

CRREM and pathways in Deepki Ready™

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Disclaimer

As of today, Deepki Ready™ platform is compliant with CRREM tool version 1.20, and will be updated with the new CRREM version (aligned with The SBTi) once it is available for the market.

The Carbon Risk Real Estate Monitor (CRREM) provides the real estate industry with transparent, science-based decarbonization pathways aligned with the Paris Climate Goal of limiting global temperature rise to 2°C, with ambition towards 1.5°C. Pathways for both scenarios can be applied alternatively.

Deepki is an official partner of the CRREM initiative and in this context has direct access to the regularly updated data and methodology of the CRREM Global Decarbonization Pathways and CRREM Global Energy 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, that provides for each country and each building type (Residential and Commercial assets within the CRREM scope) an expected carbon intensity per square meter for the next 30 years, to reach the Net-Zero emissions for the Real Estate sector in 2050.

Country	Typology	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
DE	Office	95,0	90,3	86,3	82,6	79,1	75,7	72,4	69,1	65,9	62,7	59,7	56,7	53,8
DE	Retail High Street	107,7	102,4	97,8	93,7	89,7	85,8	82,1	78,3	74,7	71,1	67,6	64,2	61,0
DE	Retail, Shopping Center	84,5	80,3	76,7	73,4	70,3	67,3	64,4	61,5	58,6	55,8	53,0	50,4	47,8
DE	Retail, Warehouse	91,3	86,8	82,9	79,4	76,1	72,8	69,6	66,5	63,4	60,3	57,4	54,5	51,8
DE	Hotel	84,5	80,4	76,8	73,6	70,5	67,5	64,6	61,7	58,9	56,1	53,4	50,8	48,2
DE	Industrial, Distribution Warehouse	39,7	37,7	36,0	34,5	33,0	31,6	30,2	28,9	27,5	26,2	24,9	23,7	22,5
DE	Healthcare	98,4	93,7	89,6	85,8	82,3	78,8	75,4	72,1	68,8	65,6	62,5	59,4	56,5
DE	Lodging, Leisure & Recreation	91,3	86,8	83,0	79,5	76,2	72,9	69,8	66,6	63,6	60,5	57,6	54,8	52,0
FR	Office	21,5	20,6	19,8	19,1	18,4	17,7	17,1	16,4	15,7	15,1	14,5	13,8	13,2
FR	Retail High Street	20,5	19,6	18,9	18,2	17,6	17,0	16,3	15,7	15,1	14,5	13,9	13,3	12,8
FR	Retail, Shopping Center	16,9	16,3	15,6	15,1	14,5	14,0	13,5	13,0	12,5	12,0	11,5	11,0	10,5
FR	Retail, Warehouse	21,5	20,6	19,9	19,1	18,4	17,8	17,1	16,4	15,8	15,1	14,5	13,9	13,3
FR	Hotel	30,4	29,1	28,0	26,9	25,9	24,9	24,0	23,0	22,1	21,1	20,2	19,3	18,4
FR	Industrial, Distribution Warehouse	14,0	13,4	12,8	12,3	11,9	11,4	11,0	10,5	10,1	9,6	9,2	8,8	8,3
FR	Healthcare	53,2	50,9	48,9	47,0	45,2	43,4	41,7	39,9	38,2	36,5	34,9	33,3	31,7
FR	Lodging, Leisure & Recreation	34,3	32,8	31,5	30,3	29,2	28,0	26,9	25,8	24,8	23,7	22,6	21,6	20,6

Figure 1: Extract from the CRREM Tool (kgCO2e/sqm)

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™ platform, along with the real and projected CO₂eq emissions intensity for each asset.

