

CLIMATE POSITIVE: NOW!

How every building can make
a contribution to climate action



DGNB
Deutsche Gesellschaft für Nachhaltiges Bauen
German Sustainable Building Council

Climate positive now:


How every building can make a contribution to climate action

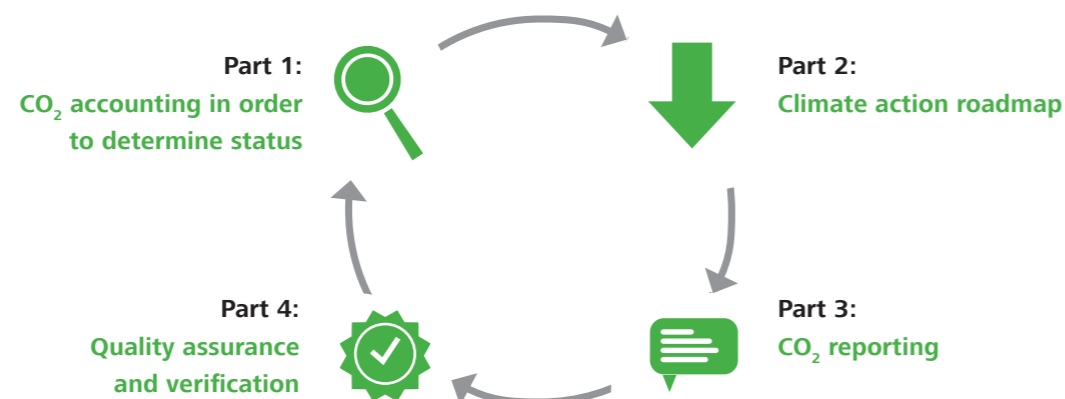
The ever faster encroachment of climate change is the biggest challenge of our age. Countless research results and studies prove that current CO₂ emissions must be urgently stemmed if extreme climate changes are to be reversed. Despite the warnings of numerous scientists and the ever more tangible effects of climate change, political and private business decision-makers remain completely or largely unconvinced.

In 2015, the Paris agreement decided on a global warming limit of 1.5 to a maximum of 2 degrees Celsius and thereby created a statute for an international example - the euphoria was immense. The consistent implementation of this would mean that we must reduce greenhouse gas emissions to an absolute minimum and at the same time increase greenhouse gas sinks in order to achieve a balance of zero emissions. The German Federal Government has derived the 'Climate Action

An 'almost exclusively climate neutral building inventory in 2050' is the declared aim of the German Federal Government.

Plan 2050' in order to implement the Paris agreement which demonstrates the key role of the construction industry and the existing buildings: The operation of our buildings is responsible for approx. 30 per cent of the greenhouse gases in Germany! A 'climate neutral building inventory in 2050' is the declared aim of the EU Green Deal.

You can find more information about this here 



Here's the good news: We can already plan and realise good, economical buildings today in such a way that they are also climate neutral in operation!

However, tangible and courageous measures has been lacking for years. The concern of any negative effects on individual companies or industries has paralysed all types of consistent climate action. This is overlaid by false statements, that the intensification of the requirements on buildings

would diametrically contradict the required affordable living space. This has turned climate action into politics, which is problematic as politics thinks and acts all too often in restricted timeframes. The subsequent costs and economic shifts which climate change would mean in particular for socially weaker people appears to interest very few people in this respect.

With the awareness that the existing laws will not sufficiently resolve the problem, the only way currently left is voluntary proactivity. The DGNB has been working in precisely this area since 2007. We actively advocate the planning, construction and operation of buildings which will make an active contribution to climate action. In this respect, the DGNB requirements go far beyond political discussions and any legal requirements. The DGNB certification system harmonises the issues of climate action, health, quality and future compatibility and enables demonstrably better buildings. Here's the good news: we can already plan and realise good, economical buildings today in such a way that they are also climate neutral in operation!

This publication is based on over twelve years of experience and more than 5,000 certifications in almost 30 countries. It is intended to motivate actors to actively contribute to designing the necessary transformation of the building and real estate sector. It should provide assistance in enabling a pragmatic and practice-orientated implementation of climate action in the building industry. A departure from 'yes, but' towards convincing actions on the basis of a well-founded, ambitious definition for 'climate neutral construction and operation'!

Why buildings are the key to climate action

Buildings affect all of us. We all live and work in buildings, which is why it is all the more astounding that we are not being more active about taking this design opportunity in order to create a constructed environment in which we feel good and which is good for us.

In order to exploit the potential of buildings as a fundamental contribution to climate action, it is necessary to understand the multi-faceted nature and connections of individual sectors which are involved in the 'building' system and to develop scalable solutions constructed on this basis. The greenhouse gases which can be directly or indirectly ascribed to the building and real estate sector cannot be reduced to an emission source. The most obvious greenhouse gas emissions can be traced back to the use of fossil energy stores in the operation of buildings. Heating, cooling, warm water and lighting are usually described as 'building-related emissions' and are a part of the regulation for a higher energetic quality of new builds and renovations. The emissions from all other processes in buildings, for example for the transport of people and goods, the use of information technology for the production of goods, are excluded from this definition, even though for the public they are connected with the building and building management.

Furthermore, when building our constructed environment, greenhouse gases result from

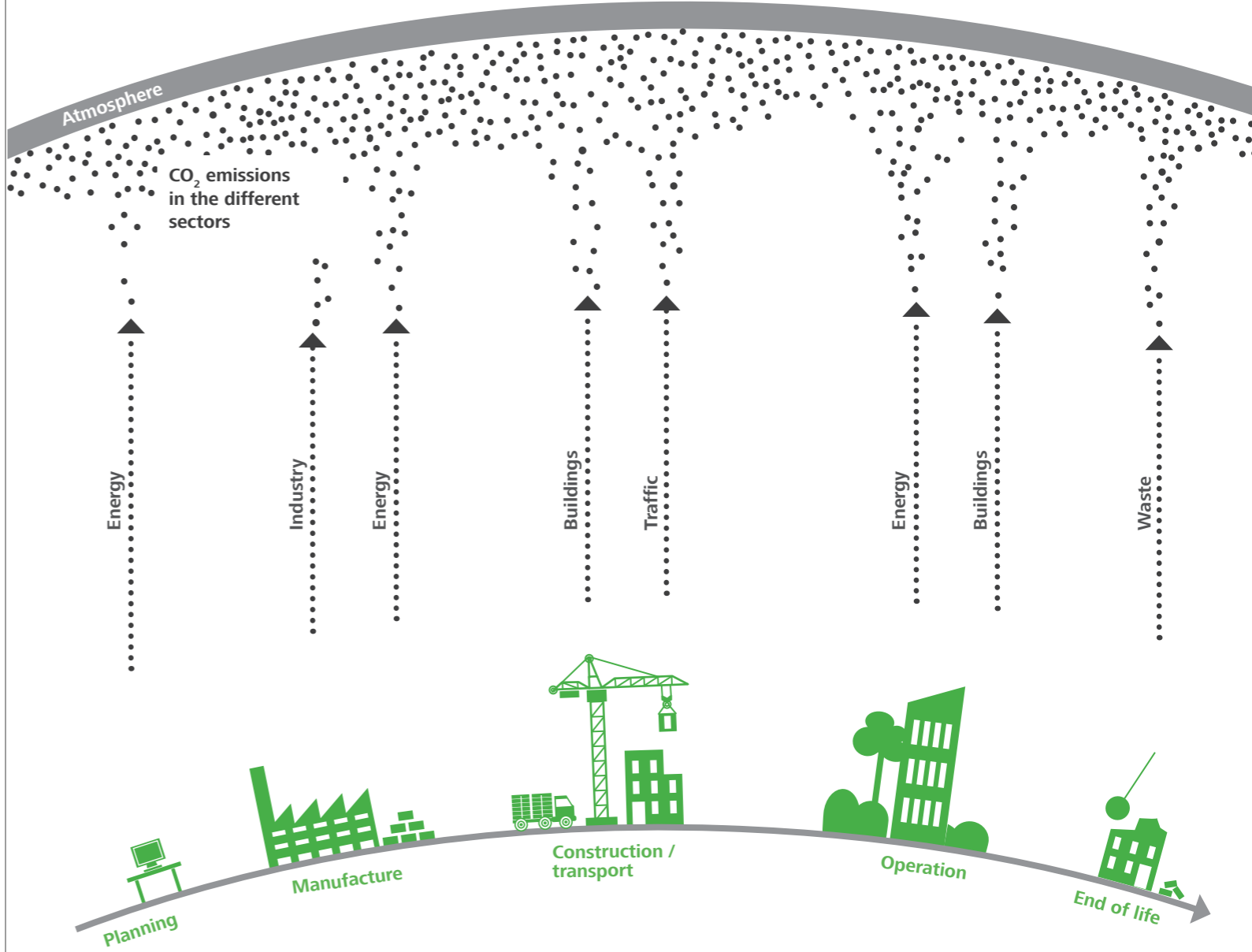
- the necessary manufacture,
- transport of building products and materials,
- maintenance during operation and
- handling remains at the end of a lifespan.

