Peer reviewed paper

„EU Taxonomy on sustainable economic activities – preliminary assessment of the implications for corporate energy efficiency investments“

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Bettina Dorendorf, Senior Sustainability Manager
Bettina.dorendorf@kfw.de
+49-30-20264 3277

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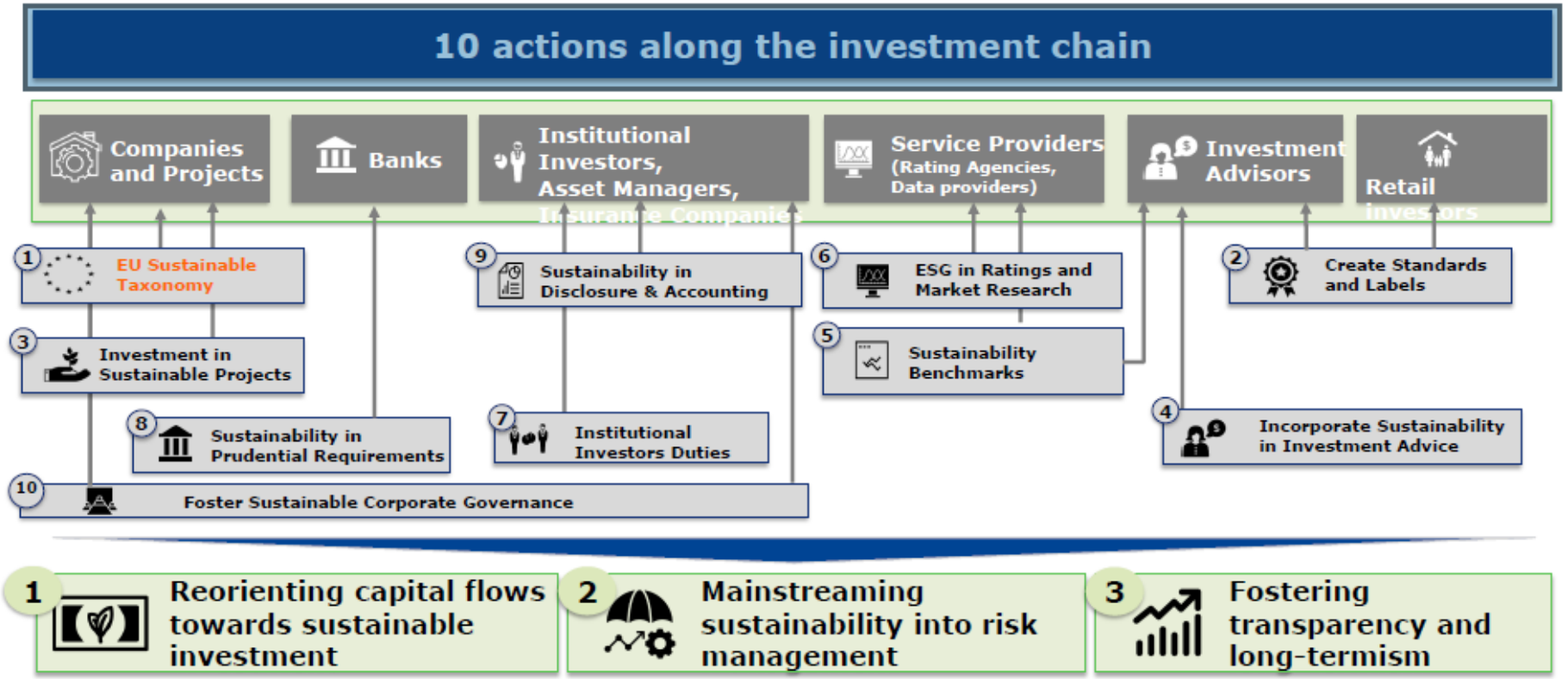
EU Taxonomy on sustainable economic activities

Agenda

1. Short introduction to the legal framework and structure of the EU Taxonomy
2. New reporting requirements
3. Inplications challenges for corporate efficiency investments – practical example
   - based on the technical screening criteria for energy efficiency improvement of a non-residential building
4. Summary and conclusions

EU Taxonomie – political context

EU Action Plan on Financing Sustainable Growth



Source: European Commission

EU Taxonomy for sustainable economic activities

Introduction

1. What will the EU Taxonomy deliver

- **Classification system** for ecologically **sustainable economic activities**
- based on a complex catalogue of **scientific evidenced based criteria**

