



Carbon Risk Real Estate Monitor (CRREM) update

Verco insight report 2022

1. Introduction

On the 12th October 2022, CRREM published the long-awaited update to their methodology document and pathway targets. As well as addressing issues highlighted in v1 of the CRREM methodology and updating the underlying datasets, this new methodology seeks to align CRREM with the approach of the Science Based Targets initiative (SBTi). The targets and methodology document are currently open for public consultation, requiring feedback by the 10th November.

The key headlines of the update are:

- The baseline for the majority of pathways are lower than previously, due to the overshoots against cumulative carbon budgets since v1 was developed. Consequently, the need for short-term reductions is greater, if assets are to avoid becoming 'stranded'.
- Energy targets have changed both in definition and derivation, and now plateau between 2030 and 2040, once a fixed percentage reduction on the 2020 starting point is achieved. The plateau targets are based on the IEA's aspirational Net Zero by 2050 Roadmap for the Global Energy Sector, commissioned by the UK Presidency in advance of CoP26.
- A new pathway has been introduced to distinguish between carbon targets and GHG targets. This is to account for the inclusion of f-gas emissions.
- Pathways for distribution warehouses now differentiate between those with and without cooled storage capacity to adjust for the increased energy demand associated with space cooling and refrigeration.

The update is explored in greater detail in this report:

1. What is CRREM?

The Carbon Risk Real Estate Monitor (CRREM) project is an EU-funded tool developed by a consortium of real estate actors and academic institutions. The tool is primarily for the use of asset managers and investors, to identify the operational carbon stranding risk of buildings. A ‘stranded asset’ has been defined by CRREM as a property that will not meet future carbon and energy efficiency standards and market expectations, and might be increasingly exposed to the risk of early economic obsolescence. The boundaries for asset stranding are based on a set of carbon and energy reduction targets for a variety of property types and locations, derived from carbon budgets, the SBTi pioneered Sectoral Decarbonisation Approach and IEA estimates of the net zero energy supply capacity needed to meet global energy demand in 2050.

Since the release of v1 of the tool in 2020, the targets have become widely recognised within the real estate industry as the most inclusive set of carbon descent targets available with granularity provided for many different locations and property types. However, the pathways were criticised for the stringency of their targets beyond 2030, which CRREM said were driven by the uncertainty in future net zero energy supply capacity out to 2050. Through a data collection process with national partners, where available, the methodology update (v2) has sought to update the perceived applicability of the tool with greater consideration of national commitments and trajectories for decarbonisation (for example, the UK government’s net zero by 2050 legislation and UKGBC’s whole life carbon roadmap). The number of the project’s data partners has increased, however these cover less than 20% of countries included within the tool, highlighting a future focus area for further updates.

The following sections outline how the update impacts three core areas of the tool; carbon targets, energy targets and SBTi alignment. Key implications for real estate actors are then provided in the final section.

2. Carbon Targets

In light of updated carbon budgets since its first release, the carbon pathways within the CRREM tool now require a greater focus on short-term interventions to avoid asset stranding. While 2050 carbon targets are very similar to v1, short-term reduction profiles are now steeper to mitigate the continued overshoot against cumulative carbon budgets. This results in a more parabolic reduction profile, whereas the previous pathways were reasonably linear (see below figure 1).

