

TECHNICAL REPORT

MEDIOLANUM



Bologna, 30/10/2023

TABLE OF CONTENTS

1. INTRODUCTION	4
1.1. OBJECTIVES	4
1.2. THE EUROPEAN AND ITALIAN TRANSITION TO ENERGY-EFFICIENT BUILDING STOCK	4
1.3. ENERGY EFFICIENCY AND THE REAL ESTATE MARKET	7
1.4. ITALIAN TOOL FOR COLLECTING EPC	8
2. MARKET REFERENCES FOR GREEN AND SUSTAINABLE BUILDINGS	11
2.1. EU TAXONOMY FOR SUSTAINABLE ACTIVITIES	11
2.1.1. <i>Climate Bonds Taxonomy</i>	14
2.2. EPC AND FINANCIAL DISCLOSURE	15
2.3. ITALIAN EPC LABELLING SCHEME	16
2.3.1. <i>NZEB buildings</i>	19
3. ELIGIBILITY CRITERIA	21
3.1. THE EUROPEAN TAXONOMY	21
3.2. EUROPEAN TAXONOMY AND REAL ESTATE	22
3.3. METHODOLOGY FOR IDENTIFYING ELIGIBILITY CRITERIA UNDER THE EU TAXONOMY	25
3.4. EU TAXONOMY ELIGIBILITY CRITERIA	27
3.4.1. <i>Construction of new building</i>	27
3.4.2. <i>Acquisition and ownership of buildings</i>	28
3.5. MEDIOLANUM ELIGIBILITY CRITERIA FOR CONSTRUCTION OF NEW BUILDING	29
4. MEDIOLANUM PORTFOLIO ANALYSIS	30
4.1. OVERVIEW OF MEDIOLANUM'S ELIGIBLE BUILDINGS	30
4.2. APPLICATION OF ELIGIBILITY CRITERIA	32
4.2.1. <i>Eligible building by EPC</i>	34

1. INTRODUCTION

1.1. OBJECTIVES

This report aims to provide an overview of MEDIOLANUM's mortgage portfolio, the current state of loans and relative buildings that are energy efficient. Energetic efficiency refers to the ability of a building to reduce its energy consumption and greenhouse gas emissions. The report will examine the benefits of energy efficiency for the environment, as well as the policies and incentives that support its spread. CRIF S.p.A. has identified the *Green Buildings* underlying a portfolio mortgages by assessing the eligible assets related to the acquisition, construction and renovation, in line with:

1. the Institution's Bonds Framework;
2. International Capital Market Association's (ICMA) GBPs;
3. The UN SDGs and EU environmental objectives to address climate change.
4. The Climate Transition Finance Handbook, December 2020
5. The Harmonised Framework for Impact Reporting, June 2022
6. The Guidelines for Green, Social, Sustainability and Sustainability-Linked Bonds External Reviews, February 2021

1.2. THE EUROPEAN AND ITALIAN TRANSITION TO ENERGY-EFFICIENT BUILDING STOCK

The European and Italian transition to energy-efficient building stock is a key challenge and opportunity for achieving the EU's energy and climate goals. According to the EU, buildings are responsible for about 40% of the EU's final energy consumption and greenhouse gas emissions, and Italy has one of the oldest building stocks in Europe. Therefore, improving the energy performance of buildings through renovation and innovation is essential for reducing energy demand, increasing renewable energy use, enhancing comfort and health, creating jobs and growth, and fostering social inclusion. The energy efficiency of buildings is also estimated as a crucial element despite a low annual renovation rate of building stock across the Member States. Therefore, a renovation boost is needed to meet the EU's energy efficiency and climate objectives.

Approved in 2020 to make the European Union climate neutral in 2050, the European Green Deal is a set of policies to reduce greenhouse gas emissions. Initiatives by the European Commission will review existing law and introduce new legislation in different areas such as¹:

- *Transport: Making transport sustainable for all and achieving emission savings by cars, and vans. In particular with 55% reduction of emissions from cars by 2030, 50% reduction of emissions from vans by 2030, and 0 emissions from new cars by 2035.*
- *Industry: Leading the third industrial revolution, because the green transition presents a major opportunity for European industry by creating markets for clean technologies and products.*
- *Energy: Cleaning our energy system and reducing greenhouse gas emissions by at least 55% by 2030 requires higher shares of renewable energy and greater energy efficiency.*
- *Real estate: Renovating our homes and buildings will save energy, protect against extremes of heat or cold and tackle energy poverty. As an example, the Commission proposes to increase the use of renewable energy in heating and cooling by +1.1 percentage points each year, until 2030*
- *Environmental protection: Restoring nature and enabling biodiversity to thrive again offers a quick and cheap solution to absorb and store carbon. The Commission proposes therefore to restore Europe's forests, soils, wetlands, and peatlands to make our environment more resilient to climate change.*

The proposals aim to make the EU's economy fit to meet the challenge of making Europe the first climate-neutral continent in the world. *The building sector is crucial for achieving the EU's energy and environmental goals and at the same time, better and more energy efficient buildings improve the quality of citizens' life while bringing additional benefits to the economy and the society.*

The energy efficiency of buildings law in Europe has a long history that dates back to the 1970s, when the first energy performance standards were introduced in national building codes. Since then, the EU has adopted several directives to promote and improve the energy efficiency of buildings, which account for about 36% of its greenhouse gas emissions. The most recent revision of the Energy Performance of Buildings Directive (EPBD) in 2018 aims to ensure that each Member State has a highly energy-efficient and decarbonised building stock by 2050, by setting out measures such as long-term renovation strategies, nearly zero-energy buildings, energy performance certificates, and smart technologies. The EPBD is complemented by the Energy Efficiency Directive (EED), which sets an EU-wide

¹ Examples and goals are available on: Delivering the European Green Deal https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en

target of 32.5% energy efficiency improvement by 2030 and requires Member States to report on their progress through integrated national energy and climate plans (NECPs).

The current Energy Performance of Buildings Directive (EPBD) sets the legal framework for promoting energy efficiency in buildings across the EU. It requires member states to adopt long-term renovation strategies, implement minimum energy performance standards, ensure regular inspections of heating and cooling systems, provide energy performance certificates to buyers or tenants, and support the development of nearly zero-energy buildings (NZEBS) by 2020. The EPBD was revised in 2018 to align it with the Clean Energy for All Europeans package and the European Green Deal objectives. Italy has transposed the EPBD into its national legislation through various decrees and laws that regulate different aspects of building energy efficiency. For instance, Italy established a national fund for energy efficiency (Fondo nazionale per l'efficienza energetica) to support public and private investments in building renovation projects. Italy has also introduced a smart readiness indicator (SRI) to assess how well buildings can adapt to user needs and grid requirements by using smart technologies. Moreover, Italy has adopted a national plan for NZEBs (Piano nazionale per gli edifici a energia quasi zero) that defines technical criteria and targets for new constructions and major renovations. The European and Italian transition to energy-efficient building stock is an ongoing process that requires continuous monitoring, evaluation and improvement.

The new Energy Performance of Buildings Directive (EPBD) is a key initiative of the European Commission to achieve climate neutrality by 2050 and reduce greenhouse gas emissions and energy consumption in the building sector. The new EPBD sets ambitious targets for all new and renovated buildings to become zero-emission buildings by 2027 and 2030 respectively, meaning that they have a net-zero balance of energy consumption and production from renewable sources. The new EPBD also promotes innovation in building design, construction and operation, such as solar technologies, smart meters, digital tools and circular economy principles. The impacts of the new EPBD are expected to be significant for both the environment and the society. According to the Commission's impact assessment, the new EPBD could lead to reduce GHG emissions from buildings, and saving final energy consumption by buildings by 2030 compared to a baseline scenario. Moreover, the new EPBD could create up to thousands additional jobs in the construction sector by 2030, improve indoor air quality and comfort levels for building occupants, increase property values and reduce energy poverty.