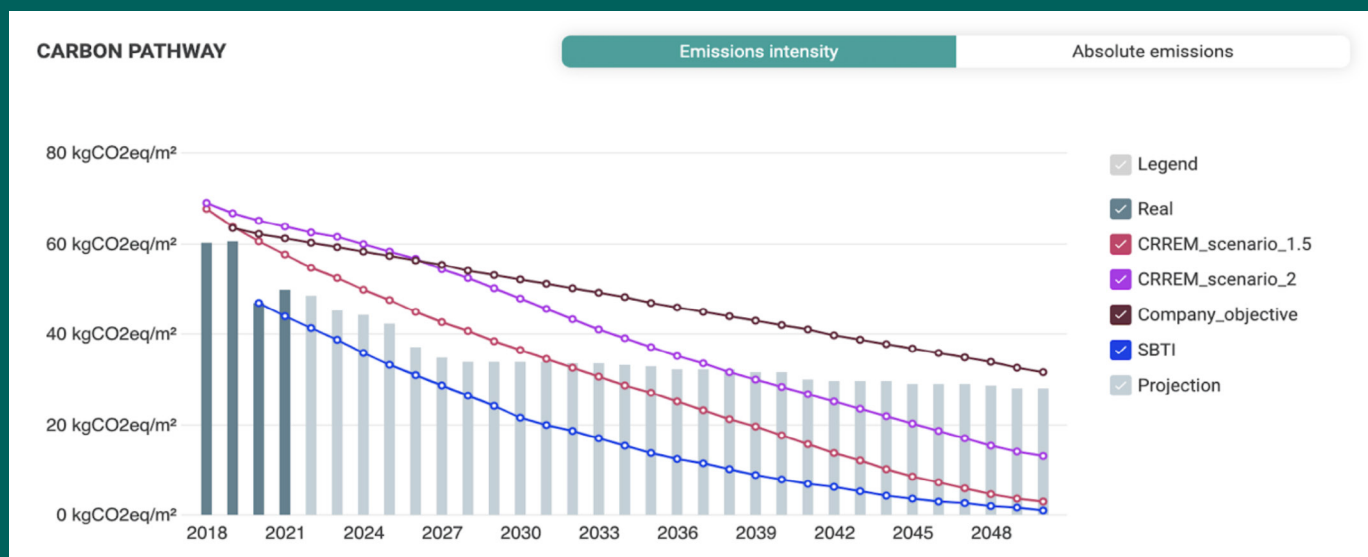


Figure 2: Screenshot from Deepki Ready TM for Carbon Pathways

The actual greenhouse gas emissions (GHG) 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.

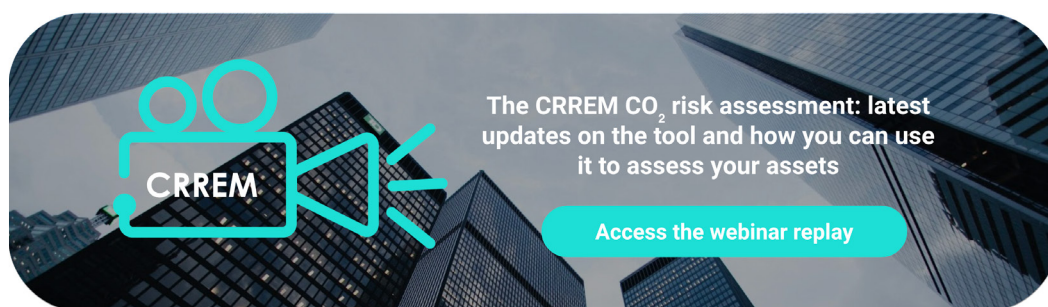
The “location-based” approach calculates CO₂eq emissions using national or local emission factors in order to reflect the physical reality of GHG emissions associated with the national energy mix. On the other hand, the “market-based” calculates the CO₂eq emissions from the information provided by each supplier, and considers, if necessary, the “renewable” nature of the energy in cases where the investor is purchasing green energy.

Deepki Ready™ also allows estimating the emissions related to refrigerants (F-gases) in order to be aligned with the CRREM methodology which takes into account these important greenhouse gases.

With regards to the location-based approach, Deepki Ready™ uses, among other possibilities, the CRREM’s country-specific emission factors to calculate the carbon emissions for electricity and heating networks.

Once all GHG emissions of the building are known, the emissions per square meter (kg CO₂eq/m²) can be calculated, which allows comparing the carbon intensity of each asset against the CRREM pathways, in order to assess how they perform and evaluate the “risk of stranding”¹.

The projected emission intensity, instead, takes into account only the last annual emission intensity of an asset. At the moment, no climate or electricity grid decarbonization adjustments are considered within the Deepky Ready™ platform.



