

PCAF Project: Financing towards net-zero buildings

Database Launch Webinar

19th September 2023



Agenda

	PROJECT OVERVIEW	
	OVERVIEW OF DATABASE UPDATES	
CO ₂	EMBODIED EMISSIONS	
	PANEL DISCUSSION	
	Q & A	
	CONTACT DETAILS	





Project Overview

PCAF launched a new project in 2021/2022, supported by the Laudes Foundation

Financing towards net-zero buildings **A PCAF project**

Addressing the need to mobilize the financial industry to accelerate the transition of European buildings to net zero

Developed a <u>European buildings</u> <u>emission factor database</u> (publicly available)



The PCAF project 'Financing towards net zero buildings' responds to the increasing need for accelerating the building transition



37% of global GHG emissions stem from buildings



97% of the EU building stock is energy inefficient Need for massive investments in renovations and new buildings

to meet the Paris Agreement and reach net-zero emissions by 2050



Financial institutions require clear guidance

to accelerate the building transition and to report on the positive impact of their actions in a transparent, robust, and standardized way

The project addresses the need to mobilize the financial industry to accelerate the transition of European buildings to net zero







Overview of database updates

Let's start with a brief overview of the European Building Emission Factor database



The continual refinement and enhancement of calculating financed emissions plays a vital role in informing the net zero journey and strategic planning of countless businesses. With PCAF developing and enriching its database, firms can take greater confidence that their estimates are based on the latest reliable emissions factors.

Matthew Bullivant (Direct, ESG Strategy) - Oak North

August 2023

What does it include?

- Emission factors for Mortgages and CRE
 - Updated Emission factors (baseline 2020) (tCO2_e per building, per m² or per EPC rating)
 - Energy intensity factors (MWh per building, per m² or per EPC rating)
 - Guidance on embodied carbon assessment and a limited set of embodied carbon emission factors
 - Broad range of **building types** across residential and commercial

How can it be used?

- Starters can use it to start-up, measure and disclose their numbers
- others use it to **monitor the progress** and adjust the strategy accordingly, if required.

The database interface is user-friendly and easy to navigate

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	# records: 15,320			# records filtered: 15,320			# records selected: 0									
	Action	ns Id	E	Emission factor type	Country Y	Data level 1 information	Data level 2 information	EPC Rating	Emission factor functional unit (name) Y	Emission factor functional unit (unit) Y	Emission factor (name)	Emission factor (unit)	PCAF data quality score	Emission factor	Emission factor methodology description	Emission factor source 1
	[] =	29	9	Emissions	Bulgaria	Non-Residential buildings	Retail - Shopping Center	n.a.	Floor area	m²	Emission Intensity per m ²	tCO2e/m²	4	0.0723	The country-specific emission intensity per building type from CRREM Global more	CRREM Global Pathways
2	N =	30	C	Emissions	Bulgaria	Non-Residential buildings	Retail - Strip Mall	n.a.	Floor area	m²	Emission Intensity per m ²	tCO2e/m²	4	0.0777	The country-specific emission intensity per building type from CRREM Global more	CRREM Global Pathways
)	n =	31	1	Emissions	Bulgaria	Non-Residential buildings	Hotel	n.a.	Floor area	m²	Emission Intensity per m ²	tCO2e/m²	4	0.0608	The country-specific emission intensity per building type from CRREM Global more	CRREM Global Pathways
)	n=	32	2	Emissions	Bulgaria	Non-Residential buildings	Industrial distribution warehouse	n.a.	Floor area	m²	Emission Intensity per m ²	tCO2e/m²	4	0.0286	The country-specific emission intensity per building type from CRREM Global more	CRREM Global Pathways
)	N =	33	3	Emissions	Bulgaria	Non-Residential buildings	Healthcare	n.a.	Floor area	m²	Emission Intensity per m ²	tCO2e/m²	4	0.0799	The country-specific emission intensity per building type from CRREM Global more	CRREM Global Pathways
נ	N =	34	4	Emissions	Bulgaria	Non-Residential buildings	Leisure and sports facilities	n.a.	Floor area	m²	Emission Intensity per m ²	tCO2e/m²	4	0.0761	The country-specific emission intensity per building type from CRREM Global more	CRREM Global Pathways

The European Buildings Database contains average building emissions and energy intensities, in line with the PCAF Standard

- The European Buildings Database contains:
 - ✓ 62,400 data points
 - ✓ Emission factors and energy intensities
 - ✓ Data for 34 European countries
 - A standardised building categorisation with 11 building types
 - ✓ User guide and methodology documents
- The dataset relies on the following data sources:
 - **CRREM Global Pathways:** floor area emissions and energy intensities
 - GLOBUS building model: average building size
 - Country-specific energy labels

PCAF METHODOLOG MORTGAGES & COM ESTATE	GIES FOR IMERCIAL REAL	DESCRIPTION OF EMISSIC FACTORS PROVIDED	DN
	Score 1		Covered by the European Buildings Database
Option 1: Actual building emissions	Score 2	Emissions intensities of the e grid (tCO2e/MWh) to be use combination with energy consumption data	energy d in
Option 2: Estimated	Score 3	Energy-label <i>dependent</i> energy-label <i>dependent</i> energy-label <i>dependent</i> energy en unit area (tCO2e/m ²)	ergy and floor
based on floor area	Score 4	Energy-label <i>independent</i> e and emissions intensities per floor area (tCO2e/m ²)	nergy r unit
Option 3: Estimated building emissions based on number of buildings	Score 5	Energy and emissions intens building unit (tCO2e/#)	ities per