As already mentioned, the EPBD was revised in 2018 as part of the Clean Energy for All Europeans package, introducing new elements such as a long-term vision for a decarbonised building stock by 2050, a smart readiness indicator to measure the digital readiness of buildings, and an obligation to install electric vehicle charging points in non-residential buildings. In December 2021, the European Commission proposed another revision of the EPBD as part of the Fit for 55 package, which aims to align EU climate and energy legislation with the new target of reducing

greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels. The main objectives of the proposed revision are to accelerate building renovation rates, reduce energy consumption and greenhouse gas emissions from buildings, and promote the uptake of renewable energy sources in buildings. To achieve these objectives, the proposal introduces several new measures, such as:

- A new EU definition of a zero emissions building (ZEB), a ZEB would have to meet high standards of energy efficiency and use only renewable energy sources on-site or nearby, while taking into account its life-cycle global warming potential.
- A requirement for Member States to renovate their worst performing public buildings.
- A requirement for Member States to set minimum energy performance standards (MEPS) for existing buildings, which would gradually increase over time until all buildings reach at least an EPC class E.
- A revision of the EPC framework, including a harmonized A-G scale.

The proposed revision of the EPBD is expected to contribute significantly to achieving the EU's climate and energy goals, while also bringing multiple benefits for citizens' health, comfort and well-being, as well as for economic recovery, job creation and innovation in the construction sector.

1.3. ENERGY EFFICIENCY AND THE REAL ESTATE MARKET

Energy efficiency is a key factor for the sustainability and competitiveness of the real estate market in Europe. Energy efficiency measures can reduce greenhouse gas emissions, improve indoor comfort and air quality, and lower energy bills for households. Therefore, real estate represents a strategic arena where energy-efficient measures can impact achieving CO₂ reduction targets.

According to Eurostat data, households accounted for 27.0% of final energy consumption in the EU in 2020. The main use of energy by households was for heating their homes (62.8% of final energy consumption in the residential sector), followed by water heating (15.1%), lighting and electrical appliances (14.5%), cooking (6.1%), space cooling (0.4%) and other end-uses (1.0%). As shown in Figure 1, the main use of energy by households in Italy in 2020 was for space heating: 65% of final energy consumption in the residential sector. Electricity used for lighting and most electrical appliances accounted for about 13%, while the share used for water heating was slightly higher at 12%. Major cooking appliances required 6.8% of the energy used by households, while space cooling and other end uses accounted less than 1%.

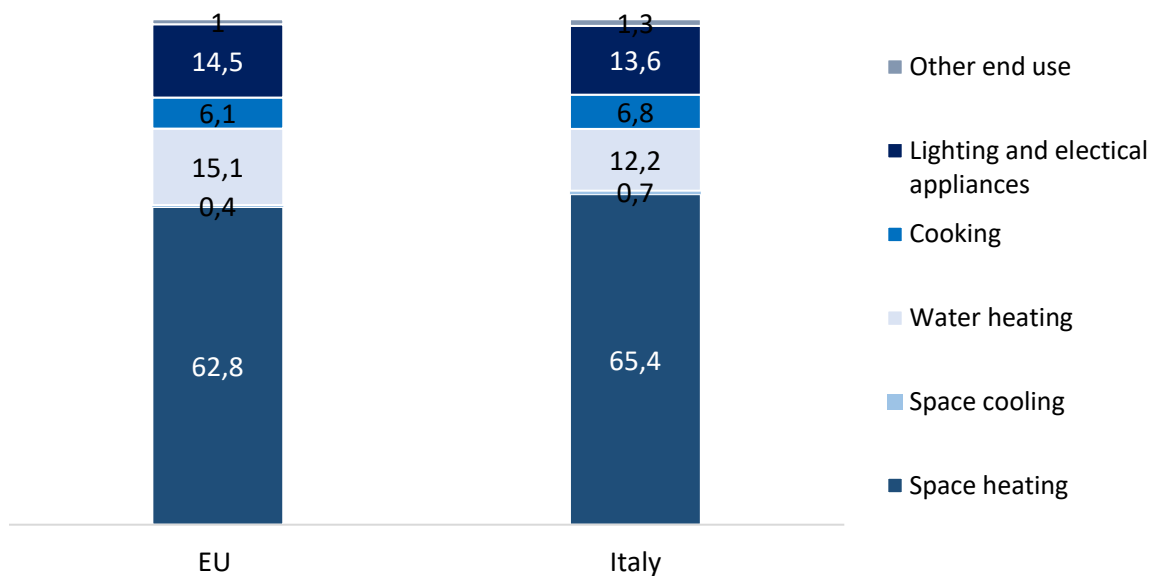


Figure 1 - Share of the energy consumption of households broken down by end-use – Eurostat, 2020

1.4. ITALIAN TOOL FOR COLLECTING EPC

SIAPE stands for “Sistema Informativo sugli Attestati di Prestazione Energetica” which is the national tool for collecting Energy Performance Certificates (APE) of buildings and real estate units in Italy. It was established by Interministerial Decree 26/06/2015 and is managed by ENEA with the primary purpose of returning a certificate of energy performance of buildings and real estate units. The SIAPE (System of Information on Energy Performance Certificates) provides information on the Italian building stock, and it has been created and currently managed by ENEA. SIAPE collects and organizes data from certificates in collaboration with Regions and Autonomous Provinces; 16 connected entities share aggregated information with ENEA and become public. The energy cadasters gathering

EPCs are managed under the regional jurisdiction. Accordingly, EPCs' data are not publicly accessible for all the Italian regions. To address the problems associated with the lack of building's energy efficiency data, the Ministerial Decree on 26/06/2015 introduced this database, SIAPE, where contributing regions are required to upload the gathered EPCs every year. As shown in figure 2, not all Italian regions today contribute to the SIAPE database. Indeed, the blue areas identify the energy cadasters providing EPCs' information, while the grey ones do not share information.



Figure 2 - Map of the Italian regions contributing to the SIAPE database, from SIAPE, ENEA



Figure 3 – SIAPE Logo

The SIAPE has collected 5,271,230 EPCs issued in 2015-2023 from 18 regions when writing the present report. Overall, 86.2% of the records belong to residential buildings and 13.8% to non-residential ones. This result is consistent with the evidence of the last Italian census in 2011, when residential buildings represented 89% of the stock against the 11% of non-residential buildings. As shown in figures below, Italy is divided into six climate zones:

climate zone A is the hottest, and zone F is the coldest. This subdivision is carried out at the municipality level, based on heating degree days.

