



Further information on determining decarbonisation pathways



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BNG Bank has committed to the climate targets set by the government, including the target set out in the proposed Climate Agreement to achieve a 55-60% reduction of greenhouse gas (GHG) emissions relative to 1990, in a cost-effective way, by 2030. BNG Bank has decided to join the Science Based Targets initiative (SBTi) to ensure it achieves the targets to which it has committed. This means we have two years from now to have our chosen targets validated by SBTi. Below we will describe in further detail how BNG Bank has set those targets.

Methodology

BNG Bank has chosen to set targets in two different ways. First, it sets out an emission reduction (decarbonisation) pathway for the absolute total emissions of its credit portfolio. For more details, see the section entitled 'Absolute portfolio target'.

Second, the bank sets targets for the four largest sectors in its credit portfolio (housing associations, municipalities, healthcare and education), in line with the SBTi's Sectoral Decarbonisation Approach (SDA). SBTi has developed three methods that financial institutions can use to determine their scope 3 targets: the SDA, the SBT Portfolio Coverage Approach and the Temperature Rating Approach. Financial institutions can use one or several of these three methods for setting Science Based Targets (SBTs) at asset class level.

Sectoral Decarbonisation Approach (SDA)

The SDA is a science-based method that enables financial institutions to define the GHG emission reduction targets required to remain within the 1.5°C global warming limit relative to the pre-industrial level, as laid down in the Paris Climate Agreement.

According to this method, the worldwide carbon budget¹ is distributed across various sectors with specific emission reductions to be achieved per sector. This is what is known as a sector-specific method. It enables financial institutions to measure and manage financed emissions per sector in a meaningful way, with due regard for growth within a specific sector (if applicable).

Using the SDA, emission reduction targets are set on the basis of physical emission intensity units at the sectoral level. These units refer to the financed emissions per unit of activity (e.g. kg CO₂e/m², kg CO₂e/kWh, kg CO₂e/tonne of cement). To give a good indication of the emission reductions required per sector, the SDA reduction targets will have to be recalculated periodically, based on the worldwide level of emissions and projected production levels relative to the global carbon budget. This is how the global carbon budget is translated into units of measurements that are directly related to specific activities within the various sectors. In this way, a financial institution can assess whether a particular client or client segment is in line with the Paris Climate Agreement without this being dependent of the size of the portfolio. In addition, a physical emission intensity unit is relatively easy to relate to reality at client level. This is because emissions per unit of product are more telling of a sector's performance than a total carbon footprint or a footprint per euro of loans provided (also because this eliminates the effect of inflation).

BNG Bank's Climate Report focuses first and foremost on the emissions originating from the electricity and gas consumption of real estate. Given that these consumption categories account for most of our clients' calculated scope 1 and 2 emissions, this approach covers by far the majority of emissions. Emissions caused in our clients' value chains are excluded from this Climate Plan. While those emissions can be material and our clients may be able to reduce them, the data and effective methodology required to calculate those emissions reliably and set appropriate targets are currently lacking. In future, however, both the scope of the PCAF calculations and the climate report may be tightened to include, for example, emissions from mobility. BNG Bank uses the SDA to set emission targets for real estate.

¹ The carbon budget is the maximum cumulative net worldwide anthropogenic carbon dioxide emission which, with a certain degree of probability, will result in a certain level of global warming.

In the sectors concerned, clients have mostly used BNG Bank credits to invest in buildings. This applies in particular to healthcare, education and housing associations and, to a lesser extent, to municipalities. The SDA results in emission intensity targets expressed in kg CO₂e/m². Real estate accounts for a considerable part of the scope 1 and 2 emissions of municipalities, which is why a reduction path was developed specifically for this category. For the rest, municipalities' scope 1 and 2 emissions arise from staff mobility and specific municipal products and services. BNG Bank has measured the absolute emission figures for both, but it has not yet done so using the SDA. For mobility-related emissions, expressed in kg CO₂e/km, in due course BNG Bank intends to develop an emission reduction path based on the SDA.

