

# »»» Background paper on the Paris-aligned sector guidelines of KfW Group

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## Steering in line with the Paris Agreement

In view of accelerating climate change, it is key to promote a comprehensive global transformation towards a climate-neutral society. The basis is provided by the Paris Agreement with the aim of holding the increase in the global average temperature to well below 2°C and pursuing efforts to limit the temperature increase to 1.5°C. As a transformative promotional bank, KfW Group takes particular responsibility for a greenhouse gas-neutral future. It is important to support customers and partners in their transformation process in a targeted manner to capitalize on the opportunities of this far-reaching structural change, both in terms of economy and society.

## Advancing Paris-alignment

Against this background, KfW Group introduced Paris-aligned sector guidelines for selected emission-intensive sectors for the first time in mid-2021. Within their scope, the sector guidelines serve to shape new commitments in accordance with the temperature target of the Paris Agreement and to systematically strengthen the group-wide contribution to the transformation. In this regard, the sector guidelines constitute an effective instrument for the implementation of German climate policy. At the same time, they ensure that existing obligations remain unaffected and that high-level decisions on funding policy remain possible.

Furthermore, with the introduction of the Paris-aligned sector guidelines, KfW Group is underlining its aim of achieving a greenhouse gas-neutral portfolio in the first half of the century. In addition to far-reaching decarbonisation, the remaining greenhouse gas emissions must be offset by financing projects in the field of sustainable greenhouse gas sinks and storage. In order to ensure the highest degree of consistency and transparency with view to the future counting of such negative emissions, KfW Group is currently developing a corresponding methodology. The progress towards a greenhouse gas-neutral portfolio is monitored annually by a group-wide greenhouse gas accounting.

Transformations are characterized by increasing intensity and dynamics. This is why KfW Group attaches great importance to the further development and updating of its Paris-aligned sector guidelines. To ensure effectiveness and efficiency, KfW Group evaluates changing framework parameters in a structured manner. If necessary, the sector guidelines are adjusted accordingly in the course of regular reviews. In addition to climate policy objectives, other

aspects such as climate science findings, new technological possibilities, market developments and regulatory requirements are also analyzed in this process.

## Focus and steering system

The Paris-aligned sector guidelines of KfW Group focus on sectors which are characterised by high greenhouse gas emissions and which constitute significant financing volumes regarding group-wide new commitments. This configuration enables KfW Group to target the new financing arrangements with the highest potential for effectively promoting the transformation and to reduce KfW Group's greenhouse gas footprint as much as possible. Due to these considerations, the Paris-aligned sector guidelines are covering (1) power generation, (2) iron and steel production, (3) the automotive sector, (4) aviation, (5) shipping and (6) the building sector in the introductory year 2021. As displayed in the detailed illustrations of this background paper, some sector guidelines are designed to cover all new commitments in a certain sector, while others focus on particularly emission-intensive areas within a sector. As part of the regular reviews mentioned above, KfW Group will consider expanding its Paris-aligned steering system to include additional emission-intensive sectors and areas.

With view to the function of the Paris-aligned sector guidelines, it should be noted that they are not a "guide" for the design of climate protection projects. Instead, they set sector-wide minimum requirements for financed investments in order to avoid harming the climate. With the support of PwC and the Fraunhofer Institute for Systems and Innovation Research ISI, KfW Group derived these minimum requirements from recognized climate scenarios and relied in particular on the Sustainable Development Scenario (SDS) of the International Energy Agency (IEA). This scenario corresponds to limiting the temperature rise to 1.65°C with a 50 percent probability.

At the same time, broad-based transformation support can only be achieved through requirements that remain feasible for customers and partners. Otherwise, the manifold funding and financing offers would not generate impact due to insufficient demand. That is why KfW Group intends to raise the sector guidelines' level of ambition gradually over time, taking into account sectoral technology and market developments. The minimum requirements defined for this purpose in the sector guidelines are in line with the Paris-aligned decarbonisation pathways of the above-mentioned climate scenarios,

which project how the speed of decarbonisation will vary depending on each sector. Consequently, where greenhouse gas-neutral technologies are already marketable, the Paris-aligned sector guidelines define more ambitious minimum requirements than in sectors that are just starting to develop greenhouse gas-neutral solutions. Taking into account KfW Group's role as a transformative promotional bank, this sectoral differentiation helps to particularly advance those sectors in the transformation process that have so far only achieved minor greenhouse gas reductions and are therefore of crucial importance with regard to achieving the Paris climate goals.

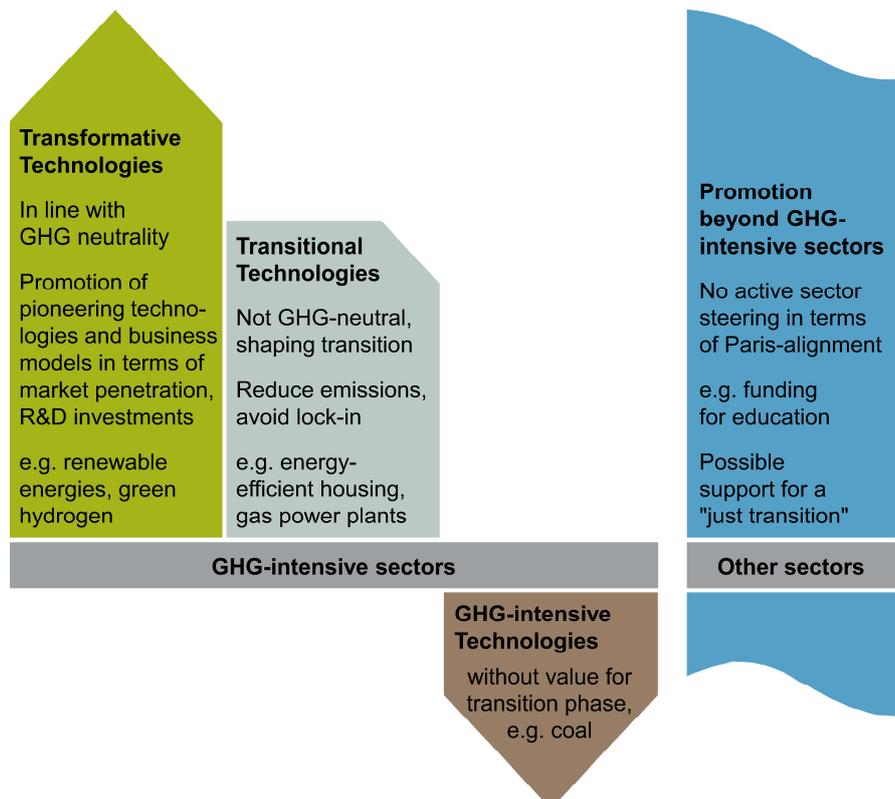
To ensure Paris-alignment, the sector guidelines also take into account that the climate impact of financed systems, power plants, buildings etc. does not end with the repayment of the associated loans, because these assets are generally used beyond the loan term. That is why KfW Group has defined the minimum requirements of its Paris-aligned sector guidelines under consideration of the expected technical lifetime (technological lock-in) of the investments steered through the guidelines in accordance with the Paris-aligned decarbonisation pathways.