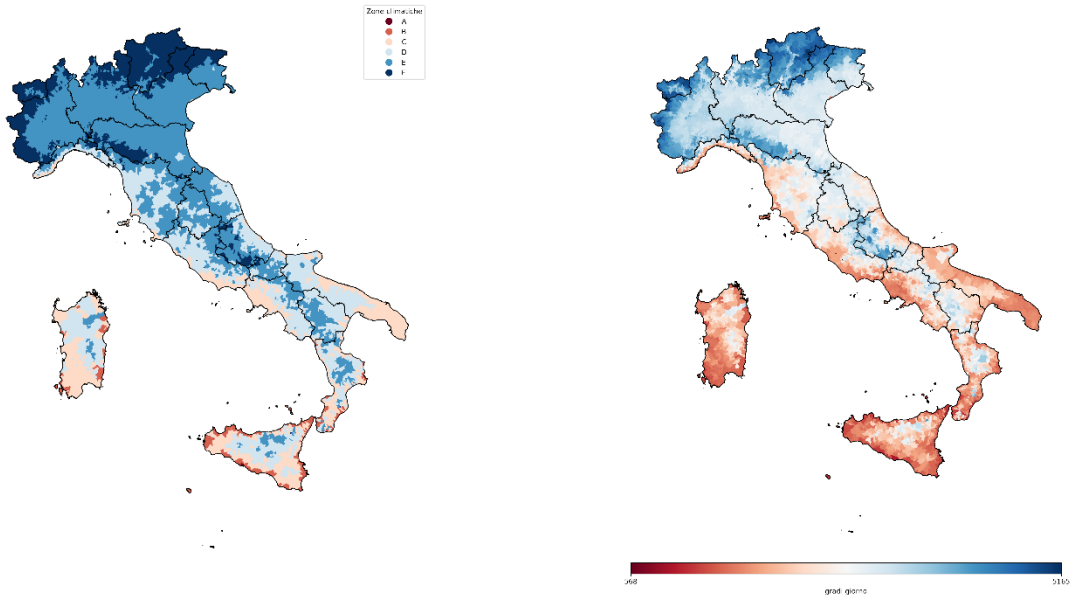


Figure 4 - Italian Climate Zones (zone climatiche) Subdivision

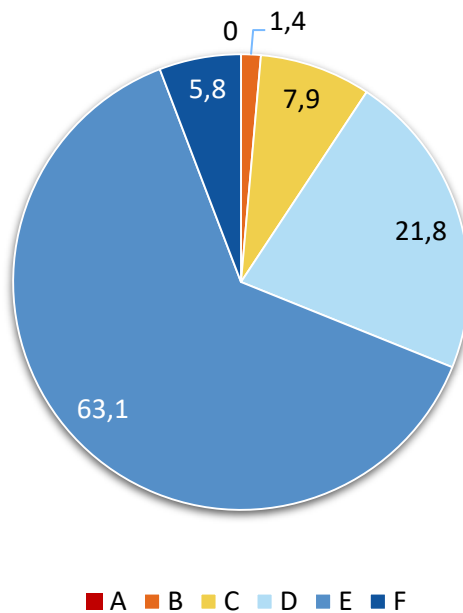


Figure 5 - Share of SIAPE EPCs per Climate Zones

2. MARKET REFERENCES FOR GREEN AND SUSTAINABLE BUILDINGS

2.1. EU TAXONOMY FOR SUSTAINABLE ACTIVITIES

The EU taxonomy for sustainable activities is a classification system that aims to help investors, companies and policymakers identify which economic activities can be considered environmentally sustainable. It is part of the EU's efforts to scale up sustainable investment and implement the European Green Deal. On 21 April 2021, the European Commission published the text of the EU Taxonomy Climate Delegated Act *establishing technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives*. The attention poses to those actions needed to mitigate climate change effects. Indeed, Annex I focuses on the technical screening criteria (TSC) related to a substantial contribution to climate change mitigation and *do no significant harm* ('DNSH') different activities.

The real estate sector is one of the sectors covered by the EU taxonomy, as it has a significant impact on climate change mitigation and adaptation, as well as on other environmental objectives such as water use, circular economy and pollution prevention. The EU taxonomy sets out specific criteria for real estate activities to qualify as sustainable, depending on their type and performance. One of the main types of real estate activities covered by the EU taxonomy is construction and real estate. Construction activities can contribute substantially to climate change mitigation if they meet certain thresholds for greenhouse gas emissions intensity or energy efficiency. For example, new buildings must have a primary energy demand that is at least 10% lower than the level required by national regulations for NZEBs. Construction activities can also contribute substantially to climate change adaptation if they increase the resilience of buildings to physical climate risks such as floods, heat waves or storms. Accordingly, Table 2 provides an overview of the TSC for the *construction of new buildings*.²

Another type of real estate activity covered by the EU taxonomy is renovation. Renovation activities can contribute substantially to climate change mitigation if they achieve a certain level of energy savings or emissions reduction compared to a baseline scenario. For example, renovation projects must achieve at least 30% energy savings in terms of less Primary Energy Demand. Renovation activities can also contribute substantially to climate change adaptation

² *Description of the activity: development of building projects for residential and non-residential buildings by bringing together financial, technical and physical means to realise the building projects for later sale as well as the construction of complete residential or non-residential buildings, on own account for sale or on a fee or contract basis.*

if they improve the resilience of buildings to physical climate risks. Table 3 relates to the *renovation of existing buildings*.³

A third type of real estate activity covered by the EU taxonomy is individual building ownership. Individual building ownership can contribute substantially to climate change mitigation if it meets certain criteria for energy performance or emissions intensity. Individual building ownership can also contribute substantially to climate change adaptation if it meets certain criteria for resilience to physical climate risks.

Table 1 - Substantial Contribution to Climate Change Mitigation: Construction of new buildings

Source: Delegated Act of the EU Taxonomy for sustainable activities

7.1 Construction of new buildings	Substantial Contribution to Climate Change Mitigation
1	The Primary Energy Demand (PED), defining the energy performance of the building resulting from the construction, is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council. The energy performance is certified using an as built Energy Performance Certificate (EPC).
2	For buildings larger than 5000 m ² , upon completion, the building resulting from the construction undergoes testing for air-tightness and thermal integrity, and any deviation in the levels of performance set at the design stage or defects in the building envelope are disclosed to investors and clients. As an alternative; where robust and traceable quality control processes are in place during the construction process this is acceptable as an alternative to thermal integrity testing.
3	For buildings larger than 5000 m ² , the life-cycle Global Warming Potential (GWP) of the building resulting from the construction has been calculated for each stage in the life cycle and is disclosed to investors and clients on demand.

³ Description of the activity: Construction and civil engineering works or preparation thereof.

Table 2 - Substantial Contribution to Climate Change Mitigation: Renovation of existing buildings

Source: Delegated Act of the EU Taxonomy for sustainable activities

7.2 Renovation of existing buildings	Substantial Contribution to Climate Change Mitigation
1	The building renovation complies with the applicable requirements for major renovations. Alternatively, it leads to a reduction of primary energy demand (PED) of at least 30 %.

Table 3 - Substantial Contribution to Climate Change Mitigation: Acquisition and ownership of buildings

Source: Delegated Act of the EU Taxonomy for sustainable activities

7.7 Acquisition and ownership of buildings	Substantial Contribution to Climate Change Mitigation
1	For buildings built before 31 December 2020, the building has at least an Energy Performance Certificate (EPC) class A. As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.
2	For buildings built after 31 December 2020, the building meets the criteria specified in Section 7.1 (see Table 7.1) of this Annex that are relevant at the time of the acquisition.
3	Where the building is a large non-residential building (with an effective rated output for heating systems, systems for combined space heating and ventilation, air-conditioning systems or systems for combined air-conditioning and ventilation of over 290 kW) it is efficiently operated through energy performance monitoring and assessment.

In addition to these types of real estate activities, the EU taxonomy introduces some new concepts that are relevant for the sector. One of these concepts is "do no significant harm" (DNSH), which means that an activity that contributes substantially to one environmental objective must not significantly harm any other environmental objective. For example, a construction project that reduces greenhouse gas emissions must not adversely affect water quality or biodiversity. Another concept introduced by the EU taxonomy is "minimum safeguards", which means that an activity must comply with certain social and governance standards in order to be considered sustainable. For example, an activity must respect human rights, labour rights and anti-corruption principles.

The EU taxonomy for sustainable activities and its implications for the real estate sector are complex and evolving topics. The classification system will require additional technical guidance and reporting standards from the

European Commission and other bodies. It will also entail new disclosure obligations and opportunities for investors and companies involved in real estate activities. Intending to identify those buildings in a bank's portfolio eligible for a Green Bond issuance, acquisition and ownership, and renovations sections will play a fundamental role in the future. The EU Taxonomy aims to define a set of practices and thresholds to define business and activities aligned with the European climate change mitigation and adaptation objectives.

