



# IMPAWATT BOOKLET

## Presentation and results

IMPAWATT  
IMPLementAtion Work and Actions To change the energy culTure  
WP 7 PROJECT BOOKLET

# Partners of the project



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785041

AUSTRIA : [AEA](#) – Austrian Energy Agency

FINLAND : [VTT](#) - Technical Research Centre of Finland

FRANCE : [CCI Auvergne Rhône-Alpes](#) – Regional Chamber of Commerce

GERMANY : [SEnerCon](#) - Engineering and consultancy in the field of supporting households to save energy

ITALY : [Environment Park](#) - Parco Scientifico Tecnologico per l'Ambiente

SWITZERLAND : [PLANAIR](#) – **Lead PARTNER** - Consulting engineers in energy and environment

[More information on IMPAWATT.COM](https://www.impawatt.com)

# Content



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785041

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- Summary results survey WP 3
  - Slide 7
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## OBJECTIVE :

Increase the implementation of the energy efficiency investments and measures in industry

## HOW ?

Through the development of an online capacity and staff building program

## Why IMPAWATT?



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785041

In industrial and service sectors, energy efficiency investments are often not implemented due to a combination of factors and barriers faced by the actor involved : lack of time, internal resources, knowledge ...

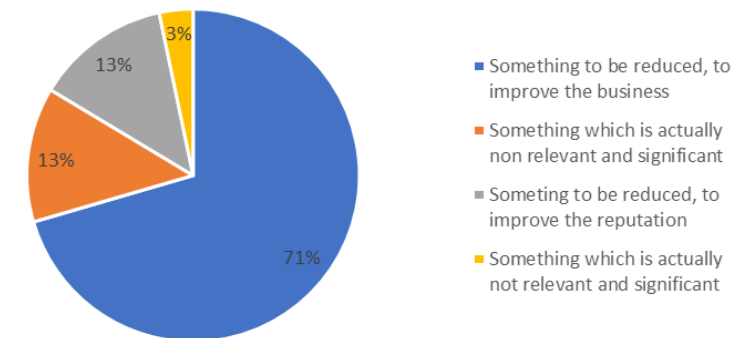
IMPAWATT is identifying and addressing these barriers.

IMPAWATT aims at creating a **staff training and capacity building platform** to enhance corporate policy towards **energy efficiency, energy culture.**

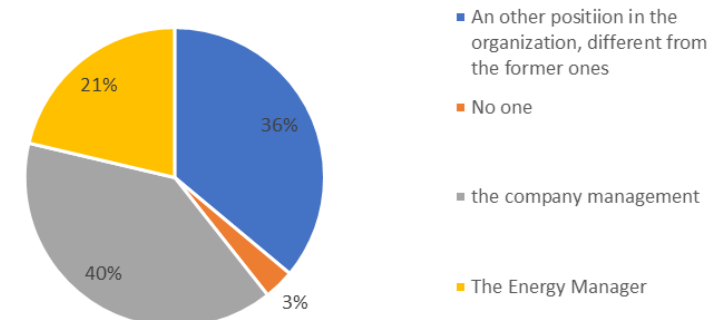


- Aim of the IMPAWATT survey: better understand the internal (economic and not economic) and external barriers to energy efficiency, to identify the priorities before the implementation of the platform and IMPAWATT tools
- Methodology: a questionnaire sent to 65 organisations of different sectors, most of them selected among the ones identified for testing the IMPAWATT capacity building program
- Main topics investigated:
  - Approach to the energy topic (knowledge of energy performance, responsibilities, life cycle approach, opinion about energy costs)
  - Barriers to planning and implementation of measures

Opinion about the incidence of energy costs



Responsability about energy management in the enterprises





## Main results:

- More than 70% of SMEs already have an energy audit
- Energy costs are often lower than 5% of turnover, so the cost of energy saving measures must be as low as possible to shorten PBT
- Energy management is in charge of positions different from the energy manager
- Life cycle approach and tools are normally not part of the strategy
- Reduction of energy costs is linked to business opportunities and reputation
- The most frequent barriers are associated with the lack of internal resources, knowledge and uncertainty about the impact of measures

The complete report is available at

<https://www.impawatt.com/wp-content/uploads/2019/12/Report-on-identified-barriers.pdf>

# Which topics?



## ENERGY EFFICIENCY

- Technical and practical information



## ENERGY CULTURE

- Tips for motivating the staff for a long lasting behaviour change toward energy efficiency



## SUSTAINABLE SUPPLY CHAIN

- Life cycle assessment, guidelines for life cycle cost, use of sustainability indicators, environment labelling



## For whom ?



The platform targets in priority to **Mrs or Mr Energy** of the company but also external energy consultants.