Carbon Risk Real Estate Monitor pathways (CRREM)

The physical emission intensity targets were determined using the 1.5°C decarbonisation pathways of the Carbon Risk Real Estate Monitor (CRREM). CRREM has developed decarbonisation pathways in line with the Paris Climate Agreement target of limiting global warming to 1.5°C. The CRREM methodology can be downloaded [here](#).

CRREM has developed specific decarbonisation pathways for residential and commercial real estate for individual countries. Within these categories, buildings are differentiated by energy consumption, the potential for energy savings and purpose.

BNG Bank has used the following 1.5°C decarbonisation pathways:

- > **Housing associations:** CRREM 1.5°C decarbonisation pathway for residential buildings (multi-family homes)
- > **Healthcare institutions:** CRREM 1.5°C decarbonisation pathway for commercial real estate in the healthcare sector
- > **Municipalities and education:** Neither the existing CRREM 1.5°C decarbonisation pathways nor the decarbonisation pathways from the SBTi's SDA Tool for Commercial Real Estate and Residential Mortgages are suitable for municipal and educational real estate. For these sectors, therefore, BNG Bank has now decided to use, from the year the physical emission intensity was first measured (2021), decarbonisation pathways whose annual decrease equals the annual decrease of the CRREM 1.5°C decarbonisation pathway for offices. These pathways may be updated in future should an alternative pathway become available that is better suited to these sectors in the Netherlands.

Absolute portfolio target

Key portfolio-level targets: By 2050, our credit portfolio produces net zero CO₂ emissions and by 2030 we will have reduced emissions by at least 43% relative to 2019.

BNG Bank has measured the emissions of its credit portfolio since 2019 and has formulated these targets in line with the latest scientific insights. BNG Bank applies these targets to the scope 1 and 2 emissions of its portfolio. Scope 3 emissions are of significant importance for municipalities, for instance. BNG Bank has calculated and reported on scope 3 emissions, but since those calculations are based in part on assumptions, the calculation method first needs to be refined before a specific scope 3 emission target can be set.

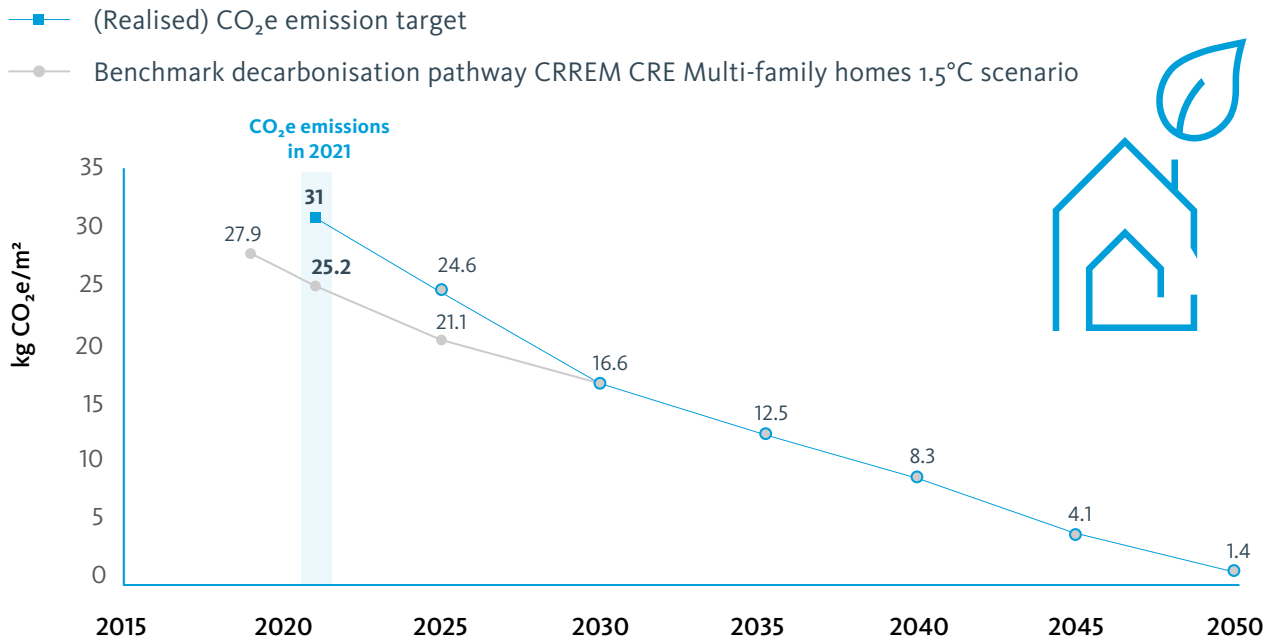
To formulate its target for 2030, BNG Bank used the Intergovernmental Panel on Climate Change (IPCC) [report](#) of April 2022. In that report, the IPCC warns that countries' existing pledges will not suffice to achieve the 1.5°C target. In order to limit global warming to 1.5°C, says the IPCC in its report, we will need to reduce GHG emissions by 43%, relative to 2019, by 2030. The net zero emission target for 2050 reflects the Dutch government's climate ambitions as well as the most recent scientific insights.