2.1.1. Climate Bonds Taxonomy

Similarly, to EU taxonomy for sustainable activities, the Climate Bonds Taxonomy *is a guide to climate aligned assets and projects. It is a tool for issuers, investors, governments and municipalities to help them understand what the key investments are that will deliver a low carbon economy. Indeed, The Climate Bonds Taxonomy identifies the assets, activities and projects needed to deliver a low carbon economy. Consistent with the 2 goals of the Paris Agreement. It has been developed based on the latest climate science including research from the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA), and has benefited from the input of hundreds of technical experts from around the world. It can be used by any entity looking to identify which assets and activities, and associated financial instruments, are compatible with a trajectory to net zero by 2050.*⁴

The CBI Taxonomy also defines a *Screening Indicator* for residential buildings, as the *emissions footprint in the top 15% of emissions performance in the local market or a substantial reduction in gCO₂/m₂ because of upgrade or retrofit. With this regard, considering residential buildings, existing instruments such as local building codes, energy rating schemes (e.g. US Energy Star) and energy labelling schemes (e.g. Energy Performance Certificates in the EU) are leveraged as emission performance proxies (using the proxy methodology).*⁵

Accordingly, two methodologies for establishing building proxies⁶ (2016) for the identification of the top 15% most energy-efficient buildings are provided:

- A. *Benchmarking against local market emissions performance;*
- B. *The proportion of total ratings/labels awarded.*

Option A relies on the existence of data and statistics on the emission performance of buildings. Identifying the local top 15% bucket represents the starting point for drafting an *emission performance trajectory* that declines towards zero emissions in 2050. Conversely, Option B offers a solution in case of a lack of emission performance's data. The

⁴ Climate Bond Taxonomy 2021

⁵ <https://www.climatebonds.net/standard/buildings>

⁶ Available at:

<https://www.climatebonds.net/files/files/Methodology%20for%20Establishing%20Proxies.pdf>

identification of the top 15% relies on the adoption of the national scheme as a benchmark where the analysis is supported by solid *evidence to demonstrate that the rating or label is in the top 15% of all ratings or labels awarded under the scheme (that predominantly rates buildings on energy efficiency/emissions)*.

Conversely, Option B offers a solution in case of a lack of emission performance's data. The identification of the top 15% relies on the adoption of the national scheme as a benchmark where the analysis is supported by solid *evidence to demonstrate that the rating or label is in the top 15% of all ratings or labels awarded under the scheme (that predominantly rates buildings on energy efficiency/emissions)*

2.2. EPC AND FINANCIAL DISCLOSURE

The EPC represents an objective and complete technical instrument that provides crucial information related to the energy performance of the buildings underlying mortgage contracts granted by financial institutions.

With this regard, on 1 March 2021, the European Banking Authority (EBA) published *a consultation paper on draft implementing technical standards (ITS) on Pillar 3 disclosures on Environmental, Social and Governance (ESG) risks. The draft ITS put forward comparable disclosures that show how climate change may exacerbate other risks within institutions' balance sheets, how institutions are mitigating those risks, and their green asset ratio on exposures financing taxonomy-aligned activities, such as those consistent with the Paris agreement goals.*

In line with this, *disclosure of information on ESG risks is a vital tool to promote market discipline, allowing stakeholders to assess banks' ESG related risks and sustainable finance strategy.*

Furthermore, gathering EPCs supports stakeholders with an overview of the financial Institutions assets' energy performance. Indeed, Article 23.b of the consultation paper reports that *for their real estate portfolios, including loans collateralised by commercial and residential real estate, and repossessed real estate collaterals, information on the energy efficiency of the underlying real estate collaterals, including distribution of collaterals by energy performance certificate (EPC) label.*

Coherently, Annex I focuses on the templates on ESG risks disclosures. Template 3 requests to provide the distribution of EPCs related to the collaterals, as shown in Figure 6.

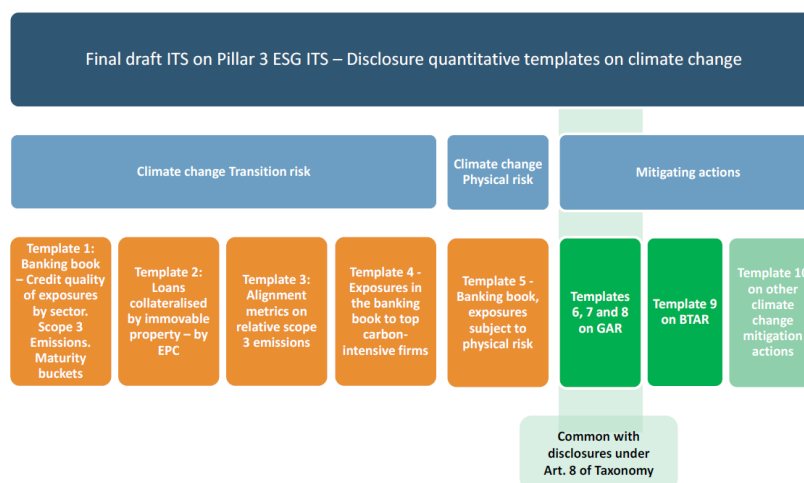


Figure 6 - Quantitative templates for consultation paper by EBA on Pillar 3, ESG disclosures
Source: Public consultation on draft technical standards on Pillar 3 disclosures of ESG risks, EBA, 2021

Finally, EPC are key instruments for ECB Climate risk stress test with particular attention to corporate exposures secured by real estate property⁷.

2.3. ITALIAN EPC LABELLING SCHEME

In Europe, the normative framework for assessing the buildings' energy performance belongs to the Energy Performance of Buildings Directive (EPBD). *The EPBD aims to promote the improvement of the energy performance of buildings within the European Union, taking into account outdoor climatic and local conditions, as well as indoor climate requirements and cost-effectiveness.*

Since 2002, three versions of the EPBD are published:

1. Directive 2002/91/EC;
2. Directive 2010/31/EU;
3. Directive 2018/844/EU.

Indeed, the revision of 2018 introduced the obligation for Member States to disclose the national calculation methodology without forcing them to apply those standards provided in the Directive 2010/31/EU. This approach requires the Member States to explain existing divergences of the national application from the Directive.

⁷ Please, see: <https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.climateriskstresstest2021~a4de107198.en.pdf>

The first Italian National Energetic Plan was introduced in 1991, while the energy label (ACE - *Attestato Certificazione Energetica*) in 2005 due to the introduction of the EPBD Directive 2002/91 (ENEA, 2020). Nowadays, the energy performance assessment of a building produces a new energy label (EPC), the APE – *Attestato Prestazione Energetica*, according to rules set in the Italian Directive 26/06/2015 (*Requisiti Minimi*). The Energy Performance Certificate is mandatory for rent, acquisition, construction of a new building, and energy renovation (retrofitting process). The EPCs are a valuable guide for the real estate market concerning energy aspects. Indeed, label and energy performance is a part of a more comprehensive assessment of the building under evaluation. The performance is measured for the structural components (walls, windows) and the energetic systems, divided by use (space heating or cooling, heating water).

Based on the existing methodology, the energy performance is defined through a ranking from A4 (the most efficient) to G (the least efficient), as shown in figure 7.

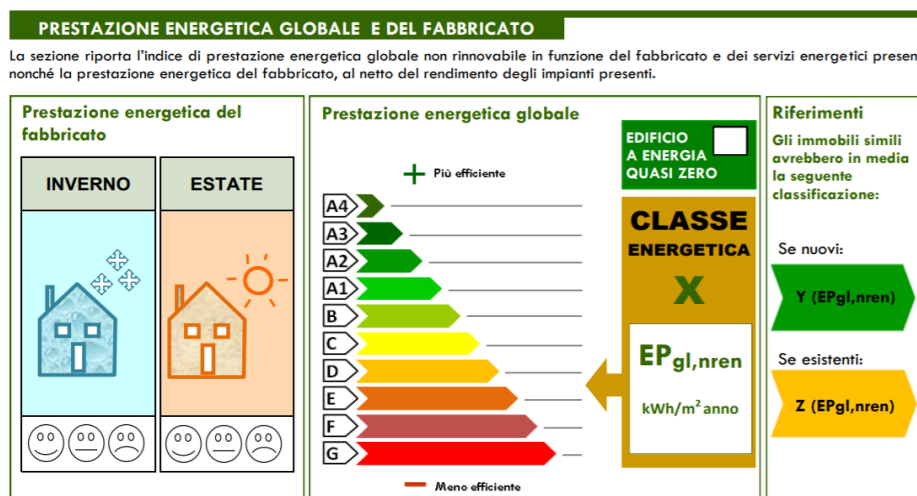


Figure 7 - Building's Energy Performance format

Source: Italian Decree 26/06/2015 (*Requisiti Minimi*)

In addition to the energy label, several energy indicators are automatically derived during the property assessment.

