



Regulation on life-cycle GWP and limit values for the climate impact of buildings

in accordance with the EPBD
Part 1

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Foreword

In December 2024, the Swedish National Board of Housing, Building and Planning (Boverket) received a government commission to submit legislative proposals for the implementation of the Articles concerning the requirements to calculate and report greenhouse gas emissions throughout a building's entire life cycle (life-cycle GWP) for new buildings, in accordance with the Energy Performance of Buildings Directive (EPBD). The assignment also covers limit values for buildings' release of greenhouse gas emissions into the atmosphere. This report is an English translation of Boverket's report.

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Karlskrona, May 2026

Anders Sjelvgren
Director-General

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Summary

Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the energy performance of buildings (EPBD) contains requirements for the calculation and disclosure of the life-cycle GWP for new buildings. Disclosure shall be made in the building's energy performance certificate. The calculation and disclosure shall be done by 1 January 2028 at the latest for all new buildings with a useful floor area of more than 1,000 square metres, and by 1 January 2030 at the latest for all new buildings. Under the EPBD, limit values for greenhouse gas emissions from new buildings shall also be introduced by 1 January 2030. The requirements of the EPBD regarding life-cycle GWP and limit values need to be transposed into Swedish law.

As part of its government assignment, Boverket is tasked with submitting proposals for legislative amendments to implement the provisions of the Directive relating to life-cycle GWP and limit values for new buildings.

In summary, Boverket's proposed regulation entails repealing the current legislation on climate declaration for buildings. A requirement to calculate and disclose buildings' release of greenhouse gas emissions into the atmosphere will be introduced as a new technical characteristic requirement under the Planning and Building Act (2010:900) (PBL). The requirement covers both the calculation and disclosure of life-cycle GWP and limit values for the building's greenhouse gas emissions from the construction stage. The requirement shall apply to all new buildings requiring a building permit that are subject to an energy performance certificate and will be implemented in accordance with the EPBD and the Delegated Regulation on the calculation of life-cycle GWP¹.

Boverket's proposal for implementing the requirements to calculate and disclose life-cycle GWP follows the mandatory provisions of the Delegated Regulation on life-cycle GWP. With that, the mandatory life-cycle modules, mandatory building elements, and technical equipment are included. Certain national choices are allowed, and a few such choices are proposed in the report. Among other things, it is proposed that the area unit used to calculate the life-cycle GWP shall be gross floor area (GFA). In order to eliminate data gaps, it is proposed that the coverage ratio for the life-cycle GWP calculation of building elements and technical equipment shall be at least 90 per cent. If the coverage ratio is less than 100 per cent, it is proposed that the climate impact be adjusted upwards so that it

¹ Commission Delegated Regulation (EU) 2026/52 of 16 December 2025 amending Annex III to Directive (EU) 2024/1275 of the European Parliament and of the Council as regards the Union framework for the national calculation of life-cycle global warming potential

represents the building's complete set of building elements and technical equipment.

Boverket's proposal on limit values for buildings' release of greenhouse gas emissions into the atmosphere provides for their introduction on 1 January 2030, differentiated by building type. Under PBL, the building committee will be responsible, within the framework of the building permit and supervisory processes, for verifying compliance with the requirements for the disclosure of life-cycle GWP and limit values. Boverket's responsibility for the supervision of climate declarations under current legislation will cease.

The implementation of limit values provides greater opportunities for national choices, and Boverket proposes several such choices in this respect. Among other things, it is proposed that the limit values cover the construction stage (Modules A1–A5) and all building elements and technical equipment, with the exception of technical equipment related to the user activities, ground reinforcement, and technical equipment for the generation and storage of renewable electricity on the building or its plot.

Limit values are set for different building categories. For buildings for which reference values exist, limit values between 150–250 kg CO₂eq/m² GFA are proposed. For the category 'other buildings', where reference values are lacking, a limit value of 295 kg CO₂eq/m² GFA is proposed. For buildings with specific climate-driving conditions, there is the possibility of an increase in the limit value on a case-by-case basis. The limit values are expressed using the GWP-GHG indicator and the unit kg CO₂eq/m²GFA. Boverket also describes an indicative emission trajectory for the limit values covering the period 2030–2050.

Under the delegated EU regulation, life-cycle GWP shall be reported in the building's energy performance certificate using the GWP-total indicator. It is mandatory to report GWP-total separately for A1–A3, A4–A5, B1–B4, B6, C1–C4, D1 and D2. Boverket also proposes that the GWP-GHG indicator for the construction stage (Modules A1–A5) be disclosed, which corresponds to the part covered by the limit value for buildings' release of greenhouse gas emissions into the atmosphere.

Under the EPBD, Member States shall take into account temporary carbon storage in buildings. According to Annex V to the Directive, the energy performance certificate may include information on the building's carbon storage. Boverket has not taken a position on whether such disclosure should be introduced in national legislation, as EU rules on the certification of temporary biogenic carbon storage in buildings are currently under development. The report provides an overview of how voluntary disclosure could be designed, based on the latest available EU documents proposing a certification methodology.

The report also describes the measures required to implement the EU rules on life-cycle GWP and limit values. Among other things, Boverket's climate database needs to be developed. Boverket also proposes that the State, through Boverket, develop and maintain a digital system for the management of climate calculations, which municipalities can use on a voluntary basis. This is consistent with Boverket's previous work on digitalisation. As a result of the new EU regulations, Boverket also needs to draw up regulations, adapt the energy performance certificate register, and provide guidance and support to relevant stakeholders.

Boverket has investigated various alternatives for implementing the EU law. The overall outcome of the socio-economic analysis indicates that Boverket's proposal is justified from a socio-economic perspective and likely profitable. The additional annual administrative costs for calculations and adaptation of industry practices are estimated at approximately SEK 260–350 million, together with moderate increases in material and design costs. At the same time, the climate benefits, in the form of further emission reductions in the construction stage beyond those expected from the EU ETS, CBAM, and technological development provide, are estimated to be of the same order of magnitude or greater.

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1 Legislative proposals

1.1 Proposal for an act repealing the Act on Climate Declarations for Buildings (2021:787)

Issued on xx month year.

In accordance with a decision by the Riksdag (the Swedish Parliament), the Act on Climate Declarations for Buildings (2021:787) shall cease to apply at the end of March 2027.

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

1.2 Proposal for an act amending the Planning and Building Act (2010:900)

Issued on xx month year.

In accordance with a decision by the Riksdag (the Swedish Parliament),
Chapter 10, Section 34 of the Planning and Building Act (2010:900) shall
be worded as follows.

Current wording

Proposed wording

Chapter 10 Implementation of construction, demolition, and land measures

Section 34

The building committee shall, by issuing a written final approval, approve that one or more measures referred to in Section 3 are to be regarded as completed and, in the case of building works, that the building may be put into service, if

1. the developer has demonstrated that all requirements applicable to the measures under the building permit, the inspection plan, the starting clearance, or a decision on supplementary conditions have been fulfilled,

2. the developer has demonstrated that a climate declaration in accordance with the Act on Climate Declarations for Buildings (2021:787) has been submitted, or has made it likely that there is no obligation to submit a climate declaration, and

3. the committee has found no reason to intervene under Chapter 11.

1. the developer has demonstrated that all requirements applicable to the measures under the building permit, the inspection plan, the starting clearance, or a decision on supplementary conditions have been fulfilled, *and*

2. the committee has found no reason to intervene under Chapter 11.

This Act will enter into force on 1 April 2027.

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

1.3 Proposal for an act amending the Planning and Building Act (2010:900)

Issued on xx month year.

In accordance with a decision by the Riksdag (the Swedish Parliament), it is prescribed with regard to the Planning and Building Act (2010:900)

that Chapter 9, Section 105; Chapter 10, Sections 7 and 34; and Chapter 16, Section 2 shall be worded as follows,

that a new section, Chapter 8, Section 4b, shall be inserted, worded as follows.

Current wording

Proposed wording

Chapter 8 Requirements for buildings, construction products, sites, and public spaces

Section 4b

A building constructed in which energy is used to regulate the indoor environment shall possess the technical characteristic that are essential with regard to the building's release of greenhouse gas emissions into the atmosphere.

The building's release of greenhouse gas emissions into the atmosphere shall be calculated and disclosed.

The requirements for a building to be deemed to satisfy this requirement, and which buildings are exempt from the requirement, are laid down in regulations issued pursuant to Chapter 16, Section 2.

Chapter 9 Permits and advance notice

Section 105

A decision on a building permit, demolition permit, or a site improvement permit shall include

1. information on the period for which the permit is valid,
2. information as to whether there is to be a person in charge of inspection and, if so, who that person or persons are,
3. information that the measure may not be commenced until the permit has taken effect in accordance with Section 114 and the building committee has issued a starting clearance under Chapter 10,
4. information that a measure commenced before the decision has become final may have to be reversed if the decision is amended following a review, *and*
4. information that a measure commenced before the decision has become final may have to be reversed if the decision is amended following a review,

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

Current wording

5. the conditions and information required under Sections 73, 81, 82, 83, 84, or 92, or otherwise considered necessary.

Proposed wording

5. information as to whether the measure is subject to the requirements set out in Chapter 8, Section 4b, and

6. the conditions and information required under Sections 73, 81, 82, 83, 84, or 92, or otherwise considered necessary.

Chapter 10 Implementation of construction, demolition, and land measures

Section 7

The inspection plan shall be adapted to the circumstances on a case-by-case basis and have the design and level of detail necessary to ensure, in an appropriate manner, that

1. all essential requirements referred to in Chapter 8, Section 4 are fulfilled,
2. the prohibition against distortion laid down in Chapter 8, Section 13 is complied with, and
3. the requirements for exercising due care laid down in Chapter 8, Sections 17 and 18 are fulfilled.

Section 34

The building committee shall, by issuing a written final approval, approve that one or more measures referred to in Section 3 are to be regarded as completed and, in the case of building works, that the building may be put into service, if

1. the developer has demonstrated that all requirements applicable to the measures under the building permit, the inspection plan, the starting clearance, or a decision on supplementary conditions have been fulfilled,
2. the committee has found no reason to intervene under Chapter 11.

1. all essential requirements referred to in Chapter 8, Sections 4 and 4b are fulfilled,
2. the developer has demonstrated that all requirements applicable to the measures under the building permit, the inspection plan, the starting clearance, or a decision on supplementary conditions have been fulfilled,
2. *the developer has disclosed the building's release of greenhouse gas emissions into the atmosphere in accordance with Chapter 8, Section 4b, and*
3. the committee has found no reason to intervene under Chapter 11.

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

Current wording

Proposed wording

Chapter 16. Authorizations

Section 2

The Government or the authority designated by the Government may prescribe

1. that the provisions of Chapter 8, Sections 1 and 2 relating to buildings shall also apply to structures other than buildings,

2. what is required for a building to be deemed to satisfy the requirements laid down in Chapter 8, Sections 1 and 4,

3. that certain requirements, notwithstanding Chapter 8, Sections 2 and 5, or in the application of Chapter 8, Sections 7 and 8, shall always be fulfilled when there is new construction, refurbishment, or any other alteration of a building,

4. that certain requirements, notwithstanding Chapter 8, Sections 2 and 5, or in the application of Chapter 8, Sections 7 and 8, do not need to be fulfilled when there is new construction, refurbishment, or any other alteration of a building,

5. that the requirement laid down in Chapter 8, Section 4, first paragraph, point 6 shall, notwithstanding Chapter 8, Section 5, always be fulfilled in respect of buildings other than residential buildings where this is required as a result of Sweden's membership of the European Union,

6. that the requirement laid down in Chapter 8, Section 4, first paragraph, point 11 shall, notwithstanding Chapter 8, Section 5, always be fulfilled in respect of buildings other than residential buildings, *and*

7. what is required for student accommodation to satisfy the requirement laid down in Chapter 8, Section 6, second paragraph, and such exemptions from that requirement as are justified by special reasons.

6. that the requirement laid down in Chapter 8, Section 4, first paragraph, point 11 shall, notwithstanding Chapter 8, Section 5, always be fulfilled in respect of buildings other than residential buildings,

7. what is required for a building to be deemed to satisfy the requirement laid down in Chapter 8, Section 4b and regulations providing for exemptions from that requirement for certain types of buildings, and

8. what is required for student accommodation to satisfy the requirement laid down in Chapter 8, Section 6, second paragraph, and such exemptions from that requirement as are justified by special reasons.

1. This Act will enter into force on 1 January 2028.

2. Older provisions shall continue to apply to cases in which an application for a building permit was received by the building committee before the entry into force of this Act.

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

1.4 Proposal for an act amending the Energy Declaration of Buildings Act (2006:985)

Issued on xx month year.

In accordance with a decision by the Riksdag (the Swedish Parliament), it is prescribed with regard to the Energy Declaration of Buildings Act (2006:985), Section 9 shall be worded as follows.

Current wording

Proposed wording

Section 9

An energy performance certificate shall state

1. information on the building's energy performance,
2. whether a mandatory functional inspection of the ventilation system has been carried out in the building,
3. whether radon measurements have been carried out in the building,

4. whether the building's energy performance can be improved while maintaining a good indoor environment and, if so, recommendations for cost-effective measures to improve the building's energy performance, and

5. reference values enabling consumers to assess the building's energy performance and compare it with that of other buildings.

In the cases referred to in Section 8a, the energy performance certificate shall also include

1. an assessment of the effectiveness and size of the heat generator or air-conditioning system in relation to the building's heating or cooling needs, and
2. recommendations on cost-effective measures to improve the system's energy performance.

The Government or the authority designated by the Government may issue regulations concerning the determination of a building's energy performance for the purposes of the first paragraph, point 1, the reference values to be used under the first paragraph, point 5, and any additional information to be included in the certificate.

4. the building's release of greenhouse gas emissions into the atmosphere,

5. whether the building's energy performance can be improved while maintaining a good indoor environment and, if so, recommendations for cost-effective measures to improve the building's energy performance, and

6. reference values enabling consumers to assess the building's energy performance and compare it with that of other buildings.

The Government or the authority designated by the Government may issue regulations concerning the determination of a building's energy performance for the purposes of the first paragraph, point 1, the reference values to be used under the first paragraph, point 6, and any additional information to be included in the certificate.

This Act will enter into force on 1 January 2028

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

1.5 Proposal for an act amending the Planning and Building Act (2010:900)

Issued on xx month year.

In accordance with a decision by the Riksdag (the Swedish Parliament), it is prescribed with regard to the Planning and Building Act (2010:900)

that Chapter 8, Section 4b and Chapter 9, Section 105 shall be worded as follows,

that a new section, Chapter 9, Section 105 a, shall be inserted, worded as follows.

Current wording

Proposed wording

Chapter 8 Requirements for buildings, construction products, sites, and public spaces

Section 4 b

A building constructed in which energy is used to regulate the indoor environment shall possess the technical characteristic that are essential with regard to the building's release of greenhouse gas emissions into the atmosphere.

The building's release of greenhouse gas emissions into the atmosphere shall be calculated and disclosed.

The building's greenhouse gas emissions must not exceed the limit value applicable to the relevant building category.

The requirements for a building to be deemed to satisfy this requirement, and which buildings are exempt from the requirement, are laid down in regulations issued pursuant to Chapter 16, Section 2

The requirements for a building to be deemed to satisfy this requirement, and which buildings are exempt from the requirement, are laid down in regulations issued pursuant to Chapter 16, Section 2

Chapter 9 Permits and advance notice

Section 105

A decision on a building permit, demolition permit, or a site improvement permit shall include

1. information on the period for which the permit is valid,
2. information as to whether there is to be a person in charge of inspection and, if so, who that person or persons are,
3. information that the measure may not be commenced until the permit has taken effect in accordance with Section 114 and the building committee has issued a starting clearance under Chapter 10,
4. information that a measure commenced before the decision has become final may have to be reversed if the decision is amended following a review,
5. information as to whether the measure is subject to the requirements set out in Chapter 8, Section 4b, and
5. information as to whether the measure is subject to the requirements set out in Chapter 8, Section 4b *and the limit value that must not be exceeded*, and

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

Current wording

6. the conditions and information required under Sections 73, 81, 82, 83, 84, or 92, or otherwise considered necessary.

Proposed wording

Section 105a

If a building requiring a building permit is subject to the requirements set out in Chapter 8, Section 4b, the building committee shall decide on a higher limit value for a building's release of greenhouse gas emissions into the atmosphere, if the developer so requests no later than in connection with the application for a building permit and that special circumstances make a higher limit value necessary.

In its decision, the building committee shall present its assessment and the circumstances on which that assessment is based.

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1. This Act will enter into force on 1 January 2030.
 2. Older provisions shall continue to apply to cases in which an application for a building permit was received before the entry into force of this Act.

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

1.6 Proposal for an ordinance repealing the Ordinance on Climate Declarations for Buildings (2021:789)

Issued on xx month year.

The Government prescribes that the Ordinance on Climate Declarations for Buildings (2021:789) shall cease to apply at the end of March 2027.

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

1.7 Proposal for an ordinance amending the Planning and Building Ordinance (2011:338)

Issued on xx month year.

The Government prescribes in respect of the Planning and Building Ordinance (2011:338)

that Chapter 1, Section 3a and Chapter 10, Section 3 shall be worded as follows,

that two new sections, Chapter 3, Sections 20d and 20e, shall be inserted and that, immediately before Chapter 3, Section 20d, a new heading shall be inserted, worded as follows.

Current wording

Proposed wording

Chapter 1 Contents and definitions

Section 3a

For the purposes of this Ordinance:

gross floor area means the aggregate area of all storeys, measured to the outside of the enclosing building elements;

energy performance means the amount of delivered energy required for heating, cooling, ventilation, hot water, and lighting under normal use of a building, excluding energy from solar radiation, wind, ground, air, or water generated and used in the building or on its site;

GWP-total means an indicator of total climate impact, being the sum of GWP-fossil, GWP-biogenic and GWP-luluc;

building envelope means a building element comprising one or more layers that isolates the interior of a building from the outside world in terms of factors such as temperature, noise, and humidity;

life-cycle GWP means an indicator quantifying a building's contribution to the global warming potential over its entire life cycle;

primary energy means energy that has not undergone any conversion, and *building automation and control system* means a system that is interoperable with connected technical building systems and appliances in the building and comprises all products, software and engineering services that can support the energy-efficient, economical and safe operation of the building's technical building systems through automatic controls and by facilitating the manual management of those systems, and that continuously

primary energy means energy that has not undergone any conversion, *building automation and control system* means a system that is interoperable with connected technical building systems and appliances in the building and comprises all products, software and engineering services that can support the energy-efficient, economical and safe operation of the building's technical building systems through automatic controls and by facilitating the manual management of those systems, and that continuously

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

Current wording

monitors, records, analyses and enables the adjustment of energy use, establishes benchmarks for energy efficiency, detects efficiency losses, provides information on opportunities for improving energy efficiency, and enables communication.

Proposed wording

monitors, records, analyses and enables the adjustment of energy use, establishes benchmarks for energy efficiency, detects efficiency losses, provides information on opportunities for improving energy efficiency, and enables communication; and

coverage ratio means the proportion of the building's climate impact that has been calculated using actual data on the quantities of building elements and technical equipment multiplied by climate data.

Chapter 3 Construction works requirements

Technical characteristic requirement concerning release of greenhouse gas emissions into the atmosphere

Section 20d

The following types of buildings are exempt from the obligation to calculate and disclose the building's release of greenhouse gas emissions into the atmosphere:

- 1. Buildings used primarily as places of worship or for other religious activities.*
- 2. Buildings used for industrial or workshop purposes.*
- 3. Residential buildings that are used or intended for use*
 - a) for less than four months per year, or*
 - b) for a limited part of the year, provided that the estimated energy use is less than 25 per cent of year-round use.*
- 4. Temporary buildings intended to be used for no more than two years.*
- 5. Agricultural buildings with low energy needs intended for use in agriculture, forestry, aquaculture, fishing, or reindeer husbandry.*
- 6. Buildings with a total useful floor area of 1,000 square metres or less.*
- 7. Buildings that do not require a building permit pursuant to the Planning and Building Act (2010:900).*

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

Current wording

Proposed wording

Section 20e

Provisions on the calculation and disclosure of life-cycle GWP are set out in the Commission Delegated Regulation (EU) 2026/52 of 16 December 2025 amending Annex III to Directive (EU) 2024/1275 of the European Parliament and of the Council as regards the Union framework for the national calculation of life-cycle global warming potential.

The calculation and disclosure shall cover the mandatory modules set out in Table 2 and the mandatory building elements and technical equipment specified in Chapter 7 of the Delegated Regulation. The disclosure shall be made using the GWP-total indicator and the unit kg CO₂.eq/m² gross floor area (GFA).

The coverage ratio for the life-cycle GWP calculation of building elements and technical equipment as set out in the second paragraph shall be at least 90 per cent. If the coverage ratio is less than 100 per cent, the climate impact shall be adjusted upwards so that it represents the building's complete set of building elements and technical equipment as set out in the second paragraph.

Chapter 10 Authorisations

Section 3

Boverket may issue the regulations necessary for the application of the provisions concerning:

1. characteristic requirement relating to load-bearing capacity, stability and durability set out in Chapter 3, Section 7,
2. characteristic requirement relating to safety in the event of a fire set out in Chapter 3, Section 8,
3. characteristic requirement relating to protection with respect to hygiene, health, and environment set out in Chapter 3, Section 9,
4. characteristic requirement relating to safety in use set out in Chapter 3, Section 10,
5. special safety requirement relating to existing buildings set out in Chapter 3, Sections 11–12a,
6. technical characteristic requirement relating to noise protection set out in Chapter 3, Section 13,
7. technical characteristic requirement relating to energy management and thermal insulation set out in Chapter 3, Sections 14 and 15,

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

Current wording

8. technical characteristic requirement relating to suitability for the intended purpose set out in Chapter 3, Section 17,

9. technical characteristic requirement relating to accessibility and usability set out in Chapter 8, Section 4, first paragraph, point 8 of the Planning and Building Act (2010:900) and Chapter 3, Sections 18 and 19,

10. technical characteristic requirement relating to water management set out in Chapter 3, Section 20,

11. technical characteristic requirement relating to waste management set out in Chapter 8, Section 4, first paragraph, point 9 of the Planning and Building Act,

12. technical characteristic requirement relating to broadband connectivity set out in Chapter 3, Section 20a,

13. technical characteristic requirement relating to the charging of electric vehicles set out in Chapter 3, Sections 20b and 20c, *and*

14. implementation of the technical characteristics requirements at a later date set out in Chapter 3, Section 21.

Proposed wording

8. technical characteristic requirement relating to suitability for the intended purpose set out in Chapter 3, Section 17,

9. technical characteristic requirement relating to accessibility and usability set out in Chapter 8, Section 4, first paragraph, point 8 of the Planning and Building Act (2010:900) and Chapter 3, Sections 18 and 19,

10. technical characteristic requirement relating to water management set out in Chapter 3, Section 20,

11. technical characteristic requirement relating to waste management set out in Chapter 8, Section 4, first paragraph, point 9 of the Planning and Building Act,

12. technical characteristic requirement relating to broadband connectivity set out in Chapter 3, Section 20a,

13. technical characteristic requirement relating to the charging of electric vehicles set out in Chapter 3, Sections 20b and 20c,

14. technical characteristic requirement relating to release of greenhouse gas emissions into the atmosphere set out in Chapter 3, Sections 20d–e, and

15. implementation of the technical characteristics requirements at a later date set out in Chapter 3, Section 21.

-
1. This Ordinance will enter into force on 1 January 2028.
 2. Older provisions shall continue to apply to cases in which an application for a building permit was received before the entry into force of this Act.

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

1.8 Proposal for an ordinance amending the Energy Declaration of Buildings Ordinance (2006:1592)

Issued on...

The Government prescribes in respect of the Energy Declaration of Buildings Ordinance (2006:1592), that Sections 7a, 15, and 18 shall be worded as follows.

Current wording

The recommendations provided in an energy performance certificate pursuant to Chapter 9, first paragraph, point 4 of the Energy Declaration of Buildings Act (2006:985) shall be relevant to the building concerned, technically feasible, and include measures relating to the building envelope or technical building systems, whether or not carried out in conjunction with alteration or refurbishment. The energy performance certificate shall include information on where further information on the recommended measures can be found, what is required to implement them, and how the cost effectiveness of the recommendations has been calculated.

Where Boverket selects or process personal data on behalf of a third party for the purposes of direct marketing, personal identity numbers, property unit designation, building designation, address, a building's energy performance, reference values, or radon measurement data contained in the Energy Declaration Register may not be processed.

In respect of a building for which an energy performance certificate has been issued, Boverket shall make the following information from the Energy Declaration Register available on its website:

1. information on the building's energy performance;
2. information as to whether a mandatory inspection of the ventilation system under Chapter 8, Section 25 of the Planning and Building Act (2010:900) has been carried out;
3. information as to whether radon measurements have been carried out;

Proposed wording

Section 7a

The recommendations provided in an energy performance certificate pursuant to Chapter 9, first paragraph, point 5 of the Energy Declaration of Buildings Act (2006:985) shall be relevant to the building concerned, technically feasible, and include measures relating to the building envelope or technical building systems, whether or not carried out in conjunction with alteration or refurbishment. The energy performance certificate shall include information on where further information on the recommended measures can be found, what is required to implement them, and how the cost effectiveness of the recommendations has been calculated.

Section 15

Where Boverket selects or process personal data on behalf of a third party for the purposes of direct marketing, personal identity numbers, property unit designation, building designation, address, a building's energy performance, reference values, a *building's release of greenhouse gas emissions into the atmosphere*, or radon measurement data contained in the Energy Declaration Register may not be processed.

Section 18

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

Current wording

4. the identification number of the energy performance certificate and information on where it is available.

Proposed wording

4. information on the building's release of greenhouse gas emissions into the atmosphere; and

5. the identification number of the energy performance certificate and information on where it is available.

This Ordinance will enter into force on 1 January 2028.

Fel! Använd fliken Start om du vill tillämpa Heading 1 för texten som ska visas här.

1.9 Proposal for an ordinance amending the Planning and Building Ordinance (2011:338)

Issued on...

The Government prescribes in respect of the Planning and Building Ordinance (2011:338)

that Chapter 1, Section 3a, Chapter 3, Section 20d and Chapter 10, Section 3 shall be worded as follows,

and that three new sections are to be introduced, Chapter 3, Sections 20f and 20g and Chapter 9, Section 26a, worded as follows.

Current wording

Proposed wording

Chapter 1 Contents and definitions

Section 3a

For the purposes of this Ordinance:

gross floor area means the aggregate area of all storeys, measured to the outside of the enclosing building elements.

energy performance means the amount of delivered energy required for heating, cooling, ventilation, hot water, and lighting under normal use of a building, excluding energy from solar radiation, wind, ground, air, or water generated and used in the building or on its site;

GWP-GHG: an indicator that includes the combined effect of greenhouse gas emissions but excludes the removals and emissions of biogenic carbon dioxide.

GWP-total means an indicator of total climate impact, being the sum of GWP-fossil, GWP-biogenic and GWP-luluc,

building envelope means a building element comprising one or more layers that isolates the interior of a building from the outside world in terms of factors such as temperature, noise, and humidity;

life-cycle GWP: an indicator that quantifies a building's contribution to global warming potential over its entire life cycle,

primary energy means energy that has not undergone any conversion,

building automation and control system means a system that is interoperable with connected technical building systems and appliances in the building and comprises all products, software and engineering services that can support the energy-efficient, economical and safe operation of the building's technical building systems through automatic controls and by facilitating the manual management of those systems, and that continuously monitors, records, analyses and enables the adjustment of energy use, establishes benchmarks for energy efficiency, detects efficiency losses, provides information on opportunities for improving energy efficiency, and enables communication, and

Coverage ratio: indicates how much of a building's climate impact has been calculated using actual data on the quantity of building elements and technical equipment, multiplied by climate data.

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Current wording

Proposed wording

Chapter 3 Construction works requirements

Section 20d

The following types of buildings are exempt from the obligation to calculate and disclose the building's release of greenhouse gas emissions into the atmosphere:

1. Buildings used primarily as places of worship or for other religious activities.
2. Buildings used for industrial or workshop purposes.
3. Residential buildings that are used or intended for use
 - a) for less than four months per year, or
 - c) for a limited part of the year, provided that the estimated energy use is less than 25 per cent of year-round use.
4. Temporary buildings intended to be used for no more than two years.
5. Agricultural buildings with low energy needs intended for use in agriculture, forestry, aquaculture, fishing, or reindeer husbandry.
6. Buildings with a total useful floor area of *1,000 square metres or less*.
7. Buildings that do not require a building permit pursuant to the Planning and Building Act (2010:900).

The following types of buildings are exempt from the obligation to calculate and disclose the building's release of greenhouse gas emissions into the atmosphere *and to not exceed the limit value:*

6. Buildings with a total useful floor area of *less than 50 square metres*.

Section 20f

The limit value for the building's release of greenhouse gas emissions into the atmosphere shall cover greenhouse gas emissions from Module A1 (raw material supply), Module A2 (transport), Module A3 (manufacturing), Module A4 (transport), and Module A5 (construction and installation process). The disclosure shall be made using the GWP-GHG indicator and the unit kg CO₂eq/m² gross floor area (GFA).

The limit value for the building's release of greenhouse gas emissions into the atmosphere shall not include ground reinforcement and technical equipment for the generation and storage of renewable electricity on the building or its plot.

The building's release of greenhouse gas emissions into the atmosphere shall not exceed the following limit values, expressed in kg CO₂eq/m² gross floor area (GFA).

The limit value relates to the GWP-GHG indicator and is expressed in the

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Current wording

Proposed wording

unit kg CO₂eq/m² gross floor area (GFA).

Single-family houses with a useful floor area of 130 square metres or more: 130.

Single-family houses with a useful floor area of less than 130 square metres: 150.

Multi-dwelling blocks: 235.

Office buildings, primary healthcare centre buildings, preschool buildings, school and university buildings, excluding laboratory facilities: 250.

Accommodation buildings: 240.

Industrial buildings for logistics and trade with a useful floor area exceeding 1,000 square metres: 190.

Indoor swimming pool: 455.

Shelters: 1,500 (for the part constituting the shelter).

Other buildings: 295.

For a building with multiple uses, the limit value shall be calculated by weighting the relevant limit values in proportion to the gross floor area.

Section 20g

Notwithstanding Section 20f, the building committee shall decide that a higher limit value applies to an individual building if the developer so requests and special circumstances make a higher limit value necessary. The developer shall demonstrate that such special circumstances exist.

Special circumstances include:

–Buildings subject to planning provisions that significantly increase greenhouse gas emissions.

–Buildings with critical societal functions and high security requirements.

–Buildings with exceptionally high ceiling heights and long spans.

–Buildings constructed on deck structures or predominantly below ground.

–Buildings with other similar circumstances.

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Current wording

Proposed wording

Chapter 9 Construction sanction fees

Section 26a

Where the disclosed value for the building's release of greenhouse gas emissions into the atmosphere exceeds the limit value specified in Chapter 3, Section 20f, the construction sanction fee shall be 0.5 price base amounts, plus an additional 0.002 price base amount per square metre of the building's total gross floor area.

If the building committee finds that the developer has incorrectly disclosed a value for the building's release of greenhouse gas emissions into the atmosphere below the limit value specified in Chapter 3, Section 20f, and that the developer reasonably ought to have realised that the disclosed value was incorrect, the construction sanction fee shall instead be 0.5 price base amount, plus an additional 0.004 price base amount per square metre of the building's total gross floor area.

Chapter 10 Authorisations

Section 3

Boverket may issue the regulations necessary for the application of the provisions concerning:

1. characteristic requirement relating to load-bearing capacity, stability and durability set out in Chapter 3, Section 7,
2. characteristic requirement relating to safety in the event of a fire set out in Chapter 3, Section 8,
3. technical characteristic requirement relating to protection with respect to hygiene, health, and environment set out in Chapter 3, Section 9,
4. characteristic requirement relating to safety in use set out in Chapter 3, Section 10,
5. special safety requirements relating to existing buildings set out in Chapter 3, Sections 11–12a,
6. technical characteristic requirement relating to noise protection set out in Chapter 3, Section 13,
7. technical characteristic requirement relating to energy management and thermal insulation set out in Chapter 3, Sections 14 and 15,
8. technical characteristic requirement relating to suitability for the intended purpose set out in Chapter 3, Section 17,
9. technical characteristic requirement relating to accessibility and usability set out in Chapter 8, Section 4, first paragraph, point 8 of the Planning and Building Act (2010:900) and Chapter 3, Sections 18 and 19,

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Current wording

Proposed wording

10.technical characteristic requirement relating to water management set out in Chapter 3, Section 20,

11.technical characteristic requirements relating to waste management set out in Chapter 8, Section 4, first paragraph, point 9 of the Planning and Building Act,

12.technical characteristic requirement relating to broadband connectivity set out in Chapter 3, Section 20a,

13.technical characteristic requirement relating to the charging of electric vehicles set out in Chapter 3, Sections 20b and 20c,

14.technical characteristic requirement relating to the release of greenhouse gas emissions into the atmosphere set out in Chapter 3, Sections 20d–e, and

14.technical characteristic requirement relating to release of greenhouse gas emissions into the atmosphere set out in Chapter 3, Sections 20d–g, and

15. implementation of the technical characteristics requirements at a later date set out in Chapter 3, Section 21.

-
1. This Ordinance will enter into force on 1 January 2030.
 2. Older provisions shall continue to apply to cases in which an application for a building permit was received before the entry into force of this Act.

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2 Terminology and abbreviations

Building: a roofed construction having walls, for which energy is used to condition the indoor environment. (Definition in the EPBD).

Fixed fittings: Fittings that are permanently attached to, assembled with, or built into a building element. Examples include shelving, kitchen fittings, wardrobes.

Building-integrated technical systems: installed technical equipment that enables the continuous operation of the building's essential functions. This refers to the technical systems that are to be included in a life-cycle GWP calculation under the Delegated Regulation on the calculation of life-cycle GWP.

Certification Framework for Carbon Removals and Carbon Farming (CRCF): EU Regulation (EU) 2024/3012 establishes a voluntary certification framework for carbon removals and carbon farming. The certification framework is intended to promote and ensure the high quality of carbon removal and carbon farming activities. The Regulation covers quality criteria, verification and certification procedures, and rules governing certification schemes. One of the proposed methodologies currently under development concerns temporary carbon storage in buildings.

CBAM: The Carbon Border Adjustment Mechanism (CBAM) is the EU's carbon border adjustment mechanism, under which imports of certain goods are subject to a charge linked to their embedded emissions, with the aim of preventing carbon leakage and ensuring equivalent carbon costs for domestic production and imports.

CPR: The EU Construction Products Regulation. Regulation (EU) 2024/3110 of the European Parliament and of the Council of 27 November 2024 laying down harmonised rules for the marketing of construction products.

Declaration of Performance and Conformity (DoPC): A mandatory document that the manufacturer of a construction product is required to draw up under the Construction Products Regulation² (CPR). The document identifies the product, specifies its intended use, and sets out its essential technical characteristics (performance) in accordance with harmonised standards or a European Technical Assessment. In addition, under the 2024 Regulation, it includes a declaration that the product complies with the requirements established at EU level, including, for example,

² Regulation (EU) 2024/3110 of the European Parliament and of the Council of 27 November 2024 laying down harmonised rules for the marketing of construction products.

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requirements relating to environmental and climate impact. The Declaration of Performance and Conformity forms the basis for CE marking and must be made available to authorities, distributors and users in the language required in the Member State in which the product is placed on the market.

Digital Product Passports (DPP): A structured digital information system used to collect, store and make available the information required under established ecodesign information requirements. The Digital Product Passport serves as a tool to ensure traceability and transparency throughout a product's life cycle and is to be provided for those product groups for which a delegated act has been adopted under the applicable EU legislation.

EPBD: Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the energy performance of buildings (recast), which shall promote an improvement of the energy performance of buildings and a reduction of greenhouse gas emissions from buildings across the Union. The Directive aims to improve energy efficiency and reduce carbon emissions from buildings across Europe. Among other things, the Directive includes requirements for the calculation and disclosure of a building's climate impact over its life cycle (life-cycle GWP) and for the introduction of limit values for buildings' release of greenhouse gas emissions into the atmosphere upon construction.

EPD (Environmental Product Declaration): An environmental product declaration describing a product's environmental impact over its entire life cycle. Complies with the EN 15804 standard.

ESPR: Ecodesign for Sustainable Products Regulation, Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products.

EU ETS: The European Union's Emissions Trading System, under which a cap is set on the total construction greenhouse gas emissions from certain sectors and companies covered by the system must hold emission allowances corresponding to their emissions. These allowances may be bought and sold on the market.

Global Warming Potential (GWP): Global warming potential of a greenhouse gas. GWP is a measure of the contribution of a greenhouse gas to global warming compared with carbon dioxide over a specified period. Carbon dioxide equivalents (CO₂eq) express the warming effect of a greenhouse gas emission relative to the emission of the same quantity of carbon dioxide (CO₂). Expressing greenhouse gas emissions in CO₂eq makes it easy to compare the contributions of different greenhouse gases to global warming.

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Limit value: The maximum permitted release of greenhouse gas emissions into the atmosphere for a building. In this report, the limit value is expressed as maximum greenhouse gas emissions in kg CO₂eq per m² gross floor area (GFA).

GWP-total: An indicator of total climate impact, equal to the sum of GWP-fossil, GWP-biogenic and GWP-luluc.

