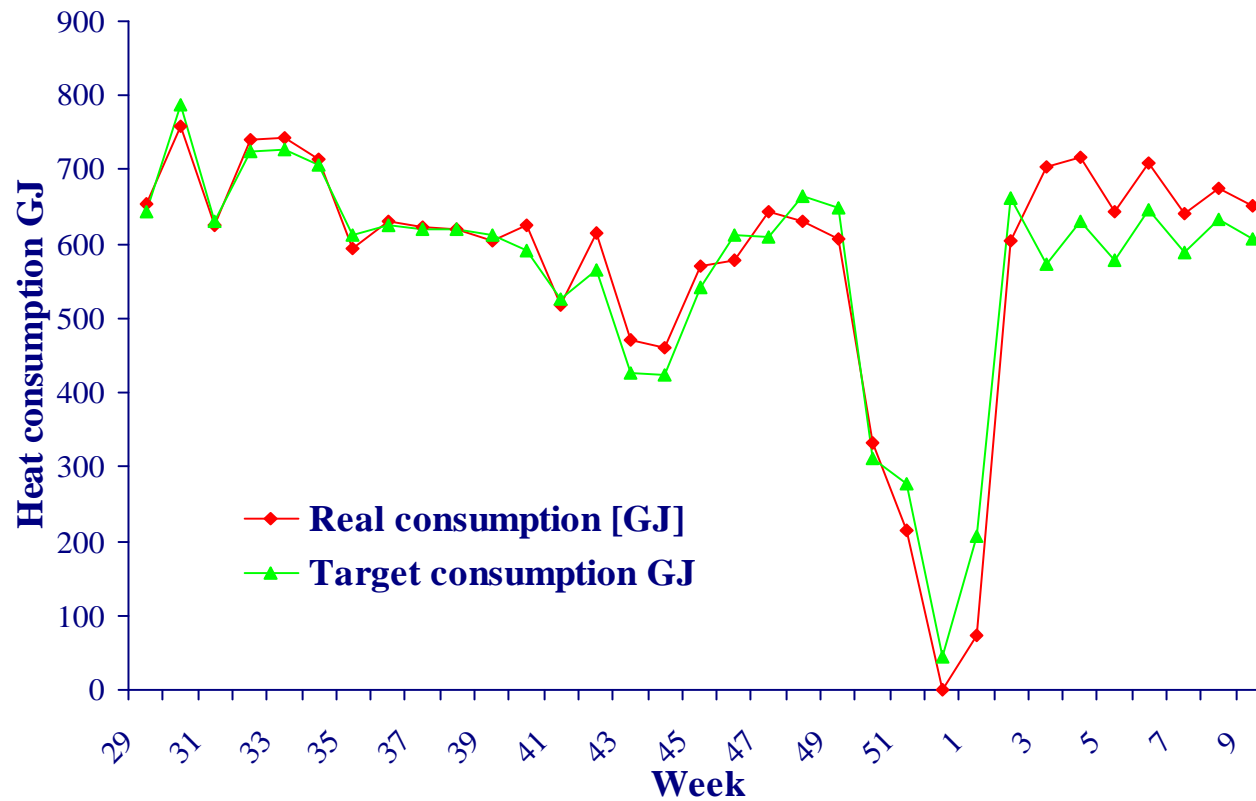
# Targeting within M & T - example



Source: ENVIROS

# Implementation of M & T - example

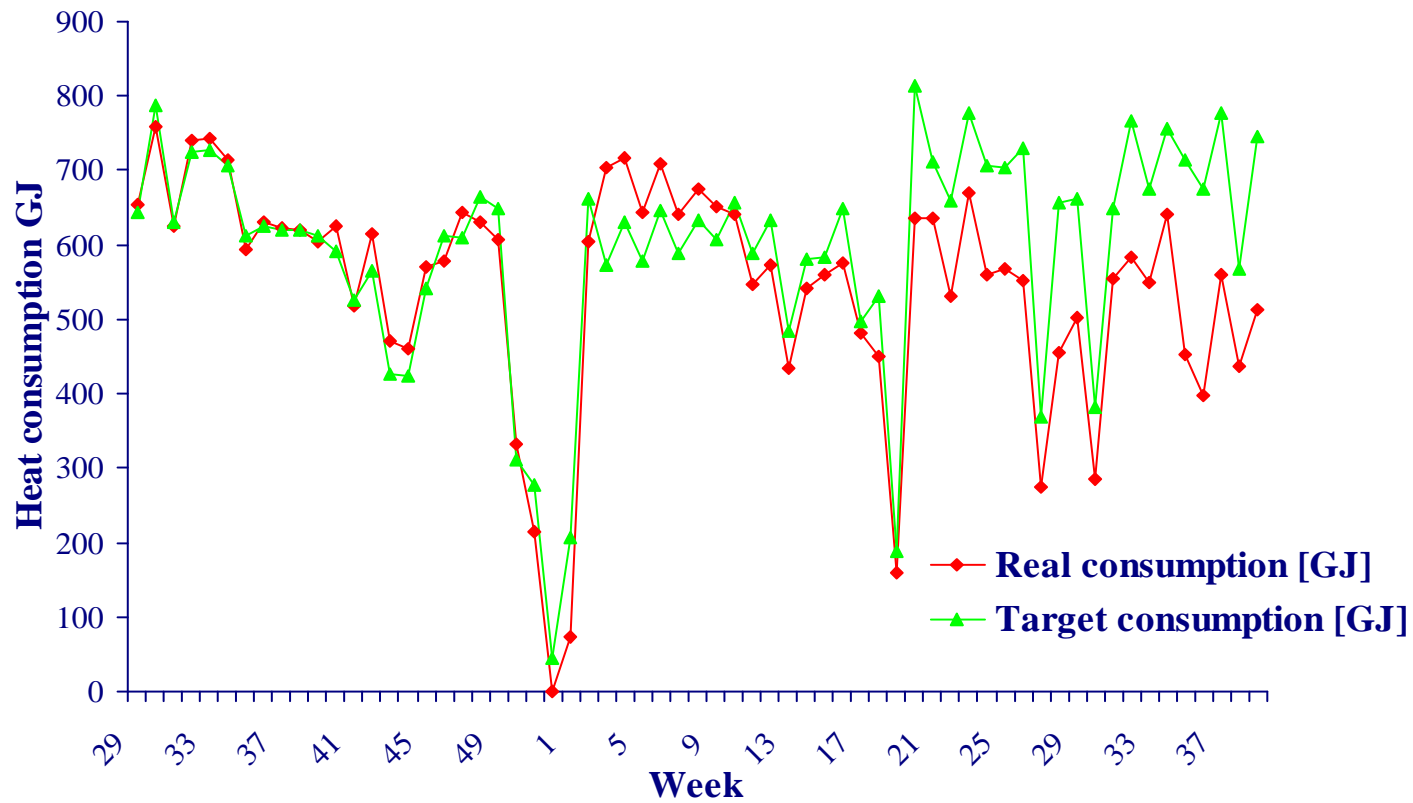