At first, the EPC class is assigned as a consequence of several steps and computations:

1. The $EP_{gl,nren,rif,standard}$ of a *reference building* is derived after providing specific input information related to the building under assessment. Indeed, the *reference building* has the same features as the assessed

building in terms of geometry, location, exposition, and use but supported by standard technologies as defined by law.⁸

2. The $EP_{gl,nren}$ of the building under assessment. The $EP_{gl,nren}$ ⁹ provides information about the kilo-wattage of energy required by the property under standard conditions per square meter of heated floor per year. Overall, the $EP_{gl,nren}$ is defined as:

$$EP_{gl,nren} = EP_{H,nren} + EP_{C,nren} + EP_{W,nren} + EP_{V,nren} + EP_{L,nren} + EP_{T,nren}$$

In particular, the above formula considers:

- non-renewable primary energy demand for winter heating and air conditioning ($EP_{H,nren}$ and $EP_{C,nren}$);
- non-renewable primary energy demand for hot sanitary water ($EP_{W,nren}$);
- non-renewable primary energy demand for ventilation ($EP_{V,nren}$);
- non-renewable primary energy demand for artificial lighting (included for non-residential buildings) ($EP_{L,nren}$);
- non-renewable primary energy demand for the transport of people and things (included for non-residential buildings) ($EP_{T,nren}$).

3. Computing the ratio between (2) and (1), the EPC class is assigned following the scheme in figure 8.

⁸ See the Decree 26/06/2015, national criteria and technical norms (UNI/TS 11300), EU Directive 2010/31

⁹ Expressed in kWh/m²

	Classe A4	$\leq 0,40 EP_{gl,nren,rif,standard (2019/21)}$
$0,40 EP_{gl,nren,rif,standard (2019/21)} <$	Classe A3	$\leq 0,60 EP_{gl,nren,rif,standard (2019/21)}$
$0,60 EP_{gl,nren,rif,standard (2019/21)} <$	Classe A2	$\leq 0,80 EP_{gl,nren,rif,standard (2019/21)}$
$0,80 EP_{gl,nren,rif,standard (2019/21)} <$	Classe A1	$\leq 1,00 EP_{gl,nren,rif,standard (2019/21)}$
$1,00 EP_{gl,nren,rif,standard (2019/21)} <$	Classe B	$\leq 1,20 EP_{gl,nren,rif,standard (2019/21)}$
$1,20 EP_{gl,nren,rif,standard (2019/21)} <$	Classe C	$\leq 1,50 EP_{gl,nren,rif,standard (2019/21)}$
$1,50 EP_{gl,nren,rif,standard (2019/21)} <$	Classe D	$\leq 2,00 EP_{gl,nren,rif,standard (2019/21)}$
$2,00 EP_{gl,nren,rif,standard (2019/21)} <$	Classe E	$\leq 2,60 EP_{gl,nren,rif,standard (2019/21)}$
$2,60 EP_{gl,nren,rif,standard (2019/21)} <$	Classe F	$\leq 3,50 EP_{gl,nren,rif,standard (2019/21)}$
	Classe G	$> 3,50 EP_{gl,nren,rif,standard (2019/21)}$

Figure 8 - Italian EPC label thresholds
Source: Italian Decree 26/06/2015 (Requisiti Minimi)

2.3.1. NZEB buildings

The above-mentioned EPBD Directive 2010/31/EU also introduces Nearly-Zero-Energy-Building (NZEB).

NZEB buildings are characterized by a nearly zero balance between energy consumption and energy production: *The nearly zero or very low amount of energy required should be covered to a very significant extent from renewable sources, including sources produced on-site or nearby.*

At the same time, as concrete numeric thresholds or ranges are not defined in the EPBD, these requirements leave room for interpretation and thus allow Member States to define their nearly zero-energy buildings (NZEB) in a flexible way taking into account their country-specific climate conditions, primary energy factors, ambition levels, calculation methodologies and building traditions.

In Italy, the NZEB requirements are introduced by the Legislative Decree 26/06/2015 “Requisiti Minimi”. Indeed, all the new constructions under public ownership must comply with NZEB technical requirements starting from 2019. Furthermore, the same criterium applies to all the other types of buildings since 1 January 2021.

Nevertheless, some virtuous regions decided to anticipate the scheduled deadlines. For instance, the Emilia-Romagna region has applied the NZEB requirements since 2017 for public buildings and in 2019 for the other types. Accordingly, the Lombardia region since 2016.

The current EPC format shown in figure 7 presents a dedicated box for the NZEB information (*EDIFICIO A ENERGIA QUASI ZERO*). As of 2022, according to the SIAPE, in Italy, 16,085 buildings are NZEB:

- 15,460 residential properties;
- 625 non-residential properties.

Figure 9 shows the distribution (%) of the EPC related to NZEB.

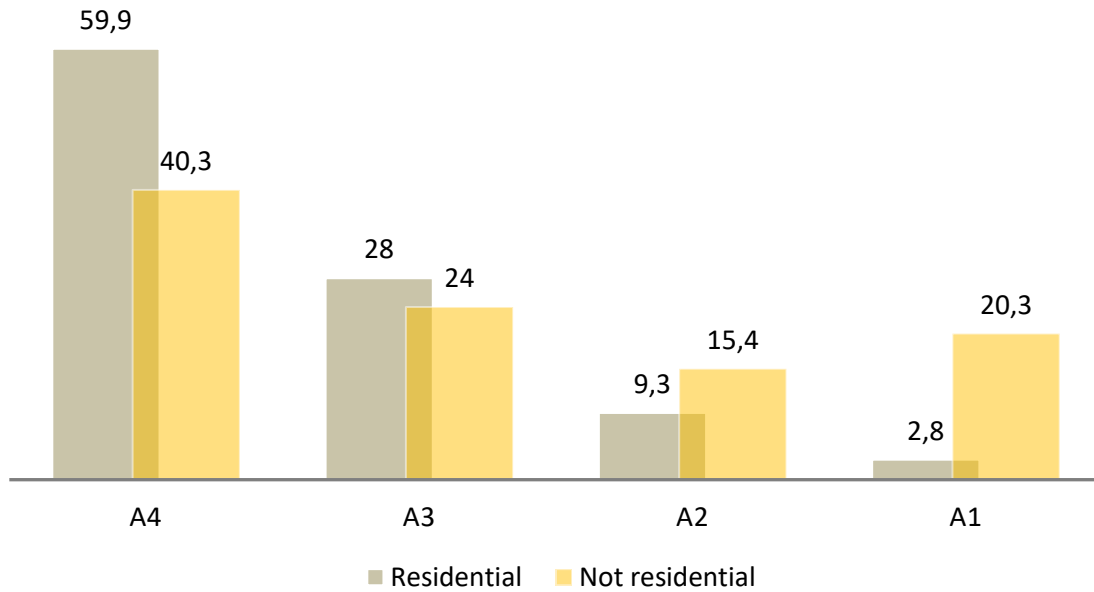


Figure 9 - Share of NZEB residential buildings per EPC class

Source: CRIF elaboration on SIAPE data 2022

3. ELIGIBILITY CRITERIA

This chapter provides a short overview of the European taxonomy and its objectives, the impact of the taxonomy on criteria for construction and real estate. It also describes a methodology to measure if a residential property has a Primary Energy Demand that respects the Technical Screening Criteria (TSC) of EU taxonomy.

