

# Pathway to Net Zero

denkstatt approach: avoid, reduce, neutralise

**Terminology** As climate change continues to gain traction globally, businesses and consumers are faced with a new challenge – navigating the language of climate change. Although this might seem fairly straightforward at first, as our understanding grows, with it rises the number of new and different terms. Let’s look at the term at the very core of communicating climate change – greenhouse gas (GHG) emissions. Chemically GHGs are any gaseous compounds capable of absorbing radiation reemitted by the Earth, thus preventing it from leaving the atmosphere and heating the planet, known as the greenhouse gas effect. Among such compounds are e.g., carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) or water vapour. In contrast, the industry standard for corporate emissions reporting – the [Greenhouse Gas Protocol](#) – is based on the definition from the UNFCCC/Kyoto Protocol, which considers 6 chemicals that directly cause climate change - CO<sub>2</sub>, CH<sub>4</sub>, nitrous oxide (N<sub>2</sub>O), hydro- and perfluorocarbons (HFCs and PFCs), sulphur hexafluoride (SF<sub>6</sub>) and nitrogen trifluoride (NF<sub>3</sub>). Sulphur dioxide (SO<sub>2</sub>), albedo or land-use change and other factors also contribute to global warming, however they are not covered by the standard.

## Decarbonisation

The process usually starts with the quantification of corporate GHG emissions and sources under Scopes 1 (direct emissions), 2 and 3 (indirect emissions). Once complete, an energy audit can be used to develop a decarbonisation strategy, which may take place within the corporate value chain, or through beyond value chain mitigation, or offsetting. At denkstatt we deploy the internationally acclaimed Science Based Targets initiative (SBTi) mitigation hierarchy. It stipulates that companies must implement abatement measures as the immediate priority and only then seek to offset the residual emissions. Our approach focuses on improving energy efficiency, then securing energy purchasing from renewables and implementing various value chain measures related to e.g., purchased goods and services or the use of products sold. Finally, in line with the SBTi guidance a company can neutralise the residual, unabated emissions (see *Figure 1 – Roadmap to net-zero*).

**Accuracy matters** While setting and achieving a specific climate goal is an attractive selling point, inaccurate use of the climate change terminology can lead to adverse consequences - accusations of false claims, negative public perception or even litigation. Climate change literacy boosts accuracy, credibility and transparency for companies and enables consumers to dissect various climate claims, thus offering a level of protection against false advertising.

## Targets

With environmental, social and governance factors driving companies to set climate targets, it is important to understand and use correct terminology to improve transparency, comparability and to eliminate greenwashing.

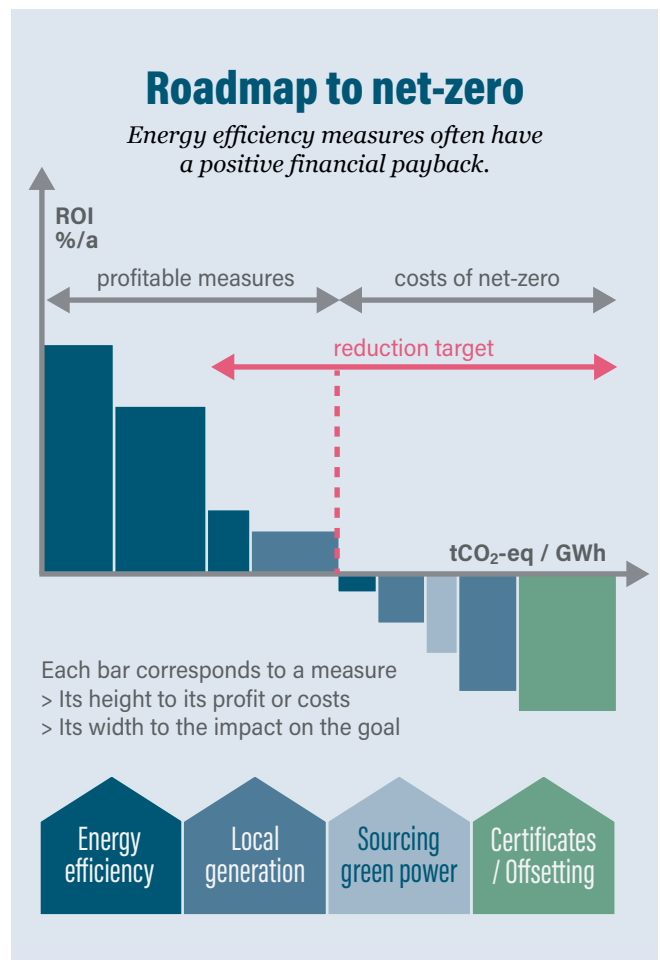


Figure 1 – Roadmap to net-zero (for Scope 1 and 2)