The commonly used sector assignment ascribes these emissions respectively to the following sectors:

- Energy industry
- Industry
- Buildings
- Traffic
- Waste management

The optimisation potential of the actual actors and decision-makers remain unutilised in this respect. Or thematic areas which lie outside of the respective areas of responsibility are discussed and addressed. An integrated, actor-related, honest view of the respective responsibilities is necessary in order to implement fast and effective prevention of greenhouse gases which are associated with the construction, operation and management of real estate.

Figure 1:
CO₂ emissions in the life-cycle of a building



Greenhouse gases are created during the life-cycle of a building which can be assigned to different sectors.

	Manufacture	Construction and transport	Operation	End of life
Energy	●		●	
Industry	●			
Buildings		●	●	
Traffic		●		
Waste				●

We need a paradigm shift

In the face of the urgency and complexity of the task, DGNB is promoting a paradigm shift: away from marketing-driven, short-term conceived individual measures which should primarily ensure the individual business model, towards a systematic market transformation. Away from vague terms and self-declarations, towards clearly measurable aims and effective actions. The perspective of economic efficiency is: investing money requires reliable figures. Why shouldn't this also be the basis for a consistent attitude towards climate action?

Below is a list of the four fundamental aspects which are required to achieve the climate action goals in the building sector and are also missing in the German new building energy act. ▼

1. CO₂ AS THE TARGET FIGURE OR 'THE WORLD DOESN'T HAVE AN ENERGY PROBLEM, IT HAS AN EMISSIONS PROBLEM'

If the CO₂ emissions are to be reduced and limits observed, the requirements for building construction and renovation must also be orientated towards this. Therefore, the primary energy requirement of a building should no longer be the standard, as prescribed by the German new building energy act. This thought and calculation approach stems from the period of the oil crisis in the 1970s, when the primary concern was to increase efficiency. Today, the focus is about much more than efficiency, namely climate action, which demands a different target: CO₂ emissions. It is only in this way that we can maintain the planning and design space for the correct, sensible concepts and necessary innovations.

2. BUILDINGS AS AN ENTIRE SYSTEM OR 'INFORMATION TECHNOLOGY BEATS HEATING'

The fact that an energetically optimised office building with a comprehensive IT infrastructure shows higher CO₂ emissions from user applications than from the usual building operation (heating, cooling, warm water), is not a rare occurrence. These internal processes and equipment belong in the overall building system and should therefore not be planned, optimised or operated separately. For this reason, user energy must be taken into consideration in the planning of buildings.

55%
building costs increase since the year 2000

Source: Walberstudie 2018 indiziert/SwSG

135%
building price increase for technical extensions since the year 2000

Source: Walberstudie 2018 indiziert/SwSG

There is enormous potential for savings here which have been overlooked in all legal specifications up to now and will probably also continue to be excluded. The exclusion of these issues is all the more astounding when the matter in hand concerns the political discussion surrounding increased building costs. The largest cost increases are recorded in the area of technical building equipment. We require an holistic consideration all the more urgently and the question concerning sufficiency, i.e. the right measure where technical expansions are concerned.

3. LIFE-CYCLE OR 'THE BUILDING PRODUCT ALSO CAUSES CO₂ EMISSIONS'

One of the most important points in sustainable construction is taking the entire life-cycle of a building into consideration. Today, the first step means climate neutral building management. However, building on this we must also know and optimise the associated CO₂ emissions in the selection of materials. All CO₂ emissions must be accounted for throughout all the life phases of a building: from dismantling and transport of the building materials, to the construction of the building, right down to its deconstruction. The demand for resource-friendly materials and recyclables also demands the concept of the recycling economy in the building sector. This includes the increase of environmental declarations for building products, increased transparency and ultimately a stronger realisation of responsibility across the entire value creation chain.

4. TRANSPARENCY OR 'IF YOU DON'T MEASURE IT, IT WON'T CHANGE'

In these times of an increasingly larger number of 'green' labels, it is important that we hold discussions and make decisions based on facts. The continual monitoring of the real consumption data as a key element represents the basis for all types of optimisation and renovation measures. It is only through honest consideration of real consumption that we can identify and exploit true potentials.

What climate neutral actually means

The term 'climate neutral' or what is also commonly referred to as 'net zero carbon' is on everybody's lips. But what does it actually mean?

All processes which use energy create greenhouse gases. At over 80 per cent, climate-damaging CO₂ is the most relevant. The amount of CO₂ caused varies depending on the type of energy used. This means that a building can only be calculated as climate neutral using accounting on the time axis. Namely by contrasting the amounts of CO₂ emissions which are caused in the usage itself and those which are avoided through energy generated close to the building. For the operation of buildings at our latitude, the period of observation is one calendar year.