**Shaping transformation and transition**

Within the scope of application, the sector guidelines are Paris-aligned because their defined minimum requirements ensure compliance with the decarbonisation pathways mapped out in Paris-aligned climate scenarios. As a result, the sector guidelines specifically illustrate the mix of transformation and transition technologies that can shape the structural change process in line with the Paris Agreement:

- KfW will increasingly promote transformative technologies that contribute directly to the desired greenhouse gas neutrality. In addition to investments in research and development, this includes above all greenhouse gas-neutral technologies and business models that are already marketable and need suitable financing for further market penetration. This applies to renewable energies and green hydrogen, for example.
- KfW will continue to finance transitional technologies. Even though transitional technologies cause greenhouse gas emissions, they play an important role with view to shaping the transition phase in a climate-friendly and successful manner. In terms of Paris-alignment, it is crucial to limit the financing volumes for these technologies in accordance with the Paris-aligned decarbonisation pathways, to continuously rely on the best available technologies and to avoid long-term carbon lock-in effects. For example, based on this approach, KfW Group steers its financing for gas-fired power plants until end-2029 through the application of a limiting quota (see sector guideline for power generation below).
- Greenhouse gas-intensive technologies that are neither consistent with long-term greenhouse gas neutrality nor required for the transition phase, will be excluded by KfW.
- Financing activities outside of emission-intensive sectors are generally not subject to KfW's Paris-aligned steering system, because they are only of minor relevance for achieving the Paris climate targets.

**Figure 1: Paris-aligned development of new business in support of transformation and transition phase in the period up to end-2029.**

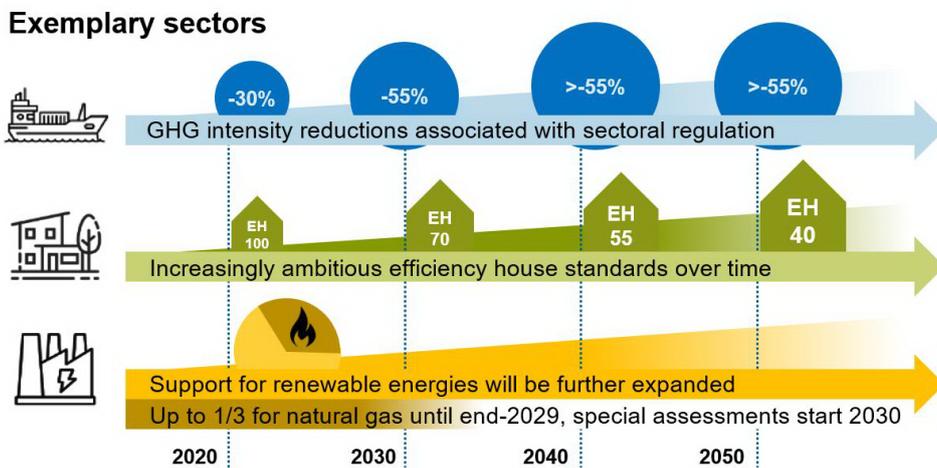


As part of the development work for the Paris-aligned sector guidelines, it is also important for KfW Group to ensure efficiency and manageability for customers and partners. Therefore, the sector guidelines intentionally define their Paris-aligned minimum requirements on the basis of metrics that are already established in the respective economic sectors. As illustrated by the following overviews, this leads to sector-specific and therefore also quite diverse approaches, ranging from technology lists and technology quotas to efficiency requirements and greenhouse gas budgets. Nevertheless, the joint methodological basis of the sector guidelines is that they are all based on Paris-aligned decarbonisation pathways and that, consequently, their minimum requirements become more and more ambitious over time.

**Current sector guidelines and outlook**

The Paris-aligned sector guidelines, first introduced in 2021, define specific minimum requirements for new commitments in emission-intensive sectors. These requirements are designed for the period until end-2029 and will be reviewed regularly. In addition, KfW Group would also like to promote dialogue on the specific implementation of the Paris Agreement in the medium and long term. With this in mind, the following sections of the present background paper offer sectoral outlooks with conceivable Paris-aligned minimum requirements up to the year 2050, so as to contribute to long-term intergenerational planning beyond the year 2030.

**Figure 2: Paris-aligned minimum requirements become more ambitious over time.**



**(1) Power generation**

The Paris-aligned sector guideline for power generation supports the expansion of renewable energies, which are eligible for financing as transformative technologies (e.g. wind power, photovoltaics, solar thermal power plants, power plants for power generation from sustainable biomass). At the same time, in order to successfully shape the transition phase towards greenhouse gas neutrality, the sector guideline also takes into account the role of natural gas power plants.

Measured against the financial volume of annual commitments for natural gas power plants and renewable energies, however, the amount for natural gas power plants (new construction and modernisation) shall not exceed one third. This quota applies until end-2029. The calculation is carried out on a rolling basis over three years and at the level of each business area. KfW's domestic promotional activities are in this case calculated as one business area (including "Individualfinanzierung & Öffentliche Kunden" and "Mittelstandsbank & Private Kunden").

New commitments for oil and diesel power plants remain possible until the end of 2029 in particular cases which require strict examination. The financial volume of new commitments for oil and diesel power plants is first multiplied with a predefined factor and then counted as part of the limiting one-third quota for natural gas power plants mentioned above.

The Paris-aligned sector guideline for power generation does not provide for commitments regarding coal-fired power plants or nuclear power plants (neither new construction nor

modernisation). Both are excluded via KfW Group's exclusion list<sup>i</sup>, which is applied by all business areas. Moreover, the exclusion list also applies to financing activities that are not covered by the Paris-aligned sector guidelines presented in this background paper.

**Scope of application**

The following cases are steered by the Paris-aligned sector guideline:

- The sector guideline applies to KfW Group's worldwide commitments in the power generation sector, covering all power plants designed to feed into the grid for public electricity supply.

The following cases are not steered by the sector guideline:

- Power grids and power storage facilities do not fall within the scope of the sector guideline.
- Power plants that primarily cover the own consumption of a company and do not feed into the grid for public power supply (or only do so on a subordinate basis), are not steered by the sector guideline.
- When financing is provided for purposes that cannot be defined technologically, the respective commitments are not subject to the sector guideline (e.g. general corporate finance for power generation companies). This also applies to financing for financial intermediaries, if the purpose of the financing cannot be defined technologically.