Based on those scientific insights, the government has further tightened the climate ambitions in its coalition agreement to a 55% and possibly 60% GHG emission reduction, as a minimum, by 2030 relative to 1990. Note that the government and BNG Bank use different reference years. BNG Bank's reference year is the first year for which emissions have been calculated (2019), while the government uses 1990 as the reference year, based on climate agreements. This also explains the different target that BNG Bank has set at portfolio level.

Housing associations

Target for the housing association sector: the emissions of the housing associations in our credit portfolio are consistent with the CRREM decarbonisation pathway for residential real estate and also in line with what scientists say is necessary to limit global warming to 1.5°C.

Decarbonisation pathway for housing associations (in kg CO₂e/m²)



The grey line in the figure is the benchmark decarbonisation pathway, and the blue line is the decarbonisation pathway that reflects BNG Bank's target. The benchmark pathway is the 1.5°C CRREM decarbonisation pathway for residential buildings (multi-family homes). This is based on a relative decarbonisation pathway with reductions of up to 16.6 kg CO₂e/m² by 2030 and 1.4 kg CO₂e/m² by 2050.

The target decarbonisation pathway is the pathway for housing associations in BNG Bank's credit portfolio. Actual emission intensity levels of housing associations over 2021 have been calculated by real estate data expert Replibiq, based on the standard annual consumption figures for gas and energy provided by the grid managers. It has so far proved impossible to obtain actual consumption figures for district heating. The number of buildings in the portfolio that currently use district heating is small, but looks set to increase in the years ahead. BNG Bank is working with Replibiq and several other parties to obtain actual consumption figures for district heating. To convert energy consumption to GHG emissions we used emission factors from www.co2emissiefactoren.nl.

The actual emission intensity of housing associations is above the CRREM decarbonisation pathway, which means that the current emissions of this sector are not in line with the CO₂e decarbonisation pathway calculated by CRREM. It is important for emission intensity levels to move towards the CRREM decarbonisation pathway. Housing associations have set several targets for 2028 and 2030 for making their housing stock more sustainable. For that reason, BNG Bank has set its own decarbonisation pathway based on the assumption that the housing association pathway coincides with the CRREM pathway from 2030 at the latest.