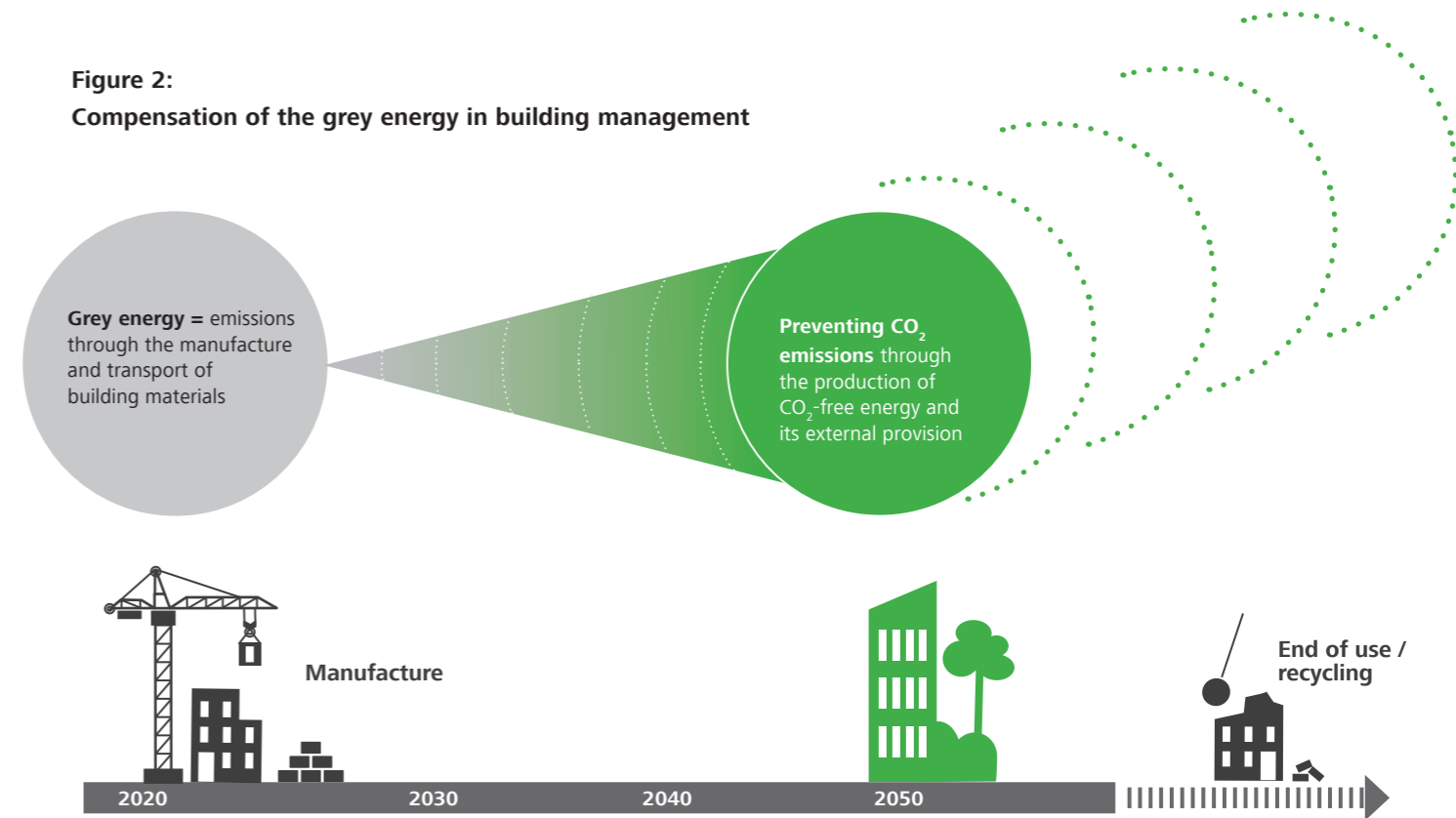
Thus, there is a simple definition for a building with climate neutral operation:

The difference of the emitted emissions and the emissions which are saved through the production and supply according to external, CO₂-free energy is zero or less than zero when observed over a year.

If we include the emissions from the manufacture and transport of building materials, often also referred to as **grey energy**, then the time observation must be extended. Because the CO₂ emissions resulting from this are included in the calculation for a new building and can only be compensated via a consistent over production of energy at the location over time. (see Figure 2)

According to this supposedly simple definition, it is very demanding to achieve the status 'climate neutral', depending on the type of building. However, this is contingent on the creation of a sufficient amount of energy on the premises. Yet depending on the location and geometry as well as very high user-related energy consumption, this can be a huge challenge. In this respect, energy efficiency is also an important building block on the road to climate neutrality.

Figure 2:
Compensation of the grey energy in building management



Moreover, in relation to externally sourced energy it must be observed that this demonstrates the lowest CO₂ emissions possible, i.e. through power from regenerative energy sources such as sun or wind. As CO₂ is also emitted in the creation of renewable energies and their use cannot enter the balance as 'zero', the energy production on the building itself is indispensable in order to be climate neutral.

In accounting according to the DGNB definition, all the actual energy consumption in the building is taken into consideration, i.e. including the CO₂ emissions caused by the user. This is a challenge for some building classes and uses, insofar as tenants today can still not be obligated to act in the most energy efficient way possible. However, as it is irrelevant to the climate where and from whom CO₂ is emitted, this honest form of accounting is indispensable in the opinion of DGNB. Otherwise, we will not be able to arrive at a strategy quickly enough in order to accordingly include and motivate building users through communication.

In contrast to other sectors, the building area has the opportunity to realise a CO₂ compensation itself via the direct energy generation in the building or on the premises. For this reason, DGNB also excludes compensation via the purchase of CO₂ certificates or similar measures. The sole intention is to exploit existing potentials in order to achieve the possible CO₂ savings.

Neutral or rather positive?

In the question regarding the climate action contribution of buildings, there is some contention as to whether neutral is enough. In the accounting mentioned, the term neutrality means the same as the mathematical target figure zero as a minimum requirement. If we depart from the point of view of pure accounting, 'neutral' is an insufficient expression for what buildings which are operated climate neutrally today actually perform: a positive contribution to climate action.

The DGNB has set itself the objective of publicising these exemplary projects, presenting their success factors and using them to inspire others. This is why the DGNB 'Climate positive' award was created. Buildings which are demonstrably operated in a climate positive manner based on their actual consumption data are eligible to receive the award. Climate positive buildings contribute actively to climate action and the energy transition, by avoiding more CO₂ emissions than they produce. The DGNB would like to use this award to acknowledge the creative drive and courage of these examples and send a clear signal to the building sector and politics: we can and must build today in such a way as should be standard for the building inventory by 2050.

Buildings which are demonstrably operated in a climate positive manner based on their actual consumption data are eligible to receive the DGNB award 'Climate positive'.



FUNDAMENTAL ELEMENTS OF THE DGNB DEFINITION FOR THE CLIMATE NEUTRALITY OF BUILDINGS:

- The aim is a financial 0 or <0 for all building types
- User electricity must also be taken into consideration
- All energy sources are considered with the CO₂ emissions actually caused
- Compensatory measures cannot be carried forward

Case Study: 'climate positive' School of Design and Environment – SDE4

The extension building of the National University of Singapore for the School of Design & Environment is a prominent climate neutral building in the tropics. The five-floor building houses laboratories, design studios and workshops for the schools of Architecture and Design.

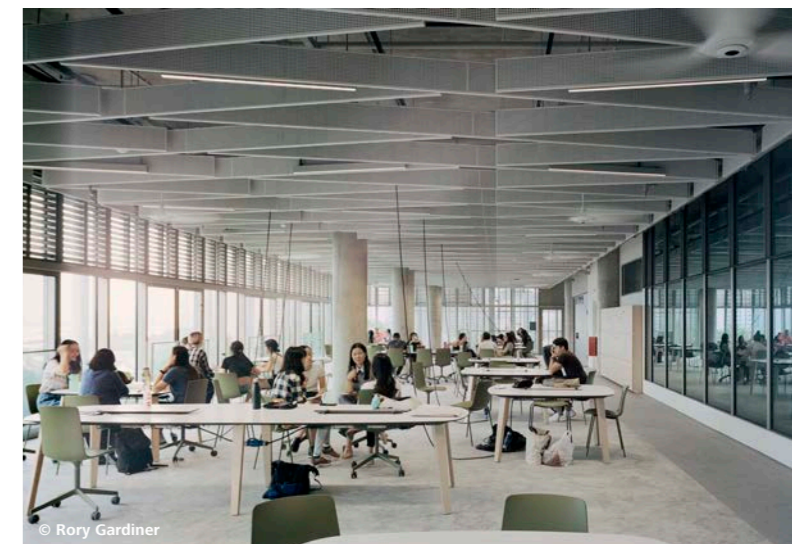
An optimised building construction enables efficient cross-ventilation and excellent day light impact. An integral component of the concept of climate neutral energy consumption is the necessity to rethink conventional air conditioning.