**Overview on quota calculation**

Power generation technologies	Quota calculation per business area
<ul style="list-style-type: none"> <li>▪ Wind power onshore and offshore</li> <li>▪ Photovoltaics (PV, incl. battery storage as hybrid power plants)</li> <li>▪ Concentrated solar power (CSP) plants</li> <li>▪ Hydropower and tidal power plants</li> <li>▪ Geothermal power plants</li> <li>▪ Power plants for power generation from sustainable biomass (proof of certification)</li> <li>▪ In the future, possibly additional power generation technologies that are greenhouse gas-neutral and sustainable</li> </ul>	<p>At least two thirds: New commitments for the power generation technologies listed on the left must reach at least two thirds of the total new commitments for the power generation sector. This share is applicable to each business area with view to the financial volumes committed within three business years.</p>
<ul style="list-style-type: none"> <li>▪ Natural gas power plants (new construction and modernisation)</li> <li>▪ Oil/diesel power plants (new construction and modernisation in particular cases to be strictly examined)</li> </ul>	<p>Up to one third: New commitments for the power generation technologies listed on the left may reach up to one third of the total new commitments for the power generation sector. The share is applicable to each business area with view to the financial volumes committed within three business years.</p>

<sup>i</sup> Link: [www.kfw.de/exclusionlist](http://www.kfw.de/exclusionlist)

## Power generation: Overview and outlook on conceivable minimum requirements beyond 2030

	01.09.2021 – 31.12.2029	01.01.2030 – 31.12.2039	01.01.2040 - 31.12.2049	2050
<b>Continuing to demand and promote renewable energies</b>  	<ul style="list-style-type: none"> <li>• Wind onshore and offshore</li> <li>• Photovoltaics (Solar PV, including battery storage as hybrid power plants)</li> <li>• Concentrated solar power (CSP)</li> <li>• Sustainable biomass (C)</li> <li>• Hydropower and tidal power plants</li> <li>• Geothermal power plants</li> <li>• Electricity storage such as batteries for integration (not part of the quota calculation, see A)</li> <li>• Renewable hydrogen electrolysis (not part of the quota calculation, see A)</li> </ul>	<ul style="list-style-type: none"> <li>• See period from 2020 as well as further greenhouse gas-neutral and at the same time sustainable power generation technologies in the future</li> </ul>		
<b>Differentiated consideration of natural gas and oil power plants</b>  	<ul style="list-style-type: none"> <li>• Commitments for natural gas power plants remain possible until the end of 2029. In terms of the annual commitment volume for natural gas power plants and renewable energies, the annual commitments for natural gas power plants (new construction and modernisation) must not exceed 1/3. The calculation is carried out at the level of the business areas on a rolling basis over the last three years.</li> <li>• Oil/diesel power plants in particular cases that have to be checked strictly to ensure Paris-alignment, including factor-based crediting as part of the limiting 1/3 quota for natural gas power plants.</li> <li>• Waste incineration without energetic use is still Paris-aligned.</li> </ul>	<ul style="list-style-type: none"> <li>• Modernisation of gas technologies to make them suitable for peak load operation (capacity market).</li> <li>• Investment in gas technologies (without CCS) only on a case-by-case basis (B).</li> <li>• Gas technologies in combination with Carbon Capture and Storage (CCS), taking into account the respective political decisions.</li> <li>• Waste incineration only with energetic use.</li> </ul>		
<b>No KfW financing</b>	<ul style="list-style-type: none"> <li>• Coal power plants, nuclear power plants</li> </ul>			

(A) Technologies in accordance with the Paris Agreement (including synthetic fuels or synthetic chemicals), but according to the NACE economic sector classification, it does not belong to power generation.

(B) Consideration of the particular cases ensures that no significant additional CO<sub>2</sub> emissions are generated through investments in natural gas power plants, i.e. operation exclusively to ensure network stability (capacity market).

(C) Group-wide requirement for demanding certificates.

Additional explanation: Gas technologies include thermal power plants that are fired with natural gas, for example "Open Cycle Gas Turbine" (OCGT) or "Combined Cycle Gas Turbine" (CCGT).

**(2) Iron and steel production**

The Paris-aligned sector guideline for iron and steel production (NACE code 24.10, partly also 19.10) is primarily focused on the "hot phase" of the sector. It differentiates between (i) transformative technologies, which contribute directly to the desired greenhouse gas neutrality, and (ii) transitional technologies, which are of relevance but continuously decreasing importance in terms of shaping the transition towards greenhouse gas neutrality. Accordingly, the Paris-aligned sector guideline aims to increase the share of new KfW financing for transformative technologies and to limit KfW financing for transitional technologies. In case future technologies meet ambitious thresholds with regard to emissions (t CO<sub>2</sub> per t crude steel), KfW financing for these technologies can also be counted as transformative, even though these technologies are not mentioned in the Paris-aligned sector guidelines.

The steering of the quota with regard to the transitional portion of the financing volume is carried out by KfW Group.

**Scope of application**

The following cases are steered by the Paris-aligned sector guideline:

- New financing for the "hot phase" of iron and steel production is steered in accordance with the quota defined in the table below.

The following cases are not steered by the sector guideline:

- General corporate finance and financing through financial intermediaries for iron and steel manufacturers, if the purpose of the financing cannot be defined technologically.

**Overview on quota calculation**

Technologies	New financing in the period 01.01.2020 - 31.12.2024	New financing in the period 01.01.2025 - 31.12.2029
<b>Advancing transformative technologies</b>	New construction: <ul style="list-style-type: none"> <li>▪ EAF, scrap-based</li> <li>▪ BOF/DRI with CCU/CCUS/CCS</li> <li>▪ Hydrogen direct reduction</li> <li>▪ Iron electrolysis</li> </ul> Existing: <ul style="list-style-type: none"> <li>▪ Greenhouse gas reduction measures including CCUS/CCS</li> <li>▪ New lining EAF</li> </ul> Or: < 0.3 t CO <sub>2</sub> /t crude steel	New construction: <ul style="list-style-type: none"> <li>▪ EAF, scrap-based</li> <li>▪ BOF/DRI with CCU/CCUS/CCS</li> <li>▪ Hydrogen direct reduction</li> <li>▪ Iron electrolysis</li> </ul> Existing: <ul style="list-style-type: none"> <li>▪ Greenhouse gas reduction measures including CCUS/CCS</li> <li>▪ New lining EAF</li> </ul> Or: < 0.2 t CO <sub>2</sub> /t crude steel
<b>Limiting transitional technologies</b>	Concerning the "hot phase" of the production process, each business area may commit up to 50% of its new financing volume for the following technologies.                     New construction: <ul style="list-style-type: none"> <li>▪ BOF</li> <li>▪ DRI</li> <li>▪ Coking plants only with dry coke cooling</li> </ul> Existing: <ul style="list-style-type: none"> <li>▪ New lining BOF</li> <li>▪ New lining DRI</li> </ul> Or: 0.3 ≤ x < 1.6 t CO <sub>2</sub> /t crude steel	Concerning the "hot phase" of the production process, each business area may commit up to 39% of its new financing volume for the following technologies.                     New construction: <ul style="list-style-type: none"> <li>▪ BOF</li> <li>▪ DRI</li> <li>▪ Coking plants only with dry coke cooling</li> </ul> Existing: <ul style="list-style-type: none"> <li>▪ New lining BOF</li> <li>▪ New lining DRI</li> </ul> Or: 0.2 ≤ x < 1.5 t CO <sub>2</sub> /t crude steel
KfW financing for casting plants and rolling mills remains possible. However, as these facilities are not part of the "hot phase" of the production process, the associated financing volume is not taken into account for the calculation of the quotas mentioned above.		

