DGNB
Deutsche Gesellschaft für Nachhaltiges Bauen
German Sustainable Building Council

DGNB STATEMENT
status as of june 2018

Proposal:

The contents of a future German Building Energy Law in just three pages

To limit the impact of man-made climate change to an "acceptable level", our society needs to drastically reduce its greenhouse gas emissions in the coming years starting today. With global CO_2 emissions still on the increase and CO_2 concentration expected to reach critical levels within 20 years (according to the latest calculations), the immediate responsibility is on politicians, businesses, public institutions, non-governmental organisations, research and education institutions to draw on every ounce of their potential. This calls for new legislative guidelines for the building sector, based on the climate protection goals.

In 2017, the Energy Saving Law (EnEG), the Energy Saving Ordinance (EnEV) and the Renewable Energies Heat Law (EEWärmeG) were merged to produce a draft version of the new "Building Energy Law" (GEG). However, the DGNB believes that the answer is not to build on the existing systems and the same mentality. Instead, we believe that this is our opportunity to apply what we have learned in recent years in order to determine a new, target-oriented approach.

Our concern is that we will lose yet more valuable time if the current GEG draft forms the basis for further debates, since a 150-page EnEV amendment that is, in our opinion, incorrect, convoluted and incomprehensible and therefore is missing the mark. The long service life span of our buildings means that we need future-proof laws today, which will continue to apply until 2050. This can be achieved, which is why the DGNB has produced this three-page GEG proposal that provides an effective focus on the climate protection targets. It was important to us to present this in a clear and target-oriented manner from the outset. This draft must, of course, be subsequently assessed with regard to the various stakeholders involved, the finer scientific points and the legal framework conditions, and reformulated as necessary.

It is important that we shift to a goaloriented thinking, and formulate and discuss this clearly. Only then will it be possible to unite all the relevant players in one common objective. To discuss the technical details at this early stage would serve only to distract from the actual goal.

Our proposal for a "Building Emissions Law 2050" (GEG 2050) incorporates the following four core requirements:

1. **The target figure must be the CO_2 emissions and not the primary energy demand of our buildings.**
2. **The evaluation must be completed using absolute CO_2 emissions limit values and not by means of theoretical reference buildings.**
3. **If target values are not met, a CO_2 fee will apply.**
4. **All evaluations, specifications and control mechanisms must be based on data from actual consumption measurements.**

On this basis, target requirements and financial support create the right economic conditions to facilitate long-term investment in adding value to buildings and to finally encourage the overdue renovation of existing buildings. The GEG 2050 could signal the start of the biggest and most sustainable economic stimulus plan in the history of Germany.

We hope our initiative is of interest to you and that we can join forces to achieve the climate protection goals within the building sector and, not least, to send a positive message to the world through this pragmatic approach. If you have any questions or would like to discuss the matter in person, please do not hesitate to contact us.

Yours faithfully

Prof. Alexander Rudolphi
DGNB chairman of the board

Dr. Christine Lemaitre
Chief Executive Officer

Dr. Anna Braune
Head of Research and Development

Proposal:
Building Emissions Act, valid until 2050 (GEG 2050)

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Section 1 Objective and purpose

(1) In the interest of climate protection, this law paves the way to meeting the Federal Government's climate policy targets of achieving zero-emissions in existing buildings, i.e. climate-neutral operations, by no later than 2050 through the sustainable addition of value to existing buildings and the reduction of fossil fuel imports.

(2) Buildings are assessed exclusively in terms of their CO_2 emissions, whereas the primary energy demand is not taken into account.

(3) Operational CO_2 emissions are assessed. Embodied emissions (manufacture, demolition, recycling) are also assessed from 2025, meaning that, in future, the entire life cycle can be assessed.

(4) Absolute limit values apply, the reference building method is no longer used.

(5) If the CO_2 emissions exceed the permitted limit values, a CO_2 fee is paid, as laid out in Section 12.

(6) The law applies to all technologies so as to accommodate all current and future practices.

Section 2 Scope of application

(1) This law is to be applied to existing and new buildings that emit CO_2 through their operations.

(2) The law is valid until 2050.

(3) For heritage-listed buildings and protected architectural ensembles, Section 6 applies.

Section 3 Basic principle of economic viability

(1) The requirements must be achievable based on current technology and must be economically viable. They are deemed economically viable if the necessary expenditure can be recovered by the savings made over the period of use. Within the meaning of sustainability, a period of 50 years, including any necessary renovation cycles, residual value estimatesfor comfort enhancement or possible financial support, is taken into account. Cost considerations should factor in the impact on society as a whole, such as the cost to the environment.

(2) The economic viability in operation is to be calculated on the present value principle.

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Section 4 Parties responsible

(1) Compliance with this law is the responsibility of the building owner and the people working in the respective field of activity who are employed in the construction or adaptation of the building or its technical facilities.

(2) All CO_2 emissions can be calculated from the energy supplier's bill. Should the annual emissions value not fall within the required limit values, the owner can bring forward renovation measures to reduce the CO_2 fee, in accordance with Section 12.

Section 5 Requirements for existing and newly constructed buildings

(1) When renovating or refurbishing an existing building, you must make a record of the current CO_2 emissions levels prior to the works being undertaken.

(2) This current CO_2 value is to be marked on a CO_2/time graph with a straight line running between it and a zero CO_2 reading against the year 2050. This line (the individual upper limit) defines the maximum CO_2 limit permitted for that specific building every year until 2050.

(3) A renovation roadmap (climate protection plan), which extends to 2050, must be prepared for all buildings. This should include calculations and details of all the renovation measures required to operate the building with zero emissions.