AT A GLANCE

Award	Climate positive
Project location	Singapore
Award validity	September 2019 to September 2020
Building owner / investor	National University of Singapore
Architect:	Serie Multiply Architects
Energy concept and CO₂ balance:	TRANSOLAR Energietechnik GmbH

This resulted in the design of an innovative hybrid cooling system which ensures that the rooms are not over-cooled. This cooling strategy is complemented by increased air speeds and ceiling ventilators. The energy consumption is reduced by opening windows when the weather is nice and only using air-conditioning when necessary.

1,225 solar PV modules installed on the roof harvest sufficient solar energy in order to cover the predicted annual requirement of the building. The excess during the day is stored in the campus network and used by neighbouring buildings which conversely deliver electrical energy during the night. The building has been operated with a positive net balance with an excess of around 30% since 2019.



▶ You can find further information at: www.dgnb-system.de/en/projects/school-of-design-and-environment



Case Study: 'climate positive' Eisbärhaus components A+B

The Eisbärhaus is conceived as a passive house and is structured into two components. The Vorarlberg Eco Manual serves as the basis for selecting the building materials used.

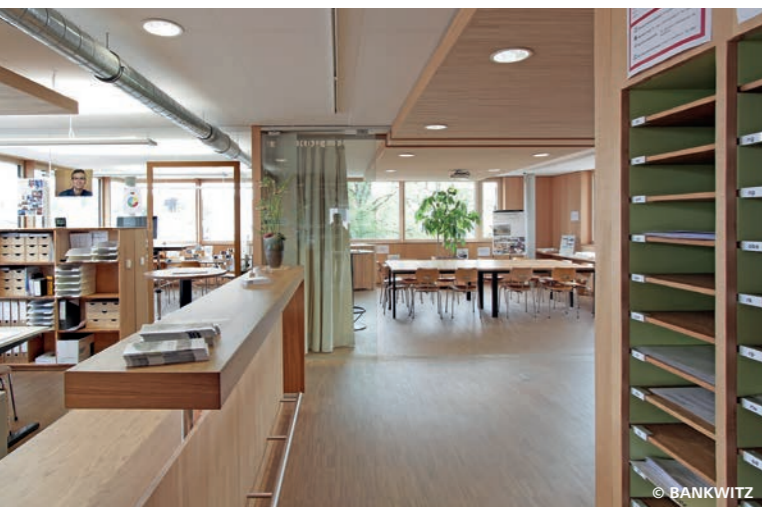
The exterior walls consist of a wooden construction flocculated with cellulose from heat insulating sources (insulation strength: 42 cm). The commercial units are warmed/cooled via concrete core activation and a reversible brine water heat pump.

AT A GLANCE

Award	Climate positive
Project location	Kirchheim unter Teck, Germany
Award validity	September 2019 to September 2020
Building owner / investor	Grundstücksgemeinschaft Hindenburgstraße 36 + 38 GbR
Architect:	BANKWITZ beraten planen bauen GmbH
Energy concept and CO₂ balance:	Ingenieurbüro SEEBERGER+PARTNER / BANKWITZ beraten planen bauen GmbH

The ground is used as an energy source and storage mass. The ventilation system is decoupled from the heating system. The fresh air sucked in is brought up to room temperature in three stages and blown into the rooms. During this process, the energy from the emitted air is transferred via a heat exchanger to the pre-tempered fresh air (heat recovery rate: 80-95%).

The industrial water is warmed via solar collectors. Photovoltaic modules cover the energy requirements for heat pumps as much as possible. The energy-relevant systems are managed by software. Mid-term objective: energy self-sufficiency.



© BANKWITZ

▶ You can find further information at: www.dgnb-system.de/en/projects/eisbaerhaus-bauteile-ab

Case Study: 'climate positive' Schmuttertal secondary school Diedorf

During the new build of the Diedorf secondary school, an integral planning process was used to demonstrate a path to innovative and sustainable planning which enabled the economical handling of available resources throughout the life-cycle.

AT A GLANCE

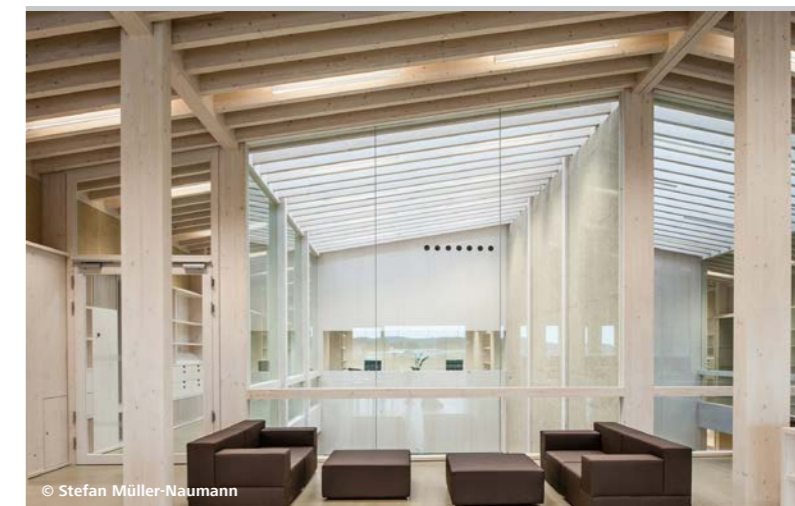
Award	Climate positive
Project location	Diedorf, Germany
Award validity	September 2019 to September 2020
Building owner / investor	District of Augsburg
Architect:	Kaufmann / Nagler Architekten ARGE "Diedorf"
Energy concept and CO₂ balance:	Ip5 Ingenieurpartnerschaft

Constructive principle solutions were used as decision-making aids for the ecological wooden construction in the scope of the project and developed as a response to standard preconceptions. In addition to a significant increase in the energy efficiency of the building towards a plus-energy school, the improvement of the learning and teaching situation was also a focus.

Constructional factors such as ambient air quality, acoustics and day/artificial light supply as well as a flexible room concept for the possible adaption to changing pedagogical approaches, in particular in the realisation of learning environments, were decisive issues in the planning and implementation process. The project documented how low operating and maintenance costs can be achieved through justifiable additional costs.