Emission factors have been updated in accordance with recent changes to the CRREM Global Pathways

- Aligning with the approach followed by SBTi, CRREM has excluded transmission & distribution (T&D) losses from their data
- The updated EFs have reduced carbon intensities.
 Overall, the updated CRREM values have decreased
 20% on average, compared to the first version
- CRREM intensities are provided for 2020 up until 2023. It is recommended to use the CRREM factors from 2020, since these factors are based on actual baseline information, they are in-line with a conservative accounting approach



From CRREM Global Pathways Methodology: Comparison of the (total) decarbonisation pathways between the first version and the 2022 update

Energy label information for each country was individually collected and intensities were harmonized

- Since the previous update, we have **added four countries to the Database**, and have updated a number of our data sources. New countries:
 - 1. Serbia
 - 2. Kosovo
 - 3. Bosnia & Herzegovina
 - 4. Turkey
- We mapped energy label building categorizations to the CRREM building types to harmonize the dataset.
- It should be noted that **the scope and definitions of the energy labels vary between countries**, (e.g. some energy labels referring to final energy and some to primary energy).



From PCAF European Buildings Database: Countries included in the provided datasets





Embodied emissions

We have expanded the project scope in order to address the growing importance of embodied emissions

i Embodied Circular Until now, PCAF methodologies only specified | impact economy reporting on operational emissions for buildings Bevond Constructi Use End of life Product (i.e. from energy consumption) buildina stage on stage stage stage lifecycle (A1-A3) (C1-C4) (A4-A5) (B1-B7) (D) While the significance of embodied emissions is growing – partly due to decreasing operational emissions - there is still little consensus on the role Manufacturing of the financial sector in treating embodied emissions In this report, we have provided an overview of the (limited) research available on embodied emissions Operational impact B6: Operational energy **B7: Operational water** Embodied emissions are defined by the Building life cycle assessment stages (based on EN

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A suggested accounting methodology for the treatment of embodied emissions is included in the update

- In the guidance, it is suggested financial institutions account for:
 - The annual financed embodied emissions of buildings from financed activities occurring within the reporting year
 - 2. Embodied emissions occurring within the product and construction phase of the building life cycle, i.e. A1 to A5 only
- The guidance also provides a data hierarchy similar to the data quality scoring system for the other asset classes
- The guidance was developed through **consultation of an external advisory group** of key stakeholders, as well as in collaboration with in-house experts



An initial dataset with emissions intensities for construction materials and for whole buildings, is provided

- We harmonized data from 5 key studies/datasets, which included data from EU-ECB database, DGNB, NoIICO₂, and One-click LCA
- The dataset contains 604 data points, across 8 countries and 5 building types
- The data we collected was predominantly from north-western Europe, due to lack of availability in other regions

		Average	Median	Max	Min		Location
Location	Building type	(kgCO ₂ e/m	(kgCO₂e/m	(kgCO₂e/m	(kgCO₂e/m ▼	# data poin 🍸	
Total	Single-family houses	181	233	390	-400	74	Austria
Total	Apartment blocks	262	261	489	-58	138	Belgium
Total	Offices	384	342	775	73	106	
Total	Educational Buildings	306	294	428	182	22	Denmark
Total	Other energy consumi	383	347	909	87	42	Finland
Austria	Offices	320	273	424	251	5	
Austria	Other energy consumi	327	352	367	261	3	Germany
Belgium	Single-family houses	227	251	281	158	36	Netherlands
Belgium	Apartment blocks	287	319	489	145	69	
Denmark	Single-family houses	151	174	279	-221	11	Sweden
Denmark	Apartment blocks	190	228	373	-58	27	Total
Denmark	Offices	255	257	439	73	28	
Denmark	Educational Buildings	182	182	182	182	1	United Kingde
Denmark	Other energy consumi	222	202	418	87	5	
Finland	Single-family houses	43	50	390	-400	16	
Finland	Apartment blocks	324	306	440	282	12	
Finland	Offices	330	326	402	284	10	
Finland	Educational Buildings	294	289	337	277	10	
Finland	Other energy consumi	387	357	630	288	11	
Germany	Apartment blocks	400	400	400	400	1	
Germany	Offices	484	446	775	275	48	
Germany	Other energy consumi	340	317	398	311	6	
Netherlands	Single-family houses	261	238	335	207	5	
Netherlands	Apartment blocks	222	218	335	142	24	
Netherlands	Offices	308	311	379	237	6	
Netherlands	Educational Buildings	244	244	272	217	2	
Netherlands	Other energy consumi	380	314	906	256	10	
Sweden	Single-family houses	261	261	326	200	6	







Panel discussion

Panel discussion | Let's introduce today's panelists



Martin Zistler

Lead ESG analyst - Nordea

- Works with **ESG-related opportunities** and **risks** in the construction and real estate sector
- Supports customers in their green transitions and management of sustainability matters
- Martin has prior experience in consulting and holds an M.Sc. in Finance from the Aalto School of Economics



Matthew Bullivant

Director of ESG Strategy – OakNorth

- Advises industry bodies, standards, and policy groups on net zero, decarbonizing the built environment, and how banks can support SMEs with sustainability
- Matthew has a wealth of experience working within sustainability, with expertise ranging from regulation, climate risk, and carbon accounting, to stakeholder engagement

Panel discussion | The panelists will answer questions related to the database, embodied emissions and the wider project

Any questions related to the panel discussion? Please put it them in the chat





Q&A | Let's take some time to answer questions







Contact details











Thank you.