



Italian National Agency for New Technologies,  
Energy and Sustainable Economic Development

# Energy Efficiency in SMEs

## Methods and tools for a wider implementation

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# Technology and awareness

## Economy and life quality

Energy efficiency is an important part for practically all types of industry types to improve the economic and environmental performance

- Accelerated research and technology development of industrial energy-related technologies and systems with main focus also on end-use technologies
- Increase awareness of technology and energy efficiency in industry
- Contribute to synergy between different systems and technologies

# SMEs and GHG-intensive industries

## Italian SMEs : too small

Much attention, both research and policy-wise, has been raised towards energy-intensive industries, while non-energy-intensive and small and medium-sized enterprises (SMEs) have received less despite the larger relative energy efficiency potential spotted compared to the energy-intensive sector

- There is a great need to conduct research and development on non-energy-intensive and SME industry, in particular on design and adoption of energy policies and implementation of energy efficiency studies
- The relevance of this theme is transposed by pan EU initiatives (like IETS)
- **The EU approach excludes the majority of Italian SMEs**

## EU approach

- Fewer than 250 persons
- An annual turnover not exceeding 50 million *and/or*
- An annual balance sheet total not exceeding 43 million
  - *Only SMEs with more than 10 employees*
  - *Only industrial manufacturing SMEs*

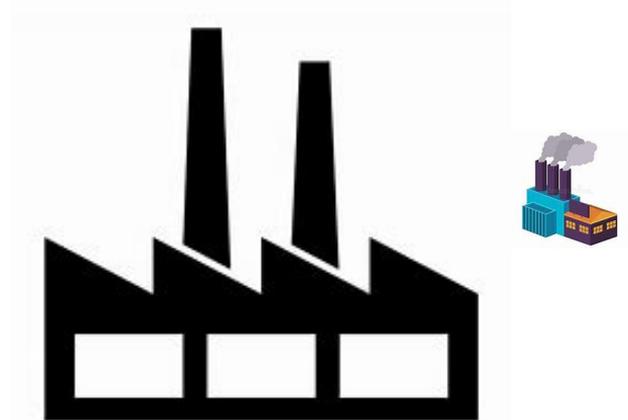
European Commission Internal Market, Industry, Entrepreneurship and SMEs- Green Action Plan for SMEs

[http://ec.europa.eu/growth/smes/business-friendly-environment/green-action-plan\\_en](http://ec.europa.eu/growth/smes/business-friendly-environment/green-action-plan_en)

The SME Performance Review is one of the main tools the European Commission uses to monitor and assess countries' progress in implementing the [Small Business Act](#) (SBA)

## SMEs in ITALY

- Nearly all enterprises (99.9%) are SMEs BUT Italian SMEs are micro SMEs



# Companies in Italy

ISTAT 2016 source

Productive companies in Italy

referred to

Employees Ranges

and to  
Activity Classes (ATECO 2007  
codes)

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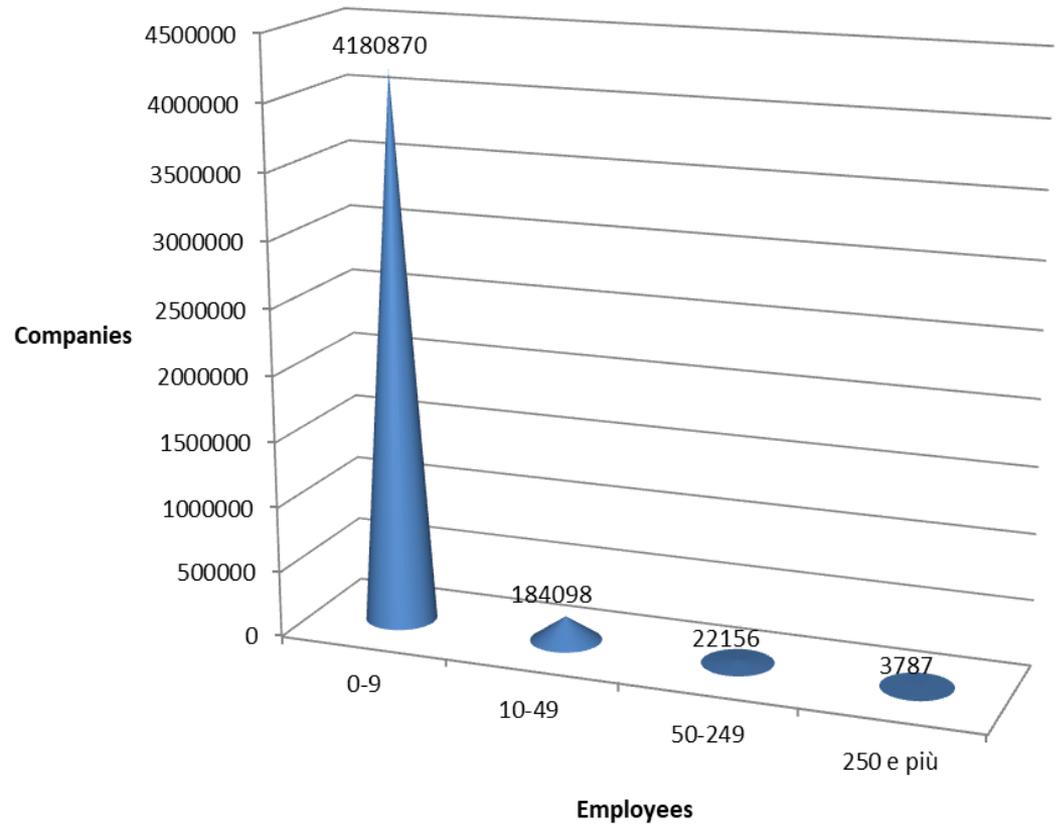
### Imprese e addetti