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▶ You can find further information at: www.dgnb-system.de/en/projects/schmuttertal-gymnasium-diedorf

How buildings can become climate positive

We can already plan, implement and operate buildings today in such a way that they are climate positive - that's the good news and we can't repeat it often enough. However, economical solutions here do not only consist of the processing and implementation of measures without taking into consideration super-ordinate connections. Therefore, the more reactionary behaviour which dominates today must be urgently replaced by a sensible, systematic approach! Every decision and measure must be assessed according to the following aspects and orientated towards these:

1. Minimisation of the overall energy requirement
2. Efficient energy generation
3. Selecting energy sources with the lowest possible CO₂ intensity

Figure 3:
Areas of activity for the optimisation of the management of existing buildings

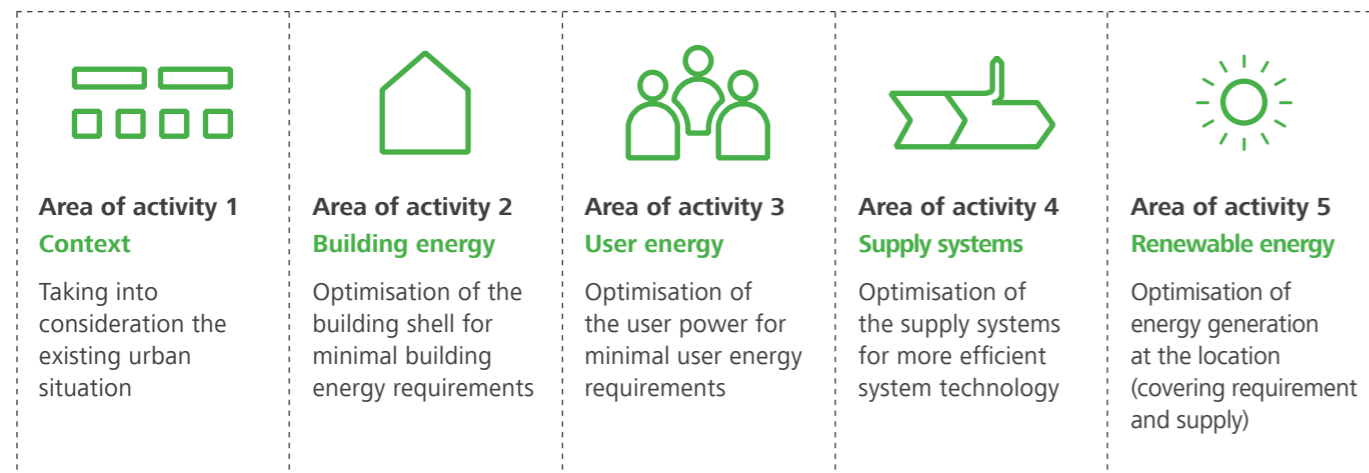
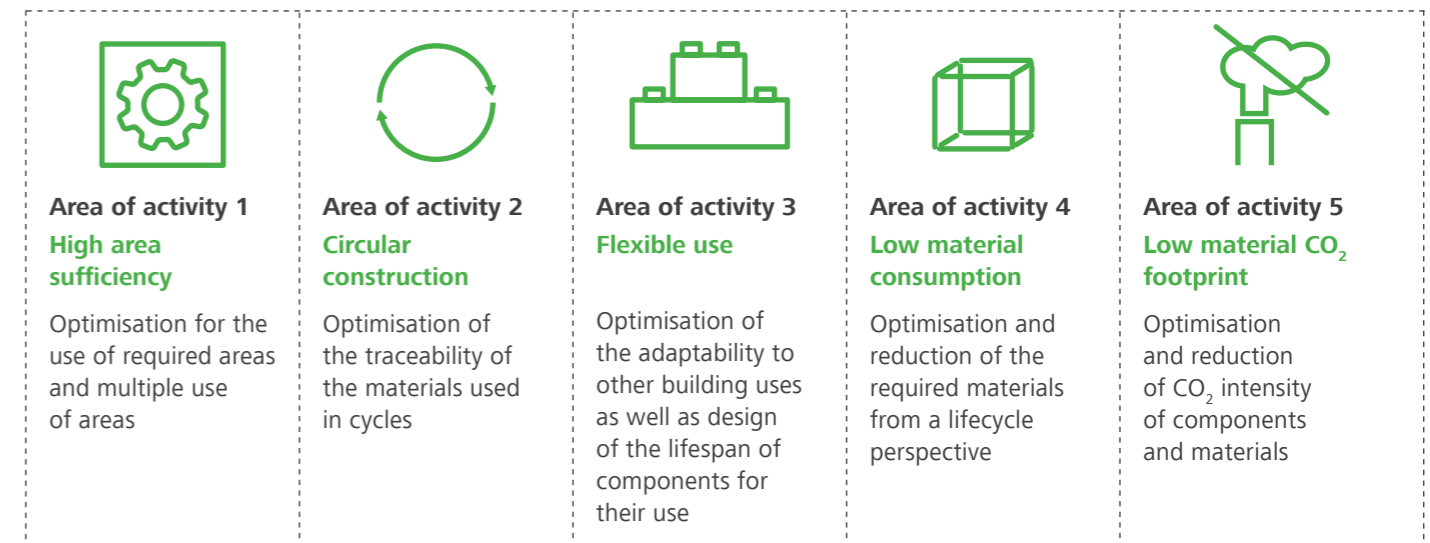


Figure 4:
Areas of activity for the optimisation in new construction



Requirement for monitoring and continual optimisation

The optimisation of buildings towards climate neutrality is not ultimately completed according to the processing of these areas of activity. We must continue to actively ensure that buildings and building management remains climate neutral. Continual monitoring and regular inventory taking is required.

Ultimately, buildings are subject to many dynamic influences throughout the course of their useful life. These could be external, such as a change of the related energy mix, or also internal via a user change or a change in user behaviour. In light of this, it is fundamental that the planning and employment of our buildings is understood not as short-term issue, but as a permanent task and responsibility.

Elements of a climate action strategy

In order to design this task according to the objective and economically, a corresponding strategy must be anchored in the building-related processes. The DGNB has formulated how this can work in its framework for climate neutral buildings and sites.

In the framework for climate neutral buildings and sites, the DGNB has compiled its definition of CO₂ neutrality as well as the associated explanations in regard to approaches and strategies. The objective of the document is to create clarity in the market and to explain effective optimisation approaches for the reduction of greenhouse gas emissions to all actors concerned with the planning, construction, operation and management of real estate.



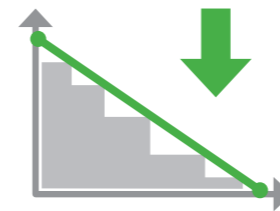
It can be ordered for free under www.dgnb.de/en/framework in digital or printed format.

regular repetition of the 4 steps



Part 1: CO₂ ACCOUNTING IN ORDER TO DETERMINE STATUS

The building-specific CO₂ accounting is to be determined annually on the basis of the measure consumption data. This enables the evaluation as to whether the building operation was implemented as planned and whether an where there is a requirement for action. (further details on page 18)



Part 2: CLIMATE ACTION ROADMAP

Climate action must be planned. Only those who define clear objectives for their buildings, sustain these and thereby also implement measures in a future-orientated manner can optimally combine climate action and economic efficiency. (further details on page 20)



Part 3: CO₂ REPORTING

Companies are responsible for disclosing their activities and decisions in the context of sustainability and climate action. Transparent communication of the actual CO₂ emissions resulting from their own activities, including the consumption of their own building, is absolutely desirable. (further details on page 22)



Part 4: QUALITY ASSURANCE AND VERIFICATION

High building quality and recording the CO₂ emissions caused by the building are an important basis for any climate action strategy. Independent quality assurance is essential in order to be able to demonstrably test the efficacy of the implemented climate action measures. (further details on page 24)