GWP-fossil: This indicator covers the climate impact (GWP) of greenhouse gas emissions and removals to all media resulting from oxidation or reduction of fossil fuels or materials containing fossil carbon, through their conversion or decomposition (e.g. combustion, gasification, land-filling, etc.). The indicator also covers the climate impact of greenhouse gas emissions, for example from peat and calcination, as well as greenhouse gas removals, for example through the carbonation of cement-based materials and lime.

GWP-biogenic: This indicator covers the climate impact (GWP) of biomass carbon dioxide (CO₂) removals from all sources other than natural forests. This includes the transfer of carbon sequestered by living biomass from nature to the product system declared as GWP-biogenic. The indicator also covers the climate impact resulting from the transfer of biogenic carbon from previous product systems into the product system under study. In addition, it covers biogenic emissions to air from biomass (from all sources other than natural forests) arising from oxidation or decomposition (for example, combustion, solid waste disposal), as well as all transfers of biogenic carbon from biomass (from all sources other than natural forests) to subsequent product systems in the form of biogenic carbon dioxide (CO₂). All life-cycle carbon flows (Modules A to C) relating to biogenic carbon in biomass from natural forests shall be modelled under GWP-luluc.

GWP-luluc: This indicator covers greenhouse gas emissions and removals (CO₂, CO and CH₄) resulting from changes in defined carbon stocks caused by land use and land-use change associated with the declared or functional unit. The indicator includes biogenic carbon flows arising, for example, from deforestation or other land-related activities (including emissions from soil carbon). For natural forests, all related CO₂ emissions shall be included and modelled under this sub-category (including associated soil emissions and products and residues from natural forests).

GWP-GHG: This indicator covers the combined effect of greenhouse gas emissions but excludes the removals and emissions of biogenic carbon dioxide.

Life-cycle GWP (Global Warming Potential): Life-cycle global warming potential. An indicator that quantifies a building's contribution to

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global warming potential over its entire life cycle. (Definition in the EPBD).

PBL: Plan- och bygglagen, the Planning and Building Act (2010:900)

PBF: Plan- och byggförordningen, the Planning and Building Ordinance (2011:338).

Reference value: A value of the climate impact of a building that is representative of current construction and is used to determine the limit value for buildings' release of greenhouse gas emissions into the atmosphere in this report.

Default value: Predefined generic values that may be applied to the building elements or life-cycle modules covered by the calculation where product-specific climate data are unavailable or where simplification of the calculation is justified. Default values shall be used in accordance with the applicable requirements relating to data quality and calculation methodology.

Coverage ratio: The proportion of a building's climate impact that has been calculated using actual data on the quantities of construction products multiplied by climate data corresponding to those products. The coverage ratio is calculated by dividing the total cost of all construction products that could be quantified, and where climate data is available, by the cost of all construction products. Alternatively, the cost can be exchanged for weight. The ratio of these two figures corresponds to the coverage ratio of the bill of resources.

Disclosure of life-cycle GWP: The disclosure of the results of a climate calculation covering all or most of a building's life cycle.

Upwards adjustment: If the coverage ratio is less than 100 per cent, the climate impact shall be adjusted upwards so that it represents the building's complete set of building elements and technical equipment.

Technical equipment for user activities: Technical equipment for user activities, including process-related equipment, and not included in Building-integrated technical systems. Examples of technical equipment for household purposes include washing machines, cookers, refrigerators, freezers, other household appliances, and consumer electronics. Examples of technical equipment for operational purposes include computers, photocopiers, refrigerator and freezer display cabinets and equipment used in operational processes.

Greenhouse gas emissions throughout the whole life cycle: Greenhouse gas emissions that occur over the whole life cycle of a building, including the production and transport of construction products, construction-site activities, the use of energy in the building and replacement of

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construction products, as well as demolition, transport and management of waste materials and their reuse, recycling and final disposal; (Definition in the EPBD).

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3 Introduction

3.1 Background

3.1.1 Governmental assignment

In December 2024, the Government commissioned the Swedish National Board of Housing, Building and Planning (Boverket) to submit draft legislation on the implementation of Article 7(2) concerning the requirement to calculate and disclose greenhouse gas emissions throughout a building's entire life cycle (life-cycle GWP) for new buildings, in accordance with the Energy Performance of Buildings Directive (EPBD). Legislative proposals on limit values for the climate impact of new buildings must also be submitted in accordance with Article 7(4), while carbon removals and carbon storage for new buildings are to be taken into account in accordance with Article 7(6). These tasks form part of the Government's assignment on the National Building Renovation Plan.³ The mandate to submit legislative proposals shall be reported by 1 June 2026. The proposed roadmap for the introduction of limit values shall be presented by 1 October 2026.

Under the terms of the assignment, Boverket shall seek a cost-effective implementation that considers Sweden's leading position in terms of the energy performance of buildings and climate emissions. Nordic harmonisation shall also be pursued. The proposals shall be designed to ensure an appropriate and socio-economically efficient implementation without over-implementation.

3.1.2 Links to other assignments and studies

Boverket has been assigned four other Government commissions related to the implementation of the recast Energy Performance of Buildings Directive:

- Assignment to review the system of energy performance certificates under the Energy Performance of Buildings Directive (KN2024/01303). Final report submitted in December 2025.
- Assignment to establish methods and definitions under the Energy Performance of Buildings Directive (KN2024/01304). Final report submitted in July 2025.
- Assignment to prepare supporting material for the implementation of solar energy requirements under the Energy Performance of Buildings Directive (KN2024/01373). Final report submitted in July 2025.

³ Boverket's reference number: 8820/2024.

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- Assignment to prepare supporting material for the implementation of sustainable mobility requirements under the Energy Performance of Buildings Directive (KN2024/01374). Final report submitted in July 2025.

There is also a link to Boverket's assignment *En gemensam väg för PBL-ärenden* [A Common Path for PBL Cases], which is referred to in Section 10.5 of this report.

In addition to these EPBD-related assignments, there is also a connection to the European Commission's work on developing harmonised product standards under the Construction Products Regulation (CPR), in particular within the CPR Acquis and subgroup Environmental Sustainability of construction products, which aims, among other things, to provide the information on construction products required for calculations at building level. A further link to the European Commission's work concerns the development of the standard for temporary carbon storage in buildings under the EU's CRCF Regulation.

3.2 Work method

Boverket's study is based, among other things, on input from experts in LCA methodology for buildings and economics.^{4 5} There have been dialogues with a number of stakeholders in the construction sector, workshops and in-depth interviews. Boverket also held an open hearing in Stockholm on 28 August 2025. Written comments on the proposals were collected through a questionnaire. Approximately one hundred people attended the hearing, and 138 respondents completed the questionnaire.

Boverket's impact assessment includes calculations of administrative costs, material and design costs, distributional effects across different stakeholder groups, as well as environmental impacts and cost-effectiveness in relation to other policy instruments.

3.3 Delimitations

This assignment is limited to the provisions of the EPBD concerning life-cycle GWP and limit values for buildings' release of greenhouse gas

⁴ *Underlagsrapport till Boverkets regeringsuppdrag om livscykel-GWP och gränsvärden för byggnaders klimatpåverkan* [Background report for Boverket's Government assignment on life-cycle GWP and limit values for the climate impact of buildings], 2025-10-19, Tove Malmqvist, KTH, Sara Borgström, WSP, and Martin Erlandsson, BIM Object. Ref. no.: 1943/2025.

⁵ *Förslag till livscykel-GWP för klimatdeklaration och gränsvärden för byggnaders klimatpåverkan. Underlag till Boverkets konsekvensutredning* [Proposal for life-cycle GWP for climate declarations and limit values for the climate impact of buildings. Supporting documentation for Boverket's impact assessment], 12 December 2025 revised 19 December 2025, Sirje Pädam and Nils Malmström, WSP. Ref. no.: 1943/2025.

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emissions into the atmosphere for which proposals for legislation are submitted at the level of acts and ordinances.

Article 7(5), concerning the roadmap for the introduction of limit values for the cumulative life-cycle GWP of new buildings, will be presented in a separate report by Boverket in October 2026.

3.4 How to read this report

The report is divided into two parts, with the annexes gathered in Part 2.

The detailed legislative proposals are presented in Chapters 1 and 13, while the overarching reasoning regarding implementation into Swedish law are set out in Chapter 4.

The technical and methodological rationale and considerations relating to life-cycle GWP, limit value levels and system boundaries are presented in Chapters 5–7, with references to the annexes in Part 2. Chapters 5–7 follow the structure of the delegated EU Regulation on life-cycle GWP. Each section begins with a commentary on the relevant EU provisions, followed by Boverket’s proposals for national choices in implementing EU law, presented in the blue boxes.

Chapter 8 presents proposals and considerations concerning the verification of climate calculations. Chapter 9 presents a study on temporary carbon storage in buildings based on the CRCF Regulation. Chapter 10 describes the measures required in preparation for the implementation of the rules on life-cycle GWP and limit values for buildings’ greenhouse gas emissions.

The impact assessment is presented in Chapter 11, with references to the more detailed analyses in the annexes in Part 2.

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4 Implementation of the EPBD provisions on life-cycle GWP

This chapter provides an overview of the EPBD requirements concerning life-cycle GWP and limit values for buildings' release of greenhouse gas emissions into the atmosphere. It also presents proposals for their implementation into Swedish law. More detailed information is provided in the legislative proposal in Chapter 1 and the legal commentary in Chapter 12.

4.1 EPBD requirements concerning life-cycle GWP and limit values

Directive (EU) 2024/1275 of the European Parliament and of the Council on the energy performance of buildings (EPBD) introduces requirements for the calculation and disclosure of life-cycle GWP. Under Article 7(2), the life-cycle GWP shall be calculated in accordance with Annex III to the Directive and disclosed in the building's energy performance certificate (referred to as '*energideklaration*' under Swedish legislation) for new buildings. The calculation and disclosure requirements shall apply from 1 January 2028 to all new buildings with a useful floor area exceeding 1,000 square metres and from 1 January 2030 to all new buildings. The requirement does not need to be applied to buildings for which an application for a building permit has been submitted before the aforementioned date. Under Article 2(25), 'life-cycle GWP' means an indicator quantifying a building's contribution to global warming potential over its entire life cycle.

The EPBD requirements concerning life-cycle GWP must be transposed into Swedish law.

Annex III to the EPBD has been amended by the Commission Delegated Regulation on the calculation of life-cycle GWP⁶. It is binding in its entirety and directly applicable in all Member States. The Regulation shall thus not be transposed into Swedish law. However, Swedish legislation must be adapted to the Delegated Regulation, and supplementary national provisions are required.

Article 7(5) of the EPBD requires limit values to be introduced no later than 1 January 2030. Under the Delegated Regulation, it is permissible

⁶ Commission Delegated Regulation (EU) 2026/52 of 16 December 2025 amending Annex III to Directive (EU) 2024/1275 of the European Parliament and of the Council as regards the Union framework for the national calculation of life-cycle global warming potential.

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for the limit value not to cover all building elements, technical equipment and modules declared as mandatory under the Delegated Regulation.

The Commission has published guidance on life-cycle GWP (Articles 7(2) and 7(5)).⁷

4.2 Implementation into Swedish law

This report proposes that the transposition of, and adaptation to, EU law should be carried out as follows:

- The current provisions on climate declaration for buildings in the Act, Ordinance and regulations will be repealed.
- Instead, EU law will be transposed and Swedish legislation adapted by introducing into the PBL a technical characteristic requirement to calculate and disclose buildings' release of greenhouse gas emissions into the atmosphere. This requirement encompasses both the calculation and disclosure of life-cycle GWP and the calculation and disclosure of a building's greenhouse gas emissions for the construction stage and for the building elements covered by the limit value.

There are several reasons why the transposition of, and adaptation to, EU law are carried out through the PBL and the associated legislation rather than through the Climate Declaration for Buildings Act and its associated legislation. According to the assignment, the objective is to achieve a minimalist implementation of EU law. EU law does not require Sweden to adopt a separate Act, Ordinance and regulations governing life-cycle GWP. Nor does it require a separate register. Under EU law, life-cycle GWP information is to be disclosed in the energy performance certificate and thereby recorded in the Energy Declaration Register.

Under the current legislation, Boverket is responsible for supervising submitted climate declarations. Once limit values are introduced, Boverket considers it more appropriate for the building committees to administer compliance as part of the construction process, alongside other technical characteristics requirements. It would also be an unfamiliar role for Boverket to assess compliance with limit values in individual cases. Furthermore, it would simplify matters for developers if, in relation to buildings' greenhouse gas emissions, they only needed to deal with a single authority.

There will be consequential amendments to the legislation governing energy performance certificates, as, under EU law, buildings' release of greenhouse gas emissions into the atmosphere must be disclosed in the

⁷ Annex 13 to the Commission Notice providing guidance on the recast Energy Performance of Buildings Directive, C/2025/6438. [EUR-Lex - 52025XC06438 - EN - EUR-Lex](#). Retrieved 5 May 2026.

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energy performance certificate. Accordingly, it is proposed that the Energy Declaration of Buildings Act (SFS 2006:985) be amended to require a building's release of greenhouse gas emissions into the atmosphere to be stated in the energy performance certificate. The Energy Declaration of Buildings Ordinance (SFS 2006:1592) introduces restrictions on the processing of information on buildings' release of greenhouse gas emissions into the atmosphere on behalf of third parties for direct marketing purposes and that such information shall be made available on Boverket's website.

4.2.1 Buildings subject to requirements

The EPBD requirement to calculate life-cycle GWP applies to new buildings. This means that the obligation to calculate and disclose life-cycle GWP arises only when a building is constructed, and not when an existing building is altered. Article 2(1) of the EPBD defines a building as a roofed construction having walls, for which energy is used to condition the indoor environment.

As the information is to be disclosed in the energy performance certificate, it is appropriate for the starting point to be that the same buildings should be exempt as under the rules governing energy performance certificates. Likewise, the Delegated Regulation and the Commission's guidance on life-cycle GWP make it clear that types of buildings exempt from the requirement to obtain an energy performance certificate are not required to calculate and disclose life-cycle GWP. However, the requirement to obtain an energy performance certificate is not linked to the requirement to obtain a building permit. According to Boverket's assessment, it is not reasonable to lack such a link regarding requirements to calculate and disclose life cycle GWP. It is important that the questions of whether a building is required to calculate and disclose life-cycle GWP and which limit value applies are determined at an early stage and resolved before construction begins. It is therefore proposed, for example, to determine as early as in the building permit stage whether calculation and disclosure need to be made and what limit value applies to the building in question. Linking the requirement to the building permit process also simplifies matters for developers. In this context, it may be noted that very few types of buildings are required to have an energy performance certificate without also being subject to a building permit requirement. This applies to agricultural buildings with high energy demand located outside areas covered by a detailed development plan. It should also be noted that Article 7(4) of the EPBD refers to the building permit in connection with the date from which the requirement to calculate and disclose life-cycle GWP shall apply.

The exemptions from the requirement to obtain an energy performance certificate are set out in Section 2 of the Energy Declaration of Buildings Ordinance (SFS 2006:1592). It is proposed that corresponding exemption

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provisions be introduced in Chapter 3, Section 20d of the Planning and Building Ordinance (2011:338) (PBF), with the difference referred to above concerning exempting buildings not requiring a building permit; see point 7 of Chapter 3, Section 20d of the Planning and Building Ordinance. In addition, the following adjustments are made compared with the exemptions applicable to energy performance certificates. As regards point 2 of Chapter 3, Section 20d of the PBF, the exemption is expressed as applying to buildings for industrial or workshop purposes, rather than to industrial facilities and workshops. This provides a clearer provision by focusing on the building itself. As regards point 5 of Chapter 3, Section 20d, the exemption is linked to the PBL definition of an agricultural building, namely a building required for agriculture, forestry, aquaculture, fishing or reindeer husbandry. This provides a clearer regulation than the exemption regarding energy performance certificates for agricultural buildings intended for agriculture, forestry, and related industries. With regard to the exemption in point 6 of Chapter 3, Section 20d of the PBF linked to the size of the building, the term ‘detached buildings’ is removed. The exemption depends solely on the floor area of the building itself and is not linked to whether the building is detached, Point 7 of the Energy Declaration of Buildings Ordinance exempts buildings intended for total defence which are of a secret nature because of the design of the building or the activities carried out there. This corresponds to Chapter 9, Section 51 of the PBL, which provides that a building permit is not required for measures relating to buildings intended for total defence purposes that involve information subject to secrecy under Chapter 15, Section 2 of the Public Access to Information and Secrecy Act (2009:400). It is unnecessary to provide a separate exemption, as such buildings are already covered by the general exemption if the construction does not require a building permit.

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5 Calculation of life-cycle GWP from 2028 and 2030

This chapter sets out the system boundaries applicable to the calculation of life-cycle GWP based on the Commission Delegated Regulation on life-cycle GWP and Boverket's proposals in areas where EU law permits national adaptations or choices.

Proposals

- The area unit for calculating life-cycle GWP shall be the gross floor area (GFA).
- The calculation and disclosure shall cover the mandatory modules set out in Table 2 and the mandatory building elements and technical equipment specified in Chapter 7 of the Commission Delegated Regulation.
- To eliminate data gaps in the life-cycle GWP calculation, a requirement is introduced that the coverage ratio for the calculation of life-cycle GWP for building elements and technical equipment shall be at least 90 per cent, including the use of default values.
- Where the coverage ratio is less than 100 per cent, the climate impact shall be adjusted upwards so that it corresponds to all building elements and technical equipment of the building.

5.1 Reference study period

The reference study period for the calculations is set at 50 years in accordance with Chapter 2 of the Commission Delegated Regulation on life-cycle GWP. The reference study period corresponds to a hypothetical service life after which a building is demolished and is then described as 'a whole life cycle'. This whole life cycle is not intended to reflect what actually happens, as the vast majority of buildings are refurbished rather than demolished after 50 years. No additional specific national regulations are required.

5.2 Data for the calculations

Chapter 3 of the Commission Delegated Regulation specifies which data may be used for calculating a building's life-cycle GWP. It provides that, where GWP information is included in a construction product's Declaration of Performance and Conformity (DoPC) under the EU Construction

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Products Regulation⁸, these data shall be used in the calculation of the building's life-cycle GWP. This also applies to construction products covered by the EU's Ecodesign Regulation⁹. Where GWP information is provided for such products in the EU Declaration of Conformity (DoC), these data shall be used.

Where GWP information for construction products incorporated into the building is not available in a DoPC or DoC, other data may be used. Under the Commission Delegated Regulation, product-specific climate data (EPDs) may be used, provided they comply with EN 15804 or EN 50693 and their use is provided for in national legislation. In addition to the above, Member States are required to determine whether project-specific data, sectoral EPDs, generic data or default values may be used.

5.2.1 Need for regulations

Requirements concerning which data may be used in a life-cycle GWP calculation are, according to Boverket's preliminary assessment, more appropriately regulated at the level of provision and will be examined further as part of that work. The following are some preliminary overarching comments regarding upcoming provisions.

In Sweden, provisions already exist governing which data may be used under the rules on climate declarations for buildings. It is permitted to use *generic climate data* from Boverket's climate database and *product-specific climate data* from an EPD that has been third-party verified or equivalent. Equivalent existing national provisions could continue to apply. It is also possible to use project-specific data. However, this is not explicitly regulated under the current provisions and may need to be reviewed. Boverket's preliminary assessment is nevertheless that the appropriate level for regulating these matters is through regulations.

The current provisions do not specify what is meant by '*equivalent*' in relation to product-specific climate data. However, guidance is provided in Boverket's handbook on climate declarations. Boverket's preliminary assessment is that it remains appropriate to provide guidance on the meaning of '*equivalent*', as there is a need to make updates on an ongoing basis as new knowledge becomes available. Boverket coordinates the work on guidance relating to EPDs with the Swedish Transport Administration.

Boverket's preliminary assessment is that there is no need for specific provisions governing the use of sectoral EPDs, as referred to in the Commission Delegated Regulation, as Sweden already has a national climate

⁸ Regulation (EU) 2024/3110 of the European Parliament and of the Council of 27 November 2024 laying down harmonised rules for the marketing of construction products.

⁹ Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products.

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database maintained by Boverket. However, sectoral EPDs may prove useful in the development of Boverket's climate database.

Another aspect that needs to be clarified is which information from an EPD may be used when calculating a building's life-cycle GWP.

5.3 Area metric

According to the EPBD, life-cycle GWP shall be calculated and disclosed for useful floor area ($\text{kg CO}_2\text{eq/m}^2$ useful floor area).¹⁰ This is set out in Chapter 4 of the Commission Delegated Regulation. The Directive's definition of 'useful floor area' is relatively general and overarching. When implementing the Directive in national legislation, Member States may specify its meaning by adopting different area metrics. The definition in the Directive allows the use of gross floor area (GFA), i.e., based on the external dimensions of the building. It can also be implemented as temperature-controlled area (net heated area), which is a measure based on the floor area inside the building envelope. The Commission Delegated Regulation does not further clarify the EPBD definitions of these area metrics. Instead, it emphasises the importance of Member States providing a clear description of the definition of useful floor area adopted for the calculation of life-cycle GWP. This is intended to ensure transparency and comparability. According to the Commission Delegated Regulation, that description is to be provided in accordance with the International Property Measurement Standards (IPMS) or equivalent standards.

The EPBD and the Commission Delegated Regulation thus allow Member States to choose the area metric to be used for the disclosure of life-cycle GWP. Boverket proposes to continue using the same area metric as under the current regulations on climate declaration. Accordingly, life-cycle GWP shall be expressed in kilograms of carbon dioxide equivalents per gross floor area ($\text{kg CO}_2\text{eq/m}^2$ GFA).¹¹ Boverket considers that GFA needs to be defined in the national provisions on life-cycle GWP and that the appropriate place for that definition is in the PBF. This is because Boverket proposes that the limit values be laid down in the PBF; see Chapter 4, Implementation of the EU rules on life-cycle GWP in the EPBD. If necessary, the definition of gross floor area in the PBF may be supplemented by regulations or more detailed guidance issued by Boverket.

Under the Commission Delegated Regulation, Member States may consider establishing rules on the allocation of greenhouse gas emissions from building elements shared by several buildings. Boverket currently provides guidance on this issue in its handbook on climate declarations.

¹⁰ Annex III to the EPBD.

¹¹ Carbon dioxide equivalents are abbreviated as $\text{CO}_2\text{-eq}$ in accordance with the Commission Delegated Regulation.

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Boverket considers it appropriate to continue providing guidance for the time being and not to establish specific rules at this stage. The issue concerns questions of delimitation that may be complex. Guidance makes it possible to describe different typical cases that can be developed over time. Working with guidance provides greater possibilities to take specific circumstances into account on a case-by-case basis. Should it prove necessary to establish rules, Boverket considers that the appropriate level for doing so would be in Boverket's regulations.

5.3.1 The definition of useful floor area in the EPBD is incorporated into Swedish legislation in two different ways

In addition to a definition of 'useful floor area', the EPBD also introduces a definition of 'reference floor area'.¹² Reference floor area is the area metric to be used for the building energy performance indicator (kWh/m² per year), which is central to other requirements under the EPBD.¹³

The Directive's definition of reference floor area is narrower than the definition of useful floor area. It is based on the floor area within the building envelope. Reference floor area is thus a more specific area concept that falls within the broader definition of useful floor area. Reference floor area corresponds to the definition of temperature-controlled floor area (net heated area) used in the Swedish regulation on energy management.

The concept of useful floor area is used in the EPBD, among other things, in connection with the exemption from the requirement to obtain an energy performance certificate for detached buildings smaller than 50 m².¹⁴ It is also used to establish the threshold for which buildings are subject to the requirement to calculate life-cycle GWP from 1 January 2028.¹⁵ Boverket has previously determined, in Boverket's Regulations on investigation on alternative energy supply systems (BFS 2013:8), that the expression useful floor area means temperature-controlled floor area (net heated area). Boverket has now also proposed that this be laid down in the regulations on energy management and thermal insulation in buildings.¹⁶ The same exemptions that apply to the requirement to obtain an energy performance certificate will apply to the calculation of life-cycle GWP. This means that, in this context, the assessment of whether a building is exempt will be based on temperature-controlled floor area (net

¹² Articles 2.51 and 2.52 of the EPBD.

¹³ Annex 1, paragraph 4 of the EPBD.

¹⁴ Article 5(2)(e) of the EPBD.

¹⁵ Article 7(2) of the EPBD. All new buildings with a useful floor area exceeding 1,000 m².

¹⁶ Boverket's proposed new regulations on energy management and thermal insulation in buildings (BFS 20xx:A26), which were circulated for consultation between 4 February and 17 April 2026. Reference number 243/2025.

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heated area), even though the life-cycle GWP indicator itself is expressed as kg CO₂eq/m² GFA.

5.4 Calculation of mandatory life-cycle stages and modules

The calculation methodology for the disclosure of life-cycle GWP shall follow the provisions of the Commission Delegated Regulation on life-cycle GWP. Consequently, the main elements of the methodology are established, and only a limited number of areas require further clarification. Boverket considers that these clarifications are likely most appropriately regulated at the regulatory level.

5.4.1 Need for regulations

Outlined below are some of the methodological clarifications that may need to be laid down in Boverket's regulations or implemented through Boverket's climate database.

Boverket's preliminary assessment of the issues left open by the Commission Delegated Regulation is that the starting point shall be to follow the proposals previously presented by Boverket in its 2020 and 2023 reports.¹⁷ The methodological specifications proposed in two R&D reports (Erlandsson et al., 2024, and Görman et al., 2024) will also constitute important supporting material.¹⁸ The aim of these two R&D projects is to further detail and harmonise the methodology for calculating the climate impact over a building's entire life cycle. Erlandsson et al. (2024) also aims to establish a common Nordic approach.

Some of the methodological issues that will be examined in greater detail in future regulatory work are described below.

5.4.1.1 Method for calculating Modules B2 and B4

Two different methods are commonly used to quantify the number of maintenance activities (Module B2) and replacements of building components and construction products (Module B4) during the reference study period. One is the integer method, whereby the number of maintenance activities and replacements is rounded to integers where the interval between activities is not evenly divisible by the 50-year reference study period. The other is the decimal method, under which no such rounding is made; instead, the climate impact is calculated on the basis of the number of activities expressed as decimal values.

¹⁷ Report 2020:13 [report 2020:28, English translation of report 2020:13] and 2023:20 [report 2023:24, English translation of report 2023:20].

¹⁸ Likewise: *Anvisningar för LCA-beräkning av byggprojekt* [Guidelines for LCA calculations for building projects] (version 2025-02, IVL Swedish Environmental Research Institute).

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In addition to the choice of calculation method, the time interval used in the calculation for maintenance activities and replacements (technical service lives) is also an important parameter. This affects the number of activities during the reference study period and, with that, the climate impact resulting from these activities.

5.4.1.2 Climate improvement scenarios for life cycle stages B, C, and D

Historically, calculations of future life-cycle stages (B, C and D) have been based on current technologies for the manufacture of construction products and the production of energy; that is, on a scenario describing “what happens if everything in the future remains as it is today”. In recent years, this approach has come under increasing criticism in view of buildings’ long service lives and the climate targets requiring that only very limited fossil greenhouse gas emissions should remain by the middle of the century. As a result, it has become increasingly common to implement climate improvement scenarios when calculating future climate impact over the reference study period. So far, this has mainly been implemented for calculations in Module B6, but in principle, the same approach should apply to the other future modules in life-cycle stages B and C, as well as to Module D. Boverket considers that scenarios for future climate impacts need to be laid down in Boverket’s regulations or implemented through Boverket’s climate database.

5.4.1.3 Allocation method relating to the building’s energy system

The EU Regulation describes different approaches to the allocation of embodied greenhouse gas emissions¹⁹ related to the building’s energy system and on-site energy generation. The options are labelled A, B1, and B2. Approach A entails the full allocation of the embodied greenhouse gas emissions associated with the building’s energy system to the building, regardless of how much of the energy recovered or generated on site is used by the building in question. The climate benefit arising from the export of electricity is attributed to the building by being accounted for in Module D2. Options B1 and B2 have in common that a proportion of the embodied emissions from the building’s energy systems is allocated to the building. The climate emissions are allocated to the building in proportion to the amount of energy actually used in that building. Under this approach, the climate benefit arising from the export of electricity is not attributed to the building by being accounted for in Module D2. Under the EU Regulation, Member States shall adopt one of these alternatives at the national level.

¹⁹ The total climate impact from the product stage (A1–A3), transport to the construction site (A4) and the construction and installation process (A5).

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5.4.1.4 Calculation of B6: Operational energy use

The EU Regulation specifies three different scopes for the calculation of greenhouse gas emissions from Module B6: Operational energy use (sub-modules). Submodule B6.1 covers greenhouse gas emissions resulting from building-related energy use subject to the Member States' regulations on energy management, implemented in accordance with Annex I to the recast EPBD. B6.2 covers building-related energy use that is not subject to the regulations on energy management. B6.3 covers other energy use related to the building's occupants. The EU Regulation provides that Member States may limit the calculation to Submodule B6.1. If the calculation shall be limited to B6.1, this must be laid down in national regulations.

A related issue concerns the methodology for determining GWP indicators (emission factors) for different energy carriers in Module B6. This also affects Modules A5 and C3–C4.

5.5 Building elements and technical equipment included

Chapter 7 of the Commission Delegated Regulation specifies the building elements and technical equipment to be included in the calculation of life-cycle GWP. In certain respects, the EU Regulation differs from the system boundaries proposed by Boverket in its previous investigation on an expanded climate declaration.²⁰

According to the EU Regulation, the following shall, in broad terms, be included:

1. Building elements and technical equipment from the insulation beneath the foundations upwards (the physical boundary of the building).
2. Building-related ground reinforcement.
3. Building elements and technical equipment located on the building's plot that are covered by an energy performance certificate.

The EU Regulation describes in greater detail, in a four-level table, which building elements are included.²¹ The EU Regulation stipulates that the calculation of life-cycle GWP shall, as a minimum, include the building elements and technical equipment described under Level 2. Against that background, Boverket proposes that the PBF shall include a provision

²⁰ Gränsvärde för byggnaders klimatpåverkan och en utökad klimatdeklaration [Limit values for climate impact from buildings and an expanded climate declaration], Report 2023:20, Boverket.

²¹ Table 4, Section 7 – Scope of building elements and technical equipment.

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requiring the calculation to cover the building elements and technical equipment that are mandatory under the EU Regulation.

The building elements to be included constitute a key aspect of the calculation of life-cycle GWP. Although this issue is now regulated by the EU Regulation, certain questions regarding the delimitation of the scope remain. For that reason, the following section provides a more detailed discussion of some of these delimitations. Boverket considers that further clarification will be required through guidance issued by Boverket and, potentially, through regulations.

5.5.1 Rationale and considerations

The system boundary proposed by Boverket for limit values with respect to building elements differs from the system boundary applicable to the calculation of life-cycle GWP. See Chapter 6, Limit values for the climate impact of buildings, for further information.

5.5.1.1 Building elements and technical equipment in the building

Level 2 under the EU Regulation means that the following are included (within the physical boundary of the building, with the exception of ground reinforcement, which is included under foundations)²²:

- Foundations (including insulation)
- Other load-bearing structural elements
- Building envelope (including finishes)
- Internal building elements (partitions and fixed fittings, including finishes)
- Building-integrated technical systems

The EU Regulation also contains detailed descriptions of the building elements included within these categories, as set out under Levels 3 and 4 of the above-mentioned table. Descriptions under Levels 3 and 4 are examples of what is included in the more overarching Level 2. Member States may use classifications of the included building elements other than that presented in the EU Regulation. The EU Regulation provides that Member States shall clearly specify at the national level which building elements and technical equipment are to be included in the calculation of life-cycle GWP.

Although, in principle, all building elements within the physical boundary of the building are included, certain questions arise regarding the delimitation of the scope, including in relation to building-integrated technical systems and fixed fittings.

²² The classification does not constitute a verbatim translation of the categories used in the EU Regulation.

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The EU Regulation uses the term ‘building services and equipment’ to describe the technical systems and technical equipment to be included in the calculation. The EU Regulation lists nine categories, including technical systems for heating, cooling, and ventilation, as well as water supply and drainage systems.²³ These technical systems correspond to what is covered by the definition of ‘building-integrated technical systems’ in EN 15978:2026. This standard distinguishes building-integrated technical systems from equipment for user activities, including process-related equipment, such as refrigerators, freezers, cookers, and office equipment. Accordingly, it is the technical equipment relating to the building’s essential operation that shall be included in the calculation of life-cycle GWP. Against this background, Boverket translates the term ‘building services and equipment’ in the EU Regulation as ‘building-integrated technical systems’. There will be a need for future guidance on the delimitation with respect to technical equipment for user activities, which shall not be included in the calculation of life-cycle GWP.

Fittings to be included in the calculation also gives rise to certain questions regarding the delimitation of the scope. Fittings are addressed to some extent in EN 15978:2026. The standard distinguishes between integrated and non-integrated fittings. The definition of fixed fittings in TNC’s Glossary of Planning and Building Terms (1994), is relevant for clarifying the distinction. According to TNC, fixed fitting is defined as ‘interior fittings permanently attached to, integrated with or built into a building element’. The EU Regulation clarifies that ‘built-in fittings refers to building elements incorporated during the construction and completion of the new building. The EU Regulation gives examples such as cupboards, benches, and shelves. In this case, unlike technical systems, the delimitation primarily concerns whether the fittings can be regarded as built-in, rather than whether they are to be regarded as related to household or operational use.

5.5.1.2 Building-related ground reinforcement

Under the category ‘Foundations’, the Commission Delegated Regulation describes various types of ground reinforcement, such as piles, that are to be included in the calculation of life-cycle GWP. Groundworks, however, such as site clearance, excavation and fill, are not included.

Building-related ground reinforcement means all resources (materials and energy) used for ground stabilisation measures at the building site.

²³ 1) Water supply and drainage systems, 2) Heating systems, 3) Cooling systems, 4) Ventilation systems, 5) Lighting systems, 6) Electrical systems for power supply, communications, security, IT and fire safety, 7) On-site renewable energy generation systems, 8) Security, fuel and transport systems, and 9) Waste management systems

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5.5.1.3 Building elements covered by an energy performance certificate

The Commission Delegated Regulation provides that building elements and technical equipment (or systems) covered by an energy performance certificate shall be included in the calculation of life-cycle GWP, even where they are located outside the building. The EU Regulation further clarifies that the floor area of such detached building elements shall not be included in determining the building's life-cycle GWP. The latter may be interpreted as meaning that not only the technical equipment themselves, but also the embodied greenhouse gas emissions of detached buildings housing such technical equipment, are to be included.²⁴ As the EU Regulation links this to ownership of the building and responsibility for its maintenance, Boverket considers that the physical boundary should coincide with the building's plot.

The EU Regulation further provides, as examples of technical equipment located outside the building that are to be included, solar energy equipment and district heating and heat pump equipment. It also specifies that this concerns technical equipment provided as a consequence of the construction of the new building. On this basis, Boverket considers that all technical equipment, including pipework, extending from the site boundary to the building shall be included in the calculation of life-cycle GWP, provided that the technical equipments are covered by an energy performance certificate.

An important question therefore becomes which technical equipment are to be regarded as being covered by an energy performance certificate. The energy performance certificate establishes the building's energy performance (and energy performance class). The energy use on which the energy performance is based comprises energy delivered to the building for space heating, comfort cooling, domestic hot water, ventilation and permanently installed lighting in common areas and service areas, excluding energy from solar, wind, ground, air or water that is generated on the building or its plot.²⁵ Accordingly, technical equipment associated with these energy uses shall be included in the calculation of life-cycle GWP, including where they are located on the building's plot. This also includes energy storage on the plot. With regard to energy storage, Boverket considers that, for the purpose of calculating embodied greenhouse gas emissions, the scope should be limited to energy storage systems that

²⁴ This applies even where such a detached building has a useful floor area of less than 50 m², which would otherwise be exempt from the requirement to obtain an energy performance certificate.

²⁵ This is in accordance with Boverket's proposed regulations on energy management (BFS 20xx:A2), which were circulated for consultation between 4 February and 17 April 2026.

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are permanently connected to the building by means of pipework or cabling.²⁶

It is therefore worth noting that the Commission Delegated Regulation imposes different requirements regarding the types of technical systems to be included, depending on whether they are located within or mounted on the building, that is, whether they are building-integrated, or whether they are located on the building's plot. As mentioned above, building-integrated technical systems comprise a broader range of technical equipment than those relating solely to energy use and the indoor environment, including, for example, water supply and drainage systems.

5.5.1.4 The limit value has a different system boundary for building elements

Although the Commission Delegated Regulation largely determines which building elements and technical equipment are to be included in the calculation of life-cycle GWP, Member States may make adaptations regarding the scope of the limit value. Boverket proposes that a distinction be made between the calculation of life-cycle GWP and the elements covered by the limit value. For further information on the scope of the limit value, see Chapter 6: Limit values for buildings' greenhouse gas emissions.

5.6 Elimination of data gaps

This section sets out proposals for addressing data gaps in a climate calculation. The proposal is based on a follow up of the current approach to handling data gaps under the rules on climate declarations for buildings (coverage ratio²⁷ and upwards adjustment²⁸) and an evaluation of whether changes are needed to simplify compliance, facilitate disclosure and maintain an adequate level of quality. The objective is to ensure that the calculation and disclosure of life-cycle GWP accurately reflect the building as constructed in accordance with the applicable regulations.

