deepki

O HI AA A

DECEMBER 2023 REVIEWED AND VALIDATED BY



II

CRREM and pathways in Deepki Ready™

Disclaimer: As of today, the Deepki Ready[™] platform is compliant with the CRREM pathways and adapted to CRREM methodology. This document will be updated with the future major releases of the CRREM pathways and of the Deepki Ready[™] platform. Reviewed and validated by CRREM.

The Carbon Risk Real Estate Monitor (CRREM) provides the Real Estate industry with transparent, science-based decarbonization pathways aligned with the Paris Climate Goals of limiting global temperature rise well below 2°C, with ambition towards 1.5°C.

With the release of the new SBTi-aligned¹ pathways, the CRREM decided to embed in its tool only the 1.5 °C pathways, while the 2°C pathways (not Paris aligned and not SBTi aligned) are provided separately and serve the sole purpose of (transition) risk management.

Deepki is an official partner of the CRREM initiative and, in this context, is in constant communication with regard to data sources and methodology of the CRREM Global Energy and Decarbonization Pathways. These elements can be used by Deepki to build innovative products and offer them to its clients while benefiting from the expertise of CRREM.

Deepki retrieves data from the CRREM Global Pathways 1.5 °C which provides for each country and each building type (Residential and Commercial assets within the CRREM scope) an expected energy, CO_2 -only, and Greenhouse Gases (GHG) intensity² (values per square meter) for the next 30 years, to reach the Net-Zero emissions for the Real Estate sector in 2050.

Country 💌	Category 💌	objective_name 💌	Unit 💌	2020 💌	2021 💌	2022 💌	2023 💌	2024 💌	2025 💌	2026 💌	2027 💌	2028 💌	2029 💌	2030 💌
Spain	Collective Housing	CRREM_v2_scenario_1.5	kgCO2eq/m2	16,4	15,3	14,0	12,8	11,7	10,6	9,6	8,6	7,7	6,8	6,0
Sweden	Collective Housing	CRREM_v2_scenario_1.5	kgCO2eq/m2	3,8	3,6	3,4	3,1	2,9	2,7	2,4	2,2	2,0	1,8	1,7
United Kingdom	Collective Housing	CRREM_v2_scenario_1.5	kgCO2eq/m2	27,3	25,5	23,4	21,5	19,6	17,8	16,0	14,4	12,9	11,5	10,1
Croatia	Collective Housing	CRREM_v2_scenario_1.5	kgCO2eq/m2	21,7	20,5	19,0	17,5	16,0	14,7	13,3	12,0	10,8	9,7	8,6
Switzerland	Collective Housing	CRREM_v2_scenario_1.5	kgCO2eq/m2	23,6	22,0	20,2	18,5	16,8	15,3	13,7	12,3	11,0	9,8	8,6
Norway	Collective Housing	CRREM_v2_scenario_1.5	kgCO2eq/m2	4,1	3,9	3,6	3,3	3,1	2,8	2,6	2,4	2,1	1,9	1,8
Austria	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	36,0	33,8	31,2	28,6	26,2	24,0	21,7	19,6	17,7	15,8	14,0
Belgium	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	51,7	48,7	45,2	41,7	38,4	35,3	32,0	29,1	26,2	23,5	20,8
Bulgaria	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	56,7	52,9	48,5	44,3	40,3	36,6	32,9	29,5	26,4	23,4	20,5
Republic of Cyprus	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	135,4	125,8	114,7	104,1	94,0	84,8	75,6	67,2	59,5	52,2	45,4
Czech Republic	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	110,5	103,9	96,1	88,4	81,1	74,2	67,2	60,7	54,6	48,7	43,0
Denmark	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	31,0	29,0	26,7	24,5	22,4	20,4	18,4	16,6	14,9	13,3	11,7
Estonia	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	199,0	184,7	168,6	153,2	138,8	125,6	112,3	100,2	89,0	78,5	68,5
Finland	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	50,6	47,1	43,0	39,2	35,6	32,3	29,0	25,9	23,1	20,5	17,9
France	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	23,8	22,2	20,5	18,7	17,1	15,6	14,1	12,7	11,4	10,1	9,0
Germany	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	53,9	50,7	46,9	43,2	39,6	36,3	32,9	29,7	26,8	23,9	21,2
Hungary	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	54,6	51,2	47,1	43,1	39,2	35,7	32,1	28,8	25,7	22,8	20,0
Ireland	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	98,7	92,2	84,5	77,2	70,1	63,7	57,1	51,2	45,6	40,4	35,3
Italy	Office	CRREM_v2_scenario_1.5	kgCO2eq/m2	45,4	42,4	39,0	35,7	32,5	29,7	26,7	24,0	21,5	19,2	16,9

