TECHNICAL REPORT

MEDIOLANUM

POSITIVE CARBON IMPACT

Bologna, 31/10/2023

Contents

1. EMISSIONS METHODOLOGY

This section provides an overview of CRIF's methodology to estimate avoided CO_2 emissions of MEDIOLANUM's green buildings portfolio (following 'Portfolio').

The assessment relies on four pillars:

- Calculation of buildings' related greenhouse gas emissions;
- Identification of a national benchmark;
- Calculation of portfolio positive impact;
- Reporting measures.

1.1. Calculation of buildings' greenhouse gas emissions

The calculation of GHG emissions of Mediolanum's Green Buildings consists of three approaches:

1. The CO_2 emissions are available through a valid Energy Performance Certificate (following 'EPC'). In Italy, EPCs provide this information in a standard format. Estimated CO_2 emissions result from an automatic computation by professional software in line with existing national legislation on energy efficiency and the characteristics of the assets as provided by the real estate valuer.

   This approach is implemented for the larger share of the Portfolio.

2. The CO_2 emissions are estimated by assigning a benchmark value based on the national distribution specific to the energy class of the property.

1.2. Identification of a National benchmark

To address the problems related to the lack of building energy efficiency data through regional energy cadasters, the Ministerial Decree on 26/06/2015 introduced a new national database, SIAPE, managed by ENEA. The SIAPE database represents the most important available data pool on the energy efficiency of Italian real estate stock, and CRIF has identified it as the data source for national benchmarks.

The reference value for emissions of residential properties in Italy is 38,62 kg CO_2 per square meter per year. However, as shown on the left in figure 1, it varies according to the climatic zone.

The average energy consumption for residential properties at national level is 192,3 kwh per square meter per year. This parameter depends on the climatic zone, it is higher for zone "F" and lower for "A" and "B".

For this reason the national benchmark for both emission e consumption are determined taking into account the climatic zone.

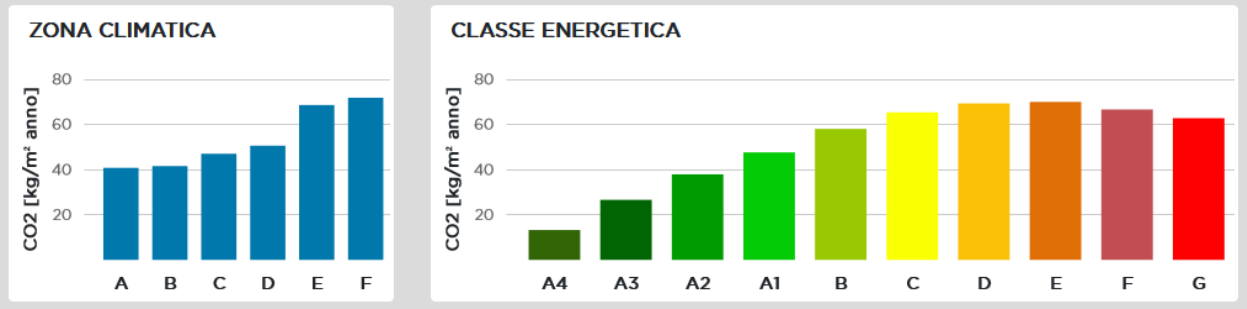

Figure 1 – Residential Buildings - Average of emissions for climate zone (zona climatica) and EPC label (classe energetica) from SIAPE portal

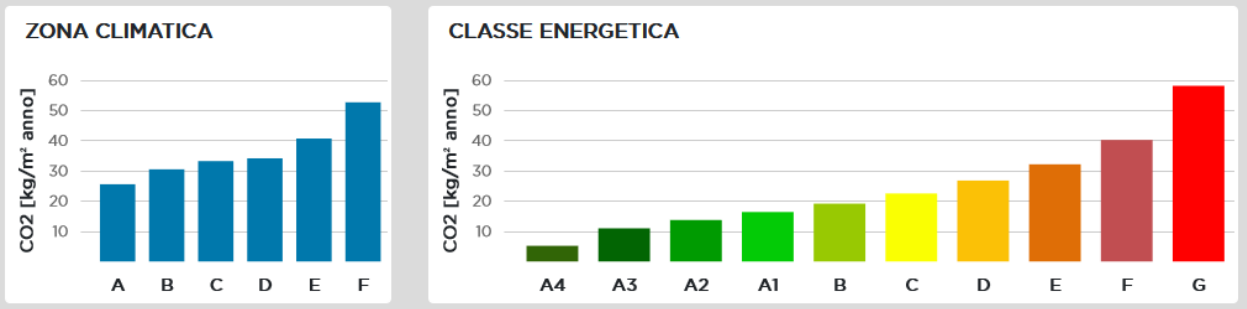

Figure 2 – Commercial Buildings - Average of emissions for climate zone (zona climatica) and EPC label (classe energetica) from SIAPE portal

1.3. Financed emissions

Intending to measure Mediolanum's financed emissions for mortgages for residential properties, CRIF's methodology is in line with PCAF[1] standard. Accordingly, the following steps are followed:

1.3.1. Filtering data

In order to examine records with the best data quality we applied the following filter:

- The initial appraisal amount has to be higher than 10,000 euros;
- Loans without positive outstanding debt are not evaluated.

Only the residential properties have been evaluated because the EPC is related to these properties and not to the garage or basement.