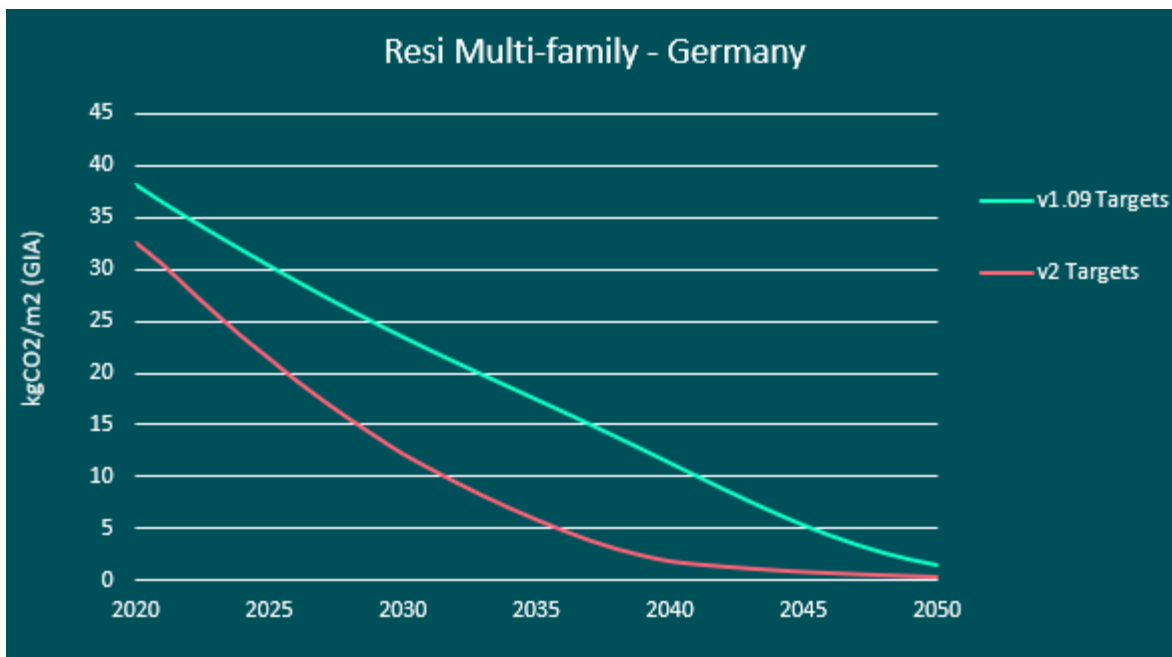


Figure 1.

Due to the overuse of carbon budgets between v1 and v2, the baseline values for most v2 pathways are lower than the previous pathway. There are a selection of countries (mostly non-EU) which have higher 2020 baselines, however, all of these pathways continue to exhibit the steeper reduction profile described above. It is worth noting that CRREM still require a location-based carbon accounting methodology for assessing stranding risk against their carbon targets.

Another prominent update that has been made to the CRREM pathways is the splitting of distribution warehouses as a property type into warm warehouses and cool warehouses. This was a common point of critique for the previous pathways, that provided no adjustment for the increased energy demand (and therefore

carbon impact) of space cooling and refrigeration. Differentiating between these two uses of distribution warehouses reduces the stranding risk for cooled properties.

While a very positive update, no equivalent split has been made for retail warehouses, which also often contain chilled goods, particularly as supermarkets are categorised under this broad property type. The stranding risk of these properties should not be seen as equivalent to the stranding risk of warm warehouses (such as clothing retailers) due to the vast differences in their energy requirements. We therefore expect CRREM to receive some feedback in the consultation on the need for such a split.

3. Energy Targets

As well as carbon targets, CRREM also provide energy use intensity (EUI) targets for the range of property types and locations within the tool. These are based on CRREM's estimations of baseline energy mix within property types and sectoral/national decarbonisation pathways. The update to the methodology now also includes consideration of national renewable energy capacities, based on the [IEA Net Zero by 2050 Roadmap](#). Consequently, the EUI targets exhibit a plateau for all pathways between 2030 and 2040 as the carbon-budget aligned pathway intersects with the predicted level of renewable energy capacity (see below figure 2).