## Problem identification



Source: ENVIROS

# Implementation of M & T - example

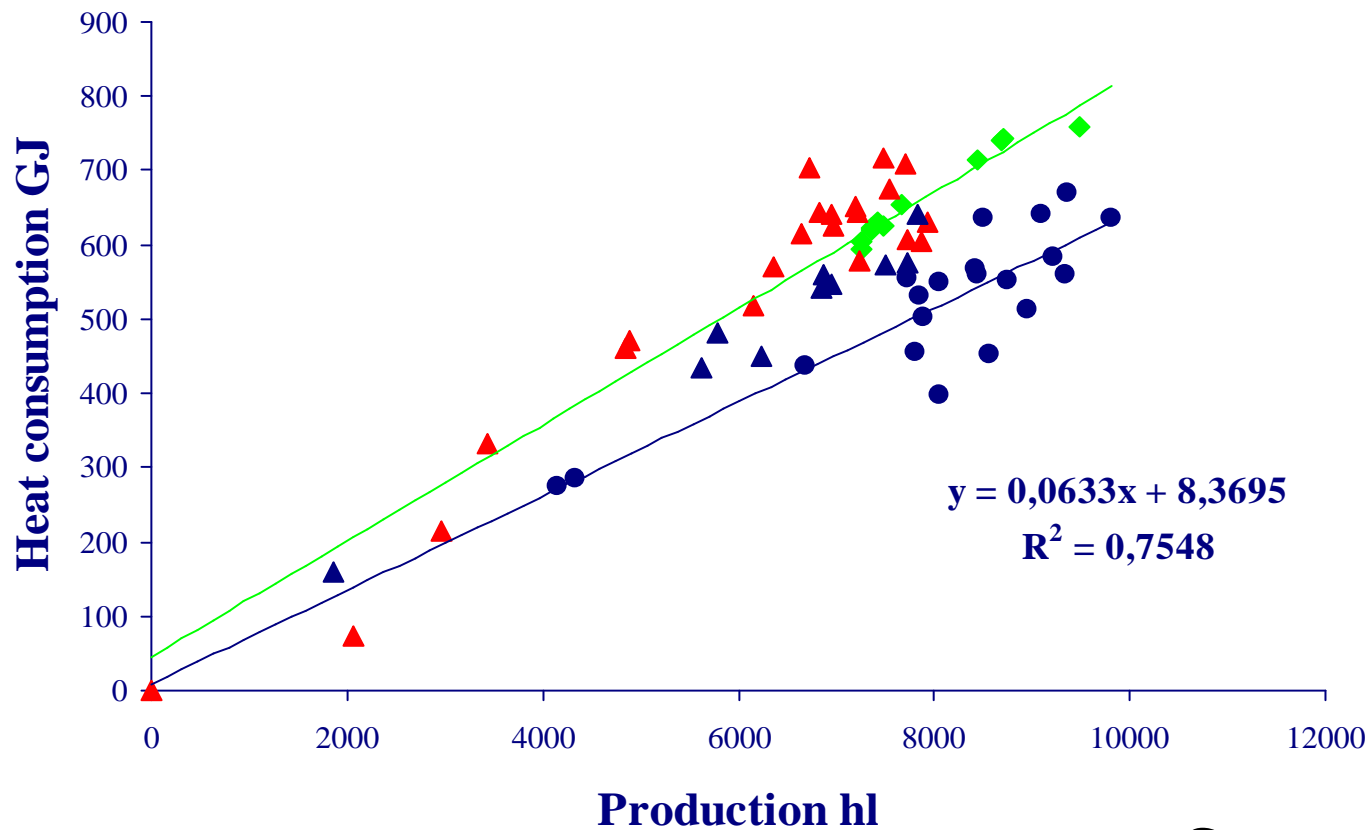
