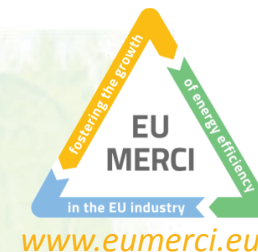**EU MERCI**

EU coordinated **ME**thods and procedures based on **R**eal **C**ases for the effective implementation of policies and measures supporting energy efficiency in the **I**ndustry

Fostering the growth of energy efficiency in the EU industry

www.eumerci.eu

Country analysis: the potential and ways of fostering of energy efficiency in industry

Wojciech Stańczyk, Paweł Śnitko, KAPE S.A.
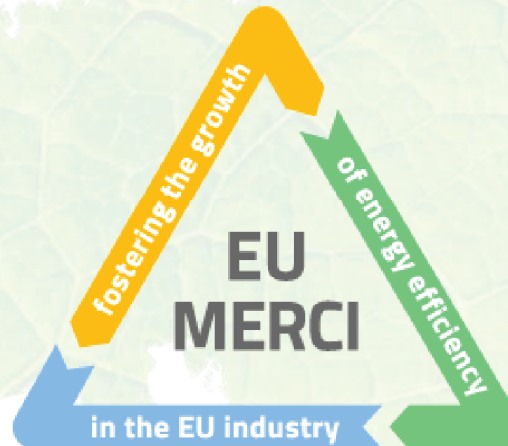London, 23 January 2018

KAPE

Goals

Share knowledge **of successful ways of fostering energy efficiency in industry sectors.**

Provide support to policy makers on developing or implementing EEOSs or AMs.

How to achieve these goals?

Analysis of historical data

Analysis of national/local conditions

Analysis of the general features of the industry sectors
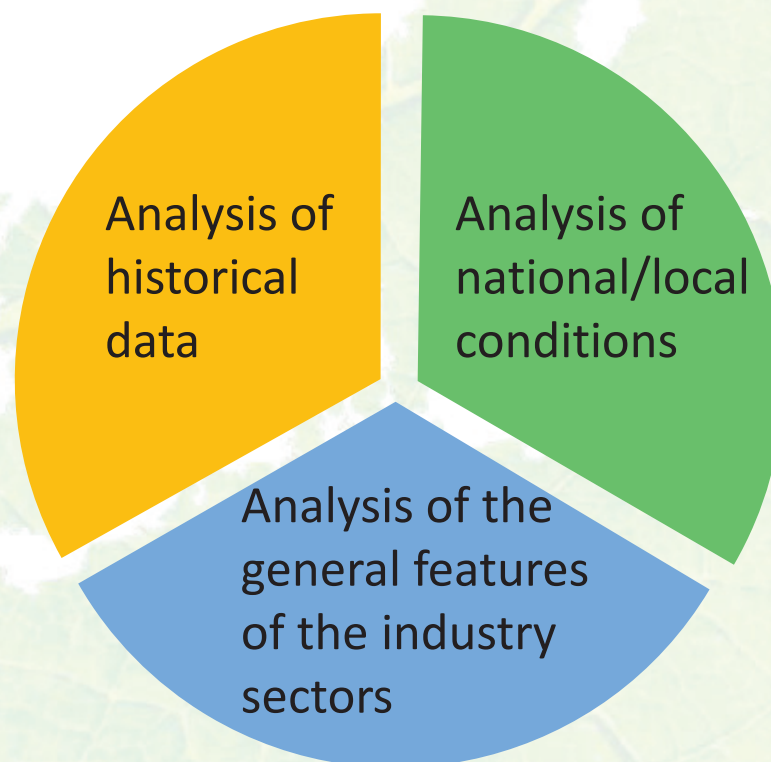
Scenarios:
- Provide recommendations to policy makers and different stakeholders groups,
- Establish barriers of successful implementation of energy efficiency projects.

EU MERCI
fostering the growth of energy efficiency in the EU industry

KAPE

Basis of the analysis

Analysed industry sectors:

- Food and Beverage (NACE code 10&11),
- Chemical (NACE code 20),
- Coke and Petroleum (NACE code 19),
- Iron and Steel (part of NACE code 24),
- Pulp and Paper (NACE code 17).

Highly energy intensive
+
Significant for the economy

Analysed energy efficiency supporting schemes:

Austria	Italy	Poland	UK
• KPC (2011-2015) • klimaaktiv (2008-2016)	• White Certificate Mechanism (2004-2016)	• White Certificate Scheme (2011-2015)	• Carbon Trust Energy Efficiency Advice Programme (2005-2010)

EU MERCI
fostering the growth of energy efficiency in the EU industry

KAPE

Methodology of the analysis

Quantitative analysis*

Key Performance Indicators	Relative energy savings
	Relative CO_2 emission reduction
	Participation costs
	Implementation costs of energy efficiency projects
	Public costs of the scheme.