Figure 1: Extract of the targets derived from the CRREM Global Pathways (kgCO₂e/sqm).

² Within the CRREM tool, CO_2 -only intensity takes into consideration only the CO_2 emissions of a building, while the GHG intensity accounts for CO_2 + F-gases (fugitive emissions due to refrigerant losses).



¹ The pathways are aligned at property-type and country level, but the SBTi requires users of its tool to enter information at the company level to derive company-specific pathways by applying the Sectoral Decarbonization Approach (SDA).

Deepki then matches this data with the country and building type information of the assets in its database in order to show the CRREM trajectories in the Deepki Ready^M platform, along with the real and projected energy and CO₂eq emissions intensity for each asset.



Figure 2: Screenshot from Deepki Ready[™]: Carbon Pathway

The actual CO₂eq intensity of each asset is calculated in Deepki Ready[™] from energy consumption according to "location-based" and/or "market-based" approaches. The tool follows the guidelines of internationally recognized standards like the GHG Protocol® and ISO 14064.

Deepki Ready[™] also allows the collection of the refrigerant losses and the calculation of the corresponding emissions (F-gases) in order to be aligned with the CRREM GHG Pathway.

With regards to the location-based approach, Deepki Ready[™] has adapted its own model to meet the changes of CRREM v2 electricity emission factors, notably the exclusion of transmission and distribution losses, and allows its users to select, among other possibilities, the CRREM's v2 country specific electricity emission factors. Furthermore, users who want to assess their assets' performance against CRREM v1 pathways still have the chance to use the corresponding emission factors from CRREM v1.

For users who have selected the CRREM electricity emission factors, Deepky Ready[™] gives the option to choose whether to adjust the projected emissions intensity considering the effect of the electricity grid decarbonization in the coming years. The adjustment based on the effect of climate change is currently under investigation by Deepki and will be discussed with CRREM.

Method to calculate your pathway

- O CRREM emission factors without hypothesis on grid decarbonization
- O CRREM emission factors with hypothesis on grid decarbonization
- C Emission factors from carbon accounting methodology

Figure 3: Screenshot from Deepki Ready™: Emission Factors and grid decarbonization selection.

Once the emissions of the building (CO_2 -only or GHG) are known, the emissions per square meter (kg CO_2 eq/m²) can be calculated using the relevant variable input by the users during the platform set-up.

This will allow to compare the carbon intensity of each asset against the CRREM pathways in order to assess how they perform and evaluate the "risk of stranding³".

The CRREM's asset types that can be tracked in Deepky Ready[™] are as follows:

- Residential (both Single-family and Multi-family)
- Retail High Street
- Retail Shopping Center
- Retail Warehouse
- Office
- Hotel
- Healthcare
- Industrial, Distribution Warehouse (both warm and cold)
- Lodging, Leisure & Recreation

As of today, Deepki Ready[™] doesn't manage by default "Mixed-use" type, for which CRREM mandates users to state the floor area share of each building type that makes it up, as a percentage of the total gross internal area. Nevertheless, Deepki is able to manage mixed-use assets through a dedicated configuration in the platform.