On the platform She/He will find useful material to :

- implement energy efficiency recommendations
- monitor the energy consumption
- increase the skills of employees in the various departments :  
purchase maintenance, production staff, human resources,  
communication

# A platform with many technical and pedagogic tools for energy efficiency

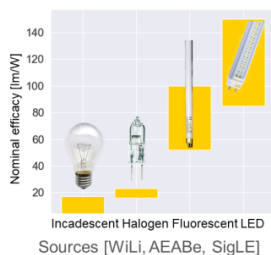


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## Overview of Technology

### Description of technology Nominal Efficacy comparison

- Incandescent bulbs have the lowest efficacy.
- Thanks to recent technology development LED have clearly the highest efficacy.



## 42 Powerpoint presentation

33% completed!

### Quiz mobility

This quiz tests the knowledge mobility and the main improvement measures.

3) What is the share of transport in Europe's energy consumption?

- a) 11%
- b) 22%
- c) 33%
- d) 44%

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## 15 Quizzes

**IMPAWATT**  
IMPLementAtion Work and Actions To change the energy culTure

IMPAWATT tool helps to assess the GHG savings because of alternative measures that improve energy-efficiency and/or because of shifting to lower carbon fuels and renewable energy carriers.

|                     | Current | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
|---------------------|---------|---------------|---------------|---------------|---------------|
| Motor gasoline      | 1       |               |               |               |               |
| Heavy fuel oil      | 1       |               |               |               |               |
| Waste oils          |         |               |               |               |               |
| Anthracite          |         |               |               |               |               |
| Coal                | 1       |               |               |               |               |
| Brown coal, lignite |         |               |               |               |               |
| Coke                |         |               |               |               |               |

## 36 Tools

53% completed!

### Survey about energy related behavior, lifestyle and culture (for employees)

Thank you for agreeing to take this survey about energy behaviors, lifestyle and environmental practices. The survey is a part of IMPAWATT EU project and it aims to provide tools to support energy efficiency in companies.

7) How often do you use these modes of transport for your work and traveling for work? Please choose 'Does not apply' when there is no option for that, for example, there is no public transportation available or it is too long to walk to work. Please choose 'Never' only if never done so, but it would be possible for you to do it.

- a) Electric car or hybrid \*  a) Never  b) Very rarely  c) Rarely  d) Occasionally  e) Very frequently  f) Does not apply
- b) Shared ride \*  a) Never  b) Very rarely  c) Rarely  d) Occasionally  e) Very frequently  f) Does not apply
- c) Public transportation \*  a) Never  b) Very rarely  c) Rarely  d) Occasionally  e) Very frequently  f) Does not apply
- d) Walking or cycling \*  a) Never  b) Very rarely  c) Rarely  d) Occasionally  e) Very frequently  f) Does not apply

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## Energy behavior survey

BEST PRACTICES  
FACTSHEET



BEST PRACTICES  
FACTSHEET



BEST PRACTICES  
FACTSHEET



### IMPLEMENTATION OF ENERGY EFFICIENCY MEASURES IN INDUSTRIAL ENTERPRISES

SHEET No. 2.1.4

Date of last update: 24.04.2019

Title:

Eco-dit

Assoc:

Mobil:

Descri:

Descri:

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Title:

Motor replacement

Associated Cross Sectoral Technology

Optimisation of pumping systems

Description of cross sectoral technology

In many western countries, pumps are one of the largest power consumers in industries! Pumps are involved in many tasks and applications. Rotodynamic pumps are used either for lifting or circulating fluids in most cases water. In the latter case, they are used, for example, to transport heat or cold.

A pumping system is a complete electric drive:

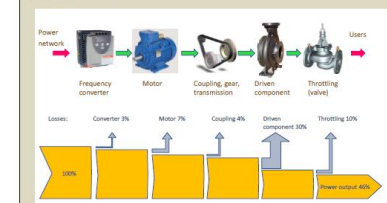


Fig. 1 Electric drive components (source Planar SA)

Frequency converter: allows an efficient control of the needs as well as a reduction in pressure at low flows. A converter is not justifying in all cases. When the flow rate is fixed, a converter generates unnecessary losses.