## Implementation of CP measures



Source: ENVIROS

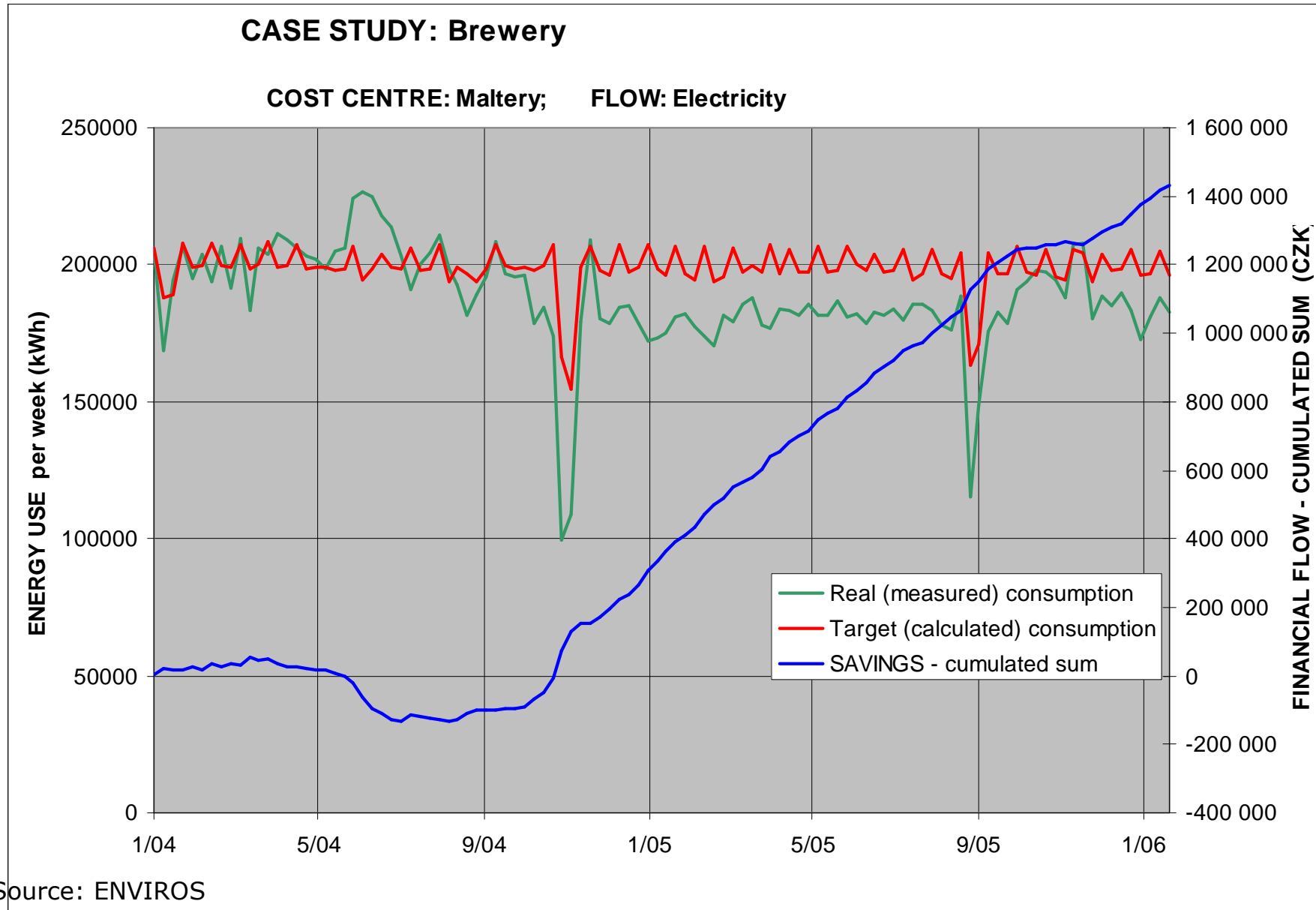
# Implementation of CP measure and new target setting within M & T - example