Abbreviations      BOF: Basic Oxygen Furnace  
 DRI: Direct Reduced Iron  
 EAF: Electric Arc Furnace

CCUS: Carbon Capture, Utilisation and Storage  
 CCU: Carbon Capture and Utilisation  
 CCS: Carbon Capture and Storage

**Iron and steel production: Overview and outlook on conceivable minimum requirements beyond 2030**

Iron and steel production	01.07.2021 - 31.12.2024	01.01.2025 - 31.12.2029	01.01.2030 - 31.12.2034	01.01.2035 - 31.12.2039	01.01.2040 - 31.12.2049
<b>Advancing transformative technologies</b>	<b>New construction (2020-2050):</b> <ul style="list-style-type: none"> <li>EAF, scrap-based</li> <li>BOF/DRI with CCUS/CCS</li> <li>Hydrogen direct reduction</li> <li>Iron electrolysis</li> </ul>			<b>Existing (2020-2050):</b> <ul style="list-style-type: none"> <li>GHG reduction measures including CCUS/CCS</li> <li>New lining EAF</li> </ul>	
	<b>Or:</b> < 0.3 t CO <sub>2</sub> /t crude steel	< 0.2 t CO <sub>2</sub> /t crude steel	< 0.1 t CO <sub>2</sub> /t crude steel	~ 0 t CO <sub>2</sub> /t crude steel	~ 0 t CO <sub>2</sub> /t crude steel
<b>Limiting transitional technologies</b>	<b>Maximum 50% of the investment volume of the "hot phase"</b>	<b>Maximum 39% of the investment volume of the "hot phase"</b>	<b>Maximum 23% of the investment volume of the "hot phase"</b>	<b>Maximum 6% of the investment volume of the "hot phase"</b>	
	<b>Existing</b> <ul style="list-style-type: none"> <li>New lining BOF</li> <li>New lining DRI</li> </ul> <b>New construction</b> <ul style="list-style-type: none"> <li>BOF</li> <li>DRI</li> <li>Coking plants only with dry coke cooling</li> </ul> <b>Or:</b> < 1.6 t CO <sub>2</sub> /t crude steel	<b>Existing</b> <ul style="list-style-type: none"> <li>New lining BOF</li> <li>New lining DRI</li> </ul> <b>New construction</b> <ul style="list-style-type: none"> <li>BOF</li> <li>DRI</li> <li>Coking plants only with dry coke cooling</li> </ul> <b>Or:</b> < 1.5 t CO <sub>2</sub> /t crude steel	<b>Existing</b> <ul style="list-style-type: none"> <li>New lining BOF</li> <li>New lining DRI</li> </ul> <b>New construction</b> <ul style="list-style-type: none"> <li>DRI</li> </ul> <b>Or:</b> < 1.4 t CO <sub>2</sub> /t crude steel	<b>Existing</b> <ul style="list-style-type: none"> <li>New lining DRI</li> </ul> <b>New construction</b> <ul style="list-style-type: none"> <li>DRI</li> </ul>	
<b>Conceivable exclusions</b>			<b>New/existing construction</b> <ul style="list-style-type: none"> <li>BOF without CCS/CCU</li> <li>Coking plants</li> </ul>	<b>New/existing construction</b> <ul style="list-style-type: none"> <li>BOF without CCS/CCU</li> <li>DRI without hydrogen</li> <li>Coking plants</li> </ul>	<b>New/existing construction</b> <ul style="list-style-type: none"> <li>BOF without CCS/CCU</li> <li>DRI without hydrogen</li> <li>Coking plants</li> </ul>

### (3) Automotive sector

The Paris-aligned sector guideline for the automotive sector refers to the production and research/development (R&D) of passenger cars and light commercial vehicles (< 3.5 t), as well as suppliers and infrastructure (NACE codes 29.1, 29.2 and 29.3).<sup>ii</sup> Within this scope, the sector guideline focuses on propulsion technologies, thereby distinguishing as follows:

- Transformative propulsion technologies contribute directly to the desired greenhouse gas neutrality. This includes battery electric vehicles (BEV) and fuel cell vehicles (FCEV), as well as plug-in hybrid propulsion until end-2024 (PHEV, will be considered a transitional propulsion technology starting from 2025).
- Transitional propulsion technologies are relevant but of continuously decreasing importance in terms of shaping the transition phase towards greenhouse gas neutrality. These technologies include internal combustion engines (ICE) and hybrid electric vehicles (HEV, i.e. full hybrids that enable electric driving, equipped with batteries that cannot be charged via the power grid).

The Paris-aligned sector guideline aims to increase KfW's financing share for transformative propulsion technologies and to limit KfW's financing share for transitional propulsion technologies. With regard to the time period from 1 July 2021 to 31 December 2024, new financing for the abovementioned propulsion technologies will therefore be managed by KfW Group in such a way that the transformative share of the financing volume reaches at least 52% and that the transitional share remains limited to a maximum of 48 percent.<sup>iii</sup>

The steering of the quota for the transitional share of the overall financing volume is conducted by KfW Group.

#### Scope of application

The following cases are steered by the Paris-aligned sector guideline:

- New financing for the propulsion-related parts of automotive production (limiting quota for transitional propulsion technologies).
- New financing for production plants.