## 117 Measure description and factsheets

# Content of the platform

IMPAWATT provides a free web platform supporting the monitoring of energy consumption and implementing actions in the following areas



Compressed air, cooling,  
pumping, steam



Energy management



Energy culture



Sustainable supply chain  
management



Process optimisation /  
Equipment



Mobility



Construction, Insulation,  
Heating, Lighting, Automation



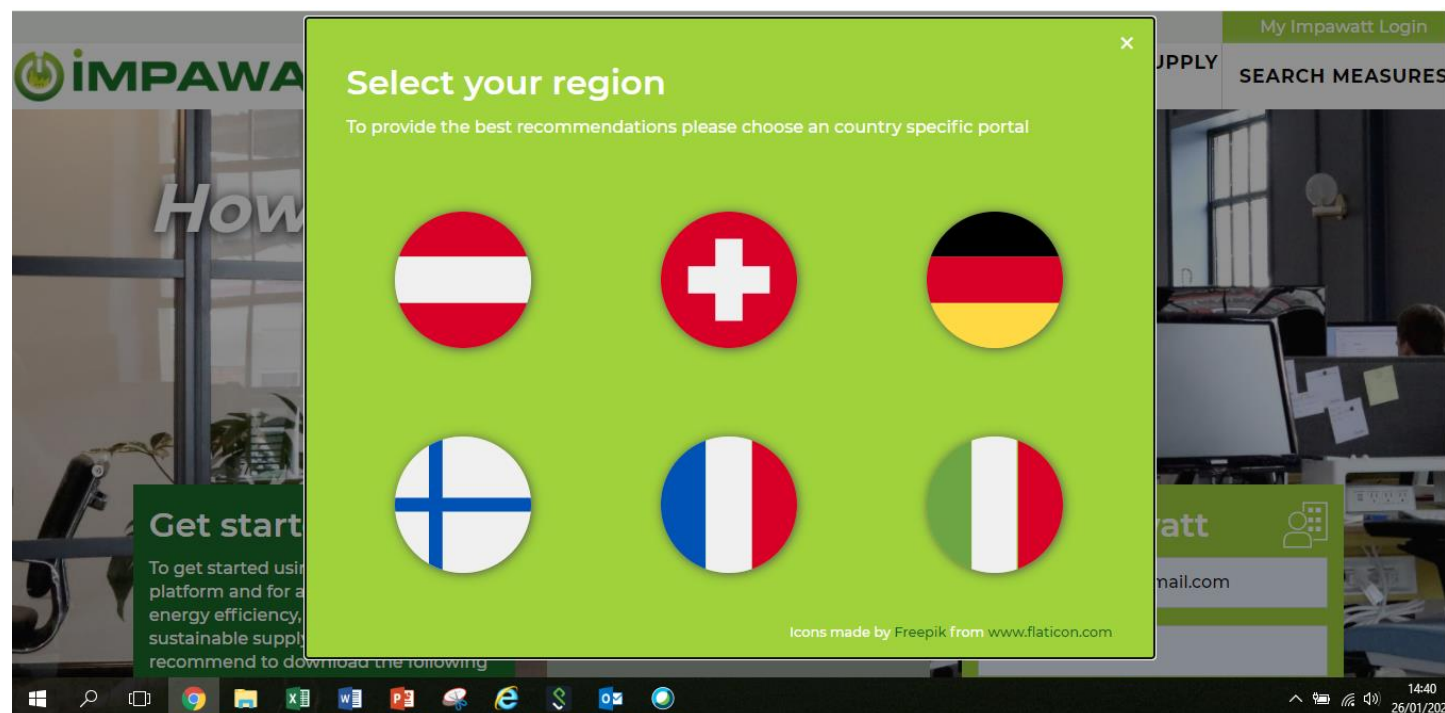
Waste heat recovery,  
renewables

# A platform available in 6 national versions and in English



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AUSTRIA  
GERMANY  
FRANCE  
ITALY  
SWITZERLAND  
FINLAND  
European version  
*in english*



