

BBS

SUSTAINABILITY MEASUREMENT AND MANAGEMENT LABORATORY (SuMM LAB)

**BOLOGNA BUSINESS SCHOOL |
CENTRE FOR SUSTAINABILITY
AND CLIMATE CHANGE**

REPORT #4

MARIOLINA LONGO, MATTEO MURA,
CHIARA VAGNINI, SARA ZANNI

**BOLOGNA BUSINESS SCHOOL,
DEPARTMENT OF MANAGEMENT,
UNIVERSITY OF BOLOGNA**

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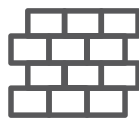
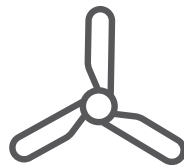


REPORT 4: ENERGY TRANSITION

Energy transition in a nutshell

The most meaningful practices oriented to the energy transition in the Italian industrial context:

- Energy sourced from solar panels
- Energy sourced from wind turbines
- Energy sourced from co-generation plants
- Energy sourced from water or wind mills
- Thermal coats
- Green roofs
- ISO 50001 certification



The most committed industrial sectors to implement energy transition practices:

- Metal products maintenance
- Real estate
- Retail
- Paper and cardboard product
- Railway's materials

INTRODUCTION

The energy transition has been indicated by Intergovernmental Panel of Climate Change (IPCC) among the five strategic action areas to meet the goal of limiting the global warming below 1.5°C¹. The re-design of generation, distribution and utilisation of energy lies at the very core of the energy transition, which can lead to the net zero CO₂ emissions. Together with strong reductions of other greenhouse gas emissions, it is now the crucial goal to limit the effects of the climate change that are inevitably occurring². At the national level, the energy transition has also the strategic advantage of limiting our dependence, currently heavy, on energy sources purchased abroad, such as, for example, natural gas, which is mainly imported from Russia, Algeria, Libya, Holland and Norway. Purchase agreements tend to be renegotiated, disregarded and subject to supply bottlenecks that generate significant fluctuations in prices, as repeatedly occurred in recent history (Russia-Ukraine Crisis 2006 - 2009 - 2014), and the outlooks for the end of the year are of + 400% compared to January 2021. From this point of view, the transition to renewables constitutes an investment, which will produce savings on supplies over the coming decades.

The Sustainability Measurement and Management Laboratory (SuMM Lab), has identified a set of practices oriented to the energy transition, as they promote renewables sources and energy savings into organisations. The current Italian context is analysed in the light of data collected.

¹ IPCC, 2018 “Special Report - Global Warming of 1.5 °C”, available at <https://www.ipcc.ch/sr15/>

² IPCC; 2021 “AR6 Climate Change 2021: The Physical Science Basis”, available at <https://www.ipcc.ch/report/ar6/wg1/#SPM>

KEY FINDINGS

Among the 69 KPIs composing the observatory, the following seven meaningful metrics represent the adoption of practices oriented to the energy transition in the Italian industrial context:

1. Energy sourced from solar panels;
2. Energy sourced from wind turbines;
3. Energy sourced from co-generation plants;
4. Energy sourced from water or wind mills;
5. Thermal coats to improve the energy efficiency of company's buildings;
6. Green roofs implementation over company's buildings;
7. ISO 50001 certification for the energy management system.

These practices are related to the energy sourcing, from solar panels, wind turbines, co-generation plants or water mills, the promotion of energy efficiency in buildings, by the installation of thermal coats or green roofs on buildings, and, finally, the certification of the energy management system.

Findings suggest that, overall, this group of practices are developed by a minority of the companies within the sample (about 6%).

In terms of geographical distribution, we can observe that the adoption of such practices varies across Italian regions and presents a quite uneven and unexpected distribution.

As a matter of fact, considering the overall population of companies sampled, Friuli Venezia-Giulia results the energy transition champion among regions (17% of companies implementing such practices), while other Northern and well industrialised regions are far behind (e.g. Lombardia and Piemonte, implementing such practices for 3% and 2% of the sample, respectively). Going more in detail and examining, for example, the distribution of companies implementing solar panels, we see that the TOP 5 regions are Campania, Friuli Venezia-Giulia, Basilicata, Molise and Marche (between 29% and 22% of the sample). This practice is now widely supported by incentive plans, such as Transition Plan 4.0, tax credit for southern businesses, and, more recently, super bonus 110% for businesses. Considering the future perspective, the regions where organisations displayed a higher interest in implementing such practices in the near future are Friuli-Venezia Giulia, Valle D'Aosta, Molise, Marche and Toscana, ranging from 44% to 11%, respectively.