*Timeframe: first five years of operation of the scheme

Qualitative analysis

Methodology	Evaluation of the quantitative results,
	Comparison of the achieved results with national/local framework,
	Lessons learned from the analysed cases.

Outcomes of quantitative analysis – Industry tables

Industry	EE scheme	KPI_General	Industry	EE scheme	KPI_General
Chemical	klimaaktiv	0.59	**Food and Beverage**	KPC	0.82
	Polish White Certificate	0.57		CBT Energy Efficiency Advice	0.72
	CBT Energy Efficiency Advice	0.56		Polish White Certificate	0.59
	KPC	0.47		Italian White Certificate	0.57
	Italian White Certificate	0.4		klimaaktiv	0.53
Iron and Steel	Italian White Certificate	-	**Pulp and Paper**	CBT Energy Efficiency Advice	0.88
	CBT Energy Efficiency Advice	0.6		KPC	0.76
	Polish White Certificate	0.5		Italian White Certificate	0.7
	klimaaktiv	0.49		klimaaktiv	0.59
	KPC	0.43		Polish White Certificate	0.57
Coke and Petroleum	Polish White Certificate	0.42			
	Italian White Certificate	0.39			
	CBT Energy Efficiency Advice	-			

Outcomes of quantitative analysis – National tables

Country	Industry	EEOS/AM	KPI_General	Country	Industry	EEOS/AM	KPI_General
Italy	Iron and Steel	White Certificate	-	**Poland**	Food and Beverage	White Certificate	0.59
	Pulp and Paper	White Certificate	0.70		Chemical	White Certificate	0.57
	Food and Beverage	White Certificate	0.57		Pulp and Paper	White Certificate	0.57
	Chemical	White Certificate	0.40		Iron and Steel	White Certificate	0.50
	Coke and Petroleum	White Certificate	0.39		Coke and Petroleum	White Certificate	0.42
Austria	Food and Beverage	KPC	0.82	**United Kingdom**	Pulp and Paper	CBT Energy Efficiency Advice	0.88
	Pulp and Paper	KPC	0.76		Food and Beverage	CBT Energy Efficiency Advice	0.72
	Chemical	klimaaktiv	0.59		Iron and Steel	CBT Energy Efficiency Advice	0.60
	Pulp and Paper	klimaaktiv	0.59		Chemical	CBT Energy Efficiency Advice	0.56
	Food and Beverage	klimaaktiv	0.53		Coke and Petroleum	CBT Energy Efficiency Advice	-
	Iron and Steel	klimaaktiv	0.49				
	Chemical	KPC	0.47				
	Iron and Steel	KPC	0.43				

EU MERCI
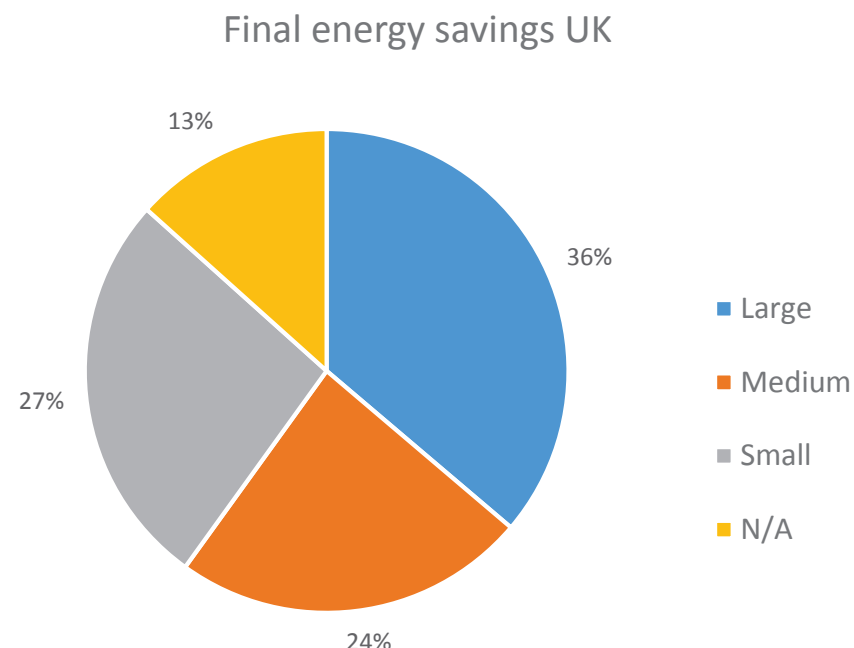fostering the growth of energy efficiency in the EU industry

KAPE

Results – Food and Beverage Sector

Main features:
- Responds well to external support,
- High potential in common technologies,
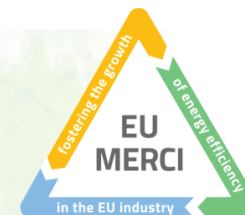- High potential in SMEs.