# Energy culture – What we did

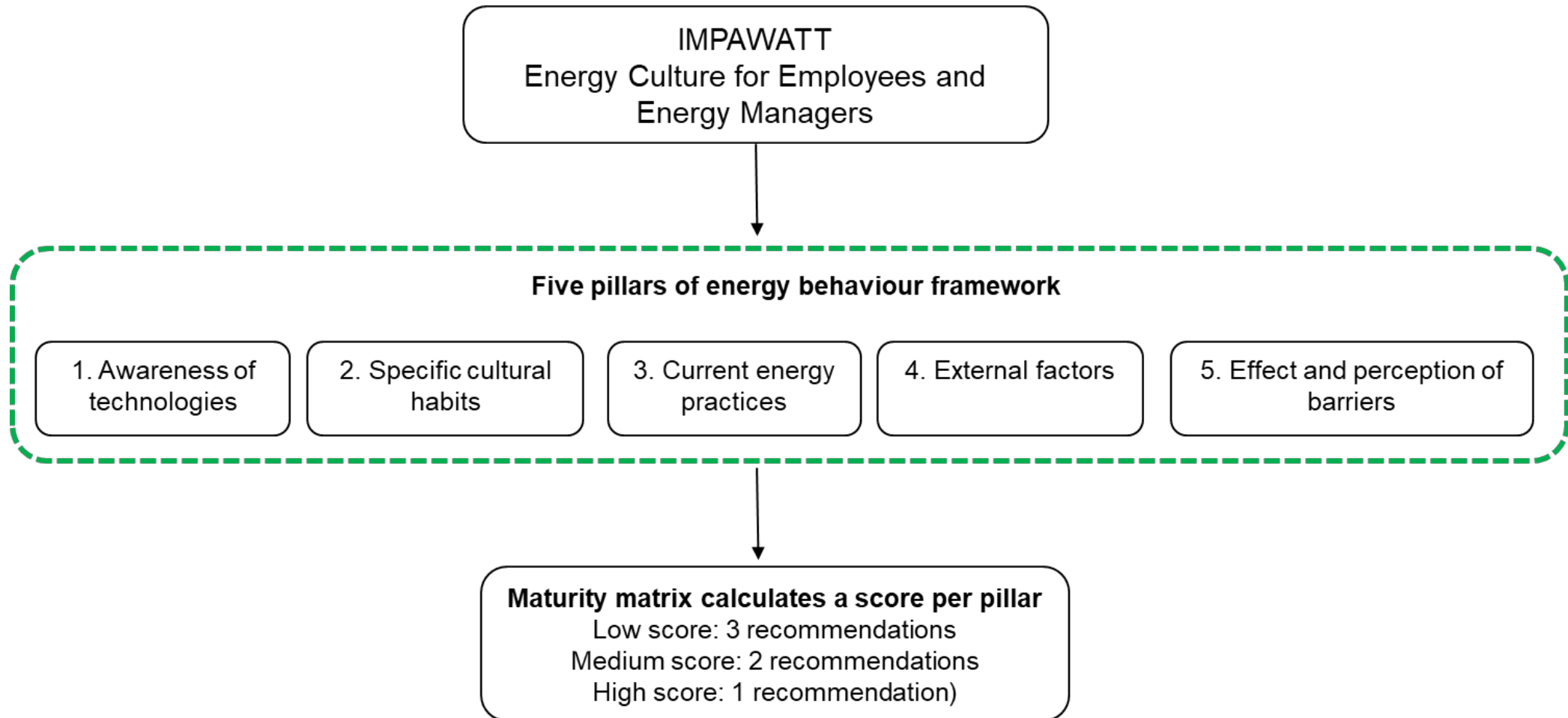


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- Identifying an 'Energy Manager' (someone who manages both external and internal tasks)
- A dedicated short survey for Employees – to understand their daily choices, work habits and preferences
- A dedicated short survey for Energy Managers – to understand their responsibilities, some technical information

- Maturity matrix calculates and provides a score based on Five Pillars → Each answer in the survey has been given a score
- User is provided with recommendations based on the score
- The survey can be completed as many times needed to improve energy efficiency within the SME and improve the Employees & Energy Manager's knowledge and awareness