The following cases are not steered by the sector guideline:

- New financing for the acquisition of vehicles or fleets (e.g. also leasing).
- Production and research/development in vehicle segments > 3.5 t.
- Process steps that are not related to propulsion technologies (including press shop, car body, axles, paint shops, assembly, test/quality control, delivery) as well as suppliers of vehicle parts that are not related to propulsion (e.g. floor, seats, bumpers, mirrors)
- General corporate finance and financing through financial intermediaries for automobile manufacturers or suppliers, if the purpose of the financing cannot be defined technologically.
- Financing outside NACE codes 29.1, 29.2 and 29.3 is not part of the steering for the automotive sector and is therefore also excluded from the quota calculation regarding transitional/transformational propulsion technologies (e.g. charging infrastructure, synthetic fuel production, biofuel production).

<sup>ii</sup> As the Paris-aligned requirements of the sector guideline focus on propulsion, NACE code 29.2 is only relevant for steering when KfW Group finances an entire production plant that does not allow for a precise calculation regarding the financing share related to propulsion.

<sup>iii</sup> With view to the time period from 2025 to 2029, the transformative share of the financing volume must be at least 67%. The transitional share must be limited to a maximum of 33%.

## Automotive sector: Overview and outlook on conceivable minimum requirements beyond 2030

	01.07.2021 – 31.12.2024	01.01.2025 – 31.12.2029	01.01.2030 – 31.12.2034	01.01.2035 bis 31.12.2049
<b>Advancing transformative technologies</b>	<p><b>Single investment:</b></p> <ul style="list-style-type: none"> <li>Production systems for transformative propulsion technologies (BEV, FCEV, PHEV with &gt; 50 km of all-electric driving) as well as their suppliers and infrastructure</li> <li>Highly efficient combustion engines explicitly designed for the higher knock resistance of CO<sub>2</sub>-neutral fuels</li> <li>Modern battery production for passenger cars</li> <li>Sustainable investments in propulsion technologies in accordance with the EU taxonomy</li> <li>Research and development (R&amp;D) in transformative propulsion technologies</li> </ul>	<p><b>Single investment:</b></p> <p>See previous period, but now without plug-in hybrid propulsion (PHEV, to be considered a transitional propulsion technology starting from 2025)</p>	<p><b>Single investment:</b></p> <ul style="list-style-type: none"> <li>Sustainable investments in propulsion technologies in accordance with the EU taxonomy</li> <li>Production systems for transformative propulsion technologies (including BEV, FCEV) as well as their suppliers and infrastructure</li> <li>Research and development (R&amp;D) in transformative propulsion technologies</li> </ul>	<p><b>Single investment:</b></p> <p>See previous period</p>
<b>Limiting transitional technologies</b>	<p><b>Single investment</b></p> <ul style="list-style-type: none"> <li>≤ 48% Volume of commitments in production facilities for transitional propulsion technologies and their suppliers</li> </ul>	<p><b>Single investment</b></p> <ul style="list-style-type: none"> <li>≤ 33% Volume of commitments in production facilities for transitional propulsion technologies (including PHEV) and their suppliers</li> </ul>	<p><b>Single investment</b></p> <ul style="list-style-type: none"> <li>≤ 22% Volume of commitments in production facilities for transitional propulsion technologies and their suppliers</li> </ul>	<p><b>Single investment</b></p> <ul style="list-style-type: none"> <li>≤ 14% by 2040 and 0% by 2050 in production facilities for transitional propulsion technologies and their suppliers</li> </ul>
	<ul style="list-style-type: none"> <li>No new financing for research and development (R&amp;D) in transitional propulsion technologies during the entire period illustrated above</li> </ul>			

#### (4) Aviation

The Paris-aligned sector guideline for aviation applies to the financing of aircraft designed for the transport of people and goods (NACE codes 51.1 and 51.21). It also applies to financing for aircraft lessors (NACE code 77.35). As a matter of principle, KfW Group always relies on the best available technologies. However, since no marketable, transformative technologies for a greenhouse gas-neutral future are available in the aviation sector so far, the sector guideline ensures Paris-alignment by systematically limiting the CO<sub>2</sub> emissions of the aircraft financed by KfW Group in line with the International Energy Agency's (IEA) underlying decarbonisation pathway.

Specifically, this is done by limiting the CO<sub>2</sub> budget (in t CO<sub>2</sub> per year) for the annual new aviation commitments. This CO<sub>2</sub> budget is reduced by 2.06% every year compared to the previous year. The starting point of this steering mechanism is the year 2019, for which a representative baseline has been determined. In case the CO<sub>2</sub> budget for one year has been spent, the remaining CO<sub>2</sub> budget from the two previous years can be used. Accordingly, if the CO<sub>2</sub> budget for one year has not been fully spent, the remaining CO<sub>2</sub> budget of this year can still be used in the following two years if necessary. Any further banking of unused CO<sub>2</sub> budgets (e.g. to the third year following) is not admitted under the steering mechanism.

Generally, the commitments in the scope of the sector guideline do not cover the entire purchase price of an aircraft but only a portion of it. Consequently, KfW Group only counts

the annual CO<sub>2</sub> emissions of financed aircraft in the amount that corresponds to KfW Group's financing share. Since the purchase price is not made transparent (which is common practice in aircraft financing), the above-mentioned calculation of the share is based on the aircraft value determined by an independent expert opinion document.

#### Scope of application

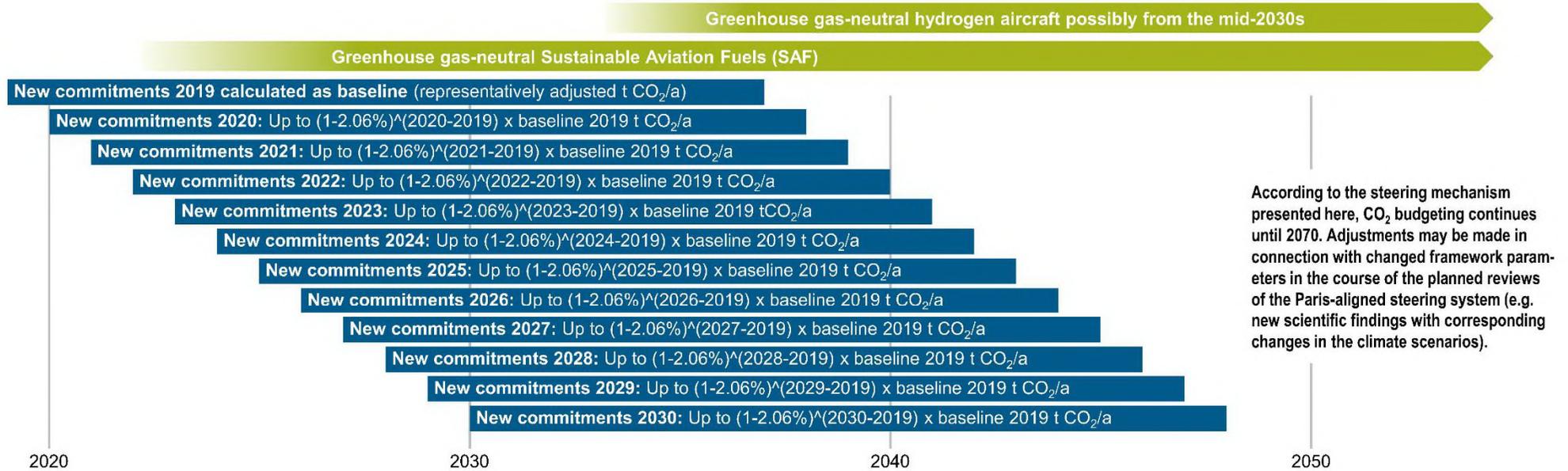
The following cases are steered by the Paris-aligned sector guideline:

- The sector guideline applies to the worldwide commitments made by KfW Group regarding the financing of aircraft for passenger transport (NACE code 51.1) and for the transport of goods (NACE code 51.21), including portfolio financing.
- In addition, the sector guideline also applies to general financing to lessors in the aviation sector (NACE code 77.35).

The following cases are not steered by the sector guideline:

- Commitments beyond aircraft financing are not part of the steering mechanism. For example, the sector guideline for aviation does not cover airports and the development or production of new aircraft.
- With the exception of aircraft leasing, the sector guideline does not apply to general corporate finance. For example, commitments to suppliers (e.g. engine manufacturers) are not steered by the sector guideline.

Aviation: Overview and outlook on conceivable minimum requirements beyond 2030



Paris-aligned application

- Steering includes NACE codes 51.1 (passenger transport), 51.21 (freight transport in aviation) and aircraft leasing (77.35 renting and leasing of air transport equipment). Areas such as airports, engine manufacturers or the development of new aircraft are not part of the steering.
- As illustrated above, the CO<sub>2</sub> budget decreases every year by 2.06% compared to the previous year.
- In case the CO<sub>2</sub> budget for one year has been spent, the remaining CO<sub>2</sub> budget from the two previous years can be used. Accordingly, if the CO<sub>2</sub> budget for one year has not been fully spent, the remaining CO<sub>2</sub> budget of this year can still be used in the following two years if necessary. Any further banking of unused CO<sub>2</sub> budgets (e.g. to the third year following) is not admitted under the steering mechanism.
- The conversion of the annual CO<sub>2</sub> budget to the annual volume of new commitments according to aircraft type is based on representative CO<sub>2</sub> emissions.
- As with all other sector guidelines, the steering for aviation is checked at regular intervals and adjusted if necessary, including with view to new scenario data (e.g. annual reduction rate and CO<sub>2</sub> budgets).
- The assumption of 18 years lock-in time for the financed aircraft applies across the board for all new commitments including portfolio financing.

Exemplary calculation taking into account financing shares:  
CO<sub>2</sub> budget utilisation for three financed aircraft in year X

Aircraft type (e.g. A320)	Emissions p. a. assuming representative occupancy	KfW's financing share of the purchase price (equity + borrowed capital)	Utilisation of the CO <sub>2</sub> budget for new commitments in year X
Aircraft type 1	30,000 t CO <sub>2</sub> /a	10%	3,000 t CO <sub>2</sub> /a
Aircraft type 2	25,000 t CO <sub>2</sub> /a	20%	5,000 t CO <sub>2</sub> /a
Aircraft type 3	20,000 t CO <sub>2</sub> /a	20%	4,000 t CO <sub>2</sub> /a
<b>Total</b>			<b>12,000 t CO<sub>2</sub>/a</b>

## (5) Shipping

The Paris-aligned sector guideline defines particular efficiency requirements for new financing in shipping (NACE codes 50.1 and 50.2) based on the Energy Efficiency Design Index (EEDI) for ship types and sizes. The efficiency requirements are based on the emission reduction targets formulated in the IMO greenhouse gas strategy (-40%/-70% relative to 2030/2050; -50% absolute CO<sub>2</sub> emissions by 2050).

KfW financing is possible if the ship is compliant with the reduction factor specified in the table below in relation to the reference EEDI (at the time when the ship is ordered). The EEDI is calculated in accordance with IMO regulation, including Resolution MEPC.203(62).

### Scope of application

The following cases are steered by the Paris-aligned sector guideline:

- In the case of new financing for the acquisition or leasing of new ships listed in the "ship type" categories below, the requirements defined in the table must be met. This also applies to structurally reinforced ship types such as ice class ships with the corresponding EEDI deductions in accordance with IMO requirements.
- New commitments for ships that are not subject to IMO regulation and therefore have no International Energy Efficiency Certificate (IEEC, including the EEDI-details) are not steered by the sector guideline for shipping.
- If retrofits (conversion of existing ships) extend the technical lifetime of the respective ship, these retrofits are treated like new ships. Consequently, such retrofits must meet the requirements of the "ship type" categories listed below (scope for "new ship" and "major conversion" in accordance with Resolution MEPC.203(62), ANNEX 19).

The following cases are not steered by the sector guideline:

- Commitments for the acquisition and leasing of new ships that are not listed in the "ship type" categories (see table below).
- Retrofits which do not extend the technical lifetime of the respective ship (e.g. exhaust gas treatment).
- The financing of particular ship components.
- General corporate financing and financing via financial intermediaries, if the purpose of the financing cannot be defined technologically.

## Reduction factor (in percent) for the EEDI in relation to reference-EEDI

Ship Type	Size	Reduction factor at the time when the ship is ordered			
		01.01.2013 - 31.12.2014	01.01.2015 - 31.12.2019	01.01.2020 - 31.12.2021	01.01.2022 - 31.12.2029
Bulk carrier	20,000 DWT and above	0	10	20	30
	10,000 - 20,000 DWT	n/a	0 – 10*	0 – 20*	0 – 30*
Gas carrier	10,000 DWT and above	0	10	20	30
	2,000 - 10,000 DWT	n/a	0 – 10*	0 – 20*	0 – 30*
Tanker	20,000 DWT and above	0	10	20	30
	4,000 - 20,000 DWT	n/a	0 – 10*	0 – 20*	0 – 30*
Container ship	200,000 DWT and above	0	10	20	50
	120,000 - 200,000 DWT	0	10	20	45
	80,000 - 120,000 DWT	0	10	20	40
	40,000 - 80,000 DWT	0	10	20	35
	15,000 - 40,000 DWT	0	10	20	30
	10,000 - 15,000 DWT	n/a	0 – 10*	0 – 20*	0 – 30*
General cargo ships	15,000 DWT and above	0	10	15	30
	3,000 - 15,000 DWT	n/a	0 – 10*	0 – 15*	0 – 30*
Refrigerated cargo carrier	5,000 DWT and above	0	10	15	30
	3,000 - 5,000 DWT	n/a	0 – 10*	0 – 15*	0 – 30*
Combination carrier	20,000 DWT and above	0	10	20	30
	4,000 - 20,000 DWT	n/a	0 – 10*	0 – 20*	0 – 30*
LNG carrier***	10,000 DWT and above	n/a	10**	20	30
Ro-ro cargo ship (vehicle carrier)***	10,000 DWT and above	n/a	5**	15	30
Ro-ro cargo ship***	2,000 DWT and above	n/a	5**	20	30
	1,000 - 2,000 DWT	n/a	0 – 5*,**	0 – 20*	0 – 30*
Ro-ro passenger ship***	1,000 DWT and above	n/a	5**	20	30
	250 - 1,000 DWT	n/a	0 – 5*,**	0 – 20*	0 – 30*
Cruise passenger ship (non-conventional propulsion)***	85,000 GT and above	n/a	5**	20	30
	25,000 - 85,000 GT	n/a	0 – 5*,**	0 – 20*	0 – 30*