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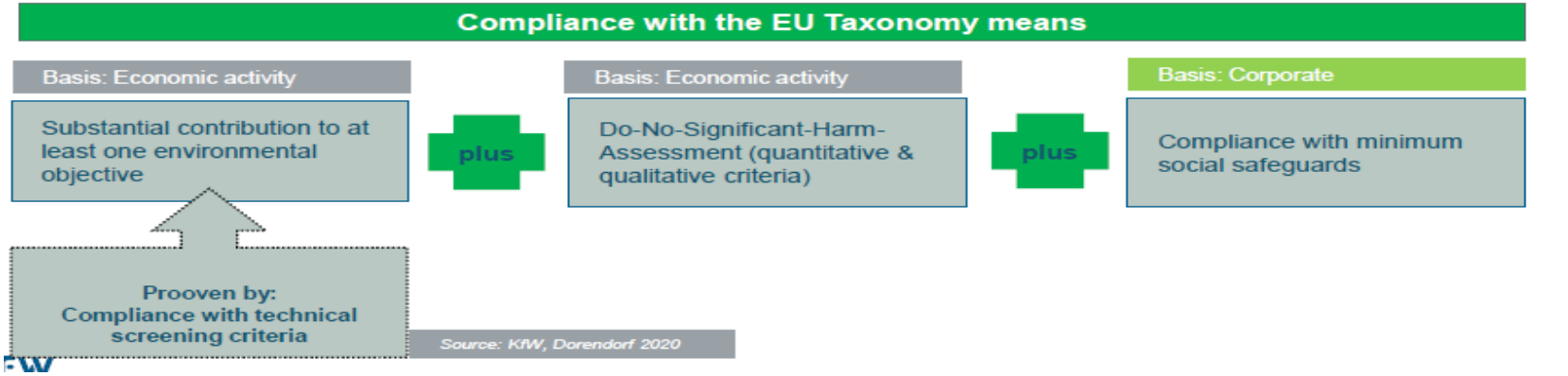
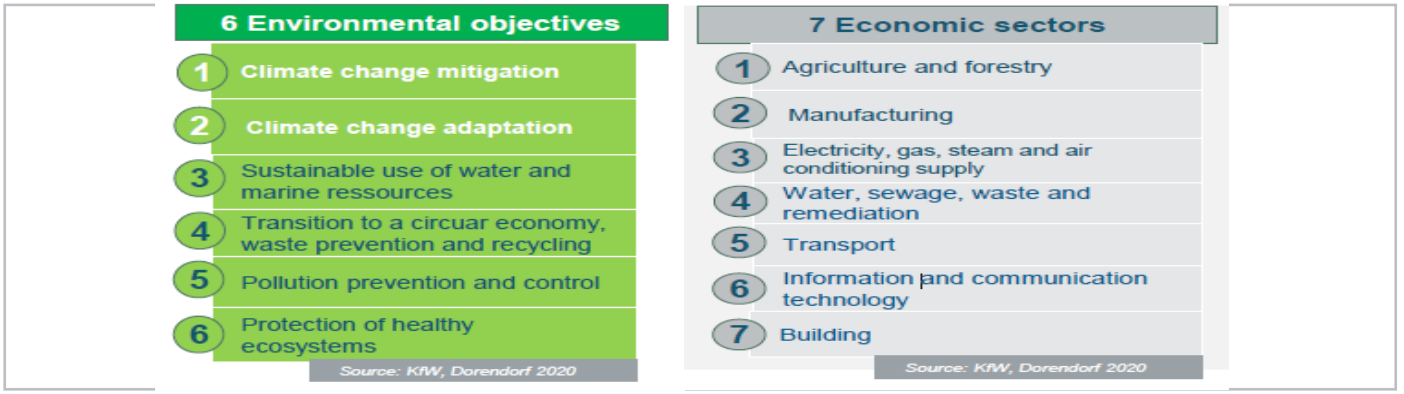
Political background:
HLEG-Report -> EU Action Plan March /2018
- **Need to increase investment flow into green assets**
- **Need for transparency for investors / prevent green washing**

2. What is the structure of the EU Taxonomy





EU Taxonomy for sustainable economic activities

Introduction

3. How does the EU Taxonomy work?

Step 1

Negotiation of the Taxonomy Regulation - the legal framework (in force since 12 July 2020)

- Defining **six environmental objectives** to which an economic activity has to contribute in order to qualify as ecologically sustainable.

REGULATION (EU) 2020/852 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2020 on the establishment of a framework to facilitate sustainable -
(short: „Taxonomy Regulation“) **Regulation - 22.6.2020 publication in Official Journal of the EU**

Step 2

Regulation defines the **conditions which have to be met (plus** scope of reach and new reporting reuirements)

Step 3

Technical Expert Group (TEG) is mandated by the European Commission: development of **technical screening criteria (core of the EU taxonomy)**

***Status quo*:** The TEG has developed **technical screening critetia** (measurement procedures and thresholds and/or qualitative criteria for **70 economic activities covering 7 sectors for the first two environmental objectives (1) Climate change mitigation, (2) Climate change adaptation** and has suggested criteria for the **DNSH-assessment**

Step 4

The **European Commission** undertakes a **review** /makes changes and finally the technical screening criteria enter into force via a **Delegated Ac**t (procedure defined in the Taxonomy Regulation) (application starting 31.12.2021).

Step 5

The **Platform on Sustainable Finance (successor of the TEG)** will determine relevant economic activities and develop technical screening criteria for the environmental objectives 3-6; after submission to and approval by the European Commission, they will enter into force by a second Delegated Act scheduled for Ende of 2021.

The EU Taxonomy for sustainable economic activities

4. The Taxonomy Regulation will have a long term relevance for the corporate and financial sector

1. Reasons

- ✓ **Introduction of new disclosure and reporting requirements**

  a. Financial market participants
  b. Large corporate entities

- ✓ **Mandatory reference for future EU legislation as well as all Member States of the EU** in relation to regulatory projects for financial products w/sustainable character

- ✓ **Cross-sectoral reference for the proof/determination of environmental sustainability** of economic activities based on scientific evidence.

2. Target groups

EU KOM and MS der EU

- ✓ Consideration of the taxonomy criteria in **future regulation** for financial products with ecological character

- ✓ **Today serving as a soft reference,** in the future potentially hard criteria for the provision **of European promotional funds** (InvestEU already relates to the EU Taxonomy

Financial marktet participants

Fund managers, portfolio managers, pension funds etc :

- ✓ **Disclosure obligation for investment products offered by them which are labelled as sustainable; disclosure of the dégree of compliance with taxonomy criteria** (in case not taken into account: declaration to be published accordingly), (Article 5, 6, 7)

Large corporates KfW

- ✓ **Transparency in non-financial reporting of large corporated (more than 500 employees – includes banks, insurance companies…**

- ✓ „(…) how and to what extent the undertaking's activities are associated with environmentally sustainable economic activities as set out in Article 3 and Article 5. .(…)", (Art. 4 delta, transparency of undertakings in non-financial statements)

3. Data / information providers

Almost all actors of the real economy are affected: cross-sectoral need to produce and deliver comprehensive and specific data to proof the degree of ecological sustainability and/ or proof /explain the degree of compliance with the taxonomy criteria.