Under the EPBD and the Commission Delegated Regulation on life-cycle GWP, default values may be used to calculate climate impact. It is for the Member States to determine whether, and if so, which default values may

²⁶ This assessment is consistent with EN 15978:2026 and the standard's description of Approach A for the allocation of emissions related to the building's operational energy use and on-site energy generation.

²⁷ The proportion of a building's climate impact that has been calculated using actual data on the quantities of construction products multiplied by climate data corresponding to those products.

²⁸ An upwards adjustment of the climate impact of the construction products is necessary where the coverage ratio is less than 100 per cent, in order for the climate calculation to correspond to 100 per cent of the building's climate impact from the construction products incorporated in the building.

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be used. The values discussed in this section are default values for the climate impact of individual building elements used in the calculation.

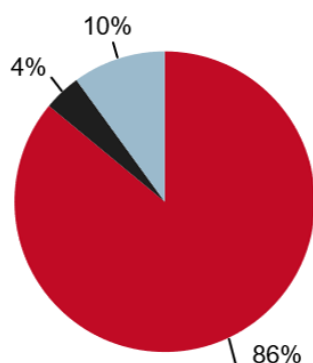
Boverket proposes that the coverage ratio for the calculation of life-cycle GWP for building elements and technical equipment shall be at least 90 per cent, including the use of default values.

The calculated climate impact, excluding default values, shall be based on actual quantities of building elements and technical equipment multiplied by climate data.

Boverket also proposes that, where the coverage ratio is less than 100 per cent, the climate impact shall be adjusted upwards so that it corresponds to all the building elements and technical equipment in the building.

Please note that the climate impact calculated using default values is also included in the upwards adjustment based on the coverage ratio. Furthermore, building elements outside the scope of the limit value are dealt with separately: building-related ground reinforcement and technical equipment for the generation or storage of renewable electricity on the building or its plot. These elements are subject to a common requirement for a coverage ratio of at least 90 per cent, in accordance with the same methodology as described above. An example of the climate impact at a coverage ratio of 90 per cent is shown in Figure 1.

Figure 1. Example of coverage ratio and upwards adjustment.



Example of the calculation of climate impact, divided into calculation based on actual data, estimation using default values, and upwards adjustment using the coverage ratio calculation. In this example, the coverage ratio is 90 per cent. Minimum share of calculated climate impact 86 % (red), Estimation using default values 4 % (black), Upwards adjustment using coverage ratio calculation 10 % (blue).

5.6.1 Need for development of Boverket's climate database with default values

Boverket will provide conservative default values for certain building elements to be included in the disclosure of life-cycle GWP. This should be regarded as a transitional solution until knowledge, automated information flows, and climate data are fully in place for these elements as

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well. The objective should be to phase out these default values gradually. The building elements for which default values may become relevant have not yet been defined. However, a starting point may be smaller components within fixed fittings and technical equipment where it is known that the work input required for an actual calculation is substantial, while the climate impact is generally low, and where calculated default values are already available for use. Boverket will examine this issue further as part of the development of Boverket's climate database.

5.6.2 Rationale and considerations

The general rule is that the climate calculation shall, to the greatest extent possible, be based on calculations using actual data for the construction products incorporated in the building. Default values may, however, be used for certain parts of the calculation where the administrative effort is considered to outweigh the benefit of an actual climate calculation. Only after default values have been used are the remaining data gaps eliminated by means of a calculation of the coverage ratio and an upwards adjustment to 100 per cent in accordance with the current legislation.

The assessment is that, by the time limit values are introduced in 2030, the work input required for calculations using actual data will also have decreased significantly for the additional building elements. Certain building elements are known to have a low climate impact, and it is therefore considered an unnecessary administrative burden to require actual calculations for those elements. By providing conservative default values for the climate impact of these elements, it is ensured that their climate impact is not omitted.

The conservative upwards adjustment creates an incentive to carry out climate calculations for these elements. Consultation bodies and participants in the early industry dialogue have, to some extent, opposed the use of default values on the grounds that they do not provide an incentive to produce information for these product groups. Other groups have emphasised the need to provide default values in order to reduce the work input.

Requiring an even higher coverage ratio, that is, above 90 per cent, would increase the administrative burden without contributing significantly to a reduced climate impact. The methodology for calculating the coverage ratio contains an inherent incentive to keep the proportion subject to upwards adjustment as small as possible. As the calculation is, in practice, almost always based on costs, this results in an overestimation of the climate impact of the building elements that are not calculated.

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The need for default values is linked to any minimum level for the coverage ratio in the calculations. In Boverket's Report 2023:20²⁹, a coverage ratio of 80 per cent was proposed when limit values are introduced, in order to improve the quality of the calculation. Digital maturity can also be expected to be higher at a later introduction of limit values than if they had been introduced in 2025, as originally proposed in Boverket's Report 2023:20.

The availability of climate data and information flows is expected to improve substantially by 2030. Nevertheless, it may be assumed that the work input required to increase the coverage ratio through climate calculations for these building elements will be greater than for the building elements already included in the climate declaration. Overall, however, it is considered that a higher coverage ratio could be entirely feasible for this part of the calculation, with a proposed coverage ratio of 90 per cent. This is also considered likely to improve the accuracy of the values disclosed in a climate calculation, which is particularly valuable when limit values are introduced.

Other alternatives have also been considered. One alternative is not to permit the use of default values at all. This would constitute a cruder means of eliminating data gaps and would therefore result in a lower-quality calculation. With a requirement for a minimum coverage ratio of 90 per cent, it could also drive costs to reach such a level. A lower required level, for example 80 per cent, would again reduce the quality of the calculation. Another alternative would be to address all data gaps solely by means of default values. However, it would be difficult to predict exactly which values would then need to be provided. The upwards adjustment based on coverage ratio means that data gaps are eliminated using an unspecified default value. This is not always done in similar calculations in, for example, other countries, which means that the disclosure of a lower climate impact than may be expected is accepted as a result of data gaps.

A large majority of those who responded to the questionnaire in connection with Boverket's hearing in August 2025 consider it reasonable for the coverage ratio to be calculated separately for the building and for ground reinforcement and technical equipment for the generation and storage of renewable electricity. The reasons given include that only the former is included in the limit value, that they constitute two separate contracts, that it results in higher quality, and that it facilitates the calculation. Almost half of the respondents, and more than half of developers

²⁹ Report 2023:24 is an English translation of report 2023:20. <https://www.boverket.se/en/start/publications/2023/limit-values-for-climate-impact-from-buildings/>. Retrived 2026-09-15.

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and contractors, favour allowing the use of default values together with a requirement for a coverage ratio of 90 per cent.

Other arguments put forward in favour of permitting the use of default values are that many currently underestimate their data gaps, which can be addressed through well-designed conservative default values, and that the time required for the calculation is reduced, and that attention can instead be focused on the building elements with a high climate impact. Arguments against permitting the use of default values are that it reduces the incentive for certain product groups to develop EPDs and to undertake climate mitigation measures. Several respondents point out that they already achieve a coverage ratio well above 90 per cent, although it is unclear whether they include the additional building elements in their calculations. One argument in favour of using default values is that they reduce the administrative burden when the legislation is introduced and can subsequently be phased out as the need for them diminishes, i.e., the proportion that must be calculated is gradually increased without changing the legislative requirements. Arguments against the use of default values are that many EPDs are already available on the market and that permitting the use of default values reduces the incentive for the affected product groups to undertake climate mitigation measures.

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6 Limit values for buildings' greenhouse gas emissions

This chapter sets out the system boundaries that apply to the limit value for buildings' release of greenhouse gas emissions into the atmosphere and Boverket's proposals where EU law permits national adaptations or choices.

The chapter begins by clarifying the system boundaries for the limit value in comparison with those described for the calculation of life-cycle GWP in Chapter 5. The chapter also describes how limit values are set for different building categories. The chapter then presents proposals for the levels of limit values upon the introduction of limit values and for subsequent tightening of limit values.

Proposals

- The limit value is proposed to cover the construction stage (Modules A1–A5).
- The limit value is proposed to cover all building elements and technical equipment, *excluding* technical equipment for user activities, ground reinforcement and technical equipment for the generation and storage of renewable electricity on the building or its plot.
- Limit values are established for the following building categories: multi-dwelling blocks, office buildings, primary healthcare buildings, preschool buildings, school and university buildings (excluding laboratory facilities), accommodation buildings, industrial buildings for logistics and trade with a useful floor area exceeding 1,000 m², single-family houses with a useful floor area of 130 m² or more, single-family houses with a useful floor area of less than 130 m², and buildings with specific climate-driving conditions and other buildings.
- Limit values are established for the GWP-GHG indicator and are expressed in kg CO₂eq/m² GFA.
- The proposed limit values range from 150 to 250 kg CO₂eq/m² GFA for buildings with reference values, while the category of other buildings (for which no reference values exist) has a limit value of 295 kg CO₂eq/m² GFA.
- For buildings with specific climate-driving conditions, an upwards adjustment of the limit value is possible on a case-by-case basis.
- Boverket describes an indicative emission trajectory for the limit values covering the period 2030–2050.

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6.1 System boundaries for limit value

A starting point for the investigation has been the proposal for the system boundaries for life-cycle stages and building elements set out in Boverket’s 2023 report on limit values (Boverket, 2023). Under the Commission Delegated Regulation, Member States may decide whether any of the mandatory building elements and modules included in the disclosure of life-cycle GWP shall be excluded from the limit value. Boverket therefore considered that the investigation could proceed with proposals for limit values in accordance with the 2023 proposal.

The limit value is proposed to cover the construction stage (Modules A1–A5) and all building elements and technical equipment, excluding technical equipment for user activities, ground reinforcement and technical equipment for the generation and storage of renewable electricity on the building or its plot.

Table 1 provides an overview of the building elements included in the limit value and how this differs from the system boundary for the calculation of life-cycle GWP.

Table 1. Schematic illustration of the building elements included in the calculation of life-cycle GWP and the limit value.

Building elements	Disclosure of life-cycle GWP	Limit value for buildings’ greenhouse gas emissions
Building elements and technical equipment ¹⁾		
Technical equipment for the generation and storage of renewable electricity on-site		Not included
Ground reinforcement		Not included
Technical equipment for user activities	Not included	Not included

The building elements included are highlighted in beige. Some technical equipment is not included in the limit value, that is technical equipment for the generation and storage of renewable electricity on-site.
¹⁾ Technical equipment comprises both *building-integrated technical systems* and *technical equipment* covered by an energy performance certificate.

Technical equipment comprises both *building-integrated technical systems* and *technical equipment* covered by an energy performance certificate. Building-integrated technical systems include equipment as defined in the Commission Delegated Regulation on life-cycle GWP, which is installed on or within the building. Building-integrated technical systems comprise a broader range of technical equipment than is covered by an energy performance certificate, including, for example, water supply and drainage systems. Technical equipment covered by an energy

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performance certificate includes, for example, heating, comfort cooling and ventilation. Such technical equipment is included in the climate calculation even where it is located on the building's plot. Likewise, supplementary buildings housing such technical equipment are included in the climate calculation in accordance with the Commission Delegated Regulation.

See Section 5.5 for further information on building elements and technical equipment.

6.1.1 Rationale and considerations

6.1.1.1 Limit value covering Modules A1–A5

The system boundary for limit values is proposed to be the same as that set out in Boverket's Report 2023:20³⁰ following Boverket's review of the scope of the limit value being confined to Modules A1–A5.

Boverket's Report 2023:20 contains a section setting out the reasons for establishing limit values for Modules A1–A5 rather than for the other modules under EN 15978. Rationale for the limit value limited to Modules A1–A5:

- Focusing on the construction stage provides a more targeted means of reducing the greenhouse gas emissions occurring today.
- These emissions can also be verified at the time of the final clearance, unlike calculations of potential future greenhouse gas emissions or removals.
- The construction stage accounts for a high proportion of climate impact over the life cycle of a building.
- The life-cycle perspective is intended to avoid potentially suboptimised decisions regarding building design and structural choices, but there are challenges in using the LCA methodology for this purpose in regulations. To ensure that calculations carried out by different stakeholders and for different buildings are comparable, the rules must standardise and prescribe the scenarios for the use stage, the end-of-life stage, and Module D. This means that the potential climate-improving project design choices made will not necessarily be clearly apparent in the calculation. In addition, these stages account for a relatively small proportion of the climate impact over the life cycle and are therefore only marginally affected by changes in product choices or design solutions.

³⁰ Report 2023:24 is an English translation of report 2023:20. <https://www.boverket.se/en/start/publications/2023/limit-values-for-climate-impact-from-buildings/>. Retrived 2026-09-15.

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The majority of stakeholders in the construction sector consider limiting the scope of the limit value to the construction stage to be relevant and appropriate. They also consider that there is a risk that reductions in the climate impact of the construction stage could be hindered if scenarios that produce overestimated values for Stages B and C are permitted. It is also noted that energy legislation is regarded as a useful complement for avoiding suboptimisation and that actors in the construction sector are increasingly designing buildings for future disassembly and reuse (thereby minimising the future climate impact of Stage C).

However, as a number of consultation bodies criticised the proposed system boundary for limit values in Boverket's Report 2023:20, Boverket has undertaken a review to determine whether any new developments warrant a change to the system boundary for the limit value. These views were reiterated both during the early industry dialogue and in the responses to the questionnaire submitted in connection with Boverket's hearing in August 2025. On both occasions, stakeholders were also asked to provide more concrete sample calculations and practical examples of how suboptimisation occurs.

From a Swedish perspective, the construction stage continues to account for the majority of the climate impact over the life cycle. As a result of the implementation of the EPBD and developments since the publication of Boverket's Report 2023:20, the following aspects may also be added:

- Applying *climate improvement scenarios* in Stages B and C means that emissions from the construction stage become proportionally greater compared with calculations that do not take account of climate improvement scenarios used in previous analyses supporting the limitation to Modules A1–A5.
- The EPBD fixes the reference study period at 50 years.

As part of the review, the ongoing revision of the standard EN 15978 and research in the field have also been monitored. No new information has emerged that changes Boverket's previous assessment that limit values should be established for Modules A1–A5.

It is primarily various building material manufacturers that have raised criticism of limiting the limit value to the construction stage (Modules A1–A5). The comments received broadly reflect those submitted previously and primarily concern the risk of suboptimisation through solutions that may increase either the climate impact of future operational energy use (Module B6) or future maintenance and replacement (Modules B2–B4).

In addition to representatives of various parts of the construction materials and construction products industries, the trade association Fastighetsägarna [Swedish Property Federation] has also called for a limit

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value covering the entire life cycle. The rationale is that Sweden should comply with EU law, but under the EPBD Member States have the flexibility to introduce limit values in a manner that is appropriate to the national context for reducing climate impact.

With regard to Module B6, concerns have been raised that a limit value for Modules A1–A5 could discourage the construction of buildings with better energy performance than required under the current energy performance requirements and that the delimitation thus does not reward solutions or products that contribute to greater energy efficiency during the use stage. In isolated cases, calculations have been provided showing how climate savings can be achieved at product level, but when implemented in the construction of new buildings these savings are relatively small in the overall context. In addition, the implementation of the EPBD will result in more stringent energy performance requirements for new buildings.

Similarly, individual product manufacturers argue that the long service life of their products is not valued through Module B4. Their products may also be disadvantaged by the 50-year reference study period, as they generally have a somewhat higher climate impact during the product stage than other comparable products. The 50-year reference study period is not something that Member States can influence, as it has been established in the Commission Delegated Regulation. Furthermore, Boverket considers that it does not have any significant impact, and stakeholders have likewise been unable to demonstrate otherwise through concrete sample calculations. At the same time, intensive product development is currently taking place within these industries, and products are already available on the market with a climate impact during the product stage that is reduced by half or more.

A further aspect concerning the use of future scenarios to make visible the risks of design choices being disregarded is that applying this methodology entails additional work for developers compared with current calculation practice, as described, for example, in Görman et al. (2024).

Boverket considers that the focus of introducing limit values for the climate impact of buildings should be to steer towards lower climate impact during the construction stage, as this has not so far been addressed through other policy instruments. Regulations would then complement existing legislation. The EPBD focuses specifically on operational energy use, which is the life-cycle stage after the construction stage that currently tends to contribute the most to the climate impact over a building's life cycle. Limiting the limit value to Modules A1–A5 is thus a way of achieving more effective steering towards lower climate impact from the construction of new buildings.

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6.1.1.2 Building elements included in the limit value

The starting point should be that the same technical equipment covered by an energy performance certificate are also included within the scope of the limit value, regardless of whether they are located within the building or on its plot, just as in the calculation of life-cycle GWP. This is to achieve technology-neutral functional requirements. For example, if equipment for harnessing (renewable) thermal energy on the plot were not included in the calculation of the climate impact covered by a limit value, the limit value would be easier to meet by using external solutions. This would be the case even though such an external technical solution performs the same function for the building as an equivalent equipment located within the building. The regulations would also risk steering towards technical solutions that are unfavourable from a resource and environmental perspective.

However, Boverket proposes one difference between the calculation of life-cycle GWP and what is covered by the limit value, namely that technical equipment for the generation and storage of on-site renewable electricity should not be included within the scope of the limit value. This is based on Boverket's proposal for a different system boundary for the limit value with regard to the life-cycle modules included (Modules A1–A5), together with the fact that renewable electricity generated on-site has good potential to be exported and can contribute to wider societal benefits. In addition to covering part of the building's own energy use, such on-site generation within the building stock can contribute to the increased electricity generation sought in Sweden. Together with storage capacity within the building or on its plot and effective control, it can contribute both to the demand flexibility of buildings and to relieving pressure on the electricity grid. It also supports the ambition to increase the share of electric vehicles, etc. If equipment for on-site renewable electricity generation were included in the limit value when this is delimited to the construction stage (Modules A1–A5), compliance with the limit value would become more difficult. This would risk creating an incentive for developers not to include such facilities. Technical equipment for on-site renewable electricity thus constitute an exceptional case: They differ from other types of equipment for harnessing renewable energy on-site, which in most cases are primarily intended to serve the building in question.

6.2 Classification into building categories

The proposal in Boverket's Report 2023:20 was to divide buildings into different building categories, with differentiated limit values established for each category. As part of this investigation, that proposal has been reviewed more extensively. The reasons for the review are that knowledge has increased since the report was completed, that limit values will be introduced later than was proposed in the report, and a number of

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comments received during the consultation process. In addition, efforts have been made to harmonise the categorisation with the building categories proposed by Boverket in the energy performance regulations as part of the implementation of the EPBD. An alternative would have been to use the same categorisation of building categories as that proposed in the energy performance regulations. However, Boverket considers that the starting point should be to establish a categorisation specifically adapted to the requirement concerning buildings' greenhouse gas emissions during the construction stage, rather than to fully align the categories in the two regulatory frameworks.

Other relevant work that may be mentioned, but which has not formed part of the review, is Boverket's work on developing a national classification structure for buildings.³¹ Once such a system is in place, it will provide a clear definition of the building categories to be used.

Following the review, the following changes are proposed compared with the categorisation of building categories proposed in Boverket's Report 2023:20:

- More building categories are introduced.
- Single-family houses divided into two subgroups
- Management of buildings with specific, climate-driving conditions.

The following building categories are proposed as the basis for establishing limit values in accordance with Chapter 6.3.

- Single-family houses with a useful floor area of 130 m² or more
- Single-family houses with a useful floor area of less than 130 m²
- Multi-dwelling blocks
- Office buildings
- Primary care buildings
- Preschool buildings
- School and university buildings (excluding laboratory facilities)
- Accommodation buildings
- Industrial buildings for logistics and trade with a useful floor area exceeding 1000 m²
- Buildings with specific, climate-driving conditions
- Other building categories and buildings

Based on this new categorisation, a review has been carried out of the reference values that may serve as the basis for establishing differentiated

³¹ *En gemensam väg för PBL-ärenden* [A Common Path for PBL Cases], Boverket Report 2025:20.

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limit values for different building categories. This review and compilation of updated reference values is described in Annex 3.

6.2.1 Rationale and considerations

6.2.1.1 More building categories are proposed

One building type that has not previously constituted a separate building category is larger industrial buildings for, for example, logistics and trade, of which many are being constructed and which, under the 2023 proposal, would be subject to a very generous limit value. Annex 3 contains reference values that are considered sufficiently robust to serve as the basis for establishing limit values. It is therefore proposed that this building type should constitute a separate category.

Other building categories for which discussions have been held regarding whether they could constitute separate building categories include hospitals, hotels, cultural buildings, primary healthcare centres, and sports halls. At present, however, there is still insufficient data from newly constructed buildings in Sweden to propose robust reference values for these. For some of these, it is nevertheless considered that they can be assigned to similar building categories. The rationale is that, based on their functional and design characteristics, they can be assumed to have similar levels of climate impact. The calculations carried out in Sweden indicate similar climate impact. Primary healthcare centres and similar non-residential buildings used for primary healthcare share similarities with office buildings, at least smaller ones, and are placed in the same building category.

The possibility of treating hospitals and different types of sports halls as separate categories has also been considered. However, there is insufficient knowledge to establish robust, building-type-specific reference values for these types. The limited number of calculations available for these building categories generally indicate relatively high levels of climate impact, why placing them in separate categories would not provide the same climate benefit.

The majority of respondents to the survey conducted in connection with Boverket's hearing in August 2025 (just under 60 per cent) considered the proposed categorisation of building categories to be reasonable, while approximately 25 per cent considered that it was not. Several of those who answered in the negative commented that they would like clarification on how buildings with multiple uses shall be handled. Several also commented that it would be desirable for the values to be presented by building type, even where they are similar, in order to provide the greatest possible flexibility going forward. Several respondents also requested clarification of what constitutes an industrial building.

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6.2.1.2 Single-family houses divided into two subgroups

Comments on single-family houses and limit values were submitted in the consultation responses to Boverket's Report 2023:20. Smaller single-family houses may find it more difficult to comply with the limit values, owing to the smaller gross floor area over which the entire building envelope and climate-driving internal components, such as kitchens and bathrooms, are distributed. This risks driving a trend towards increasingly larger single-family houses, which generally results in greater climate impact in absolute terms. The objective should therefore be that it shall be equally challenging for smaller and larger single-family houses to comply with the established limit value. It is therefore proposed that two subcategories be introduced, similar to the current classification of single-family houses in the energy efficiency requirements set out in Boverket's building regulations BBR 31 (BFS 2024:14). To make it easier for construction stakeholders, it is reasonable to use a similar classification in both regulatory frameworks. Another reason is that, at around this size, it can become challenging to use the same design as for a larger building and still meet the same limit value. The majority of respondents to the survey conducted in connection with Boverket's hearing in August 2025 considered this to be relevant, although some considered that it could be worth considering setting the threshold somewhat higher, up to 150 square metres, to increase flexibility in design choices.

6.2.1.3 Buildings with specific, climate-driving conditions

The investigation has identified a number of special cases for which there are no robust reference values, but which also cannot be accommodated by including them in the building category 'other buildings'. This is either because, owing to their functional requirements, they need to be designed in a way that generally results in climate impact that is too high for the limit values proposed for other buildings, or because they have other specific conditions that require a design resulting in significantly higher climate impact. Alternative approaches are therefore proposed for dealing with this type of buildings. The limit value is determined, where necessary, on a case-by-case basis.

6.2.1.4 Other considerations

As part of the investigation, the reference values for certain building categories have also been reviewed, as described in more detail in Annex 3. The median reference values for several building categories are currently at similar levels. At the hearing in August 2025, an alternative proposal was therefore put forward to simplify the categorisation by combining several categories of non-residential buildings into a single category that would be subject to the same limit value. One particular issue discussed at the hearing was whether preschool and school buildings should be merged into a single category called education facilities. However, several participants pointed out that it would not be appropriate to combine

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preschool and school buildings, as their design and form factor often differ considerably.

If a building is to include a number of uses, the limit value needs to be defined on the basis of the area of the different uses. The limit value shall be weighted in proportion to the gross floor area. For instance, if half of the area in a building 2000 square metres in area is made up of multi-dwelling blocks and half is made up of offices, the limit value is defined on the basis of the following calculation (multi-dwelling blocks have a limit value of 235, while offices have a limit value of 250): $((1000/2000) \times 235 + (1000/2000) \times 250)$. The limit value is therefore 242.5 kilograms of carbon dioxide equivalents per square metre of gross floor area.

6.3 Limit values at the time of introduction

Article 7(5) of the EPBD stipulates that limit values for buildings' release of greenhouse gas emissions into the atmosphere shall be introduced by 1 January 2030 at the latest.

6.3.1 Starting points for the limit values

The following starting points remain unchanged from the proposals set out in Boverket's Report 2023:20:

- The limit values cover Modules A1–A5, and the system boundaries for building elements follow the proposal set out in Boverket's Report 2023:20.
- Limit values are expressed in kg CO₂eq/m² gross floor area (GFA).
- Limit values are established for values reported using the GWP-GHG indicator and the unit kg CO₂eq /m² GFA.
- Limit values are updated every five years.
- Limit values apply to those applying for a building permit from the date on which the regulations enter into force.
- The aim is for the limit value for all building categories, excluding single-family houses, to be 25 per cent lower in 2030 than the 2025 level. For single-family houses, the limit value is 0–15 per cent lower than the 2025 level. Which level is appropriate needs further investigation.³²
- The regulations shall be evaluated between tightening the limit values to identify any need for adjustments to the limit value levels.

In addition to the proposals set out in Boverket's Report 2023:20, the following points have been added in this investigation:

- Limit values enter into force on 1 January 2030.

³² In accordance with Boverket's proposal in Report 2023:20.

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- The investigation shall focus on cost-effective implementation in line with the EU's goal of climate neutrality by 2050, with particular emphasis on the conditions for small and medium-sized enterprises (SMEs).
- The 75th percentile from the reference value study (Malmqvist et al., 2023) for each building type for 2020 is assumed to constitute the reference level for level 1990, in order to relate the limit value levels to the EU's climate targets, which use 1990 as the baseline year.
- A separate limit value shall be established for shelters.

The limit values to be established shall, in accordance with the EPBD, be aligned with the EU's goal of climate neutrality. The EU's key climate targets are as follows:

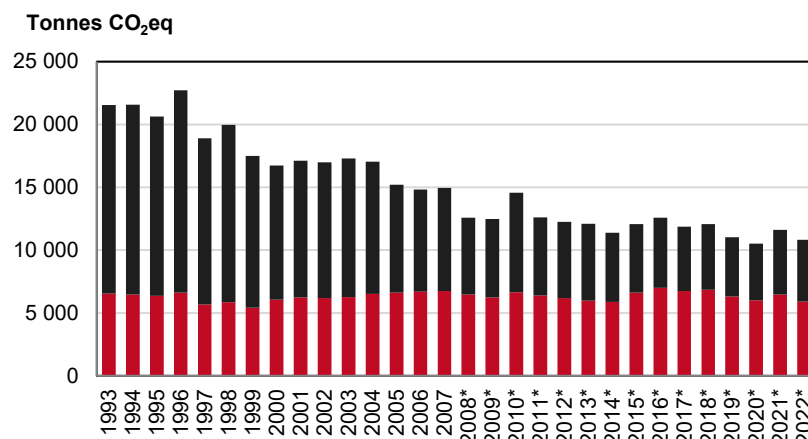
- The EU shall achieve climate neutrality by 2050 at the latest and net-negative emissions thereafter.
- The EU shall reduce its net emissions by at least 55 per cent by 2030 compared with 1990 emissions.
- The EU shall reduce emissions by 90 per cent by 2040 compared with 1990 levels.

There is no guidance from the European Commission or the Government on how limit values aligned with the EU's goal of climate neutrality shall be interpreted. Boverket therefore makes the following interpretation. The interim target of a 55 per cent reduction by 2030 compared with 1990 levels is applied in one of the alternatives examined. Although the EU's climate targets relate to total emissions, applying the same percentage reduction to building projects is a simplification. Nevertheless, it is a possible approach, which Boverket has applied in this assignment.

The wording of the targets means that information on the climate impact of typical construction in 1990 is needed. However, this is not known, whereas reference values for the climate impact of buildings are available for 2020. Boverket has therefore assumed that the median building in 1990 corresponds to the 75th percentile of climate impact in 2020 for the different building categories included in the reference value study (Malmqvist et al., 2023). This assumption is based on statistics on domestic greenhouse gas emissions from the construction and real estate sector during the period 1993–2022, see Figure 2 below. Emissions from new construction, property management, and renovation, conversion and extension remained relatively constant between 1993 and 2020.

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Figure 2. Domestic greenhouse gas emissions from the construction and real estate sector in Sweden.



Excluding heating (red), Including heating (black). NB: Break in the time series between 2007 and 2008 due to a change in the industrial classification (SNI). The time series for 2008–2022 is therefore marked with an asterisk (*) to distinguish the two time series and to indicate that comparisons between them should be made with caution. Source and illustration: Boverket/SCB

The proposed limit values in Boverket's Report 2023:20 were based on the reference values that Boverket developed for different building categories, initially in 2021 and subsequently updated on two occasions³³ following the emergence of new knowledge. Knowledge has also increased for other building categories. As the development of climate calculations for buildings has progressed very rapidly in recent years, this investigation has provided an opportunity to review and supplement the knowledge base on reference values for different building categories. Annex 3 presents this review and update of the reference values, corresponding to the classification of building categories proposed in Section 6.2. The introduction to Annex 3 contains a summary table setting out the proposed reference values that are proposed here as the basis for establishing limit values.

6.3.2 Three alternative limit values

The investigation has examined three alternative limit values. In addition to an alternative based on the EU's climate targets for 2030, Boverket's proposal set out in Report 2023:20 has been examined, as well as a third alternative that lies between these two. Table 2 provides an overview of

³³ The latest version is: Malmqvist, T., Borgström, S., Brismark, J. and Erlandsson, M., *Referensvärden för klimatpåverkan vid uppförande av byggnader* [Reference Values for the Climate Impact of Building Construction], Version 3, 2023. [Referensvärden för klimatpåverkan vid uppförande av byggnader. \[Reference values for the climate impact of building construction.\] Version 3, 2023.](#) Retrieved 5 May 2026.

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the methodology, and Figure 3 shows the different limit value levels based on the respective methods.

Table 2. An overall description of the method used to establish different levels of limit values for 2030 under three alternatives.

Group	1. In line with the EU's 2030 climate targets	2. Line between alternatives 1 and 3	3. In line with Boverket's 2030 proposal in Report 2023:20
Multi-dwelling blocks, offices, schools, etc. (reference values are available)	55% lower than the 75th percentile for the respective building type	35% lower than the median for the building type	25% lower than the median for the building type
Single-family houses larger than 130 m² net heated area	55% lower than the baseline value. The baseline value is 15% higher than the 75th percentile for single-family houses	25% lower than the baseline value. The baseline value corresponds to the 75th percentile for single-family houses	15% lower than the baseline value. The baseline value corresponds to the 75th percentile for single-family houses
Single-family houses smaller than 130 m² net heated area	Same as single-family houses larger than 130 m ² , but with a surcharge of 25 kg CO ₂ eq/m ² GFA	Same as single-family houses larger than 130 m ² , but with a surcharge of 25 kg CO ₂ eq/m ² GFA	Same as single-family houses larger than 130 m ² , but with a surcharge of 25 kg CO ₂ eq/m ² GFA
Other buildings (no reference values available)	55% lower than the baseline value. The baseline value is 15% higher than the 75th percentile for the building type with the highest 75th percentile, namely preschools. Limit value includes all building elements in the same manner as for Group 1 buildings.	35% lower than the baseline value. The baseline value corresponds to the 75th percentile for office buildings	25% lower than the baseline value. The baseline value corresponds to the 75th percentile for office buildings

The reference values are provided in the summary table at the beginning of Annex 3.

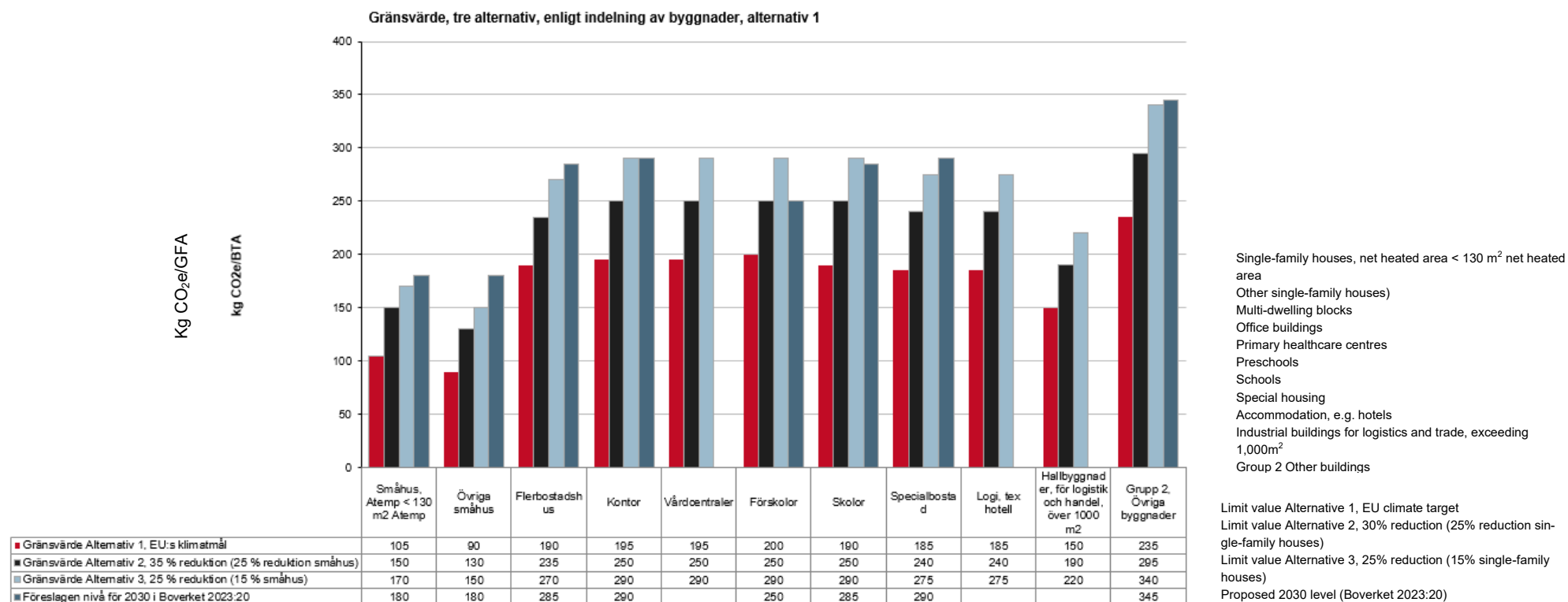
The proposal for Alternative 1 reflects a 55 per cent reduction compared with 1990 levels, in line with the EU's 2030 climate target. This corresponds to a reduction of 46–49 per cent from the 2020 median, depending on building type. For the building categories of multi-dwelling blocks, non-residential buildings, single-family houses, and others for which reference values are available, this corresponds to a 55 per cent reduction

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from the reference value at the 75th percentile for each building type. For the building category ‘other buildings’ (for which reference values are not available), it is proposed that the baseline value for the reduction should be the reference value for the building type with the highest 75th percentile, as in Boverket’s Report 2023:20. However, as Alternative 1 already uses the 75th percentile as the basis for the building categories with reference values, it is proposed that the baseline value for the building category ‘other buildings’ should be increased proportionally, i.e., to a level 15 per cent higher than this 75th percentile. The proposal is to treat single-family houses in the same way as the building category ‘other buildings’, while an increase of 25 kg CO₂eq/m² GFA is proposed for smaller single-family houses.

Alternative 2 has been set at a level that is not expected to drive costs in 2030.

Figure 3: Proposed limit value levels. Limit value, three alternatives, breakdown by buildings, Alternative 1



Proposed limit value levels for different building categories according to three alternatives when limit values are introduced in regulations in 2030. Source: KTH.

Boverket proposes that limit values in accordance with Alternative 2 be introduced in Sweden. Table 3 below presents the limit values for the different building categories under this alternative.

Table 3. Proposed 2030 limit values under Alternative 2 for different building categories. Building categories with the same limit value have been combined.

Building type	Level for 2030 limit value (kg CO ₂ eq/m ² GFA)
Single-family houses with a useful floor area of 130 m ² or more	130
Single-family houses with a useful floor area of less than 130 m ²	150
Multi-dwelling blocks	235
Office buildings, primary healthcare centre buildings, preschool buildings, school and university buildings, excluding laboratory facilities	250
Accommodation buildings	240
Industrial buildings for logistics and trade with a useful floor area exceeding 1000 m ²	190
Indoor swimming pool	455
Shelters ³⁴	1,500
Other buildings	295

The values set out in Table 3 above may need to be updated before they enter into force if significant changes occur in relation to the disclosure of product-specific climate data or equivalent data, in order to ensure that the introduction of limit values delivers a genuine climate benefit. See also Section 6.4 on this matter.

³⁴ Separate limit value of 1,500 kg CO₂eq/m² GFA for the parts of the building covered by the requirements. Calculated separately for this part of the building; not weighted together with the remainder of the building.

6.3.2.1 Limit value for buildings with specific conditions

Buildings, or parts of buildings, with certain specific characteristics or functions that experience shows tend to increase climate impact receive an increase to the limit value for the relevant building type. The basic principle for determining a limit value is that a reference value is identified and that the limit value is established as a specific reduction of that reference value. Examples of such buildings are provided in Table 4.