Part 1: CO₂ accounting in order to determine status



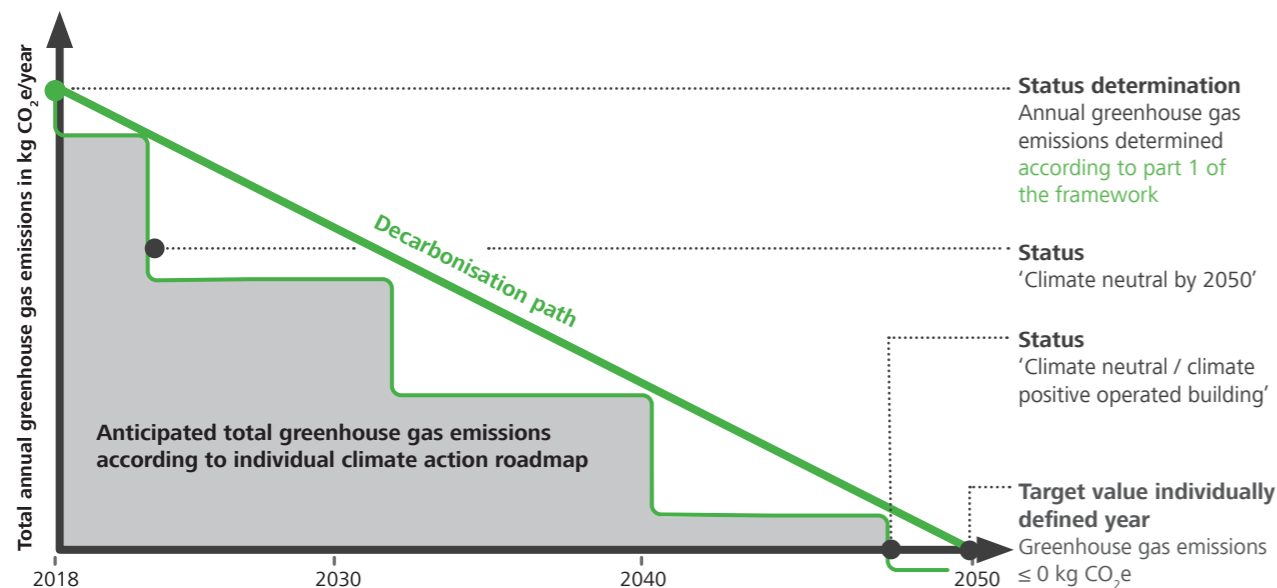
Why are accounting rules necessary?

I can only systematically improve things if I measure them. If all the significant greenhouse gas emissions of a building are determined, individual effective improvements can be identified for these. Ultimately, this is the only way that what has been achieved can also be evaluated.

What exactly should accounting rules include?

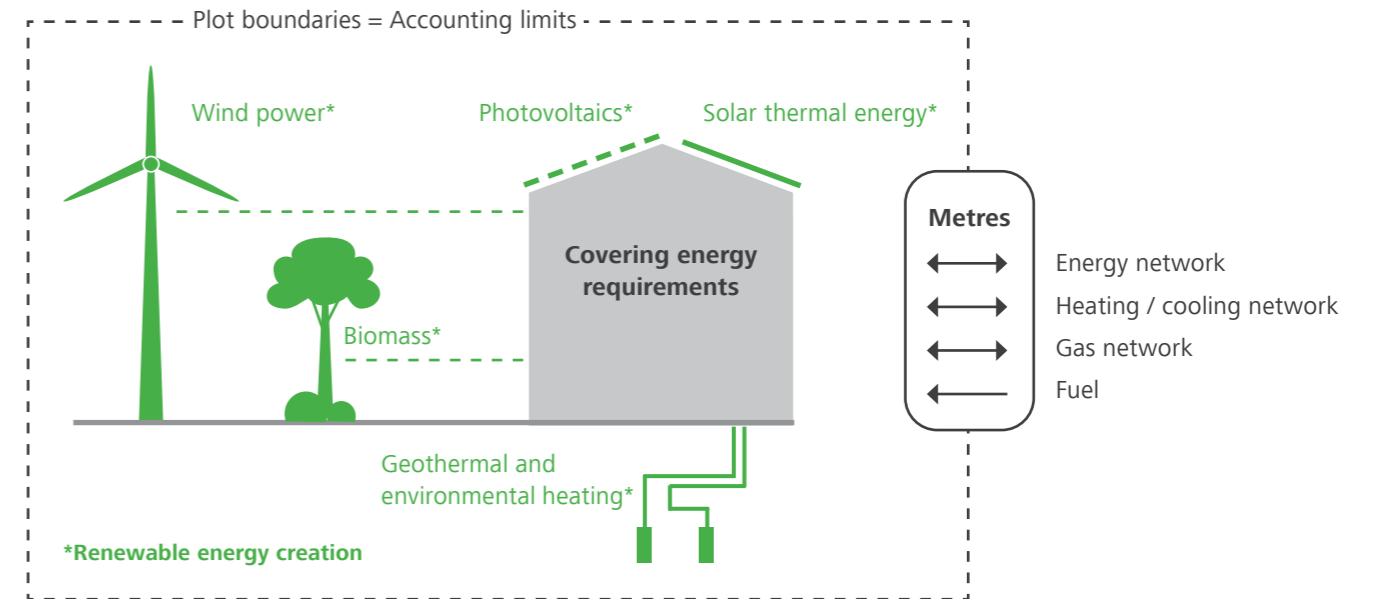
In CO₂ accounting it is essential that the correct, expedient key figures are taken into consideration. The accounting rules recommended by the DGNB in its framework follow the principles of materiality and responsibility. In this process, the entire energy-related emissions which occur during operation are to be recorded. In addition to heating, cooling, warm water and lighting, these also include all further energy consumption. These are, for example, internal transport, all electronic appliances as well as all further energy consumption required for the function of the building.

Figure 5:
Principle illustration of a climate action roadmap



Decarbonisation path = actual CO₂ budget available to a building over time

Figure 6:
Illustration of the limits for building management



How can the CO₂ accounting in the building operation be systematically improved?

The CO₂ accounting of the operation of buildings can be positively influenced by the optimal utilisation of the solar gains at the location. Improvements can also be achieved through an energy efficient building shell, the lowest possible user consumption, a highly efficient and loss-free supply technology and covering the remaining energy requirements through renewable energy sources with these steps. (see areas of activity page 14)

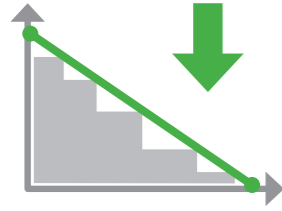
In order to contribute to the transformation of our economic and energy system and to avoid further space consumption, measures which are preferential at the individual location should be implemented for generating energy. If these are not completely realised, the import of externally generated renewable energy sources is a solution and can be accordingly depicted in the accounting result.

When is a building considered climate neutral from an accounting point of view?

A building is considered neutral in use from an accounting point of view if the annual greenhouse gas emissions of the energy import are smaller than the annually avoided greenhouse gas emissions from energy supply. If the CO₂ accounting is taken into account in addition to the greenhouse gas emissions which result from the construction of a building, then it is much more ambitious to achieve climate neutrality than for the greenhouse gas emissions of the operation alone.

Who can implement CO₂ accounting?

Owners, tenants, commissioned energy consultancy experts



Part 2: Climate action roadmap

Why do buildings need a climate action roadmap?

The fight against continued global warming requires targeted investment as quickly as possible, which supports us in staying within the limited CO₂ budget - including when handling the building inventory. A solid decision foundation is required for this type of investment which leads to a minimised building risk and the target of 'climate neutrality'.

What exactly is the climate action roadmap for buildings?