Example: entity providing a „green" investment, for example **energy efficiency fund**: for each of the projects or corporate investments financed , the degree of compliance of the taxonomy criteria has to be determined
Example of a large corporate: it has to analyse, to which of the envíronmental objectives it contributes and determine to which degree the taxonomy criteria are complied with (basis: turnover, capex, opex; comply or explain basis)

4. Where does the market stand today?

- ✓ **At the very beginning -** constitutes a challenge in light of the short time horizon until first I year of reporting 2022 (basis: financial year 2021)

EU Taxonomy - challenges for energy efficiency investments

Example: Renovation of a commercial building - substantial contribution to envirinmental objective 1 „Climate Change Mitigation“

Metrics and Thresholds Choice between:	Building Renovation Requirements proving substantial contribution to Climate change mitigation	Assessment
(a) **Compliance with existing buildings regulation**	• **Major renovations:** comply with the requirements set national regulations transposing the Energy Performance of Buildings Directive (EPBD). • The energy performance of buildings or the up-graded part must meet cost-optimal minimum performance requirements in accordance with the EPBD.	✓ No changes to existing requirements for comprehensive refurbishments.
(b) **Relative improvement of Primary Energy Demand**	• Building renovation: at least **30% reduction of Primary Energy Demand** in comparison with the energy performance before renovation. This relates not of the entire building, but to the specific renovation measure. • The initial energy performance and estimated improvement shall be based on an energy performance certificate, an energy audit conducted by an accredited expert or another transparent method.	✓ The option of a relative reduction of PED provides **flexibility to investors**, as the measures can be concluded within **three years.**

[1] Energy Performance of Buildings Directive
[2] Technical Expert Group on Sustainable Finance. Taxonomy Report: Technical Annex. Up-dated Methodology Up-dated Technical Screening Criteria. March2020, p. 380
[3] Technical Expert Group on Sustainable Finance. Taxonomy Report: Technical Annex. Up-dated Methodology Up-dated Technical Screening Criteria. March2020, p. 380 (footnote no. 429)

EU Taxonomy - challenges for energy efficiency investments

Example: renovation of a commercial building – do no significant harm assessment

Objective 2	Climate Change Adaptation	Implications for corporate energy efficiency investors
Level of ambition	• **Climate risk assessment**, risk mitigation measure to be **implemented within 5 years** • The level of ambition is set on a "**best efforts basis**".	✓ **Increased complexity** of the investment/planning process. ✓ **Additional cost.** ✓ Best efforts basis leaves room for flexibility.

Objective 3	Sustainable use and protection of water and marine resources	Implications for corporate energy efficiency investors
Level of ambition	• **New water appliances** must be in the **top 2 classes** for water consumption of the **EU Water Label**.	✓ Voluntary **EU Water Label** currently applied by approx. 60% of manufacturers. ✓ **Potential barrier** in the first period of application of the taxonomy. ✓ **Likely increase of the investment cost**.

Objective 4	Transition to a circular economy, waste prevention and recycling	Implications for corporate energy efficiency investors
Level of ambition	• At least **80% (by weight) of the non-hazardous construction** and **demolition waste generated on the construction site must be prepared for re-use or sent for recycling** or other material recovery, including backfilling operations that use waste	✓ **Larger construction sites**: separating construction waste according to type of material is **market practice.** ✓ **Difficult for smaller projects**; Increase of complexity and cost.

EU Taxonomy - challenges for energy efficiency investments

Example: renovation of a commercial building – do no significant harm assessment

Objective 5	Pollution prevention and control	Implications for corporate energy efficiency investors
Level of ambition	• Components and materials must **not contain asbestos and substances of concern** included in the "Authorisation List of the Reach Regulation" (1970/2006, 18.12.2006). • **Prior to renovation, a building survey must be carried out in accordance with national legislation** by a **competent specialist with** training in asbestos.	✓ Building survey**: increase of complexity** to the investment process triggering additional costs. ✓ **Availability of qualified experts** in the different European regions might be challenging.
Level of ambition	• In addition, **non-road mobile machinery** used on construction site must comply with the Regulation on pollutant emissions **(EU 2016/1628).** • This regulation defines strict emission limits for different power ranges and applications.	✓ The requirement to use only low emitting machinery on site will most probably **complicate the organisation of the investment measure**, narrow the choice of construction companies to be involved and lead to increased cost.

Objective 6	Protection of healthy ecosystems	Implications for corporate energy efficiency investors
Level of ambition	• At least **80% of the timber products** used in the renovation for structures, cladding and finishes must stem from **either recycled or sourced from sustainably managed forests sources,** • The latter **certified** by third party certification audits performed by accredited certification bodies, e.g. FSC/PEFC standards or equivalent.	✓ Compliance is **particularly difficult**. ✓ Global trade flows of timber complicates certainty as to the type of forest where the timber was produced.. ✓ **Providing the required certification triggers additional cost** for sourcing the material and obtain the required certificate.

EU Taxonomy

Summary and conclusions

- ✓ **First European standard** defining sustainability based on scientific evidence and transparent orientation for investors
- ✓ **Long term and cross-cutting impact** for European corporate and financial ecosystem
- ✓ **High level of ambition** and high degree of complexity
- ✓ **Do-No-Significant-Harm-Criteria („DNSH“) constitute the largest challenge** adding a high degree of complexity to the EU Taxonomy
- ✓ In many cases, they do **not correspond to current market practice**, although each criteria as such does not seem unfullfillable
- ✓ The **additional cost and effort for investors** seeking to fullfill will be significant - raising the question of the motivation / compensation
- ✓ **Market participants need time** for preparation to deal with the new information / data requirements and establish corresponding processes.