Table 4. Examples of buildings with specific, climate-driving conditions.

Conditions	Examples of buildings
Buildings subject to planning provisions that significantly increase climate impact.	For example, buildings subject to specific requirements under planning provisions as they are located in areas exposed to, for example, noise or requirements related to the transport of dangerous goods.
Buildings with critical societal functions and high security requirements.	For example, prisons, remand prisons and other security buildings, such as police stations and courthouses.
Buildings with exceptionally high ceiling heights and long spans.	For example, sports arenas and specialised cultural buildings. Spans of over 50 m.
Buildings constructed on deck structures or predominantly below ground.	For example, buildings constructed on deck structures or structures associated with public transport.

6.3.2.2 Process for determining a limit value

The building permit decision shall specify whether the building being constructed is subject to the new technical characteristic requirement. It shall also specify the limit value applicable to the building. If the developer considers that there are specific climate-driving conditions, the developer may request a higher limit value no later than in connection with the application for a building permit. If such a request is submitted before the building permit application, the municipal building committee shall make a separate decision on the matter.

6.3.3 Rationale and considerations

Deferring the introduction of limit values until 1 January 2030 is based on implementation in accordance with the minimum requirements of the EPBD, which provides that limit values shall be introduced by no later than 1 January 2030.

At the hearing held in August 2025, three alternative limit value levels for buildings' release of greenhouse gas emissions into the atmosphere were presented, on which the participants were invited to comment.

1. A limit value level aligned with the EU's 2030 climate target. (The most stringent requirement).
2. A limit value level between Alternative 1 and 3. (Intermediate level).
3. A limit value level in accordance with Boverket's proposal in Report 2023:20 for 2030. (The least stringent requirement).

Based on an impact assessment of the different alternatives, Boverket proposes that the limit values under Alternative 2 be introduced in Sweden in 2030. This alternative is of medium stringency and strikes a balance between ambition and feasibility. It entails a certain increase in costs, but one that can be passed on through the value chain. It provides incentives for companies to take measures. It also entails a lower risk of companies being forced out of the market. In Boverket's assessment, Alternative 1 would entail too great a risk of companies being forced out of the market, particularly small and medium-sized enterprises. Boverket considers that Alternative 3 would not have any steering effect, as emissions are expected to decrease to that level even without the introduction of limit values. According to Boverket's assessment, manufacturers of building materials will reduce their emissions in any event.

The alternatives are based on the following overarching principles. Alternative 2 has been set at a level that is not expected to drive costs in 2030. The level is based on supporting evidence regarding the reduction in climate impact that is already under way and can be expected by 2030 in the production of bulk materials for buildings (see Annex 1 and the section "Climate impact of materials and energy for buildings between 2020 and 2030"), sufficient availability of products with lower climate impact by 2030, and the expected cost picture based on dialogues with the industry. This assessment is therefore based on developers' and contractors' own assessments of cost levels up to 2030. This picture is confirmed in the early industry dialogue and, subsequently, in the responses received at the hearing. The greatest impact associated with the introduction of limit values is likely to be any changes in the cost of purchasing materials. The adopted changes to the EU Emissions Trading System are likely to have a very significant impact on this cost picture. The analysis presented in Annex 1 and in the section "Cost impact of the EU Emissions Trading System" indicates that products with a medium level of reduced climate impact (a 30–60 per cent reduction in climate impact) may become less expensive than standard products. Alternative 3 follows Boverket's Report 2023:20 on proposed limit value levels for 2030.

According to the questionnaire in connection with Boverket's hearing in August 2025, a large majority responded that they favoured Alternative 1. Virtually no one advocated Alternative 3, whereas some favoured Alternative 2. Arguments put forward in favour of Alternative 2 included, for example, that such an alternative provides a margin in the event that developments in climate reductions in the value chain do not proceed as expected, that it may be less cost-driving, at least initially, and therefore also easier for smaller stakeholders. One concern that was also raised was whether an overly ambitious limit value could lead to possible rebound effects in terms of acceptance of limit values within the industry or whether it could lead to higher housing prices, at least during the initial phase of implementation.

The development of the climate impact of materials and their costs is, to a large extent, dependent on developments in the EU Emissions Trading System and is likely to remain unchanged regardless of which limit value alternative is chosen. What may differ is how well-prepared Swedish stakeholders are for these changes, as they may be able to protect themselves against potential increases in material costs in general, regardless of the level of climate impact, through material optimisation. By encouraging all parts of the value chain, not least material suppliers, to develop solutions with low climate impact, these may become attractive on the European market when the price of emission allowances is fully reflected.

Alternative 3 is not in line with the consultation responses to Boverket's Report 2023:20, whereas Alternative 2 can be said to be so to a somewhat greater extent. At the same time, neither Alternative 2 nor Alternative 3 is in line with the EU's 2030 climate target. This was pointed out by many of the respondents to the survey conducted in connection with Boverket's hearing. Several stakeholders also expressed concern that an ambition level in line with Alternative 2 or Alternative 3 could make investments already made in new solutions or products less profitable, as these had been developed on the basis of Boverket's earlier proposal to introduce limit values as early as 2025.

Alternatives 1, 2 and 3 entail the limit value levels at their introduction in 2030 shown in Figure 3. Levels proposed by Boverket (2023) are also shown where relevant. Although Alternative 3 corresponds to the proposal in Boverket (2023), the levels differ slightly, as Alternative 3 here is based on the updated reference values set out in Annex 3.

Within each building type, there is variation in climate impact between individual buildings. This means that different buildings within the same building type will require different measures in order to comply with a limit value. A calculation exercise was therefore carried out to determine the proportion of buildings requiring additional measures to comply with

each proposed limit value. This calculation exercise was based on the 70 buildings included in the reference value study (Malmqvist et al., 2023). It should be noted that these represent the situation in 2020. Already by 2025, major developments had been observed, both as a result of more efficient use of materials and the use of products with lower climate impact. For further information, see the description of the current situation in Annex 1.

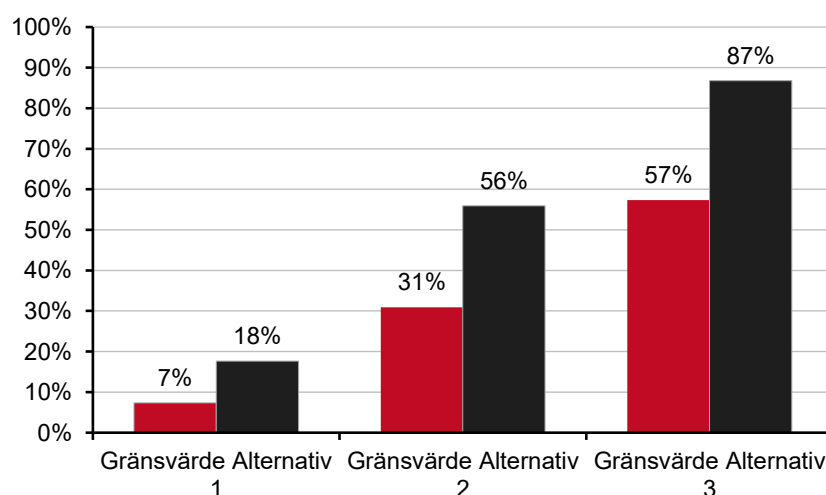
Two different packages of measures to reflect the situation in 2030 were selected:

- Package of measures A: Represents the purchase of materials with average climate impact in 2030, in accordance with the discussion in Annex 1. No other measures are assumed, i.e., no replacement with products with lower climate impact or optimisation of quantities, corresponding to a 25 per cent reduction in climate impact.
- Package of measures B: Represents a 35 per cent reduction in climate impact, which many stakeholders in the early industry dialogue did not consider would entail any additional costs in 2030.

As shown in Figure 4, measures in addition to the packages of measures are likely to be required for the majority of stakeholders if Alternative 1 is selected, whereas the opposite applies if Alternative 3 is selected.

In addition to the limit values, the EU's strengthened Emissions Trading System will drive climate reduction measures. As mentioned previously, the cost difference between today's standard products and building products with lower climate impact is likely to decrease. However, overall material costs are also likely to increase, thereby strengthening the incentives for optimisation measures by construction stakeholders.

Figure 4. Proportion of buildings in the reference value study (Malmqvist et al., 2023) that comply with the limit values under the three alternative proposals for 2030, based on two different packages of measures.



(Red bar) Package of measures A: Procurement of products with average climate impact.

(Black bar) Package of measures B: 35% reduction, likely cost-neutral.

6.4 Potential need to review the limit values

The rapid developments in this field give rise to certain challenges relating to the methodology for calculating limit values and should be noted. The increased standardisation and harmonisation in recent years have made a significant contribution to ensuring that building climate calculations and the provision of climate data for such calculations are now an integrated part of the construction sector's work. At the same time, regulatory development relating to EU legislation, such as the Construction Products Regulation and the associated harmonised standards, is ongoing, meaning that the calculation rules for reporting the environmental sustainability of construction products are being progressively harmonised. At the same time, these are slow-moving processes, which means that EPDs available on the market will not always be comparable.

One methodological change relating to EPDs that has taken place since 2019 concerns the so-called net or gross disclosure of GWP values in EPDs. The issue primarily affects the GWP values reported in EPDs for cement and concrete. Practice has differed between programme operators in different European countries (Anderson & Moncaster, 2020). The data in Boverket's climate database are based on gross reporting, which has been the established practice in the Nordic countries. However, EPD Global, the programme operator that today accounts for the largest share of EPDs for cement and concrete, has changed its rules to also permit net disclosure of GWP values. Since July 2025, Svensk Betong [Industry organisation Swedish Concrete] has recommended that its members use net reporting³⁵. The difference in the reported values arises for manufacturers that use fossil waste as fuel. As a result, the climate impact reported for the product stage (Modules A1–A3) in an EPD for concrete is approximately 5–15 per cent lower, depending on the type of concrete, as a consequence of the revised recommended calculation method. For a multi-dwelling block with a concrete frame, this corresponds to an approximately 5 per cent lower reported climate impact.

These are changes that affect the methodology for calculating limit values. These changes need to be taken into account to avoid a situation in which changes to the methodology either facilitate compliance with the limit values without any climate reduction measures being taken or, conversely, complicate compliance. The reference values on which the limit values in this report are based can be updated relatively easily should there be a need to adjust the levels, provided that the adjustment only

³⁵ [Climate-improved concrete](#). Retrieved 8 April 2026.

involves revising a limited number of GWP-GHG values for individual product groups.

6.5 Indicative emissions trajectory for limit values up to 2050

This section provides an overview of preliminary future limit values by means of an indicative emissions trajectory up to 2050. Future limit value levels shall be described in accordance with Article 7(5) and the Commission's guidance on the roadmap that Member States shall notify to the Commission by no later than 1 January 2027. Boverket will submit a separate report to the Government in October 2026, providing the basis for the national roadmap.

The indicative emissions trajectory for limit values between 2030 and 2050 is based on the following assumptions:

- The starting point for the limit values for buildings' greenhouse gas emissions in 2030 is Alternative 2, as described in Section 6.3.2.
- Emissions shall be reduced by 90 per cent by 2040 compared with the baseline values (reference values) for the different building categories in 2020.
- A linear reduction rate will be set for the period between 2030 and 2040.
- No end point is set for 2050.

An important starting point for the indicative emissions trajectory for limit values is that evaluations should be carried out before any tightening of the limit values is implemented. This approach provides an indication of limit value levels up to 2050, which is the end year for the EU's climate objective. It is based on the requirement in the EPBD that all Member States shall propose limit values that follow a progressively downward trend consistent with the EU's objective of achieving climate neutrality by 2050.

A milestone is set for 2040 to represent the European Commission's target of a 90 per cent reduction from 1990 to 2040. This milestone represents a 90 per cent reduction from the 75th percentile of the reference values for different building categories in 2020, which Boverket has assumed to be an approximate value for the level of climate impact associated with constructing equivalent buildings in 1990. The same limit value level is applied for 2040 regardless of which limit value level is selected for 2030.

To establish the limit value levels for 2035, the reduction rate has been set to be linear between 2030 and 2040. This results in substantial reductions in the limit values between 2030 and 2040, followed by a lower rate of reduction thereafter. If the limit value levels for 2030 were to be

selected in accordance with Alternative 1 in Section 6.3.2, the reduction rate between 2030 and 2040 would be lower than under Boverket's proposal, namely Alternative 2. Both alternatives correspond to a downward trend, as required by the EPBD for the setting of limit value levels in the roadmap towards 2050. According to the Commission's guidance, it is for the Member States themselves to interpret what form this downward trend could take.

Beyond 2040, the uncertainties are considerable, and the limit value levels will be evaluated several times before then. A limit value for buildings' greenhouse gas emissions in 2050 lies far into the future. Boverket considers that there is no meaningful basis for developing this discussion beyond what has been set out in this report, given the long time horizon involved.

Between 2030 and 2040, disruptive³⁶ technological shifts are expected to have their greatest impact, which, if realised, would result in very substantial reductions in climate impact (see Annex 1, Current situation). At the same time, these developments may be delayed, making it essential to carry out regular reviews of the indicated limit values in accordance with Sweden's roadmap for limit values.

An increasing number of the more than 1,000 companies, municipalities and organisations in Sweden that have joined regional climate platforms have already developed their own emissions reduction pathways to 2050 with the aim of aligning with the objectives of the Paris Agreement. As previously described, the expected cost developments for construction products with lower climate impact, resulting from the EU's strengthened Emissions Trading System, are also expected to drive progress in this direction. Since the introduction of rules on climate declarations for buildings, reduced climate impact in construction projects has also increasingly been achieved through work on design measures. Although the expertise of designers and structural engineers in implementing climate reduction measures is not yet widespread, the use of design measures is expected to become increasingly standard practice over the coming decade. Whether all these initiatives will be sufficient to contribute to achieving the proposed limit value levels is too early to determine and will therefore need to be followed up in the evaluations.

The majority of respondents to the survey conducted in connection with Boverket's hearing in August 2025 consider the uncertainties after 2040 to be too great to draw any conclusions. Several respondents consider that the limit values should be tightened more frequently than every five years

³⁶ Disruptive technological shifts refer to changes in which new technological solutions gradually displace established technologies and established ways of working, thereby fundamentally changing the conditions within an industry or sector.

(most advocate every three years) and in smaller increments. In particular, they emphasise that the period between 2030 and 2035 is too long. Several stakeholders have requested documentation of how, for example, CCS concrete will affect the ability to achieve these limit value levels.

A comparison can also be made with the Swedish Transport Administration's reduction requirements for infrastructure projects with a value exceeding SEK 50 million. These percentage reduction requirements are based on the reference year 2015 and mean that measures completed during the period 2030–2034 should have achieved reductions in the range of 60–76 per cent, while measures completed during the period 2035–2039 should have achieved reductions of 80–96 per cent in order to achieve a 100 per cent reduction by 2040.

7 Disclosure of life-cycle GWP from 2028 and 2030

This chapter sets out how life-cycle GWP is to be disclosed and presents Boverket's proposals in areas where EU law permits national adaptations or choices.

Proposal

- The disclosure of buildings' release of greenhouse gas emissions into the atmosphere shall be based on the GWP-GHG indicator for the construction stage (Modules A1–A5).

7.1 GWP indicators

For the disclosure of life-cycle GWP in the energy performance certificate, the indicator GWP-total shall be used in accordance with the Commission Delegated Regulation on life-cycle GWP. Life-cycle GWP shall be disclosed by module and comply with the minimum requirements set out in the Commission Delegated Regulation on life-cycle GWP. It is mandatory to report GWP-total separately for A1–A3, A4–A5, B1–B4, B6, C1–C4, D1 and D2.

Boverket proposes that the energy performance certificate shall also include a disclosure based on the GWP-GHG indicator for the construction stage (Modules A1–A5), corresponding to the part covered by the limit value for buildings' release of greenhouse gas emissions into the atmosphere. This is equivalent to GWP-total after excluding biogenic carbon stored in the product or its packaging material, i.e., a flow that shall always be zero over the life cycle.

7.1.1 Need for regulations

The requirements governing how the GWP-GHG indicator shall be calculated need to be specified in greater detail. According to Boverket's preliminary assessment, this is best done at the provision level and will be examined further as part of that work. The following are some overarching observations regarding regulation at the provision level.

When EPDs are used to calculate a building's climate impact, GWP-GHG³⁷ values are used where available; see also Section 5.2. Where an EPD does not contain GWP-GHG values, the regulatory provisions will need to specify in greater detail how GWP-GHG shall be calculated. It is

³⁷ GWP-GHG may also be referred to as GWP-IOBC in an EPD.

possible to apply simplified approaches or to use the following formula to calculate GWP-GHG:

$$\text{GWP-GHG A1–A5} = \text{GWP-total GWP A1–A5} + 44/12 (\text{C-product} + \text{C-packaging material})$$

C = elemental carbon in the product and in its packaging material, respectively

GWP-GHG will not be disclosed in a DoPC (CPR 2024) or a DoC (ESPR 2024). Consequently, if this formula is considered appropriate for use in Sweden, it will need to be incorporated into national regulations. This would enable construction product manufacturers to disclose the elemental carbon stored in the product in future DoPCs or DoC. According to Boverket’s preliminary assessment, it is possible to introduce corresponding national requirements under the EU Construction Products Regulation.

Any additional information to be disclosed in an energy performance certificate requires further investigation. Both the above formula and any additional information are best regulated at the provision level.

7.1.2 Rationale and considerations

For the disclosure of life-cycle GWP, the Commission Delegated Regulation requires the disclosure of GWP-total for each of the following Modules: A1–A3, A4–A5, B1–B4, B6, C1–C4, D1 and D2; see Figure 5 below. GWP-total is the sum of GWP-fossil³⁸, GWP-biogenic,³⁹ and GWP-luluc⁴⁰.

Figure 5. The disclosure of life-cycle GWP shall be made in the energy performance certificate in accordance with the format set out in Table 5 of the Commission Delegated Regulation on life-cycle GWP.

Table 5 Disclosure of the life-cycle GWP in the building’s energy performance certificate (EPC)

	Product stage (A1-A3)	Construction process stage (A4-A5)	Use, maintenance, replacement stage (B1-B4)	Operational energy use stage (B6)	End-of-life stage (C1-C4)	Reuse, recycling, recovery potential (D1)	Potential benefits and loads from exported utilities (for example, electrical energy, thermal energy, potable water) (D2)
GWP-total ¹⁵							

In the questionnaire conducted in connection with Boverket’s hearing in August 2025, respondents expressed a preference for retaining the current subdivision of the A stage. Under the current Swedish regulatory

³⁸ GWP-fossil = uptake and emissions of greenhouse gases from fossil fuel sources.
³⁹ GWP-biogenic = uptake and emissions of greenhouse gases from biogenic sources.
⁴⁰ GWP-luluc = emissions and removals from land use and land-use change. (Luluc is an abbreviation for ‘land use and land use change’.)

framework, the A stage is disclosed separately as A1–A3, A4, A5 Construction waste and A5 Energy. Boverket proposes not to retain the current subdivision but instead align the national regulations with the Commission Delegated Regulation to avoid over-implementation of EU rules.

For the calculation of climate impact for the purposes of the limit value, Boverket's position is to maintain the proposed system boundary covering Modules A1–A5 and building elements and technical equipment, excluding ground reinforcement and equipment for the generation and storage of electricity in the building or on the plot. This means that climate impact shall be disclosed using the GWP-GHG indicator for stage A. This is consistent with the proposals set out in Boverket (2023). Unlike GWP-total, GWP-GHG reflects all actual greenhouse gas emissions associated with Modules A1–A5. This is because GWP-total includes biogenic emissions that are reported as removals in stage A but as emissions in Module A5 (packaging material) and Modules C3–C4 (the product), which are not covered by the limit value.

Because the system boundary for life-cycle GWP and the limit value differ in terms of both building elements and GWP indicators, the developer needs to take particular account of these differences when carrying out the calculation. An overview of the system boundaries is provided in Table 5 below.

Table 5. Overview of the indicators used to calculate life-cycle GWP, the elements included in the limit value, and the building elements covered.

	A1–A3	A4–A5	B1–B4	B6	C1–C4	D1	D2
GWP Total							
GWP-GHG			-	-	-	-	-

Columns with dashes do not need to report GWP-GHG. **GWP-total** includes the calculation of the climate impact of building elements and technical equipment, *including* ground reinforcement and equipment for the generation and storage of renewable electricity in the building or on the plot, over the entire life cycle. **GWP-GHG** includes the calculation of the climate impact of building elements and technical equipment, *excluding* ground reinforcement and equipment for the generation and storage of renewable electricity in the building or on the plot, for the construction stage (Modules A1–A5).

Boverket's proposal means that Boverket's climate database containing generic climate data will need to be supplemented with values representing GWP-total, while continuing to include values for GWP-GHG. The generic climate data for GWP-GHG in Boverket's climate database can continue to be used.

8 Verification of climate calculations

The developer is responsible for calculating and disclosing the life-cycle GWP of the building being constructed. This chapter describes Boverket's proposals and considerations regarding the verification of the climate impact calculation.

Proposals

- The building committee shall assess whether a climate calculation can be expected to comply with the applicable requirements.
- The building committee is responsible for verifying that the information disclosed complies with the rules on life-cycle GWP.
- The building committee is responsible for verifying that the building does not exceed the limit value for the building's release of greenhouse gas emissions into the atmosphere.
- At the request of the developer, the building committee may determine a higher limit value for the building's release of greenhouse gas emissions into the atmosphere.
- The developer shall disclose to the municipality information on the building's life-cycle GWP in accordance with the Commission Delegated Regulation (GWP-total), together with information on the climate impact covered by the limit value (GWP-GHG). Such disclosure is a prerequisite for obtaining a final clearance.
- A provision on construction sanction fee is introduced into the PBF for cases where the developer has exceeded a limit value or disclosed an incorrect value to the building committee.

8.1 Rationale and considerations

The way in which the accuracy of climate impact calculations is verified depends on how the EU rules are transposed into Swedish law. Boverket proposes that the EU rules be transposed as a technical characteristic requirement under the PBL; see Chapter 4, Implementation of the EPBD provisions on life-cycle GWP.

The alternative, to transpose the EU rules into the Act on Climate Declarations for Buildings (2021:787), would have meant that Boverket would continue to have supervisory responsibility for ensuring the accuracy of the climate impact calculation. That alternative would also have meant that the existing climate declaration register would be retained and further developed. An important reason for having a national register of climate

declarations, administered by Boverket, is precisely to enable the verification of the accuracy of the climate impact calculations. The proposal to assign responsibility for the verification and supervision of climate impact calculations to the municipal building committee means that Boverket's supervisory responsibility will cease and, consequently, that there will no longer be a need for a register of climate declarations. Boverket therefore considers that the national register should be discontinued.

8.1.1 The building committee's assessment of a climate calculation

Boverket has previously examined and proposed measures for developing supervision in connection with an expanded climate declaration and the introduction of limit values. The 2023 proposal was based on the assumption that the EU rules would be transposed into the current regulations on climate declaration. A central premise of that proposal was to streamline and improve the verification of the accuracy of climate calculations.

Among other things, Boverket proposed that the developer should be required to attach supporting calculation documentation, with a prescribed content and structure, when submitting the climate declaration to the national register. An important reason for this was both to promote the quality of the developer's calculation by clearly specifying what the supporting calculation documentation should contain and how climate impact should be disclosed, and to create the conditions for automated verification in the subsequent supervision carried out by Boverket. In other words, an important objective was to create the conditions for cost-effective verification and to ensure consistent assessments of the accuracy of climate calculations.

As a result of the proposal to transfer responsibility for verifying the accuracy of climate calculations to the municipalities, Boverket has considered various alternatives for supporting the building committees in this process:

1. Requiring the developer to submit supporting calculation documentation to the building committee, with or without content and a structure prescribed by Boverket.
2. Requiring the developer to report certain specific information to the building committee, but not to submit supporting calculation documentation.

In connection with construction, demolition and groundworks, the developer is responsible for ensuring compliance with applicable acts, ordinances, regulations and decisions. The developer shall also prepare an inspection plan specifying the matters to be verified during the course of the works to meet the requirements of society. The building committee establishes the inspection plan in the starting clearance. To enable the building committee to determine whether the measure can be expected to

comply with the applicable requirements, the developer shall submit a proposed inspection plan together with the technical documentation required in addition to the application documents. The Building Committee may decide on additional conditions, in addition to those set out in the starting clearance. To obtain final clearance, the developer must demonstrate that all requirements applicable to the measure under the permit, the inspection plan, the starting clearance or any decision on supplemental conditions have been met, and the building committee must not consider there to be grounds for supervisory intervention.

A requirement to submit supporting calculation documentation to the building committee in every case would not be consistent with the way disclosure requirements are imposed for other technical characteristics requirements. Nor would a detailed review of calculations be consistent with the assessment carried out by the building committee, which is primarily focused on assessing the developer's competence and internal quality assurance procedures. Boverket therefore considers that the starting point should be to require the developer to report certain specified information to the building committee rather than to submit supporting calculation documentation.

8.1.2 The developer's disclosure of certain information to the municipality

The Commission Delegated Regulation requires the disclosure of life-cycle GWP in an energy performance certificate (GWP-total broken down by life-cycle stages and modules). See Chapter 7, Disclosure of life-cycle GWP to 2028 and 2030. Boverket considers that this disclosure should be supplemented by a disclosure of the climate impact for the life-cycle modules and building elements covered by the limit value. This is because the system boundaries are not the same. The limit value covers the construction stage (Modules A1–A5) and is disclosed using the GWP-GHG indicator. Information on the building's climate impact in relation to the limit value is fundamental.

For this information to be included in an energy performance certificate, the developer must report it to the building committee during the construction process. The energy performance certificate is prepared at a later stage by a certified energy expert.

Boverket has considered whether the developer should disclose more information to the building committee than a minimum set of information. Boverket considers that certain supplemental information could support the building committees in their assessments. If the developer has done a climate calculation in accordance with the rules, certain key information will be easy for the developer to report, as it is already required as part of the climate calculation. This includes, for example, the coverage ratio and the proportion of product-specific and generic climate data used in the

calculation. Although such information does not determine whether the calculation is correct, it may facilitate an assessment of the quality of the climate calculation. It may also indirectly encourage and promote the preparation of accurate climate calculations, particularly when combined with guidance from Boverket. Provided that the developer has complied with the regulations, the developer should only incur minimal administrative costs for reporting additional information. The potential quality gains should outweigh these costs. As part of its forthcoming regulatory work, Boverket will examine whether requirements should be introduced for the disclosure of additional information beyond the requirement for basic reporting that is now proposed to be introduced in the PBF.

8.1.2.1 How the data is transferred to the energy performance certificate

Under Boverket's proposed regulatory framework, in cases where an application for a building permit has been submitted on or after 1 January 2028, the building committee shall state in the building permit decision whether the developer is required to disclose the building's release of greenhouse gas emissions into the atmosphere in the form of GWP-total. In cases where an application for a building permit has been submitted on or after 1 January 2030, the municipality shall also determine the limit value in the form of GWP-GHG, where applicable. To obtain final clearance, the developer shall disclose the building's GWP-total and, where a limit value applies, the building's GWP-GHG to the building committee.

Under Section 12 of the Energy Declaration of Buildings Act (2006:985), the person responsible for ensuring that an energy performance certificate is prepared shall appoint an independent expert to prepare the certificate and submit it electronically to Boverket. Boverket proposes that this certified energy expert should obtain the GWP-total and GWP-GHG information from the building committee and add that information to the energy performance certificate.

8.1.2.2 Discontinuation of the Climate Declaration Register

Boverket proposes that the Climate Declaration Act and the Climate Declaration Ordinance be repealed and that information on a building's release of greenhouse gas emissions into the atmosphere be introduced as a technical characteristic requirement in the planning and construction process. The information to be disclosed is GWP-total and GWP-GHG. Boverket considers that, on cost grounds, there is no reason to maintain a separate register solely for these data. It therefore proposes that the Climate Declaration Register be discontinued and that information on GWP-total and GWP-GHG be added to the Energy Declaration Register by the certified energy expert when preparing an energy performance certificate.

At the same time, Boverket proposes the establishment of a government IT system to support both developers and building committees; see Section 10.5, Support for the municipality.

8.1.3 Assessment of a basis for calculation

Although the building committee's verification of compliance with the technical characteristics requirements during the construction process is based primarily on an assessment of the developer's own checks, the building committee may, where necessary, request detailed supporting documentation as part of that assessment. For the calculation of life-cycle GWP, the building committee may request supporting calculation documentation before issuing the starting clearance and in connection with the final clearance.

A key aspect of a life-cycle GWP calculation is ensuring that a sufficiently high proportion of the resources and activities that are required to be included in the calculation are included (quantities of materials and energy use), and that the correct climate data have been used. It is equally important that the recorded quantities of construction products correspond to the completed building. This is in addition to fundamental aspects such as ensuring that all relevant life-cycle modules have been taken into account and that the calculation has been carried out correctly from a mathematical perspective.

For the building committee to assess the supporting calculation documentation, the developer needs to provide it in a structured format. Such documentation may be structured in different ways and according to different principles. Documentation may present input data and results in relative detail so that the different calculation steps are clear. Such 'calculation-based' documentation is relatively extensive. Another approach is for the documentation to focus on the construction products that have actually been delivered to the construction site and to ensure that these are included in the documentation. In that case, the primary objective is that the recorded quantities of the various types of construction products can be linked to, and verified against, what has been delivered.

Given that building committees have varying resources and levels of expertise for assessing supporting calculation documentation, standards developed by the construction industry will be key. Guidance from Boverket, including examples of how supporting calculation documentation may be structured, will also provide important support to building committees in their assessments.

The building committee's access to additional information about the building from the construction process also provides advantages when assessing the developer's supporting calculation documentation. At the same time, verifying a life-cycle GWP calculation and whether a limit

value is not exceeded is a new requirement for building committees. As mentioned above, Boverket considers that there are grounds for the State to provide building committees with an IT support system. See Section 10.5: Support for the municipality. Boverket also considers that the proposal to transfer responsibility for assessing compliance with the requirement relating to a building's greenhouse gas emissions to the building committees raises the question of whether there is a need for persons with specialist expertise on whom the building committees can rely. Boverket considers that this issue is appropriately examined together with the question of an IT support system.

8.1.4 Regulation concerning verification in the Planning and Building Act

As Boverket proposes that information on buildings' release of greenhouse gas emissions into the atmosphere should be treated as a technical characteristic requirement, it proposes the introduction of a new provision in Chapter 8, Section 4b of the Planning and Building Act. Chapter 9, Section 105 of the PBL is amended to require the building committee to specify whether the measure is subject to the requirement to disclose information on a building's release of greenhouse gas emissions into the atmosphere and whether the building is subject to a limit value for greenhouse gas emissions. Chapter 9, Section 105a, introduces a possibility for the Building Committee to set a higher limit value. Chapter 10, Section 7 of the PBL is supplemented by a reference, in the first point, to the new Chapter 8, Section 4a. To obtain final clearance, the developer is required under Chapter 10, Section 34 of the PBL to have disclosed the building's release of greenhouse gas emissions into the atmosphere. Chapter 16, Section 2 of the PBL is amended to confer powers on the Government, or the authority designated by the Government, to issue regulations specifying the requirements for a building to be considered as complying with the requirement set out in Chapter 8, Section 4b, and regulations providing for exemptions from that requirement for certain types of buildings.

A new Section 20d is introduced into Chapter 3 of the PBF, specifying the types of buildings that are exempt from the obligation to calculate and disclose the building's release of greenhouse gas emissions into the atmosphere. A new Section 20e is introduced into Chapter 3 of the PBF, containing a reference to the Commission Delegated Regulation on the calculation and disclosure of life-cycle GWP. A provision is also introduced requiring the coverage ratio for the calculation of life-cycle GWP for building elements and technical equipment to be disclosed and to be at least 90 per cent. Where the coverage ratio is less than 100 per cent, the reported climate impact shall be adjusted upwards so that it corresponds to all the building elements and technical equipment of the building referred to in the second paragraph. Chapter 3, Section 20f of the PBF specifies how the limit value is to be calculated and disclosed, and the

applicable limit value for a particular building type. Chapter 3, Section 20g of the PBF specifies the circumstances in which a building committee shall decide on a higher limit value.

A new provision on construction sanction fees is introduced in Chapter 9, Section 26a of the PBF for cases where the developer has exceeded a limit value or disclosed an incorrect GWP-GHG value to the building committee.

It is important to design the sanction fee so that the amount of the sanction fee can be predicted. The provision in question provides predictability through a clear link to the price base amount and the building's area.

It is appropriate to use a building's area, as this affects the overall climate impact.

There is a need to grade which sanction fee should be the most financially severe. Falsely reporting a lower value to avoid exceeding the limit value should reasonably result in the most financially severe sanction. Accordingly, the price base amount is multiplied by a factor of 0.004 in such cases, compared with cases where it has been correctly reported that the limit value has been exceeded, in which the price base amount is instead multiplied by a factor of 0.002.

The factors of 0.004 and 0.002 have been selected to ensure that the sanctions are severe while not threatening the existence of enterprises. Only 0.5 price base amounts have been used as a fixed component of the construction sanction fee, regardless of the size of the building. This has been chosen to ensure that small buildings are not subject to a disproportionately high construction sanction fee.

In this context, it may be noted that, in 2024, the average production cost of constructing a 101-square-metre single-family house was SEK 4.3 million, a 2,000-square-metre multi-dwelling block was SEK 104 million, and a 20,000-square-metre multi-dwelling block was 980 million.⁴¹

Examples of the outcome of the sanction fee are described here for three buildings of different sizes as a function of what type of offence. The price base amount for 2026 is SEK 59,200. The relevant price base amount is that applicable in the year in which the infringement was committed.

Exceeding the limit value under the first paragraph (in which case the fee is 0.5 price base amounts, plus 0.002 price base amounts per square metre of the building's total gross floor area):

⁴¹ Source: Prices for newly produced dwellings, 2024. Statistical news from Statistics Sweden, 17 February 2026.

Building 101 sq. m $29,600 + (0.002 \times 59200 \times 101) = \text{SEK } 41,558$

Building 2,000 sq. m $29,600 + (0.002 \times 59200 \times 2000) = \text{SEK } 266,400$

Building 20,000 sq. m $29,600 + (0.002 \times 59200 \times 20000) = \text{SEK } 2,397,600$

Exceeding the limit value under the second paragraph (in which case the construction sanction fee is 0.5 price base amounts, plus 0.004 price base amounts per square metre of the building's total gross floor area):

Building 101 sq. m $29,600 + (0.004 \times 59200 \times 101) = \text{SEK } 53,517$

Building 2,000 sq. m $29,600 + (0.004 \times 59200 \times 2000) = \text{SEK } 503,200$

Building 20,000 sqm $29,600 + (0.004 \times 59200 \times 20000) = \text{SEK } 4,765,600$
but reaches the maximum sanction fee. The sanction fee will instead be:
SEK 2,960,000.

Finally, Boverket proposes that it be empowered to issue the regulations necessary for the application of the provisions on technical characteristic requirement relating to the release of greenhouse gas emissions into the atmosphere.

9 Temporary carbon storage in buildings

This chapter provides an overview of the temporary carbon storage of buildings. No legislative proposal is submitted on this subject.

Under Article 7(6) of the EPBD, Member States shall *take into account* temporary carbon storage in buildings. However, there is no requirement to disclose carbon storage for buildings. Under Annex V to the Directive, however, the energy performance certificate may include information on the building's carbon storage. In practice, this means that Member States may require, at national level, that the energy performance certificate include information on temporary carbon storage in buildings. Temporary carbon storage refers to the storage of biogenic carbon in buildings and does not include the uptake of atmospheric carbon dioxide through the carbonation of concrete.

Against this background, Boverket has examined the issue of disclosing the temporary storage of biogenic carbon in the building in the energy performance certificate. Boverket has not taken a position on whether such disclosure is appropriate to introduce in national legislation, as EU rules on the certification of the temporary storage of biogenic carbon in buildings⁴² under the CRCF Regulation⁴³ are currently being developed. This section provides an overview of how voluntary disclosure could be carried out, based on the latest available CRCF certification methodology documents.

9.1 Background on carbon storage in timber

9.1.1 Harvested wood products are included in the greenhouse gas disclosure for the LULUCF sector.

The Swedish Environmental Protection Agency recently published a memorandum⁴⁴ describing how carbon storage in harvested wood products (HWP) is reported in the climate statistics for the land use, land-use

⁴² Options paper on the methodology for long-term temporary biogenic carbon storage in buildings, 10 April 2026, DG CLIMA. [1475943f-2817-4176-98db-d55482ad6ab1_en](#). Retrieved 25 May 2025.

⁴³ EU Regulation (EU) 2024/3012 establishes a voluntary certification framework for carbon removals and carbon farming. CRCF is the English abbreviation for Certification for Carbon Removals and Carbon Farming.

⁴⁴ Swedish Environmental Protection Agency (2026). *PM – Bioekonomi, avverkade träprodukter (HWP) och substitution* [Memorandum – Bioeconomy, Harvested Wood Products (HWP) and Substitution].

change and forestry (LULUCF) sector. Until 2012, Sweden reported all harvested biomass in its climate reporting to the UN and the EU as direct emissions, meaning that all harvested biomass was assumed to return to the atmosphere as carbon dioxide within the same year, regardless of how the biomass was used.