Personalizza | Esporta | Grafici | La tua interrogazione

Territorio	Italia									
	Impresa con dipendenti					Impresa senza dipendenti				
Forma giuridica	totale									
Selezione periodo	2016									
Tipo dato	numero imprese attive					numero addetti delle imprese attive (valori medi annuali)				
	0-9	10-49	50-249	250 e più	totale	0-9	10-49	50-249	250 e più	totale
Classe di addetti	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼	▲ ▼
<b>Ateco 2007</b>										
010: TOTALE	4 180 870	194 090	22 156	3 787	4 390 911	7 566 036	1 203 351,27	2 150 625,34	3 684 502,67	16 684 517,88
B: estrazione di minerali da cave e miniere	1 696	405	45	4	2 140	4 823,07	7 424,1	4 202,44	14 939,14	31 388,75
C: attività manifatturiera	319 021	59 118	8 491	1 236	387 866	864 584,2	1 113 268,95	822 185,95	862 109,75	3 662 148,45
D: fornitura di energia elettrica, gas, vapore e aria condizionata	10 956	419	107	41	11 523	9 816,52	8 707,12	11 514,92	58 235,74	89 274,3
E: fornitura di acqua retti fognarie, attività di gestione dei rifiuti e riciclaggio	6 830	1 816	498	130	9 282	20 117,47	35 105,6	51 365,51	88 703,19	195 291,77
F: costruzioni	489 349	18 193	1 074	80	508 696	874 102,19	303 310,21	94 262,74	52 197,35	1 323 972,49
G: commercio all'ingrosso e al dettaglio, riparazione di autoveicoli e motocicli	1 067 047	35 123	2 722	504	1 105 396	1 985 943,07	595 442,87	256 682,45	532 528,73	3 271 597,12
H: trasporto e magazzinaggio	109 965	11 183	2 017	358	123 443	227 149,03	215 560,65	196 111,43	478 165,23	1 116 806,34
I: attività dei servizi di alloggio e di ristorazione	301 816	20 808	829	119	323 563	846 464,99	325 357,42	73 064,39	133 713,39	1 378 600,19
J: servizi di informazione e comunicazione	94 889	5 525	881	174	101 269	170 600,1	99 896,43	86 825,33	200 248,07	527 569,23
K: attività finanziarie e assicurative	95 545	1 774	440	188	97 945	141 895,37	31 187,99	48 454,3	359 568,5	672 008,16
L: attività immobiliari	243 183	663	32	5	243 853	288 822,33	19 216,86	2 878,89	4 744,72	304 661,8
M: attività professionali, scientifiche e tecniche	725 954	7 601	829	136	734 520	959 819,81	127 921,15	30 279,16	86 834,47	1 254 845,99
N: noleggio, agenzie di viaggio, servizi di supporto alle imprese	131 778	9 180	1 893	459	143 408	242 788,65	177 335,33	201 541,44	585 221,62	1 218 879,34
P: istruzione	29 121	1 807	185	9	31 122	52 191,35	33 549,32	15 130,08	2 677,6	104 548,35
Q: sanità e assistenza sociale	284 441	9 200	1 957	209	291 408	406 799,25	105 541,87	183 455,95	192 287,83	808 084,5
R: attività artistiche, sportive, di intrattenimento e divertimento	85 925	1 965	178	27	88 093	194 478,3	35 739,72	15 434,36	17 432,93	373 085,31
S: altre attività di servizi	203 566	3 398	301	29	207 294	366 659,9	57 807,68	26 145,8	13 893,31	464 497,69