SOLAR PANELS

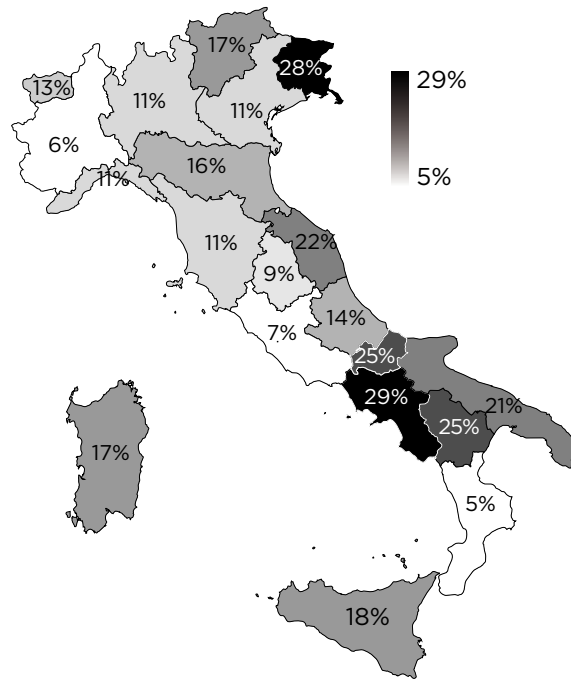


Figure 1. Geographical distribution of Solar Panels among Italian regions

ACTIONS FOR THE NEXT FIVE YEARS

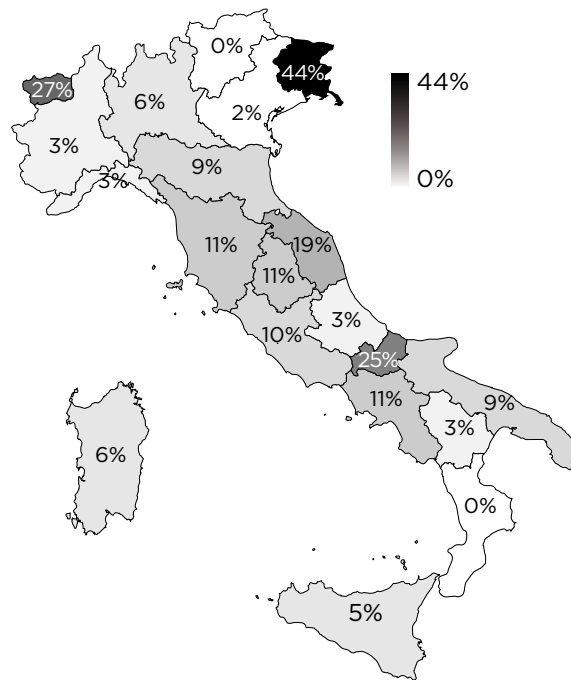


Figure 2. Actions planned for the next five years among Italian regions.

The four practices related to the sourcing of energy contribute to the accomplishment of the binding objectives set for the energy transition and, in the recent years, to the Directive 2009/28 EC, which imposed to reach a share of total gross final consumption of energy covered by renewable sources at least equal to 17% by 2020. Based on data provided by Gestore Servizi Energetici (GSE), the target was reached, as overall, already in 2019, with marked differences from one Region to another (Fig. 3)³.