(4) The renovation roadmap can be implemented in phases as partial steps. The individual upper limit for each year, as defined in (2), must not be exceeded in the corresponding year.

(5) From 2020, newly constructed buildings must run at zero-emissions, i.e. climate-neutral operations.

(6) All buildings are subject to the efficiency and modernisation requirements laid out in Appendix 1.

Section 6 Requirements for heritage-listed buildings and architectural ensembles

(1) Considerations of architectural heritage take priority when dealing with listed buildings. Nevertheless, the provisions laid out in Section 5 should be fulfilled as far as possible. Should these conflict with the conservation requirements for listed buildings, an exemption can be granted. In these instances, measures should be taken that conserve the building while also modernising it as far as is possible, in order to safeguard the continued use of heritage-listed buildings.

(2) For districts protected by conservation orders, the district can be balanced as a whole. Compensatory measures across the entire district or a climate-neutral energy supply are only possible for distiricts protected by conservation orders.

Section 7 Thermal insulation for summer

(1) Buildings must be constructed or renovated in such a way that the operative temperature in summer is largely maintained at a maximum 27 °C using passive measures.

(2) In accordance with DIN 4108-2 (2013), this can be recorded in simplified form using a delimitation of the sunlight radiation values or, alternatively, by means of a realistic simulated calculation. DIN 15251 Cat. 3 must also be observed in this process.

Section 8 Electricity saving policy

(1) The electricity that is consumed in the operation of buildings plays a dominant role here. In order to fulfil the requirements laid out in Sections 5, 6 and 7, an all-encompassing electricity-saving policy must be implemented. This should include all the resources in the building that use electricity.

(2) The balance can be calculated using an energy management system as defined by ISO 50001.

Section 9 Grid support

(1) The calculation is restricted to energy flows into and out of the property.

(2) Energy produced on the property can be used on the property immediately.

(3) Energy produced and stored on the property can be traded to reduce inefficient peak loads.

(4) The property's grid interaction is calculated using the Grid Support Coefficient (GSC).

(5) Calculations should be based on electricity prices per quarter hour.

Section 10 Calculation principles

(1) The principle for calculating the CO_2 emissions and final energy demand is a calculation method suitable for structural physics (permitted methods are detailed in a separate publication). This involves setting realistic parameters, such as the actual interior temperature and total electricity consumption including user electricity, in order to produce a calculation that largely matches the values recorded by actual measurements (max. ± 5% variation).

(2) The CO_2 emissions balance is calculated as the annual total of all consumption and profits on the property.

(3) The latest CO_2 conversion factors are to be used. These will decrease each year as the proportion of energy consumption from renewable sources increases.

(4) The CO_2 emissions are calculated per person to allow environmental statements to be made. For this purpose, average occupancy rates must be applied.

(5) The energy reference area in terms of heated or cooled living spaces and usable floor areas can be included for information.

Section 11 Emissions certificate

(1) The findings of the calculation and readings are to be documented in an emissions certificate ("CO_2 passport") as shown in the example in Appendix 1.

(2) This also includes a record of CO_2 feees and financial support.

(3) The emissions certificate is validated by the relevant tax office or its contracted agencies.

Section 12 Financial support and payments

(1) When undertaking renovation work, a defined proportion of the related costs can be written off over the course of 10 years for fee purposes. The level of this deduction depends on the actual CO_2 savings registered.

(2) New constructions do not qualify for the financial support laid out in (1).

(3) Should a zero-emissions new construction or, in the case of an existing building, a CO_2 reduction as defined in Section 5 not be possible straight away, a CO_2 fee is payable each year for the environmental damage caused. The excessive CO_2 emissions are currently charged at €110 per tonne (as per the 2017 environmental cost calculation by the Federal Environmental Agency UBA).

(4) The provisions laid out in (1), (2) and (3) are permitted to be combined with other sources of financial support.

Appendix 1:

Obligatory

CO_2 emissions in the operation of new buildings		From 2020 = none
CO_2 emissions in the operation of renovated buildings	Annual limit values between today and 2050	From 2050 = none
Embodied emissions	Manufacturing, demolition, recycling	No limit value at present

References

External wall	U-value [W/(m²K)]	≤ 0.24
External wall in contact with the ground	U-value [W/(m²K)]	≤ 0.30
Roof	U-value [W/(m²K)]	≤ 0.20
Basement ceiling, base slab	U-value [W/(m²K)]	≤ 0.30
Windows	U_W-value [W/(m²K)]	≤ 1.0
Thermal heat bridge correction factor	U-WB [W/(m²K)]	≤ 0.05
Airtightness	n50 value	≤ 1.0 h-1
Ventilation system with heat recovery, basic ventilation	Effective heat recovery	≥ 80 %
Heat pumps for heating, cooling, hot water	Annual performance factor	> 3.0
Grid support	Grid support coefficient (GSC)	≤ 1.0
Additional systems will be added		

Recommendations for comfort and efficiency (minimum qualities). Only reducing CO_2 emissions is binding; otherwise the GEG 2050 is results-oriented and open to all types of technology.

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The DGNB German Sustainable Building Council

The DGNB German Sustainable Building Council was founded in 2007 and has around 1200 members, making it Europe's biggest network for sustainable building. The aim of the DGNB is to promote sustainability in the construction and real estate industry and instil awareness of building sustainability among the broader population. The DGNB is an independent non-profit organisation. Its certification system offers a planning and optimisation tool for evaluating sustainable buildings and urban districts. It was developed to help organisations enhance the tangible sustainability of construction projects. The DGNB system is based on the concept of holistic sustainability, placing equal emphasis on the environment, people and commercial viability. The DGNB Academy is an education and training platform that has already provided more than 3000 people from over 30 countries with official qualifications in sustainable building.

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