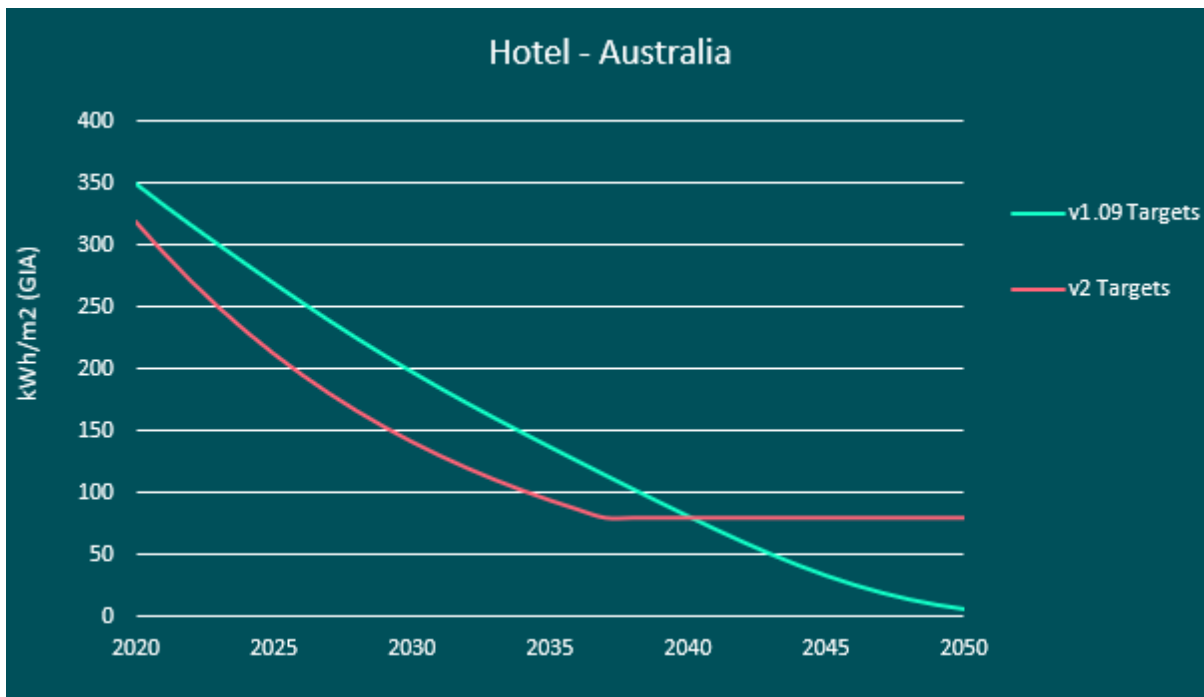


Figure 2.

The use of the IEA calculations is a significant change of approach for CRREM, which was based previously on their assessment of the probability of policy impact into the long term (2050) future. This was a much more conservative than the IEA analysis of what is required to deliver a net zero future.

As well as this method of derivation, the EUI targets have now been defined differently in the update. Previously these targets were based on the net-energy demand of a building i.e. total energy consumed minus the energy generated (and subsequently consumed) on-site. The update has amended this definition of EUI to building energy use, whether supplied by grid imports or on-site generation. This approach conflicts with the rules of rating schemes like REEB, DEC and NABERS and may be seen to disincentivise the installation of building-integrated renewable energy generation systems. It may therefore be a particular focus of consultation responses from building owners and investors.

However, CRREM state that this change has been introduced due to “various problems regarding the creditability of energy generation in the immediate vicinity of the assets, but not at the building itself”. Somewhat confusingly, the energy generated and consumed on site is taken into account with regard to the CO₂ intensity of the asset, which CRREM claims will ensure that an incentive is provided

for both the expansion of on-site renewables and the reduction of building energy use.

CRREM also now require that in order for an asset to avoid stranding under the EUI pathway, target values must be achieved AND all residual energy must be provided by renewables. This essentially means most assets will have to be fully electrified with no residual fossil fuel use to claim 1.5°C alignment under the CRREM EUI pathway. Despite this required electrification of assets, CRREM are still firmly basing their EUI targets on kWh, rather than the metric more broadly adopted by net zero models within the sector, e.g. UKGBC, NABERS, REEB – kWh electricity equivalent (kWh_e). This would unfairly penalise those assets connected to heat pump supplied district heat networks and unfairly favour assets using green hydrogen-fired boilers.

4. SBTi Alignment

A crucial aspect of the methodology update is CRREM's collaboration with the SBTi. Announced at the beginning of 2022, this collaboration will see these new pathways integrated into the SBTi target-setting tools and make up the basis of the operational side of the SBTi's [Buildings Guidance](#), due for publication in 2023. While it will be included within this future framework, it should be noted that the CRREM tool is still only a tool for assessing operational carbon risk and should not be used in isolation for defining whole life carbon net zero pathways. It is assumed that the collaboration with SBTi will solve this issue, integrating the CRREM targets into a full corporate target-setting process for organisations operating within the real estate sector.

Due to this collaboration, CRREM have amended a few aspects of their approach to align with the requirements of the SBTi; removing transmission and distribution losses and including f-gas emissions. The removal of losses is a minor carbon accounting change requiring the use of different emissions factors rather than affecting achievability of the targets. The inclusion of f-gas emissions however is more prominent and will require a shift in current approaches to these emissions.

Fugitive gases (f-gas) within the real estate industry are almost entirely released from leakage in refrigeration and cooling systems. Typically these gases have a much higher global warming potential (GWP) than carbon dioxide but are generally omitted from corporate reporting due to the difficulties in obtaining sufficient data for system leakage across a portfolio. The SBTi require the inclusion of these emissions in their targets due to their prominence in most real estate footprints

where they have been measured, particularly as this will increase as more buildings shift to using heat pumps.

