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CENTRAL ENVIRONMENTAL AND ENERGY MANAGEMENT AS A KIT FOR SURVIVAL

# “AN EU ROADMAP TOWARDS GREENER INDUSTRIAL POLICIES”

*CEEM EU project findings presentation*

The 3EMTool and the pilot action

## Case study – TC Merkur Ljubljana

Peter Bevk, Matevž Pušnik

This project is implemented through  
the Central Europe Programme co-financed by the ERDF



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## INTRODUCTION (TC Merkur basic info)

- Full name: Technical Center Merkur Ljubljana  
(hardware, domestic appliances, craftsmen store)
- Workforce: 25 employees, Usable area: 9.700 m<sup>2</sup>, Main activity: retail & wholesale of technical products
- Average electricity consumption: 1.230 MWh/a
- Average heat consumption: 555 MWh/a

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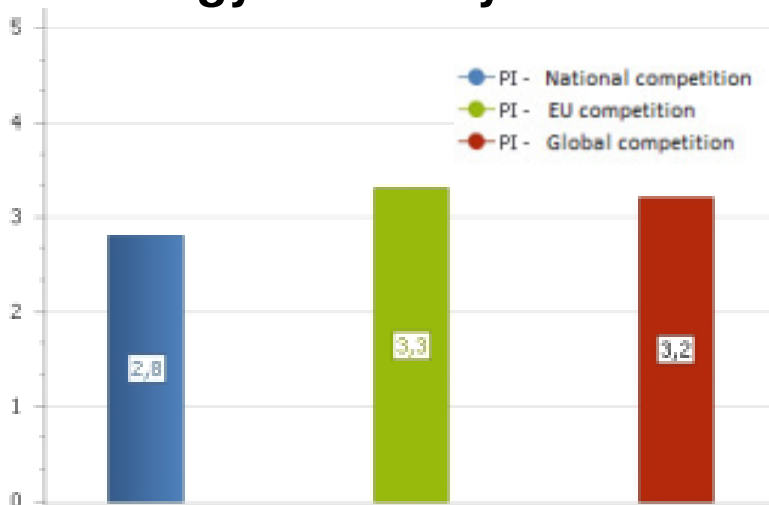


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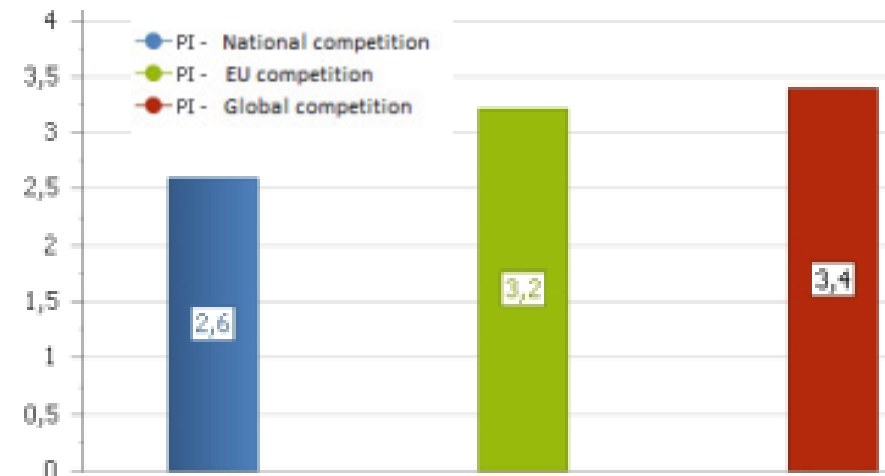
## 3 EMT Analysis

- Comparison analysis (5 National, 22 EU, 455 Global)
- Most relevant categories for improvement of current position:

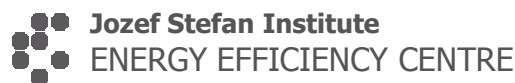
### 1. Energy efficiency



### 2. Vision for a sustainable future



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### 3 EMT Analysis Results

Quantitative indicators	Company result	National competition	EU competition	Global competition
$E_{el}/NoE$ (kWh/year)	52.087	48.392	44.183	47.937
$E_{el}/(NAHrs)$ (kW/m <sup>2</sup> )	0,0374	0,0445	0,0560	0,3166
$E_{el}/(P_{el} Hrs)$ (%)	72,34	80,73	71,36	521,56

$E_{el}/NoE$  (kWh/year) - total electricity consumption per employee

$E_{el}/NAHrs$  (kW/m<sup>2</sup>) - Final electricity consumption per square meter per operating hour

$E_{el}/P_{el}Hrs$  (%) - The ratio between the available power peak ( $Hrs_{peak} = E_{tot} / P_{el}$ ) and the actual power depending on the number of operating hours.

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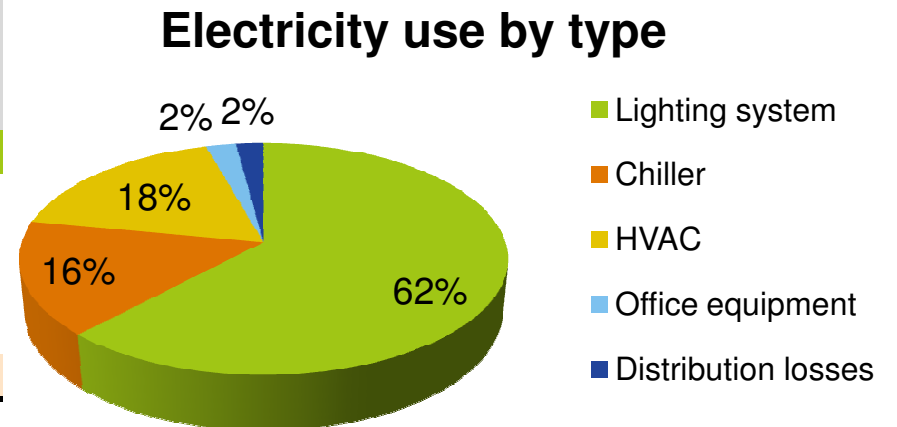


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# PRELIMINARY ENERGY AUDIT

- Cooperation with company's executives
- Obtaining data on energy consumption
- Focus on lighting system as main energy consumer
- Determination of most suitable solutions

Consumer type	Installed power (kW)	Annual consumption (kWh)
<b>Lighting system</b>	<b>219</b>	<b>798.379</b>
Chiller	132	205.246
HVAC	58	227.940
Office equipment	8	29.367
Distribution losses	8	26.785
<b>Overall</b>	<b>425</b>	<b>1.287.717</b>



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# PRELIMINARY ENERGY AUDIT

## • TC Merkur Ljubljana

**Before:** T26 2x58W (old ballast); HIE 1x100 W; 1x250 W

**After (expected):** T16 2x35 W (new electronic ballast)

	Before	Expected
Installed power (kW)	166,067	87,665
Annual consumption (kWh)	605.150	320.037
Annual cost (€)	60.515	32.003

**Annual savings: 285.113 kWh → 28.512 € → 157 t CO<sub>2</sub>**

**Payback period: 3,5 yrs years**



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## CONCLUSION

- The use of the 3EM tool facilitated the process of change  
→ resulting in **285.113 kWh/a (28.512 €/a)**
- Prerequisite for success – **dedication** and **commitment** of the SME and **willingness** to change established patterns
- 3EM tool as an **first step (entry point)** for increasing the corporate and responsible energy use
- Through **measures** proposed (experts network) the environmental potential of the SMEs can be **fully** reached

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# Thank you for your attention!

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