Today, all countries take carbon storage in HWP into account in emissions reporting to the UN and the EU. This reporting means that emissions are allocated in a manner that more accurately reflects when they occur. In practice, this results in emissions from biomass used for wood products being deferred, whereas emissions from biomass used for bioenergy continue to be reported as immediate emissions.

The length of time for which carbon is stored in HWP varies considerably and depends on how the biomass is used. The calculations of carbon storage in HWP are based on the quantity of products produced and a decay model using generic half-lives for three product groups (sawn wood, wood-based panels and paper-based products). Paper-based products have a lifetime of a few years, whereas sawn wood raw material can be incorporated into buildings, where the carbon may be stored for several decades.

If the production of a product exceeds the quantity discarded, HWP may, in the context of climate reporting, be regarded as a carbon sink. For example, favourable economic conditions may result in a high level of production of timber houses, while the number of houses demolished during the same period is no higher than normal. Emissions from HWP that is discarded and incinerated may also be comparable to, or exceed, the amount of carbon stored in the quantity of HWP produced. In that case, there is no increase in the carbon stock in HWP and, depending on the size of the stock, this may even result in net emissions.

Annual carbon storage in HWP thus depends on the annual production and decay of products in society, which in turn depends on the products' half-lives and the size of the stock. If the total carbon stock in HWP increases, a net removal is reported; if the carbon stock in HWP decreases, a net emission is reported.

There are different approaches to reporting HWP. The approach currently used in climate reporting, as agreed by the Parties to the Paris Agreement, is based on carbon storage in HWP from the domestic production of wood products (the production approach, in IPCC terminology).

9.1.2 Voluntary certification of carbon removals under the EU's CRCF Regulation

The EU framework for the voluntary certification of permanent carbon removals, carbon farming and carbon storage in products (the CRCF Regulation) was adopted in November 2024. In November 2025, the

Commission adopted Implementing Regulation (EU) 2025/2358, laying down rules on the certification process under the CRCF Regulation. Following the entry into force of the delegated acts establishing the certification methodologies, interested certification schemes will be able to apply for recognition by the Commission under the CRCF Regulation in respect of one or more certification methodologies. The Commission will assess the certification schemes using a standardised assessment protocol covering the requirements laid down in the Implementing Regulation and the relevant certification methodologies. At present, certification methodologies have been established only for permanent carbon removals (BioCCS, DACCS⁴⁵ and biochar). The certification methodology for permanent carbon removals covers both the use of biochar for carbon storage in soil and in products such as cement and concrete and is therefore relevant to buildings.

The Commission has announced that it will prepare, during Q3 2026, a delegated act establishing a certification methodology for the temporary storage of biogenic carbon in buildings. The Commission presented a Technical Assessment Paper in autumn 2025 and, in advance of the CRCF Expert Group meeting on 23 April 2026, prepared another technical document on methodological choices for the development of the certification methodology for carbon storage in buildings.⁴⁶ At present, only technical documents setting out possible elements of a certification methodology for carbon storage in buildings are available. It is unclear what the final certification methodology for the temporary storage of biogenic carbon will look like.

9.2 General remarks on the disclosure of temporary biogenic carbon storage in buildings

The CRCF Regulation does not refer to the EPBD. However, according to the European Commission, there is an ambition to align the CRCF Regulation with the EPBD. If building owners were given the opportunity to voluntarily disclose information on temporary carbon storage in the building in an energy performance certificate, that information could be used for the certification of carbon storage under the CRCF. As the EU rules on the certification of the temporary storage of biogenic carbon in buildings under the CRCF Regulation are still under development,

⁴⁵ DACCS is an abbreviation of the English term "Direct Air Carbon Capture and Storage", which usually rendered in Swedish as "*avskiljning och lagring av koldioxid direkt från luften*" [capture and storage of carbon dioxide directly from the air].

⁴⁶ Options paper on the methodology for long-term temporary biogenic carbon storage in buildings, 10 April 2026, DG CLIMA. [1475943f-2817-4176-98db-d55482ad6ab1_en](#). Retrieved 25 May 2025.

only a general and preliminary description of the proposed rules can be provided.

The methodology can be summarised as follows:

- As part of the disclosure in the energy performance certificate, information is provided on:
 - The amount of biogenic carbon incorporated in all building elements of the building, excluding building elements not expected to achieve a service life of 35 years, for example due to weather exposure or normal wear and tear. In the energy performance certificate, the indicator result is designated “*Amount of biogenic carbon incorporated*” and is reported in kg C.
 - The climate impact, expressed as the GWP-GHG indicator for Module A1–A5 Construction waste, that can be unequivocally attributed to the manufacture and installation of these construction products in the building. In the energy performance certificate, the indicator result is designated “*Associated climate impact, GWP-GHG A1–A5*” and is reported in kg CO₂eq.
- A reference value for biogenic carbon storage in different building categories will need to be developed.

The description provided here of the disclosure of biogenic carbon as a basis for the CRCF certification scheme is relevant only to new construction and the building types subject to the requirement to disclose life-cycle GWP. A synergy exists only for new buildings between the work the developer is required to carry out in order to produce the information needed for the disclosure of life-cycle GWP under the EPBD and the information that can be used for the CRCF. However, the draft from DG CLIMA indicates that it shall also be applicable to the renovation of buildings.

The requirement under the EPBD for new buildings to disclose life-cycle GWP means that information on carbon storage in buildings can be disclosed with little additional effort. Since the calculation of life-cycle GWP is to be based on Boverket’s generic climate data (if generic climate data is used), the construction products containing biogenic carbon that may form the basis for the calculation of life-cycle GWP can both be identified and have their numerical biogenic carbon content per kilogram of construction product readily available. Producing these additional indicators as part of the calculation and disclosure of life-cycle GWP makes it possible to register a carbon sink under the CRCF Regulation in the building’s energy performance certificate without significant additional effort. This information can readily be used by the certified energy expert preparing the energy performance certificate on behalf of the building owner, should this additional data be requested.

The data underlying the indicators proposed above will primarily be derived from the generic database of the climate impact of different construction products published and updated annually by Boverket. Alternatively, information on the amount of biogenic carbon incorporated in the product may be based on supplier-specific declarations in a DoPC under the EU Construction Products Regulation or, where no such declaration is available, on environmental product declarations (EPDs) in accordance with EN 15804 or an equivalent standard. This does not entail any significant additional work and may offer advantages where building owners wish to certify their carbon sink under the CRCF.

Please note that, when the CRCF Regulation and biogenic carbon sinks from buildings are introduced, a reference value will need to be defined. According to the latest proposal from DG Clima (2026), such reference values (standardised baselines) shall be established either directly in the delegated act or be activity-based, in which case they will most likely be set by the developer and validated externally.

Relatively few respondents to the survey conducted in connection with Boverket's hearing in August 2025 considered that they would benefit from similar disclosure of temporary carbon storage as a basis for CRCF certification. Most respondents answered that they did not know, and several of the comments indicate that most are not yet particularly familiar with the subject. Some highlighted the risk that a similar system could shift the focus away from emission reductions and lead to double counting of biogenic carbon, while others stressed the importance of avoiding the creation of different systems with different calculation methodologies for similar purposes. Some also mention that, if so, not only temporary storage of biogenic carbon but also fossil carbon should be disclosed.

For existing buildings, it is not considered practically feasible to produce corresponding information, as the necessary information on the incorporated construction materials and systems is often unavailable. Boverket therefore considers that, if disclosure of biogenic carbon storage is introduced, it should be limited to new buildings and, in the first instance, be included as supplementary information in the energy performance certificate, based on the data used in the climate calculation. The main implications of such a system are development costs for Boverket's climate database and a certain amount of methodology development, while the additional administrative costs for developers and designers are expected to be limited. If it had been possible to sell carbon credits in June 2024, the revenue could have amounted to approximately SEK 240,000 for a multi-dwelling block of approximately 2,000 square metres. For further information on costs and benefits, see Annex 7.

10 Measures in preparation for the new regulation

This chapter discusses the measures required for the implementation of EU regulation on life-cycle GWP and limit values for buildings' release of greenhouse gas emissions into the atmosphere. Most of the measures can be accommodated within Boverket's existing budgetary framework, provided that Boverket continues to receive funding for work relating to building and energy performance issues in accordance with Boverket's budget data for the period 2027–2029 (2026:4).

Proposals

- Boverket's climate database needs to be expanded to include more climate data and default values.
- Boverket's Energy Declaration Register needs to be expanded to receive information on life-cycle GWP and GWP-GHG.
- New information and guidance on the new rules need to be developed.
- A plan for the discontinuation of the Climate Declaration Register needs to be drawn up.
- The State, through Boverket, develop and maintain a digital system for the management of climate calculations, which municipalities can use on a voluntary basis.
- Boverket is tasked with carrying out an in-depth evaluation of the rules on limit values for buildings' greenhouse gas emissions, three years before a planned tightening of the limit values. The State is allocating special funds for Boverket to conduct the evaluation.
- Boverket is tasked with developing more stringent limit values based on the in-depth evaluation.

10.1 Development of Boverket's climate database

Boverket currently provides a climate database containing generic climate data that can be used to calculate the climate impact of the construction stage in accordance with the rules on climate declaration for buildings. The information in the climate database can be retrieved via a web interface, and via an application programming interface (API) in Excel, JSON and XML file formats. Boverket's climate database will continue to be used for the calculation of GWP in connection with the

implementation of the EU legislation on GWP. Boverket's climate database therefore needs to be expanded before the new rules enter into force.

Boverket plans to publish an updated climate database in early 2027, containing additional climate data and default values for the calculation of life-cycle GWP. This will enable the building sector to begin preparing for the new rules, which will apply from 1 January 2028 at the latest. It is also valuable for Boverket to receive feedback on the expanded climate database before the new rules enter into force. Work on updating the climate database began in spring 2026.

10.2 Development of the Energy Declaration Register

Boverket's Energy Declaration Register must also be prepared to receive information on the building's GWP. However, this does not involve any significant amount of work, as only a limited amount of GWP information shall be included in the energy performance certificate.

10.3 Development of information and guidance

There is a great need for early information on EU rules concerning life-cycle GWP and limit values for buildings' release of greenhouse gas emissions into the atmosphere. Once the Swedish rules have been adopted, more extensive information initiatives will be needed to facilitate industry compliance. Examples of areas for information initiatives:

- Targeted information initiatives to stakeholders across the entire value chain. More stakeholders will be affected by the regulations when limit values are introduced, compared to the current regulations.
- Targeted initiatives aimed at small and medium-sized enterprises in their various roles.
 - The smaller property owners who are developers and build infrequently are likely to be largely dependent on external expertise to meet the requirement.
 - A large number of the smaller building contractors work as subcontractors. They must provide relevant information to the building contractors. This task can be facilitated by good information from the building materials trade.
 - It may be difficult to reach smaller stakeholders with information, and information initiatives should therefore be delivered through channels they already use.
- Work on early stages and measures to reduce climate impact will be required when limit values are introduced. Therefore, additional emphasis should be placed on these elements.

- Increased knowledge of measures to reduce climate impact is a recurring need highlighted by the industry.

Guidance on the new rules on calculation and disclosure of life-cycle GWP and limit values for buildings' release of greenhouse gas emissions into the atmosphere will also need to be developed.

10.4 Plan for the Climate Declaration Register

In April 2026, 3,760 climate declarations had been registered in Boverket's Climate Declaration Register. The number is expected to increase by approximately 1,650–1,850 climate declarations by 1 April 2027. From that date, under Boverket's proposal, those rules will be repealed, and the requirement for a national Climate Declaration Register will cease to apply.

Instead, it is proposed that information on the building's life-cycle GWP be entered into the Energy Declaration Register by a certified energy expert when preparing the energy performance certificate.

It needs to be investigated further what should happen to the information in Boverket's Climate Declaration Register. Boverket considers that the statistics in the register may be useful in connection with future tightening of the limit values. They may also be of interest to researchers who require data on the climate impact of buildings for various research projects.

10.5 Support for the municipality

When Boverket's Climate Declaration Register is proposed to be discontinued, the building committees' standardised ability to retrieve information on climate calculations will also cease to exist. Boverket therefore proposes the establishment of a replacement system support so as not to make it more difficult for the building committees to process data on buildings' release of greenhouse gas emissions into the atmosphere.

Boverket proposes that it be tasked with establishing a State IT system to support both developers and building committees. In short, such an IT system should provide support and functionality to:

- Allow the developer to report data on a building's release of greenhouse gas emissions into the atmosphere in a standardised manner.
- Allow the building committee to use the developer's data in their processing of cases.
- Enable a State authority to store, on behalf of the building committee, data reported by the developer.

- Enable the structured retrieval of submitted data following a request to the building committee.

10.5.1 Method and consideration

When developing IT support, a number of considerations need to be addressed. These include, among other things, the extent of IT support required to achieve the purpose. Consideration also needs to be given to the legality of the processing of the data handled within the system support and to whether the system support could give rise to a distortion of competition by public sales operations. This section highlights some of the issues associated with the proposal for an IT system support to be provided to municipalities for the management of data on buildings' release of greenhouse gas emissions into the atmosphere.

In several previous reports, Boverket has demonstrated the societal benefits of a State actor providing system support to municipalities where the tasks concerned are not considered to have an adverse impact on local self-government. For example, in Boverket's Report 2023:5 – *Digitalisering av obligatorisk ventilationskontroll (OVK)* [Digitalisation of Mandatory Ventilation Inspection (OVK)], Boverket presented a more detailed technical feasibility study of how a property owner can report completed functional inspections in a national system. In the case of mandatory ventilation inspections, the circumstances are the same as those relating to data on a building's release of greenhouse gas emissions into the atmosphere under the proposal. In both cases, the collection of data from the property owner (in the case of mandatory ventilation inspections) and supervision fall within the responsibility of the municipality.

10.5.1.1 Roles and responsibilities

During the development and operation of an IT system, it is important to define roles and responsibilities. For a system such as the one proposed, we can identify a couple of fundamental roles.

The municipal organisation designated by the building committee is responsible for the accuracy of the information and for determining who is authorised to access it. This role is generally referred to as the *information owner*. The second fundamental role concerns the State authority responsible for the proposed system, which develops the system, stores the information, and is responsible for the operation and maintenance of the system. This role is generally referred to as the *system owner*.

It is important to have clear contractual terms and conditions regarding the roles. An example of clearly defined roles between the State and municipalities is the National Geodata Platform, a platform for geodata, where these roles are defined in contractual terms and conditions. Under those contractual terms and conditions, the municipality's responsibilities

correspond to the producer role, while the State authority corresponds to the roles of coordinator and data host.

10.5.1.2 System components

To establish a system with the basic functionality described above, a number of interacting components are required, also called system architecture. We begin with the part of the system that interacts with the user: the user interface. It contains fields and functions that enable users to easily enter data into and retrieve data from the system. In our case, we envisage the need for two separate user interfaces: one for building committee case officers and another for developers. The developer's interface should facilitate the submission of data and may take the form of a standalone e-service or be integrated, to a greater or lesser extent, with the building committee case officer's case management system. The case officer's interface, in turn, primarily needs to confirm, during the processing of building permits and starting and final clearance, that the data exists and to view a compilation of the data provided by the developer. This interface may also be a standalone interface or may be integrated, to a greater or lesser extent, with the case officer's case management system.. Collectively, these interfaces and the functionality they provide are referred to as *front-end*.

The data submitted by the developer must also be stored and processed somewhere. This can be achieved using different types of databases and/or file storage. The processing that can be carried out depends on the system's functionality and purpose, but will often involve complex calculations or tasks that are scheduled and run in the background without affecting the user.

Both storage and processing functions may be located locally within the individual municipality. They may also be provided by a State authority or by a commercial cloud storage service with an appropriate level of security. It may also be a combination of several variants or multiple providers. Collectively, these processing and storage functions are referred to as *back-end*.

For a system to function, the front end and the back end must be able to communicate with each other efficiently. Today, this is often achieved through machine-to-machine interfaces, or so-called APIs. These determine how information is exchanged between different users and how it is processed and stored. As such, APIs define large parts of the system through data models and exchange mechanisms, thereby establishing the ground rules governing the flow of information. These components can be combined freely in different ways depending on the requirements. For example, a storage solution may be provided by a public authority and made freely available, while commercial providers develop and sell front-end interfaces. Alternatively, a public authority may assume overall

responsibility for the system while allowing commercial services to access it through an open API. Another option is for the entire system to be supplied as a commercial product by one or more providers, which brings us to issues relating to public procurement and competition.

10.5.1.3 Legal conditions

The basic principle is that, where a service or product shall be purchased by a public authority, they shall be procured on equal terms.⁴⁷ The proposed system also gives rise to issues relating to competition law perspective.⁴⁸

In short, the legal considerations concern how far a State actor can go in developing, in particular, the front-end before competing with commercial alternatives. During the work on a common path for PBL cases, Boverket raised the issues relating specifically to competition and procurement. The consultant who examined these issues, with support from the Swedish National Agency for Public Procurement and the Swedish Competition Authority, presented preliminary conclusions in a background paper⁴⁹ to Boverket's Report 2025:20. According to those preliminary conclusions, the least problematic approach would be to prescribe or otherwise regulate, through legislation, the use of a system support and for that system support to be provided free of charge.

There are also legal considerations relating to administrative law and technology neutrality. For example, one of the basic functionalities described is that the developer shall be able to report data on a building's release of greenhouse gas emissions into the atmosphere in a standardised manner. This functionality could be implemented, for example, through a nationally available e-service or an application programming interface (API). From the perspective of technology neutrality, one issue would be which formats or schemas the system should be capable of accepting, as these could favour certain software providers over others.

There are also different ways of enabling building committees to use the data in their processing of cases. One technology-neutral approach, although not the most efficient, would be to generate reports from the service as electronic documents (PDFs or similar) and then store them in the committee's case management system (CMS). A more efficient approach would be to enable the building committee's CMS to access the system through an API. When developing such APIs, particular consideration should be given to technology neutrality.

⁴⁷ All public actors, including the building committee, are subject to the Swedish Public Procurement Act (2016:1145) (LOU).

⁴⁸ More specifically, this applies to Chapter 3, Sections 27–32 of the Swedish Competition Act (2008:579) or anti-competitive public sales activities (KOS rules).

⁴⁹ Preliminary conclusions, 2024, Kastell, Boverket, Journal No. 4413/2024.

Other legal conditions relevant to a system support intended to collect data from individuals include the General Data Protection Regulation (GDPR), which requires that there be a legal basis for the processing of personal data. For public authorities, personal data must be processed as part of the exercise of official authority or the performance of a task carried out in the public interest. For processing to be regarded as part of the exercise of official authority, it must be provided for in an act, ordinance or other statutory instrument. In the case described in the proposals, the building committee is the processing authority and thus also the data controller. Consequently, separate data processing agreements (DPAs) are also required between the building committee and the State authority that stores and processes the data.

The legislative proposals include a provision conferring the right to issue regulations in Chapter 16, Section 2 of the PBL. Under the proposal, the Government or the authority designated by the Government would be empowered to issue regulations specifying the requirements that must be met for a building to be regarded as complying with the requirement to disclose the building's greenhouse gas emissions. A regulation issued pursuant to the proposed provision forms the legal basis for the processing of personal data in accordance with the GDPR and should clearly specify the information to be processed by the authorities and the purpose of that processing.

10.5.1.4 Considerations regarding availability for voluntary implementation

If buildings' release of greenhouse gas emissions into the atmosphere are treated as a technical characteristic requirement within the building permit process, established system support is already available for processing such cases. The system supports could readily consume data from a system used by the developer for reporting purposes provided by a State authority.

The most basic components of the support provided for municipal storage, a back-end and supplementary APIs, should be possible to provide without legal complications. APIs are developed to the extent necessary to enable communication with existing e-services and case management systems. Through these APIs, building committee case officers could retrieve, directly within their case management systems, information on whether a report on a specific building's release of greenhouse gas emissions into the atmosphere has been submitted and what it contains.

It is proposed that the back-end, including the APIs, be made available to building committees as a voluntary service. However, a more detailed analysis could be undertaken to weigh the development and operating costs against the proportion of municipalities that would be likely to make use of such a service.

More comprehensive support, including interfaces for reporting data on buildings' release of greenhouse gas emissions into the atmosphere and other front-end solutions, could increase the benefits and opportunities for both developers and building committees. However, it cannot be ruled out that the voluntary implementation of such expanded support could constitute an obstacle to free competition, in light of the legal considerations described above, if it were provided free of charge. On the other hand, if the support were made available on a voluntary basis but subject to a charge payable by the municipalities, there is a risk that the system would fall within the scope of the KOS rules. Regardless of how the system is designed or the extent of the support provided, competition law issues will need to be taken into account.

Irrespective of the solution adopted for making the system available and the extent of the support, there is a need to clearly define the information to be processed through the system support. In addition to constituting the legal basis for the processing of personal data under the GDPR, the support also serves to clarify the information requirements under the proposed right to issue regulations in Chapter 16, Section 2 of the PBL.

10.5.1.5 Other considerations regarding availability

Boverket's Report 2025:20, *En gemensam väg för PBL-ärenden* [A Common Path for PBL Cases] examines the establishment of State support for municipalities in the processing of cases under the PBL. The report describes a number of scenarios with varying degrees of complexity and intervention in municipalities' existing system support for case processing. The scenarios also highlight some of the implications of voluntary use as opposed to mandatory use based on statutory provisions.

The proposal set out in this report is to incorporate the processing of buildings' release of greenhouse gas emissions into the atmosphere as a technical characteristic requirement. Accordingly, Boverket also considers that such processing forms part of the processing of a building permit application. This means that the information management relating to buildings' release of greenhouse gas emissions into the atmosphere, together with the associated system support, should also form part of any implementation of the proposals presented in Boverket's Report 2025:20

10.5.2 Costs

10.5.2.1 Investment needs

The costs of developing a system support depend on the extent of the support to be provided and on whether it is to be implemented as part of case processing or operate as a standalone system. Costs are also affected by whether the system support is introduced as a voluntary system or as a system whose use is mandatory under statutory provisions.

Nevertheless, based on experience gained from the development of the existing system support for climate declarations and other estimates involving similar requirements⁵⁰, it is possible to make a rough estimate of the costs. Boverket estimates that the development cost of a system that could be provided to municipalities by a State authority would be in the range of SEK 5–7 million. The estimation does not include any adaptations required by municipalities or their case management systems. Nor does it include the costs of operation, maintenance, or system management.

10.5.2.2 Benefits realisation of the proposal

Since 2021, Boverket has had a vision for a digital urban planning process.⁵¹ It sets out the societal benefits of reducing administrative barriers and simplifying processes through effective digitalisation. This is also in line with the EU's objectives⁵².

In its Report 2025:20, *En gemensam väg för PBL-ärenden* [A Common Path for PBL Cases], Boverket proposes that administrative barriers can be reduced, among other things, by streamlining case processes. For the management of buildings' release of greenhouse gas emissions into the atmosphere, this means that it forms part of the preparation of a building permit case, in which data are collected in preparation for both the technical consultation and the final clearance.

There is therefore a natural point of contact with the developer in the process for submitting the data required to assess whether a limit value has been met. For the individual, this means that the data need only be submitted once through a standardised platform, thereby avoiding situations in which citizens and enterprises have to provide the same information more than once or navigate between different systems that are not interconnected, as requested in the Government's Digitalisation Strategy 2025–2030⁵³. For this to be possible, Boverket sees great advantages in providing a consistent set of requirements for data relating to buildings' release of greenhouse gas emissions into the atmosphere. This would considerably facilitate the work of both those preparing the documentation and those receiving and processing it. Furthermore, national support incorporating a common technical interface for the transfer of data would improve efficiency for both the developer and the receiving building committee. If the proposals set out in Boverket's Report 2025:20, *En gemensam väg för PBL-ärenden* [A Common Path for PBL Cases] were to

⁵⁰ Förstudie av inrapportering av uppgifter i samband med obligatorisk ventilationskontroll (OVK) [Feasibility Study on the Reporting of Data in Connection with Mandatory Ventilation Inspection (OVK)], Boverket ref. no. 3145/2022–23.

⁵¹ Report 2021:15, *Vart är vi på väg?* [Where are we heading?] Boverket, 2021.

⁵² COM (2025) 1025, The European Affordable Housing Plan.

⁵³ [Sweden's Digitalisation Strategy 2025–2030](#). Retrieved 24 March 2026.

be implemented in full, the requirements relating to the national support for buildings' release of greenhouse gas emissions into the atmosphere would also form part of the requirements for the national case management system referred to in the report. The accountable authority responsible for such a system would thereby be able to ensure a holistic view of the permit and construction process without interruptions or complications for the building committees. This would include, among other things, the collection of data relating to the building's release of greenhouse gas emissions into the atmosphere, regardless of whether the data is for the starting clearance, the final clearance, or as part of a supervisory case.

10.6 In-depth evaluation of rules on limit values

Boverket proposes that the limit values for buildings' greenhouse gas emissions be tightened every five years. We consider that an in-depth evaluation of the rules is needed before the limit values are tightened. Boverket should therefore be tasked with carrying out an in-depth evaluation three years before a planned tightening of the limit values. Boverket should also be tasked with developing more stringent limit values based on the in-depth evaluation.

The in-depth evaluation should examine the achievement of objectives and the impact of existing rules, as well as assess the current state of the construction sector, in order to assess the level of future limit values compared to the proposals in the roadmap on the introduction of limit values. The work may include consultancy assignments, interview studies, surveys, etc.

The in-depth evaluation needs to cover costs and other impacts on various stakeholders, especially small and medium-sized enterprises, as well as the impact on housing construction and building owners. The evaluation also needs to cover how much progress has been made in the transition for the major material groups; and also how the regulations affect the choice of design solutions and the risk of undesirable effects on technical characteristics requirements such as fire, moisture and noise protection, and durability. The potential conflicting objectives that may arise also need to be evaluated. This may include design, functionality, appearance, and, for example, energy management and thermal insulation.

11 Impact assessment of the legislative proposal

This chapter analyses and describes the implications of the proposal to introduce requirements for the calculation and disclosure of life-cycle GWP under the EPBD and to introduce limit values for buildings' greenhouse gas emissions (from 2030). The impact assessment complies with the requirements of the Ordinance (2024:183) on Impact Assessments and covers: economic impacts on the central government, municipalities and enterprises; distributional effects (particularly for small and medium-sized enterprises); environmental and climate impacts, including interaction with the EU's economic policy instruments; as well as administrative impacts and proposed measures to mitigate adverse effects. Appendices to the impact assessment contain the underlying calculations, assumptions and material from the consultation or hearing.

11.1 Background

The impact assessment is based on multiple sources and analytical approaches. First, comments received from consultation bodies on Boverket's Report 2023:20 on limit values and an expanded climate declaration have been compiled and taken into account. The analysis has also taken account of the effects of the EU's existing Emissions Trading System (EU ETS 1) and the forthcoming Emissions Trading System for, among other things, the construction and transport sector (EU ETS 2), particularly with regard to how these policy instruments affect material costs and emission levels during the construction stage.

The analysis combines a qualitative assessment of industry dialogues, consultation responses and comments received during Boverket's hearing in August 2025 with quantitative calculations based on building permit statistics, estimated time required for each climate calculation and labour costs, as well as sensitivity analyses of key uncertainties (the number of buildings concerned, time required, and assumed EU ETS price trajectories). Data was collected both through the questionnaire distributed at the hearing and through targeted interviews with small enterprises, primarily contractors and subcontractors. The documentation is supplemented by technical and economic analyses of life-cycle GWP and limit value levels commissioned by Boverket.⁵⁴ All monetary values are expressed in 2024 prices (where otherwise stated, the price year is specified).

⁵⁴ "Underlagsrapport till Boverkets regeringsuppdrag om livscykel-GWP och gränsvärden för byggnaders klimatpåverkan" [Background Paper for Boverket's Government Assignment on Life-cycle GWP and Limit Values for Buildings' Climate Impact], 2025-10-

11.2 Definition of the problem

The EPBD requires the calculation and disclosure of life-cycle GWP for new buildings from 2028 and requires Member States to introduce limit values for buildings' release of greenhouse gas emissions into the atmosphere by 2030. Since 2022, Sweden has had rules requiring a climate declaration for the construction stage (Modules A1–A5), but must now both expand the scope of climate reporting to cover the building's entire life cycle and introduce national limit values. This gives rise to a number of practical, methodological and administrative challenges that must be addressed through legislation and support measures.

Sweden is facing the implementation of the EPBD requirements on life-cycle GWP and national limit values. However, without clear and coordinated rules on calculation methodology, data requirements, and default values, implementation risks becoming inefficient, costly and having adverse distributional effects. This could weaken the policy instrument's incentive to reduce climate impact, create administrative and competition-related challenges, particularly for small operators, and result in non-comparable reporting, making compliance, follow-up and supervision more difficult.

11.3 Objective of the proposal

The objective is to implement the EPBD requirements in Swedish law so that new buildings have comparable, reliable and verifiable disclosure of life-cycle GWP in 2028 and 2030 and to introduce national limit values for the release of greenhouse gas emissions into the atmosphere from 2030. The intended change is to establish clear and predictable ground rules that create strong incentives to reduce the climate impact of construction while ensuring that implementation is cost-effective and equitable for the construction sector, particularly for small and medium-sized enterprises.

The intended change is to achieve a balanced implementation approach: national regulation that fulfils the minimum requirements of the EPBD and provides clear methodological rules, data and verification requirements, together with a fair, phased introduction of limit values that provides a strong and credible incentive to reduce climate impact, while ensuring that administrative impacts are addressed through supporting measures and digitalisation.

19. Tove Malmqvist, KTH, Sara Borgström, WSP and Martin Erlandsson, BIM Object. Ref. no.: 1943/2025. Proposal for life-cycle GWP for climate declarations and limit values for the climate impact of buildings. *Underlag till Boverkets konsekvensutredning* [Documentation for Boverket's Impact Assessment], 2025-12-12, revised 2025-12-19. Sirje Pädam and Nils Malmström, WSP. Ref. no.: 1943/2025.

11.4 Baseline scenario (no policy change)

The baseline scenario consists of the counterfactual situation that would arise if a measure or policy instrument were not introduced. In other words, it describes how the identified problem would develop over time if the requirements of the recast EPBD were not implemented in Swedish law. This alternative is essential to enable a robust analysis of the actual implications of the requirements for the calculation and disclosure of life-cycle GWP and the introduction of limit values.

In this impact assessment, the baseline scenario assumes that Sweden retains the current national regulatory framework for climate declarations. More specifically, this means that the current national approach remains unchanged: climate declarations for the construction of new buildings in accordance with the current Swedish system (Modules A1–A5 covering load-bearing structural elements, the building envelope and interior walls); no national limit values for buildings' greenhouse gas emissions; and that the planned development of EU rules (including the ESPR, the CPR and the extension of the EU ETS) is assumed to proceed in accordance with the currently known timetable.

The EU's Construction Products Regulation⁵⁵ (CPR-2024) and the EU's Ecodesign Regulation⁵⁶ (ESPR-2024) assumed to form part of the baseline scenario alternative. Under these regulations, construction products harmonised under the CPR-2024 or the ESPR-2024 will be required to disclose their climate impact (GWP indicators). The first products marked in accordance with the CPR-2024 are expected to become available provisionally in 2028, and it may take approximately ten years before all construction products are connected to the CPR-2024.

Although there is an underlying EU Directive, it is reasonable to assess the 'the baseline scenario' alternative based on the current policy instruments. Understanding the impact of implementing the Directive provides a basis for assessing how the proposed changes would affect the stakeholders concerned.

As a consequence of EU membership, EU Directives need to be transposed into the legislation of the Member States. A significant consequence of the 'baseline scenario' alternative is that Sweden's obligations arising from its EU membership would not be fulfilled. This could result in infringement proceedings. Boverket considers that the 'the baseline scenario' alternative is not a viable option.

⁵⁵ Regulation (EU) 2024/3110 of the European Parliament and of the Council of 27 November 2024 laying down harmonised rules for the marketing of construction products.

⁵⁶ Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products.

Other effects of the ‘the baseline scenario’ alternative are that the investment costs, operating costs, administrative costs and emissions-related benefits associated with the proposed requirements would not arise.

11.5 Alternative solutions

This section presents the alternative solutions considered for the implementation of life-cycle GWP and the introduction of limit values for new buildings. The alternatives are grouped by policy instrument (disclosure of life-cycle GWP and limit values, respectively), methodological choices and system boundaries. For each alternative, a brief description is provided together with its principal advantages and disadvantages, as well as the anticipated impacts on climate benefits, costs, and administrative burdens. The purpose is to provide a clear basis for selecting the appropriate combination of solutions proposed in the legislative proposal. A socio-economic analysis has been used to identify the preferred alternative.

11.5.1 Alternatives for the disclosure of life-cycle GWP (A)

A0 – The ‘baseline scenario’ alternative

- Meaning: Retain the current Swedish requirements (A1–A5 for load-bearing structural elements, the building envelope, and interior walls). No expansion of the scope.
- Advantages: No additional administrative burden. No conflict with existing processes.
- Disadvantages: Not compliant with the EPBD; no information on the entire life cycle; limited scope for using the declaration as a basis for limit values and future policy measures.

A1 – Minimal implementation pursuant to the EPBD (phased)

- Meaning: Introduce the disclosure of life-cycle GWP in accordance with the EPBD: for buildings exceeding 1,000 m² from 2028 and for all buildings from 2030, with mandatory disclosure for Modules A–D in accordance with the delegated act; use of Boverket’s generic climate data permitted for certain elements.
- Advantages: Complies with the minimum requirements of the EPBD; gives stakeholders in the sector time to prepare; reduced administrative burden.
- Disadvantages: Complexity arising from overlap with Swedish threshold values (100–1,000 m²) during a transitional period; continued information gap for smaller buildings until 2030.

A2 – Earlier and full implementation (all buildings from 2028)

- Meaning: Introduce disclosure of life-cycle GWP for all applicable buildings as early as 2028.

- Advantages: Faster accumulation of information within the construction sector; earlier market impact.
- Disadvantages: Greater initial administrative burden; risk of insufficient availability of EPD/data; greater impact on small and medium-sized enterprises.

11.5.2 Alternatives for limit values (B)

B0 – No introduction of limit values ('the baseline scenario' alternative)

- Meaning: No national regulation on limit values for buildings' release of greenhouse gas emissions into the atmosphere.
- Advantages: No immediate cost pressure; avoids competition and liquidity risks for small and medium-sized enterprises.
- Disadvantages: Does not comply with EU law; loss of market signal; weaker incentives for product development at the national level.

B1 – High ambition

- Meaning: Limit values are set so that emissions from the construction stage (A1–A5) in 2030 correspond to approximately a 55 per cent reduction compared with 1990 levels. For building categories for which reference values are available, this means that the limit values are set at approximately 55 per cent below the 75th percentile reference value for each building category, expressed in kg CO₂eq/m² GFA. The relationship between the 1990 and 2020 levels has then been estimated on the basis of the reference values underlying Boverket's previous proposal (see Boverket 2023:20).
- For building categories for which reference values are available (e.g. multi-dwelling blocks, office buildings, school and university buildings), the limit values are set at approximately 55 per cent below the 75th percentile for each building type.
- For single-family houses, the limit values are based on a baseline value 15% above the 75th percentile for single-family houses and is then reduced by 55 per cent.
- For buildings in the 'other buildings' category, for which no reference values are available, the limit value is based on a baseline value that is 15 per cent above the highest 75th percentile among the building categories with reference values (preschool buildings) and is then reduced by 55 per cent.
- Advantages: Strong policy signal; promotes technological development and product offering; consistent with the EU's 2030 targets.
- Disadvantages: Greatest risk of cost increases for certain projects; increased risk of competition-related challenges for small stakeholders; greater need for adaptation.

B2 – Medium ambition

- Meaning: The limit values are set so that emissions from the construction stage (A1–A5) in 2030 are typically around 35 per cent lower than current levels for the building categories for which the median value is used, with different starting points for different building categories:
- For building categories for which reference values are available (e.g. multi-dwelling blocks, office buildings, school and university buildings), the limit values are set approximately 35 per cent below the median of the reference values established for each building type (see Boverket 2023:20), expressed in kg CO₂eq/m² GFA.
- For single-family houses, the limit values are based on the 75th percentile of the reference value for single-family houses. For larger single-family houses (net heated area ≥ 130 m²) this baseline value is lowered by 25 per cent. For smaller single-family houses (net heated area < 130 m²), the limit value is set 25 kg CO₂eq/m² GFA higher than the corresponding value for larger single-family houses.
- For buildings in the ‘other buildings’ category, for which no reference values are available, the limit value is based on the 75th percentile for office buildings and is then reduced by 35 per cent.
- Overall, Alternative B2 represents a higher level of ambition than the 2030 limit values proposed in Boverket’s Report 2023:20, although it is less ambitious than Alternative B1.
- Advantages: Better balance between climate ambition and feasibility; lower risk of small and medium-sized enterprises being pushed out of the market.
- Disadvantages: Weaker market signal than B1; less incentive for rapid product improvements.