3.1. THE EUROPEAN TAXONOMY

The European Taxonomy, as defined by Regulation (EU) 2020/852 (EU Taxonomy Regulation) and related Delegated Acts, establishes a classification system for economic activities that are considered aligned with the objectives of the European Green Deal. In particular, *the Taxonomy Regulation establishes six environmental objectives:*

- A. *Climate change mitigation*
- B. *Climate change adaptation*
- C. *The sustainable use and protection of water and marine resources*
- D. *The transition to a circular economy*
- E. *Pollution prevention and control*
- F. *The protection and restoration of biodiversity and ecosystems¹⁰*

A first delegated act on sustainable activities for climate change adaptation and mitigation objectives was published in the Official Journal on 9 December 2021 and has been applicable since January 2022. A second delegated act for the remaining objectives will be published in 2022. Under the EU Taxonomy, technical screening criteria (TSC) define if an economic activity contributes substantially to the previously listed sustainability objectives. Thus, the taxonomy will play a crucial role in the implementation of the European green deal and to scale up sustainable investment through the orientation of public and private strategies. In this way, the European regulations should protect investors from greenwashing and help companies to be climate-friendly. Clearly, finance is a critical enabler of improvements in existing industries in Europe and globally.

The Taxonomy *also sets out four conditions that an economic activity has to meet to be recognized as Taxonomy aligned:*

¹⁰ EU taxonomy for sustainable activities: article 9 - Regulation (EU) 2020/852 of the European parliament and of the council of 18 June 2020

- *making a substantial contribution to at least one environmental objective;*
- *doing no significant harm to any other environmental objective;*
- *complying with minimum social safeguards;*
- *complying with the technical screening criteria.*

These technical screening criteria are developed in delegated acts. For each economic activity considered, the technical screening criteria specify environmental performance requirements that ensure the activity makes a substantial contribution to the environmental objective in question and does no significant harm to the other environmental objectives.

The technical screening criteria for ‘substantial contribution’ to an environmental objective ensure that the economic activity either has a substantial positive environmental impact or substantially reduces negative impacts on the environment, e.g. substantially reduced levels of greenhouse gas emissions.

The technical screening criteria for ‘do no significant harm’ ensure that the economic activity does not impede on the other environmental objectives from being reached, i.e. it has no significant negative impact on them.

Both sets of criteria together ensure coherence between the objectives in the EU Taxonomy and guarantee that progress towards one objective is not made at the expense of another.

The performance thresholds in these criteria are science-based and developed on the basis of a robust methodology and an inclusive process. They identify criteria for economic activities that can set sectors on a path consistent with the EU’s climate and environmental goals, based on currently available technologies. Substantial contribution to climate change mitigation, for example, means levels of performance that are aligned with climate neutrality and limiting the increase in temperature to 1.5 degrees Celsius globally. For climate change adaptation this means the implementation of solutions to substantially reduce the most significant identified climate risks to a particular activity such as wildfires, storms or droughts. The Taxonomy Regulation calls such activities ‘environmentally sustainable’ but this does not mean that activities that do not meet these four conditions are ‘unsustainable’.

3.2. EUROPEAN TAXONOMY AND REAL ESTATE

The following paragraph outlines the need to look in detail at the application of the EU Taxonomy, CRIF focuses on the Italian context, in particular, buildings and related energy performance. This section aims to analyze the energy

performance requirements for real estate properties, to identify thresholds compliant with the EU Taxonomy. The Technical Screening Criteria cover different sectors; section 7 of the delegated act focuses on construction and real estate activities, describing the type of activity and the criteria to reach sustainable objectives. In particular, criteria are defined for 7 different activities linked with real estate:

1. **Construction of new buildings:** *Development of building projects for residential and non-residential buildings by bringing together financial, technical and physical means to realize the building projects for later sale as well as the construction of complete residential or non-residential buildings, on own account for sale or on a fee or contract basis. [...]*
2. **Renovation of existing buildings:** *Construction and civil engineering works or preparation thereof. [...]*
3. **Individual renovation measures consisting in installation, maintenance or repair of energy efficiency equipment.** [...]
4. **Installation, maintenance and repair of charging stations for electric vehicles in buildings and parking spaces attached to buildings.** [...]
5. **Installation, maintenance and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings**
6. **Installation, maintenance and repair of renewable energy technologies, on-site.**
7. **Acquisition and ownership of buildings:** *Buying real estate and exercising ownership of that real estate.¹¹*

¹¹ Regulation (EU) 2020/852 of the European parliament and of the council of 18 June 2020 – Section 7

This analysis will focus on activities 1 and 7 in order to define a set of criteria. In particular, CRIF analyzed the requirement of “the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings” referred to Acquisition and ownership of buildings in Delegated Act. In addition, the same approach was used to analyze and examine the stricter requirements for new construction, or rather the construction of new high-performance buildings while adhering to the appropriate criterion: “The Primary Energy Demand (PED), defining the energy performance of the building resulting from the construction, is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council.”



Construction of new buildings

The Primary Energy Demand (PED), defining the energy performance of the building resulting from the construction, is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council (282). The energy performance is certified using an as built Energy Performance Certificate (EPC).



Acquisition and ownership of buildings

1. **For buildings built before 31 December 2020**, the building has at least an Energy Performance Certificate (EPC) class A. **As an alternative, the building is within the top 15 % of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.**
2. **For buildings built after 31 December 2020**, the building meets the criteria specified in Section 7.1 of this Annex that are relevant at the time of the acquisition.

Figure 10 – Technical screening criteria for determining the conditions under which construction and real estate activities contributes substantially to climate change mitigation

Therefore, for a correct evaluation of real estate assets, the necessary information set for evaluating the taxonomic alignment regarding climate change mitigation objective is:

- Building construction date;
- Size of the building;
- Type of building and its energetic systems;

- Location;
- Primary energy requirement (Primary Energy Demand or PED);
- Energy label, if an Energy Performance Certificate is present

The EU taxonomy has criteria based on an index of energy demand deriving from the EPC. The primary energy demand (PED) is defined as "*The calculated amount of energy needed to meet the energy demand associated with the typical uses of a building expressed by a numeric indicator of total primary energy use in kWh/m² per year and based on the relevant national calculation methodology and as displayed on the Energy Performance Certificate (EPC)*".¹² The PED is one of the pieces of information included in the EPC. Therefore, through an analysis of these certifications, it is possible to verify if the properties are eligible using the criteria represented in figure 10.

3.3. METHODOLOGY FOR IDENTIFYING ELIGIBILITY CRITERIA UNDER THE EU TAXONOMY

CRIF and CTI¹³ used statistical and expert approaches to define the PED thresholds referred to in sections 7.1 and 7.7 of the TSC. A precise definition of the thresholds that define the top 15% of most energy-efficient buildings or properties better than the so-called "nZEBs" (nearly Zero-Energy Buildings) are presented. The following methodology aims to identify the energy performance "threshold" below which a building can be considered energy-efficient, following the criteria represented in figure 10 and contributing to climate change mitigation.

An EPC database contains a significant data and information about each property for which an EPC has been released, and some of this information is needed to evaluate a property under the TSC. Especially the criteria for acquisition and ownership of building. By having such data, it is possible to identify the top 15% threshold accurately. Starting with an EPC, it is necessary and sufficient to have the EP_{gl,nren} (PED in the Italian EPC) value for each dwelling, EP_{gl,nren} expressed the non-renewable primary energy used by the construction. EPCs have been analyzed by CRIF and CTI to define this TOP 15% in terms of PED in the Italian context, following the insights of data. Aggregated data or simulations have been used for clusters of properties with a number of certificates not statistically significant. As an example, to identify the "threshold" for buildings having a performance 10% better than so-called "nZEBs" (nearly Zero-Energy Buildings), aggregated data has been used due to the lack of information. In fact, nZEBs buildings are a very energy-efficient subset of the national building stock, but they are not uniformly

¹² Regulation (EU) 2020/852 of the European parliament and of the council of 18 June 2020 – note 281

¹³ The CTI is the Italian Standardization Body for energy efficiency and EPC:
<https://www.cti2000.it/index.php?controller=sezioni&action=lista&id=1>

present on the territory and for all building types. For the categories for which it was possible to collect sufficient data even after a data quality process, such as residential properties in colder climates, the maximum consumption of properties classified as NZEB was calculated, and then the 90th percentile was subsequently selected. In cases of the insignificant sample, expert thresholds were obtained also thanks to aggregated data. The following two paths have been used according to the availability of data:

- data from the public SIAPE or regional database (aggregated EPC data);
- data from regional database records (data for individual EPCs).