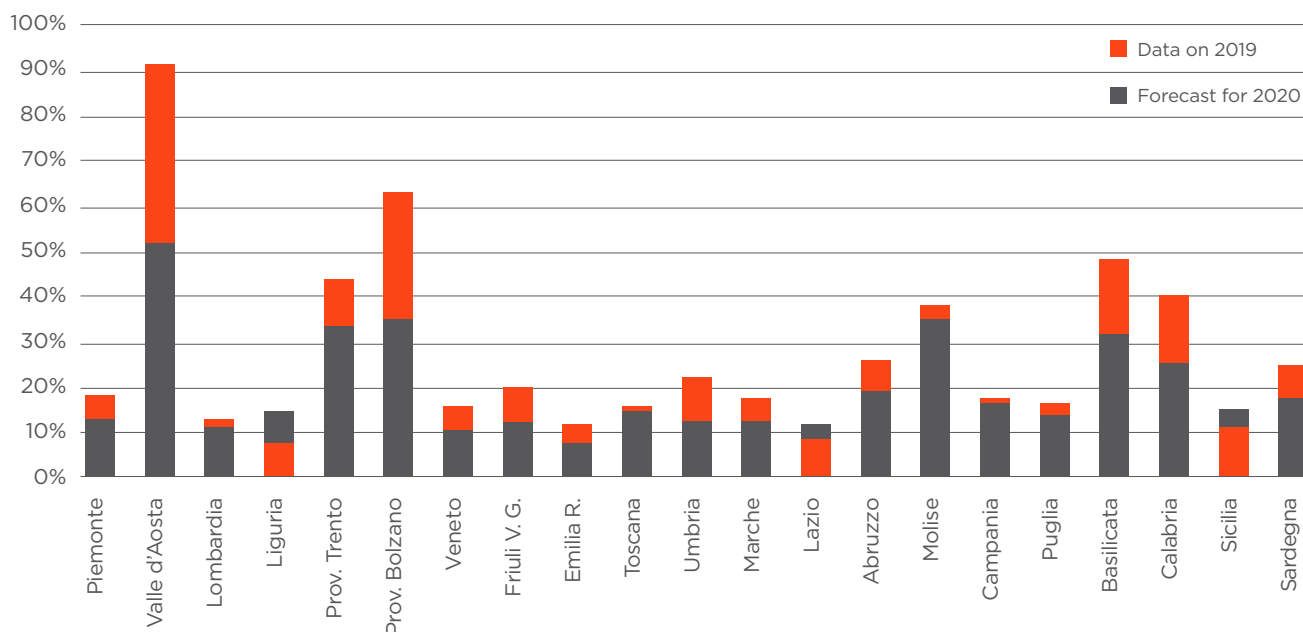


Figure 3. Level of accomplishment of the targets for renewable sourcing of energy, by region (source: GSE).

As the energy requirement of buildings increases both in winter and summer, for heating and cooling, the passive technologies for the insulation of buildings, such as thermal coatings and green roofs, become strategic for limiting the energy dispersion and, therefore, costs, both at the households and industrial level.

Green roofs are roofs “partially or completely covered with plants and soil or other growing medium” and they have several positive impacts in the urban environment, e.g. stormwater management, creation of natural habitat, and green spaces⁴. Among others, they contribute to the reduction of the heat island effect (i.e. micro-scale temperature differences between urban and rural areas), as they improve the vegetation in urban areas and promote the thermal isolation of buildings.

³ Gestore Servizi Energetici - GSE, 2020: Fonti rinnovabili in Italia e nelle Regioni - Rapporto di monitoraggio 2012-2019

⁴ Environmental Protection Agency - US EPA: Implementing Green Roof Projects at the Local Level, available at https://19january2017snapshot.epa.gov/sites/production/files/2014-07/documents/implementing_green_roof_projects_at_the_local_level-neelampatel.pdf

The University of Bologna currently have two green roofs, within the School of Engineering and Architecture (via Terracini – covered area: 120 m²), and School of Agriculture and Veterinary Medicine (viale Fanin – covered area: 932 m²). Considering the certification of the energy system management through the adoption of UNI CEI EN ISO 50001, it is generally regarded as an opportunity for companies to improve their energy efficiency, as it supports their approach to advanced technologies and the integration of energy-related considerations into the management. For this reason, the standard is harmonised with other system standards, such as ISO 14001 for environmental management systems and ISO 9001 for quality management systems. Based on data provided by ACCREDIA, the Italian body of certification, 2828 companies are currently certified⁵, including also organisations out of the SuMM Lab sample, such as consultancy firms.

Finally, we considered the industry sectors, which have been proved to behave differently in terms of tendency to disclosure of environmental and social information⁶. Specifically, SuMM Lab results show that the most committed industrial sectors to implement energy transition practices are the following (see Figure 4 for more detailed insights):

- Metal products maintenance;
- Paper and cardboard product;
- Real estate;
- Railway's materials;
- Retail.

It is worth noticing how this set of practices see a relatively high commitment also from service industry, such as real estate and retail, while practices investigated by reports previously released resulted mostly developed by manufacturing firms.

⁵ Accredia database, available at https://services.accredia.it/ppsearch/accredia_companymask_remote.jsp?ID_LINK=266&area=7

⁶ Mura, M., Longo, M., Domingues, A. R., Zanni, S. (2019). "An exploration of content and drivers of online sustainability disclosure: A study of Italian organisations", *Sustainability*, Vol. 11, No.12.