B3 – Lower ambition

- Meaning: The limit values are set at a lower level of ambition, corresponding to approximately a 25 per cent reduction in emissions from the construction stage (A1–A5) for the building categories for which the median value is used, using different starting points for different building categories:
- For building categories for which reference values are available (e.g. multi-dwelling blocks, office buildings, school and university buildings), the limit values are set approximately 25 per cent below the median of the reference values established for each building type (see Boverket 2023:20), expressed in kg CO₂eq/m² GFA.
- For single-family houses, the limit values are based on the 75th percentile of the reference value for single-family houses. For larger single-family houses (net heated area ≥ 130 m²) this baseline value is lowered by approximately 15 per cent. For smaller single-family houses (net heated area < 130 m²), the limit value is set 25 kg

CO₂eq/m² GFA higher than the corresponding value for larger single-family houses.

- For the ‘other buildings’ category, for which no reference values are available, the limit value is based on the 75th percentile for office buildings and is then reduced by 25 per cent.

Alternative B3 essentially corresponds to the 2030 limit value levels proposed in Boverket’s Report 2023:20, which were in turn based on the limit value levels that were then developed for 2025. Alternative B3 thus provides the most generous initial level of the three alternatives and the weakest climate governance.

- Advantages: Low cost impact; broad acceptance within the industry.
- Disadvantages: Limited climate benefits; risk of Sweden falling behind in market development.

11.5.3 Alternatives for methodological choices and data requirements (C)

C1 – Strict methodological standardisation

- Meaning: Mandatory methodology: GWP-GHG required for limit value calculations; only EPDs or generic climate data from Boverket’s climate database permitted; coverage ratio of at least 90 per cent for A1–A5.
- Advantages: High comparability; reduces loopholes and ‘calculation strategies’; facilitates supervision.
- Disadvantages: Higher initial implementation costs; requires the development of tools and databases.

C2 – Accept multiple methodological approaches

- Meaning: Allow multiple methodological approaches, subject to clear disclosure requirements (for example, GWP-total as an alternative during a transitional period).
- Advantages: Easier to get started; lower initial costs.
- Disadvantages: Reduced comparability; increased need for supervision; risk of limited use of the methodology.

11.5.4 System boundary alternatives (D)

D1 – EPBD minimum requirements with Swedish clarifications

- Meaning: The disclosure of life-cycle GWP covers A–D; the limit value is restricted to the construction stage (Modules A1–A5), excluding building-related ground reinforcement and technical equipment for the generation and storage of renewable electricity on the building or its plot; standard values are limited, and the coverage ratio is at least 90 per cent.
- Advantages: Manageable from a verification perspective; balanced information requirements.

- Disadvantages: Certain building elements remain (difficult to calculate); need for expansion of the national database.

D2 – More comprehensive system boundary (including ground reinforcement in the limit value)

- Meaning: The limit value covers the entire life cycle, with ground reinforcement included in the limit value.
- Advantages: Reduces the risk of counterproductive solutions (e.g. increased piling to reduce the volume of concrete).
- Disadvantages: Complicates assessments; increases administrative costs and the need for data.

11.5.5 Combinations (F)

In practice, it comes down to packages. For example:

- Package A (ambition package): A1 + B1 + C1 + D1 — clear ambition.
- Package B (balanced package): A1 + B2 + C1 + D1 — a combination with somewhat less stringent limit value requirements.
- Package C (phased package): A2 + B3 + C2 — early introduction of the disclosure requirement, but with a more generous initial limit value.

11.6 Comparison of the options

Section 11.5 sets out the main alternative solutions for

- disclosure of life-cycle GWP (A0–A2),
- level of limit values (B0–B3),
- methodological and data requirements (C1–C2), and
- system boundaries (D1–D2).

This section summarises how the alternatives differ in terms of climate benefits, costs, administrative impacts and feasibility, and how these trade-offs collectively justify the package analysed in greater detail in Section 11.8.

11.6.1 Disclosure of life-cycle GWP

The ‘the baseline scenario’ alternative (A0) – retaining the current Swedish requirements for climate declarations without introducing life-cycle GWP—does not comply with the EPBD and would leave significant information gaps regarding emissions during the use stage and end-of-life stage.

A faster and more comprehensive implementation (A2) would result in earlier accumulation of information but is considered to entail significant implementation risks, particularly for small and medium-sized

enterprises, owing to the higher initial administrative burden and the lack of climate data for certain building elements.

The phased implementation pursuant to the EPBD (A1) means that larger buildings will be covered from 2028 and all new construction from 2030. It is considered to provide a sufficient climate benefit and policy signal while allowing the construction sector time to develop routines, tools, and climate data. A1 complies with the minimum requirements of the Directive and therefore represents the most proportionate implementation approach.

11.6.2 Level of limit values

Three levels of ambition for limit values have been analysed:

- B1 – High ambition (approximately 55 per cent reduction by 2030 relative to the baseline) offers the greatest potential climate benefits and a governance closely aligned with the EU's overall objectives. At the same time, this level entails clear cost increases for certain projects, a higher risk of liquidity and competition-related problems for small and medium-sized enterprises, and a greater need for comprehensive support measures.
- B2 – Medium ambition (approximately 35 per cent reduction) provides clear climate governance and is considered achievable with moderate cost increases at building level, particularly when combined with design optimisation and the price changes in construction materials expected to result from the EU ETS and the CBAM. The associated risks and costs are considered manageable, including for small and medium-sized enterprises.
- B3 – Lower ambition (approximately 25 per cent reduction or more generous levels) entails only limited cost increases and a low short-term administrative burden but also gives a weak policy signal. Under this alternative, a large proportion of the emissions reductions is expected to occur in any event as a result of the EU Emissions Trading System and ongoing technological development. The additional climate benefits attributable to the limit values are therefore expected to be limited.

Overall, Alternative B1 is considered to provide the greatest climate benefits, but with disproportionate risks for certain enterprises, whereas B3 provides limited climate governance in relation to the measures required. Alternative B2 is considered to achieve a better balance between climate ambition and cost and competition considerations. These alternatives are referred to as Alternative 1 (B1), 2 (B2) and 3 (B3) in Chapter 6.

11.6.3 Methodological and data requirements

An alternative with more flexible methodological choices (C2) could reduce the initial administrative burden by allowing different

interpretations and calculation methods during a transitional period. However, this would reduce comparability between projects, make supervision more difficult, and increase the risk of differences in calculations that do not reflect actual differences in climate impact.

A stricter alternative (C1), with clearly defined methodological choices – for example, requiring GWP-GHG as the indicator for limit values and a minimum coverage ratio of 90 per cent – entails more stringent requirements for tools, data and expertise, while at the same time producing more robust, comparable and verifiable results. This is considered a prerequisite for ensuring that the limit values achieve their intended policy effect and can be applied consistently throughout the country.

11.6.4 System boundaries and specific components

The EPBD and the Commission Delegated Regulation permit the limit value to be restricted to certain parts of the life cycle and to certain building elements. A limit value covering the entire life cycle could, in theory, reduce the risk of sub-optimisation between the construction, use and end-of-life stages, but would also make the calculations significantly more complex and more difficult to verify in connection with the final clearance.

The proposed alternative (D1) – under which the limit value covers the construction stage (A1–A5) and the entire building, excluding ground reinforcement and technical equipment for the generation and storage of electricity—is considered to provide clear and verifiable climate governance towards reducing climate impact at the stage where emissions occur here and now, and where the building permit and supervision processes provide good opportunities for verification.

Including ground reinforcement in the limit value (D2) would reduce the risk of counterproductive solutions under particular ground conditions, but would also increase the data requirements, complexity and uncertainty of the calculations. Against this background, it is proposed that ground reinforcement be disclosed as part of life-cycle GWP, but not in the limit value.

11.6.5 Overall assessment

All things considered, the comparison points to a solution in which:

- disclosure of life-cycle GWP is introduced in phases in accordance with the EPBD (A1),
- the limit values are set at an intermediate level (B2),
- the calculation and data requirements are clearly standardised (C1), and
- the limit value is delimited to the construction stage A1–A5 with the system boundaries specified in D1.

This combination is considered to provide a clear policy signal and significant climate benefits, while keeping costs, administrative consequences and the effects on small and medium-sized enterprises at a level that is proportionate to the purpose of the regulation.

A more detailed account of the selected alternative and an in-depth analysis of its consequences for the various stakeholders are presented in Sections 11.7–11.8. Hereinafter, this is referred to as Alternative 2, reflecting the fact that the limit values are set at a medium level of ambition (B2).

11.7 Presentation of the most appropriate alternative

11.7.1 Summary of the proposal

Based on the investigation's analysis of climate benefits, feasibility, administrative consequences and the effects on small and medium-sized enterprises, the following package is proposed as the most appropriate for implementation:

- Disclosure of life-cycle GWP: A1 — phased introduction in line with the EPBD (expanded disclosure for buildings $\geq 1,000$ m² from 2028 and for all new buildings from 2030).
- Limit values: B2 — medium ambition, under which the limit values are set so that emissions from the construction stage (A1–A5) in 2030 are typically around 35 per cent lower than the reference levels established for each building type (Boverket 2023:20).
- Methodological requirements: C1 — strict methodological standardisation (requiring GWP-GHG for limit value calculations; permitting only EPDs or generic default values from Boverket's climate database for critical elements; minimum coverage ratio of 90 per cent for A1–A5).
- System boundary: D1 — EPBD minimum requirements with Swedish clarifications (the limit value covers Modules A1–A5; building-related ground reinforcement and equipment for the generation/storage of electricity are reported separately in the disclosure).

11.7.2 Rationale and assessment

The selected package of measures – A1 (phased implementation of the disclosure of life-cycle GWP in accordance with the EPBD), B2 (medium level of ambition for the limit values), C1 (strict methodological standardisation), and D1 (system boundary focusing on the construction stage, A1–A5) – is considered, overall, to achieve a reasonable balance between climate ambition and feasibility. The package provides a clear policy signal towards reduced climate impact during the construction stage, is consistent with the requirements and objectives of the EU, and is at the same time considered manageable for the industry, particularly for small and

medium-sized enterprises, provided that the proposed support and guidance measures are implemented. Alternative 2 has been selected in preference to the stricter and less ambitious alternatives because the impact assessment shows that it provides effective climate governance without the costs and risks for small and medium-sized enterprises becoming disproportionate.

The proposed rules affect several groups of stakeholders: the central government (primarily Boverket and other relevant authorities), municipalities (building committees and municipal developers), regions in their capacity as developers and property owners, businesses in the construction and real estate sector (including developers, contractors, subcontractors, consultants and building material manufacturers), and other private parties, including individuals acting as developers. An overall assessment is that the package will have positive environmental and climate effects, create predictability for investment and technological development in the construction and building materials sectors, and that the economic and administrative consequences for the stakeholders concerned will be moderate and, on the whole, manageable.

A more detailed, stakeholder-specific analysis of the consequences for these groups—including estimates of resource and cost requirements, as well as descriptions of distributional effects—is presented in Section 11.8 and the accompanying annexes.

11.8 Analysis of the selected alternative

This section analyses the selected alternative (Alternative 2), which was chosen on the basis of the conclusions of the overall impact assessment presented in Sections 11.5 and 11.6. It describes the consequences for the stakeholders referred to in Section 7 of the Impact Assessment Ordinance, including the effects on local self-government and the relationship with EU law.

11.8.1 Summary of the impact assessment

The overall outcome of the socio-economic analysis is that Boverket's proposal – the calculation and disclosure of life-cycle GWP and limit values in accordance with Alternative 2 – is deemed to be socio-economically justified and likely socially beneficial. The additional annual administrative costs for calculations and adaptation of industry practices are estimated at approximately SEK 260–350 million, together with moderate increases in material and design costs (a few per cent in typical cases). At the same time, the climate benefits, in the form of further emission reductions in the construction stage beyond those expected from the EU ETS⁵⁷,

⁵⁷ ETS: The EU Emissions Trading System (EU ETS) is a market-based policy instrument under which a common emissions cap is set for certain sectors and emission allowances

CBAM⁵⁸, and technological development provide, are estimated to be of the same order of magnitude or greater, especially if a carbon shadow⁵⁹ is used in line with current and expected EU prices.

As discussed in greater detail in Section 11.8.3, this assessment is based on Boverket's own illustrative estimate that the proposed limit values could give rise to additional emissions reductions during the construction stage (Modules A1–A5) in the order of 0.2–0.4 million tonnes of CO₂eq per year for the new construction of multi-dwelling blocks and office buildings, compared with a scenario without limit values. Using a carbon shadow in the range of approximately SEK 1,100–1,700 per tonne of CO₂eq, this corresponds to climate benefits in the order of several hundred million Swedish kronor, up to approximately SEK 0.6 billion per year. The calculation is based on the material underlying the impact assessment but represents Boverket's own assessment and is intended to illustrate the order of magnitude. Taken together, it indicates that the benefits are at least equivalent to, and are likely to exceed, the estimated annual costs, even when only multi-dwelling blocks and office buildings are taken into account.

Additional administrative work arises primarily from the more extensive climate calculations associated with the limit values. At the maximum estimated number of building permits affected, the additional work for climate calculations is estimated to amount to approximately SEK 230 million per year (assuming approximately 40 hours of additional work per project). The developer is responsible for ensuring that the limit value is achieved, but it is generally the contractors who carry out the calculations, which is natural since they both procure the materials and make the practical trade-offs during the construction stage. The additional cost arises in the contractor's administrative activities but may be passed on through the tender price, meaning that the developer ultimately bears the cost. The costs are likely distributed between the stakeholders, and a relatively large proportion can probably be incorporated into the tender price. In addition, the expanded disclosure of life-cycle GWP is expected to entail initial additional work corresponding to approximately SEK 30–120

are traded, meaning that emissions decrease as the cap is lowered and the price of emissions rises.

⁵⁸ CBAM: The Carbon Border Adjustment Mechanism (CBAM) is the EU's carbon border adjustment mechanism, under which imports of certain goods are subject to a charge linked to their embedded emissions, with the aim of preventing carbon leakage and ensuring equivalent carbon costs for domestic production and imports.

⁵⁹ 'Carbon shadow' refers to a standardised socio-economic value per tonne of carbon dioxide (or carbon dioxide equivalents) emitted, used in calculations to assign a monetary value to climate benefits or climate costs. In this analysis, a carbon shadow in the order of EUR 100–150 per tonne of CO₂ (corresponding to approximately SEK 1,100–1,700 per tonne at 2024 price levels) has been used as a benchmark against the estimated costs.

million per year, depending on the availability of EPDs and approved default values.

With regard to material costs, the documentation shows that a higher level of ambition for the limit values may lead to substantial cost increases in certain projects. The documentation includes examples of up to approximately 20 per cent higher construction costs for certain choices of structural frames under more stringent requirements. Under the selected Alternative 2, the cost increases are expected to be moderate, in the order of a few per cent at building level. In the longer term, the development of the EU Emissions Trading System and the CBAM is expected to reduce the price premiums for low-carbon construction products, thereby mitigating the risk of persistently large cost increases. More generous limit values would essentially be cost-neutral but give a weaker policy signal.

Distributional effects arise primarily between larger businesses and small and medium-sized enterprises. A higher level of ambition would deliver greater climate benefits but would also increase the risk of competition and liquidity problems for smaller businesses, as both investment and competence requirements would increase. More generous limit values would entail a lower initial burden but a weaker policy signal to the market and a slower transition. The selected Alternative 2 is considered to achieve a reasonable balance between climate ambition and feasibility.

The environmental impact is influenced by the interaction with the EU Emissions Trading System (EU ETS) and the CBAM. Some of the emissions reductions achieved during the construction stage may be dampened by the so-called ‘waterbed effect’ in the EU ETS, as lower emissions in one sector may allow higher emissions in another within the same emissions cap. At the same time, the Market Stability Reserve, the gradual phase-out of free allocation and the introduction of the CBAM will change the emissions capacity and the incentive structure over time. Against this background, national limit values for buildings’ release of greenhouse gas emissions into the atmosphere are nevertheless considered to provide a significant market signal and to help accelerate the development and use of materials and building systems with lower climate impact.

The main conclusions of the documentation underlying the impact assessment can be summarised as follows. The expanded disclosure of life-cycle GWP is not expected to result in any significant increase in the workload or other costs for developers and major contractors, provided that Boverket makes generic default values available for finishes, fixed fittings, and technical equipment. The expansion does, however, mean that new groups of construction companies, mainly small subcontractors providing specific construction services, need to be able to provide

quantity data for the projects and, consequently, adapt their routines, particularly during the initial stage.

As regards the limit values, the documentation shows that a more stringent level than that corresponding to Alternative 2 would result in significant cost increases and additional work for parts of the industry and could lead to enterprises being forced out of the market, with small and medium-sized enterprises considered to be particularly vulnerable. The limit value level corresponding to Alternative 2 also entails additional work for climate calculations and, to some extent, increased costs, but, according to interviews with smaller stakeholders, is considered manageable and is therefore not expected to pose any significant risk of driving fundamentally profitable enterprises out of the market. Although a lower level of ambition would still entail additional work for climate calculations, it is not considered likely to lead to any significant cost increases for the majority of enterprises. At the same time, the policy signal for the transition would be too weak to fulfil the purpose of the Directive. The limit values are particularly valuable because of the market signal they send that less emissions-intensive materials and building systems will be in demand.

The documentation further shows that there is uncertainty as to the extent to which the different limit value alternatives would give rise to additional costs beyond those that would arise in any event as a result of other policy instruments, in particular the EU Emissions Trading System. The existence of the EU ETS means that the direct climate benefits of limit values may be partially offset by increased emissions in other sectors, which risks limiting the net effect on emissions attributable to the limit value. At the same time, more stringent limit values may signal a higher level of ambition, accelerate the market introduction of less emissions-intensive materials and construction methods and thereby provide a clearer playing field for construction companies. From a cost-effectiveness perspective, there is also a risk that the construction sector would bear a greater share of the cost of emissions reductions within the EU than would be optimal, particularly under a higher level of ambition than currently proposed, where even fundamentally profitable enterprises could risk being forced out of the market.

11.8.2 Those affected by the proposal

The proposal to introduce requirements for the calculation and disclosure of life-cycle GWP and limit values for buildings' release of greenhouse gas emissions into the atmosphere affects a large number of stakeholders throughout the value chain for the construction and management of buildings. The greatest impact will be on stakeholders involved in the construction of new buildings, although the proposal will also have indirect effects on building material manufacturers, service providers, and building users. As an upper estimate of the number of building projects that may be affected each year, it may be noted that an average of

approximately 11,400 building permits for new construction were granted annually during the period 2015–2024 (see Annex 5, section on construction, and Table 18).

The State is primarily affected through Boverket, which will be responsible for regulations, the climate database, guidance, and follow-up. Municipalities are primarily affected in their role as building committees, as the verification of climate calculations and compliance with the limit values will be integrated into the ordinary building permit process under the PBL. They are also affected where they act as developers, for example in the construction of a school building. Regions are primarily affected in their capacity as developers and property owners of, among other things, healthcare and public transport buildings. A more detailed description of the roles of public-sector stakeholders and their relative importance in construction is provided in Annex 5 – The Construction and Real Estate Sector.

Enterprises are affected at several levels: developers and property owners, building contractors, small and medium-sized subcontractors, design consultants, LCA consultants, and the construction products and materials industry. They will be affected by revised requirements for climate calculations, the need to adapt the design process, the selection of materials and technical solutions, and the need for new routines and system support. Information on the number of enterprises at each stage of the value chain, and their distribution between small, medium-sized, and large enterprises (for example, approximately 1,000 enterprises engaged in the design of construction projects, approximately 26,900 building contractors, and approximately 36,800 enterprises engaged in building completion), is provided in Annex 5, in the sections on developers, contractors, designers, subcontractors and construction product manufacturers.

Other individuals, such as natural persons acting as developers, are affected by the requirement to demonstrate that the planned building complies with the new technical characteristic requirement. Households and users of non-residential premises are primarily affected indirectly through any effects on costs, supply (for example, whether more or fewer buildings, or different types of buildings, are constructed), and through improved information on the climate impact of buildings. Statistics on building permits for single-family houses (gross floor area), where some of the developers are natural persons, are presented in Annex 5, Table 18.

11.8.3 Socio-economic costs and benefits

The overall socioeconomic effects of Boverket's proposal at the level corresponding to Alternative 2 are considered to be manageable and justified in relation to the climate benefits that can be achieved.

In the short term, increased costs will primarily be incurred by the companies concerned in the construction and real estate sector—mainly developers, contractors and designers—as a result of the additional work required for climate calculations associated with the limit values, the expanded disclosure of life-cycle GWP, and certain increases in design and material costs. In addition, certain administrative additional costs are incurred by municipalities (building committees) and the central government, see Sections 11.8.4–11.8.5.

The additional work required for the climate calculations needed to demonstrate compliance with the limit values is estimated, assuming the maximum number of building permits concerned, to correspond to an annual cost in the order of SEK 230 million. This estimate is based on the assumption that each project requires on average around 40 hours of additional calculation. Additional work is also expected to arise in connection with the expanded disclosure of life-cycle GWP, which includes all life-cycle modules and additional building elements. Based on current knowledge, this part is estimated to result in additional annual costs of approximately SEK 30–120 million, depending on the availability of EPDs and default values and the extent to which the sector has progressed with digitalisation.

For certain projects, particularly where more stringent limit values require solutions with lower climate impact, material and design costs may also increase. Cost estimates indicate that, for the proposed Alternative 2, this could result in cost increases of a few per cent at building level, after taking into account optimisation during the design process and the possibility of switching to products with lower climate impact. At the same time, these cost increases are largely of the nature of one-off or transition costs. As climate calculations become increasingly integrated into existing cost estimation and design systems, procedures and information flows become established, and the availability of EPDs and database coverage improves, the administrative time required per project will decrease.

In addition, in the building materials market, the EU Emissions Trading System (EU ETS 1 and 2) and the Carbon Border Adjustment Mechanism (CBAM) are expected to progressively narrow the price gap between standard products and climate-improved products by around 2030–2035. As the cost of emissions becomes increasingly internalised in material prices, the additional price premium for building products with low climate impact will diminish, thereby reducing the risk of substantial and persistent increases in material costs that can be directly attributed to the Swedish limit values.

For the central government, costs will arise primarily in connection with the tasks of Boverket and certain other authorities. Boverket needs to develop and continuously maintain an expanded climate database, adapt the

Energy Declaration Register, prepare regulations, guidance, and training, and follow up and evaluate the effects of the rules and the development of the limit values. These tasks involve investment in data, IT systems, and personnel. No comprehensive quantitative estimate of the costs associated with these measures has been prepared at this stage, as the precise design and scope of the climate database, any system support for municipalities, and the forthcoming regulations have not yet been determined. The costs will therefore need to be analysed further in future assignments and budget processes, once the technical solution and the scope of the regulations have been more clearly defined. At the same time, Boverket's costs for supervising individual climate declarations under the current legislation will decrease, as this supervisory responsibility will be removed and responsibility for verification transferred to the municipalities within the framework of the PBL.

Boverket's estimate of the order of magnitude of the climate benefits is based on an overall assessment of the documentation supporting the impact assessment. The assumptions can be summarised as follows. The average gross floor area of new multi-dwelling blocks and office buildings granted building permits during the period 2015–2024 amounted to approximately 4–4.5 million m² per year. The reference values for climate impact during the construction stage (Modules A1–A5) for these building categories are approximately 350–380 kg CO₂eq/m² GFA. The proposed limit value under Alternative 2 represents an approximate reduction of around 35 per cent compared with the 2020 reference levels. Accordingly, the theoretical reduction potential for all new construction of multi-dwelling blocks and office buildings amounts to approximately 0.5–0.6 million tonnes of CO₂eq per year during the construction stage. This reduction of around 35 per cent thus refers to the difference in emissions per square metre between the 2020 reference level and the 2030 limit values, rather than to an annual reduction.

Given that part of this potential is expected to be realised even under the 'the baseline scenario' alternative, through the EU Emissions Trading System, the CBAM, other policy instruments and ongoing technological development, Boverket has made the conservative assumption that approximately 30–60 per cent of the theoretical potential can be attributed to the governance of the limit values. This results in an estimated range of additional emission reductions during the construction stage (Modules A1–A5) of approximately 0.2–0.4 million tonnes of CO₂eq per year for multi-dwelling blocks and office buildings, compared with a scenario without limit values. A carbon shadow value in the range of approximately SEK 1,100–1,700 per tonne of CO₂eq is used, corresponding to approximately EUR 100–150 per tonne at an exchange rate of around SEK 11 per euro. The range is based on the price levels observed in the EU Emissions Trading System during 2024 (approximately EUR 70 per

tonne) and on the European Commission's assessment that the EU ETS price could be around EUR 95 per tonne by 2030. Multiplying this by the range of 0.2–0.4 million tonnes of CO₂eq per year results in an illustrative climate benefit in the order of approximately SEK 0.2–0.6 billion per year. The calculation is Boverket's own and is intended to illustrate the order of magnitude rather than an exact outcome.

Municipalities will assume additional responsibilities as the verification of the accuracy of climate calculations and compliance with the limit values becomes integrated into the building committees' ordinary permit and supervision processes. This will increase the need for competence development, new procedures and, to some extent, longer processing times in certain cases, particularly in municipalities with a high volume of construction. The costs are expected to be limited through clear national regulations, templates and guidance, as well as through the central government making voluntary digital system support available for the management of climate calculations and GWP data. However, Boverket does not have sufficient documentation to quantify the total cost for municipalities in a reliable manner, as organisational structures, working methods, digital maturity and fee structures vary between municipalities, and the final design of any system support has not yet been determined. A more detailed cost estimate will therefore need to be prepared at a later stage, once these conditions have been clarified.

Overall, the value of the climate benefits, in the form of additional emission reductions during the construction stage beyond those delivered by the EU ETS, CBAM, and technological development alone, is considered to be of the same order of magnitude as, or greater than, the direct costs arising from the proposals. When the emission reductions are valued using a carbon shadow value broadly in line with current and expected EU prices per tonne of CO₂eq, the climate benefits become more apparent. In addition, there are dynamic benefits that are more difficult to quantify but are nevertheless important to the assessment. The regulations provide a clear and predictable policy signal that drives technological development and more efficient design, reduces the risk of lock-in to climate-inefficient solutions, and strengthens the competitiveness of the Swedish construction and building materials industry in a European market where similar governance is introduced.

11.8.3.1 Benefits of life-cycle GWP and limit values

The benefits associated with disclosure of life-cycle GWP include a reduction in the lack of information regarding the links between different stages of a building's life cycle and greater confidence that climate targets will be met. Although it cannot be stated with certainty that requirements for life-cycle GWP will lead to emission reductions in each individual project, such requirements are a necessary condition for the introduction of other policy instruments with greater potential to reduce

emissions. The benefits of the limit values are closely linked to the market signal they provide: a more stringent limit value than the emissions associated with buildings that would otherwise have been constructed increase demand for less emission-intensive materials, construction products and building systems and can accelerate their market introduction and further development.

The expanded disclosure of life-cycle GWP is primarily an information-based policy instrument. It reduces information asymmetry regarding which stages of a building's life cycle and which building elements account for the greatest climate impact by also covering interior finishes, fixed fittings, technical equipment, and life-cycle stages B, C and D. This provides developers, designers, and material suppliers with a more comprehensive understanding of where emissions arise and where measures can have the greatest effect. It also establishes a standardised methodology and common input data that can be used for limit values, climate requirements in procurement, voluntary classification or certification schemes, and follow-up of the contribution of the construction and real estate sector to national and EU-wide climate targets.

11.8.3.2 Quantitative cost estimates

The introduction of limit values will entail additional work in relation to climate calculations and certain increases in construction costs. As a sample calculation, based on the current building permit volume (approximately 11,400 building permits per year) and an estimated additional effort of around 40 hours⁶⁰ per project to demonstrate compliance with the limit values, the additional work associated with climate calculations is estimated to correspond to approximately SEK 230 million per year at 2024 price levels.

In addition, the expanded disclosure of life-cycle GWP is estimated to require an additional 5–20 hours of work per project, depending on the availability of EPDs and default values in Boverket's climate database. On an annual basis, this is estimated to correspond to approximately SEK 30 million in a low scenario and approximately SEK 120 million in a high scenario, at 2024 price levels.

With regard to material and construction costs, the documentation indicates that the most stringent limit value (Alternative 1) could result in significant cost increases for certain projects. In an illustrative example of a multi-dwelling block with solid wood frames, the construction cost is estimated to be approximately 20 per cent higher than for an equivalent

⁶⁰ Based on responses to the questionnaire and interviews, the average additional work associated solely with the limit values is estimated at approximately 40 hours per construction project, in addition to the time required to prepare a climate declaration/disclosure of life-cycle GWP. See Annex 8.

concrete frame, corresponding in the example to a building price approximately 13–14 per cent higher. For the intermediate alternative (Alternative 2), cost increases at building level are typically expected to be more moderate, in the order of a few per cent, whereas the least stringent alternative (Alternative 3) is expected to be essentially cost-neutral.

The costs associated with the introduction of limit values relate primarily to the following:

- purchase of software and training costs (one-off cost);
- software licence (annual cost);
- climate calculations carried out at multiple stages during the design process and tendering;
- costs of selecting construction products and materials with improved climate performance;
- longer design periods and increased collaboration between stakeholders (which may also enable cost-saving optimisation).

Detailed assumptions, calculation methodology, sensitivity analyses, sample calculations, and complete tables are presented in Annex 8.

11.8.3.3 Qualitative assessment of costs

Disclosure of life-cycle GWP

Interviews and questionnaire responses indicate that preparing today's climate declarations typically requires around one working week per project, although there is considerable variation (approximately 15–150 hours). The time required depends, among other things, on the size and complexity of the project, the coverage ratio sought, and whether the company has established procedures and software that automate parts of the work. Once the working methods and tools are in place, the time required can be reduced considerably, in some cases to a fraction of the initial time investment.

With regard to the disclosure of life-cycle GWP, most stakeholders consider that the additional work will be limited, provided that EPDs and adopted default values are available for finishes, fixed fittings, technical equipment, and life-cycle stages B and C. If such documentation is not available, the time required may be considerably greater, particularly for small subcontractors with no previous experience of climate calculations. This applies both to enterprises providing specific construction services (such as technical equipment) and to earthworks and foundation contractors, who would then need to prepare and provide detailed quantity and product data for the project.

A more detailed qualitative review of enterprises' assessments of the time required and associated costs is provided in Annex 8.

Limit value alternatives

The questionnaire responses and interviews indicate that the industry's assessments of the time required and associated costs vary across the three limit value alternatives. In response to the question concerning the time required for climate calculations, 50–60 per cent of respondents considered that the time required would increase. Among contractors, almost two-thirds stated that the time required would increase under both Alternatives 1 and 2. With regard to additional work during the design process, Alternative 1 stands out in particular: almost 70 per cent of developers and contractors reported additional costs, and approximately 75 per cent of contractors anticipated increased material costs under Alternative 1, compared with around half under Alternative 2, and less than 20 per cent under Alternative 3.

The interviews revealed that there are considerable difficulties in estimating future costs, not least because the limit values will not be introduced until 2030 and because developments in material prices, the availability of EPDs, and the precise system boundaries (e.g. technical equipment, fixed fittings, and finishes) are difficult to predict. Several stakeholders pointed out that EPDs for technical equipment and finishes are currently largely unavailable and that previous default values have been high.

Overall, Alternative 1 is regarded as having the greatest impact in terms of both costs and time, and as being particularly demanding for small and medium-sized enterprises, although stakeholders that have progressed furthest in the transition see competitive advantages in a high level of ambition. Alternative 2 is generally considered manageable but not cost-neutral, involving additional work and certain cost increases without threatening the survival of enterprises. Alternative 3 is perceived as the least burdensome from a cost perspective but, according to many respondents, risks providing too weak climate governance and thereby slowing the development of climate action in the construction and real estate sector, for example investment in climate-improved materials, building systems and working methods.

A more detailed presentation of the questionnaire responses and interviews is provided in the documentation for the impact assessment.

11.8.4 Impact on the central government

The central government is primarily affected through the national authorities. Boverket is the authority most affected, as it is responsible for preparing regulations and guidance on the calculation and disclosure of life-cycle GWP, establishing and updating Boverket's climate database, adapting the Energy Declaration Register, developing the system support, and following-up and evaluating the rules and the development of the limit values.

In addition, the Government and the Government Offices are involved in the need for information to support decision-making, the notification of regulations to the EU, and monitoring progress towards national and EU-wide climate targets.

Overall, the proposal entails a reallocation of government expenditure. Boverket's costs for supervising individual climate declarations under the current legislation will decrease, as this supervisory responsibility will be removed. At the same time, government expenditure will increase as a result of regulatory development, data provision, support for municipalities and the industry, and recurring follow-up and evaluation.

11.8.4.1 Economic implications

Swedish National Board of Housing, Building and Planning

The EU requirements relating to life-cycle GWP and limit values will be implemented by incorporating them as technical characteristic requirement in the PBL and the PBF, supplemented by regulations issued by Boverket. As a result, Boverket will need to prepare and continuously update the regulations required for the calculation and disclosure of life-cycle GWP and for the application of the limit values, in accordance with the authorisations proposed in Chapters 1 and 13. The regulations will cover, among other things, methodological choices, indicators, coverage ratio, default values, system boundaries and the information that developers are required to submit to the municipality to enable the building committee to exercise supervision and verification.

A key component of government expenditure is associated with the development and operation of Boverket's climate database. The database will need to be expanded to include more product groups, including finishes, fixed fittings, technical systems, and ground reinforcement, as well as scenario-based emission factors for electricity and district heating, default values for life-cycle stages B and C, and data for both GWP-total and GWP-GHG, as well as biogenic carbon content. Boverket has already begun this work and plans to publish an updated climate database in early 2027, which will entail investment costs for the procurement of climate data, quality assurance, and the technical development of APIs and web interfaces.

According to the assessment in the report, Boverket will also need to adapt the Energy Declaration Register to receive information on buildings' GWP. This is expected to be a relatively limited development effort, as the data on GWP is light compared with the other data in the register. At the same time, the current Climate Declaration Register will be phased out over time. This will entail costs associated with archiving, any migration of data to other systems and technical decommissioning, but will also result in reduced ongoing operating and administrative costs.

Boverket considers that there are reasons to consider keeping the Climate Declaration Register available for a number of years after the regulations have been repealed for purposes such as follow-up, reviews of the limit values, and research. This will require further investigation in connection with the planning of the discontinuation of the register. The total costs of adapting the Energy Declaration Register and discontinuing the Climate Declaration Register are expected to be one-off and relatively limited in relation to the authority's overall IT operations, and to be partly offset by lower future operating and administrative costs. The documentation is not sufficiently detailed to make a reliable quantitative estimate in SEK. Therefore, no such estimate is presented.

In addition, costs may arise in connection with the development and maintenance of a government-provided system support for the digital processing of data on buildings' release of greenhouse gas emissions into the atmosphere, which municipalities may use on a voluntary basis (see Section 10.5). These costs are expected to be limited in relation to Boverket's overall IT operations but will involve a one-off investment and a certain ongoing administrative need.

Boverket also needs to further develop and provide guidance and disseminate knowledge about the new rules to municipalities, enterprises, and other stakeholders in a variety of ways. This will give rise to a recurring need for resources, both in terms of personnel and funding for the production of digital training courses, seminars and PBL guidance. The resource requirement is expected to be limited in relation to the authority's overall activities and to be manageable within existing appropriations. The documentation is not sufficiently detailed to make a reliable quantitative cost estimate in SEK. Therefore, no such estimate is presented.

Other State actors

The Swedish Transport Administration, RISE, KTH, and other central government or central government-funded actors are affected through assignments to develop methodologies, verification procedures and documentation for climate data. These assignments are normally financed through special government assignments or research funding and involve time-limited costs, while building on already established areas of expertise.

11.8.4.2 Other relevant consequences

In addition to the direct economic impacts, the proposal will have several other effects on the central government. Implementation according to the proposal means that Sweden fulfils its obligations under the EPBD with regard to life-cycle GWP and limit values, and that implementation can take place without over-implementation, in accordance with the government assignment.

For the central government as a whole, the rules also improve the documentation for climate policy and governance. When life-cycle GWP is disclosed and stored in the Energy Declaration Register, a national database of the climate impact of buildings will be established that can be used to analyse how the building sector is developing in relation to the national climate targets, the EU ETS, and other policy instruments. This, in turn, could lead to greater accuracy in future policy instruments and reduce the risk of conflicting objectives.

At the same time, the central government will be responsible for supporting municipalities and the industry to ensure that the regulations are applied in a legally certain and consistent manner throughout the country. This will require Boverket to produce clear guidance on the application of the calculation rules, system boundaries, and the handling of special cases, as well as other authorities to contribute documentation within their respective areas of responsibility. This work is expected primarily to entail a certain, but limited, use of resources in the form of working hours and can be accommodated within existing appropriations.

11.8.4.3 Presentation of measures

To ensure that the proposal does not impose more far-reaching costs or restrictions on the central government than necessary, Boverket has chosen an implementation approach that follows the minimum requirements of the EPBD and avoids unnecessary over-implementation. By introducing life-cycle GWP and limit values as technical characteristic requirement within the existing PBL structure, rather than through stand-alone legislation, the need for new government processes and registers is reduced.

Furthermore, Boverket proposes that the current Climate Declaration Register be phased out over time, rather than maintaining two separate national registers in the long term. This limits the central government's long-term IT operating costs and concentrates resources on the Energy Declaration Register and the climate database. At the same time, valuable data will be preserved by keeping the Climate Declaration Register available during a transitional period.

By using and further developing Boverket's existing climate database as the central source of generic climate data and default values, the need for the central government to manage multiple parallel data sources is reduced. The climate database will be expanded in stages, and its development will be coordinated with other authorities, such as the Swedish Energy Agency and the Swedish Environmental Protection Agency, to avoid duplication of work.