- ✓ **Most questions of operationalisation are still to be worked out**:
  - ✓ **Procedures** for collection and quality **control of data and information** to be delivered
  - ✓ **Entities responsible to assess** completeness and quality of taxonomy-related information

- ✓ **Support required for the corporate sector** – in particular smaller and medium sized companies:
  - ✓ Promotional banks to provide support in terms of information and targeted promotional products
  - ✓ Example: KfW offering 1st European promotional product incentivising investment in taxonomy-compliant projects

Back-up

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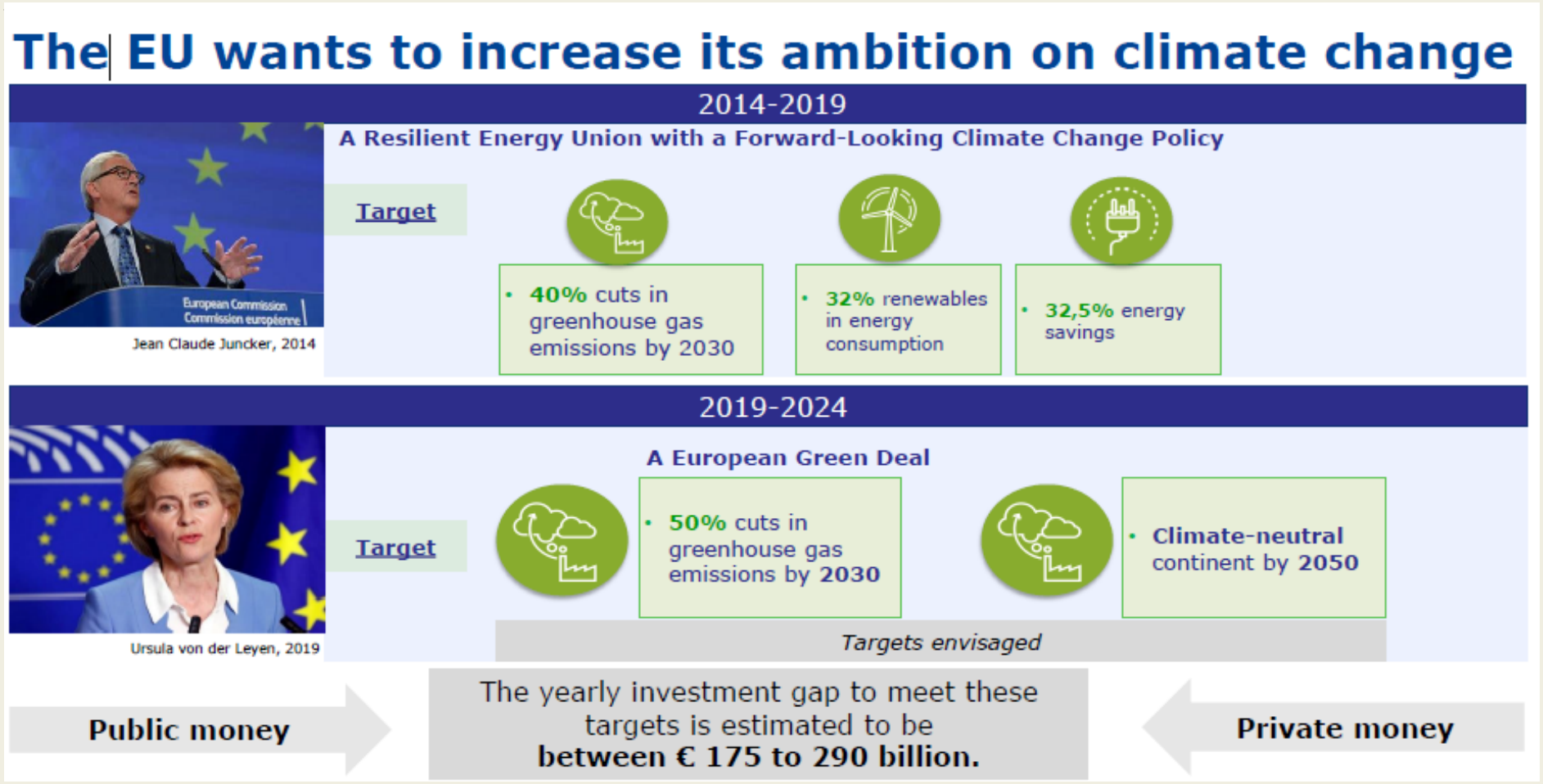
EU Taxonomie – politischer Kontext