Assets' floor area must be reported in Deepki Ready[™] as total gross internal area, measured in IPMS 2 (which is the international standard for floor area alignment⁴), while the list of the countries for which a carbon/energy pathway is provided by CRREM (and therefore can be implemented in the platform) is as follows (next page):

(https://www.crrem.eu/wp-content/uploads/2022/12/CRREM-initiative-definition-on-stranding-risk-andstranded-assets-in-the-build-environment.pdf)

⁴ For further references visit: <u>https://www.rics.org/globalassets/rics-website/media/upholding-professional-standards/sector-standards/real-estate/rics-property-measurement/rics-property-measurement-2nd-edition-rics.pdf</u>



³ The term 'stranding risk' comprises potential write-downs due to direct climate change impacts and devaluations related to the transition to a 'low-carbon economy'

Country codes

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Republic of Cyprus
CZ	Czech Republic
DK	Denmark
EE	Estonia
FI	Finland
FR	France
DE	Germany
EL	Greece
HU	Hungary
IE	Ireland
IT	Italy
LV	Latvia
LT	Lithuania
LU	Luxembourg
MT	Malta
NL	Netherland
PL	Poland
PT	Portugal
RO	Romania

Figure 4: Screenshot from CRREM Global Pathway tool: List of countries.

Pathways at the sub-regional level are available for the USA, covering the 15 largest cities, while for Australia a specific implementation in the platform is needed to take advantage of the sub-regional pathways (the same occurs in the CRREM tool, which does not provide by default these pathways for Australia).

Furthermore, the expected carbon intensity (CO2eq/m²) corresponding to the country and building type (CRREM source) is multiplied by the floor area to get the expected CO2eq emissions of the asset at year N (Absolute emissions). Those figures are then aggregated at the portfolio level to obtain the global CRREM Pathway for our clients.

The same analysis is done for the energy pathway, taking into consideration the real and expected building's energy consumption per square meter (kWh/m²) and the energy pathways calculated according to the CRREM methodology.

Deepki Ready[™] also enables users to visualize at a glance their "Stranded Assets", meaning those assets that are at risk of premature write-downs, devaluation, and early obsolescence.

deepki

This Key Performance Indicator (KPI) can be shown in terms of floor area (m²), number of assets (count), net asset value (EUR), and list of assets that are considered stranded because of their poor performance.



To improve the performance of the analyzed assets, Deepki Ready's users have the choice between a list of alternative actions (building renovation, installation of energy management equipment, choice of energy supply, etc.) with the aim of decreasing the building's energy consumption and its associated carbon emissions.

This will translate into a drop in the energy and carbon intensities, shifting the point of stranding in the future or even avoiding it - in other words, de-risking the portfolio and making it 1.5 degrees compliant and more resilient.

On the other hand, if no investment plan is declared in the Deepki Ready[™] platform, the projected energy consumption is equal to the last collected consumption, while for the carbon intensity, the projection will consider the effect of the grid decarbonization.

The economic commitment of the investments done and planned until 2050 is shown through the Investments graph in the Deepki Ready's platform.







INVESTMENTS IN TIME

About Deepki

Founded in 2014, Deepki has developed a SaaS solution that uses data intelligence to guide real estate players in their net zero transition. The solution leverages customer data to improve assets' ESG (Environmental, Social and Governance) performance and maximize asset value. Deepki operates in 52 countries, with over 400 team members across offices in Paris, London, Berlin, Milan and Madrid.

The company serves clients including Generali Real Estate, SwissLife Asset Managers and the French government, helping to make their real estate assets more sustainable at scale. In March 2022 Deepki raised €150 million in a Series C funding round which was jointly led by Highland Europe and One Peak Partners. Other investors include Bpifrance, through their Large Venture fund, and Revaia.





Deepki UK LTD
120 New Cavendish Street
W1W 6XX London
United Kingdom

𝐾 +44 207 150 7320 **@** contact@deepki.com **⊕** www.deepki.com