Municipalities

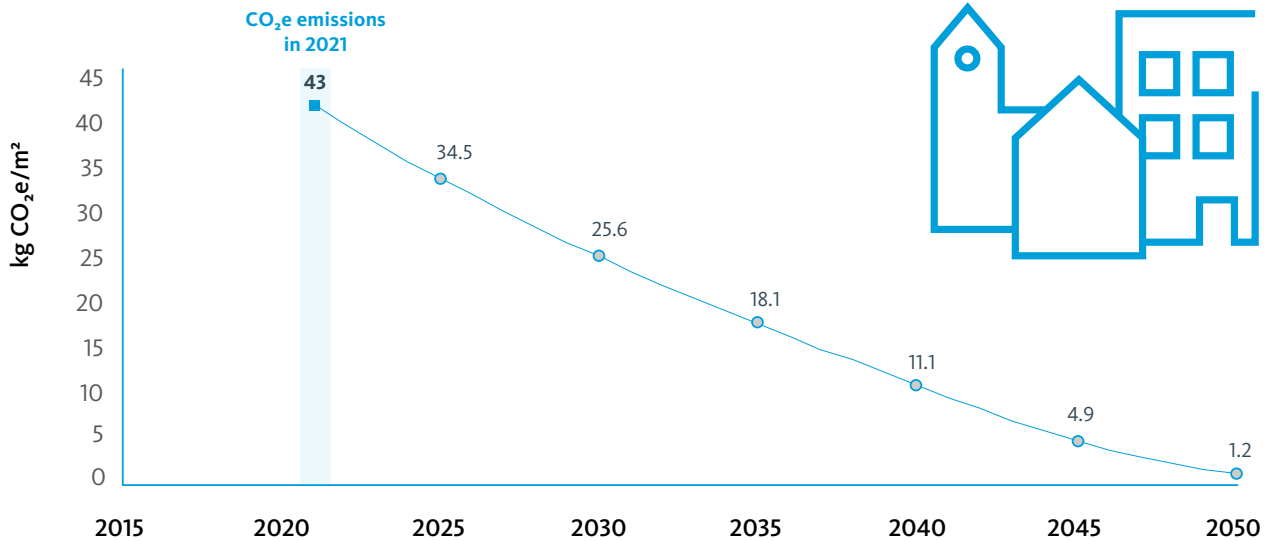
Target for the municipalities sector: the emissions related to municipal real estate in our credit portfolio are in line with what scientists say is necessary to limit global warming to 1.5°C.

In the municipalities sector, emissions arise from municipal real estate, staff mobility and specific municipal products and services. For buildings, BNG Bank has developed a decarbonisation pathway. For mobility, products and services BNG Bank has measured the absolute emission figures, but it has not yet done so using the SDA. For mobility-related emissions, expressed in kg CO₂e/km, in due course BNG Bank intends to develop a decarbonisation path based on the SDA.

Republiq measured the standard annual consumption for gas and energy of municipal real estate over 2021, provided by the grid managers. This concerns various different types of buildings, such as town halls, municipal offices as well as local museums and sports centres. Actual consumption figures for district heating have not been available to date, so the buildings concerned have not been included in the calculation of the average figures. The number of municipal buildings in the portfolio that currently use district heating is small, but looks set to increase in the years ahead. BNG Bank is working with Republiq and several other parties to obtain actual consumption figures for district heating. To convert energy consumption to GHG emissions we used emission factors from www.co2emissiefactoren.nl.

Decarbonisation pathway for municipalities (in kg CO₂e/m²)

- (Realised) CO₂e emission target
- Benchmark decarbonisation pathway based on CRREM CRE Offices 1.5°C scenario