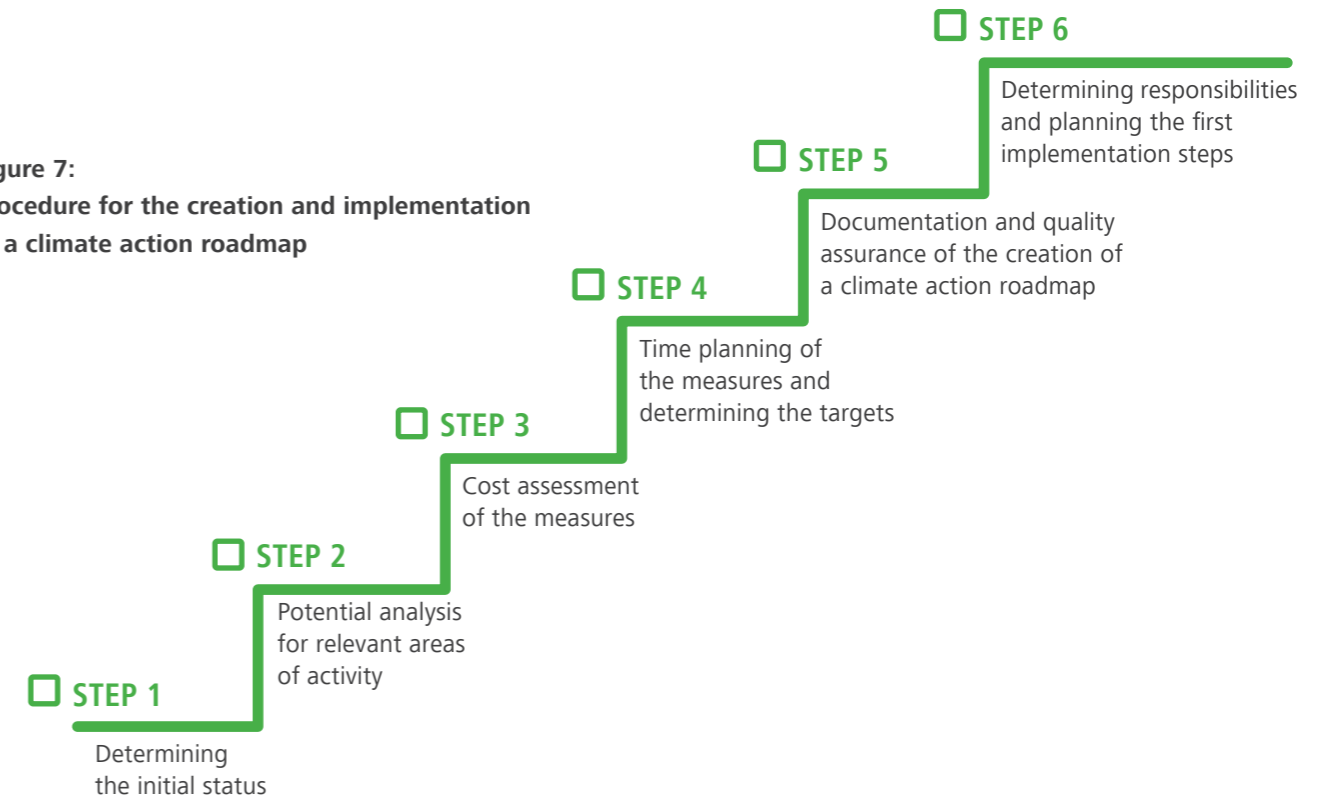
The climate action roadmap is a tool which helps to systematically level buildings on the path to climate neutrality. It is the basis for effective, low-risk climate action management of real estate. At the same time, the climate action roadmap is the result of analyses of different scenarios for achieving climate action targets in the specific context of a building. It describes in detail the measures which are sensible and necessary in order to reduce the greenhouse gas emissions of a building continually and target-orientated using a well-defined time horizon.

How is the climate action roadmap created for specific objects?

If an existing building is to be made climate neutral, the first step necessary is to determine the status quo of the CO₂ emissions caused by the building. Subsequently, the variety of possible measures for the reduction of the greenhouse gas emissions should be investigated accordingly. Then a target year for achieving climate neutrality should be defined for the building. This can be selected freely, however by 2050 at the latest, as from this point all buildings must be climate neutral.

The individual decarbonisation path results from the linking of the initial situation and the target year. The actual CO₂ budget available to a building over time is derived from this. In the creation of a climate action roadmap, the aim is now to put all measures which are particularly effective and sensible for the building in a temporal sequence. The sequence can be both dependent on technical aspects and financing, however also on the remaining CO₂ budget ascribed to the building.

Figure 7:
Procedure for the creation and implementation
of a climate action roadmap



It is important to check the measures in regard to efficacy, benefit and costs. Possible areas of activity include the optimisation of solar gains, the reduction of the building energy, the reduction of user energy, the optimisation of the supply systems and the use of renewable energies for the remaining requirements. (see [areas of activity, page 14](#))

How do I handle the climate action roadmap over time?

Continuous monitoring is decisive in the application of the climate action roadmap. The efficacy of the implemented measures can only be verified if there is a quantitative check as to whether the defined annual planned values are achieved. This is the only way to determine whether a defined climate action roadmap is still sensible in its previous incarnation or whether it must be adapted in order to achieve the targets.

Who creates the climate action roadmap?

Energy consultants, specialist planners with the respective support of the owner



Part 3: CO₂ reporting

Why should information about climate action be communicated?

Building owners and operators, owners and planners, investors, financial experts and political decision-makers as well as clients, employees and residents: More and more groups of people are interested in the key figures relating to building CO₂ emissions. The information which flows into rental and purchasing decisions acts as evidence to ecologically motivated donors or proves the efficacy of the climate action measures implemented.

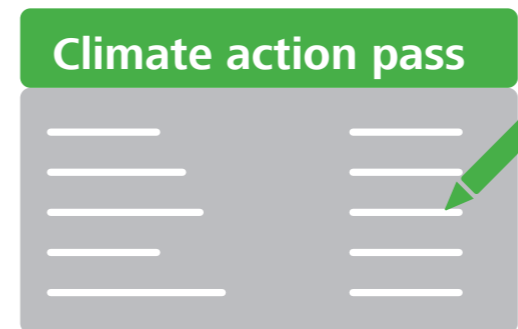
What is important in communication?

Trust in key figures and other specialist information comes from the application of tailored, recognised methods for the determination of key figures as well as a solid check. The DGNB framework provides just such a method for CO₂ accounting in buildings. It is developed from standard works such as the Greenhouse Gas Protocol and the accounting of energy supplies in buildings and is extended by significant building blocks. The Greenhouse Gas Protocol is a beacon for the fundamental principles of the CO₂ accounting method, such as relevance, completeness and consistency. The energy accounting required for the calculation of the CO₂ accounting is extended for a complete CO₂ accounting of a building by the regulated energy supplies (building technology and users).



More and more groups of people are interested in the key figures relating to building CO₂ emissions:

- Building owners
- Facility managers
- Owners
- Planners
- Investors
- Financial experts
- Political decision-makers
- Clients
- Employees
- Residents



Information for a climate action pass

- The entire greenhouse gas emission account (result of a CO₂ account part 1)
- Short description of the building with size and function
- Relative figure with the help of an appropriate reference value (for example tonnes of CO₂ emissions per user or per area)
- Creation of a climate action roadmap with this information if required

What information needs to be communicated?