Conclusions:
- Simplify the schemes to encourage SME to participate,

- Training programmes and knowledge sharing support common EE measures and provide energy savings quickly,
- High biofuel and RDF potential, to be utilised by supporting environment protection.

Final energy savings UK

- Large — 36%
- Medium — 24%
- Small — 27%
- N/A — 13%

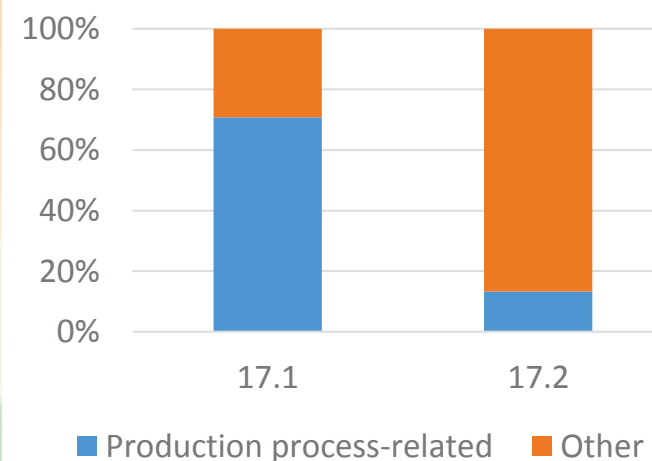**Main features:**

- Responds well to external support,
- Various market structure in analysed countries,
- High potential in main production processes in NACE C17.1,
- High potential in common measures in NACE C17.2,
- Low implementation cost of energy efficiency measures.

Energy savings

Conclusions:

- Energy efficiency potential follows the market structure,
- Subsidized audit programmes and knowledge sharing can utilise potential in common measures,
- EEOS such as WCS take more time to adjust to the specifics of the sector and utilise the potential in process related measures.
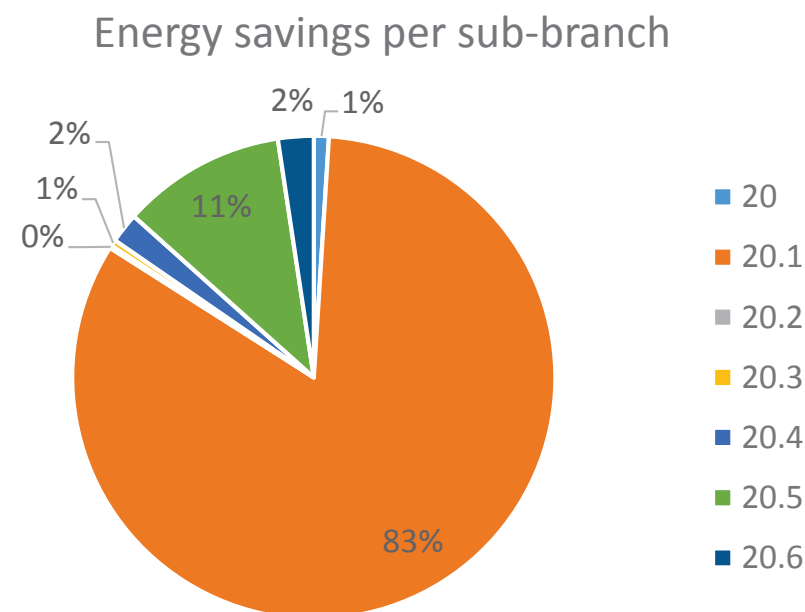
Results – Chemical Sector

Main features:

- Responds moderately to external support
- Dominated by large or medium enterprises,
- Usually one sub-branch larger than other, which shows highest potential,
- Complex and various production process
- Many common measures implemented,
- Potential in process specific measures,
- High measure implementation cost

Energy savings per sub-branch

Legend:
- 20
- 20.1
- 20.2
- 20.3
- 20.4
- 20.5
- 20.6

Values: 2%, 1%, 2%, 1%, 0%, 11%, 83%

Conclusions:

- Focus on medium and large enterprises
- EEOSs such as WCS support large enterprises well, medium enterprises participate in the scheme with a delay

EU MERCI
fostering the growth of energy efficiency in the EU industry
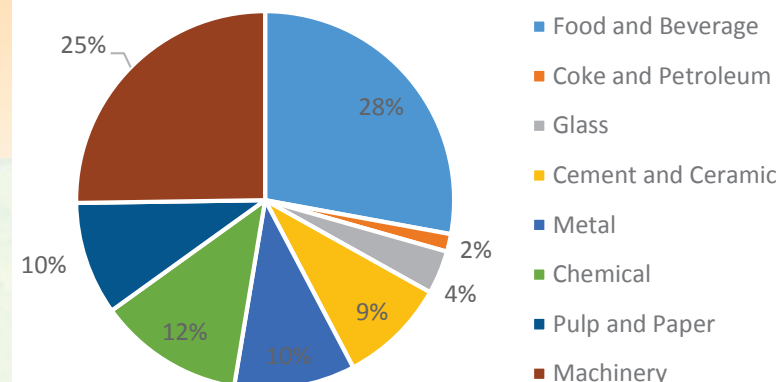
KAPE

Results – Coke and Petroleum sector

Main features:
- Very hard to stimulate with all schemes,
- Dominated by large enterprises,
- Few companies, high energy consumption,
- Fuels consumed related to production processes.

Number of records per sector

- Food and Beverage — 28%
- Coke and Petroleum — 2%
- Glass — 4%
- Cement and Ceramic — 9%
- Metal — 10%
- Chemical — 12%
- Pulp and Paper — 10%
- Machinery — 25%

Conclusions:
- Small energy savings from knowledge sharing and training schemes,
- Potential in process related measures, utilised best by EEOSs,
- Direct support to main companies.

KAPE

Results – Iron and Steel

Main features:
- Difficult to support,
- Technical transformation influenced the results,
- Dominated by large enterprises,
- High share in country energy consumption,
- Potential in main production processes,
- High implementation cost for high energy savings.

Energy savings per type of measure

- 24%
- 76%
- Process design and optimisation
- Other
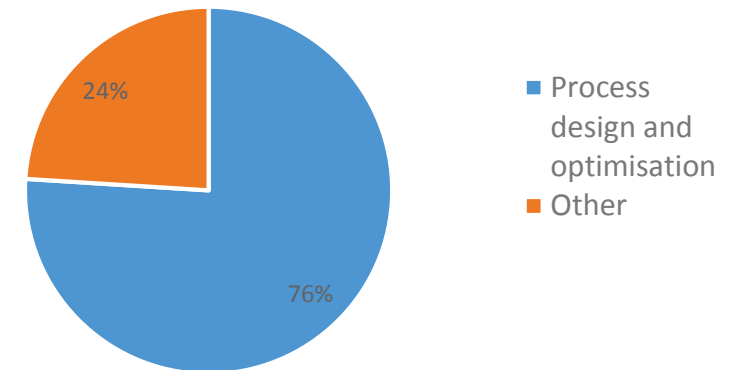
Conclusions:
- High energy savings in process technologies for EEOS, such as WCS,
- Limited RES potential,
- Largest interventions influence production processes, improve product quality, however there may be a need to stop production during implementation.

EU MERCI

fostering the growth of energy efficiency in the EU industry

KAPE

General conclusions and recommendations
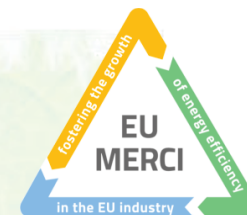
Verification — Monitor and adjust goals of the schemes

Knowledge — Share knowledge especially in the sectors with high potential for common energy efficiency measures

SME — Enable an easy way for SME to participate in the scheme

**Data** — Gather and present aggregated data from the beginning of the scheme

EU MERCI
fostering the growth
of energy efficiency
in the EU industry

KAPE

EU MERCI

EU coordinated **ME**thods and procedures based on **R**eal **C**ases for the effective implementation of policies and measures supporting energy efficiency in the **I**ndustry

Fostering the growth of energy efficiency in the EU industry

www.eumerci.eu
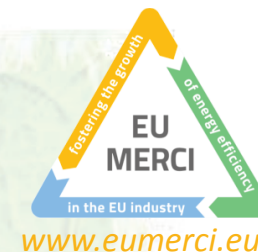
Thank you for your attention!

Contacts

kape@kape.gov.pl

+48 22 626 09 10

KAPE