Hintergrund



Quelle: Europäische Kommission

Kriterien für den Gebäudesektor

8.1 Construction of new buildings

Sector classification and activity	
Macro-Sector	F – Construction
NACE Level	2
Code	F41, F43
Description	**Construction of new buildings**. This relates to activities under NACE codes F41.1 - Development of building projects and F41.2 - Construction of residential and non-residential buildings.
Mitigation criteria	
Principle	The construction of new buildings designed to minimise energy use and carbon emissions throughout the lifecycle can make a substantial contribution to climate change mitigation by saving large part of the energy and carbon emissions that would be associated with conventionally designed buildings. **Condition for non-eligibility:** to avoid lock-in and undermining the climate mitigation objective, the construction of new buildings designed for the purpose of extraction, storage, transportation or manufacture of fossil fuels is not eligible. **Use of alternative schemes as proxies:** outside EU Member States, established schemes such as 'green building' certifications or building regulations and standards may be used as alternative proof of eligibility, provided that this is verified by the Sustainable Finance Platform. The organisation responsible for the scheme will be able to apply for official recognition of its scheme by presenting evidence that a specific level of certification/regulation can be considered equivalent (or superior) to the taxonomy mitigation and DNSH threshold for the relevant climatic zone and building type. The Sustainable Finance Platform will assess the evidence and approve or reject the application.
Metric and threshold	The metric is Primary Energy Demand (PED), defining the energy performance of a building: the annual primary energy demand associated with regulated energy use during the operational phase of the building life-cycle (i.e. 'module B6' as defined in EN15978), calculated ex-ante according to the national methodologies for asset design assessment, or as defined in the set of standards ISO 52000, expressed as kWh/m² per year. The threshold is based on 'nearly zero-energy building' (NZEB) requirements, which are defined in national regulation implementing the EPBD and are mandatory for all new buildings across EU Member States from 2021. To be eligible, the net primary energy demand of the new construction must be at least 20% lower than the primary energy demand resulting from the relevant NZEB requirements.[418] This reduction can be met through a direct decrease of the primary energy demand via a more efficient design or by offsetting with on-site and off-site renewable generation, or a combination of both strategies. Off-site energy generation must be limited to district heating and cooling systems and local renewable energy sources. [419] The methodology used for the measurement of floor area should be stated referring to the categories defined in the International Property Measurement Standards.[420]
Rationale	
The establishment of a relative threshold in the form of a percentage improvement on NZEB requirements is justified by the fact that from 2021 new constructions will be mandated by national/regional building regulations to comply with NZEB requirements. This implies that the taxonomy must require better levels of performance than NZEB, or all new constructions would be automatically eligible, which would fail to direct finance towards more sustainable solutions and run the risk of diverting finance from the renovation of existing buildings. Since NZEB requirements correspond to different levels of performance across EU Member States , the use of a percentage improvement, rather than absolute figures, allows a degree of proportionality to be applied: in Member States where NZEB requirements result in a comparatively low PED, the energy reduction necessary to achieve the 20% improvement is smaller than in Member States where NZEB requirements result in a comparatively high primary energy demand.	
Do no significant harm assessment	
The main potential for significant harm to the other environmental objectives associated with the construction of new buildings is determined by: • Lack of resistance to extreme weather events (including flooding), and lack of resilience to future temperature increases in terms of internal comfort conditions. • Excessive water consumption due to inefficient water appliances. • Landfill and/or incineration of construction and demolition waste that could be otherwise recycled/reused. • Presence of asbestos and/or substances of very high concern in the building materials. • Presence of hazardous contaminants in the soil of the building site. • Inappropriate building location: impacts on ecosystems if built on greenfield and especially if in a conservation area or high biodiversity value area. • Indirect damage to forest ecosystems due to the use of timber products originating form forests that are not sustainably managed.	
(2) Adaptation	Refer to the screening criteria for DNSH to climate change adaptation.
(3) Water	All relevant water appliances (shower solutions, mixer showers, shower outlets, taps, WC suites, WC bowls and flushing cisterns, urinal bowls and flushing

	cisterns, bathtubs) must be in the top 2 classes for water consumption of the EU Water Label.[421]
(4) Circular Economy	At least 80% (by weight) of the non-hazardous construction and demolition waste (excluding naturally occurring material defined in category 17 05 04 in the EU waste list[422]) generated on the construction site must be prepared for re-use or sent for recycling or other material recovery, including backfilling operations that use waste to substitute other materials.[423]
(5) Pollution	5.a - It is ensured that building components and materials do not contain asbestos nor substances of very high concern as identified on the basis of the "Authorisation List" of the REACH Regulation.[424] 5.b – If the new construction is located on a potentially contaminated site (brownfield site), the site must be subject to an investigation for potential contaminants, for example using standard BS 10175.[425] 5.c – Non-road mobile machinery used on the construction site should comply with the requirements of the NRMM Directive.
(6) Ecosystems	6.a - The new construction must not be built on protected natural areas, such as land designated as Natura 2000, UNESCO World Heritage and Key Biodiversity Areas (KBAs), or equivalent outside the EU as defined by UNESCO and / or the International Union for Conservation of Nature (IUCN) under the following categories: • Category Ia: Strict Nature Reserve • Category Ib: Wilderness Area • Category II: National Park Buildings that are associated supporting infrastructure to the protected natural area, such as visitor centres, museums or technical facilities are exempted from this criterion. 6.b - The new construction must not be built on arable or greenfield land of recognised high biodiversity value and land that serves as habitat of endangered

	species (flora and fauna) listed on the European Red List and / or the IUCN Red List. 6.c - At least 80% of all timber products used in the new construction for structures, cladding and finishes[426] must have been either recycled/reused or sourced from sustainably managed forests as certified by third-party certification audits performed by accredited certification bodies, e.g. FSC/PEFC standards or equivalent.[427]

EU Taxonomie

Gebäudekriterien

8.2 Building renovation

Sector classification and activity	
Macro-Sector	F – Construction
NACE Level	2
Code	F41, F43
Description	**Building renovation:** this relates to activities under NACE codes F41.2 - Construction of residential and non-residential buildings and F43 - Specialised construction activities.
Mitigation criteria	
Principle	The renovation of existing buildings to improve their energy performance makes a substantial contribution to climate change mitigation by reducing energy consumption and GHG emissions for the remaining operational phase of the buildings, and by avoiding emissions that would be associated with the construction of new buildings. **Condition for non-eligibility:** to avoid lock-in and undermining the climate mitigation objective, the renovation of buildings occupied for the purpose of extraction, storage, transportation or manufacture of fossil fuels is not eligible. **Use of alternative schemes as proxies:** outside EU Member States, established schemes such as "green building" certifications or building regulations and standards may be used as alternative proof of eligibility, provided that this is verified by the Sustainable Finance Platform. The organisation responsible for the scheme will be able to apply for official recognition of its scheme by presenting evidence that a specific level of certification/regulation can be considered equivalent (or superior) to the taxonomy mitigation and DNSH threshold for the relevant climatic zone and building type. The Sustainable Finance Platform will assess the evidence and approve or reject the application.
Metric and thresholds	The thresholds used to assess the renovation rely on either the respective metrics set in the applicable building energy performance regulation for 'major renovation' transposing the EPBD, or, in the case of relative improvement, on Primary Energy Demand (PED) defined as follows: the annual primary energy demand associated with regulated energy use during the operational phase of the building life-cycle (i.e. 'module B6' according to EN15978), calculated ex-ante according to the national methodologies for asset design assessment, or as defined in the set of standards ISO 52000, expressed as kWh/m² per year. A renovation is eligible when it meets either one of the following thresholds:

	a) **Major renovation**[428]: the renovation is compliant with the requirements set in the applicable building regulations for 'major renovation' transposing the Energy Performance of Buildings Directive (EPBD). The energy performance of the building or the renovated part upgraded must meet cost-optimal minimum energy performance requirements in accordance with the EPBD. b) **Relative improvement**: the renovation leads to reduction of Primary Energy Demand of at least 30% in comparison to the energy performance of the building before the renovation.[429] The initial energy performance and the estimated improvement shall be based on a specialised building survey and validated by an Energy Performance Certificate, an energy audit conducted by an accredited independent expert or any other transparent and proportionate method. The methodology used for the measurement of floor area should be stated referring to the categories defined in the International Property Measurement Standards.[430]
Rationale	
The choice of a threshold based on the minimum energy performance requirements to be met by buildings undergoing 'major renovation' is strongly affected by the necessity of substantially increasing the annual rates of renovations that include energy-efficiency measures. Such requirements are established in EU Member States at national or regional level in building regulations implementing the EPBD and are based on calculations of cost-optimality. Access to advantageous financing conditions is meant to incentivise homeowners and businesses to undertake a renovation that includes energy efficiency measures. The threshold for 'relative improvement' is given as alternative to allow the eligibility of renovations that may not meet the 'major renovation' requirements but still deliver considerable energy savings, as well as to provide a threshold that is easily applicable outside EU Member States. Since the focus of the criteria is the renovation project and not the building in itself, any renovation can be eligible, independently from the absolute performance of the building as long as it meets either one of the two thresholds.	
Do no significant harm assessment	

428 'major renovation' means the renovation of a building where:

(a) the total cost of the renovation relating to the building envelope or the technical building systems is higher than 25 % of the value of the building, excluding the value of the land upon which the building is situated; or

(b) more than 25 % of the surface of the building envelope undergoes renovation;

Member States may choose to apply option (a) or (b)

429 The 30% improvement must result from an actual reduction in primary energy demand (i.e. reductions in net primary energy demand through renewable energy sources do not count), and can be achieved through a succession of measures within a maximum of 3 years

430 International Property Measurement Standards (IPMS): https://ipmsc.org/

EU Taxonomie

Gebäudekriterien

The main potential for significant harm to the other environmental objectives associated with the renovation of existing buildings is determined by: • Lack of resistance to extreme weather events (including flooding), and lack of resilience of to future temperature increases in terms of internal comfort conditions (only for large buildings). • Excessive water consumption due to inefficient water appliances. • Landfill and/or incineration of construction and demolition waste that could be otherwise recycled/reused. • Presence of asbestos and/or substances of very high concern in the building materials. • The unprotected handling of building components that are likely to contain substances of concern (e.g. asbestos containing materials) and of any hazardous construction and demolition waste arising from the building renovation; • Indirect damage to forest ecosystems due to the use of timber products originating form forests that are not sustainably managed (only for large buildings).	
(2) Adaptation	Refer to the screening criteria for DNSH to climate change adaptation.
(3) Water	All relevant new water appliances (shower solutions, mixer showers, shower outlets, taps, WC suites, WC bowls and flushing cisterns, urinal bowls and flushing cisterns, bathtubs) must be in the top 2 classes for water consumption of the EU Water Label.[431]
(4) Circular Economy	At least 80% (by weight) of the non-hazardous construction and demolition waste (excluding naturally occurring material defined in category 17 05 04 in the EU waste list[432]) generated on the construction site must be prepared for re-use or sent for recycling or other material recovery, including backfilling operations that use waste to substitute other materials.[433]
(5) Pollution	5.a - It is ensured that building components and materials do not contain asbestos nor substances of very high concern as identified on the basis of the "Authorisation List" of the REACH Regulation.[434] 5.b - Before starting the renovation work, a building survey must be carried out in accordance with national legislation by a competent specialist with training in asbestos surveying and in identification of other materials containing substances of concern. Any stripping of lagging that contains or is likely to contain asbestos, breaking or mechanical drilling or screwing and/or removal of insulation board, tiles and other asbestos containing materials shall be carried out by appropriately trained personnel, with health monitoring before, during and after the works, in accordance with national legislation. 5.c – Non-road mobile machinery used on the construction site should comply with the requirements of the NRMM Directive.
(6) Ecosystems	At least 80% of all timber products used in the renovation for structures, cladding and finishes must have been either recycled/reused or sourced from sustainably managed forests as certified by third-party certification audits performed by accredited certification bodies, e.g. FSC/PEFC standards or equivalent.[435]

431 (http://www.europeanwaterlabel.eu/) Outside the EU, relevant water appliances will need to meet the flow rates identified by the EU Water Label as threshold for the top 2 classes of water consumption. Details on flow rates and testing method: http://www.europeanwaterlabel.eu/pdf/scheme-march2019-en.pdf

432 Commission Decision of 3 May 2000 replacing Decision 94/3/EC (2000/532/EC)

433 This requirement is achieved by executing the construction works in line with the good practice guidance laid down in the EU Construction and Demolition Waste Management Protocol.