1.3.2. Attribution of emissions

The first step consists of the identification of a proper attribution factor: Loan-to-value (LTV)
Thus, the attribution is equal to the ratio of the outstanding amount at the time of GHG accounting (t) to the property value at loan origination[2] (t_0):

$$Attribution\ factor_t = \frac{Outstanding\ amount_t}{Property\ Value_{t_0}}$$

The attribution factor is constantly updated by changing the numerator following the mortgage repayment plan. The denominator remains constant over time, and it represents the whole value of properties (e.g. the sum of dwelling and garage values). A cap of 1 is applied to the attribution factor.[3]

[1] Available at: https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf, pag. 77-88.

[2] When the property value at origination is not feasible to obtain, financial institutions shall use the latest property value available and fix this value for the following years of GHG accounting (i.e., the denominator remains constant). The scope of this methodology is on-balance mortgages; off-balance are not included.

[3] The bank emission saving cannot be greater than the real one.

1.3.3. Financed emissions

The emissions of buildings are calculated as the product of a building's energy consumption and computed attribution factor as in the previous section:

$$Financed\ emissions = \sum_i^t Attribution\ factor_{i,t} \times Estimated\ emissions_{i,t}$$

Where, i = property in Mediolanum's portfolio at time t.

Estimated emissions' calculation relies on **Section 1.1**. In the applied methodology, no distinction is made between private or corporate mortgages. Concerning energy and emissions data, higher limits have been applied to limit errors in data. The limits for emissions are 80 kg per square meter per year, which is the average emissions of buildings in the worst energy class. Instead, the upper limit for energy consumption is 300 kWh, the average of buildings with poor efficiency.

1.3.4. Positive carbon impact

Starting from SIAPE's data, the portfolio's positive impact in terms of emission is calculated.

$$Positive\ Carbon\ Impact = [(\sum_i^t Attribution\ factor_{i,t} \times Benchmark\ emissions_{i,t}) - Financed\ emission] \times Building\ surface$$

The formula expresses the total amount of savings in kg of CO^2 for the guarantees under investigation, considering the attribution factor and a market benchmark. A cap of 2,000 and a floor of 20 square meters is applied to the building surface. In case of missing data, the surface has been estimated from the cadastral category, using the statistics provided by *Agenzia della Entrate.*

1.4. Reporting measures

Once the emissions of every building are known or estimated (section 1.1), an analysis of all the mortgage guarantees shows portfolio performance, and the difference with the national benchmark is executed (section 1.2). Finally, the financial impact of each contract is calculated (see section 1.3), and the following impact indicators show the portfolio features in terms of energy efficiency:

- **Positive carbon impact:** It measures the positive impact of lower carbon emissions by considering the attribution factor and a benchmark. It is expressed in tons per year.
- **Positive carbon impact per million euros invested:** It measures the positive impact per million euros invested in tons per year.

- **Energy-saving:** Portfolio energy savings are calculated starting from the EPC and the national benchmark information. The measure is obtained from the difference between actual data and benchmark and by multiplying the result for the surface

Allocation (mln €)	Positive carbon impact (tons)	Positive carbon impact (tons per 1 mln €)	Square metres	Energy saving (MWh)
1,000 €	20,000	20.0	1,200,000	100,000

Table 1 – Example of portfolio impact

2. POSITIVE CARBON IMPACT ON MEDIOLANUM'S PORTFOLIO

The positive carbon impact on MEDIOLANUM's portfolio, calculated according with the methodology described above, is shown in table 2 and 3.

Allocation mln €	Avoided Emission tons	PCI tons per mln €	Energy saving mWh	Square meters
862,10	**10.942,27**	**12,69**	**55.770,67**	**666.485,00**

Table 2 – Positive Carbon Impact of MEDIOANUM's eligible loans

Region	Allocation mln €	Avoided Emission tons	PCI tons per mln €	Energy saving mWh	Square meters
Lombardia	**328,0**	**3.479,4**	**10,61**	**16.916**	**213.896**
Veneto	**127,0**	**2.015,4**	**15,88**	**10.366**	**107.219**
Emilia-Romagna	**100,7**	**1.376,6**	**13,67**	**7.477**	**91.245**
Lazio	**78,4**	**688,7**	**8,79**	**3.630**	**43.675**
Piemonte	**64,9**	**1.193,7**	**18,39**	**5.859**	**68.837**
Trentino-Alto Adige	29,2	349,7	11,98	1.754	18.618
Toscana	25,2	229,8	9,13	1.208	15.414
Sicilia	20,6	341,7	16,55	1.689	22.456
Friuli-Venezia Giulia	19,0	296,6	15,63	1.755	20.988
Calabria	13,0	248,8	19,11	1.314	16.796
Campania	11,8	170,5	14,40	901	11.423
Liguria	9,4	64,1	6,81	369	5.218
Marche	8,3	118,4	14,21	602	8.130
Abruzzo	6,9	117,1	16,86	600	6.520
Puglia	6,3	88,3	13,91	446	5.442
Sardegna	5,9	52,5	8,96	289	3.631
Umbria	3,6	62,7	17,24	333	3.899
Molise	1,5	22,2	15,29	114	1.510
Valle d'Aosta	1,3	12,6	9,65	67	745
Basilicata	1,0	13,3	13,46	82	823

Table 3 – Positive Carbon Impact of MEDIOLANUM's eligible loans by regions

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).

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