¹ 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’ (<https://www.crrem.eu/wp-content/uploads/2022/12/CRREM-initiative-definition-on-stranding-risk-and-stranded-assets-in-the-build-environment.pdf>).

The CRREM's asset types that can be tracked in Deepky Ready™:

- Retail High Street
- Retail Shopping Center
- Retail Warehouse
- Office
- Hotel
- Healthcare
- Industrial, Distribution Warehouse
- Residential (both Single-family and Multi-family)

As of today, Deepki Ready™ doesn't manage "Mixed-use" type, for which CRREM mandates users to state the floor area share of each building type that makes it up, stated as a percentage.

Assets' floor area must be reported in the Deepki Ready™ platform as total gross internal area, measured in IPMS 2 (which is the international standard for floor area alignment¹), 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:

¹ For further references visit: <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>

Country codes

AT	Austria	SK	Slovakia	HU	Hungary	CHI	China
BE	Belgium	SI	Slovenia	IE	Ireland	HK	Hong Kong
BG	Bulgaria	ES	Spain	IT	Italy	IND	India
CY	Republic of Cyprus	SE	Sweden	LV	Latvia	JAP	Japan
CZ	Czech Republic	UK	United Kingdom	LT	Lithuania	MAL	Malaysia
DK	Denmark	HR	Croatia	LU	Luxembourg	MEX	Mexico
EE	Estonia	CH	Switzerland	MT	Malta	NZL	New Zealand
FI	Finland	NO	Norway	NL	Netherlands	PHI	Philippines
FR	France	AUS	Australia	PL	Poland	SGP	Singapore
DE	Germany	BRA	Brazil	PT	Portugal	KOR	South Korea
GR	Greece	CAN	Canada	RO	Romania	USA	USA

Figure 3: Screenshot from CRREM Global Pathway tool: List of countries

Furthermore, the expected carbon intensity (kg 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.

Stranded assets & investments

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), instead of the carbon emission intensity, and the energy pathways calculated by CRREM.

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

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.