TOP 5 INDUSTRIAL SECTORS

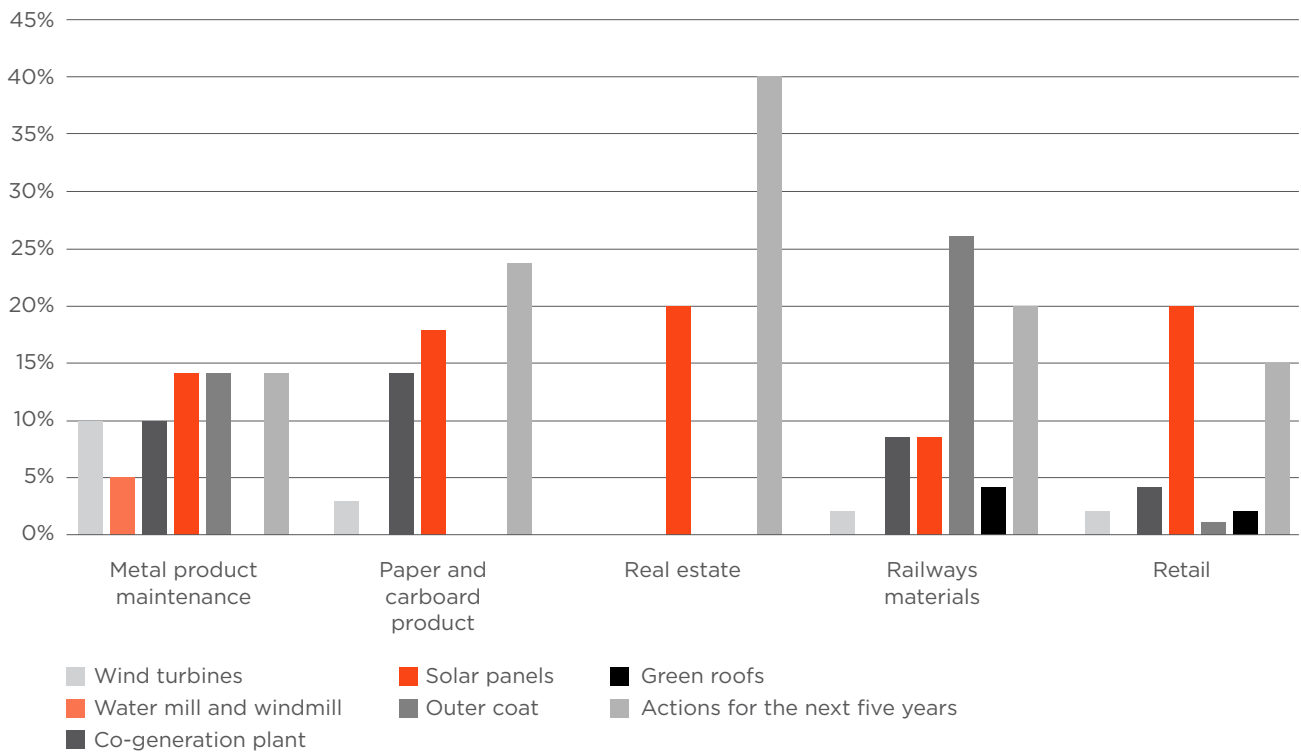


Figure 4. TOP5 sectors in energy transition practices, detailed by practice, and the percentage of companies within each sector. Industrial sectors are reported based on ATECO classification.

WHAT TO DO NEXT?

Considering that overall results provided by SuMM Lab, sustainability-related practices implemented by Italian companies are still a few, as less than 15% of companies mapped appears to develop sustainability processes at all⁷, and practices related to energy transition are, in most cases, less common than the average. In the last few years, an increased interest has been registered, testifying a response towards the regulations and incentives implemented (e.g. Superbonus 110%⁸).

Therefore, we report some suggestions to extend sustainable practices to a wider set of organizations:

At company level:

- Training on management tools to boost the energy management and the openness to new technologies;
- Going for renewables, requiring certified sourcing from energy providers;
- Developing scenarios for the future energy sourcing, considering the trade-offs of investments into energy transition practices;

At industrial ecosystem level:

- Creating networks for the use of waste energy (especially thermal) and co-generation within symbiotic industrial parks;
- Sharing success stories and competences, to support the spreading of sustainability-based approaches to energy sourcing.

At policy level:

- Structuring Energy Transition Funds for Businesses;
- Promoting the distributed generation of energy, with particular regard to production for self-consumption.

⁷ Mura, M., Longo, M., Domingues, A. R., Zanni, S. (2019). "An exploration of content and drivers of online sustainability disclosure: A study of Italian organisations", Sustainability, Vol. 11, No.12.

⁸ D.L. 19th May 2020, n. 34



**BBS CENTRE FOR SUSTAINABILITY
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sustainabilitycentre@bbs.unibo.it

+39 0512090104

www.bbs.unibo.it