With regard to verification and supervision, Boverket has proposed that responsibility for verifying the accuracy of climate calculations should be

assigned to municipalities as part of the building committees' ordinary activities, rather than to a central government supervising authority. This means that Boverket will not need to establish an extensive national supervisory organisation for individual climate declarations and will be able to phase out the current supervisory organisation. Instead, the central government's costs will be limited to regulatory development, guidance and follow-up, while operational control will be integrated into existing municipal processes.

Finally, Boverket has proposed that the central government make targeted investments in measures with broad impact: development of the climate database, digital system support for municipalities (see Section 10.5), guidance and training, and structured follow-up and evaluation. By prioritising these measures, the need for ongoing ad hoc support and interventions is reduced, thereby keeping the central government's long-term costs down.

11.8.5 Impact on municipalities

The proposal affects municipalities in a number of ways. On the one hand, it affects building committees and case officers involved in the permitting and supervisory process; on the other, it affects municipal housing companies and property managers in their capacity as developers. Municipalities will assume direct responsibility for verifying compliance with the requirements for climate calculations and limit values as part of the PBL process, receiving and assessing data on life-cycle GWP before final clearance, and determining, in building permit decisions, the limit value applicable to the building concerned and whether any special provisions shall apply. This will create a need for new expertise, the development of new verification procedures, and a certain increase in the administrative workload, particularly in municipalities with a high level of construction activity.

11.8.5.1 Processing and economic implications

The proposed technical characteristic requirement entails several additional responsibilities for the building committees within the existing construction process under PBL. From 2030, if requested by the developer, the building committee shall determine, prior to the granting of a building permit, which limit value shall apply to the building in question. Under the proposed amendments to the Planning and Building Act, a developer may construct a building subject with a higher limit value than that specified in the regulations if there are special circumstances that make a higher limit value necessary. The building committee shall examine the substantive issue and make a decision as part of the building permit. Unlike the assessment made prior to the commencement notice, it is not sufficient merely to make a general assessment of whether a building can be expected to comply with the requirement to calculate life-cycle

GWP. This determination is a relatively complex step that requires a certain level of expertise in the field of climate calculations. Where a developer requests permission to apply a higher limit value, a substantial increase in the time required to process the building permit application can be expected.

Prior to the starting clearance, the building committee shall assess whether the building can be expected to comply with the requirements set out in all relevant legislation, including, inter alia, Boverket's regulations on buildings' release of greenhouse gas emissions into the atmosphere, under which the calculation and disclosure of life-cycle GWP will become an additional requirement. The assessment is based primarily on a review of the developer's competence and ability to comply with the requirements applicable to the building covered by the application. The work will be carried out as part of an existing process, but the measures required differ from, for example, requirements relating to energy management or load-bearing capacity. The building committees will therefore need to acquire expertise in this area and develop appropriate working methods.

Where applicable, the building committees shall also investigate and decide on a construction sanction fee, which is a new task resulting from the legislative proposals.

It is clear that the proposal will require more working hours to process building permit applications, issue starting clearance and issue final clearance. The additional work may be financed, in whole or in part, by building permit fees. In practice, however, it is not certain that municipalities will be able to fully finance all the increased costs, at least not initially. The extent of the increase in costs will vary between municipalities and will depend, among other things, on their organisation, working methods, digital support and the structure of their building permit fee schedules. Boverket therefore does not have sufficient data to reliably estimate the total cost at the national level in SEK.

To the extent that additional staff need to be recruited, and, in addition, people with the necessary expertise to carry out the tasks and meet the agreed processing times, this may pose a challenge in the short term, especially for smaller municipalities.

The additional work resulting from integrating life-cycle GWP into the existing construction process indicates that the long-term consequences will be relatively limited. However, as this is a new requirement that calls for expertise that is not currently available within the building committees, and that working methods will need to be developed for assessing compliance with the requirements, there will still be a noticeable impact on municipalities initially, despite the existing process. Consequently,

municipalities will incur both financial costs and costs in terms of time that cannot be financed through building permit fees.

11.8.5.2 Other relevant consequences

A new technical characteristic requirement will mean that building committee personnel need to have knowledge of what the life-cycle GWP requirement entails and an understanding of what a climate calculation is. They will also need to learn how the building committee should work to determine which limit value is to be applied. They must also be able to assess whether a building can be expected to comply with the requirements relating to the climate calculation and the limit value, both before the starting clearance and before the final clearance.

As building committees have not previously been required to have knowledge of climate calculations and LCA methodology, this knowledge and the associated capabilities will need to be built from the ground up. Boverket considers that this will initially require a significant amount of time for training and the development of working methods. Boverket has not obtained data that makes it possible to calculate the time required and the costs in detail. However, the minimum requirement is considered to be at least one day's training in the applicable legislation and basic LCA methodology. As at least a few thousand building permit officers and inspectors are estimated to work across Sweden's 290 municipalities, the initial costs are expected to amount to a few tens of millions of SEK. These consist partly of the direct costs of purchasing training courses and partly of the opportunity cost associated with the loss of productive working time in the day-to-day operations.

There is a significant risk that assessments of life-cycle GWP will vary between municipalities and that municipalities may find it difficult to make adequate assessments. This, in turn, represents a disadvantage and a potential cost for developers constructing buildings in different municipalities. Municipalities of different sizes will have different capacities to develop the expertise required to make meaningful assessments. This is a challenge that also exists in relation to other technical characteristics requirements.

The limit value requirement is expected to be more difficult to apply than, for example, the requirements relating to energy management. The benefits of complying with the building regulations' requirements relating to energy management accrue largely to the developer or building owner through a positive impact on the building's operating economy and value. The benefits of complying with a life-cycle GWP limit value may also accrue to the building owner but primarily benefit society through reduced environmental impact. Compliance with the limit value entails an additional cost for the developer. For this reason, the developer's incentives to comply with a life-cycle GWP limit value may be weaker than,

for example, the incentives to comply with the energy performance requirement. The risk of non-compliance can therefore be assumed to be higher, indicating a greater average use of resources for risk-based processing of life-cycle GWP than for technical characteristics requirements where the incentive structure results in a lower risk profile.

Boverket plans to reduce the risk of non-compliance by providing support and guidance to municipalities; see Section 10.5.

11.8.5.3 Municipalities as developers

Municipalities are also affected by the proposal in their role as developers, for example if they construct new buildings such as schools or residential care centres. The implications are essentially the same as those for regions, as described in Section 11.8.6.

11.8.5.4 Local self-government

According to Chapter 14, Section 3 of the Instrument of Government, a restriction on local self-government should not go beyond what is necessary in view of the purposes for which it was founded. Local self-government applies to both municipalities (primary municipalities) and regions (formerly county council districts).

The legislative proposals affect the local self-government by introducing a new technical characteristic requirement to be handled within PBL's construction process. In practice, the proposal primarily affects municipalities through the responsibilities of the building committees in building permit and supervision matters. However, the regions are also affected in their capacity as developers and property owners when constructing buildings that are subject to the requirements.

The new requirements result from mandatory EU law. Boverket considers that the impact on local self-government, for both municipalities and regions, is proportionate to the objectives of the proposal.

As described above, the proposal gives rise to certain costs that cannot be financed through fees. As these costs arise as a result of government decisions, it may, at a later stage, once the details of the regulatory framework have been fully clarified, be appropriate to examine whether there are grounds under the municipal financing principle to compensate municipalities for the increased costs.

11.8.6 Impact on regions

The regions are affected in their capacity as developers and property owners, for example in relation to hospitals, healthcare facilities and public transport buildings. The proposal requires climate calculation (disclosure of life-cycle GWP) and compliance with limit values in the new construction of regionally-owned buildings. The municipal building

committees are responsible for the verification of climate calculations under the PBL.

The proposal does not give the regions any new public law tasks. Like other developers, they are subject to the technical characteristics requirements of the PBL and to the requirements on energy performance certificates. At the same time, they are affected economically and organisationally because they typically construct large, technically complex and socially important buildings. Such buildings—particularly hospitals, healthcare and social care facilities, and depots and facilities for public transport—may, in many cases, fall within the category of buildings with specific climate-driving conditions and thus be dealt with in accordance with the approach described for buildings with specific climate-driving conditions, namely buildings of critical importance to society and with high safety requirements, very high ceiling heights, or extensive technical requirements.

The regions, like the municipalities, are subject to the local self-government pursuant to Chapter 14, Section 3 of the Instrument of Government. The assessment of how the proposals relate to local government is presented in Section 11.8.5.4.

11.8.6.1 Economic implications

In terms of economic impact, the impact on the regions arises mainly from their role as developers. The requirement that new and, where applicable, converted region-owned buildings must not exceed the applicable limit values for the climate impact of the construction stage (Modules A1–A5) means that, during the design and procurement stages, the regions must ensure that buildings are designed using materials and structural solutions that enable compliance with the limit value. In addition, the region, in its capacity as developer, must arrange for climate calculations to be carried out in accordance with the Commission Delegated Regulation on life-cycle GWP and Boverket's regulations, and submit the information to be entered in the energy performance certificate.

For regions that already work towards their own climate targets, use certification schemes such as Miljöbyggnad or BREEAM, and carry out climate calculations in major projects, the marginal cost of complying with the limit values is expected to be limited. In these cases, the limit values largely formalise a working method already in progress. For regions that do not yet systematically include climate calculations in the design process, a higher cost increase may arise. However, even in these cases, costs are expected to decrease as procedures, tools and working methods are established.

The regions will also be affected by increased administrative costs. Their property management and procurement organisations will need to

develop internal procedures for specifying climate requirements and limit value requirements during the planning and procurement stages. This may include introducing requirements relating to life-cycle GWP and limit values in tender dossiers, procuring climate calculation services where the region does not develop its own calculation capacity, providing training in the methodology for project managers, property strategists and other clients, and coordinating the data to be included in the energy performance certificate with the calculations carried out during the construction process.

In summary, the regions will see limited but noticeable economic implications in the form of increased investment and design costs per project, as well as additional administrative costs. In relation to the regions' total investment volumes in healthcare and public transport properties, these costs are considered to be manageable, particularly given the opportunity to combine compliance with the limit values with optimised design and the expected price changes for climate-improved materials as the EU Emissions Trading System (EU ETS) and the Carbon Border Adjustment Mechanism (CBAM) take full effect.

11.8.6.2 Other relevant consequences

The work of the regions is not only affected economically. The climate calculation and limit value requirements also provide a clearer tool for following up the regions' own climate and energy strategies. By calculating life-cycle GWP at building level, the region gains a systematic basis for monitoring how new construction projects contribute to or undermine the region's own climate targets. This may facilitate investment planning for properties, for example when weighing different technical solutions against one another in major hospital and traffic projects.

Buildings with critical societal functions and high security requirements – such as hospitals, health centres, ambulance control centres and certain traffic and operations control centres – often have specific climate-driving conditions. The documentation describes such buildings as belonging to the group with specific climate-driving conditions. For these buildings, either a supplement to the limit value or special limit values are proposed to consider the high requirements for security, robustness and advanced technical equipment. For the regions, this means that the limit values are not designed in a way that compromises or displaces healthcare and security functions, while maintaining climate governance.

In the longer term, climate optimisation of the regions' own healthcare and traffic properties may also generate positive side effects through lower energy use and thus lower operating costs, reduced vulnerability to fluctuations in energy prices, and improved overall economy over the building's life cycle.

The proposals also create a need for competence development within the regions' organisations. Project managers, property strategists, procurement officers and other clients need to improve their understanding of the life-cycle perspective for buildings, the use of Boverket's climate database and GWP indicators, and how climate requirements are formulated in procurements and contracts. At the same time, this provides an opportunity to strengthen internal client competence, integrate climate considerations with functional and economic objectives, and further develop collaboration with external consultants and contractors on climate optimisation.

11.8.6.3 Reports on measures

As mentioned above, the regions are primarily affected in their capacity as developers and property owners, for example in relation to hospitals, healthcare facilities and public transport buildings. To ensure that the proposal does not impose more far-reaching costs or restrictions on developers than are necessary to achieve its purpose, several measures have been proposed at the national level. These measures limit both the economic and administrative implications for the regions while maintaining the climate-governing effect of the regulatory framework.

11.8.7 Impact on enterprises

11.8.7.1 Types of enterprises concerned

The proposal affects a wide range of enterprises across the entire construction and property management value chain. The primary parties affected are developers and property owners, including professional developers, municipal and private housing companies, commercial property companies, public property management organisations, as well as smaller project developers who only construct individual buildings. Building contractors are also affected, including both large nationwide companies and small and medium-sized contractors, as well as design-build and general contractors responsible for integrated contracts.

Subcontractors and installers are likewise affected, such as enterprises engaged in groundworks and foundations, structural completion, electrical technical equipment, plumbing, heating and sanitation (VVS), ventilation, finishes and fixed fittings. These stakeholders will increasingly need to provide quantity and product information as documentation for climate calculations. During the design stage, architects, structural engineers, building services and energy consultants, LCA consultants, and suppliers of calculation and BIM software are affected as life-cycle GWP becomes an integral part of design assignments.

Finally, the construction products and materials industry is also affected, including the cement, concrete, steel and timber industries, as well as manufacturers of gypsum, insulation, glass, building services products,

finishes and fixed fittings. For these stakeholders, climate data in the form of DoPCs/EPDs become a key competitive factor when the climate impact of buildings must be calculated and limit values complied with. See also Annex 5 for detailed information.

11.8.7.2 Economic implications

The impact assessment analyses three levels of limit values. Alternative 1 represents a high level of ambition, with approximately a 55 per cent reduction by 2030 compared with the baseline levels in the reference study. Alternative 2 represents a medium ambition of approximately 35 per cent reduction, while Alternative 3 represents a lower level of ambition, with approximately a 25 per cent reduction or more generous initial limit values. Boverket proposes to proceed with Alternative 2, which is considered to provide a reasonable balance between climate ambition and feasibility for enterprises.

To illustrate the order of magnitude of the costs associated with the three limit value alternatives, a sample calculation has been produced summarising the additional work required for climate calculations, the additional work required for the calculation and disclosure of life-cycle GWP, and an approximate increase in construction costs. The underlying calculations are presented in Annex 8. Table 6 provides a summary of the costs for contractors and developers compared with the baseline scenario.

Table 6. Summary of costs for contractors and developers.

	Alternative 1	Alternative 2	Alternative 3
Additional work on climate calculations (1)	SEK 230 million	SEK 230 million	SEK 230 million
Additional work involved in disclosure of life-cycle GWP (1)	SEK 30–120 million	SEK 30–120 million	SEK 30–120 million
Increase in construction costs	+20 per cent	+3–8 per cent	0
Other costs	Training, licences	Training, licences	Training, licences

Summary of costs for contractors and developers relating to the disclosure of life-cycle GWP and the 2030 limit value, compared with the baseline scenario. Note: ¹ Based on the maximum number of buildings affected. More time may be required for Alternative 1 compared to the other alternatives. The data underlying the calculations are presented in Annex 8, Tables 22 and 23.

Table 6 shows that the stricter limit value Alternative 1 may entail both a significant amount of additional work for climate calculations and a substantial increase in construction costs in certain projects, while Alternative 2 is expected to result in more moderate cost increases and Alternative 3 is essentially cost-neutral. The additional work on climate calculations arises regardless of alternative, while the size of the construction cost increase depends on the ambition.

At the same time, the estimates are uncertain and vary considerably between projects and materials. The analysis also assumes that the EU Emissions Trading System (EU ETS) and the Carbon Border Adjustment Mechanism (CBAM) are expected, over time, to reduce the price difference between climate-improved materials and standard products. This means that, by 2030–2035, the price levels of materials with lower climate impact may be closer to those of standard products than they are today, thereby reducing the risk of substantial and lasting increases in material costs.

Opportunities to manage cost increases

Both the interviews and the questionnaire responses indicate that companies can already reduce climate impact through design optimisation and material optimisation without significant cost increases. Several stakeholders state that optimisation during the design stage can result in emission reductions of 10–30 per cent. One specific survey example describes a multi-dwelling block with a climate declaration of 194 kg CO₂eq/m² GFA, where the total cost increase was approximately 3.5 per cent compared to a ‘traditional construction project’, despite the longer design period.

This illustrates that part of the cost increase resulting from more stringent limit values can be managed through more efficient design, more targeted material choices and reduced oversizing. However, the investigation notes that the possibility for cost-neutral optimisation is not unlimited. In the longer term, and under more stringent limit values, more extensive substitution with climate-improved products and technologies will be necessary, which will in itself entail certain cost increases.

Additional work on climate calculations linked to the limit value

Meeting the limit values requires more comprehensive and iterative climate calculations during the design and tender stages. The documentation for the impact assessment estimates, based on questionnaire and interview responses, that an average of approximately 40 hours of additional work per construction project will be required solely because of the limit values.

Based on building permit statistics (approximately 8,600 residential buildings and 2,800 non-residential buildings per year, corresponding to a total of approximately 11,400 building permits) and an assumed hourly rate of SEK 420 (at 2016 price levels, adjusted to 2024 prices), this is estimated to correspond to an annual additional cost to the industry of just over SEK 230 million.

This cost is initially borne primarily by climate consultants, contractors and design firms, although part of the cost is passed on to developers through tenders. Some contractors report that the cost is partly passed on

to the enterprise's administrative costs, while others explicitly include climate calculations as an item in the tender price, which may ultimately affect rent levels and housing prices.

Additional work for life-cycle GWP

At the same time, disclosure of life-cycle GWP means that new groups of construction companies need to be able to provide data on quantities for their construction projects. For subcontractors involved in construction projects, this means adapting to new procedures, although the time required is expected to decrease as enterprises streamline their work processes. The new groups of enterprises affected are subcontractors providing specific construction services and foundation works. The majority are small enterprises. For developers and building contractors, the disclosure of life-cycle GWP is unlikely to result in any significant increase in workload or other costs. However, this conclusion is based on environmental product declarations (EPDs) being available for finishes, fixed fittings and technical equipment, and that Boverket produces default values for B and C that are approved for use.

Disclosure of life-cycle GWP, to include the entire life cycle (A–D) and more building components, also entails additional work. The investigation presents two scenario calculations.

In a low scenario, EPDs and adopted default values for Modules B and C are assumed to be readily available. The additional work is then estimated to around 5 hours per project, which for the entire building permit volume gives an annual cost increase of approximately SEK 30 million (2024 prices).

In a high scenario, where EPDs are more difficult to obtain and Boverket does not provide predefined default values, the additional work is estimated at approximately 20 hours per project. This corresponds to an annual cost of around SEK 120 million for the industry. The range mainly reflects the uncertainty about how quickly climate data for finishes, fixed fittings and technical equipment develops and how far Boverket goes in providing default values.

An important conclusion is that the time required to comply with the life-cycle GWP requirements depends to a large extent on how well climate calculation tools are integrated into existing calculation and BIM systems, and on the availability of established procedures and EPD libraries. Enterprises that have already established such systems report that preparing a climate declaration under the current regulatory framework takes approximately one working week, and that the expansion does not necessarily double this time if the necessary documentation and tools are available.

Additional work for energy experts

The proposed amendment to the Energy Declaration of Buildings Act⁶¹ requiring an energy performance certificate to include information on the building's release of greenhouse gas emissions into the atmosphere will introduce a new task for certified energy experts. The energy expert shall enter the value in the energy performance certificate. The information is obtained from a building committee. This presupposes that certified energy experts acquire the knowledge required to perform the task. Retrieving the data and entering it in the certificate will naturally entail a certain, probably limited, cost, which Boverket has not been able to estimate. This cost is passed on to the party that commissioned the energy performance certificate.

Distributional effects and SMEs

The investigation provides a clear assessment of how different levels of ambition for the limit values affect small and medium-sized enterprises (SMEs). Alternative 1, representing a high level of ambition, is considered to pose the greatest risk that some enterprises, particularly smaller ones, may face significant competitive and liquidity challenges. The strictest limit value may result in some enterprises being forced out of the market, and it is considered "highly possible that small and medium-sized enterprises may be affected more severely than larger stakeholders", not least because they are less able to absorb the costs of training, system support and transition investments.

Alternative 2, as proposed by Boverket, is considered to be manageable for smaller enterprises, according to the interview responses. Although it entails additional work relating to climate calculations and certain cost increases at the contractor level, it is not considered to pose any significant risk of viable enterprises being forced out of the market. Alternative 3 is generally not assumed to result in cost increases but is regarded by many industry stakeholders as providing too weak a signal to drive climate action forward.

It is also clear that enterprises that are already at the forefront of climate action express, in questionnaires and interviews, that they regard stricter limit values (Alt. 1–2) as a competitive advantage. Others, who are further behind, favour a more gradual introduction or a lower initial level of ambition.

Overall, Alternative 2 is considered to provide an acceptable balance between climate governance and the capacity of SMEs to adapt, provided that the proposed support and guidance measures are implemented.

⁶¹ Energy Declaration of Buildings Act (2006:985)

11.8.7.3 Other relevant consequences

Changes to working processes and competence requirements

The introduction of requirements for life-cycle GWP calculations and limit values means that climate considerations will become integrated into the early stages of projects. Enterprises involved in the design and contracting stages will increasingly need to address climate considerations in parallel with technical and economic considerations. This is particularly relevant for larger projects, where material choices and structural solutions have a significant impact on emissions.

Subcontractors and installers are expected to provide more structured quantity and product information for use in climate calculations. For many small enterprises, this means new procedures and an initial competency building, particularly regarding how their deliverables should be described in the formats used in the projects.

Consultants and design teams need to strengthen their expertise in life cycle assessment, the methodology for calculating life-cycle GWP and the application of Boverket's climate database. Software providers are incentivised to develop solutions that integrate climate data into calculation and BIM systems, enabling the work to be automated.

Competitive conditions and market signals

Stricter limit values, especially at levels 1 and 2, create a clear demand for climate-improved products and system solutions. This benefits material manufacturers and contractors that have already invested in climate-improved production methods and working methods.

At the same time, enterprises that are unable to adapt quickly risk losing competitiveness. The investigation emphasises that this is best addressed through a combination of a reasonable ambition and clear methodological rules, thereby ensuring that smaller stakeholders also have realistic transition pathways.

Innovation and export opportunities

A recurring conclusion in both the consultation responses and the questionnaire responses is that limit values aligned with the EU's climate targets and the industry's own roadmaps can help strengthen the innovation capacity and export opportunities of Swedish industry. Material manufacturers at the forefront of development, for example in climate-improved concrete, steel and timber, consider that clear requirements at building level facilitate investment decisions and create a more predictable market, both in Sweden and across the European market.

11.8.7.4 Presentation of measures

To limit costs and administrative burdens on enterprises, without undermining the purpose of the regulations, Boverket proposes a number of measures.

A first step is the expansion and quality assurance of Boverket's climate database. The database will be expanded to include generic climate data for more product groups, default values for certain life-cycle modules, and conservative default values for minor items. The aim is to minimize the need for enterprises to compile basic data themselves, whilst ensuring that the calculations have a sufficiently high coverage ratio and quality. This will not only reduce the time required but also contribute to comparable results between projects.

A second measure is for the central government to develop a digital system support for the reporting and management of data on buildings' release of greenhouse gas emissions into the atmosphere. Boverket proposes that such a system support for digital processing of data be developed and made available for voluntary use by municipalities, in accordance with the reasoning set out in Section 10.5. The system support is primarily intended to facilitate the processing of cases by the building committees, but may also facilitate developers' submission of information. The climate calculations themselves will continue to be carried out using the calculation tools chosen by the enterprises.

A third measure is to combine the requirement for a high coverage ratio (at least 90 per cent for Modules A1–A5) with permission to use default values for certain well-defined building elements of minor significance in terms of climate impact. This is considered to create an incentive to use project-specific information where it provides the greatest benefit, while avoiding the need for enterprises to spend a disproportionate amount of time on minor items with a low climate impact.

Furthermore, Boverket emphasises the need for training and guidance. It is proposed that the existing guidance be expanded and updated to support enterprises in interpreting and applying the rules, and that targeted information initiatives be directed at small and medium-sized enterprises through the channels they already use, for example via the building-material trade and industry organisations.

A fifth measure is a clearly phased implementation timetable. The requirements for disclosure of life-cycle GWP will first be introduced for larger buildings from 2028 and will then apply to all new buildings from 2030. The limit values will begin to apply to building permits from 2030 and will subsequently be tightened every five years. This provides enterprises with a predictable time horizon for investments in competence, processes, and product development.

Finally, Boverket proposes regular in-depth evaluations prior to each major tightening of the limit values. These evaluations are intended to analyse the effects on small and medium-sized enterprises and to enable adjustments to the levels or design if the impact proves more extensive than anticipated. This creates a built-in safety mechanism that prevents the rules from becoming more burdensome than necessary to achieve the climate targets.

11.8.8 Impact on other individuals

11.8.8.1 Description of the groups concerned

Other individual stakeholders are mainly affected indirectly. Households and users, i.e., homebuyers, tenants and commercial tenants, may be affected by any impacts on construction costs, rents and housing supply, as well as through improved information on the climate impact of buildings provided in the energy performance certificate. In the longer term, qualities such as material choices, technical solutions and the resale value of buildings may also be affected. Civil society is also affected. Environmental and consumer organisations, trade unions and other interest groups will benefit from greater transparency regarding the climate impact of buildings and, with that, increased opportunities to use life-cycle GWP as an indicator in advocacy and in monitoring climate targets.

A particular group among these ‘other individuals’ consists of natural persons acting as developers, primarily when constructing single-family houses. They are more directly affected by the requirement to demonstrate that the building complies with the new technical characteristic requirement relating to life-cycle GWP and limit values. For them, it is often more difficult than for professional developers to prepare documentation and climate calculations in a technical manner, which may create a need to engage external consultants and thereby increase costs.

11.8.8.2 Economic implications

For households purchasing or renting homes, the proposals may affect costs indirectly through changes in the production costs of new housing and through a possible impact on rents and prices over time. The documentation supporting the impact assessment shows that the proposed limit value level (Alternative 2) is expected to be achievable with moderate cost increases at building level, in the order of a few per cent in typical cases, after taking into account design optimisation and the expected development of material prices under the EU ETS and CBAM. In the short term, part of these cost increases may be passed on to households through higher housing prices or rents, especially in new construction. At the same time, the documentation concludes that the price increases for newly constructed housing are limited in relation to total production costs, that the cost effects are spread over the building’s service life, and that households may also benefit indirectly through lower energy costs

and a higher technical standard in the buildings. It has not been possible, within the scope of this assignment, to quantify how these effects are distributed among different household groups. Overall, the economic implications for households are moderate, although they may be experienced differently depending on households' ability to pay and their form of housing.

Natural persons acting as developers are affected more directly than ordinary homebuyers. Prior to the building permit and final clearance, they must demonstrate that the design has been carried out in a technically competent manner, that the planned building can be assumed to comply with the requirement to calculate life-cycle GWP, and that the limit value for the building's climate impact will not be exceeded (cf., *inter alia*, Chapter 8, Section 4b and Chapter 10, Section 34 of the proposed amendments to the PBL). For individual developers of single-family houses, this typically means engaging designers or contractors with climate expertise, procuring climate calculation services or selecting standardised house concepts for which calculations have already been prepared, as well as collecting and presenting documentation to the building committee. This entails an additional cost compared with the baseline scenario. The documentation does not contain a separate quantification of this cost for natural persons. However, it is reasonable to assume that the cost per construction project will be relatively higher for a natural person than for a professional stakeholder, as the costs cannot be allocated to multiple projects. Under normal circumstances, the additional cost should constitute a limited proportion of the total budget for a single-family house, but it can still be significant for households with limited financial means. There is also a risk that the building committee, especially initially, may request more extensive calculation documentation than can, in practice, be prepared only by a professional consultant. This could further increase costs and create uncertainty for natural persons acting as developers. It is therefore important that Boverket develops guidance for both natural persons and municipalities to ensure that building committees do not require more extensive calculation documentation than necessary.

For civil society organisations—such as environmental, consumer and tenants' organisations—the direct economic implications are limited. These stakeholders are affected primarily by the need to devote a certain amount of time and resources to reviewing, analysing and communicating the new information on the climate impact of buildings. In relation to their ordinary activities, these costs are limited.

11.8.8.3 Other relevant consequences

A key implication for other individuals is the increased transparency regarding the climate impact of buildings. Once information on life-cycle GWP is included in the energy performance certificate, households and commercial tenants will, over time, be able to compare buildings not only

in terms of energy performance but also climate impact. This will make it possible to give greater weight to climate performance when deciding whether to purchase a home or lease commercial premises, provided that the information is presented in an understandable manner. The enhanced transparency may strengthen the position of climate-conscious consumers and increase market pressure to develop and offer buildings with a lower climate impact.

As regards housing supply and housing quality, stricter limit values could theoretically result in certain new construction projects becoming less profitable and thus being postponed or not carried out, particularly in areas where profitability is already under pressure. However, the investigation considers that the proposed limit value level (Alternative 2) can be achieved without significant reductions in construction output, not least because technology developments and developments within the EU ETS/CBAM are expected to reduce the price difference between standard products and climate-improved products by around 2030–2035, and because design optimisation can reduce climate impact without proportionately increasing costs. For individual households, the proposals may also have a positive impact on housing quality by making buildings more resource-efficient and technologically updated, with a reduced risk of costly future upgrades to meet future climate and energy performance requirements.

For natural persons acting as developers, the rules may be perceived as complex. They will need to familiarise themselves with system boundaries, life-cycle modules and limit values, and understand the type of calculation documentation required. This may result in greater uncertainty in planning, more time spent in contacts with the municipality and consultants, and some risk of delayed construction starts if the documentation is considered insufficient and must be supplemented. In the long term, however, the availability of standardised single-family house types with completed climate documentation is expected to reduce both costs and uncertainty for this group.

For civil society, the inclusion of life-cycle GWP in energy performance certificates provides improved opportunities to follow up on the development of built environment in relation to local and national climate targets. Organisations will be better able to identify building types or areas with a relatively high climate impact and can use this data in advocacy, advisory activities and monitoring of the housing market. This is considered to strengthen the role of civil society in the climate transition without creating any significant negative consequences for these stakeholders.

11.8.8.4 Presentation of measures

To limit costs and other constraints for other individuals while ensuring that the purpose of the rules is achieved, the legislation has been designed

to align closely with the minimum requirements of the EPBD. The system boundary for the limit value has been restricted to the construction stage (Modules A1–A5) and excludes technical equipment for the generation and storage of renewable electricity on the building or its plot, in order not to discourage investments in local renewable energy generation that may, in the long term, benefit occupants through lower energy costs.

Boverket also intends to produce updated guidance on the new rules, including targeted information for natural persons planning to build single-family houses. Through PBL Kunskapsbanken and other channels, individual developers shall be able to get support in understanding the applicable requirements, which elements normally require expert assistance, and how they can choose solutions that reduce the need for their own investigation, for example standardised single-family houses with completed climate documentation.

In addition, Boverket's climate database is being expanded to ensure that generic climate data, default values and scenario-based emission factors are readily available. A national system support for the digital processing of climate calculations, which municipalities may use on a voluntary basis, is also proposed. This reduces the need for individual stakeholders to produce climate data and advanced calculation solutions themselves, thereby lowering the thresholds, particularly for small stakeholders and natural persons.

Also, the introduction will be done in phases. The requirements for disclosure of life-cycle GWP will first be introduced for larger buildings and will then apply to all new buildings. Limit values will apply to building permits from 2030 and will thereafter be tightened every five years, following evaluation. This gives both the industry and individuals time to adapt and makes it possible to adjust the limit values should it prove that the effects on housing supply and household costs are greater than expected.

Finally, it is proposed that the building committees receive clear guidance and, where necessary, access to a common system support. The intention is that the verification should focus on whether the developer has engaged professional expertise and whether the limit value is not manifestly exceeded, rather than on detailed scrutiny of the climate calculations in every case. In minor cases, such as when natural persons build standardised single-family houses, the municipality should avoid requesting unnecessarily extensive documentation. This limits the risk of individual developers being faced with disproportionately extensive requirements for investigations and documents.

11.8.9 The European Union

The proposed rules primarily implement Articles 7.2–7.6 of the recast Energy Performance of Buildings Directive (EPBD) (EU) 2024/1275, as well as the Commission Delegated Regulation on the calculation and disclosure of life-cycle GWP. The requirements to calculate and disclose life-cycle GWP are introduced into Swedish law as a technical characteristic requirement under the Planning and Building Act, supplemented by provisions in the Planning and Building Ordinance and the Energy Declaration of Buildings Act and Ordinance. Limit values for buildings' release of greenhouse gas emissions into the atmosphere will be introduced from 2030, in accordance with the EPBD requirement that Member States establish such limit values by that year.

Implementation is essentially at the minimum level of the Directive. The requirement to disclose life-cycle GWP only applies to new buildings, with the same deadlines as in the EPBD (buildings with a useful floor area exceeding 1,000 m² from 2028 and all new buildings from 2030). The building types exempted from the calculation and disclosure of life-cycle GWP correspond in all material respects to the exemptions under the energy declaration rules, an approach highlighted in the Commission's guidance. Linking the requirements to the building permit and final clearance falls within the national discretion afforded by the Directive and may be regarded as a means of ensuring effective and legally certain implementation.

The EPBD and the Commission Delegated Regulation allow Member States to limit the scope of the limit values to certain life-cycle modules and building elements. Sweden has chosen to apply the limit values to the construction stage (Modules A1–A5) rather than the entire life cycle, and to exclude building-related ground reinforcement and technical equipment for the generation and storage of electricity from the limit value. This means that the Swedish limit values have a narrower system boundary than is permitted under the Directive and therefore do not go beyond the requirements of EU law. National choices such as using gross floor area (GFA) as the area metric, specifying a coverage ratio of at least 90 per cent for climate calculations, and requiring the part covered by the limit values to be disclosed using the GWP-GHG indicator fall within the Directive's framework for methodological specifications and are necessary to ensure comparability and supervision, but do not impose materially more stringent requirements than those required under EU law.

The proposals to repeal the national Act on Climate Declarations for Buildings and transfer responsibility for the verification of climate calculations to the building committees are purely national measures and are not based on EU law. They do not introduce any additional EU-related obligations but constitute an adaptation of the Swedish regulatory framework to the new EU requirements.

To limit costs within the framework of EU law, Sweden has, inter alia, opted for a minimalist implementation, a narrow system boundary for the limit value (Modules A1–A5 only), and a phased entry into force in accordance with the timetable set out in the Directive. In addition, support measures are proposed, including an expanded climate database, guidance and voluntary digital system support, with the aim of reducing the administrative and economic costs for the stakeholders concerned while ensuring compliance with the requirements of EU law.

Overall, Boverket considers that the legislative proposals do not go beyond the obligations arising from Sweden's membership of the European Union, but essentially constitute a minimal implementation of the EPBD with certain national clarifications within the discretion afforded by the Directive and the Delegated Regulation.

11.8.10 Environmental and climate impacts

The primary purpose of the rules is to reduce the climate impact of buildings. The proposed limit values at the level corresponding to Alternative 2 are expected to provide a clear policy signal towards lower emissions during the construction stage. At the same time, the requirement to disclose life-cycle GWP will create a better basis for understanding and managing emissions over the building's entire service life, including the use and end-of-life stages. In this way, the rules can contribute both to direct emission reductions during the construction stage and to increased knowledge to support more far-reaching measures in the long term.

The primary benefit of the limit values lies in the market signal they provide. A limit value set below the level corresponding to 'business as usual' increases demand for less emission-intensive materials, building systems and structural solutions. This improves market conditions for producers that invest in climate-reduced production and accelerates the development and introduction of materials and construction products with a lower climate impact.

Although part of the emission reductions during the construction stage may be offset by the EU Emissions Trading System (the so-called water-bed effect), the limit values help clarify which solutions are in demand in the construction sector. Thus, they provide a stable policy signal that supports technology development and facilitates the contribution of the construction and materials sector to the EU's long-term climate targets.

However, the impact of the rules must be viewed in the context of the EU Emissions Trading System. Emissions during the construction stage are largely covered by the EU ETS, under which the total number of emission allowances is determined by an emissions cap that is gradually lowered by means of a linear reduction factor. If emissions are reduced in one part of the EU ETS sector, for example through less emission-

intensive production of construction materials, emission allowances are released that can be used in other EU ETS sectors. This is the so-called waterbed effect. Strictly speaking, this means that a national limit value does not automatically result in a corresponding reduction in total emissions within the EU, as other sectors may increase their emissions within the same emissions cap.

At the same time, the system contains mechanisms that prevent emission reductions from being completely offset. Both the existing Emissions Trading System (EU ETS 1) and the forthcoming expansion (EU ETS 2), which covers an increasing share of emissions from the construction and real estate sector, will be included in a Market Stability Reserve. This means that the emissions cap may be adjusted downwards if emissions decrease significantly and demand for emission allowances declines. In such circumstances, national measures, such as stricter limit values for buildings' greenhouse gas emissions, may contribute to a reduction in the overall emissions cap within the EU over time.

Although the direct effect on total construction emissions within the EU is difficult to quantify, the limit values play an important role by influencing demand for construction materials and construction products. A limit value set below the level corresponding to 'business as usual' in the construction sector increases demand for less emission-intensive materials, building systems and technologies. This improves market conditions for producers that invest in climate-reduced production, both in Sweden and in other markets. This applies even if emissions trading itself were to drive emission reductions; in that case, the limit values help clarify the types of solutions requested in the construction sector.