To allow for comparability to the v1 pathways and cater to organisations not yet able to collect sufficient data on f-gas emissions, CRREM have provided a carbon (CO₂) pathway as well as a GHG (CO₂e) pathway, where the latter includes f-gas emissions and the former solely focuses on emissions associated with energy use. The difference between these two pathways is highlighted in figure 3 below. National commitments to the ‘phase-down’ of f-gas emissions have been included in the GHG pathways with the targets defaulting to reductions outlined in the Kigali Amendment to the Montreal Protocol (2016) where there is no country-specific plans.

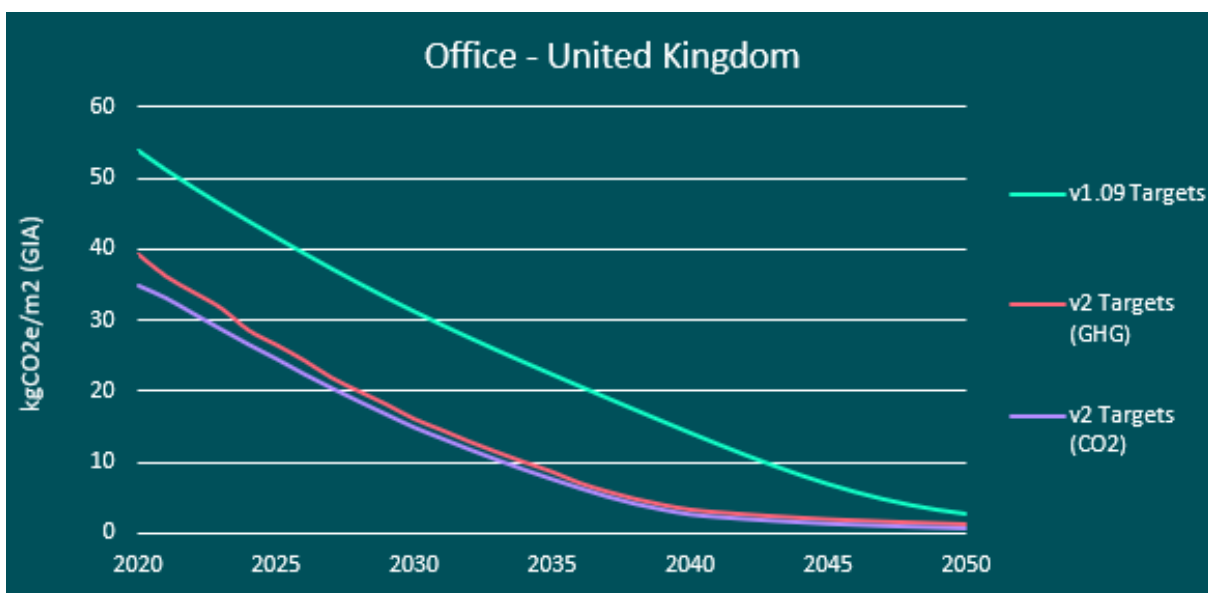


Figure 3.

5. Implications

In the past two years, since the release of CRREM v1, many real estate organisations have based their investment strategies on the outcomes of CRREM risk analyses either using the CRREM tool itself or analysis based on the CRREM targets. The updates to the targets will require these organisations to review their previous conclusions and potentially revise their strategic approaches to assets within their portfolios and potential acquisitions.

The greater focus on short-term reductions will require a more immediate mobilisation of capital to mitigate risk associated with the devaluation of assets and

real estate portfolios. The amendments to EUI targets (as they are currently), in the long-term, will discourage investment in on-site renewable energy and likely increase focus on energy efficiency measures. The inclusion of f-gas emissions within the CRREM pathways will hopefully encourage a shift in industry sentiment toward this emission source, giving rise to greater levels of measurement, an increase in the availability of benchmark data and the use of refrigerants with lower GWP.

For organisations currently undergoing validation of targets under the SBTi, no immediate impact will be apparent but a ‘watch this space’ caveat will be held on these targets and any future submissions, until the publication of the Buildings Guidance in 2023.

Conclusion

The update to CRREM’s methodology includes many improvements and provides a more current view on the requirements on asset managers and investors on their priorities in managing carbon risk. However, there is still more that can be done to make the pathways more applicable, robust and meaningful. We will have to wait and see if the consultation initiates a rapid addressing of any of these focus areas or if the sector will have to wait for v3 of the pathways.

The methodology and v2 of the pathways can be accessed [here](#). Verco will be responding to the consultation to highlight the issues outlined in this report and share further views from our company’s experience. We encourage other real estate actors to also provide their feedback to help enhance the methodology update, when it is released.

If you have any questions on the CRREM methodology update, or more generally on net zero frameworks, please contact Luke Riseborough (Consultant, Aim for Zero).



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