## New target setting



Source: ENVIROS

# Example - M&T at a specific cost centre



# EMPRESS project

**E**nergy **M**anagement **P**erformance  
**R**elated **E**nergy **S**avings **S**cheme

*Project of United Nations Environment  
Programme (UNEP)*

*Financed by Global Environment  
Facility (GEF)*

*Powered by ENVIROS*

*Implemented in the Czech and Slovak  
Rep. 2003 - 2007*

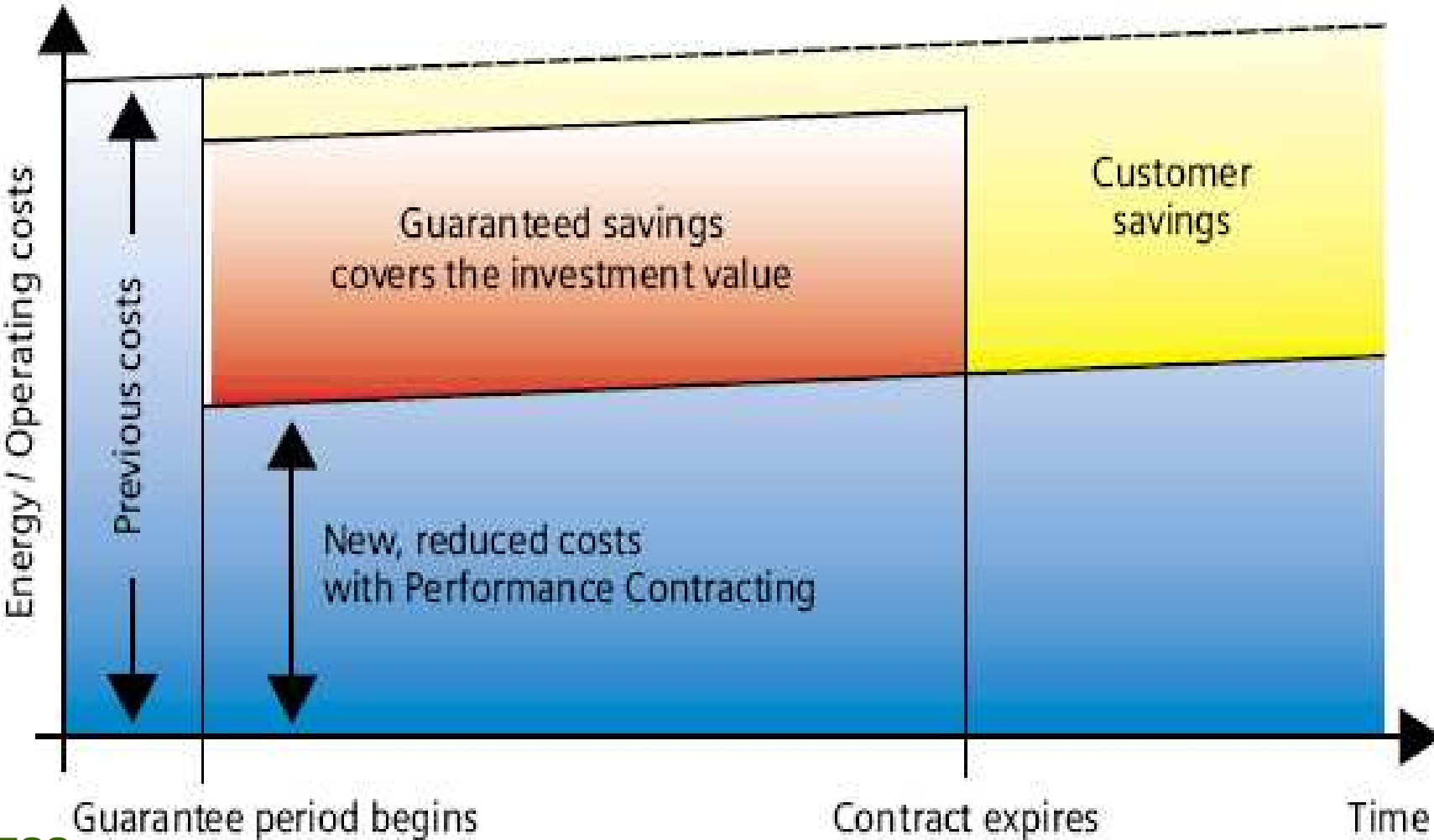
# EMPRESS links M&T and ESCO providers

Financed through Energy Performance Contracting (EPC)

Potential for savings



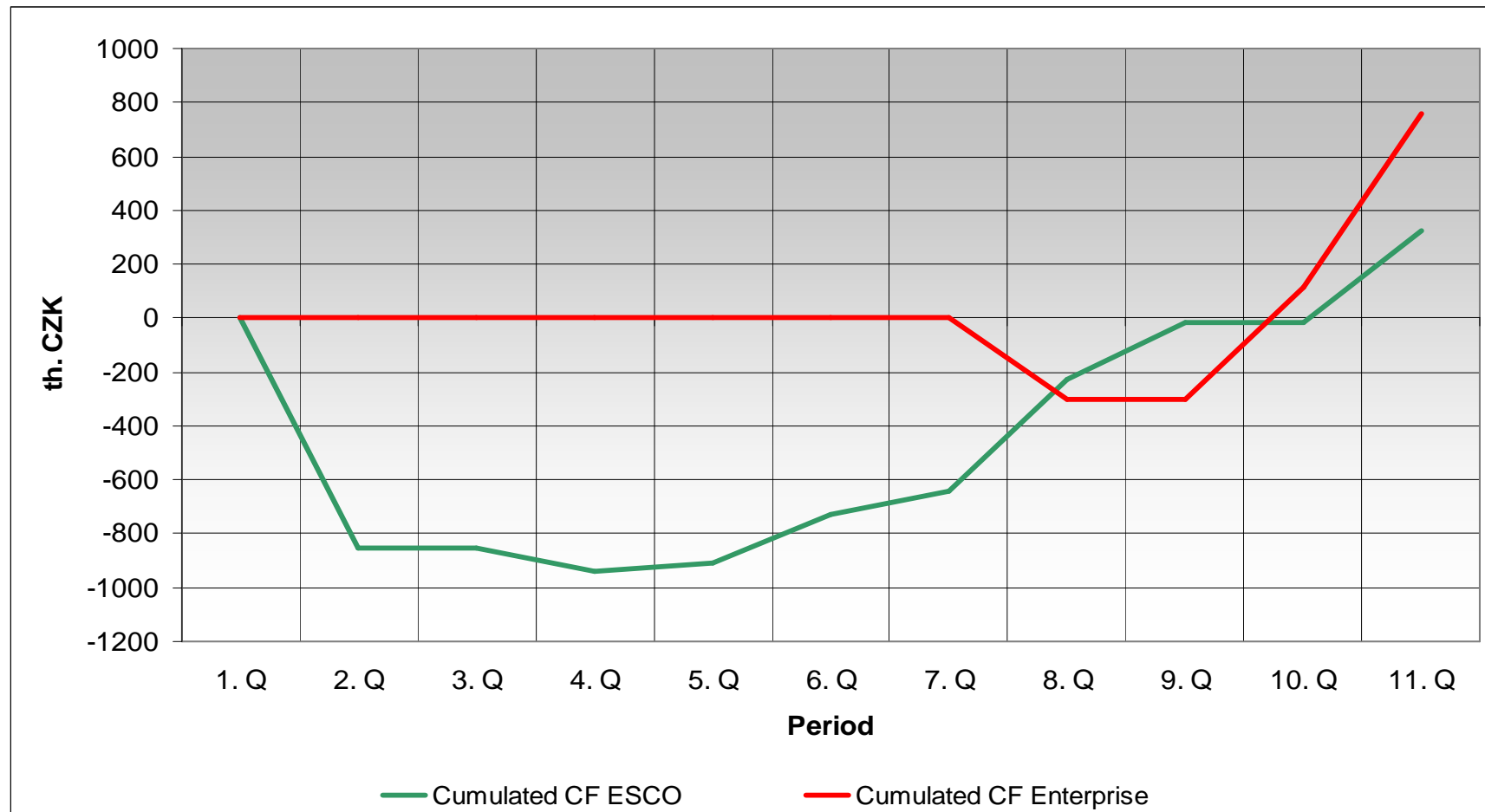
# Traditional Energy Performance Contracting (EPC)