For new buildings, the absence of a national threshold for these properties makes it necessary to establish one outside the regulatory framework, in a scenario where properties labelled as nearly zero-energy buildings represent less than 0.1% of the entire Italian building stock. A mere data analysis was not enough to define all these policies because of the lack of data and the heterogeneity of the sample. The CTI and CRIF's approach and result are robust because the thresholds are applicable for all buildings, thanks to the evaluations of experts in real estate energy efficiency. The thresholds, for new and existing properties, can be applied to certificates prepared using older calculation methods, dating back to before 2015 and before the introduction of the new Italian legislation for the energy efficiency of buildings (some of these certificates are valid until 2025).

The thresholds that identify the green share of the Italian building stock that is the most energy-efficient differ according to:

- the year of construction of the property (pre- and post-2021 as per the Taxonomy),
- the climate zone, and
- intended use.

In conclusion, multiple thresholds are defined, according to the property features.

3.4. EU TAXONOMY ELIGIBILITY CRITERIA

This paragraph illustrates the two technical screening criteria that CRIF used to evaluate the Mediolanum portfolio.

3.4.1. Construction of new building

Description of the activity

Development of building projects for residential and non-residential buildings by bringing together financial, technical and physical means to realise the building projects for later sale as well as the construction of complete residential or non-residential buildings, on own account for sale or on a fee or contract basis. [...]

Technical screening criteria - Substantial contribution to climate change mitigation

Constructions of new buildings for which:

1. *The Primary Energy Demand (PED), defining the energy performance of the building resulting from the construction, is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council (282). The energy performance is certified using an as built Energy Performance Certificate (EPC).*
2. *For buildings larger than 5 000 m², [...].*
3. *For buildings larger than 5 000 m², [...].¹⁴*

CRIF and the CTI focused on properties with a surface of less than 5,000 square meters, therefore the first point of the article reported above. The energetic system's performance is easily measurable and with the EPC is possible to determine if a property respects the criteria with reasonable certainty.

The thresholds defined by CRIF-CTI for newly built residential properties are shown in the table below:

Residential properties		Climate zone					
		A	B	C	D	E	F
Year of construction > 2020	NZEB – 10%						
	PED	45	45	50	55	70	70

¹⁴ Regulation (EU) 2020/852 of the European parliament and of the council of 18 June 2020 – 7.1

3.4.2. Acquisition and ownership of buildings

Description of the activity

Buying real estate and exercising ownership of that real estate. [...]

Technical screening criteria - Substantial contribution to climate change mitigation

Constructions of new buildings for which:

1. For buildings built before 31 December 2020, the building has at least an Energy Performance Certificate (EPC) class A. As an alternative, the building is within the top 15 % of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.
2. For buildings built after 31 December 2020, the building meets the criteria specified in Section 7.1 of this Annex that are relevant at the time of the acquisition.
3. Where the building is a large non-residential building [...] ¹⁵

The thresholds identified by CRIF and CTI did fully meet the requirements of the EU taxonomy. For large non-residential buildings there are additional monitoring criteria that are not subject to analyses of this report.

The identified thresholds are as follows:

Residential properties		Climate zone					
		A	B	C	D	E	F
Year of construction <= 2020	EPC Class	A					
	TOP 15% - PED	65	65	70	75	100	105

¹⁵ Regulation (EU) 2020/852 of the European parliament and of the council of 18 June 2020 – 7.7

3.5. MEDIOLANUM ELIGIBILITY CRITERIA FOR CONSTRUCTION OF NEW BUILDING

For buildings constructed after December 2020, Mediolanum applies criterion 7.1 of EU technical screening, adopting the thresholds defined above (see 1.4.1). New properties are eligible only if these are highly efficient, mortgages for new buildings are evaluated following this criterion. For buildings constructed before December 2020, Mediolanum applies criterion 7.7 of EU technical screening, adopting the thresholds defined above (see 2.4.2). DNSH criteria were not considered for this report.

Criteria	EPC available	EPC not available
Buildings built until 31 st Dec 2020	Technical screening criteria 7.7	Not eligible
Buildings built from 1 st Jan 2021	Technical screening criteria 7.1	Not eligible

4. MEDIOLANUM PORTFOLIO ANALYSIS

Under the criteria presented in the previous chapter, 5,271 eligible mortgages in the Mediolanum portfolio (following 'Portfolio') correspond to € 862,102,668.66 total current balance as at 30/06/2023.

The first section will provide an overview of mortgages on a geographical level and time of origination. In the second section, the report focuses on the eligible properties, and therefore mortgages.

4.1. OVERVIEW OF MEDIOLANUM'S ELIGIBLE BUILDINGS

The following charts show the regional distribution of eligible buildings and the relative current financing amount; all the constructions under assessment are residential.

Firstly, figure 11 provides the distribution of buildings by the ISTAT area¹⁶; similarly, figure 12 shows the share in terms of the current financing amount.

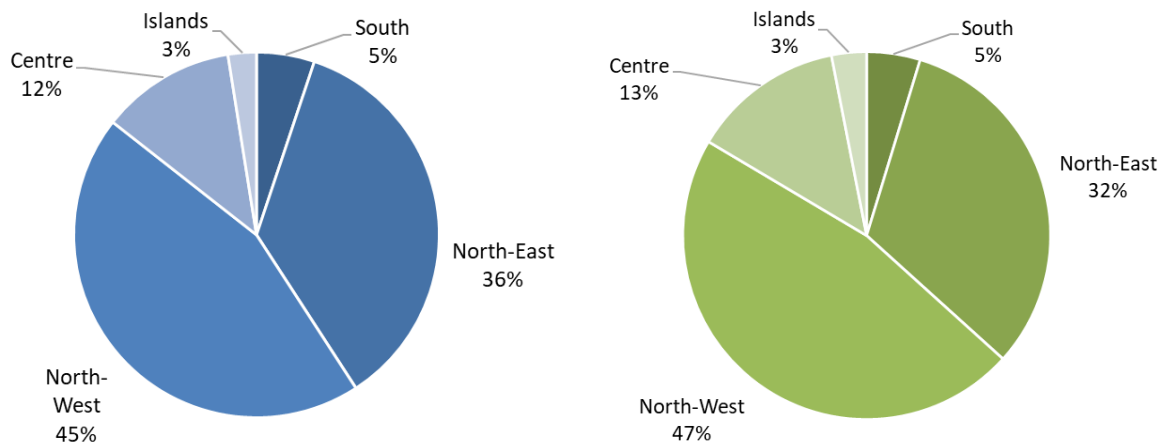


Figure 11 - Share of eligible properties according to the area breakdown

Figure 12 - Share of the current financing amount according to the area breakdown