\*) Linear interpolation of the value based on the ship size. The small value applies to the small ship.

\*\*) Phase 2 started for these ships on 1 September 2015. See overview on the following page.

\*\*\*) Applies to cruise passenger ships with non-conventional propulsion, including diesel-electric propulsion, turbine propulsion and hybrid propulsion systems.

## Shipping: Overview and outlook on conceivable minimum requirements beyond 2030



Based on IMO A) B)

Ship Type	Size	Phase 0 1 Jan 2013 - 31 Dec 2014	Phase 1 1 Jan 2015 - 31 Dec 2019	Phase 2 1 Jan 2020 - 31 Dec 2021	Phase 3 1 Jan 2022 - 31 Dec 2029	Phase 4 1 Jan 2030 - 31 Dec 2039	Phase 5 1 Jan 2040 - 31 Dec 2049
Bulk carrier	20,000 DWT and above	0	10	20	30	55	>55
	10,000 - 20,000 DWT	n/a	0 – 10*	0 – 20*	0 – 30*	0 – 55*	0 – >55*
Gas carrier	10,000 DWT and above	0	10	20	30	55	>55
	2,000 - 10,000 DWT	n/a	0 – 10*	0 – 20*	0 – 30*	0 – 55*	0 – >55*
Tanker	20,000 DWT and above	0	10	20	30	55	>55
	4,000 - 20,000 DWT	n/a	0 – 10*	0 – 20*	0 – 30*	0 – 55*	0 – >55*
Container ship	200,000 DWT and above	0	10	20	50	55	>55
	120,000 - 200,000 DWT	0	10	20	45	55	>55
	80,000 - 120,000 DWT	0	10	20	40	55	>55
	40,000 - 80,000 DWT	0	10	20	35	55	>55
	15,000 - 40,000 DWT	0	10	20	30	55	>55
	10,000 - 15,000 DWT	n/a	0 – 10*	0 – 20*	0 – 30*	0 – 55*	0 – >55*
General Cargo ships	15,000 DWT and above	0	10	15	30	55	>55
	3,000 - 15,000 DWT	n/a	0 – 10*	0 – 15*	0 – 30*	0 – 55*	0 – >55*
Refrigerated cargo carrier	5,000 DWT and above	0	10	15	30	55	>55
	3,000 - 5,000 DWT	n/a	0 – 10*	0 – 15*	0 – 30*	0 – 55*	0 – >55*
Combination carrier	20,000 DWT and above	0	10	20	30	55	>55
	4,000 - 20,000 DWT	n/a	0 – 10*	0 – 20*	0 – 30*	0 – 55*	0 – >55*
LNG carrier ***	10,000 DWT and above	n/a	10**	20	30	55	>55
Ro-ro cargo ship (vehicle carrier) ***	10,000 DWT and above	n/a	5**	15	30	55	>55
Ro-ro cargo ship ***	2,000 DWT and above	n/a	5**	20	30	55	>55
	1,000 - 2,000 DWT	n/a	0 – 5**,**	0 – 20*	0 – 30*	0 – 55*	0 – >55*
Ro-ro passenger ship ***	1,000 DWT and above	n/a	5**	20	30	55	>55
	250 - 1,000 DWT	n/a	0 – 5**,**	0 – 20*	0 – 30*	0 – 55*	0 – >55*
Cruise passenger ship (having non-conventional propulsion) ***	85,000 GT and above	n/a	5**	20	30	55	>55
	25,000 - 85,000 GT	n/a	0 – 5**,**	0 – 20*	0 – 30*	0 – 55*	0 – >55*

A) IMO MARPOL Resolution MEPC.203(62).

B) EEDI amendments 2020 MARPOL, Annex VI (<http://www.imo.org/en/MediaCentre/PressBriefings/Pages/11-MEPC-74-GHG.aspx>).

\* Linear interpolation of the value based on the ship size. The small value applies to the small ship.

\*\* Phase 2 started for these ships on 1 September 2015.

\*\*\* This applies to cruise passenger ships with non-conventional propulsion, including diesel-electric propulsion, turbine propulsion and hybrid propulsion systems.

## (6) Building sector

The Paris-aligned sector guideline applies to new construction, renovation and acquisition of buildings located within the EU. It generally comprises all building types that are heated or cooled according to their function (e.g. residential buildings, administration buildings, schools and hospitals). For buildings in Germany, the minimum requirements are defined in line with the nationally established standards (energy-efficient houses/buildings).

With view to buildings in other EU member states, however, the sector guideline provides for several alternative options to meet the Paris-aligned minimum requirements. In doing so, the sector guideline takes into account the heterogeneous climatic conditions and the diversity of national building standards.

**If the building is located in Germany, the following minimum requirements apply in the period from 1 September 2021 to 31 December 2029:**

Purpose of the commitments	Minimum requirements
Construction of new buildings	German efficiency house standard 55 <sup>1</sup> or efficiency building standard 55 <sup>2</sup>
Acquisition of buildings that have not been occupied since construction	
Acquisition of buildings that have already been occupied at least once since construction	German efficiency house standard 100 <sup>1</sup> or efficiency building standard 100 <sup>2</sup> (in case of renovations, the standard must be met after renovation)
Renovation of buildings	
Particular measures	Particular measures according to the following list: <ul style="list-style-type: none"> <li>▪ Thermal insulation of the building envelope (incl. windows / doors)</li> <li>▪ Ventilation systems (with heat recovery)</li> <li>▪ Renewable power generation: <ul style="list-style-type: none"> <li>Photovoltaics (also in connection with batteries),</li> <li>biomass/biogas cogeneration units</li> </ul> </li> <li>▪ Heating: Electric heat pumps, solar thermal, natural gas heating incl. cogeneration units (optimisation of existing units), local and district heating, biomass in accordance with BEG (see below)</li> <li>▪ All other particular measures according to the technical minimum requirements of Germany's public promotion programme for efficient buildings (Bundesförderung für effiziente Gebäude, BEG)<sup>3</sup></li> </ul>