The overall accounting of the greenhouse gas emissions as a result of a CO₂ accounting can be readily assigned if the function and size of the building is briefly described and made available with the help of a relative key figure (for example, tonnes of CO₂ emissions per user and area). Moreover, it is recommended to describe deviations from the previous result in regular communications and to give an estimation as to whether the target is still achievable in the anticipated time frame. The currently relevant key figures should also be provided in order to highlight the adjustment points and be able to provide energy experts with a classification of the building. The framework recommends the creation of a 'climate action pass' which represents a structured format for climate action relevant building information.

Who creates the reports?

Energy consultants, specialist planners with the respective support of the owner, facility managers, owners and climate action officers



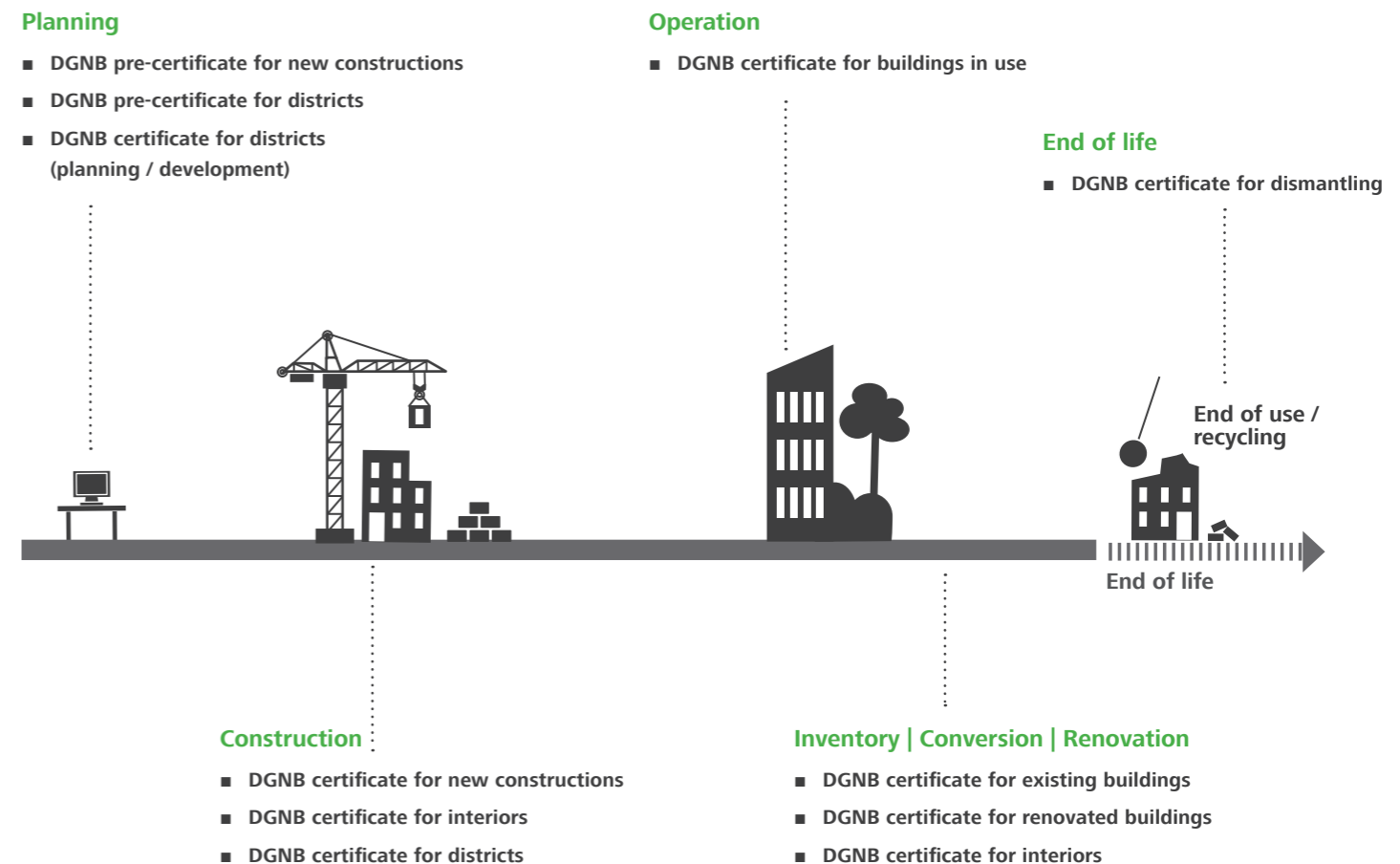
Part 4: Quality assurance and verification

What is the purpose of the quality assurance of climate action activities?

Climate action is on everybody's lips. In order to cope with the values of the corresponding activities, one thing that is necessary is to completely reimagine existing structures and patterns of behaviour. Testing a project in regard to its contribution to climate action, for example in the scope of a DGNB certificate, gives confirmation to all participants from an external source that the set targets were also actually achieved. The independent verification of the effects actually achieved through the measures implemented creates transparency and increases credibility in the public perception. It also strengthens the connectivity among all participants for achieving the common goals. It contributes towards finding interdepartmental solutions - for example in energy planning or in the purchase of suitable construction products. **Nonetheless: the earlier the planning processes for the desired climate action targets for the object can be formulated and published, the greater the probability that better solutions can be found.**

What types of certification does DGNB offer?

The DGNB offers certifications for sustainable buildings, interiors and districts. The DGNB certification is a planning and optimisation tool which helps all parties involved in the implementation of holistic, sustainable quality. The certification also enables transparent quality control. The certification criteria are determined individually for different use types and are applicable both for new builds, existing constructions and renovations. There is also an intrinsic certification for buildings in use. This is a transformation and management instrument for the development of a sustainable, future-proof and climate action orientated real-estate strategy.



Which climate action activities are explicitly certified by DGNB?

Climate action has been a central concern of DGNB since its foundation. To this end, ambitious requirements have always been anchored in all DGNB certification systems. Thus, there are many climate action activities observed in the scope of the criteria which have a positive effect on the certification result. For example, in the certification of new builds, existing buildings or renovations, greenhouse gas emissions which are kept as low as possible are evaluated positively over the entire life-cycle of a building. Bonus points are awarded when climate neutrality is achieved.



The creation and pursuance of climate action roadmaps is awarded in the management of the buildings in use. Buildings which are demonstrably operated in a climate neutral manner, thereby making a positive contribution to energy policy, can be given a special 'climate positive' award. All opportunities from the DGNB can be studied in training courses or read in the criteria for the DGNB certification systems.

Who carries out quality assurance?

Owner, DGNB Auditor

Summary and outlook

Climate action is the order of the day and there is no reason why we cannot finally start the required systematic transformation process. The tools are available, the targets are set.

Construction and buildings affect us all. Meeting the challenges of climate change and address the urgent limitation of its advancement practically are our joint global tasks.

Based on the definition presented here and the associated strategic building blocks, the DGNB is already working actively on the further implementation of the climate action targets in its certification systems. Furthermore, we are committed to explaining, sensitising and providing actual solutions and action instructions to explain the issues to the different actors, such as planners and also cities and communities.

The ever more active financial industry area also represents an area of activity of DGNB in which we are making intensive efforts to input these experiences and our knowledge into the decision making process for finances, insurance and also the definition of sustainable financial products.

Construction and buildings affect us all. Meeting the challenges of climate change and address the urgent limitation of its advancement practically are our joint global tasks. This is precisely why it is important to act while building on existing knowledge in order to ultimately create positive examples which inspire and animate us to copy these.

Because the good news is: we can already construct good buildings!
In a way which will hopefully become the standard by 2050 at the latest.

Let's get started today!

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