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# EMPRESS: contract on payment from savings

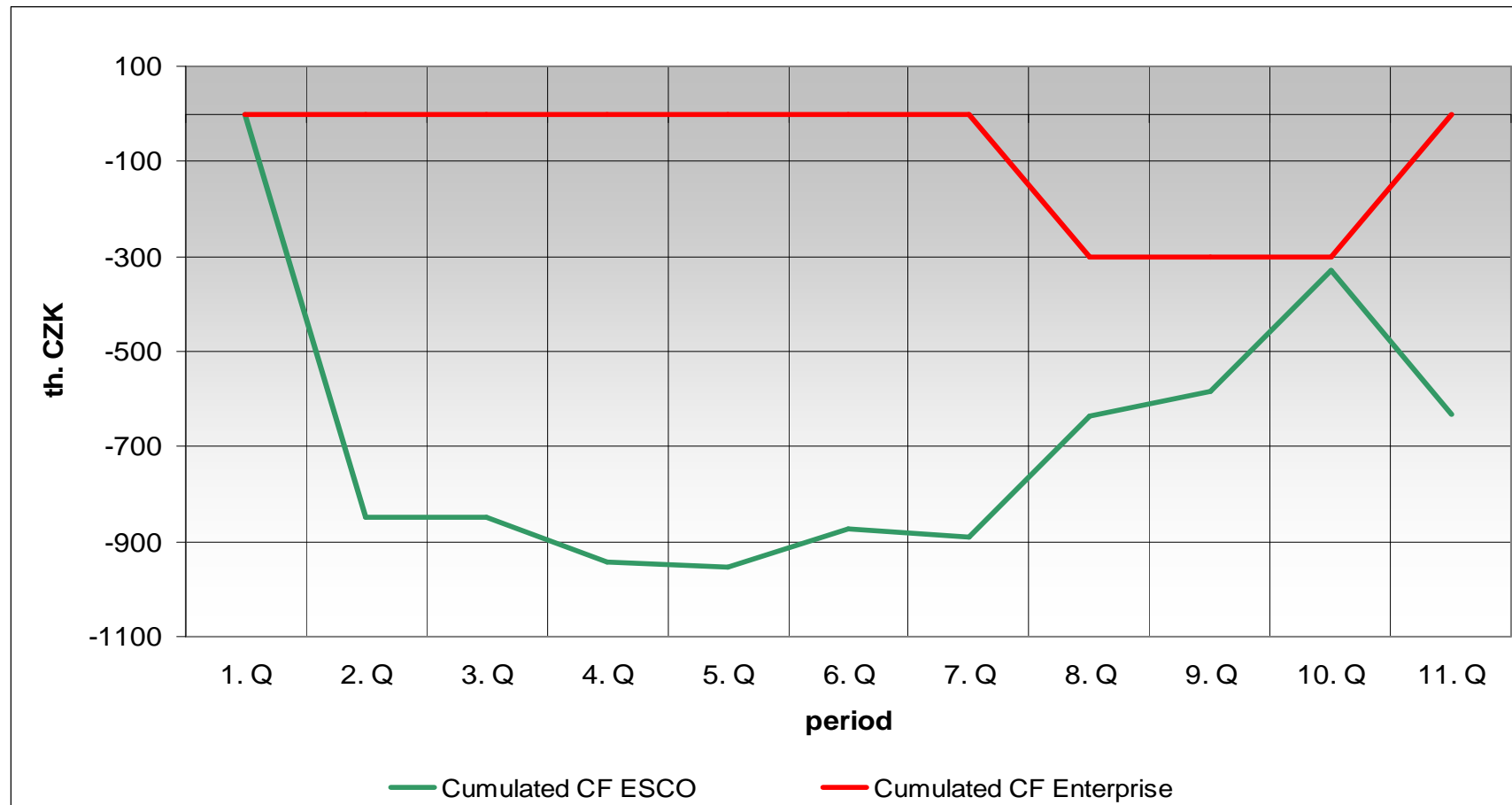
## EXAMPLE 1: guaranteed savings ARE ACHIEVED