434 Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

EU Taxonomie
Gebäudekriterien

8.3 Individual measures and professional services

Sector classification and activity	
Macro-Sector	F – Construction
NACE Level	2
Code	F41, F43
Description	**Individual measures and professional services.** This relates to activities under NACE codes F43 - Specialised construction activities and M – Professional, scientific and technical activities.
Mitigation criteria	
Principle	Individual measures make a contribution to climate change mitigation by reducing energy use and carbon emissions for the operational phase of the building. Professional services are a necessary support and validation mechanism, especially for building renovation. The investment linked to the individual measure(s) must be aimed at improving energy performance and/or reduction of carbon emissions. The motivation can be demonstrated through an energy audit, an Energy Performance Certificate (EPC) or any other transparent and proportionate method acceptable by the Sustainable Finance Platform.
Metric and threshold	There are no defined metrics across the individual measures and professional services. The following **individual measures** are eligible if compliant with minimum requirements set for individual components and systems in the applicable national regulations transposing the Energy Performance Building Directive (EPBD), and must meet Ecodesign requirements pursuant to Directive 2009/125/EC: a) Addition of insulation to the existing envelope components, such as external walls, roofs (including green roofs), lofts, basements and ground floors (including measures to ensure air-tightness, measures to reduce the effects of thermal bridges and scaffolding) and products for the application of the insulation to the building envelope (mechanical fixings, adhesive, etc.). b) Replacement of existing windows with new energy efficient windows. c) Replacement of existing external doors with new energy efficient doors. d) Installation and replacement of HVAC and domestic hot water systems, including equipment related to district heating service. e) Replacement of inefficient boiler or stove with highly efficient condensing boiler. The following **individual measures** are eligible if specific requirements are met: f) Replacement of old pumps with efficient circulating pumps (as defined in Art. 2 of EU Regulation 622/2012).

383

	g) Installation of efficient LED lighting appliances and systems. h) Installation of low-flow kitchen and sanitary water fittings in the top two categories of the EU Water Label scheme. The following **individual measures** are always eligible: i) Installation of zoned thermostats, smart thermostat systems and sensoring equipment, e.g. motion and day light control. j) Installation of Building Management Systems (BMS) and Energy Management Systems (EMS). k) Installation of charging stations for electric vehicles. l) Installation of smart meters for gas and electricity. m) Installation of façade and roofing elements with a solar shading or solar control function, including those that support the growing of vegetation. The following **individual measures** are eligible if installed on-site as building services: n) Installation of solar photovoltaic systems (and the ancillary technical equipment). o) Installation of solar hot water panels (and the ancillary technical equipment). p) Installation and upgrade of heat pumps contributing to the targets for renewable energy in heating and cooling in accordance with Directive 2018/2001/EU (and the ancillary technical equipment). q) Installation of wind turbines (and the ancillary technical equipment). r) Installation of solar transpired collectors (and the ancillary technical equipment). s) Installation of thermal or electric energy storage units (and the ancillary technical equipment). t) Installation of High Efficiency Micro CHP (combined heat and power) plant u) Installation of heat exchanger/recovery systems. The following **professional services** are eligible: v) Technical consultations (energy consultants, energy simulation, project management, production of EPC, dedicated training, etc.) linked to the individual measures mentioned above. w) Accredited energy audits and building performance assessments. x) Energy Management Services. y) Energy Performance Contracts. z) Energy Services provided by Energy Service Companies (ESCOs)
Rationale	
Individual measures and professional services have been included as enabling activities contributing to the improvement of the energy performance and the decarbonisation of the buildings	

EU Taxonomie
Gebäudekriterien

stock in its use phase. The list of eligible measures and activities will be periodically updated by the Sustainable Finance Platform.

Requirements for individual measures a) to e) are based on cost-optimal measures defined in the applicable regulation transposing the revised EPBD. As such, they represent feasible levels of improvements within the local context, taking into consideration climate, building stock and market conditions. However, the TEG recognises that these requirements have been determined differently by each Member State, and therefore do not necessarily represent a consistent level of ambition across countries.

Requirements for individual measures f) to h) are based on specific technical criteria, aimed at ensuring that the eligible technologies are highly efficient.

Individual measures i) to m) are always eligible, i.e. there are no technical requirements to be met, because these technologies are dedicated to facilitating energy savings and the use of electricity.

Individual measures n) to u) are eligible as long as they are installed on site, as these technologies are dedicated to renewable energy generation and/or the exploitation of waste energy and heat.

Professional activities v) and w) are eligible as they are necessary for the appropriate assessment of building conditions and potential for energy efficiency. Professional activities x) to z) are eligible as they can help deliver energy savings through efficient building operations.

Do no significant harm assessment

The main potential for significant harm to the other environmental objectives associated with individual measures is determined by:

- Excessive water consumption due to inefficient water appliances.
- The handling of building components that are likely to contain substances of concern (e.g. asbestos containing materials) and of any hazardous construction and demolition waste arising from the building renovation;
- Ensuring the future possibility of reusing and recycling building component and materials through careful selection of components/materials that prioritises recyclable materials and avoids hazardous substances.