1) <https://www.bundesanzeiger.de/pub/publication/ViyuABRC4rbb8sQWems/content/ViyuABRC4rbb8sQWems/BAAnz%20AT%2007.06.2021%20B3.pdf?inline#page=15>

2) <https://www.bundesanzeiger.de/pub/publication/2fIQclFB3pM98KEQpfD/content/2fIQclFB3pM98KEQpfD/BAAnz%20AT%2007.06.2021%20B4.pdf?inline#page=14>

3) <https://www.bundesanzeiger.de/pub/publication/WvQ8k3f3h17npi5nNo9/content/WvQ8k3f3h17npi5nNo9/BAAnz%20AT%2007.06.2021%20B2.pdf?inline#page=19>

**If the building is located within the EU but outside Germany, the following minimum requirements apply in the period from 1 September 2021 to 31 December 2029:**

Purpose of the commitments	Minimum requirements
Construction of new buildings	The building must <ul style="list-style-type: none"> <li>▪ meet EPC classification "B" (energy certificate) <b>or</b></li> <li>▪ the national requirements for "nearly zero-energy buildings" (NZEB).</li> </ul>
Acquisition of buildings that have not been occupied since construction	
Acquisition of buildings that have already been occupied at least once since construction	The building must (after the financed renovation, if applicable) <ul style="list-style-type: none"> <li>▪ meet EPC classification "B" (energy certificate) <b>or</b></li> <li>▪ meet the minimum standards for the implementation of the "Energy Performance of Buildings Directive" (EPBD) <b>or</b></li> <li>▪ save at least 30% of non-renewable primary energy as a result of the financed renovation (documentation required).</li> </ul>
Renovation of buildings	
Particular measures	Please refer to the list for buildings located in Germany above.

### Scope of application

The following cases are steered by the Paris-aligned sector guideline:

- New construction, renovation, acquisition of residential and non-residential buildings located within the EU, including financing for particular elements of the building or technical building equipment (systems and devices for heating, cooling, ventilation and lighting technology, as well as hot water supply).

The following cases are not steered by the sector guideline:

- Buildings located outside the EU.
- Historic buildings subject to monument protection laws, industrial and production buildings, storage and dispatch buildings, data centers and all building types that are not in the scope of the German Energy Act for Buildings (see GEG §2 (2)).
- Financing for the operation of buildings or technical systems for production processes inside buildings.
- General corporate financing and financing via financial intermediaries to residential property companies and construction companies, if the purpose of the financing cannot be defined technologically.

## Building sector: Overview and outlook on conceivable minimum requirements beyond 2030

	01.09.2021 – 31.12.2029	01.01.2030 – 31.12.2039	01.01.2040 – 31.12.2049	Starting 01.01.2050
<b>Germany</b>	<ul style="list-style-type: none"> <li>New building: ≤ German Efficiency House/Building Standard 55</li> <li>Renovation: ≤ German Efficiency House/Building Standard 100</li> <li>Particular measures according to the following list:               <ul style="list-style-type: none"> <li>- Thermal insulation of the building envelope (including windows/doors)</li> <li>- Ventilation systems (with heat recovery)</li> <li>- Renewable power generation: photovoltaics (also in connection with batteries), biomass / biogas combined heat and power plants</li> </ul> </li> <li>Heating:               <ul style="list-style-type: none"> <li>- Electric heat pumps, solar thermal, natural gas heating including cogeneration units (optimisation of existing units), local and district heating, biomass in accordance with the BEG list (see below)</li> </ul> </li> <li>All other particular measures in accordance with the BEG list 2021 (minimum technical requirements of the "Federal funding for efficient buildings" programme)</li> </ul>	<ul style="list-style-type: none"> <li>New building: ≤ German Efficiency House/Building Standard 40</li> <li>Renovation: ≤ German Efficiency House/Building Standard 70</li> <li>Particular measures with the ambition level of German Efficiency House/Building Standard 70</li> </ul>	<ul style="list-style-type: none"> <li>New building: ≤ German Efficiency House/Building Standard 40</li> <li>Renovation: ≤ German Efficiency House/Building Standard 55</li> <li>Particular measures with the ambition level of German Efficiency House/Building Standard 55, no more natural gas heating (also no CHP)</li> </ul>	<ul style="list-style-type: none"> <li>New building: ≤ German Efficiency House/Building Standard 40</li> <li>Renovation: ≤ German Efficiency House/Building Standard 40</li> <li>No new requirements for particular measures</li> </ul>
<b>EU without Germany</b>	<ul style="list-style-type: none"> <li>New building: The building must at least               <ul style="list-style-type: none"> <li>- meet EPC classification "B" (energy certificate) or</li> <li>- meet the national requirements for "nearly zero-energy buildings" (NZEB).</li> </ul> </li> <li>Renovation: After the renovation, the building must at least               <ul style="list-style-type: none"> <li>- meet EPC classification "B" (energy certificate) or</li> <li>- meet the minimum standards for the implementation of the "Energy Performance of Buildings Directive" (EPBD) or</li> <li>- save ≥ 30% of the non-renewable primary energy as a result of the financed renovation.</li> </ul> </li> <li>Particular measures in accordance with the list for Germany (see above).</li> </ul>	<ul style="list-style-type: none"> <li>New building: The building must at least               <ul style="list-style-type: none"> <li>- meet EPC classification "A" (energy certificate) or</li> <li>- meet the national requirements for "nearly zero-energy buildings" (NZEB).</li> </ul> </li> <li>Renovation: After the renovation, the building must at least               <ul style="list-style-type: none"> <li>- meet EPC classification "A" (energy certificate) or</li> <li>- meet the minimum standards for the implementation of the EPBD or</li> <li>- save ≥ 50% of the non-renewable primary energy as a result of the financed renovation.</li> </ul> </li> <li>Particular measures in accordance with the list for Germany (see above).</li> </ul>		
<b>World without EU</b>	<ul style="list-style-type: none"> <li>Initially no systematic Paris-aligned approach for building finance outside Europe, because the situations in individual countries are very heterogeneous, there are no international standards for Paris-alignment in the building sector and KfW's commitment volume for the building sector outside Europe is generally rather low.</li> </ul>			

The acquisition of buildings that have not yet been occupied since construction (first occupancy upcoming) is subject to the same requirements as a new building. The acquisition of buildings that have already been occupied at least once since construction is subject to the same requirements as a renovation.

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