Overall, the environmental and climate effects of the proposed rules are clearly positive. The rules have the potential to reduce emissions during the construction stage, strengthen the knowledge base on emissions over the entire life cycle of buildings, and create stable long-term incentives for climate-neutral solutions. At the same time, the resulting cost and distributional effects are reasonable and manageable in relation to the steering effect towards reduced climate impact achieved.

11.9 Entry into force, information initiatives and evaluation

11.9.1 Entry into force

The proposals set out three main dates for entry into force:

- on 1 April 2027, the Act on Climate Declarations for Buildings (2021:787) and the Ordinance on Climate Declarations for Buildings (2021:789) will be repealed,

- On 1 January 2028, requirements for the calculation and disclosure of a building's life-cycle GWP will be introduced as a technical characteristic requirement in the PBL and in the corresponding provisions of the PBF and the Act/Ordinance on Energy Declaration for Buildings, and
- on 1 January 2030, limit values for buildings' release of greenhouse gas emissions into the atmosphere will be introduced.

The dates have been chosen considering both the requirements of the EPBD and the need for the stakeholders concerned to make preparations. Under the EPBD, the requirements for calculating and disclosing life-cycle GWP will apply to new buildings with a useful floor area of more than 1,000 m² from 1 January 2028, and to all new buildings from 1 January 2030. Allowing the Swedish provisions to enter into force on those dates means that implementation is aligned with EU law without unnecessary delay.

At the same time, time is needed to prepare regulations, expand Boverket's climate database, adapt the Energy Declaration Register, develop guidance and any necessary system support, and to enable municipalities, developers, contractors and construction product manufacturers to adapt their procedures and tools. The repeal of the Act on Climate Declarations for Buildings and the Ordinance on Climate Declarations for Buildings on 1 April 2027 is coordinated with this; at that point, the life-cycle GWP requirements will not yet have entered into force, but there will no longer be any reason to maintain two parallel regulatory frameworks.

11.9.2 Special information initiatives

There is a clear need for targeted information and training initiatives both before and after the new rules on life-cycle GWP and limit values enter into force. The rules affect a wide range of stakeholders in the construction and real estate sector, and several aspects are new or more complex than the current requirements (for example, life-cycle modules, system boundaries, indicators, and coverage ratio).

Boverket considers the following types of measures to be particularly important:

- **Targeted information for different stakeholder groups**
The information needs to be tailored to different target groups, including developers, contractors, consultants, material manufacturers, certified energy experts and municipal building committees. For enterprises, it is essential to understand the requirements, what data must be produced, and how Boverket's climate database and any default values are to be used. For municipalities, the focus is on how the requirements are to be handled within the building permit and supervisory process.

- **Support for small and medium-sized enterprises**
Small and medium-sized enterprises often have limited resources to monitor regulatory developments and build up in-house climate expertise. Information initiatives targeting this group should therefore be delivered through channels they already use (for example, trade associations, building-material trade, regional networks) and in the form of straightforward guidance, examples and web-based training.
- **Guidance and support on the application of the PBL**
Boverket needs to draw up and update guidance describing calculation and disclosure of life-cycle GWP, how the limit values shall be applied, and how delimitation is handled (for example, mixed building categories, on-site technical equipment, and ground reinforcement).

Overall, Boverket considers that, without targeted information initiatives and clear guidance, implementation of the rules risks becoming more uneven and more costly than necessary, particularly for small and medium-sized enterprises and municipalities. Specific information initiatives are therefore justified.

11.9.3 Evaluation

Boverket proposes that regular, in-depth evaluations be carried out prior to any significant tightening of the limit values. These evaluations should include a specific analysis of the effects on small and medium-sized enterprises, and the results shall be used to adjust the levels or design of the limit values if the impact proves to be more extensive than anticipated. This creates a built-in safety mechanism that prevents the rules from becoming more burdensome than necessary to achieve the climate targets.

12 Legal commentary

12.1 Proposal for an act repealing the Act on Climate Declarations for Buildings (2021:787)

In accordance with a decision by the Riksdag (the Swedish Parliament), the Act on Climate Declarations for Buildings (2021:787) shall cease to apply at the end of April 2027.

The Act is repealed.

The date of 1 April 2027 for the repeal has been selected after taking into account the time required for the legislative process. It is the earliest date on which the repeal has been considered possible.

All ongoing activities relating to climate declarations will cease on 1 April 2027. This means that, although submission of a climate declaration for the building to Boverket has previously been a condition imposed by the building committee for issuing a final clearance, that condition will no longer apply from 1 April 2027. No climate declarations shall be submitted to Boverket from that date. Boverket's supervision of submitted declarations will cease on the same date.

Further considerations are given in Chapter 8.

12.2 Proposal for an act amending the Planning and Building Act (2010:900)

Chapter 10

Section 34

The building committee shall, by issuing a written final approval, approve that one or more measures referred to in Section 3 are to be regarded as completed and, in the case of building works, that the building may be put into service, if

1. the developer has demonstrated that all requirements applicable to the measures under the building permit, the inspection plan, the starting clearance, or a decision on supplementary conditions have been fulfilled, and

2. the committee has found no reason to intervene under Chapter 11.

The provision is amended.

The amendment entails the deletion of point 2, which contains a reference to the Act on Climate Declarations for Buildings. This is a consequential amendment, as the Act on Climate Declarations for Buildings is proposed

to be repealed. This will take effect on 1 April 2027, which is why PBL needs to be amended at the same time.

12.3 Proposal for an act amending the Planning and Building Act (2010:900)

Chapter 8

Section 4b

A building constructed in which energy is used to regulate the indoor environment shall possess the technical characteristic that are essential with regard to the building's release of greenhouse gas emissions into the atmosphere.

The building's release of greenhouse gas emissions into the atmosphere shall be calculated and disclosed.

The requirements for a building to be deemed to satisfy this requirement, and which buildings are exempt from the requirement, are laid down in regulations issued pursuant to Chapter 16, Section 2

New provision.

The EPBD requirement to calculate and disclose life-cycle GWP is introduced as a technical characteristic requirement for buildings constructed. Under the EPBD, the requirement applies only to buildings in which energy is used to regulate the indoor environment. The technical characteristic requirement is designated as buildings' release of greenhouse gas emissions into the atmosphere. The expression "release of greenhouse gas emissions into the atmosphere" is taken from Annex I, point 7(d), of the Construction Products Regulation.

It is introduced as a separate provision in a new Section 4b. It could have been appropriate to consolidate the technical characteristics requirements introduced as a result of EU law in a single provision, Section 4a, while the technical characteristics requirements based on national rules could have been consolidated in Section 4. The regulation on additional national requirements could have been placed in Section 4b. However, such a major change has not been considered to fall within the scope of the current government assignment.

Further considerations are given in Section 4.2.

Chapter 9

Section 105

A decision on a building permit, demolition permit, or a site improvement permit shall include

1. information on the period for which the permit is valid,
2. information as to whether there is to be a person in charge of inspection and, if so, who that person or persons are,

3. information that the measure may not be commenced until the permit has taken effect in accordance with Section 114 and the building committee has issued a starting clearance under Chapter 10,
4. information that a measure commenced before the decision has become final may have to be reversed if the decision is amended following a review,
5. information as to whether the measure is subject to the requirements set out in Chapter 8, Section 4b, and
6. the conditions and information required under Sections 73, 81, 82, 83, 84, or 92, or otherwise considered necessary.

The provision is amended.

It is important to establish at an early stage whether the building being constructed is subject to the technical characteristic requirement to calculate and disclose buildings' greenhouse gas emissions. The starting point is that buildings being constructed are subject to the requirement, but certain buildings are exempt, as provided in the PBF. To ensure that this is established at an early stage, it must already be apparent from the building permit decision.

Chapter 10

Section 7

The inspection plan shall be adapted to the circumstances on a case-by-case basis and have the design and level of detail necessary to ensure, in an appropriate manner, that

1. all essential requirements referred to in Chapter 8, Sections 4 and 4b are fulfilled,
 2. the prohibition against distortion laid down in Chapter 8, Section 13 is complied with, and
- the requirements for exercising due care laid down in Chapter 8, Sections 17 and 18 are fulfilled.

The provision is amended.

Consequential amendment arising from the introduction of an additional technical characteristic requirement. Accordingly, a reference to the new technical characteristic requirement set out in Chapter 8, Section 4b, is added to point 1.

Further considerations are given in Section 8.1.4.

Section 34

The building committee shall, by issuing a written final approval, approve that one or more measures referred to in Section 3 are to be regarded as completed and, in the case of building works, that the building may be put into service, if

1. the developer has demonstrated that all requirements applicable to the measures under the building permit, the inspection plan, the starting clearance, or a decision on supplementary conditions have been fulfilled,

2. the developer has disclosed the building's release of greenhouse gas emissions into the atmosphere in accordance with Chapter 4, Section 4b, and
3. the committee has found no reason to intervene under Chapter 11.

The provision is amended.

There needs to be a consequence of not having calculated and disclosed the new technical characteristic requirement. The appropriate consequence is that a final clearance cannot be issued.

The section has been amended so that, in order to obtain final clearance, the developer must have disclosed the building's release of greenhouse gas emissions into the atmosphere in accordance with Chapter 8, Section 4b. What is meant by what must be disclosed is that which is mandatory under EU law. This means that the 'GWP-total' indicator must be reported in seven different columns, in accordance with Section 8 of the Commission Delegated Regulation. From 2030, when requirements are introduced stipulating that a building's release of greenhouse gas emissions into the atmosphere must not exceed a limit value, the GWP-GHG indicator for the construction stage must also be reported. If disclosure has not been made, the building committee may issue an interim final clearance so that the building may nevertheless be put into use.

Further considerations are given in Section 8.1.4.

Chapter 16

Section 2

The Government or the authority designated by the Government may prescribe

1. that the provisions of Chapter 8, Sections 1 and 2 relating to buildings shall also apply to structures other than buildings,
2. what is required for a building to be deemed to satisfy the requirements laid down in Chapter 8, Sections 1 and 4,
3. that certain requirements, notwithstanding Chapter 8, Sections 2 and 5, or in the application of Chapter 8, Sections 7 and 8, shall always be fulfilled when there is new construction, refurbishment, or any other alteration of a building,
4. that certain requirements, notwithstanding Chapter 8, Sections 2 and 5, or in the application of Chapter 8, Sections 7 and 8, do not need to be fulfilled when there is new construction, refurbishment, or any other alteration of a building,
5. that the requirement laid down in Chapter 8, Section 4, first paragraph, point 6 shall, notwithstanding Chapter 8, Section 5, always be fulfilled in respect of buildings other than residential buildings where this is required as a result of Sweden's membership of the European Union,
6. that the requirement laid down in Chapter 8, Section 4, first paragraph, point 11 shall, notwithstanding Chapter 8, Section 5, always be fulfilled in respect of buildings other than residential buildings,

7. what is required for a building to be deemed to satisfy the requirement laid down in Chapter 8, Section 4b and regulations providing for exemptions from that requirement for certain types of buildings, and
8. what is required for student accommodation to satisfy the requirement laid down in Chapter 8, Section 6, second paragraph, and such exemptions from that requirement as are justified by special reasons.

The provision is amended.

The right to issue regulations conferred on the Government or the authority designated by the Government is expanded in connection with the new technical characteristic requirement in Chapter 8, Section 4b. These are broad, general authorisations, corresponding to those applicable to the other technical characteristics requirements. It may be necessary to supplement them with more specific authorisations in certain areas.

Entry into force and transitional provisions

1. This Act will enter into force on 1 January 2028.
2. Older provisions shall continue to apply to cases in which an application for a building permit was received by the building committee before the entry into force of this Act.

It is proposed that 1 January 2028 be the date of entry into force. This is done to ensure compliance with EU law. The new and amended regulations shall apply to new buildings erected, where an application for a building permit has been received by the building committee on or after 1 January 2028.

Further considerations are given in Chapter 4.

12.4 Proposal for an act amending the Energy Declaration of Buildings Act (2006:985)

Section 9

An energy performance certificate shall state

1. information on the building's energy performance,
2. whether a mandatory functional inspection of the ventilation system has been carried out in the building,
3. whether radon measurements have been carried out in the building,
4. *the building's release of greenhouse gas emissions into the atmosphere,*
5. whether the building's energy performance can be improved while maintaining a good indoor environment and, if so, recommendations for cost-effective measures to improve the building's energy performance, and
6. reference values enabling consumers to assess the building's energy performance and compare it with that of other buildings.

In the cases referred to in Section 8a, the energy performance certificate shall also include
an assessment of the effectiveness and size of the heat generator or air-conditioning system in relation to the building's heating or cooling needs,
and
recommendations on cost-effective measures to improve the system's energy performance.

The Government or the authority designated by the Government may issue regulations concerning the determination of a building's energy performance for the purposes of the first paragraph, point 1, the reference values to be used under the first paragraph, point 6, and any additional information to be included in the certificate.

The provision is amended.

Boverket proposes that information on a building's release of greenhouse gas emissions into the atmosphere be included in the energy performance certificate; which will be required from 1 January 2028 to comply with the requirements of the EPBD. Proposal for amendments to the Energy Declaration of Buildings Act, to enter into force on 1 January 2028.

12.5 Proposal for an act amending the Planning and Building Act (2010:900)

Chapter 8

Section 4b

A building constructed in which energy is used to regulate the indoor environment shall possess the technical characteristic that are essential with regard to the building's release of greenhouse gas emissions into the atmosphere.

The building's release of greenhouse gas emissions into the atmosphere shall be calculated and disclosed.

The building's release of greenhouse gas emissions into the atmosphere must not exceed the limit value applicable to the relevant building category.

The requirements for a building to be deemed to satisfy this requirement, and which buildings are exempt from the requirement, are laid down in regulations issued pursuant to Chapter 16, Section 2

The provision is amended.

From 2030, the EPBD requires not only the calculation and disclosure of life-cycle GWP but also the introduction of limit values. The technical characteristic requirement includes both the calculation and disclosure of life-cycle GWP and requiring limit values.

Further considerations are given in Section 4.2.

Chapter 9

Section 105

A decision on a building permit, demolition permit, or a site improvement permit shall include

1. information on the period for which the permit is valid,
2. information as to whether there is to be a person in charge of inspection and, if so, who that person or persons are,
3. information that the measure may not be commenced until the permit has taken effect in accordance with Section 114 and the building committee has issued a starting clearance under Chapter 10,
4. information that a measure commenced before the decision has become final may have to be reversed if the decision is amended following a review,
5. information as to whether the measure is subject to the requirements set out in Chapter 8, Section 4b and the limit value that must not be exceeded, and
6. the conditions and information required under Sections 73, 81, 82, 83, 84, or 92, or otherwise considered necessary.

The provision is amended.

When limit values are introduced in 2030, the provision will be supplemented to require that the building permit decision also include information on the limit value that must not be exceeded.

Chapter 9

Section 105a

If a building requiring a building permit is subject to the requirements set out in Chapter 8, Section 4b, the building committee shall decide on a higher limit value for a building's release of greenhouse gas emissions into the atmosphere, if the developer so requests no later than in connection with the application for a building permit and that special circumstances make a higher limit value necessary.

In its decision, the building committee shall present its assessment and the circumstances on which that assessment is based.

New provision.

The PBF contains provisions on the limit values applicable to different categories of buildings. However, there may be special circumstances, namely climate-driving conditions, that make it unreasonable to comply with the limit values set out in the PBF. It is therefore necessary to establish a procedure under which the building committee, at the request of the developer, shall decide on a higher limit value where such special circumstances exist.

The developer must make the request. If the request for a higher limit value is made before the building permit application has been submitted, the building committee shall make a separate decision on the matter. If the request is made in connection with the building permit application,

the decision shall be incorporated into the building permit. In its decision, the building committee shall present its assessment and the basis on which it determined the limit value specified in the decision.

Further considerations are given in Section 6.3.2.

Entry into force and transitional provisions

1. This Act will enter into force on 1 January 2030.

2. Older provisions shall continue to apply to cases in which an application for a building permit was received before the entry into force of this Act.

It is proposed that 1 January 2030 be the date of entry into force. This is done to ensure compliance with EU law. The new and amended regulations shall apply to new buildings erected, where an application for a building permit has been received by the building committee on or after 1 January 2030.

Further considerations are given in Chapter 4.

12.6 Proposal for an ordinance repealing the Ordinance on Climate Declarations for Buildings (2021:789)

The Government prescribes that the Ordinance on Climate Declarations for Buildings (2021:789) shall cease to apply at the end of March 2027.

Proposal for the repeal of the Ordinance on climate declaration for buildings to enter into force on 1 April 2027. This is a consequential amendment, as the Act on climate declaration for new buildings is proposed to be repealed on the same date.

Further considerations are given in Chapter 8.

12.7 Proposal for an ordinance amending the Planning and Building Ordinance (2011:338)

Chapter 1

Section 3a

For the purposes of this Ordinance:

gross floor area means the aggregate area of all storeys, measured to the outside of the enclosing building elements.

energy performance means the amount of delivered energy required for heating, cooling, ventilation, hot water and lighting under normal use

of a building, excluding energy from solar radiation, wind, ground, air or water generated and used in the building or on its site;

GWP-total means an indicator of total climate impact, being the sum of GWP-fossil, GWP-biogenic and GWP-luluc,

building envelope means a building element comprising one or more layers that isolates the interior of a building from the outside world in terms of factors such as temperature, noise, and humidity;

life-cycle GWP: an indicator that quantifies a building's contribution to global warming potential over its entire life cycle,

primary energy means energy that has not undergone any conversion,

building automation and control system means a system that is interoperable with connected technical building systems and appliances in the building and comprises all products, software and engineering services that can support the energy-efficient, economical and safe operation of the building's technical building systems through automatic controls and by facilitating the manual management of those systems, and that continuously monitors, records, analyses and enables the adjustment of energy use, establishes benchmarks for energy efficiency, detects efficiency losses, provides information on opportunities for improving energy efficiency, and enables communication; and

Coverage ratio: indicates how much of a building's climate impact has been calculated using actual data on the quantity of building elements and technical equipment, multiplied by climate data.

The provision is amended.

New definitions are added to the definitions paragraph. These are definitions of gross floor area, GWP-total, life-cycle GWP, and coverage ratio.

The definition of life-cycle GWP is from the EPBD.

With regard to the definition of the 'GWP-total' indicator, Chapter 1 of the Commission Delegated Regulation refers to relevant sections of the EN 15 978 standard and subsequent standards.

Further considerations are given in Chapter 4.

Chapter 3

Technical characteristic requirement concerning the release of greenhouse gas emissions into the atmosphere

Section 20d

The following types of buildings are exempt from the obligation to calculate and disclose the building's release of greenhouse gas emissions into the atmosphere:

1. Buildings used primarily as places of worship or for other religious activities.
2. Buildings used for industrial or workshop purposes.
3. Residential buildings that are used or intended for use
 - a) for less than four months per year, or
 - d) for a limited part of the year, provided that the estimated energy use is less than 25 per cent of year-round use.

4. Temporary buildings intended to be used for no more than two years.
5. Agricultural buildings with low energy needs intended for use in agriculture, forestry, aquaculture, fishing, or reindeer husbandry.
6. Buildings with a total useful floor area of 1,000 square metres or less.
7. Buildings that do not require a building permit pursuant to the Planning and Building Act (2010:900).

New heading immediately before Chapter 3, Section 20d and new provision.

New heading for the new provisions Chapter 3, Sections 20d–e, which govern the new technical characteristic requirement. This is necessary because a new technical characteristic requirement is being introduced.

The requirement to calculate and report on buildings' release of greenhouse gas emissions into the atmosphere is limited to the construction of new buildings, but it does not apply to all types of buildings. The starting point is that the same exemptions shall apply as those for energy performance certificates. Here, buildings not requiring a building permit are also generally excluded. The reason for this is described in Section 4.2.1.

From 1 January 2028 until 1 January 2030, a specific exemption under the EPBD applies to buildings with a total useful floor area of 1,000 square metres or less. 'Useful floor area' refers to the temperature-controlled area, net heated area.

Further considerations are given in Section 4.2.1.

Section 20e

Provisions on the calculation and disclosure of life-cycle GWP are set out in Commission Delegated Regulation (EU) 2026/52 of 16 December 2025.

The calculation and disclosure shall cover the mandatory modules set out in Table 2 and the mandatory building elements and technical equipment specified in Chapter 7 of the Delegated Regulation. The disclosure shall be made using the GWP-total indicator and the unit kg CO₂eq/m² gross floor area (GFA).

The coverage ratio for the life-cycle GWP calculation of building elements and technical equipment as set out in the second paragraph shall be at least 90 per cent. If the coverage ratio is less than 100 per cent, the climate impact shall be adjusted upwards so that it represents the building's complete set of building elements and technical equipment as set out in the second paragraph.

New provision.

Detailed rules on the calculation and disclosure of life-cycle GWP are set out in the Commission Delegated Regulation. It is directly binding on the Member States.

With regard to both the life-cycle modules and the building elements to be included in the calculation, Member States have a degree of discretion. This is because the Delegated Regulation provides that certain life-cycle modules and building elements are subject to voluntary requirements. Accordingly, the second paragraph provides that what is not mandatory under the Delegated Regulation shall not be included in the calculations.

The disclosure shall be made using the GWP-total indicator and the unit kg CO₂eq/m² gross floor area (GFA).

The coverage ratio shall be determined in order to calculate the correct value. The meaning of ‘coverage ratio’ is set out in the definition in Chapter 1, Section 3a.

Further considerations are given in Section 5.6.

Chapter 10

Section 3

Boverket may issue the regulations necessary for the application of the provisions concerning:

1. technical characteristic requirement relating to load-bearing capacity, stability and durability set out in Chapter 3, Section 7,
2. technical characteristic requirement relating to safety in the event of a fire set out in Chapter 3, Section 8,
3. technical characteristic requirement relating to protection with respect to hygiene, health, and environment set out in Chapter 3, Section 9,
4. technical characteristic requirement relating to safety in use set out in Chapter 3, Section 10,
5. special safety requirements relating to existing buildings set out in Chapter 3, Sections 11–12a,
6. technical characteristic requirement relating to noise protection set out in Chapter 3, Section 13,
7. technical characteristic requirement relating to energy management and thermal insulation set out in Chapter 3, Sections 14 and 15,
8. technical characteristic requirement relating to suitability for the intended purpose set out in Chapter 3, Section 17,
9. technical characteristic requirement relating to accessibility and usability set out in Chapter 8, Section 4, first paragraph, point 8 of the Planning and Building Act (2010:900) and Chapter 3, Sections 18 and 19,
10. technical characteristic requirement relating to water management set out in Chapter 3, Section 20,
11. technical characteristic requirement relating to waste management set out in Chapter 8, Section 4, first paragraph, point 9 of the Planning and Building Act,
12. technical characteristic requirement relating to broadband connectivity set out in Chapter 3, Section 20a,

- 13. technical characteristic requirement relating to the charging of electric vehicles set out in Chapter 3, Sections 20b and 20c,
- 14. technical characteristic requirement relating to the release of greenhouse gas emissions into the atmosphere set out in Chapter 3, Sections 20d–e, and
- 15. implementation of the technical characteristics requirements at a later date set out in Chapter 3, Section 21.

The provision is amended.

Boverket may issue the regulations necessary for the application of the provisions concerning technical characteristic requirement relating to the release of greenhouse gas emissions into the atmosphere in Chapter 3, Sections 20d–e.

Examples of regulations include stipulating which climate data may be used, as well as more detailed rules on coverage ratio and disclosure.

Entry into force and transitional provisions

- 1. This Ordinance will enter into force on 1 January 2028.
- 2. Older provisions shall continue to apply to cases in which an application for a building permit was received before the entry into force of this Act.

It is proposed that 1 January 2028 be the date of entry into force. This is done to ensure compliance with EU law. The new and amended regulations shall apply to new buildings erected, where an application for a building permit has been received by the building committee on or after 1 January 2028.

Further considerations are given in Chapter 5.

12.8 Proposal for an ordinance amending the Energy Declaration of Buildings Ordinance (2006:1592)

Section 7a

The recommendations provided in an energy performance certificate pursuant to Chapter 9, first paragraph, point 5 of the Energy Declaration of Buildings Act (2006:985) shall be relevant to the building concerned, technically feasible, and include measures relating to the building envelope or technical building systems, whether or not carried out in conjunction with alteration or refurbishment. The energy performance certificate shall include information on where further information on the recommended measures can be found, what is required to implement them, and how the cost effectiveness of the recommendations has been calculated.

The provision is amended.

As Section 9, first paragraph, point 4 of the Energy Declaration of Buildings Act (2006:985) is renumbered as Section 9, first paragraph, point 5, the reference in Section 7a needs to be amended.

Section 15

Where Boverket selects or process personal data on behalf of a third party for the purposes of direct marketing, personal identity numbers, property unit designation, building designation, address, a building's energy performance, reference values, a building's release of greenhouse gas emissions into the atmosphere, or radon measurement data contained in the Energy Declaration Register may not be processed.

The provision is amended.

As information on a building's release of greenhouse gas emissions into the atmosphere is to be included in the energy performance certificate, Boverket proposes that this information must not be processed on behalf of any other party for the purposes of direct marketing.

Section 18

In respect of a building for which an energy performance certificate has been issued, Boverket shall make the following information from the Energy Declaration Register available on its website:

1. information on the building's energy performance;
2. information as to whether a mandatory inspection of the ventilation system under Chapter 8, Section 25 of the Planning and Building Act (2010:900) has been carried out;
3. information as to whether radon measurements have been carried out;
4. information on the building's release of greenhouse gas emissions into the atmosphere; and
5. the identification number of the energy performance certificate and information on where it is available.

The provision is amended.

As information on a building's release of greenhouse gas emissions into the atmosphere is to be included in the energy performance certificate, Boverket proposes that this information shall be made available on its website.

12.9 Proposal for an ordinance amending the Planning and Building Ordinance (2011:338)

Chapter 1

Section 3a

For the purposes of this Ordinance:

gross floor area means the aggregate area of all storeys, measured to the outside of the enclosing building elements.

energy performance means the amount of delivered energy required for heating, cooling, ventilation, hot water and lighting under normal use of a building, excluding energy from solar radiation, wind, ground, air or water generated and used in the building or on its site;

GWP-GHG: an indicator that includes the combined effect of greenhouse gas emissions but excludes the removals and emissions of biogenic carbon dioxide.

GWP-total means an indicator of total climate impact, being the sum of GWP-fossil, GWP-biogenic and GWP-luluc,

building envelope means a building element comprising one or more layers that isolates the interior of a building from the outside world in terms of factors such as temperature, noise, and humidity;

life-cycle GWP: an indicator that quantifies a building's contribution to global warming potential over its entire life cycle,

primary energy means energy that has not undergone any conversion,

building automation and control system means a system that is interoperable with connected technical building systems and appliances in the building and comprises all products, software and engineering services that can support the energy-efficient, economical and safe operation of the building's technical building systems through automatic controls and by facilitating the manual management of those systems, and that continuously monitors, records, analyses and enables the adjustment of energy use, establishes benchmarks for energy efficiency, detects efficiency losses, provides information on opportunities for improving energy efficiency, and enables communication, and

Coverage ratio: indicates how much of a building's climate impact has been calculated using actual data on the quantity of building elements and technical equipment, multiplied by climate data.

The provision is amended.

In the definitions paragraph, a definition is added, GWP-GHG.

Further considerations are given in Chapter 4.

Chapter 3

Section 20d

The following types of buildings are exempt from the obligation to calculate and disclose the building's release of greenhouse gas emissions into the atmosphere and to not exceed the limit value:

1. Buildings used primarily as places of worship or for other religious activities.
2. Buildings used for industrial or workshop purposes.
3. Residential buildings that are used or intended for use
 - b) for less than four months per year, or
 - e) for a limited part of the year, provided that the estimated energy use is less than 25 per cent of year-round use.
4. Temporary buildings intended to be used for no more than two years.
5. Agricultural buildings with low energy needs intended for use in agriculture, forestry, aquaculture, fishing, or reindeer husbandry.
6. Buildings with a total useful floor area of less than 50 square metres.
7. Buildings that do not require a building permit pursuant to the Planning and Building Act (2010:900).

The provision is amended.

The requirement to calculate and report on buildings' release of greenhouse gas emissions into the atmosphere is limited to the construction of new buildings, but it does not apply to all types of buildings. The starting point is that the same exemptions shall apply as those for energy performance certificates. Here, buildings not requiring a building permit are generally excluded. The reason for this is described in Section 4.2.1.

From 1 January 2030, the exemption for buildings with a total useful floor area of 1,000 square metres or less will no longer apply. Instead, the exemption will apply to buildings with a total useful floor area of less than 50 square metres. 'Useful floor area' refers to the temperature-controlled area, net heated area.

Further considerations are given in Section 4.2.1.

Section 20f

The limit value for the building's release of greenhouse gas emissions into the atmosphere shall cover greenhouse gas emissions from Module A1 (raw material supply), Module A2 (transport), Module A3 (manufacturing), Module A4 (transport), and Module A5 (construction and installation process). The disclosure shall be made using the GWP-GHG indicator and the unit kg CO₂eq/m² gross floor area.

The limit value for the building's release of greenhouse gas emissions into the atmosphere shall not include ground reinforcement and technical equipment for the generation and storage of renewable electricity on the building or its plot.

The building's release of greenhouse gas emissions into the atmosphere shall not exceed the following limit values, expressed in kg CO₂eq/m² gross floor area.

The limit value relates to the GWP-GHG indicator and is expressed in the unit kg CO₂eq/m² gross floor area.

Single-family houses with a useful floor area of 130 square metres or more: 130.

Single-family houses with a useful floor area of less than 130 square metres: 150.

Multi-dwelling blocks: 235.

Office buildings, primary healthcare centre buildings, preschool buildings, school and university buildings, excluding laboratory facilities: 250.

Accommodation buildings: 240.

Industrial buildings for logistics and trade with a useful floor area exceeding 1,000 square metres: 190.

Indoor swimming pool: 455.

Shelters: 1,500 (for the part constituting the shelter).

Other buildings: 295.

For a building with multiple uses, the limit value shall be calculated by weighting the relevant limit values in proportion to the gross floor area.

New provision.

EU law requires the introduction of limit values from 2030 in Member States. However, under EU law, the limit may cover fewer modules and fewer components associated with the building. This possibility to limit the system boundary of the limit value is exercised in the rule. The limit value is restricted to the construction stage (Modules A1–A5) and does not include ground reinforcement and technical equipment for the generation and storage of renewable electricity on the building or its plot. As the limit value only covers the construction stage, GWP-total cannot be used as the indicator. Instead, disclosure in relation to the limit value shall be made using the GWP-GHG indicator.

The provision also specifies the limit values applicable to the different building categories. If a building is to include a number of uses, the limit value needs to be defined on the basis of the area of the different uses. The limit value shall be weighted in proportion to the gross floor area.

Chapter 9, Section 105 of the PBL provides that the building permit decision shall specify the limit value applicable to the building in question.

Further details can be found in Section 6.3.

Section 20g

Notwithstanding Section 20f, the building committee shall decide that a higher limit value applies to an individual building if the developer so requests and special circumstances make a higher limit value necessary. The developer shall demonstrate that such special circumstances exist.

Special circumstances include:

- Buildings subject to planning provisions that significantly increase greenhouse gas emissions.
- Buildings with critical societal functions and high security requirements.
- Buildings with exceptionally high ceiling heights and long spans.
- Buildings constructed on deck structures or predominantly below ground.
- Buildings with other similar circumstances.

New provision.

There are situations involving individual buildings where it is not reasonable to apply the limit values that automatically follow from the building category under Section 20f. This provision therefore makes it possible, in individual cases, to obtain a higher limit value where there are climate-driving conditions, referred to as special circumstances. The provision specifies four specific special circumstances. However, these four specific special circumstances do not constitute an exhaustive list, as the final indent also includes a general reference to other similar circumstances.

The developer shall demonstrate that a special circumstance exists which makes a higher limit value necessary.

Boverket is granted the right to issue regulations defining what is meant by the different special circumstances. This is intended to facilitate the building committee's assessment under Chapter 9, Section 105a of the PBL.

Further considerations are given in Section 6.3.2.

Chapter 9

Section 26a

Where the disclosed value for the building's release of greenhouse gas emissions into the atmosphere exceeds the limit value specified in Chapter 3, Section 20f, the construction sanction fee shall be 0.5 price base amounts, plus an additional 0.002 price base amount per square metre of the building's total gross floor area.

If the building committee finds that the developer has incorrectly disclosed a value for the building's release of greenhouse gas emissions into the atmosphere below the limit value specified in Chapter 3, Section 20f, and that the developer reasonably ought to have realised that the disclosed value was incorrect, the construction sanction fee shall instead be 0.5 price base amount, plus an additional 0.004 price base amount per square metre of the building's total gross floor area.

New provision.

A specific sanction is required in connection with the provision requiring that the limit value must not be exceeded. The provision addresses two different situations. The first (first paragraph) concerns cases where the disclosed value for a building's greenhouse gas emissions exceeds the applicable limit value. The second (second paragraph) concerns cases where the disclosed value does not exceed the limit value, but the information provided is incorrect, the limit value has in fact been exceeded, and the developer ought to have realised this.

Generally speaking, sanctions can in some cases be used as a means of exerting pressure to persuade a party for instance to take action. By way of example, the organisation may have emitted excess nitrogen oxides during the year, and the sanction is then a means of exerting pressure to ensure that the organisation in question does not continue along this path in future. Another example is where the newly erected building has too high radon level in the indoor air, but the radon level in the building is reduced by exerting pressure.

This case does not involve a means of exerting pressure. Instead, the ‘damage’ has already been done: in other words, the building’s release of greenhouse gas emissions into the atmosphere was too big up to the time the building was erected. In this case, a construction sanction fee is a proportionate sanction. These are regulations that can be viewed as being of a penal nature. Two different sanction fees may not be imposed for the same matter. That is to say, there must not be ‘double punishment’ for the same thing (*ne bis in idem*).

Chapter 11, Sections 51–66 of the PBL contain provisions on construction sanction fees. Chapter 11, Section 53 contains provisions on when the fee does not need to be imposed. Chapter 11, Section 53a contains provisions on when the fee can be reduced. Under Chapter 11, Section 52 of the PBL, the construction sanction fee may not exceed 50 price base amounts in accordance with Chapter 2, Sections 6 and 7 of the Social Insurance Code. In 2026, the price base amount is SEK 59,200. This means that the maximum sanction fee is SEK 2,960,000. Before deciding to impose a construction sanction fee, the supervising authority shall give the developer an opportunity to give an opinion. This follows from Chapter 11, Section 58 of the PBL.

It is up to the building committee to demonstrate that the conditions for imposing a sanction fee have been met. Legal certainty related to the sanction fee is key. Decisions on sanction fees can be appealed.

Further considerations are given in Section 8.1.4.

Chapter 10

Section 3

Boverket may issue the regulations necessary for the application of the provisions concerning:

1. technical characteristic requirement relating to load-bearing capacity, stability and durability set out in Chapter 3, Section 7,
2. technical characteristic requirement relating to safety in the event of a fire set out in Chapter 3, Section 8,
3. technical characteristic requirement relating to protection with respect to hygiene, health, and environment set out in Chapter 3, Section 9,
4. technical characteristic requirement relating to safety in use set out in Chapter 3, Section 10,

5. special safety requirements relating to existing buildings set out in Chapter 3, Sections 11–12a,
6. technical characteristic requirement relating to noise protection set out in Chapter 3, Section 13,
7. technical characteristic requirement relating to energy management and thermal insulation set out in Chapter 3, Sections 14 and 15,
8. technical characteristic requirement relating to suitability for the intended purpose set out in Chapter 3, Section 17,
9. technical characteristic requirement relating to accessibility and usability set out in Chapter 8, Section 4, first paragraph, point 8 of the Planning and Building Act (2010:900) and Chapter 3, Sections 18 and 19,
10. technical characteristic requirement relating to water management set out in Chapter 3, Section 20,
11. technical characteristic requirement relating to waste management set out in Chapter 8, Section 4, first paragraph, point 9 of the Planning and Building Act,
12. technical characteristic requirement relating to broadband connectivity set out in Chapter 3, Section 20a,
13. technical characteristic requirement relating to the charging of electric vehicles set out in Chapter 3, Sections 20b and 20c,
14. technical characteristic requirement relating to the release of greenhouse gas emissions into the atmosphere set out in Chapter 3, Sections 20d–g, and
15. implementation of the technical characteristic requirement at a later date set out in Chapter 3, Section 21.

The provision is amended.

Boverket may issue the regulations necessary for the application of the provisions concerning technical characteristic requirement relating to the release of greenhouse gas emissions into the atmosphere, including with respect to Chapter 3, Sections 20f–g.

Examples of regulations include stipulating which climate data may be used, as well as more detailed rules on coverage ratio and disclosure and on special circumstances to obtain a higher limit value.

Entry into force and transitional provisions

1. This Ordinance will enter into force on 1 January 2030.
2. Older provisions shall continue to apply to cases in which an application for a building permit was received before the entry into force of this Act.

It is proposed that 1 January 2030 be the date of entry into force. This is done to ensure compliance with EU law. The new and amended regulations shall apply to new buildings erected, where an application for a building permit has been received by the building committee on or after 1 January 2030.

Further considerations are given in Chapter 5.

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