(2) Adaptation	Refer to the screening criteria for DNSH to climate change adaptation.
(3) Water	
(4) Circular Economy	

(5) Pollution	5.a - It is ensured that building components and materials do not contain asbestos nor substances of very high concern as identified on the basis of the "Authorisation List" of the REACH Regulation.[436] 5.b - **In case of addition of thermal insulation to the existing building envelope:** a building survey must be carried out in accordance with national legislation by a competent specialist with training in asbestos surveying and in identification of other materials containing substances of concern. Any stripping of lagging that contains or is likely to contain asbestos, breaking or mechanical drilling or screwing and/or removal of insulation board, tiles and other asbestos containing materials shall be carried out by appropriately trained personnel, with health monitoring before, during and after the works, in accordance with national legislation.
(6) Ecosystems	

EU Taxonomie
Gebäudekriterien

8.4 Acquisition and ownership

Sector classification and activity	
Macro-Sector	L – Real Estate activities
NACE Level	2
Code	L68
Description	**Building acquisition and ownership:** this activity relates to NACE code L68 "Real estate activities".
Mitigation criteria	
Principle	The acquisition of buildings designed to minimise energy use and carbon emissions throughout the lifecycle instead of lower-performing ones can make a substantial contribution to climate change mitigation objectives. While specific data on embodied carbon and thus carbon emissions from the full lifecycle is still limited and needs to be further generated, the acquisition of buildings designed to minimise energy use and carbon emissions during the use phase can already make an important contribution by directing users towards high-performing properties and by sending signals to markets about the need to lift the overall energy performance of the whole stock. For large non-residential buildings (i.e. buildings with an effective rated output for heating systems or systems for combined space heating and ventilation of over 290 kW, or buildings with floor area[437] over 1000 m²), an additional requirement is introduced to ensure that these buildings are operated efficiently, and that actual energy and carbon savings are delivered each year. **Condition for non-eligibility:** to avoid lock-in and undermining the climate mitigation objective, the acquisition and ownership of buildings for the purpose of extraction, storage, transportation or manufacture of fossil fuels are not eligible. **Use of alternative schemes as proxies:** outside EU Member States, established schemes such as 'green building' certifications or building regulations may be used as alternative proof of eligibility, provided that this is verified by the Sustainable Finance Platform. The organisation responsible for the scheme will be able to apply for official recognition of its scheme by presenting evidence that a specific level of certification/regulation can be considered equivalent (or superior) to the taxonomy mitigation and DNSH threshold established for the relevant climatic zone and building type. The Sustainable Finance Platform will assess the evidence and approve or reject the application.
Metric and threshold	The metric is Primary Energy Demand (PED): the annual primary energy demand associated with regulated energy use during the operational phase of the building life-cycle (i.e. 'module B6' according to EN15978), calculated ex-ante according to the national methodologies for asset design assessment, or as defined in the set of standards ISO 52000, expressed as kWh/m² per year. **Case A – Acquisition of buildings built before 31 December 2020** The calculated performance of the building must be within the top 15% of the local existing stock in terms of operational Primary Energy Demand, expressed as kWh/m²y. Alignment with this criterion can be demonstrated by providing adequate evidence comparing the performance of the relevant asset to the performance of the local stock built before 31 December 2020. Such evidence should be based on a representative sample of the building stock in the respective area where the building is located, distinguishing at the very least between residential and non-residential buildings. The area can be defined as a city, a region or a country. Certification schemes such as EPCs may be used as evidence of eligibility when adequate data is available to demonstrate that a specific level (e.g. EPC A) clearly falls within the top 15% of the respective local stock. The TEG recognises that more work needs to be done to collect and analyse data in order to define absolute thresholds corresponding to the performance of the top 15% of each local stock, such as data showing the distribution of EPCs across the stock and the thresholds used to define EPC ratings. Large non-residential buildings must meet an additional requirement: efficient building operations must be ensured through dedicated energy management.[438] **Case B – Acquisition of buildings built after 31 December 2020** The building must meet the criteria established for the 'Construction of new buildings' that are relevant at the time of the acquisition. Large non-residential buildings must meet an additional requirement: efficient building operations must be ensured through dedicated energy management.
Rationale	
The acquisition of buildings designed to minimise energy use and carbon emissions throughout the lifecycle instead of lower-performing ones can make a substantial contribution to climate change mitigation objectives by: • creating demand for such buildings; this in turn will stimulate owners to build and renovate buildings to a higher level of performance than they would have done otherwise. • sending a clear signal to the market that the acquisition of such buildings against an ever more stringent legislative background and changing client preferences can help reduce future potential risk and value depreciation. For buildings built after 2020, the same criteria established for the activity 'Construction of new buildings' are applied. Buildings built before 2021 are assessed on the basis of a best in class	

[437] Measured according to the IPSM 1 definition, see https://ipmsc.org/

[438] This can be demonstrated, for example, through the presence of an Energy Performance Contract or an energy management programme supported by a building management system.

approach in each local stock. Rather than attempting to establish absolute thresholds with an incomplete set of data, for the time being the TEG opted for a threshold based on a percentage of the stock, which ensures a level-playing field across different Member States. For now, the corresponding 15% was deemed an appropriate level for the best in class performance, finding a compromise between the need to establish high standards of performance while recognising the need to maintain and create opportunity in the existing market.	
Do no significant harm assessment	
The main potential for significant harm to the other environmental objectives associated with the acquisition of buildings is determined by: • Lack of resistance to extreme weather events (including flooding), and lack of resilience of to future temperature increases in terms of internal comfort conditions. • Excessive water consumption due to inefficient water appliances. • Presence of asbestos and/or substances of very high concern in the building materials. • Presence of hazardous contaminants in the soil of the building site. • Inappropriate building location: impacts on ecosystems if built on greenfield and especially if in a conservation area or high biodiversity value area.	
(2) Adaptation	Refer to the screening criteria for DNSH to climate change adaptation.
(3) Water	
(4) Circular Economy	
(5) Pollution	If the property is located on a potentially contaminated site (brownfield site), the site must be subject to an investigation for potential contaminants, for example using standard BS 10175.[439]
(6) Ecosystems	6.a – The building must not be built on protected natural areas, such as land designated as Natura 2000, UNESCO World Heritage and Key Biodiversity Areas (KBAs), or equivalent outside the EU as defined by UNESCO and / or the International Union for Conservation of Nature (IUCN) under the following categories: • Category Ia: Strict Nature Reserve • Category Ib: Wilderness Area • Category II: National Park

439 BS 10175:2011+A2:2017 - Investigation of potentially contaminated sites. Code of practice.

EU Taxomomie – time schedule