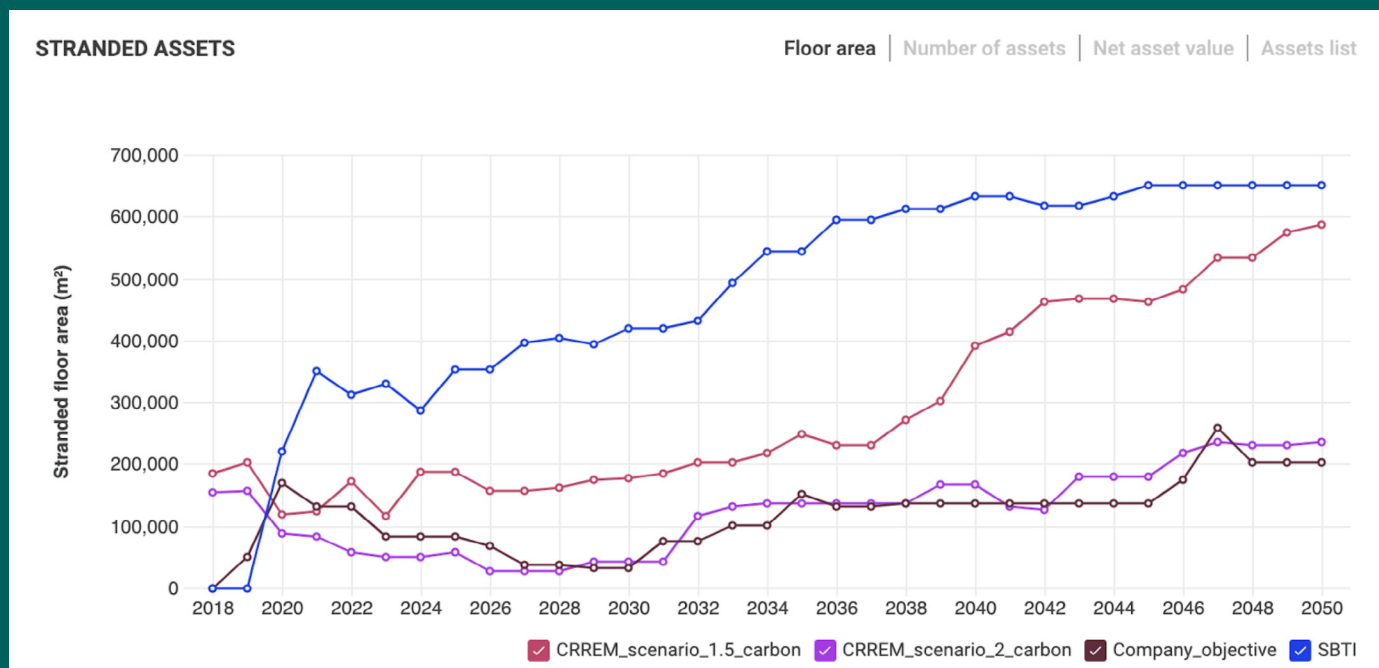


Figure 3: Screenshot from Deepki Ready™: Stranded assets

[Read more: The growing risk of stranded assets](#)

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 or 2 degree compliant and more resilient.

On the other hand, if no action plan is declared in the Deepki Ready™ platform, the projected energy consumption is equal to the last collected year's consumption.

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

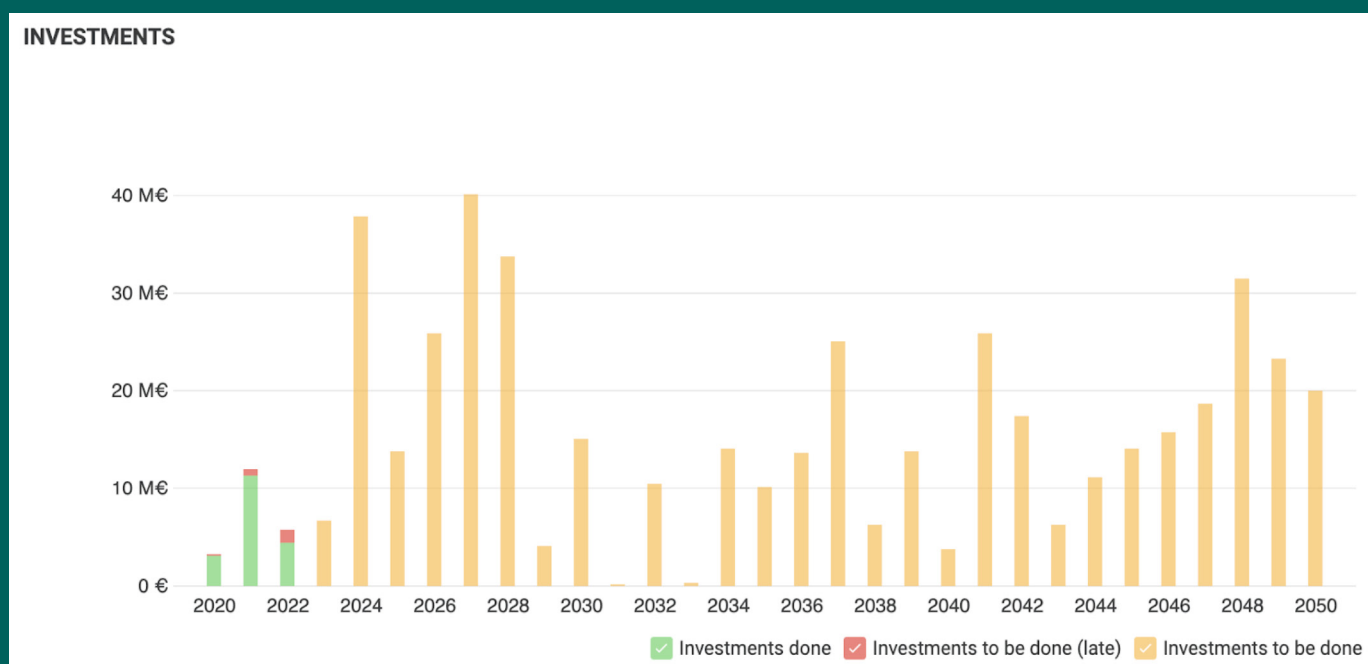


Figure 4: Screenshot from Deepki Ready TM: Investments



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