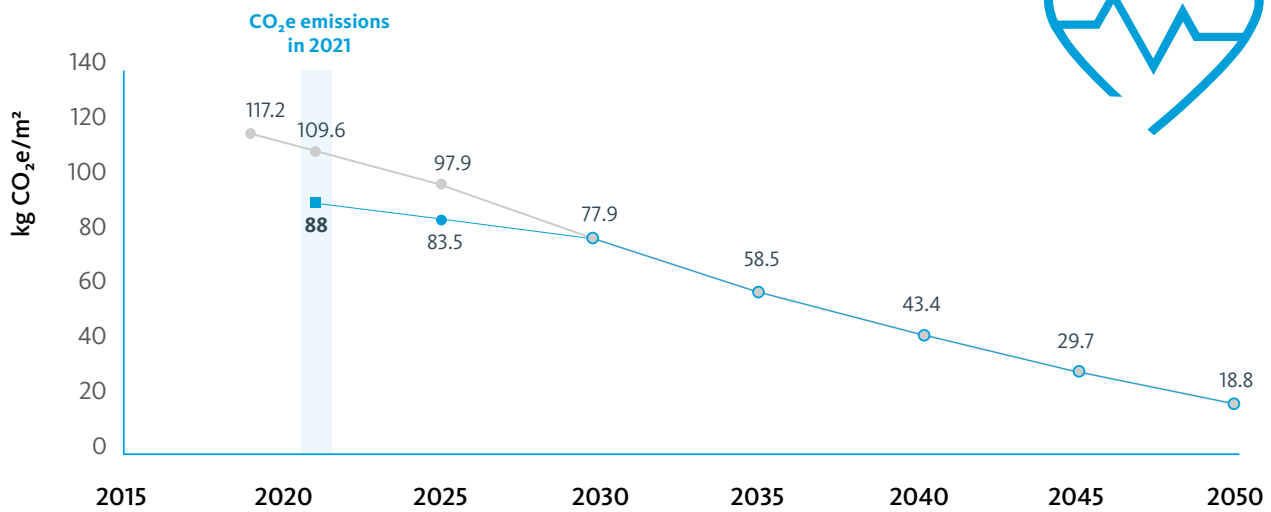
The figure only shows the target decarbonisation pathway. Neither CRREM nor SBTi have so far come up with decarbonisation pathways that are sufficiently attuned to the Dutch municipalities sector. For this sector, therefore, it was decided to use, from the year physical emission intensity was first measured (2021), a BNG Bank decarbonisation pathway whose annual decrease equals the annual decrease of the CRREM 1.5°C decarbonisation pathway for offices. This means that the decarbonisation pathway for municipalities is comparable to the pathways of other sectors in terms of relative reductions and emission intensity levels in the target years 2030 and 2050.

Healthcare institutions

Target for healthcare institutions: the emissions of the healthcare institutions in our credit portfolio are consistent with the CRREM decarbonisation pathway for buildings in the healthcare sector and also in line with what scientists say is necessary to limit global warming to 1.5°C.

Decarbonisation pathway for healthcare (in kg CO₂e/m²)

- (Realised) CO₂e emission target
- Benchmark decarbonisation pathway CRREM CRE Healthcare 1.5°C scenario



The figure shows both the benchmark and target decarbonisation pathways. The benchmark pathway is the 1.5°C CRREM decarbonisation pathway for buildings in the healthcare sector. This is based on a relative decarbonisation pathway with reductions of up to 58.5 kg CO₂e/m² by 2030 and 1.4 kg CO₂e/m² by 2050.

The target decarbonisation pathway is the pathway for healthcare institutions in BNG Bank's credit portfolio. Republiq has calculated the emission intensity levels of healthcare institutions over 2021, based on the standard annual consumption figures for gas and energy provided by the grid managers. It has so far proved impossible to obtain actual consumption figures for district heating. The number of healthcare buildings in the portfolio that currently use district heating is small, but looks set to increase in the years ahead. BNG Bank is working with Republiq and several other parties to obtain actual consumption figures for district heating. To convert energy consumption to GHG emissions we used emission factors from www.co2emissiefactoren.nl.

The actual emission intensity of real estate in the healthcare sector is below the CRREM decarbonisation pathway, which means that current emissions of buildings in this sector are in line with CRREM calculations. For that reason, BNG Bank has set its own decarbonisation pathway based on the assumption that the housing association pathway coincides with the CRREM pathway from 2030 at the latest.