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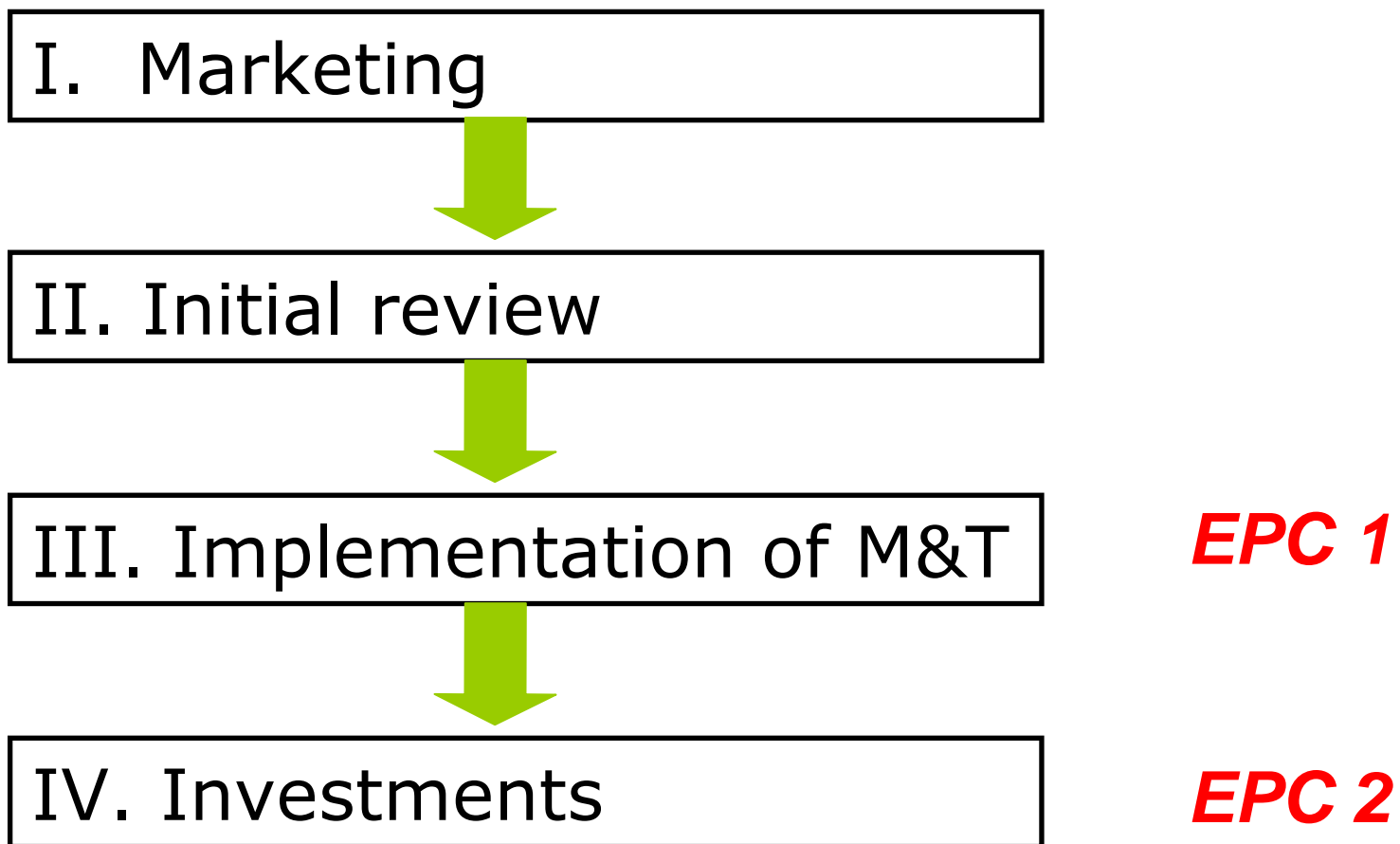
# EMPRESS: contract on payment from savings