# Energy culture – survey



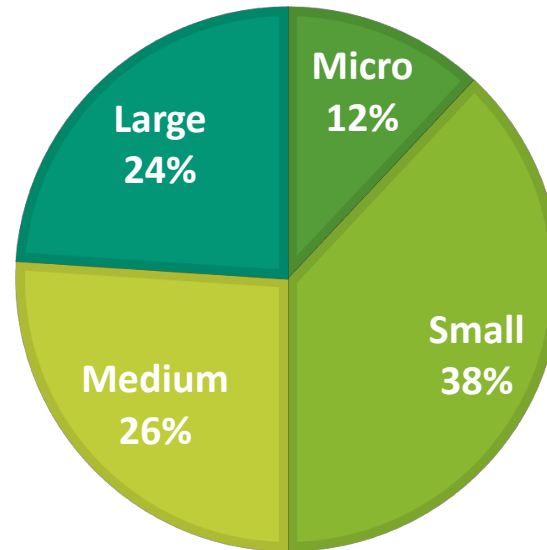
# Main results : Companies

## 172 participating companies

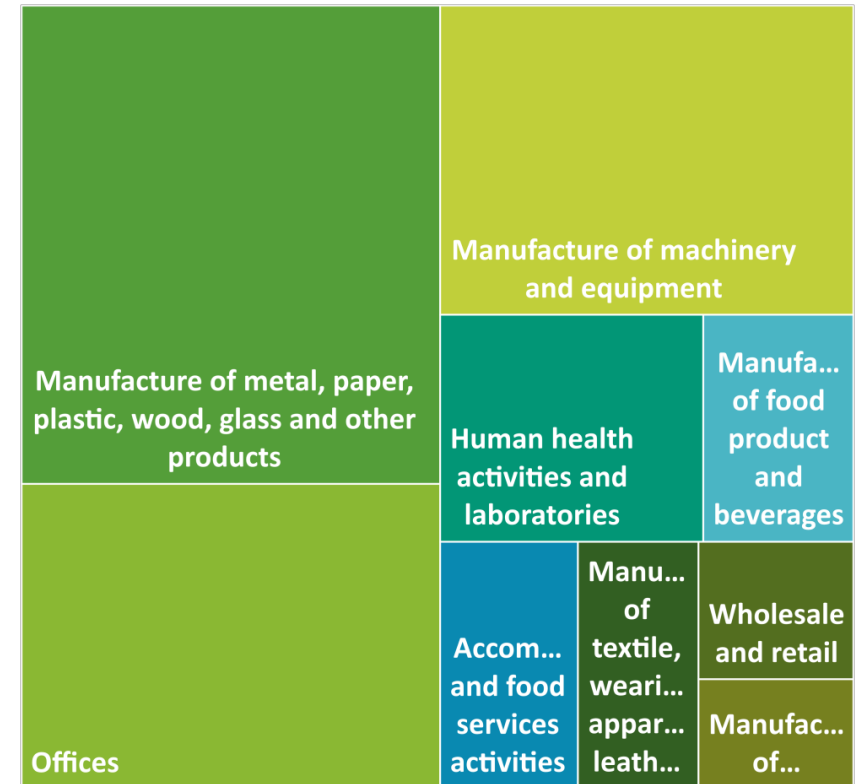
By country:

| Country | Number of companies |
|---------|---------------------|
| DE      | 19                  |
| IT      | 17                  |
| AT      | 27                  |
| FI      | 14                  |
| CH      | 33                  |
| FR      | 77                  |

By size:



By Sector:





# 15 most downloaded content



|                                                                                                                           |                                                                                           |                                                                                                                                                |                                                                                                                           |                                           |                                           |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|
| <p>Benefits of energy efficiency - How to convince management/employees - Energy Efficiency as strategic decision, 54</p> | <p>Compressed air, 39</p>                                                                 | <p>Reduction of compressed air leakages, 36</p>                                                                                                | <p>Benefits of energy efficiency - How to convince management/employees - ADVANTAGES OF ENERGY MANAGEMENT SYSTEMS, 29</p> | <p>Reduction of cooling load, 26</p>      | <p>Allow easy ways to save energy, 25</p> |
| <p>Benefits of energy efficiency - How to convince management/employees - WHY ENERGY SAVING IS IMPORTANT, 46</p>          | <p>Organize workshops where employees learn to know the energy targets of company, 36</p> | <p>Benefits of energy efficiency - How to convince management/employees - DIFFERENCE BETWEEN ENERGY AUDIT AND ENERGY MANAGEMENT SYSTEM, 34</p> | <p>Use visualization to inform about energy waste or increased energy consumption, 29</p>                                 | <p>Benefits of energy efficiency, 25</p>  | <p>Photovol... plant, 24</p>              |
|                                                                                                                           |                                                                                           |                                                                                                                                                | <p>Establish procurement criteria, 26</p>                                                                                 | <p>Heat recovery (compressed air), 24</p> |                                           |