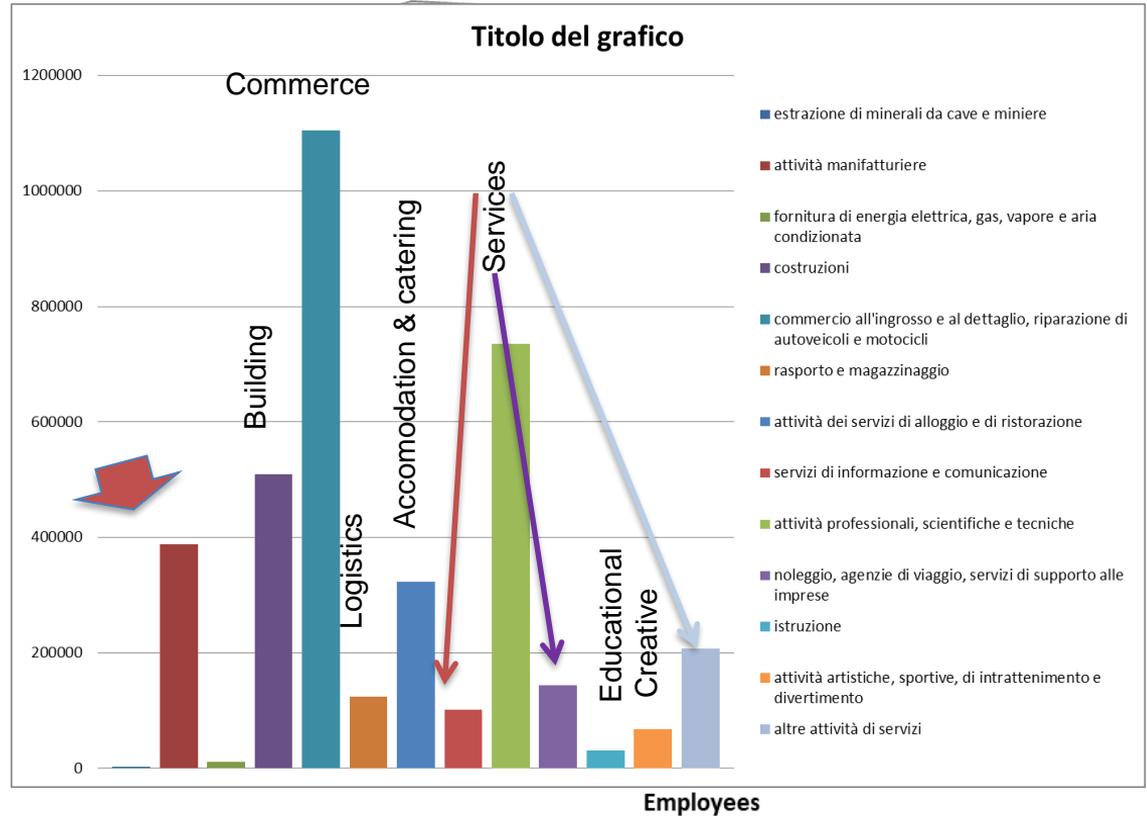
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# Energy End-Use & Renewable-Production EEU/R-P