## EXAMPLE 2: guaranteed savings ARE NOT ACHIEVED

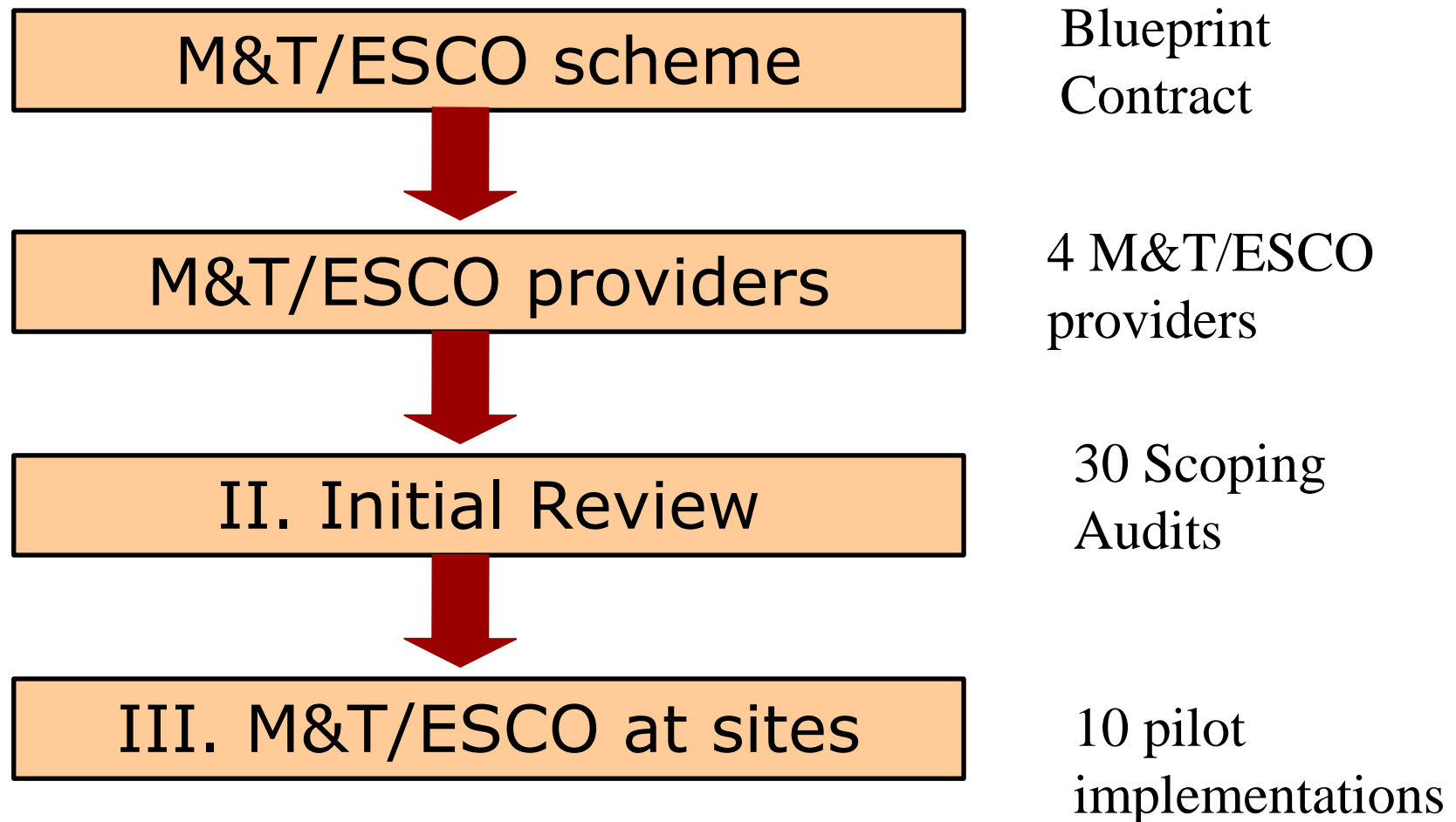


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# M&T/ESCO scheme – steps



# EMPRESS: selected activities and outputs



## 10 pilot implementations brought:

- Reduction of CO<sub>2</sub> emissions by 21,150 t/y
- Savings on production costs 2,3 mil.  
USD/y

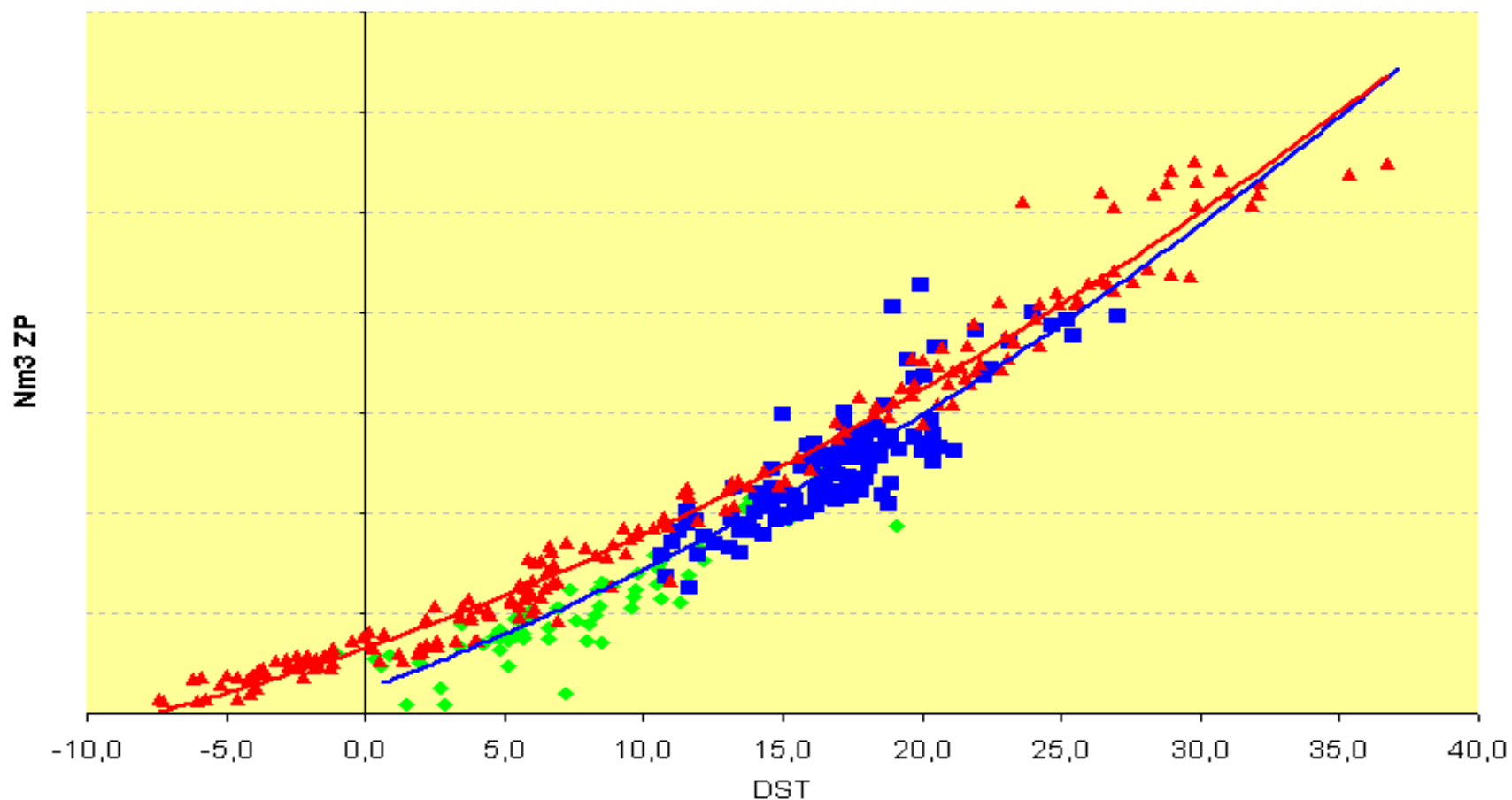
*These are the values guranteed by providers in M&T/ESCO contracts. Projects are ongoing, the actual results will be higher.*