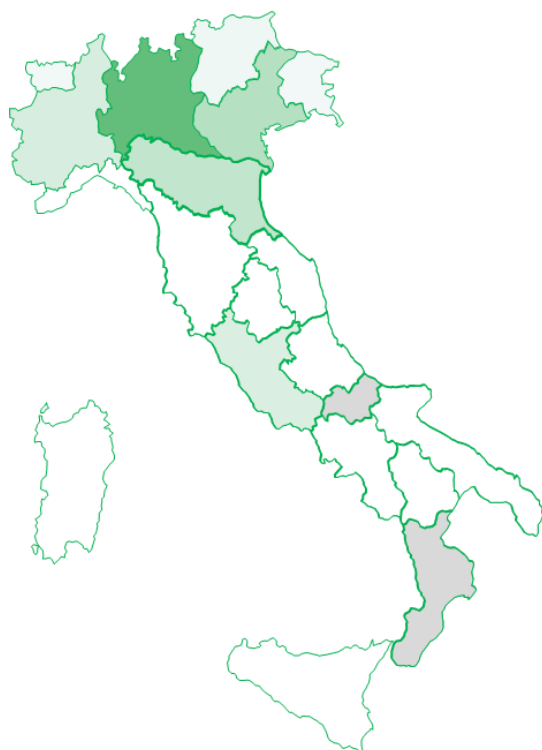
Source: CRIF elaboration on Mediolanum portfolio

Indeed, around 45% of the Portfolio is located in the North-West area, followed by North-East, with about 36% of the total. The central regions weigh approximately 12% while the South and Islands together about 8%. Overall, the Northern regions have a massive representation, counting for 81%. Accordingly, the following figure shows the

¹⁶ North-West: Liguria, Lombardia, Piemonte, Valle d'Aosta. North-East: Emilia-Romagna, Friuli Venezia Giulia, Veneto, Trentino-Alto Adige. Centre: Lazio, Marche, Toscana, Umbria. South: Abruzzo, Basilicata, Calabria, Campania, Molise, Puglia. Islands: Sardegna, Sicilia

overview of properties and the current financing amount by region. Moreover, the distribution of the Portfolio is analyzed through a colored scaled approach (see figure 13).

Figure 13 – Distribution (%) of properties by ISTAT breakdown and regions



Regione	Buildings	Current Ammount in mln €
Lombardia	3.912	328,03 €
Veneto	1.822	126,95 €
Emilia-Romagna	1.501	100,72 €
Piemonte	961	64,91 €
Lazio	889	78,37 €
Trentino - Alto Adige	361	29,19 €
Friuli - Venezia Giulia	305	18,97 €
Toscana	248	25,16 €
Sicilia	218	20,64 €
Calabria	185	13,01 €
Campania	143	11,84 €
Marche	128	8,33 €
Abruzzo	121	6,95 €
Liguria	101	9,43 €
Puglia	79	6,35 €
Umbria	65	3,64 €
Sardegna	62	5,86 €
Molise	32	1,46 €
Valle d'Aosta	25	1,31 €
Basilicata	13	0,99 €
Total	11.171	862,10 €

Source: CRIF elaboration on Mediolanum portfolio

The Lombardia is the most represented region, with around 35% of the buildings, closely followed by Veneto, approximately 16%, and Emilia-Romagna, 13%. Looking at the central area, Lazio weighs more than 8% of the whole Portfolio, while Calabria is the most represented in the southern region with 1.7%. Finally, 2.5% of the Portfolio belong to buildings in the islands.

4.2. APPLICATION OF ELIGIBILITY CRITERIA

This section applies the eligibility criteria to the Portfolios, starting from the following table that provides an insight into the eligible financing according to the eligibility criteria. About 49% of the portfolio was assessed based class A EPC, and 8% is in line with the NZEB-10% threshold, the taxonomy requirement for new construction.

Criteria	Number of loans	Current financing amount (€)
7.1 PED NZEB – 10%	406	88.647.222,05 €
7.7 PED TOP 15%	2.290	312.503.669,59 €
7.7 EPC CLASS A	2.575	460.951.777,02 €
Total	5.271	862.102.668,66 €

Table 5 - Overview of eligible financing per Criterion
Source: CRIF elaboration on Portfolio

The following table provides an insight into the eligible financing according to the years of origination.

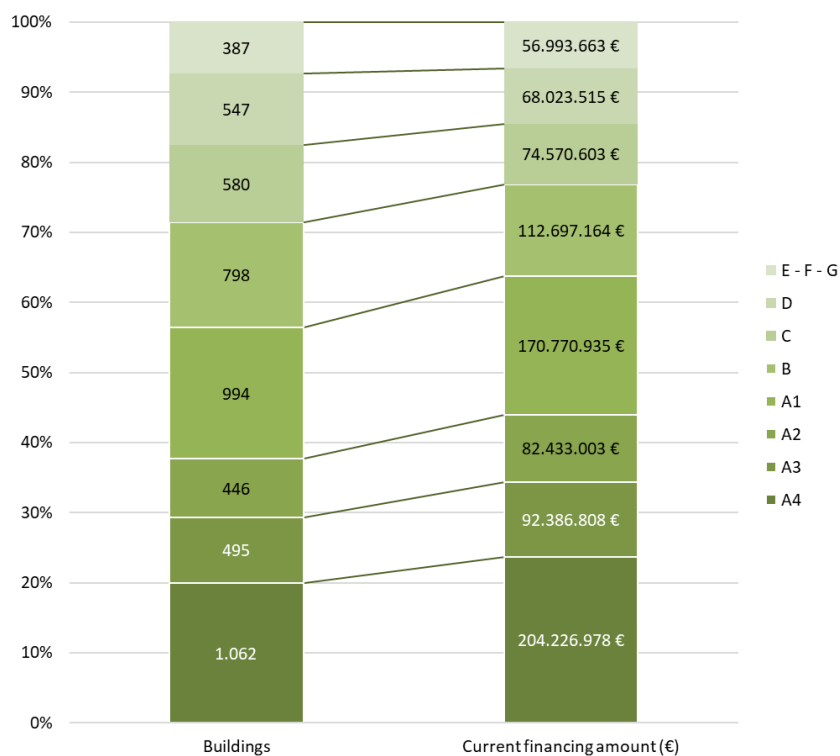
Table 6 - Overview of eligible financing per Criterion per year of origination
Source: CRIF elaboration on Portfolio

Loan origination	Number of loans	Current financing amount (€)
2007	2	135.170 €
2008	7	407.411 €
2009	10	915.757 €
2010	6	498.303 €
2011	8	769.607 €
2012	15	2.103.876 €
2013	40	3.877.087 €
2014	96	11.100.208 €
2015	107	12.127.997 €
2016	143	16.552.095 €
2017	229	31.190.573 €
2018	253	38.594.086 €
2019	391	64.378.599 €
2020	425	74.236.778 €
2021	1.373	223.991.706 €
2022	1.676	292.689.190 €
2023	490	88.534.225 €
Total	5.271	862.102.669 €

4.2.1. Eligible building by EPC

The eligible Portfolio consists of 11.171 buildings, and the next figure summarizes the EPC's and current financing amount. As the Portfolio contains EPCs issued before and after the *Requisiti Minimi* translated into law, bringing a new standardized labeling methodology, EPCs 'A', 'A+' are considered labeled as 'A1', as well as 'B+' from EPC 'B'.

Figure 14 – Distribution of EPCs for eligible loans and current financing amount under Criterion 1
Source: CRIF elaboration on Portfolio¹⁷



Among the eligible Portfolio, around 44% of buildings are B class properties or lower, but the current residual debt of those loans is around 36%. Conversely, buildings in class 'A' ('A4', 'A3', 'A2', 'A1', 'A') weight 56% of the Portfolio, in particular, 'A4' weight 20% and the equivalent financing amount is 24% for those buildings in class 'A', with 'A4' at 24%.

¹⁷ Buildings without EPC label (outbuildings of the residential ones) are excluded from the buildings count



CRIF is a global company specializing in credit bureau and business information, outsourcing and processing services, and credit solutions. Established in 1988 in Bologna (Italy), CRIF has an international presence, operating over four continents (Europe, America, Africa and Asia).

Via M. Fantin, 1-3 | 40131 Bologna, Italy

Tel. +39 051 4176111

Fax +39 051 4176010

Email info@crif.com

www.crif.com