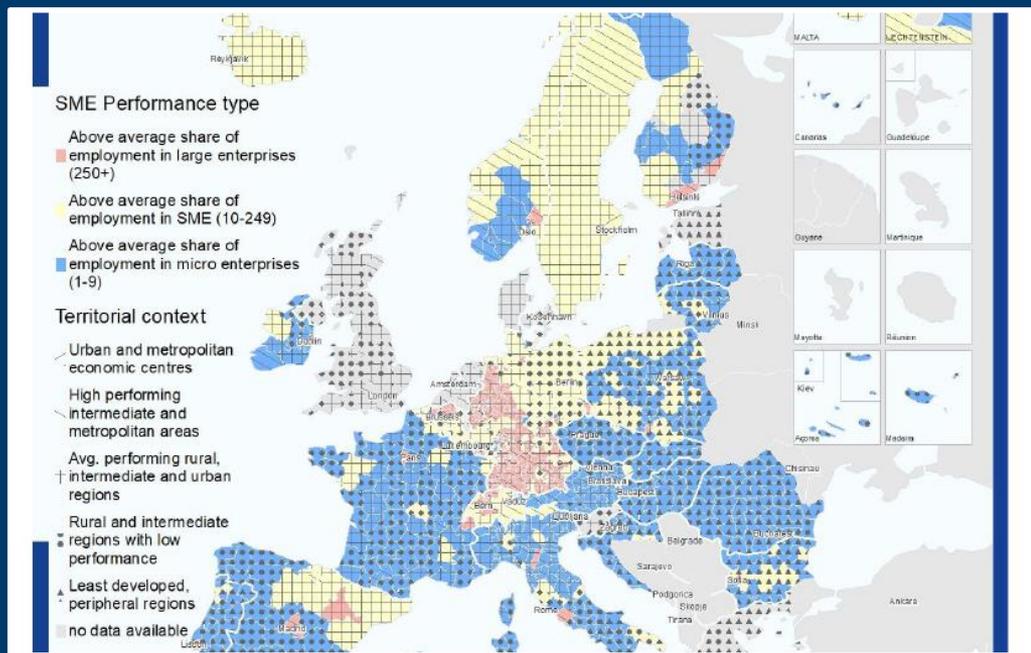
## AN- AGGREGATED DATA

- The EEU/R-P in the industrial sector is complex in general as processes are intertwined and interrelated
- Bottom up data of EEU/R-P on an aggregated level is scarce
- This holds in particular for industrial small and medium-sized enterprises

## E.E. CAPABILITY

- Only knowledge on where and how energy is used, as well as where opportunities for improvement exist can provide good support for developing the most effective policies for Energy efficiency in SMEs
- *“high importance of future research in creating a harmonized data categorization, as this will greatly support the transition towards sustainable industrial energy systems”*

*International study on energy end-use data among industrial SMEs (small and medium-sized enterprises) and energy end-use efficiency improvement opportunities -Thollander et al., 2015- International Energy Agency (IEA) IETS*



## Micro SMEs are prevalent also in EUROPE

Distribution patterns of SMEs across European regions and cities- ESPON 2020 Cooperation programme- Small and Medium-Sized Enterprises in European Regions and Cities –2018 Final Report



# Suitable Tools

Problem of lack of capacity not of lack of recognised relevance

- SMEs Networks
- Communications and training
- Suitable Tools & Useful data
- Technical support
- Financing opportunities
- Management Vision
- Mandatory acts



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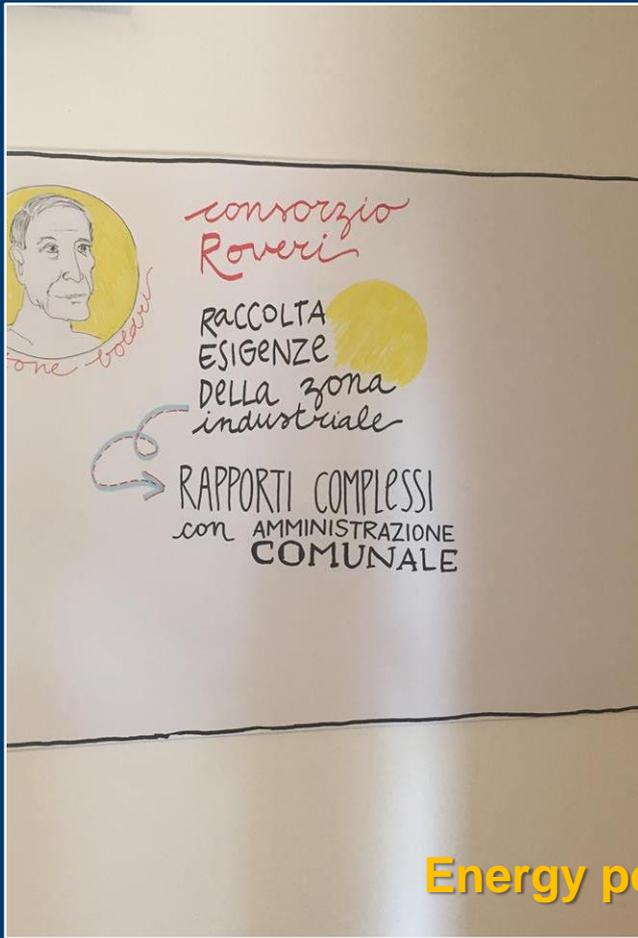
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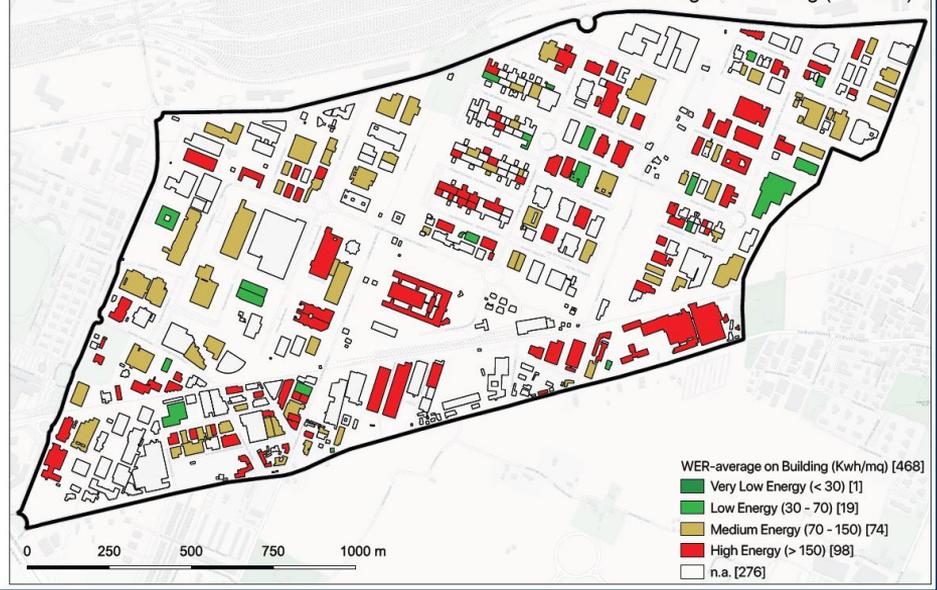
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**Energy policies and programs towards industrial SMEs**