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# Case Study M&T/ESCO

## 1) POTENTIAL FOR SAVINGS



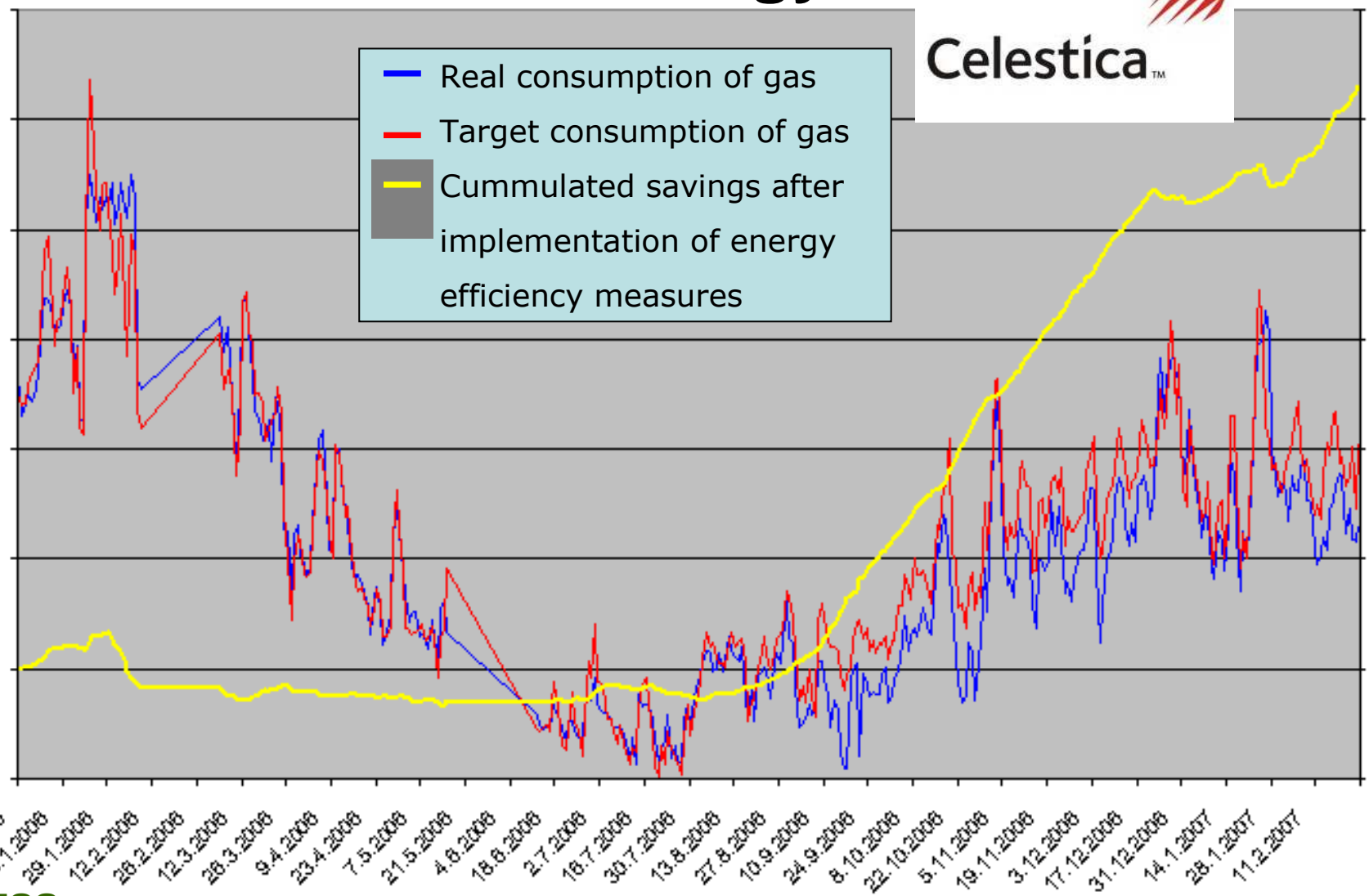
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# Case Study M&T/ESCO

## 2) 12% reduction of energy bill



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## Case Study M&T/ESCO Celestica™

### 3) ENTERPRISE EXPERIENCE

- „Implementation of EMPRESS project brought visibility of energy flows in our enterprise“
- „M&T opened new opportunities for energy conservation leading to savings“
- „M&T is an instrument for continuous improvement which is part of the Celestica values“

# Conclusions I:

## Barriers for M&T/ESCO

### CORE BARRIERS

- **conviction that the company is already performing well**
- **lack of company resources and internal pressure of many competing priorities** (this shows a negative impact of the extensive downsizing experienced by the Czech enterprises within the last decade)
- **resistance of the middle management** to introduce a system, which would make their performance transparent and/or bring additional workload to them and/or to their staff

### OTHER BARRIERS

- novelty of the no-cure no-pay arrangement in the Czech conditions, related lack of understanding and suspicion that there has to be some “hidden agenda”
- hesitance to provide needed detailed information on processes (confidentiality of data is a major issue for some enterprises and can create barrier for smooth preparation and development of the Scoping Audits).

## Conclusions II:

- **M&T/ESCO has a potential to bring a break through in promotion of energy management in industry worldwide**
- **M&T/ESCO proven its feasibility within the EMPRESS project**