# Main results



## Webinars

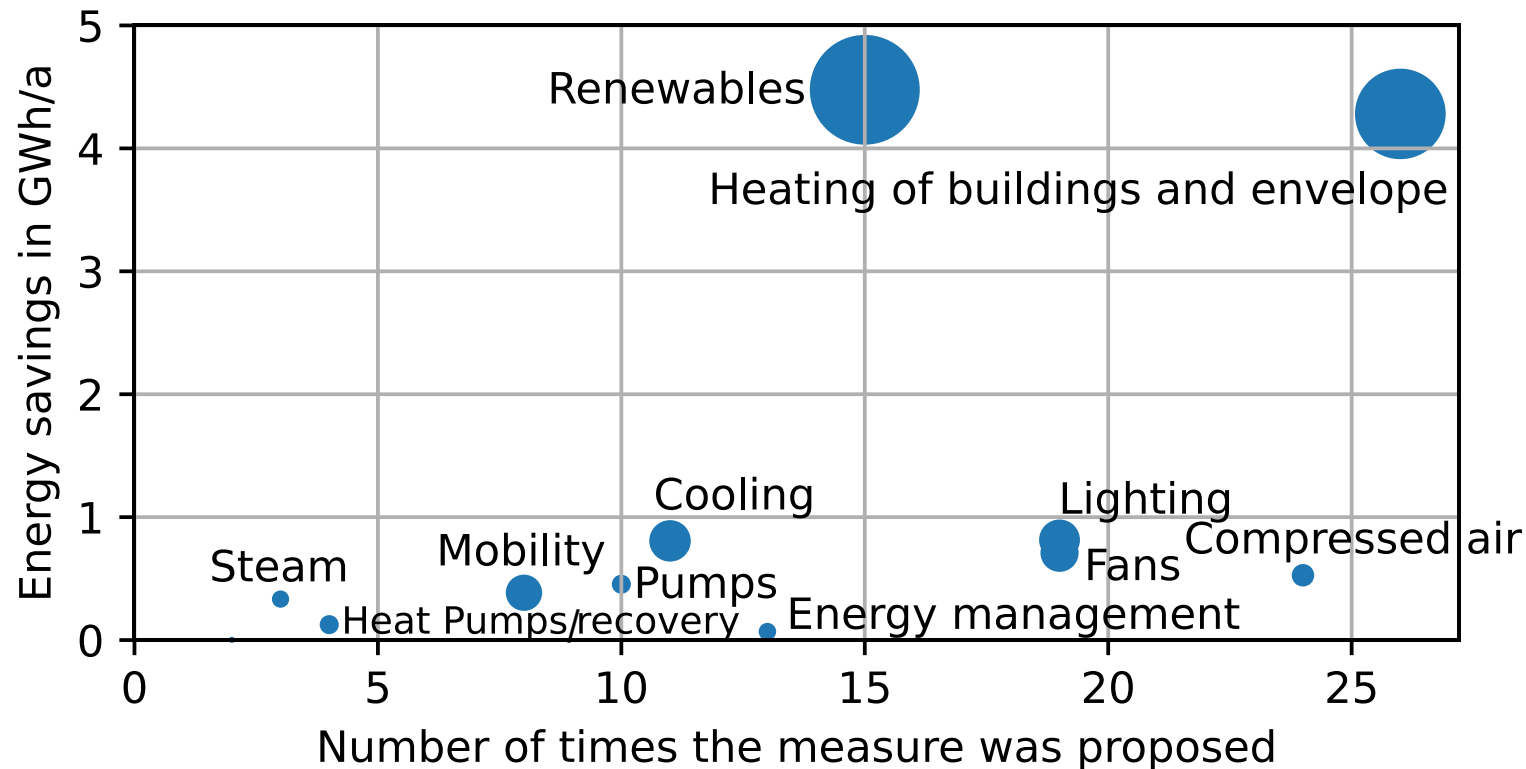
- Total of 65 webinars
- 743 participants

## Examples of topics :

- Energy efficiency in offices
- Building heating and building envelope
- Compressed air production and distribution
- Energy management
- Lighting optimisation



# Energy efficiency measure



Sum of the energy savings per category versus the number of time the measure was proposed in AT, CH, IT, FIN, DE. The circles sizes are relative to the sum of investement.

# Project performance indicators



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| Project Performance Indicators                                                      | Planned         | Implemented  |
|-------------------------------------------------------------------------------------|-----------------|--------------|
| Total energy savings triggered by the project within its duration (with renewables) | 12 348 MWh/year | 571 MWh/year |
| Renewable Energy production triggered by the project within its duration            | 4 436 MWh/year  | 78 MWh/year  |
| Market stakeholders with increased skills/capability/competencies on energy issues  | 1449            |              |
| Cumulative Investments made by European stakeholders in sustainable energy          | 11 385 935 €    | 844 854 €    |