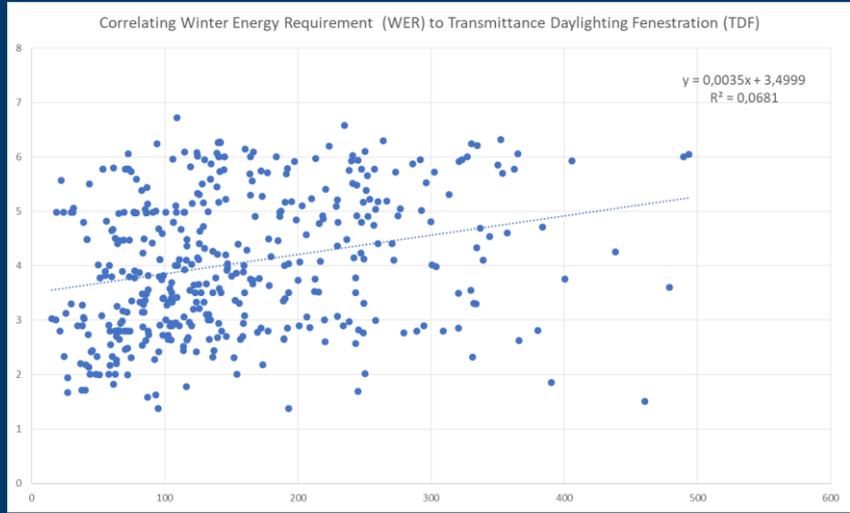


## BOLOGNA - Roveri Zone

Winter Energy Requirement - average on building (kWh/m<sup>2</sup>)



From ROVERI GIS-L.Moretti courtesy



# Energy use data for SMEs buildings

APE (EPC) certificates , new (blue) and old (yellow), are an huge prospective to achieving a detailed and widespread information on energy-use in SMEs (as in buildings s.l.) and to monitoring the policies outcomes. Availability and quality of energy related data are not conventional: a lot of work is yet to be done

## Conclusions

Detailed data on FE uses and EF in SMEs are indispensable  
Bottom up approach is quite complex in achieving data on energy use and efficiency improvements in SMEs lacking mandatory acts.

A more suitable EU approach in SMEs EF is necessary, mainly in industrial urbanism

**Actions to growth the proficiency of available En-related data can be pursued**

- Improve the geographical approach in collect and manage En-R-data at Municipal/Metropolitan/Regional level
- Define clearly and contextualised the En-R-data nature (not only Energy consumptions measures )
- Create and share protocols (tools, algorithms, methods) to made coherent available En-R-data
- Create protocols/procedures to assist the En-R-data acquisition from authorizative, data files format , legal point of view (PAES- SECAP )



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