**Climate, CO<sub>2</sub> or GHG neutral?** The Intergovernmental Panel on Climate Change (IPCC) defines climate neutral as a state whereby anthropogenic activities have no net effect on the climate system. This includes all other biogeophysical effects, e.g., changes to Earth's albedo, alongside the GHG emissions. This is often confused with GHG neutrality, which solely covers the 6 Kyoto GHGs. In contrast carbon/CO<sub>2</sub> neutrality only covers CO<sub>2</sub> and excludes any other GHGs, which despite lower quantity usually have a far greater global warming potential (GWP) and are therefore significant. For example, according to the IPCC Fourth Assessment Report, 1 kg of CH<sub>4</sub> or N<sub>2</sub>O have the equivalent GWP as 25 and 298 kg of emitted CO<sub>2</sub> respectively. Often enterprises coin new climate terms, which ought to be used cautiously.

**The state of net-zero** Unlike carbon or climate neutrality the state of net-zero is clearly defined in the SBTi guidance and includes the 6 Kyoto GHGs. Based on the SBTi Net-Zero Standard, most sectors must halve their emissions by around 2030 and cut approx. 90% of their emissions by 2050 in order to align with the Paris Agreement. To reach the state of net-zero, a company must first achieve value chain emissions reduction in line with abatement required to reach global net-zero in 1.5°C pathways. Then, a company must neutralise the impact of the residual emissions by permanent removal and storage of an equivalent volume of GHG. Therefore, net-zero is a target state with the objective to obtain a balance between anthropogenic emissions and removals (see Figure 2 – Net-zero target). Regardless of which term is used, at denkstatt we always employ the principle – reduce first and only then neutralise the residual emissions.

**Neutralisation** As an important component to reaching global climate goals, neutralisation describes measures for carbon removal from the atmosphere and permanent storage to counterbalance the impact of the residual emissions. This is achieved via technological or nature-based reservoirs for permanent CO<sub>2</sub> or carbon storage. Neutralisation may occur inside the corporate value chain or outside of its boundaries. Insetting describes projects that are wholly or partially within a Scope 3 supply chain boundary of the company. This is commonly mistaken with offsetting or compensation, which

describes projects outside of the corporate value chain boundary. There are many definitions but no standardisation of the term “insetting”.

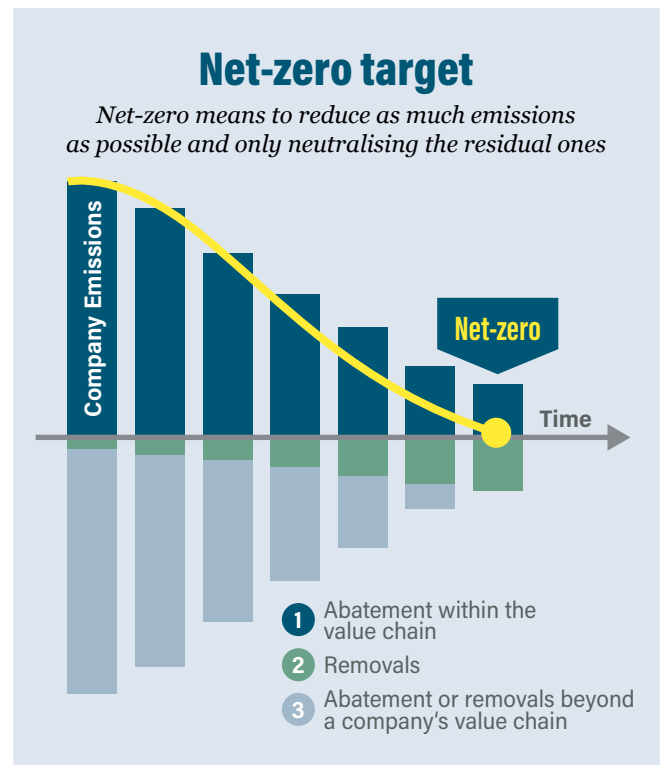


Figure 2 – Net-zero target

### Carbon removals

Once the long-term science-based target for emissions abatement is met, residual emissions (usually no greater than 10% compared to the base year emissions as per SBTi requirements) must be neutralised through carbon removals. Neutralisation is the last step of the denkstatt adopted mitigation hierarchy and can take the form of technological removals and nature-based solutions (NBS). Examples of technological removals include, but are not limited to bioenergy generation with carbon capture and storage or Direct Air Capture with geological storage through CO<sub>2</sub> remineralisation. NBS as defined by the WWF describes intentional ecosystem conservation, management with measurable, positive climate adaptation and/or mitigation benefits. These include reforestation, improved soil or forest management or land restoration projects.

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