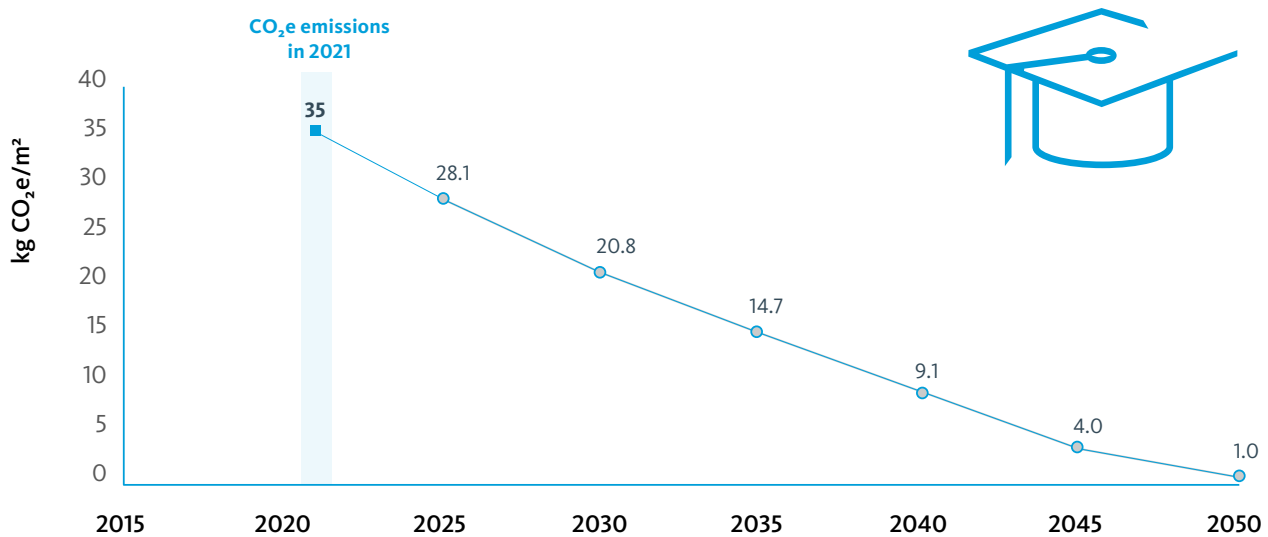
Education

Target for education: the emissions of the educational institutions in our credit portfolio are consistent with the SBTi decarbonisation pathway for buildings in the services sector, which means they are also in line with what scientists say is necessary to limit global warming to 1.5°C.

Republiq has calculated the standard annual emission intensity levels of educational institutions, based on actual gas and energy consumption figures provided by the grid managers. It has so far proved impossible to obtain actual consumption figures for district heating. The number of education buildings in the portfolio that currently use district heating is small, but looks set to increase in the years ahead. BNG Bank is working with Republiq and several other parties to obtain actual consumption figures for district heating. To convert energy consumption to GHG emissions we used emission factors from www.co2emissiefactoren.nl.

Decarbonisation pathway for education (in kg CO₂e/m²)

- (Realised) CO₂e emission target
- Benchmark decarbonisation pathway based on CRREM CRE Offices 1.5°C scenario



The figure shows the target decarbonisation pathway. Neither CRREM nor SBTi have so far come up with decarbonisation pathways that are attuned to the Dutch education sector. For now, therefore, it was decided to use, from the year physical emission intensity was first measured (2021), a BNG Bank decarbonisation pathway whose annual decrease equals the annual decrease of the CRREM 1.5°C decarbonisation pathway for offices. This means that the decarbonisation pathway for education is comparable to the pathways of other sectors in terms of relative reductions and emission intensity levels in the target years 2030 and 2050. See the CRREM decarbonisation pathway for offices in the annex.



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